

CATALOGUE 2024

**COMMERCIAL
HVAC
PRODUCT &
SYSTEM
SOLUTIONS**



A Carrier Company

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This catalogue presents the key characteristics and selection data of our products and systems. Detailed technical manuals are available on the professionals section of our website www.ciat.com

COMFORT UNITS

Cassettes - Fan coil units - Ductable units - Diffusers
Comfort unit control

AIR TREATMENT SOLUTIONS

Air handling units - Air heaters - Close control units
Swimming pool dehumidifiers

ROOFTOP AIR-TO-AIR AND OTHER PACKAGE

Rooftop units - Packaged systems - Water-sourced
heat pumps - CIAT system control and supervision
- Air scrubber - Air-cooled condensing units and
packaged units

HEAT PUMPS WATER CHILLERS

Air-cooled units

Water-cooled units

DRY COOLERS - CONDENSERS HEAT EXCHANGERS THERMAL ENERGY STORAGE

Dry Coolers - Condensers - Condensing units - Heat
exchangers



CARRIER



Carrier is the leading global provider of healthy, safe, sustainable and intelligent building and cold chain solutions with a world-class, diverse workforce. From the beginning, we've led in inventing new technologies and entirely new industries. Today, we continue to lead because we keep customers at the center of every product and service we offer and we act quickly to exceed their expectations. Through our performance-driven culture, we are driving shareowner value by growing sales and investing strategically to strengthen our position in the markets we serve.



Creating solutions that matter for people and our planet



Innovation is in our DNA

At Carrier, we have a proud history of pioneering industries through innovation. Our leading world-class brands are the legacy of our founders, who invented technologies to meet real needs, turned them into businesses, and then innovated to lead entire industries.

A Leading Legacy

Carrier was built on a legacy of innovation – beginning with our founders. We are innovators at heart and inventors by heritage. From the start, we've led in pioneering new technologies and in enabling entirely new industries that have changed the world. Today, building on our history of firsts, we're boldly advancing the industries we created to make a difference in people's lives.

CARRIER COMMERCIAL HVAC IN EUROPE





CIAT A GLOBAL SYSTEM PROVIDER

CIAT is a part of Carrier, the leading global provider of healthy, safe, sustainable and intelligent building and cold chain solutions. With over 80 years of experience, CIAT is one of Europe's leading brands in heating, ventilation, air conditioning and air handling solutions for commercial sectors such as healthcare, offices, hospitality and retail. Renowned for our capacity to create innovative, durable and high-performing products, we offer a complete range of equipment that is tailor-made and designed to work together. Our latest innovations have been specially designed to meet your most demanding requirements and provide you with the best-in-class technology.



*available with a BluEdge Service agreement



CIAT EXPERT IN INDOOR CLIMATE SYSTEMS

As a pioneer of customised HVAC solutions, CIAT understands the importance of increasing the well-being of individuals in their living areas and places of work. Aware of the thermal, energy and air quality issues faced today by every sector of activity, we have responded by developing global systems based on an adapted and efficient combination of products.

WATER-BASED GLOBAL ENERGY SYSTEMS FOR HEATING, COOLING AND INDOOR AIR QUALITY

To comply effectively with today's thermal and environmental regulations, CIAT designs optimised water-loop energy systems comprised of comfort units, heat pumps and dual-flow air handling units. As a renewable resource and a highly effective heat transfer fluid, water not only represents an excellent alternative to direct expansion systems it also meets F-Gas regulations in terms of confinement and limitation of refrigerants within buildings.

Smart CIATControl: THE ENERGY MANAGEMENT SYSTEM

Connected to all HVAC components (refrigeration, comfort units, air handling units) and using a patented algorithm that can be programmed according to building occupancy and weather conditions, Smart CIATControl adapts the efficiency of the thermodynamic producer to the needs of the emitters in real-time.

In addition to automatic system changeover based on calculation requirements, features include:

- **Optimal Stop & Start:** predictive function which anticipates the stop and start times of the HVAC system.
- **Optimal Water®:** allows the temperature of the chiller or heat pump to be controlled according to the demand from the emitters.



BENEFITS OF THE WATER LOOP

- ⊕ **More efficient:** equipment that is more cost effective and requires less maintenance than direct expansion systems
- ⊕ **Greater comfort:** flexible, precise control of comfort for the occupants
- ⊕ **Increased energy efficiency:** homogenous and thermally stable, water reduces the energy requirements for heat transfer
- ⊕ **Environmentally sustainable:** no refrigerant is required on the premises and only a small amount is used in the heat pump installed outside the building's occupied areas
- ⊕ **Easy to install:** no refrigerant specialists are required during installation
- ⊕ **Flexibility:** a water-loop energy system adapts easily to the design of buildings and the changes that may be made to its layout over time

The optimisations offered by Smart CIATControl allow **energy savings for the building.**



CIAT COMMITMENT FOR SAFER INDOOR AIR QUALITY :#CIAT4LIFE

Indoor air quality has now become a key challenge for building owners and managers. Our indoor environment must be preserved, protected, and made reliable. Together, we share the same ambition, helping to support the health and well-being of others. We call our approach #CIAT4life.

#CIAT4life

4 FOUNDATIONAL PILLARS



Trust

At the centre of our relationship, to guarantee that your result is optimal and lasting.



Tailored

Expert solutions that meet the demands specific to your sites.



Advice

Providing effective help at each stage, whatever your project.



Efficiency

Reliable and efficient technology and commissioning that have repeatedly proven themselves.

THE IMPORTANCE OF INDOOR AIR QUALITY

80%

of our time is spent inside (workplace, school, residence, transport) ¹



8 times

more pollution indoors compared to outside¹

€20 bn

is the estimated cost of caring for issues related to poor indoor air quality (headaches, allergies, asthma...) ¹

40%

of buildings face indoor air quality issues²

¹ France Public Health

² Interior Air Quality Observatory

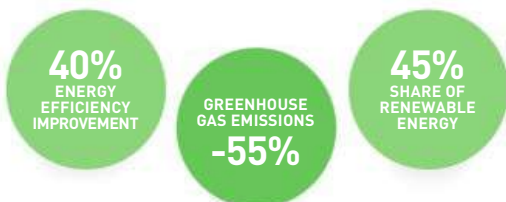


COMPLIANCE WITH STANDARDS AND RESPECT FOR THE ENVIRONMENT

CIAT pursues an exemplary quality approach to developing sustainable and efficient systems which conform to the standards of today and anticipate those of tomorrow. We ensure that our developments conform to the various environmental directives and regulations and, as a real driving force in our sector, also participate in their implementation.

THE ENERGY-RELATED PRODUCTS (ERP) EUROPEAN DIRECTIVE

The European Directive 2009/125/EC ErP outlines the conditions and criteria relating to the eco-design of products that affect energy consumption throughout their life cycle, from the manufacture, to use and until disposal at end of life. It encourages manufacturers to design products that improve energy efficiency while reducing their overall impact on the environment, in particular the resources consumed throughout their service life. CIAT's commitment to limit its impact on environment is in line with the targets of the European climate and energy package for 2030.



F-GAS REGULATIONS*

By 2014 the regulation introduced bans for certain equipment using HFCs and a phase down scheme for HFCs placed on the European market.

In 2023, a revision of the current regulation is upon to be implemented with target to accelerate further the decrease of CO₂ emissions and lowering the global warming potential to achieve 95% reduction by 2030 and 0 emission by 2050. The new F-Gas revision is intended to be voted in 2024, for entry into force by January 2025. As a consequence, new bans shall be implemented to limit GWP with threshold 150 on CML and industrial heat pumps by 2027, and 750 for chillers above 12kW by 2030.

These new GWP limits are subject to derogation in order to comply with European and National / Local specific building codes and safety requirements. No specific bans related to stationary equipment air conditioning, heat pumps and

chillers for service, maintenance, and repairs under certain conditions (GWP < 2500, use of reclaimed and / or recycled refrigerants, ...). Carrier already anticipates more stringent regulations to phase down high GWP refrigerant.

ECO-DESIGN

At CIAT we strive to reduce the ecological impact of our equipment throughout its life cycle, from creation to final decommissioning. We confirm this strong environmental policy in our commitment to respecting ISO 14001 and ISO 45001 certifications, and undertake:

- To integrate environmental aspects as early as possible in the product design process;
- To take into account and make available the results of the life cycle analyses (LCA) for products (complete system for heating, ventilation and cooling);
- To provide environmental reports related to the equipment.

This approach benefits from an internationally recognised standard ISO 14062 "Environmental Management - integrating environmental aspects into product design and product development".



* At time catalogue is released, the new F-Gas revision may be subject to adjustments until it is finally voted by Council of EU and EU parliament and the local country implementation.



CIAT COMMITMENT FOR SUSTAINABLE WORLD

EcoVadis is a collaborative platform which that enable large companies to assess their corporate social responsibility commitment. The objective of this assessment is to enhance an environmentally respectful business collaboration with our partners, all committed to social, economic and ethic matters. CIAT through Carrier global corporation is proud to obtain the silver medal 2022. A distinction that allows us to be in the top 25% of the evaluated companies. It is a significant recognition of its values and commitment to more quality and social responsibility.

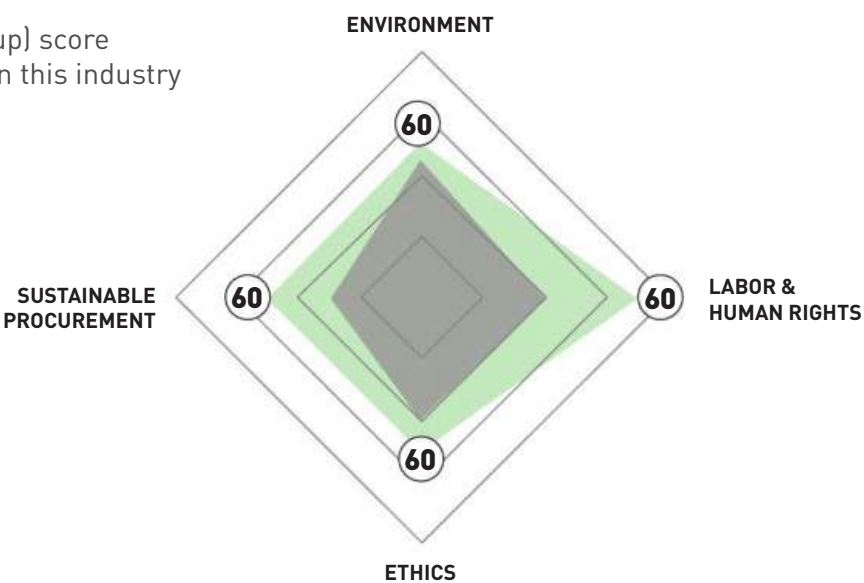


The overall Ecovadis engagement Score for Carrier global corporation's sustainability measures are industry's general scores, with a growing 60% completion.

OUR OBJECTIVE IS TO KEEP PROGRESSING AND TO ENGAGE IN GREEN, ETHIC AND SOCIAL ACTIONS

Carrier global corporation EcoVadis RATING PROGRESS

- Carrier global corporation SA (Group) score
- All companies rated by EcoVadis in this industry



DECARBONISING HEATING

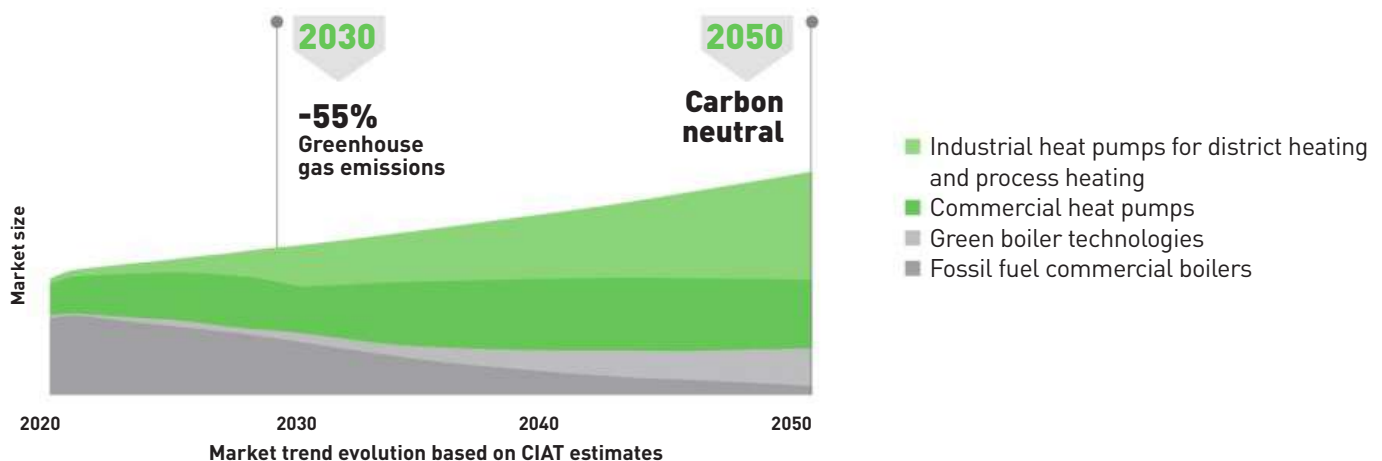
EUROPE TO END FOSSIL FUEL HEATING BY 2050

Heating is one of the EU's most energy-intensive sectors: 64% of the total energy consumed in the EU is used for heating space and water*. If Ecodesign and energy labelling is set to deliver a third of the EU's 2050 climate-neutral target, the European Commission must also put heating on the right path by phasing out fossil fuel boilers beyond 2030.

*<https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20190620-1>

MARKET TREND EVOLUTION

In order to support the EU 2030 target of a 55% reduction in greenhouse gas emissions and the EU 2050 carbon neutral target, the commercial heating industry in Europe will need to make a major technology transition from fossil fuel boilers to more sustainable heating systems.



FOSSIL FUEL

As at 2020*, over 60% of the European building sector was still heated with fossil fuel commercial boilers using natural gas or oil.

In addition to their high carbon footprint, fossil fuel technologies will have to face increasing EU and local regulations, as well as uncertainty over prices and availability in the future. Some countries have already banned fossil fuel boilers in residential and collective housing**. These technologies are coming to an end and the transition needs to start immediately

* IEA: <https://www.iea.org/articles/are-renewable-heating-options-cost-competitive-with-fossil-fuels-in-the-residential-sector>. Published on 1 December 2021.

** EHPA: https://www.ehpa.org/2023/04/17/ehpa_news/which-countries-are-ending-fossil-fuel-heaters/

GREEN BOILER

«Green» boiler technologies will replace a percentage of fossil fuel boilers. Nevertheless, they will need to overcome several technical challenges over the coming years:

Hydrogen boilers are still in development and construction of 'hydrogen-ready' distribution networks in cities will take decades.

Biomass boilers might be a shorter-term solution, but they can be complex to operate and maintain. They need to be cleaned weekly and continuously supplied with pellets or chips. Soot also needs to be removed and the fuel stored.



DECARBO-
NISATION

CIAT
AT YOUR
SIDE

ENERGY
TRANSITION

COMMERCIAL HEAT PUMPS

Heat pumps are one of the most efficient devices on the market for heating buildings. Reversible air source heat pumps are the right solution to provide sustainable cooling and heating in buildings. CIAT is already offering a complete range of heat pumps for commercial applications up to 65°C.



AQUACIAT^{CALEO™} TD

High temperature air to water heat pump for large residential, hotel and healthcare.

Heating capacity from 25 to 103 kW
Hot water up to 65°C.



R-32 

AQUACIAT[™] ILD R-32

Water chillers and heat pump for medium size of offices, hotels and healthcare.

Available in 11 models for an heating capacity from 40 to 150 kW.



R-32 

AQUACIAT POWER[™] ILD R-32

Water chillers and heat pump for big offices, hotels and healthcare.

Available in 19 models for an cooling capacity from 170 to 1050 kW and a heating capacity from 160 to 1000 kW.

IN THE UK, CIAT HEAT PUMPS ARE KEY FOR INNOVATIVE SCHOOL DECARBONISATION PROJECT.

A pioneering decarbonisation project funded by the UK government's Public Sector Decarbonisation Scheme is using high-performance CIAT heat pumps:

Yorkshire-based Abbey Multi-Academy Trust (Abbey MAT) is installing 38 AQUACIAT^{CALEO™} TD air-source heat pumps in five of its schools to reduce carbon emissions produced by the heating with more than 9,000 tonnes over the lifetime of the scheme, saving £84,000 a year in energy costs.

"The heat pumps harvest low grade 'free' energy from the environment and upgrade it to a useful temperature, replacing the need for high carbon-emitting gas boilers in the majority of school buildings," said David Ryder, Head of IT and infrastructure at Abbey MAT. "For our 5,000 students, it is a practical, living demonstration of what can be achieved by rising to the climate challenge, and by using the latest technology to reduce costs and protect the environment, while maintaining a high-quality indoor environment."



Copyright : AbbeyMAT



WORLD-CLASS OPERATIONS TO BRING BEST-IN-CLASS SOLUTIONS

Our European Centers of Excellence and production sites are all world-class facilities in their own right. Each center focuses on a specific field of expertise to support our customers in meeting the challenges they face today.



CULOZ CENTER OF EXCELLENCE FOR AIRSIDE TECHNOLOGIES

The research and design center and laboratory have fourteen innovation platforms, equipped with state-of-the-art test and measurement tools, fully dedicated to airside applications.



MONTILLA CENTER OF EXCELLENCE FOR ROOFTOPS AND PACKAGED SOLUTIONS

Our teams in Montilla, southern Spain have in-depth expertise in rooftop, packaged, preconditioned air (PCA) for aircraft and dehumidifier units. The center houses the largest HVAC factory in Spain and offers specialized laboratories, as well as Europe's biggest aircraft preconditioner air units laboratory.



MONTLUEL CENTER OF EXCELLENCE FOR CHILLER AND HEAT PUMP TECHNOLOGIES

Our Montluel site is Carrier's European Center of Excellence for chillers and heat pumps. Located close to Lyon, France, the research and design center and laboratory are able to draw on fifty-plus years of world-class expertise.



VENCE CENTER OF EXCELLENCE FOR IOT, DIGITAL AND CONTROLS

Developing IoT, Digital and customised Control Solutions for HVAC systems and plant room is the key activity at the Vence Center of Excellence.



A

MONTLUEL
Commercial Chillers



B

CULOZ
Airside products



C

VENCE
Control systems &
Connected services



D

MONTILLA
Rooftop & Light
commercial Chillers



R&D CENTER & LABORATORY



PRODUCTION SITES



SERVICE SOLUTIONS

THE BLUEDGE® SERVICE PLATFORM IS AT YOUR SERVICE FOR YOUR COMFORT, AIR QUALITY & ENERGY OPTIMISATION

As a key European player for HVAC systems, our objective is to provide high-quality service and develop partnerships with you throughout the lifecycle of your installations. We understand your changing needs, and develop smart services and energy solutions for all types of applications that optimise performance and enable savings.

Committed to improve life quality, we provide the support you need to get the most out of your solution and develop strong partnerships with our customers, from project analysis to commissioning and operation for long-term satisfaction.



A WHOLE WORLD OF SERVICES

MAINTENANCE:

- Warranties and extensions
- Preventive and corrective
- Service contracts

CONTROL AND MONITORING:

- Data collection, alerts and reports
- Monitoring and optimizing performance
- Prognosis and expert analysis

MODERNIZATION:

- Upgraded installation
- Performance improved
- Turnkey projects

REPAIRS:

- Efficient diagnostics
- Quick on-site interventions
- Technical assistance

SPARE PARTS:

- Universal and Factory Authorized Parts
- Consultancy and kit solutions
- Dedicated on-line shop

IAQ OFFERINGS:

- Monitor various air quality parameters
- Adjustments to get indoor quality to healthy level

A TIER FOR EVERY BUSINESS

Our BluEdge tiered service model offers you a range of options* to meet the particular needs of your business.



CORE

An economical solution for customers with IoT-enabled equipment that collects real-time data to improve staff efficiency and reduce unplanned downtime.



ENHANCE

Complete preventive maintenance and technical expertise including proactive monitoring of health, efficiency and performance with actionable insights to identify opportunities for reducing operating costs and avoiding failures.



ELITE

Our Elite plan is the ultimate worry-free, peace of mind program for clients. Realizing building comfort, efficiency and operational goals with Carrier turn-key solutions powered by predictive analytics and OEM expertise.

* Contact your local Carrier company for more details on each contract offer.



+60
SERVICE
TECHNICIANS

A LARGE
RANGE OF UNITS
UNDER SERVICE
CONTRACTS

CONTINUOUS
TRAINING
FOR TEAMS &
CUSTOMERS

HVAC EXPERTS CLOSE AT HAND

A COMBINATION OF KNOWLEDGE AND EXPERIENCE FOR BETTER TECHNICAL SUPPORT

Our qualified and responsive BluEdge teams of technicians are available to implement actions on site and ensure optimal operation of your equipment. Thanks to our expertise and experience in the fields of maintenance and technical service, our BluEdge service platform offers a wide range of services from pre-sales technical support and diagnostics right through to energy audits.

Our dedicated hotline for off-site support with our engineers and technicians on the field, work hand in hand to meet your expectations in terms of energy efficiency. Our priority, 24/7: to allow you to focus on your business whilst our BluEdge service platform provides you with the best possible level of service.



HVAC EUROPE PARTS CENTER

BUILDING SERVICE EXCELLENCE FOR CUSTOMERS

Thanks to our dedicated parts team and our factories located throughout Europe, HVAC Europe Parts Center is able to deliver 300 orders daily and ship efficiently around the world. We propose a comprehensive parts offer including compressors, universal parts and manufactured components. Our purchasing power ensures optimised pricing and leadtimes. Thanks to our manufacturing expertise, we provide advice to help you find the best service solution to meet your specific needs.

- State-of-the art logistics with reliable next day delivery for Europe
- Storage permanently adjusted according to customer demand
- Dedicated, accessible and reactive teams
- Dedicated online shop to facilitate parts selection
- Stock online, order tracking, parts selection: numerous specific online tools to ease and fasten your business

+90.000
MANAGED PARTS
NUMBER

**store-eu.
carrier.com**

+12.000
ITEMS
IN STOCK

REMOTE CONNECTIVITY SERVICES - ABOUND HVAC PERFORMANCE

**OPTIMIZE YOUR HVAC OPERATIONS & MAINTENANCE
BY USING REAL-TIME DATA AND ANALYTICS, WITH
THE CONTINUOUS SUPPORT OF REMOTE TEAMS OF
EXPERTS.**

In the current context of increasingly efficient building requirements, CIAT offers monitored services that help customers to improve the efficiency of their HVAC installations.

Abound HVAC performance helps facilitate improved asset management and by enabling smarter, more predictive service and using data to track and optimize equipment health and performance.

Powered by IoT and cloud analytics, we provide customers better visibility into their assets, resulting in better advice on how to manage their CIAT equipment and system optimizations to achieve key outcomes like uptime and comfort.

Depending on your contract:

- Real-time data and access to your assets on a visualization dashboard
- Email alert at any event on the equipment
- Monthly trends reports
- Annual reports with analysis and recommendations from CIAT experts



- + Better profitability
- + Equipment availability
- + Steady indoor air quality
- + Optimal equipment control
- + Fully secured connection

EUROPEAN SERVICE DIGITAL CENTER / VENCE

**Expert in Digital, IoT & Connected Services Solutions
for HVAC equipment and in Controls Solutions for Plant
Room and HVAC Systems.**

At the European Service Digital Center (ESDC), our engineers focus on developing and deploying Connected Services and Controls solutions for HVAC equipment & systems. They provide technical support on smart service solutions to our customers and our service organizations in Europe.

The team has a unique multi-disciplinary expertise in Digital/IoT/Controls and Cooling/Heating for HVAC systems.

Located in the south of France, ESDC is close to Sophia Antipolis, the first technopole in Europe. The Team has participated in major European research and innovation projects.

CONNECTED SERVICES, CONTROLS AND ENERGY OPTIMIZATION

- Monitoring of HVAC equipment
- Plant Room control system
- Thermal Energy Storage for HVAC applications
- HVAC system management
- Energy Optimization



+ 7,000
PIECES OF CONNECTED EQUIPMENT



+500
CONTROLS SYSTEMS FOR PLANT ROOM





HEALTHCARE SOLUTIONS



CONTROL OF AIRBORNE CONTAMINATION AND NOISE LEVELS IN RISK ZONES

In healthcare premises (hospitals, EPHAD, clinics, doctor's offices, etc.) hygiene and air quality are the core requisits for choosing air treatment installations. The different actors in the health sector are also concerned about the comfort of public reception and the energy performance of their installations.

The CIAT product ranges actively participate in reducing and controlling the risk of contamination, especially in risk areas by controlling air contamination and providing a high level filtering. Thanks to the Epure® filtration solutions outstanding capabilities, CIAT adapts to various demanding environments and goes beyond the industry hygienic standards (VDI 6022, DIN 1946, NFS 90 351...).

The CIAT solutions, while ensuring comfort, hygiene and better indoor air quality in the accommodation or reception areas, also allow optimal energy consumption and environmental sustainability, growing concern.

Thanks to the complementarity of its products, CIAT responds quickly to the needs of its customers to all types of installations, and provide as well all the customer services to guarantee a reliable response in line with the healthcare sector expectations.

CIAT solutions are Eurovent regulation certified.



**AIRBORNE
CONTAMINATION
CONTROL**

**COMFORT
AND
INDOOR AIR
QUALITY**

**HIGH
ENVIRONMENTAL
EFFICIENCY**

**HEAT
RECOVERY**



CLIMACIAT AIRCLEAN™

Air handling unit designed for the specific characteristics of controlled environments

Certified Eurovent
DIN 1946-4 / VDI 6022.



COADIS LINE™



Cassette comfort unit with Coanda effect for increased occupants' comfort.



COMFORT LINE™

Ductable comfort units with excellent acoustic comfort and technologies for air purification.



AQUACIAT^{POWER}™

High efficiency air-cooled chiller & heat pump with noise reduction technologies and integrated hydraulic module.



PowerCTRL

Plant system management designed to control a complete thermal energy production system (heating and cooling).



HOSPITALITY SOLUTIONS

BENEFIT FROM COMFORT, SILENCE AND DISCRETION TO SATISFY YOUR CUSTOMERS

The hospitality sector faces three major challenges in air management: thermal and acoustic comfort, air quality and energy optimization. CIAT offers solutions to meet these challenges but also to go beyond the regulation's requirements of tomorrow.

**THERMAL
AND
ACOUSTIC
COMFORT**

**INDOOR
AIR QUALITY**

**ENERGY
EFFICIENCY**

**HEAT
RECOVERY**

The CIAT ranges provide the thermal and acoustic comfort which hotel professionals are demanding for. They guarantee comfort, especially the temperature management as well as they provide solutions like the COANDA effect diffusers that maintain a constant, noise-free air flow. But they also manage the Indoor air quality appreciable by customers, thanks to advanced air filtration solutions in living spaces, which is particularly important device in urban areas.

CIAT gives to professionals of the hotel industry optimal comfort solutions for their buildings, and at the same time the benefit of energy optimization, a constant development effort at CIAT to reduce your costs, such as the «free cooling» feature which allows the use of outside air to cool down hydraulic air conditioning circuit.

Finally, the various CIAT service contracts ensure serenity over time with a complete customer support offer: warranty extensions, proximity to expert teams, remote supervision with Abound HVAC Performance, in order to guarantee the installations controls and their long-term benefits.



FLOWAY®

Compact air handling unit leading in its category in terms of ease of use, Ecodesign and energy efficiency



MAJOR LINE™

Versatile and highly efficient comfort unit providing improved comfort and very low sound level.



COMFORT LINE

Comfort unit with high available static pressure, modular air discharge configurations, flexible installation and excellent acoustic comfort.



AQUACIAT™

High efficiency air-cooled chiller with scroll compressor.



DYNACIAT™

Compact heat pump with high energy-efficiency scroll compressors with excellent acoustic comfort.



OPERA™

Dry Cooler range compatible with Dynaciat range for favourable all-round performance levels.



CLIMACIAT® AIRACCESS

Accessible and efficient air handling unit that is simple to install and use.



SHOPPING CENTER SOLUTIONS



FULL MODULARITY WITH PLUG AND PLAY SYSTEM AND OPTIMIZED OPERATING COSTS

Customer comfort is a key priority to guarantee an ideal welcome. CIAT offers a tailor-made range of heating ventilation and air conditioning solutions able to provide an optimal comfort while minimizing operating costs and energy consumption.

In order to guarantee the best occupant comfort, CIAT offers a wide range of customisable solutions with dedicated options especially designed to the retail market. With the most flexible offer in terms of Air Handling Units and particularly with Rooftops, the CIAT HVAC solutions can adapt to small, large, complex and variable shopping center configurations.

In large and multiple spaces environments, the CIAT multi-zone control system helps the shopping centers managing the temperature by zone while the CO₂ sensors adapt the temperature according to human traffic.

These complete solutions, fitted with the adapted controls can also be supported by remote supervision which ensure greater peace of mind and supports the complete installation optimization and the best way to capitalize onto the energy efficiency devices.



**CUSTOMISABLE
SOLUTIONS**

**MANAGING BY
ZONE REMOTE
SUPERVISION**

**ENERGY
EFFICIENCY**



VECTIOS™

Rooftop unit. All-in-one air conditioning solution, with flexible configuration, designed offer to both high levels of indoor air quality and high efficiency reducing total cost of ownership during its lifetime. R-410A or R-454B versions available.



VECTIOS POWER™

New generation of rooftop air conditioning packaged units, designed to provide efficiency and high indoor air quality and reduce the total cost depreciation cost during its lifetime. R-410A or R-454B versions available.



AQUACIAT POWER™

High efficiency air-cooled chiller & heat pump with noise reduction technologies and integrated hydraulic module.



HYDROCIAT™ LW

Compact and reliable water-cooled chiller.



VEXTRA™

Compact Dry Cooler unit working with Hydrociat for an optimised global solution.



CLIMACIAT® AIRACCESS

Accessible and efficient air handling unit that is simple to install and use.



COADIS LINE

Cassette comfort unit with Coanda effect for increased occupants' comfort.



MELODY 2™

Optimum heating and cooling performance cassette, designed for perfect integration in suspended ceiling.



ISPV

Air to air heat pump for ducted installations, in split and monobloc versions. High flexibility and optimized performance.



LIGHT COMMERCIAL SOLUTIONS



COMPREHENSIVE AND SIMPLE SOLUTIONS

CIAT offers comprehensive solutions and guaranteed services for building managers peace of mind.

The alliance of simplicity and ideal comfort for building occupants.



AQUACIAT

Compact and silent heat pump with integrated hydraulic module.



FLOWAY

Compact air handling unit leading in its category in terms of ease of use, Ecodesign and energy efficiency.



MAJOR LINE

Versatile and highly efficient comfort unit providing improved comfort and very low sound level.



MELODY2

Optimum heating and cooling performance cassette, designed for perfect integration in suspended ceiling.

OFFICE SOLUTIONS



COMFORT AND INDOOR AIR QUALITY FOR BETTER PRODUCTIVITY

The CIAT ranges meet the various regulations and certifications related to buildings.

The complete offer ensures thermal and acoustic comfort as well as excellent indoor air quality for better productivity.



AQUACIAT^{POWER}

High efficiency air-cooled chiller with scroll compressor.



DYNACIAT^{POWER}™

High energy performance water-cooled chiller with optimised footprint.



CLIMACIAT[®] AIRACCESS

Accessible and efficient air handling unit that is simple to install and use.



COADIS LINE

Cassette comfort unit with Coanda effect for increased occupants' comfort.



COMFORT LINE

Ductable comfort units with excellent acoustic comfort and technologies for air purification.



SMART CIATCONTROL

Energy management system allowing for centralization of the information, remote management of equipment, automatic changeover and enhanced energy optimization.



COMFORT UNITS



Cooling Heating

The performances indicated are at EUROVENT conditions

CONTROL FOR COMFORT UNITS

V6
New

Design at minimum cost.
Electronic air or water management
thermostat.

Electronic control V6



V30

Customized performance at minimum cost.
Electronic air or water management
thermostat.

Electronic control V30



V300

Simplified access with the Master/Slave
function.
4 operating modes; complies with RE 2020.
Quick and easy to upgrade on site.
Centralised timer for managing multiple zones.
CIAT concept and design.
EuBac certification.

Electronic control V300



V3000 KNX

CIAT Concept & Design. EuBac certification.

Electronic control V3000 KNX



**FRESH AIR
CONTROL**

Energy savings and optimal air quality
in office buildings.

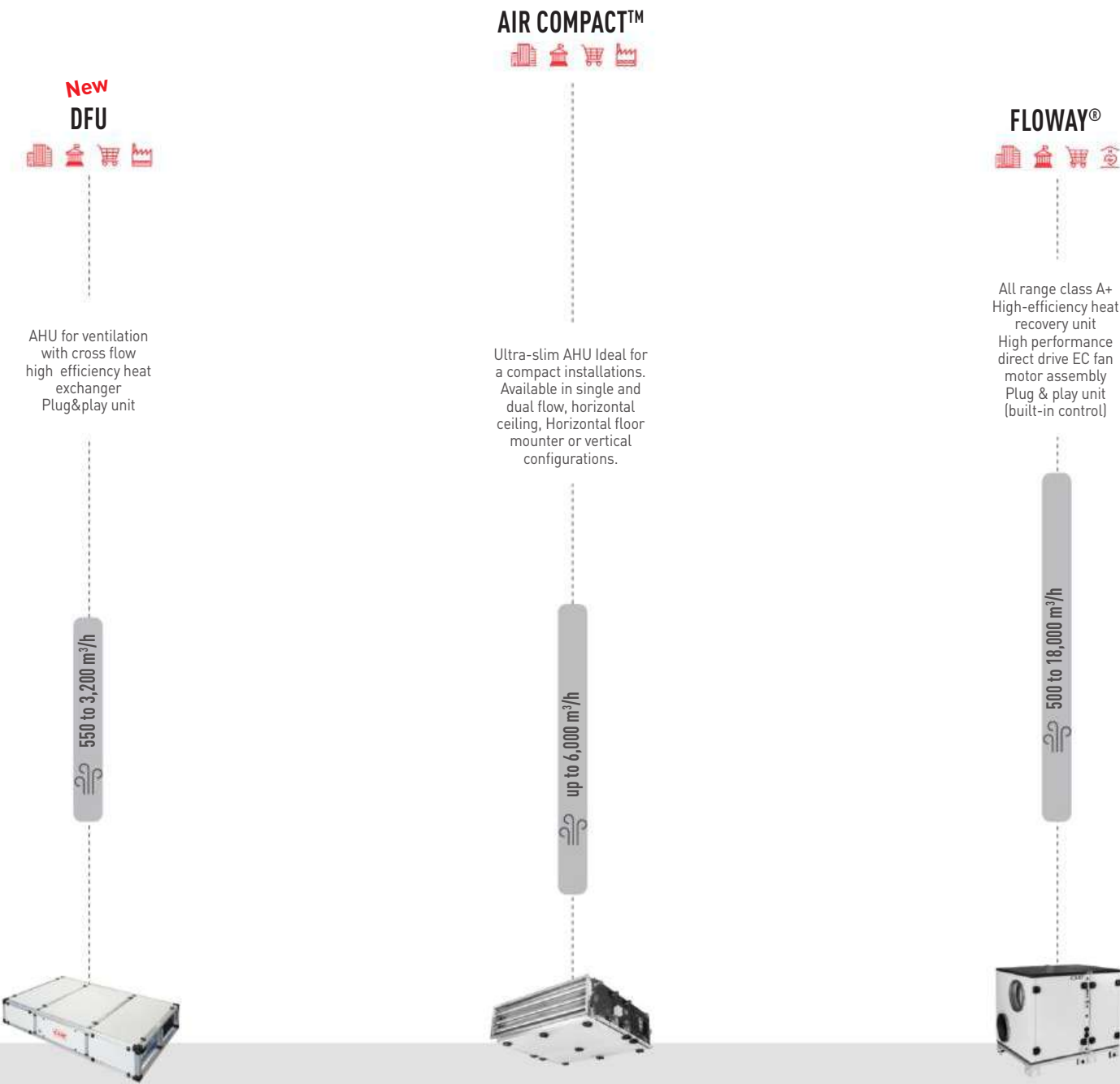
Fresh air control





AIR TREATMENT SOLUTIONS

AIR HANDLING UNITS



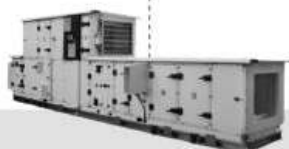


CLIMACIAT®



AHU for all applications
Designed to meet the
EN 13053
and EN 1886 standards
The effective solution for
service sector, industry
and healthcare
applications

1,000 to 30,000 m³/h



AIRTECH™



AHU designed for all
types of applications
Thanks to the
extraordinary
modularity, it allows
multiple configurations
and installations,
both indoor and outdoor

25,000 to 66,000 m³/h



AIRCLEAN™



AHU designed for
specifically controlled
environments
This range incorporates
latest hygienic
technological solutions

25,000 to 66,000 m³/h



Dehumidification capacity


LIGHT
COMMERCIAL


OFFICES


ADMINISTRATION


SHOPPING
CENTRES


HEALTHCARE


INDUSTRIES


HOTELS



AIR TREATMENT SOLUTIONS

AIR HEATER

CLOSE CONTROL UNITS

HELIO THERME® 4000



The most competitively priced technical solution for heating large spaces
Ensures ultra-fast warm-up of buildings
Excellent diffusion thanks to the double deflection diffuser with its patented ET+ technology
New low energy consumption
HEE motor version
New 3-speed thermostat for HEE motor

1,400 to 11,000 m³/h



EXPAIR™



Reduced footprint
Dual-wall construction
PLC control
Variable speed condenser fan

800 to 12,000 m³/h

5 to 50 kW



MAGISTER®



Extensive range of chilled water or direct expansion systems
Compact and attractive design
Energy savings with EC motor and self-regulating control
Easy to install

3 000 to 27,500 m³/h

10 to 116 kW



Cooling

F = Air flow in m³/h



SWIMMING POOL DEHUMIDIFIERS

JUNIOR BCP™



Excellent functions/price ratio
Low energy consumption
Energy recovery
Control as standard
Double-walled conception

4 to 15 kg water/h



AQUAIR® BCP



Single or dual flow
Optimised energy consumption
Energy recovery
Electronic control as standard. Modular and double-walled conception

22 to 74 kg water/h





AQUAIR® PREMIUM BCP



Electronic control.
Optimised energy consumption.
Scroll and R-410A compressors.
EC plug fan with HE motor.
Heating and dehumidification of covered pools.

56 to 74 kg water/h



  Dehumidification capacity

 LIGHT
COMMERCIAL

 OFFICES

 ADMINISTRATION

 SHOPPING
CENTRES

 HEALTHCARE

 INDUSTRIES

 HOTELS

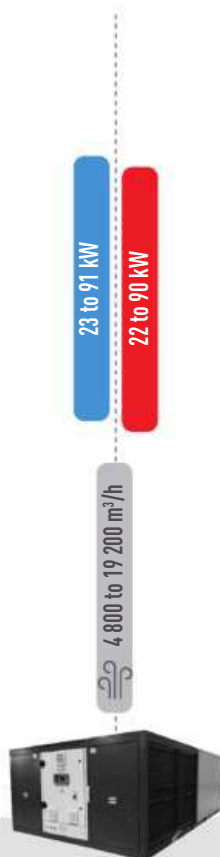
ROOFTOP REVERSIBLE AIR-TO-AIR

ROOFTOP UNITS

New VECTIOS™ R-454B



Integrated "plug&play" system
Eco-Design ready ErP 2021
High seasonal efficiency & environmental responsibility
Reliability with superior quality
R-454B refrigerant
R-410A refrigerant is also available
Optimized dimensions and weights
Active and passive recovery
Air zoning option (up to 4 different zones)



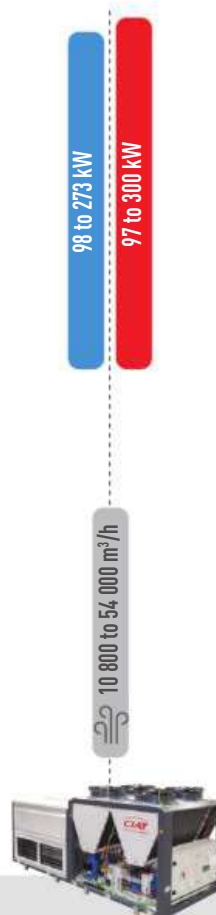
R-454B

R-410A

VECTIOS^{POWER}™ R-454B



Integrated "plug&play" system
Large capacity range
Eco-Design ready ErP 2021
High seasonal efficiency & environmental responsibility
Reliability with superior quality
R-454B refrigerant
R-410A refrigerant is also available
High levels of indoor air quality
Airflow extended
Optimized dimensions and weights
Aluminum panels
Active and passive recovery
New functionalities



R-454B

R-410A

Cooling

Heating

F = Air flow in m³/h



CIAT SYSTEM CONTROL AND SUPERVISION

BOSS / BOSS MINI SUPERVISION

Remote control, managing up to 300 units (3500 variables) in BOSS or 50 units (500 variables) in BOSS MINI Alarm management, planner and event management, diagrams and reports. Installation drawing with units located, energy mangement, analysis of risks and critical control points, notes and integrated WiFi. For rooftop units (Vectios and Vectios Power), and package (ISPV).



PACKAGED UNITS

New ISPV



Reversible heat pumps
Package and split versions
High adaptability
Energy savings
Indoor air quality
Designed for indoor
installation
Extensive scope

4,000 to 21,000 m³/h

19 to 115 kW
19 to 120 kW



HEAT PUMPS & WATER CHILLERS

AIR-COOLED UNITS

EREBA ACCESS™ 17-21



Cooling only and reversible units
Integrated hydraulic module

16 to 21 kW

18 to 22 kW



EREBA ACCESS™ 26-40



Easy and fast installation
Hydraulic module available
Compact, reliable and efficient

27 to 39 kW

29 to 39 kW



AQUACIAT^{CALEO}™ TD



Designed to replace conventional boilers
High temperature hot water (+65°C)
Winter operation (-20°C)
High energy efficiency
Compact and acoustic comfort
Condenserless unit

26 to 101 kW



AQUACIAT™ LD / ILD R-32



High energy efficiency
Acoustic comfort
Easy installation
R-32 refrigerant

40 to 160 kW

40 to 150 kW



R-32

Cooling

Heating

CONTROL AND SUPERVISION

POWER'CONTROL

Plant system management. Designed to control a complete thermal energy production system (heating and cooling).



Energy optimization for HVAC systems

New

TRUVU PLANT SEQUENCER

Regulation, control and optimization of your cooling and heating plant rooms. A turnkey solution with an advanced program, easily commissioned by CIAT Service technicians.



Control solution for cooling & heating plants

ABOUT HVAC PERFORMANCE

To track, monitor hvac system performance & take preventive and corrective actions remotely.



Monitoring solution for CIAT equipment

AQUACIAT^{POWER}™ LD/ILD R-32



DYNACIAT™ LGN



High energy efficiency
Compact and acoustic comfort
Scroll compressors
Brazed-plate heat exchangers
Self-adjusting electronic control
Condenserless unit

23 to 175 kW



High energy efficiency
Acoustic comfort.
Easy installation
R-32 refrigerant

170 to 940 kW

160 to 1,040 kW



R-32

POWERCIAT™ LX



277 to 1,512 kW

Compact and reliable
2 efficiency versions
Screw compressors
All-aluminum micro-channel condenser
Self-adjusting electronic control
Touch screen control interface





HEAT PUMPS & WATER CHILLERS

WATER-COOLED UNITS

DYNACIAT™ LG



Compact and acoustic comfort
High energy efficiency
Scroll compressors
High-efficiency brazed-plate heat exchangers
Self-adjusting electronic control



DYNACIAT^{POWER}™ LG



High energy efficiency
Compact and acoustic comfort
Scroll compressors
High-efficiency brazed-plate heat exchangers
CIAT self-adjusting electronic control



HYDROCIAT™ LW



Compact and reliable
Standard and High Efficiency versions
Screw compressors
Flooded shell and tubes evaporator
Self-adjusting electronic control
Touch screen control interface



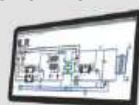
DRY COOLERS - CONDENSERS - HEAT EXCHANGERS - THERMAL ENERGY STORAGE

ENERGY OPTIMISATION SOLUTIONS™

Optimised energy management. Information in multilingual clear text.



THERMAL ENERGY STORAGE



Shift your electricity consumption from peak to off peak hours:

- Turnkey solution
- Proven technology
- Unique expertise
- Reduced operating cost
- Non-stop support to
- Smart grid ready secure cooling production.

DRY COOLERS & CONDENSERS

HEAT EXCHANGERS

OPERA™



up to 1,100 kW

MORE
More efficient
More flexible
More intelligent

FOR

LESS
Less energy
Less time
Less noise



VEXTRA™



up to 1,900 kW

Slim design and acoustic comfort
Saves up to 40% floor space



AEROFRESH™



Adiabatic cooling system
Alternative to cooling towers
Smaller units



ITEX



Liquid / Liquid heat exchangers
Benefit from a high thermal transfer capacity
Particularly well suited to low temperature differences between the two fluids





CIAT

COMFORT UNITS

COMFORT UNITS

COADIS LINE 600™ P.37

1.2 to 5.1kW 1.3 to 4.8kW

COADIS LINE 900™ P.49

3.6 to 9.4kW 2.4 to 8.4kW

MELODY2™ P.57

1.5 to 9.5kW 1.3 to 11.3kW

MAJOR LINE™ P.65

0.7 to 7.9kW 1 to 8.5kW

COMFORT LINE™ P.81

1.5 to 16.7kW 3.5 to 15.4kW

CONTROL FOR COMFORT UNITS

COMFORT UNIT CONTROLS P.115

NEW V6 P.125

V30 P.131

V300 P.135

V3000 KNX P.139

FRESH AIR CONTROL P.143

 Cooling  Heating

COADIS LINE 600™

Comfort units
COANDA effect cassette

COADIS LINE 600™

*The new generation
of cassette comfort units*

Innovative casing (Flexiway concept)

integrates perfectly into suspended ceilings

Air purification system

VISUAL 180°



VISUAL 360°



Cooling capacity: 1,2 kW to 5,1 kW

Heating capacity: 1,3 to 4,8 kW



COADIS LINE, INNOVATION AHEAD OF ITS TIME...

- **CIAT** has once again exceeded the established standards by offering increasingly innovative products in terms of environmental protection, while ensuring the user remains the key concern.
- Combining energy efficiency, comfort and indoor air quality, the **COADIS LINE** is the all-in-one solution designed to meet the heating and cooling requirements of tertiary buildings, while offering users maximum comfort.
- An active, variable-speed comfort unit offering high energy efficiency (HEE system), it allows the indoor temperature to be autonomously and independently adapted over very short periods to ensure the comfort of occupants.
- The EPURE function (air purification system) ensures an exceptionally high quality of indoor air by maintaining the concentration of PM 2.5 particles below the threshold recommended by the WHO (10µg/m³).
- Thanks to its single-size casing, the **COADIS LINE** can be fitted with 180° and 360° diffusion in order to suit different building layouts (FLEXIWAY concept).
- The Coanda effect diffusion has been redesigned and optimised in accordance with standard NF EN ISO 7730, guaranteeing optimal management of thermal phenomena which create discomfort. In addition, the **COADIS LINE** eliminates the sensation of draughts that can occur with sweeping diffusion systems or those supplying air directly to the occupants.
- The innovative casing of the **COADIS LINE** - an eco-designed product which is 90% recyclable - reduces the environmental impact throughout the duration of its life cycle.

RANGE

The range of **COADIS LINE 600™** cassettes features 7 sizes covering flow rates from 250 to 770 m³/h, and meeting the most stringent sound level requirements.

→ 2 diffusion models

- Visual 180 °: Coanda effect diffuser across 180 °
- Visual 360°: Coanda effect diffuser across 360 °

→ The **COADIS LINE** is available as:

- A 2-pipe system, with heating or cooling mode
- A 2-pipe + 2-wire system, with cooling + heating/cooling + electric mode.
- A 4-pipe system, with heating and cooling mode.

ADVANTAGES

- Uses an ecological and long-lasting heat-transfer fluid.
- Individual adaptation of the indoor temperature.
- Responsiveness of the system.
- Extensive capacity range.
- Diffusion by Coanda effect across 180 ° or 360 ° for comprehensive coverage, and perfect control of thermal phenomena which cause discomfort.
- Acoustic comfort.
- Optimum indoor air quality thanks to the EPURE function.
- Compliant with the criteria of standard VDI 6022.
- Energy optimisation:
 - High Energy Efficiency motor
 - Epure filter.
 - Optimised hydraulic coil.
- Modularity for indoor spaces (Flexiway).
- Condensate drain by gravity avoiding the need for a drain pump.
- Modern, elegant design to ensure perfect integration.
- Environmentally-responsible product.
- Ease of maintenance.

INNOVATIVE DESIGN

- New-generation casing combining high-density PSE integrating combined thermal and acoustic functionalities, ABS PC and a ribbed galvanised steel base panel to stiffen the assembly.
- Single-size casing for all unit sizes with base adapted to 600 x 600 mm suspended ceiling framework.
- Hydraulic, air and electrical connections on the same side for easier mounting, access and maintenance.
- Hygienic supply of fresh air with 100 mm diameter sleeve integrated directly in the casing with removable plug.



FUNCTION

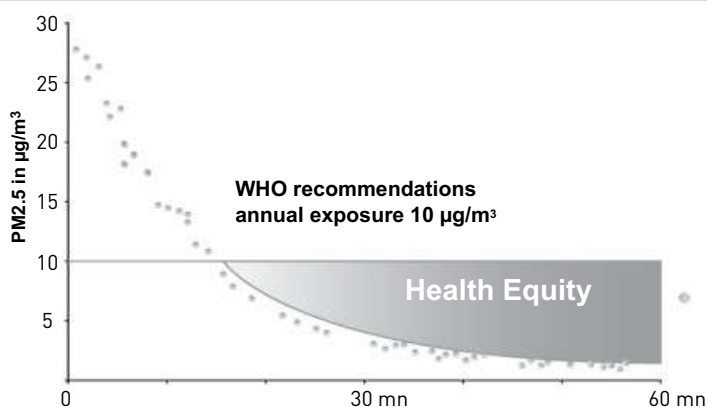


The air we breathe is full of fine particles which enter the respiratory system to varying degrees.

The EPURE function (air purification system) exceeds the WHO's recommendations on particle removal, reducing PM2.5 particulates to below 10 µg/m³ in less than an hour. This is equivalent to a reduction of 50% to 90% in particulate matter.

Epure is the combination of all the components that make up the **COADIS LINE**:

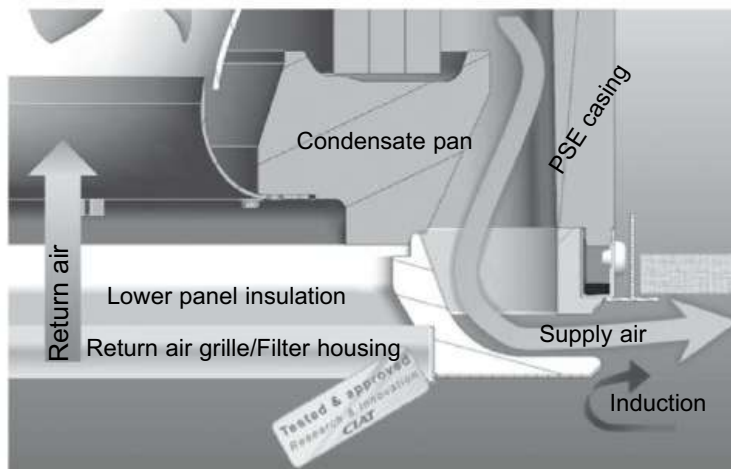
- A protected stream of air that is free of particulates present in suspended ceilings,
- Optimised air diffusion over 180 ° or 360 ° using the Coanda effect and a suitable mixing rate to ensure uniform treatment of the room,
- Very high-efficiency local room-by-room filtration of PM2.5 fine particles,
- Filter area x10.



THE COANDA EFFECT

VISUAL Coanda effect diffuser:

The single slot peripheral outlet with its narrow opening and specific internal profile will increase the initial speed of the air as it leaves the diffuser. The high speed of the moving flow of air causes an area of low pressure which keeps it close to the ceiling, (there is no direct blast on occupants) and the ambient air is drawn in by induction to be reinjected in the air stream. The air mix rate, the range and the coverage of the air flow are improved, which reduces thermal phenomena that cause discomfort in the occupied area (residual air flow rate, asymmetric temperatures, radiation caused by walls, etc.).



COOL AIR FALL PREVENTION SYSTEM

The new 180° diffusers are equipped with an "anti-cold shower" system which guarantees maximum comfort by preventing air from falling between two cassettes.

The system is specially designed by our Research and Innovation centre; two deflectors integrated in the insulation enable the air stream from the lateral channels to be slightly redirected. When the units are placed side by side in the same room, the air flows do not oppose one another and cross over in parallel, which avoids any cold air draughts.

This patented system removes the discomfort caused by draughts without having to reduce the outlets and with no increased noise levels, while maintaining the air flow necessary for the thermal requirements.

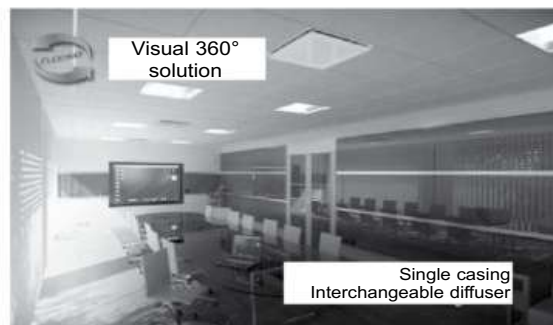
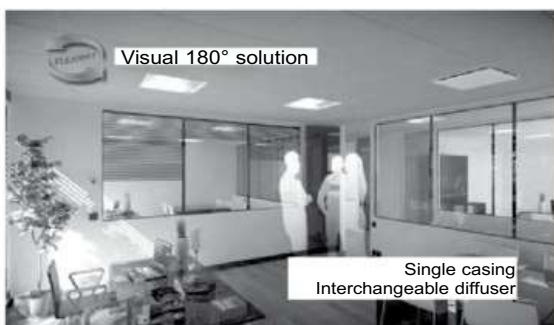
MODULARITY AND VISUAL COMFORT

To ensure perfect visual integration within your building, the FLEXIWAY concept offers two Coanda effect single-vent diffusion systems (Visual 180° and 360°), interchangeable on site, suitable for partitioned offices and open plan spaces.

Designed in close collaboration with both architects and designers, each interface, in RAL 9010 white painted steel, will integrate perfectly into suspended ceiling tiles.

FLEXIWAY

Offers greater flexibility when modifying indoor partitioned spaces, in order to reduce operational costs. Enables optimal adaptation to the new configuration (offices or open spaces) without the need to replace the comfort unit. Based on a casing with a single format, Flexiway means that units already in place can be quickly switched for Visual 180° and 360° diffusers, which can be positioned in any direction thanks to their symmetrical mounting points. If the site to be altered only has a single diffuser model, it is possible to order the model of your choice which is supplied separately in its protective packaging.

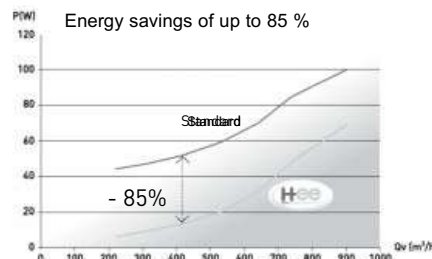


Perfect for new buildings, harmonising enclosed and open plan spaces. The Visual 180° solution is particularly suited to partitioned spaces from 10 to 20 m², with the unit positioned at the edge of the room. The Visual 360° solution is ideal for open plan areas with the unit positioned centrally.

The diffusion panels, which are delivered individually packaged, allow the unit to be installed easily without the risk of damaging or soiling the visible part.

COMPLIANCE WITH ENERGY REQUIREMENTS

- Exchanger coils specially developed to meet the requirements of low energy buildings.
- Exchanger coils optimised to reduce costs and consumption associated with other components in the installation.
- HEE motor (high energy efficiency) using Brushless technology.
- Reduced-power electric heating coils to better meet the requirements of new buildings.



ECO-DESIGN

Raw materials

- Weight reduced by 30 % and volume by 21 % thanks to compact, carefully designed architecture.
- Use of easily recyclable materials (EPS and ABS).

Transport

- Raw material suppliers selected from those that are less than 100 km from our manufacturing and packaging factory, enabling a 50 % gain in volumes transported (reduction in CO₂ emissions).

Recycling and ease of disassembly

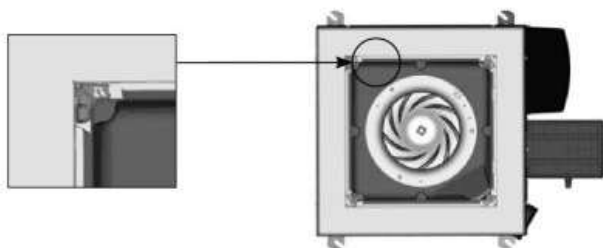
- 90 % recyclable products.
- Total material separability and 40 % reduction in the number of mountings for efficient processing by recycling companies.



EASE OF INSTALLATION AND OPERATION

COADIS LINE has been designed to facilitate installation and reduce on-site interventions:

- Fitting template provided with each unit to mark out the anchoring points on the ceiling.
- Optimised weight and size to facilitate handling during installation.
- Mounting brackets equipped with anti-slip system to hold the threaded rods when attaching and levelling the unit.
- Safety lock enabling the diffuser to be left hanging, leaving the hands free during the mounting screw tightening phase.



- Technical panel with all connections (electrical, air and hydraulic) on one face.
- Hygienic fresh air supply sleeve with plug integrated directly in the casing (no installation necessary).
- Large electrics box with single closure point containing all the controller kits (quick fit plate with prewired electrical bundle) in the **CIAT** range.
- Internal components can be accessed without the need to remove the suspended ceiling tiles, via the quick-release filter door grille mounted on retaining hinges for greater freedom of movement during interventions.

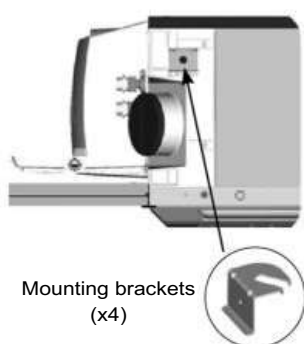
OVERVIEW

The air handling box is fitted inside the suspended ceiling at the edge of the room with the supply air opposite windows and the electrics box facing the interior of the building for models with a Visual 180° return/diffusion panel. For Visual 360° models, position the box in the centre of the room with the electrics box facing the interior of the building. Leave a minimum space of 300 mm to 600 mm at the rear of the unit to allow access to all of the air, electrical and hydraulic connections.

The **COADIS LINE** must be suspended from the ceiling using four 6 mm or 8 mm threaded rods (not supplied) to be fixed to the four unit mounting brackets with the anti-vibration resilient mounts or a nut/washer assembly positioned either side of the mounting bracket.



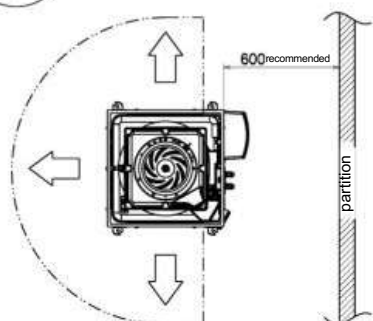
Mounting principle
2 methods



Attached using
4 threaded rods
(6mm or 8mm)

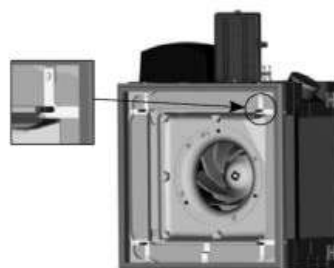
Elastic
damper

Nut/washer assembly
placed either side
of the mounting
bracket

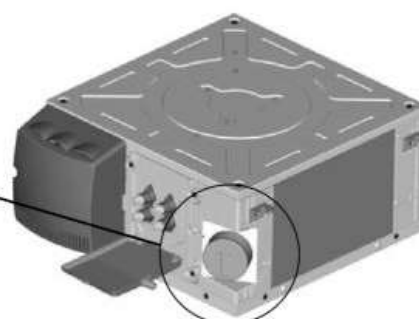


Casing position for Visual 180°
diffusion only

Mounting system for Visual diffusers with
4 captive screws



FRESH AIR INLET SPIGOT



Ø 100 mm collar, max. air flow 90 m³/hr recommended.
Network balancing system (not supplied by CIAT)

IAQ pack

- For offices, air quality control with presence sensor (R1 pack),
- For meeting rooms, air quality control with CO₂ sensor (R+ pack).

COADIS LINE 600™ MORPHO-DESCRIPTIVE CODE

| Range | Size | Model | Coil type | Thermal function | | Motor | Speeds | Filter |
|-------|------|-------|-----------|------------------|----------|-------|------------------------|--------|
| CDL | 622 | V360° | 2T2W | F | + 1200 W | HEE | depending on selection | EP |

| | |
|----|--------------|
| EP | Epure filter |
| G3 | G3 filter |

| | |
|------------|----------------------------------------|
| HEE 2-10V | Energy efficient motor 2-10V control |
| HEE ON/OFF | Energy efficient motor 3-speed control |
| AC | 5-speed asynchronous motor |

| | |
|-------|---------|
| 900W | For 622 |
| 1200W | For 632 |

| | |
|----|-----------------|
| F | Cooling |
| C | Heating |
| CF | Heating/cooling |

| | |
|------|--------------------------|
| 2T | 2-pipe |
| 2T2W | 2-pipe + electric system |
| 4T | 4-pipe |

| | |
|-------|-------------|
| V180° | Visual 180° |
| V360° | Visual 360° |

| | |
|-----|--------|
| 612 | 2-pipe |
| 622 | 2-pipe |
| 624 | 4-pipe |
| 632 | 2-pipe |
| 634 | 4-pipe |

TECHNICAL DESCRIPTION

Return/supply air interface

VISUAL interfaces: Coanda effect diffusion via a single narrow opening vent and specific internal profile.

- 2 models available: Visual 180 ° or 360 °.
- In sheet metal painted in RAL 9010 to be fitted over the chassis and exactly the same dimensions as a standard suspended ceiling tile.
- Micro-perforated hinge-mounted metal return air grille with housing for EPURE function filter, opens fully without tools.
- PSE insulation, M1 fire resistance with very low heat transfer coefficient.
- An "anti-cold shower" system which is patented (filed under No. 1451872) which prevents air from falling between the two cassettes when they are aligned around the edges of the room (only with Visual 180 ° diffuser).

Casing

- Single casing and reduced size for all unit sizes, fits in place of a 600 x 600 mm or 675 x 675 mm suspended ceiling tile (option).
- Reduced weight compared to the previous generation cassette.
- Ribbed galvanised steel motor support base panel, 10/10th thick.
- High-density PSE casing integrating thermal and acoustic functionalities. 15 mm base and 25 mm to 30 mm thick vertical sides that make up the enclosure.
- Low emission of TVOCs and no halogenated compounds.
- ABS corner reinforcements fitted with open galvanised one-way steel mounting brackets for assembly of threaded rods.
- Fire rating: M1.
- Hydraulic, air and electrical connections on the same side of the technical panel at the rear of the unit providing a single access point.
- Finish frame in RAL 9010 galvanised steel, 8/10th thick, housing the diffusion interface.
- Centring of the unit between the suspended ceiling profiles using anti-vibration elastomer mounts fitted on the finish frame.

Water coil

- 1 hot or cold water circuit (2-pipe system).
- 1 hot water circuit + 1 cold water circuit (4-pipe system).
- Single piece sleeve with 40 mm centre to centre distance with integrated sealed flush fitting female revolving unions, for easy fitting of the control valves.
- Low pressure drop one, two, or three layer circular coils.
- Copper pipes, one-piece aluminium fins (1.6 mm pitch).
- Purge and drain.
- Rated pressure 16 bar (at 20°C).
- Test pressure 24 bar.
- Max. hot water inlet temperature:
 - 4-pipe application: 80 °C,
 - 2-pipe application: 70 °C,
 - 2-pipe/2-wire application: 55°C (min air flow rate: 200m³/h).
- Min cold water inlet temperature: 6°C.

Electrical heater (2-pipe + electric system)

- 230V/1/50 single-pipe electrical elements inserted into the aluminium housing.
- 2 temperature limiters, manually and automatically reset, inserted in the aluminium block with easy access that does not require the suspended ceiling to be opened, via the Intake / outlet interface.

- Heater element feed on the terminal block inside the electrics box.
- It is possible to deactivate a heater element on site by means of a shunt on the terminal to reduce the electrical power.

Condensate drain pan

- Single unit main pan in high-density sealed PSE for use in all climates, naturally sloped and removable from below without the need to open the suspended ceiling.
- Fire rating: M1.
- ABS PC auxiliary pan with no water retention provided as an accessory for the recovery of condensates from the valves and coming from the main pan.
- Gravity drain: height 70 mm.
- Drainage bushing: external Ø 15 to 20 mm.

Fan motor assembly

■ HEE motor

Low energy motor making it possible to reduce electrical consumption by up to 85%.

- Brushless technology.
- Sealed type, tropicalised with protected shaft.
- 3-speed gradual operation by 0-10V or on/off control signal, without expansion board.
- Internal normally closed series automatic overload protection on the windings.
- "DFS" motor fault output using a photocoupler for potential alarm feedback via a Konnex protocol communication bus (via the V3000 controller).
- Mounted on anti-vibration mounts.
- 230 V/1-Ph/50 Hz feed (60 Hz compatible).

Note: The minimum voltage to start up the motor is 2 V.

Or

■ Asynchronous motor

5 factory-wired speeds connected to a terminal strip for customisation.

- Sealed type, tropicalised with protected shaft.
- Permanent capacitor.
- Roller bearings.
- Internal normally closed series automatic overload protection on the windings.
- Resilient mounts.
- 230 V/1-Ph/50 Hz feed (60 Hz compatible).
- High output and Displacement Power Factor (Cos Phi).

■ Fan(s)

- Balanced centrifugal turbine Ø 282 mm with profiled blades.
- Polymer turbine.
- Single point mounting system with foolproofing device.

Electrics box

- Large ABS electrics box with supported hinge and closed with a bolt.
- IP20 Index of Protection.
- Electrical connection terminal on DIN rail in compliance with EN 50022, 7.5 mm deep.
- Marked out terminal strip with spring connectors. 0.5 to 2.5 mm² cross section - Max. current: 24 A - Shock resistance: 8 kV. Cable grommet for field connection.

Fresh air supply sleeve

Connection sleeve for fresh air inlet, Ø100 mm, integral to the frame with removable plug.

Air filter

- Epure function for superior indoor air quality.
- A protected air stream which prevents particles from being drawn into suspended ceilings.
- Uniform treatment of the room thanks to optimised diffusion over 180° or 360° using the Coanda effect.
- Suitable mixing rate.
- Local filtration by high efficiency filter medium effective on fine particles up to 2.5 microns.
- Filter area 10 times greater than the intake grille surface.
- No discharge from the filter during replacement thanks to the folded filter medium with heat-sealed lateral inserts to make it more rigid.
- Improved service life compared to a conventional flat filter, thanks to its high retention capacity.
- Low energy impact. Fire rating: M1.
- No release of glass fibres.
- 100% incinerable at end of life.

Device mounting

Open mounting brackets, factory-fitted, made from galvanised steel, 15/10th thick, with check valve for securing the threaded rods during fitting and levelling.

Packaging

- Strapped cardboard crate for the casing.
- Fitting template and direction of fitting printed on the cardboard.
- Visual return/supply air interface supplied separately in protective cardboard packaging.
- Delivered on film wrapped pallet from the factory.

Controls

- RTR-E electromechanical thermostat range
- V30 electronic range
- V300 electronic range
- V3000 networked electronic range (KNX)
- Networked electronic range (LON): V-LON2

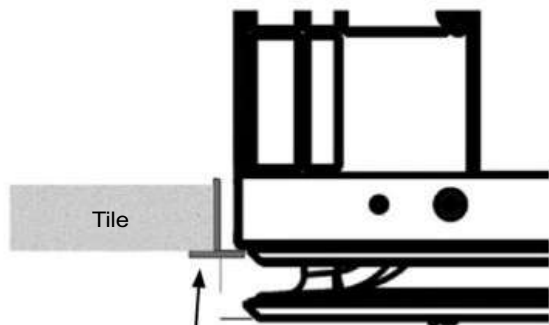
Options (factory-fitted)

- Hydraulic coil with protected blades for aggressive / corrosive areas (locations close to the sea or with chemical industries located close by).
- Condensate drain pump.
- G3 filter.
- Extension.
- Finishing trim frame for 675 x 675 mm suspended ceiling tiles.
- Finishing trim frame for STAFF ceilings.

Accessories (available separately)

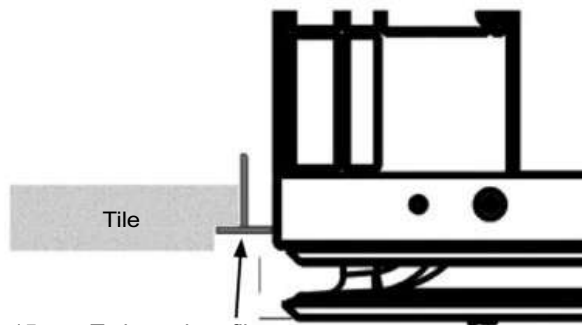
- Anti-vibration resilient mounts for mounting brackets.
- Self-regulating conditioned fresh air inlet module (3 flow rates adjustable using a set of shims).
- Ø 100-125 mm sleeve adapter.
- Condensate drain pump kit with high safety device.
- 230 V thermo valve kit.
- Prewired controller kit mounted on the plate.
- 80 mm riser kit for gravity drainage without condensate drain pump.
- Finish counter frame kit for 675 mm suspended ceiling tile.
- 300 mm connecting hose kit with or without 9 mm insulation.
- Fresh air pack:
 - R1: Fresh air managed via presence sensor.
 - R+: Fresh air management via CO₂ sensor (max. air flow 90 m³/h recommended, network balancing system not supplied by CIAT).
- Speed control unit kit for HEE motors with 3-speed on/off control.

INTEGRATION INTO THE SUSPENDED CEILING



24 mm T profile

Mounting position with 600 x 600 mm suspended ceiling on T profile

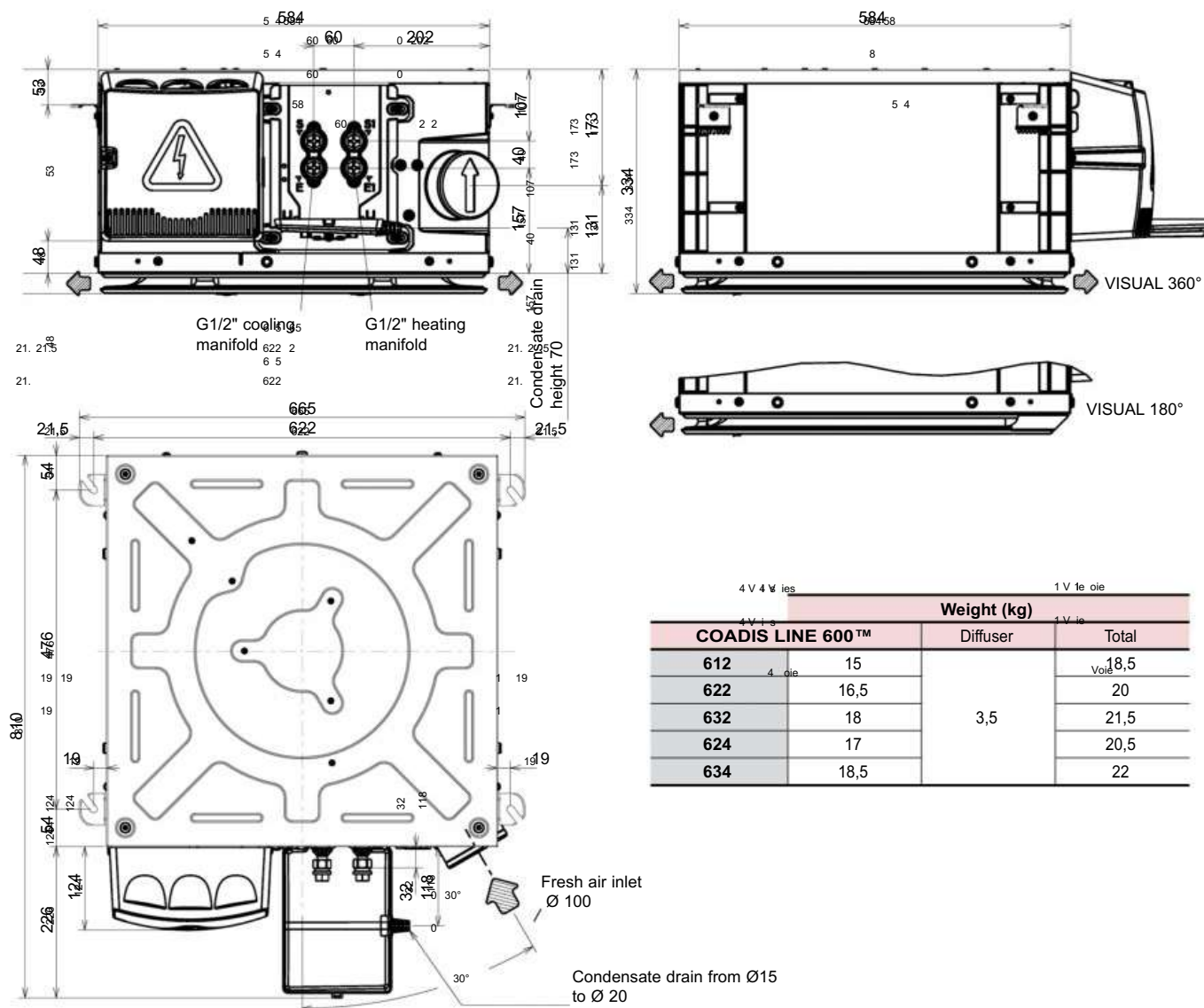


15 mm T-shaped profile
with 8 mm shadowgap

**Mounting position with 600 x 600 mm
suspended ceiling on T profile with 8 mm
shadowgap**

Note: not compatible with steel tray suspended ceilings and clip-in type mountings.

DIMENSIONS



TECHNICAL CHARACTERISTICS

Coil capacity (L)

| COADIS LINE 600™ | | 612 | 622 | 622E | 632 | 632E | 624 | 634 |
|------------------|-----------------|-------|-------|-------|-------|-------|-------|-------|
| 2-pipe coil | | 0,407 | 0,796 | 0,608 | 1,212 | 1,017 | | |
| 4-pipe coil | Cold water coil | | | | | | 0,608 | 1,017 |
| | Hot water coil | | | | | | 0,231 | 0,237 |

Coil coupling diameters

Coil connection type: flush fit female threaded union nuts

Valve outlet coupling type: "male" threaded couplings to be used

| COADIS LINE 600™ | | 612 | 622 | 624 | 632 | 634 |
|------------------|-----------------|-------|-------|-------|-------|-------|
| 2-pipe system | | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" |
| 4-pipe system | Cold water coil | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" |
| | Hot water coil | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" |

Motor electrical data notes

| COADIS LINE | Motor code | AC asynchronous motor | | | HEE brushless motor | | |
|-------------------|------------|-----------------------|-----------|-----------|---------------------|-----------|-----------|
| | | 612 | 622 - 624 | 632 - 634 | 612 | 622 - 624 | 632 - 634 |
| Input power (W) | V5 | 70 | 70 | 101 | 38 | 38 | 56 |
| | V4 | 45 | 45 | 77 | 17 | 17 | 38 |
| | V3 | 41 | 41 | 56 | 12 | 12 | 21 |
| | V2 | 38 | 38 | 47 | 8 | 8 | 15 |
| | V1 | 34 | 34 | 40 | 5 | 5 | 11 |
| Input current (A) | V5 | 0,30 | 0,30 | 0,32 | 0,18 | 0,18 | 0,40 |
| | V4 | 0,21 | 0,21 | 0,29 | 0,09 | 0,09 | 0,28 |
| | V3 | 0,19 | 0,19 | 0,24 | 0,07 | 0,07 | 0,17 |
| | V2 | 0,18 | 0,18 | 0,22 | 0,04 | 0,04 | 0,13 |
| | V1 | 0,17 | 0,17 | 0,21 | 0,02 | 0,02 | 0,10 |

Note: Specifications determined for 230V +/-10% - 50Hz supply.

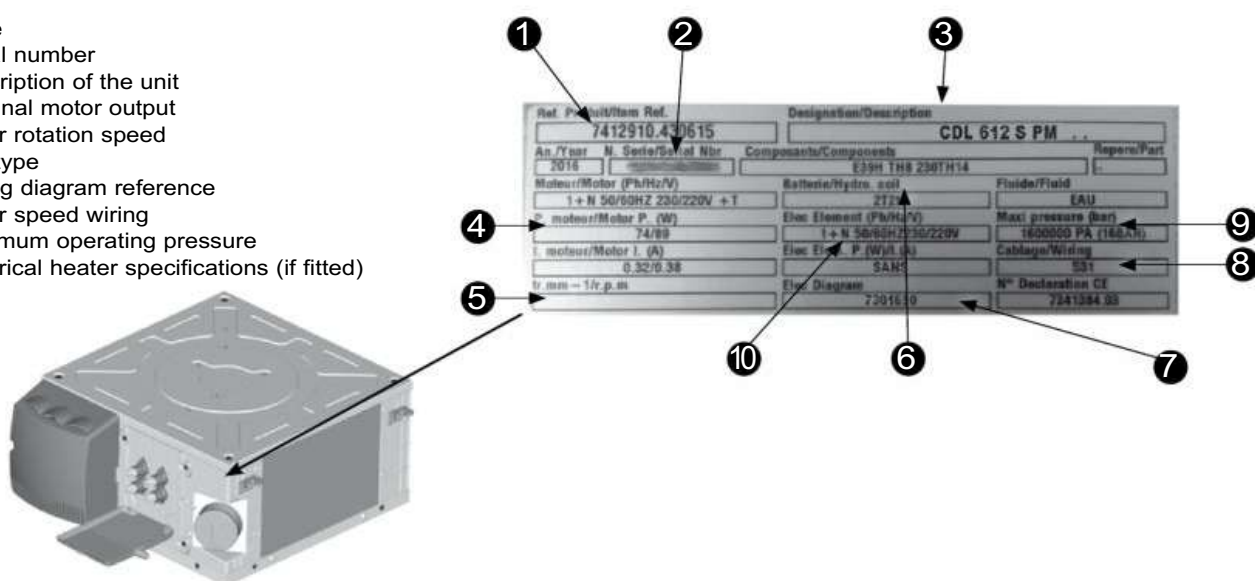
For operation at 60Hz, the power input and rotation speed values are generally higher.

- Motor operating range: minimum return T°C: 0°C
maximum return T°: 40°C

Unit information plate

The information plate shows all the information needed to identify the unit and its configuration. This plate is placed on the technical side that has all the connections, above the fresh air inlet.

- ① Code
- ② Serial number
- ③ Description of the unit
- ④ Nominal motor output
- ⑤ Motor rotation speed
- ⑥ Coil type
- ⑦ Wiring diagram reference
- ⑧ Motor speed wiring
- ⑨ Maximum operating pressure
- ⑩ Electrical heater specifications (if fitted)



2T/4T AC MOTOR PERFORMANCE

| COADISLINE | Motor code | Air flow m³/h | 2-pipe and 4-pipe systems | | | Power input W | LW dB(A) | Comfort level (ISO or NR) | Average increase of air temperature (in K) 230/1/50 auxiliary electrical heater | |
|------------|------------|------------------|---------------------------|----------|-------------------------|------------------|-------------|---------------------------------|------------------------------------------------------------------------------------------|------|
| | | | Cooling capacity (W) | | Heating capacity (W) | | | | 2R | |
| | | | Total | Sensible | | | | | | |
| 612 | V5 | 610 | 2 180 | 1 991 | 2 563 | 70 | 59 | 42 | | |
| | V4 | 440 | 1 765 | 1 582 | 2 051 | 45 | 49 | 32 | | |
| | V3 | 380 | 1 599 | 1 425 | 1 852 | 41 | 46 | 29 | | |
| | V2 | 310 | 1 429 | 1 256 | 1 627 | 38 | 42 | 25 | | |
| | V1 | 235 | 1 250 | 1 058 | 1 379 | 34 | 37 | 19 | | |
| 622 | V5 | 590 | 3 501 | 2 790 | 3 618 | 70 | 59 | 42 | | |
| | V4 | 420 | 2 662 | 2 054 | 2 713 | 45 | 51 | 34 | | |
| | V3 | 360 | 2 347 | 1 779 | 2 363 | 41 | 47 | 30 | | |
| | V2 | 290 | 2 016 | 1 488 | 1 988 | 38 | 42 | 25 | | |
| | V1 | 215 | 1 630 | 1 173 | 1 592 | 34 | 35 | 18 | | |
| 622E | V5 | 590 | 2 635 | 2 336 | 2 992 | 70 | 59 | 42 | 900 W (2R) | 4,5 |
| | V4 | 420 | 2 114 | 1 818 | 2 385 | 45 | 51 | 34 | | 6,4 |
| | V3 | 360 | 1 930 | 1 604 | 2 140 | 41 | 47 | 30 | | 7,4 |
| | V2 | 290 | 1 699 | 1 362 | 1 868 | 38 | 42 | 25 | | 9,2 |
| | V1 | 215 | 1 468 | 1 108 | 1 565 | 34 | 35 | 18 | | 12,4 |
| 624 | V5 | 590 | 2 635 | 2 336 | 2 984 | 70 | 59 | 42 | | |
| | V4 | 420 | 2 114 | 1 818 | 2 464 | 45 | 51 | 34 | | |
| | V3 | 360 | 1 930 | 1 604 | 2 257 | 41 | 47 | 30 | | |
| | V2 | 290 | 1 699 | 1 362 | 2 029 | 38 | 42 | 25 | | |
| | V1 | 215 | 1 468 | 1 108 | 1 781 | 34 | 35 | 18 | | |
| 632 | V5 | 775 | 5 173 | 3 881 | 4 853 | 101 | 62 | 44 | | |
| | V4 | 660 | 2 262 | 3 318 | 4 176 | 77 | 58 | 40 | | |
| | V3 | 525 | 3 630 | 2 664 | 3 359 | 56 | 51 | 34 | | |
| | V2 | 460 | 3 226 | 2 348 | 2 962 | 47 | 48 | 30 | | |
| | V1 | 405 | 2 907 | 2 097 | 2 648 | 40 | 45 | 27 | | |
| 632E | V5 | 775 | 4 401 | 3 493 | 4 633 | 101 | 62 | 44 | 1200 W (2R) | 4,6 |
| | V4 | 660 | 3 833 | 3 009 | 4 006 | 77 | 58 | 40 | | 5,4 |
| | V3 | 525 | 3 169 | 2 442 | 3 263 | 56 | 51 | 34 | | 6,8 |
| | V2 | 460 | 2 854 | 2 173 | 2 901 | 47 | 48 | 30 | | 7,7 |
| | V1 | 405 | 2 600 | 1 955 | 2 615 | 40 | 45 | 27 | | 8,8 |
| 634 | V5 | 775 | 4 401 | 3 493 | 3 363 | 101 | 62 | 44 | | |
| | V4 | 660 | 3 833 | 3 009 | 3 025 | 77 | 58 | 40 | | |
| | V3 | 525 | 3 169 | 2 442 | 2 623 | 56 | 51 | 34 | | |
| | V2 | 460 | 2 854 | 2 173 | 2 430 | 47 | 48 | 30 | | |
| | V1 | 405 | 2 600 | 1 955 | 2 275 | 40 | 45 | 27 | | |

EUROVENT conditions

Eurovent certified values

Cooling mode: water temperature: 7/12°C, inlet air temperature: 27°C - 19°C (WB)
 Heating temperature (2P): water temperature: 45/40 °C, inlet air temperature: 20 °C
 Heating temperature (4P): water temperature: 65/55 °C, inlet air temperature: 20 °C

2T/4T HEE MOTOR PERFORMANCE

| COADISLINE | Control voltage (V) | Air flow m³/h | 2-pipe and 4-pipe systems | | | Power input W | LW dB(A) | Comfort level (ISO or NR) | Average increase of air temperature (in K) 230/1/50 auxiliary electrical heater | |
|------------|---------------------|---------------|---------------------------|----------|----------------------|---------------|----------|---------------------------|---------------------------------------------------------------------------------|------|
| | | | Cooling capacity (W) | | Heating capacity (W) | | | | 2R | |
| | | | Total | Sensible | | | | | | |
| 612 HEE | 6,7 | 610 | 2 160 | 1 969 | 2 582 | 38 | 59 | 42 | | |
| | 4,9 | 440 | 1 745 | 1 561 | 2 070 | 17 | 49 | 32 | | |
| | 4,2 | 380 | 1 577 | 1 401 | 1 872 | 12 | 46 | 29 | | |
| | 3,4 | 310 | 1 403 | 1 229 | 1 650 | 8 | 42 | 25 | | |
| | 2,5 | 235 | 1 221 | 1 029 | 1 404 | 5 | 37 | 19 | | |
| 622 HEE | 6,7 | 590 | 3 468 | 2 758 | 3 644 | 38 | 59 | 42 | | |
| | 4,9 | 420 | 2 637 | 2 027 | 2 737 | 17 | 51 | 34 | | |
| | 4,2 | 360 | 2 322 | 1 752 | 2 389 | 12 | 47 | 30 | | |
| | 3,4 | 290 | 1 984 | 1 457 | 2 016 | 8 | 42 | 25 | | |
| | 2,5 | 215 | 1 596 | 1 142 | 1 620 | 5 | 35 | 18 | | |
| 622E HEE | 6,7 | 590 | 2 609 | 2 309 | 3 014 | 38 | 59 | 42 | 900 W (2R) | 4,5 |
| | 4,9 | 420 | 2 090 | 1 792 | 2 408 | 17 | 51 | 34 | | 6,4 |
| | 4,2 | 360 | 1 904 | 1 577 | 2 164 | 12 | 47 | 30 | | 7,4 |
| | 3,4 | 290 | 1 666 | 1 331 | 1 895 | 8 | 42 | 25 | | 9,2 |
| | 2,5 | 215 | 1 430 | 1 076 | 1 594 | 5 | 35 | 18 | | 12,4 |
| 624 HEE | 6,7 | 590 | 2 609 | 2 309 | 2 997 | 38 | 59 | 42 | | |
| | 4,9 | 420 | 2 090 | 1 792 | 2 477 | 17 | 51 | 34 | | |
| | 4,2 | 360 | 1 904 | 1 577 | 2 272 | 12 | 47 | 30 | | |
| | 3,4 | 290 | 1 666 | 1 331 | 2 045 | 8 | 42 | 25 | | |
| | 2,5 | 215 | 1 430 | 1 076 | 1 799 | 5 | 35 | 18 | | |
| 632 HEE | 7,9 | 775 | 5 132 | 3 839 | 4 891 | 56 | 62 | 44 | | |
| | 6,7 | 660 | 4 425 | 3 281 | 4 200 | 38 | 58 | 40 | | |
| | 5,3 | 525 | 3 596 | 2 630 | 3 389 | 21 | 51 | 34 | | |
| | 4,6 | 460 | 3 194 | 2 317 | 2 990 | 15 | 48 | 30 | | |
| | 3 | 290 | 2 190 | 1 530 | 1 970 | 6 | 38 | 19 | | |
| 632E HEE | 7,9 | 775 | 4 364 | 3 454 | 4 670 | 56 | 62 | 44 | 1200 W (2R) | 4,6 |
| | 6,7 | 660 | 3 798 | 2 973 | 4 038 | 38 | 58 | 40 | | 5,4 |
| | 5,3 | 525 | 3 136 | 2 410 | 3 292 | 21 | 51 | 34 | | 6,8 |
| | 4,6 | 460 | 2 822 | 2 142 | 2 929 | 15 | 48 | 30 | | 7,7 |
| | 4,1 | 405 | 2 570 | 1 927 | 2 640 | 11 | 45 | 27 | | 8,8 |
| 634 HEE | 6,7 | 660 | 3 798 | 2 973 | 3 039 | 38 | 58 | 40 | | |
| | 5,3 | 525 | 3 136 | 2 410 | 2 637 | 21 | 51 | 34 | | |
| | 4,6 | 460 | 2 822 | 2 142 | 2 444 | 15 | 48 | 30 | | |
| | 4,1 | 405 | 2 570 | 1 927 | 2 288 | 11 | 45 | 27 | | |
| | 3 | 290 | 2 040 | 1 470 | 1 960 | 6 | 38 | 19 | | |

EUROVENT conditions

Eurovent certified values

Cooling mode: water temperature: 7/12°C, inlet air temperature: 27°C - 19°C (WB)
 Heating temperature (2P): water temperature: 45/40 °C, inlet air temperature: 20 °C
 Heating temperature (4P): water temperature: 65/55 °C, inlet air temperature: 20 °C

COADIS LINE 900™

Comfort units
COANDA effect cassette



*New generation of cassette comfort units
based on the water loop
360° Coanda effect diffusion
Energy efficient motor
and high-efficiency filtration*

Cooling capacity: 3,6 to 9,4 kW
Heating capacity: 2,4 to 8,4 kW



USE

The active water loop comfort unit, for installation in suspended ceilings, can be used to autonomously and individually adapt the indoor temperature over very short periods to ensure the

comfort of occupants. Designed for offices, open plan areas, meeting rooms, commercial premises and entrance halls.

RANGE

The **COADIS LINE 900™** range of cassettes features 9 sizes covering flow rates from 550 to 1400 m³/h, and meeting the most stringent sound level requirements.

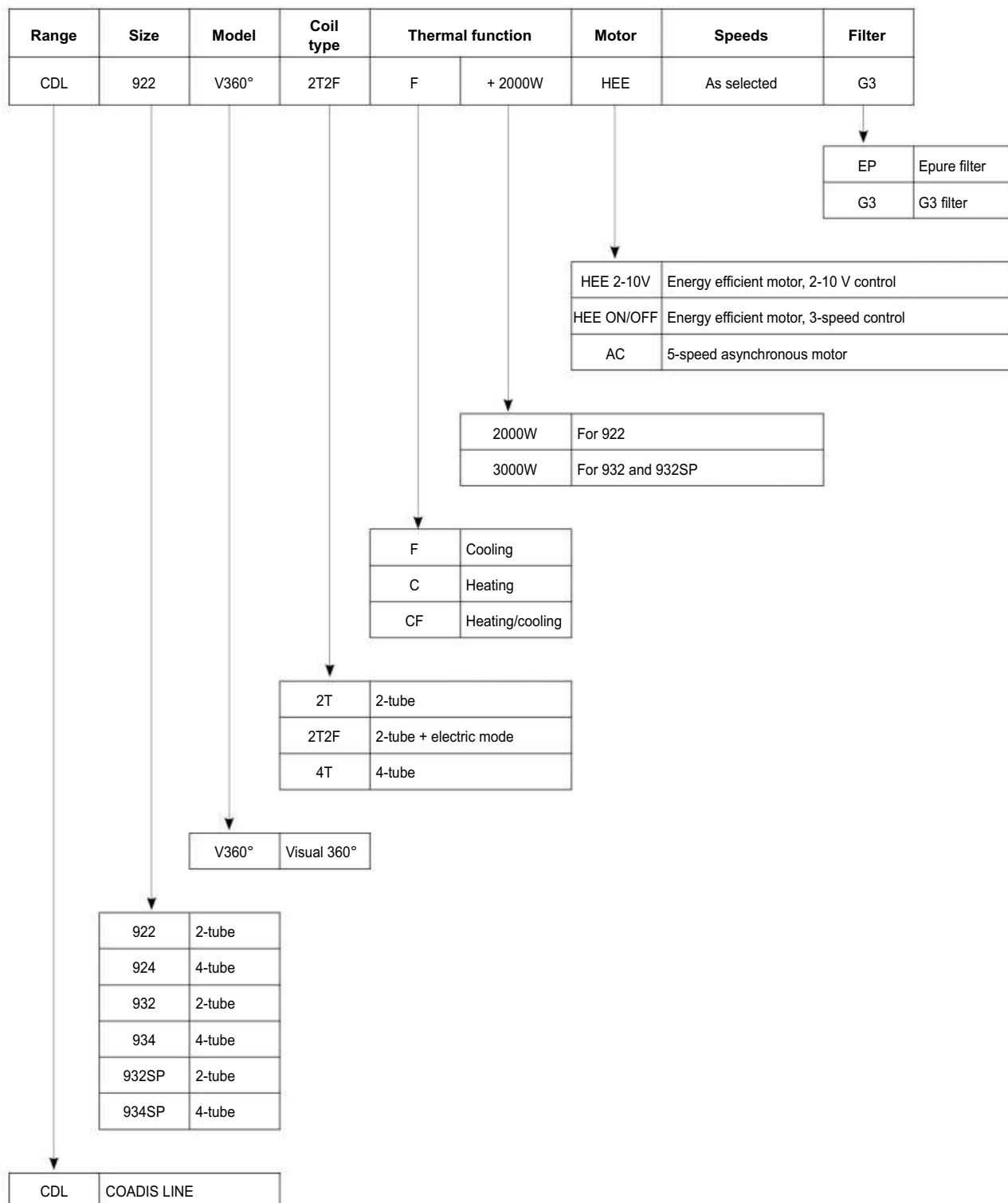
- 1 Visual 360° diffusion model:
Coanda effect diffuser across 360°

- The COADIS LINE is available as:
 - A 2-tube system, operating in cooling or heating mode,
 - A 2-tube + 2-wire system, operating in cooling or heating/cooling + electric mode,
 - A 4-tube system, operating in cooling and heating mode.

ADVANTAGES

- Uses an ecological and long-lasting heat-transfer fluid.
- Individual adaptation of the indoor temperature.
- Responsiveness of the system.
- Extensive capacity range.
- Diffusion by Coanda effect across 360° for comprehensive coverage, and perfect control of thermal phenomena which cause discomfort.
- Acoustic comfort.
- Optimum indoor air quality thanks to the EPURE function.
- Energy optimisation:
 - High Energy Efficiency motor,
 - EPURE filter with low pressure drop,
 - Optimised hydraulic coil.
- Maintenance facilitated by access to the filter and the highly accessible internal components.
- Modern, elegant design to ensure perfect integration.
- Environmentally-responsible product.

COADIS LINE 900™ MORPHO-DESCRIPTIVE CODES



TECHNICAL DESCRIPTION

Return/supply air interface

- VISUAL 360°
Painted galvanised steel.
PSE insulation, 10 to 40 mm thick.
Uniform RAL 9010 white colour for all components. Integration within a suspended ceiling, fitting in the centre of four tiles.
Perforated metal return air grille with filter housing with quick opening via 2 lugs.
Interface secured by 4 screws, to be removed to gain full access to the internal components (coil, FMA, temperature limiters, condensate pan, condensate drain pump).
Coanda effect diffusion which allows a jet of air to follow the ceiling, preventing cold air from dropping into the comfort area.
Coanda effect offers 360° coverage of the surface area of the room to be treated, with no dead zone.
Narrow single-slot opening and specific internal profile.

Frame

- Ribbed galvanised steel motor support base panel.
- High-density PSE packaged casing, ensuring the acoustic and thermal insulation. 18 mm thick for the base and 25 mm to 30 mm thick for the vertical walls which form the casing. M1 fire rating.
- Low emission of TVOCs and no halogenated compounds.
- ABS technical plate supporting the electrics box, hydraulic and air couplings (fresh air).
- Reinforcing ABS angle bars fitted in the corners and equipped with open galvanised steel mounting brackets with check valve for fitting threaded rods.
- Fixed frame in RAL 9010 (white) painted galvanised steel, housing the return/supply air interface and providing rigidity to the casing assembly.

Water coil

- 1 hot water or cold water circuit (2-tube system),
- 1 hot water + 1 cold water circuit (4-tube system),
- one-piece coupling (40 mm centre distance) with rotating female couplings with integrated flat face and seals, for easy fitting of control valves,
- one, two or three-row circular coil with low pressure drop,
- copper tubes, continuous aluminium fins (1.8 mm spacing),
- bleeding and draining,
- nominal pressure of 16 bar (at 20°C),
- test pressure of 24 bar,
- max. hot water inlet temperature:
 - 4-tube application: 80°C,
 - 2-tube application: 70°C,
 - 2-tube/2-wire application: 55°C (min. air flow rate: 200 m³/h)
- min. cold water inlet temperature: 6°C.

Electrical heater (2-tube + electric system)

230/1/50 single-tube electrical elements inserted into the aluminium housing.
Two temperature limiters with manual and automatic reset, inserted into the aluminium housing and easily accessible without the need to open the suspended ceiling via the return/supply air interface.
Heater power supply connected to the terminal block inside the electrics box.
Option of deactivating a heater on site by removing a shunt from the terminal block, to reduce the electrical power.

Condensate drain pan

One-piece main pan with all-climate insulation in high-density PSE, with sealing treatment on the upper section.
Removable from below.
Condensate drainage (internal Ø 32 connection) provided by an internal drain pump equipped with a safety float, check valve and fitted on anti-vibration mounts.
Auxiliary pan available as an accessory for recovery of condensate from the valves.

Fan motor assembly

■ HEE motor

- High energy efficiency motor enabling a reduction of up to 85% in electricity consumption.
- BLAC (Brushless Alternating Current) technology offering more linear torque progression and a lower operating sound level than BLDC (Brushless Direct Current) technology,
 - sealed, tropicalised, with protected shaft,
 - 3-speed gradual operation by 0-10V or on/off control signal, without expansion board,
 - ball bearings,
 - internal automatic overload protection as standard on winding,
 - "DFS" motor fault output using a photocoupler for potential alarm feedback via a Konnex protocol communication bus (via the V3000 controller),
 - fitted on anti-vibration mounts,
 - 230V/1Ph/50 Hz power supply (60Hz compatible).

Note: The minimum voltage required for start-up of the motor is 2V.

Or

■ Asynchronous motor

- 5 factory-fitted cabled speeds (connected and available at the terminal) for customised adjustment.
- sealed, tropicalised, with protected shaft,
 - permanent capacitor,
 - ball bearings,
 - internal automatic overload protection as standard on winding,
 - resilient mounts,
 - 230V/1Ph/50 Hz power supply (60Hz compatible),
 - high efficiency and power factor.

■ Fan(s)

- balanced centrifugal impeller (Ø 476mm) with airfoil blades,
- polymer impeller,
- single-point mounting system with foolproofing device.

Electrics box

- Large ABS electrics box, with a hinge to keep it open and screw closure.
- Index of Protection: IP20.
- Terminal block on DIN rail in accordance with EN 50022, depth 7.5 mm.
- Junction block located with tension clamp. Cross section 0.5 to 2.5 mm² - Max current: 24A – Shock resistance: 8 kV.
- Cable routing for customer electrical connections.

Fresh air supply sleeve

- Ø 100 mm sleeve integrated into the casing with removable plug.

Air filter

■ EPURE function

- a protected air stream which prevents particles present in the suspended ceilings from being drawn in,
- uniform treatment of the room thanks to optimised diffusion (Coanda effect) and an adapted mixing rate,
- local filtration by high efficiency filter medium effective on fine particles up to 2.5 microns,
- filter area 10 times greater than the intake grille surface,
- no discharge from the filter during replacement thanks to the folded filter medium with heat-sealed lateral inserts to make it more rigid
- longer service life compared to a conventional flat filter, thanks to its high retention capacity,
- low energy impact,
- fire rating: M1,
- no release of glass fibres,
- 100% incinerable at end of life.

Or

- flexible filter medium made of regenerative polyester fibre,
- efficiency class (EN 779): G3,
- fire rating: M1,
- rigid metal frame,
- accessible via the hinged air recovery grille.

Unit mounting

Open mounting brackets, factory-fitted, made from galvanised steel, 15/10th thick, with check valve for securing the threaded rods during fitting and levelling.

Packaging

- Strapped cardboard crate for the casing.
- Fitting template and direction of assembly printed on the box.
- Visual return/supply air interface supplied separately in protective cardboard packaging.
- Delivered on a plastic-wrapped pallet.

Controls

- RTR-E electromechanical thermostat range.
- V30 electronic range.
- V300 electronic range.
- V3000 networked electronic range (KNX).
- V-LON networked electronic range (LON).

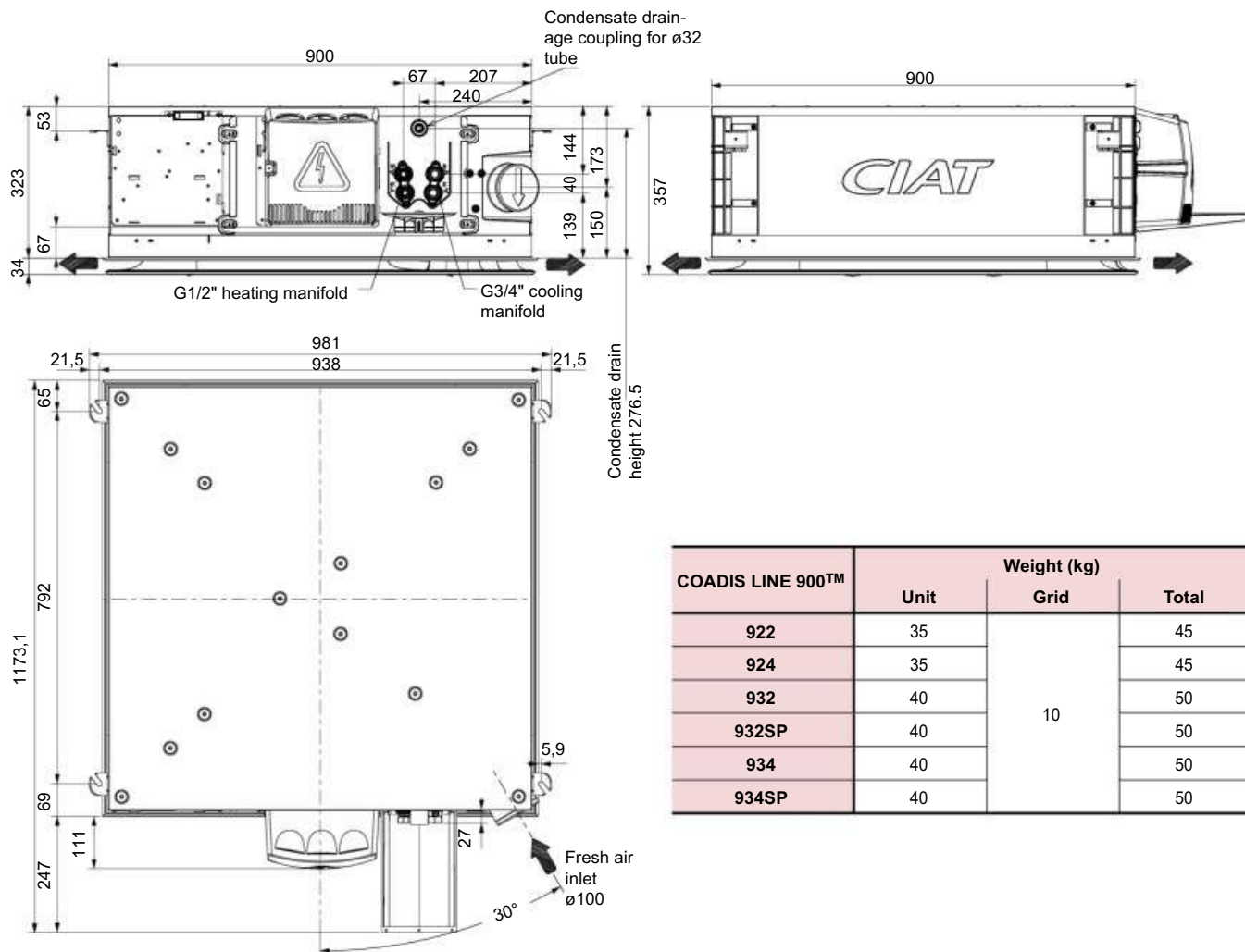
Options (factory-fitted)

- Hydraulic coil with blades protected for use in harmful/corrosive atmospheres (coastal locations, or areas close to chemical industries).

Accessories (available separately)

- 300 mm long flexible connections kit with or without 9 mm insulation.
- self-adjusting fresh air module kit:
 - 15/30/45 m³/h flow rates,
 - 60/75/90 m³/h flow rates,
- Ø100/125 mm adapter for fresh air sleeve,
- resilient mounts,
- finish frame for STAFF ceiling,
- fresh air pack:
 - R1: fresh air managed via presence sensor,
 - R+: fresh air management via CO₂ sensor (recommended max. air flow 90 m³/h; network balancing system not supplied by CIAT).

DIMENSIONS



| COADIS LINE 900™ | Weight (kg) | | |
|------------------|-------------|------|-------|
| | Unit | Grid | Total |
| 922 | 35 | 10 | 45 |
| 924 | 35 | | 45 |
| 932 | 40 | | 50 |
| 932SP | 40 | | 50 |
| 934 | 40 | | 50 |
| 934SP | 40 | | 50 |

Coil capacity (L)

| COADIS LINE 900™ | 922 | 932 | 932SP | 924 | 934 | 934SP |
|------------------|-----------------|-----|-------|-----|-----|-------|
| 2-tube coil | 2,2 | 3,5 | 3,5 | | | |
| 4-tube coil | Cold water coil | | | 2,2 | 3,5 | 3,5 |
| | Hot water coil | | | 0,6 | 0,6 | 0,6 |

Coil connection diameters

Coil coupling type: flat face swivel nuts with a female thread

Valve outlet coupling type: "male flat face" threaded couplings to be used

| Coadis Line | | 922 | 932 | 932SP | 924 | 934 | 934SP |
|---------------|------------------------------|-------|-------|-------|-------|-------|-------|
| 2-tube system | Hot water or cold water coil | G3/4" | G3/4" | G3/4" | | | |
| | Cold water coil | | | | G3/4" | G3/4" | G3/4" |
| 4-tube system | Hot water coil | | | | G1/2" | G1/2" | G1/2" |

TECHNICAL CHARACTERISTICS

Motor electrical specifications

| COADIS LINE | Motor code | AC asynchronous motor | | | | | | HEE brushless motor | | | | | |
|-------------------|------------|-----------------------|------|--------|------|------|--------|---------------------|------|-------|------|------|-------|
| | | 922 | 932 | 932SP* | 924 | 934 | 934SP* | 922 | 932 | 932SP | 924 | 934 | 934SP |
| Input power (W) | V5 | 102 | 102 | 157 | 102 | 102 | 157 | 51 | 51 | 113 | 51 | 51 | 113 |
| | V4 | 89 | 89 | 136 | 89 | 89 | 136 | 38 | 38 | 91 | 38 | 38 | 91 |
| | V3 | 69 | 69 | 119 | 69 | 69 | 119 | 24 | 24 | 72 | 24 | 24 | 72 |
| | V2 | 53 | 53 | 105 | 53 | 53 | 105 | 15 | 15 | 56 | 15 | 15 | 56 |
| | V1 | 35 | 35 | 93 | 35 | 35 | 93 | 10 | 10 | 42 | 10 | 10 | 42 |
| Input current (A) | V5 | 0,44 | 0,44 | 0,68 | 0,44 | 0,44 | 0,68 | 0,37 | 0,37 | 0,39 | 0,37 | 0,37 | 0,39 |
| | V4 | 0,39 | 0,39 | 0,59 | 0,39 | 0,39 | 0,59 | 0,28 | 0,28 | 0,61 | 0,28 | 0,28 | 0,61 |
| | V3 | 0,30 | 0,30 | 0,52 | 0,30 | 0,30 | 0,52 | 0,20 | 0,20 | 0,50 | 0,20 | 0,20 | 0,50 |
| | V2 | 0,23 | 0,23 | 0,46 | 0,23 | 0,23 | 0,46 | 0,14 | 0,14 | 0,39 | 0,14 | 0,14 | 0,39 |
| | V1 | 0,15 | 0,15 | 0,40 | 0,15 | 0,15 | 0,40 | 0,10 | 0,10 | 0,31 | 0,10 | 0,10 | 0,31 |

Note: Specifications determined for 230V +/-10% - 50Hz supply.

For operation at 60Hz, the power input and rotation speed values are generally higher.

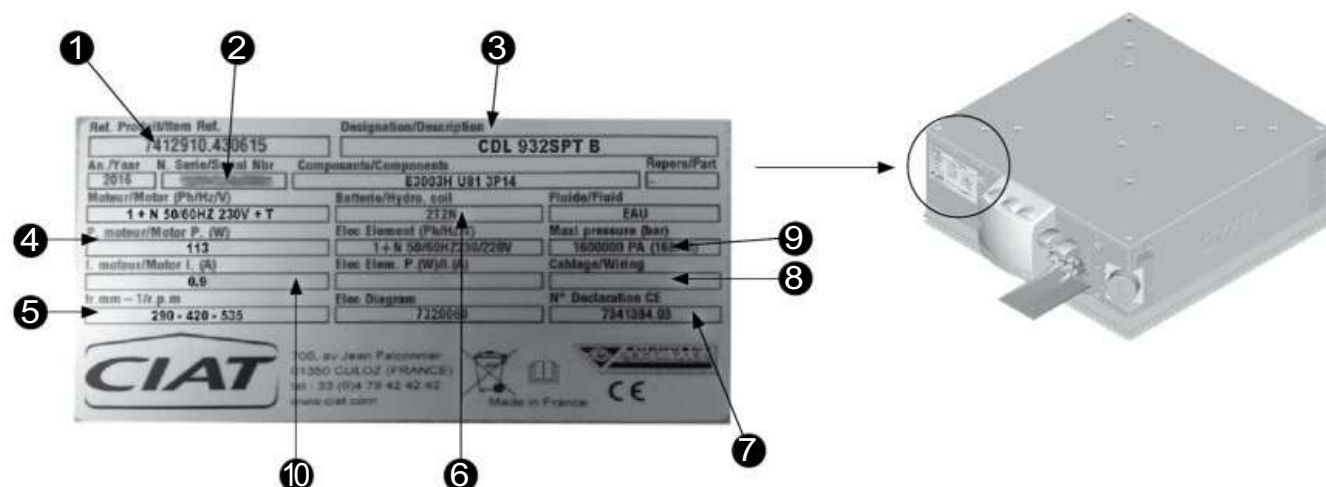
* fan motor assembly not compliant with the ErP2015 Directive

- Motor operating range: minimum return T°C: 0°C
maximum return T°: 40°C

Unit information plate

The name plate contains all the information required to identify the unit and its configuration. This plate is placed on the electrics box side.

- 1 Code
- 2 Serial number
- 3 Description of the unit
- 4 Nominal motor output
- 5 Motor rotation speed
- 6 Coil type
- 7 Wiring diagram reference
- 8 Motor speed wiring
- 9 Maximum operating pressure
- 10 Electrical heater specifications (if fitted)



PERFORMANCE

| COADIS LINE | Motor code | Air flow m³/h | 2-tube system and 4-tube system | | | Power input W | LW dB (A) | Comfort level (ISO or NR) | Average air temperature rise in K Auxiliary electric heater 230/1/50 2R or 3R | |
|-------------|------------|------------------|---------------------------------|----------|----------------------------|------------------|--------------|---------------------------------|-------------------------------------------------------------------------------------------|------|
| | | | Cooling capacity (W) | | Heating capacity (W) | | | | | |
| | | | Total | Sensible | | | | | | |
| 922 | V5 | 1100 | 6 165 | 4 904 | 6 432 | 102 | 51 | 33 | 2000 W (2R) | 5,4 |
| | V4 | 990 | 5 677 | 4 478 | 6 012 | 89 | 48 | 31 | | 6,0 |
| | V3 | 845 | 5 093 | 3 983 | 5 352 | 69 | 46 | 28 | | 7,0 |
| | V2 | 700 | 4 403 | 3 401 | 4 626 | 53 | 42 | 24 | | 8,5 |
| | V1 | 550 | 3 673 | 2 767 | 3 825 | 35 | 39 | 20 | | 10,8 |
| 932 | V5 | 1090 | 7 718 | 5 689 | 7 408 | 102 | 50 | 33 | 3000 W (3R) | 8,2 |
| | V4 | 985 | 7 095 | 5 194 | 6 752 | 89 | 48 | 32 | | 9,0 |
| | V3 | 850 | 6 225 | 4 517 | 5 916 | 69 | 44 | 26 | | 10,5 |
| | V2 | 710 | 5 291 | 3 808 | 4 996 | 53 | 41 | 22 | | 12,5 |
| | V1 | 570 | 4 289 | 3 066 | 4 019 | 35 | 37 | 18 | | 15,6 |
| 932SP* | V5 | 1420 | 9 479 | 7 182 | 8 492 | 157 | 59 | 42 | 3000 W (3R) | 6,3 |
| | V4 | 1325 | 8 986 | 6 754 | 7 907 | 136 | 56 | 39 | | 6,7 |
| | V3 | 1225 | 8 460 | 6 303 | 7 405 | 119 | 54 | 37 | | 7,3 |
| | V2 | 1120 | 7 894 | 5 833 | 6 837 | 105 | 51 | 34 | | 8,0 |
| | V1 | 1020 | 7 287 | 5 345 | 6 338 | 93 | 48 | 32 | | 8,7 |
| 924 | V5 | 1100 | 6 165 | 4 904 | 3 581 | 102 | 51 | 33 | | |
| | V4 | 990 | 5 677 | 4 478 | 3 380 | 89 | 48 | 31 | | |
| | V3 | 845 | 5 093 | 3 983 | 3 124 | 69 | 46 | 28 | | |
| | V2 | 700 | 4 403 | 3 401 | 2 826 | 53 | 42 | 24 | | |
| | V1 | 550 | 3 673 | 2 767 | 2 490 | 35 | 39 | 20 | | |
| 934 | V5 | 1090 | 7 718 | 5 689 | 4 430 | 102 | 50 | 33 | | |
| | V4 | 985 | 7 095 | 5 194 | 4 192 | 89 | 48 | 32 | | |
| | V3 | 850 | 6 225 | 4 516 | 3 838 | 69 | 44 | 26 | | |
| | V2 | 710 | 5 291 | 3 808 | 3 428 | 53 | 41 | 22 | | |
| | V1 | 570 | 4 289 | 3 066 | 2 963 | 35 | 37 | 18 | | |
| 934SP* | V5 | 1420 | 9 479 | 7 182 | 4 978 | 157 | 59 | 42 | | |
| | V4 | 1325 | 8 986 | 6 753 | 4 850 | 136 | 56 | 39 | | |
| | V3 | 1225 | 8 460 | 6 302 | 4 690 | 119 | 54 | 37 | | |
| | V2 | 1120 | 7 894 | 5 833 | 4 494 | 105 | 51 | 34 | | |
| | V1 | 1020 | 7 287 | 5 345 | 4 266 | 93 | 48 | 32 | | |

EUROVENT conditions

Eurovent certified values

Cooling mode: water temperature: 7/12°C, inlet air temperature: 27°C - 19°C (WB)

Heating temperature (2T): water temperature: 45/40 °C, inlet air temperature: 20 °C

Heating temperature (4T): water temperature: 65/55 °C, inlet air temperature: 20 °C

*: motor not compliant with ErP 2015

PERFORMANCE

| COADIS LINE | Voltage V | Air flow m³/h | 2-tube system and 4-tube system | | | Power input W | LW dB (A) | Comfort level (ISO or NR) | Average air temperature rise in K Auxiliary electric heater 230/1/50 | |
|-------------|--------------|------------------|---------------------------------|----------|---------------------------|------------------|--------------|---------------------------------|-------------------------------------------------------------------------------|------|
| | | | Cooling capacity (W) | | Heating ca- pacity (W) | | | | | |
| | | | Total | Sensible | | | | | 2R or 3R | |
| 922 HEE | 7,1 | 1100 | 6 125 | 4 860 | 6 472 | 52 | 51 | 33 | 2000 W (2R) | 5,4 |
| | 6,1 | 990 | 5 635 | 4 434 | 6 054 | 38 | 48 | 31 | | 6,0 |
| | 5 | 845 | 5 055 | 3 943 | 5 390 | 25 | 46 | 28 | | 7,0 |
| | 3,9 | 700 | 4 368 | 3 365 | 4 659 | 15 | 42 | 24 | | 8,5 |
| | 2,7 | 550 | 3 649 | 2 742 | 3 848 | 10 | 39 | 20 | | 10,8 |
| 932 HEE | 7,1 | 1090 | 7 669 | 5 639 | 7 454 | 52 | 50 | 33 | 3000 W (3R) | 8,2 |
| | 6,2 | 985 | 7 045 | 5 144 | 6 798 | 38 | 48 | 32 | | 9,0 |
| | 5 | 850 | 6 179 | 4 472 | 5 957 | 25 | 44 | 26 | | 10,5 |
| | 3,9 | 710 | 5 251 | 3 770 | 5 030 | 16 | 41 | 22 | | 12,5 |
| | 2,7 | 570 | 4 262 | 3 040 | 4 042 | 10 | 37 | 18 | | 15,6 |
| 932SP HEE | 9,1 | 1320 | 8 945 | 6 711 | 7 943 | 92 | 56 | 39 | 3000 W (3R) | 6,8 |
| | 8,2 | 1225 | 8 416 | 6 257 | 7 442 | 72 | 53 | 37 | | 7,3 |
| | 7,3 | 1120 | 7 847 | 5 785 | 6 877 | 56 | 51 | 34 | | 8,0 |
| | 6,5 | 1020 | 7 237 | 5 295 | 6 380 | 42 | 50 | 32 | | 8,7 |
| | 3,6 | 660 | 4 960 | 3 650 | 4 700 | 14 | 39 | 21 | | 13,5 |
| 924 HEE | 5 | 845 | 5 055 | 3 943 | 3 136 | 25 | 46 | 28 | | |
| | 3,9 | 700 | 4 368 | 3 365 | 2 838 | 15 | 42 | 24 | | |
| | 3,1 | 600 | 3 900 | 2 970 | 2 620 | 11 | 40 | 22 | | |
| | 2,7 | 550 | 3 649 | 2 742 | 2 499 | 10 | 39 | 20 | | |
| | 2 | 450 | 3 090 | 2 240 | 2 230 | 9 | 37 | 19 | | |
| 934 HEE | 7,1 | 1090 | 7 669 | 5 639 | 4 446 | 52 | 50 | 33 | | |
| | 6,2 | 985 | 7 045 | 5 144 | 4 209 | 38 | 47 | 32 | | |
| | 5 | 850 | 6 179 | 4 472 | 3 854 | 25 | 44 | 26 | | |
| | 3,9 | 710 | 5 251 | 3 770 | 3 442 | 16 | 40 | 22 | | |
| | 2,7 | 570 | 4 262 | 3 040 | 2 973 | 10 | 37 | 18 | | |
| 934SP HEE | 9,1 | 1320 | 8 945 | 6 711 | 4 863 | 92 | 56 | 42 | | |
| | 8,2 | 1225 | 8 416 | 6 257 | 4 704 | 72 | 53 | 39 | | |
| | 7,3 | 1120 | 7 847 | 5 785 | 4 509 | 56 | 51 | 37 | | |
| | 6,5 | 1020 | 7 237 | 5 295 | 4 283 | 42 | 50 | 34 | | |
| | 3,6 | 660 | 4 960 | 3 650 | 3 342 | 14 | 39 | 32 | | |

EUROVENT conditions

Eurovent certified values

Cooling mode: water temperature: 7/12°C, inlet air temperature: 27°C - 19°C (WB)

Heating temperature (2T): water temperature: 45/40 °C, inlet air temperature: 20 °C

Heating temperature (4T): water temperature: 65/55 °C, inlet air temperature: 20 °C

MELODY2™

Cassettes



*Perfectly integrated,
the cassettes adapt to
aesthetic, financial
and material constraints*

Rated cooling capacity: 1,5 to 9,5 kW
Rated heating capacity: 1,3 to 11,3 kW



USE

The **MELODY2™** cassette is a non-independent air handling terminal unit installed in suspended ceilings, which combines low cost installation and the operating advantages of central

hot/chilled water production with individual temperature controls in each room.

RANGE

The **MELODY2™** range of cassette type fan coil units comprises 6 sizes which cover flow rates from 360 to 1450 m³/h and meet the most stringent sound level requirements.

2 models:

- Compact cassette 600 x 600, type 61 - 62 - 63.
- Large cassette 900 x 900, type 92 - 93 - 94.

MELODY2™ cassettes are available in 3 versions:

- A 2-tube system, with heating or cooling mode.
- A 2-tube + 2-wire system, with cooling + electric heating or heating/cooling + electric heating.
- A 4-tube system, with heating and cooling mode.

The **MELODY2™** cassettes are available either with a 3-speed AC motor or a variable speed EC motor that meet the new building energy performance objectives.

OPERATING PRINCIPLE

The fan takes the air from the room through a grille. Filtered to be purified, dehumidified, heated or cooled through a chilled or hot water exchanger coil, this air is then discharged

into the room to be air conditioned through 4 swivel blades so as to obtain a maximum increase of the air stream and ensure the diffusion by Coanda effect.

TECHNICAL DESCRIPTION

Return/supply air grille

- Fits perfectly within the suspended ceiling tile dimensions.
- Diffuser colour: Grille and frame: Pure white (RAL 9010) and deflectors: Signal white (RAL 9003).
- The manual deflectors are adjustable (2 positions) allowing air diffusion throughout the room.

Water coil (2-tube or 4-tube system)

- Galvanised steel sheet.
- Copper tubes, aluminium fins.
- Partial draining and air bleed valve.
- Rated pressure: 14 bar.
- Minimum water inlet temperature: 5 °C.
- Maximum water inlet temperature: 70 °C in 2-tube systems and 80 °C in 4-tube systems.

Electrical heater (2-tube system + electric mode)

- Heating element, stainless steel tubes, inserted in the finned block.
- 2 temperature limiter thermostats (1 auto + 1 manual).

Condensate drain pan

- A condensate drain pan in expanded polystyrene, covered with a waterproof film.
- Recovery is provided by a drain pump equipped with a safety float and mounted on anti-vibration mounts.
- The auxiliary pan is supplied as a standard accessory to recover the valve condensates.

Fan motor assembly

■ AC motor

3-speed motor

- Closed type, with protected shaft.
- Permanent capacitor in the electrics box.
- Automatic heat protection with opening as standard.
- Resilient mounts.
- 230 V-50/60 Hz single-phase power supply.
- Reduced consumption.

■ HEE motor

0 -10 V variable speed motor

- Brushless alternating current (BLAC) technology offering more linear torque progression and a lower operating sound level than brushless direct current (BLDC) motors.
- Sealed, tropicalised with protected well.
- Ball bearings.
- Internal automatic overload protection on the winding as standard.
- Resilient mounts.
- 230 V - 50/60 Hz single-phase power supply.

■ Fan

- Balanced centrifugal impeller with airfoil blades.
- Polymer impeller.

Air filter

- Located on the detachable grille, easy to remove without dismantling.
- Washable polypropylene filter, with efficiency class EU1 (EN13779).

Casing

- Galvanised steel sheet.
- Thermal and acoustic insulation of the internal surfaces.
- Pre-cut (Ø 70 mm for size 600 and Ø 100 for size 900). Pre-cut Ø 150 mm on the side for supply air into the adjacent room.

Electrics box

- Large ABS electrics box with a hinge to keep it open and screw closure.
- IP20 Index of Protection.
- Terminal block on DIN rail in accordance with EN 50022, 7.5 mm deep.
- Junction block located with tension clamp. Cross section 0.5 to 2.5 mm².
- Cable routing for customer connections.

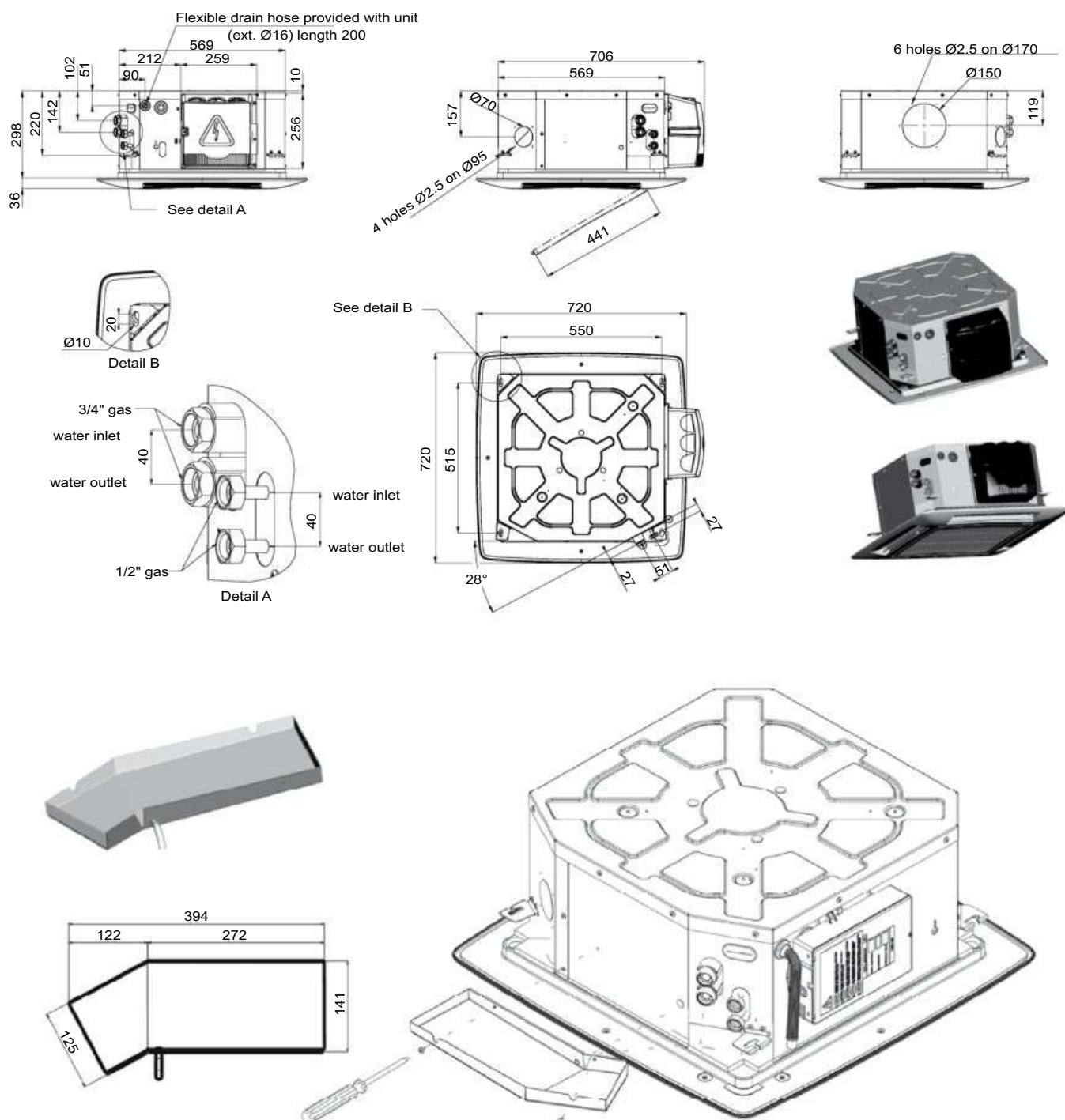
Accessories (available separately)

- Resilient mounts.
- 2-way or 3-way valve kit with bypass and 230 V on/off actuator.
- 2-way or 3-way valve kit with bypass and 24 V 3-point actuator.
- RTR-E & V30 thermostat (AC version only).
- V300 and V3000 control unit kit.

DIMENSIONS

Size 600

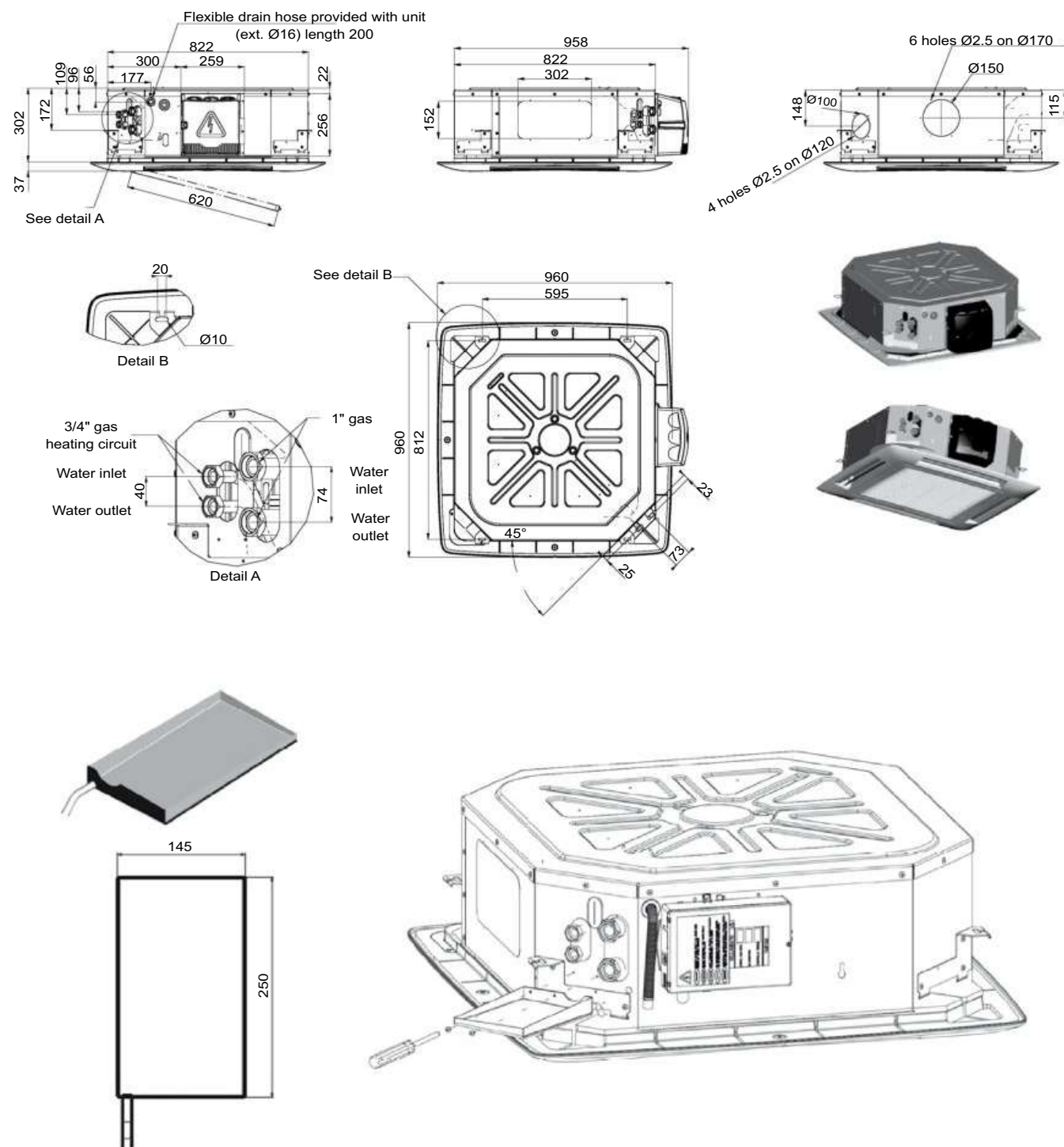
Unit without valves



DIMENSIONS

Size 900

Unit without valves



AC MOTOR PERFORMANCE

2-tube

| Size | Speeds | Air flow rate m³/h | Heating capacity W | Pressure drop (heating) kPa | Cooling capacity | | Pressure drop (cooling) kPa | Sound power level Lw dB(A) | Sound pressure level LP * dB(A) | NR * |
|-------|--------|-----------------------|-----------------------|-----------------------------------|------------------|------------|-----------------------------------|-------------------------------|------------------------------------|------|
| | | | | | Total W | Sensible W | | | | |
| 61 AC | 1 | 660 | 2 740 | 12 | 2 330 | 1 950 | 11 | 49 | 40 | 36 |
| | 2 | 450 | 2 170 | 8 | 1 740 | 1 460 | 7 | 41 | 32 | 28 |
| | 3 | 360 | 1 920 | 7 | 1 530 | 1 280 | 6 | 37 | 28 | 25 |
| 62 AC | 1 | 735 | 3 680 | 13 | 3 960 | 3 010 | 15 | 53 | 44 | 40 |
| | 2 | 505 | 3 150 | 10 | 2 860 | 2 161 | 9 | 47 | 35 | 31 |
| | 3 | 320 | 1 940 | 5 | 1 860 | 1 410 | 5 | 35 | 26 | 20 |
| 63 AC | 1 | 900 | 5 280 | 19 | 4 640 | 3 570 | 20 | 57 | 48 | 43 |
| | 2 | 625 | 3 920 | 12 | 3 460 | 2 640 | 12 | 48 | 39 | 34 |
| | 3 | 485 | 3 160 | 8 | 2 770 | 2 110 | 8 | 42 | 33 | 28 |
| 92 AC | 1 | 980 | 6 840 | 23 | 6 030 | 4 680 | 24 | 49 | 40 | 35 |
| | 2 | 720 | 5 080 | 14 | 4 410 | 3 440 | 13 | 40 | 31 | 26 |
| | 3 | 530 | 3 800 | 9 | 3 330 | 2 580 | 8 | 35 | 26 | 21 |
| 93 AC | 1 | 1160 | 8 510 | 15 | 7 130 | 5 370 | 12 | 54 | 45 | 40 |
| | 2 | 825 | 6 260 | 10 | 5 430 | 4 030 | 8 | 46 | 37 | 32 |
| | 3 | 500 | 3 850 | 5 | 3 680 | 2 660 | 5 | 38 | 29 | 22 |
| 94 AC | 1 | 1450 | 10 280 | 18 | 8 540 | 6 400 | 22 | 59 | 50 | 45 |
| | 2 | 1080 | 7 950 | 11 | 6 430 | 4 810 | 13 | 52 | 43 | 38 |
| | 3 | 600 | 4 380 | 5 | 4 020 | 2 950 | 6 | 40 | 31 | 25 |

4-tube

| Sizes | Speeds | Air flow rate m³/h | Heating capacity W | Pressure drop (heating) kPa | Cooling capacity | | Pressure drop (cooling) kPa | Sound power level Lw dB(A) | Sound pressure level LP * dB(A) | NR * |
|-------|--------|-----------------------|-----------------------|-----------------------------------|------------------|------------|-----------------------------------|-------------------------------|------------------------------------|------|
| | | | | | Total W | Sensible W | | | | |
| 61 AC | 1 | 660 | 1 670 | 30 | 1 970 | 1 840 | 15 | 49 | 40 | 36 |
| | 2 | 450 | 1 270 | 19 | 1 490 | 1 370 | 9 | 41 | 32 | 28 |
| | 3 | 360 | 1 090 | 15 | 1 340 | 1 180 | 8 | 36 | 28 | 25 |
| 62 AC | 1 | 735 | 5 460 | 21 | 3 340 | 2 620 | 13 | 53 | 44 | 40 |
| | 2 | 505 | 4 400 | 15 | 2 670 | 2 050 | 9 | 47 | 35 | 31 |
| | 3 | 320 | 3 100 | 9 | 1 980 | 1 490 | 6 | 35 | 26 | 20 |
| 63 AC | 1 | 900 | 5 800 | 24 | 3 950 | 3 250 | 17 | 57 | 48 | 43 |
| | 2 | 625 | 5 000 | 19 | 3 180 | 2 550 | 11 | 48 | 39 | 34 |
| | 3 | 485 | 4 320 | 15 | 2 530 | 2 040 | 8 | 42 | 33 | 28 |
| 93 AC | 1 | 1160 | 10 040 | 12 | 6 580 | 5 080 | 25 | 54 | 45 | 40 |
| | 2 | 825 | 7 790 | 8 | 4 930 | 3 780 | 15 | 46 | 37 | 32 |
| | 3 | 500 | 5 280 | 5 | 2 960 | 2 310 | 7 | 38 | 29 | 22 |
| 94 AC | 1 | 1450 | 12 770 | 18 | 7 490 | 5 890 | 32 | 59 | 50 | 45 |
| | 2 | 1080 | 10 070 | 12 | 5 970 | 4 640 | 22 | 52 | 43 | 38 |
| | 3 | 600 | 6 430 | 7 | 3 140 | 2 530 | 7 | 40 | 31 | 25 |

EUROVENT conditions

Cooling mode: (2-tube & 4-tube): Inlet air temperature: 27 °C/19 °C WB, inlet/outlet water temperature: 7 °C/12 °C

Heating mode: (2-tube): Inlet air temperature: 20 °C, inlet/outlet water temperature: 45 °C/40 °C

Heating mode: (4-tube): Inlet air temperature: 20 °C, inlet/outlet water temperature: 65 °C/55 °C

* Sound pressure level and noise rating values are based on a hypothetical sound attenuation of the room of 9 dB(A).

EC MOTOR PERFORMANCE

2-tube

| Size | Voltage V | Air flow rate m³/h | Heating capacity W | Pressure drop (heating) kPa | Cooling capacity | | Pressure drop (cooling) kPa | Sound power level Lw dB(A) | Sound pressure level LP * dB(A) | NR * |
|-------|--------------|--------------------------|--------------------------|--------------------------------------|------------------|---------------|--------------------------------------|----------------------------------|------------------------------------------|------|
| | | | | | Total W | Sensible W | | | | |
| 61 EC | 10 | 660 | 2 740 | 12 | 2 360 | 1 980 | 11 | 49 | 40 | 35 |
| | 6 | 450 | 2 170 | 8 | 1 770 | 1 490 | 7 | 40 | 31 | 27 |
| | 2 | 360 | 1 920 | 7 | 1 540 | 1 290 | 6 | 36 | 27 | 23 |
| 62 EC | 10 | 735 | 3 680 | 13 | 3 960 | 3 010 | 15 | 53 | 44 | 40 |
| | 6 | 505 | 3 150 | 10 | 2 860 | 2 161 | 9 | 44 | 35 | 31 |
| | 2 | 320 | 1 940 | 5 | 1 860 | 1 410 | 5 | 35 | 26 | 20 |
| 63 EC | 10 | 900 | 5 280 | 19 | 4 640 | 3 570 | 20 | 57 | 48 | 43 |
| | 6 | 625 | 3 920 | 12 | 3 460 | 2 640 | 12 | 48 | 39 | 34 |
| | 2 | 485 | 3 160 | 8 | 2 770 | 2 110 | 8 | 42 | 33 | 28 |
| 92 EC | 10 | 980 | 6 840 | 23 | 6 030 | 4 680 | 24 | 49 | 40 | 35 |
| | 6 | 720 | 5 080 | 14 | 4 410 | 3 440 | 13 | 40 | 31 | 26 |
| | 2 | 530 | 3 800 | 9 | 3 330 | 2 580 | 8 | 35 | 26 | 21 |
| 93 EC | 10 | 1160 | 8 510 | 15 | 7 130 | 5 370 | 12 | 54 | 45 | 40 |
| | 6 | 825 | 6 260 | 10 | 5 430 | 4 030 | 8 | 46 | 37 | 32 |
| | 2 | 500 | 3 850 | 5 | 3 680 | 2 660 | 5 | 38 | 29 | 22 |
| 94 EC | 10 | 1600 | 11 030 | 31 | 18 | 7 160 | 27 | 61 | 52 | 47 |
| | 6 | 1080 | 7 950 | 11 | 6 490 | 4 860 | 13 | 52 | 43 | 38 |
| | 2 | 600 | 4 380 | 7 | 4 050 | 2 980 | 6 | 40 | 31 | 25 |

4-tube

| Sizes | Voltage V | Air flow rate m³/h | Heating capacity W | Pressure drop (heating) kPa | Cooling capacity | | Pressure drop (cooling) kPa | Sound power level Lw dB(A) | Sound pressure level LP * dB(A) | NR * |
|-------|--------------|--------------------------|--------------------------|--------------------------------------|------------------|---------------|--------------------------------------|----------------------------------|------------------------------------------|------|
| | | | | | Total W | Sensible W | | | | |
| 61 EC | 10 | 660 | 1 670 | 30 | 1 970 | 1 840 | 15 | 49 | 40 | 36 |
| | 6 | 450 | 1 270 | 19 | 1 490 | 1 370 | 9 | 41 | 32 | 28 |
| | 2 | 360 | 1 090 | 15 | 1 340 | 1 180 | 8 | 36 | 28 | 25 |
| 62 EC | 10 | 735 | 5 460 | 21 | 3 340 | 2 620 | 13 | 53 | 44 | 40 |
| | 6 | 505 | 4 400 | 15 | 2 670 | 2 050 | 9 | 47 | 35 | 31 |
| | 2 | 320 | 3 100 | 9 | 1 980 | 1 490 | 6 | 35 | 26 | 20 |
| 63 EC | 10 | 900 | 5 800 | 24 | 3 950 | 3 250 | 17 | 57 | 48 | 43 |
| | 6 | 625 | 5 000 | 19 | 3 180 | 2 550 | 11 | 48 | 39 | 34 |
| | 2 | 485 | 4 320 | 15 | 2 530 | 2 040 | 8 | 42 | 33 | 28 |
| 93 EC | 10 | 1160 | 10 040 | 12 | 6 580 | 5 080 | 25 | 54 | 45 | 40 |
| | 6 | 825 | 7 790 | 8 | 4 930 | 3 780 | 15 | 46 | 37 | 32 |
| | 2 | 500 | 5 280 | 5 | 2 960 | 2 310 | 7 | 38 | 29 | 22 |
| 94 EC | 10 | 1600 | 14 000 | 20 | 7 910 | 6 280 | 34 | 61 | 52 | 47 |
| | 6 | 1080 | 10 070 | 12 | 6 020 | 4 640 | 22 | 52 | 43 | 38 |
| | 2 | 600 | 6 430 | 7 | 3 140 | 2 530 | 7 | 40 | 31 | 25 |

EUROVENT conditions

Cooling mode: (2-tube & 4-tube): Inlet air temperature: 27 °C/19 °C WB, inlet/outlet water temperature: 7 °C/12 °C

Heating mode: (2-tube): Inlet air temperature: 20 °C, inlet/outlet water temperature: 45 °C/40 °C

Heating mode: (4-tube): Inlet air temperature: 20 °C, inlet/outlet water temperature: 65 °C/55 °C

* Sound pressure level and noise rating values are based on a hypothetical sound attenuation of the room of 9 dB(A).

TECHNICAL AND ELECTRICAL CHARACTERISTICS

Coil capacity (litres)

| | | 61 | 62 | 63 | 92 | 93 | 94 |
|-----------------------------|---------|------|-----|-----|-----|-----|-----|
| Standard 2-tube system coil | | 0,55 | 1,1 | 1,1 | 1,6 | 2,4 | 2,4 |
| 4-tube coil | Cooling | 0,4 | 1,1 | 1,1 | | 2,4 | 2,4 |
| | Heating | 0,1 | 0,6 | 0,6 | | 1,2 | 1,2 |

Coil connection diameter

| | | 61 | 62 | 63 | 92 | 93 | 94 |
|----------------------|---------|--------|--------|--------|------|--------|--------|
| Standard 2-tube coil | | G 3/4" | G 3/4" | G 3/4" | G 1" | G 1" | G 1" |
| 4-tube coil | Cooling | G 3/4" | G 3/4" | G 3/4" | | G 1" | G 1" |
| | Heating | G 1/2" | G 1/2" | G 1/2" | | G 3/4" | G 3/4" |

Electrical characteristics * (230 V - 50 Hz / 60 Hz single-phase) – AC fan motor

| | Speed | 61 AC | 62 AC | 63 AC | 92 AC | 93 AC | 94 AC |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Power input (W) | 1 | 58 | 58 | 99 | 66 | 88 | 125 |
| | 2 | 35 | 34 | 58 | 41 | 61 | 92 |
| | 3 | 25 | 17 | 38 | 28 | 34 | 44 |
| Absorbed current (A) | 1 | 0,27 | 0,24 | 0,41 | 0,3 | 0,46 | 0,63 |
| | 2 | 0,17 | 0,14 | 0,24 | 0,17 | 0,27 | 0,41 |
| | 3 | 0,12 | 0,07 | 0,16 | 0,12 | 0,14 | 0,19 |

Electrical characteristics * (230 V - 50 Hz / 60 Hz single-phase) – HEE fan motor

| | Speed | 61 EC | 62 EC | 63 EC | 92 EC | 93 EC | 94 EC |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Power input (W) | 2V | 29 | 33 | 57 | 25 | 45 | 115 |
| | 6V | 13 | 14 | 23 | 12 | 23 | 40 |
| | 10V | 9 | 7 | 13 | 7 | 9 | 11 |
| Absorbed current (A) | 2V | 0,19 | 0,27 | 0,46 | 0,23 | 0,4 | 0,89 |
| | 6V | 0,1 | 0,13 | 0,2 | 0,12 | 0,22 | 0,35 |
| | 10V | 0,08 | 0,08 | 0,12 | 0,08 | 0,1 | 0,12 |

* Specifications determined for a 230 V +/- 10% - 50 Hz power supply. For operation at 60 Hz, the power input and rotation speed values are generally higher.

Electrical characteristics (240 V - 50 Hz single-phase) – electrical heater

| | 61 | 62 | 63 | 92 | 93 | 94 |
|----------------------|------|------|------|------|------|------|
| Electrical power | 1500 | 2500 | 2500 | 3000 | 3000 | 3000 |
| Absorbed current (A) | 6,3 | 10,4 | 10,4 | 12,5 | 12,5 | 12,5 |

Dimensions and weights

| | 61 | 62 | 63 | 92 | 93 | 94 |
|-------------------------------|-----------------|----------------|----------------|-----------------|----------------|----------------|
| Dimensions** (H x L x D) mm | 298 x 706 x 706 | | | 302 x 958 x 958 | | |
| Grille dimensions (H x L x D) | 36 x 720 x 720 | 36 x 720 x 720 | 36 x 720 x 720 | 37 x 960 x 960 | 37 x 960 x 960 | 37 x 960 x 960 |
| Weight unit/grille weight | 14,8/3 | 16,5/3 | 16,5/3 | 37/5 | 39,6/5 | 39,6/5 |

** With electrics box and without valves

AIR THROW (IN METRES)

| MELODY2™ | Louvres all open | | |
|----------|------------------|--------------|-----------|
| | High speed | Medium speed | Low speed |
| 61 | 3,8 | 3,2 | 2,7 |
| 62 | 4,0 | 3,4 | 2,8 |
| 63 | 4,8 | 4,1 | 3,4 |
| 92 | 3,0 | 2,6 | 2,1 |
| 93 | 3,4 | 2,9 | 2,4 |
| 94 | 4,3 | 3,7 | 3,0 |

Notes:

1. The deflectors were adjusted to use the Coanda effect to obtain an air flow pattern that adheres as closely as possible and parallel to the ceiling.
2. The air throw is defined as the distance at which the air flow speed falls to 0.2 m/s, when the air flow leaves the unit parallel to the ceiling.
3. The values are to be considered as indicative, as they may vary according to the type of ceiling, room dimensions and even the furniture used.

OPERATING LIMITS

| | | |
|--------------------|----------------------------------------------------|------------------------------------------------------------|
| Water circuit | Maximum water-side pressure: 1400 kPa (142 mWG) | Minimum inlet water temperature: 5 °C |
| | | Maximum inlet water temperature: 80 °C |
| Indoor temperature | | Minimum temperature: 5 °C |
| | | Maximum temperature: 32 °C for units with electric heaters |
| Power supply | Nominal operating limits | 230 V - 50/60 Hz single-phase |
| | | Min. 207 - Max 253 V for units without electric heaters |
| | | Min. 216 - Max 244 V for units with electric heaters |

MAJOR LINE™

Comfort units

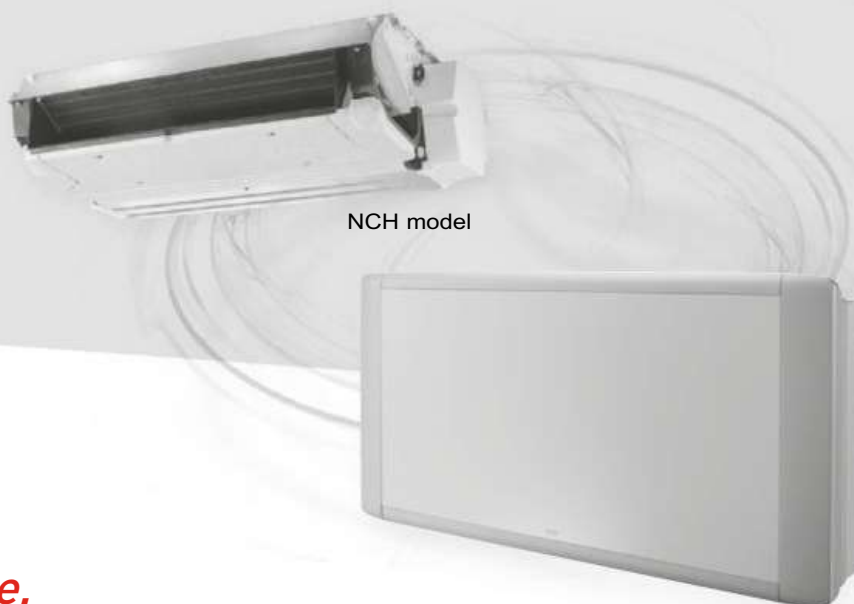
Versatile

unit meeting all building-specific constraints

Energy and ecodesign performance.

*Improved occupant **comfort**, very low sound level*

***Innovative** design ensuring easy installation and simplified maintenance*



NCH model

CV model

New coils with patented fins, new size designations.



MAJOR LINE™

Designed for heating and cooling, **MAJOR LINE™** is available in 4 models (cased or uncased, horizontal or vertical).

The versatility of MAJOR LINE™, thanks to its different assembly options and range of accessories, means it can be adapted to any type of installation.

In Europe, it has become a benchmark solution for renovations of large office blocks and hotel chains and restoration of buildings, etc.

Modern aesthetic lines, excellent sound levels and optimised thermal performance. With MAJOR LINE™, CIAT offers a comfort solution which is both economical and quick to set up.

INNOVATIVE DESIGN

A true stylistic evolution, MAJOR LINE™ has distinguished lines with a slim and elegant shape. Its attractive and modern design will blend perfectly with all types of interior.



VERSATILITY OF THE MODELS

- Two versions:
- Cased (visible)
 - Uncased (flush-mounted)
- The same product reference for both applications: CV (Cased Vertical)/CH (Cased Horizontal).
- The same product reference for both applications: NCV (Uncased Vertical)/NCH (Uncased Horizontal).

Units with left/right hydraulic connections available for easier adaptation to refurbished buildings.

Cased or Uncased models available with classic air return (assemblies 1, 41, 1V and 41V) and front mounted air return (assemblies 1D, 41D, 1VD and 41VD).

A large selection of accessories available in:

- Fresh air and mixed
- Diffusion and return air

For NCH, the hydraulic and electrical connections can be supplied on the same side making the unit more compact and simplifying installation.

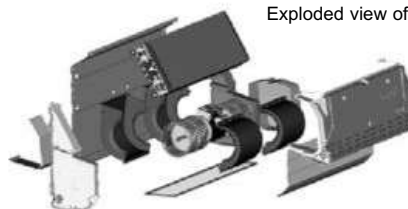
Unit operates with 50 and 60 Hz supply.

INNOVATIVE DESIGN

- New shaped ABS volute designed to optimise output and performance.
- 160 mm HEE (High Energy Efficiency) impeller, with CIAT exclusive airfoil blades in self-extinguishable HB ABS.
- Hydraulic coil with total frontal surface increased from 5 to 15% (according to the size and in relation to the units of previous ranges) for improved performance and output.



Shaped ABS volute



Exploded view of NCV model

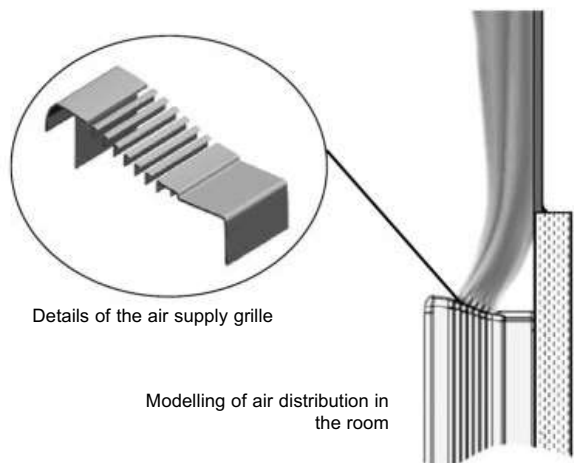
SIMPLE TO INSTALL AND MAINTAIN

- Filter easily accessible.
- Single unit casing easily removed with two screws in the lower part of the unit.
- Option of replacing only the faulty component on the fan motor assembly: only the motor or the impeller.
- All the speeds are connected to the electrical terminal of the unit and are easily accessible on site for customised adjustment.
- No plastic moving parts on the casing (hinged access hatch for example) for increased durability of the unit over time.



LATEST GENERATION OF COMFORT

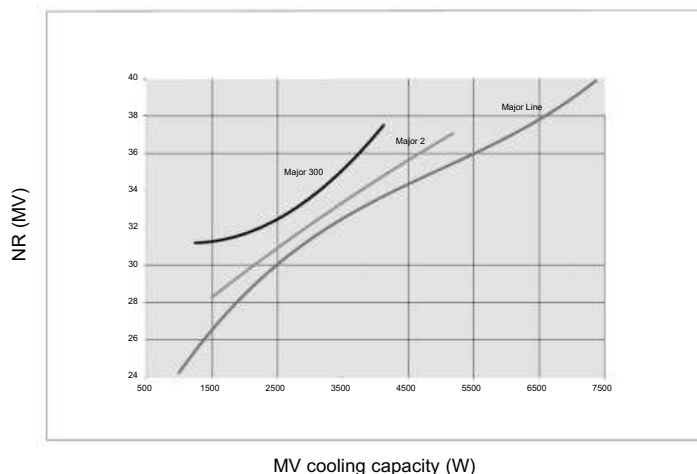
- Improved control of the supply air temperature to reduce discomfort.
- Diffusion grille optimised in our Research & Innovation Centre for increased overall comfort in accordance with the most demanding standards.



Details of the air supply grille

Modelling of air distribution in the room

Acoustic performance (MV trend line)



MORPHO CODES - MAJOR LINE™ DESCRIPTION

| Range | Size | Model | Installation | Coil type | Connector | Thermal function | Motor | Speeds | Filter |
|-------|-------|-------|--------------|-----------|-----------|------------------|-------|------------------------|--------|
| MJL | 10 2A | CV | 1 | 2T2F | G | F + 500W | HEE | depending on selection | G3 |

| | |
|------------|-----------------------------------------|
| HEE 2-10V | Energy efficient motor, 2-10 V control |
| HEE ON/OFF | Energy efficient motor, 3-speed control |
| AC | 5-speed asynchronous motor |

| | |
|----|------------------|
| 10 | 300 W or 600 W |
| 20 | 500 W or 1000 W |
| 30 | 800 W or 1600 W |
| 40 | 1200 W or 2400 W |
| 50 | 1600 W or 3200 W |
| 60 | Not available |

| | |
|----|-----------------|
| F | Cooling |
| C | Heating |
| CF | Heating/Cooling |

| | |
|---|--------------------------|
| G | Left, facing air supply |
| D | Right, facing air supply |

| | |
|------|-----------------|
| 2T | 2 pipes |
| 2T2F | 2-pipe + wiring |
| 4T | 4 pipes |

| | |
|------|--------------------------|
| 1 | Return underneath CV |
| 1D | Front-mounted return CV |
| 41 | Rear-mounted return CH |
| 41D | Return underneath CH |
| 1V | Return underneath NCV |
| 1VD | Front-mounted return NCV |
| 41V | Rear-mounted return NCH |
| 41VD | Return underneath NCH |

| | |
|-------|-----------------------------------------------------------------------------|
| CV | Cased Vertical model |
| CH | Cased Horizontal model |
| NCV | Uncased Vertical model |
| NCH | Uncased Horizontal model |
| NCH Y | Y Uncased Horizontal model with supply plenum (plenum delivered not fitted) |
| NCH H | Horizontal uncased model with supply & return plenum |
| NCH U | Horizontal uncased model with supply & return plenum |

| | |
|----|---------------------------------------------------------------|
| 2J | 2-pipe 1.5-row version (+ possible wiring) |
| 2K | 2-pipe 2-row version |
| 2M | 2-pipe 2.5-row version (+ possible wiring) |
| 2N | 2-pipe 3-row version |
| 4P | 4-pipe, 2.5-row version (cooling) + 0.5 row version (heating) |
| 4R | 4-pipe, 1-row version (cooling) + 2 row version (heating) |

| | |
|----|------|
| 10 | Size |
| 20 | |
| 30 | |
| 40 | |
| 50 | |
| 60 | |

TECHNICAL DESCRIPTION

Casing

- Single-unit casing and side members in ABS
- Front/rear panel in galvanised steel with mounting holes for easy fixing.

Casing for CV/CH model

Bi-material casing in two colours:

- Flange, side member and supply air grille in RAL 7035 grey ABS
- Front pressed metal panel painted RAL 9010 white and front mounted return air grille (1D, 41D) in RAL 7035 grey
- Central access point for housing the built-in thermostats

Water coil

- High performance coil concept
- Coil casing in galvanised panels.
- Copper pipes, aluminium louver or non-louver fins, patented.
- Water coil tap on the left or right of the unit from the front of the supply air (to be specified when ordering).
- 2 or 4-pipe main coil fitted with ½" or ¾" rotary couplings with air purge and drain screw.
- Additional coil for 4 pipes fitted with ½" rotary couplings with 40 mm centre-to-centre distance.
- Nominal pressure of 16 bar (at 20°C)
- Test pressure 18 bar.
- Maximum hot water inlet temperature:
 - 4-pipe application: 90°C
 - 2-pipe application: 90°C
 - 2-pipe/2-wire application: 55°C (min. air flow: 200 m³/h)

Electric heater

- Single pipe 230V single phase 50/60 Hz electrical elements inserted into the aluminium housing.
- Two capillary tube temperature limiters with manual and automatic reset inserted in the aluminium housing.

Condensate drain pan

- Pan in ABS PC 10% fibreglass with M1 class reinforced EPS insulation (20 mm thick).
- Reinforced insulation for all climates, M1 class EPS panel (20 mm thick).
- ABS auxiliary pan.
- 22 mm external Ø raised condensate outlet.

Fan motor assembly

■ Fan(s)

Impeller(s) in ABS in split units for total accessibility of the different parts of the fan motor assembly.
160 mm HEE impeller(s), with CIAT exclusive airfoil blades in self-extinguishable HB ABS.

■ HEE motor

High energy efficiency motor enabling a reduction of up to 85% in electricity consumption.

- Brushless technology.
- Sealed type, tropicalised with protected shaft.
- Progressive control with 0-10V control signal.
- Internal normally closed series automatic overload protection on the windings.
- Mounted on anti-vibration mounts.
- Supply 230V±10%/1-Ph/50-60 Hz.
- optional:
 - 3-speed on/off output motor actuation
 - "DFS" motor fault output using a photocoupler for potential alarm feedback via a KNX protocol communication bus. (via V3000 controller)

Note: The minimum voltage to start up the motor is 2V.

■ Asynchronous motor

- 5 factory-fitted wired speeds (connected and available at the terminal) for customised adjustment.
- Sealed, tropicalised type, class F with protected shaft.
- Permanent capacitor.
- Ball bearings.
- Automatic overload protection as standard on winding.
- Resilient mounts.
- 230V single-phase 50/60 Hz power supply, reduced consumption.

Electrics box

- Box incorporated on the side of the base opposite the hydraulics.
- Fully encased in an enclosure in PP 20% Talc.
- Electrical connection terminal on DIN rail in compliance with EN 50022, 7.5 mm deep.
- Wire clamps for customer connection.

Air filter

- Flexible filter medium made of regenerative polyester fibre, on rigid frame.
- Efficiency class EN 779: G3.
- Fire rating: M1.
- Mounted on pivoting runners for easy maintenance

Packaging

- Delivered in individual boxes on pallets protected by stretch wrap film.

Controls

- RTR-E electromechanical thermostat range.
- V30 electronic range.
- V300 electronic range.
- Networked electronic range (KNX): V3000.
- Networked electronic range (LON): V-LON2.

Factory-fitted options

- Condensate drain pump.
- Rectangular supply air sleeve for direct distribution in soffit.
- Supply and return air plenum for H and U assembly (contact us) for sizes 2 to 4.
- Electrics box on hydraulic side for NCH models only.
- Hydraulic coil with blades protected for use in harmful/corrosive atmospheres (coastal locations, or areas close to chemical industries).
- Unit without electrics box, or DIN Rail ("bare wire option")

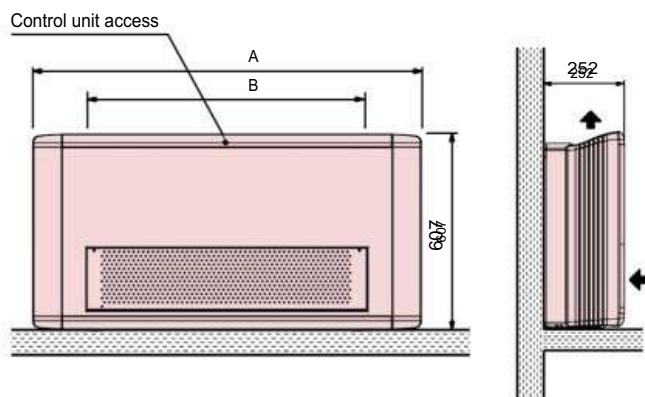
Accessories supplied separately

- Support feet or base
- Return air grille between feet
- Rear skirting support and rear painted panel
- Internal/external air recovery unit
- Single- or dual-deflection diffusion grille
- Diffusion kit with round duct
- Supply air plenum kit for sizes 1 to 6
- Condensate drain pump kit
- Elastic bushings
- Smooth sleeve or Ø 100 mm MR Module
- Hose or tube kit with or without insulation
- 2-way or 3-way valve kit with 230V on/off bypass

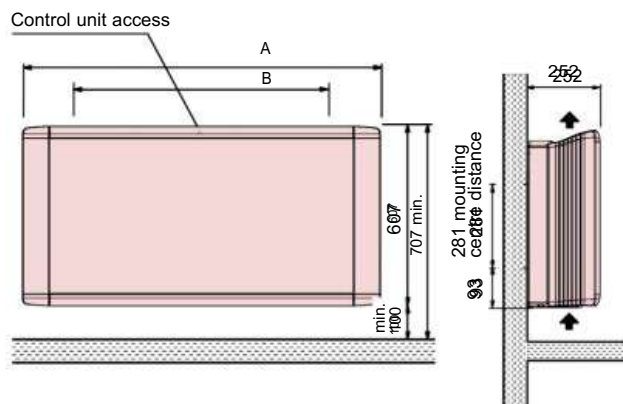
Note: refer to the technical manual and the instruction manual for more information.

ASSEMBLY AND DIMENSIONS – CV MODEL (CASED VERTICAL)

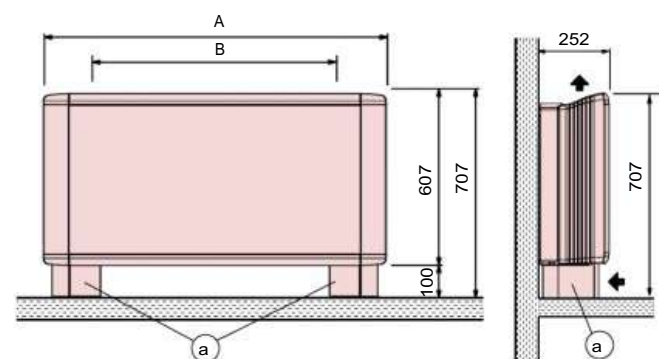
→ Assembly 1D: Unit with return on front



→ Assembly 1: Basic unit with return underneath



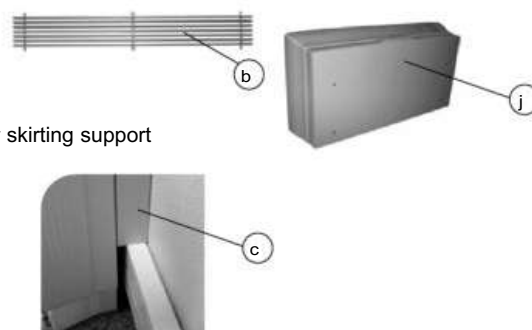
→ Assembly 2: Basic unit with feet



Options available with assembly 2:

- Base mounted grille
- Rear painted panel

- Rear skirting support



Accessories for assembly configurations (supplied separately)

- a: Support feet
- b: Aluminium return air grille between feet
- c: Painted rear skirting support
- j: Rear painted panel RAL 7035

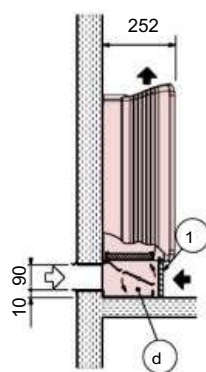
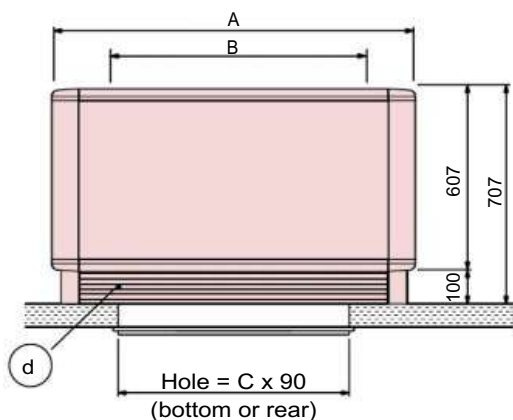
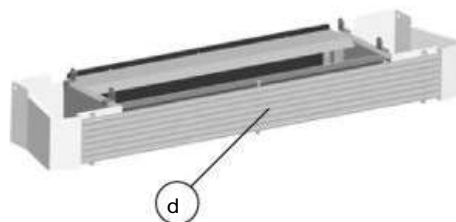
| Sizes MAJOR LINE™ | A | B mounting centre distance | Weight (kg) * | |
|----------------------|------|-------------------------------|----------------|------------|
| | | | Assembly 1/ 1D | Assembly 2 |
| 10 | 840 | 505 | 20 | 21 |
| 20 | 1000 | 665 | 23 | 24 |
| 30 | 1200 | 865 | 28 | 29 |
| 40 | 1400 | 1065 | 34 | 35 |
| 50 | 1600 | 1265 | 39 | 40 |
| 60 | 1800 | 1465 | 44 | 45 |

* Weight of the unit in 4-pipe version (without valves)

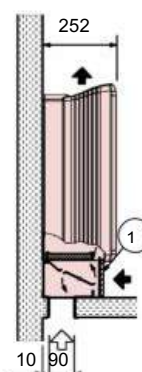
ASSEMBLY AND DIMENSIONS – CV MODEL (CASED VERTICAL)

→ Assemblies 5 and 6:

Basic unit equipped with a manual pretreated air/recycled air mixing unit with a return air grille and a damper regulating the pretreated air intake.



Assembly 5



Assembly 6

⇨ Air pretreated by an air handling unit

Accessories for assembly configurations (supplied separately)

d: Manually controlled int./ext. air recovery unit with return air grille ① for filter removal

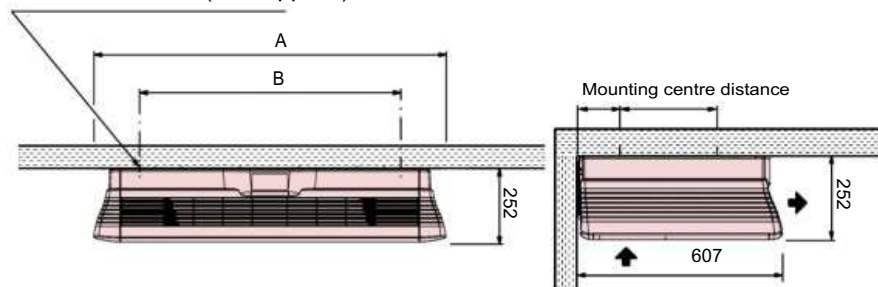
| Sizes MAJOR LINE™ | A | B mounting centre distance | C hole space | Weight (kg) * |
|----------------------|------|-------------------------------|-----------------|------------------|
| 10 | 840 | 505 | 430 | 24 |
| 20 | 1000 | 665 | 430 | 28 |
| 30 | 1200 | 865 | 780 | 32 |
| 40 | 1400 | 1065 | 780 | 40 |
| 50 | 1600 | 1265 | 1180 | 45 |
| 60 | 1800 | 1465 | 1180 | 50 |

* Weight of the unit in 4-pipe version (without valves)

ASSEMBLY AND DIMENSIONS – CH MODEL (CASED HORIZONTAL)

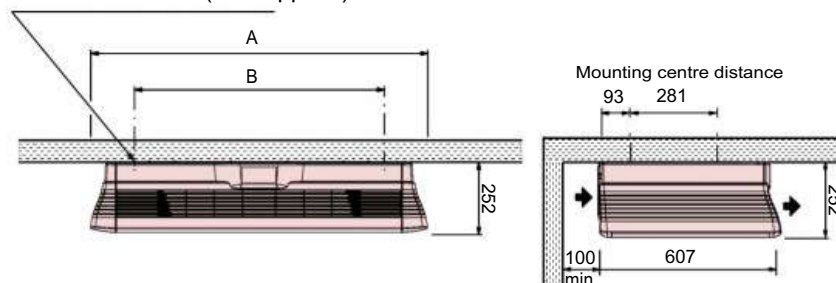
→ Assembly 41D: Unit with return on front

Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



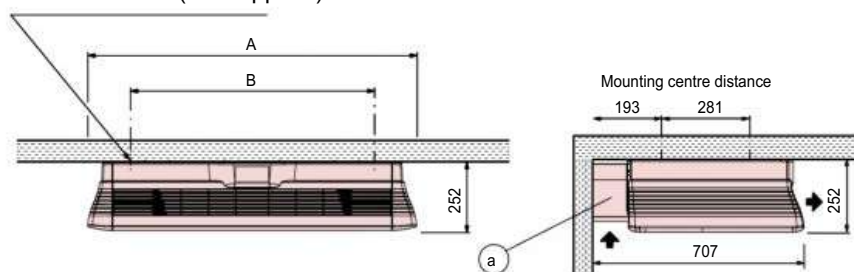
→ Assembly 41: Basic unit

Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



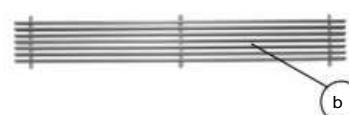
→ Assembly 42: Basic unit with feet

Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



Option available on assembly 42:

- Base mounted grille



Accessories for assembly configurations (supplied separately)

a: Support feet

b: Aluminium internal return air grille between feet

Note: For assembly 42 the condensate drain pump must be used.

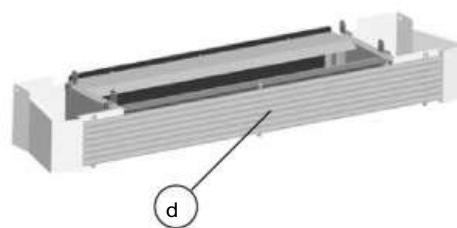
| Sizes MAJOR LINE™ | A | B mounting centre distance | Weight (kg) * | |
|----------------------|------|-------------------------------|------------------|-------------|
| | | | Assembly 41D/ 41 | Assembly 42 |
| 10 | 840 | 505 | 20 | 21 |
| 20 | 1000 | 665 | 23 | 24 |
| 30 | 1200 | 865 | 28 | 29 |
| 40 | 1400 | 1065 | 34 | 35 |
| 50 | 1600 | 1265 | 39 | 40 |
| 60 | 1800 | 1465 | 44 | 45 |

* Weight of heaviest unit in 4-pipe configuration

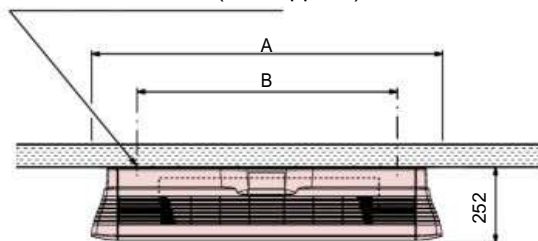
ASSEMBLY AND DIMENSIONS – CH MODEL (CASED HORIZONTAL)

→ Assemblies 45 and 46:

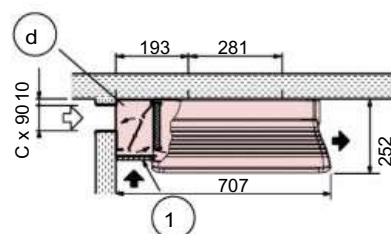
Basic unit equipped with a manual pretreated air/recycled air mixing unit with a return air grille and a damper regulating the pretreated air intake.



Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



Mounting centre distance



Assembly 46

Assembly 45:
identical with ceiling mounted pretreated air intake

⇒ Air pretreated by an air handling unit

Accessories for assembly configurations (supplied separately)

d Manually controlled int./ext. air recovery unit with return air grille ① for filter removal

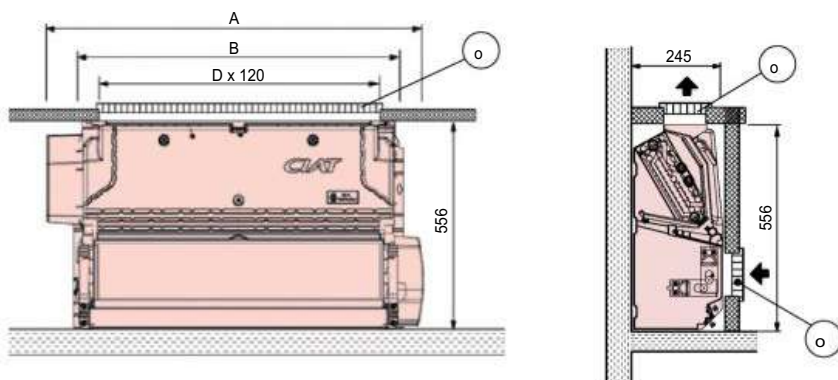
For assemblies 45-46 the condensate drain pump must be used.

| Size MAJOR LINE™ | A | B mounting centre distance | C hole space | Weight (kg) * |
|---------------------|------|-------------------------------|-----------------|------------------|
| 10 | 840 | 505 | 430 | 24 |
| 20 | 1000 | 665 | 430 | 28 |
| 30 | 1200 | 865 | 780 | 32 |
| 40 | 1400 | 1065 | 780 | 40 |
| 50 | 1600 | 1265 | 1180 | 45 |
| 60 | 1800 | 1465 | 1180 | 50 |

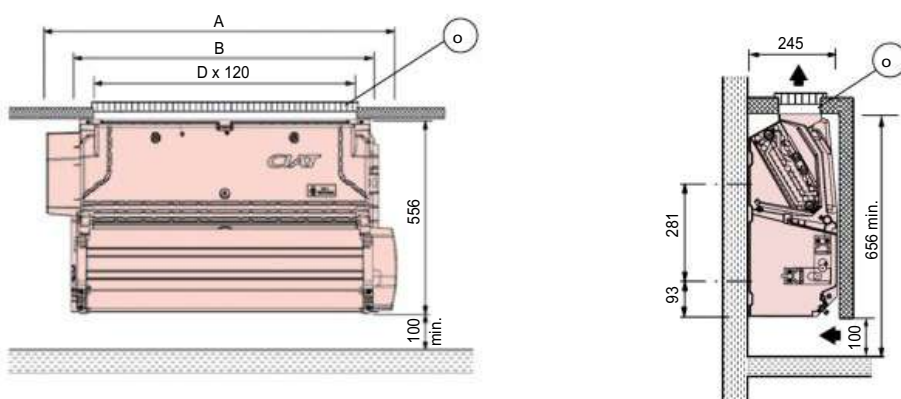
* Weight of the unit in 4-pipe version (without valves)

ASSEMBLY AND DIMENSIONS – NCV MODEL (UNCASED VERTICAL)

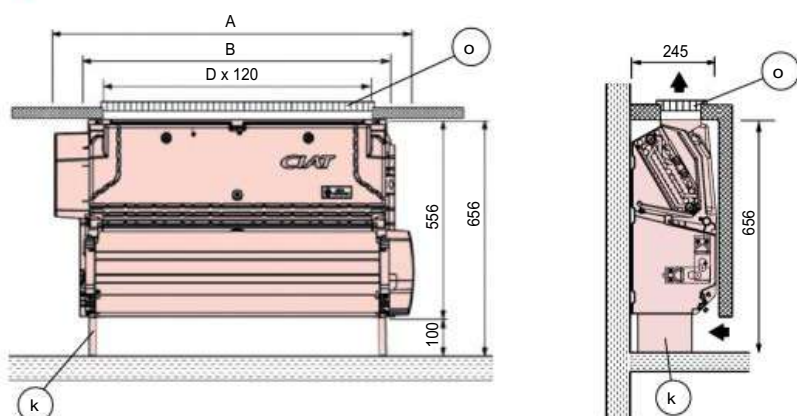
→ **Assembly 1VD:** Unit with return on front



→ **Assembly 1V:** Basic unit with bottom-mounted return



→ **Assembly 2V:** Basic unit with support base



Accessories for assembly configurations (supplied separately)



k Support base

o Aluminium single deflection diffusion or return air grille with sealing frame (without hatch).

Note: this grille can be used for both return and supply air.

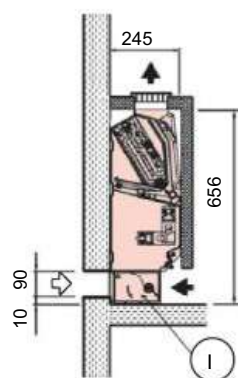
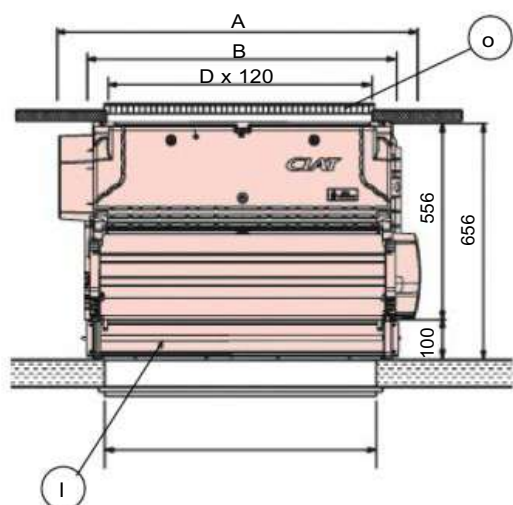
| Sizes MAJOR LINE™ | A | B mounting centre distance | D grille space | Weight (kg) * |
|----------------------|------|-------------------------------|-------------------|---------------|
| 10 | 652 | 505 | 355 | 15 |
| 20 | 812 | 665 | 515 | 18 |
| 30 | 1012 | 865 | 715 | 22 |
| 40 | 1212 | 1065 | 915 | 28 |
| 50 | 1412 | 1265 | 1115 | 32 |
| 60 | 1612 | 1465 | 1315 | 36 |

* Weight of the unit in 4-pipe version (without valves)

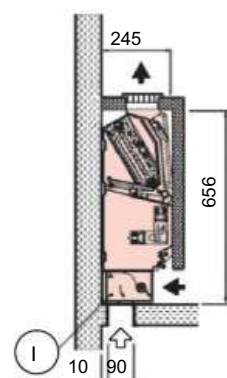
ASSEMBLY AND DIMENSIONS – NCV MODEL (UNCASED VERTICAL)

→ Assemblies 5V and 6V:

Basic unit equipped with a manual pre-treated air/ recycled air mixing unit with a damper regulating the pre-treated air intake.



Assembly 5V



Assembly 6V

⇨ Air pretreated by an air handling unit

Accessories for assembly configurations (supplied separately)

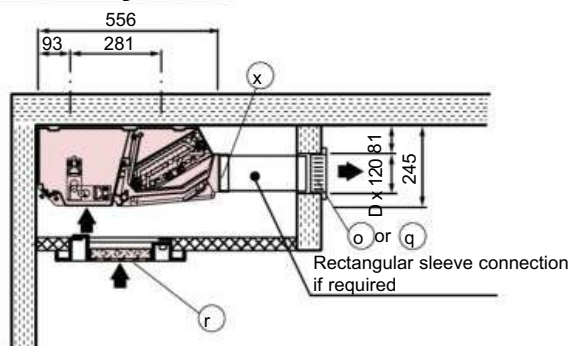
- I: Internal/external manually controlled air return unit
 - O: Aluminium single deflection diffusion or return air grille with sealing frame (without hatch).
- For other applications, please consult us.

| MAJOR LINE™ size | A | B mounting centre dis- tance | C hole space | D grille space | Weight (kg)* |
|---------------------|------|------------------------------------|-----------------|-------------------|-----------------|
| 10 | 652 | 505 | 430 | 355 | 16,5 |
| 20 | 812 | 665 | 430 | 515 | 20 |
| 30 | 1012 | 865 | 780 | 715 | 25 |
| 40 | 1212 | 1065 | 780 | 915 | 32 |
| 50 | 1412 | 1265 | 1180 | 1115 | 37 |
| 60 | 1612 | 1465 | 1180 | 1315 | 42 |

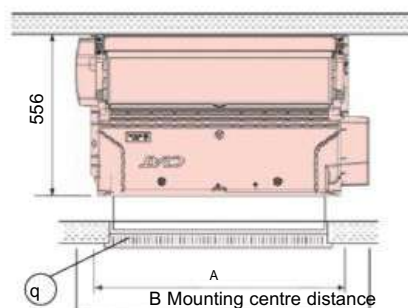
* Weight of heaviest unit in 4-pipe configuration

ASSEMBLY AND DIMENSIONS – NCH MODEL (UNCASED HORIZONTAL)

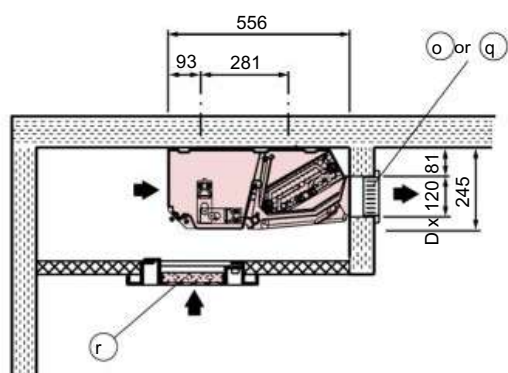
→ **Assembly 41VD:** Unit with return on front



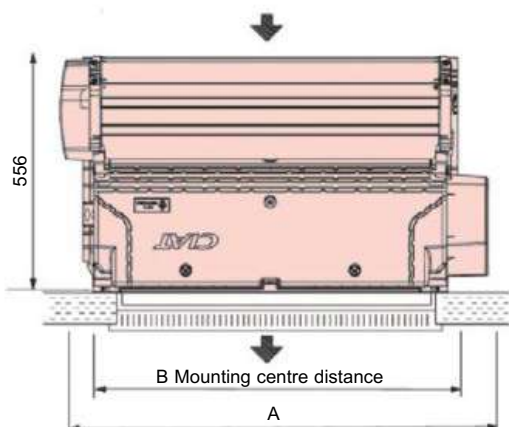
View from beneath



→ **Assembly 41VD:** Unit with return on front



View from beneath



Option available
on assemblies 41VD, 41V and 42V:

- Aluminium single (o) or double (q) deflection diffusion grille with sealing frame



- Metal sleeve for connection to air discharge



Accessories for assembly configurations (supplied separately)

- o: Aluminium single deflection diffusion grille with sealing frame.
- q: Aluminium double deflection diffusion grille with sealing frame
- r: 600 x 600 microperforated return air grille (see diffusion range)
- x: Metal sleeve connecting rectangular sleeve to supply air

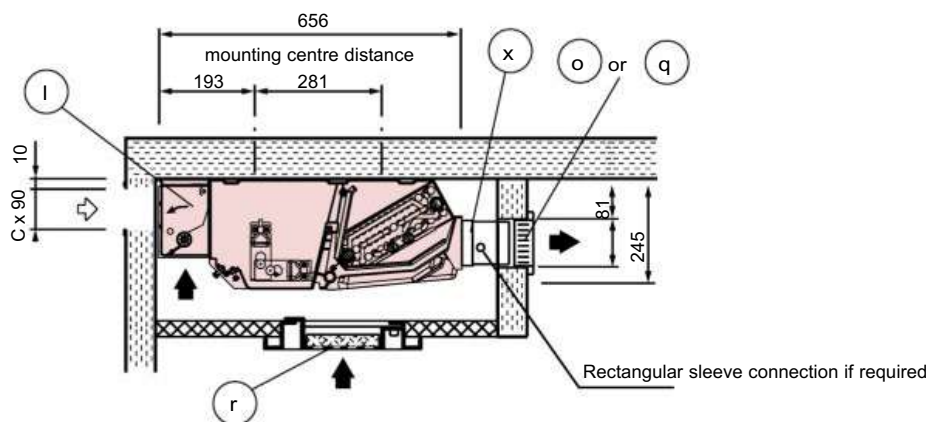
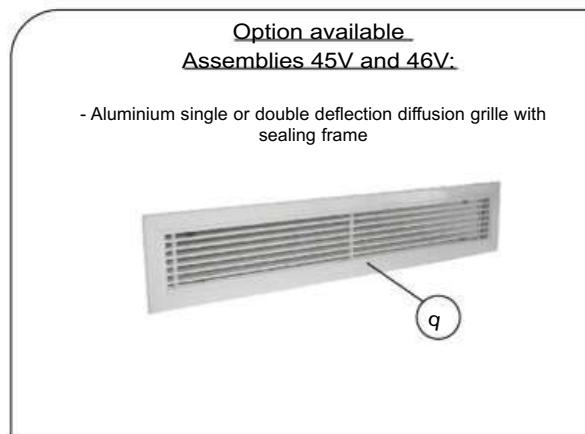
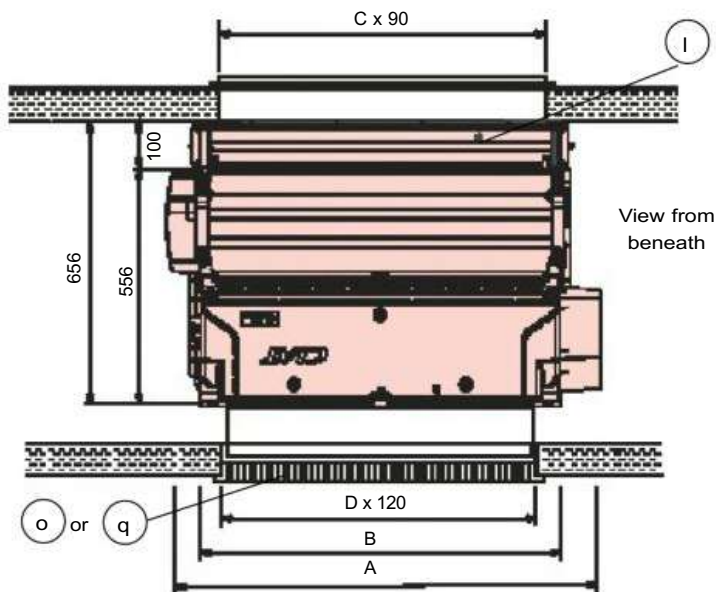
| Size MAJOR LINE™ | A | B mounting centre distance | D grille space | Weight (kg) * |
|---------------------|------|-------------------------------|-------------------|------------------|
| 10 | 652 | 505 | 355 | 15 |
| 20 | 812 | 665 | 515 | 18 |
| 30 | 1012 | 865 | 715 | 22 |
| 40 | 1212 | 1065 | 915 | 28 |
| 50 | 1412 | 1265 | 1115 | 32 |
| 60 | 1612 | 1465 | 1315 | 36 |

* Weight of the unit in 4-pipe version (without valves)

ASSEMBLY AND DIMENSIONS – NCH MODEL (UNCASED HORIZONTAL)

→ Assemblies 45V and 46V:

Basic unit equipped with a manual fresh air/recycled air mixing unit with a damper regulating the pre-treated air intake.



⇨ Air pretreated by an air handling unit

Accessories for assembly configurations (supplied separately)

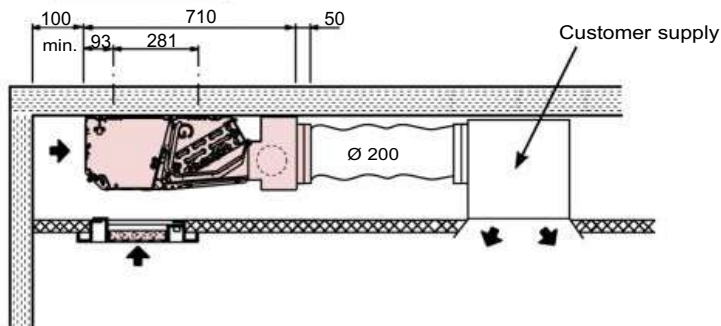
- I: Internal/external manually controlled air return unit
- o: Aluminium single deflection diffusion grille with sealing frame
- q: Aluminium double deflection diffusion grille with sealing frame
- r: 600 x 600 microperforated return air grille (see diffusion range)
- x: Metal sleeve connecting rectangular sleeve to supply air

| MAJOR LINE™ size | A | B Mounting centre distance | C hole space | D grille space | Weight (kg)* |
|------------------|------|-------------------------------|-----------------|-------------------|--------------|
| 10 | 652 | 505 | 430 | 355 | 16,5 |
| 20 | 812 | 665 | 430 | 515 | 20 |
| 30 | 1012 | 865 | 780 | 715 | 25 |
| 40 | 1212 | 1065 | 780 | 915 | 32 |
| 50 | 1412 | 1265 | 1180 | 1115 | 37 |
| 60 | 1612 | 1465 | 1180 | 1315 | 42 |

* Weight of heaviest unit in 4-pipe configuration

ASSEMBLY AND DIMENSIONS – NCH MODEL (UNCASED HORIZONTAL)

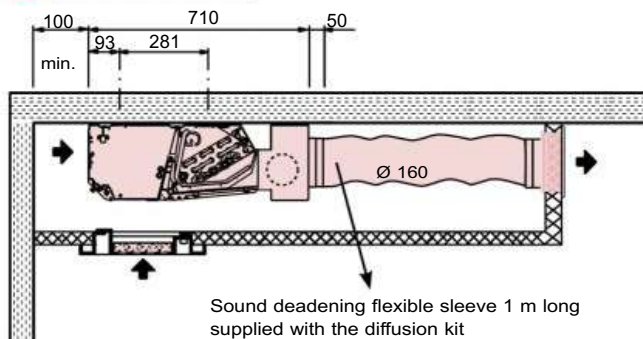
→ Y assembly:



Supply air plenum delivered not fitted. Available for sizes 1 to 6

| Size | Number of collars | Ø of collars |
|------|-------------------|--------------|
| T1 | 1 | 200 |
| T2 | 1 | 200 |
| T3 | 2 | 200 |
| T4 | 3 | 200 |
| T5 | 3 | 200 |
| T6 | 3 | 200 |

→ YK assembly:

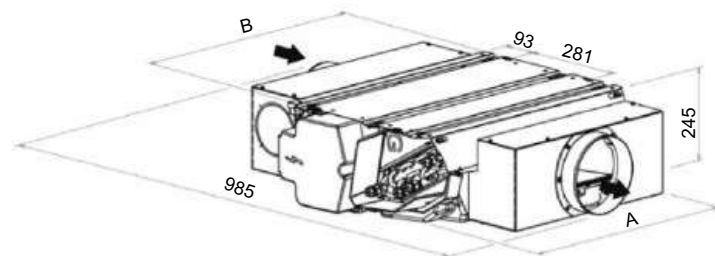


Supply air plenum delivered not fitted. Available for sizes 1 to 5

| Size | Number of collars | Ø of collars |
|------|-------------------|--------------|
| T1 | 1 | 160 |
| T2 | 1 | 160 |
| T3 | 2 | 160 |
| T4 | 3 | 160 |
| T5 | 3 | 160 |

→ Assembly H:

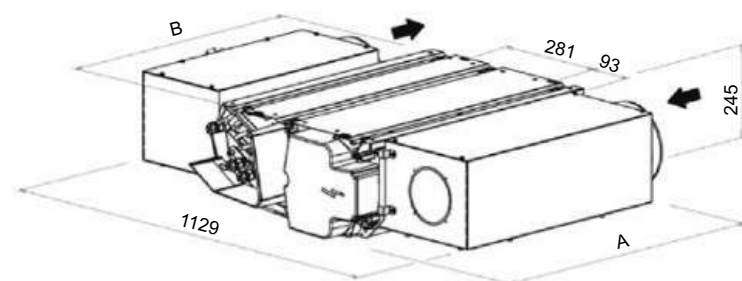
Supply and return air plenum factory-fitted with Ø 160 mm or 200 mm collars available for sizes 2 to 4



| Size | A | B | Number of collars |
|------|------|------|-------------------|
| T2 | 760 | 665 | 1 |
| T3 | 960 | 865 | 2 |
| T4 | 1160 | 1065 | 3 |

→ Assembly U:

Supply and return air plenum factory-fitted with Ø 160 mm or 200 mm collars available for sizes 2 to 4



| Size | A | B | Number of collars |
|------|------|------|-------------------|
| T2 | 770 | 665 | 1 |
| T3 | 970 | 865 | 1 |
| T4 | 1170 | 1065 | 1 |

PERFORMANCE – 2-TUBE SYSTEM

Cooling mode: water temperature: 7/12 °C, inlet air temperature: 27 °C - 19 °C (WB)

Heating operation: water temperature: 45/40 °C, inlet air temperature: 20 °C

| MAJOR LINE™ | AC motor Motor reference | HEE motor Voltage (V) | Cooling cap. W | | Heating capacity W | Sound power LW dB(A) | Electrical power W | | Electric heater | |
|--------------------|--------------------------------|-----------------------------|----------------|----------|--------------------------|----------------------------|--------------------|----------|-----------------------|----------------------|
| | | | Total | Sensible | | | Motor AC | Motor EC | High capacity W | Low capacity W |
| 102J / 120J HEE | V4 | 4,6 | 1 040 | 990 | 1 530 | 46 | 24 | 10 | 300 | 600 |
| | V3 | 3,9 | 880 | 830 | 1 360 | 41 | 19 | 6 | | |
| | V1 | 2,8 | 710 | 660 | 1 030 | 33 | 12 | 5 | | |
| 102M / 102M HEE | V4 | 5,0 | 1 390 | 1 130 | 1 880 | 46 | 25 | 11 | 300 | 600 |
| | V3 | 4,2 | 1 200 | 970 | 1 600 | 42 | 19 | 8 | | |
| | V1 | 2,9 | 850 | 670 | 1 160 | 36 | 11 | 5 | | |
| 202J / 202J HEE | V4 | 4,8 | 1 760 | 1 690 | 2 500 | 50 | 42 | 15 | 500 | 1000 |
| | V3 | 4,3 | 1 620 | 1 540 | 2 330 | 47 | 40 | 12 | | |
| | V1 | 2,7 | 1 150 | 1 050 | 1 550 | 36 | 33 | 5 | | |
| 202M / 202M HEE | V4 | 4,8 | 2 140 | 1 800 | 2 690 | 50 | 42 | 15 | 500 | 1000 |
| | V3 | 4,3 | 1 910 | 1 640 | 2 430 | 46 | 40 | 12 | | |
| | V1 | 2,7 | 1 320 | 1 120 | 1 670 | 35 | 33 | 5 | | |
| 202N / 202N HEE | V4 | 4,8 | 2 420 | 1 960 | 2 960 | 50 | 42 | 15 | | |
| | V3 | 4,3 | 2 190 | 1 770 | 2 650 | 47 | 40 | 12 | | |
| | V1 | 2,7 | 1 480 | 1 150 | 1 740 | 36 | 33 | 5 | | |
| 302J / 302J HEE | V4 | 5,3 | 2 720 | 2 150 | 3 410 | 53 | 53 | 26 | 800 | 1600 |
| | V3 | 4,4 | 2 390 | 1 870 | 2 960 | 47 | 47 | 17 | | |
| | V1 | 2,2 | 1 380 | 1 030 | 1 670 | 29 | 36 | 4 | | |
| 302K / 302K HEE | V4 | 5,3 | 3 160 | 2 620 | 3 840 | 53 | 53 | 26 | | |
| | V3 | 4,4 | 2 760 | 2 250 | 3 180 | 47 | 47 | 17 | | |
| | V1 | 2,2 | 1 300 | 1 080 | 1 680 | 29 | 36 | 4 | | |
| 302M / 302M HEE | V4 | 5,3 | 3 510 | 2 700 | 4 280 | 53 | 53 | 26 | 800 | 1600 |
| | V3 | 4,4 | 3 050 | 2 340 | 3 590 | 47 | 47 | 17 | | |
| | V1 | 2,2 | 1 370 | 1 060 | 1 690 | 29 | 36 | 4 | | |
| 402M / 402M HEE | V4 | 6,8 | 5 750 | 4 480 | 6 310 | 60 | 102 | 59 | 1200 | 2400 |
| | V3 | 5,4 | 4 740 | 3 590 | 5 150 | 55 | 87 | 31 | | |
| | V1 | 3,2 | 2 910 | 2 160 | 3 170 | 41 | 68 | 10 | | |
| 502M / 502M HEE | V4 | 7,1 | 6 150 | 4 840 | 6 950 | 60 | 94 | 60 | 1600 | 3200 |
| | V3 | 5,8 | 5 350 | 4 100 | 5 740 | 55 | 80 | 35 | | |
| | V1 | 3,6 | 3 440 | 2 620 | 3 660 | 42 | 64 | 11 | | |
| 602N / 602N HEE | V4 | 7,8 | 7 990 | 5 970 | 8 590 | 63 | 122 | 87 | | |
| | V3 | 7,1 | 7 420 | 5 550 | 7 870 | 61 | 118 | 65 | | |
| | V1 | 4,4 | 5 070 | 3 770 | 5 230 | 49 | 105 | 18 | | |

Table with hypothetical acoustic attenuation of the room and installation for 2-pipe system from previous page:

CV/CH/NCV models:

12dB: Sizes 102J, 102M, 202J, 202M, 202N, 302J, 302K, 302M

14dB: Sizes 402M, 502M

15dB: Size 602N

NCH models:

14dB: Sizes 102J, 102M, 202J, 202M, 202N, 302J, 302K, 302M

16dB: Sizes 402M, 502M, 602N

(1) Important: the air supply temperature should not exceed 65°C (CIAT recommendation).

PERFORMANCE – 4 TUBE SYSTEM

Cooling operation: water temperature: 7/12°C, inlet air temperature: 27°C - 19°C (WB)

Heating operation: water temperature: 65/55°C, inlet air temperature: 20°C

| MAJOR LINE™ | AC motor Motor reference | HEE motor Voltage (V) | Cooling cap. W | | Heating capacity W | Sound power LW dB(A) | Electrical power W | |
|-----------------|--------------------------------|-----------------------------|----------------|----------|--------------------------|----------------------------|--------------------|----------|
| | | | Total | Sensible | | | Motor AC | Motor EC |
| 104P / 104P HEE | V4 | 5,0 | 1 390 | 1 130 | 1 130 | 46 | 25 | 11 |
| | V3 | 4,2 | 1 200 | 970 | 1 030 | 42 | 19 | 8 |
| | V1 | 2,9 | 850 | 670 | 850 | 36 | 11 | 5 |
| 204P / 204P HEE | V4 | 4,8 | 2 130 | 1 850 | 1 860 | 50 | 42 | 15 |
| | V3 | 4,3 | 1 940 | 1 660 | 1 760 | 46 | 40 | 12 |
| | V1 | 2,7 | 1 320 | 1 120 | 1 390 | 35 | 33 | 5 |
| 204R / 204R HEE | V4 | 4,8 | 1 910 | 1 740 | 3 420 | 50 | 42 | 15 |
| | V3 | 4,3 | 1 720 | 1 560 | 3 250 | 46 | 40 | 12 |
| | V1 | 2,7 | 1 200 | 1 090 | 2 470 | 35 | 33 | 5 |
| 304P / 304P HEE | V4 | 5,3 | 3 310 | 2 690 | 2 980 | 53 | 53 | 26 |
| | V3 | 4,4 | 2 790 | 2 280 | 2 650 | 47 | 47 | 17 |
| | V1 | 2,2 | 1 200 | 1 040 | 1 540 | 29 | 36 | 4 |
| 304R / 304R HEE | V4 | 5,3 | 2 930 | 2 390 | 4 730 | 53 | 53 | 26 |
| | V3 | 4,4 | 2 550 | 2 040 | 4 150 | 47 | 47 | 17 |
| | V1 | 2,2 | 1 180 | 960 | 2 130 | 29 | 36 | 4 |
| 404P / 404P HEE | V4 | 6,8 | 5 480 | 4 300 | 4 110 | 60 | 102 | 59 |
| | V3 | 5,4 | 4 650 | 3 570 | 3 600 | 55 | 87 | 31 |
| | V1 | 3,2 | 2 940 | 2 190 | 2 610 | 41 | 68 | 10 |
| 404R / 404R HEE | V4 | 6,8 | 4 910 | 4 080 | 5 720 | 60 | 102 | 59 |
| | V3 | 5,4 | 4 150 | 3 380 | 4 990 | 55 | 87 | 31 |
| | V1 | 3,2 | 2 650 | 2 070 | 3 600 | 41 | 68 | 10 |
| 504P / 504P HEE | V4 | 7,1 | 5 880 | 4 810 | 5 770 | 60 | 94 | 60 |
| | V3 | 5,8 | 4 980 | 4 070 | 5 090 | 55 | 80 | 35 |
| | V1 | 3,6 | 3 330 | 2 590 | 3 790 | 42 | 64 | 11 |
| 604P / 604P HEE | V4 | 7,8 | 8 150 | 6 040 | 9 150 | 64 | 120 | 82 |
| | V3 | 7,1 | 7 460 | 5 550 | 8 160 | 62 | 117 | 61 |
| | V1 | 4,5 | 4 960 | 3 670 | 6 270 | 50 | 105 | 19 |

Table with hypothetical acoustic attenuation of the room and the installation:

CV/CH/NCV models

12dB: Sizes 104P, 204P, 204R, 304P, 304R

14dB: Sizes 404P, 404R, 504P

15dB: Sizes 604P

NCH models:

14dB: Sizes 104P, 104R, 204P, 204R, 304P, 304R,

16dB: Sizes 404P, 404R, 504P, 604P

TECHNICAL CHARACTERISTICS

Coil capacity (litres)

| | | 102J | 102M | 202J | 202M | 202N | 302J | 302K | 302M | 402M | 502M | 602N |
|---------------|------------------------|-------|-------|------|------|------|------|------|-------|------|------|------|
| 2-pipe system | Hot or cold water coil | 0,23 | 0,33 | 0,30 | 0,45 | 0,53 | 0,40 | 0,47 | 0,63 | 0,84 | 1,03 | 1,33 |
| | | 104P | 204P | 204R | 304P | 304R | 404P | 404R | 504P | 604P | | |
| 4-pipe system | Cold water coil | 0,33 | 0,45 | 0,36 | 0,60 | 0,52 | 0,71 | 0,72 | 1,11 | 1,32 | | |
| | Hot water coil | 0,075 | 0,098 | 0,19 | 0,13 | 0,21 | 0,22 | 0,24 | 0,274 | 0,47 | | |

Coil connection diameters

- Coil connection type: rotary couplings with flat face;
- Valve connection type: install flush fit male threaded unions.

| | | 102J | 102M | 202J | 202M | 202N | 302J | 302K | 302M | 402M | 502M | 602N |
|---------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2-pipe system | Hot or cold water coil | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G3/4" | G3/4" |
| | | 104P | 204P | 204R | 304P | 304R | 404P | 404R | 504P | 604P | | |
| 4-pipe system | Cold water coil | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G3/4" | G3/4" | G3/4" |
| | Hot water coil | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" | G1/2" |

Motor specifications

| | | AC Asynchronous Motor | | | | | | | HEE brushless motor | | | | | |
|------------------------|--------|-----------------------|------|------|------|------|------|--------|---------------------|------|------|------|------|------|
| | Speeds | Sizes | | | | | | Speeds | Sizes | | | | | |
| | | 10-- | 20-- | 30-- | 40-- | 50-- | 60-- | | 10-- | 20-- | 30-- | 40-- | 50-- | 60-- |
| Max. power input (W) | V5 | 33 | 58 | 88 | 106 | 108 | 135 | V5 | 11 | 25 | 32 | 77 | 90 | 100 |
| | V4 | 31 | 41 | 67 | 93 | 94 | 114 | V4 | 9 | 15 | 22 | 63 | 80 | 75 |
| | V3 | 29 | 36 | 52 | 80 | 79 | 99 | V3 | 6 | 11 | 13 | 36 | 42 | 55 |
| | V2 | 27 | 31 | 42 | 72 | 72 | 88 | V2 | 5 | 8 | 7 | 21 | 26 | 32 |
| | V1 | 26 | 27 | 35 | 63 | 63 | 77 | V1 | 4 | 5 | 3 | 11 | 13 | 16 |
| Max. input current (W) | V5 | 0,14 | 0,25 | 0,38 | 0,46 | 0,47 | 0,59 | V5 | 0,11 | 0,20 | 0,29 | 0,62 | 0,71 | 0,74 |
| | V4 | 0,13 | 0,18 | 0,29 | 0,40 | 0,41 | 0,50 | V4 | 0,09 | 0,13 | 0,20 | 0,50 | 0,62 | 0,67 |
| | V3 | 0,13 | 0,16 | 0,23 | 0,35 | 0,34 | 0,43 | V3 | 0,07 | 0,11 | 0,13 | 0,30 | 0,35 | 0,44 |
| | V2 | 0,12 | 0,13 | 0,18 | 0,31 | 0,31 | 0,38 | V2 | 0,06 | 0,09 | 0,08 | 0,19 | 0,21 | 0,27 |
| | V1 | 0,11 | 0,12 | 0,15 | 0,27 | 0,27 | 0,33 | V1 | 0,06 | 0,06 | 0,06 | 0,11 | 0,13 | 0,16 |

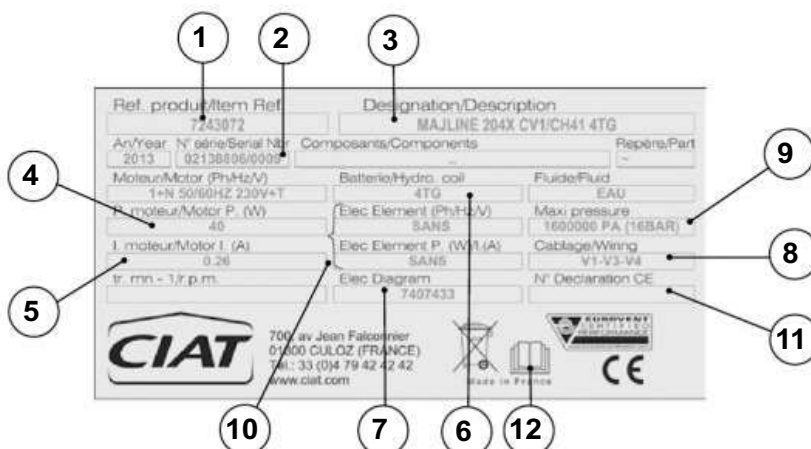
Note: Specifications determined for 230V +/-10% - 50Hz supply.

For operation at 60 Hz, the power input and rotation speed values are generally higher. Motor operating range:
minimum return T°C: 0°C,
maximum return T°C: 40°C

Unit information plate

The information plate shows all the information needed to identify the unit and its configuration. This plate is located on the condensate pan, on the electrical connection side.

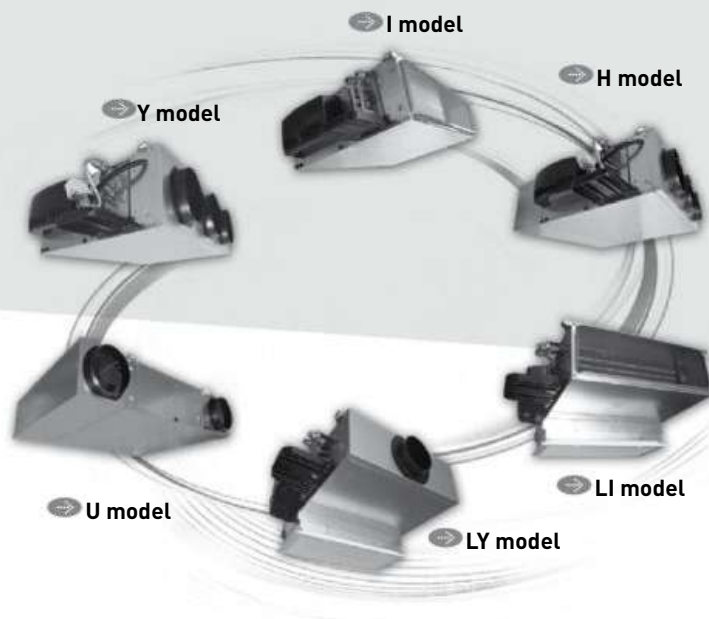
- Code
- Serial number
- Description of the unit
- Nominal motor output
- Motor rotation speed
- Coil type
- Wiring diagram reference
- Motor speed wiring
- Maximum operating pressure
- Electrical heater specifications (if fitted)
- EC declaration no.
- Refer to the installation instructions



COMFORT LINE™

Comfort units
Ductable

Comfort unit with **high**
available static pressure.
Modular air
discharge configurations
Flexible installation.
Excellent **acoustic comfort.**



COMFORT LINE™

With its range of ductable comfort units, CIAT is strengthening its strategy of sustainable development and providing solutions that meet the latest requirements in terms of comfort, energy optimisation and quality for interior environments.

Integrating the latest technical developments, **COMFORT LINE™** is the customisable solution designed to provide summer and winter comfort for occupants of new and renovated buildings.

Easy to install, **COMFORT LINE™** is available in 6 frame sizes and comes in 3 thicknesses: 240, 245 and 280 mm, enabling perfect integration into all types of suspended ceilings.

For total flexibility and adaptability, **COMFORT LINE™** is available in several assembly versions: I, Y, H, U, U Compact, LI and LY.

In the HEE version (High Energy Efficiency), **COMFORT LINE™** not only provides energy savings of up to 85%, but also meets the strict requirements of thermal regulations such as RT 2012 in France. Furthermore, The **COMFORT LINE™** complies with the ErP 2015 directive in all these sizes.

In conjunction with Epure technology, **COMFORT LINE™** treats particle pollution. The EPURE solution guarantees excellent indoor air quality and ensures a PM2.5 particulate concentration below the limit recommended by the WHO (10 µg/m³).

RANGE

The **COMFORT LINE™** range comprises 6 sizes covering a large scope of air flow rates, and comes in 10 models to provide great flexibility in terms of suspended ceiling configurations.

COMFORT LINE™ is available as:

- A 2-tube system, with heating or cooling mode.
- A 2-tube + 2-wire system, with cooling + electric mode or heating/cooling + electric mode.
- A 4-tube system, with heating and cooling mode.

RANGE CONFIGURATION

Linear concepts

I MODEL

- Smooth metal rectangular sleeve on the supply air (option).
- Smooth metal rectangular sleeve on the intake (option).

Y MODEL

- Supply plenum with collars for circular duct.
 - *Size 0: 1 Ø200 collar or 1 Ø160 collar, or 2 Ø200 collars or 2 Ø160 collars.
 - *Size 2: 2 Ø200 collars or 2 Ø160 collars.
 - *Size 3: 3 Ø200 collars or 3 Ø160 collars.
 - *Size 4: 3 Ø200 collars.
 - *Size 5: 3 Ø200 collars or 2 Ø250 collars.
 - *Size 6: 4 Ø200 collars or 3 Ø250 collars.
- Smooth metal rectangular sleeve on the intake (option).

H MODEL

- Return plenum and supply plenum with collars for circular duct.
 - *Size 0: 1 Ø200 collar or 1 Ø160 collar, or 2 Ø200 collars or 2 Ø160 collars.
 - *Size 2: 2 Ø200 collars or 2 Ø160 collars.
 - *Size 3: 3 Ø200 collars or 3 Ø160 collars.
 - *Size 4: 3 Ø200 collars.
 - *Size 5: 3 Ø200 collars or 2 Ø250 collars.
 - *Size 6: 4 Ø200 collars or 3 Ø250 collars.

U MODEL (sizes 0, 2, 3 et 4)

- Return plenum and supply plenum with Ø 200 lateral collars.
- Ø 160 mm option for T0.

U COMPACT MODEL

- U model without filter for sizes 0 to 2.

L concepts

LI MODEL (sizes 0 to 4)

- Air recovery grille integrated into the unit, with air supply via rectangular sleeve.

LIk MODEL (sizes 0 to 4)

- Air recovery grille integrated into the unit, with air supply via air distribution kit: grille + counter frame.

LY MODEL (sizes 0 to 4)

- Air recovery grille integrated into the device, with air supply via Ø160 mm or Ø200 mm circular collars.

LYk MODEL (sizes 0 to 3)

- Air recovery grille integrated into the unit and supply air via diffusion kit with supply grille, supply plenum with Ø160 spigots and Ø160 mm flexible duct.
- CFL LYk Size 4 contact Technical Support.



INNOVATIVE DESIGN

- Modular, scalable, functional frame,
- Simplified maintenance,
- No rivets used in its construction so it can be dismantled at the end of its service life,
- Multiple configurations depending on customer requirements.



ADVANTAGES

- Minimal dimensions in the suspended ceilings.
- Integration of the latest technical developments with a very-low-consumption HEE motor and the Epure function for high indoor air quality (IAQ).
- Total flexibility and adaptability (assembly, water temperature, diffusion, filtration, etc.).
- Extensive capacity range.
- Wide selection of coils to adapt to various water temperatures.
- Uses an ecological energy transfer fluid.
- Comfort unit with high available static pressure.
- Easy maintenance, simplified access.
- Environmentally-responsible product.

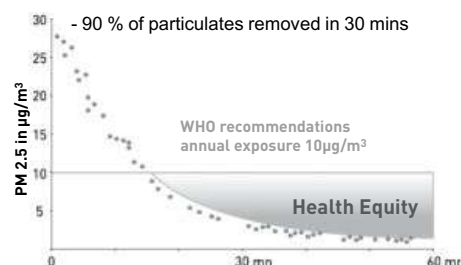
FUNCTION



IAQ - Indoor Air Quality

The air we breathe is full of fine particles which enter the respiratory system to varying degrees.

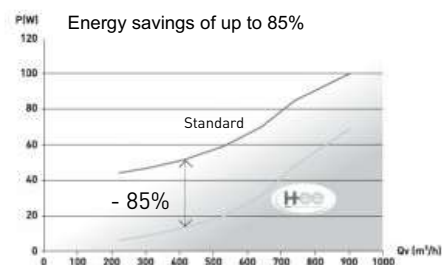
The Epure function (air purification system) is to exceed the WHO's recommendations on particle removal, reducing PM2.5 particulates to below 10 µg/m³ in less than an hour. This is equivalent to a reduction of 50% to 90% in particulate matter.



COMPLIANCE WITH ENERGY CONSERVATION REQUIREMENTS

High Energy Efficiency performance

In order to promote energy efficiency in buildings, **COMFORT LINE™** is equipped with an HEE motor which reduces the unit's electricity consumption by up to 85%.



ECO-DESIGN

COMFORT LINE™ has been fully designed using eco-design principles and falls within CIAT's sustainable development policy.

- Choice of supplier located close to the production plant,
- 94% recyclability rate,
- Since 2013, CIAT has been working in partnership with ECOLOGIC for the collection and recovery of waste from our appliances at end of life, subject to the WEEE directive.



MORPHO CODES - COMFORT LINE™ DESCRIPTION

| Range | Size | | Model | Assembly | No. and collar diameter | Coil type | Cou-pling | Thermal function | | Motor | Speeds | Filter | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------|-------|----------|-------------------------|-----------|-----------|------------------|---------|-------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------|------------------|---------------------------------------|----------------------|----------------------------|--------------------------------------------|-----------------------------------------------------------|------------------------|-------|-----------------------------------------------------------|------------|------------------------------------------------------------------------------|-------------------|----|-------|-------------------|---------------|-------|-------------------|----|-------|-------------------|--------------------------------------------------------------------------------|-------|-------------------|----|--|--|--|--|--|--|---|---------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--------|---------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|----|----------------------------------------------------------|--|--|--|--|--|--|--|--|--|----|---------------------------------------------------------------|--|--|--|--|--|--|--|--|--|
| CFL | 3 | 4P | LY | STD | 3D200 | 4T | G | F | + 1600W | HEE | depending on selection | G3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | <table><tr><td>EP</td><td>Epure filter</td></tr><tr><td>G3</td><td>G3 filter</td></tr><tr><td>SF</td><td>No filter</td></tr></table> | EP | Epure filter | G3 | G3 filter | SF | No filter | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EP | Epure filter | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G3 | G3 filter | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SF | No filter | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | <table><tr><td>HEE 0-10V</td><td>Low-consumption motor 2-10 V control</td></tr><tr><td>HEE TOR</td><td>Low-consumption motor 3-speed control</td></tr><tr><td>AC</td><td>5-speed asynchronous motor</td></tr></table> | HEE 0-10V | Low-consumption motor 2-10 V control | HEE TOR | Low-consumption motor 3-speed control | AC | 5-speed asynchronous motor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HEE 0-10V | Low-consumption motor 2-10 V control | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HEE TOR | Low-consumption motor 3-speed control | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AC | 5-speed asynchronous motor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | <table><tr><td>500 W or 1000 W</td><td>T0 and T2</td></tr><tr><td>1000 W or 1600 W</td><td>T3 and T4</td></tr><tr><td>1000 W or 2000 W</td><td>T5</td></tr><tr><td>1600W or 3200W (AC) - 1500W or 3000W (HEE)</td><td>T6</td></tr></table> | 500 W or 1000 W | T0 and T2 | 1000 W or 1600 W | T3 and T4 | 1000 W or 2000 W | T5 | 1600W or 3200W (AC) - 1500W or 3000W (HEE) | T6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 500 W or 1000 W | T0 and T2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1000 W or 1600 W | T3 and T4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1000 W or 2000 W | T5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1600W or 3200W (AC) - 1500W or 3000W (HEE) | T6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | <table><tr><td>F</td><td>Cooling</td></tr><tr><td>C</td><td>Heating</td></tr><tr><td>CF</td><td>Heating/cooling</td></tr><tr><td>CFE</td><td>Heating/cooling + elec</td></tr></table> | F | Cooling | C | Heating | CF | Heating/cooling | CFE | Heating/cooling + elec | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F | Cooling | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | Heating | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CF | Heating/cooling | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CFE | Heating/cooling + elec | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | <table><tr><td>G</td><td>Left, facing air supply</td></tr><tr><td>D</td><td>Right, facing air supply</td></tr></table> | G | Left, facing air supply | D | Right, facing air supply | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G | Left, facing air supply | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | Right, facing air supply | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | <table><tr><td>2T</td><td>2-tube</td></tr><tr><td>2T2F</td><td>2-tube + wiring</td></tr><tr><td>4T</td><td>4-tube</td></tr></table> | 2T | 2-tube | 2T2F | 2-tube + wiring | 4T | 4-tube | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2T | 2-tube | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2T2F | 2-tube + wiring | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4T | 4-tube | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | <table><tr><td>1D160</td><td>1 x 160 mm collar</td><td>T0</td></tr><tr><td>1D200</td><td>1 x 200 mm collar</td><td>T0</td></tr><tr><td>2D160</td><td>2 x 160 mm collar</td><td>T0 and T2</td></tr><tr><td>2D200</td><td>2 x 200 mm collar</td><td>T0 and T2</td></tr><tr><td>3D160</td><td>3 x 160 mm collar</td><td>T3</td></tr><tr><td>3D200</td><td>3 x 200 mm collar</td><td>T3, T4 and T5</td></tr><tr><td>2D250</td><td>2 x 250 mm collar</td><td>T5</td></tr><tr><td>4D200</td><td>4 x 200 mm collar</td><td>T6</td></tr><tr><td>3D250</td><td>3 x 250 mm collar</td><td>T6</td></tr></table> | 1D160 | 1 x 160 mm collar | T0 | 1D200 | 1 x 200 mm collar | T0 | 2D160 | 2 x 160 mm collar | T0 and T2 | 2D200 | 2 x 200 mm collar | T0 and T2 | 3D160 | 3 x 160 mm collar | T3 | 3D200 | 3 x 200 mm collar | T3, T4 and T5 | 2D250 | 2 x 250 mm collar | T5 | 4D200 | 4 x 200 mm collar | T6 | 3D250 | 3 x 250 mm collar | T6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1D160 | 1 x 160 mm collar | T0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1D200 | 1 x 200 mm collar | T0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2D160 | 2 x 160 mm collar | T0 and T2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2D200 | 2 x 200 mm collar | T0 and T2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3D160 | 3 x 160 mm collar | T3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3D200 | 3 x 200 mm collar | T3, T4 and T5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2D250 | 2 x 250 mm collar | T5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4D200 | 4 x 200 mm collar | T6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3D250 | 3 x 250 mm collar | T6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | <table><tr><td>STD</td><td>Suspended ceiling</td></tr><tr><td>FPR</td><td>Raised floor (size 0 to 4)</td></tr></table> | STD | Suspended ceiling | FPR | Raised floor (size 0 to 4) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STD | Suspended ceiling | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FPR | Raised floor (size 0 to 4) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | <table><tr><td>I</td><td colspan="10">Rectangular return -rectangular air supply (return and supply air sleeves optional)</td></tr><tr><td>Y</td><td colspan="10">Rectangular return -circular air supply collars (return air sleeve optional)</td></tr><tr><td>H</td><td colspan="10">Circular return collars - circular air supply collars (with or without filter)</td></tr><tr><td>U</td><td colspan="10">1 circular lateral return spigot -1 circular lateral supply air spigot with filter (Sizes 0 to 4)</td></tr><tr><td>U_COMP</td><td colspan="10">1 circular lateral return spigot - 1 circular lateral supply air spigot without filter (Sizes 0 and 2)</td></tr><tr><td>LI</td><td colspan="10">Return underneath - Rectangular air supply (size 0 to 4)</td></tr><tr><td>LY</td><td colspan="10">Return underneath - Circular air supply collars (size 0 to 4)</td></tr></table> | I | Rectangular return -rectangular air supply (return and supply air sleeves optional) | | | | | | | | | | Y | Rectangular return -circular air supply collars (return air sleeve optional) | | | | | | | | | | H | Circular return collars - circular air supply collars (with or without filter) | | | | | | | | | | U | 1 circular lateral return spigot -1 circular lateral supply air spigot with filter (Sizes 0 to 4) | | | | | | | | | | U_COMP | 1 circular lateral return spigot - 1 circular lateral supply air spigot without filter (Sizes 0 and 2) | | | | | | | | | | LI | Return underneath - Rectangular air supply (size 0 to 4) | | | | | | | | | | LY | Return underneath - Circular air supply collars (size 0 to 4) | | | | | | | | | |
| I | Rectangular return -rectangular air supply (return and supply air sleeves optional) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| U_COMP | 1 circular lateral return spigot - 1 circular lateral supply air spigot without filter (Sizes 0 and 2) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LI | Return underneath - Rectangular air supply (size 0 to 4) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LY | Return underneath - Circular air supply collars (size 0 to 4) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | <table><tr><td>2J</td><td>2-tube 2-row version</td><td>All sizes</td></tr><tr><td>2M</td><td>2-tube 3-row version</td><td>Sizes 2 to 6</td></tr><tr><td>4P</td><td>4-tube, 2-row version (cooling) + 1 row version (heating)</td><td>Sizes 0, 2, 3, 4 and 6</td></tr><tr><td>4R</td><td>4-tube, 3-row version (cooling) + 1 row version (heating)</td><td>Sizes 5, 6</td></tr></table> | 2J | 2-tube 2-row version | All sizes | 2M | 2-tube 3-row version | Sizes 2 to 6 | 4P | 4-tube, 2-row version (cooling) + 1 row version (heating) | Sizes 0, 2, 3, 4 and 6 | 4R | 4-tube, 3-row version (cooling) + 1 row version (heating) | Sizes 5, 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2J | 2-tube 2-row version | All sizes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2M | 2-tube 3-row version | Sizes 2 to 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4P | 4-tube, 2-row version (cooling) + 1 row version (heating) | Sizes 0, 2, 3, 4 and 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4R | 4-tube, 3-row version (cooling) + 1 row version (heating) | Sizes 5, 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | <table><tr><td>0</td><td rowspan="6">Size</td></tr><tr><td>2</td></tr><tr><td>3</td></tr><tr><td>4</td></tr><tr><td>5</td></tr><tr><td>6</td></tr></table> | 0 | Size | 2 | 3 | 4 | 5 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Size | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CFL | COMFORT LINE™ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

TECHNICAL DESCRIPTION

The frame

■ Galvanised panelling, nickel-plated zinc-coated steel fastenings.

Polyester textile fibre insulation. M1 fire rating, thickness 10 mm.

Water coil

- 1 hot water or cold water circuit (2-tube system),
- 1 hot water + 1 cold water circuit (4-tube system),
- Internally threaded rotating "female" couplings with flat face (diameter G $\frac{1}{2}$ " and G $\frac{3}{4}$ " according to size) and O-ring gasket,
- Copper tubes, continuous aluminium fins,
- Draining and air bleed valve,
- 16 Bar nominal service pressure (at 20°C), 18 Bar test pressure,
- Maximum hot water inlet temperature:
 - 4-tube application: 90°C,
 - 2-tube application: 90°C,
 - 2T/2-wire application: 55°C (min. air flow rate: 200 m³/h).

Electrical heater (230V-1Ph-50Hz)

Resistive wire type heater (230 V - 1-ph - 50 Hz)

The electrical heater has a double safety feature:

- Built-in safety thermostat with self-hold + auto reset.
- Destructive thermal fuse.

Condensate drain pan

Injected polypropylene drain pan insulated with 5 mm PE foam.

Drainage diameter: external Ø 16 mm.

Fan motor assembly size 0 to 4

1 fan motor assembly fitted with:

Fan

1 or 2 HEE impeller(s), with CIAT exclusive High Energy Efficiency airfoil blades in self-extinguishable ABS (HB) with galvanised metal housing.

HEE motor

High energy efficiency motor enabling a reduction of up to 85% in electricity consumption.

HEE motor description:

- Brushless technology,
- Sealed, tropicalised, with protected shaft,
- Gradual actuation with 0-10V control signal,
- Internal normally closed series automatic heat protection on the winding,
- Supply 230V \pm 10%/1-Ph/50-60 Hz.

As an option for sizes 0 to 5

- 3-speed on/off output motor actuation,
- "DFS" motor fault output using a photocoupler for potential alarm feedback via a KNX protocol communication bus (via V3000 controller).

Note: The minimum voltage required for start-up of the motor is 2V.

Or

Asynchronous motor:

5-speed motor connected to terminal block.

Asynchronous motor description:

- Sealed, tropicalised, with protected shaft,
- Permanent capacitor,
- Ball bearings,
- Internal automatic overload protection as standard on winding,
- Resilient mounts,
- 230 V \pm 10 %/1-ph/50-60 Hz supply,
- High efficiency and power factor.

Sizes 5 & 6 fan AC motor assembly

Ventilator

2 turbines with ABS airfoil blades, dynamically balanced, with ABS impellers.

Asynchronous motor

5-speed motor connected to the terminal strip (see asynchronous motor description).

Sizes 5 & 6 fan HEE motor assembly

Size 5 :

Ventilator

2 HEE turbines, High Energy Efficiency (exclusive to CIAT) airfoil blades made from self-extinguishable ABS (HB) and galvanised metal impellers.

Motor

High energy efficiency motor enabling a reduction in electricity consumption of up to 80% (see HEE motor description).

Size 6 :

Ventilator

3 turbines, with PP airfoil blades and PP impellers.

Motor

High energy efficiency motor enabling a reduction in electricity consumption of up to 80% (see HEE motor description).

Electrics box

- Hydraulic connection side,
- Large ABS electrics box, 2-screw closure,
- Protection rating IP20,
- Terminal block on DIN rail in accordance with EN 50022, depth 7,5 mm,
- Cable routing for electrical connections installed by the customer.

Filtration available (excluding Compact U)

■ EPURE function

- A protected air stream which prevents particles from being drawn into suspended ceilings.
- Local filtration using a high efficiency folded filter medium effective for PM of 2,5 microns:
 - Filter area: 10 times the intake surface area,
 - Low energy impact,
 - Improved service life,
 - M1 fire rating,
 - Easily accessible via 2 or 4 screws on sizes 0 to 4 and via 2 sliding on sizes 5 and 6,
 - Return air sleeve compulsory for Sizes 5 & 6.

■ Filter G3

- Flexible filter medium made of regenerative polyester fibre,
- EN779 Efficiency Class: G3,
- Fire rating: M1,
- Rigid metal frame,
- Easily accessible via 2 or 4 screws on sizes 0 to 4 and via 2 sliding tabs and/or 3 clips on sizes 5 and 6.

Plenums

- Galvanised panelling, nickel-plated zinc-coated steel fastenings,
- ABS (HB) collars clipped onto the panelling,
- Supply plenum,
- Insulated plenum: polyester textile fibre insulation. M1 fire rating, thickness 10 mm,
- Return plenum:
 - uninsulated plenum.

Mounting the unit

- The **COMFORT LINE™** must be suspended from the ceiling using 4 threaded rods: with CIAT resilient mounts min. diameter 6 mm and max. diameter 8 mm, without CIAT mount diameter 8 mm to 10 mm with a nut/washer assembly positioned on either side of the mounting bracket.

Packaging

- Delivered on pallet and protected by stretch wrap film.

Control

- RTR-E electromechanical wall-mounted thermostat range,
- V30 and V300 electronic range,
- V3000 networked electronic range (KNX),
- Networked electronic range (LON): VLON2,
- Fresh air control:
 - Pack R1: fresh air managed via presence sensor,
 - Pack R+ : Fresh air managed by CO₂ sensor.

Options (factory-fitted)

- Condensate drain pump,
- Rectangular smooth metal supply air sleeve,
- Rectangular smooth metal return air sleeve,
- Hydraulic coil with protected fins for harmful/corrosive atmospheres (coastal locations, or areas close to chemical industries).

Accessories (supplied separately)

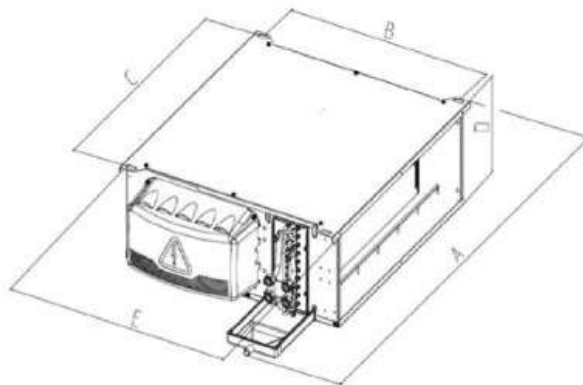
- Smooth spigot, Ø 100 mm or 125 mm,
- Ø100 mm or 125 mm self-adjustable fresh air module kit:
 - Flow rate 15/30/45 m³/h,
 - Flow rate 60/75/90 m³/h,
- Resilient mounts,
- Ø 160 mm circular duct for air distribution kit (per 10 linear metre set),
- Condensate pan expansions,
- Flexible connection kit, length 300 mm, with or without 9-mm insulation.

Please consult us for options

- Return plenum insulation,
- Plenums with collar configurations (diameter and position) in addition to the standard offer,
- Electrical and hydraulic connections on opposite sides.

LINEAR CONCEPTS

I MODEL

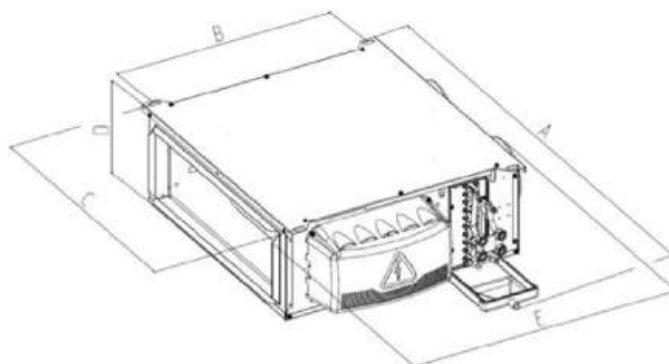


| | A | B | C | D | E | Supply | Suction | Weight (kg) |
|-------------|------|-----|------|-----|-----|------------|------------|-------------|
| T0* | 708 | 535 | 485 | 241 | 590 | 430 x 209 | 430 x 209 | 14,8 |
| T2* | 875 | 558 | 652 | | 610 | 597 x 209 | 597 x 209 | 17,6 |
| T3* | 1075 | | 852 | | | 797 x 209 | 797 x 209 | 21,1 |
| T4* | 1275 | | 1052 | | | 997 x 209 | 997 x 209 | 23,1 |
| T5** | 1290 | 384 | 1070 | 280 | 568 | 990 x 248 | 960 x 245 | 29 |
| T6** | 1590 | | 1370 | | | 1290 x 248 | 1260 x 245 | 35 |

* Units with or without filter.

** Unit with G3 filter or without filter.

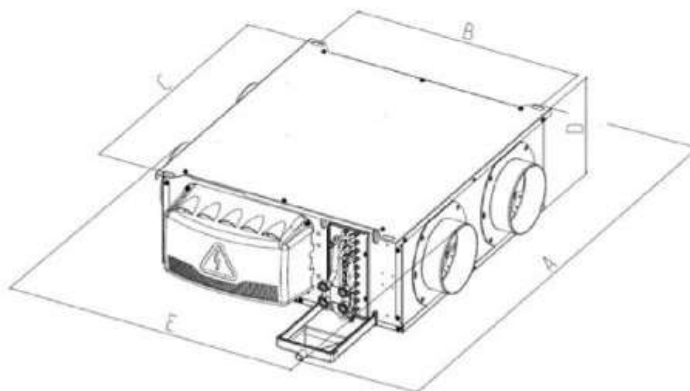
Y MODEL



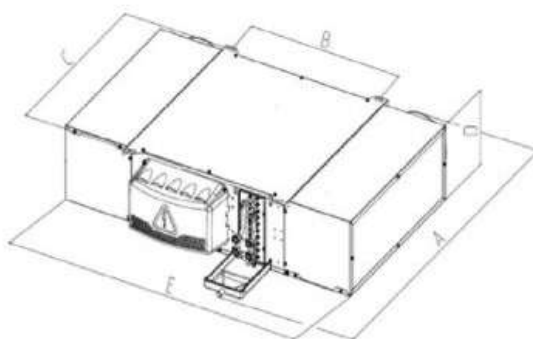
| | A | B | C | D | E | Supply | Suction | Weight (kg) |
|-------------|------|-----|------|-----|-----|---------------------------|------------|-------------|
| T0* | 708 | 535 | 485 | 241 | 660 | 1 or 2 x Ø 160 or 200 mm | 430 x 209 | 15,5 |
| T2* | 875 | 558 | 652 | | 680 | 2 x Ø 160 or 200 mm | 597 x 209 | 18,5 |
| T3* | 1075 | | 852 | | | 3 x Ø 160 or 200 mm | 797 x 209 | 22,4 |
| T4* | 1275 | | 1052 | | | 3 x Ø 200 mm | 997 x 209 | 24,7 |
| T5** | 1290 | 384 | 1070 | 280 | 620 | 3 x Ø 200 or 2 x Ø 250 mm | 960 x 245 | 31 |
| T6** | 1590 | | 1370 | | | 4 x Ø 200 or 3 x Ø 250 mm | 1260 x 245 | 37 |

* Units with or without filter.

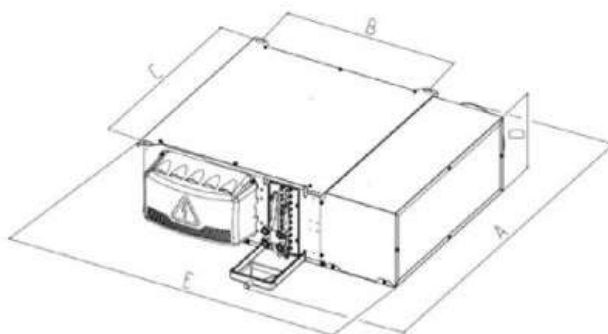
** Unit with G3 filter or without filter.

H MODEL (with or without filter)


| | A | B | C | D | E | Supply | Suction | Weight (kg) |
|----------------------------|------|-----|------|-----|-----|---------------------------|---------------------------|-------------|
| T0 | 708 | 535 | 485 | 241 | 694 | 1 or 2 x Ø 160 or 200 mm | 1 or 2 x Ø 160 or 200 mm | 15,6 |
| T2 | 875 | 558 | 652 | | 714 | 2 x Ø 160 or 200 mm | 2 x Ø 160 or 200 mm | 18,9 |
| T3 | 1075 | | 852 | | | 3 x Ø 160 or 200 mm | 3 x Ø 160 or 200 mm | 22,5 |
| T4 | 1275 | | 1052 | | | 3 x Ø 200 mm | 3 x Ø 200 mm | 25,1 |
| T5 with filter | 1290 | 384 | 1070 | 280 | 755 | 3 x Ø 200 or 2 x Ø 250 mm | 3 x Ø 200 or 2 x Ø 250 mm | 35 |
| T6 with filter | 1590 | | 1370 | | | 4 x Ø 200 or 3 x Ø 250 mm | 4 x Ø 200 or 3 x Ø 250 mm | 41 |
| T5 without a filter | 1290 | 384 | 1070 | 280 | 670 | 3 x Ø 200 or 2 x Ø 250 mm | 3 x Ø 200 or 2 x Ø 250 mm | 32 |
| T6 without a filter | 1590 | | 1370 | | | 4 x Ø 200 or 3 x Ø 250 mm | 4 x Ø 200 or 3 x Ø 250 mm | 38 |

U MODEL (with filter)


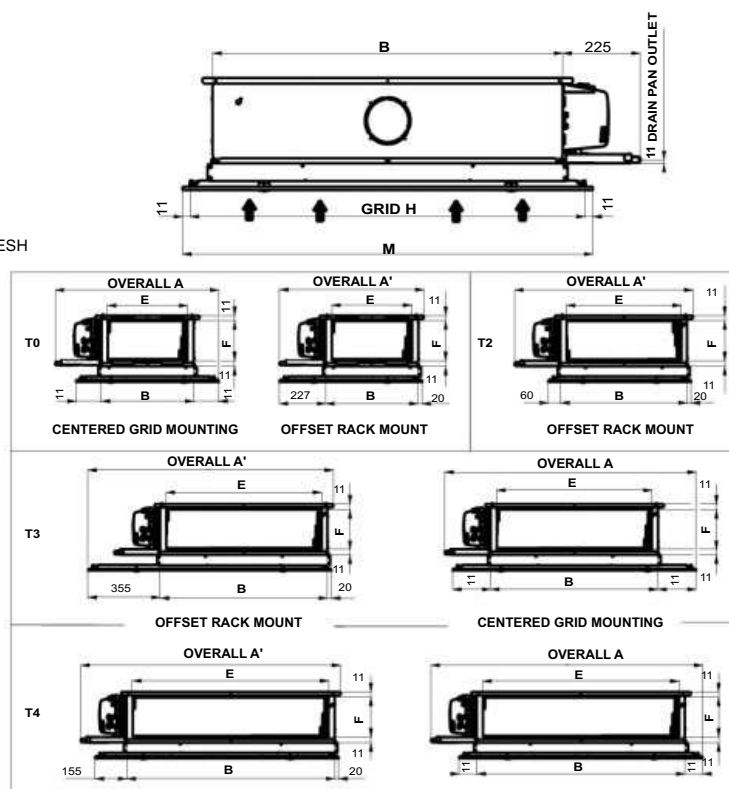
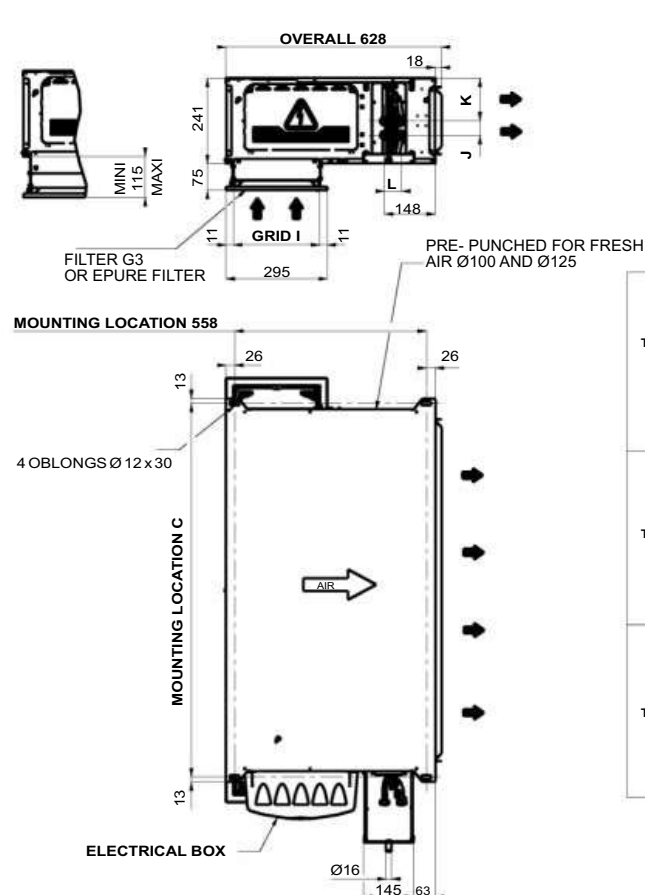
| | A | B | C | D | E | Supply | Suction | Weight (kg) |
|-----------|------|-----|------|-----|------|--------------------------|--------------------------|-------------|
| T0 | 708 | 535 | 485 | 241 | 1060 | 1 x Ø 200 mm or Ø 160 mm | 1 x Ø 200 mm or Ø 160 mm | 20,8 |
| T2 | 875 | 558 | 652 | | 1080 | 1 x Ø 200 mm | 1 x Ø 200 mm | 25,5 |
| T3 | 1075 | | 852 | | | 1 x Ø 200 mm | 1 x Ø 200 mm | 26,1 |
| T4 | 1275 | | 1052 | | | 1 x Ø 200 mm | 1 x Ø 200 mm | 35,1 |

U Compact MODEL (without a filter)


| | A | B | C | D | E | Supply | Suction | Weight (kg) |
|-----------|-----|-----|-----|-----|-----|--------------------------|--------------------------|-------------|
| T0 | 704 | 558 | 485 | 241 | 825 | 1 x Ø 200 mm or Ø 160 mm | 1 x Ø 200 mm or Ø 160 mm | 17,8 |
| T2 | 875 | | 650 | | 845 | 1 x Ø 200 mm | 1 x Ø 200 mm | 21,5 |

L CONCEPTS

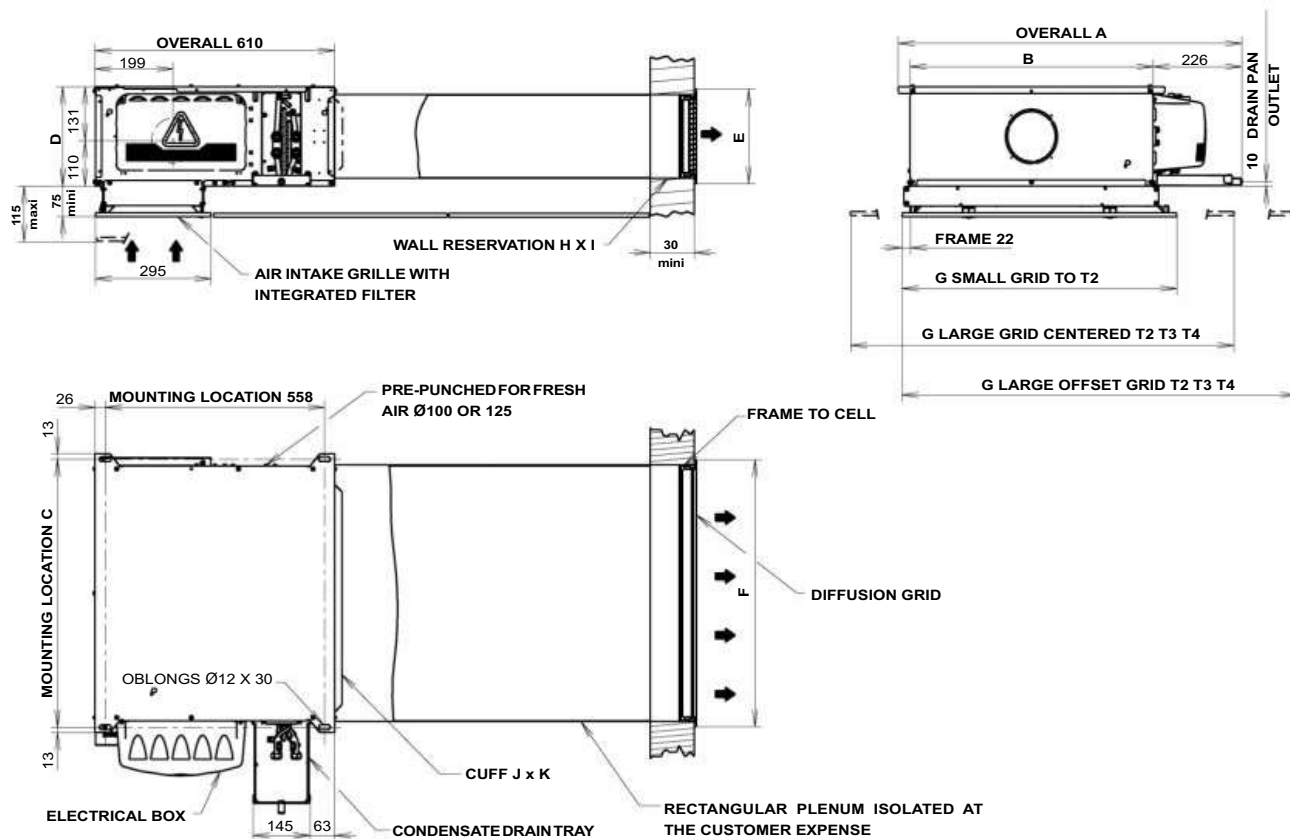
LI MODEL



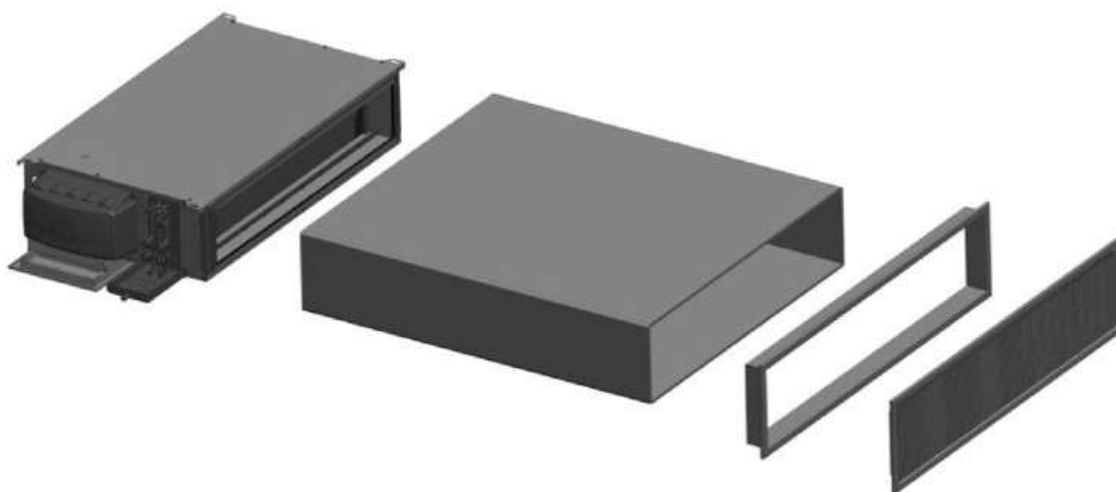
Note: 1200-mm long grille optional for sizes 2. Consult us.

| SIZE | A | A' | B | C | E Air supply | F Air supply | G | | H | I | J(4T) | K(4T) | L | M | N(2T) | P(2T) |
|------|------|------|------|------|--------------------|--------------------|--------|--------|-----|-----|-------|-------|----|-----|-------|-------|
| | | | | | | | Coil f | Coil c | | | | | | | | |
| T0 | 803 | 709 | 453 | 485 | 393 | 190 | 1/2" | 1/2" | 656 | 251 | 40 | 121 | 50 | 700 | 40 | 121 |
| T2 | - | 875 | 620 | 652 | 563 | | | | | | | | | | | |
| T3 | 1233 | 1204 | 820 | 852 | 763 | | | | | | | | | | | |
| T4 | 1333 | 1275 | 1020 | 1052 | 963 | | | | | | | | | | | |

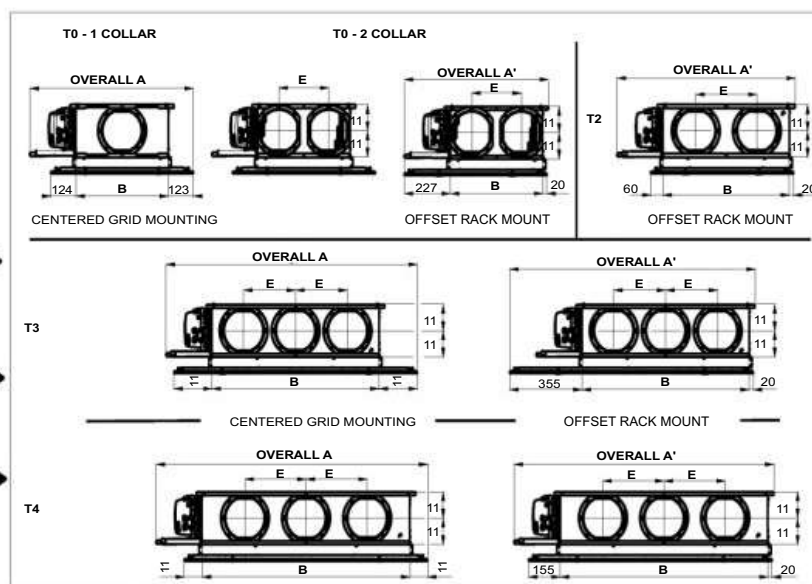
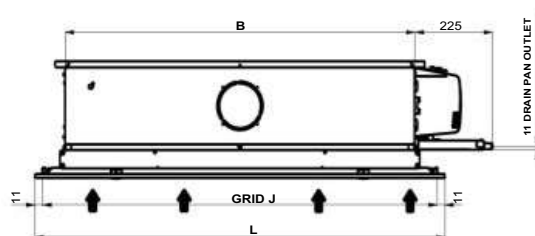
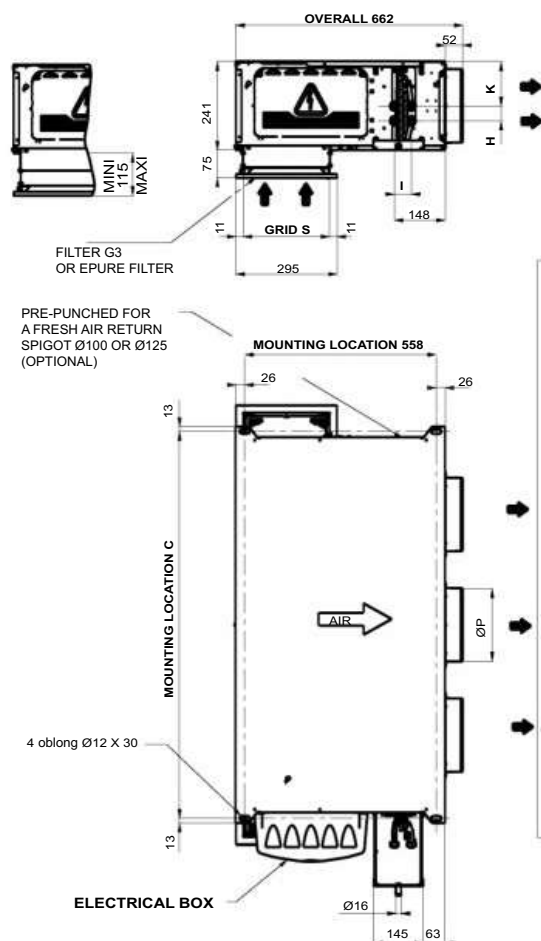
LIK MODEL



| SIZE | A | B | C | D | E | F | G | H | I | J | K |
|------|------|------|------|-----|-----|-----|----------|-----|-----|-----|-----|
| T0 | 709 | 453 | 485 | 241 | 220 | 423 | 700 | 195 | 398 | 393 | 190 |
| T2 | 875 | 620 | 652 | | | 593 | 700/1195 | | 568 | 563 | |
| T3 | 1204 | 820 | 852 | | | 793 | 1195 | | 768 | 763 | |
| T4 | 1274 | 1020 | 1052 | | | 993 | | | 968 | 963 | |



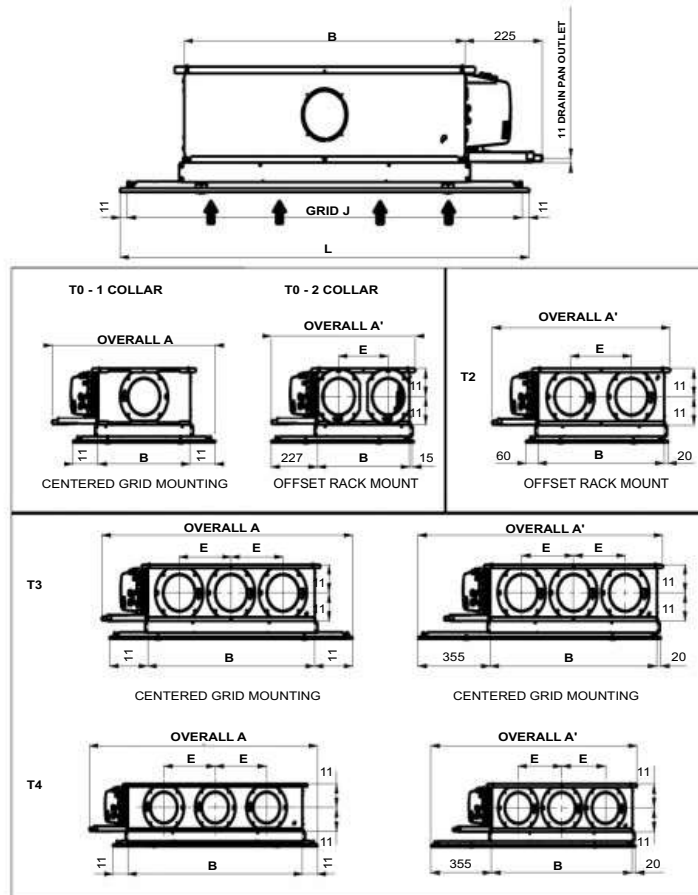
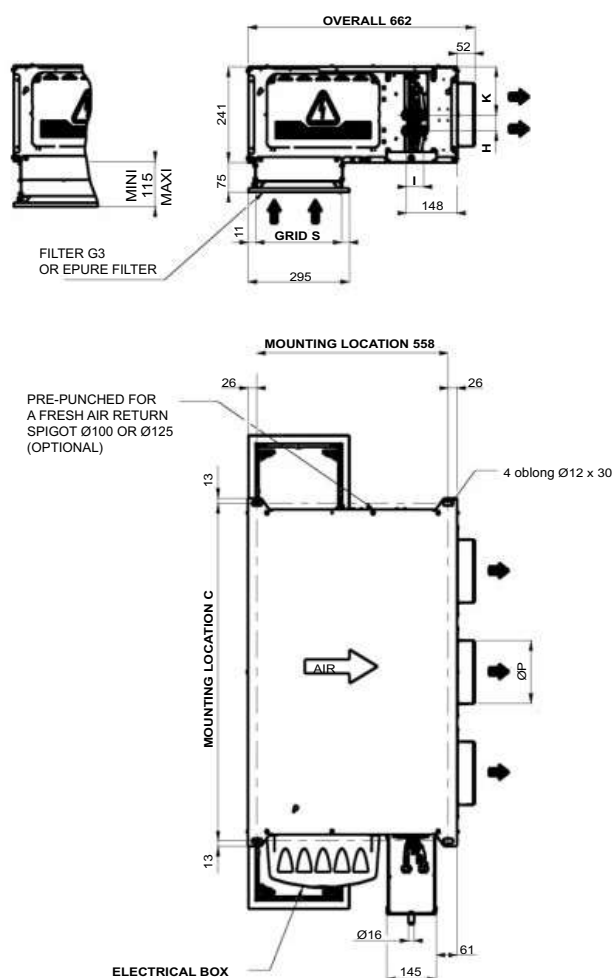
LY MODEL - ø 200 collar



Note: 1200-mm long grille optional for sizes 2. Consult us

| SIZE | A | A' | B | C | E | G | | H(4T) | K(4T) | I | J | L | M(2T) | N(2T) | ØP | S |
|------|------|------|------|------|-----|--------|--------|-------|-------|----|-----|-----|-------|-------|-----|-----|
| | | | | | | Coil f | Coil c | | | | | | | | | |
| T0 | 803 | 709 | 453 | 485 | 244 | 1/2" | 1/2" | 40 | 121 | 50 | 656 | 700 | 121 | 40 | 200 | 251 |
| T2 | - | 875 | 620 | 652 | 300 | | | | | | | | | | | |
| T3 | 1233 | 1204 | 820 | 852 | 255 | | | | | | | | | | | |
| T4 | 1333 | 1275 | 1020 | 1052 | 300 | | | | | | | | | | | |

LY MODEL - ø 160 collar



Note: 1200-mm long grille optional for sizes 2. Consult us

| SIZE | A | A' | B | C | E | G | | H(4T) | K(4T) | I | J | L | M(2T) | N(2T) | ØP | S |
|------|------|------|-----|-----|-----|--------|--------|-------|-------|----|------|------|-------|-------|-----|-----|
| | | | | | | Coil f | Coil c | | | | | | | | | |
| T0 | 803 | 709 | 453 | 485 | 244 | 1/2" | 1/2" | 40 | 121 | 50 | 658 | 700 | 121 | 40 | 160 | 251 |
| T2 | - | 875 | 620 | 652 | 300 | | | | | | 1153 | 1195 | | | | |
| T3 | 1233 | 1204 | 820 | 852 | 255 | | | | | | | | | | | |

Motor electrical data notes

| | Motor speed | AC asynchronous motor | | | | | |
|------------------------|-------------|-----------------------|------|------|------|------|------|
| | | T0 | T2 | T3 | T4 | T5 | T6 |
| Max. power input (W) | V5 | 71 | 107 | 130 | 150 | 360 | 398 |
| | V4 | 48 | 87 | 123 | 134 | 330 | 373 |
| | V3 | 34 | 70 | 116 | 118 | 292 | 320 |
| | V2 | 21 | 41 | 105 | 109 | 245 | 249 |
| | V1 | 14 | 18 | 97 | 98 | 203 | 198 |
| Max. input current (A) | V5 | 0,31 | 0,45 | 0,51 | 0,62 | 1,47 | 1,77 |
| | V4 | 0,2 | 0,37 | 0,48 | 0,56 | 1,33 | 1,66 |
| | V3 | 0,15 | 0,30 | 0,46 | 0,51 | 1,21 | 1,37 |
| | V2 | 0,09 | 0,18 | 0,43 | 0,46 | 1,06 | 1,07 |
| | V1 | 0,07 | 0,08 | 0,41 | 0,42 | 0,91 | 0,87 |

| | Motor voltage | HEE brushless motor | | | | | |
|------------------------|---------------|---------------------|------|------|------|------|------|
| | | T0 | T2 | T3 | T4 | T5 | T6 |
| Max. power input (W) | 10V | 66 | 143 | 166 | 165 | 152 | 246 |
| | 9V | 60 | 109 | 127 | 141 | 147 | 246 |
| | 8V | 42 | 75 | 89 | 117 | 143 | 245 |
| | 7V | 29 | 54 | 62 | 83 | 101 | 192 |
| | 6V | 19 | 33 | 36 | 48 | 59 | 138 |
| | 5V | 14 | 23 | 25 | 33 | 40 | 98 |
| | 4V | 9 | 12 | 14 | 18 | 21 | 58 |
| | 3V | 6 | 8 | 10 | 12 | 13 | 36 |
| Max. input current (A) | 2V | 4 | 4 | 6 | 5 | 6 | 15 |
| | 10V | 0,49 | 0,87 | 1,00 | 1,00 | 0,89 | 1,50 |
| | 9V | 0,45 | 0,67 | 0,77 | 0,86 | 0,87 | 1,50 |
| | 8V | 0,32 | 0,47 | 0,54 | 0,72 | 0,84 | 1,50 |
| | 7V | 0,23 | 0,34 | 0,39 | 0,51 | 0,60 | 1,17 |
| | 6V | 0,15 | 0,22 | 0,23 | 0,31 | 0,37 | 0,85 |
| | 5V | 0,11 | 0,16 | 0,17 | 0,22 | 0,26 | 0,61 |
| | 4V | 0,08 | 0,09 | 0,10 | 0,13 | 0,15 | 0,37 |
| | 3V | 0,06 | 0,07 | 0,08 | 0,09 | 0,10 | 0,24 |
| | 2V | 0,04 | 0,05 | 0,05 | 0,05 | 0,06 | 0,11 |

NB: Specifications given for a 230V +/-10% - 50 Hz power supply. Values with outlet open

For operation at 60 Hz, the power input and rotation speed values are generally higher.

Motor operating range: min. return T°C: 0°C, max. return T°C: 40°C.

Coil contents

| | Cooling coil | Heating coil | |
|-----|--------------|--------------|------|
| | | 2T | 4T |
| 02J | 0,31 | 0,31 | |
| 04P | 0,34 | | 0,12 |
| 22J | 0,43 | 0,43 | |
| 22M | 0,65 | 0,65 | |
| 24P | 0,47 | | 0,17 |
| 32J | 0,58 | 0,58 | |
| 32M | 0,87 | 0,87 | |
| 34P | 0,63 | | 0,23 |
| 42J | 0,72 | 0,72 | |
| 42M | 1,08 | 1,08 | |
| 44P | 0,80 | | 0,29 |
| 52J | 0,87 | 0,87 | |
| 52M | 1,30 | 1,30 | |
| 54R | 1,30 | | 0,43 |
| 62J | 1,13 | 1,13 | |
| 62M | 1,70 | 1,70 | |
| 64P | 1,22 | | 0,47 |
| 64R | 1,70 | | 0,57 |

Coil coupling diameters

| | | T0 | T2 | T3 | T4 | T5 | T6 |
|---------------|------------------------|--------|--------|--------|--------|--------|--------|
| 2-tube system | Hot or cold water coil | G 1/2" | G 1/2" | G 1/2" | G 1/2" | G 3/4" | G 3/4" |
| 4-tube system | Cold water coil | G 1/2" | G 1/2" | G 1/2" | G 1/2" | G 3/4" | G 3/4" |
| | Hot water coil | G 1/2" | G 1/2" | G 1/2" | G 1/2" | G 3/4" | G 3/4" |

Diameters and Kvs for standard 2-way or 3-way valves with bypass with 230 V thermal actuator

| | | T0 | T2 | T3 | T4 | T5 | T6 |
|---------------|------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| 2-tube system | Hot or cold water coil | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 3/4" Kvs = 2,5 | G 3/4" Kvs = 4,0 |
| 4-tube system | Cold water coil | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 3/4" Kvs = 2,5 | G 3/4" Kvs = 4,0 |
| | Hot water coil | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 1/2" Kvs = 1,6 | G 3/4" Kvs = 2,5 | G 1/2" Kvs = 2,5 |

Diameters and Kvs for standard 2-way or 3-way valves with bypass with 24 V 3-point actuator

| | | T0 | T2 | T3 | T4 | T5 | T6 |
|---------------|------------------------|----------------------|----------------------|----------------------|---------------------|---------------------|---------------------|
| 2-tube system | Hot or cold water coil | G 1/2" Kvs = 0,63 | G 1/2" Kvs = 1,0 | G 1/2" Kvs = 1,0 | G 1/2" Kvs = 1,6 | G 3/4" Kvs = 2,5 | G 3/4" Kvs = 4,0 |
| 4-tube system | Cold water coil | G 1/2" Kvs = 0,63 | G 1/2" Kvs = 1,0 | G 1/2" Kvs = 1,0 | G 1/2" Kvs = 1,6 | G 3/4" Kvs = 2,5 | G 3/4" Kvs = 4,0 |
| | Hot water coil | G 1/2" Kvs = 0,63 | G 1/2" Kvs = 0,63 | G 1/2" Kvs = 0,63 | G 1/2" Kvs = 1,0 | G 3/4" Kvs = 2,5 | G 1/2" Kvs = 2,5 |

Diameters and flow rate range for automatic balancing two-way valves

| | | T0 | T2 | T3 | T4 | T5 | T6 |
|---------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 2-tube system | Hot or cold water coil | G 1/2" 90 - 450 l/h | G 3/4" 150 - 1050 l/h | G 3/4" 150 - 1050 l/h | G 3/4" 150 - 1050 l/h | G 1" 250-1800 l/h | G 1" 250-1800 l/h |
| 4-tube system | Cold water coil | G 1/2" 90 - 450 l/h | G 3/4" 150 - 1050 l/h | G 3/4" 150 - 1050 l/h | G 3/4" 150 - 1050 l/h | G 1" 250-1800 l/h | G 1" 250-1800 l/h |
| | Hot water coil | G 1/2" 30 - 210 l/h | G 1/2" 90 - 450 l/h | G 1/2" 90 - 450 l/h | G 3/4" 150 - 1050 l/h | G 3/4" 150 - 1050 l/h | G 3/4" 150 - 1050 l/h |

PERFORMANCE

I MODEL

Cooling temperature: water temperature: 7/12°C, air intake temperature: 27°C - 19°C (WB).

Heating temperature (2T): water temperature: 45/40°C, air intake temperature: 20°C.

Heating temperature (4T): water temperature: 65/55°C, air intake temperature: 20°C.

| COMFORT LINE™ Model I | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|-----------------------------|--------------------|--------------------------------|---------------------|------------------------------------------------|----------------|----------|--------------------------|---------------|----------------|---------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 500W | 1000W |
| 02J_AC | V5 | | 505 | | 2 480 | 2 110 | 2 980 | 68 | | 60 | 37 | 2,9 | 5,8 |
| | V4 | | 400 | | 2 110 | 1 760 | 2 500 | 46 | | 54 | 31 | 3,7 | 7,4 |
| | V3 | | 310 | 10 | 1 770 | 1 440 | 2 060 | 33 | | 48 | 25 | 4,7 | 9,5 |
| | V2 | | 220 | | 1 330 | 1 060 | 1 520 | 20 | | 40 | 17 | 6,7 | 13,4 |
| | V1 | | 145 | | 1 140 | 813 | 1 140 | 14 | | 32 | <15 | 10,1 | 20,3 |
| 02J_HEE | | 10,0 | 665 | | 2 840 | 2 550 | 3 900 | | 84 | 64 | 42 | 2,2 | 4,4 |
| | | 9,0 | 595 | | 2 650 | 2 350 | 3 580 | | 64 | 62 | 39 | 2,5 | 4,9 |
| | | 8,0 | 525 | | 2 450 | 2 140 | 3 250 | | 44 | 59 | 36 | 2,8 | 5,6 |
| | | 6,6 | 430 | 10 | 2 170 | 1 840 | 2 780 | | 28 | 54 | 31 | 3,4 | 6,8 |
| | | 5,0 | 320 | | 1 770 | 1 450 | 2 160 | | 15 | 47 | 24 | 4,6 | 9,2 |
| | | 4,0 | 250 | | 1 490 | 1 180 | 1 760 | | 8 | 41 | 19 | 5,9 | 11,8 |
| | | 2,0 | 125 | | 831 | 628 | 918 | | 3 | 27 | <15 | 11,8 | 23,5 |
| 04P_AC | V5 | | 505 | | 2 430 | 2 130 | 2 960 | 68 | | 60 | 37 | | |
| | V4 | | 400 | | 2 030 | 1 750 | 2 560 | 46 | | 54 | 31 | | |
| | V3 | | 310 | 10 | 1 610 | 1 380 | 2 190 | 33 | | 48 | 25 | | |
| | V2 | | 220 | | 1 160 | 985 | 1 690 | 20 | | 40 | 17 | | |
| | V1 | | 145 | | 1 020 | 762 | 1 560 | 14 | | 32 | <15 | | |
| 04P_HEE | | 10,0 | 665 | | 2 960 | 2 520 | 4 140 | | 84 | 64 | 42 | | |
| | | 9,0 | 595 | | 2 710 | 2 310 | 3 840 | | 64 | 62 | 39 | | |
| | | 8,0 | 525 | | 2 450 | 2 080 | 3 510 | | 44 | 59 | 36 | | |
| | | 6,6 | 430 | 10 | 2 100 | 1 770 | 3 040 | | 28 | 54 | 31 | | |
| | | 5,0 | 320 | | 1 630 | 1 380 | 2 420 | | 15 | 47 | 24 | | |
| | | 4,0 | 250 | | 1 310 | 1 110 | 2 000 | | 8 | 41 | 19 | | |
| | | 2,0 | 125 | | 721 | 584 | 1 080 | | 3 | 27 | <15 | | |
| 22CJ_AC | V5 | | 780 | | 3 580 | 2 680 | 4 160 | 104 | | 61 | 38 | 1,9 | 3,8 |
| | V4 | | 720 | | 3 320 | 2 480 | 3 920 | 85 | | 59 | 36 | 2,0 | 4,1 |
| | V3 | | 620 | 10 | 2 900 | 2 160 | 3 500 | 69 | | 55 | 33 | 2,4 | 4,7 |
| | V2 | | 420 | | 1 990 | 1 495 | 2 550 | 40 | | 47 | 24 | 3,5 | 7,0 |
| | V1 | | 230 | | 1 020 | 769 | 1 530 | 18 | | 35 | <15 | 6,4 | 12,8 |
| 22M_AC | V5 | | 735 | | 3 690 | 2 940 | 4 880 | 102 | | 62 | 44 | 2,0 | 4,0 |
| | V4 | | 680 | | 3 440 | 2 740 | 4 580 | 83 | | 60 | 43 | 2,2 | 4,3 |
| | V3 | | 590 | 10 | 3 050 | 2 420 | 4 080 | 69 | | 57 | 40 | 2,5 | 5,0 |
| | V2 | | 405 | | 2 160 | 1 710 | 1 940 | 40 | | 48 | 32 | 3,6 | 7,3 |
| | V1 | | 220 | | 1 160 | 944 | 1 690 | 18 | | 36 | 20 | 6,7 | 13,4 |
| 22J_HEE | | 10,0 | 995 | | 4 710 | 3 650 | 4 940 | | 137 | 66 | 48 | 1,5 | 3,0 |
| | | 8,0 | 800 | | 3 830 | 2 920 | 4 270 | | 70 | 60 | 43 | 1,8 | 3,7 |
| | | 7,3 | 730 | 10 | 3 510 | 2 680 | 4 020 | | 56 | 58 | 41 | 2,0 | 4,0 |
| | | 6,0 | 585 | | 2 820 | 2 130 | 3 420 | | 31 | 53 | 36 | 2,5 | 5,0 |
| | | 4,0 | 380 | | 1 790 | 1 360 | 2 450 | | 11 | 45 | 27 | 3,9 | 7,7 |
| | | 3,0 | 290 | | 1 320 | 1 020 | 1 960 | | 7 | 37 | 20 | 5,1 | 10,1 |
| | | 2,0 | 185 | | 782 | 623 | 1 300 | | 4 | 29 | <15 | 7,9 | 15,9 |
| 22M_HEE | | 10,0 | 860 | | 4 130 | 3 330 | 5 730 | | 126 | 66 | 49 | 1,7 | 3,4 |
| | | 7,8 | 650 | 10 | 3 260 | 2 590 | 4 520 | | 58 | 60 | 43 | 2,3 | 4,5 |
| | | 7,0 | 575 | | 2 940 | 2 320 | 4 070 | | 44 | 57 | 40 | 2,6 | 5,1 |
| | | 6,0 | 485 | | 2 530 | 1 980 | 3 490 | | 25 | 53 | 37 | 3,0 | 6,1 |
| | | 4,0 | 300 | | 1 610 | 1 260 | 2 230 | | 9 | 44 | 27 | 4,9 | 9,8 |
| | | 3,0 | 230 | | 1 230 | 984 | 1 760 | | 7 | 37 | 21 | 6,4 | 12,8 |
| | | 2,0 | 170 | | 970 | 751 | 1 290 | | 4 | 29 | <15 | 8,7 | 17,3 |
| 24P_AC | V5 | | 735 | | 3 530 | 2 990 | 4 670 | 102 | | 62 | 44 | | |
| | V4 | | 680 | | 3 280 | 2 760 | 4 490 | 83 | | 60 | 43 | | |
| | V3 | | 590 | 10 | 2 890 | 2 410 | 4 160 | 69 | | 57 | 40 | | |
| | V2 | | 405 | | 2 040 | 1 650 | 3 320 | 40 | | 48 | 32 | | |
| | V1 | | 220 | | 1 090 | 868 | 2 150 | 18 | | 36 | 20 | | |
| 24P_HEE | | 10,0 | 865 | | 3 850 | 3 380 | 5 300 | | 127 | 67 | 49 | | |
| | | 8,2 | 690 | 10 | 3 160 | 2 720 | 4 680 | | 68 | 61 | 44 | | |
| | | 7,0 | 580 | | 2 720 | 2 300 | 4 220 | | 44 | 57 | 41 | | |
| | | 6,0 | 485 | | 2 330 | 1 940 | 3 790 | | 26 | 53 | 37 | | |
| | | 4,0 | 300 | | 1 480 | 1 200 | 2 710 | | 9 | 44 | 28 | | |
| | | 3,0 | 25 | | 1 150 | 927 | 2 240 | | 7 | 38 | 21 | | |
| | | 2,0 | 170 | | 832 | 665 | 1 720 | | 4 | 29 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

I model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 12 dB (sizes 0 to 3), 14 dB (sizes 4 & 5) and 16 dB (size 6).

I MODEL (continued)

| COMFORT LINE™ Model I | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|-----------------------------|--------------------|--------------------------------|---------------------|------------------------------------------------|----------------|----------|--------------------------|---------------|----------------|---------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 700W | 1400W |
| 32J_AC | V5 | | 1 095 | | 4 740 | 4 390 | 5 950 | 123 | | 61 | 44 | 1,9 | 3,8 |
| | V4 | | 875 | | 3 890 | 3 490 | 5 140 | 116 | | 56 | 39 | 2,4 | 4,7 |
| | V3 | | 720 | 10 | 3 270 | 2 830 | 4 490 | 111 | | 52 | 35 | 2,9 | 5,7 |
| | V2 | | 570 | | 2 660 | 2 200 | 3 770 | 103 | | 47 | 31 | 3,6 | 7,2 |
| | V1 | | 450 | | 2 100 | 1 670 | 3 100 | 95 | | 43 | 26 | 4,6 | 9,2 |
| 32M_AC | V5 | | 1 040 | | 5 330 | 4 010 | 6 490 | 116 | | 63 | 46 | 2,0 | 4,0 |
| | V4 | | 870 | 10 | 4 550 | 3 360 | 5 740 | 112 | | 59 | 42 | 2,4 | 4,7 |
| | V3 | | 725 | | 3 840 | 2 770 | 5 000 | 106 | | 55 | 38 | 2,8 | 5,7 |
| | V2 | | 590 | | 3 180 | 2 270 | 4 260 | 100 | | 51 | 35 | 3,5 | 7,0 |
| | V1 | | 475 | | 2 560 | 1 830 | 3 530 | 94 | | 47 | 30 | 4,3 | 8,7 |
| 32J_HEE | | 10,0 | 1 335 | | 5 440 | 5 110 | 6 710 | | 159 | 67 | 51 | 1,5 | 3,1 |
| | | 9,0 | 1 190 | | 4 990 | 4 610 | 6 290 | | 121 | 64 | 47 | 1,7 | 3,5 |
| | | 7,4 | 945 | 10 | 4 180 | 3 730 | 5 500 | | 68 | 59 | 42 | 2,2 | 4,4 |
| | | 6,0 | 715 | | 3 350 | 2 860 | 4 570 | | 34 | 55 | 38 | 2,9 | 5,8 |
| | | 5,0 | 595 | | 2 880 | 2 390 | 3 990 | | 24 | 51 | 34 | 3,5 | 6,9 |
| | | 4,0 | 475 | | 2 370 | 1 920 | 3 350 | | 13 | 46 | 30 | 4,3 | 8,7 |
| | | 2,0 | 270 | | 1 340 | 1 060 | 2 030 | | 5 | 32 | 15 | 7,6 | 15,3 |
| 32M_HEE | | 10,0 | 1 250 | | 5 970 | 4 790 | 7 470 | | 153 | 67 | 52 | 1,6 | 3,3 |
| | | 9,0 | 1 110 | | 5 430 | 4 330 | 6 970 | | 116 | 65 | 48 | 1,9 | 3,7 |
| | | 7,8 | 955 | 10 | 4 780 | 3 780 | 6 300 | | 74 | 61 | 44 | 2,2 | 4,3 |
| | | 6,0 | 710 | | 3 720 | 2 910 | 5 090 | | 34 | 55 | 38 | 2,9 | 5,8 |
| | | 5,0 | 580 | | 3 120 | 2 430 | 4 330 | | 24 | 51 | 34 | 3,5 | 7,1 |
| | | 4,0 | 455 | | 2 490 | 1 930 | 3 500 | | 13 | 46 | 30 | 4,5 | 9,0 |
| | | 2,0 | 210 | | 1 220 | 939 | 1 680 | | 6 | 34 | 17 | 9,8 | 19,6 |
| 34P_AC | V5 | | 1 010 | | 5 130 | 4 320 | 5 340 | 115 | | 63 | 45 | | |
| | V4 | | 855 | | 4 440 | 3 690 | 4 970 | 111 | | 58 | 41 | | |
| | V3 | | 710 | 10 | 3 800 | 3 110 | 4 570 | 105 | | 55 | 38 | | |
| | V2 | | 585 | | 3 180 | 2 570 | 4 140 | 99 | | 51 | 34 | | |
| | V1 | | 470 | | 2 600 | 2 080 | 3 660 | 94 | | 47 | 30 | | |
| 34P_HEE | | 10,0 | 1 250 | | 5 910 | 5 070 | 6 320 | | 153 | 67 | 52 | | |
| | | 9,0 | 1 110 | | 5 370 | 4 560 | 5 940 | | 116 | 65 | 48 | | |
| | | 7,8 | 955 | 10 | 4 680 | 3 930 | 5 440 | | 74 | 61 | 44 | | |
| | | 6,0 | 710 | | 3 570 | 2 940 | 4 570 | | 34 | 55 | 38 | | |
| | | 5,0 | 580 | | 2 960 | 2 420 | 4 020 | | 24 | 51 | 34 | | |
| | | 4,0 | 455 | | 2 320 | 1 880 | 3 410 | | 13 | 46 | 30 | | |
| | | 2,0 | 210 | | 1 030 | 839 | 1 910 | | 6 | 34 | 17 | | |
| 42J_AC | V5 | | 1 305 | | 5 640 | 4 820 | 6 690 | 141 | | 62 | 43 | 1,6 | 3,2 |
| | V4 | | 965 | 10 | 4 370 | 3 690 | 5 510 | 129 | | 55 | 37 | 2,1 | 4,3 |
| | V3 | | 755 | | 3 520 | 2 950 | 4 630 | 115 | | 50 | 32 | 2,7 | 5,5 |
| | V2 | | 605 | | 2 870 | 2 400 | 3 920 | 107 | | 46 | 27 | 3,4 | 6,8 |
| | V1 | | 480 | | 2 280 | 1 920 | 3 250 | 97 | | 42 | 23 | 4,3 | 8,6 |
| 42M_AC | V5 | | 1 260 | | 6 410 | 5 170 | 7 650 | 139 | | 63 | 44 | 1,6 | 3,3 |
| | V4 | | 955 | 10 | 5 100 | 3 970 | 5 900 | 127 | | 57 | 38 | 2,2 | 4,3 |
| | V3 | | 775 | | 4 280 | 3 250 | 4 860 | 117 | | 52 | 34 | 2,7 | 5,3 |
| | V2 | | 615 | | 3 500 | 2 600 | 3 900 | 108 | | 48 | 29 | 3,3 | 6,7 |
| | V1 | | 505 | | 2 910 | 2 140 | 3 220 | 97 | | 44 | 26 | 4,1 | 8,2 |
| 42J_HEE | | 10,0 | 1 505 | | 6 050 | 5 150 | 8 010 | | 165 | 68 | 50 | 1,4 | 2,7 |
| | | 9,0 | 1 415 | | 5 780 | 4 910 | 7 660 | | 138 | 67 | 48 | 1,5 | 2,9 |
| | | 7,7 | 1 300 | 10 | 5 410 | 4 590 | 7 210 | | 102 | 64 | 45 | 1,6 | 3,2 |
| | | 6,0 | 975 | | 4 350 | 3 680 | 5 800 | | 48 | 58 | 39 | 2,1 | 4,2 |
| | | 5,0 | 800 | | 3 710 | 3 140 | 4 950 | | 32 | 54 | 35 | 2,6 | 5,1 |
| | | 4,0 | 625 | | 3 020 | 2 560 | 4 050 | | 17 | 49 | 31 | 3,3 | 6,6 |
| | | 2,0 | 290 | | 1 410 | 1 250 | 2 050 | | 4 | 36 | 18 | 7,1 | 14,2 |
| 42M_HEE | | 10,0 | 1 505 | | 7 230 | 6 120 | 9 010 | | 165 | 68 | 50 | 1,4 | 2,7 |
| | | 9,0 | 1 410 | | 6 890 | 5 780 | 8 500 | | 137 | 66 | 47 | 1,5 | 2,9 |
| | | 7,6 | 1 250 | 10 | 6 290 | 5 200 | 7 600 | | 99 | 63 | 44 | 1,6 | 3,3 |
| | | 6,0 | 975 | | 5 160 | 4 160 | 5 970 | | 48 | 58 | 39 | 2,1 | 4,2 |
| | | 5,0 | 795 | | 4 390 | 3 470 | 4 900 | | 32 | 54 | 35 | 2,6 | 5,2 |
| | | 4,0 | 625 | | 3 570 | 2 780 | 3 850 | | 17 | 49 | 30 | 3,3 | 6,6 |
| | | 2,0 | 290 | | 1 700 | 1 310 | 1 740 | | 4 | 36 | 18 | 7,1 | 14,2 |
| 44P_AC | V5 | | 1 260 | | 5 280 | 4 760 | 7 250 | 139 | | 63 | 44 | | |
| | V4 | | 955 | | 4 400 | 3 850 | 6 030 | 127 | | 57 | 38 | | |
| | V3 | | 775 | 10 | 3 820 | 3 270 | 5 230 | 117 | | 52 | 34 | | |
| | V2 | | 615 | | 3 240 | 2 710 | 4 440 | 108 | | 48 | 29 | | |
| | V1 | | 505 | | 2 790 | 2 290 | 3 840 | 97 | | 44 | 26 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

I model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 12 dB (sizes 0 to 3), 14 dB (sizes 4 & 5) and 16 dB (size 6).

I MODEL (continued)

| COMFORT LINE™ Model I | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|-----------------------------|--------------------|--------------------------------|---------------------|------------------------------------------------|----------------|----------|--------------------------|---------------|----------------|---------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------|--------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 700W | 1400W |
| 44P_HEE | | 10,0 | 1 510 | 10 | 6 130 | 5 100 | 9 210 | | 165 | 68 | 51 | | |
| | | 9,0 | 1 415 | | 5 840 | 4 870 | 8 800 | | 138 | 66 | 48 | | |
| | | 8,0 | 1 330 | | 5 560 | 4 640 | 8 390 | | 111 | 63 | 46 | | |
| | | 6,0 | 980 | | 4 350 | 3 680 | 6 620 | | 48 | 58 | 39 | | |
| | | 5,0 | 800 | | 3 700 | 3 150 | 5 630 | | 32 | 54 | 35 | | |
| | | 4,0 | 625 | | 3 010 | 2 580 | 4 600 | | 17 | 49 | 31 | | |
| | | 2,0 | 290 | | 1 450 | 1 260 | 2 340 | | 4 | 36 | 18 | | |
| | | | | | | | | | | | | 1000W | 2000W |
| 52J AC | V5 | | 2 215 | 10 | 9 190 | 8 230 | 11 100 | 340 | | 65 | 39 | 1,3 | 2,7 |
| | V4 | | 1 990 | | 8 600 | 7 620 | 10 500 | 310 | | 62 | 37 | 1,5 | 3,0 |
| | V3 | | 1 655 | | 7 630 | 6 650 | 9 400 | 281 | | 58 | 32 | 1,8 | 3,6 |
| | V2 | | 1 250 | | 6 310 | 5 370 | 7 790 | 239 | | 51 | 26 | 2,4 | 4,7 |
| | V1 | | 945 | | 5 150 | 4 290 | 6 330 | 201 | | 45 | 21 | 3,1 | 6,2 |
| 52M AC | V5 | | 1 915 | 10 | 10 200 | 8 730 | 13 700 | 321 | | 66 | 40 | 1,5 | 3,1 |
| | V4 | | 1 730 | | 9 490 | 8 000 | 12 600 | 290 | | 63 | 37 | 1,7 | 3,4 |
| | V3 | | 1 510 | | 8 630 | 7 110 | 11 300 | 259 | | 60 | 34 | 1,9 | 3,9 |
| | V2 | | 1 210 | | 7 350 | 5 860 | 9 280 | 227 | | 55 | 29 | 2,4 | 4,9 |
| | V1 | | 925 | | 5 970 | 4 600 | 7 240 | 193 | | 50 | 25 | 3,2 | 6,4 |
| 52J HEE | | 10,0 | 1 625 | 10 | 7 680 | 6 820 | 8 870 | | 157 | 64 | 45 | 1,8 | 3,6 |
| | | 8,7 | 1 570 | | 7 490 | 6 610 | 8 690 | | 142 | 63 | 44 | 1,9 | 3,7 |
| | | 8,0 | 1 540 | | 7 390 | 6 510 | 8 600 | | 135 | 63 | 44 | 1,9 | 3,8 |
| | | 7,0 | 1 340 | | 6 660 | 5 780 | 7 910 | | 95 | 60 | 41 | 2,2 | 4,4 |
| | | 6,0 | 1 140 | | 5 910 | 5 030 | 7 140 | | 56 | 56 | 37 | 2,6 | 5,2 |
| | | 4,0 | 750 | | 4 240 | 3 480 | 5 280 | | 20 | 47 | 29 | 3,9 | 7,8 |
| | | 2,0 | 380 | | 2 260 | 1 820 | 2 960 | | 5 | 33 | <15 | 7,7 | 15,5 |
| 52M HEE | | 10,0 | 1 500 | 10 | 8 790 | 7 200 | 11 700 | | 162 | 66 | 46 | 2,0 | 3,9 |
| | | 8,6 | 1 380 | | 8 250 | 6 680 | 10 900 | | 127 | 64 | 45 | 2,1 | 4,3 |
| | | 8,0 | 1 335 | | 8 030 | 6 470 | 10 500 | | 113 | 63 | 44 | 2,2 | 4,4 |
| | | 7,0 | 1 145 | | 7 120 | 5 630 | 9 150 | | 80 | 60 | 41 | 2,6 | 5,1 |
| | | 6,0 | 960 | | 6 160 | 4 790 | 7 760 | | 47 | 56 | 37 | 3,1 | 6,1 |
| | | 4,0 | 610 | | 4 130 | 3 130 | 5 030 | | 16 | 47 | 29 | 4,8 | 9,6 |
| | | 2,0 | 265 | | 1 980 | 1 430 | 2 190 | | 5 | 34 | <15 | 11,1 | 22,2 |
| 54R AC | V5 | | 1 915 | 10 | 9 610 | 8 181 | 12 900 | 321 | | 66 | 46 | | |
| | V4 | | 1 730 | | 8 970 | 7 510 | 12 200 | 290 | | 63 | 43 | | |
| | V3 | | 1 510 | | 7 160 | 6 690 | 11 300 | 259 | | 60 | 40 | | |
| | V2 | | 1 210 | | 6 940 | 5 540 | 9 920 | 227 | | 55 | 36 | | |
| | V1 | | 925 | | 5 650 | 4 380 | 8 360 | 193 | | 50 | 31 | | |
| 54R HEE | | 10,0 | 1 495 | 10 | 7 960 | 6 570 | 10 800 | | 162 | 65 | 40 | | |
| | | 9,0 | 1 410 | | 7 650 | 6 270 | 10 500 | | 136 | 64 | 39 | | |
| | | 8,0 | 1 325 | | 7 340 | 5 980 | 10 100 | | 112 | 63 | 38 | | |
| | | 7,0 | 1 140 | | 6 620 | 5 300 | 9 280 | | 80 | 59 | 35 | | |
| | | 6,0 | 955 | | 5 820 | 4 580 | 8 330 | | 47 | 56 | 31 | | |
| | | 4,0 | 610 | | 4 020 | 3 080 | 6 170 | | 16 | 47 | 22 | | |
| | | 2,0 | 265 | | 1 980 | 1 440 | 3 160 | | 5 | 34 | <15 | | |
| | | | | | | | | | | | | 1600 W | 3200 W |
| 62J AC | V5 | | 2 745 | 10 | 11 700 | 10 500 | 15 100 | 413 | | 72 | 51 | 1,7 | 3,4 |
| | V4 | | 2 330 | | 10 300 | 9 090 | 13 000 | 384 | | 66 | 42 | 2,0 | 4,0 |
| | V3 | | 1 630 | | 7 770 | 6 570 | 9 270 | 317 | | 55 | 28 | 2,9 | 5,8 |
| | V2 | | 1 110 | | 5 580 | 4 570 | 6 380 | 259 | | 47 | 20 | 4,2 | 8,5 |
| | V1 | | 870 | | 4 460 | 3 590 | 5 030 | 202 | | 42 | 16 | 5,4 | 10,8 |
| | V5 | | 2 585 | | 14 000 | 11 100 | 15 900 | 395 | | 72 | 51 | 1,8 | 3,6 |
| 62M AC | V4 | 2 195 | 10 | 12 600 | 9 810 | 14 100 | 367 | 67 | 43 | 2,1 | 4,3 | | |
| | V3 | 1 555 | 9 900 | 7 420 | 10 800 | 317 | 59 | 31 | 3,0 | 6,1 | | | |
| | V2 | 1 055 | 7 340 | 4 340 | 7 740 | 248 | 51 | 25 | 4,5 | 8,9 | | | |
| | V1 | 805 | 5 840 | 4 190 | 6 060 | 197 | 44 | 17 | 5,8 | 11,7 | | | |
| | | | | | | | | | | | | | 1500 W |
| 62J HEE | | 10,0 | 2 395 | 10 | 10 700 | 9 530 | 13 200 | | 255 | 65 | 49 | 1,8 | 3,7 |
| | | 9,0 | 2 370 | | 10 700 | 9 450 | 13 000 | | 248 | 65 | 48 | 1,9 | 3,7 |
| | | 7,7 | 2 290 | | 10 400 | 9 140 | 12 600 | | 226 | 64 | 47 | 1,9 | 3,9 |
| | | 6,0 | 1 940 | | 9 140 | 7 810 | 10 900 | | 136 | 60 | 42 | 2,3 | 4,5 |
| | | 5,0 | 1 670 | | 7 980 | 6 780 | 9 470 | | 96 | 57 | 37 | 2,6 | 5,3 |
| | | 4,0 | 1 410 | | 6 880 | 5 750 | 8 070 | | 57 | 53 | 32 | 3,1 | 6,3 |
| | | 2,0 | 740 | | 3 810 | 3 050 | 4 330 | | 13 | 39 | 19 | 6,0 | 11,9 |
| 62M HEE | | 10,0 | 2 305 | 10 | 10 700 | 9 530 | 13 200 | | 260 | 66 | 50 | 1,9 | 3,8 |
| | | 9,0 | 2 280 | | 10 700 | 9 450 | 13 000 | | 256 | 66 | 49 | 1,9 | 3,9 |
| | | 7,0 | 2 005 | | 10 400 | 9 140 | 12 600 | | 188 | 63 | 46 | 2,2 | 4,4 |
| | | 6,0 | 1 770 | | 9 140 | 7 810 | 10 900 | | 126 | 60 | 41 | 2,5 | 5,0 |
| | | 5,0 | 1 520 | | 7 980 | 6 780 | 9 470 | | 89 | 56 | 37 | 2,9 | 5,8 |
| | | 4,0 | 1 280 | | 6 880 | 5 750 | 8 070 | | 52 | 52 | 31 | 3,4 | 6,9 |
| | | 2,0 | 685 | | 3 810 | 3 050 | 4 330 | | 12 | 39 | 19 | 6,4 | 12,9 |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

I model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 12 dB (sizes 0 to 3), 14 dB (sizes 4 & 5) and 16 dB (size 6).

I MODEL (continued)

| COMFORT LINE™ Model I | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|-----------------------------|--------------------|--------------------------------|---------------------|------------------------------------------------|----------------|----------|--------------------------|---------------|----------------|---------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------|--------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 1500 W | 3000 W |
| 64P AC | V5 | | 2 525 | | 13 100 | 11 600 | 13 600 | 389 | | 69 | 54 | | |
| | V4 | | 2 185 | | 11 800 | 10 200 | 12 600 | 360 | | 65 | 47 | | |
| | V3 | | 1 565 | 10 | 8 970 | 7 490 | 10 400 | 314 | | 57 | 36 | | |
| | V2 | | 1 060 | | 6 380 | 5 170 | 8 150 | 247 | | 50 | 30 | | |
| | V1 | | 800 | | 4 900 | 3 910 | 6 730 | 197 | | 42 | 23 | | |
| 64R AC | V5 | | 2 415 | | 13 700 | 10 500 | 15 400 | 389 | | 72 | 51 | | |
| | V4 | | 2 085 | 10 | 12 300 | 9 230 | 14 400 | 357 | | 67 | 44 | | |
| | V3 | | 1 470 | | 9 590 | 6 990 | 12 100 | 313 | | 58 | 30 | | |
| | V2 | | 1 010 | | 7 100 | 5 060 | 9 680 | 244 | | 50 | 23 | | |
| | V1 | | 780 | | 5 680 | 4 070 | 8 160 | 194 | | 45 | 19 | | |
| 64PHEE | | 10,0 | 2 305 | | 12 200 | 10 600 | 13 000 | | 260 | 66 | 43 | | |
| | | 9,0 | 2 280 | | 12 100 | 10 500 | 12 900 | | 256 | 66 | 42 | | |
| | | 7,0 | 2 005 | 10 | 10 900 | 9 290 | 12 100 | | 188 | 63 | 39 | | |
| | | 6,0 | 1 770 | | 9 780 | 8 230 | 11 300 | | 126 | 60 | 34 | | |
| | | 5,0 | 1 520 | | 8 590 | 7 100 | 10 400 | | 89 | 56 | 30 | | |
| | | 4,0 | 1 280 | | 7 330 | 5 980 | 9 330 | | 52 | 52 | 24 | | |
| | | 2,0 | 685 | | 4 090 | 3 220 | 6 170 | | 12 | 39 | <15 | | |
| 64R HEE | | 10,0 | 2 175 | | 13 000 | 9 370 | 14 800 | | 264 | 67 | 44 | | |
| | | 9,0 | 2 175 | | 13 000 | 9 370 | 14 800 | | 264 | 67 | 44 | | |
| | | 7,0 | 1 890 | 10 | 11 800 | 8 490 | 13 800 | | 189 | 64 | 39 | | |
| | | 6,0 | 1 615 | | 10 600 | 7 560 | 12 800 | | 117 | 60 | 35 | | |
| | | 5,0 | 1 370 | | 9 390 | 6 700 | 10 800 | | 82 | 56 | 30 | | |
| | | 4,0 | 1 130 | | 8 100 | 5 750 | 10 600 | | 47 | 52 | 24 | | |
| | | 2,0 | 555 | | 4 360 | 3 070 | 6 500 | | 11 | 39 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

I model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 12 dB (sizes 0 to 3), 14 dB (sizes 4 & 5) and 16 dB (size 6).

Y MODEL

Cooling temperature: water temperature: 7/12°C, air intake temperature: 27°C - 19°C (WB).

Heating temperature (2T): water temperature: 45/40°C, air intake temperature: 20°C.

Heating temperature (4T): water temperature: 65/55°C, air intake temperature: 20°C.

| COMFORT LINE™ Model Y | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|-----------------------------|--------------------|--------------------------------|---------------------|------------------------------------------------|----------------|----------|--------------------------|---------------|----------------|---------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 500W | 1000W |
| 02J_AC | V5 | | 440 | | 2 280 | 1 920 | 2 700 | 66 | | 60 | 41 | 3,3 | 6,7 |
| | V4 | | 360 | | 1 970 | 1 620 | 2 300 | 44 | | 55 | 36 | 4,1 | 8,2 |
| | V3 | | 285 | 20 | 1 660 | 1 340 | 1 920 | 32 | | 49 | 30 | 5,2 | 10,3 |
| | V2 | | 200 | | 1 250 | 986 | 1 420 | 20 | | 41 | 22 | 7,4 | 14,7 |
| | V1 | | 135 | | 1 070 | 762 | 1 070 | 14 | | 33 | <15 | 10,9 | 21,8 |
| 02J_HEE | | 10,0 | 605 | | 2 690 | 2 390 | 3 620 | | 77 | 64 | 46 | 2,4 | 4,9 |
| | | 9,0 | 540 | | 2 510 | 2 200 | 3 320 | | 59 | 61 | 43 | 2,7 | 5,4 |
| | | 8,0 | 480 | | 2 330 | 2 000 | 3 030 | | 41 | 58 | 40 | 3,1 | 6,1 |
| | | 6,6 | 395 | 20 | 2 040 | 1 710 | 2 570 | | 26 | 53 | 34 | 3,7 | 7,4 |
| | | 5,0 | 290 | | 1 650 | 1 330 | 1 980 | | 14 | 46 | 28 | 5,1 | 10,1 |
| | | 4,0 | 230 | | 1 390 | 1 100 | 1 620 | | 8 | 41 | 22 | 6,4 | 12,8 |
| | | 2,0 | 115 | | 760 | 572 | 836 | | 3 | 27 | <15 | 12,8 | 25,6 |
| 04P_AC | V5 | | 440 | | 2 210 | 1 920 | 2 720 | 66 | | 60 | 41 | | |
| | V4 | | 360 | | 1 880 | 1 610 | 2 390 | 44 | | 55 | 36 | | |
| | V3 | | 285 | 20 | 1 500 | 1 280 | 2 060 | 32 | | 49 | 30 | | |
| | V2 | | 200 | | 1 080 | 915 | 1 590 | 20 | | 41 | 22 | | |
| | V1 | | 135 | | 941 | 709 | 1 470 | 14 | | 33 | <15 | | |
| 04P_HEE | | 10,0 | 605 | | 2 760 | 2 350 | 3 880 | | 77 | 64 | 46 | | |
| | | 9,0 | 540 | | 2 520 | 2 150 | 3 590 | | 59 | 61 | 43 | | |
| | | 8,0 | 480 | | 2 280 | 1 940 | 3 290 | | 41 | 58 | 40 | | |
| | | 6,6 | 395 | 20 | 1 950 | 1 650 | 2 830 | | 26 | 53 | 34 | | |
| | | 5,0 | 290 | | 1 490 | 1 260 | 2 240 | | 14 | 46 | 28 | | |
| | | 4,0 | 230 | | 1 200 | 1 020 | 1 850 | | 8 | 41 | 22 | | |
| | | 2,0 | 115 | | 673 | 538 | 992 | | 3 | 27 | <15 | | |
| 22J_AC | V5 | | 730 | | 3 380 | 2 530 | 3 960 | 101 | | 60 | 40 | 2,0 | 4,0 |
| | V4 | | 680 | | 3 150 | 2 350 | 3 750 | 83 | | 58 | 39 | 2,2 | 4,3 |
| | V3 | | 595 | 20 | 2 790 | 2 050 | 3 380 | 68 | | 55 | 36 | 2,5 | 4,9 |
| | V2 | | 405 | | 1 910 | 1 400 | 2 470 | 40 | | 46 | 27 | 3,6 | 7,3 |
| | V1 | | 225 | | 972 | 741 | 1 480 | 18 | | 34 | <15 | 6,5 | 13,1 |
| 22M_AC | V5 | | 685 | | 3 490 | 2 780 | 4 610 | 100 | | 60 | 41 | 2,1 | 4,3 |
| | V4 | | 640 | | 3 280 | 2 610 | 4 370 | 81 | | 59 | 39 | 2,3 | 4,6 |
| | V3 | | 565 | 20 | 2 930 | 2 320 | 3 920 | 67 | | 56 | 37 | 2,6 | 5,2 |
| | V2 | | 390 | | 2 080 | 1 650 | 2 840 | 40 | | 47 | 29 | 3,8 | 7,5 |
| | V1 | | 215 | | 1 130 | 916 | 1 630 | 18 | | 35 | 16 | 6,8 | 13,7 |
| 22J_HEE | | 10,0 | 935 | | 4 450 | 3 440 | 4 730 | | 128 | 64 | 45 | 1,6 | 3,1 |
| | | 8,0 | 750 | | 3 590 | 2 740 | 4 080 | | 65 | 58 | 39 | 2,0 | 3,9 |
| | | 7,3 | 680 | 20 | 3 280 | 2 480 | 3 810 | | 53 | 56 | 37 | 2,2 | 4,3 |
| | | 6,0 | 545 | | 2 640 | 1 980 | 3 250 | | 29 | 51 | 32 | 2,7 | 5,4 |
| | | 4,0 | 355 | | 1 670 | 1 270 | 2 330 | | 11 | 41 | 23 | 4,1 | 8,3 |
| | | 3,0 | 270 | | 1 210 | 942 | 1 840 | | 7 | 35 | 16 | 5,4 | 10,9 |
| | | 2,0 | 170 | | 743 | 589 | 1 230 | | 4 | 28 | <15 | 8,7 | 17,3 |
| 22M_HEE | | 10,0 | 800 | | 3 900 | 3 140 | 5 390 | | 118 | 65 | 46 | 1,8 | 3,7 |
| | | 7,8 | 610 | 20 | 3 090 | 2 450 | 4 280 | | 54 | 58 | 39 | 2,4 | 4,8 |
| | | 7,0 | 540 | | 2 790 | 2 200 | 3 850 | | 41 | 55 | 36 | 2,7 | 5,4 |
| | | 6,0 | 455 | | 2 400 | 1 880 | 3 310 | | 24 | 51 | 33 | 3,2 | 6,5 |
| | | 4,0 | 285 | | 1 530 | 1 200 | 2 140 | | 9 | 42 | 23 | 5,2 | 10,3 |
| | | 3,0 | 220 | | 1 180 | 938 | 1 670 | | 7 | 36 | 17 | 6,7 | 13,4 |
| | | 2,0 | 160 | | 939 | 723 | 1 230 | | 4 | 27 | <15 | 9,2 | 18,4 |
| 24P_AC | V5 | | 685 | | 3 330 | 2 810 | 4 500 | 100 | | 60 | 41 | | |
| | V4 | | 640 | | 3 120 | 2 620 | 4 350 | 81 | | 59 | 39 | | |
| | V3 | | 565 | 20 | 2 790 | 2 310 | 4 050 | 67 | | 56 | 37 | | |
| | V2 | | 390 | | 1 960 | 1 590 | 3 230 | 40 | | 47 | 29 | | |
| | V1 | | 215 | | 1 040 | 834 | 2 090 | 18 | | 35 | 16 | | |
| 22J_HEE | | 10,0 | 815 | | 3 660 | 3 190 | 5 110 | | 120 | 65 | 46 | | |
| | | 8,2 | 650 | 20 | 3 010 | 2 580 | 4 530 | | 65 | 60 | 40 | | |
| | | 7,0 | 545 | | 2 590 | 2 180 | 4 080 | | 42 | 56 | 37 | | |
| | | 6,0 | 460 | | 2 220 | 1 850 | 3 670 | | 24 | 52 | 33 | | |
| | | 4,0 | 285 | | 1 420 | 1 150 | 2 630 | | 9 | 42 | 24 | | |
| | | 3,0 | 225 | | 1 090 | 883 | 2 160 | | 7 | 36 | 17 | | |
| | | 2,0 | 160 | | 808 | 642 | 1 660 | | 4 | 27 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

Y model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 14 dB (sizes 0 to 3), 16 dB (sizes 4 & 5) and 18 dB (size 6).

Y MODEL (continued)

| COMFORT LINE™ Model Y | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|-----------------------------|--------------------|--------------------------------|---------------------|------------------------------------------------|----------------|----------|--------------------------|---------------|----------------|---------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 700W | 1400W |
| 32J_AC | V5 | | 1 000 | | 4 360 | 3 990 | 5 620 | 117 | | 60 | 41 | 2,1 | 4,1 |
| | V4 | | 810 | | 3 650 | 3 220 | 4 890 | 110 | | 56 | 37 | 2,5 | 5,1 |
| | V3 | | 680 | 20 | 3 130 | 2 680 | 4 330 | 107 | | 52 | 33 | 3,0 | 6,1 |
| | V2 | | 550 | | 2 560 | 2 110 | 3 670 | 101 | | 48 | 29 | 3,7 | 7,5 |
| | V1 | | 435 | | 2 040 | 1 620 | 3 020 | 94 | | 43 | 24 | 4,7 | 9,5 |
| 32M_AC | V5 | | 970 | | 5 020 | 3 750 | 6 210 | 113 | | 62 | 43 | 2,1 | 4,2 |
| | V4 | | 830 | | 4 350 | 3 190 | 5 550 | 109 | | 58 | 39 | 2,5 | 5,0 |
| | V3 | | 695 | 20 | 3 710 | 2 670 | 4 860 | 104 | | 54 | 35 | 3,0 | 5,9 |
| | V2 | | 575 | | 3 100 | 2 210 | 4 170 | 99 | | 51 | 32 | 3,6 | 7,2 |
| | V1 | | 465 | | 2 510 | 1 790 | 3 460 | 93 | | 46 | 28 | 4,4 | 8,9 |
| 32J_HEE | | 10,0 | 1 235 | | 5 130 | 4 780 | 6 410 | | 152 | 65 | 45 | 1,7 | 3,3 |
| | | 9,0 | 1 100 | | 4 710 | 4 300 | 6 000 | | 114 | 62 | 43 | 1,9 | 3,7 |
| | | 7,4 | 875 | 20 | 3 950 | 3 480 | 5 240 | | 65 | 58 | 39 | 2,4 | 4,7 |
| | | 6,0 | 670 | | 3 170 | 2 690 | 4 350 | | 32 | 53 | 34 | 3,1 | 6,1 |
| | | 5,0 | 555 | | 2 720 | 2 240 | 3 780 | | 23 | 49 | 30 | 3,7 | 7,4 |
| | | 4,0 | 440 | | 2 220 | 1 780 | 3 150 | | 13 | 44 | 26 | 4,7 | 9,4 |
| | | 2,0 | 250 | | 1 230 | 977 | 1 890 | | 5 | 30,0 | <15 | 8,2 | 16,5 |
| 32M_HEE | | 10,0 | 1 165 | | 5 650 | 4 520 | 7 150 | | 144 | 65 | 46 | 1,8 | 3,5 |
| | | 9,0 | 1 035 | | 5 130 | 4 080 | 6 650 | | 109 | 63 | 43 | 2,0 | 4,0 |
| | | 7,8 | 885 | 20 | 4 500 | 3 550 | 5 990 | | 69 | 59 | 40 | 2,3 | 4,7 |
| | | 6,0 | 665 | | 3 510 | 2 730 | 4 820 | | 32 | 53 | 34 | 3,1 | 6,2 |
| | | 5,0 | 545 | | 2 940 | 2 290 | 4 090 | | 23 | 49 | 30 | 3,8 | 7,6 |
| | | 4,0 | 430 | | 2 350 | 1 830 | 3 320 | | 13 | 45 | 26 | 4,8 | 9,6 |
| | | 2,0 | 200 | | 1 180 | 903 | 1 600 | | 6 | 32 | <15 | 10,3 | 20,6 |
| 34P_AC | V5 | | 925 | | 4 760 | 3 980 | 5 150 | 110 | | 61 | 42 | | |
| | V4 | | 795 | | 4 180 | 3 450 | 4 820 | 107 | | 58 | 39 | | |
| | V3 | | 675 | 20 | 3 620 | 2 950 | 4 460 | 103 | | 54 | 35 | | |
| | V2 | | 565 | | 3 070 | 2 470 | 4 050 | 98 | | 51 | 32 | | |
| | V1 | | 460 | | 2 540 | 2 020 | 3 600 | 93 | | 46 | 28 | | |
| 34P_HEE | | 10,0 | 1 165 | | 5 570 | 4 750 | 6 080 | | 144 | 66 | 46 | | |
| | | 9,0 | 1 035 | | 5 050 | 4 270 | 5 700 | | 109 | 64 | 43 | | |
| | | 7,8 | 885 | 20 | 4 390 | 3 670 | 5 220 | | 69 | 63 | 40 | | |
| | | 6,0 | 665 | | 3 350 | 2 750 | 4 370 | | 32 | 56 | 34 | | |
| | | 5,0 | 545 | | 2 770 | 2 260 | 3 850 | | 23 | 52 | 30 | | |
| | | 4,0 | 430 | | 2 180 | 1 770 | 3 270 | | 13 | 47 | 26 | | |
| | | 2,0 | 200 | | 996 | 805 | 1 840 | | 6 | 34 | <15 | | |
| 42J_AC | V5 | | 1 215 | | 5 310 | 4 520 | 6 410 | 134 | | 61 | 40 | 1,7 | 3,4 |
| | V4 | | 925 | 20 | 4 220 | 3 550 | 5 360 | 124 | | 55 | 34 | 2,2 | 4,5 |
| | V3 | | 730 | | 3 430 | 2 870 | 4 540 | 113 | | 50 | 29 | 2,8 | 5,6 |
| | V2 | | 590 | | 2 810 | 2 350 | 3 860 | 106 | | 46 | 25 | 3,5 | 7,0 |
| | V1 | | 470 | | 2 230 | 1 880 | 3 200 | 96 | | 41 | 20 | 4,4 | 8,8 |
| 42M_AC | V5 | | 1 170 | | 6 050 | 4 830 | 7 160 | 132 | | 62 | 40 | 1,8 | 3,5 |
| | V4 | | 905 | 20 | 4 890 | 3 780 | 5 640 | 123 | | 56 | 35 | 2,3 | 4,5 |
| | V3 | | 750 | | 4 160 | 3 150 | 4 720 | 115 | | 52 | 31 | 2,7 | 5,5 |
| | V2 | | 600 | | 3 410 | 2 530 | 3 800 | 107 | | 47 | 26 | 3,4 | 6,9 |
| | V1 | | 495 | | 2 850 | 2 090 | 3 160 | 96 | | 43 | 22 | 4,2 | 8,3 |
| 42J_HEE | | 10,0 | 1 460 | | 5 920 | 5 040 | 7 820 | | 167 | 66 | 45 | 1,4 | 2,8 |
| | | 9,0 | 1 350 | | 5 590 | 4 750 | 7 400 | | 134 | 64 | 43 | 1,5 | 3,1 |
| | | 7,7 | 1 225 | 20 | 5 180 | 4 390 | 6 880 | | 95 | 61 | 40 | 1,7 | 3,4 |
| | | 6,0 | 920 | | 4 160 | 3 520 | 5 540 | | 46 | 55 | 34 | 2,2 | 4,5 |
| | | 5,0 | 750 | | 3 530 | 2 990 | 4 710 | | 31 | 51 | 31 | 2,7 | 5,5 |
| | | 4,0 | 590 | | 2 880 | 2 440 | 3 860 | | 16 | 47 | 26 | 3,5 | 7,0 |
| | | 2,0 | 275 | | 1 370 | 1 200 | 1 960 | | 4 | 34 | <15 | 7,5 | 15,0 |
| 42M_HEE | | 10,0 | 1 450 | | 7 060 | 5 950 | 8 720 | | 167 | 66 | 45 | 1,4 | 2,8 |
| | | 9,0 | 1 340 | | 6 630 | 5 530 | 8 080 | | 133 | 64 | 43 | 1,5 | 3,1 |
| | | 7,6 | 1 175 | 20 | 6 000 | 4 920 | 7 140 | | 92 | 61 | 40 | 1,8 | 3,5 |
| | | 6,0 | 915 | | 4 910 | 3 930 | 5 610 | | 45 | 55 | 34 | 2,3 | 4,5 |
| | | 5,0 | 745 | | 4 160 | 3 270 | 4 590 | | 31 | 51 | 30 | 2,8 | 5,5 |
| | | 4,0 | 585 | | 3 390 | 2 620 | 3 620 | | 16 | 46 | 26 | 3,5 | 7,0 |
| | | 2,0 | 275 | | 1 640 | 1 250 | 1 650 | | 4 | 33 | <15 | 7,5 | 15,0 |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

Y model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 14 dB (sizes 0 to 3), 16 dB (sizes 4 & 5) and 18 dB (size 6).

Y MODEL (continued)

| COMFORT LINE™ Model Y | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|--------------------------|-----------------|-----------------------|------------------|------------------------------------------|----------------|----------|--------------------|-------------|-------------|------------------------------|-------------------------|-------------------------------------------------------------------------------------|--------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | | |
| 44P_AC | V5 | | 1 170 | | 5 040 | 4 500 | 6 920 | 132 | | 62 | 40 | | |
| | V4 | | 905 | 20 | 4 250 | 3 700 | 5 830 | 123 | | 56 | 35 | | |
| | V3 | | 750 | | 3 740 | 3 190 | 5 120 | 115 | | 52 | 31 | | |
| | V2 | | 600 | | 3 180 | 2 650 | 4 360 | 107 | | 47 | 26 | | |
| | V1 | | 495 | | 2 750 | 2 250 | 3 780 | 96 | | 43 | 22 | | |
| 44P_HEE | | 10,0 | 1 465 | | 6 000 | 5 000 | 9 000 | | 167 | 66 | 45 | | |
| | | 9,0 | 1 355 | | 5 650 | 4 720 | 8 500 | | 134 | 64 | 43 | | |
| | | 8,0 | 1 260 | 20 | 5 340 | 4 470 | 8 050 | | 105 | 63 | 41 | | |
| | | 6,0 | 930 | | 4 170 | 3 530 | 6 340 | | 46 | 56 | 35 | | |
| | | 5,0 | 755 | | 3 530 | 3 010 | 5 370 | | 31 | 52 | 31 | | |
| | | 4,0 | 595 | | 2 870 | 2 460 | 4 400 | | 16 | 47 | 26 | | |
| | | 2,0 | 275 | | 1 390 | 1 210 | 2 250 | | 4 | 34 | <15 | | |
| | | | | | | | | | | | | 1000W | 2000W |
| 52J AC | V5 | | 2075 | | 8 830 | 7 860 | 10 800 | 321 | | 64 | 43 | 1,4 | 2,8 |
| | V4 | | 1900 | | 8 330 | 7 360 | 10 200 | 293 | | 62 | 4 | 1,5 | 3,1 |
| | V3 | | 1630 | | 7 540 | 6 570 | 9 310 | 268 | | 58 | 37 | 1,8 | 3,6 |
| | V2 | | 1255 | 20 | 6 330 | 5 390 | 7 830 | 232 | | 52 | 31 | 2,3 | 4,7 |
| | V1 | | 945 | | 5 150 | 4 290 | 6 340 | 199 | | 46 | 25 | 3,1 | 6,2 |
| 52M AC | V5 | | 1800 | | 9 750 | 8 280 | 13 000 | 304 | | 65 | 43 | 1,6 | 3,3 |
| | V4 | | 1640 | | 9 140 | 7 640 | 12 100 | 276 | | 63 | 41 | 1,8 | 3,6 |
| | V3 | | 1455 | | 8 410 | 6 890 | 10 900 | 247 | | 60 | 38 | 2,0 | 4,0 |
| | V2 | | 1180 | 20 | 7 220 | 5 740 | 9 100 | 221 | | 55 | 33 | 2,5 | 5,0 |
| | V1 | | 905 | | 5 870 | 4 510 | 7 070 | 191 | | 50 | 29 | 3,2 | 6,5 |
| 52J HEE | | 10,0 | 1580 | | 7 540 | 6 660 | 8 710 | | 162 | 63 | 38 | 1,9 | 3,7 |
| | | 8,7 | 1495 | 20 | 7 240 | 6 360 | 8 440 | | 139 | 62 | 37 | 2,0 | 3,9 |
| | | 8,0 | 1450 | | 7 080 | 6 200 | 8 300 | | 126 | 61 | 36 | 2,0 | 4,1 |
| | | 7,0 | 1260 | | 6 380 | 5 490 | 7 600 | | 90 | 58 | 33 | 2,3 | 4,7 |
| | | 6,0 | 1075 | | 5 660 | 4 790 | 6 860 | | 52 | 54 | 29 | 2,7 | 5,5 |
| | | 4,0 | 710 | | 4 060 | 3 310 | 5 050 | | 19 | 46 | 21 | 4,1 | 8,3 |
| | | 2,0 | 365 | | 2 140 | 1 730 | 2 850 | | 5 | 31 | <15 | 8,1 | 16,1 |
| 52M HEE | | 10,0 | 1450 | | 8 580 | 7 000 | 11 300 | | 165 | 65 | 39 | 2,0 | 4,1 |
| | | 8,6 | 1310 | 20 | 7 940 | 6 390 | 10 400 | | 123 | 62 | 37 | 2,2 | 4,5 |
| | | 8,0 | 1260 | | 7 680 | 6 140 | 9 990 | | 106 | 61 | 36 | 2,3 | 4,7 |
| | | 7,0 | 1080 | | 6 800 | 5 350 | 8 670 | | 76 | 58 | 33 | 2,7 | 5,4 |
| | | 6,0 | 905 | | 5 890 | 4 560 | 7 360 | | 45 | 55 | 30 | 3,2 | 6,5 |
| | | 4,0 | 585 | | 3 950 | 2 990 | 4 800 | | 15 | 46 | 21 | 5,0 | 10,1 |
| | | 2,0 | 255 | | 1 920 | 1 380 | 2 090 | | 5 | 32 | <15 | 11,5 | 23,1 |
| 54R AC | V5 | | 1800 | | 9 220 | 7 770 | 12 500 | 304 | | 65 | 39 | | |
| | V4 | | 1640 | | 8 640 | 7 170 | 11 900 | 276 | | 63 | 37 | | |
| | V3 | | 1455 | | 7 950 | 6 490 | 11 100 | 247 | | 60 | 34 | | |
| | V2 | | 1180 | 20 | 6 820 | 5 430 | 9 780 | 221 | | 55 | 29 | | |
| | V1 | | 905 | | 5 540 | 4 290 | 8 220 | 191 | | 50 | 25 | | |
| 54R HEE | | 10,0 | 1440 | | 7 770 | 6 390 | 10 600 | | 165 | 65 | 39 | | |
| | | 9,0 | 1335 | | 7 390 | 6 030 | 10 200 | | 134 | 63 | 38 | | |
| | | 8,0 | 1245 | 20 | 7 040 | 5 690 | 9 770 | | 105 | 61 | 36 | | |
| | | 7,0 | 1070 | | 633 | 5 040 | 8 920 | | 76 | 58 | 33 | | |
| | | 6,0 | 900 | | 5 560 | 4 360 | 8 010 | | 44 | 54 | 29 | | |
| | | 4,0 | 580 | | 3 830 | 2 930 | 5 940 | | 15 | 45 | 21 | | |
| | | 2,0 | 250 | | 1 910 | 1 380 | 3 030 | | 5 | 32 | <15 | | |
| | | | | | | | | | | | | 1600 W | 3200 W |
| 62J AC | V5 | | 2685 | | 11 500 | 10 300 | 14 800 | 405 | | 70 | 47 | 1,8 | 3,5 |
| | V4 | | 2320 | 20 | 10 300 | 9 060 | 13 000 | 376 | | 64 | 39 | 2,0 | 4,1 |
| | V3 | | 1645 | | 7 840 | 6 630 | 9 370 | 315 | | 54 | 26 | 2,9 | 5,7 |
| | V2 | | 1115 | | 5 610 | 4 590 | 6 420 | 259 | | 46 | 19 | 4,2 | 8,4 |
| | V1 | | 865 | | 4 430 | 3 570 | 5 000 | 202 | | 41 | <15 | 5,4 | 10,9 |
| 62M AC | V5 | | 2525 | | 13 800 | 10 900 | 15 600 | 389 | | 69 | 47 | 1,9 | 3,7 |
| | V4 | | 2185 | 20 | 12 600 | 9 750 | 14 100 | 360 | | 65 | 40 | 2,2 | 4,3 |
| | V3 | | 1565 | | 9 950 | 7 460 | 10 800 | 314 | | 57 | 29 | 3,0 | 6,0 |
| | V2 | | 1060 | | 7 360 | 5 360 | 7 780 | 247 | | 50 | 23 | 4,4 | 8,9 |
| | V1 | | 800 | | 5 810 | 4 170 | 6 020 | 197 | | 42 | 16 | 5,9 | 11,8 |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

Y model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 14 dB (sizes 0 to 3), 16 dB (sizes 4 & 5) and 18 dB (size 6).

Y MODEL (continued)

| COMFORT LINE™ Model Y | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|-----------------------------|--------------------|--------------------------------|---------------------|------------------------------------------------|----------------|----------|--------------------------|---------------|----------------|---------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------|--------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 1500 W | 3000 W |
| 62J HEE | | 10,0 | 2370 | 20 | 10 700 | 9 450 | 13 000 | | 263 | 65 | 40 | 1,9 | 3,7 |
| | | 9,0 | 2325 | | 10 500 | 9 280 | 12 800 | | 250 | 65 | 39 | 1,9 | 3,8 |
| | | 7,7 | 2225 | | 10 100 | 8 900 | 12 300 | | 222 | 63 | 38 | 2,0 | 4,0 |
| | | 6,0 | 1885 | | 8 860 | 7 620 | 10 600 | | 133 | 59 | 32 | 2,3 | 4,7 |
| | | 5,0 | 1620 | | 7 780 | 6 600 | 9 210 | | 95 | 56 | 28 | 2,7 | 5,4 |
| | | 4,0 | 1370 | | 6 700 | 5 590 | 7 850 | | 56 | 52 | 24 | 3,2 | 6,4 |
| | | 2,0 | 720 | | 3 700 | 2 950 | 4 190 | | 13 | 39 | <15 | 6,1 | 12,3 |
| 62M HEE | | 10,0 | 2240 | 20 | 12 700 | 9 870 | 13 800 | | 262 | 66 | 40 | 2,0 | 3,9 |
| | | 9,0 | 2210 | | 12 600 | 9 760 | 13 600 | | 258 | 65 | 40 | 2,0 | 4,0 |
| | | 7,0 | 1935 | | 11 400 | 8 720 | 12 400 | | 187 | 62 | 36 | 2,3 | 4,6 |
| | | 6,0 | 1700 | | 10 400 | 7 810 | 11 400 | | 123 | 59 | 32 | 2,6 | 5,2 |
| | | 5,0 | 1460 | | 9 240 | 6 840 | 10 100 | | 88 | 56 | 27 | 3,0 | 6,0 |
| | | 4,0 | 1225 | | 8 060 | 5 880 | 8 810 | | 51 | 52 | 24 | 3,6 | 7,2 |
| | | 2,0 | 655 | | 4 710 | 3 340 | 5 110 | | 12 | 38 | <15 | 6,7 | 13,5 |
| 64P AC | V5 | 2400 | 20 | | 12 600 | 11 000 | 13 200 | 375 | | 67 | 44 | | |
| | V4 | 2125 | | | 11 500 | 9 910 | 12 400 | 345 | | 63 | 38 | | |
| | V3 | 1575 | | | 9 010 | 7 530 | 10 400 | 308 | | 56 | 28 | | |
| | V2 | 1070 | | | 6 420 | 5 210 | 8 190 | 245 | | 49 | 22 | | |
| | V1 | 790 | | | 4 850 | 3 880 | 6 680 | 196 | | 41 | <15 | | |
| 64R AC | V5 | 2360 | 20 | | 13 500 | 10 300 | 15 200 | 382 | | 70 | 47 | | |
| | V4 | 2060 | | | 12 200 | 9 230 | 14 300 | 349 | | 65 | 40 | | |
| | V3 | 1485 | | | 9 640 | 7 030 | 12 100 | 311 | | 56 | 28 | | |
| | V2 | 1010 | | | 7 120 | 5 070 | 9 710 | 243 | | 48 | 22 | | |
| | V1 | 770 | | | 5 630 | 4 030 | 8 100 | 194 | | 44 | 17 | | |
| 64PHEE | | 10,0 | 2240 | 20 | 11 900 | 10 300 | 12 800 | | 265 | 66 | 40 | | |
| | | 9,0 | 2210 | | 11 800 | 10 200 | 12 700 | | 258 | 65 | 40 | | |
| | | 7,0 | 1935 | | 10 600 | 8 980 | 11 800 | | 187 | 62 | 36 | | |
| | | 6,0 | 1700 | | 9 430 | 7 900 | 11 000 | | 123 | 59 | 32 | | |
| | | 5,0 | 1455 | | 8 270 | 6 810 | 10 100 | | 88 | 53 | 27 | | |
| | | 4,0 | 1225 | | 7 060 | 5 740 | 9 090 | | 51 | 52 | 24 | | |
| | | 2,0 | 655 | | 3 900 | 3 070 | 5 960 | | 12 | 38 | <15 | | |
| 64R HEE | | 10,0 | 2130 | 20 | 12 800 | 9 250 | 14 600 | | 269 | 66 | 42 | | |
| | | 9,0 | 2130 | | 12 800 | 9 250 | 14 600 | | 269 | 66 | 42 | | |
| | | 7,0 | 1830 | | 11 600 | 8 320 | 13 600 | | 190 | 63 | 38 | | |
| | | 6,0 | 1555 | | 10 300 | 7 350 | 12 600 | | 114 | 59 | 32 | | |
| | | 5,0 | 1320 | | 9 130 | 6 510 | 11 500 | | 81 | 56 | 27 | | |
| | | 4,0 | 1090 | | 7 870 | 5 580 | 10 300 | | 46 | 52 | 23 | | |
| | | 2,0 | 535 | | 4 220 | 2 980 | 6 330 | | 10 | 38 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

Y model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 14 dB (sizes 0 to 3), 16 dB (sizes 4 & 5) and 18 dB (size 6).

H MODEL

Cooling temperature: water temperature: 7/12°C, air intake temperature: 27°C - 19°C (WB).

Heating temperature (2T): water temperature: 45/40°C, air intake temperature: 20°C.

Heating temperature (4T): water temperature: 65/55°C, air intake temperature: 20°C.

| COMFORT LINE™ H model | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|-----------------------------|--------------------|--------------------------------|---------------------|------------------------------------------------|----------------|----------|--------------------------|---------------|----------------|---------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 500W | 1000W |
| 02J_AC | V5 | | 315 | | 1 810 | 1 480 | 2 060 | 62 | | 58 | 35 | 4,7 | 9,3 |
| | V4 | | 270 | | 1 600 | 1 290 | 1 820 | 42 | | 54 | 31 | 5,4 | 10,9 |
| | V3 | | 225 | 40 | 1 380 | 1 100 | 1 560 | 31 | | 49 | 26 | 6,5 | 13,1 |
| | V2 | | 160 | | 1 040 | 810 | 1 160 | 20 | | 41 | 18 | 9,2 | 18,4 |
| | V1 | | 110 | | 878 | 625 | 871 | 14 | | 32 | <15 | 13,4 | 26,7 |
| 02J_HEE | | 10,0 | 430 | | 2 200 | 1 870 | 2 750 | | 60 | 61 | 38 | 3,4 | 6,8 |
| | | 9,0 | 380 | | 2 030 | 1 700 | 2 490 | | 48 | 58 | 36 | 3,9 | 7,7 |
| | | 8,0 | 345 | | 1 880 | 1 550 | 2 290 | | 33 | 55 | 32 | 4,3 | 8,5 |
| | | 6,6 | 280 | 40 | 1 620 | 1 310 | 1 920 | | 22 | 50 | 27 | 5,3 | 10,5 |
| | | 5,0 | 205 | | 1 270 | 993 | 1 450 | | 12 | 44 | 21 | 7,2 | 14,3 |
| | | 4,0 | 165 | | 1 070 | 823 | 1 200 | | 7 | 37 | 15 | 8,9 | 17,8 |
| 04P_AC | V5 | | 315 | | 1 720 | 1 460 | 2 190 | 62 | | 58 | 35 | | |
| | V4 | | 270 | | 1 490 | 1 250 | 1 970 | 42 | | 54 | 31 | | |
| | V3 | | 225 | 40 | 1 210 | 1 030 | 1 730 | 31 | | 49 | 26 | | |
| | V2 | | 160 | | 883 | 744 | 1 340 | 20 | | 41 | 18 | | |
| | V1 | | 110 | | 799 | 593 | 1 210 | 14 | | 32 | <15 | | |
| 04P_HEE | | 10,0 | 430 | | 2 120 | 1 800 | 3 020 | | 60 | 61 | 38 | | |
| | | 9,0 | 380 | | 1 930 | 1 630 | 2 760 | | 48 | 58 | 36 | | |
| | | 8,0 | 345 | | 1 750 | 1 480 | 2 560 | | 33 | 55 | 32 | | |
| | | 6,6 | 280 | 40 | 1 460 | 1 230 | 2 180 | | 22 | 50 | 27 | | |
| | | 5,0 | 205 | | 1 070 | 914 | 1 670 | | 12 | 44 | 21 | | |
| | | 4,0 | 165 | | 875 | 748 | 1 400 | | 7 | 37 | 15 | | |
| 22J_AC | V5 | | 605 | | 2 840 | 2 100 | 3 390 | 97 | | 56 | 33 | 2,4 | 4,9 |
| | V4 | | 565 | | 2 680 | 1 970 | 3 240 | 79 | | 55 | 31 | 2,6 | 5,2 |
| | V3 | | 510 | 40 | 2 400 | 1 770 | 2 970 | 65 | | 52 | 28 | 2,9 | 5,8 |
| | V2 | | 355 | | 1 670 | 1 230 | 2 210 | 40 | | 44 | 20 | 4,1 | 8,3 |
| | V1 | | 195 | | 857 | 654 | 1 320 | 17 | | 31 | <15 | 7,5 | 15,1 |
| 22M_AC | V5 | | 565 | | 2 960 | 2 350 | 3 900 | 96 | | 57 | 33 | 2,6 | 5,2 |
| | V4 | | 535 | | 2 810 | 2 230 | 3 740 | 77 | | 55 | 31 | 2,7 | 5,5 |
| | V3 | | 480 | 40 | 2 550 | 2 020 | 3 410 | 65 | | 53 | 29 | 3,1 | 6,1 |
| | V2 | | 340 | | 1 830 | 1 460 | 2 510 | 40 | | 45 | 21 | 4,3 | 8,7 |
| | V1 | | 190 | | 1 030 | 828 | 1 440 | 17 | | 32 | <15 | 7,7 | 15,5 |
| 22J_HEE | | 10,0 | 730 | | 3 530 | 2 700 | 3 970 | | 103 | 59 | 36 | 2,0 | 4,0 |
| | | 8,0 | 580 | | 2 800 | 2 120 | 3 370 | | 52 | 54 | 30 | 2,5 | 5,1 |
| | | 7,3 | 525 | 40 | 2 530 | 1 910 | 3 130 | | 44 | 51 | 28 | 2,8 | 5,6 |
| | | 6,0 | 425 | | 2 040 | 1 540 | 2 670 | | 24 | 47 | 23 | 3,5 | 6,9 |
| | | 4,0 | 280 | | 1 270 | 982 | 1 890 | | 9 | 37 | <15 | 5,3 | 10,5 |
| | | 3,0 | 210 | | 878 | 711 | 1 470 | | 7 | 31 | <15 | 7,0 | 14,0 |
| 22M_HEE | | 2,0 | 140 | | 618 | 483 | 1 000 | | 4 | 23 | <15 | 10,5 | 21,0 |
| | | 10,0 | 645 | | 3 270 | 2 600 | 4 450 | | 98 | 60 | 37 | 2,3 | 4,6 |
| | | 7,8 | 495 | 40 | 2 590 | 2 040 | 3 550 | | 46 | 53 | 30 | 3,0 | 5,9 |
| | | 7,0 | 440 | | 2 330 | 1 830 | 3 190 | | 36 | 51 | 27 | 3,3 | 6,7 |
| | | 6,0 | 375 | | 2 010 | 1 580 | 2 760 | | 21 | 47 | 23 | 3,9 | 7,8 |
| | | 4,0 | 240 | | 1 260 | 1 010 | 1 800 | | 8 | 38 | <15 | 6,1 | 12,3 |
| 24P_AC | V5 | | 565 | | 2 820 | 2 340 | 4 040 | 96 | | 57 | 33 | | |
| | V4 | | 535 | | 2 670 | 2 210 | 3 920 | 77 | | 55 | 31 | | |
| | V3 | | 480 | 40 | 2 410 | 1 980 | 3 680 | 65 | | 53 | 29 | | |
| | V2 | | 340 | | 1 730 | 1 390 | 2 950 | 40 | | 45 | 21 | | |
| | V1 | | 190 | | 904 | 729 | 1 890 | 17 | | 32 | <15 | | |
| 24P_HEE | | 10,0 | 670 | | 3 110 | 2 680 | 4 580 | | 103 | 60 | 37 | | |
| | | 8,2 | 545 | 40 | 2 590 | 2 180 | 4 050 | | 57 | 55 | 31 | | |
| | | 7,0 | 455 | | 2 210 | 1 840 | 3 630 | | 37 | 51 | 28 | | |
| | | 6,0 | 390 | | 1 900 | 1 570 | 3 270 | | 22 | 47 | 24 | | |
| | | 4,0 | 245 | | 1 220 | 984 | 2 340 | | 9 | 38 | <15 | | |
| | | 3,0 | 190 | | 906 | 736 | 1 880 | | 7 | 32 | <15 | | |
| 24P_HEE | | 2,0 | 140 | | 723 | 563 | 1 450 | | 4 | 23 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

H model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 18 dB (sizes 0 to 3), 20 dB (sizes 4 & 5) and 23 dB (size 6).

H MODEL (continued)

| COMFORT LINE™ Modèle H | Vitesses moteur AC | Tension moteur HEE (V) | Débit d'air en m³/h | Pression statique disponible (1) | P. frigorifique W | | Puissance calorifique W | Puissance absorbée | | Puissance acoustique LW globale dB(A) | Niveau de confort ISO ou NR | Elévation moyenne de température sur l'air en K (2) Batterie électrique d'appoint 230/1/50 | |
|------------------------------|--------------------------|------------------------------|------------------------|-------------------------------------------|-------------------|----------|-------------------------------|--------------------|-----------------|------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------|-------|
| | | | | | Totale | Sensible | | Moteur AC W | moteur HEE W | | | 700W | 1400W |
| 32J_AC | V5 | | 790 | | 3 560 | 3 130 | 4 810 | 106 | | 57 | 34 | 2,6 | 5,2 |
| | V4 | | 670 | | 3 070 | 2 620 | 4 270 | 101 | | 54 | 31 | 3,1 | 6,1 |
| | V3 | | 585 | 40 | 2 700 | 2 250 | 3 840 | 99 | | 51 | 28 | 3,5 | 7,0 |
| | V2 | | 485 | | 2 270 | 1 830 | 3 310 | 96 | | 47 | 23 | 4,2 | 8,5 |
| | V1 | | 390 | | 1 830 | 1 420 | 2 750 | 91 | | 42 | 19 | 5,3 | 10,6 |
| 32M_AC | V5 | | 810 | | 4 260 | 3 120 | 5 460 | 107 | | 58 | 35 | 2,5 | 5,1 |
| | V4 | | 710 | | 3 770 | 2 720 | 4 940 | 103 | | 55 | 32 | 2,9 | 5,8 |
| | V3 | | 615 | 40 | 3 280 | 2 350 | 4 380 | 100 | | 52 | 29 | 3,3 | 6,7 |
| | V2 | | 515 | | 2 790 | 1 990 | 3 800 | 96 | | 48 | 25 | 4,0 | 8,0 |
| | V1 | | 425 | | 2 280 | 1 630 | 3 180 | 91 | | 44 | 21 | 4,8 | 9,7 |
| 32J_HEE | | 10,0 | 985 | | 4 360 | 3 920 | 5 600 | | 129 | 61 | 37 | 2,1 | 4,2 |
| | | 9,0 | 875 | | 3 960 | 3 490 | 5 190 | | 99 | 58 | 35 | 2,4 | 4,7 |
| | | 7,4 | 710 | 40 | 3 340 | 2 850 | 4 520 | | 56 | 53 | 30 | 2,9 | 5,8 |
| | | 6,0 | 560 | | 2 750 | 2 270 | 3 810 | | 29 | 49 | 26 | 3,7 | 7,4 |
| | | 5,0 | 465 | | 2 320 | 1 870 | 3 260 | | 21 | 45 | 22 | 4,4 | 8,9 |
| | | 4,0 | 370 | | 1 890 | 1 500 | 2 720 | | 12 | 40 | 17 | 5,6 | 11,1 |
| | | 2,0 | 210 | | 1 080 | 836 | 1 610 | | 5 | 26 | <15 | 9,8 | 19,6 |
| 32M_HEE | | 10,0 | 945 | | 4 770 | 3 780 | 6 210 | | 123 | 61 | 37 | 2,2 | 4,4 |
| | | 9,0 | 835 | | 4 310 | 3 400 | 5 710 | | 95 | 58 | 35 | 2,5 | 4,9 |
| | | 7,8 | 720 | 40 | 3 770 | 2 950 | 5 110 | | 61 | 55 | 32 | 2,9 | 5,7 |
| | | 6,0 | 540 | | 2 930 | 2 280 | 4 060 | | 29 | 49 | 26 | 3,8 | 7,6 |
| | | 5,0 | 440 | | 2 420 | 1 880 | 3 400 | | 21 | 45 | 22 | 4,7 | 9,4 |
| | | 4,0 | 355 | | 1 940 | 1 520 | 2 780 | | 12 | 40 | 17 | 5,8 | 11,6 |
| | | 2,0 | 170 | | 1 040 | 787 | 1 360 | | 5 | 27 | <15 | 12,1 | 24,2 |
| 34P_AC | V5 | | 735 | | 3 900 | 3 200 | 4 650 | 103 | | 58 | 34 | | |
| | V4 | | 655 | | 3 520 | 2 860 | 4 380 | 99 | | 55 | 32 | | |
| | V3 | | 575 | 40 | 3 110 | 2 520 | 4 090 | 97 | | 52 | 29 | | |
| | V2 | | 490 | | 2 710 | 2 160 | 3 750 | 94 | | 49 | 26 | | |
| | V1 | | 410 | | 2 270 | 1 800 | 3 350 | 90 | | 45 | 22 | | |
| 34P_HEE | | 10,0 | 945 | | 4 670 | 3 920 | 5 380 | | 123 | 61 | 37 | | |
| | | 9,0 | 835 | | 4 190 | 3 490 | 5 020 | | 95 | 58 | 35 | | |
| | | 7,8 | 720 | 40 | 3 620 | 2 990 | 4 580 | | 61 | 55 | 32 | | |
| | | 6,0 | 540 | | 2 760 | 2 250 | 3 820 | | 29 | 49 | 26 | | |
| | | 5,0 | 440 | | 2 260 | 1 830 | 3 340 | | 21 | 45 | 22 | | |
| | | 4,0 | 355 | | 1 780 | 1 450 | 2 850 | | 12 | 40 | 17 | | |
| | | 2,0 | 170 | | 875 | 694 | 1 600 | | 5 | 27 | <15 | | |
| 42J_AC | V5 | | 995 | | 4 510 | 3 800 | 5 650 | 121 | | 58 | 32 | 2,1 | 4,1 |
| | V4 | | 805 | 40 | 3 740 | 3 130 | 4 880 | 114 | | 53 | 27 | 2,6 | 5,1 |
| | V3 | | 655 | | 3 110 | 2 600 | 4 190 | 108 | | 48 | 23 | 3,1 | 6,3 |
| | V2 | | 540 | | 2 580 | 2 160 | 3 590 | 102 | | 44 | 18 | 3,8 | 7,6 |
| | V1 | | 430 | | 2 040 | 1 720 | 2 970 | 94 | | 40 | <15 | 4,8 | 9,6 |
| 42M_AC | V5 | | 965 | | 5 160 | 4 020 | 5 990 | 121 | | 58 | 32 | 2,1 | 4,3 |
| | V4 | | 785 | 40 | 4 320 | 3 280 | 4 920 | 114 | | 53 | 28 | 2,6 | 5,2 |
| | V3 | | 670 | | 3 770 | 2 830 | 4 240 | 109 | | 50 | 24 | 3,1 | 6,1 |
| | V2 | | 540 | | 3 100 | 2 290 | 3 440 | 104 | | 45 | 20 | 3,8 | 7,6 |
| | V1 | | 450 | | 2 610 | 1 910 | 2 890 | 94 | | 41 | 16 | 4,6 | 9,2 |
| 42J_HEE | | 10,0 | 1250 | | 5 300 | 4 500 | 6 940 | | 158 | 62 | 36 | 1,6 | 3,3 |
| | | 9,0 | 1110 | | 4 850 | 4 120 | 6 370 | | 121 | 59 | 33 | 1,9 | 3,7 |
| | | 7,7 | 965 | 40 | 4 340 | 3 670 | 5 720 | | 80 | 56 | 30 | 2,1 | 4,3 |
| | | 6,0 | 745 | | 3 520 | 2 980 | 4 670 | | 38 | 50 | 25 | 2,8 | 5,5 |
| | | 5,0 | 605 | | 2 950 | 2 500 | 3 930 | | 27 | 46 | 21 | 3,4 | 6,8 |
| | | 4,0 | 485 | | 2 390 | 2 040 | 3 240 | | 14 | 41 | 16 | 4,2 | 8,5 |
| | | 2,0 | 230 | | 1 220 | 1 040 | 1 660 | | 4 | 29 | <15 | 9,0 | 17,9 |
| 42M_HEE | | 10,0 | 1235 | | 6 270 | 5 190 | 7 440 | | 157 | 62 | 36 | 1,7 | 3,3 |
| | | 9,0 | 1100 | | 5 730 | 4 680 | 6 660 | | 120 | 59 | 33 | 1,9 | 3,7 |
| | | 7,6 | 940 | 40 | 5 040 | 4 050 | 5 730 | | 77 | 56 | 30 | 2,2 | 4,4 |
| | | 6,0 | 740 | | 4 130 | 3 250 | 4 540 | | 38 | 50 | 25 | 2,8 | 5,6 |
| | | 5,0 | 600 | | 3 460 | 2 680 | 3 680 | | 27 | 46 | 21 | 3,4 | 6,9 |
| | | 4,0 | 480 | | 2 810 | 2 160 | 2 930 | | 14 | 41 | 16 | 4,3 | 8,6 |
| | | 2,0 | 230 | | 1 450 | 1 080 | 1 370 | | 4 | 28 | <15 | 9,0 | 17,9 |
| 44P_AC | V5 | | 965 | | 4 440 | 3 890 | 6 090 | 121 | | 58 | 32 | | |
| | V4 | | 785 | 40 | 3 850 | 3 300 | 5 280 | 114 | | 53 | 28 | | |
| | V3 | | 670 | | 3 450 | 2 910 | 4 730 | 109 | | 50 | 24 | | |
| | V2 | | 540 | | 2 940 | 2 430 | 4 040 | 104 | | 45 | 20 | | |
| | V1 | | 450 | | 2 560 | 2 080 | 3 530 | 94 | | 41 | 16 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

H model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 18 dB (sizes 0 to 3), 20 dB (sizes 4 & 5) and 23 dB (size 6).

H MODEL (continued)

| COMFORT LINE™ H model | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|-----------------------------|--------------------|--------------------------------|---------------------|------------------------------------------------|----------------|----------|--------------------------|---------------|----------------|---------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | | |
| | | | | | | | | | | | | 700W | 1400W |
| 44P_HEE | | 10,0 | 1280 | 40 | 5 440 | 4 560 | 8 120 | | 161 | 62 | 36 | | |
| | | 9,0 | 1150 | | 4 990 | 4 200 | 7 470 | | 124 | 59 | 34 | | |
| | | 8,0 | 1045 | | 4 620 | 3 900 | 6 950 | | 89 | 57 | 31 | | |
| | | 6,0 | 775 | | 3 600 | 3 070 | 5 460 | | 40 | 50 | 25 | | |
| | | 5,0 | 630 | | 3 020 | 2 590 | 4 600 | | 28 | 46 | 21 | | |
| | | 4,0 | 500 | | 2 460 | 2 120 | 3 780 | | 14 | 42 | 16 | | |
| | | 2,0 | 240 | | 1 180 | 1 030 | 1 960 | | 4 | 29 | <15 | | |
| | | | | | | | | | | | | 1000W | 2000W |
| 52J_AC | V5 | | 1 740 | 40 | 7 870 | 6 900 | 9 690 | 289 | | 62 | 36 | 1,7 | 3,4 |
| | V4 | | 1 630 | | 7 540 | 6 560 | 9 320 | 263 | | 60 | 34 | 1,8 | 3,6 |
| | V3 | | 1 460 | | 7 000 | 6 040 | 8 680 | 245 | | 57 | 31 | 2,0 | 4,0 |
| | V2 | | 1 190 | | 6 080 | 5 150 | 7 540 | 218 | | 52 | 26 | 2,5 | 4,9 |
| | V1 | | 900 | | 4 970 | 4 130 | 6 110 | 195 | | 46 | 20 | 3,3 | 6,5 |
| 52M_AC | V5 | | 1 545 | 40 | 8 780 | 7 270 | 11 500 | 273 | | 62 | 36 | 1,9 | 3,8 |
| | V4 | | 1 435 | | 8 330 | 6 810 | 10 800 | 249 | | 60 | 34 | 2,0 | 4,1 |
| | V3 | | 1 300 | | 7 750 | 6 240 | 9 930 | 227 | | 58 | 32 | 2,3 | 4,5 |
| | V2 | | 1 085 | | 6 770 | 5 320 | 8 420 | 208 | | 54 | 28 | 2,7 | 5,4 |
| | V1 | | 835 | | 5 490 | 4 190 | 6 540 | 186 | | 49 | 23 | 3,5 | 7,0 |
| 52J_HEE | | 10,0 | 1 415 | 40 | 6 990 | 6 110 | 8 130 | | 166 | 60 | 35 | 2,1 | 4,2 |
| | | 8,7 | 1 275 | | 6 460 | 5 580 | 7 640 | | 125 | 58 | 33 | 2,3 | 4,6 |
| | | 8,0 | 1 220 | | 6 250 | 5 370 | 7 430 | | 107 | 57 | 32 | 2,4 | 4,8 |
| | | 7,0 | 1 055 | | 5 590 | 4 720 | 6 730 | | 79 | 54 | 29 | 2,8 | 5,6 |
| | | 6,0 | 900 | | 4 940 | 4 110 | 6 050 | | 46 | 50 | 25 | 3,3 | 6,5 |
| | | 4,0 | 605 | | 3 530 | 2 850 | 4 420 | | 17 | 42 | 17 | 4,9 | 9,7 |
| | | 2,0 | 315 | | 1 810 | 1 480 | 2 480 | | 5 | 27 | <15 | 9,3 | 18,7 |
| 52M_HEE | | 10,0 | 1 270 | 40 | 7 780 | 6 250 | 10 000 | | 163 | 62 | 36 | 2,3 | 4,6 |
| | | 8,6 | 1 105 | | 6 950 | 5 490 | 8 810 | | 113 | 58 | 33 | 2,7 | 5,3 |
| | | 8,0 | 1 045 | | 6 660 | 5 230 | 8 400 | | 93 | 57 | 32 | 2,8 | 5,6 |
| | | 7,0 | 900 | | 5 890 | 4 560 | 7 290 | | 68 | 54 | 29 | 3,3 | 6,5 |
| | | 6,0 | 765 | | 5 080 | 3 890 | 6 230 | | 40 | 50 | 25 | 3,8 | 7,7 |
| | | 4,0 | 495 | | 3 320 | 2 520 | 4 070 | | 14 | 42 | 17 | 5,9 | 11,9 |
| | | 2,0 | 220 | | 1 720 | 1 220 | 1 810 | | 5 | 28 | <15 | 13,4 | 26,7 |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

H model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 18 dB (sizes 0 to 3), 20 dB (sizes 4 & 5) and 23 dB (size 6).

H MODEL (continued)

| COMFORT LINE™ Modèle H | Vitesses moteur AC | Tension moteur HEE (V) | Débit d'air en m³/h | Pression statique disponible (1) | P. frigorifique W | | Puissance calorifique W | Puissance absorbée | | Puissance acoustique LW globale dB(A) | Niveau de confort ISO ou NR | Élévation moyenne de température sur l'air en K (2) Batterie électrique d'appoint 230/1/50 | |
|------------------------------|--------------------------|------------------------------|------------------------|-------------------------------------------|-------------------|----------|-------------------------------|--------------------|-----------------|------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------|-------|
| | | | | | Totale | Sensible | | Moteur AC W | moteur HEE W | | | 1000W | 2000W |
| 54R_AC | V5 | | 1545 | | 8 300 | 6 830 | 11 500 | 273 | | 62 | 36 | | |
| | V4 | | 1440 | | 4 890 | 6 430 | 11 000 | 249 | | 60 | 34 | | |
| | V3 | | 1300 | | 7 320 | 5 890 | 10 400 | 227 | | 58 | 32 | | |
| | V2 | | 1085 | 40 | 6 400 | 5 040 | 9 280 | 208 | | 54 | 28 | | |
| | V1 | | 835 | | 5 190 | 3 990 | 7 790 | 186 | | 49 | 23 | | |
| 54R_HEE | | 10,0 | 1235 | | 7 050 | 5 710 | 9 680 | | 161 | 62 | 36 | | |
| | | 9,0 | 1105 | | 6 520 | 5 220 | 9 070 | | 124 | 59 | 34 | | |
| | | 8,0 | 1005 | 40 | 6 080 | 4 820 | 8 590 | | 90 | 57 | 32 | | |
| | | 7,0 | 865 | | 5 440 | 4 250 | 7 810 | | 66 | 54 | 29 | | |
| | | 6,0 | 735 | | 4 750 | 3 670 | 7 030 | | 39 | 50 | 25 | | |
| | | 4,0 | 480 | | 3 140 | 2 410 | 5 130 | | 14 | 41 | 16 | | |
| | | 2,0 | 215 | | 1 690 | 1 200 | 2 610 | | 5 | 28 | <15 | | |
| | | | | | | | | | | | | 1600W | 3200W |
| 62J_AC | V5 | | 2 430 | | 10 700 | 9 450 | 13 500 | 385 | | 63 | 38 | 1,9 | 3,9 |
| | V4 | | 2 165 | 40 | 9 760 | 8 500 | 12 100 | 356 | | 59 | 31 | 2,2 | 4,3 |
| | V3 | | 1 600 | | 7 650 | 6 450 | 9 120 | 309 | | 51 | 26 | 2,9 | 5,9 |
| | V2 | | 1 080 | | 5 450 | 4 460 | 6 210 | 258 | | 43 | 16 | 4,4 | 8,7 |
| | V1 | | 815 | | 4 220 | 3 380 | 4 720 | 201 | | 38 | <15 | 5,8 | 11,5 |
| 62M_AC | V5 | | 2 270 | | 12 900 | 10 100 | 14 500 | 372 | | 63 | 38 | 2,1 | 4,1 |
| | V4 | | 2 020 | 40 | 11 900 | 9 170 | 13 300 | 342 | | 59 | 31 | 2,3 | 4,7 |
| | V3 | | 1 510 | | 9 680 | 7 230 | 10 500 | 306 | | 53 | 25 | 3,1 | 6,2 |
| | V2 | | 13 025 | | 7 170 | 5 210 | 7 550 | 245 | | 46 | 19 | 0,4 | 0,7 |
| | V1 | | 755 | | 5 540 | 3 980 | 5 710 | 196 | | 38 | <15 | 6,2 | 12,5 |
| | | | | | | | | | | | | 1500W | 3000W |
| 62J_HEE | | 10,0 | 2 265 | | 10 300 | 9 080 | 12 500 | | 266 | 65 | 38 | 1,9 | 3,9 |
| | | 9,0 | 2 200 | | 10 100 | 8 830 | 12 200 | | 246 | 65 | 37 | 2,0 | 4,0 |
| | | 7,7 | 2 075 | 40 | 9 590 | 8 360 | 11 500 | | 212 | 63 | 35 | 2,1 | 4,3 |
| | | 6,0 | 1 755 | | 8 330 | 7 120 | 9 890 | | 127 | 59 | 31 | 2,5 | 5,0 |
| | | 5,0 | 1 500 | | 7 290 | 6 130 | 8 550 | | 90 | 56 | 28 | 2,9 | 5,9 |
| | | 4,0 | 1 270 | | 6 280 | 5 200 | 7 300 | | 53 | 52 | 24 | 3,5 | 6,9 |
| | | 2,0 | 670 | | 3 460 | 2 760 | 3 920 | | 13 | 39 | <15 | 6,6 | 13,2 |
| 62M_HEE | | 10,0 | 1 965 | | 11 600 | 8 900 | 12 500 | | 260 | 63 | 35 | 2,2 | 4,5 |
| | | 9,0 | 1 805 | | 10 900 | 8 280 | 11 800 | | 228 | 63 | 34 | 2,4 | 4,9 |
| | | 7,0 | 1 685 | 40 | 10 400 | 7 810 | 11 200 | | 178 | 60 | 31 | 2,6 | 5,2 |
| | | 6,0 | 1 475 | | 9 350 | 6 940 | 10 200 | | 116 | 57 | 28 | 3,0 | 6,0 |
| | | 5,0 | 1 260 | | 8 260 | 6 040 | 8 970 | | 83 | 53 | 25 | 3,5 | 7,0 |
| | | 4,0 | 1 060 | | 7 170 | 5 180 | 7 810 | | 48 | 49 | 22 | 4,2 | 8,3 |
| | | 2,0 | 565 | | 4 090 | 2 890 | 4 440 | | 12 | 36 | <15 | 7,8 | 15,6 |
| 64P_AC | V5 | | 2 050 | | 11 200 | 9 600 | 12 100 | 347 | | 62 | 35 | | |
| | V4 | | 1 870 | | 10 400 | 8 810 | 11 500 | 316 | | 59 | 30 | | |
| | V3 | | 1 490 | 40 | 8 590 | 7 140 | 10 100 | 291 | | 53 | 25 | | |
| | V2 | | 1 035 | | 6 230 | 5 040 | 8 020 | 241 | | 46 | 19 | | |
| | V1 | | 740 | | 4 580 | 3 650 | 6 380 | 195 | | 38 | <15 | | |
| 64R_AC | V5 | | 2 120 | | 12 500 | 9 450 | 14 500 | 363 | | 63 | 37 | | |
| | V4 | | 1 890 | 40 | 11 500 | 8 600 | 13 800 | 332 | | 60 | 32 | | |
| | V3 | | 1 430 | | 9 390 | 6 830 | 11 900 | 305 | | 52 | 25 | | |
| | V2 | | 975 | | 6 910 | 4 920 | 9 480 | 240 | | 45 | 18 | | |
| | V1 | | 720 | | 5 330 | 3 820 | 7 730 | 194 | | 40 | <15 | | |
| 64P_HEE | | 10,0 | 1965 | | 10 800 | 9 180 | 11 900 | | 260 | 63 | 35 | | |
| | | 9,0 | 1805 | | 10 000 | 8 430 | 11 400 | | 228 | 63 | 34 | | |
| | | 7,0 | 1685 | 40 | 9 420 | 7 900 | 11 000 | | 178 | 60 | 31 | | |
| | | 6,0 | 1475 | | 8 380 | 6 920 | 10 200 | | 116 | 57 | 28 | | |
| | | 5,0 | 1260 | | 7 260 | 5 910 | 9 220 | | 83 | 53 | 25 | | |
| | | 4,0 | 1060 | | 6 210 | 5 000 | 8 290 | | 48 | 49 | 22 | | |
| | | 2,0 | 565 | | 3330 | 2620 | 5320 | | 12 | 36 | <15 | | |
| 64R_HEE | | 10,0 | 1870 | | 11 800 | 8 500 | 13 700 | | 257 | 64 | 36 | | |
| | | 9,0 | 1875 | | 11 800 | 8 500 | 13 700 | | 257 | 64 | 36 | | |
| | | 7,0 | 1610 | 40 | 10 600 | 7 610 | 12 800 | | 183 | 60 | 32 | | |
| | | 6,0 | 1360 | | 9 360 | 6 680 | 11 700 | | 107 | 57 | 28 | | |
| | | 5,0 | 1150 | | 8 230 | 5 850 | 10 600 | | 76 | 53 | 25 | | |
| | | 4,0 | 955 | | 7 070 | 5010 | 9 520 | | 43 | 49 | 21 | | |
| | | 2,0 | 475 | | 3750 | 2640 | 5730 | | 10 | 36 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

H model sound level:

Values given as a guideline for devices with non-ducted return and with ducted discharge, and for room and installation attenuation of 18 dB (sizes 0 to 3), 20 dB (sizes 4 & 5) and 23 dB (size 6).

U and U Compact MODELS (U Compact sizes 0 to 2 only)

Cooling temperature: water temperature: 7/12°C, air intake temperature: 27°C - 19°C (WB).

Heating temperature (2T): water temperature: 45/40°C, air intake temperature: 20°C.

Heating temperature (4T): water temperature: 65/55°C, air intake temperature: 20°C.

| COMFORT LINE™ U model | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|-----------------------------|--------------------|--------------------------------|---------------------|------------------------------------------------|----------------|----------|--------------------------|---------------|----------------|---------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | | |
| | | | | | | | | | | | | 500W | 1000W |
| 02J_AC | V5 | | 260 | 50 | 1 580 | 1 270 | 1 750 | 58 | | 59 | 36 | 5,7 | 11,3 |
| | V4 | | 230 | | 1 400 | 1 120 | 1 570 | 39 | | 55 | 32 | 6,4 | 12,8 |
| | V3 | | 195 | | 1 230 | 966 | 1 370 | 29 | | 51 | 27 | 7,5 | 15,1 |
| | V2 | | 140 | | 926 | 713 | 1 020 | 19 | | 43 | 19 | 10,5 | 21,0 |
| | V1 | | 100 | | 772 | 550 | 764 | 13 | | 34 | <15 | 14,7 | 29,4 |
| 02J_HEE | | 10,0 | 300 | 50 | 1 750 | 1 430 | 1 990 | | 72 | 59 | 36 | 4,9 | 9,8 |
| | | 9,0 | 265 | | 1 570 | 1 260 | 1 810 | | 38 | 56 | 33 | 5,5 | 11,1 |
| | | 8,0 | 240 | | 1 470 | 1 170 | 1 660 | | 37 | 56 | 33 | 6,1 | 12,3 |
| | | 6,6 | 195 | | 1 240 | 965 | 1 390 | | 18 | 48 | 24 | 7,5 | 15,1 |
| | | 5,0 | 145 | | 951 | 725 | 1 040 | | 11 | 41 | 17 | 10,1 | 20,3 |
| | | 4,0 | 120 | | 802 | 605 | 878 | | 6 | 36 | <15 | 12,3 | 24,5 |
| | | 2,0 | 60 | | 448 | 321 | 447 | | 4 | 22 | <15 | 24,5 | 49,0 |
| 04P_AC | V5 | | 260 | 50 | 1 460 | 1 230 | 1 910 | 58 | | 59 | 36 | | |
| | V4 | | 230 | | 1 280 | 1 070 | 1 740 | 39 | | 55 | 32 | | |
| | V3 | | 195 | | 1 060 | 896 | 1 550 | 29 | | 51 | 27 | | |
| | V2 | | 140 | | 808 | 667 | 1 200 | 19 | | 43 | 19 | | |
| | V1 | | 100 | | 720 | 529 | 1 060 | 13 | | 34 | <15 | | |
| 04P_HEE | | 10,0 | 300 | 50 | 1 600 | 1 360 | 2 270 | | 72 | 59 | 36 | | |
| | | 9,0 | 265 | | 1 410 | 1 190 | 2 070 | | 38 | 56 | 33 | | |
| | | 8,0 | 240 | | 1 280 | 1 090 | 1 910 | | 37 | 56 | 33 | | |
| | | 6,6 | 195 | | 1 030 | 885 | 1 610 | | 18 | 48 | 24 | | |
| | | 5,0 | 145 | | 798 | 665 | 1 230 | | 11 | 41 | 17 | | |
| | | 4,0 | 120 | | 702 | 566 | 1 040 | | 6 | 36 | <15 | | |
| | | 2,0 | 60 | | 420 | 310 | 548 | | 4 | 22 | <15 | | |
| | | | | | | | | | | | | 500W | 1000W |
| 22J_AC | V5 | | 535 | 50 | 2 540 | 1 880 | 3 080 | 92 | | 53 | 28 | 2,7 | 5,5 |
| | V4 | | 505 | | 2 400 | 1 770 | 2 960 | 74 | | 52 | 27 | 2,9 | 5,8 |
| | V3 | | 460 | | 2 180 | 1 590 | 2 730 | 61 | | 49 | 24 | 3,2 | 6,4 |
| | V2 | | 325 | | 1 530 | 1 130 | 2 060 | 38 | | 42 | 16 | 4,5 | 9,0 |
| | V1 | | 185 | | 807 | 608 | 1 230 | 17 | | 30 | <15 | 7,9 | 15,9 |
| 22M_AC | V5 | | 505 | 50 | 2 670 | 2 120 | 3 510 | 91 | | 53 | 28 | 2,9 | 5,8 |
| | V4 | | 480 | | 2 540 | 2 020 | 3 380 | 73 | | 52 | 27 | 3,1 | 6,1 |
| | V3 | | 435 | | 2 320 | 1 840 | 3 120 | 61 | | 50 | 25 | 3,4 | 6,8 |
| | V2 | | 315 | | 1 680 | 1 350 | 2 320 | 38 | | 42 | 17 | 4,7 | 9,3 |
| | V1 | | 175 | | 976 | 777 | 1 340 | 17 | | 30 | <15 | 8,4 | 16,8 |
| 22J_HEE | | 10,0 | 595 | 50 | 2 910 | 2 210 | 3 430 | | 83 | 56 | 31 | 2,5 | 4,9 |
| | | 8,0 | 475 | | 2 290 | 1 730 | 2 900 | | 43 | 50 | 25 | 3,1 | 6,2 |
| | | 7,3 | 430 | | 2 060 | 1 560 | 2 670 | | 37 | 48 | 23 | 3,4 | 6,8 |
| | | 6,0 | 350 | | 1 650 | 1 260 | 2 280 | | 20 | 44 | 18 | 4,2 | 8,4 |
| | | 4,0 | 230 | | 988 | 788 | 1 600 | | 8 | 34 | <15 | 6,4 | 12,8 |
| | | 3,0 | 175 | | 755 | 600 | 1 240 | | 7 | 29 | <15 | 8,4 | 16,8 |
| | | 2,0 | 115 | | 533 | 414 | 857 | | 3 | 22 | <15 | 12,8 | 25,6 |
| 22M_HEE | | 10,0 | 550 | 50 | 2 870 | 2 270 | 3 880 | | 83 | 56 | 31 | 2,7 | 5,3 |
| | | 7,8 | 425 | | 2 280 | 1 790 | 3 100 | | 41 | 50 | 25 | 3,5 | 6,9 |
| | | 7,0 | 380 | | 2 040 | 1 600 | 2 780 | | 32 | 47 | 22 | 3,9 | 7,7 |
| | | 6,0 | 325 | | 1 760 | 1 390 | 2 430 | | 19 | 44 | 19 | 4,5 | 9,0 |
| | | 4,0 | 210 | | 1 140 | 900 | 1 590 | | 8 | 35 | <15 | 7,0 | 14,0 |
| | | 3,0 | 160 | | 926 | 712 | 1 210 | | 6 | 29 | <15 | 9,2 | 18,4 |
| | | 2,0 | 120 | | 749 | 561 | 915 | | 4 | 21 | <15 | 12,3 | 24,5 |
| 24P_AC | V5 | | 505 | 50 | 2 530 | 2 080 | 3 770 | 91 | | 53 | 28 | | |
| | V4 | | 480 | | 2 410 | 1 980 | 3 670 | 73 | | 52 | 27 | | |
| | V3 | | 435 | | 2 190 | 1 790 | 3 460 | 61 | | 50 | 25 | | |
| | V2 | | 315 | | 1 590 | 1 270 | 2 780 | 38 | | 42 | 17 | | |
| | V1 | | 175 | | 847 | 674 | 1 770 | 17 | | 30 | <15 | | |
| 24P_HEE | | 10,0 | 590 | 50 | 2 800 | 2 380 | 4 250 | | 89 | 57 | 32 | | |
| | | 8,2 | 480 | | 2 320 | 1 940 | 3 750 | | 50 | 51 | 27 | | |
| | | 7,0 | 405 | | 1 980 | 1 630 | 3 350 | | 34 | 48 | 23 | | |
| | | 6,0 | 345 | | 1 710 | 1 400 | 3 010 | | 20 | 44 | 19 | | |
| | | 4,0 | 220 | | 1 080 | 876 | 2 150 | | 8 | 35 | <15 | | |
| | | 3,0 | 165 | | 826 | 660 | 1 700 | | 6 | 29 | <15 | | |
| | | 2,0 | 125 | | 667 | 510 | 1 320 | | 4 | 21 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

U model sound level:

Values given as a guideline for devices with ducted return and discharge, and for room and installation attenuation of 19 dB (sizes 0 to 3), 21 dB (sizes 4).

U MODEL

| COMFORT LINE™ U model | AC motor speeds | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | Power input | | Overall sound power LW dB(A) | Comfort level ISO or NR | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|--------------------------|-----------------|-----------------------|------------------|------------------------------------------|----------------|----------|--------------------|-------------|-------------|------------------------------|-------------------------|-------------------------------------------------------------------------------------|-------|
| | | | | | Total | Sensible | | AC Motor W | HEE motor W | | | 700W | 1400W |
| 32J_AC | V5 | | 690 | | 3 140 | 2 690 | 4 360 | 98 | | 54 | 30 | 3,0 | 6,0 |
| | V4 | | 595 | | 2 750 | 2 300 | 3 920 | 93 | | 51 | 26 | 3,5 | 6,9 |
| | V3 | | 525 | 50 | 2 450 | 2 000 | 3 550 | 92 | | 48 | 23 | 3,9 | 7,8 |
| | V2 | | 445 | | 2 090 | 1 660 | 3 090 | 90 | | 44 | 19 | 4,6 | 9,3 |
| | V1 | | 365 | | 1 700 | 1 310 | 2 590 | 86 | | 40 | <15 | 5,6 | 11,3 |
| 32M_AC | V5 | | 730 | | 3 850 | 2 790 | 5 030 | 100 | | 55 | 30 | 2,8 | 5,6 |
| | V4 | | 645 | | 3 440 | 2 460 | 4 580 | 96 | | 52 | 27 | 3,2 | 6,4 |
| | V3 | | 565 | 50 | 3 030 | 2 160 | 4 090 | 94 | | 49 | 23 | 3,6 | 7,3 |
| | V2 | | 480 | | 2 590 | 1 850 | 3 570 | 91 | | 45 | 20 | 4,3 | 8,6 |
| | V1 | | 400 | | 2 140 | 1 530 | 3 010 | 87 | | 41 | 16 | 5,1 | 10,3 |
| 32J_HEE | | 10,0 | 830 | | 3 810 | 3 340 | 5 000 | | 109 | 57 | 33 | 2,5 | 5,0 |
| | | 9,0 | 735 | | 3 450 | 2 970 | 4 600 | | 86 | 54 | 30 | 2,8 | 5,6 |
| | | 7,4 | 595 | 50 | 2 910 | 2 420 | 3 980 | | 49 | 50 | 24 | 3,5 | 6,9 |
| | | 6,0 | 485 | | 2 430 | 1 970 | 3 400 | | 26 | 45 | 20 | 4,2 | 8,5 |
| | | 5,0 | 395 | | 2 010 | 1 600 | 2 860 | | 19 | 41 | 16 | 5,2 | 10,4 |
| | | 4,0 | 330 | | 1 670 | 1 310 | 2 420 | | 11 | 36 | <15 | 6,2 | 12,5 |
| | | 2,0 | 185 | | 997 | 748 | 1 420 | | 4 | 22 | <15 | 11,1 | 22,3 |
| 32M_HEE | | 10,0 | 810 | | 4 210 | 3 320 | 5 570 | | 106 | 57 | 33 | 2,5 | 5,1 |
| | | 9,0 | 720 | | 3 800 | 2 980 | 5 090 | | 83 | 55 | 30 | 2,9 | 5,7 |
| | | 7,8 | 620 | 50 | 3 320 | 2 590 | 4 540 | | 53 | 51 | 26 | 3,3 | 6,6 |
| | | 6,0 | 470 | | 2 570 | 1 990 | 3 580 | | 25 | 45 | 20 | 4,4 | 8,8 |
| | | 5,0 | 380 | | 2 100 | 1 640 | 2 980 | | 19 | 41 | 16 | 5,4 | 10,8 |
| | | 4,0 | 310 | | 1 670 | 1 320 | 2 450 | | 10 | 36 | <15 | 6,6 | 13,3 |
| | | 2,0 | 150 | | 949 | 711 | 1 210 | | 4 | 23 | <15 | 13,7 | 27,5 |
| 34P_AC | V5 | | 645 | | 3 450 | 2 810 | 4 350 | 95 | | 54 | 30 | | |
| | V4 | | 580 | | 3 140 | 2 540 | 4 120 | 91 | | 52 | 27 | | |
| | V3 | | 515 | 50 | 2 830 | 2 270 | 3 860 | 90 | | 49 | 24 | | |
| | V2 | | 450 | | 2 490 | 1 980 | 3 560 | 88 | | 46 | 21 | | |
| | V1 | | 375 | | 2 100 | 1 660 | 3 190 | 85 | | 42 | 17 | | |
| 34P_HEE | | 10,0 | 810 | | 4 090 | 3 400 | 4 920 | | 106 | 57 | 33 | | |
| | | 9,0 | 720 | | 3 650 | 3 020 | 4 580 | | 83 | 55 | 30 | | |
| | | 7,8 | 620 | 50 | 3 160 | 2 600 | 4 170 | | 53 | 51 | 26 | | |
| | | 6,0 | 470 | | 2 400 | 1 950 | 3 470 | | 25 | 45 | 20 | | |
| | | 5,0 | 380 | | 1 940 | 1 580 | 3 010 | | 19 | 41 | 16 | | |
| | | 4,0 | 310 | | 1 530 | 1 250 | 2 580 | | 10 | 36 | <15 | | |
| | | 2,0 | 150 | | 795 | 622 | 1 450 | | 4 | 23 | <15 | | |
| 42J_AC | V5 | | 890 | | 4 070 | 3 420 | 5 230 | 110 | | 55 | 28 | 2,3 | 4,6 |
| | V4 | | 740 | 50 | 3 450 | 2 890 | 4 580 | 105 | | 50 | 23 | 2,8 | 5,6 |
| | V3 | | 615 | | 2 910 | 2 440 | 3 980 | 101 | | 46 | 18 | 3,3 | 6,7 |
| | V2 | | 510 | | 2 420 | 2 030 | 3 420 | 97 | | 42 | <15 | 4,0 | 8,1 |
| | V1 | | 410 | | 2 210 | 1 900 | 2 510 | 88 | | 37 | <15 | 5,0 | 10,0 |
| 42M_AC | V5 | | 865 | | 4 690 | 3 610 | 5 400 | 112 | | 55 | 28 | 2,4 | 4,8 |
| | V4 | | 720 | 50 | 4 000 | 3 010 | 4 530 | 106 | | 50 | 23 | 2,9 | 5,7 |
| | V3 | | 625 | | 3 540 | 2 630 | 3 960 | 103 | | 47 | 20 | 3,3 | 6,6 |
| | V2 | | 505 | | 2 920 | 2 140 | 3 230 | 98 | | 42 | 15 | 4,1 | 8,2 |
| | V1 | | 430 | | 2 470 | 1 800 | 2 740 | 89 | | 39 | <15 | 4,8 | 9,6 |
| 42J_HEE | | 10,0 | 1 085 | | 4 780 | 4 060 | 6 240 | | 141 | 57 | 32 | 1,9 | 3,8 |
| | | 9,0 | 960 | | 4 330 | 3 680 | 5 670 | | 107 | 55 | 29 | 2,1 | 4,3 |
| | | 7,7 | 825 | 50 | 3 830 | 3 250 | 5 050 | | 68 | 51 | 25 | 2,5 | 5,0 |
| | | 6,0 | 645 | | 3 110 | 2 630 | 4 120 | | 33 | 45 | 19 | 3,2 | 6,4 |
| | | 5,0 | 520 | | 2 570 | 2 190 | 3 460 | | 24 | 41 | 15 | 4,0 | 7,9 |
| | | 4,0 | 420 | | 2 080 | 1 790 | 2 860 | | 12 | 36 | <15 | 4,9 | 9,8 |
| | | 2,0 | 205 | | 1 130 | 939 | 1 480 | | 4 | 23 | <15 | 10,0 | 20,1 |
| 42M_HEE | | 10,0 | 1 065 | | 5 600 | 4 560 | 6 430 | | 139 | 58 | 32 | 1,9 | 3,9 |
| | | 9,0 | 940 | | 5 060 | 4 070 | 5 700 | | 106 | 55 | 29 | 2,2 | 4,4 |
| | | 7,6 | 795 | 50 | 4 410 | 3 490 | 4 860 | | 66 | 52 | 24 | 2,6 | 5,2 |
| | | 6,0 | 630 | | 3 610 | 2 810 | 3 860 | | 32 | 46 | 19 | 3,3 | 6,5 |
| | | 5,0 | 510 | | 3 000 | 2 310 | 3 130 | | 24 | 42 | <15 | 4,0 | 8,1 |
| | | 4,0 | 410 | | 2 440 | 1 870 | 2 510 | | 12 | 37 | <15 | 5,0 | 10,0 |
| | | 2,0 | 200 | | 1 320 | 968 | 1 190 | | 4 | 25 | <15 | 10,3 | 20,6 |
| 44P_AC | V5 | | 865 | | 4 110 | 3 560 | 5 650 | 112 | | 55 | 28 | | |
| | V4 | | 720 | 50 | 3 610 | 3 070 | 4 970 | 106 | | 50 | 23 | | |
| | V3 | | 625 | | 3 270 | 2 740 | 4 490 | 103 | | 47 | 20 | | |
| | V2 | | 505 | | 2 800 | 2 300 | 3 850 | 98 | | 42 | 15 | | |
| | V1 | | 430 | | 2 450 | 1 980 | 3 380 | 89 | | 39 | <15 | | |
| 44P_HEE | | 10,0 | 1 150 | | 5 000 | 4 210 | 7 450 | | 147 | 58 | 32 | | |
| | | 9,0 | 1 015 | | 4 520 | 3 820 | 6 770 | | 111 | 56 | 29 | | |
| | | 8,0 | 920 | 50 | 4 160 | 3 530 | 6 270 | | 77 | 53 | 26 | | |
| | | 6,0 | 680 | | 3 240 | 2 770 | 4 920 | | 35 | 46 | 19 | | |
| | | 5,0 | 555 | | 2 700 | 2 320 | 4 120 | | 25 | 42 | 15 | | |
| | | 4,0 | 445 | | 2 210 | 1 900 | 3 410 | | 13 | 38 | <15 | | |
| | | 2,0 | 215 | | 1 090 | 941 | 1 780 | | 4 | 25 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

(2) Warning: the air supply temperature must not exceed 65°C (CIAT recommendation).

U model sound level:

Values given as a guideline for devices with ducted return and discharge, and for room and installation attenuation of 19 dB (sizes 0 to 3), 21 dB (sizes 4).

LI / LY MODELS

Cooling temperature: water temperature: 7/12°C, air intake temperature: 27°C - 19°C (WB).

Heating temperature (2T): water temperature: 45/40°C, air intake temperature: 20°C.

Heating temperature (4T): water temperature: 65/55°C, air intake temperature: 20°C.

| Size | AC motor code | HEE motor voltage (V) | Air flow in m³/h | Available static pressure (1) | Cooling cap. W | | Heating capacity W | AC motor power input W | HEE motor power input W | Sound power LW dB(A) | ISO or NR comfort level for LI | ISO or NR comfort level for LY | Average air temperature rise in K (2) Auxiliary electric heater 230/1/50 | |
|---------|---------------|-----------------------|------------------|-------------------------------|----------------|----------|--------------------|------------------------|-------------------------|----------------------|--------------------------------|--------------------------------|--------------------------------------------------------------------------|-------|
| | | | | | Total | Sensible | | | | | | | 500W | 1000W |
| 02J_AC | V5 | | 505 | | 2 480 | 2 110 | 2 980 | 68 | | 60 | 43 | 41 | 2,9 | 5,8 |
| | V4 | | 400 | | 2 110 | 1 760 | 2 500 | 46 | | 54 | 37 | 35 | 3,7 | 7,4 |
| | V3 | | 310 | 10 | 1 770 | 1 440 | 2 060 | 33 | | 48 | 31 | 29 | 4,7 | 9,5 |
| | V2 | | 220 | | 1 330 | 1 060 | 1 520 | 20 | | 40 | 23 | 21 | 6,7 | 13,4 |
| | V1 | | 145 | | 1 140 | 813 | 1 140 | 14 | | 32 | 15 | <15 | 10,1 | 20,3 |
| 02J_HEE | | 10,0 | 665 | | 2 840 | 2 550 | 3 900 | | 84 | 64 | 46 | 44 | 2,2 | 4,4 |
| | | 9,0 | 595 | | 2 650 | 2 350 | 3 580 | | 64 | 62 | 43 | 41 | 2,5 | 4,9 |
| | | 8,0 | 525 | | 2 450 | 2 140 | 3 250 | | 44 | 59 | 40 | 38 | 2,8 | 5,6 |
| | | 6,6 | 430 | 10 | 2 170 | 1 840 | 2 780 | | 28 | 54 | 35 | 33 | 3,4 | 6,8 |
| | | 5,0 | 320 | | 1 770 | 1 450 | 2 160 | | 15 | 47 | 28 | 26 | 4,6 | 9,2 |
| | | 4,0 | 250 | | 1 490 | 1 180 | 1 760 | | 8 | 41 | 23 | 21 | 5,9 | 11,8 |
| | | 2,0 | 125 | | 831 | 628 | 918 | | 3 | 27 | <15 | <15 | 11,8 | 23,5 |
| 04P_AC | V5 | | 505 | | 2 430 | 2 130 | 2 960 | 68 | | 60 | 43 | 41 | | |
| | V4 | | 400 | | 2 030 | 1 750 | 2 560 | 46 | | 54 | 37 | 35 | | |
| | V3 | | 310 | 10 | 1 610 | 1 380 | 2 190 | 33 | | 48 | 31 | 29 | | |
| | V2 | | 220 | | 1 160 | 985 | 1 690 | 20 | | 40 | 23 | 21 | | |
| | V1 | | 145 | | 1 020 | 762 | 1 560 | 14 | | 32 | 15 | <15 | | |
| 04P_HEE | | 10,0 | 665 | | 2 960 | 2 520 | 4 140 | | 84 | 64 | 46 | 44 | | |
| | | 9,0 | 595 | | 2 710 | 2 310 | 3 840 | | 64 | 62 | 43 | 41 | | |
| | | 8,0 | 525 | | 2 450 | 2 080 | 3 510 | | 44 | 59 | 40 | 38 | | |
| | | 6,6 | 430 | 10 | 2 100 | 1 770 | 3 040 | | 28 | 54 | 35 | 33 | | |
| | | 5,0 | 320 | | 1 630 | 1 380 | 2 420 | | 15 | 47 | 28 | 26 | | |
| | | 4,0 | 250 | | 1 310 | 1 110 | 2 000 | | 8 | 41 | 23 | 21 | | |
| | | 2,0 | 125 | | 721 | 584 | 1 080 | | 3 | 27 | <15 | <15 | | |
| 22J_AC | V5 | | 780 | | 3 580 | 2 680 | 4 160 | 104 | | 61 | 44 | 42 | 1,9 | 3,8 |
| | V4 | | 720 | | 3 320 | 2 480 | 3 920 | 85 | | 59 | 42 | 40 | 2,0 | 4,1 |
| | V3 | | 620 | 10 | 2 900 | 2 160 | 3 500 | 69 | | 55 | 39 | 37 | 2,4 | 4,7 |
| | V2 | | 420 | | 1 990 | 1 450 | 2 550 | 40 | | 47 | 30 | 28 | 3,5 | 1,0 |
| | V1 | | 230 | | 1 020 | 769 | 1 530 | 18 | | 35 | 18 | 16 | 6,4 | 12,8 |
| 22M_AC | V5 | | 735 | | 3 690 | 2 940 | 4 880 | 102 | | 62 | 44 | 42 | 2,0 | 4,0 |
| | V4 | | 680 | | 3 440 | 2 740 | 4 580 | 83 | | 60 | 43 | 41 | 2,2 | 4,3 |
| | V3 | | 590 | 10 | 3 050 | 2 420 | 4 080 | 69 | | 57 | 40 | 38 | 2,5 | 5,0 |
| | V2 | | 405 | | 2 160 | 1 710 | 2 940 | 40 | | 48 | 32 | 30 | 3,6 | 4,3 |
| | V1 | | 220 | | 1 160 | 944 | 1 690 | 18 | | 36 | 20 | 18 | 6,7 | 13,4 |
| 22J_HEE | | 10,0 | 995 | | 4 710 | 3 650 | 4 940 | | 137 | 66 | 46 | 44 | 1,5 | 3,0 |
| | | 8,0 | 800 | | 3 830 | 2 920 | 4 270 | | 70 | 60 | 41 | 39 | 1,8 | 3,7 |
| | | 7,3 | 730 | 10 | 3 510 | 2 680 | 4 020 | | 56 | 58 | 39 | 37 | 2,0 | 4,0 |
| | | 6,0 | 585 | | 2 820 | 2 130 | 3 420 | | 31 | 53 | 34 | 32 | 2,5 | 5,0 |
| | | 4,0 | 380 | | 1 790 | 1 360 | 2 450 | | 11 | 43 | 25 | 23 | 3,9 | 7,7 |
| | | 3,0 | 290 | | 1 320 | 1 020 | 1 960 | | 7 | 37 | 18 | 16 | 5,1 | 10,1 |
| | | 2,0 | 185 | | 782 | 623 | 1 300 | | 4 | 29 | <15 | <15 | 7,9 | 15,9 |
| 22M_HEE | | 10,0 | 860 | | 4 130 | 3 330 | 5 730 | | 126 | 66 | 47 | 45 | 1,7 | 3,4 |
| | | 7,8 | 650 | 10 | 3 260 | 2 590 | 4 560 | | 58 | 60 | 41 | 39 | 2,3 | 4,5 |
| | | 7,0 | 575 | | 2 940 | 2 320 | 4 070 | | 44 | 57 | 38 | 36 | 2,6 | 5,1 |
| | | 6,0 | 485 | | 2 530 | 1 980 | 3 490 | | 25 | 53 | 35 | 33 | 3,0 | 6,1 |
| | | 4,0 | 300 | | 1 610 | 1 260 | 2 230 | | 9 | 44 | 25 | 23 | 4,9 | 9,8 |
| | | 3,0 | 230 | | 1 230 | 984 | 1 760 | | 7 | 37 | 19 | 17 | 6,4 | 12,8 |
| | | 2,0 | 170 | | 970 | 751 | 1 290 | | 4 | 29 | <15 | <15 | 8,7 | 17,3 |
| 24P_AC | V5 | | 735 | | 3 530 | 2 990 | 4 670 | 102 | | 62 | 44 | 42 | | |
| | V4 | | 680 | | 3 280 | 2 760 | 4 490 | 83 | | 60 | 43 | 41 | | |
| | V3 | | 590 | 10 | 2 890 | 2 410 | 4 160 | 69 | | 57 | 40 | 38 | | |
| | V2 | | 405 | | 2 040 | 1 650 | 3 320 | 40 | | 48 | 32 | 30 | | |
| | V1 | | 220 | | 1 090 | 868 | 2 150 | 18 | | 36 | 20 | 18 | | |
| 24P_HEE | | 10,0 | 865 | | 3 850 | 3 380 | 5 300 | | 127 | 67 | 47 | 45 | | |
| | | 8,2 | 690 | 10 | 3 160 | 2 720 | 4 590 | | 68 | 61 | 42 | 40 | | |
| | | 7,0 | 580 | | 2 720 | 2 300 | 4 220 | | 44 | 57 | 39 | 37 | | |
| | | 6,0 | 485 | | 2 330 | 1 940 | 3 790 | | 26 | 53 | 35 | 33 | | |
| | | 4,0 | 300 | | 1 480 | 1 200 | 2 710 | | 9 | 44 | 26 | 24 | | |
| | | 3,0 | 235 | | 1 150 | 927 | 2 240 | | 7 | 38 | 19 | 17 | | |
| | | 2,0 | 170 | | 832 | 665 | 1 720 | | 4 | 29 | <15 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

Model LI sound level:

Values are given as a guideline for units with room and installation attenuation of 12 dB (Sizes 0 to 3) and 14 dB (Size 4).

Model LY sound level:

Values are given as a guideline for units with room and installation attenuation of 14 dB (Sizes 0 to 3) and 16 dB (Size 4).

(2) Important: the air supply temperature should not exceed 65°C (CIAT recommendation).

LI / LY MODELS (continued)

| Size | AC motor code | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | AC motor power input W | HEE motor power input W | Sound power LW dB(A) | ISO or NR comfort level for LI | ISO or NR comfort level for LY | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|---------|---------------|-----------------------|------------------|------------------------------------------|----------------|----------|--------------------|------------------------|-------------------------|----------------------|--------------------------------|--------------------------------|-------------------------------------------------------------------------------------|-------|
| | | | | | Total | Sensible | | | | | | | 700W | 1400W |
| 32J_AC | V5 | | 1 095 | | 4 740 | 4 390 | 5 950 | 123 | | 61 | 44 | 42 | 1,9 | 3,8 |
| | V4 | | 875 | | 3 890 | 3 490 | 5 140 | 1160 | | 56 | 39 | 37 | 2,4 | 4,7 |
| | V3 | | 720 | 10 | 3 270 | 2 830 | 4 490 | 111 | | 52 | 35 | 33 | 2,9 | 5,7 |
| | V2 | | 570 | | 2 660 | 2 200 | 3 770 | 103 | | 47 | 31 | 29 | 3,6 | 7,2 |
| | V1 | | 450 | | 2 100 | 1 670 | 3 100 | 95 | | 43 | 26 | 24 | 4,6 | 9,2 |
| 32M_AC | V5 | | 1 040 | | 5 330 | 4 010 | 6 490 | 116 | | 63 | 46 | 44 | 2,0 | 4,0 |
| | V4 | | 870 | | 4 550 | 3 360 | 5 740 | 112 | | 59 | 42 | 40 | 2,4 | 4,7 |
| | V3 | | 725 | 10 | 3 840 | 2 770 | 5 000 | 106 | | 55 | 38 | 36 | 2,8 | 5,7 |
| | V2 | | 590 | | 3 180 | 2 270 | 4 260 | 100 | | 51 | 35 | 33 | 3,5 | 7,0 |
| | V1 | | 475 | | 2 560 | 1 830 | 3 530 | 94 | | 47 | 30 | 28 | 4,3 | 8,7 |
| 32J_HEE | | 10,0 | 1 335 | | 5 440 | 5 110 | 6 710 | | 159 | 67 | 49 | 47 | 1,5 | 3,1 |
| | | 9,0 | 1 190 | | 4 990 | 4 610 | 6 290 | | 121 | 64 | 45 | 43 | 1,7 | 3,5 |
| | | 7,4 | 945 | 10 | 4 180 | 3 730 | 5 500 | | 68 | 59 | 40 | 38 | 2,2 | 4,4 |
| | | 6,0 | 715 | | 3 350 | 2 860 | 4 570 | | 34 | 55 | 36 | 34 | 2,9 | 5,8 |
| | | 4,0 | 595 | | 2 880 | 2 390 | 3 990 | | 24 | 51 | 32 | 30 | 3,5 | 6,9 |
| | | 5,0 | 475 | | 2 370 | 1 920 | 3 350 | | 13 | 46 | 27 | 25 | 4,3 | 8,7 |
| | | 2,0 | 270 | | 1 340 | 1 060 | 2 030 | | 5 | 32 | <15 | <15 | 7,6 | 15,3 |
| 32M_HEE | | 10,0 | 1 250 | | 5 970 | 4 790 | 7 470 | | 153 | 67 | 50 | 48 | 1,6 | 3,3 |
| | | 9,0 | 1 110 | | 5 430 | 4 330 | 6 970 | | 116 | 65 | 46 | 44 | 1,9 | 3,7 |
| | | 7,8 | 955 | 10 | 4 780 | 3 780 | 6 300 | | 74 | 61 | 42 | 40 | 2,2 | 4,3 |
| | | 6,0 | 710 | | 3 720 | 2 910 | 5 090 | | 34 | 55 | 36 | 34 | 2,9 | 5,8 |
| | | 5,0 | 580 | | 3 120 | 2 430 | 4 330 | | 24 | 51 | 32 | 30 | 3,5 | 7,1 |
| | | 4,0 | 455 | | 2 490 | 1 930 | 3 500 | | 13 | 46 | 28 | 26 | 4,5 | 9,0 |
| | | 2,0 | 210 | | 1 220 | 939 | 1 680 | | 6 | 34 | 15 | <15 | 9,8 | 19,6 |
| 34P_AC | V5 | | 1 010 | | 5 130 | 4 320 | 5 340 | 115 | | 63 | 45 | 43 | | |
| | V4 | | 855 | | 4 440 | 3 690 | 4 970 | 111 | | 58 | 41 | 39 | | |
| | V3 | | 710 | 10 | 3 800 | 3 110 | 4 570 | 105 | | 55 | 38 | 36 | | |
| | V2 | | 585 | | 3 180 | 2 570 | 4 140 | 99 | | 51 | 34 | 32 | | |
| | V1 | | 470 | | 2 600 | 2 080 | 3 660 | 94 | | 47 | 30 | 28 | | |
| 34P_HEE | | 10,0 | 1 250 | | 5 910 | 5 070 | 6 320 | | 153 | 67 | 50 | 48 | | |
| | | 9,0 | 1 110 | | 5 370 | 4 560 | 5 940 | | 116 | 65 | 46 | 44 | | |
| | | 7,8 | 955 | 10 | 4 680 | 3 930 | 5 440 | | 74 | 61 | 42 | 40 | | |
| | | 6,0 | 710 | | 3 570 | 2 940 | 4 570 | | 34 | 55 | 36 | 34 | | |
| | | 5,0 | 580 | | 2 960 | 2 420 | 4 020 | | 24 | 51 | 32 | 30 | | |
| | | 4,0 | 455 | | 2 320 | 1 880 | 3 410 | | 13 | 46 | 28 | 26 | | |
| | | 2,0 | 210 | | 1030 | 839 | 1 910 | | 6 | 34 | 15 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

Model LI sound level:

Values are given as a guideline for units with room and installation attenuation of 12 dB (Sizes 0 to 3) and 14 dB (Size 4).

Model LY sound level:

Values are given as a guideline for units with room and installation attenuation of 14 dB (Sizes 0 to 3) and 16 dB (Size 4).

(2) Important: the air supply temperature should not exceed 65°C (CIAT recommendation).

LI / LY MODELS (continued)

| Size | AC motor code | HEE motor voltage (V) | Air flow in m³/h | Available static pressure ⁽¹⁾ | Cooling cap. W | | Heating capacity W | AC motor power input W | HEE motor power input W | Sound power LW dB(A) | ISO or NR comfort level for LI | ISO or NR comfort level for LY | Average air temperature rise in K ⁽²⁾ Auxiliary electric heater 230/1/50 | |
|---------|---------------|-----------------------|------------------|------------------------------------------|----------------|----------|--------------------|------------------------|-------------------------|----------------------|--------------------------------|--------------------------------|-------------------------------------------------------------------------------------|-------|
| | | | | | Total | Sensible | | | | | | | 700W | 1400W |
| 42J_AC | V5 | | 1 305 | | 5 640 | 4 820 | 6 690 | 141 | | 62 | 43 | 41 | 1,6 | 3,2 |
| | V4 | | 965 | | 4 370 | 3 690 | 5 510 | 129 | | 55 | 37 | 35 | 2,1 | 4,3 |
| | V3 | | 755 | 10 | 3 520 | 2 950 | 4 630 | 115 | | 50 | 32 | 30 | 2,7 | 5,5 |
| | V2 | | 605 | | 2 870 | 2 400 | 3 920 | 107 | | 46 | 27 | 25 | 3,4 | 6,8 |
| | V1 | | 480 | | 2 280 | 1 920 | 3 250 | 97 | | 42 | 23 | 21 | 4,3 | 8,6 |
| 42M_AC | V5 | | 1 260 | | 6 410 | 5 170 | 7 650 | 139 | | 63 | 44 | 42 | 1,6 | 3,3 |
| | V4 | | 955 | | 5 100 | 3 970 | 5 900 | 127 | | 57 | 38 | 36 | 2,2 | 4,3 |
| | V3 | | 775 | 10 | 4 280 | 3 250 | 4 860 | 117 | | 52 | 34 | 32 | 2,7 | 5,3 |
| | V2 | | 615 | | 3 500 | 2 600 | 3 900 | 108 | | 48 | 29 | 27 | 3,3 | 6,7 |
| | V1 | | 505 | | 2 910 | 2 140 | 3 220 | 97 | | 44 | 26 | 24 | 4,1 | 8,2 |
| 42J_HEE | | 10,0 | 1 505 | | 6 050 | 5 150 | 8 010 | | 165 | 68 | 48 | 46 | 1,4 | 2,7 |
| | | 9,0 | 1 420 | | 5 780 | 4 910 | 7 660 | | 138 | 67 | 46 | 44 | 1,4 | 2,9 |
| | | 7,7 | 1 250 | 10 | 5 410 | 4 590 | 7 210 | | 102 | 64 | 43 | 41 | 1,6 | 3,3 |
| | | 6,0 | 975 | | 4 350 | 3 680 | 5 800 | | 48 | 58 | 37 | 35 | 2,1 | 4,2 |
| | | 5,0 | 795 | | 3 710 | 3 140 | 4 950 | | 32 | 54 | 33 | 31 | 2,6 | 5,2 |
| | | 4,0 | 625 | | 3 020 | 2 560 | 4 050 | | 17 | 49 | 29 | 27 | 3,3 | 6,6 |
| | | 2,0 | 290 | | 1 410 | 1 250 | 2 050 | | 4 | 36 | 16 | <15 | 7,1 | 14,2 |
| 42M_HEE | | 10,0 | 1 505 | | 7 230 | 6 120 | 9 010 | | 165 | 68 | 48 | 46 | 1,4 | 2,7 |
| | | 9,0 | 1 410 | | 6 890 | 5 780 | 8 500 | | 137 | 67 | 45 | 43 | 1,5 | 2,9 |
| | | 7,6 | 1 250 | 10 | 6 290 | 5 200 | 7 600 | | 99 | 63 | 42 | 40 | 1,6 | 3,3 |
| | | 6,0 | 975 | | 5 160 | 4 160 | 4 980 | | 48 | 58 | 37 | 35 | 2,1 | 4,2 |
| | | 5,0 | 795 | | 4 390 | 3 470 | 4 900 | | 32 | 54 | 33 | 31 | 2,6 | 5,2 |
| | | 4,0 | 625 | | 3 570 | 2 780 | 3 850 | | 17 | 49 | 28 | 26 | 3,3 | 6,6 |
| | | 2,0 | 290 | | 1 700 | 1 310 | 1 740 | | 4 | 36 | 16 | <15 | 7,1 | 14,2 |
| 44P_AC | V5 | | 1 260 | | 5 280 | 4 760 | 7 250 | 139 | | 63 | 44 | 42 | | |
| | V4 | | 955 | | 4 400 | 3 850 | 6 030 | 127 | | 57 | 38 | 36 | | |
| | V3 | | 775 | 10 | 3 820 | 3 270 | 5 230 | 117 | | 52 | 34 | 32 | | |
| | V2 | | 615 | | 3 240 | 2 710 | 4 440 | 108 | | 48 | 29 | 27 | | |
| | V1 | | 505 | | 2 790 | 2 290 | 3 840 | 97 | | 44 | 26 | 24 | | |
| 44P_HEE | | 10,0 | 1 510 | | 6 130 | 5 100 | 9 210 | | 165 | 68 | 49 | 47 | | |
| | | 9,0 | 1 415 | | 5 840 | 4 870 | 8 800 | | 138 | 67 | 46 | 44 | | |
| | | 8,0 | 1 330 | 10 | 5 560 | 4 640 | 8 390 | | 111 | 65 | 44 | 42 | | |
| | | 6,0 | 980 | | 4 350 | 3 680 | 6 620 | | 48 | 58 | 37 | 35 | | |
| | | 5,0 | 800 | | 3 700 | 3 150 | 5 630 | | 32 | 54 | 33 | 31 | | |
| | | 4,0 | 624 | | 3 010 | 2 580 | 4 600 | | 17 | 49 | 29 | 27 | | |
| | | 2,0 | 290 | | 1 450 | 1 260 | 2 340 | | 4 | 36 | 16 | <15 | | |

(1) Static pressures given for information purposes. For higher available static pressures, consult our sales office.

Model LI sound level:







Values are given as a guideline for units with room and installation attenuation of 12 dB (Sizes 0 to 3) and 14 dB (Size 4).

Model LY sound level:

Values are given as a guideline for units with room and installation attenuation of 14 dB (Sizes 0 to 3) and 16 dB (Size 4).

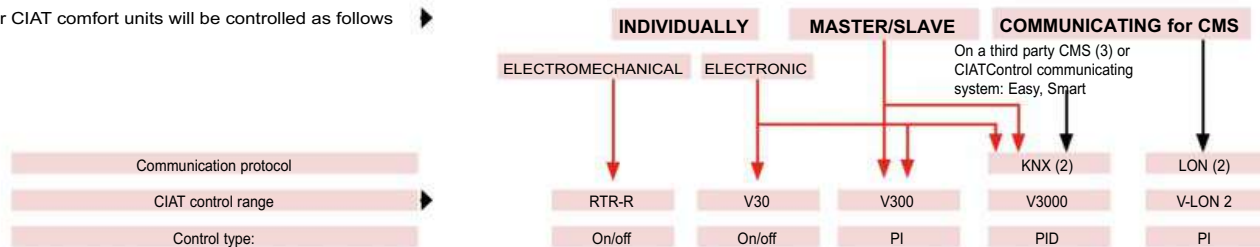
(2) Important: the air supply temperature should not exceed 65°C (CIAT recommendation).

COMFORT UNIT CONTROLS

| Electromechanical controls | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------|
|  | Air type | On/off room thermostat range |
| | Water type | On/off room thermostat range |
| Electronic controls | | |
|    | Air type | V30 range on/off |
| | Water type | V30 range on/off |
| | | V300 range master/slave PI |
| | | V3000 range KNX communicating PID |
| Fresh air management | | |
|  | | R1 pack with occupancy sensor for use in offices |
| | | R+ pack with CO ₂ sensor for use in meeting rooms |
| Centralised management for CIATControl V3000® system | | |
|  | Control of CIAT system solutions | Smart CIATControl: Centralised management system |

SELECTION TABLE FOR DEDICATED COMFORT UNIT CONTROLS

Your CIAT comfort units will be controlled as follows ➔



| APPLICATIONS | | | | | |
|-----------------------------------------------------------------------------------------------|--------------------|----------------------|------------------------|------------------------|------------------------|
| Air control | | | | | |
| 2 heating tubes only | RTR-E 7015 | X | Option | | |
| 2 cooling tubes only | RTR-E 7015 | X | Option | | |
| 2 heating/cooling tubes, manual reversal via selector | RTR-E 7015 | | | | |
| 2 heating/cooling tubes, automatic reversal via local changeover sensor | RTR-E 7009 | X | Option | | |
| 2 cooling tubes only + electric heater with deadband (1) | | X | Option | | |
| 2 heating/cooling tubes + electric heater - automatic selection (1) | | X | Option | | |
| Water control with 2-way valve (V2V) or 3-way valve + by-pass (V4V) | | | | | |
| 2 heating tubes only with V2V or V4V | RTR-E 7011 | X | X | X | X |
| 2 cooling tubes only with V2V or V4V | RTR-E 7011 | X | X | X | X |
| 2 heating/cooling tubes, manual reversal via selector with V2V or V4V | RTR-E 7012 | | | | |
| 2 heating/cooling tubes, automatic reversal via local sensor with V4V | RTR-E 7203 | X | X | X | .(4) |
| 2 cooling tubes only + electric heater with deadband (1) with V2V or V4V | RTR-E 7203 | X | X | X | X |
| 2 cooling tubes only + electric heater + manual selection via selector (1) with V2V or V4V | RTR-E 7012 | | | | |
| 2 heating/cooling tubes + electric heater - automatic selection via local sensor (1) with V4V | | X | X | X | .(4) |
| 4 tubes with 2 x V2V or 2 x V4V | RTR-E 7203 | X | X | X | X |
| Functions | | | | | |
| Management of window switch with frost protection | | X | X | X | X |
| Standby mode with frost protection | | X | X | X | X |
| Input for external timer | | | X | X | |
| Reconfiguration of controller on-site without specific tools | | X | X | X | |
| Zone timer (additional module) | | | X | X | |
| Changeover (possible option) | | | | | |
| Centralised changeover with control line | According to model | X | X | | |
| Changeover managed by the bus from the CMS | | | Option | X | Compulsory (4) |
| Control unit | | | | | |
| Wall-mounted | X | X | X | X | X |
| Flush-mounted in the vertical cased or uncased MAJOR LINE comfort unit | | X | X | X | |
| Digital display | | | X | X | Option |
| Potentiometer | X | X | | Option | X |
| Radiofrequency remote control | | | X | X | |
| Blank wall-mounted terminal | | | | X | |
| On/off button | According to model | X | X | X | X |
| Summer/winter toggle switch | According to model | | | | |
| +/- adjustment of setpoint | X | X | X | X | X |
| Ventilation | Manual I II III | Manual I II III | Manual I II III + auto | Manual I II III + auto | Manual I II III + auto |
| Deadband ventilation (for water control above) | Permanent | Stopped or permanent | Stopped or permanent | Stopped or permanent | Stopped or permanent |
| HEE motor energy optimisation by 0/10V signal | | | X | X | X |
| Valves | | | | | |
| Thermal, on/off | X | X | | | |
| Thermal, chrono-proportional | | | X | | X |
| Modulating, 3-position | | | | X | |
| Automatic balancing 2-way valves | X | X | X | X | X |
| CIAT supervision (see corresponding offer in our catalogue) | | | | | |
| Smart CIATControl | | | | X | |
| Eu.bac certification | No | No | Yes | Yes | Yes |

(1) Depending on the capacity of the selected electric heater, an additional relay may be required.

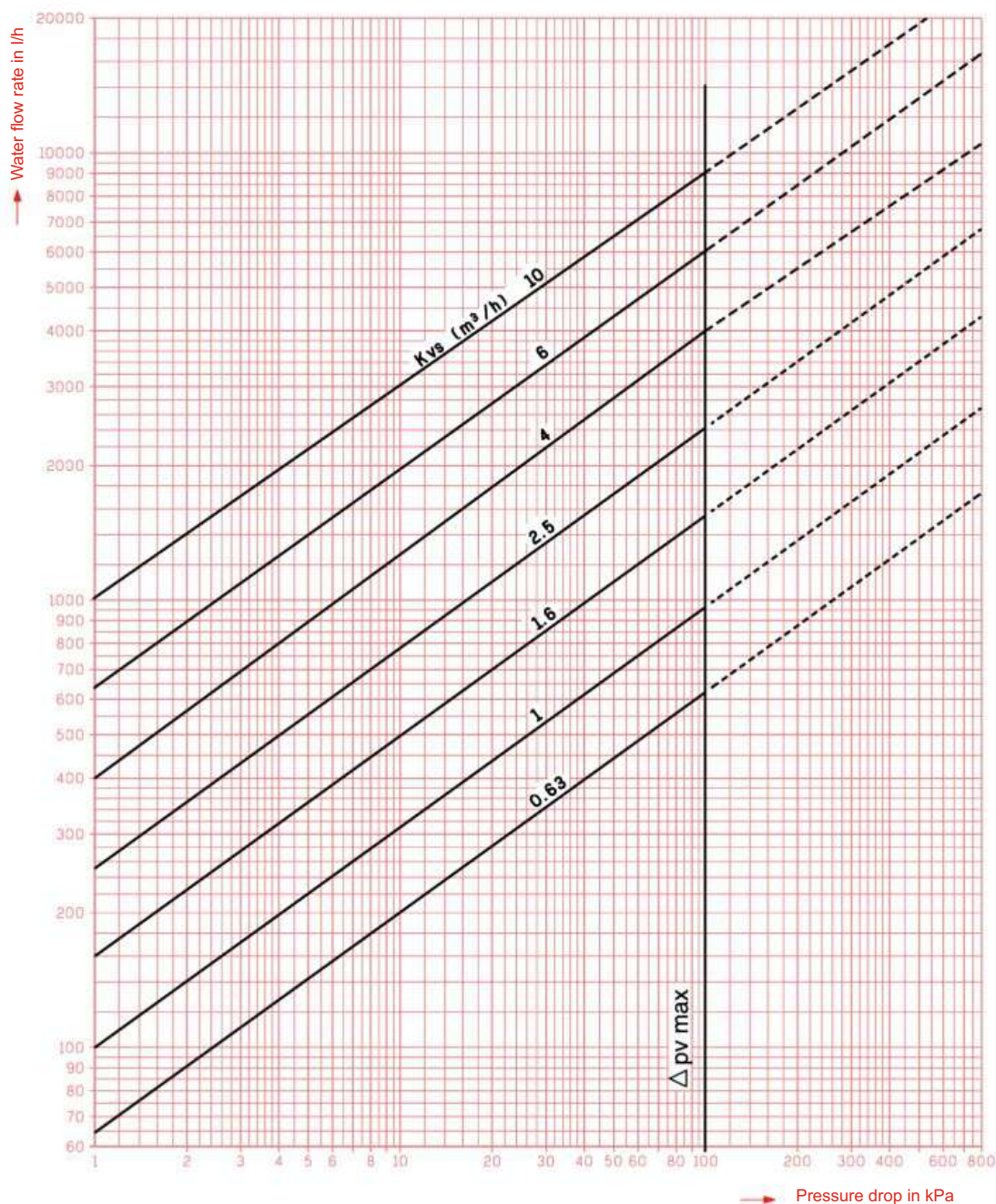
(2) Refer to the technical details for the selected communication technology.

(3) Centralised Management System.

(4) Not supplied by CIAT. Changeover managed by the CMS via bus

- After having selected a type of control, ensure it is compatible with the selected comfort unit. Some controls offer a panel of extra options: Refer to the relevant instruction manuals.

THEORETICAL WATER FLOW RATE/PRESSURE DROPS, BASED ON THE KVS OF THE VALVES



The limits of use vary depending on the suppliers and the type of valve used.
Refer to the commercial offer.

$\Delta p_v \text{ max.}$: Maximum permissible differential pressure on the valve at all speeds.

To prevent any risk of noise and erosion of the seat and valve, an operating $\Delta p < \Delta p_v \text{ max.}$ must be observed.

To guarantee correct operation of the valves and ensure their service life, we recommend:

- Ensuring the hydraulic networks are correctly balanced (use adjustment tees),
- The use of discharge valves or variable flow pumps for networks equipped with terminal units regulated by 2-way valve(s),
- Ensuring the hydraulic system is free of sludge or any other particles liable to adversely affect the operation of the valves.
- An operating Δp in line with manufacturers' instructions is available on request to prevent flow noise.

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

Room thermostat



MAJOR LINE
COADIS LINE
COMFORT LINE
MELODY2

2-tube system

Cooling only or heating only

■ 3-speed ventilation

RTR-E 7015 room thermostat
with manual summer/winter toggle switch
Note: For operation without manual reverse switch, please contact us

Code

5201023

Heating/cooling with manual summer/winter toggle switch

■ 3 ventilation speeds

RTR-E 7015 room thermostat
with manual summer/winter toggle switch

Code

5201023

Heating/cooling with automatic changeover

■ 3 ventilation speeds

RTR-E 7009 room thermostat
with automatic changeover thermostat

Code




7124612
+
7128892

* For ceiling units with the following scenarios:






- High local humidity,
- Very low temperature chilled water,
- Fresh air supply,
- Use of high speeds,
- Intermittent operation.

We recommend the use of controls acting on valves (see next page).

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

| COADIS LINE 600, MAJOR LINE, MELODY 2 | | | | | VALVE KIT |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
|    | | | | | |
| 230/1/50 valve kit - Fittings not included Max. Δ Pv of 70 to 300 kPa based on the KVS** | | | | | Thermostats |
| 2-tube and 2-tube cooling + electric systems | | | | | 2-tube system |
| 1 electrothermic two-way valve PN 16 - DN15 - KVS 1.6 max. 1 electrothermic four-way valve* PN 16 - DN15 - KVS 1.6 max. | | | | | Cooling only or heating only |
| COADIS LINE 612, 622, 632 | Code | 7301640 | 3 ventilation speeds RTR-E 7011 room thermostat | | |
| | Code | 7301641 | | | |
| 1 electrothermic two-way valve PN 16 - DN15- KVS 1.6 max. 1 electrothermic four-way valve* PN 16 - DN15- KVS 1.6 max. | | | | | HOT/COLD operation |
| MAJOR LINE 102-, 202-, 302-, 402-, | Code | 7245718 | 3 ventilation speeds - Manual summer/winter toggle switch RTR-E 7012 room thermostat | | |
| | Code | 7245719 | | | |
| MAJOR LINE 502- & 602- | Code | 7245720 | 3 ventilation speeds - Automatic summer/winter changeover switch RTR-E 7203 room thermostat + automatic changeover (on four-way valve only) | | |
| | Code | 7245721 | | | |
| 1 electrothermic two-way valve PN 16 - DN20- KVS 2.5 max. 1 electrothermic four-way valve* PN 16 - DN20- KVS 2.5 max. | | | | | 2-tube cooling with electric heater (1) |
| MELODY 2 61, 62, 63 | Code | 7469216 | 3 ventilation speeds RTR-E 7012 room thermostat Manual summer/winter toggle switch (Pélecs1400 W) (2) | | |
| | Code | 7469217 | | | |
| 1 electrothermic two-way valve PN16 - DN20 - KVS 2.5 max. 1 electrothermic four-way valve PN16 - DN20 - KVS 2.5 max. | | | | | Deadband thermostats |
| MELODY 2 92, 93, 94 | Code | 7469214 | 3 ventilation speeds RTR-E 7203 room thermostat with deadband (Pélecs1400 W) (2) Optional two-contact 230 V relay(4) 16 A - factory-fitted (3) | | |
| | Code | 7469215 | | | |
| 4-tube system | | | | | |
| 2 electrothermic two-way valves PN 16 - DN 15 - KVS 1.6 max. 2 electrothermic* four-way valves* PN 16 - DN 15 - KVS 1.6 max. | COADIS LINE 624, 634 | Code | E046500 | 3 ventilation speeds RTR-E 7203 room thermostat with deadband | |
| | | Code | E046501 | | |
| 2 electrothermic two-way valves PN 16 - DN 15 - KVS 1.6 max. 2 electrothermic* four-way valves* PN 16 - DN 15 - KVS 1.6 max. | MAJOR LINE 104-, 204-, 304-, 404- | Code | 7245722 | * three-way valve(s) with bypass. * * Refer to instruction manuals for information on the maximum allowable differential pressures and the maximum operating pressures based on the KVS of the valve used. (1) MAJOR LINE: 2-pipe setup + electric battery with one resistor only. (2) For higher capacities, an optional relay or a relay supplied by the customer is required. (3) Not including Coadis Line and Mélody 2: CDL600: P max. 1200 W CDL900 and Mélody 2: Relay included in the basic unit | |
| | | Code | 7245723 | | |
| 2 electrothermic two-way valves PN 16 heating DN 15 - cooling DN 20-KVS 2.5 max. 2 electrothermic four-way valves* PN 16 heating DN 15 - cooling DN 20-KVS 2.5 max. | MAJOR LINE 504- & 604 - | Code | 7245724 | | |
| | | Code | 7245725 | | |
| 1 electrothermic two-way valve PN16 - DN20 - KVS 2.5 max. 1 electrothermic two-way valve PN16 - heating DN15 - KVS 1.6 max. | MELODY2 61, 62, 63 | Code | 7469216 | | |
| | | Code | 7301640 | | |
| 1 electrothermic four-way valve PN16 - DN20 - KVS 2.5 max. 1 electrothermic four-way valve PN16 - heating DN15 - KVS 1.6 max. | MELODY2 61, 62, 63 | Code | 7469217 | | |
| | | Code | 7301641 | | |
| 1 electrothermic two-way valve PN16 - DN25 - KVS 4.5 max. 1 electrothermic two-way valve PN16 - heating DN20 - KVS 2.5 max. | MELODY2 92, 93, 94 | Code | 7469214 | | |
| | | Code | 7469216 | | |
| 1 electrothermic four-way valve PN16 - DN25 - KVS 4.5 max. 1 electrothermic four-way valve PN16 - heating DN20 - KVS 2.5 max. | MELODY2 92, 93, 94 | Code | 7469215 | | |
| | | Code | 7469217 | | |

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

| COADIS LINE 600 & 900 - COMFORT LINE MAJOR LINE | | | | | VALVES FITTED AND WIRED | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <div></div> | | | | | | |
| 230/1/50 valve - Fittings not mounted or wired Max. Δ Pv up to 300 kPa based on the KVS** | | | | Thermostats | | |
| 2-tube and 2-tube cooling + electric systems | | | | 2-tube system | | |
| ■ 1 electrothermic two-way valve PN 16 - DN15- KVS 1.6 max. | | COADIS LINE 612, 622, 632 MAJOR LINE 102-, 202-, 302-, 402-, COMFORT LINE 02-, 12-, 22-, 32- | Code | E037605 | Heating only or cooling only | |
| ■ 1 electrothermic four-way valve* PN 16 - DN15- KVS 1.6 max. | | | Code | E037567 | ■ 3 ventilation speeds RTR-E 7011 room thermostat | |
| | | | | | Code | 5201018 |
| | | | | HOT/COLD operation | | |
| | | | | | Code | 5201024 |
| | | | | | Code | 5201021 + 7128892 |
| | | | | 2-tube cooling with electric heater (1) | | |
| | | | | Manual summer/winter toggle switch | | |
| ■ 1 electrothermic two-way valve PN 16 - DN20- KVS 2.5 max. | | COADIS LINE 922 MAJOR LINE 502- & 602- COMFORT LINE 42- & 52- | Code | E037613 | ■ 3 ventilation speeds RTR-E 7012 room thermostat Manual summer/winter toggle switch (Pélecs≤1400 W) (2) | |
| ■ 1 electrothermic four-way valve* PN 16 - DN20- KVS 2.5 max. | | | Code | E037575 | Deadband thermostats | |
| ■ 1 electrothermic two-way valve PN16 - DN20 - KVS 4 max. | | COADIS LINE 932 & 932SP COMFORT LINE 62- | Code | E037613 | ■ 3 ventilation speeds RTR-E 7203 room thermostat with deadband (Pélecs≤1400 W) (2) | |
| ■ 1 electrothermic four-way valve PN16 - DN20 - KVS 4 max. | | | Code | E037575 | ■ Optional two-contact 230 V relay(4) 16 A - factory-fitted (3) | |
| 4-tube system | | | | | | |
| ■ 2 electrothermic two-way valves PN 16 - DN 15 - KVS 1.6 max. | | COADIS LINE 624 & 634 MAJOR LINE 104-, 204-, 304-, 404-, COMFORT LINE 04-, 14-, 24-, 324 | Code | E037621 | ■ 3 ventilation speeds RTR-E 7203 room thermostat with deadband | |
| ■ 2 electrothermic* four-way valves* PN 16 - DN 15 - KVS 1.6 max. | | | Code | E037583 | | |
| ■ 2 electrothermic two-way valves PN 16 heating DN 15 - KVS 1.6 max. - cooling DN 20-KVS 2.5 max. | | COADIS LINE 924 MAJOR LINE 504- & 604- COMFORT LINE 44- & 54- | Code | E037648 | * three-way valve(s) with bypass. ** Refer to instruction manuals for information on the maximum allowable differential pressures and the maximum operating pressures based on the KVS of the valve used. (1) MAJOR LINE: 2-pipe setup + electric battery with one resistor only. (2) For higher capacities, an optional relay or a relay supplied by the customer is required. (3) Not including Coadis Line and Mélody 2: CDL600: P max. 1200 W CDL900 and Mélody 2: Relay included in the basic unit | |
| ■ 2 electrothermic four-way valves* PN 16 heating DN 15 - KVS 1.6 max. - cooling DN 20-KVS 2.5 max. | | | Code | E037591 | | |
| ■ 2 electrothermic two-way valves PN 16 heating DN 15 - KVS 1.6 max. - cooling DN 20-KVS 4 max. | | Code | E037648 | | | |
| ■ 2 electrothermic four-way valves* PN 16 heating DN 15 - KVS 1.6 max. - cooling DN 20-KVS 4 max. | | Code | E037591 | | | |
| ■ 2 electrothermic two-way valves PN 16 heating DN 20 - KVS 2.5 max. - cooling DN 20-KVS 4 max. | | Code | E037648 | | | |
| ■ 2 electrothermic four-way valves* PN 16 heating DN 20 - KVS 2.5 max. - cooling DN 20-KVS 4 max. | | Code | E037591 | | | |

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

| | |
|------------------------------------------------------------|-------------------------------------------------------|
| COADIS LINE 600 & 900 - COMFORT LINE MAJOR LINE | AUTOMATICALLY BALANCED VALVES FITTED AND WIRED |
|------------------------------------------------------------|-------------------------------------------------------|



| | | | |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|------|---------|
| 230/1/50 valve - Fittings not mounted or wired ΔP_v from 30 to 400 kPa - To be set on-site | | | |
| 2-tube and 2-tube cooling + electric systems | | | |
| ■ 1 automatically balanced two-way valve 90 - 450 l/h PN 16 - DN10 | MAJOR LINE 102-, 202-, COMFORT LINE 02-, 12- | Code | E048812 |
| ■ 1 automatically balanced two-way valve 150 - 1050 l/h PN 16 - DN15 | COADIS LINE 612, 622, 632 MAJOR LINE 302-, 402-, COMFORT LINE 22-, 32- COADIS LINE 922 | Code | E048813 |
| ■ 1 automatically balanced two-way valve 180 - 1300 l/h PN 16 - DN20 | MAJOR LINE 502-, 602-, COMFORT LINE 42-, 52-, 62- COADIS LINE 932 & 932SP | Code | E048814 |
| 4-tube system | | | |
| ■ 2 automatically balanced two-way valves 90 - 450 l/h cooling and 30-210 l/h heating PN 16 - DN10 | MAJOR LINE 104-, 204-, COMFORT LINE 04-, 14- | Code | E048815 |
| ■ 2 automatically balanced two-way valves 150 - 1050 l/h cooling and 30-210 l/h heating PN 16 - DN10 | COMFORT LINE 24- | Code | E048816 |
| ■ 2 automatically balanced two-way valves 150 - 1050 l/h cooling and 90-450 l/h heating PN 16 - DN15 | COADIS LINE 624, 634 MAJOR LINE 304-, 404-, COMFORT LINE 34- COADIS LINE 924 | Code | E048817 |
| ■ 2 automatically balanced two-way valves 180 - 1300 l/h cooling and 90-450 l/h heating PN 16 - DN20 | MAJOR LINE 504-, 604-, COMFORT LINE 44-, 54- | Code | E048818 |
| ■ 2 automatically balanced two-way valves 180 - 1300 l/h cooling and 105-1050 l/h heating PN 16 - DN20 | COADIS LINE 934 & 934SP COMFORT LINE 64- | Code | E048819 |

Note for 4-tube units:





Coadis Line 600: Cooling valve fitted/Heating valve supplied in kit

Coadis Line 900: Cooling valve and Heating valve supplied in kit



MajorLine: Cooling valve fitted/Heating valve supplied in kit

Comfort Line: Cooling and Heating valves fitted

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

| | Description | Application | Codes |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|  <p>RTR-E 7015</p> | <p>Function</p> <ul style="list-style-type: none"> ■ Heating and cooling ■ Control on ventilation <p>Temperature range + 5 °C to + 30 °C</p> <p>Components</p> <ul style="list-style-type: none"> ■ 1 sensing element - bimetal - changeover switch ■ 1 temperature adjustment button ■ 1 unipolar on/off (0/1) switch ■ 1 manual heating/cooling (winter/summer) toggle switch ■ 1 x 3-speed ventilation switch <p>Supply voltage 230 V - 50/60 Hz</p> <p>Breaking capacity</p> <ul style="list-style-type: none"> ■ 3 A, inductive circuit (motor) <p>L x l x H = 127.5 x 75 x 25.5 mm</p> | <ul style="list-style-type: none"> ■ All terminal units | <p>5201023</p> |
|  <p>RTR-E 7009</p> | <p>Function</p> <ul style="list-style-type: none"> ■ Heating/cooling, with extra automatic changeover thermostat ■ Control on ventilation <p>Temperature range + 5 °C to + 30 °C</p> <p>Components</p> <ul style="list-style-type: none"> ■ 1 sensing element - bimetal - changeover switch ■ 1 temperature adjustment button ■ 1 unipolar on/off (0/1) switch ■ 1 x 3-speed ventilation switch <p>Supply voltage 230 V - 50/60 Hz</p> <p>Breaking capacity</p> <ul style="list-style-type: none"> ■ 3 A, inductive circuit (motor) <p>L x l x H = 127.5 x 75 x 25.5 mm</p> | <ul style="list-style-type: none"> ■ All terminal units | <p>7124612</p> |
|  <p>RTR-E 7012</p> | <p>Function</p> <ul style="list-style-type: none"> ■ Cooling and heating ■ Control on: <ul style="list-style-type: none"> - Water coil solenoid valve - Electric heater with or without relay ■ Permanent ventilation <p>Temperature range + 5 °C to + 30 °C</p> <p>Components</p> <ul style="list-style-type: none"> ■ 1 sensing element - bimetal - changeover switch ■ 1 temperature adjustment button ■ 1 unipolar on/off (0/1) switch ■ 1 manual heating/cooling (winter/summer) toggle switch ■ 1 x 3-speed ventilation switch <p>Supply voltage 230 V - 50/60 Hz</p> <p>Breaking capacity</p> <ul style="list-style-type: none"> ■ 3 A, inductive circuit (motor) ■ 6 A, resistive circuit (electric heater, 1400 W max.) <p>L x l x H = 127.5 x 75 x 25.5 mm</p> | <ul style="list-style-type: none"> ■ COMFORT LINE/ MAJOR LINE/COADIS LINE 600 <ul style="list-style-type: none"> - Electric heater 1400 W max. - Compulsory relay from 1400 W ■ COADIS LINE 900 & MELODY 2 <ul style="list-style-type: none"> - Electric heater 3000 W max. - "Relay built-in to the device" | <p>5201024</p> |
|  <p>RTR-E 7011</p> | <p>Function</p> <ul style="list-style-type: none"> ■ Heating only or cooling only ■ Control on water coil solenoid valve ■ Permanent ventilation <p>Temperature range + 5 °C to + 30 °C</p> <p>Components</p> <ul style="list-style-type: none"> ■ 1 sensing element - bimetal - changeover switch ■ 1 temperature adjustment button ■ 1 unipolar on/off (0/1) switch ■ 1 x 3-speed ventilation switch <p>Supply voltage 230 V - 50/60 Hz</p> <p>Breaking capacity</p> <ul style="list-style-type: none"> ■ 3 A, inductive circuit (motor) ■ 6 A, resistive circuit (electric heater, 1400 W max.) <p>L x l x H = 127.5 x 75 x 25.5 mm</p> | <ul style="list-style-type: none"> ■ All terminal units | <p>5201018</p> |

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

| | Description | Application | Codes |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|  <p>RTR-E 7203</p> | <p>Function</p> <ul style="list-style-type: none"> ■ Heating and cooling with deadband ■ Control on: <ul style="list-style-type: none"> - Water coil solenoid valve(s) - Electric heater with or without relay ■ Permanent ventilation <p>Temperature range + 5 °C to + 30 °C</p> <p>Components</p> <ul style="list-style-type: none"> ■ 1 sensing element - changeover switch with midpoint (rest position) with fixed 3 K deadband ■ 1 temperature adjustment button ■ 1 unipolar on/off (0/1) switch ■ 1 x 3-speed ventilation switch <p>Supply voltage 230 V - 50/60 Hz</p> <p>Breaking capacity</p> <ul style="list-style-type: none"> ■ 3 A, inductive circuit (motor) ■ 6 A, resistive circuit (electric heater, 1400 W max.) <p>L x l x H = 127.5 x 75 x 25.5 mm</p> | <ul style="list-style-type: none"> ■ COMFORT LINE/MAJOR LINE/COADIS LINE 600 <ul style="list-style-type: none"> - Electric heater 1400 W max. - Compulsory relay from 1400 W ■ COADIS LINE 900 & MELODY 2 <ul style="list-style-type: none"> - Electric heater 3000 W max. <p>"Relay built-in to the device"</p> | 5201021 |
| <p>Potentiometer for variable speed control</p>  | <p>Function</p> <ul style="list-style-type: none"> ■ Manual variation from 0 to 100% of the Brushless fan speed <p>Components</p> <ul style="list-style-type: none"> ■ Potentiometer with stop position <p>Supply voltage 230 V-50-60 Hz</p> <p>Outlet</p> <ul style="list-style-type: none"> ■ 0 - 10 V (8 mA max.) <p>L x l x H = 82 x 82 x 65 mm</p> | <ul style="list-style-type: none"> ■ Comfort units equipped with Brushless motor management 0 - 10 V | 7180650 |

Thermostat V6

NEW

Electronic air or water management system



1

RANGE

The CIAT V6 electronic thermostat is designed to actuate fan coil units, for 2- or 4-pipe applications with an AC or EC motor, operating with recirculated air (4 different thermostats).

The CIAT V6 electronic thermostat operates with water control which acts on the 230 V on/off thermo motor valves and on the ventilation with either:

- A 230 V 3-speed AC motor.
- A 0 -10 V 3-speed EC motor.

The thermostat is designed for flush-mounted installation using screws in a standard 60 mm box.

Description:

- Manual or automatic heating/cooling switching.
- Four modes: Comfort/Economy/Frost protection/Off.
- 230 V power input
- Control of a manual or automatic 3-speed fan.

**MAJORLINE, COMFORT LINE
COADIS LINE, MELODY 2**



Water control

2-tube system, AC motor

| | |
|------------------------------------------------------------------|-----------------|
| Hot water valve only | V6 A 7625601 |
| Cold water valve only | |
| Automatic hot/cold water valve with or without changeover sensor | |

4-tube system, AC motor

| | |
|--------------------------------------------|-----------------|
| One hot water valve + one cold water valve | V6 B 7625602 |
|--------------------------------------------|-----------------|

2-tube system, EC motor

| | |
|--------------------------------------------------------|-----------------|
| Hot water valve only | V6 C 7625603 |
| Cold water valve only | |
| Hot/cold water valve with or without changeover sensor | |

4-tube system, EC motor

| | |
|--------------------------------------------|-----------------|
| One hot water valve + one cold water valve | V6 D 7625604 |
|--------------------------------------------|-----------------|

Compulsory supplements for valves with Kvs over 1.6

| | | |
|------------------------------------------------------------------|---------------------------------------------------------------------------------|---------|
| Price supplement for one 3/4" two-way valve Kvs 2,5 or Kvs 4 | Major Line T5 & T6 Comfort Line T4, T5 and T6 Coadis Line 900 Melody 2 | E002003 |
| Price supplement for one 3/4" four-way valve Kvs 2,5 or Kvs 4 | | E002011 |

Option and accessories



Sensor with faston terminal, to be removed for screw terminals

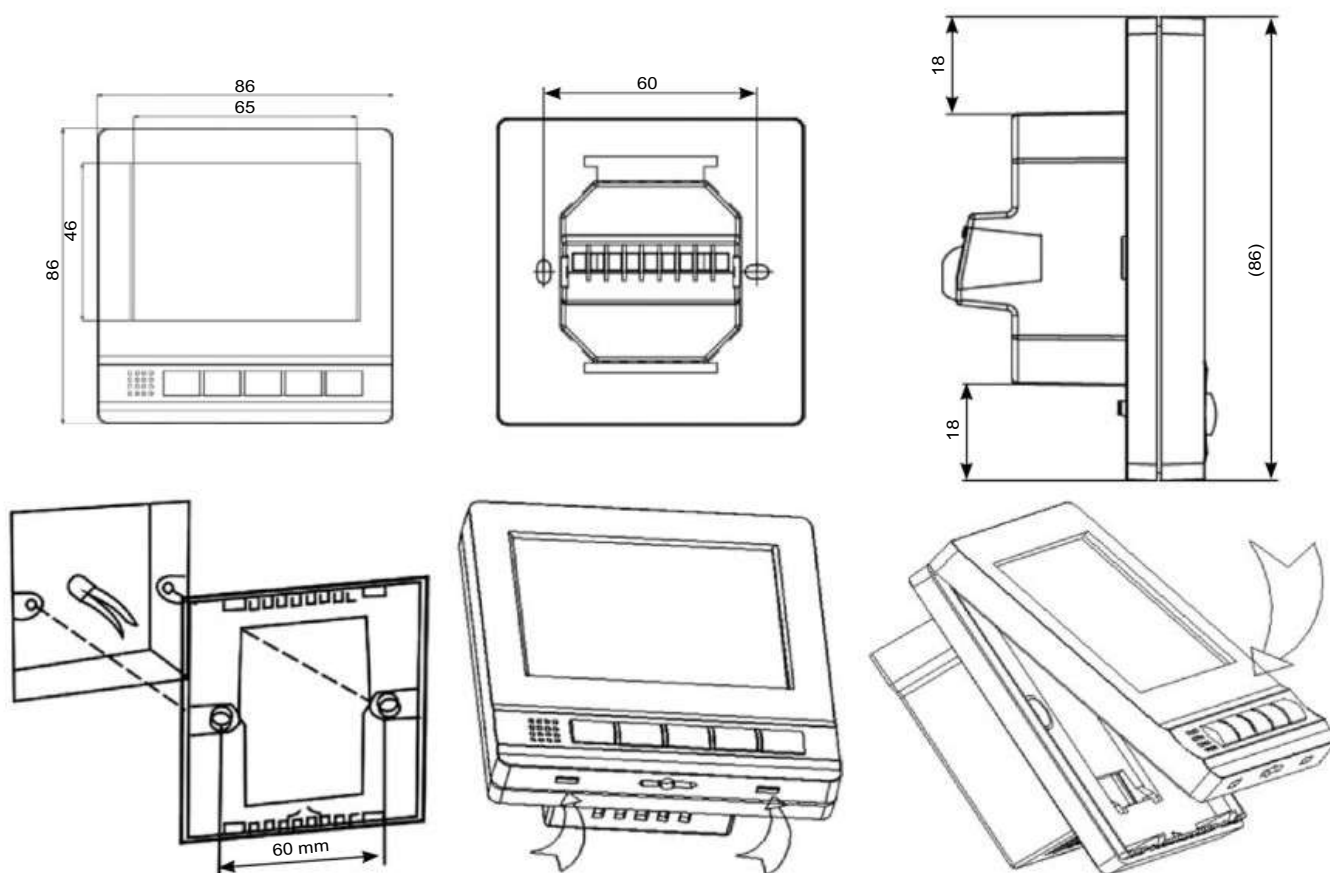
Changeover sensor

7209243

System start-up assistance

| | |
|----------------------------------|---------|
| Callout charge (mainland France) | E002003 |
| Charge for labour per unit | E002011 |

INSTALLATION INSTRUCTIONS



Dimensions in mm

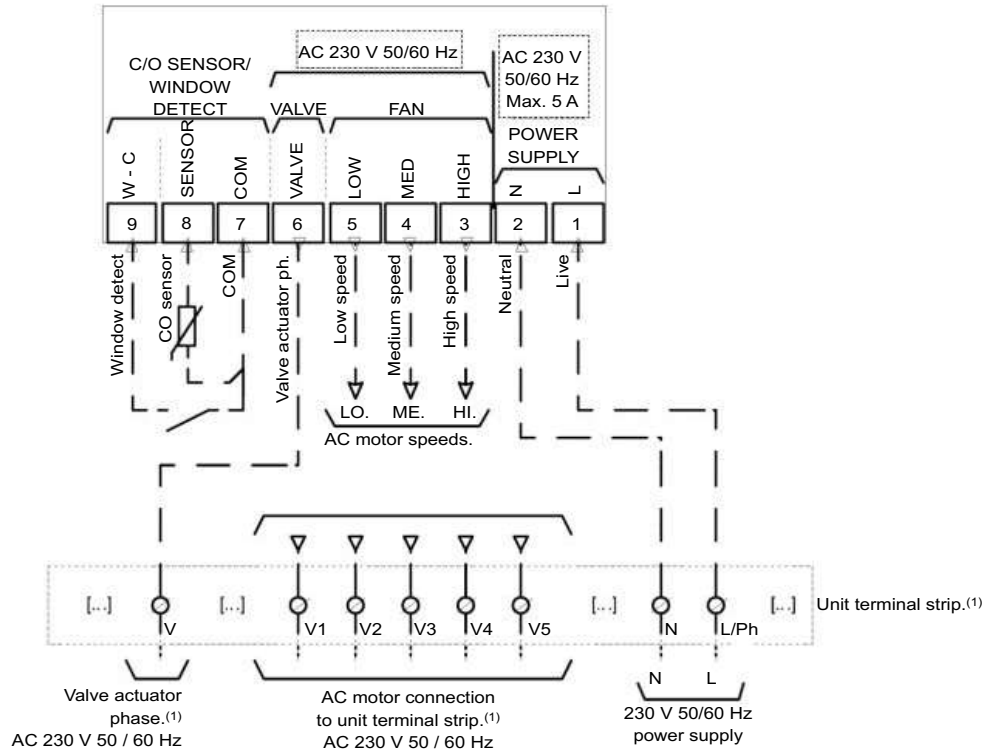
| | | | |
|-----------------------------------------|---------------------|--------------------------------------|--------------------------------------------|
| Power supply | 230 V 50/60 Hz | Internal sensor | NTC 10K, 3950K at 25 °C |
| Consumption | <1 W | CO sensor (2P) | NTC 10K 3977K at 25 °C |
| Maximum current for 230 V relays | 5 A | Temperature measurement range | 0~50 °C |
| Setpoint setting range | 5 °C to 35 °C | Accuracy | ± 1 °C (adjustment intervals of 0,5 °C) |
| Maximum cable cross-section | 2,5 mm ² | Relative humidity | 85 % |
| Stripped length | 6 mm | IP protection | IP30 |
| Tightening torque | 0,4 N.m | Housing | ABS, UL94-5 |
| Electrical protection class | Class 2 | Min./max. cable cross-section | 1 - 2,5 mm ² |

INSTALLATION INSTRUCTIONS

Electrical connection

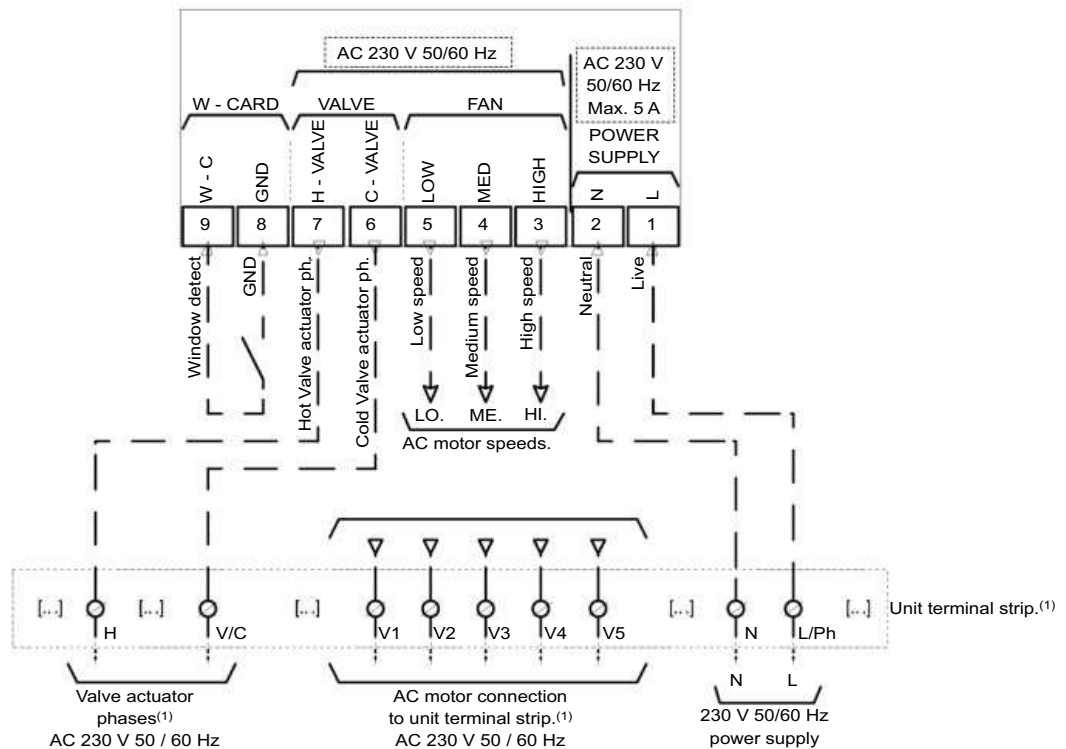
2T-AC WALL THERMOSTAT

2 TUBES



4T-AC WALL THERMOSTAT

4 TUBES

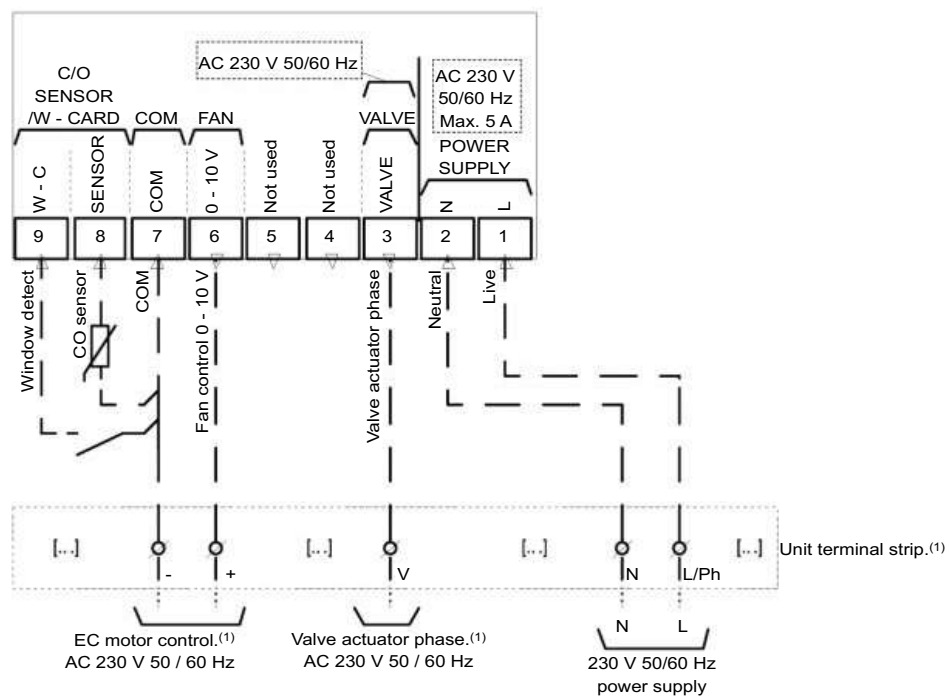


(1) See unit wiring diagram

INSTALLATION INSTRUCTIONS

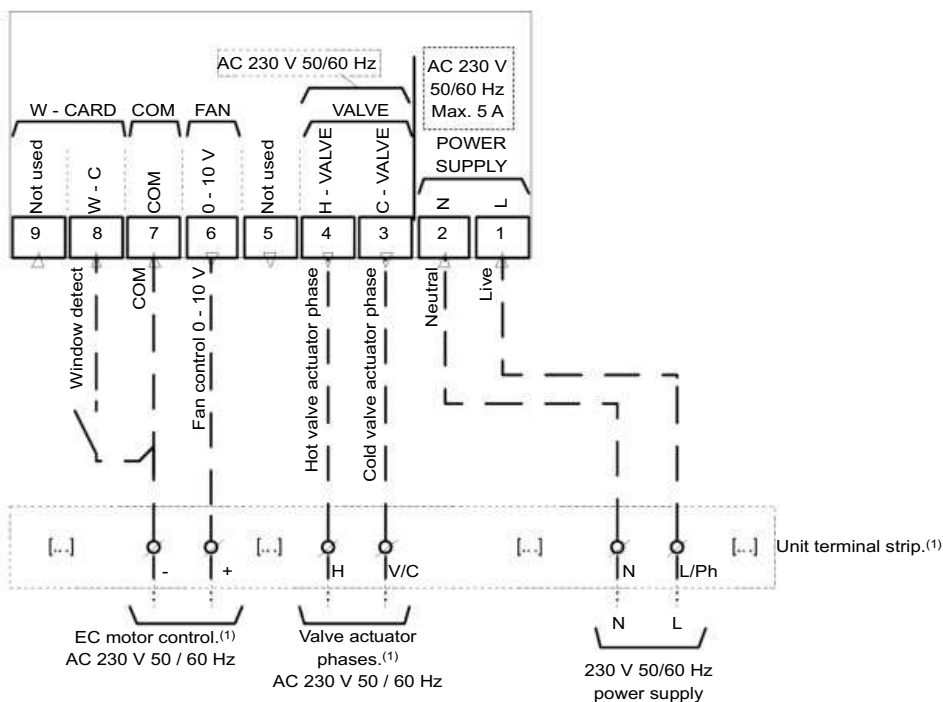
2T-EC WALL THERMOSTAT

2 TUBES



4T-EC WALL THERMOSTAT

4 TUBES



(1) See unit wiring diagram

V30

Electronic on/off
air or water control system



Wall-mounted thermostat
with potentiometer



Hotels version with
graduated potentiometer

*Customised performance
with a **low cost** solution*



Factory-recessed thermostat

GENERAL DESCRIPTION

The **V30** control system is a specific CIAT control system with an innovative design, dedicated to fan coil units, and developed using our expertise.

The V30 control system is a CIAT electronic control system devised to control a non-independent air handling terminal unit (ductable, cassette-type fan coil units...) for applications using 2 tubes, 2 tubes/2 wires, 4 tubes with recirculated air.

There are two types of V30 controls:

- Air control types, which act on the ventilation. This application has its drawbacks when used with vertical devices: the coil continually supplies cold water or hot water, which creates an

incorrect temperature reading at the intake.

- Water control types, which act on two-way valves or four-way valves with a 230 V electrothermic motor and ventilation (recommended to ensure comfort levels).

The V30 control is available in a built-in version factory-fitted in a fan coil unit to be mounted under a sill, or a wall-mounted version to be connected by the installer.

DESCRIPTION

The V30 control is an on/off type control, which can be configured for the chosen application on site using 8 switches. It has a potentiometer for setting the required temperature, which can be adjusted across a range of +/- 6 °C.

The wall-mounted version is available with a potentiometer graduated in degrees on request.

Two temperature setpoints: heating (19 °C) and cooling (factory-set at 25 °C).

The cooling setpoint can be configured on-site (25 °C or 23 °C).

The V30 has a selector to actuate three manual ventilation speeds.

The operating statuses of the thermostat are displayed using 3 LEDs: comfort/heating/cooling on.

The changeover is managed automatically by the thermostat via a water temperature sensor or via a signal from an external dry contact.

When heating or cooling is requested, the fan is triggered automatically at the speed selected by the user.




The V30 controls the heating via the electric heater in time-proportional mode, according to the ventilation speed selected, to prevent the comfort unit overheating.

The thermostat manages the fan delays required for unit shut down.

If the selector is in the off position, the thermostat keeps the room in which it is installed frost-free at a setpoint of 8 °C.

A dry contact input, which can be configured on-site, enables the thermostat to be automatically switched to economy mode (automatic shift of +/- 5 °C in the heating and cooling setpoints) or frost protection mode (heating setpoint +8 °C).


See our instruction manual for more detailed information.



| | | | MAJOR LINE COMFORT LINE COADIS LINE | MELODY 2 (1) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------|-------------------------------------------|--------------|
| CONTROL SYSTEM ASSEMBLY V30 electronic On/Off controller Terminal with potentiometer Wall-mounted or built-in version (without disconnect switch) No valve Return sensor (for the built-in version) Without valves and fittings |  | | | |
| V terminal: built-in, fitted and wired in the factory | V | | Code | |
| H terminal: wall-mounted, to be wired by the installer | | H | | |
| AIR REGULATION (without control valves, not recommended for vertical units*) | | | | |
| 2-tube system | | | | |
| • Heating only (or heating/cooling selection by external contact) | A30V | A30H | E038859 | |
| | | | • | |
| • Cooling only (or heating/cooling selection by external contact) | A32V* | A32H | E038862 | |
| | | | • | |
| • Automatic heating/cooling with changeover sensor (supplied separately on wall-mounted versions) | A34V* | A34H | E038866 | |
| | | | • | |
| 2-tube system + max 2000 W electrics | | | | |
| • Cooling + electrics** or Heating/cooling + electrics ** with water temperature sensor supplied in a kit. | A38V* | A38H | E038869 | |
| | | | • | |
| Supplement for electrical power from 2000 W to 4600 W Included on COADIS LINE 900 and MELODY 2 | | | E038806 | |
| | | | • | |
| Option and accessories | | | | |
|  | Return air temperature sensor for wall thermostat, supplied in a kit or changeover sensor kit | | L = 2.5 m | |
| | | | 7209243 | |
| | | | • | |
|  | Wall thermostat version with potentiometer graduation in degrees for hotels (to be stated when ordering) | | 7166782 | |
| | | | • | |
| | | | | |
| System start-up assistance | | | | |
| Travel expenses (mainland France) + Supplement for work per unit | | | E002003 | |
| | | | • | |
| | | | E002011 | |
| | | | • | |

(1) MELODY2: V30 not available with HEE motor

*Note: For vertical units equipped with this control principle, the effect of permanent radiation from the heat exchange coil on the sensor may prevent the control system from operating correctly. It is the customer's responsibility to find a suitable location to site this sensor to ensure the units operate correctly.

UNIT CODING FOR RECIRCULATED AIR APPLICATIONS ONLY

| VALVE KVS = 1.6 max - G1/2" Max flow rate 1000 l/h | | MAJOR LINE COMFORT LINE COADIS LINE | MELODY 2 (1) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| CONTROL SYSTEM ASSEMBLY V30 electronic On/Off controller Terminal with potentiometer Wall-mounted or built-in version (without disconnect switch) PN 16 valve with 230 V motor No return sensor (for the wall-mounted version) Without valves and fittings |  | | Two-way valve or four-way valve in a kit, supplied separately Not available with self-balancing 2-way valves[2] |
| V terminal: built-in, fitted and wired in the factory | V | | Code |
| H terminal: wall-mounted, to be wired by the installer | | H | • |
| WATER CONTROL | | | |
| 2-tube system | | | |
| • Heating only >1 two-way valve | E30V | E30H | E038432 |
| | | | • |
| > 1 self-balancing 2-way valve** | E30V | E30H | E048797 |
| | | | • |
| > 1 four-way valve* | E31V | E31H | E038467 |
| | | | • |
| • Cooling only >1 two-way valve | E32V | E32H | E038433 |
| | | | • |
| > 1 self-balancing 2-way valve** | E32V | E32H | E048798 |
| | | | • |
| > 1 four-way valve* | E33V | E33H | E038468 |
| | | | • |
| • Heating/cooling with 230 V pilot line relay >1 two-way valve | E34V | E34H | E051073 |
| | | | • |
| > 1 self-balancing two-way valve** (for use with the CIAT hydraulic module) | E34V | E34H | E048799 |
| | | | • |
| • Automatic heating/cooling with changeover sensor (supplied separately on wall-mounted versions) > 1 four-way valve* | E35V | E35H | E038484 |
| | | | • |
| 2-tube system + max 2000 W electrics | | | |
| • Cooling only + electrics* with deadband >1 two-way valve | E36V | E36H | E038629 |
| | | | • |
| > 1 self-balancing 2-way valve** | E36V | E36H | E048800 |
| | | | • |
| > 1 four-way valve* | E37V | E37H | E038645 |
| | | | • |
| • Heating/cooling + electrics with 230 V pilot line relay >1 two-way valve | E38V | E38H | E051074 |
| | | | • |
| > 1 self-balancing two-way valve** (for use with the CIAT hydraulic module) | E38V | E38H | E048801 |
| | | | • |
| • Automatic heating/cooling + electrics with changeover sensor (supplied separately on wall-mounted versions) > 1 four-way valve* | E39V | E39H | E038662 |
| | | | • |
| Supplement for electrical power from 2000 W to 4600 W Included on COADIS LINE 900 and MELODY 2 | | | E038806 |
| | | | • |

| 4-tube system | | | |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|------|------------------|
| > 2 x 2-way valves | E40V | E40H | E038688 |
| > 2 x self-balancing 2-way valves ** | | | E048802 |
| | | | E038710 |
| > 2 x 4-way valves* | E41V | E41H | |
| Compulsory supplements for valves with Kvs over 1.6 | | | |
| Price supplement for 1 x 3/4" 2-way valve Kvs 2.5 or Kvs 4 | MAJOR LINE T5 & T6 Comfort Line T4, T5 and T6 Coadis Line 900 Melody 2 | | E044008 |
| Price supplement for 1 x 3/4" 4-way valve Kvs 2.5 or Kvs 4 | | | E038407 |
| | | | |
| OPTION and ACCESSORIES | | | |
|  | Return air temperature sensor for wall thermostat, supplied in a kit or changeover sensor kit | | L = 2.5 m |
| | | | 7209243 |
| | | | |
|  | Wall thermostat version with potentiometer graduation in degrees for hotels (to be stated when ordering) | | 7166782 |
| | | | |
| | | | |
| System start-up assistance | | | |
| Travel expenses (mainland France) | | | E002003 |
| + | | | |
| Supplement for work per unit | | | E002011 |
| | | | |

(1) MELODY2: V30 not available with HEE motor

(2) Self-balancing two-way valves for MELODY2: please contact us

* Three-way valve(s) with bypass.

** Valves to be adjusted on-site / for change-over 2-tube operation: please contact us

For 4-tube units: Coadis Line 600: Cooling valve fitted / Heating valve supplied in kit

Coadis Line 900: Cooling valve and Heating valve supplied in kit

MajorLine: Cooling valve fitted / Heating valve supplied in kit

Comfort Line: Cooling and Heating valve fitted

V300

Proportional-Integral
V300 water control



Simplified access with the master/slave function

4 operating modes: complies with RT 2012

Quick and easy to upgrade on site

Centralised timer for managing multiple zones

CIAT concept and design

Eubac certified



The CIAT **V300** networked electronic control is designed for use with system-powered comfort units (ductable units, cassettes, AHUs etc.) in 2-tube, 4-tube, 2-tube + 2 wire applications using recirculated air.

It is available in a water control version with actuation of the 230 V thermo valves in time-proportional mode.

The V300 control is available in a factory-fitted, built-in comfort unit with a standard wall-mounting or a low wall-mounting version to be connected by the installer. The V300 control provides a master/slave function to manage the comfort units installed in meeting rooms or large spaces (e.g. open spaces, lobby).

A serial communication bus (3-wire) connects the master unit to its primary slave, then connects the primary slave to the secondary slave, and so on.

The master communicates the following information to the slaves: setpoints, air and water temperature, current mode, window switch state.

A wall-mounted radio-frequency terminal is available on sites which do not allow wiring (renovation projects etc.).

The installation can be managed using a centralised zone timer located in a distribution box.

DESCRIPTION

The V300 is a Proportional-Integral control. It controls the valve(s), the electric heater and the ventilation speeds. It has an option to select manual or automatic control of the ventilation speed.

All the control parameters are factory set, but these can be changed on site (using the LCD room terminal) to adapt to the constraints of individual sites.

The factory-set comfort temperatures are +19 °C in heating mode (adjustable) and +26 °C in cooling mode (adjustable) with a range of +/-4 °K (adjustable from +/-1 °K to +/- 9 °K).

The control automatically manages the CIAT HEE motors to optimise the energy performance of our comfort units.

The LCD room unit is used to adjust the temperature setpoint in the predefined range, to select on/off and the desired ventilation speed.

Two configurable inputs are used to control the window switch, if applicable, condensate pump faults, Economy mode, etc.

The controller has 4 operating modes: comfort/economy/frost protection/off.

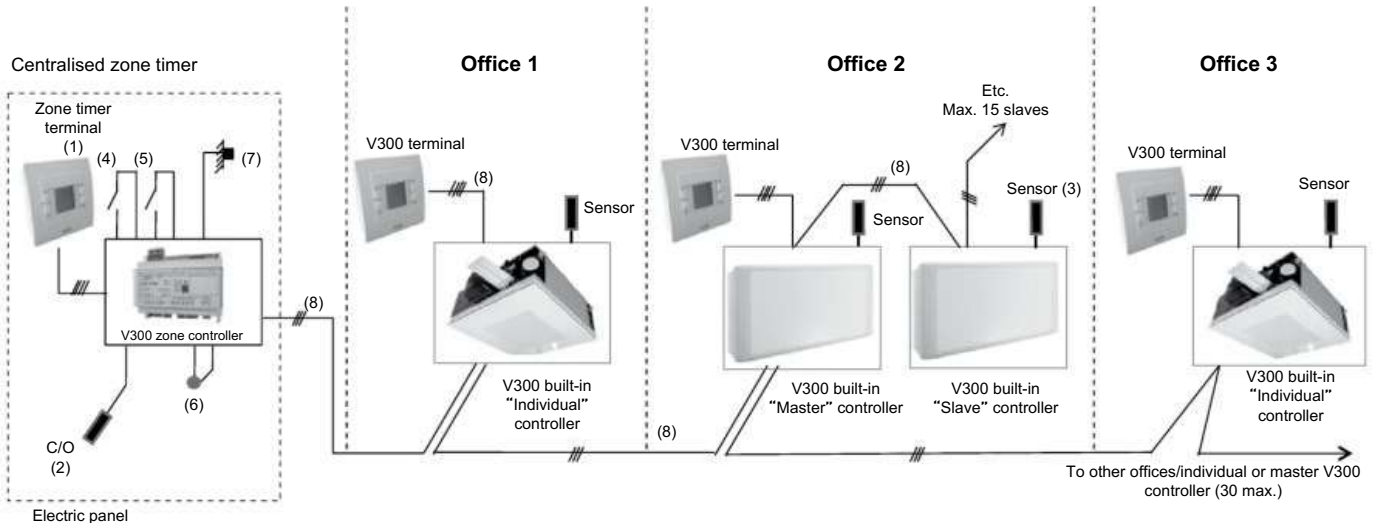
These modes – comfort (+19 °C in heating mode + 26 °C in cooling mode, adjustable), economy (+14 °C in heating mode + 28 °C in cooling mode, adjustable), frost protection (+8 °C) and off — can be activated via a dry contact input (to be combined, for example, with a commercial programmable timer or a key).

A centralised zone timer, to be located in a distribution box, may be used to automatically control the 4 operating modes of your installation over 6 self-contained zones.

See our manual for more detailed information.

CENTRALISED MANAGEMENT USING ZONE TIMER IN VERTICAL UNIT

This application enables automatic and centralised management of the 4 operating modes (comfort/economy/frost protection/off) for 30 master or individual comfort units with V300 control loop.



- (1) Zone timer terminal for daily/weekly time scheduling over 6 zones.
- (2) C/O: changeover sensor for 2-tube reversible heating/cooling application in the case of a central changeover.
- (3) Sensor on the return of slave units: two control options possible via parameters:
 - Sensor disabled: the slave controls using the temperature information measured by the master.
 - Sensor activated: the slave controls using its own return temperature information (in the case of large open plan offices).
- (4) Contact input to override mode to on/economy/frost protection or switch the installation off.
- (5) Bypassing the electric heaters on the comfort units.

- (6) 230 V output for automatic on/off control of ancillary equipment (AHU, extractors, etc.)
- (7) Outdoor temperature sensor option (activation limit for electric heaters on comfort units and/or advance heating restart).
- (8) RS485 communication bus: 2 shielded twisted pairs for connection between controllers and the V300 terminal.

See technical manuals N12-54 (V300 control) and N14-13 (V300 zone timer).

The comfort units are all equipped with V300 control.

A centralised timer, located in the electrical cabinet outside the zones, is used to manage all the comfort units throughout all (or part) of the building (distribution by floor or wings, etc.)

This timer includes an additional configured controller and a terminal connected to this controller.

This terminal is used to:

- Set the daily/weekly timer integrated in the module,
- Distribute all the comfort units across 6 self-contained zones,
- Determine, for each zone, the hourly management over 7 days of the 4 modes: comfort/economy/frost protection/off,
- Set, for each zone:
 - The heating and cooling comfort setpoints,
 - The heating and cooling economy setpoints,
 - Override the time slots per zone, or for the entire building,

The "zone controller" is used to globally manage:

- The setpoint shift range authorised locally in the zones,
- Adjustment of the comfort restart time on the wall-mounted terminal.

The comfort units, whether self-contained or controlled by a master/slave unit, have a wall-mounted terminal.

Users can:

- Change the setpoint, but only within the restricted range defined by the controller/zone timer,
- Switch to Off mode by pressing the button,
- Manually control the ventilation speeds,
- Restart comfort mode, if the time slot set on the timer is programmed to switch the installation to economy/frost protection/off mode. In this case, the restart time depends on the value authorised by the timer.


Optionally, the "zone controller" can manage the installation's changeover, enabling this function to be centralised and allowing 2-way valves to be used (e.g. for variable flow hydraulic circuits).

An "advance" function can be activated to restart heating in winter when the outdoor temperature is low.

Whenever the timer's "comfort switch" is operated, the comfort units restart from their middle setpoints and "auto speed" to ensure the installation is operating uniformly - the key to energy savings.

NOTE: Contact us for more detailed technical information.

UNIT CODING FOR RECIRCULATED AIR APPLICATIONS ONLY

| VALVE KVS = 1.6 max - /1/2" Max flow rate 1800 l/h | | | MAJOR LINE COMFORT LINE COADIS LINE | MELODY 2 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>CONTROL SYSTEM ASSEMBLY:</div> <div>Configured PI electronic controller, wired Wall terminal with display (7335303) Master-Slave management PN 16 valve with 230 V motor With return air sensor fitted Without valves and fittings</div> <div></div> | | | Auxiliary pan included, valves factory fitted Fuse disconnect switch included | Controller unit kit with disconnect switch included and 2-way or 4-way* valve kit supplied separately Self-balancing two-way valves not available (2) |
| Flush-mounted terminal, wired and fitted in factory | V | | CODE | |
| Wall-mounted terminal, to be wired by installer | | H | • | |
| WATER CONTROL (230 V THERMO VALVE) | | | | |
| 2-tube system | | | | |
| • Heating only | | | E048555 | |
| > 1 x 2-way valve | E300V | E300H | • | |
| > 1 x self-balancing 2-way valve ** (2) | | | E048556 | |
| | | | • | |
| > 1 x 4-way valve* | E301V | E301H | E048557 | |
| | | | • | |
| • Cooling only | | | E048555 | |
| > 1 x 2-way valve | E302V | E302H | • | |
| > 1 x self-balancing 2-way valve ** (2) | | | E048556 | |
| | | | • | |
| > 1 x 4-way valve* | E303V | E303H | E048557 | |
| | | | • | |
| • Automatic Heating/Cooling via 230 V pilot line (1) | | | E051075 | |
| > 1 x 2-way valve | E304V | E304H | • | |
| > 1 x self-balancing 2-way valve ** (2) | | | E049041 | |
| | | | • | |
| • Automatic Heating/Cooling with fitted changeover sensor | | | E048558 | |
| > 1 x 4-way valve* | E305V | E305H | • | |
| 2-tube system + 2000 W max. electrics | | | | |
| • Cooling only + electrics with deadband | | | E048559 | |
| > 1 x 2-way valve | E306V | E306H | • | |
| > 1 x self-balancing 2-way valve ** (2) | | | E048560 | |
| | | | • | |
| > 1 x 4-way valve* | E307V | E307H | E048561 | |
| | | | • | |
| • Auto Heating/Cooling + electrics via 230 V pilot line (1) | | | E051076 | |
| > 1 x 2-way valve | E308V | E308H | • | |
| > 1 x self-balancing 2-way valve ** (2) | | | E049042 | |
| | | | • | |
| • Automatic Heating/Cooling + Electrics with changeover sensor supplied fitted | E309V | E309H | E048562 | |
| > 1 x 4-way valve* | | | • | |
| Supplement for electrical power from 2000 W to 4600 W Included on COADIS LINE 900 & MELODY 2 | | | E038556 | |
| | | | • | |
| 4-tube system | | | | |
| > 2 x 2-way valves | E340V | E340H | E048563 | |
| | | | • | |
| > 2 x 2-way self-balancing valves** | | | E048564 | |
| | | | • | |
| > 2 x 4-way valves* | E341V | E341H | E048565 | |
| | | | • | |
| Compulsory supplements for valves with Kvs over 1.6 | | | | |
| Price supplement for 1 x 3/4" 2-way valve | MJL T5 & T6 | | E044008 | |
| Kvs 2.5 or 4 | CFLine T4-T5-T6 | | • | |
| Price supplement for 1 x 3/4" 4-way valve | CoadisLine 900 | | E038407 | |
| Kvs 2.5 or 4 | Melody 2 600 & 900 | | • | |
| System start-up assistance (recommended) | | | | |
| | | | E002003 | |
| | | | • | |
| Travel expenses (mainland France) + Supplement for work per unit | | | E002046 | |
| | | | • | |

(1) for 2T + central changeover operation with V300 zone timer: please contact us

(2) Self-balancing two-way valve for Melody2: please contact us

* 3-way valve(s) with bypass

** Self-balancing valves: to be adjusted on-site / for 2T changeover operation: please contact us




Note for 4-tube units with self-balancing valves:

Coadis Line 600: Cooling valve fitted / Heating valve supplied in kit

Coadis Line 900: Cooling valve and Heating valve supplied in kit

MajorLine: Cooling valve fitted / Heating valve supplied in kit

Comfort Line: Cooling valve and Heating valve fitted

| | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------|-------------------|-----------------------------------------------------|--|
| | | | | MAJOR LINE - COMFORT LINE - COADIS LINE MELODY 2 | |
| DEDUCTION FOR USER TERMINAL | | | | | |
| Deduction for not including user terminal with display | | | | E039994 | |
| | | | | | |
| OPTIONS and ACCESSORIES | | | | | |
|  | Wall-mounted user terminal with display/wireless/radio-frequency supplied with 2 x AAA/LR03 batteries | | | 7335308 | |
| | | | | | |
|  | Radio-frequency receiver kit | For MJ Line: | 7388624 | | |
| | | | | | |
| | | For CF Line and Melody 2 | 7388625 | | |
| | | | | | |
| | | For CD Line | 7388626 | | |
| | | | | | |
| <div>Zone timer with Zone Terminal to control 30 Master or individual Comfort units over 6 self-contained zones Integrated daily/weekly timer</div> <div></div> | | | 7335309 + 7335310 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| ZONE TIMER OPTIONS | Changeover sensor kit (for centralised CO) | | 7209243 | | |
| | | | | | |
| | Outdoor temperature sensor kit | | 7423427 | | |
| | | | | | |
| AIR REGULATION (without control valves, not recommended for vertical units *) | | | | | |
| 2-tube system | | | | | |
| • Heating only (or heating/cooling selection by external contact) | | A300V* | A300H | E048566 | |
| | | | | | |
| • Cooling only (or heating/cooling selection by external contact) | | A302V* | A302H | E048566 | |
| | | | | | |
| • Automatic Heating/Cooling with changeover sensor supplied fitted | | A304V* | A304H | E048567 | |
| | | | | | |
| 2-tube system + 2000 W max. electrics | | | | | |
| • Heating/Cooling + Electrics with changeover sensor supplied fitted | | A308V* | A308H | E048568 | |
| | | | | | |
| Supplement for electrical power from 2000 W to 4600 W Included on COADIS LINE 900 & MELODY 2 | | | | E038556 | |
| | | | | | |

Note*: For vertical units equipped with this control principle, the effect of permanent radiation from the heat exchange coil on the sensor may prevent the control system from operating correctly. It is the customer's responsibility to find a suitable location to site this sensor to ensure the units operate correctly.

V3000

PID electronic water control,
3-point, networked KNX



Radio frequency
remote control



Factory-recessed
thermostat



Wall-mounted
terminal with
potentiometer



Wall-mounted
terminal with
display

New generation

networked control

Variable flow **HEE function** control

CIAT concept & design

EuBac certification



GENERAL DESCRIPTION

The CIAT **V3000** networked electronic control is designed for use with system-powered air handling terminal units (fan coil units, cassettes, ductable units, etc.) in 2-tube, 4-tube, 2-tube + 2 wire applications using recirculated air.

It is available as a water control with actuation of 3-point 24 V valves which enable optimised control of the room temperature conditions.

Unlike the operation of a thermal actuator, this motor is used to stabilise the valve in any state of opening (from 0 to 100 %), according to the control system requirements.

The V3000 control is available in a built-in version factory-fitted in a fan coil unit to be mounted under a sill, or a wall-mounted version to be connected by the installer.

A radio frequency remote control is available on sites which do not allow wiring (renovation projects etc.).

The V3000 control system communicates via the KNX open protocol (ISO standard 14543-3) ensuring it is completely compatible with other products used on-site.

DESCRIPTION

The V3000 control is a Proportional-Integral-Derivative control. It controls the valve(s), the electric heater and the ventilation speeds. It is available with display terminals or a potentiometer enabling the setting of the indoor comfort conditions to be optimised.

The control settings (PID, deadband ventilation, etc.) are preset in the factory but can be adjusted using the room terminal with display.

Without connecting to a BMS, the V3000 can manage the master/slave function on a KNX bus (bus power supply provided as an accessory).

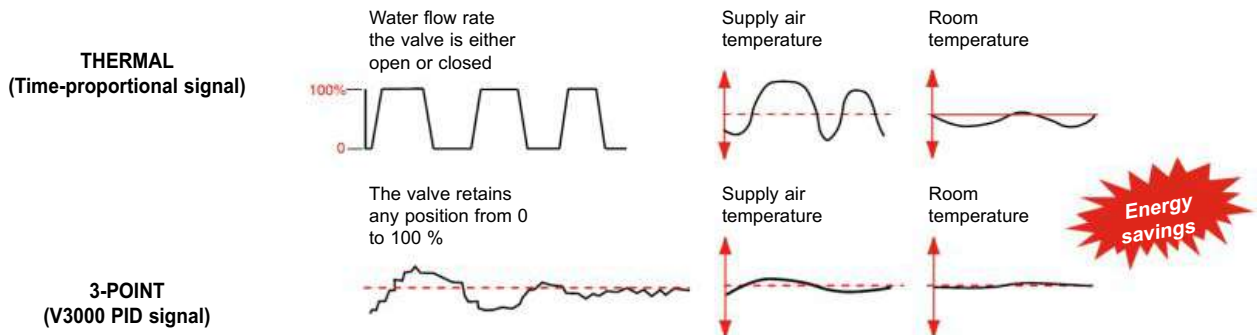
The V3000 control automatically controls the CIAT HEE concept to improve the energy performance of our fan coil units:

- Modulating output for actuating the fan speed according to ambient requirements,

Consult our manuals for more detailed information on the operation and range of configuration options for this control system.

KEY ADVANTAGES

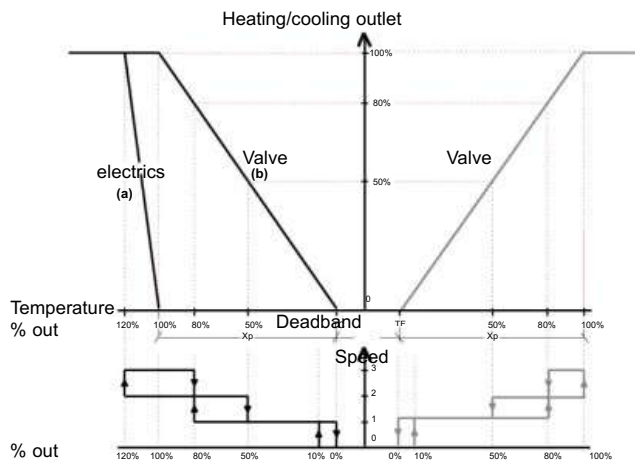
Modulating valve comparison



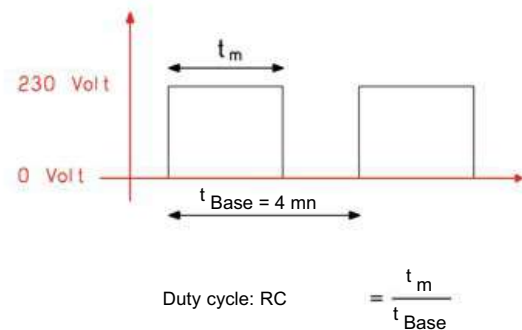
- A 3-point motor enables a valve to be actuated as close as possible to the control system requirements, by controlling its position between 0 and 100 % (water flow control). The terminal unit supply air temperature is more stable and the room temperature varies very little (variations cause discomfort).
- This temperature stability not only ensures optimal comfort, it also allows energy savings to be made.
- The 3-point motor uses no electricity when the thermal balance is struck, unlike the thermal actuator (return on investment on the energy savings made: 2 - 3 years).
- The service life of a 3-point motor is approximately twice as long as a thermal actuator.
- To facilitate its maintenance, the motor is equipped with a plug connector.

Electric heater management

- 2-tube 2-wire control algorithm (application: cooling + electrics or heating/cooling + electrics).



- Presence of hot water, operation of the electric heater as per (a).
- Absence of hot water, operation of the electric heater as per (b).



The controller acts simultaneously on:

- The gradual opening or closing of the control valve,
- The electric heater operating in time-proportional mode,
- The 3 fan speeds or switching the fan off.


Priority is given to low-speed operation (medium speed activated from 80 % valve opening). For heating/cooling + electric heater, priority is given to heating the hot water; the electric heater is only activated as an additional measure. If there is no hot water, the electric heater is triggered when there is a heating requirement. Note: the above algorithm supposes that the fan speed is selected automatically and that the ventilation is off in the deadband. It does not demonstrate the proportional characteristic. In reality, the control is Proportional-Integral-Derivative.

The variation in the duty cycle enables the electrical energy to be modulated thereby enabling a similar function to that of a progressive valve. If the user manually selects low speed, the duty cycle will be limited to 50 %. If the user selects medium speed, the duty cycle will be limited to 80 %. This limitation prevents overheating in the terminal unit. The controller can limit the duty cycle based on the outdoor temperature.

Timer

The V3000 control integrates a timer, as standard, which can be set from 30 mins to 24 hours (in 30-min increments). This function enables the user to manually start the room air conditioning as he or she enters. It will switch off automatically (e.g.: after four hours for morning and evening time slots).

CODING FOR UNIT FOR RECIRCULATED AIR APPLICATIONS ONLY

| VALVE KVS = 2.5 max. - G1/2" max. Max. water flow 1800 l/h | | MAJOR LINE COMFORT LINE COADIS LINE | MELODY 2 | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| CONTROL SYSTEM ASSEMBLY Configured PID electronic control, wired Display terminal PN 16 valve with 24 V 3-point motor Without valves and fittings V terminal: built-in, fitted and wired in the factory H terminal: wall-mounted, to be wired by the installer SH terminal: wall-mounted, to be wired by the installer + supply air limit temperature sensor. Not available with the radio-frequency remote control option. | |  auxiliary pan included, valves factory fitted Fuse disconnect switch included | Controller unit kit with disconnect switch included and 2-way or 4-way* valve kit supplied separately Self-balancing two-way valves not available (2) | |
| | V | H | Code | |
| | | SH | € | |
| WATER CONTROL (24 V 3-POINT VALVE) | | | | |
| 2-tube system | | | | |
| • Heating only > 1 two-way valve" | E3000V | E3000H | E047501 | |
| | | E3000SH(1) | • NOT AVAILABLE | |
| | | E3000H | E048803 | |
| | | E3000SH(1) | • NOT AVAILABLE | |
| > 1 x self-balancing two-way valve** (2) | E3001V | E3001H | E047521 | |
| E3001SH(1) | | • NOT AVAILABLE | | |
| • Cooling only > 1 two-way valve" | | E3002H | E047501 | |
| | | E3002SH(1) | • NOT AVAILABLE | |
| | E3002H | E048803 | | |
| | E3002SH(1) | • NOT AVAILABLE | | |
| > 1 x 4-way valve* | E3003V | E3003H | E047521 | |
| E3003SH(1) | | • NOT AVAILABLE | | |
| • Automatic heating/cooling with changeover sensor fitted >1 four-way valve* | | E3005H | E047561 | |
| | | E3005SH(1) | • NOT AVAILABLE | |
| | 2-tube system + electrics, max 2000 W | | | |
| | • Cooling only + electrics* with deadband >1 two-way valve | E3006V | E3006H | E047581 |
| E3006SH(1) | | | • NOT AVAILABLE | |
| E3006H | | | E048804 | |
| E3006SH(1) | | | • NOT AVAILABLE | |
| > 1 x self-balancing two-way valve** (2) | E3007V | E3007H | E047601 | |
| E3007SH(1) | | • NOT AVAILABLE | | |
| • Automatic heating/cooling + electrics with automatic changeover sensor fitted > 1 x 4-way valve* | | E3009H | E047641 | |
| | | E3009SH(1) | • NOT AVAILABLE | |
| | • Supplement for electrical power from 2000 W to 4600 W included on COADIS LINE 900 & MELODY 2 | | E038556 | |
| | | 4-tube system | | |
| > 2 x 2-way valves | | E3040V | E3040H | E047661 |
| | | | E3040SH(1) | • NOT AVAILABLE |
| | E3040H | | E048805 | |
| | E3040SH(1) | | • NOT AVAILABLE | |
| > 2 x self-balancing two-way valves*** | E3041V | E3041H | E047681 | |
| E3041SH(1) | | • NOT AVAILABLE | | |
| Compulsory supplements for valves with Kvs over 2.5 | | | | |
| Price supplement for 1 x 3/4" 2-way valve Kvs 4 | | Comfort Line T6 Coadis Line 932-934 Melody 2 size 9x | E038563 | |
| Price supplement for 1 x 3/4" four-way valve Kvs 4 | E038571 | | | |
| | | | | |
| System start-up assistance | | | | |
| Travel expenses (mainland France) + Supplement for work per unit | | E002003 | | |
| | | | | |
| | | E002046 | | |
| | | | | |

(1) Option not available for Major Line CV/CH, Coadis Line and Melody 2

(2) Self-balancing two-way valve for Melody 2: please contact us







* Three-way valve with bypass.

** Valves to be adjusted on-site / for 2-tube changeover operation: please contact us

Note for 4-tube units with self-balancing valves:

- Major Line: Cooling valve fitted / Heating valve supplied in kit
- Comfort Line: Cooling and heating valve supplied fitted
- Coadis Line 600 & 900: 2 valves supplied in a kit

Note: Price with wall-mounted user terminal with potentiometer identical to that with display terminal. Please specify the required type of terminal when ordering. Terminal with potentiometer only available wall-mounted

| | | MAJOR LINE | COMFORT LINE MELODY 2 | | COADIS LINE |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------|---------|-------------|
| DEDUCTION FOR USER TERMINAL | | | | | |
| Deduction for user terminal with display | | Code | E039097 | | |
| | | | | | |
| OPTIONS AND ACCESSORIES | | | | | |
|  | Wall-mounted terminal with potentiometer | Code | 7161243 | | |
| | | | | | |
|  | Blank wall-mounted terminal with sensor No user action possible / designed for public access buildings | Code | 7161242 | | |
| | | | | | |
|  | Radio-frequency remote control (1 remote control, controls up to eight V3000s located in a single zone) | Code | 7161247 | | |
| | | | | | |
|  | Radio-frequency receiver kit (1 receiver must be provided per unit) Supplied in a kit | Code | 7407452 | 7393361 | 7350539 |
| | | | | | |
|  | 320 mA KNX bus power supply for max. 64 x V3000 Refer to our manual for the specifications for setting up a KNX bus | Code | 7222279 | | |
| | | | | | |
|  | KNX timer for control of 60 x V3000 in comfort/economy mode in 8 zones in accordance with manual .09.38 | Code | 7361491 | | |
| | | | | | |

FRESH AIR CONTROL

Fresh air control

Save energy and optimise the air quality in office buildings



- **R1 pack with occupancy sensor for use in offices**
- **R+ pack with CO₂ sensor for use in meeting rooms**

These systems are designed for offices, meeting rooms and other spaces with varying occupancy rates.

They help to keep down energy costs caused by air changes by adjusting the flow of fresh air to actual room occupancy rates.

Since the treatment of fresh air accounts for up to 70% of the heating and cooling needs in office buildings, this adjustment in the flow of fresh air results in significant energy savings.

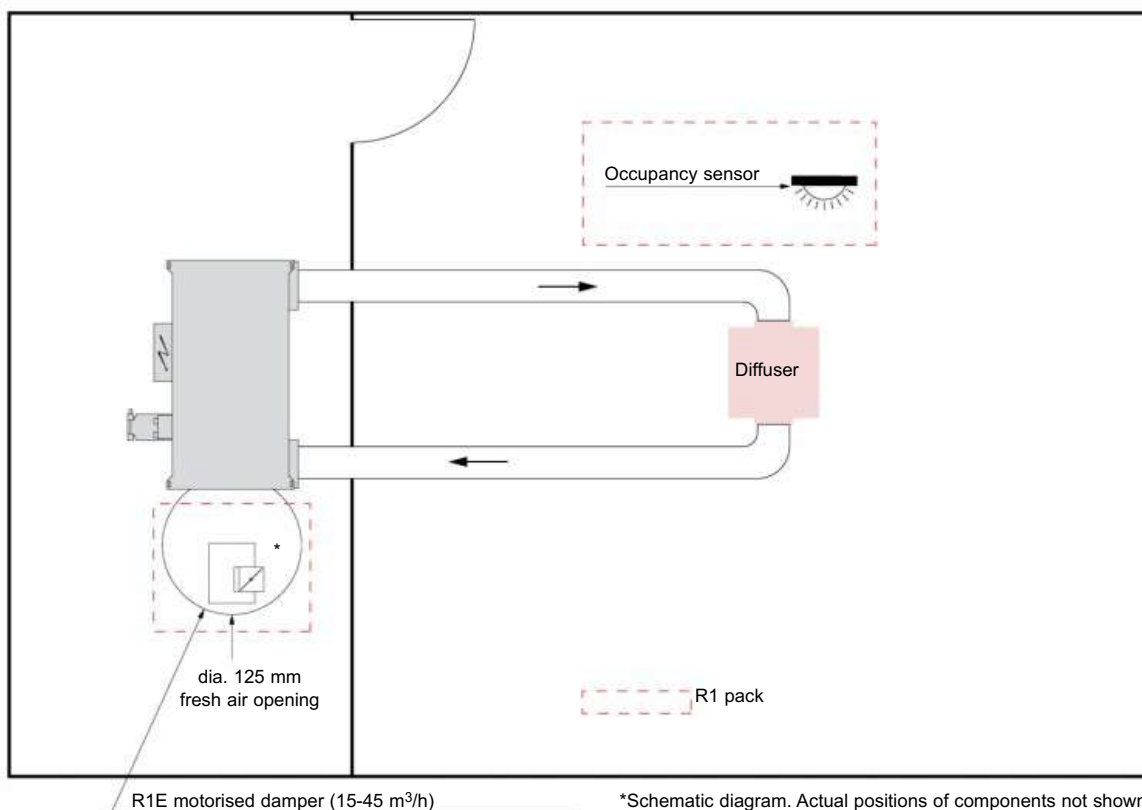
R1 PACK FOR OFFICES

Draw fresh air into rooms only when they are occupied:

- R1E motorised damper with dual path calibrated to fresh air and controlled by an occupancy sensor recessed in a ceiling tile:

- ✓ 1 minimum air flow to ensure clean, healthy air in the room.
- ✓ 1 nominal air flow when the room is occupied.

■ Example of a system with U model COMFORT LINE.

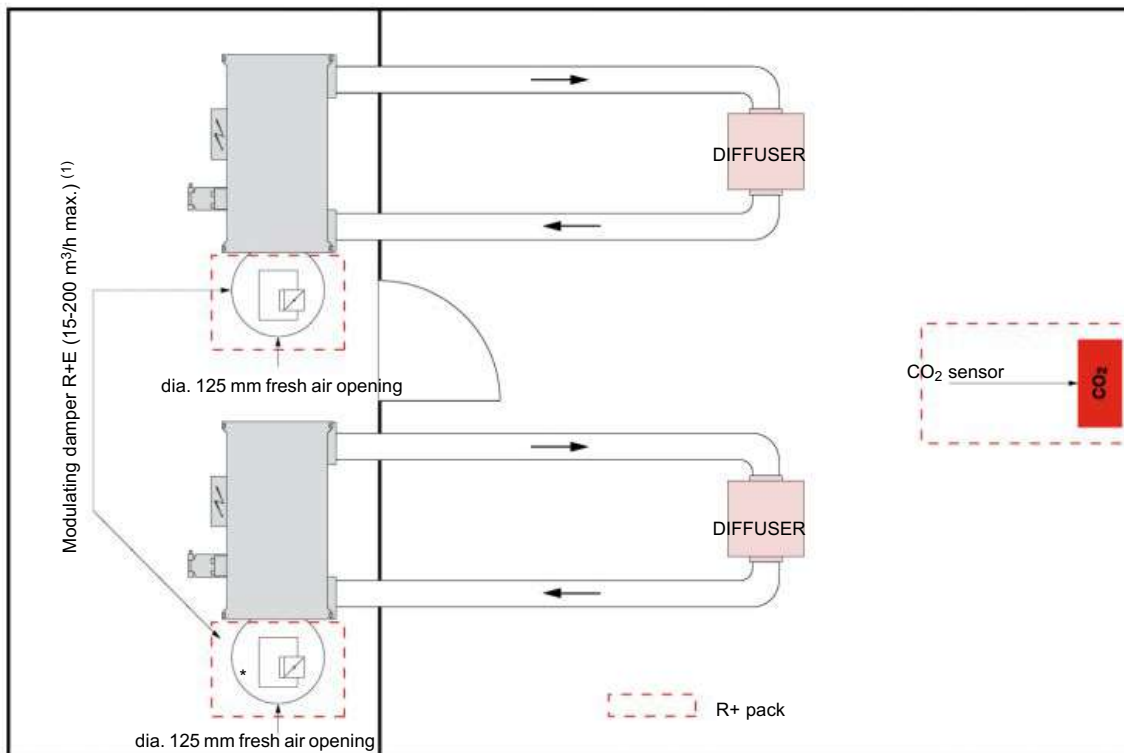


R+ PACK FOR YOUR MEETING ROOMS

Adjust the amount of fresh air according to the number of people present in your meeting rooms.

- The R+E modulating damper with automatically calibrated minimum flow adjusts the amount of incoming fresh air to the amount of CO₂, which varies with number of people inside a room, to maintain clean and healthy indoor conditions.

■ Example of a system using U model COMFORT LINE with a CIAT "COADIS COMBI" diffuser.



*Schematic diagram. Actual positions of components not shown.

General note regarding installation:

- The intake and exhaust fans on fresh air handlers must be fitted with a variable speed drive (pressure sensor on the air distribution duct).
- The fresh air temperature must be kept constant so as not to affect the control loop on the comfort units (risk of rapid drift in the ambient temperature).

Note **: the network balancing system is not supplied by CIAT (max. air flow for speed of 4.5 m/s.).

(1) Max. recommended fresh air flow: COADIS LINE: 90 m³/h/COMFORT LINE: 200 m³/h

| | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------|-------------------|
| R1 PACK For use in OFFICES Flush-mounted occupancy sensor + Motorised damper R1E dia. 125 mm as per data sheet N07127 | | Code | 7180644 + 7180646 |
| | | | |
| R+ PACK For use in MEETING ROOMS CO ₂ sensor 2 (one per four comfort units maximum) + 230/24 V transformer as per circuit diagram 7180642 Dia. 125 mm R+E damper + Modulating actuator (one per comfort unit) | | Code | 7180644 + 7180646 |
| | | Code | 7180644 + 7180646 |




CIAT

AIR TREATMENT SOLUTIONS

AIR HANDLING UNITS

NEW DFU P.149

 Up to 3 200 m³/h

AIR COMPACT™ P.159

 Up to 6 000 m³/h

FLOWAY® CLASSIC P.163

 500 to 18 000 m³/h

CLIMACIAT® P.173

 1 000 to 30 000 m³/h

AIRTECH™ P.187

 25 000 to 66 000 m³/h

AIRCLEAN™ P.191

 25 000 to 66 000 m³/h

AIR HEATER

HELIOTHERME® 4 000 P.195

 1 400 to 11 000 m³/h

CLOSE CONTROL UNITS

EXPAIR™ P.211

5 to 50kW  800 to 12 000 m³/h

MAGISTER® P.219

10 to 116kW  3 000 to 27 500 m³/h

SWIMMING POOL DEHUMIDIFIERS

JUNIOR™ BCP P.225

 4 to 15kg water/h

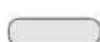
AQUAIR® PREMIUM BCP P.231


 56 to 74kg water/h

AQUAIR® BCP P.237

 22 to 74kg water/h

 Cooling

 F = Air flow in m³/h

 Dehumidification capacity

DFU

NEW

Ventilation unit with heat recovery

Plug & Play

Horizontal (false ceiling or floor mounted)

& Vertical (floor mounted) versions

Indoor or outdoor installations

Slim AHU ideal for tertiary applications installations

Cross flow high efficiency heat exchanger

EC fans (metallic)

Bypass free-cooling

Pre-parametrized controller embedded

Easy maintenance



Air flow capacity : up to 3200 m³/h

USE

Designed for spaces where fresh air exchange is required by regulations or simply to improve livability, **DFU** allows the recovery of up to 95% of the heat present in the expelled air.

The aluminum plate heat exchanger operates in counterflow mode, making it possible to maintain a nearly constant temperature gradient between the supply and return flows, thus guaranteeing a very high exchange efficiency. The heat exchanger's performance is Eurovent certified. Proper air ventilation is guaranteed by means of two ventilation sections with directly coupled motors of BLDC (BrushLess Direct Current) type with built-in inverter.

DFU range is suitable for installation in service sector spaces such as: cafes, offices, restaurants, meeting rooms, shops, school buildings, gyms, homes for the elderly, low energy buildings, and in general facilities where it is important to ensure proper air ventilation and minimize energy consumption.

2

RANGE

DFU range has two versions, horizontal (false ceiling or floor mounted) or vertical floor mounted. Range is able to provide from 500 to 3200 m³/h

DESCRIPTION



Casing Construction Features

Sandwich-type internal galvanized steel and external pre-painted galvanized steel panel, 30 mm thick, and rock wool insulation (fire reaction class A1). Thermal insulation section with rounded internal edge and pre-loaded nylon corners.

Thermal Transmittance: T3

Thermal Bridge class: TB3

Leakage: L1

Mechanical stability: D2

Filter bypass leakage: F9

Dampers

By-pass for free cooling

Damper HRS by-pass (Class 2 per EN 1751:2014). Thickness is 50 mm. Height depends on sizes (servomotors are optional).

Dampers fresh air and exhaust air (Class 2 per EN 1751:2014) Thickness is 50 mm std with servomotors (optional).

Filters

Filter M6 (ePM10 80%) return, EN 16890

High-efficiency filtering section on the fresh air Class F7 (EPM 1 50% ; EN 16890) (filter F9 EPM1 85% EN 16890 is optional) (the F9 filter is in place of the F7 filter).

Filter clogging pressure switches

Ventilation

"Direct driven" EC type

1 supply fan and 1 return fan (both metallic fans)

EC motor (electronically commutated motor with built-in variable speed control).

Heat recovery

Counterflow heat recuperator, with aluminium frame, aluminium heat exchanger block with selfdistanced fins and sealed at the ends in order to prevent contamination of the fresh air by the expelled air. Condensate collection and epoxy pre-coated black sheet drainage container. Minimum heat efficiency 73%, complete with internal bypass damper.

2 freeze protection systems driven by anti-freeze probe:

- Standard anti-freeze system : auto-unbalancing air flows
- Electric heater : accessory

DESCRIPTION

TECHNICAL DATA

| Configuration | | Horizontal | | Horizontal + Vertical | | | |
|---------------------------------------------|-----------|------------|-------|-----------------------|-------|-------|-------|
| Size | | 55 | 110 | 175 | 220 | 255 | 320 |
| Rated air flow | m³h | 550 | 1100 | 1750 | 2200 | 2550 | 3200 |
| Fans - EC | | | | | | | |
| Δps (max rpm) | Pa | 180 | 960 | 950 | 860 | 820 | 560 |
| Heat recovery units | | | | | | | |
| Winter operation (-10 °C, 90% / 20 °C, 50%) | | | | | | | |
| Wet efficiency | % | 87,7 | 88,3 | 90,3 | 90,3 | 92,7 | 92,0 |
| Power recovered | kW | 4,85 | 9,77 | 15,93 | 20,03 | 23,78 | 29,65 |
| Recovery eff. (EN 308) | % | 75,5 | 77,9 | 79,7 | 79,6 | 81,4 | 80,6 |
| T delivery | °C | 16,3 | 16,5 | 17,1 | 17,1 | 17,8 | 17,6 |
| Summer operation (35 °C, 50% / 26 °C, 60%) | | | | | | | |
| Power recovered | kW | 1,25 | 2,59 | 4,21 | 5,29 | 6,26 | 7,77 |
| T delivery | °C | 28,2 | 28 | 27,9 | 27,9 | 27,7 | 27,8 |
| Total power consumption | | | | | | | |
| Max electrical input | kW | 2,2 | 2,2 | 2,9 | | | |
| Max absobed current | A | 9,7 | 9,7 | 12,6 | | | |
| Fans insulation class | | F | | | | | |
| Power supply | V/Ph (Hz) | 230/1 | 230/1 | 230/1 | 230/1 | 230/1 | 230/1 |

Coils (option)

Water Coil(s). Option:

- Copper tubes, aluminium fins
- Internal coil heating for all models
- Internal coil cooling/heating only for 55 - 110
- External coil cooling / heating for 175 - 220 - 255 - 320
- Condensate drain pan in epoxy pre-coated black sheet
- 2 / 3 ways modulating valves (available as optional)

Direct expansion Coil. Option:

- Copper tubes, aluminium fins
- Internal coil cooling / heating for 55 - 110
- External coil cooling / heating for 175 - 220 - 255 - 320
- Condensate collection and epoxy pre-coated black sheet drainage container

Electric Heater Options:

- Wire electric heater with galvanized steel frame, complete with:
 - Antifreeze electric heater 2 steps;
 - Heating coil electric heater 2 steps or modulating;
 (both heater are equipped with manual and automatic reset, calibrated to intervene in case of overtemperature or low ventilation).

DESCRIPTION

Control



Electrical box for power, control and internal regulation of the unit, including

- Single-phase power supply (230/PH+N+PE) or Three-phase power supply (400/3PH+N+PE)
- Main switch
- Protected transformer /
- Protected 24v auxiliary line
- Protection of all electrical components by circuitbreaker
- External module wired with quick connector
- Software installed and parameterized in the factory
- Remote display (with built-in temperature probe)
- Configurable output (general alarm, filter alarm, high temperature alarm, summer/Winter)

Main functions of the control

Ventilation control:

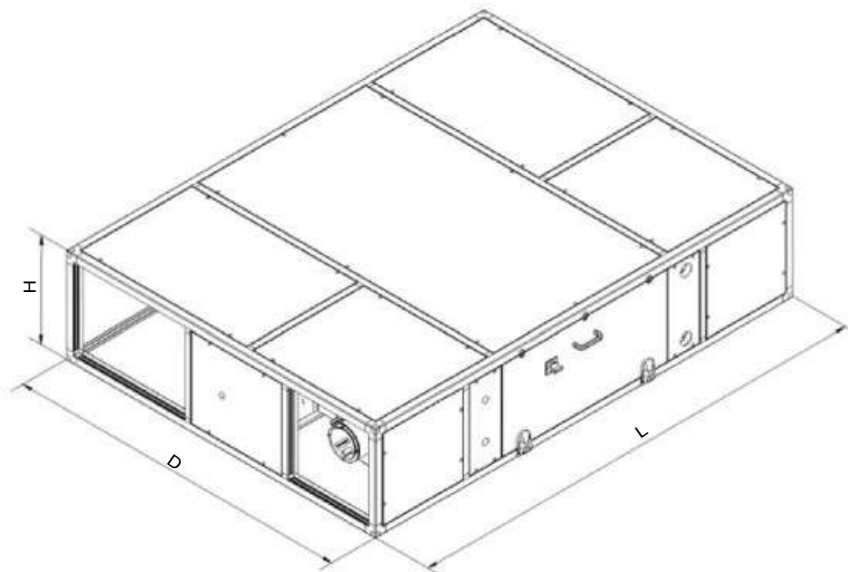
- Constant speed as STD;
- Variable speed based on constant flow rate (accessory);
- Variable speed based on constant pressure (accessory);
- Variable speed based on CO₂/VOC probe for IAQ control (accessory).
- Management of the by-pass damper
- Check for filter clogging
- Standard antifreeze function with flow unbalancing
- Optional antifreeze function with flow unbalancing and antifreeze electrical heater with 2 intervention steps
- Electric heating coil management with 2 steps;
- Modulating management of electric heating coil;

Safety thermostat of electric heater monitoring with alarm on the display

- Control software realized in 3 languages (French, Italian, English)
- Management of the water coils with modulating valves
- Management of the direct expansion coil with digital output signal or modulating analogic output signal
- Management of external dampers

CONFIGURATIONS

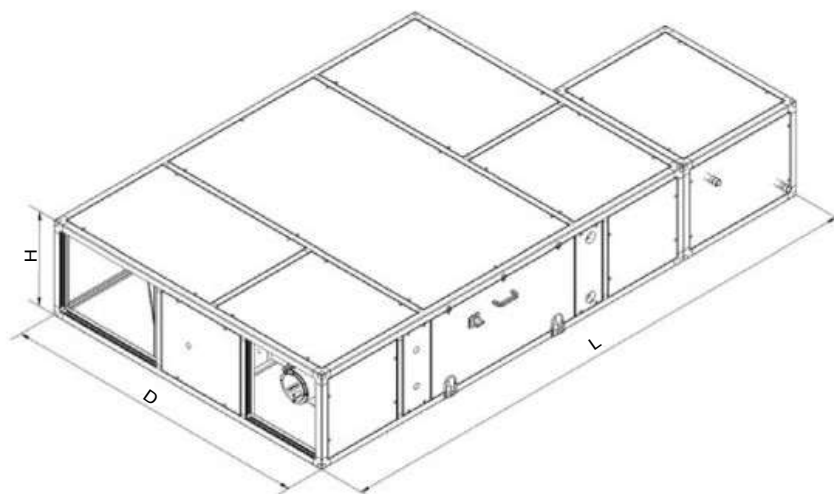
Horizontal



| Horizontal | | | | | | |
|-------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| DFU | 55 | 110 | 175 | 220 | 255 | 320 |
| Height (mm) | 520 ⁽¹⁾ | 520 ⁽¹⁾ | 520 ⁽¹⁾ | 520 ⁽¹⁾ | 600 ⁽¹⁾ | 600 ⁽¹⁾ |
| Length (mm) | 2300 | 2300 | 2300 | 2300 | 2600 | 2600 |
| Depth (mm) | 1260 | 1260 | 1705 | 1705 | 2000 | 2000 |

(1) Consider the additional height of feet = 100 mm, for outdoor application

Horizontal (with external module)



Accessories contained in the external module:

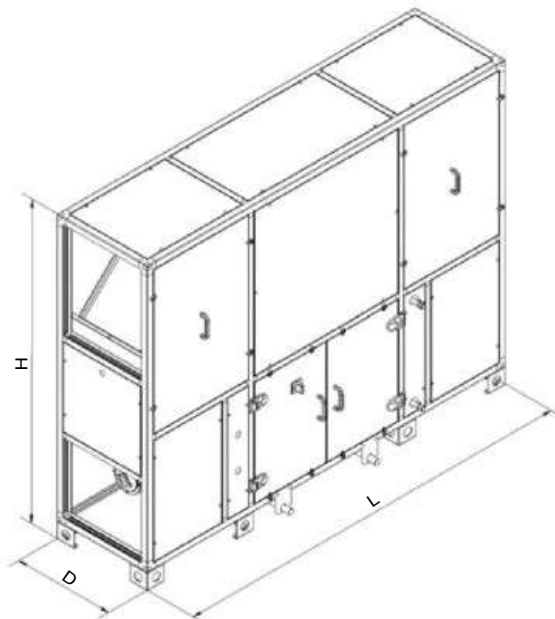
- Cooling coil (except for 55 and 110 sizes);
- Carbon filters.

| Horizontal + External module | | | | | | |
|------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| DFU | 55 | 110 | 175 | 220 | 255 | 320 |
| Height (mm) | 520 ⁽¹⁾ | 520 ⁽¹⁾ | 520 ⁽¹⁾ | 520 ⁽¹⁾ | 600 ⁽¹⁾ | 600 ⁽¹⁾ |
| Length (mm) | 2800 | 2800 | 3020 | 3020 | 3270 | 3270 |
| Depth (mm) | 1260 | 1260 | 1705 | 1705 | 2000 | 2000 |

(1) Consider the additional height of feet = 100 mm, for outdoor application
All the coils in sizes 55 & 110 are internal. No external module is required

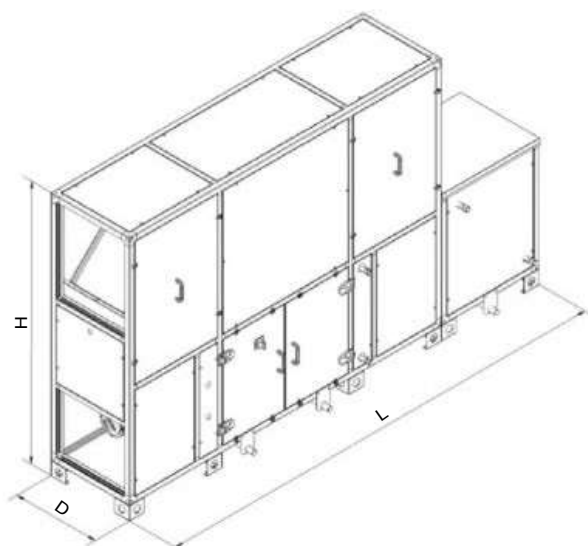
CONFIGURATIONS

Vertical



| Vertical | | | | |
|-------------|------|------|------|------|
| DFU | 175 | 220 | 255 | 320 |
| Height (mm) | 1805 | 1805 | 2100 | 2100 |
| Length (mm) | 2300 | 2300 | 2600 | 2600 |
| Depth (mm) | 580 | 580 | 600 | 600 |

Vertical (with external module)



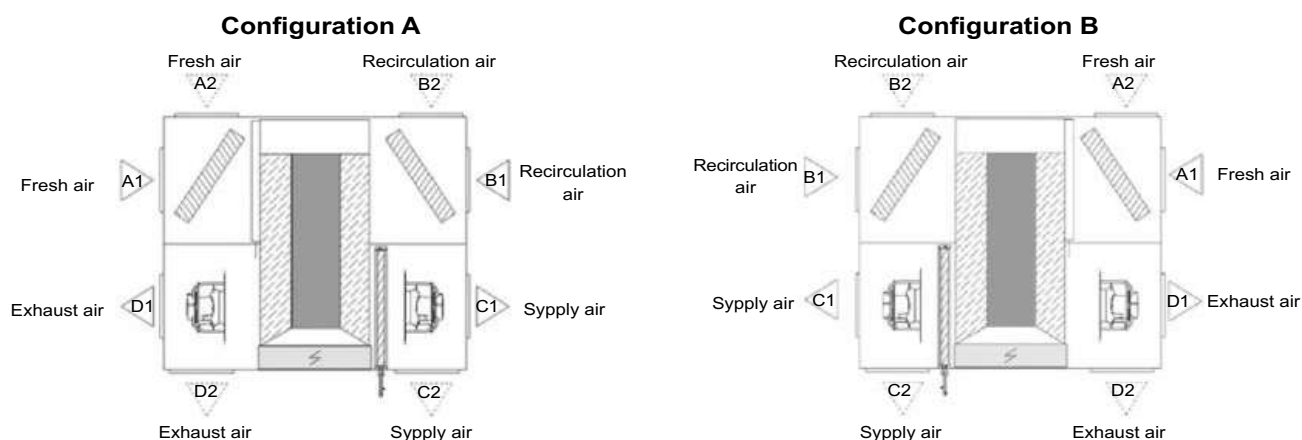
Accessories contained in the external module:

- Cooling coil;
- Carbon filters.

| Vertical + external module | | | | |
|----------------------------|------|------|------|------|
| DFU | 175 | 220 | 255 | 320 |
| Height (mm) | 1805 | 1805 | 2100 | 2100 |
| Length (mm) | 3020 | 3020 | 3270 | 3270 |
| Depth (mm) | 580 | 580 | 600 | 600 |

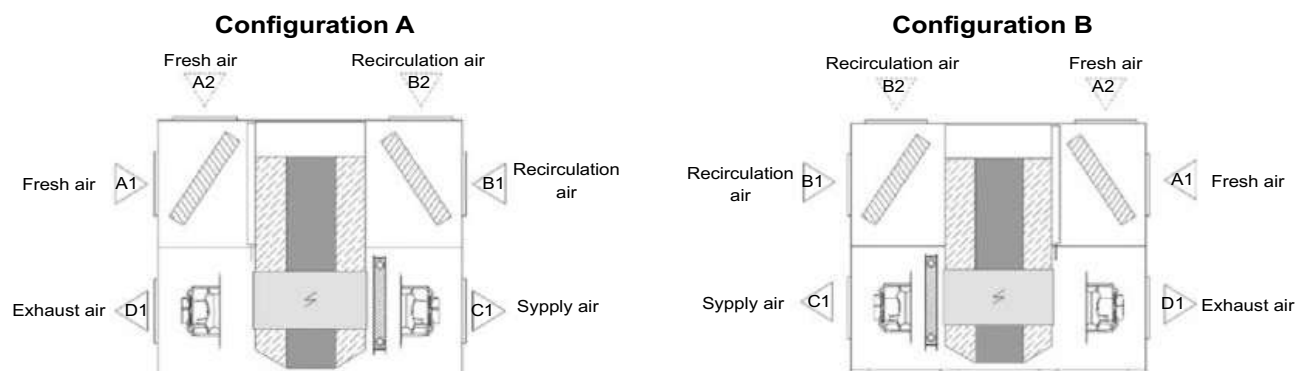
CONFIGURATIONS

Horizontal Configuration A&B



Positions A2/B2/C2/D2 are possible on-site instead of A1/B1/C1/D1 (interchangeable panels between positions 1 and 2)

Vertical Configuration A&B



The switching of A2/B2 (instead of A1/B1) are possible on-site, only if the unit is for indoor configuration.

For outdoor configuration A2/B2 have to be requested at the order because it is not possible to switch the position on-site.

CONFIGURATIONS & ACCESSORIES

1 - APPLICATION

Indoor installation
Outdoor installation

2 - LAYOUT

A orientation
B orientation

3 - AIR IN/OUT-TAKE POSITION

Standard openings (A1/B1/C1/D1)
Extraction opening - upside⁽¹⁾ (B2 in place of B1)
Outside air opening - upside⁽¹⁾ (A2 in place of A1)
Extraction and outside air opening - upside⁽¹⁾ (A2 and B2 in place of A1 and B1)

4 - VENTILATION EC

Standard. EC - constant speed
EC - constant airflow
EC - constant pressure
EC - quality control (only with IAQ probe (CO₂/VOC))

5 - BY-PASS MANAGEMENT

Standard - Absent (only arrangement for servomotor installation)
ON/OFF servomotor (installed, wired and managed)

6 - FILTRATION

Standard - F7 Filter (supply air) / M6 filter (return air)
F9 filter (supply air) / M6 filter (return air)

7 - ANTIFREEZE FUNCTION

Standard – by flow rates unbalance
Antifreeze electric heater - 2 step

8 - HEATING COIL OR ELECTRIC HEATER (INTERNAL)

Standard - No
Water coil - heating
Electric heater - 2 step
Electric heater - modulating (+ NTC fixed point control outlet)

9 - CONTROL PANEL

Standard - Remote display

10 - CONTROLLER LANGUAGE

Italian
English
French

(1) Vertical outdoor version only

CONFIGURATIONS & ACCESSORIES

11 - COOLING OR MIXED USE COIL

Standard - No

Water coil - cooling

R410A coil - cooling

Water coil - mixed use

R410A coil - mixed use

12 - WATER COILS CONTROL

Standard - No

2 ways valve 0-10V (+ NTC fixed point supply control)

3 ways valve 0-10V (+ NTC fixed point supply control)

13 - ADDITIONAL PURIFICATION SECTION

Standard - No

Additional active carbon filter - supply air (external module)

14 - STRUCTURAL ACCESSORIES

Standard - No

Rain caps⁽²⁾

Dampers on fresh and exhaust air openings (ON/OFF) with servomotor

Circular connections

Rain caps + Circular connections⁽²⁾

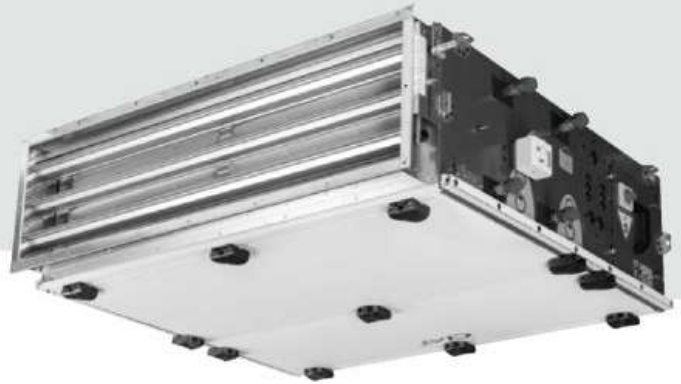
Rain caps + dampers on fresh and exhaust air openings⁽²⁾

(2) Outdoor version only

Note : For AISI304 panel material, please contact manufacturer

AIR COMPACT™

Air handling unit



The **modular**
Ultra-Slim AHU is guaranteed to provide the perfect solution
Ideal for a **compact** installation
Available in a **single-flow**
and dual-flow version

Air flow capacity: **up to 6000 m³/h**
Operating pressure: **up to 1000 Pa**

Use

The **AIR COMPACT™** air handling unit is a modular ventilation unit, which can be configured to meet all your requirements whilst complying with current standards.

It is available in a single-flow or dual-flow version.

The AIR COMPACT™ AHU is used for fresh air introduction or compensation, air recirculation, and air extraction using its filtration, heating, cooling, recovery and ventilation functions.

Three versions of the AIR COMPACT™ AHU are available, ensuring it is easy to integrate:

- horizontal ceiling-mounted version, accessed from underneath,
- horizontal floor-mounted version, accessed from the top,
- vertical wall-mounted version, accessed via the front.

It is available in 3 sizes to provide a perfect match for your requirements, handling air flow rates from 1000 to 6000 m³/h.

At 400 mm thick, it is ultra compact and can be fitted into the tightest of spaces.

This range is particularly well-suited to tertiary buildings:

- administration, offices,
- education facilities, libraries, community centres,
- cafés, hotels, restaurants,
- shopping centres, nursing homes, healthcare facilities,
- collective housing

All installations requiring ventilation.

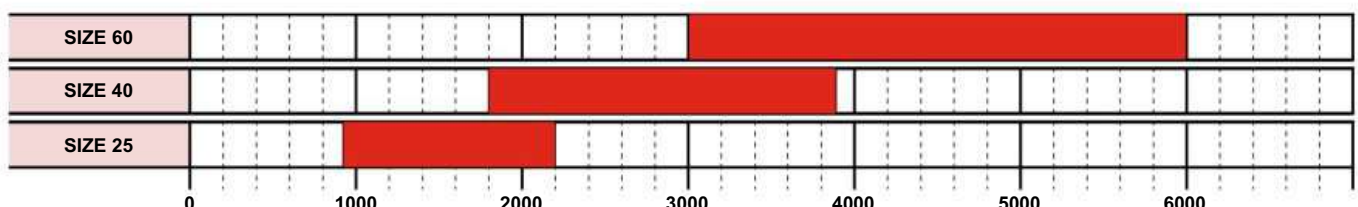
2

RANGE

The AIR COMPACT™ range comprises three sizes from 1000 to 6000 m³/h.

There are four standardised lengths of module, adapted to the selected configuration and options.

The AHU will therefore comprise one or several modules, depending on your selection; 610, 830, 1100 and 1400 mm modules.



DESCRIPTION

Casing

Double-skin panels made from galvanised sheet steel, 0.8 mm thick
 External panels made from galvanised steel, precoated in RAL 7035 and RAL 7024
 M0/A1 class fire insulation
 Mineral wool, thickness 25 mm

Connection and utilities

Hydraulic connection possible on the right or left (to be specified when ordering).

The access doors are positioned according to the choice of model:

- horizontal ceiling-mounted model: access doors located underneath the unit,
- horizontal floor-mounted model: access doors located on top of the unit,
- vertical wall-mounted model: access doors on the front of the unit.

Damper

Uncased external damper

Class 1 leakage as per EN1751; class 3 dampers available as an option

Optional servomotor

Filtration

Filter cells with universal dimensions (287x592 mm)

Three filtration stages possible Pressure tapping as standard on each filtration stage

Pressure switch and pressure gauge available as an option

| Filters | Efficiency EN779:2012 | Efficiency ISO16890 |
|----------------------|-----------------------|---------------------|
| Compact filters | G4 | Coarse 65% |
| | M5 | ePM10 50% |
| | F7 | ePM1 60% |
| | F9 | ePM1 90% |
| Flexible bag filters | M6 | ePM10 65% |
| | F7 | ePM1 60% |
| | M6 | ePM10 70% |
| Rigid bag filters | F7 | ePM1 60% |
| | F8 | ePM1 70% |
| | F9 | ePM1 80% |

Ventilation

"Plug fan" type direct drive fan motor assembly.

1 or 2 fans for each air flow rate, depending on the size and conditions.

Heat exchange coil

■ Hydraulic coil

Copper tubes, aluminium fins

Choice of 3 coil sizes for each AHU size

Antifreeze thermostat with optional automatic reset

Stainless condensate drain pan

■ Evaporator coil

Copper tubes, aluminium fins

Choice of 3 coil sizes for each AHU size

Stainless condensate drain pan

■ Electric heater

Shielded resistors in scrolled finned tubes

Two high temperature safety thermostats: one automatic and one manual reset

Anti-radiation screen, depending on the upstream and downstream elements

| Output power supplied by the electric heaters | | | |
|-----------------------------------------------|------------------|------------------|------------------|
| AHU size | Main casing | Additional box | |
| | 2 stages | 2 stages | 4 stages |
| 25 | 2 x 7.5 = 15 kW | 2 x 7.5 = 15 kW | 4 x 7.5 = 30 kW |
| 40 | 2 x 12 = 24 kW | 2 x 12 = 24 kW | 4 x 12 = 48 kW |
| 60 | 2 x 16.5 = 33 kW | 2 x 16.5 = 33 kW | 4 x 16.5 = 66 kW |

Two motor technologies are available:

AC motor with optional frequency inverter.

EC motor (electronically commutated motor with built-in variable speed control).

| AIR COMPACT™ SIZE | | 25 | 40 | 60 |
|---------------------------------------|-----------------|----------------------------------------------------------------|--------|------|
| Rated air flow rate (m³/h) | | 2000 | 4000 | 6000 |
| Number of fans for each air flow rate | | 1 | 1 or 2 | 2 |
| AC motors* | Output per unit | 0.55 kW / 1.1 kW / 1.4 kW | | |
| | Power supply | 3~230/400 V (or 1~230 V with the single-phase inverter option) | | |
| EC motors | Output per unit | 1 kW | | |
| | Power supply | 3~400 V - 50/60 Hz | | |

* Requires a frequency inverter

Accessories and options

2-channel mixing box: 3 air flow positions available

3-way mixing box

Angled or straight plenum

Sound attenuator

Adjacent plate heat exchanger (available on sizes 25 and 40)

Control system

Controls (Option)

- Electrics box for power, control and regulation built into the unit, comprising as standard:
 - compatibility with a 3~400 V + E - 50 Hz power supply
 - main disconnect switch
 - 24 V transformer with primary and secondary protection
 - protection and control of all electrical components by a circuit breaker and contact switch

- surface-mounted electric heater unit, or delivered unassembled
- control via a PLC, preinstalled with a program developed by CIAT
- hand-held cabled micro-terminal
- fault summary contact
- ventilation actuated at a constant flow rate, constant pressure, or via a CO₂ sensor
- pressure and temperature sensors, depending on the selection

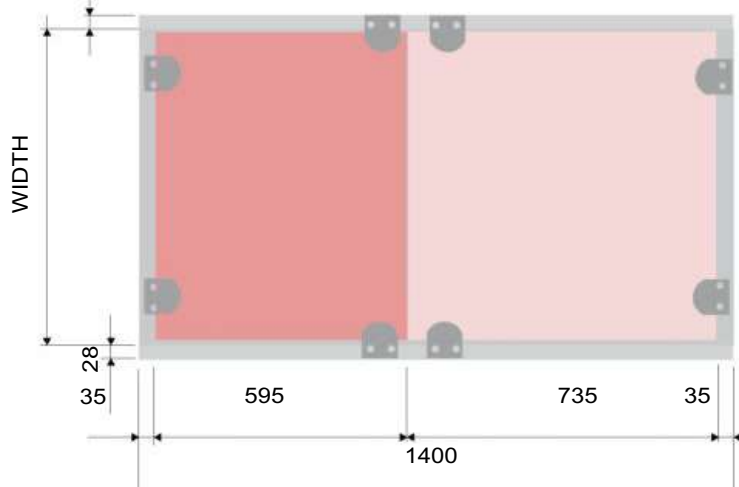
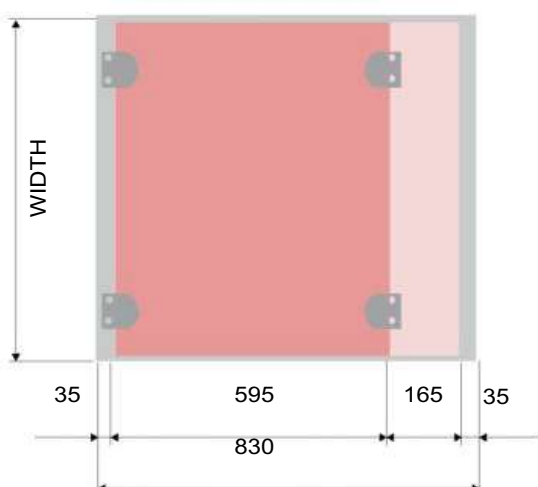
| AIR COMPACT™ Control functions available | | | Included | Option |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------|--------|
| Timer | Option to define up to 4 weekly programs and 4 annual programs. The programs available are: temperature and ventilation in eco/comfort mode, frost protection, night cooling | | x | |
| Human Machine Interface | LCD screen | | x | |
| | Room remote control with special interface for the end user | | | x |
| Remote actuation and CMS | Communication Protocols | MODBUS RS485 (RTU) | x | |
| | | MODBUS IP | | x |
| | | BACnet IP | | x |
| | | KNX | | x |
| | | LON | | x |
| Filtration | Monitoring filter fouling (via analogue sensor or pressure switch depending on the number of filter stages) | | x | |
| Ventilation management | Maintaining the air flow rate with compensation for filter fouling | | x | |
| | Single zone | Constant volume air flow rate | x | |
| | | Variable air volume via the CO ₂ sensor | | x |
| | Multi-zone | Constant supply air pressure (for installations equipped with ducted variable flow louvres) | | x |
| Temperature management | Control of the supply air temperature | | x | |
| | Control of the return air or ambient temperature | | | x |
| | Free-cooling (depends on the machine configuration) | | | x |
| Direct expansion coil | On/off output for outdoor unit in cooling only mode | | x | |
| Heat recovery unit anti-icing | Via DP control on the exhaust air | | | x |
| Protection of the internal components | Checking the heat protection for the motors | | x | |
| | Checking the temperature and pressure sensors | | x | |
| | Alarm if the operating limit thresholds are exceeded | | x | |
| Auxiliary contacts | Inputs (dry contacts) | Fire fault | x | |
| | | Remote On/Off | x | |
| | | Electric heater load shedding | x | |
| | | External humidifier fault | x | |
| | Outputs (dry contacts) | AHU operating feedback | x | |
| | | Maintenance fault summary | x | |
| | | Danger fault summary | x | |
| | | Direct expansion unit On/Off | x | |

SPACE REQUIREMENTS AND DIMENSIONS:

| DIMENSIONAL SPECIFICATIONS | | | |
|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------|------------|
| AHU size | 25 | 40 | 60 |
| External dimensions of the single-flow modules (width x height in mm) | 750 x 400 | 1310 x 400 | 1880 x 400 |
| Casing length (in mm) | 610 – 830 – 1100 – 1400: Four standardised lengths of casing, automatically adapted to the components and options selected | | |

610 mm module ▶ 1 x 540 mm door
830 mm module ▶ 1 x 595 mm door

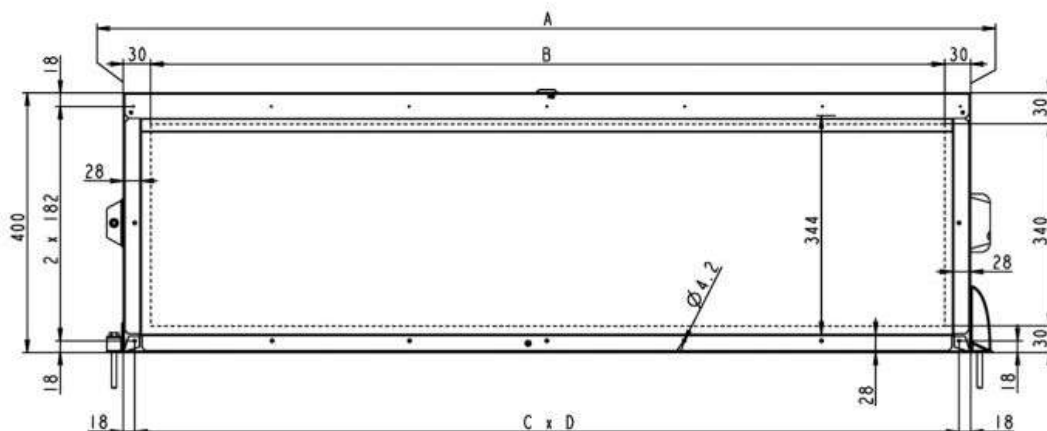
1100 module ▶ 1 x 595 mm door + 1 x 435 mm door
1400 module ▶ 1 x 595 mm door + 1 x 735 mm door



AIR CONNECTION

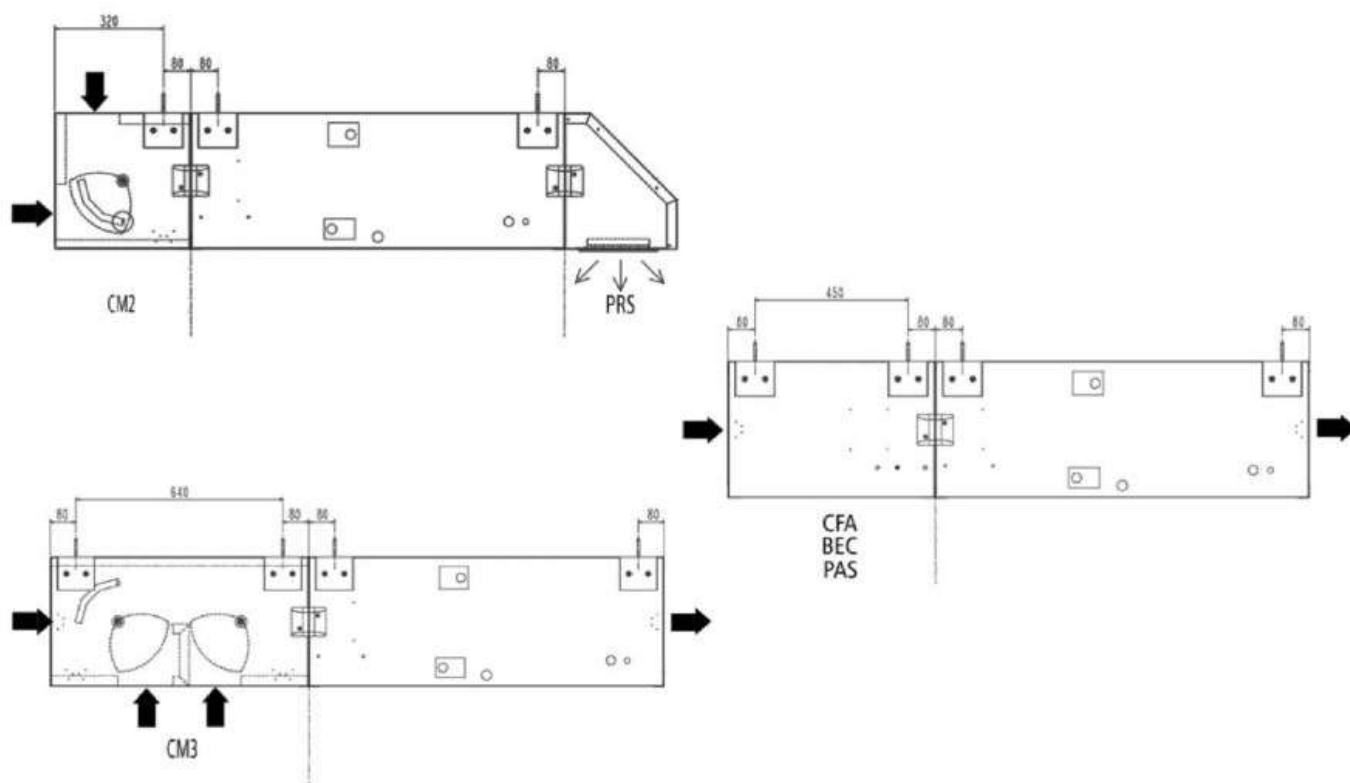
■ Air connection

Air connection AHU intake - AHU discharge - Mixing and plate heat exchanger



| | A | B | C | D |
|-----------------|------|------|---|-------|
| AIR COMPACT™ 25 | 750 | 690 | 3 | 238 |
| AIR COMPACT™ 40 | 1310 | 1250 | 6 | 212,3 |
| AIR COMPACT™ 60 | 1880 | 1820 | 8 | 230,5 |

■ Examples of compositions



FLOWAY®

Air handling unit



Plug & Play AHU with onboard control,
Energy class A+ across the entire range,
High efficiency heat recovery unit,
EC fan motor assembly, high performance

Air flow rate : 500 to 18 000 m³/h

| Specifications | Class |
|----------------------|-------|
| Mechanical strength | D2 |
| Airtightness | L1 |
| Filter bypass leak | F9 |
| Thermal transmission | T3 |
| Thermal bridge | TB2 |



USE

The **FLOWAY®** dual-flow air handling unit is a PLUG & PLAY ventilation unit equipped with a highly efficient heat recovery unit with plug fans and high performance EC motors, designed to meet all the requirements of recent ecodesign regulations.

Unit supplied ready to use, prewired, preprogrammed in the factory and supplied with a remote control.

It draws clean, fresh air indoors using, on average, 80% less energy than that needed for air conditioning (cooling and heating).

The **FLOWAY®** AHU range is particularly well-suited to the following applications:

- Administrative buildings, Offices
- Shopping Centres
- Education facilities, Libraries, Community centres
- Nursing homes, Healthcare facilities
- Cafés, Hotels, Restaurants
- Collective housing

→ All facilities where ventilation is required.

High energy-efficiency heat recovery unit

Two types of high efficiency heat recovery units are available based on the CTA **FLOWAY®** model:



"CONTRA FLOW" plate heat exchanger with bypass (Classic PHE & Vertical PHE models)

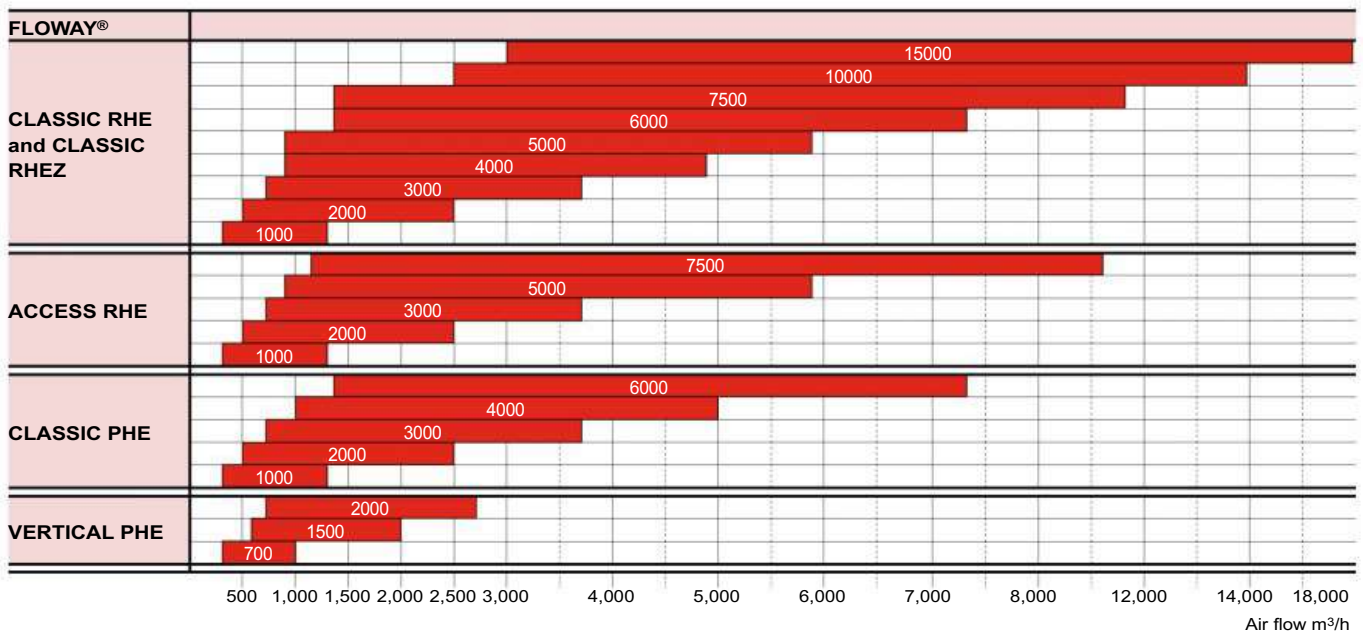


Rotary heat exchanger (Classic RHE-RHEZ and Access RHE models)

Year-round optimal heat recovery

Classic RHEZ: With purge sector as standard

AIR FLOW RANGE



DESCRIPTION

■ Casing

- Double-skin panels made from steel sheet metal, galvanised on both sides, thickness 0.8 mm.
- External panels made from galvanised steel, precoated in RAL7035.
- M0/A1 insulation fire rating.
- Mineral wool, thickness 50 mm.

■ Filtration

- M5, F7, F9 filters.
- Filter cells kept compressed by a special system to ensure a leaktight seal.
- Classic PHE & RHE-RHEZ, Vertical PHE models: fouling value monitored by analogue sensor and displayed by controller.
- Access RHE model: pressure switch control on each air flow. Pressure switch status displayed by controller.

■ Ventilation

- "Plug Fan" type direct-drive fan.
- Plug fan driven by an electronically commutated motor with built-in speed control.

■ Heat recovery units

- "Contra Flow" plate heat exchanger equipped with a motorised bypass (Vertical PHE and Classic PHE models).
→ Efficiency greater than 80% across the range of air flows.
- Rotary heat exchanger equipped with rotation speed control (Classic RHE model).
→ Efficiency greater than 80% at nominal flow rate.
- Purge sector as standard (Classic RHEZ model)
- Constant speed rotary heat exchanger (Access RHE model).
→ 80% efficiency at nominal flow rate.

■ Hydraulic coil

- Copper pipes, aluminium fins.
- Coil can be integrated or additional (cased).
- With the accessories fitted: 2- or 3-way control valve and 0-10 V actuator controlled by FLOWAY® Control for precise setpoint maintenance.
- Stainless steel condensate drain pan (cooling coil or mixed coil only).

■ Electric heaters

- High-limit safety thermostats with automatic and manual reset.
- 2- or 3-stage control based on the selected option, controlled by the FLOWAY® Control.

■ DX coil

- Copper tubes, aluminium fins.
 - For reversible heating/cooling operation.
 - Internal space optimised for VRV units.
 - Condensate drain pan in stainless steel.
- List of outdoor units optimised for FLOWAY® Access available on request.

■ Electrics box

- Electrics box for power, control and regulation built into the unit, comprising as standard:
 - Power supply (3-Ph/400 V/Earth or 1-Ph/230 V/Earth).
 - Main disconnect switch.
 - Protected transformer.
 - Protection and control of all electrical components by a circuit breaker.
 - Peripheral options and power terminal block.
 - Factory-programmed PLC control.
 - Hand-held cabled micro-terminal.
 - Fault summary contact.
 - 3 temperature sensors.
 - 4 pressure sensors (2 pressure sensors and 2 pressure switches on the Access model).

■ Accessories

- Damper formed of airfoil blades, powered by a TOR servomotor with spring return.
- Flexible sleeve.
- Adjustable feet.
- CO₂ air quality sensor.
- Roof.
- Canopy.
- Mixing section (Classic RHE model).

POWER SUPPLY

| FLOWAY® CLASSIC PHE and CLASSIC RHE-RHEZ | | | |
|------------------------------------------|--------------------------|-------------------|------------------------------------|
| Size | Nominal flow rate (m³/h) | Rated current (A) | Supply type |
| 1000 | 1000 | 5,8 | 1~230V - 50Hz 3~400V - 50Hz |
| 2000 | 2000 | 4,2 | |
| 3000 | 3000 | 7,0 | |
| 4000 | 4000 | 8,6 | |
| 5000 | 5000 | 8,6 | |
| 6000 | 6000 | 10,0 | |
| 7500 | 7500 | 10,0 | |
| 10000 | 10000 | 19,0 | |
| 15000 | 15000 | 24,6 | |

| FLOWAY® ACCESS RHE | | | |
|--------------------|--------------------------|-------------------|------------------------------------|
| Size | Nominal flow rate (m³/h) | Rated current (A) | Supply type |
| 1000 | 1000 | 5,4 | 1~230V - 50Hz 3~400V - 50Hz |
| 2000 | 2000 | 2,9 | |
| 3000 | 3000 | 6,1 | |
| 5000 | 5000 | 8,8 | |
| 7500 | 7500 | 10,3 | |

| FLOWAY® VERTICAL PHE | | | |
|----------------------|--------------------------|-------------------|------------------------------------|
| Size | Nominal flow rate (m³/h) | Rated current (A) | Supply type |
| 700 | 1000 | 6,2 | 1~230V - 50Hz 3~400V - 50Hz |
| 1500 | 1500 | 4,2 | |
| 2000 | 2000 | 4,2 | |

CONTROL

FLOWAY® Control

FLOWAY® features, as standard, an electrics box equipped with a factory-programmed PLC and a wired human machine interface.

| Available control features CLASSIC PHE - CLASSIC RHE - ACCESS RHE - VERTICAL PHE models | | | Included | Option |
|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------|--------|
| Timer | Option to define up to 6 weekly programs and 6 annual programs. The programs available are: temperature and ventilation in eco/comfort mode, shut-down, night cooling and frost protection | | X | |
| | LCD display | | X | |
| Human Machine Interface | Colour touch screen | | | X |
| | Webserver (integrated web pages) | | | X |
| | Room remote control with special interface for the end user | | | X |
| | | | | |
| Remote actuation and CMS | Communication Protocols | MODBUS RS485 (RTU) | X | |
| | | MODBUS IP | | X |
| | | BACnet IP | | X |
| | | KNX | | X |
| | | LON | | X |
| Filtration | Monitoring filter fouling (via analogue sensor or pressure switch depending on the model) | | X | |
| Ventilation management | Maintaining the air flow rate with compensation for filter fouling | | X | |
| | Single zone | Constant air volume | X | |
| | | Variable air volume via the CO ₂ sensor | | X |
| | Multi-zone | Constant supply air pressure (for installations equipped with ducted variable flow louvres) | | X |
| Temperature management | Control of return air or supply air temperature | | X | |
| | Room temperature control | | | X |
| | Automatic correction of the set-point based on the outdoor temperature | | X | |
| | Free-cooling | | X | |
| Direct expansion coil ⁽²⁾ | Gradual action on a reversible inverter outdoor unit | | | X |
| | Hot/cold control | | | X |
| | Optimised defrost cycle management | | | X |
| Heat recovery unit anti-icing | Via fresh air temperature control | | X | |
| | Via ΔP control on the exhaust air | | | X |
| | Via electric pre-heater | | | X |
| Protection of the internal components | Checking the heat protection for the motors | | X | |
| | Checking the temperature and pressure sensors | | X | |
| | Alarm if the operating limit thresholds are exceeded | | X | |
| Auxiliary contacts | Inputs (dry contacts) | Fire fault | X | |
| | | Coil 1 ⁽¹⁾ pump fault | X | |
| | | Coil 2 ⁽¹⁾ pump fault | X | |
| | | Remote On/Off | X | |
| | | Eco/Comfort changeover | X | |
| | Outputs (dry contacts) | AHU operating feedback | X | |
| | | Maintenance fault summary ⁽¹⁾ | X | |
| | | Danger fault summary | X | |
| | | Configurable external heater or cooler ⁽¹⁾ | X | |
| | | On/Off coil pump no. 1 ⁽¹⁾ | X | |
| | | On/Off coil pump no. 2 ⁽¹⁾ | X | |

(1) Not available on the Access RHE model

(2) Not available on the Classic PHE, Classic RHE-RHEZ, Vertical PHE models

AIR FLOW DIMENSIONS AND ORIENTATION

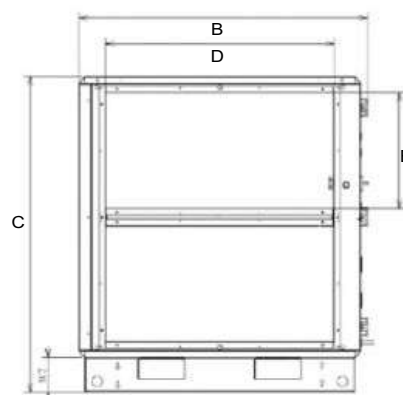
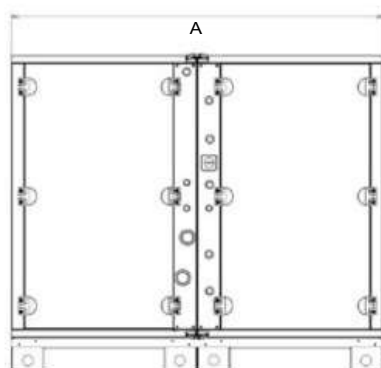
FLOWAY® CLASSIC PHE, CLASSIC RHE-RHEZ, ACCESS RHE

| SIZES | FLOWAY® Classic PHE, Classic RHE-RHEZ, Access RHE | | | | | | | | | |
|-------|---------------------------------------------------|-------------------|--------------------|-------------|--------------|---------------------|----------------------------|-------------|--------------|------------|
| | Height (C) (mm) | Width (B) (mm) | Length (A) (mm) | | | | Weight (kg) ⁽¹⁾ | | | |
| | | | Classic PHE | Classic RHE | Classic RHEZ | Access RHE | Classic PHE | Classic RHE | Classic RHEZ | Access RHE |
| 1000 | 958 | 810 | 1580 | 1266 | 1480 | 1266 ⁽²⁾ | 200 | 201 | 273 | 180 |
| 2000 | 1158 | 1010 | 1150 + 800 | 510 + 800 | 800+800 | 1310 ⁽²⁾ | 350 | 309 | 382 | 250 |
| 3000 | 1359 | 1210 | 1264 + 800 | 800 + 800 | 1264+800 | 1600 | 465 | 432 | 556 | 330 |
| 4000 | 1659 | 1510 | 1264 + 800 | 800 + 800 | 1264+800 | - | 580 | 558 | 654 | - |
| 5000 | 1659 | 1510 | - | 800 + 800 | 1264+800 | 1600 | - | 604 | 704 | 445 |
| 6000 | 1959 | 1810 | 1407 + 800 | 800 + 800 | 1407+850 | - | 765 | 702 | 742 | - |
| 7500 | 1959 | 1810 | - | 800 + 800 | 1407+850 | 1600 | - | 751 | 811 | 580 |
| 10000 | 2090 | 1920 | - | 1100 + 1100 | 1820+1100 | - | - | 955 | 1065 | - |
| 15000 | 2340 | 2192 | - | 1100 + 1200 | 1820+1200 | - | - | 1250 | 1357 | - |

(1) Without internal option.

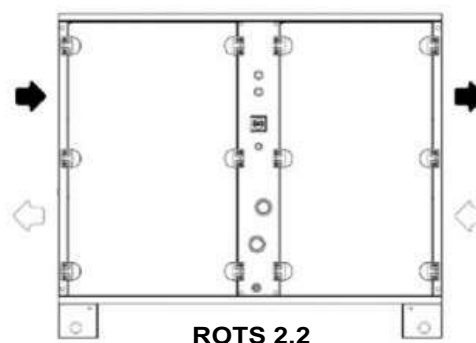
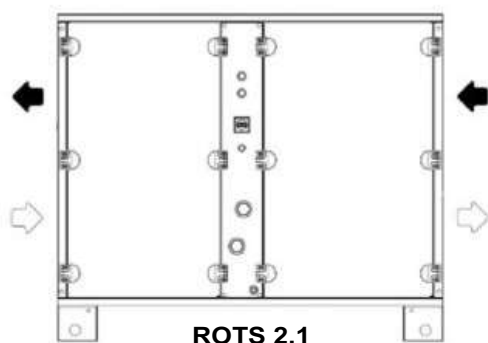
(2) Circular coupling; protrudes 47 mm on either side.

Condensate draining connection diameter: 16 mm smooth



AIR FLOW ORIENTATION

Access RHE and Classic RHE-RHEZ models

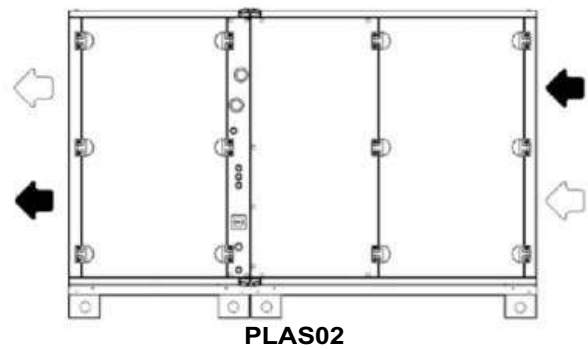
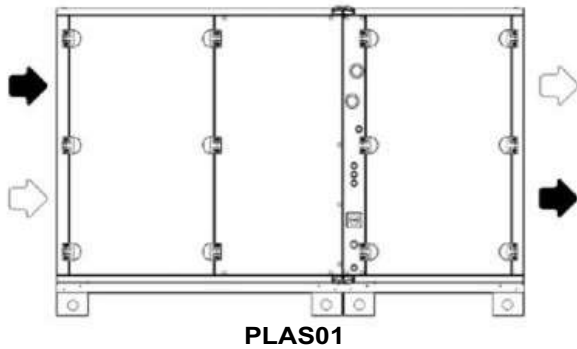


WHITE ARROW = FRESH AIR

BLACK ARROW = EXTRACTED AIR

AIR FLOW DIMENSIONS AND ORIENTATION

Classic PHE models



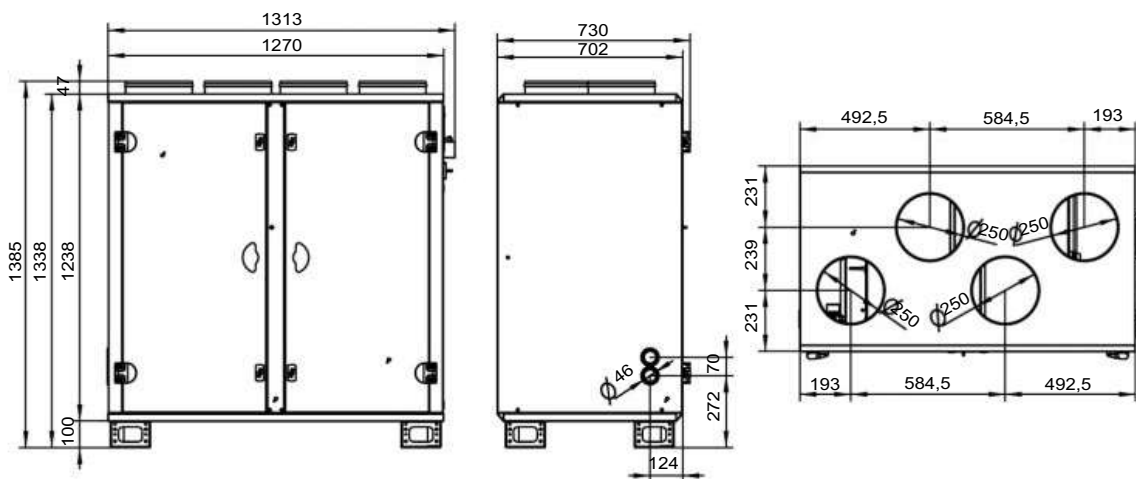
WHITE ARROW = FRESH AIR
 BLACK ARROW = EXTRACTED AIR

FLOWAY® VERTICAL PHE

| MODELS | Dimensions | | | Weight (kg) ⁽¹⁾ |
|--------|------------|--------|-------|----------------------------|
| | Height | Length | Width | |
| 700 | 1385 | 1313 | 730 | 202 |
| 1500 | 1758 | 1593 | 832 | 330 |
| 2000 | 1901 | 1735 | 832 | 389 |

Condensate draining connection diameter: 16 mm smooth.
 (1) Without internal option

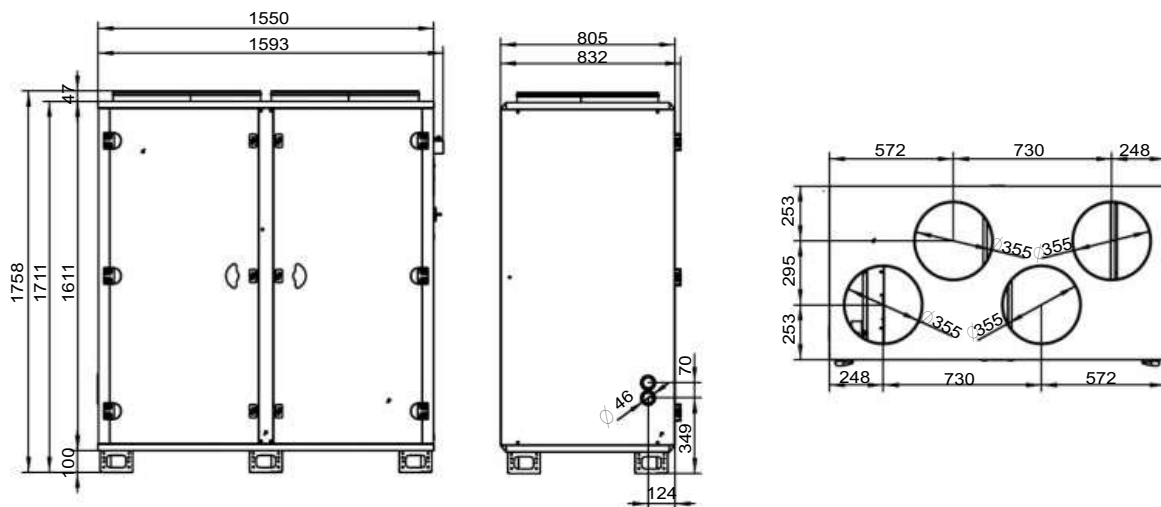
Size 700



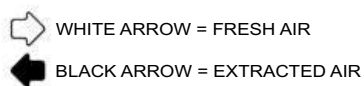
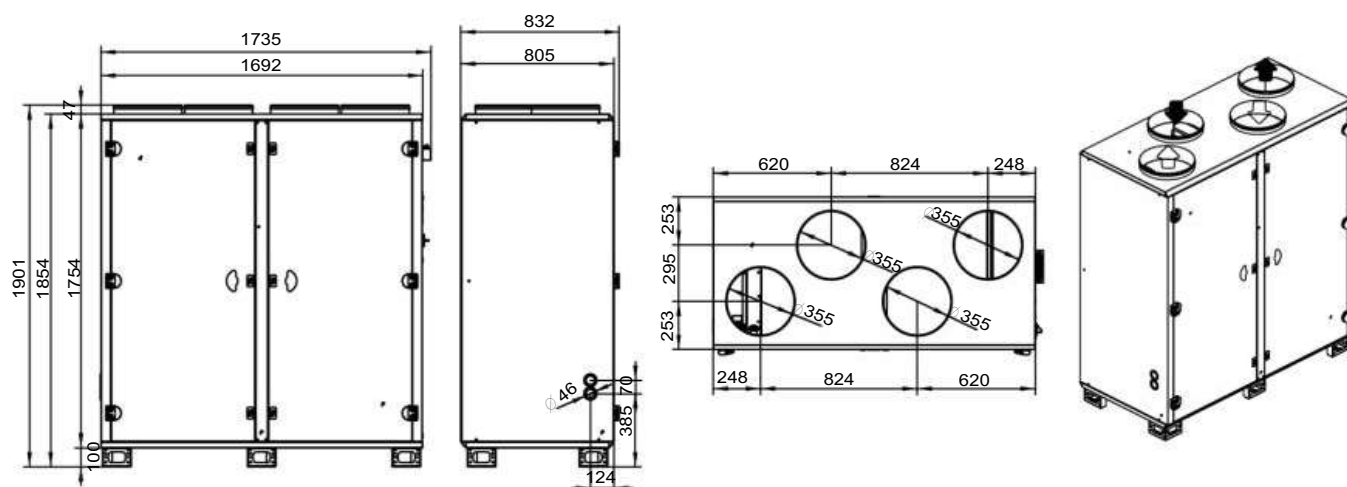
WHITE ARROW = FRESH AIR
 BLACK ARROW = EXTRACTED AIR

FLOWAY® VERTICAL PHE

Size 1500

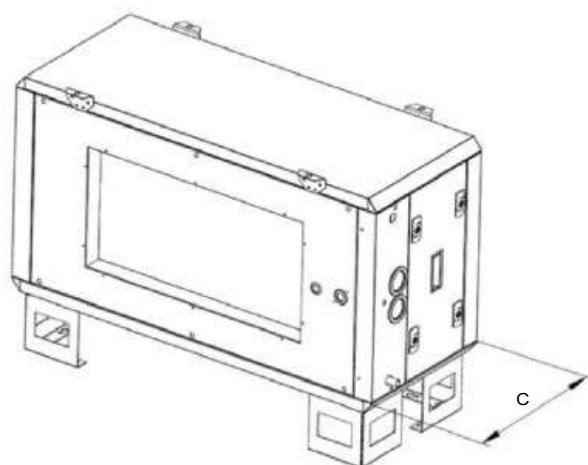
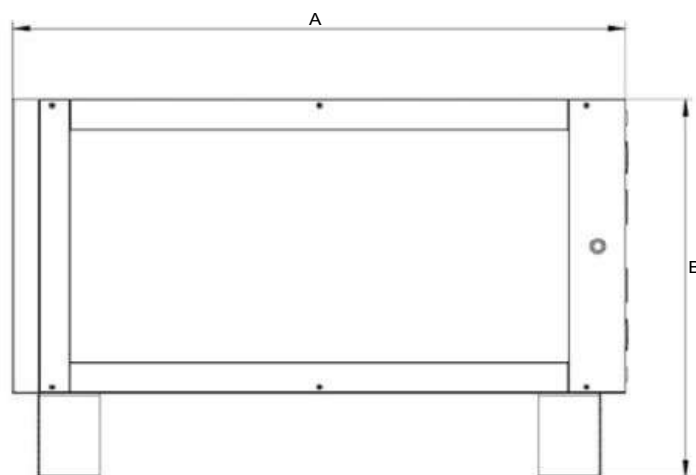


Size 2000



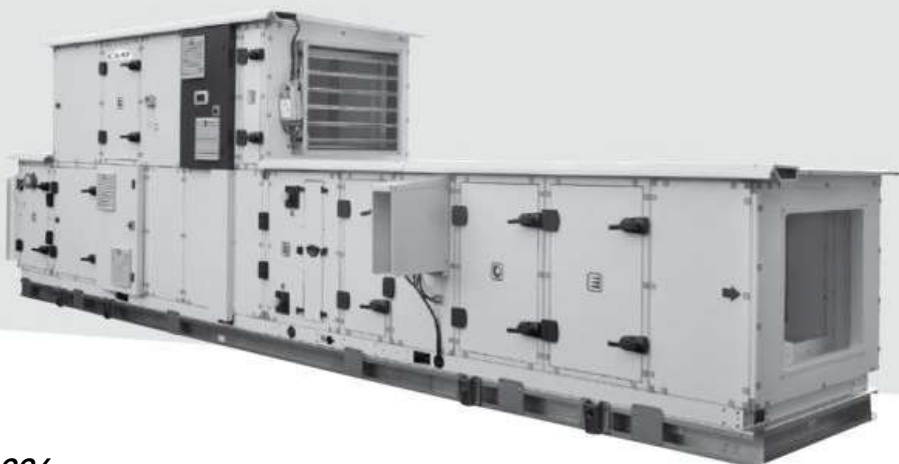
ADDITIONAL CASING (MUST ONLY BE POSITIONED IN A HORIZONTAL AIR FLOW)

| Size of additional casing | Corresponding FLOWAY® model | Width (A) (mm) | Height (B) (mm) | Length (C) (mm) | Weight +/- 10% (kg) |
|---------------------------|---------------------------------------------------------|----------------|-----------------|-----------------|---------------------|
| 1 | Classic RHE-RHEZ & PHE 1000 Vertical PHE 700 | 810 | 589 | 400 | 49 |
| 2 | Classic RHE-RHEZ & PHE 2000 Vertical PHE 1500 & 2000 | 1010 | 689 | 400 | 62 |
| 3 | Classic RHE-RHEZ & PHE 3000 | 1210 | 759 | 400 | 68 |
| 4 | Classic RHE-RHEZ & PHE 4000 - 5000 | 1510 | 909 | 400 | 88 |
| 5 | Classic RHE-RHEZ & PHE 6000 - 7500 | 1810 | 1059 | 400 | 112 |



CLIMACIAT®

Air handling unit



AHU for every applications

Designed to conform to standards EN 13053 and EN 1886

The effective solution for service sector, industry and healthcare applications

VDI 6022 hygienic version option in all ranges

CLIMACIAT® AIRCLEAN hygienic



| Specifications | Class | |
|----------------------|-----------------------|---------------------------------|
| | CLIMACIAT® Air Access | CLIMACIAT® Air Tech / Air Clean |
| Mechanical strength | D2 | D1 |
| Airtightness | L1 | L1 |
| Thermal transmission | T3/T2(option) | T2 |
| Thermal bridge | TB3/TB2(option) | TB1 |

AIR HANDLING UNIT: CLIMACIAT®

CLIMACIAT® represents the modern air handling units that CIAT has been offering for more than 40 years. The first air handling units were produced more than 80 years ago.

The CLIMACIAT® Airaccess/Airtech/Airclean is the latest generation of AHU to be developed, and is the fruit of this experience, integrating the EN 1886 and EN13053 standards, the ERP ECODESIGN 1253-2014 regulations and current innovations (filters, heat recovery units, fans, electric motors).

CIAT is ISO 9001, ISO14001 and ISO18001 certified. This means product development meets rigorous standards and stringent environmental requirements.

Ecodesign is a very important component of the studies for the CLIMACIAT® Airaccess/Airtech/Airclean range. The resulting product has a low environmental impact, in terms of its constituent materials and their recyclability and provenance, and in terms of consumption during the equipment's life cycle.

All the relevant elements are listed on an environmental sheet which provides an overview of materials and consumption, and an impact study.

This latest generation has been designed according to its criteria and adapted based on the applications.

The renowned European Air Side research and test centre validated the choices using its extensive digital resources, confirmed by tests in climatic test and acoustic chambers.

It also has a huge amount of test equipment at its disposal, meaning it can perform the tests requested as part of some orders.

The entire process is automated from reception of the order to manufacture, it is unique and specifically dedicated to production of this range.

New, comprehensive industrial resources are dedicated to this production, including paint processing, machining of panelling, frame, application of gaskets, welding, tests.

CIAT also manufactures air-to-water or refrigerant fluid heat exchangers using our own calculating and sizing tools, and our own fully-integrated production lines.

This gives us complete control of our performance levels and procurement cycles.

All of the above aspects combine to allow us to create a high quality product which gives you complete satisfaction in a diverse range of applications from office and service sector administration to industrial processes and controlled environments in industry and also the healthcare sector.

USE

The **CLIMACIAT®** range is designed for the service sector, industry and healthcare to meet different requirements in terms of air mixing, filtration, heating, refrigeration, dehumidification, humidification, ventilation, recovery and sound attenuation. It is available as a horizontally-mounted version for installation indoors or outdoors with a roof and accessories to protect it from the weather. The range is available in a single or dual-flow version.

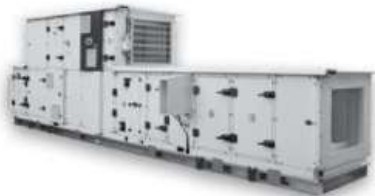
Thanks to the broad spectrum of solutions on offer, and the product's excellent modularity, the specifications for this product will always comply with the EN 13053 and EN 1886 standards, whatever its configuration.

CLIMACIAT® Airaccess



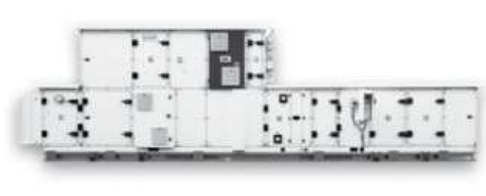
CONCENTRATED EXPERTISE TO OBTAIN THE ESSENCE

CLIMACIAT® Airttech



COMBINING EFFICIENCY AND MODULARITY TO MEET TECHNICAL REQUIREMENTS

CLIMACIAT® Airclean



DESIGNED FOR THE SPECIFIC CHARACTERISTICS OF CONTROLLED ENVIRONMENTS

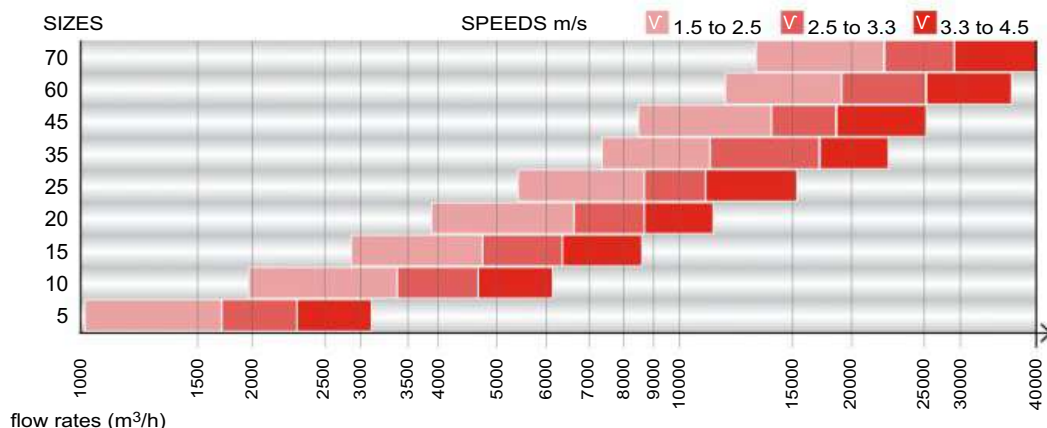
RANGE

The **CLIMACIAT®** segment 1 range includes 9 different sizes to handle air flows from 1000 to 30,000 m³/h.

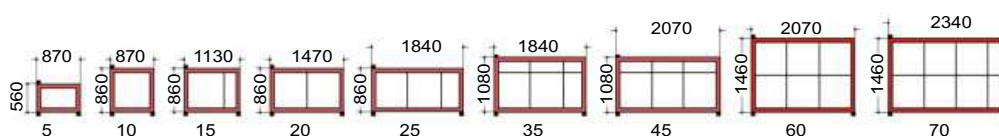
The diagram below is used to pre-select the required size according to:

- The through speed in the front active section of the heat exchange coils
- The air flow rate to be handled

Selection table

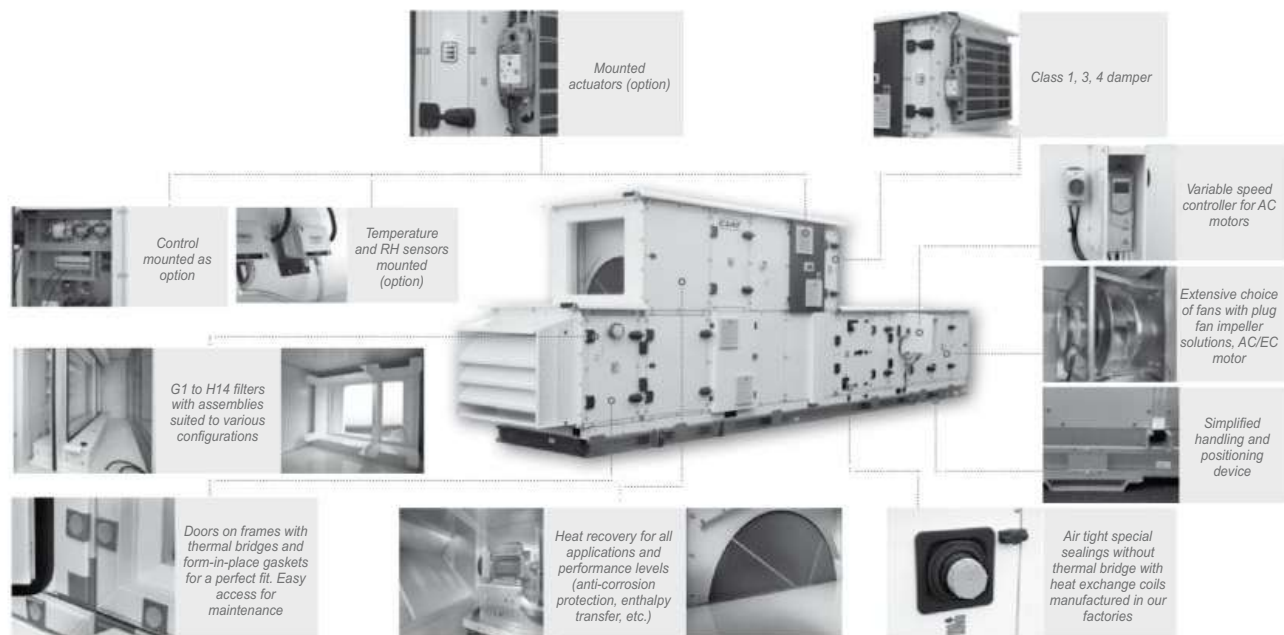


AHU sections (mm)



COMPONENTS DESCRIPTION

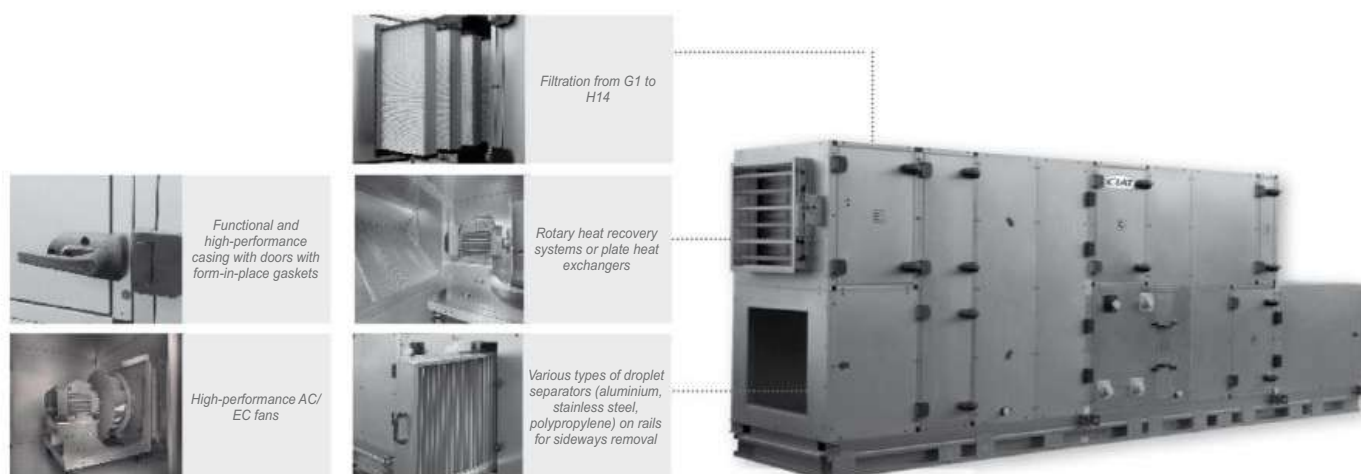
CLIMACIAT® Airtech



CLIMACIAT® Airclean



CLIMACIAT® Airaccess



GENERAL DESCRIPTION OF THE CLIMACIAT® RANGES

■ Casing

- Self-supporting panel construction up to size 70
- Double-skin panels, with 50 mm thick, long-fibre mineral wool insulation, reinforced with a non-woven fibreglass fabric, welded on for greater vertical strength.
- Moulded high strength bi-component polyurethane gaskets for the casing and door, guaranteeing a perfect seal.
- Inside of the AHU is perfectly smooth and even, with no protruding screws, as per the specifications in European standard EN 13053 (no internal handles).
- Doors hung on high quality frames, guaranteeing durability, performance and easy access for maintenance with adjustable hinges, external twist-lock handles and decompression system.
- AHUs delivered in several units are equipped with specific factory-fitted connective pieces, which ensure perfect alignment to simplify assembly.
- Each component unit of the AHU is equipped with an 80 mm ground insulation frame and multifunction ergonomic supports (handling, assembly).
- Each component is fitted with its own service panels. This allows independent removal for each function.

The standard EN-1886, define the main construction features for Air Handling units.

Among most important features we have :

Thermal transmittance [W.m-2.K-1]: The heat flow per area and temperature difference through the casing of the air handling unit.

CLIMACIAT® Airtech

- Highly-insulated panels, with thermal bridge break profiles
- External walls made from sheet metal with RAL 9010 lacquer coating
- Internal wall in Z275 galvanised steel

CLIMACIAT® Airclean

- Highly-insulated panels, with thermal bridge break profiles
- External wall made from galvanised steel with RAL 9010 lacquer coating
- Internal wall made from galvanised steel with RAL 9010 lacquer coating

CLIMACIAT® Airaccess

- Conventional double-wall panels
- External wall in Z275 galvanised sheet steel
- Internal wall in Z275 galvanised steel

Thermal bridging factor [-]: The ratio between the lowest temperature difference between any point on the external surface and the mean internal air temperature and the mean air-to-air temperature difference

CLIMACIAT® range can be upgraded from T3/TB3 to T2/TB2 or T2/TB1 offering improved technical features and significant energy savings.

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|----------------------------------------------------------------------------|-----------|----------|----------|
| Smooth RAL 9010 paintwork on external panels | NA | Standard | Standard |
| Smooth RAL 9010 paintwork on internal panels | NA | X | Standard |
| Internal and/or external panels in 304 L or Z3CN 18.10 stainless steel | NA | X | X |
| Internal and/or external panels in 316 L or Z3CND 17.11.02 stainless steel | NA | X | X |
| Stainless steel indoor baseframe | X | X | X |
| Sloped stainless steel indoor baseframe with drainage | X | X | X |
| Galvanised ground insulation frame (h = 80mm) | Standard | Standard | Standard |
| Painted frame | NA | X | X |
| Stainless steel frame | NA | X | X |
| Factory-assembled AHU on common rack : max size 45 or maximum length 6 m | X | X | X |
| Container kit | X | X | X |
| Adjustable support feet with 60 mm extension | X | X | X |
| Fixed extension feet from 200 to 400 mm | X | X | X |
| Sloped roof for outdoor mounting | X | X | X |
| Special louvers to match external casing finish | X | X | X |
| Protective cover for external components to match external casing finish | X | X | X |
| Factory-fitted cable raceway | X | X | X |
| Lateral technical unit | X | X | X |

X: Option

NA: Not applicable

GENERAL DESCRIPTION OF THE CLIMACIAT® RANGES

■ Mixing and air intakes

The air intakes and mixing section may be installed at the intake, inserted between the functions or installed at the device outlet.

These functions are equipped with dampers formed of counter-rotating profiled blades, with lateral gaskets, and driven by conrods.

These dampers are installed outside of or inside the casing, depending on the solution chosen.

Independent control of the louvres: manual, motorised or ready to be motorised

The functions provided depend on the selection:

- Isolation damper
- Frost protection damper
- Safety damper (compliant with French fire security normative, article CH 38)
- 2-way mixing with air intake
- 2-way flow distributions: top, front or lateral
- 3-way mixing: aligned, stacked or juxtaposed

Depending on the finishes:

- **CLIMACIAT® Airaccess**
 - Class 1 galvanised steel blades and frame compliant with EN1751
- **CLIMACIAT® Airtech / Airclean**
 - Class 3 galvanised steel blades and frame compliant with EN1751

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--------------------------------------------------------------|------------------|------------------|------------------|
| Servomotor operated damper | X | X | X |
| Manual operated damper | X | X | X |
| Class 3 damper with defrosting system | X | X | X |
| Class 4 airtightness damper compliant with EN 1751 | NA | X | X |
| Polyester coated face and bypass dampers (frame and blades) | X | X | X |
| Stainless steel 304L damper | NA | X | X |
| Stainless steel drain pan | X | X | X |
| Hinged access door | X ⁽¹⁾ | X ⁽¹⁾ | X ⁽¹⁾ |
| Lift-off door | X ⁽¹⁾ | X ⁽¹⁾ | X ⁽¹⁾ |
| Porthole on door | X ⁽¹⁾ | X ⁽¹⁾ | X ⁽¹⁾ |
| 230V bulkhead light | X ⁽¹⁾ | X ⁽¹⁾ | X ⁽¹⁾ |
| Door contact switch | X ⁽¹⁾ | X ⁽¹⁾ | X ⁽¹⁾ |

(1) Availability depends on the configuration

X: Option

NA: Not applicable

GENERAL DESCRIPTION OF THE CLIMACIAT® RANGES

■ Filters

To meet the requirements of all the applications, a very wide range of filter efficiencies, technologies and dimensions is available.

Across the entire range, and for each type of filter, cells with international dimensions of 24" x 24" and 12" x 24" are available.

On sizes 05 to 45, compact filters which are 50mm thick are available in full section (FS) to optimise energy consumption.

Different types of filter assembly are available, depending on the efficiency level, technology and location within the AHU.

There are 6 specific assembly systems:

Assembly A available for filters with international dimensions and **Assembly A FS** for filters with a full section

- Traditional tracks designed for efficiency levels Coarse to 50% ePM10 or G1 to M6: For Compact cells, 50 mm thick, side door

Assembly B available for filters with international dimensions and **Assembly B FS** for filters with a full section

- Compressible tracks designed for efficiency levels G4 to F9 or Activated Carbon (urban pollution) for Compact cells and flexible or rigid bag with side door.

Assembly C for filters with international dimensions:

- Universal frames designed for efficiency levels Coarse up to 80% ePM1 or G4 to F9, E10 or Activated Carbon (urban pollution) for Compact cells and flexible or rigid bag with access section and side door

Assembly D for Absolute filters with international dimensions

- Absolute large-media frames for EPA and HEPA Absolute cubic cells

Assembly F for Cubic carbon filters with international dimensions

- Large-media frames for Activated Carbon cubic cells.

| Description | Construction Code | Assembly | Efficiency levels ISO16890; EN779-2012; EN1822 | Cell descriptive code |
|-------------------------------------------------------------------|-------------------|--------------|-------------------------------------------------------------------------|---------------------------------------------------|
| 50 mm flat metal filter | C | A or C | Coarse 30% - G1 | Galvanised steel metal medium and frame |
| 50 mm flat filter | C | A, B or C | Coarse 60% - G4 ePM10 50% - M5 M6 ePM1 60% - F7 | Galvanised steel metal frame and synthetic medium |
| 50 mm flat filter (full section) up to size 45 | C FS | A FS or B FS | Coarse 60% - G4 ePM10 50% - M5 M6 ePM1 60% - F7 | Galvanised steel metal frame and synthetic medium |
| 292 mm rigid bag filter | RB | B or C | ePM1 70% - M6 ePM1 60% - F7 ePM1 70% - F8 ePM1 85% - F9 E10 | Polypropylene frame and fibreglass medium |
| 380 mm short flexible bag filter | SB | B or C | Coarse 60% - G4 ePM10 60% - M5 ePM10 65% - M6 ePM1 60% - F7 | Galvanised steel metal frame and synthetic medium |
| 600 mm long flexible bag filter | LB | B or C | ePM10 65% - M6 ePM1 60% - F7 ePM1 85% - F9 | Galvanised steel metal frame and synthetic medium |
| 292 mm Absolute filter | CUBIC 610x610 | D | E10 H13 H14 | Polypropylene frame and fibreglass medium |
| 292 mm rigid bag carbon filter + fine filter, std universal frame | RB | B or C | Carbon +ePM1 60% - F7 | Polypropylene frame, synthetic + carbon medium |
| Flexible carbon bag filter + 600 mm long bag fine filter | LB | B or C | Carbon +ePM1 70% - F7 | ABS frame, synthetic + carbon medium |
| 292 mm rigid bag carbon filter | RB | B or C | Carbon | Carbon polypropylene frame |
| Cubic carbon filter | CUBIC 595x595 | F | Carbon | Metal frame + carbon panel |

C: 50 mm compact filter
C FS: 50 mm compact filter, full section
RB: 290 mm rigid bag filter

SB: 380 mm short flexible bag filter
LB: 600 mm long flexible bag filter
CUBIC: 292 mm cubic

* CLIMACIAT® software offers the equivalent classification of the filters according to the ISO 16890

GENERAL DESCRIPTION OF THE CLIMACIAT® RANGES

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|----------------------------------------------------------------|-----------|----------|----------|
| Lift-off door | X | X | X |
| Filter pressure tapping | Standard | Standard | Standard |
| Additional filter set | X | X | X |
| Galvanized steel drip tray | X | X | X |
| Stainless steel drip tray | X | X | X |
| Liquid manometer (supplied loosely in a kit) | X | X | X |
| Differential pressure switch | X | X | X |
| Magnehelic pressure gauge (supplied loosely in a kit) | X | X | X |
| Magnehelic pressure gauge factory fitted | X | X | X |
| Double glass porthole | X | X | X |
| 230V bulkhead light (supplied loosely) | X | X | X |
| 230V bulkhead light and wired to external switch | X | X | X |
| Door contact switch | X | X | X |
| Filter slide rails painted | X | X | Standard |
| Filter frame painted | X | X | Standard |
| 304 L or 316 L stainless steel slide rails | X | X | X |
| Stainless steel frontal access filter frame (fine filters •F") | NA | X | X |
| Painted filter frame (EPA/HEPA filters) | X | X | Standard |
| Stainless steel filter frame (HEPA filters •H") | NA | X | X |

X: Option

NA: Not applicable

■ Plate heat exchanger

- 3 efficiency levels available: from 60% to 85%
- The plate heat exchangers are always equipped with a total bypass on fresh air and access hatch to the servomotor
- Condensate drain pan on exhaust air side, made from galvanised steel with condensate drain piping as standard
- Available in a stacked configuration for all sizes
- Available in a juxtaposed configuration for size 60 and 70
- Access door to the condensate drain pan(s)

In the standard construction, the heat exchanger has aluminium plates, and can be used routinely up to an air temperature of 90°C (if the plate heat exchanger is a component of an AHU, the standard limit temperature is 80°C). The leakage flow rate is 0.1%, the nominal flow rate for a pressure difference of 400 Pa between the 2 air streams.

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--------------------------------------------------------------------|-----------|----------|----------|
| Pre-painted aluminium plates | X | X | X |
| Condensate drain pan (exhaust air side) stainless steel | X | X | X |
| Condensate drain pan (fresh air side) stainless steel | X | X | X |
| Paint on baffle, partition and support | X | X | X |
| Plate exchangers components made of 304 L or 316 L stainless steel | NA | X | X |
| Painted bypass damper | X | X | X |
| Stainless steel bypass damper | NA | X | X |
| Servomotor or manual damper operation | X | X | X |
| Pressure tapings in intake and exhaust | Standard | Standard | Standard |
| Additional access door | X | X | X |
| Door porthole | X | X | X |

X: Option

NA: Not applicable

GENERAL DESCRIPTION OF THE CLIMACIAT® RANGES

■ Rotary heat exchanger

- Several efficiency levels available: from 75% to 85%
- Corrugated aluminium fins
- Adjustable peripheral gasket to guarantee a minimum leak flow rate
- Lateral inspection panel
- Constant speed gear motor (230 / 400 V three-phase power supply)
- Maintenance-free ball bearing

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|---------------------------------------------------------------------------------------------------|-----------|----------|----------|
| Gear motor and variable frequency drive for variable speeds from 0 to 10 rpm – 230 V single-phase | X | X | X |
| Coated aluminium heat recovery wheel | X | X | X |
| Hygroscopic heat recovery wheel (for humidity exchange) | X | X | X |
| Enthalpic heat recovery wheel (for total power exchange) | X | X | X |
| Condensates drain pan | NA | X | X |
| 316 stainless steel drain pan | NA | X | X |
| Indoor panels polyester coated | X | X | X |
| Indoor panels in 304 L or 316 L stainless steel | NA | X | X |
| Pressure tapings | Standard | Standard | Standard |
| Purge sector | X | X | X |
| Door porthole | X | X | X |

X: Option

NA: Not applicable

■ Heating coil

Fluids:

- Hot water
 - Construction with copper tubes and aluminium fins.
 - Maximum primary fluid temperature = 120°C.
 - Operating pressure for water: 16 bar as standard - Higher pressures on consultation.
- Removable sealing collars between the casing and manifolds (up to a diameter of 3" to prevent damage to the sealing system when connecting up).
- Depending on the type of coil and the diameters required, the manifolds and supply tubes are:
 - Copper tubes with unions up to a diam. of 2" 1/2.
 - Grooved steel tubes for larger diameters.
- Superheated water
 - Construction with steel tubes and aluminium fins.
 - Maximum primary fluid temperature = 200°C.
 - Operating pressure for water: max 30 bars.
 - Manifolds and supply tubes are steel tubes with smooth ends.
- Condensation refrigerant
 - Construction with copper tubes and aluminium fins.
 - Supply tubes are copper tubes with smooth ends.
- Steam
 - Max pressure 2 to 8 bars - stainless steel tubes, aluminium fins.
 - Manifolds and supply tubes are stainless steel tubes with smooth ends.

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|-------------------------------------------------------------------|-----------|---------|----------|
| Superheated water coil | X | X | X |
| Steam coil | X | X | X |
| Condensation coil | X | X | X |
| Pressure tapping, upstream and downstream | X | X | X |
| Precoated fins/ max. primary fluid temperature 110°C | X | X | X |
| Stainless steel water coil | NA | X | X |
| ALTENA treatment, max. temperature 160°C | X | X | X |
| BLYGOLD treatment, max. temperature 90°C | X | X | X |
| HERESITE treatment, max. temperature 180°C | X | X | X |
| Copper fins | X | X | X |
| Paint on tracks | X | X | X |
| 304 L or 316 L stainless steel tracks | X | X | X |
| 304 L or 316 L stainless steel slide rails | X | X | X |
| Standard screw flanges | X | X | X |
| Stainless steel screw flanges | X | X | X |
| Quick connections kit (copper tubes) (victaulic type) | X | X | X |
| Threaded connections (steel tubes) | X | X | X |
| Frost protection thermostat (manual reset) | X | X | X |
| Frost protection thermostat with automatic reset supplied loosely | X | X | X |
| Frost protection thermostat with automatic reset (factory fitted) | X | X | X |

X: Option

NA: Not applicable

GENERAL DESCRIPTION OF THE CLIMACIAT® RANGES

■ Electric heater

- Shielded resistors in stainless steel scrolled finned tubes
Connection to copper jumper strips.
- Assembly with double insulation.
- The electric heater is equipped with two safety thermostats.
The first has a manual reset, the second has an automatic reset.
- To set up the coil, refer to the instructions sent with each unit.
- Take the necessary measures to prevent abnormal overheating when the fan is switched off (fan delay).

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--------------------------------------------|-----------|---------|----------|
| Slide rails painted | X | X | X |
| 304 L or 316 L stainless steel slide rails | X | X | X |
| 304 L or 316 L stainless steel coil casing | X | X | X |
| Single- or three-phase connection | X | X | X |

X: Option

NA: Not applicable

■ Refrigeration coil

Fluids:

- Chilled water
 - Construction with copper tubes and aluminium fins.
 - Operating pressure for water: 16 bar as standard - Higher pressures on consultation.
 - Sloped condensate drain pan with drain tubes to be connected on site to a siphon (compulsory requirement).
 - Droplet separator as standard if necessary, as an option on request.
 - Removable sealing flanges between the casing and manifolds up to 3" in diameter, preventing damage to the sealing system during connection operations.
- Depending on the type of coil and the diameters required, the manifolds and supply tubes are
 - Copper tubes with unions up to a diam. of 2"1/2.
 - Grooved steel tubes for larger diameters.
 - Direct expansion evaporation
 - Construction with copper tubes and aluminium fins.
 - Sloped condensate drain pan with drain tubes to be connected to a siphon on site (compulsory requirement).
 - Droplet separator as standard if necessary, as an option on request.
 - Standard smooth copper refrigerant supply tubes (supplied capped)
 - Manifold on fluid intake as standard.

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--------------------------------------------------------------|---------------------------|---------|----------|
| Chilled water coil | X | X | X |
| Direct expansion evaporation coil | X | X | X |
| Access panel on droplet separator | as standard if compulsory | | |
| Precoated fins/ max. primary fluid temperature 110°C | X | X | X |
| Stainless steel tubes coil | NA | X | X |
| Copper fins coil | X | X | X |
| ALTENA treatment, max. temperature 160°C | X | X | X |
| BLYGOLD treatment, max. temperature 90°C | X | X | X |
| HERESITE treatment, max. temperature 180°C | X | X | X |
| Slide rails painted | X | X | X |
| Stainless steel slide rails | X | X | X |
| 304 L or 316 L stainless steel coil casing | X | X | X |
| 316 L stainless steel condensate drain pan | X | X | X |
| 316L stainless steel hygienic drain pan | NA | X | X |
| Insulated drain pan (cell foam) | X | X | X |
| Headers/elbows insulation | X | X | X |
| All stainless steel droplet separator (frame and medium) | X | X | X |
| Polypropylene blade droplet separator, galvanised frame | X | X | X |
| Polypropylene blade droplet separator, stainless steel frame | X | X | X |
| Aluminium blade droplet separator, galvanised frame | X | X | X |
| Aluminium blade droplet separator, stainless steel frame | X | X | X |
| Pressure tapping, upstream and downstream | X | X | X |
| Standard screw flanges | X | X | X |
| Stainless steel screw flanges | X | X | X |
| Tubes with quick connections (copper tubes) (victaulic type) | X | X | X |
| Threaded connections (steel tubes) | X | X | X |
| Frost protection sensor support | X | X | X |

X: Option

NA: Not applicable

GENERAL DESCRIPTION OF THE CLIMACIAT® RANGES

Fans

- Forward-curved dual-inlet fan.
- Backward-curved dual-inlet fan.
Steel scroll and impeller.
Belt and pulley transmission on the dual-inlet fans.
Assembly on anti-vibration frame with flexible internal sleeve and damper mounts.
- Metal impeller plug fan with AC motor
Assembly on anti-vibration frame with flexible internal sleeve and damper mounts.
- Standard motor: asynchronous three-phase, 230 / 400 V 50 Hz up to 3 kW - 400 V - 50 Hz from 4 kW, IP 55 protection, class F with PTC thermistors (thermal protection)
- Steel plug fan with EC motor with integrated fan
Assembly on partition.
- Inspection hatch with bolts in compliance with the "MECHANICAL SAFETY" specification in the EN 1886 standard and the machinery directive.

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|------------------------------------------------------------------------------------------|-----------|----------|----------|
| Fan with forward-curved blades and transmission | X | X | X |
| Fan with backward-curved blades and transmission | X | X | X |
| Plug fan | X | X | X |
| EC plug fan | X | X | X |
| Flush mounted panel | X | X | X |
| Hinged door | Standard | Standard | Standard |
| Pressure tappings | X | X | X |
| Door contact switch | X | X | X |
| Double glass porthole | X | X | X |
| Smoke detector (NF S61961) | X | X | X |
| 230V Bulkhead light (supplied loose item) | X | X | X |
| 230V Bulkhead light fitted and wired to an external switch | X | X | X |
| Anticorrosion painting for wheel and motor assembly (centrifugal and AC plug fan motor) | X | X | X |
| Stainless steel wheel and motor assembly (centrifugal and AC motor plug fan) | NA | X | X |
| Anticorrosion painting for EC fan wheel | NA | X | X |
| Protection grill for centrifugal fan | X | X | X |
| Screened door protection | X | X | X |
| Belt housing | X | X | X |
| 2 motors set in parallel | X | X | X |
| Motor support on rails | X | X | X |
| Variable frequency drive (supplied loose item) | X | X | X |
| Variable frequency drive factory fitted | X | X | X |
| Door switch factory fitted | X | X | X |
| Door switch (supplied loose item) | X | X | X |
| Anti recirculation damper for fan | X | X | X |

X: Option

NA: Not applicable

Sound attenuator

- Different lengths of baffle depending on the required attenuation.
- Mineral wool of different densities, the faces are covered with an anti-erosion shield.
- Galvanised panelling.

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--------------------------------------|-------------------------|---------|----------|
| Baffle lengths (in mm) | 600 - 900 - 1200 - 1500 | | |
| Anti shredding glass cloth | NA | X | X |
| Polyester coated slide rails | X | X | X |
| Epoxy painted sheet metal baffles | X | X | X |
| 304 L or 316 L stainless steel rails | NA | X | X |

X: Option

NA: Not applicable

GENERAL DESCRIPTION OF THE CLIMACIAT® RANGES

■ Standalone production steam humidifier

With steam production (standalone with electrodes)

The supply includes:

- Aluminium steam distributor.
- Steamer with electrical cabinet and controller (IP 33).
- Proportional or On/Off control.
- Duct/cylinder connection.
- Condensate return tubes and connections.
- 230 V single-phase or 400 V three-phase supply voltage - 415 V according to capacity
- Min and max supply water conductivity limits 125 - 1250 microsiemens /cm (8000 - 800 ohm).
- Water hardness (orientative values for France 15-30 degrees) check local regulations

| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|--------------------------------------------------------------------|-----------|---------|----------|
| Stainless steel | X | X | X |
| Galvanised droplet separator | X | X | X |
| Stainless steel droplet separator | X | X | X |
| Double glass porthole | X | X | X |
| 230V Bulkhead light factory fitted and wired to an external switch | X | X | X |
| Flush mounted panel | X | X | X |
| Door contact switch | X | X | X |

X: Option

NA: Not applicable

Steam humidifier with electrical heaters available on request

■ Control

The electrics box is integrated into the unit and the electrical cables are protected by an enclosed cable raceway, factory-fitted.

The unit can be supplied as a single unit, equipped with a control which is fully assembled and tested in the factory if it is formed of one block, or a multi-block assembled on the optional multi-block frame.

Plug & Play solution: the electrics box is powered by a 400 V + earth power supply

The control software for the **CLIMACIAT®** range enables the following:

- Temperature regulation⁽¹⁾: sensor on supply air/return air/room air
- Humidification and dehumidification regulation⁽¹⁾: sensor on return or room air
- Fan management: constant flow/constant pressure
- Filter fouling management (4-stage filtration as maximum)
- Single-zone air quality management CO₂ sensor on return air or room air
- Water coil: cooling/heating/mixed/direct expansion (3 maximum)
 - 2-way valve
 - 3-way valve
- Electric heater (4-stage heaters as maximum)
 - Proportional and On/Off control
 - 1 TRIAC type proportional stage (compulsory)
 - Independent power supply, controlled by the AHU PLC.
- Steam humidifier with electrode:
 - Independent power supply, controlled by the AHU PLC.
- Management of cooling modes: Free cooling / Night cooling
- Management of frost protection faults
- Fire protection
- Communication board available:
 - Direct expansion coil management
 - Adiabatic humidifier management
 - Modbus RTU RS485 / Modbus TCP IP / KNX / LON / BACNET IP

The functions below requires an external regulation (independent from the integrated control)

- Steam coil/Superheated water coil/Glycol/mixed water coils/
- Gas burner

(1) availability depends on options; see specific control document

GENERAL DESCRIPTION OF THE CLIMACIAT® RANGES

■ Extra accessories:

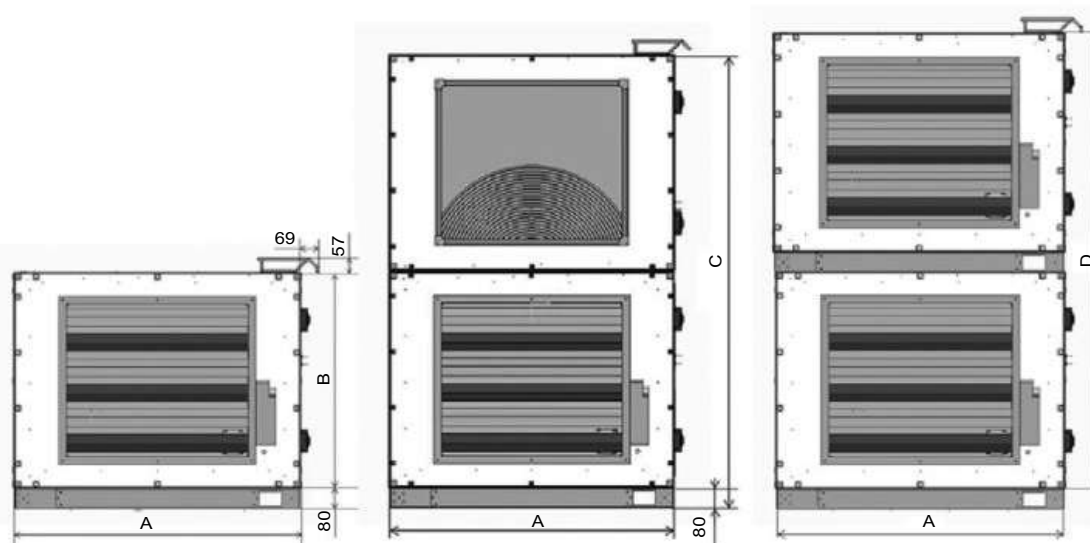
| OPTIONS AVAILABLE PER RANGE | Airaccess | Airtech | Airclean |
|----------------------------------------------------------------------------|-----------|---------|----------|
| Flexible duct connections | X | X | X |
| Rain protection hood (supplied with grill) | X | X | X |
| Additional protection grill | X | X | X |
| Factory-assembled AHU on common rack: max size 45 or maximum length 6 m | X | X | X |

X: Option

NA: Not applicable

DIMENSIONS

■ External dimensions and raceway details⁽¹⁾



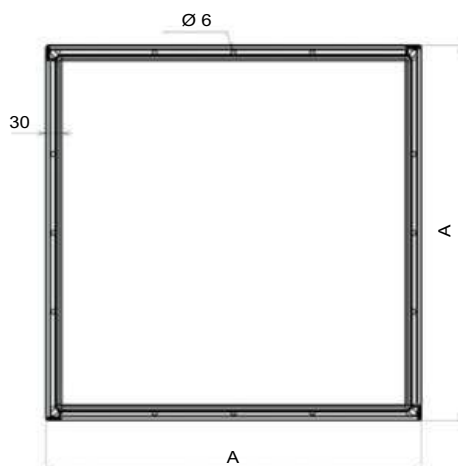
| Sizes | Casing external dimension | | | | Section lenght ⁽²⁾ |
|-------|---------------------------|------|------|------|-------------------------------|
| | A | B | C | D | |
| 5 | 870 | 560 | 1122 | | 250 < L < 2800 |
| 10 | 870 | 860 | 1722 | | 250 < L < 2800 |
| 15 | 1130 | 860 | 1722 | | 250 < L < 2800 |
| 20 | 1470 | 860 | 1722 | | 250 < L < 2800 |
| 25 | 1840 | 860 | 1722 | | 250 < L < 2800 |
| 35 | 1840 | 1080 | 2162 | | 250 < L < 2800 |
| 45 | 2070 | 1080 | 2162 | | 250 < L < 2800 |
| 60 | 2070 | 1460 | | 3000 | 250 < L < 2800 |
| 70 | 2340 | 1460 | | 3000 | 250 < L < 2300 |

⁽¹⁾ Optional raceway with height of 70 mm and width of 57 mm

⁽²⁾ Length excluding the 23 mm unit end panel at each end

DIMENSIONS

■ Connection flanges



Reference 00: Lateral air intake

Reference 1: Air intake, small section

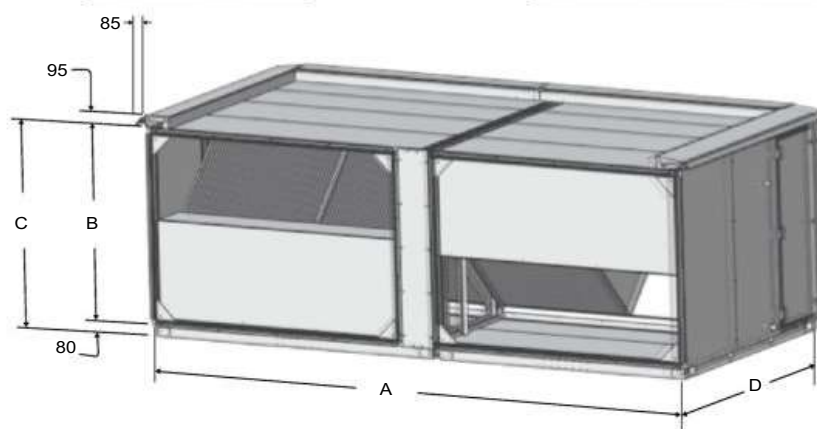
Reference 2: Air intake, large section

Reference 3: Scroll fan discharge air intake

| CLIMACIAT® UNIT | Airaccess | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 60 | 70 |
|-----------------------------|-----------|-----|-----|-----|------|------|------|------|------|------|
| | Airtech | | | | | | | | | |
| | Airclean | | | | | | | | | |
| Reference 00 - LATERAL | A | 320 | 320 | 470 | 620 | 720 | 770 | 970 | 870 | 970 |
| | B | 370 | 670 | 670 | 670 | 670 | 870 | 870 | 1270 | 1270 |
| Reference 1 - SMALL SECTION | A | 515 | 515 | 775 | 1115 | 1485 | 1485 | 1715 | 1715 | 1985 |
| | B | 220 | 370 | 370 | 370 | 370 | 470 | 470 | 670 | 670 |
| Reference 2 - LARGE SECTION | A | 515 | 515 | 775 | 1115 | 1485 | 1485 | 1715 | 1715 | 1985 |
| | B | 370 | 670 | 670 | 670 | 670 | 870 | 870 | 1270 | 1270 |
| Reference 3: FAN DISCHARGE | A | | 520 | 520 | 520 | 520 | 620 | 620 | 920 | 920 |
| | B | | 520 | 520 | 520 | 520 | 620 | 620 | 920 | 920 |

SIDE-BY-SIDE CONFIGURATION is available for **CLIMACIAT®** Airaccess, Airtech, Airclean, in sizes 60 and 70.

This configuration is available in **T2/TB2 CLIMACIAT®** configurations and **with PLATES HEAT EXCHANGER**.



| Sizes | Casing external dimension | | | |
|-------|---------------------------|------|------|------|
| | A | B | C | D** |
| 60 | 4390 | 1460 | 1540 | 2000 |
| 70 | 4930 | 1460 | 1540 | 2000 |

** Length excluding the 23 mm unit end panel at each end

This configuration is useful for indoor and outdoor installations, as it has reduced dimensions, that makes it ideal for refurbishment jobs and also for outdoor installation as it can be easily hidden by an aesthetical structure. Component's accessibility is improved, and weight / load distribution is more equilibrated, which makes easier transport and maintenance operations.

AIRTECH™

Air handling units



AIRTECH™

The technological choice

Air flow rate : 25000 to 66000 m³/h



| Specifications | Class |
|----------------------|-----------------|
| | Size 375 to 600 |
| Mechanical strength | D2 |
| Airtightness | L1 |
| Filter bypass leak | F9 |
| Thermal transmission | T2 |
| Thermal bridge | TB2 |

AIR HANDLING FOR ALL APPLICATIONS

Thanks to its large range of air flows and comprehensive selection of air handling features, **AIRTECH™** efficiently responds to all requirements in industrial and service sector applications.

The specifications for this product will always fulfil requirements thanks to the broad spectrum of solutions on offer, the product's excellent modularity, and the multiple installation options (horizontal, vertical, stacked, juxtaposed, indoor or outdoor).

HIGH PERFORMANCE IN LINE WITH NEW STANDARDS

AIRTECH™ air handling units have been designed in accordance with the recommendations of standard EN 13053 and to meet the best classifications of standard EN 1886: Thermal transmission and bridging, casing airtightness, filter bypass leakage, complying with the requirements for fans concerning mechanical safety.

All components and accessories (handles, closing latches, wall feedthroughs, portholes, sealing gaskets) have been developed by CIAT to achieve exceptional performance, thanks to its special benchmark design.

LATEST-GENERATION DESIGN

Casing

- ❶ Double-skin panels, painted external panel, 50-mm insulation
- ❷ At least one removable panel for each function in accordance with EN 13053
- ❸ Smooth panels devoid of protruding internal screws in accordance with EN 13053
- ❹ Access panels as standard on functions requiring maintenance
- ❺ Offset hinges and handles with closing latches, in composite material: Resistance to corrosion and temperatures from -40 °C to +80 °C
- ❻ Multifunction ergonomic support which enables and is suitable for handling, installation, block connection, panel ventilation, a control system
- ❼ High-tech profiled door seal in a special material. The high-quality fixed panels feature a gasket which contributes to the casing airtightness classification in accordance with EN 1886
- ❽ Large-section square porthole in accordance with EN 13053, dual-wall construction with increased leaktightness thanks to the internal connection bellows.

Air intake

- ❾ Damper with opposed blades, driven by toothed wheels, "Class 3" tightness according to EN 1751



❺ Composite hinge



❺ Opening handle



❿ Condensate pan



❻ Sealing flanges



❻ Adjustable motor support bracket

Filters

- ⑩ Parallel clamping filter tracks. Class F9 in accordance with EN 1886
- ⑪ Pressure tappings on each filtration stage

Exchangers

- ⑫ Up to three threaded connections as standard
- ⑬ Inclined condensate drain pan in accordance with EN 13053
- ⑭ Sealing flange, total air efficiency and thermal bridge rupture between the pipes and the casing

Fans

- ⑮ Three types of fan available: LP, MP and plug fans (with AC or EC motor) in a range of sizes
- ⑯ Fans installed on an anti-vibration chassis with spring mounts as standard for all AC motor solutions
- ⑰ Internal flexible connector between the fan and the casing for all AC motor solutions
- ⑱ Motor mounted on an adjustable self-guided bracket
- ⑲ Packing box fitted for power supply



⑯ Anti-vibration mount



⑩ Compressible filter track



⑦ Seal

THE KEY TO AIRTECH™'S EXCEPTIONAL PERFORMANCE IS ITS BENCHMARK FILTRATION SYSTEM.

Pre-filtering

Designed exclusively by CIAT, the filter supports meet the strictest quality standards for optimum sealing in accordance with the current EN 1886 standard.

Compressible tracks on the counter frame with a peripheral gasket guaranteeing a quality seal on the filtration system.

Unit filtration

Ultra-high unit filtration standard:

- Dual leakage barrier for enhanced performance,
- Separate panels to prevent any mechanical deformation when carrying out operations inside the unit, thereby helping protect the peripheral sealing gaskets.

THE HIGH-PERFORMANCE RANGE

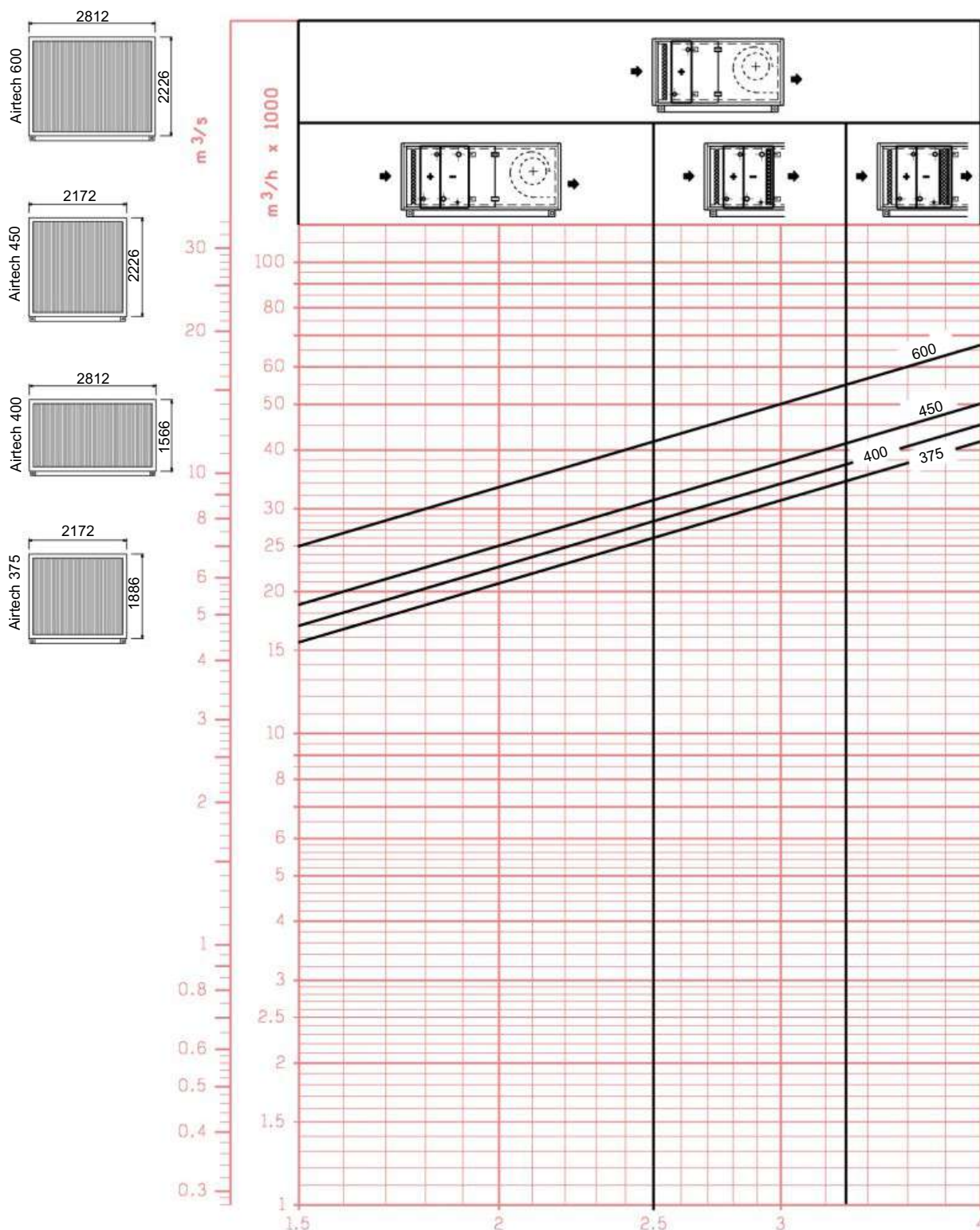
The **AIRTECH™** range consists of 4 sizes to handle air flow rates from 25000 to 66000 m³/h.

The diagram below is used to pre-select the required size according to:

- The through speed in the front active section of the heat exchange coils
- The air flow rate to be handled

The diagrams show the standard compositions with the usage limit corresponding to the components.

Air heater (A), air conditioning unit without droplet separator (B), with drain screen separator (C), with blade-type separator (D).



➔ Please contact us for more information on this range.

AIRCLEAN™

Air handling units



AIRCLEAN™
*Ultra-cleanliness
has a name*

AIRCLEAN™ SANTE
*Healthcare has its
experts*

Air flow: 25000 à 66000 m³/h



| Specifications | Class |
|-----------------------|-----------------|
| | Size 375 to 600 |
| Mechanical strength | D2 |
| Airtightness | L1 |
| Filter bypass leakage | F9 |
| Thermal transmission | T2 |
| Thermal bridge | TB2 |

DESCRIPTION

Design, adaptation and options in complete accordance with the "hygiene" recommendations of the EN 13053 norm relating to air treatment of areas under controlled atmosphere.

High quality solutions and materials used.

Totally smooth internal design, all functions are fully cleanable and decontaminable.

APPLICATIONS

AIRCLEAN™

Clean rooms, laboratories, microelectronics, car industry, plastics processing.

AIRCLEAN™ SANTE

Pharmaceutical industry, hospitals

AIRCLEAN™, THE ULTIMATE IN ULTRA-CLEANLINESS

An AHU that meets high demands

- Plug fan with profiled, high efficiency blades.
- Air flow control by an integrated frequency inverter with display (option).
- Filter assemblies adapted to the necessary level of filtration to ensure the highest filtration performances.
- Materials and coatings ensure the levels of chemical resistance, bacteriological cleanliness, and cleanability required to control contamination.
- Panels and accessories designed to meet the highest performance level requirements (airtightness, acoustics, thermal, etc.).

Meets new standards in performance

- Design tailored to the most stringent requirements of new-generation ultra-clean processes.
- Maximum efficiency particulate filtration.
- Reinforced seals withstand required pressure levels.
- Easy decontamination.
- Total control over quality, from design to manufacturing.

An AIRCLEAN™ concept

- Completely smooth inside and outside.
- White RAL 9010 coated casing inside and outside.
- Mineral wool insulation (long fibres, thickness 50 mm).
- Panels, inside components and accessories made of 304L or 316L stainless steel (option).
- Specific coatings and steels available for each function.
- Flat or sloped stainless steel bottom (option).

An AIRCLEAN™ SANTE concept

- Completely smooth inside.
- White RAL 7035 coated casing inside and outside.
- Mineral insulation (long fibres, thickness 50 mm).
- 4-slope hygienic condensates drain pan.
- Flat or sloped stainless steel bottom (option).

High standards right down to the smallest details

- Offset hinges and lockable handles made of composite materials: excellent corrosion resistance, proven strength, easy to open and close, good temperature resistance (-40 to +80°C).
- The hinge pins are designed to avoid any leakage and ensure the casing's thermal performances.
- Base frame raised above water.
- Double-shouldered door profile with specially shaped EPDM seal for optimum leakage performance.
- Large double-wall, square inspection window with central seals on the inside and outside and inside the panel provided by a one-piece bellow.



European Standards

EN 13053 design



Filters



Fan motor assembly



Airtight handle
designed by CIAT



Inspection
window

- Doors downline of fan open inwards.
- Dampers with opposing blades, "Class 3" airtightness in accordance with EN 1751 (Class 4 available as an option).
- Plug fan technology adapted to chosen operating points and desired acoustic performance levels.
- Integrated air flow control to ensure zero contamination (option).
- Fan assemblies adapted to performance levels and allowing optimum aerodynamic efficiency (connection sleeve size and quality, specially sized anti-vibration mounts, turbines sized to each enclosure in strict accordance with aerodynamic rules, etc.).
- Stainless steel condensates drain pan.
- Acoustic baffles have a special surface coating that prevents the release of particles from contaminating the air flow.
- Ultra-high unit filtration standard:
 - Dual leakage barrier ensures the full level of filtration for the entire filtration area.
 - Separate filtration area ground panel to prevent damage from any seal distortion.

AIRCLEAN™, STRINGENT STANDARDS

Whisper quiet

- Obtaining the lowest overall noise level involves selecting the best fan, the prime source of noise in an air handling unit.
- The two walls of the panel are specially designed to absorb a maximum of noise. They are not connected and contain two different thicknesses (different natural frequencies).
- Each anti-vibration mount is selected to reduce vibration and noise phenomena "at the source".
- The geometry of the sound attenuators is optimised to lower noise to the unit's overall acoustic performance level.

Cleaned air

- High level of filtration efficiency ensured by assemblies adapted to each filter class (large-media frames for H10 and higher HEPA filtration).
- Usable with completely recyclable, new-generation filters with polypropylene media containing no fibre glass.
- Control and use of innovations in molecular and biological filtration that make it possible to address the issue of contamination by VOCs (Volatile Organic Compounds), bacteria, viruses, organic molecules, and even certain inorganic molecules.
- Filters comply with the maximum allowable pressure drops recommended in the EN 13053 standard.
- High-flow air washing systems operate using raw water, deionised water or ultrapure water.

Easy decontamination

- The **AIRCLEAN™** AHU meets the hygiene requirements of EN 13053:
- Accessibility, position and size of doors and inspection hatches.
- Smooth panels for easy cleaning.
- Sound attenuators that prevent particles from being released during servicing and operation
- Inspection window (large section, full view) and lighting in all accessible sections.
- Air leakage and filter bypass leakage comply with the highest classifications required by EN 1886.

Controlled humidity

STEAM HUMIDIFIER

- Self-contained steam generator
- Uses electrodes or heating elements depending on the quality of the water supply.
- The size and quality of the ducts are adapted to the steam generated.
- Stainless steel overflow pan and separator.
- Stainless steel ducts adapted to central steam generation systems.

ADIABATIC HUMIDIFIER

- Spray or sprinkling.
- Stainless steel enclosure and eliminator as standard.
- Pan washing lance.
- UV water treatment systems may be integrated.

Controlled environments

Meets the following standards governing air handling in controlled environments:

- NF S 90-351: Healthcare institutions - Clean rooms and associated controlled environments - Requirements for the control of airborne contamination.
- ISO 14644: Clean rooms and associated controlled environments, particularly sections relating to the classification of air cleanliness and design and operating specifications.
- Pharmaceutical GMP (Good Manufacturing Practices).

Common cleaning and decontamination procedures have been taken into account in the general design and the recommended locations of each function.

Unlimited modularity

- All filter classes up to H14 plus molecular filtration using specific absorbents.
- Heating (hot water supply, superheated water, steam or electricity), cooling (chilled water, direct expansion).
- Number of rows, circuiting, fin pitches and coil coatings adapted to thermal, hydraulic and environmental criteria.
- Droplet separator technology and quality adapted to operating conditions.
- Fans of all sizes (diameters 180 to 1 000 mm), scroll or plug types (optimised for desired operating point). All discharge configurations possible.
- Various coatings for each AHU section.
- All functions can be fully adapted to your space and location requirements.

Please consult us for any further information you may need on this product range.

HELIOTHERME® 4000

Axial air heaters

The best **technical/economical** solution
for heating large areas

Ensures buildings warm up ultra fast

Excellent diffusion via **patented JET+**
double deflection technology
High Energy Efficiency motor version



Heating



Cooling and
heating

ErP
READY



USE

In wall-mounted or ceiling-mounted versions, the **HELIOTHERME®** is the simple, affordable heating/cooling solution for all your applications: for your premises in the service sector (sales outlets, halls, multi-purpose rooms, etc.) or in industry (workshop, garage, storage unit, logistics platform, etc.).

The **HELIOTHERME®** range meets APSAD and NFPA recommendations on air speeds along the edges of units.

All are less than 5 m/s at 0.5 m from the diffuser and thus do not interfere with sprinkler systems.

The air heater may be combined with destratifiers (TPL) to promote mixing of the air within the building. (Anti-stratification solution)

HELIOTHERME® ATEX version: voluntary type examination certificate LCIE 13 ATEX 1015 X gas environment.

HELIOTHERME® 4631S version: specially designed for "logistics platforms" (on request and for a minimum of 15 units). Only available as hot water (1 row) with 400 V/3 PH/50 Hz power supply.

CONTROL

A range of "Plug & Play" proportional air-source/water-source controllers with heat exchanger (or electric heater) are used to control the air flow of the fan motor assembly and the heating capacity required for the room, according to the occupancy periods (built-in timer).

■ LP water application + 1-PH AC FMA:

- 1-PH Eco+ BOX can control up to 3 1-PH H4000 ACs.

■ LP water application + THREE-PHASE AC FMA:

- THREE-PHASE Eco+ BOX can control up to 9 THREE-PHASE H4000s.

■ LP water application + 1-PH HEE FMA:

- 1-PH HEE BOX can control:
 - 6 1-PH HEE H4000s
 - 6 1-PH HEE TPL 4000s
 - 3 1-PH HEE H4000s + 3 1-PH HEE TPLs
 - 4 1-PH HEE H4000s + 2 1-PH HEE TPLs

OPTIONS AND ACCESSORIES

- Wall bracket, ceiling bracket, IPN additional kit
- Filter box
- Specific diffuser (on door, high-level etc.)
- Room thermostat for THREE-PHASE or SINGLE-PHASE installation

- LS/HS switch for 3-PH fan motor assembly
- 5 speed autotransformer for 1-PH AC FMAs
- Proximity switch
- Circuit breaker unit

RANGE

| Heating/cooling medium | LP water | HP superheated water - Oil | HP steam | Electrical |
|------------------------|-------------------------------------------------------------------------------------------------|----------------------------|--------------------------|---------------------|
| Standard drive | THREE-PHASE 2 speeds – SINGLE-PHASE 1 variable speed IP 44 (H4350) and IP54 (H4400 to H4630) | | | |
| Reinforced variant | CORROBLOC version – IP 55/65 – 700-hour salt spray test | | | |
| Coil (tubing/row) | Copper/Alu | 316L stainless steel/Alu | 316L stainless steel/Alu | Stainless steel/Alu |
| Reinforced versions | 316L stainless steel tubes/HERESITE coating | HERESITE coating | | |
| Casing | Precoated off-white (RAL 7035) galvanised steel | | | |
| Reinforced versions | 304L stainless steel | | | |
| ATEX versions | LCIE 13 ATEX 1015 X – Zone 1 or 2 – IIB or IIC – T4 or T6 | | | |



Standard/HEE



Reinforced version
(high resistance to corrosion)

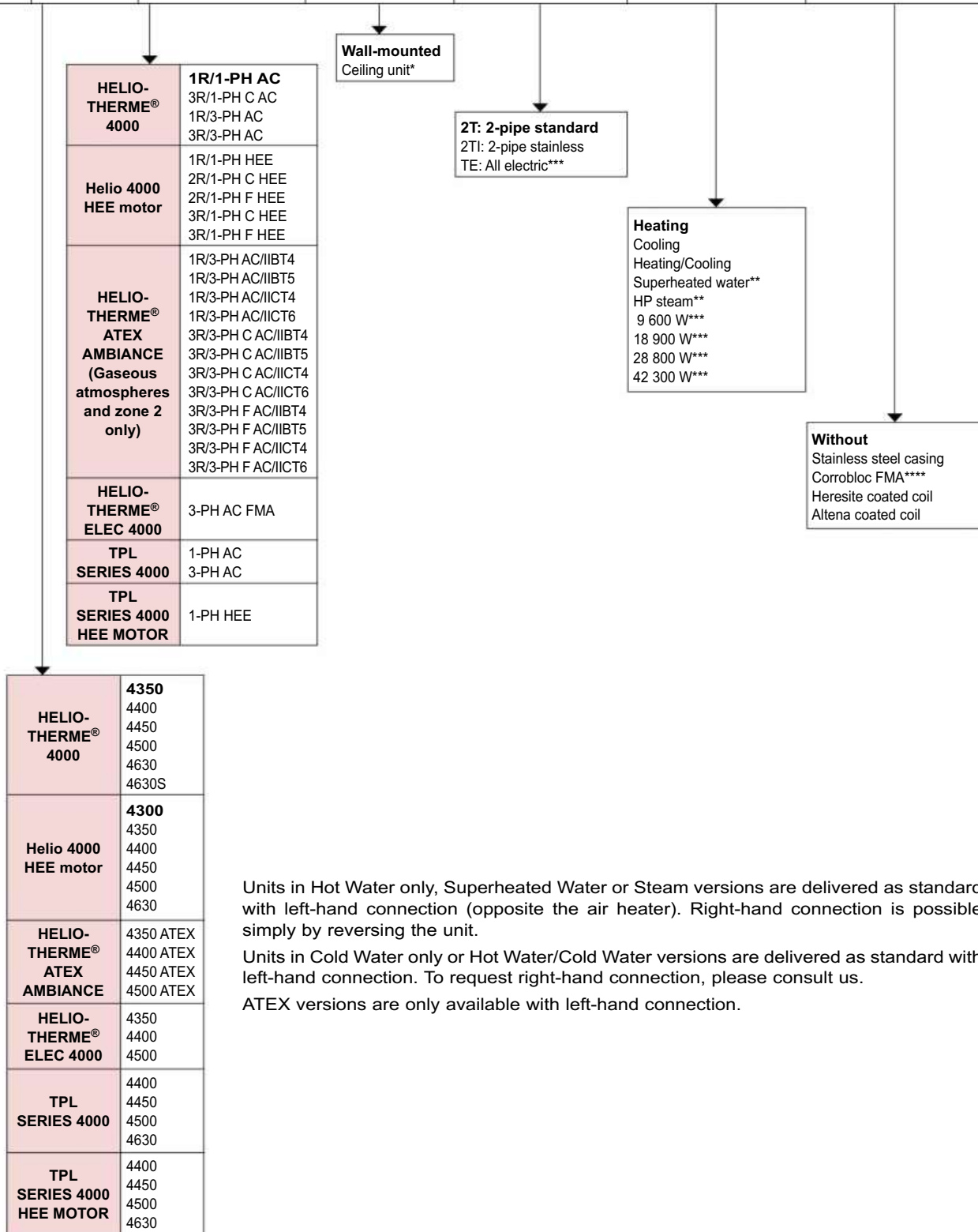


ATEX version

| Heating/cooling medium | LP water with HEE FMA |
|------------------------|-------------------------------------------------------------------------------------------------------------------|
| HEE drive | 1-phase variable speed with 0-10 V signal IP 54 (H4300 and H4350) and IP55 (H4400 to H4630) |
| Coil (tubing/row) | Copper/Alu |
| Casing | Precoated off-white (RAL 7035) galvanised steel Condensate pan + built-in nautical coupling for cooling |
| Reinforced versions | 304L stainless steel |

H4000 MORPHO CODES

| Range | Series | Size | Model | Coil | Thermal function | Specific options |
|-------|--------|------------|--------------|------|------------------|------------------|
| H4000 | 4350 | 1R/1-PH AC | Wall-mounted | 2T | Heating | Without |



Units in Hot Water only, Superheated Water or Steam versions are delivered as standard with left-hand connection (opposite the air heater). Right-hand connection is possible simply by reversing the unit.

Units in Cold Water only or Hot Water/Cold Water versions are delivered as standard with left-hand connection. To request right-hand connection, please consult us.

ATEX versions are only available with left-hand connection.

Note:

* Except HELIO THERME® ATEX AMBIANCE

** Except HELIO THERME® 4000 HEE motor

*** HELIO THERME® ELEC 4000 only

**** HELIO THERME® 4000 only

DESCRIPTION

High-efficiency fan motor assembly

Silent FMA with an aluminium epoxy polyester-coated airfoil propeller to ensure the best compromise between air flow efficiency and acoustic comfort.

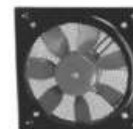
The ROTOREX design, with its electrical coils inserted into the fan hub, guarantees perfect cooling of the motor to ensure it runs with optimum efficiency.

Available versions:

- **THREE-PHASE** 2 speed (230/400 V - 3-Ph - 50 Hz) (*accessory LS/HS switch*)
- **SINGLE PHASE** 1 variable speed (230 V - 1-Ph - 50 Hz) (*accessory 5-speed autotransformer*)
- **CORROBLOC version** guaranteed to withstand corrosive environments.

HEE FMA

Fan motor assembly equipped with a powerful HEE EC (electronically commutated) motor. These EC motors (single-phase 230 V - 1-Ph - 50/60 Hz drive) will be progressively controlled by the 0-10 V signal, to ensure acoustic comfort and air flow efficiency and to optimise consumption of electricity. A shunt can be used to operate the air heater at maximum speed.



CORROBLOC FMA

IP65/700-hour salt spray test



Casing

- Elegant galvanised steel casing, pre-coated with RAL 7035 (light grey) paint (stainless steel version available on request).
- Built-in condensate drain pan for cooling applications, featuring an antibacterial design (perforated bottom) and quick-release fitting (diameter 1'1/4).
- Inlet cone optimised for improved air flow performance and acoustic comfort level.
- Advantages:
 - Its classic design means that it can easily blend into the architecture of the installation site.
 - No need to add an unsightly condensate drain pan.
 - Condensate pipes quick and extremely simple to connect, without the need for a clamp, (1'1/4 diam. quick-release fitting).

Diffuser

Double deflection diffuser made from rigid aluminium sections, based on the BERNOULLI fluid flow principle and on NACA0012 airfoils, creating a high induction rate on the primary air, in order to increase the air streams, limit the stratification phenomenon and thereby reduce energy consumption.

■ Basic version (H4630S: On request only and for a minimum of 15 units):

- Single-deflection diffuser with swivel blade
- Off-white galvanised steel louvre

■ JET+ version (fitted as standard):

- Double deflection diffuser
- JET+ aluminium louvre with NACA0012 airfoil design
- Each louvre can be adjusted independently
- Advantages:
 - Air flows adjustable in 4 directions for optimum coverage of the area to be handled, while limiting draughts.
 - Laminar air flow for better acoustic comfort (zero turbulence at the diffuser outlet).
 - Increased air speed, thanks to the resulting aerodynamics (depression along lower surface of blade) due to the curve of the airfoil, thereby increasing the air throws and the induction rate.
 - Limited stratification phenomenon.
 - Reduced building warm-up times:
 - Recorded energy savings of 15 to 20%.

Heat exchanger

HIGH EFFICIENCY heat exchanger coil with tapered intake baffles to help pressurise the finned casing, available in the following versions:

■ LP hot or cold water version – Available with 1 or 3 rows:

- Copper tube Ø 9.52 mm
- Embossed aluminium fins – Thickness 10/100 mm
- Fin spacing 2.1 mm
- Advantage: Excellent thermal yield (dry transfer coefficient > 50 W/m².k)

■ HP superheated water - oil version – Available with 1 row:

- 316L stainless steel Ø 16 mm thick pipe
- Embossed aluminium fins – Thickness 28.5/100 mm
- Fin spacing 2.5 mm
- Compatible for use with thermal oils
- Advantage: robust finned aluminium coil block suitable for use in industrial environments (dirty air) and may be cleaned using a high-pressure water jet.

■ HP steam version – Available with 1 row:

- 316L stainless steel Ø 16 mm thick pipe
- Embossed aluminium fins – Thickness 28.5/100 mm
- Fin spacing 2.5 mm
- Advantage: excellent corrosion resistance thanks to chemicals pumped through steam network piping.

■ Electric version – Four capacities available:

- Stainless steel single-tube heating element
- Embossed aluminium fins – Thickness 10/100 mm
- Fin spacing 2.5 mm
- Double overheating thermostat with automatic and manual reset for compliance with fire protection standards (CH37)
- Advantage: Heating elements inserted directly into the finned block ensure excellent heat transfer.

HELIO THERME® PERFORMANCE - SUPERHEATED WATER AND STEAM - 230 V/1-Ph/50 Hz MOTOR - AC AND HEE

| HEATING - 230 V/1-Ph/50 Hz motor - AC and HEE | | | | | | | | | | |
|-----------------------------------------------|-------------|-------------------------------|----------------|---------------|----------------|-----------|-----------------------|------|------|----------------------|
| Model | No. of rows | Supply air speed SINGLE-PHASE | Flow rate m³/h | Air speed m/s | Range (metres) | | Heating capacity (kW) | | | Sound pressure dB(A) |
| | | | | | Wall-mounted | Suspended | HW | SW | HPS | |
| H4300 | 2 | Direct | 1 420 | 3.16 m/s | 15 | 3 | 12,9 | | | 45 |
| H4350 | 1 | Direct | 2 600 | 3.92 m/s | 22 | 6 | 10,3 | 28,7 | 49 | 48 |
| | | R3* | 2 360 | 3.56 m/s | 18 | 4 | 9,93 | 27 | 46,5 | 46 |
| | 3 | Direct | 2 075 | 3.13 m/s | 15 | 2,5 | 22,3 | | | 50 |
| H4400 | | R3* | 1 780 | 2.68 m/s | 14 | 2 | 20,4 | | | 48 |
| | 1 | Direct | 4 200 | 4.57 m/s | 26 | 8,5 | 14,9 | 45,4 | 69,6 | 54 |
| | | R3* | 3 914 | 4.26 m/s | 24 | 7,5 | 14,5 | 43,5 | 66,7 | 52 |
| | 3 | Direct | 3 450 | 3.75 m/s | 23 | 7 | 34,6 | | | 56 |
| H4450 | | R3* | 3 220 | 3.50 m/s | 20 | 5,5 | 33,2 | | | 54 |
| | 1 | Direct | 5 200 | 4.20 m/s | 27 | 8,5 | 20,3 | | | 56 |
| | | R3* | 4 100 | 3.31 m/s | 24 | 6 | 18,5 | | | 49 |
| | 3 | Direct | 4 550 | 3.68 m/s | 18 | 3,5 | 47 | | | 59 |
| H4500 | | R3* | 3 650 | 2.95 m/s | 17 | 3 | 41,2 | | | 52 |
| | 1 | Direct | 7 100 | 4.22 m/s | 28 | 9 | 26,9 | 77,9 | 120 | 56 |
| | | R3* | 5 700 | 3.39 m/s | 26 | 7 | 24,7 | 67,9 | 104 | 50 |
| | 3 | Direct | 6 200 | 3.69 m/s | 24 | 6,5 | 64,1 | | | 58 |
| H4630 | | R3* | 5 055 | 3.01 m/s | 23 | 5,5 | 56,9 | | | 52 |
| | 1 | Direct | 10 450 | 4.19 m/s | 28 | 10,5 | 39,3 | 130 | 171 | 54 |
| | | R3* | 8 900 | 3.57 m/s | 22 | 8 | 37 | 118 | 155 | 47 |
| | 3 | Direct | 8 280 | 3.32 m/s | 21 | 6,5 | 91,4 | | | 56 |
| | | R3* | 6 270 | 2.52 m/s | 19 | 5 | 77 | | | 44 |

| HEATING - COOLING - 230 V/1-Ph/50 Hz Motor - HEE | | | | | | | | | | |
|--------------------------------------------------|-------------|------------------|---------------|---------------|----------------|--|-----------------------|--|-----------------------|------|
| Model | No. of rows | Air supply speed | Air flow m³/h | Air speed m/s | Range (metres) | | Heating capacity (kW) | | Cooling capacity (kW) | |
| | | | | | Wall-mounted | | HW | | TCC | SCC |
| H4300 HEE | 2 | Direct | 1200 | 2.67 m/s | 12 | | 11,8 | | 2,6 | 2,6 |
| H4350 HEE | | | 1640 | 2.47 m/s | 23 | | 19,4 | | 5,6 | 5,2 |
| H4400 HEE | | | 2160 | 2.35 m/s | 26 | | 26,1 | | 7,7 | 7 |
| H4450 HEE | 3 | | 3025 | 2.44 m/s | 24 | | 36,9 | | 11,6 | 10,2 |
| H4500 HEE | | | 4060 | 2.41 m/s | 23 | | 48,1 | | 15,7 | 13,8 |
| H4630 HEE | | | 5960 | 2.39 m/s | 21 | | 72,1 | | 24,4 | 20,8 |

Specifications determined using the following information:

- **Hot water:** temperature: 80 - 60 °C / RT=15 °C - RH 50%
 - **superheated water (HP SW):** temperature: 180 - 100 °C / RT=15 °C - RH 50 %
 - **Steam (HPS):** Temperature 175 °C - 8 bar/RT=15 °C - RH 50 %
 - **Cooling:** temperature 7 - 12 °C / RT=27 °C - RH 50 %
 - **Air stream:**
 - * with JET+ diffuser for a residual speed of 0.1 m/s
 - * defined with Δt OT/RT of 15 °C (heating) and 7 °C (cooling)
 - * with LP water or electric heating
 - **Air speed:** JET+ diffuser outlet
 - **Sound pressure:** measured 5 metres from unit, directivity 2, attenuation of 22 dB
- ⇒ **Direct:** speed obtained when wired directly to single-phase motor.
- ⇒ **R3* (version with AC motor):** supply air velocity obtained with autotransformer set to "3". Other operation points (5 in total) can be supplied on request by your agent using our technical selection software.

Defined performance without accessories (unit only)

HELIOTHERME® PERFORMANCE HOT WATER, SUPERHEATED WATER AND STEAM 400 V/3-PH/50 Hz MOTOR

| HEATING - 400 V/3-Ph/50 Hz motor | | | | | | | | | | | |
|----------------------------------|-------------|------------------|---|-----------|-----------|----------------|-----------|-----------------------|------|------|----------------|
| Model | No. of rows | Air supply speed | | Flow rate | Air speed | Range (metres) | | Heating capacity (kW) | | | Sound pressure |
| | | THREE-PHASE | | m³/h | m/s | Wall-mounted | Suspended | HW | SW | HPS | dB(A) |
| H4350 | 1 | HS | △ | 2 600 | 3.92 m/s | 22 | 6 | 10,3 | 28,7 | 49 | 48 |
| | | LS | ★ | 2 210 | 3.33 m/s | 17 | 3,5 | 9,7 | 25,9 | 44,9 | 44 |
| | 3 | HS | △ | 2 165 | 3.26 m/s | 18 | 4,5 | 22,9 | | | 50 |
| | | LS | ★ | 1 775 | 2.67 m/s | 14 | 2 | 20,4 | | | 46 |
| H4400 | 1 | HS | △ | 4 000 | 4.35 m/s | 25 | 8 | 14,6 | 44,1 | 67,7 | 55 |
| | | LS | ★ | 3 480 | 3.79 m/s | 21 | 5 | 13,9 | 40,5 | 62,2 | 51 |
| | 3 | HS | △ | 3 400 | 3.70 m/s | 22 | 6,5 | 34,3 | | | 56 |
| | | LS | ★ | 2 960 | 3.22 m/s | 17 | 3,5 | 31,7 | | | 52 |
| H4450 | 1 | HS | △ | 5 400 | 4.36 m/s | 28 | 9 | 20,6 | | | 56 |
| | | LS | ★ | 3 910 | 3.16 m/s | 23 | 5,5 | 18,2 | | | 49 |
| | 3 | HS | △ | 5 000 | 4.04 m/s | 24 | 7,5 | 49,6 | | | 59 |
| | | LS | ★ | 3 910 | 3.16 m/s | 20 | 4 | 43,1 | | | 52 |
| H4500 | 1 | HS | △ | 7 500 | 4.46 m/s | 30 | 10 | 27,4 | 80,4 | 124 | 56 |
| | | LS | ★ | 5 740 | 3.41 m/s | 26 | 7 | 24,8 | 68,2 | 105 | 50 |
| | 3 | HS | △ | 6 500 | 3.86 m/s | 26 | 8,5 | 65,9 | | | 58 |
| | | LS | ★ | 5 020 | 2.98 m/s | 23 | 5,5 | 56,7 | | | 52 |
| H4630 | 1 | HS | △ | 11 140 | 4.47 m/s | 29 | 11,5 | 40,2 | 136 | 178 | 55 |
| | | LS | ★ | 9 635 | 3.87 m/s | 24 | 8,5 | 38,1 | 124 | 163 | 48 |
| | 3 | HS | △ | 9 175 | 3.68 m/s | 25 | 10 | 97 | | | 57 |
| | | LS | ★ | 7 545 | 3.03 m/s | 21 | 7 | 86,5 | | | 49 |

| ELECTRIC HEATING - 400V/3Ph/50 Hz motor | | | | | | | | | |
|-----------------------------------------|------------------|---|-----------|-----------|----------------|-----------------------|---------------|-----------------|----------------|
| Model | Air supply speed | | Flow rate | Air speed | Range (metres) | Electrical power (kW) | | | Sound pressure |
| | | | m³/h | m/s | Wall-mounted | Total | No. of stages | Power per stage | dB(A) |
| H4350 | HS | △ | 2600 | 3.92 m/s | 22 | 9.6 kW | 2 | 2.4 kW | 48 |
| | LS | ★ | 2210 | 3.33 m/s | 17 | | | 7.2 kW | 44 |
| H4400 | HS | △ | 4000 | 4.35 m/s | 25 | 18.9 kW | 2 | 5.4 kW | 55 |
| | LS | ★ | 3480 | 3.79 m/s | 21 | | | 13.5 kW | 51 |
| H4500 | HS | △ | 7500 | 4.46 m/s | 30 | 28.8 kW | 2 | 10.8 kW | 56 |
| | LS | ★ | 5740 | 3.41 m/s | 26 | | | 18 kW | 50 |
| | HS | △ | 7500 | 4.10 m/s | 30 | 43.2 kW | 3 | 14.4 kW x 3 | 56 |
| | LS | ★ | 5740 | 3.21 m/s | 26 | | | | 50 |

Specifications determined using the following information:

- **Hot water:** temperature: 80 - 60 °C / RT=15 °C - RH 50%
- **Cold water:** temperature: 7 - 12 °C / RT=27 °C - RH 50%
- **Superheated water (HP SW):** temperature: 180 - 100 °C / RT=15 °C - RH 50 %
- **Steam (HPS):** Temperature 175 °C - 8 bar/RT=15 °C - RH 50 %
- **Air stream:**
 - * with JET+ diffuser for a residual speed of 0.1 m/s
 - * defined with Δt OT/RT of 15 °C
 - * with LP water or electric heating
- **Air speed:** JET+ diffuser outlet
- **Sound pressure:** measured 5 metres from unit, directivity 2, attenuation of 22 dB

Defined performance without accessories (unit only)

TPL DETERMINATION AND SELECTION EXAMPLE (DESTRATIFIER)

S = Supply (released at the top of the building)

TR= Temperature under roof

TW = Temperature setpoint in the work area

$$\text{Calculated flow rate for destratifiers} = \frac{A}{0.3 \times (TR-TW)}$$

Selection example:

Supply under building roof = S = 45,000 kcal (52,200 Watts)

Temperature under roof = TR = 30 °C

Temperature setpoint in the work area = TW = 16 °C

$$\text{Calculated flow rate for destratifiers} = \frac{45\,000}{0.3 \times (30-16)} = 10714 \text{ m}^3/\text{h}$$

So: 2 x TPL 4500 at HS or 1 x TPL 4630 at HS.

TPL AIR FLOW AND ACOUSTIC PERFORMANCE

| TPL | 4400 | | 4450 | | 4500 | | 4630 | |
|--------------------------------------------------|--------|------|--------|------|--------|------|--------|------|
| 230/400V-3Ph-50 Hz Motor (3-phase 400V coupling) | HS | LS | HS | LS | HS | LS | HS | LS |
| | △ | ★ | △ | ★ | △ | ★ | △ | ★ |
| 230 V-1-Ph-50 Hz AC and HEE motor | Direct | - | Direct | - | Direct | - | Direct | - |
| Flow rate m³/h | 4400 | 3000 | 6000 | 4100 | 8000 | 5500 | 11500 | 8800 |
| Air stream m | 15 | 8 | 14 | 9 | 16 | 10 | 19 | 14 |
| Sound pressure dB(A) | 54 | 43 | 56 | 46 | 57 | 47 | 55 | 50 |

Specifications determined using the following information:

Air stream: * with JET+ diffuser for a residual speed of 0.1 m/s

Sound pressure: * measured 8 metres from unit, directivity 2, attenuation of 26 dB

ELECTRIC MOTOR CHARACTERISTICS

| Use | Model | Motor | Speed of rotation (rpm) | Nom. current A | Max power input (W) | IP | Thermal cut-out | Class | Operating T° |
|---------|------------|-----------------------------------------------|-------------------------|----------------|---------------------|----|-----------------------|-------|-----------------|
| HEATING | H4350 | THREE-PHASE 230/400V - 3Ph - 50 Hz | HS - Δ 1385 | 0,35 | 110 | 44 | YES 6.3 A - 165 °C | F | -40 °C / +60 °C |
| | | | LS - ★ 1175 | 0,15 | 70 | 54 | | | -40 °C/+70 °C |
| | H4400 | | HS - Δ 1404 | 0,5 | 260 | | | | |
| | TPL4400 | | LS - ★ 1176 | 0,3 | 170 | | | | |
| | H4450 | | HS - Δ 1385 | 1,13 | 550 | | | | |
| | TPL4450 | | LS - ★ 1040 | 0,64 | 380 | | | | |
| | H4500 | | HS - Δ 1391 | 1,51 | 770 | | | | |
| | TPL4500 | | LS - ★ 1176 | 0,9 | 520 | | | | |
| | H4630 | | HS - Δ 870 | 1,3 | 590 | | | | |
| TPL4630 | LS - ★ 750 | 0,63 | 250 | | | | | | |
| HEATING | H4350 | SINGLE-PHASE 230 V - 1 Ph - 50 Hz - AC | Direct 1330 | 0,7 | 150 | 44 | YES 6.3 A - 165 °C | F | -40 °C / +60 °C |
| | H/TPL4400 | | Direct 1400 | 1,3 | 300 | 54 | | | -40 °C/+70 °C |
| | H/TPL4450 | | Direct 1380 | 2,01 | 480 | | | | |
| | H/TPL4500 | | Direct 1403 | 2,78 | 630 | | | | |
| | H/TPL4630 | | Direct 913 | 2,6 | 580 | | | | |
| HEE FMA | | | | | | | | | |
| HEATING | H4300 | SINGLE-PHASE 230 V - 1-Ph - 50/60 Hz - HEE | 1530 | 0,8 | 85 | 54 | PTC | B | -25 °C/+55 °C |
| | H4350 | | 1480 | 1,35 | 165 | 54 | PTC | B | -25 °C/+50 °C |
| | H/TPL4400 | | 1760 | 2,2 | 500 | 55 | Thermal cut-out | B | -25 °C/+60 °C |
| | H/TPL4450 | | 1500 | 2,2 | 500 | 55 | Thermal cut-out | B | -25 °C/+60 °C |
| | H/TPL4500 | | 1440 | 3,25 | 740 | 55 | Thermal cut-out | B | -40 °C/+60 °C |
| | H/TPL4630 | | 1020 | 3,2 | 730 | 55 | Thermal cut-out | B | -40 °C/+60 °C |
| COOLING | H4300 | SINGLE-PHASE 230 V - 1-Ph - 50/60 Hz - HEE | 1530 | 0,8 | 85 | 54 | PTC | B | -25 °C/+55 °C |
| | H4350 | | 1040 | 0,65 | 73 | 54 | PTC | B | -25 °C/+60 °C |
| | H4400 | | 1760 | 2,2 | 500 | 55 | Thermal cut-out | B | -25 °C/+60 °C |
| | H4450 | | 1500 | 2,2 | 500 | 55 | Thermal cut-out | B | -25 °C/+60 °C |
| | H4500 | | 970 | 1,1 | 250 | 55 | Thermal cut-out | B | -25 °C/+60 °C |
| | H4630 | | 770 | 1,1 | 250 | 55 | Thermal cut-out | B | -25 °C/+60 °C |

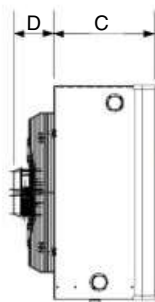
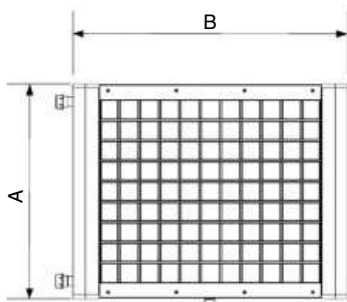
COIL SPECIFICATIONS

| | | 4300 | 4350 | | 4400 | | 4450 | | 4500 | | 4630 | |
|----------------------------|----------------------------|-----------------------------|-------------------------------------------------|--------|---------|------|------|------|---------|------|------|-----|
| LOW PRESSURE WATER COIL | Number of heating rows | 2 | 1 | 3 | 1 | 3 | 1 | 3 | 1 | 3 | 1 | 3 |
| | Number of cooling rows | 2 | 3 | | | | | | | | | |
| | Coil capacity (L) | 0,8 | 0,68 | 1,66 | 0,96 | 2,28 | 1,38 | 3,22 | 2,18 | 4,55 | 2,97 | 6,4 |
| | Connection diameter | ½" | ¾" | | | | 1" | | 1" ¼ | | | |
| | Connection type | Threaded unions 243 GCU F/M | | | | | | | | | | |
| | Maximum operating pressure | 13 bar | | | | | | | | | | |
| | Test pressure | 24 bar | | | | | | | | | | |
| | Max T° | 110 °C | | | | | | | | | | |
| HP OIL/WATER COIL | Number of heating rows | | 1 | | | | | | | | | |
| | Coil capacity (L) | | 1,19 | | 1,69 | | - | | 2,66 | | 3,69 | |
| | Connection diameter | | 33.7 mm | | 42.4 mm | | - | | 42.4 mm | | | |
| | Connection type | | Smooth 316L stainless steel tube (to be welded) | | | | | | | | | |
| | Maximum operating pressure | | 16 bar | | | | | | | | | |
| | Test pressure | | 24 bar | | | | | | | | | |
| | | Max T° | | 200 °C | | | | | | | | |
| HP STEAM COIL | Number of heating rows | | 1 | | | | | | | | | |
| | Coil capacity (L) | | 0,97 | | 1,22 | | - | | 1,95 | | 2,86 | |
| | Connection diameter | | 26.9 mm | | 33.7 mm | | - | | 48.3 mm | | | |
| | Connection type | | Smooth 316L stainless steel tube (to be welded) | | | | | | | | | |
| | Maximum operating pressure | | 16 bar | | | | | | | | | |
| | Test pressure | | 24 bar | | | | | | | | | |
| | | Max T° | | 200 °C | | | | | | | | |

Version with Heresite coating available on request. Contact our sales network.

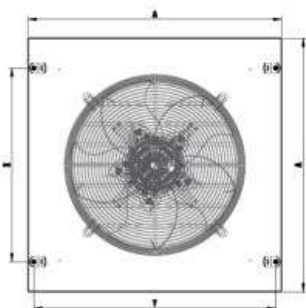
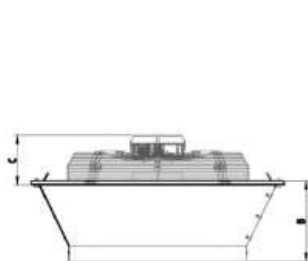
DIMENSIONS

HELIO-THERME®



| Size | A | B | C | D | | Weight (kg) | | |
|--------|-----|------|-----|-----|-----|-------------|--------|--------|
| | | | | STD | HEE | | | |
| | mm | | | | | 1 row | 2 rows | 3 rows |
| H4300 | 395 | 600 | 286 | - | 115 | - | 18 | - |
| H4350 | 460 | 646 | 286 | 101 | 126 | 21 | - | 26 |
| H4400 | 557 | 700 | 286 | 142 | 143 | 30 | - | 34 |
| H4450 | 620 | 813 | 286 | 142 | 143 | 40 | - | 44 |
| H4500 | 716 | 918 | 336 | 142 | 188 | 50 | - | 56 |
| H4630 | 876 | 1050 | 336 | 142 | 200 | 62 | - | 72 |
| H4630S | 872 | 1050 | 295 | 126 | - | 60 | - | - |

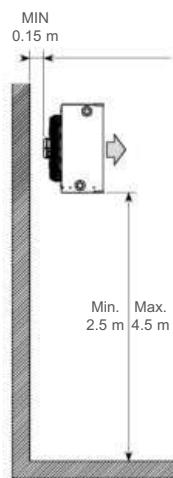
TPL DESTRAFIER



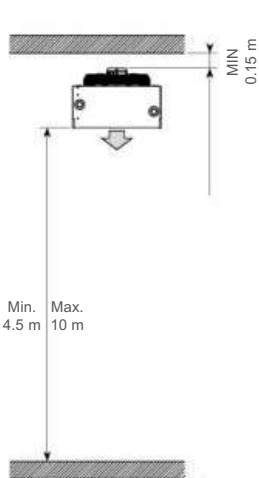
| TPL | A | B | C | | X | Y | Weight (kg) |
|---------|-----|-----|-----|-----|-----|-----|-------------|
| | | | STD | HEE | | | |
| TPL4400 | 586 | 183 | 143 | 143 | 370 | 552 | 17 |
| TPL4450 | 666 | 212 | 143 | 143 | 470 | 632 | 22 |
| TPL4500 | 747 | 225 | 143 | 188 | 570 | 712 | 25 |
| TPL4630 | 907 | 273 | 143 | 200 | 705 | 872 | 33 |

INSTALLATION

HELIO-THERME®



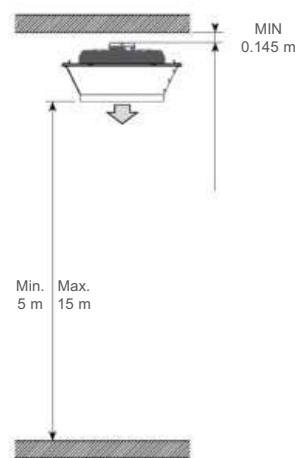
Wall mounting



Ceiling mounting



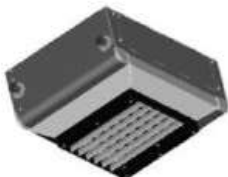


DESTRAFIER

(Recommended for buildings between 5 and 15 metres high)



ASSEMBLY ACCESSORIES

A different assembly for each use.

| RETURN AIR MODULE | | | | | | |
|-------------------------------------------------------------------------------------|------------|------|------|-----|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Size | A | B | C | Codes | Filter box (G1 filter in accordance with EN 779) Prevents premature clogging of exchanger coils Not ductable |
| | 4300 | 395 | | 220 | 7417083 | |
| | 4350 | 440 | | | 7185105 | |
| | 4400 | 520 | | | 7185106 | |
| | 4450 | 600 | | | 7185107 | |
| | 4500 | 680 | | | 7185108 | |
| | 4630 | 840 | | | 7185110 | |
| DIFFUSION MODULE | | | | | | |
|  | Size | A | B | C | Codes | Diffuser on door Create an air curtain that limits energy loss when doors are opened. Warning: Use a system that is suited to the diffuser mounting. |
| | 4300 | 750 | 655 | 300 | 7417084 | |
| | 4350 | 750 | 700 | 300 | 7185133 | |
| | 4400 | 850 | 750 | 325 | 7185134 | |
| | 4450 | 970 | 850 | 350 | 7185135 | |
| | 4500 | 1100 | 970 | 375 | 7185136 | |
| | 4630 | 1250 | 1170 | 400 | 7185137 | |
|  | Size | A | B | C | Codes | Diffuser for large spaces Reduction cone for increasing the air throws. |
| | 4300 | – | – | – | – | |
| | 4350 | – | – | – | – | |
| | 4400 | 178 | 555 | 522 | 7185138 | |
| | 4450 | 136 | 637 | 618 | 7185139 | |
| | 4500 | 132 | 740 | 714 | 7185140 | |
| | 4630 | 282 | 872 | 814 | 7185141 | |
| ASSEMBLY SUPPORT ACCESSORIES | | | | | | |
|  | Size | | | | Codes | Wall bracket |
| | All | | | | 7181226 | |
| | 300 to 450 | | | | 7181228 | Additional kit for fastening on an IPN |
| | 500 to 630 | | | | 7181230 | |
|  | Size | | | | Codes | Suspension support for ceiling mounting |
| | All | | | | 7282116 | |

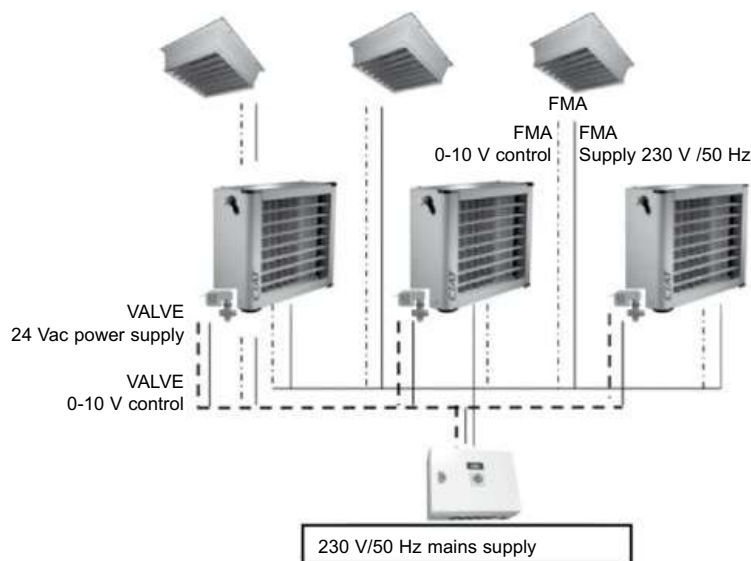
ELECTRICAL ACCESSORIES

| ELECRRICAL & USER SAFETY | | | | | |
|-------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------|
|  | Codes | | Padlockable proximity switch | | |
| | 0596142 | | Available in a 1 or 2-speed version, this accessory must be placed at least 2 metres from any rotating part, to comply with French standard IT 246, Art. 4-7-3, and EC requirements. | | |
| | 0596147 | | | | |
|  | Use | Circuit breaker unit - 1-PH AC FMA heating | Circuit breaker unit - 1-PH HEE FMA heating | Circuit breaker unit - 1-PH HEE FMA cooling | Circuit breaker unit THREE-PHASE AC |
| | H4300 | | 7252526 | 7252526 | |
| | H4350 | 7252526 | 7252527 | 7252526 | 7252523 |
| | H4400 | 7252527 | 7252528 | 7252528 | 7252525 |
| | H4450 | 7252528 | 7252528 | 7252528 | 7252527 |
| | H4500 | 7252529 | 7252529 | 7252527 | 72525227 |
| | H4630 | 7252529 | 7252529 | 7252527 | 7252527 |
| | TPL4400 | 7252527 | 7252528 | | 7252525 |
| | TPL4450 | 7252528 | 7252528 | | 7252527 |
| | TPL4500 | 7252529 | 7252529 | | 7252527 |
| | TPL4630 | 7252529 | 7252529 | | 7252527 |
| THERMOSTATS | | | | | |
| | Codes | Manual/auto room thermostat – 1-PH AC/1-PH HEE installation | | | |
|  | 7486653 | 3-speed EC thermostat kit (for SINGLE-PHASE HEE FMA) - Heating and cooling with manual toggle switch - Inductive breaking capacity 3.53 A | | | |
| | 7486654 | 1-speed AC thermostat kit (for SINGLE-PHASE AC FMA) - Heating and cooling with manual toggle switch - Inductive breaking capacity 3.53 A | | | |
|  | 5201027 | Summer or Winter thermostat - 1-PH AC FMA | | | |
| | 5201028 | Summer or Winter thermostat - 1-PH AC FMA | | | |
| | Codes | IP54 industrial environment thermostat – THREE-PHASE AC installation | | | |
|  | 7113335 | Summer or Winter thermostat - 3-PH AC FMA - 1 Stage | | | |
| | 7113336 | Summer or Winter thermostat - 3-PH AC FMA - 2 Stages | | | |
| SUPPLY AIR SPEED SELECTION | | | | | |
|  | Codes | LS/HS switch | | | |
| | 7169961 | For 3-phase AC motor, selects two motor rotation speeds and stop. | | | |
|  | Codes | Autotransformer with selector switch (3.5 A) | | | |
| | 7166982 | Used to obtain 5 supply air speeds by varying the voltage on the variable speed AC 1 single-phase motors. | | | |

SINGLE-PHASE HEE HELIOTHERME® CONTROL (EC MOTOR)

HEE 1-PH BOX range, controls: 6 HELIOTHERME® units, 6 TPLs, 3 HELIOTHERME® units + 3 TPLs, 4 HELIOTHERME® units + 2 TPLs

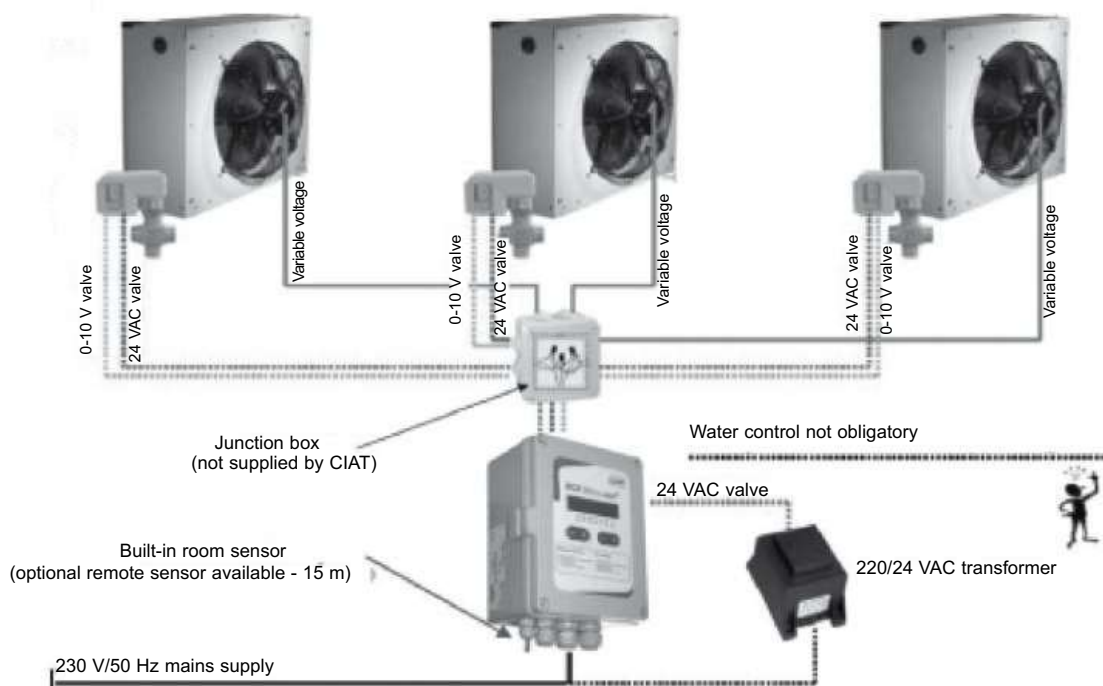
Figure A



SINGLE-PHASE HELIOTHERME® CONTROL (AC MOTOR)

Eco+ 1-PH BOX range

Figure B



THREE-PHASE HELIOTHERME® CONTROL (AC MOTOR)

3-PH Eco+ BOX range

Figure C

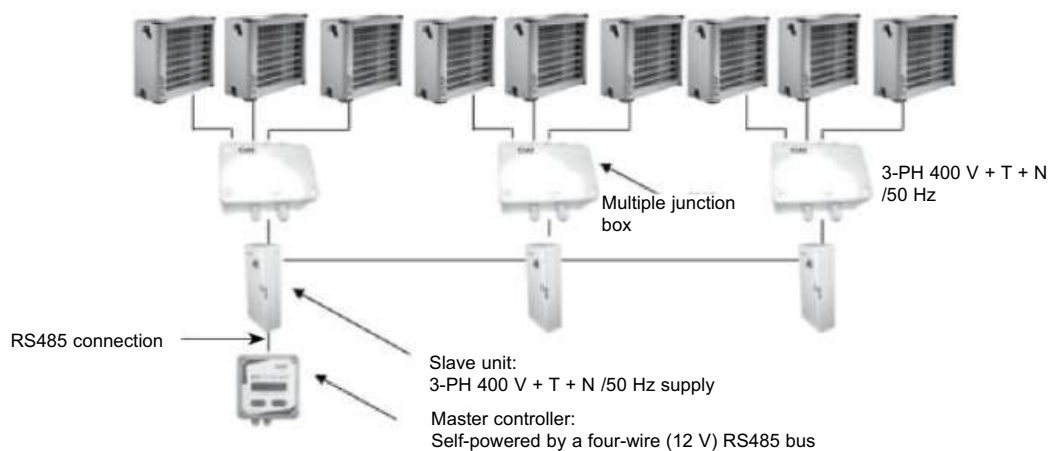
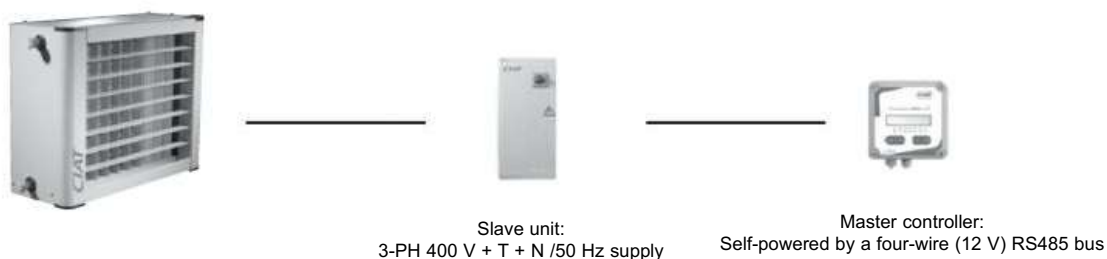


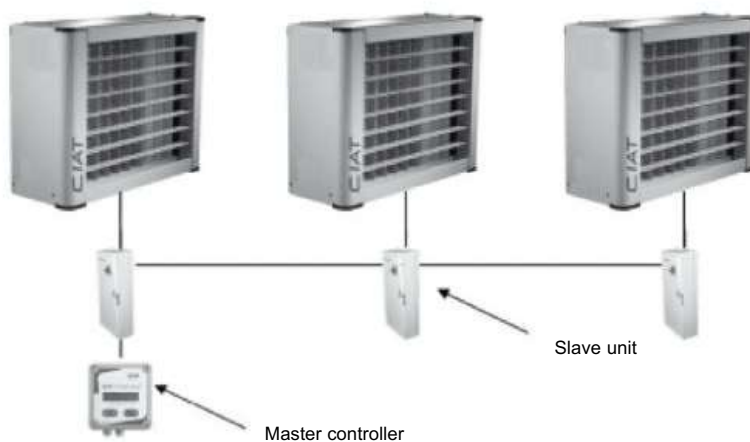
Figure D



ALL-ELECTRIC HELIOTHERME® CONTROL (diagram in Eco+ ELEC BOX user manual)

Eco+ ELEC BOX range

Figure E



TECHNICAL CHARACTERISTICS OF THE DIFFERENT CONTROLLERS

| HELIOTHERME® or TPL CONRHOL AND ACCESSORIES | | | | |
|-------------------------------------------------------------------------------------------------|----------------------|--------------------------|--------------------------------------|------------------|
| CONRHOL | 1-PH HEE BOX | 1-Ph ECO+ BOX unit | 3-PH ECO BOX + multiple junction box | ECO + ELEC BOX |
| Figure | a | b | C and D | e |
| FUNCTION | | | | |
| Number of heliotherms or TPLs that can be controlled | 1 to 6 | 1 to 3 | 1 to 9 | 1 to 3 |
| Protection rating | 54 | 55 | 55 | 55 |
| Weekly timer (Comfort/ECO/frost protection) | Included | Included | Included | Included |
| Supply Voltage/Phase/Frequency | 230 V/1/50 Hz | 230 V/1/50 Hz | 400 V/3/50 Hz+N | 400 V/3/50 Hz+N |
| Electrical protection (circuit breakers, connectors, disconnect switches) | Included | TO BE FITTED | Included | Included |
| Air control | Proportional 0 - 10V | Proportional 110 - 230 V | 2-speed LS/HS | 1 speed LS or HS |
| Water control | Proportional 0 - 10V | Proportional 0 - 10V | Proportional 0 - 10V | |
| Integrated temperature sensor | INCLUDED | INCLUDED | INCLUDED | INCLUDED |
| Remote on/off switch and fault summary | INCLUDED | NOT INCLUDED | NOT INCLUDED | NOT INCLUDED |
| MODBUS/LON and BACnet IP communication | OPTION | no | no | no |
| Fresh air control | yes | no | no | no |
| ACCESSORIES | | | | |
| BOX CONRHOL | 7391284 | 7184939 | 7219774 | 7219774 |
| Slave unit for 3-PH Eco+ BOX | | | 7218912 | |
| BMR 3-PH Eco+ BOX Multiple connection unit (controls max. 3 units) | | | 7239492 | |
| Eco+ ELEC BOX slave unit - 9.6 KW (for H4350 TE 3-PH) | | | | 7218907 |
| Eco+ ELEC BOX slave unit - 18.9 KW (for H4400 TE 3-PH) | | | | 7218908 |
| Eco+ ELEC BOX slave unit - 28.8 KW (for H4500 TE 3-PH) | | | | 7218910 |
| Eco+ ELEC BOX slave unit - 43.2 KW (for H4500 TE 3-PH) | | | | 7218911 |
| ½ " valve kit KV 1.6 (H4300) | B403210 | | | |
| ¾ " valve kit – KV 2.5 (H4351-4352-4401-4451) | | B400410 | | |
| ¾ " valve kit – KV 4 (H4353-4402-4403-4452-4501) | | B400411 | | |
| 1" ½ valve kit – KV 6.3 (H4453-4502-4503-4631) | | B400412 | | |
| 1" ½ valve kit – KV 10 (H4632-4633) | | B400413 | | |
| 220/24 Vac safety transformer (required for the power supply of the valve servomotor(s) (010 V) | INCLUDED | 7435107 | INCLUDED | |
| Change-over switch thermostat (for automatic Summer-Winter change-over) | | 7128892 | | |
| 6P padlockable proximity switch for 3-PH Eco+ BOX | | | 0596147 | INCLUDED |
| 3P padlockable proximity switch for 1-PH or HEE Eco+ Box | 0596142 | 0596142 | | |
| Remote sensor | 7462538 | | 7207381 | |

HELIOTHERME®..... is also the solution for ATEX compliance

Ex II 2 G
 II c 65 °C - 105 °C or 120 to 220 °C
 EEx d/de IIB or IIC T4 to T6

CIAT has put all its expertise and know-how into a special series of ATEX certified HELIOTHERME® units. This approval, issued by an independent external body, is your guarantee of complete compliance with the ATEX directives. The ATEX HELIOTHERME® range is certified for your applications:

- In the presence of explosive gas agent
- In zone 1 or 2
- For IIB or IIC explosion groups
- With T4 to T6 gas auto-ignition temperatures
- Low pressure water, superheated water, steam, oil, compressed air, etc.



What is ATEX?

An ATEX (explosive atmosphere) can be caused in atmospheric conditions by flammable gases, vapours or mists or by combustible dusts mixed with air. After ignition, combustion spreads through the whole of the unburnt mixture.

How is an ATEX zone defined?

ATEX zones are determined based on the probability and duration of the occurrence of an explosive atmosphere. This risk analysis is used to define zones, explosion groups and maximum surface temperature classes. These atmospheres are mainly found in painting workshops, metal processing workshops, waste recycling, wood processing, etc.

Who defines ATEX zones?

Any operator of a production facility where an explosive atmosphere may occur must define the relevant ATEX zones, explosion groups and temperature classes. By doing so, the operator will also be able to set up the necessary means of prevention (communication, documentation, recommendations, etc.).

"Directive 94/9/EC divides the equipment and protective systems which it covers into equipment groups and categories; this Directive (1999/92/EC) provides for a classification by the employer of the places where explosive atmospheres may occur in terms of zones and determines which equipment and protective systems groups and categories should be used in each zone."

| ZONE | | Category | The explosive agent is: |
|---------|----------|----------|--------------------------------------------------------------------------------------------------|
| Gas (G) | Dust (D) | | |
| 0 | 20 | 0 | Occurs continuously, often and over extended periods: NOT APPLICABLE TO ANY CIAT PRODUCTS |
| 1 | 21 | 1 | Occasionally present during normal use (on request) |
| 2 | 22 | 2 | Rarely or briefly present |

| GAS - EXPLOSION GROUP AND TEMPERATURE CLASS | | | | | | |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------|--------------|--------|-------------------|
| Temperature class | T1 | T2 | T3 | T4 | T5 | T6 |
| Max surface temp | 450 °C | 300 °C | 200 °C | 135 °C | 100 °C | 85 °C |
| Explosion group | | | | | | |
| I A | Acetone Ammonia Benzene Acetic acid Ethane Ethyl acetate Ethyl chloride Methanol Naphthalene Phenol Propane | i-Amyl acetate Butane Butyl alcohol | Petrol Diesel Hot oil Hexane | Acetaldehyde | | |
| II B | Town gas | Ethylene | Hydrogen sulphide | Ethyl ether | | |
| II C | Hydrogen | Acetylene | | | | Carbon disulphide |

OPERATING LIMITS

| | Cooling mode | Heating mode | Steam mode | Superheated water mode |
|---------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Water circuit | Min. water inlet temp.: 5 °C Max. operating pressure: 13 bar | Max. water inlet temp.: 110 °C Max. operating pressure: 13 bar | Max.temp./Operating pressure: 200 °C/16 bar | Max. water inlet temp.: 200 °C Max. operating pressure: 16 bar |
| Indoor temperature | Tmax: 60 °C and Tmin -15 °C | | | |
| 1-PH AC motor | | 230 V(+/-6 %)/50 Hz - 1 Ph H4350: IP44 H4400 - 4450-4500-4630: IP 54 | 230 V(+/-6 %)/50 Hz - 1 Ph H4350: IP44 H4400 - 4450-4500-4630: IP 54 | 230 V(+/-6 %)/50 Hz - 1 Ph H4350: IP44 H4400 - 4450-4500-4630: IP 54 |
| 3-PH AC motor | | 400 V(+/-6%) / 50 Hz - 3 Ph H4350: IP44 H4400 - 4450-4500-4630: IP 54 | 400 V(+/-6%) / 50 Hz - 3 Ph H4350: IP44 H4400 - 4450-4500-4630: IP 54 | 400 V(+/-6%) / 50 Hz - 3 Ph H4350: IP44 H4400 - 4450-4500-4630: IP 54 |
| 1-PH EC motor | 230 V (+/-6%)/50/60 Hz - 1 Ph IP54: H4300 and H4350 IP 55: H4400-H4450- H4500-H4630 | 50/60 Hz - 1-Ph IP54: H4300 and H4350 IP 55: H4400-H4450- H4500-H4630 | | |

EXPAIR™

Precision air handling cabinets

Compact footprint

Dual-wall construction

Fan motor assembly with

EC motor (electronically commutated)

PLC control

Condenser fan variable speed control



Chilled water :

Cooling capacity : 5 to 27 kW

Air flow rate : 800 to 6 000 m³/h

Direct expansion :

Cooling capacity : 5 to 47 kW

Air flow rate : 800 to 12 000 m³/h

ErP
READY

HFC
R-410A



USE

Precision air conditioning cabinet specially designed for the air handling requirements (filtration, temperature and humidity control) of computer rooms, telecommunications rooms and specific purpose rooms (electronics, sensitive storage, medical, controlled atmosphere rooms, etc.). Dual-wall construction. The choice of technology used (self regulation depending on the room loads, EC motor: electronically commutated) can reduce the energy consumption. This unit is quick and easy to install, and particularly simple to use.

EXPAIR™ CW

Cabinet supplied with chilled water.

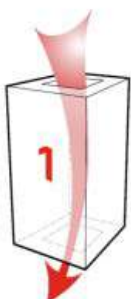
EXPAIR™ DXA

Vertical self-contained unit with separate air condensation unit (CL2) (R410A).

ASSEMBLY

UNDER installation: reversed air supply

Installation 1



Air supply via raised floor

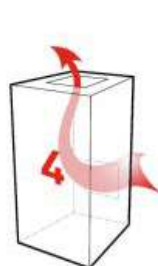
Installation 3



Front return

OVER installation: top air supply

Installation 4



Rear return

Assembly 5



Return air below

RANGE

| Units | CW | 5 | 8 | 12 | 16 | | 27 | | | | | |
|--------------------------------------|-----|------|------|------|------|------|------|------|------|------|-------|-------|
| | DXA | 5 | 8 | 10 | 12 | 15 | 19 | 24 | 31 | 36 | 38 | 48 |
| Nominal air flow rate (1) | | 1300 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 | 7000 | 8000 | 10000 | 12000 |
| Associated CL2 condensation unit (2) | | 28 | 28 | 35 | 35 | 50 | 65 | 75 | 2x50 | 2x65 | 2x65 | 2x75 |

(1) Air flow adjustable via the controller.

(2) Two condensation units per close control unit for models 31 and 48.

QUICK SELECTION

EXPAIR™ CW

| Units | CW 5 | CW 8 | CW 12 | CW 16 | | CW 27 | |
|------------------------------------------------------------------------------|---------|---------|------------|-------------|-----------|-------------|-----------|
| Air flow rate (m³/h) | 1300 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 |
| *Maximum operating pressure with M5 (ePM10 50%) or F7 (ePm1: 60%) filtration | 400 | 400 | 259 | 400 | 85 | 400 | 324 |
| Total/sensible cooling capacity (kW) | 5 / 4.8 | 8 / 7.6 | 10.5 / 9.9 | 14.7 / 13.2 | 18 / 16.7 | 23.5 / 21.5 | 27 / 25.1 |
| Water flow rate (m³/h) | 0,86 | 1,4 | 1,8 | 2,5 | 3,1 | 4 | 4,6 |
| Pressure drop (mWC) (Coil + valve) | 4,3 | 4,9 | 5,1 | 4,7 | 10 | 4,1 | 5,2 |

Specifications: total cooling capacity, pure water 7°C/12°C, air 24°C 45%. Pressure drop with control valve.

Cooling capacity for a maximum ΔT in air of 12°C.

* Maximum operating pressure dependent on air flow rate. Take off approximately 20 Pa if there is a hot water coil on EXPAIR™.

The operation point can be adjusted directly via the controller. All air flow/operating pressure combinations are therefore possible.

| Correction factors | 7/12°C | 10/15 °C | 12/18 °C |
|--------------------|--------|----------|----------|
| 22 °C/45% | 0,84 | 0,58 | 0,44 |
| 24 °C/45% | 1 | 0,74 | 0,5 |
| 30 °C/35% | 1,48 | 1,18 | 0,9 |

EXPAIR™ DXA

| Units | DXA 5 | DXA 8 | DXA 10 | DXA 12 | DXA 15 | DXA 19 | DXA 24 | DXA 31 | DXA 36 | DXA 38 | DXA 48 |
|------------------------------------------------------------------------------|---------|----------|------------|-----------|-----------|-----------|-------------|-------------|---------|-----------|-----------|
| Air flow rate (m³/h) | 1300 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 | 7000 | 8000 | 10000 | 12000 |
| *Maximum operating pressure with M5 (ePM10 50%) or F7 (ePm1: 60%) filtration | 400 | 400 | 276 | 400 | 89 | 400 | 324 | 273 | 26 | 330 | 21 |
| Total/sensible cooling capacity (kW) | 7.2 / 6 | 8 / 7.65 | 10.6 / 9.7 | 11 / 10.9 | 15 / 14.7 | 19 / 18.6 | 23.2 / 22.4 | 30.1 / 27.9 | 35 / 32 | 38 / 37.4 | 47 / 45.4 |

Specifications: total cooling capacity, air 24 °C 45%, 32 °C outdoor.

* Maximum operating pressure dependent on air flow rate. Take off approximately 20 Pa if there is a hot water coil on EXPAIR™.

The operation point can be adjusted directly via the controller. All air flow/operating pressure combinations are therefore possible.

| Correction factors | 30 °C | 32 °C | 35 °C | 40 °C |
|--------------------|-------|-------|-------|-------|
| 24 °C/50% | 1,02 | 1 | 0,98 | 0,93 |
| 26 °C/50 % | 1,06 | 1,04 | 1,02 | 0,98 |

Correction factors to apply to the cooling capacity based on the outdoor temperature and the return air conditions.

QUICK SELECTION

Hot water coil

| Units | CW | 5 | 8 | 12 | 16 | 27 | | | | | | |
|------------------------|-----|------|------|------|-------|-------|-------|------|-------|------|-------|-------|
| | DXA | 5 | 8 | 10 | 12/15 | 19/24 | 31/36 | | 38/48 | | | |
| Air flow rate (m³/h) | | 1300 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 | 7000 | 8000 | 10000 | 12000 |
| Heating capacity (kW) | | 4,5 | 6,2 | 7,5 | 11,9 | 13,7 | 17,8 | 19,5 | 25,8 | 27,6 | 37,5 | 40,9 |
| Water flow rate (m³/h) | | 0,21 | 0,27 | 0,33 | 0,5 | 0,6 | 0,8 | 0,9 | 1,1 | 1,2 | 1,65 | 1,8 |
| Pressure drop (mWC) | | 1,3 | 2,6 | 4,3 | 2,1 | 2,8 | 1 | 1,2 | 1,7 | 1,9 | 2,8 | 3,3 |

Specifications: heating capacity, air 20°C, pure water 80°C/60°C, pressure drop with control valve.

Correction factors to apply to the heating capacity for 90°C/70°C water temperature range: 1.23 and 45°C/35°C: 0.37.

2 stage or TRIAC electric heater, depending on the option selected

| | | CW 5 | CW 8 | CW 12 | CW 16 | | CW 27 | | | | | |
|------------------------|---------|----------|-------|----------|----------|--------|----------|--------|----------|--------|----------|--------|
| | | DXA 5 | DXA 8 | DXA 10 | DXA 12 | DXA 15 | DXA 19 | DXA 24 | DXA 31 | DXA 36 | DXA 38 | DXA 48 |
| Total electrical power | | 3 | | 6 | 9 | | 12 | | 18 | | 24 | |
| Electrical power (kW) | Stage 1 | 3 | | | 6 | | 6 | | 12 | | 12 | |
| | Stage 2 | — | — | 3 | 3 | | 6 | | 6 | | 12 | |
| Number of heaters | Stage 1 | 3 x 1 kW | | | 3 x 2 kW | | 3 x 2 kW | | 3 x 4 kW | | 3 x 4 kW | |
| | Stage 2 | — | | 3 x 1 kW | 3 x 1 kW | | 3 x 2 kW | | 3 x 2 kW | | 3 x 4 kW | |
| Total current (A) | | 4,3 | | 8,7 | 13 | | 17,3 | | 26 | | 34,6 | |

DESCRIPTION

Casing

- Dual-wall construction.
- RAL 7035 grey precoated panel, removable:
 - 1 mm precoated exterior panels,
 - Glass wool, thickness 25 mm, class M0 (A2-s1),
 - 0.8 mm galvanised interior panels.

Filtration

- Filter cell efficiency ePM10 50% according to ISO16890 (M5 efficiency according to EN 779-2012).
- Optional filter efficiency ePM1: 60% according to ISO16890 (F7 efficiency according to EN 779-2012).
- Optional (except DXA 5/8/10 and CW 5/8/12) dual ePM10 50% + ePM1: 60% according to ISO16890 (M5 +F7 according to EN 779-2012).
- Filter cells tightly compressed against counter-frame by a gasket to ensure a completely leaktight seal.
- Fouling level monitored by an analogue pressure sensor.

Cooling coil cross-section

- Coil made of copper tubes, aluminium fins.
- Aluminium condensate drain pan.
- CW model with 2- or 3-way control valve fitted and connected. Optional thermally insulated flexible connections.
- DXA model with thermostatic expansion valve.

Ventilation section

- Direct drive centrifugal fan, associated with an electronically commutated (EC motor).
 - EC motor: fan adaptation via manual adjustment or "self-regulating" adjustment by the controller, depending on the room load - system air control.
- EC electric motor 1-Ph/230 V/50-60 Hz, 4-pole, class F.
- Air flow rate monitored by an analogue pressure sensor.

Electrics box for the indoor unit

Electrical power and control box consisting of:

- Power supply: 3-Ph/400 V/50 Hz+E+N.
- Emergency stop master switch.
- Protected transformer (three-phase, 400/24 V).
- Protection and control of fan motor, and of humidifier and electric heater depending on options selected.
- CIAT µAIR CONNECT2 control systems using PLC.
- Return air dry-bulb temperature control.
- Return humidity control:
 - Supply humidity control (optional)
 - Dehumidification humidity control (optional)
- Options available: standard water leak detection, fire thermostat and supply air low limit monitoring.
- Remote control and fault summary contact.
- Condensate drain pump (optional).

Accessories (option)

- Support base for air supply via raised floor.
- Supply plenum.
- Acoustic plenum with sound trap.
- Motorised damper on intake section.
- Fire thermostat.
- Hydraulic connection kit (chilled water and hot water coils).

Description of the outdoor unit (DXA model)

- CL2 type air condensation unit.
- Power supply: 3-Ph/400 V/50 Hz+E+N.
- SCROLL hermetic compressor.
- HP and LP safety pressure switches.
- Shut-off and control valves.
- 1 refrigerant circuit.
- Refrigerant fluid: R410A.
- Condensation pressure control by electronic board and pressure sensor. Variable speed control on condenser fan.
- Fault signal on indoor unit.

OPTIONS

Electric heater

- Fan-controlled operation.
- 2-stage control (except 3 kW electric heater).
- 2-stage or TRIAC control.
- Two high-limit safety thermostats with automatic and manual reset.

Hot water coil

- 1-row coil made of copper tubes with aluminium fins.
- 2- or 4-way control valve, fitted and connected.
- Optional flexible connections.

Humidifier

- Humidifier with immersed electrodes and a CPY board to relay all information relating to the humidifier directly to the CIAT µAIR CONNECT2 PLC:
 - Stainless steel large surface area electrodes,
 - 3 kg steam per hour, for sizes CW5/8/12 and DXA5/8/10,
 - 8 kg steam per hour, for other sizes,
 - Steam cylinder in a single easy to remove component,
 - Filling solenoid valves,
 - Drain pump,
 - Electronics board for operation management,
 - Diffusion jet,
 - Water supply connection kit.
- Operates on municipal water supply only (water conductivity of between 350 and 1250 µS and hardness 15 to 30 °F). Do not use deionised or softened water.

CONTROL

Unit control and monitoring

CIAT µAIR CONNECT2



- 160-character display showing the operating instructions, operating states, faults and solutions. Configurable controller.
- Two fault levels.
- Monitoring of operating times.
- RS 485 output with Jbus/ModBus RTU protocol.
- Master/slave type management possible. (Backup, rotation and additions between the units).
- BACNET IP or MSTP gateways optional..
- Optional changeover thermostat (only on CW).

ELECTRICAL DATA

Indoor unit (CW and DXA models)

| | | CW 5 | CW 8 | CW 12 | CW 16 | CW 27 | | |
|------------------------------------|------------------------------|-------|-------|--------|-----------|-----------|-----------|-----------|
| | | DXA 5 | DXA 8 | DXA 10 | DXA 12/15 | DXA 19/24 | DXA 31/36 | DXA 38/48 |
| Fan motor | Voltage (V) | 230 V | | | | | | |
| | Power (kW) | 1,036 | | | 1,029 | 2,072 | 2,058 | 3,087 |
| | Current (A) | 4,51 | | | 4,38 | 9,02 | 8,76 | 13,14 |
| Control circuit (transformer) | Voltage (V) | 24 V | | | | | | |
| | Current (A) | 1 | | | | | | |
| Humidifier (option) | Voltage (V) | 400 | | | | | | |
| | Power (kW) | 2,25 | | | 6 | | | |
| | Current (A) | 3,2 | | | 8,7 | | | |
| Electric heater (option) | Voltage (V) | 400 | | | | | | |
| | Power (kW) | 3 | 6 | 9 | 12 | 18 | 24 | |
| | Current (A) | 4,3 | 8,7 | 13 | 17,3 | 26 | 34,6 | |
| Total current without option | Current (A) | 5,51 | | | 5,38 | 10,2 | 9,76 | 14,14 |
| | Disconnect switch rating (A) | 16 | | | | | | |
| Total current with humidifier | Current (A) | 8,71 | | | 14,08 | 18,72 | 18,46 | 22,84 |
| | Disconnect switch rating (A) | 16 | | | | 25 | | |
| Total current with electric heater | Current (A) | 9,81 | 14,21 | 18,38 | 27,32 | 35,76 | 48,74 | |
| | Disconnect switch rating (A) | 16 | | | 25 | 40 | | 63 |
| Total current all options | Current (A) | 13,01 | 17,41 | 27,08 | 36,02 | 44,46 | 57,44 | |
| | Disconnect switch rating (A) | 16 | 25 | 40 | | 63 | | |

Outdoor unit : Condensation unit (CL2) (DXA model)

| Units | 5 | 8 | 10 | 12 | 15 | 19 | 24 | 31 | 36 | 38 | 48 |
|------------------------|--------------------|------|------|------|------|------|------|--------------------|--------|--------|--------|
| Outdoor unit no./type | 1x28 | 1x28 | 1x35 | 1x35 | 1x50 | 1x65 | 1x75 | 2x50 | 2x65 | 2x65 | 2x75 |
| Power supply no./type | 3-Ph/400V/50Hz+E+N | | | | | | | 3-Ph/400V/50Hz+E+N | | | |
| Max. total current (A) | 7,5 | 7,5 | 9,0 | 9,0 | 11,3 | 17,0 | 17,0 | 2x11,3 | 2x17,0 | 2x17,0 | 2x17,0 |

SOUND PRESSURE LEVEL

Indoor unit (CW and DXA models)

| Units | CW | 5 | 8 | 12 | 16 | | 27 | | | | | |
|----------------------------|-----|------|------|------|-------|------|-------|------|-------|------|-------|-------|
| | DXA | 5 | 8 | 10 | 12/15 | | 19/24 | | 31/36 | | 38/48 | |
| Air flow rate (m³/h) | | 1300 | 2000 | 2500 | 3000 | 4000 | 5000 | 6000 | 7000 | 8000 | 10000 | 12000 |
| Sound pressure level (dBA) | | 49 | 53 | 58 | 57 | 61 | 59 | 63 | 60 | 63 | 60 | 64 |

Sound pressure level of indoor unit (CW and DX) at 2 m in a free field, supply air connected, +/-3 dB.

Outdoor unit : Condensation unit (CL2) (DXA model)

| DXA units | 5 | 8 | 10 | 12 | 15 | 19 | 24 | 31 | 36 | 38 | 48 |
|----------------------------|----|----|----|----|----|----|----|------|------|------|------|
| Models | 28 | 28 | 35 | 35 | 50 | 65 | 75 | 2x50 | 2x65 | 2x65 | 2x75 |
| Sound pressure level (dBA) | 39 | 39 | 45 | 45 | 43 | 47 | 47 | 46 | 50 | 50 | 50 |

Sound pressure level of outdoor unit, at 5 m, 1.5 m from floor, in a free field, directivity 2 and +/-3 dB.

CONNECTIONS/WEIGHTS

Indoor unit

| Units | Chilled water | CW 5 | CW 8 | CW 12 | CW 16 | CW 27 | | |
|----------------------------|------------------|-------|-------|--------|----------|----------|-----------|-----------|
| | Direct expansion | DXA 5 | DXA 8 | DXA 10 | DXA12/15 | DXA19/24 | DXA 31/36 | DXA 38/48 |
| Weight of indoor unit (kg) | | 115 | 120 | 125 | 280 | 310 | 375 | 480 |

Chilled water coil (CW)

| Units chilled water | CW 5 | CW 8 | CW 12 | CW 16 | CW 27 | | |
|--------------------------|---------|-------|-------|-------|-------|-------|----------|
| Inlet/outlet connections | G ½"M | G ¾"M | G ¾"M | G¾" M | G 1"M | G 1"M | G 1" ¼ M |
| Condensate draining* | Ø 32 mm | | | | | | |

Direct expansion coil (DXA)

| Direct expansion units | DXA 5 | DXA 8 | DXA 10 | DXA 12 | DXA 15 | DXA 19 | DXA 24 | DXA 31 | DXA 36 | DXA 38 | DXA 48 |
|------------------------|---------|---------|---------|---------|---------|----------|----------|------------|------------|-------------|-------------|
| Intake pipe | G 5/8"M | G 5/8"M | G 3/4"M | G 7/8"M | G 7/8"M | G1"1/8 M | G1"1/8 M | G 2X7/8" M | G 2X7/8" M | G 2X1"1/8 M | G 2X1"1/8 M |
| Liquid pipes | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 2x1/2" | 2x1/2" | 2x1/2" | 2x1/2" |
| Condensate draining* | Ø 32 mm | | | | | | | | | | |

Hot water coil

| Units chilled water | CW 5 | CW 8 | CW 12 | CW 16 | CW 27 | | |
|--------------------------|--------|--------|--------|----------|----------|-----------|-----------|
| Direct expansion units | DXA 5 | DXA 8 | DXA 10 | DXA12/15 | DXA19/24 | DXA 31/36 | DXA 38/48 |
| Inlet/outlet connections | G ½" M | G ½" M | G ½" M | G ½" M | G ¾" M | G ¾" M | G ¾" M |

Chilled water coil connections: inlet on threaded coupling and outlet on threaded control valve.

Condensate drain connection on smooth coupling.

* Drain connections if optional pump fitted: Diam. 6

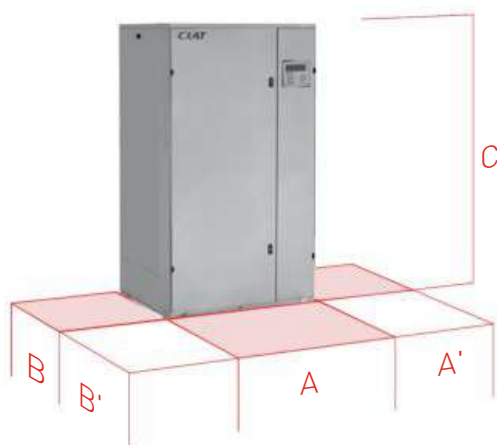
Outdoor unit : Condensation unit (CL2)

| Direct expansion units | DXA 5 | DXA 8 | DXA 10 | DXA 12 | DXA 15 | DXA 19 | DXA 24 | DXA 31 | DXA 36 | DXA 38 | DXA 48 |
|-----------------------------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Outdoor units no./type | 1x28 | 1x28 | 1x35 | 1x35 | 1x50 | 1x65 | 1x75 | 2x50 | 2x65 | 2x65 | 2x75 |
| Weight of outdoor unit (kg) | 64 | 69 | 69 | 69 | 101 | 112 | 118 | 101 | 112 | 112 | 118 |

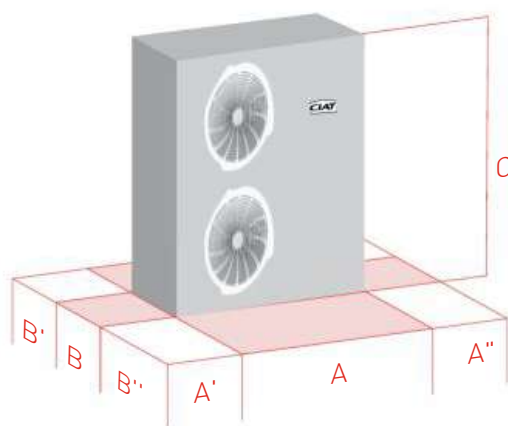
Refrigerant connections

| Direct expansion units | DXA 5 | DXA 8 | DXA 10 | DXA 12 | DXA 15 | DXA 19 | DXA 24 | DXA 31 | DXA 36 | DXA 38 | DXA 48 |
|------------------------|---------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Intake pipe | 5/8" | 5/8" | 3/4" | 3/4" | 3/4" | 7/8" | 7/8" | 2x3/4" | 2x7/8" | 2x7/8" | 2x7/8" |
| Liquid pipes | 3/8" | 3/8" | 3/8" | 3/8" | 3/8" | 3/8" | 1/2" | 2x3/8" | 2x3/8" | 2x3/8" | 2x1/2" |
| Condensate drain | Ø 32 mm | | | | | | | | | | |

DIMENSIONS



| Indoor unit | | | | | | |
|----------------|-----------------|-----|-----|-----|------|-------------|
| Units | Dimensions (mm) | | | | | Weight (kg) |
| | A | A' | B | B' | C | |
| CW5 DXA5 | 675 | 500 | 500 | 700 | 1700 | 115 |
| CW8 DXA8 | 675 | 500 | 500 | 700 | 1700 | 120 |
| CW12 DXA10 | 675 | 500 | 500 | 700 | 1700 | 125 |
| CW16 DXA12/15 | 850 | 500 | 780 | 700 | 1900 | 280 |
| CW27 DXA 19/24 | 1150 | 500 | 780 | 700 | 1900 | 310 |
| DXA 31/36 | 1490 | 500 | 780 | 700 | 1900 | 375 |
| DXA 38/48 | 1990 | 500 | 780 | 700 | 1900 | 480 |



| Outdoor unit (CL2) | | | | | | | | |
|--------------------|-----------------|-----|------|-----|-----|------|------|-------------|
| Models | Dimensions (mm) | | | | | | | Weight (kg) |
| | A | A' | A'' | B | B' | B'' | C | |
| 28 | 1035 | 150 | 1000 | 450 | 150 | 1500 | 732 | 69 |
| 35 | 1035 | 150 | 1000 | 450 | 150 | 1500 | 732 | 69 |
| 50 | 1035 | 150 | 1000 | 450 | 150 | 1500 | 1332 | 101 |
| 65 | 1035 | 150 | 1000 | 450 | 150 | 1500 | 1332 | 112 |
| 75 | 1035 | 150 | 1000 | 450 | 150 | 1500 | 1332 | 118 |

OPERATING LIMITS

Chilled water (CW)

| | | |
|--------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Water circuit | Maximum pressure: PN16 | Minimum water inlet temperature: 5 °C (consult us for other values) |
| | | Maximum water inlet temperature: 80 °C (consult us for other values) |
| Indoor temperature | | Minimum air inlet temperature: 12 °C, and according to return humidity |
| | | Maximum air inlet temperature: 45 °C and according to return humidity (Weight in water, condensed < 0.8 g of water/kg of dry air) |
| Power supply | | 3PH / 400V + E + N |

Direct expansion (DXA)

| | | |
|---------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Indoor temperature | | Minimum air inlet temperature: 18 °C, and according to return humidity |
| | | Maximum air inlet temperature: 28 °C, and according to return humidity (Weight in water, condensed < 0.8 g of water/kg of dry air) |
| Outdoor temperature | | Minimum air inlet temperature: -15 °C |
| | | Maximum air inlet temperature: 45 °C |
| Power supply | Indoor unit | 3PH / 400V + E + N |
| | Outdoor unit(s) | 3PH / 400V + E + N |

MAGISTER®

Precision air handling cabinet



Wide range of chilled water systems

Compact and attractive design

Energy savings with EC motor

and self-adjusting control

Easy installation

*Cooling capacity: 10 to 116 kW
Air flow rate: 3000 to 27,500 m³/h*



Use

Close control unit specifically adapted to meet the needs of rooms with a high heat load or sensitive locations (data centres, computer rooms, autocom rooms, etc.).

The choice of technology used (self-adjusting control which

adapts to the room loads, electronically commutated EC motor) can reduce the energy consumption. Thanks to its skilful design, the **MAGISTER®** integrates seamlessly into its intended location.

CHILLED WATER OPERATION

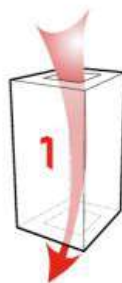
■ MAGISTER® CW - Chilled water

Air handling cabinet supplied with chilled water.

The fan also has a ModBus card which allows faults and settings such as the actual power input, current, rotation speed, etc. to be transmitted.

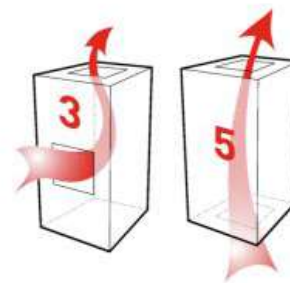
■ Fitting UNDER

Air supply via raised floor



■ Fitting OVER

Return air on front panel



Return air below

QUICK SELECTION

CW range - Chilled water

| Units | CW40 | CW53 | CW78 | CW100 |
|-------------------------------------------------------------|-----------|-----------|-----------|-----------|
| Air flow rate (m ³ /h) | 10 000 | 13 300 | 18 800 | 24 500 |
| * Maximum operating pressure with M5 filtration / ePM10 50% | 400 | 230 | 400 | 344 |
| * Maximum operating pressure with F7 filtration / ePM1: 60% | 400 | 141 | 400 | 261 |
| Total/sensible cooling capacity (kW) | 41.9 / 40 | 57.4 / 54 | 80.7 / 76 | 107 / 100 |
| Water flow rate (m ³ /h) | 7,2 | 9,8 | 14 | 18 |
| Pressure drop (mWC) (Coil + valve) | 6,4 | 9,6 | 8,1 | 7,1 |

Conditions: return air 24 °C 45% (RH)
Water temperature 7/12 °C

| Units | CW40 | CW53 | CW78 | CW100 |
|-------------------------------------------------------------|---------|---------|---------|-----------|
| Air flow rate (m ³ /h) | 13 300 | 13 300 | 20 500 | 27 000 |
| * Maximum operating pressure with M5 filtration / ePM10 50% | 175 | 237 | 400 | 124 |
| * Maximum operating pressure with F7 filtration / ePM1: 60% | 66 | 148 | 400 | 30 |
| Total/sensible cooling capacity (kW) | 46 / 46 | 51 / 51 | 78 / 78 | 100 / 100 |
| Water flow rate (m ³ /h) | 7,9 | 8,8 | 13 | 17 |
| Pressure drop (mWC) (Coil + valve) | 7,5 | 7,7 | 7,5 | 6,2 |

Conditions: return air 26 °C 40% (RH)
Water temperature 10/15 °C

| Units | CW40 | CW53 | CW78 | CW100 |
|-------------------------------------------------------------|---------|---------|---------|-----------|
| Air flow rate (m ³ /h) | 13 300 | 13 300 | 20 500 | 27 000 |
| * Maximum operating pressure with M5 filtration / ePM10 50% | 174 | 236 | 400 | 123 |
| * Maximum operating pressure with F7 filtration / ePM1: 60% | 67 | 145 | 400 | 30 |
| Total/sensible cooling capacity (kW) | 56 / 56 | 60 / 60 | 94 / 94 | 132 / 132 |
| Water flow rate (m ³ /h) | 9,6 | 10 | 16 | 23 |
| Pressure drop (mWC) (Coil + valve) | 10 | 10 | 10 | 10 |

Conditions: return air 32 °C 35% (RH)
Water temperature 12/17 °C

* Maximum operating pressure dependent on air flow rate. If there is a heating coil present, see "heating coil" table.
The operation point can be adjusted directly via the controller. Hence all the air flow/operating pressure combinations are possible, with the values in the table above as the maximum values.

OPTIONS (AVAILABLE CAPACITIES)

■ Electric heaters

| Units | CW | | | |
|-------------------|-------|-------|-------|--------|
| | CW 40 | CW 53 | CW 78 | CW 100 |
| Power (kW) | 12 | 18 | 24 | 33,6 |
| Total current (A) | 17,3 | 26 | 34,7 | 48,6 |

■ Hot water support coil

| Units | CW40 | | CW53 | CW78 | | CW100 | |
|------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Air flow rate (m³/h) | 10 000 | 13 300 | 13 300 | 18 800 | 20 500 | 24 500 | 26 000 |
| * Maximum operating pressure with M5 filtration /ePM10 50% | 400 | 135 | 200 | 400 | 400 | 295 | 170 |
| * Maximum operating pressure with F7 filtration /ePM1: 60% | 400 | 25 | 115 | 400 | 380 | 216 | 80 |
| Heating capacity (kW) | 36 | 40 | 44 | 63 | 66 | 71 | 73 |
| Water flow rate (m³/h) | 1,5 | 1,7 | 1,9 | 2,7 | 2,8 | 3,1 | 3,1 |
| Pressure drop (mWC) (Coil + valve) | 2,2 | 2,6 | 2,8 | 5,3 | 5,8 | 6,6 | 6,9 |

Conditions: return air 17 °C 35% (RH)

Water temperature 80/60 °C

* Maximum operating pressure dependent on air flow rate.

The operation point can be adjusted directly via the controller. Hence all the air flow/operating pressure combinations are possible, with the values in the table above as the maximum values.

■ Humidifier

| Model | CW 40 to CW100 |
|------------------------|----------------|
| Steam flow rate (kg/h) | 8 |
| Electrical power (kW) | 6 |
| Current (A) | 8,7 |

■ Ventilation

| Units | CW | | | | | | | |
|-----------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| | CW 40 | | CW 53 | | CW 78 | | CW 100 | |
| Air flow rate (m³/h) | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum |
| | 10 000 | 13 300 | 13 300 | 13 300 | 18 800 | 20 500 | 24 500 | 27 000 |
| * Maximum operating pressure with M5 filtration (ePM10 50% according to ISO16890) | 400 | 171 | 229 | 229 | 400 | 400 | 343 | 157 |
| * Maximum operating pressure with F7 filtration ePM1 60% according to ISO16890) | 400 | 60 | 140 | 140 | 400 | 400 | 261 | 68 |

DESCRIPTION

■ Casing

Dual-wall construction (with M0/A1 fire rating).
RAL 7035 and 7024 grey precoated removable panel.
- 0.8 mm painted precoated exterior panel.
- Mineral wool, 25 mm thick.
- 0.8 mm galvanised interior panel.

■ Filtration

Filter cells.

Filter cells kept compressed against the counter frame with the gasket directly on the filter cells.

EN 779-2012 efficiency: M5

ISO16890 efficiency: ePM10 50%

Or

EN 779-2012 efficiency: F7

ISO16890 efficiency: ePM1: 60%

Filter fouling value monitored by analogue sensor and displayed by the controller.

■ Cooling coil cross-section

Copper tubes, aluminium fins.
Stainless condensate drain pan.
Stainless coil flanges (option).
2-way or 3-way control valve fitted and connected.

■ Ventilation cross-section

Centrifugal plug fan, associated with an electronically commutated (EC motor).

EC motor: fan adaptation via manual adjustment or "self-regulating" adjustment by the controller, depending on the room load - system air control.

The fan* also has a ModBus card which allows faults and settings such as the actual power input, current, rotation speed, etc. to be transmitted * except CW115.

■ Electrics box

Power, command and control electrics box consisting of:

- Three-phase 400 V power supply + Earth.
- Main disconnect switch.
- Three-phase 400 V 50 Hz transformer with protection.
- Protection and control of all electrical components by a circuit breaker and contact switch.
- CIAT µAIR CONNECT2 control systems using PLC.
- Return air dry-bulb temperature control.
- Return humidity control, in supply or dehumidification mode.
- Water leak detection as standard.
- Remote control and fault summary contact.

■ Accessories (option)

Free cooling box.
Support sub-base for supply air via raised floor.
Cased sub-base with grille or damper.
Supply plenum.
Motorised damper on intake section.
Fire thermostat.
Supply air low limit sensor.
BACnet gateway (IP or MSTP).
Raised floor pressure management.
Changeover thermostat.

OPTIONS

■ Electric heater

Fan-controlled operation.
Control by 2-stage operation or by progressive action (TRIAC).
High-limit safety thermostat with automatic and manual reset.

■ Hot water air coil

1-row coil made of copper tubes with aluminium fins.
2- or 4-way progressive action valve fitted, and connected.

■ Humidifier

Humidifier with immersed electrodes and a CPY board to relay all information relating to the humidifier directly to the CIAT µAIR CONNECT2 PLC

- Stainless steel large surface area electrodes.
- Flow rate of 8 kg/h, depending on the model.
- Steam cylinder in a single easy to remove component.
- Drain pump and filling solenoid valve.
- Electronics board for operation management.
- Diffusion duct.

Operates using municipal water supply only (water conductivity of between 350 and 1250 µS inclusive and hardness between 15 and 30°F). Do not use deionised or softened water.

CONTROL SYSTEM

Unit control and monitoring:

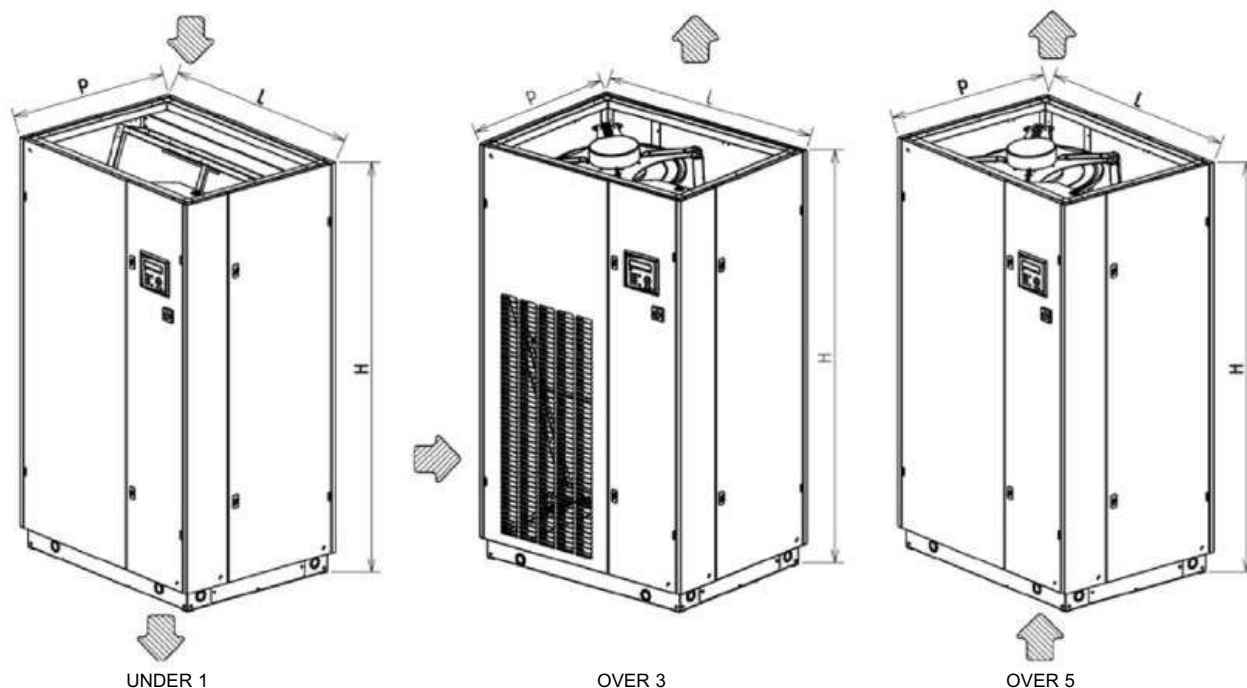
CIAT μ AIR CONNECT2 PLC

- 160-character display showing the operating instructions, operating states, faults and solutions. Configurable controller.
- Two fault levels.
- Monitoring of operating times.
- RS 485 output with Jbus/ModBus RTU protocol.
- Master/slave type management possible. (Backup, rotation and additions between the units)
- On special request, BacNet gateway (IP or MSTP) or ModBus/JBus TCP/IP gateway
- Bacnet gateway (IP or MSTP) optional
- Optional management of pressure in raised floor
- Optional changeover thermostat
- Bus management between the centrifugal plug fan and the μ AIR CONNECT2 controller.
- Transmits fan faults and settings such as the actual power input, current, rotation speed, etc. to the controller.

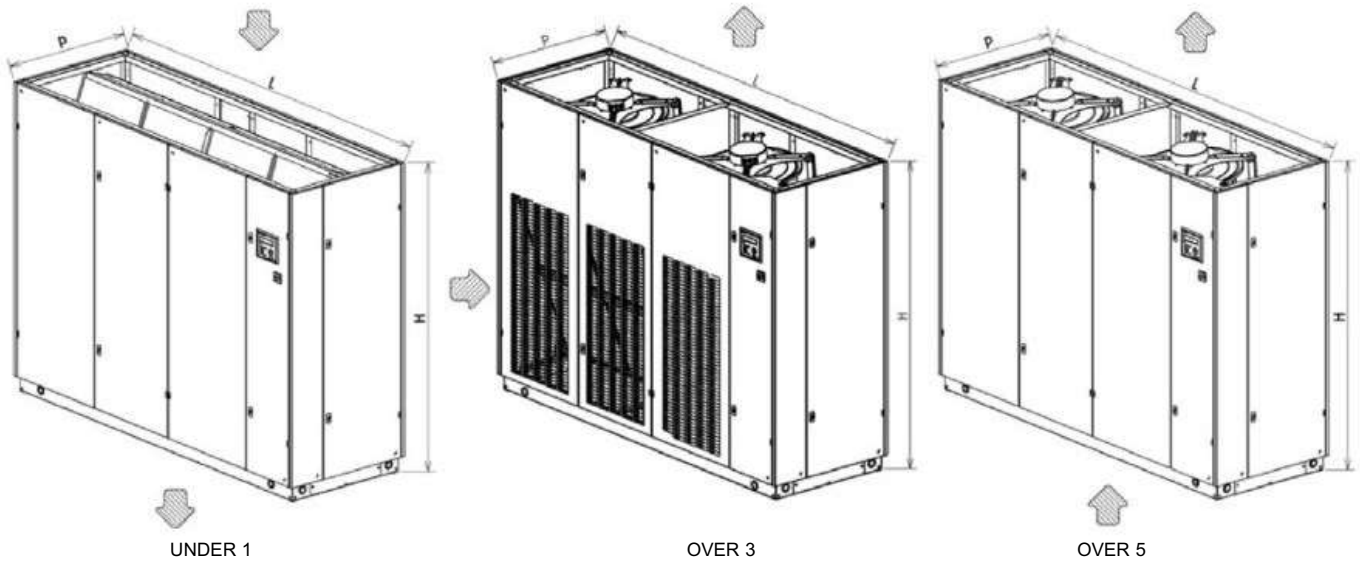


DIMENSIONS*

CW 40 - 53



| CW | H | L | D |
|----|------|------|-----|
| 40 | 1990 | 1190 | 890 |
| 53 | | 1520 | |

CW 78 - 100


| CW | H | L | D |
|-----|------|------|-----|
| 78 | 1990 | 2070 | 890 |
| 100 | | 2620 | |

WEIGHT

Chilled water (CW)

| CW | 40 | 53 | 78 | 100 |
|-------------|-----|-----|-----|-----|
| Weight (kg) | 350 | 385 | 545 | 635 |

JUNIOR™ BCP

Air handling units for swimming pools



Heating and dehumidification for covered swimming pools

Low consumption

Electronic control

R-407C refrigerant

Dehumidification capacity: 3,9 to 15,2 kg/h

DESCRIPTION

The **Junior BCP Series** are dehumidification units, using a cooling circuit with total condensation heat recovery, specially designed for conventional covered swimming pools and other dehumidification applications.

These units have been designed for indoor assembly.

Consult in the case of special applications (marine environments, high concentrations of salts or chemical products, high temperatures, etc.).

RANGE

Junior BCP Series: 1 cooling circuit, 1 compressor, 8 models:

- 20 / 30 / 40 / 50 / 60 / 70 / 80 / 90.

OPERATION LIMITS

Air inlet dry temperature

Maximum: 35°C (65% RH - 29°C WB)

Minimum: 18°C (90% RH - 17°C WB)

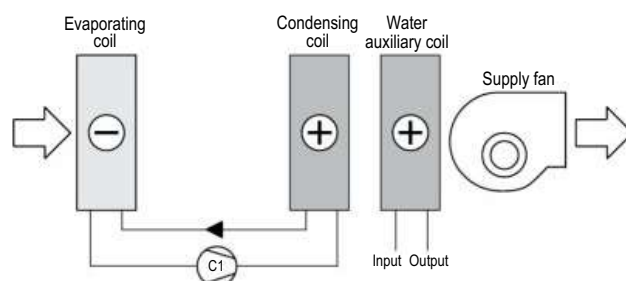
Water inlet temperature to the condenser

Maximum: 35°C

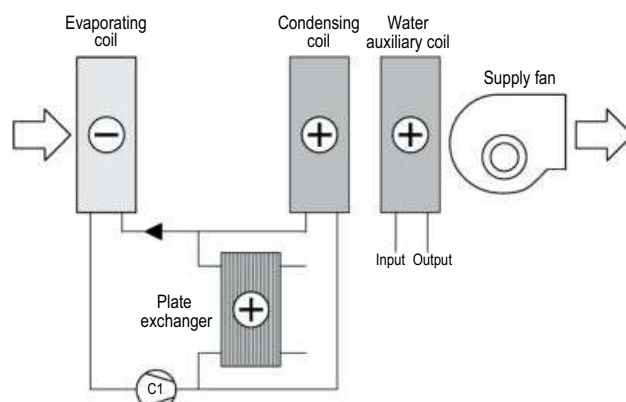
Minimum: 20°C

BASIC DIAGRAMS

■ Junior BCP 20 / 30 / 40 / 50 / 60



■ Junior BCP 70 / 80 / 90 (40 / 50 / 60 optional)



UNIT COMPONENTS

Casing

- Sandwich panel casing made of galvanised steel metal 1 mm thick with polyester paint on the outside and inside and 25 mm glass fibre insulation.
- Self-supporting frame and removable access panels. Door with hinges to access the electric panel.
- Panels with rubber gasket closures to ensure tightness.
- Dimensions adapted for fitting doors with a width of > 680 mm (removable supports in models 40, 50 and 60).

Air circuit

- Reusable G3 filter with access for cleaning.
- Direct expansion cooling coil with copper pipes and aluminium fins, with polyurethane protection.
- Condensates drain pan in stainless steel with outlet hole. This pan is tilted towards the drain to ensure that no water is trapped inside thus preventing health problems.
- Condensing coil with copper pipes and aluminium fins, with polyurethane protection.
- Centrifugal fan in galvanised steel metal with direct coupling to the outdoor rotor motor with low sound level.
- Speed variation in the fan due to voltage adjustment using a manual potentiometer.
- Manually adjusted air bypass damper.

Cooling circuit

- Scroll-type compressor with sound insulation, assembled over shock absorbers. It includes an integral protection module which ensures the combined protection of the motor temperature and the outlet temperature.
- Plate exchanger made of special steel SS-316 with copper welding positioned in parallel with the condensing coil. Standard in models 70, 80, 90 and optional in models 40, 50, 60.
- Anti-acid dehydrator filter.

Protections

- High and low pressure pressostats.
- Main door switch.
- Magnetothermic protection switches for the compressor power line and fan motor.
- Automatic switch in the control circuit.
- Inlet limit temperature thermostat to the dehumidification coil.
- Anti-short-cycle compressor timer.

Electric panel

- Complete and fully wired electrical panel.
- Main ground connection.
- Compressor contactors and motorised fans.

CIATpool electronic control

CIATpool control is basically composed of a µPC MEDIUM control board, a pGD1 graphical terminal, a TCO user terminal (optional) and sensors.

The control can connect to a centralised technical management system through a BMS communication card

The control also manages a local connection between units through a pLAN (µPC MEDIUM Local Area Network), thus allowing for a maximum of 15 units to communicate data and information.

The electronic control CIATpool is supplied separate from the BCP unit in an airtight box (remote control panel).

Main functions:

- Dehumidification control during operating modes: COOLING / HEATING / AUTO and selection of setpoints.
- Permanent control of the operating parameters.
- View of the values measured by the sensors.
- Daily and weekly programming.
- Anti-fire safety device.
- Operating fault diagnosis and main alarm.

Optional functions:

This control allows controlling optional elements such as:

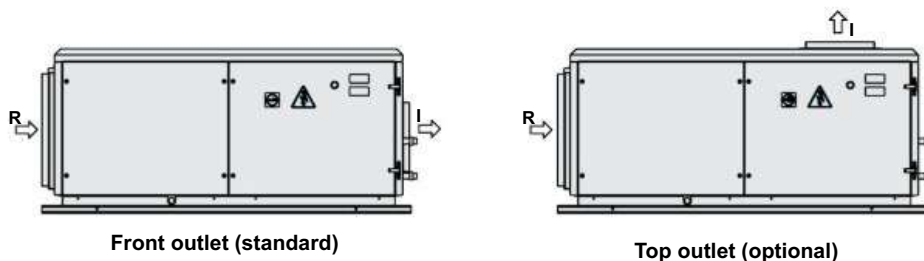
- Outdoor air damper for refreshing air.
- Mixing box for thermal or thermoenthalpic free-cooling.
- Auxiliary electrical heaters.
- Hot water auxiliary coil.
- Clogged filter detector.

Options

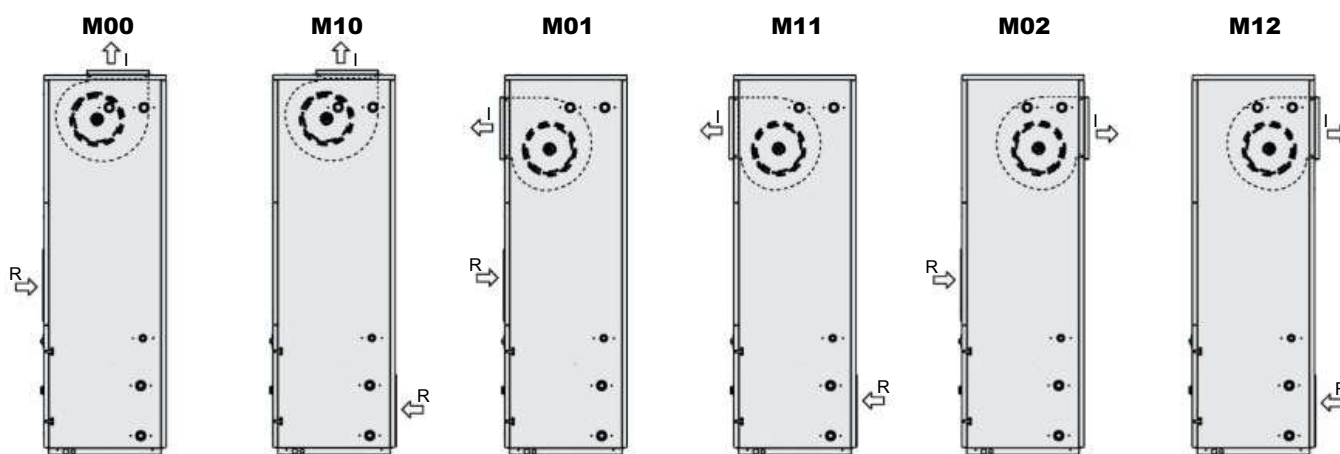
- Copper pipe coils and copper fins.
- Antifreeze thermostat.
- Auxiliary electrical heaters in 1 or 2 stages with built-in control.
- Hot water auxiliary coil in two rows with proportional three-way valve with polyurethane or copper-copper coating.
- Water condenser made of special steel SS-316 with copper welding (models 40 to 60).
- Flexible connections for the water condenser and for the hot water auxiliary coil.
- G4 filters.
- Differential pressostat for clogged filters.
- Supply plenum (models 70 to 90).
- Mixing boxes for free-cooling, with motorised dampers and centrifugal return fan in an independent module.
- Shock absorbers made of rubber.

AVAILABLE ASSEMBLIES

Junior BCP - 20 / 30 / 40 / 50 / 60



Junior BCP - 70 / 80 / 90



Note: in models BCP 70 to 90 with assemblies M00, M01 and M02, the electric panel is supplied in an airtight box for remote installation (remote control panel).

SOUND LEVELS dB(A)

■ Sound power level

Sound power level in the supply fan outlet and in the return (optional) fan aspiration to be taken into account for the silencer calculation:

| Junior BCP | | 20 | 30 | 40M | 40 | 50 | 60 | 70 | 80 | 90 |
|-----------------------|-------|----|----|------|------|------|------|----|------|------|
| Supply fan | dB(A) | 63 | 64 | 71 | 71 | 72 | 77,5 | 72 | 73,5 | 74,2 |
| Return fan (optional) | dB(A) | 70 | 71 | 66,6 | 66,6 | 67,3 | 73,7 | 77 | 67,8 | 68,2 |

■ Sound pressure level

Measurement conditions: in free field, measured at a distance of 5 metres, directivity 2 and at 1,5 metres from the ground.

| Junior BCP | | 20 | 30 | 40M | 40 | 50 | 60 | 70 | 80 | 90 |
|---------------|-------|------|------|------|------|------|------|------|------|------|
| Standard unit | dB(A) | 45,4 | 46,1 | 50,7 | 50,2 | 51,4 | 56,3 | 52,9 | 54,0 | 56,6 |

Note: The sound pressure level depends on the installation conditions and, as such, is only indicated as a guide.

TECHNICAL CHARACTERISTICS

| Junior BCP | | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|-------------------------------------|------------------------------------|------------------|----------|----------------------------|-------|-------|----------|--------|--------|
| Air circuit | Dehumidification capacity ① (kg/h) | 3,9 | 5,1 | 7,1 | 8,7 | 10,7 | 12,6 | 14,3 | 15,2 |
| | Heating capacity (kW) | 7,2 | 9,4 | 13 | 16 | 19,8 | 11,3 | 12,8 | 13,9 |
| | Cooling capacity ② (kW) | 5,6 | 7,3 | 10,2 | 12,6 | 15,5 | 18,2 | 20,7 | 22 |
| | Power input (kW) | 2 | 2,5 | 3,4 | 4 | 4,9 | 6 | 6,7 | 7,3 |
| | Nominal air flow (m³/h) | 1.200 | 1.500 | 2.100 | 2.600 | 3.200 | 3.700 | 4.300 | 4.600 |
| | Maximum air flow (m³/h) | 1.440 | 1.800 | 2.520 | 3.120 | 3.840 | 4.440 | 5.160 | 5.520 |
| | Available static pressure (mm.w.c) | 15 | 15 | 15 | 15 | 15 | 17 | 15 | 13 |
| | Fan type / number | Centrifugal / 1 | | | | | | | |
| | Output (kW) | 0,4 | 0,4 | 0,6 | 0,6 | 0,6 | 1,3 | 1,3 | 1,3 |
| Water condenser | Availability | No | Optional | | | | Standard | | |
| | Heating capacity ③ (kW) | -- | -- | 6,6 | 8,2 | 10,1 | 11,8 | 13,5 | 14,3 |
| | Nominal water flow (m³/h) | -- | -- | 1,2 | 1,4 | 1,8 | 2,1 | 2,4 | 2,7 |
| | Pressure drop (m.w.c) | -- | -- | 1 | 1,3 | 1,9 | 1,1 | 1,4 | 1,7 |
| | Hydraulic connections | -- | -- | 1" | 1" | 1" | 1 1/4" | 1 1/4" | 1 1/4" |
| Hot water auxiliary coil (optional) | Availability | Optional | | | | | | | |
| | Heating capacity ④ (kW) | 15,4 | 16,5 | 18,5 | 21 | 23,6 | 35 | 39,7 | 41,1 |
| | Nominal water flow (m³/h) | 0,8 | 0,9 | 1 | 1,1 | 1,2 | 1,8 | 2,1 | 2,1 |
| | Pressure drop (m.w.c) | 1,7 | 2,4 | 0,6 | 0,7 | 0,9 | 1,6 | 1,9 | 2 |
| | Hydraulic connections | 3/4" | 3/4" | 1" | 1" | 1" | 1 1/4" | 1 1/4" | 1 1/4" |
| Compressor | Type | Scroll | | | | | | | |
| | Number / number of circuits | 1 / 1 | | | | | | | |
| | Volume of oil (l) | 1 | 1 | 1,1 | 1,4 | 1,7 | 1,7 | 1,7 | 3,3 |
| Electric power supply | 230 V / I ph / 50 Hz | 2 Wires + Ground | | | -- | | | | |
| | 400 V / III ph / 50 Hz | -- | | 3 Wires + Ground + Neutral | | | | | |
| Maximum absorbed current | 230 V / I ph / 50 Hz (±10%) (A) | 17,1 | 21,6 | 30,8 | -- | -- | -- | -- | -- |
| | 400 V / III ph / 50 Hz (±10%) (A) | -- | -- | 15,8 | 17,8 | 20,8 | 17,4 | 20,4 | 20,4 |
| Refrigerant | Type | R-407C | | | | | | | |
| | Global warming potential (GWP) ⑤ | 1.744 | | | | | | | |
| | Charge (kg) | 2,3 | 2,2 | 2,8 | 3,4 | 3 | 4,8 | 4,9 | 5,7 |
| | Environment impact (tCO2eq) | 4,0 | 3,8 | 4,9 | 5,9 | 5,2 | 8,4 | 8,5 | 9,9 |
| Dimensions | Length (mm) | 1.430 | 1.430 | 1.530 | 1.530 | 1.530 | 1.082 | 1.082 | 1.082 |
| | Width (mm) | 658 | 658 | 838 | 838 | 838 | 680 | 680 | 680 |
| | Height (mm) | 636 | 636 | 700 | 700 | 700 | 2.143 | 2.143 | 2.143 |
| Weight | (kg) | 168 | 172 | 208 | 212 | 222 | 300 | 302 | 329 |
| Condensate outlet Ø | | 3/4" adaptor | | | | | | | |

① Cooling dehumidification capacity of the unit. When selecting the unit it is recommendable to take into account the dehumidification provided by outdoor ventilation air (UNE 100011).

② Cooling capacity for air inlet temperature conditions of 28°C and 65% RH

③ Heating capacity for recovery circuit water 28 / 33°C. Recovery of 50% of the condensation capacity.

④ Boiler water for the hot water auxiliary coil 82 / 65°C and air inlet at 20°C.

⑤ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.

CHARACTERISTICS OF THE INDEPENDENT RETURN MODULE (OPTIONAL)

| Junior BCP | | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|-----------------------|------------------------------------|-----------------|-------|-------|-------|-------|-------|-------|-------|
| Return fan (optional) | Available static pressure (mm.w.c) | 11 | 10 | 11 | 10 | 10 | 10 | 10 | 10 |
| | Fan type / number | Centrifugal / 1 | | | | | | | |
| | Fan capacity (kW) | 0,1 | 0,1 | 0,7 | 0,7 | 0,7 | 0,7 | 0,7 | 0,7 |
| Dimensions | Length (mm) | 1.417 | 1.417 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 |
| | Width (mm) | 660 | 660 | 840 | 840 | 840 | 840 | 840 | 840 |
| | Height (mm) | 636 | 636 | 700 | 700 | 700 | 700 | 700 | 700 |
| Weight | (kg) | 90 | 90 | 139 | 139 | 139 | 139 | 140 | 140 |

MAXIMUM INTENSITIES (A)

| Junior BCP | | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|-----------------------|-------------------------------|------|-----|-----|-----|-----|-----|-----|-----|
| Compressor | 230 V / I ph / 50 Hz (±10%) | 13,5 | 18 | 24 | -- | -- | -- | -- | -- |
| | 400 V / III ph / 50 Hz (±10%) | -- | -- | 9 | 11 | 14 | 14 | 17 | 17 |
| Supply fan | 230 V / I ph / 50 Hz (±10%) | 3,6 | 3,6 | 6,8 | 6,8 | 6,8 | -- | -- | -- |
| | 400 V / III ph / 50 Hz (±10%) | -- | -- | -- | -- | -- | 3,4 | 3,4 | 3,4 |
| Return fan (optional) | 230 V / I ph / 50 Hz (±10%) | 1,4 | 1,4 | 7,2 | 7,2 | 7,2 | 7,2 | 7,2 | 7,2 |

ELECTRICAL HEATER (OPTIONAL)

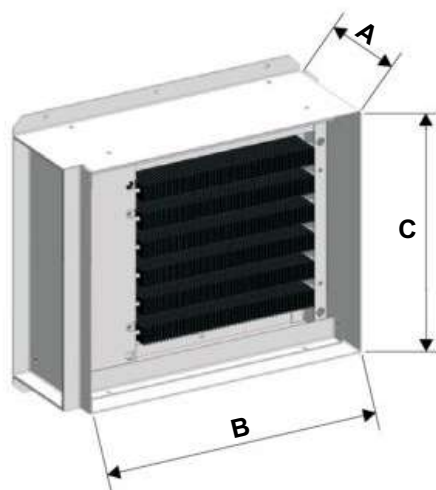
Available capacities

| Junior BCP | Voltage | 230 V / I ph / 50Hz | | | | | |
|---------------|---------------|---------------------|------|------|------|--|--|
| | Output (kW) | 3 | 4 | 5 | 6 | | |
| 20 / 30 / 40M | Intensity (A) | 13 | 17,4 | 21,7 | 26,1 | | |

| Junior BCP | Voltage | 400 V / III ph / 50 Hz | | | | | |
|--------------|---------------|------------------------|-----|----|-------------|-------------|-------------|
| | Output (kW) | 3 | 6 | 9 | 12 | 15 | 18 |
| 40 | Intensity (A) | 4,3 | 8,7 | 13 | unavailable | | |
| 50 | Intensity (A) | 4,3 | 8,7 | 13 | 17,3 | unavailable | |
| 60 | Intensity (A) | 4,3 | 8,7 | 13 | 17,3 | 21,7 | unavailable |
| 70 / 80 / 90 | Intensity (A) | 4,3 | 8,7 | 13 | 17,3 | 21,7 | 26,0 |

Frame for assembly of the auxiliary electrical heater in the supply fan

| Junior BCP | Output | Dimensions (mm) | | |
|---------------|-------------|-----------------|-----|-----|
| | | A | B | C |
| 20 / 30 / 40M | 3 to 6 kW | 150 | 432 | 341 |
| 40 | 3 to 6 kW | 150 | 432 | 341 |
| | 9 kW | 262 | 432 | 341 |
| 50 | 3 to 6 kW | 150 | 432 | 341 |
| | 9 to 12 kW | 262 | 432 | 341 |
| 60 | 3 to 6 kW | 150 | 432 | 341 |
| | 9 to 12 kW | 262 | 432 | 341 |
| | 15 kW | 262 | 482 | 443 |
| 70 / 80 / 90 | 3 to 9 kW | 150 | 482 | 443 |
| | 12 to 18 kW | 262 | 482 | 443 |

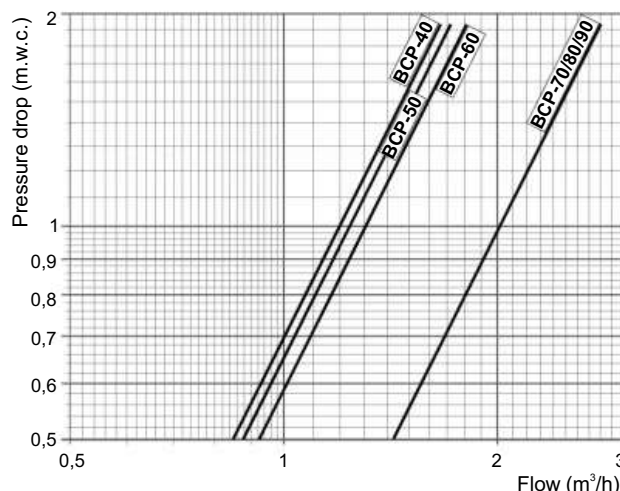


Note: This frame is designed with side access for maintenance purposes.

PRESSURE DROPS IN THE WATER CONDENSER

Optional in models 40 to 60

Standard in models 70 to 90



CORROSION BEHAVIOUR

| Water content | Concentration (mg/l or ppm) | Time limits (analyze before) | SS-316 |
|---------------------------------------------------------------|-----------------------------|------------------------------|--------|
| Alkalinity (HCO ₃ ⁻) | < 70 | Within 24h | + |
| | 70 - 300 | | + |
| | > 300 | | + |
| Sulphate ① (SO ₄ ²⁻) | < 70 | No limit | + |
| | 70 - 300 | | + |
| | > 300 | | + |
| HCO ₃ ⁻ / SO ₄ ²⁻ | > 1.0 | No limit | + |
| | < 1.0 | | + |
| Electrical conductivity | < 10 µS/cm | No limit | + |
| | 10-500 µS/cm | | + |
| | > 500 µS/cm | | + |
| pH ② | < 6.0 | Within 24h | 0 |
| | 6.0 - 7.5 | | + |
| | 7.5 - 9.0 | | + |
| | > 9.0 | | + |
| Ammonium (NH ₄ ⁺) | < 2 | Within 24h | + |
| | 2 - 20 | | + |
| | > 20 | | + |
| Chlorides (Cl ⁻) | < 100 | No limit | + |
| | 100 - 200 | | + |
| | 200 - 300 | | + |
| | > 300 | | - |
| Free chlorine (Cl ₂) | < 1 | Within 5 horas | + |
| | 1 - 5 | | - |
| | > 5 | | - |
| Hydrogen sulfide (H ₂ S) | < 0.05 | No limit | + |
| | > 0.05 | | + |
| Free (aggressive) carbon dioxide (CO ₂) | < 5 | No limit | + |
| | 5 - 20 | | + |
| | > 20 | | + |
| Total hardness (°dH) | 4.0 - 8.5 | No limit | + |
| Nitrate ① (NO ₃ ⁻) | < 100 | No limit | + |
| | > 100 | | + |
| Iron ③ (Fe) | < 0.2 | No limit | + |
| | > 0.2 | | + |
| Aluminium (Al) | < 0.2 | No limit | + |
| | > 0.2 | | + |
| Manganese ③ (Mn) | < 0.1 | No limit | + |
| | > 0.1 | | + |

The plates exchangers of Junior BCP units (standard in models 70 to 90 and optional in models 40 to 60) are made up of SS-316 stainless steel, and the material used for the plates welding is pure copper.

The attached table indicates the behaviour to corrosion for stainless steel SS-316 with respect to different compositions of water. Values outside these ranges may suppose corrosion problems.

Important recommendations:

- If the pool water is introduced directly into the unit water condenser, the addition of chlorine should **never** be carried out before the inlet to this condenser.
- These exchangers should **never** be used in swimming pools with electrolysis efficiency treatment. In these cases it is necessary to install intermediate titanium exchanger, otherwise serious corrosion problems may occur.
- In the case of a longer standstill, leave the exchanger full of water pool without flowing or empty may cause corrosion problems. During periods of inactivity it is **mandatory** to fill up the hydraulic circuit of the exchanger completely with demineralised water. To isolate the hydraulic circuit of the rest of the installation, the installer must have shut-off valves at the input and output, and a drain for emptying.

Note: Consult "Assembly recommendations" included on page 38 of this brochure.

① Sulfates and nitrates works as inhibitors for piping corrosion caused by chlorides in pH neutral environments.

② In general, low pH (below 6) increases corrosion risk and high pH (above 7.5) decreases the corrosion risk.

③ Fe³⁺ and Mn⁴⁺ are strong oxidants and may increase the risk for localised corrosion on stainless steels.

SiO₂ above 150 ppm increase the risk of scaling.

Legend:

+ Good resistance under normal conditions.

0 Corrosion problems may occur specially when more factors are value 0.

- Use is not recommended.

AQUAIR® PREMIUM BCP

Air handling units for swimming pools



Electronic control
Optimised energy consumption
Scroll compressors and R-410A
Plug-fan with EC HEE motor
Heating and dehumidification of covered pools

Dehumidification capacity:
 56 to 74 kg water/h



Dehumidification



Air filtration



Heating



Condensation
heat
recovery



Free cooling



Heat
recovery



DESCRIPTION

AQUAIR® PREMIUM BCP are dehumidification units by cooling circuit, with total condensing heat recovery, specially designed for conventional covered pools and other dehumidification applications. These units have been designed for indoor or outdoor installation.

For outdoor installation (optional), these units add a hood at the new air intake.

RANGE

AQUAIR® PREMIUM BCP: 2 refrigerating circuits, 2 compressors, 2 models:

■ 270 / 360

OPERATING LIMITS

Air inlet dry temperature

Maximum: 35°C (65% RH - 29°C WB)

Minimum: 18°C (90% RH - 17°C WB)

Condenser water inlet temperature

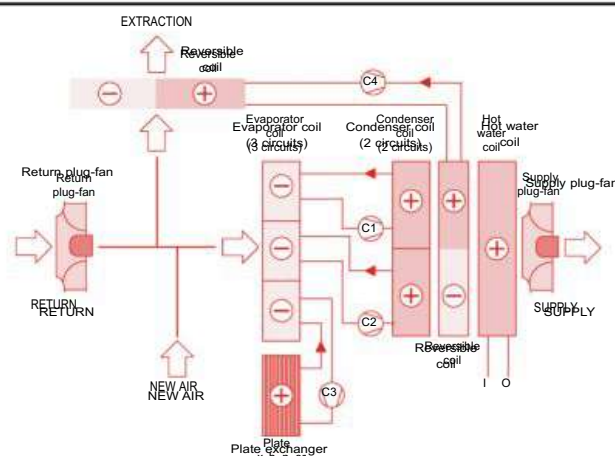
Maximum: 50°C

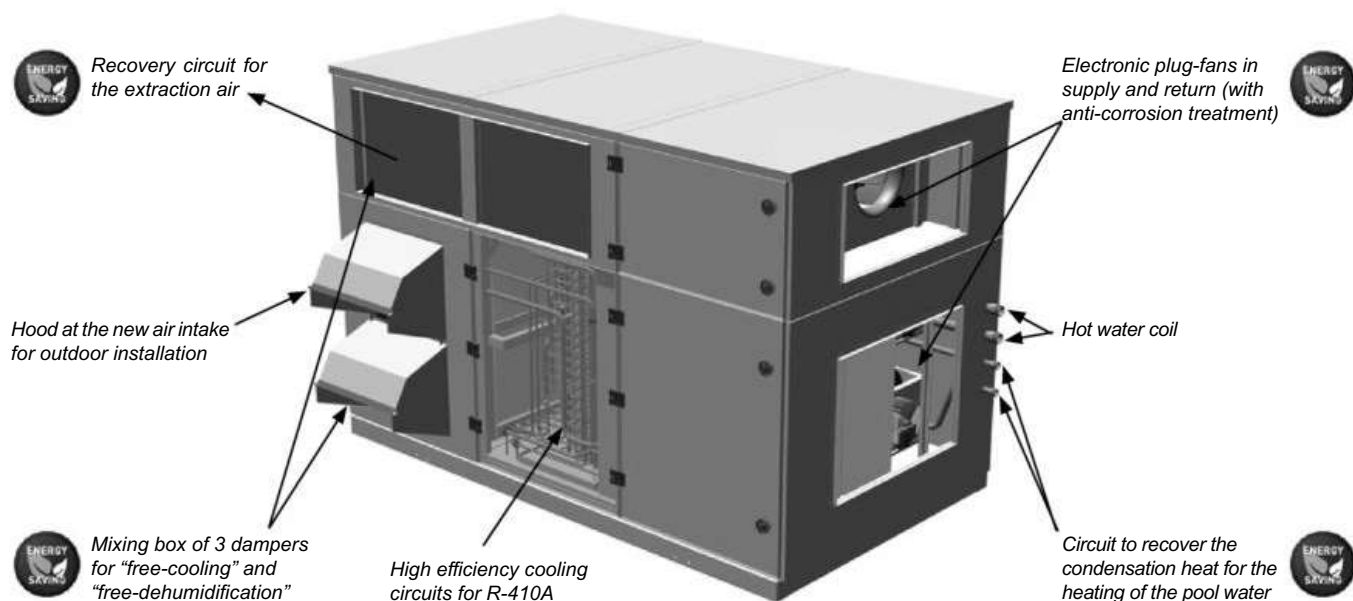
Minimum: 20°C

PRINCIPLE DIAGRAMS

This unit consists of three stages of dehumidification by means of three cooling circuits:

- One of the circuits condensates on a plates exchanger of SMO 254 steel, alloyed with chromium and molybdenum, with high resistance against corrosion in presence of chloride, filled with pool water, recovering part of the energy from the evaporation process.
- The other two circuits condensate on two air coils installed at the outlet of the evaporator, heating the cold and dry air that comes from it.
- It also integrates a cooling reversible circuit to recover the heat from the extraction air.





UNIT COMPONENTS

Casing

- Sandwich-panel casing made up in galvanized steel plate of 1 mm covered with polyester paint outside and inside, with glass fiber insulation of 25 mm.
- Support frame and hinged doors to access to the sections of the unit. Panels and doors with rubber joints to ensure tightness.

Indoor circuit

- Direct expansion cooling coil with copper tubes and aluminium fins, with polyurethane coating.
- Condenser coil with copper tubes and aluminium fins, with polyurethane coating.
- Stainless steel condensates drain pan with drainage outlet. This pan is inclined towards the drainage outlet so that the water does not stagnate in the pan, avoiding sanitary problems.
- Electronic EC plug-fans directly coupled with variable speed and flow sensor. Anti-corrosion treatment.
- Mixing box of 3 dampers, with motorized dampers and return EC plug-fan directly coupled with variable speed and flow sensor.
- Reusable air filters, assembled on a frame.

Main cooling circuits

- Unit with three cooling circuits:
 - All circuits participate in the air dehumidification when evaporating on the 3 circuit coil.
 - One of the circuits is condensed over a special SMO-254 plate exchanger welded with copper, filled with pool water, recovering part of the energy from the evaporation process
 - The other two circuits condensate over two air coils located at the evaporator air outlet, heating the cold and dry air, before discharge over the optional hot water coil.
- Three hermetic scroll-type compressor, assembled over antivibration mounts, with thermal insulation and integral protection of the motor temperature.
- Thermostatic expansion valve with external equalization.
- Antiacid dryer filter.

Recovery circuit in the extraction air

This reversible circuit allows to recover the energy from the extraction air to heat the air in the pool.

- Hermetic scroll-type compressor with sound insulation, and integral protection of the motor temperature, assembled over antivibration mounts.
- Air circuit comprised of coils with copper pipes and aluminium fins, with polyurethane coating.
- Thermostatic expansion valve with external equalisation.
- Antiacid filter drier.
- Crankcase heater.
- Four-way cycle reversing valves.
- Liquid receiver and liquid sight glass.

Protections

- High pressure pressostat.
- Low pressure pressostat.
- Main door switch.
- Magnetothermic protection switches for the power line of compressors and fan motors.
- Automatic switch in the control circuit.
- Probe for mixing air temperature.

Electric panel

- Complete and fully wired electrical panel. Insulated panel cover to prevent condensation. Protection IP55.
- Main ground connection and power supply with neutral.
- Compressor and fan motor contacts.

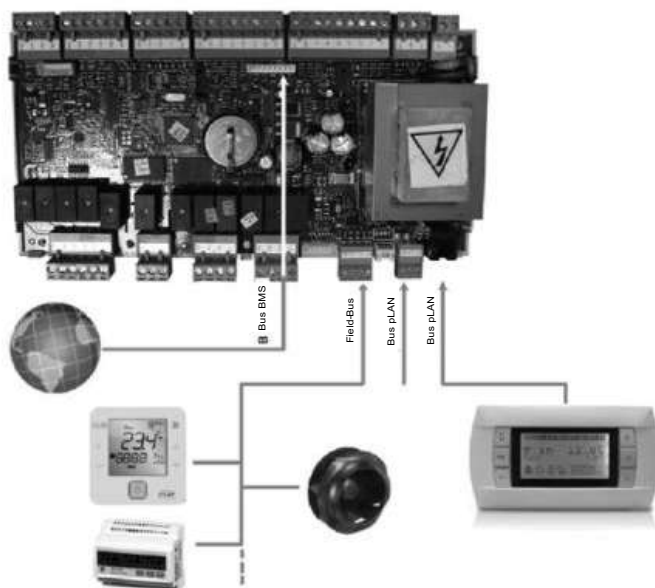
CIATpool electronic control

CIATpool carries out a control of the dehumidification of the pool depending on temperature and humidity of the ambient air probe reading.

This control is basically comprised of a μ PC MEDIUM control board, a pGD1 graphic terminal, a TCO user terminal (optional) and sensors.

A BMS card (optional) allows the connection to a centralised technical management system.

It also manages a local connection between units through a pLAN network (μ PC MEDIUM Local Area Network), thus allowing communication of data and information for a maximum of 15 units.



Main functions:

- Dehumidification control during operating modes: cooling / heating / AUTO
- Selection of setpoints.
- Temperature control (with optional hot water coil).
- Selection of control priorities.
- Timing of the compressors.
- Permanent control of the operating parameters.
- View of the values measured by the probes.
- Failure diagnosis and main alarm.
- Water circuit pump control.
- EC plug-fans control.
- Air flow control.
- Cooling recovery circuit control.

Optional functions:

- Free-dehumidification, free-cooling and regulation of the opening of the outdoor dampers.
- Proportional control of the hot water coil
- Clogged filter detection.
- Anti-fire safety.
- Connection to a centralised technical management system (BMS) for supervision.

pGD1 terminal:

This terminal, installed on the electric panel, allows:

- The initial programming of the unit and the modification of operating parameters.
- Unit ON / OFF.
- The selection of the operating mode and the setting of setpoints.
- On-screen display of controlled variables and sensor values measured.
- On-screen display of active alarms and historical record of alarms.



TCO user terminal (optional):

This terminal can be installed on the electric panel, instead of pGD1 terminal. In this case, the remote connection of the pGD1 terminal is possible.

Important: with this terminal, it is not possible the access to the parameters.



Options

Outdoor ambient

- INERA® coils with copper pipes and fins of an aluminium alloy, of high performance and great resistance to the corrosion.

Comfort / heating

- Hot water auxiliary coil of two or four rows, with a proportional three-way valve. Polyurethane coating or fins of INERA® aluminium alloy. This coil has an independent condensates drain pan.

Safety

- Differential pressostat for the detection of clogged filters.

Electric panel

- Energy meter for monitoring of the power consumption.
- Transformer for power supply without neutral (on request).

Comfort / indoor air quality options

- Gravimetric filters G4.
- Gravimetric filters G4 + opacimetric folded filters F6 to F9.
- Double stage folded opacimetric filters F6 + F8.

Installation

- Flexible hydraulic connections for water condenser and hot water coil.
- Antivibration mounts made of rubber.
- Hood at the new air intake for outdoor installation.

Control / communication

- Control with two ambient temperature and humidity probes.
- TCO user terminal, for installation on the electric panel, instead of pGD1 terminal.
- Kit remote control to 200 meters with pGD1 terminal (pGD1 terminal + 2 TCONN bypass cards). In this case it's possible to install the TCO terminal on the electric panel.
- RS485 serial cards for network communication with protocols: Carel, Modbus, LonWorks®, BACnetTM MSTP, Konnex.
- Ethernet pCO Web card for network communication with protocols: Modbus TCP/IP, BACnetTM Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP.

TECHNICAL CHARACTERISTICS

| AQUAIR® Premium BCP | | 270 | 360 |
|-------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------|
| Main circuits capacities + extraction air recovery | Dehumidification capacity ❶ (kg/h) | 56.2 | 73.5 |
| | Useful heating capacity in air / water ❷ (kW) | 18,9 / 34,1 | 26,1 / 43,5 |
| | Heating capacity of extraction air recovery (kW) | 32.1 | 43.3 |
| | Power input ❸ (kW) | 20.6 | 27.6 |
| | Useful thermodynamic efficiency | 5.8 | 5.9 |
| Air circuit: supply fan | Nominal air flow (m³/h) | 15 900 | 24 000 |
| | Available static pressure (mm.w.c.) | 25 | 25 |
| | Type | EC Plug Fan | |
| | Number / Diameter (mm) | 2 / 500 | 3 / 500 |
| | Motor output (kW) | 2 x 5,5 | 3 x 5,5 |
| | Power input (kW) | 4.6 | 6.9 |
| | Maximum speed (r.p.m.) | 2 x 2 220 | 3 x 2 220 |
| Air circuit: Return fan | Nominal air flow (m³/h) | 15 900 | 24 000 |
| | Available static pressure (mm.w.c.) | 15 | 15 |
| | Type | EC Plug Fan | |
| | Number / Diameter (mm) | 2 / 560 | 2 / 560 |
| | Motor output (kW) | 2 x 4,7 | 2 x 4,7 |
| | Power input (kW) | 2.38 | 3.74 |
| | Maximum speed (r.p.m.) | 2 x 1 763 | 2 x 1 763 |
| Water condenser | Nominal water flow (m³/h) | 5.9 | 7.5 |
| | Pressure drop (m.w.c.) | 9.1 | 5.1 |
| | Hydraulic connections | 1 1/4" M | |
| Hot water coil (optional) | Heating capacity (2-row coil) ❹ (kW) | 130.0 | 147.0 |
| | Nominal water flow (m³/h) | 6.6 | 7.4 |
| | Pressure drop (m.w.c.) | 2.0 | 2.6 |
| | Hydraulic connections | 2 1/8" | |
| | Type | Scroll | |
| Compressor | Number of compressors | 4 | |
| | No. circuits of air/water condensat. heat recovery | 2 / 1 | |
| | No. circuits of extraction air heat recovery | 1 | |
| | Oil type | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC | |
| | Oil volume (l) | 4 x 2,5 | 4 x 3,3 |
| | Electrical characteristics | 400 V / III ph / 50 Hz (±10%) | |
| Electrical characteristics | Power supply | 3 Wires + Ground + Neutral | |
| | Compressors (A) | 60.8 | 82.0 |
| Maximum absorbed current | Supply fan (A) | 16.6 | 24.9 |
| | Return fan (A) | 14.6 | 14.6 |
| | Control (A) | 0.4 | 0.4 |
| | Total (A) | 92.4 | 121.9 |
| | Sound level | 62.5 | 63.5 |
| Refrigerant | Sound pressure level ❺ dBA | | |
| | Type | R410A | |
| | Global warming potential (GWP) (GWP) ❻ | 2 088 | |
| | Charge (kg) | C1 : 7,5 / C2 : 7,0 / C3 : 4,8 / C4 : 11,2 | C1 : 7,8 / C2 : 7,3 / C3 : 5,5 / C4 : 12,2 |
| Weight | Environment impact (tCO2eq) | 63.7 | 68.5 |
| | Length (mm) | 3 389 | |
| | Width (mm) | 1 900 | |
| | Height (mm) | 2 267 | |
| Poids | (kg) | 2 220 | 2 270 |
| Condensate outlet Ø | | 3/4" M gas threaded | |

❶ Unit cooling dehumidification capacity. For unit selection, it should be taken into account the dehumidification which provides fresh air of ventilation (UNE 100011).

❷ Useful heating capacity in air / water. Air inlet temperature conditions of 28°C and 65% RH (taking into account the contribution of condensation less the sensitive cooling capacity previously provided in the evaporator). Water recovery conditions of 28 / 33°C.

❸ Total power input by compressors under nominal conditions

❹ Water from boiler for hot water coil 82 / 65°C and air inlet at 20°C.

❺ Measurement conditions: in a clear field, measured at a distance of 5 metres, directivity 2 and at 1,5 metres from the ground.

❻ Climate warming potential of one kg of greenhouse-effect fluored gas relative to one kilogram of carbon dioxide over a period of 100 years.

HOT WATER COIL (OPTIONAL)

| Model | Air flow (m ³ /h) | Air inlet temperature (°C) | Air relative humidity (%) | Water inlet temperature (°C) | Water outlet temperature (°C) | 2-row | | | 4-row | | |
|-------|------------------------------|----------------------------|---------------------------|------------------------------|-------------------------------|-----------------------|--------------------------------|------------------------------|-----------------------|--------------------------------|------------------------------|
| | | | | | | Heating capacity (kW) | Water flow (m ³ /h) | Water pressure drop (m.w.c.) | Heating capacity (kW) | Water flow (m ³ /h) | Water pressure drop (m.w.c.) |
| 270 | 15900 | 20 | 60 | 82 | 65 | 129.9 | 6.6 | 2.0 | 193.6 | 9.8 | 1.2 |
| | | 20 | 60 | 55 | 47 | 75.2 | 8.1 | 3.1 | 111.1 | 11.9 | 1.9 |
| | | 28 | 65 | 82 | 65 | 107.6 | 5.4 | 1.4 | 161.2 | 8.1 | 0.9 |
| | | 28 | 65 | 55 | 47 | 53.8 | 5.8 | 1.7 | 80.4 | 8.6 | 1.0 |
| | | 35 | 50 | 82 | 65 | 88.5 | 4.5 | 1.0 | 133.6 | 6.8 | 0.6 |
| | | 35 | 50 | 55 | 47 | 35.4 | 3.8 | 0.8 | 54.1 | 5.8 | 0.5 |
| 360 | 24000 | 20 | 60 | 82 | 65 | 146.9 | 7.4 | 2.6 | 225.9 | 11.4 | 1.6 |
| | | 20 | 60 | 55 | 47 | 85.1 | 9.1 | 3.8 | 129.7 | 13.9 | 2.5 |
| | | 28 | 65 | 82 | 65 | 121.7 | 6.2 | 1.8 | 187.9 | 9.5 | 1.6 |
| | | 28 | 65 | 55 | 47 | 60.9 | 6.5 | 2.1 | 93.6 | 10.1 | 1.4 |
| | | 35 | 50 | 82 | 65 | 100.1 | 5.1 | 1.3 | 155.5 | 7.9 | 0.8 |
| | | 35 | 50 | 55 | 47 | 40.0 | 4.3 | 1.0 | 62.9 | 6.8 | 0.7 |

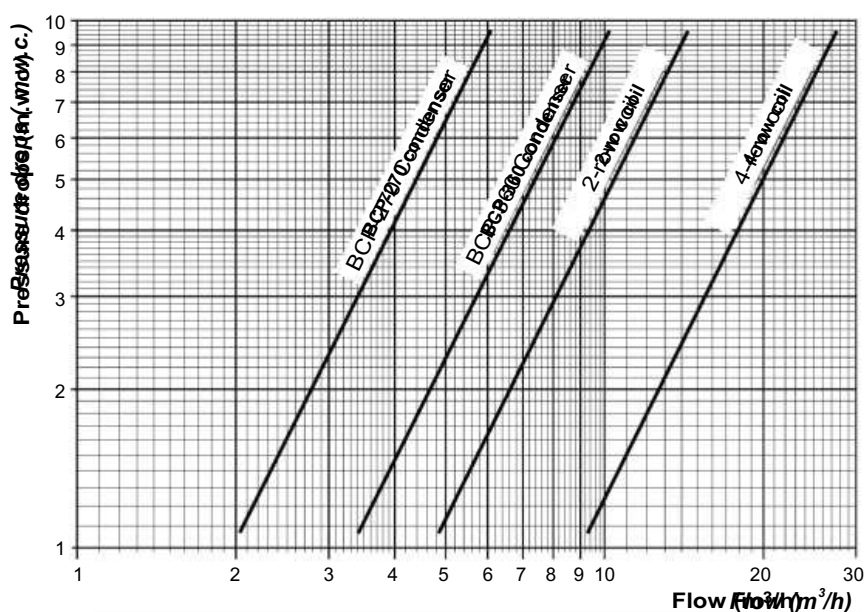
AIR PRESSURE DROPS

| Model | Air flow (m ³ /h) | Pressure drop (mm.w.c.) | | | | | |
|-------|------------------------------|-------------------------|-----------|-----------|-----------|------------------|------------------|
| | | standard filter ① | G4 filter | F6 filter | F8 filter | 2-row water coil | 4-row water coil |
| 270 | 15900 | 5.2 | 11.7 | 16.8 | 22.3 | 2.5 | 5.0 |
| 360 | 24000 | 11.9 | 14.5 | 19.6 | 28.0 | 5.6 | 11.4 |

① Perte de charge incluse dans la machine standard, à soustraire en cas d'ajout du filtre G4 (en option).

Remarque : les pertes de charge dans les filtres ont été calculées pour un niveau d'encrassement moyen.

WATER PRESSURE DROPS



REACTION TO CORROSION

See detail info in AQUAIR® BPC

AQUAIR® BCP

Air handling units for swimming pools



Heating and dehumidification for covered swimming pools

Optimized energy consumption

Electronic control

R-407C refrigerant

Dehumidification capacity: 21,7 to 74,7 kg/h

DESCRIPTION

Aquair BCP Series are dehumidification units by cooling circuit, with total recuperation of the heat of condensation, especially designed for covered pools and other dehumidification applications.

These units have been designed for indoor installations; optionally for outdoor installations.

Consult specific applications (marine atmospheres, high concentrations of salts or chemical agents, high temperatures, etc.)

RANGE

Aquair BCP: 2 cooling circuits, 2 compressors, 5 models:

- 110 / 140 / 180 / 230 / 265

Aquair BCP: 3 cooling circuits, 3 compressors, 2 models:

- 315 / 355

OPERATING LIMITS

Air inlet dry temperature

Maximum: 35°C (65% HR - 29°C WB)

Minimum: 18°C (90% HR - 17°C WB)

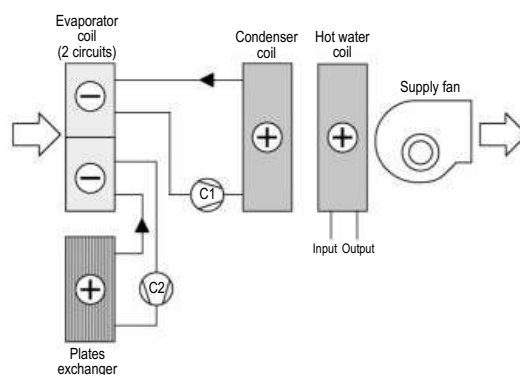
Condenser water inlet temperature

Maximum: 50°C

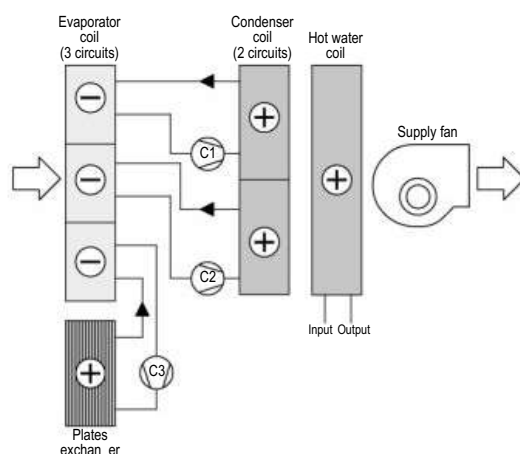
Minimum: 20°C

PRINCIPLE SCHEMES

■ Aquair BCP 110 / 140 / 180 / 230 / 265



■ Aquair BCP 315 / 355



UNITS COMPOSITION

Casing

- Sandwich-panel casing made up in galvanized steel plate of 1 mm covered with polyester paint outside and inside, with glass fiber insulation of 25 mm.
- Support frame and hinged doors to access to the sections of the unit. Panels and doors with rubber joints to ensure watertightness.

Internal air circuit

- G3 filter renewable mounted on frame.
- Direct expansion chiller coil with copper tubes and aluminium fins, with polyurethane coating.
- Condenser coil with copper tubes and aluminium fins, with polyurethane protection.
- Stainless steel condensates drain pan with drainage outlet. This pan is inclined towards the drainage outlet so that the water does not stagnate in the pan, avoiding sanitary problems.
- Centrifugal fan of galvanized plate driven by belts and pulleys.
- Air by-pass damper, manual setting.

Cooling circuit

- Units with two or three cooling circuits:
 - All the circuits participate in the air dehumidification process, evaporating on 2/3 circuits coil.
 - One of the circuits is condensed over a special SS-316 welded with copper, filled with pool water, recovering part of the energy from the evaporation process.
 - The other circuit(s) is condensed over an air coil located at the evaporator air outlet, heating the cold and dry air, before discharge over the optional hot water coil.
- Two or three Scroll hermetic compressors, depending on the model, with thermal insulation, motor temperature integral protection, installed over anti-vibratory supports.
- Thermostatic expansion valve with external equalization.
- Antiacid dryer filter.

Protections

- High and low pressure pressostats.
- Main switch of electrical cabinet door.
- Magnetothermic protection switches for the compressor(s) and motorfan(s) power supply.
- Automatic control circuit switch.
- Double access door to the fan.

Electric panel

- Complete and fully wired electric panel.
- Power supply with neutral and main ground connection.
- Compressor(s) and fan motor(s) contacts.

CIATpool electronic control

CIATpool control is basically composed of a µPC MEDIUM control board, a pGD1 graphical terminal, a TCO user terminal (optional) and sensors.

The control can connect to a centralised technical management system through a BMS communication card

The control also manages a local connection between units through a pLAN (µPC MEDIUM Local Area Network), thus allowing for a maximum of 15 units to communicate data and information.

Main functions:

- Dehumidification control during operating modes: COOLING / HEATING / AUTO and selection of setpoints.
- Permanent control of the operating parameters.
- View of the values measured by the sensors.
- Timing of the compressors.
- Daily and weekly programming.
- Anti-fire safety device.
- Operating fault diagnosis and main alarm.

Optional functions:

This control allows controlling optional elements such as:

- Outdoor air damper for refreshing air.
- Mixing box for thermal or thermoenthalpic free-cooling.
- Auxiliary electrical heaters.
- Hot water auxiliary coil.
- Clogged filter detector.

Options

- Copper tubes and copper fins coils.
- 1 or 2 stages of auxiliary electrical heaters.
- 2-rows hot water coil with 3-ways proportional valve, with polyurethane coating or in copper-copper.
- High flow in discharge and return air (except for upper discharge and return).
- Clogged filter detector.
- G4 gravimetric filter and F7 opacimetric filter.
- Protection roof for outdoor installation.
- Protection roof for outdoor installation.
- Manual damper for outdoor air intake.
- Mixing box with two motorized dampers.
- Mixing box with three motorized dampers and centrifugal return fan.
- Flexible connections for water condenser and for hot water coil.
- Rubber antivibration mounts.

TECHNICAL CHARACTERISTICS

| Aquair BCP | | 110 | 140 | 180 | 230 | 265 | 315 | 355 |
|-------------------------------------|------------------------------------|----------------------------|-----------|-----------|---------|-----------|---------------|---------------|
| Air circuit | Dehumidification capacity ① (kg/h) | 21,7 | 27,3 | 36,1 | 44,6 | 53,4 | 65,5 | 74,4 |
| | Heating capacity (kW) | 27,5 | 30,1 | 42,0 | 55,0 | 63,4 | 69,5 | 85,2 |
| | Cooling capacity ② (kW) | 31,6 | 39,7 | 53,3 | 67,3 | 77,1 | 95,2 | 108,2 |
| | Power input ③ (kW) | 7,0 | 8,8 | 12,4 | 15,6 | 18,5 | 22,9 | 25,6 |
| | Nominal air flow (m³/h) | 5.500 | 7.000 | 9.000 | 11.500 | 13.250 | 16.000 | 16.000 |
| | Maximum air flow (m³/h) | 6.600 | 8.400 | 10.800 | 13.800 | 15.900 | 19.200 | 19.200 |
| | Avail. static pressure (mm.w.c.) | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | Fan type / Number | Centrifugal / 1 | | | | | | |
| | Power (kW) | 1,1 | 1,5 | 2,2 | 3,0 | 4,0 | 5,5 | 5,5 |
| Circuit of high air flow (optional) | Nominal air flow (m³/h) | 10.500 | 10.500 | 17.250 | 17.250 | 24.000 | 24.000 | 24.000 |
| | Avail. static pressure (mm.w.c.) | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | Fan type / Number | Centrifugal / 1 | | | | | | |
| | Power (kW) | 3,0 | 3,0 | 5,5 | 5,5 | 7,5 | 7,5 | 7,5 |
| Water condenser | Heating capacity ④ (kW) | 10 | 16,9 | 20,7 | 24,9 | 28,2 | 43,1 | 43,1 |
| | Nominal water flow (m³/h) | 1,73 | 2,92 | 3,57 | 4,30 | 4,86 | 7,45 | 7,45 |
| | Pressure drop (m.w.c.) | 4,4 | 3,2 | 4,7 | 3,9 | 5,0 | 4,6 | 4,6 |
| | Hydraulic connections | 1" | 1 1/4" | 1 1/4" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" |
| Hot water coil (optional) | Heating capacity ⑤ (kW) | 61,5 | 71,5 | 90,0 | 105,0 | 129,0 | 145,0 | 145,0 |
| | Nominal water flow (m³/h) | 3,2 | 3,7 | 4,7 | 5,5 | 6,7 | 7,5 | 7,5 |
| | Pressure drop (m.w.c.) | 2,3 | 3,1 | 1,4 | 1,8 | 2,1 | 2,6 | 2,6 |
| | Hydraulic connections | 1 1/4" | 1 1/4" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" | 1 1/2" |
| Compressor | Type | Scroll | | | | | | |
| | Number of compressors / stages | 2 | | | | | 3 | |
| | Number of air / recovery circuits | 1 / 1 | | | | | 2 / 1 | |
| | Oil volume (l) | 1,7 / 1,0 | 3,3 / 1,4 | 3,3 / 1,7 | 4 / 1,7 | 6,2 / 1,7 | 3,3+1,7 / 3,3 | 3,3 x 2 / 3,3 |
| Power supply | 400 V / III ph / 50 Hz (±10%) | 3 Wires + Ground + Neutral | | | | | | |
| Maximum absorbed current (A) | | 37,7 | 31,6 | 48,0 | 55,9 | 61,0 | 86,6 | 98,6 |
| Refrigerant | Type | R-407C | | | | | | |
| | Global warming potential (GWP) ⑥ | 1.774 | | | | | | |
| | Charge (kg) | 7,4 | 8,6 | 14,7 | 15,5 | 17,8 | 16,9 | 18,2 |
| | Environment impact (tCO2eq) | 13,1 | 15,3 | 26,1 | 27,5 | 31,6 | 30,0 | 32,3 |
| Dimensions | Length (mm) | 2.070 | 2.070 | 2.282 | 2.282 | 2.450 | 2.450 | 2.450 |
| | Width (mm) | 1.248 | 1.248 | 1.498 | 1.498 | 1.498 | 1.498 | 1.498 |
| | Height (mm) | 1.315 | 1.315 | 1.613 | 1.613 | 1.813 | 1.813 | 1.813 |
| Weight | (kg) | 630 | 665 | 895 | 920 | 1080 | 1155 | 1175 |
| Condensate outlet Ø | | 3/4" adaptor | | | | | | |

① Unit cooling dehumidification capacity. For unit selection, it should be taken into account the dehumidification which provides fresh air of ventilation (UNE 100011)

② Cooling capacity for air inlet temperature conditions of 28°C and 65% RH

③ Total power input by compressor and motorfans under nominal conditions

④ Heating capacity for recovery circuit water 28 / 33°C.

⑤ Water from boiler for hot water coil 82 / 65°C and air inlet at 20°C.

⑥ Climate warming potential of one kg of greenhouse-effect fluored gas relative to one kilogram of carbon dioxide over a period of 100 years.

TECHNICAL CHARACTERISTICS OF THE RETURN FAN (OPTIONAL)

| Aquair BCP | 110 | 140 | 180 | 230 | 265 | 315 | 355 |
|------------------------------------|-----------------|------|-----|-----|-----|-----|-----|
| Nominal flow | | | | | | | |
| Available static pressure (mm.w.c) | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Fan type / Number | Centrifugal / 1 | | | | | | |
| Power (kW) | 0,55 | 0,75 | 1,5 | 2,2 | 2,2 | 3 | 3 |
| High flow (optional) | | | | | | | |
| Available static pressure (mm.w.c) | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Fan type / Number | Centrifugal / 1 | | | | | | |
| Power (kW) | 2,2 | 2,2 | 3,0 | 3,0 | 4,0 | 4,0 | 4,0 |

WEIGHTS BY MODULES (kg)

| Aquair BCP | 110 | 140 | 180 | 230 | 265 | 315 | 355 |
|-----------------------------------------------|-----|-----|-----|-----|------|------|------|
| Nominal flow | | | | | | | |
| Standard unit (without options) | 630 | 665 | 895 | 920 | 1080 | 1155 | 1175 |
| Hot water coil | 40 | 40 | 45 | 45 | 55 | 55 | 55 |
| Bags filter module | 270 | 270 | 350 | 350 | 400 | 400 | 400 |
| Mixing box module with 2 dampers | 380 | 380 | 470 | 470 | 520 | 520 | 520 |
| Mixing box module with 3 dampers + return fan | 438 | 444 | 602 | 609 | 697 | 700 | 700 |
| High flow (optional) | | | | | | | |
| Standard unit (without options) | 645 | 675 | 975 | 995 | 1175 | 1230 | 1230 |
| Hot water coil | 40 | 40 | 45 | 45 | 55 | 55 | 55 |
| Bags filter module | 270 | 270 | 350 | 350 | 400 | 400 | 400 |
| Mixing box module with 2 dampers | 380 | 380 | 470 | 470 | 520 | 520 | 520 |
| Mixing box module with 3 dampers + return fan | 456 | 456 | 737 | 737 | 815 | 743 | 743 |

MAXIMUM CURRENTS (A)

| Aquair BCP | | 110 | 140 | 180 | 230 | 265 | 315 | 355 |
|---------------------------------|-----------------------------|---------|---------|---------|---------|---------|---------------|--------|
| Compressor | 400V / III ph / 50Hz (±10%) | 18 + 17 | 17 + 11 | 29 + 14 | 35 + 14 | 35 + 17 | (29 x 2) + 17 | 29 x 3 |
| Supply fan | 230V / III ph / 50Hz (±10%) | 4,7 | 6,1 | 8,7 | 11,9 | 15,5 | 20,1 | 20,1 |
| | 400V / III ph / 50Hz (±10%) | 2,7 | 3,6 | 5,0 | 6,9 | 9,0 | 11,6 | 11,6 |
| High flow supply fan (optional) | 230V / III ph / 50Hz (±10%) | 11,9 | 11,9 | 20,1 | 20,1 | -- | -- | -- |
| | 400V / III ph / 50Hz (±10%) | 6,9 | 6,9 | 11,6 | 11,6 | 14,7 | 14,7 | 14,7 |
| Return fan (optional) | 230V / III ph / 50Hz (±10%) | 2,8 | 3,6 | 6,1 | 8,7 | 8,7 | 11,9 | 11,9 |
| | 400V / III ph / 50Hz (±10%) | 1,6 | 2,1 | 3,6 | 5,0 | 5,0 | 6,9 | 6,9 |
| High flow return fan (optional) | 230V / III ph / 50Hz (±10%) | 8,9 | 8,9 | 11,9 | 11,9 | 15,5 | 15,5 | 15,5 |
| | 400V / III ph / 50Hz (±10%) | 5,0 | 5,0 | 6,9 | 6,9 | 9,0 | 9,0 | 9,0 |

SOUND LEVELS dB(A)

Sound power level

Sound power level in the discharge fan outlet and in the return fan intake (optional), to take into account for the silencer calculation:

| Aquair BCP | | | 110 | 140 | 180 | 230 | 265 | 315 | 355 |
|----------------------|-----------------------|-------|------|------|------|------|------|------|------|
| Nominal flow | Supply fan | dB(A) | 75,0 | 77,8 | 81,3 | 85,9 | 87,2 | 91,1 | 91,1 |
| | Return fan (optional) | dB(A) | 75,8 | 80,9 | 77,4 | 83,0 | 81,3 | 86,0 | 86,0 |
| High flow (optional) | Supply fan | dB(A) | 86,3 | 86,3 | 85,5 | 85,5 | 85,7 | 85,3 | |
| | Return fan (optional) | dB(A) | 80,7 | 80,7 | 80,7 | 80,7 | 83,2 | 83,2 | |

Sound pressure level

Measurement conditions: in a clear field, measured at a distance of 5 metres, directivity 2 and at 1,5 metres from the ground.

| Aquair BCP | | | 110 | 140 | 180 | 230 | 265 | 315 | 355 |
|---------------|-------|--|------|------|------|------|------|------|------|
| Standard unit | dB(A) | | 63,2 | 66,9 | 69,8 | 73,6 | 74,8 | 77,7 | 77,6 |

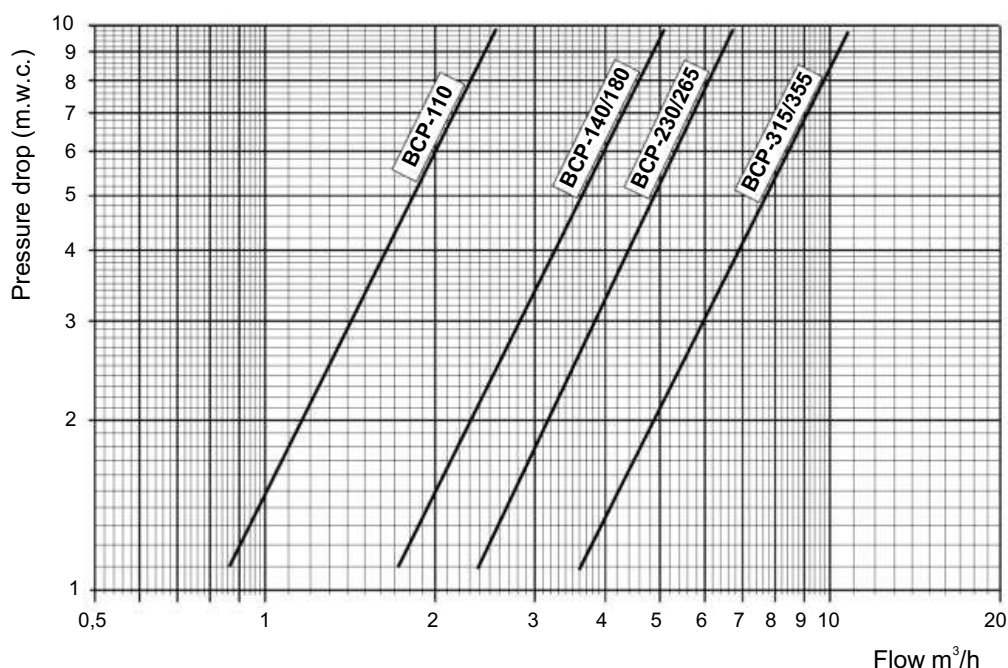
Note: the sound pressure level depends on the installation conditions and it is given only as an approximate guid.

ELECTRICAL HEATERS (OPCIONAL)

Auxiliary 2-stage electrical heaters for assembly and connection inside the unit.

| Voltage | 400 V / III ph / 50 Hz | | | | | | | | | |
|-------------|------------------------|-----|------|------|------|------|------|------|------|------|
| Power (kW) | 3 | 6 | 9 | 12 | 15 | 18 | 24 | 27 | 36 | 54 |
| Current (A) | 4,3 | 8,7 | 13,0 | 17,3 | 21,7 | 26,0 | 34,6 | 39,0 | 52,0 | 77,9 |

WATER PRESSURE DROPS IN THE CONDENSER



CORROSION BEHAVIOUR

| Water content | Concentration (mg/l or ppm) | Time limits (analyze before) | SS-316 |
|---------------------------------------------------------------|-----------------------------|------------------------------|--------|
| Alkalinity (HCO ₃ ⁻) | < 70 | Within 24h | + |
| | 70 - 300 | | + |
| | > 300 | | + |
| Sulphate ① (SO ₄ ²⁻) | < 70 | No limit | + |
| | 70 - 300 | | + |
| | > 300 | | + |
| HCO ₃ ⁻ / SO ₄ ²⁻ | > 1.0 | No limit | + |
| | < 1.0 | | + |
| Electrical conductivity | < 10 µS/cm | No limit | + |
| | 10-500 µS/cm | | + |
| | > 500 µS/cm | | + |
| pH ② | < 6.0 | Within 24h | 0 |
| | 6.0 - 7.5 | | + |
| | 7.5 - 9.0 | | + |
| | > 9.0 | | + |
| Ammonium (NH ₄ ⁺) | < 2 | Within 24h | + |
| | 2 - 20 | | + |
| | > 20 | | + |
| Chlorides (Cl ⁻) | < 100 | No limit | + |
| | 100 - 200 | | + |
| | 200 - 300 | | + |
| | > 300 | | - |
| Free chlorine (Cl ₂) | < 1 | Within 5 horas | + |
| | 1 - 5 | | - |
| | > 5 | | - |
| Hydrogen sulfide (H ₂ S) | < 0.05 | No limit | + |
| | > 0.05 | | + |
| Free (aggressive) carbon dioxide (CO ₂) | < 5 | No limit | + |
| | 5 - 20 | | + |
| | > 20 | | + |
| Total hardness (°dH) | 4.0 - 8.5 | No limit | + |
| Nitrate ① (NO ₃ ⁻) | < 100 | No limit | + |
| | > 100 | | + |
| Iron ③ (Fe) | < 0.2 | No limit | + |
| | > 0.2 | | + |
| Aluminium (Al) | < 0.2 | No limit | + |
| | > 0.2 | | + |
| Manganese ③ (Mn) | < 0.1 | No limit | + |
| | > 0.1 | | + |

The plates exchangers of Aquair BCP units are made up of stainless steel SS-316, and the material used for the plates welding is pure copper.

The attached table indicates the behaviour to corrosion for stainless steel SS-316 with respect to different compositions of water. Values outside these ranges may suppose corrosion problems.

Important recommendations:

- If the pool water is introduced directly into the unit water condenser, the addition of chlorine should **never** be carried out before the inlet to this condenser.
- These exchangers should **never** be used in swimming pools with electrolysis efficiency treatment. In these cases it is necessary to install intermediate titanium exchanger, otherwise serious corrosion problems may occur.
- In the case of a longer standstill, leave the exchanger full of water pool without flowing or empty may cause corrosion problems. During periods of inactivity it is **mandatory** to fill up the hydraulic circuit of the exchanger completely with demineralised water. To isolate the hydraulic circuit of the rest of the installation, the installer must have shut-off valves at the input and output, and a drain for emptying.

Note: Consult "Assembly recommendations" included on page 37 of this brochure.

- ① Sulfates and nitrates works as inhibitors for piping corrosion caused by chlorides in pH neutral environments.
 - ② In general, low pH (below 6) increases corrosion risk and high pH (above 7.5) decreases the corrosion risk.
 - ③ Fe³⁺ and Mn⁴⁺ are strong oxidants and may increase the risk for localised corrosion on stainless steels.
- SiO₂ above 150 ppm increase the risk of scaling.

Legend:


- + Good resistance under normal conditions.
- 0 Corrosion problems may occur specially when more factors are value 0.
- Use is not recommended.



CIAT


ROOFTOP REVERSIBLE AIR-TO-AIR

ROOFTOP UNITS

NEW VECTIOS™ PJ R-454B P.247
23 to 91kW **22 to 90kW**  4800 to 19 200 m³/h

VECTIOS^{POWER}™ PJ R-454B P.275
98 to 273 kW **97 to 300 kW**  10 800 to 54 000 m³/h

PACKAGED UNITS

NEW ISPV P.301
19 to 115kW **19 to 120kW**  4 000 to 21 000 m³/h

CIAT SYSTEM CONTROL AND SUPERVISION

BOSS / BOSS MINI SUPERVISION P.321

VECTIOS™ PJ R-454B*

Compact air-air rooftop units

NEW



Now available with **R-454B**
Integrated **"plug&play"** system
Eco-Design: **high seasonal efficiency**
Reliability with superior quality
Optimized dimensions and weights
Brand new **intelligent control** concept

Cooling capacity: 22,5 to 91,4 kW

Heating capacity: 22,1 to 90,0 kW



(*) Also available in R-410A



DESCRIPTION

The **VECTIOS™ range** is compact, horizontal and autonomous air-to-air units, rooftop-type design. They are equipped with all the components required for the correct air conditioning to the installation. Now available with R-454B.

- **RPJ series:** cooling-only unit.
- **IPJ series:** reversible heat pump.

The unit is connected directly to an air distribution ductwork without additional elements or equipment, pipes, cables, etc. taking up no floor space at all. This design reduces the cost of installation, facilities connections and ensures reliable operation.

The range of capacities of these units allows for the air conditioning of medium and large surface areas used for business or industry.

A vast number of options meet many operating requirements, such a:

- Recovery of the extracted air energy.
- Free-cooling.
- Air renewal.
- Zoning with variation of air flow.
- Indoor air quality control.
- Air filtration.
- Auxiliary devices for heating.
- Extension of operating limits for adaptation to extreme temperatures.

These units are equipped with electronic axial fans in the outdoor circuit, electronic plug-fans in the indoor circuit, air coils, hermetic scroll compressors and electronic control with microprocessor.

All of the units are tested and checked in the factory.

RANGE

| VECTIOS™ PJ models | Dimensions: L x W x H (mm) |
|---------------------------|----------------------------|
| 0090 - 0120 | 2.225 x 1.750 x 1.230 |
| 0140 - 0160 - 0180 - 0190 | 2.225 x 1.750 x 1.230 |
| 0200 - 0220 - 0240 | 3.000 x 2.200 x 1.230 |
| 0280 - 0320 - 0360 - 0380 | 3.650 x 2.200 x 1.230 |



Note: Dimensions for the standard configuration.

COMPLIANCE

Machinery Directive 2006/42/EC (MD)
Electromagnetic Compatibility Directive 2014/30/EU (EMC)
Pressure Equipment Directive 2014/68/EU (Category 2) (PED)
RoHS Directive 2011/65/EU (RoHS)
Eco-design Directive 2009/125/EC (ECO-DESIGN)
Energy Labelling Directive 2017/1369/EU (ECO-LABELLING)
Harmonised Standard: EN 378-2:2012 (Refrigerating systems and heat pumps - Safety and environmental requirements).

CUSTOMER BENEFITS

High energy efficiency & environmental responsibility

CIAT concentrates its efforts on achieving the lowest environmental impact selecting the best low GWP refrigerant for each application.

A combination of lower refrigerant charge and much lower GWP leads to an 80% reduction on direct carbon footprint.

The increase on efficiencies with R-454B over the already outstanding energy performance of **VECTIOS** leads to an additional 3% reduction on the indirect emissions. It means up to 42% savings in cooling and up to 10% savings in heating versus Ecodesign requirements.

VECTIOS™ goes beyond 2021 Ecodesign rooftop requirements.

SEER up to 5,07

SCOP up to 3,80

R-454B



We have designed the **VECTIOS R-454B** range with specific features to reduce energy consumption to the minimum for each application: variable ventilation, free-cooling, low pressure drop filters and energy recovery systems.

Packaged system flexibility

VECTIOS R-454B offers a wide range of options to address the most specific requirements to be the **perfect solution for every application** with maximum comfort, energy efficiency and indoor air quality in mind.



SHOPPING CENTERS



CINEMAS



LOGISTICS



INDUSTRIES



OFFICES



ADMINISTRATION

- Free-cooling
- Energy recovery
- Fresh air
- 100% fresh air without return
- Quality sensors
- Filtration
- Overpressure control
- Heating Backup
- Humidity control
- Multi zone control
- All season operations
- Heat recovery coil
- Low temperature applications
- Master/slave and Backup
- Energy meter
- Smoke detector
- Anti-corrosion options
- Supervision
- Communication

Weight and dimensions optimized. Possibility of transport of two stacked units.

Energy savings

We develop energy-efficient solutions that provide substantial savings.

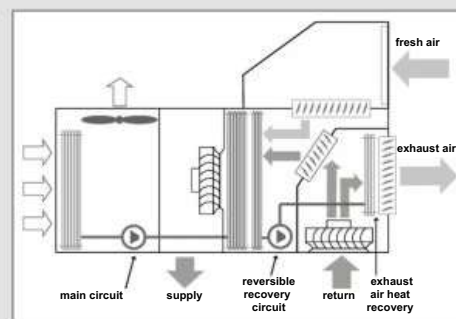
VECTIOS R-454B has been designed to reduce energy consumption with advanced features:

- Variable ventilation with electronic plug-fans.
- Low pressure drop filters.
- Free-cooling allows to make best use of outdoor air conditions when these are more favourable than the return air conditions. This allows the cooling capacity to be reduced. Up to 30% energy savings due to the cooling capacity reduction.
- Energy recovery systems:

* Active recovery:

High performances in mild weather.

Additional cooling circuit, independently controlled, for energy recovery from the exhaust air.



* Passive recovery:

Recommended with low outdoor temperatures in winter, and high fresh air ratios.

A rotary heat exchanger, coupled to the machine, transfers heat and humidity from the air-conditioned room's return air to the fresh air used for ventilation, before its discharged outdoors.



Acoustic comfort

VECTIOS R-454B guarantee **low noise level** during operation to meet the highest requirements thanks to the design optimization and the use of latest technology for fans and compressors.

- Up to 70% of the operation time below half-load. Sound level reduction in partial load operation.
- Night operation mode available with free-cooling and disabling compressors.

CUSTOMER BENEFITS

Extensive scope

More applications in a wider temperature range:

- **Air zoning** to control up to 4 zones or in case of large surfaces with high thermal dispersion.
- **Heat recovery coil** using energy rejected by food refrigeration system or industrial process.
- **Low return temperature 15°C** in cooling mode operation which allows to answer the request of certain application as food conservation in large store facilities.



Full reliability

CIAT designs and manufactures reliable products to meet the highest expectations and facilitate maintenance.

VECTIOS R-454B offers **Eurovent certified** performance.



The robust qualification process guarantees the highest standards.



Simplicity

We guarantee an easy installation and integration in the building management system.

- **Plug & play solution** fully programmed and set-up from factory.
 - **Communication** with all building management system protocols through Modbus, BACnet, Konnex, TCP/IP, SNMP V1-2-3, FTP and HTTP.
 - **Wide supervision** offer from 1 to 300 units.
 - **Remote supervision** solution ABOUND HVAC Performance.
- It is an advanced monitoring solution that enables customers for all applications to track and monitor their CIAT equipment.
- * 24/7 remote monitoring.
 - * Proactivity to anticipate breakdowns.
 - * Real-time data.
 - * Reports with analysis and recommendations from BluEdge CIAT experts.
 - * Email alert for any event concerning the equipment.



Healthier indoor environment

#CIAT4life

Enhanced solutions to contribute to a healthier indoor environment:

- **Ventilation** of spaces with outdoor air. It reduces indoor pollutants to maintain indoor air quality.
- **Air filtration.** It is an efficient way to reduce particles that can harm our health. The filter fouling detector determines when the filter needs to be replaced.
- **CO₂ sensors** that allow ventilation based on the comparison of CO₂ levels between indoor and outdoor sources.
- **Air flow control.** It ensures proper comfort in spaces:
 - * temperature,
 - * humidity,
 - * air flow,
 - * overpressure.



BluEdge® service platform

Our qualified and responsive BluEdge teams of technicians are available to implement actions on site and ensure optimal operation of your equipment.

We have a choice of service levels, enabling you to tailor the level of cover exactly to your needs and budget.

From preventative to full coverage, our **CORE**, **ENHANCE**, **ELITE** tiers are designed to fit your needs.



CORE



ENHANCE



ELITE

Advanced system control

VECTIC control is dedicated to optimizing the performance at part load conditions, increases the seasonal efficiency and operational limits in all seasons.



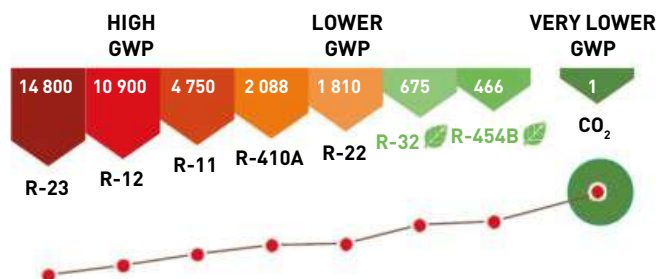
ENVIRONMENTAL RESPONSABILITY



VECTIOS R-454B leads the transition to the lowest environmental impact contributing to sustainable development via an environmentally responsible approach, aimed at balancing ecological and economic concerns. This enables it to meet the requirements of future European thermal regulations and to protect our environment for future generations.

The impact of an air conditioning system on global warming of the planet is in large part caused by CO₂ emissions released into the atmosphere when the electricity required to power the unit is produced (**indirect effect**) and in small part by CO₂ emissions linked to uncontrolled emissions of refrigerant with global warming potential into the atmosphere (**direct effect**).

CIAT offers the best refrigerant choice according to applications, conditions and technologies. Taking into account the energy consumption reduction without losing its energy efficiency

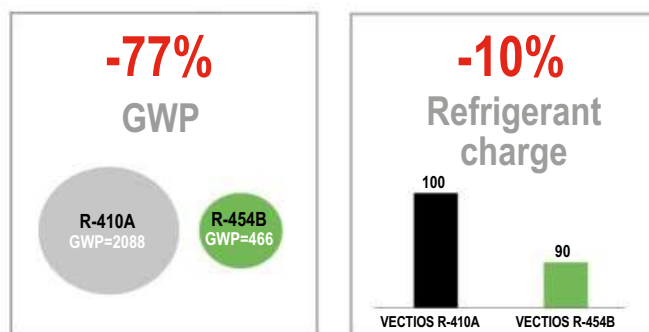


■ 80% reduction in the direct environmental impact, and therefore in the taxes

This performance is the result of the high-quality components used, which have all been rigorously selected:

- ✓ R-454B refrigerant with the lowest environmental impact (Ozone depletion potential = 0, Global warming potential = 466).
- ✓ R-454B is the best alternative for rooftops, with the lowest GWP (77% lower than R-410A, 31% lower than R-32).
- ✓ 10% reduction in refrigerant charge compared to previous version with R-410A.
- ✓ Systematic tightness check of units in leak detection cabinets at end of line production.

To conclude, the potential direct impact of **VECTIOS R-454B** on the environment is reduced by 80% compared to **VECTIOS R-410A**.



80% LESS CO₂ EQUIVALENT THAN R-410A

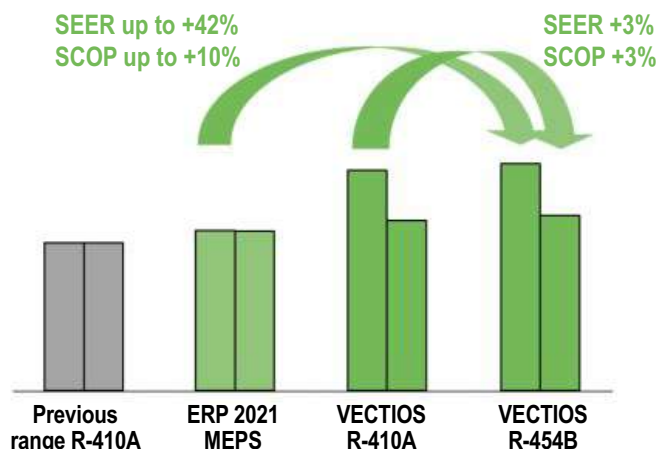
■ Reduced indirect environmental impact (Energy)

The new **VECTIOS R-454B** range also reduces the indirect environmental impact to the minimum thanks to the additional increase on the efficiency over the already **outstanding performance** in the legacy range with R-410A, getting savings versus Ecodesign regulation up to 42% in cooling and 10% in heating.

The high energy performance offered by **VECTIOS R-454B** enables energy consumption to be greatly reduced, therefore reducing energy bills for the user whilst reducing the unit's carbon footprint.

This performance is the result of the high-quality components used, which have all been rigorously selected:

- ✓ New generation of scroll compressors, optimized for R-454B refrigerant, in tandem configuration for high performance in partial load.
- ✓ R-454B refrigerant with high energy performance,
- ✓ Electronic expansion valves.
- ✓ VECTIC electronic control optimizing performance and energy consumption.
- ✓ EC outdoor fans for high efficiency and low noise level.
- ✓ EC indoor plug-fan with pressure transducer.



In addition, the **VECTIOS R-454B** range can be equipped with additional specific features to reduce energy consumption to the minimum for each application: variable ventilation, free-cooling, low pressure drop filters and energy recovery systems.

To conclude, **VECTIOS R-454B** reduces the indirect environmental impact leading the transition to the lowest environmental impact, not only in direct effect, but also in the indirect effect.

EcoPASSPORT®

The PEP ecopassport® programme provides an international reference framework for procedures enabling manufacturers to communicate the environmental specifications of their products in the form of an eco-declaration, known as the Product Environmental Profile (PEP).

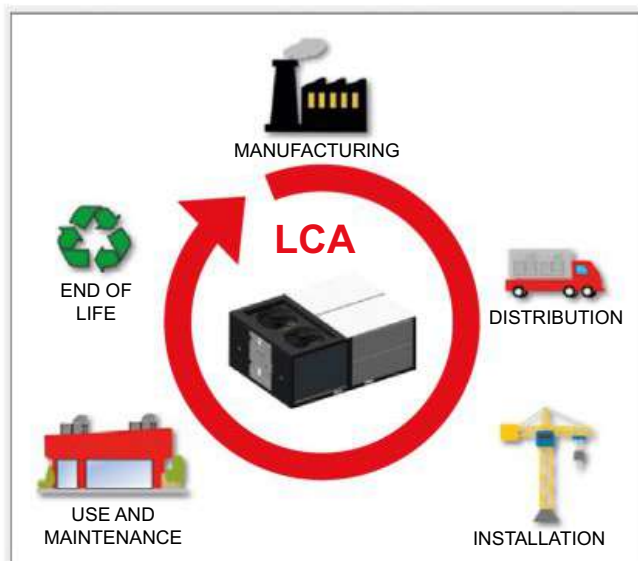
The PEP ecopassport® programme guarantees that PEPs are created, checked and communicated correctly according to the requirements of standard ISO 14025 and standard IEC/PAS 62545.



The Life Cycle Analysis (LCA) PEP is the environmental identity card for an item of equipment which details the environmental impacts of the product during its life cycle according to **eight mandatory indicators**:

1. Global Warming Potential
2. Impact on the ozone layer
3. Acidification of soil and water
4. Eutrophication of water
5. Photochemical ozone creation
6. Abiotic resource depletion
7. Fresh water consumption
8. Total use of primary energy during the life cycle

CIAT is the first HVAC manufacturer to provide PEPs for rooftops, not only the 8 mandatory indicators, but all **27 indicators**.



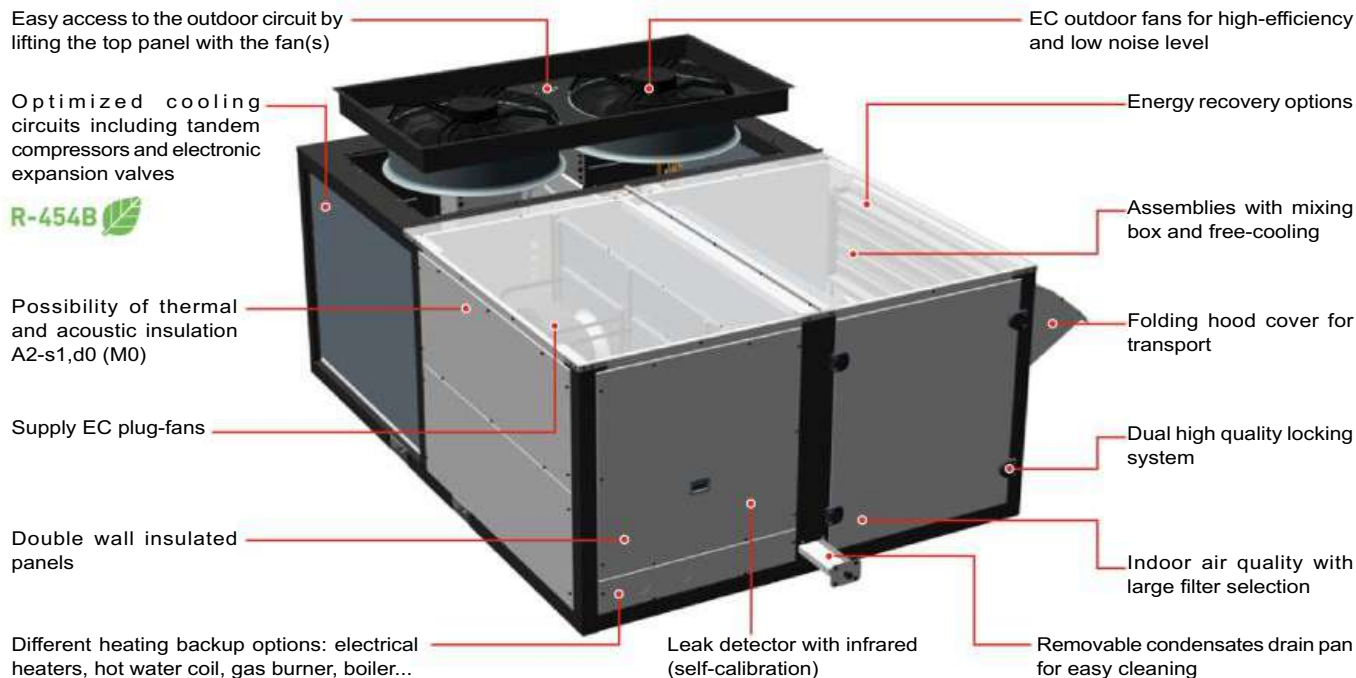
Products with certified environmental profiles are used to support methods to assess building sustainability such as BREEAM or LEED. They give additional recognition for materials with robust environmental product declaration types using manufacturer data.



The PEP of **VECTIOS R-454B** can be downloaded from the PEP ecopassport® website: <http://www.pep-ecopassport.org>



MAIN FEATURES



UNIT COMPONENTS

Casing

- New self-supporting frame that allow the transport without the need for a wooden pallet.
- Possibility of transport of two stacked units. Only units with electronic outdoor fans (included as standard).
- Casing made of galvanised steel metal. Most parts protected with polyester paint finished in two colors: white, RAL 7035 and graphite grey, RAL 7024.
- Removable panels for easy access to all components: electrical cabinet, compressors, fans, filters, etc.

Outdoor circuit

- Coil with copper pipes and aluminium fins.
 - EC electronic axial fan(s) which adapt the rotation speed to the installation's requirements, thereby reducing electricity consumption, the sound level at partial charge and improving the unit's average seasonal efficiency.
- The cover with the motor fan(s) may be lifted to access the inside of the outdoor circuit.

Indoor circuit

- Thermal and acoustic insulation, in double wall panels and registers, with Euroclass A2-s1, d0 (M0) fire classification.
- Coil with copper pipes and aluminium fins.
- EC electronic supply plug-fans with variable control speed and flow rate controller.

The fans are factory configured with nominal air flow. Consult for any special configuration.

In tertiary sector installation, a high percentage of the annual air conditioning energy consumption comes from the use of fans for transporting air. Using fans which are more efficient has a direct impact on reducing consumption.

- Reusable gravimetric air filters G4, mounted on a frame. Dual locking system mounted on the access panel to filters.
- Isolated pan of condensates drainage sloping down towards the drain. This pan is removable for easy cleaning.

Cooling circuit

- Hermetic scroll-type compressors in tandem design that improves the management of stages and the part load efficiencies, assembled over antivibration mounts. Relay for phase-sequence monitoring and phase loss protection.
- Crankcase heater.
- Electronic expansion valve(s).
- Four-way cycle reversing valve(s) (heat pump units).
- Acid-resistant filter(s) dryer.
- Cooling design:
 - 1-air volume: IPJ models 0090 to 0190 and RPJ models.
 - 2-air volumes: IPJ models 0200 to 0380.



Electrical cabinet

- Complete and fully wired electrical cabinet. Insulated access door to prevent condensation. Forced ventilation of the electrical cabinet. Protection IP54.
- Numeration of wired and identification of components in the electrical cabinet. It permits easy tracing and diagnostics.
- Hinges + quarter-turn latches on the removable access door.
- Electrical power supply with neutral.
- Main ground connection.
- Compressor and fan motor contacts.

UNIT COMPONENTS

Protections

- High pressure pressostat(s).
- High and low pressure transducers.
- Refrigerant leak control (by low-pressure alarm).
- Due to the A2L category of refrigerant R-454B (lightly flammable), it requires the installation of a refrigerant leak detector. This detector uses infrared instead of semiconductor technology with no need of calibration (self-calibration), with very fast time response, and high lifetime.
The detector is installed on a panel next to the supply fans of the indoor circuit. This position ensures the correct reading of the gas concentration in the indoor coil.
If the unit is connected to a BMS monitoring system, the electronic control is prepared to send an alarm signal in case of leakage detection.
Note: These units are designed to be installed outdoors in a well ventilated area, but a second leak detector can be installed in the outdoor circuit if in any case it is considered necessary. Available upon request.
- Compressor discharge temperature control.
- Main door switch.
- Protection for power lines of compressors with manual motor starters and power lines of fan motors with magnetothermic switches. These devices provide protection against overload, short circuit, phase failure and undervoltage.
- Automatic switch in the control circuit.

Vectic electronic control

The Vectic control consist of a control board, sensors, a VecticGD graphic terminal and a TCO user terminal (optional).

The control board includes a RS485 field-bus to manage additional components such as: expansion modules and boards, plug-fans, probes of temperature or relative humidity of the ambient air, leak detectors, energy meters, etc.

This board also integrates two communication ports that allow connection with a centralized technical management system such as BOSS and BOSS mini. A BMS port for Modbus RTU protocol and an Ethernet port for Modbus TCP/IP protocol.

A communication card (optional) can also be connected to the control board for the following protocols: TCP/IP, modbus TCP/IP, SNMP V1-2-3, FTP, HTTP, Ethernet BACnet™, BACnet™ MSTP, Konnex and Modbus RTU.

Vectic control enables unit integration with our local supervision solutions: **pCO Web** (1 unit), **BOSS mini** (50 units) and **BOSS** (300 units), as well as with the remote solution: **ABOUND HVAC Performance**.

With this control, it is also possible to connect to a shared network (SHRD) for a maximum of 15 units, with one unit configured as "Master" and the other units as "Slaves". This network allows the exchange of data and information between the units, and depending on the conditions of the installation, it can share the reading of some probes installed on the unit configured as "Master", temperature setpoints, and operating mode. It is also possible to configure one unit as a "Backup", for activation in case of malfunction of the other unit.

Main functions:

- Selection of setpoint and operating mode: HEATING / COOLING / AUTO / VENTILATION.
- Continuous control of the operating parameters.
- Display of the values measured by the sensors.
- Compressors time delays.
- Defrosting management.
- Control of the supply air temperature.
- All-seasons operation via the condensation and evaporation pressure control.
The management of the unit in cooling mode is based on the principle of a high floating pressure. The condensation pressure setpoint is continually calculated depending on the outdoor temperature. This pressure is regulated by adjusting the air flow on the outdoor fans.
- Setpoint compensation based on the outdoor temperature.
- Hourly and weekly schedule.
- Fire protection.
- Diagnosis of faults and general alarm.
- Management of all the optional components available for the unit: dampers and mixing boxes, Backup heating, air quality sensors, air zoning, energy recovery,...

VecticGD graphic terminal:

This terminal, fitted as standard on the electrical cabinet, is very easy to use. It provides detailed explanations of control in easy to understand English. No decoding is required.



Only 6, large, easy-to-use buttons are required to maneuver through the entire menus.

This terminal is used to:

- Carry out initial programming of the unit.
- Modify operating parameters.
- Switch the unit ON / OFF.
- Select the operating mode and adjust the setpoints.
- Display the variables controlled and sensor values measured.
- Display the current alarms and their historical record.

Note: multiple units can share a single terminal, if they are integrated into a pLAN local network (for up to 15 units).

TCO user terminal (optional):

This terminal can be installed on the electrical cabinet, instead of the VecticGD graphic terminal. In this case, the remote connection of the VecticGD terminal is possible. Please consult the chapter "Options".



This terminal is used to:

- Switch the unit ON / OFF.
- Select the operating mode and adjust the setpoints.
- Display the installation's temperatures and humidity, outdoor temperature, supply air temperature, CO₂ sensor and opening of the outdoor damper.
- Display alarms codes.

NOMENCLATURE OF THE MODEL NUMBER

| | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|---|---|---|----|----|-----|---|----|----|----|----|-----|------|------|----|----|------|----|-----|-----|------|------|------|
| IPJ_ | 0090 | A | 3 | G | C0 | AA | 000 | 0 | N | B | E | 0 | 000 | 0000 | 0000 | 0 | 0 | T100 | 00 | P00 | 000 | C100 | 0000 | 0000 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |

Group 1: Unit type

- RPJ_: air/air cooling unit
- IPJ_: air/air heat pump

Group 2: Unit model

- 1 circuit: 0090 / 0120 / 0140 / 0160 / 0180 / 0190
- 2 circuits: 0200 / 0220 / 0240 / 0280 / 0320 / 0360 / 0380

Group 3: Version of the series

Group 4: Electrical power

- 3: 400V / 3ph + N / 50Hz
- 4: 400V / 3ph / 50Hz

Group 5: Type of refrigerant

- G: R454-B

Group 6: Air flow + Assembly

- C0: Standard assembly
- CS: 2 dampers
- CF: 100% fresh air
- CK: 3 dampers
- CA: Axial return fan
- CP: Lower return plug-fan
- CR: Lower return plug-fan and active recovery
- CQ: Return plug-fan or centrifugal fan in top box
- CT: Return plug-fan or centrifugal fan in top box and active recovery
- CW: Passive recovery

Group 7: Coil coating : Indoor - Outdoor

- AA: Indoor coil - Outdoor coil
- A: Aluminium A: Aluminium
- B: Polyurethane B: Polyurethane
- C: Inera® C: Inera®
- E: Blygold® E: Blygold®

Group 8: Heating

- 000: Without auxiliary heating
- G0x: Gas burner, 3 power outputs:
x = Low (L) / Nominal (N) / High (H)
- E0x: Electrical heaters, 3 power outputs:
Low (L) / Nominal (N) / High (H)
- B0x: Hot water coil, 2 options:
x = Standard (S) / Great cold (C)

Group 9: Protection for low outdoor temperature

- 0: Without protection
- 1: Kit 1: Kit for outdoor temperature <-10°C
- 2: Kit 2: Kit for outdoor temperature <-14°C
- 3: Kit 3 : Kit 1 + Dampers with spring
- 4: Kit 4 : Kit 2 + Dampers with spring

Group 10: Available pressure of the indoor fan

- L: Low available pressure
- N: Nominal available pressure
- A: Nominal available pressure (Aluminium)
- H: High available pressure

Group 11: Air filtration + stop-drop

- A: G4
- B: G4+ stop-drop
- C: G4 low pressure drop
- D: G4 low pressure drop + stop-drop
- E: G4 + M6
- F: G4 + M6 + stop-drop
- G: G4 + F7
- H: G4 + F7 + stop-drop
- I: G4 + F9
- J: G4 + F9 + stop-drop
- K: G4 l.p.d. + F7
- L: G4 l.p.d. + F7 + stop-drop
- M: G4 l.p.d. + F9
- N: G4 l.p.d. + F9 + stop-drop
- O: M6 + F7

- P: M6 + F7 + stop-drop
- Q: M6 + F9
- R: M6 + F9 + stop-drop
- S: F7 + F9
- T: F7 + F9 + stop-drop
- U: F9 + F9
- V: F9 + F9 + stop-drop

Group 12: Type of outdoor fan

- A: AC (2-speed)
- E: EC (electronic)

Group 13: Insulation

- 0: Standard insulation
- 1: Insulation Euroclass A2-s1, d0 (M0)

Group 14: Indoor circuit configuration

- 000 — Without optional accessories
- A: Condensate drain pan in stainless steel
- 1: Overpressure management
- A: Clogged filters pressostat

Group 15: Outdoor circuit configuration

- 0000 — Without optional accessories
- A: Fresh air intake protection grid
- 1: Outdoor coil protective grille
- A: Antivibration mounts
- 1: Stop-drop at the fresh air intake

Group 16: Passive recovery

- 0000 — Without optional accessories
- 2: G4 low pressure drop
- A: Wheel speed with on/off control
- B: Wheel speed with variable control
- 1: Channel cross section of 2,0 mm
- 2: Channel cross section of 2,5 mm
- A: Material: Aluminium
- B: Material: Aluminium with epoxy
- C: Material: Hybrid wheel
- D: Material: aluminium with silicagel

Group 17: Extra heating

- 0: Without extra heating
- N: Preheater (electrical heater) in fresh air (N)
- L: Preheater (electrical heater) in fresh air (L)
- C: Heat recovery coil

Group 18: Special applications

- 0: Without special applications
- Z: Air zoning
- I: Low return temperature application
- K: Low T application + Air zoning
- N: 100% fresh air
- O: 100% fresh air + Air zoning

Group 19: Sensors

- 0000 — Without options
- H: Smoke detector sensor
- A: Air quality sensor for environment
- C: Air quality sensor duct-mounted
- D: Double quality sensor: environment + environment
- E: Double quality sensor: environment + outdoor
- F: Double quality sensor: duct-mounted + outdoor
- P: Air quality sensor on the SHRD network
- 1: 1 sensor RS485
- 2: 2 sensors RS485
- 3: 3 sensors RS485
- 4: 4 sensors RS485
- 5: 1 sensor NTC
- T: Ambient temperature sensor
- H: Ambient temperature+humidity sensor
- P: Ambient sensor on the SHRD network

Group 20: Free-cooling + Outdoor humidity

- 00 — Without free-cooling + without sensor
- 1: Outdoor humidity sensor on the unit
- 2: Outdoor humidity sensor on SHRD network
- T: Thermal free-cooling
- M: Thermoenthalpic free-cooling
- E: Enthalpic free-cooling

Group 21: Terminal + Unit communication

- 000 — Without terminal + stand-alone + without card
- M: Communication card RS485 Modbus
- E: Communication card Ethernet PCoWeb
- B: Communication card Ethernet BACnet™
- C: Communication card RS485 BACnet™
- K: Communication card RS485 Konnex
- 0: Free-standing unit
- 1: Master unit
- 2: Slave unit
- P: VeticGD terminal in electrical cabinet
- T: TCO user terminal in electrical cabinet
- R: VeticGD terminal in electrical cabinet + TCO terminal remote up to 100 m
- S: TCO terminal in electrical cabinet + VeticGD terminal remote up to 200 m
- N: VeticGD terminal in electrical cabinet + VeticGD terminal remote up to 200 m

Group 22: Miscellaneous item 1

- 000 — Without options
- 1: Management of an on/off humidifier
- 2: Management of a proportional humidifier
- E: Energy meter
- M: Energy meter and calculation of cooling and heating capacities
- Unused

Group 23: Miscellaneous item 2

- C100 — Without optional accessories
- 1: Compressor soft starter
- 2: Tropicalization
- T: High performance phase monitoring relay
- Unused

Group 24: Return fan

- 0000 — Without return fan
- 1: Centrifugal, Low flow + nominal pressure
- 2: Centrifugal, Low flow + high pressure
- 3: Centrifugal, Nominal flow + nominal pressure
- 4: Centrifugal, Nominal flow + high pressure
- 5: Centrifugal, High flow + nominal pressure
- 6: Centrifugal, High flow + high pressure
- 7: Centrifugal, Low flow + low pressure
- 8: Centrifugal, Nominal flow + low pressure
- 9: Centrifugal, High flow + low pressure
- A: Plug-fan, nominal pressure (Aluminium)
- Unused

Group 25: Indoor air direction

- 0000 — Lower direction
- 0: Lower supply and lower return
- 1: Lateral supply and lower return
- 2: Lower supply and lateral return
- 3: Lateral supply and lateral return
- 4: Upper supply and lower return
- 5: Lateral supply and upper return
- 6: Upper supply and lateral return
- 7: Lower supply and upper return
- 8: Upper supply and upper return
- Unused
- 0: Without pre-assembly roof curbs
- 1: With pre-assembly roof curbs
- Unused

NOMENCLATURE OF ROOF CURB / BURNER (OPTIONS)

| RC0_PJ | 090_190 | A | C0 | 000 | 000 | 00000 | 0 | 000 | 000 | 00 |
|--------|---------|---|----|-----|-----|-------|---|-----|-----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |

Group 1: Unit type

- RC0_PJ: Roof curb
- RCA_PJ: Roof curb + Gas burner

Group 2: Unit model

- 090_190
- 200_240
- 280_380

Group 3: Version of the series

Group 4: Air flow + Assembly

- C0: Standard assembly
- CS: 2 dampers
- CF: 100% fresh air
- CK: 3 dampers
- CA: Axial return fan
- CP: Lower return plug-fan
- CR: Lower return plug-fan and active recovery
- CQ: Return plug-fan or centrifugal fan in top box
- CT: Return plug-fan or centrifugal fan in top box and active recovery
- CW: Passive recovery

Group 5: Roof curb type

- 000: Without rood curb
- R00: Pre-assembly roof curb
- LE1: Adaptation roof curb
- LE2: Adaptation roof curb
- CA1: Adaptation roof curb
- CA2: Adaptation roof curb
- ET1: Adaptation roof curb
- CI1: Adaptation roof curb
- CI2: Adaptation roof curb

Group 6: Gas burner

- 000: Without burner
- G0x: Gas burner, 3 power outputs:
x = Low (L) / Nominal (N) / High (H)

Group 7: Country + Type of gas

- 00000 Without burner
- ITG20 ItalyG20
- ITG30 ItalyG30
- ITG31 ItalyG31
- ESG20 SpainG20
- ESG31 SpainG31
- ROG20 RomaniaG20
- ROG30 RomaniaG30
- ROG31 RomaniaG31
- IEG20 Ireland.....G20
- IEG31 Ireland.....G31
- GBG20 United Kingdom...G20
- GBG31 United Kingdom...G31

- BEG20 Belgium.....G20
- BEG25 Belgium.....G25
- BEG31 Belgium.....G31
- HUG20 HungaryG20
- HUG26 HungaryG25.1
- HUG30 HungaryG30
- HUG31 HungaryG31
- FRG20 FranceG20
- FRG25 FranceG25
- FRG31 FranceG31
- PLG20 PolandG20
- PLG23 PolandG2.350
- PLG30 PolandG30
- PLG31 PolandG31
- PTG20 PortugalG20
- PTG31 PortugalG31
- HRG20 Croatia.....G20
- HRG30 Croatia.....G30
- HRG31 Croatia.....G31
- SIG20 Slovenia.....G20
- SIG30 Slovenia.....G30
- SIG31 Slovenia.....G31
- BGG20 BulgariaG20
- BGG30 BulgariaG30
- BGG31 BulgariaG31
- MTG30 Malta.....G30
- MTG31 Malta.....G31
- DKG20 Denmark.....G20
- DKG30 Denmark.....G30
- DKG31 Denmark.....G31
- SKG20 Slovakia.....G20
- SKG31 Slovakia.....G31
- EEG20 Estonia.....G20
- EEG30 Estonia.....G30
- EEG31 Estonia.....G31
- NLG25 NetherlandsG25
- NLG30 NetherlandsG30
- NLG31 NetherlandsG31
- CZG20 Czech Rep.....G20
- CZG30 Czech Rep.....G30
- CZG31 Czech Rep.....G31
- SEG20 Sweden.....G20
- SEG30 Sweden.....G30
- SEG31 Sweden.....G31
- NOG20 NorwayG20
- NOG30 NorwayG30
- NOG31 NorwayG31
- LVG20 LatviaG20
- LTG20 Lithuania.....G20
- LTG30 Lithuania.....G30

- LTG31 LithuaniaG31
- FIG20 FinlandG20
- FIG30 FinlandG30
- FIG31 FinlandG31
- GRG20 Greece.....G20
- GRG30 Greece.....G30
- GRG31 Greece.....G31
- DEG20 Germany.....G20
- DEG25 Germany.....G25
- DEG30 Germany.....G30
- DEG31 Germany.....G31
- LUG20 Luxembourg.....G20
- LUG25 Luxembourg.....G25
- LUG31 Luxembourg.....G31
- CYG30 CyprusG30
- CYG31 CyprusG31
- ISG31 IcelandG31
- ATG20 Austria.....G20
- ATG30 Austria.....G30
- ATG31 Austria.....G31
- TRG20 TurkeyG20
- TRG30 TurkeyG30
- TRG31 TurkeyG31
- CHG20 Switzerland.....G20
- CHG30 Switzerland.....G30
- CHG31 Switzerland.....G31
- RUG20 Russia.....G20
- RUG30 Russia.....G30
- RUG31 Russia.....G31
- ALG20 Albania.....G20
- ALG30 Albania.....G30
- ALG31 Albania.....G31
- MKG20 Macedonia.....G20
- MKG30 Macedonia.....G30
- MKG31 Macedonia.....G31

Group 8: Protection for low outdoor temperature

- 0: Without protection
- 1: Kit 1: Kit for outdoor temperature <-10°C
- 2: Kit 2: Kit for outdoor temperature <-14°C
- 3: Kit 3 : Kit 1 + Dampers with spring
- 4: Kit 4 : Kit 2 + Dampers with spring

Group 9: Insulation

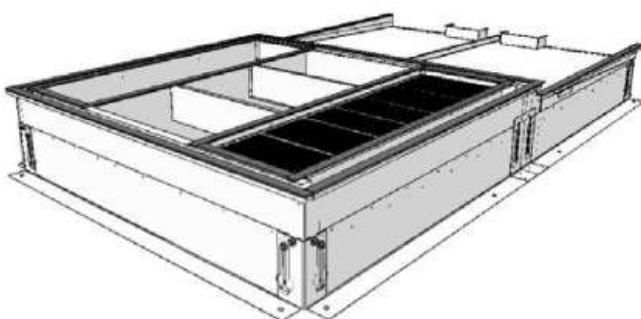
- 000: Without insulation Euroclass A2-s1, d0 (M0)
- 001: With insulation Euroclass A2-s1, d0 (M0)

Group 10: Special height

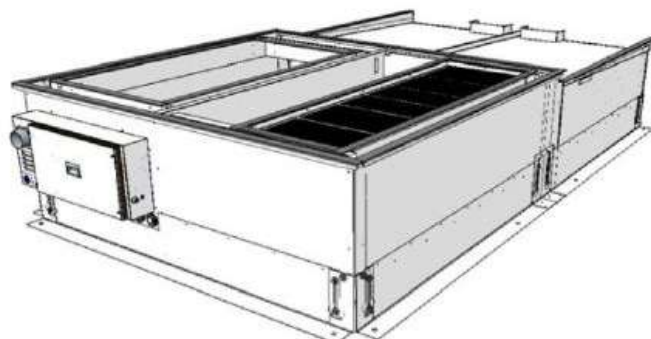
- 000: Without special height
- 001: Extra height +170 mm

Group 11: Special manufacturing

- 00: Unused



Roof curb without gas burner



Roof curb with gas burner

FACTORY OPTIONS AND ACCESSORIES (SUMMARY)

| Family | Group | Description | Installation in factory | Installation on site |
|----------------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------|
| Electrical power | 4 | 400 V / 3 ph / 50 (without neutral) | ✓ | |
| Air flow + Assembly | 6 | CS: 2 dampers mixing box | ✓ | |
| | | CK: 3 dampers mixing box | ✓ | |
| | | CF: 100% fresh air | ✓ (*) | |
| | | CA: Axial return fan | ✓ (*) | |
| | | CP: Lower return plug-fan | ✓ (*) | |
| | | CR: Lower return plug-fan and cooling recovery circuit (active recovery) | ✓ (*) | |
| | | CQ: Return plug-fan or centrifugal fan in top box | ✓ | |
| | | CT: Return plug-fan or centrifugal fan in top box and cooling recovery circuit (active recovery) | ✓ | |
| | | CW: Lower return plug-fan and rotary heat exchanger (passive recovery) | ✓ (*) | |
| | | CL: Return plug-fan in top box and rotary heat exchanger (upon request) | ✓ (*) | |
| Coil coating | 7 | Coil with copper pipes and fins of an aluminium alloy (INERA®) | ✓ | |
| | | Coil with copper pipes and aluminium fins with polyurethane coating | ✓ | |
| | | Bylgold® coating | ✓ | |
| Heating | 8 | Auxiliary hot water coil : Standard or Great cold | ✓ | |
| | | Auxiliary electrical heaters | ✓ | |
| | | Natural or propane gas burner (supplied installed into a pre-assembly roof curb) | | ✓ |
| Protection low temperature | 9 | Kit 1: Antifreeze protection kit for low temperature (<-10°C) | ✓ | |
| | | Kit 2: Antifreeze protection kit for low temperature (<-14°C) | ✓ | |
| | | Kit 3: Kit 1 + Dampers with spring | ✓ | |
| | | Kit 4: Kit 2 + Dampers with spring | ✓ | |
| Indoor fan | 10 | Indoor plug-fan with nominal available pressure (Aluminium), low pressure or high pressure | ✓ | |
| Air filtration + stop-drop | 11 | Stop-drop in the indoor air coil | ✓ | ✓ |
| | | Gravimetric filters G4 with low pressure drop | ✓ | ✓ |
| | | Gravimetric filters G4 + folded opacimetric filters M6, F7 or F9 | ✓ | ✓ |
| | | Gravimetric filters G4 low pressure drop + folded opacimetric filters F7 or F9 | ✓ | ✓ |
| | | Double stage of folded opacimetric filters (M6+F7, M6+F9, F7+F9 or F9+F9) | ✓ | ✓ |
| Outdoor fan | 12 | Axial 2-speed outdoor fan(s) directly coupled to the motor | ✓ | |
| Insulation | 13 | Ceramic fibre for thermal and acoustic insulation, Euroclass A2-s1, d0 (M0) | ✓ | |
| Indoor circuit | 14 | Condensate drain pan in stainless steel | ✓ | ✓ |
| | | Management of the overpressure | ✓ | |
| | | Differential pressure switch to detect clogged filters | ✓ | |
| Outdoor circuit | 15 | Fresh air intake protection grid | ✓ | ✓ |
| | | Outdoor coil protective grille | ✓ | ✓ |
| | | Stop-drop at the fresh air intake | ✓ | ✓ |
| | | Antivibration mounts made of rubber | ✓ | ✓ |
| Passive recov. | 16 | Rotary heat exchanger characteristics: diameter, channel cross section and wheel material, type of speed control | ✓ | |
| Extra heating | 17 | Heat recovery coil | ✓ (*) | |
| | | Preheater (electrical heater) in fresh air, low or nominal power | | ✓ |
| Special applications | 18 | Air zoning | ✓ (*) | |
| | | Low return temperature application | ✓ | |
| | | Low return temperature application + Air zoning | ✓ (*) | |
| | | 100% fresh air (without or with air zoning) | ✓ | |
| Sensors | 19 | Ambient temperature sensor: one NTC sensor connected to the control board or 1 to 4 RS485 sensors | ✓ | ✓ |
| | | Ambient temperature + humidity sensor: one to four sensors with RS485 communication | ✓ | ✓ |
| | | Air quality sensor environment installed, duct-mounted, on a shared network (SHRD) or double sensor (environment + environment; environment + outdoor; duct-mounted + outdoor) | ✓ | ✓ |
| | | Smoke detecting station in accordance with the NF S 61-961 standard | ✓ | ✓ |
| | | | ✓ | ✓ |
| Free-cooling + Outdoor humidity | 20 | Type of free-cooling: thermal, enthalpic or thermoenthalpic | ✓ | ✓ |
| | | Outdoor air humidity sensor: supplied with the unit or installed on a shared network (SHRD) | ✓ | ✓ |
| Terminal + Unit communication | 21 | TCO terminal installed in the electrical cabinet | ✓ | ✓ |
| | | VectiGD terminal installed in the electrical cabinet + TCO terminal remote up to 100m | ✓ | ✓ |
| | | TCO terminal installed in the electrical cabinet + VectiGD terminal remote up to 200m | ✓ | ✓ |
| | | VectiGD terminal installed in the electrical cabinet + VectiGD terminal remote up to 200m | ✓ | ✓ |
| | | Unit configuration: stand-alone, master or slave | ✓ | ✓ |
| | | Communication cards: Ethernet PCoWeb; Ethernet BACnetTM; RS485 BACnetTM; RS485 Konnex; RS485 Modbus | ✓ | ✓ |
| Miscellaneous item 1 | 22 | Management of an humidifier with proportional or on/off control | ✓ | |
| | | Energy meter | ✓ | |
| | | Energy meter and calculation of the cooling and heating capacities | ✓ | |
| Miscellaneous item 2 | 23 | Compressor soft starter | ✓ | |
| | | Tropicalised components on the electrical cabinet: control board, cards and terminals | ✓ | |
| | | High performance phase monitoring relay | ✓ | |
| Return fan | 24 | Centrifugal return fan (CQ and CT assemblies). 9 combinations of air flow and available pressure | ✓ | |
| | | Return plug-fan with nominal available pressure (Aluminium) | ✓ | |
| Air direction | 25 | There are 9 combinations in the direction of air with: - Supply: lower, lateral and upper - Return: lower, lateral and upper | ✓ | |
| Roof curb | 25 | Standardised pre-assembly roof curbs with adjustable height | | ✓ |
| | - | Adaptation roof curbs for replacing units on site | | ✓ |

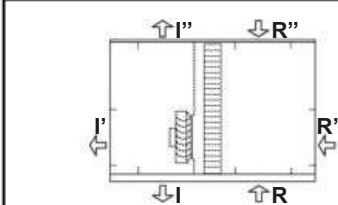
(*) Part of this option must be intalled on-site.

FACTORY OPTIONS AND ACCESSORIES

Assembly + Indoor air direction

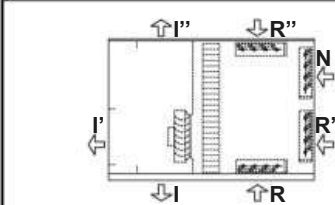
C0 assembly

Standard



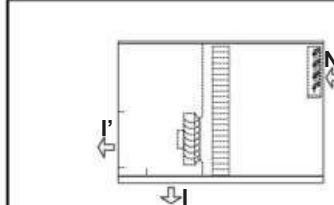
CS assembly

2 dampers mixing box:
fresh air damper interlocked with return damper



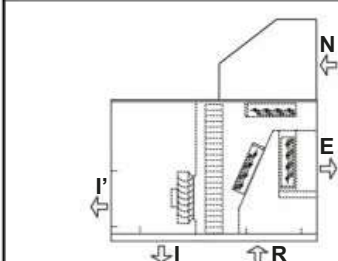
CF assembly

100% fresh air



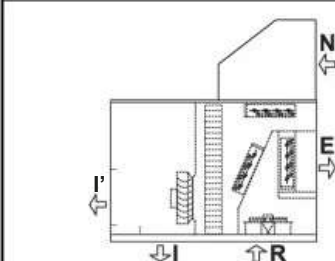
CK assembly

3 dampers mixing box:
fresh air damper and exhaust air damper



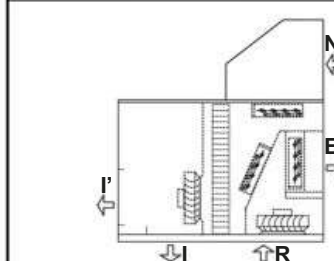
CA assembly

Axial return fan



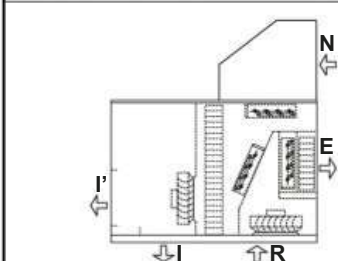
CP assembly

Lower return plug-fan



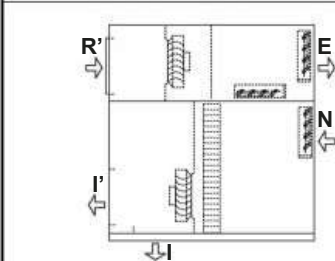
CR assembly

Lower return plug-fan +
Cooling recovery circuit (active recovery)



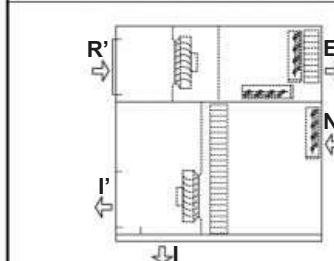
CQ assembly

Return plug-fan or centrifugal fan in top box



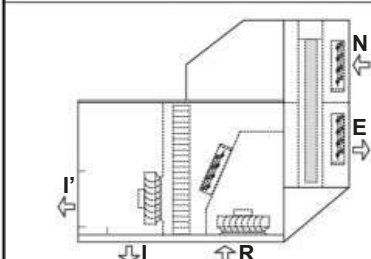
CT assembly

Return plug-fan or centrifugal fan in top box + Cooling recovery circuit (active recovery)



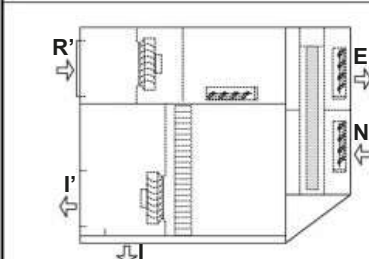
CW assembly

Lower return plug-fan + Rotary heat exchanger (passive recovery)



CL assembly (upon request)

Return plug-fan in top box + Rotary heat exchanger (passive recovery)



Legend

| | | | |
|-----|--------------------|-----|--------------------|
| I | Lower air supply | R | Lower air return |
| I' | Lateral air supply | R' | Lateral air return |
| I'' | Upper air supply | R'' | Upper air return |
| N | Fresh air intake | E | Exhaust air outlet |

Note: only one of the three possible options (lower, lateral or upper) can be selected for both, supply and return.

Indoor airflow direction

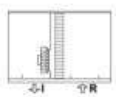
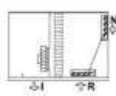
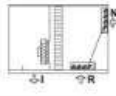

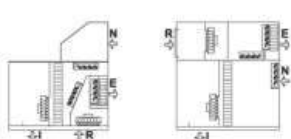
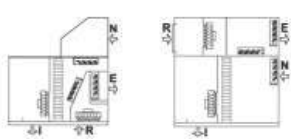
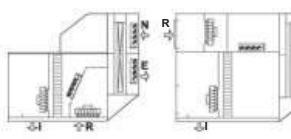
| | | | | | |
|---|---------------------------------|---|-----------------------------------|---|---------------------------------|
| 0 | Lower supply and lower return | 3 | Lateral supply and lateral return | 6 | Upper supply and lateral return |
| 1 | Lateral supply and lower return | 4 | Upper supply and lower return | 7 | Lower supply and upper return |
| 2 | Lower supply and lateral return | 5 | Lateral supply and upper return | 8 | Upper supply and upper return |

FACTORY OPTIONS AND ACCESSORIES

Air pressure control in different assemblies

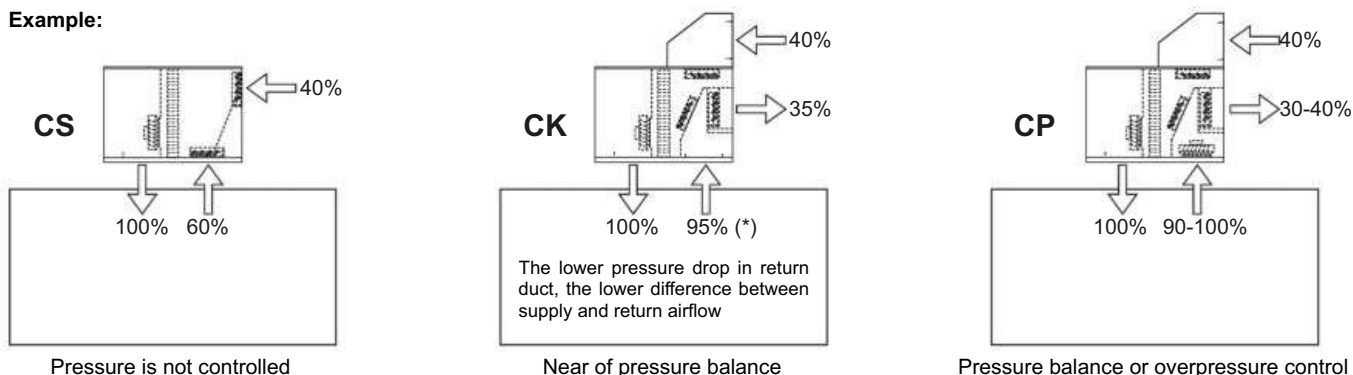
In case of assemblies with fresh air (ventilation) but without extraction air, overpressure will be generated in the building, higher with higher fresh air ratios or in free-cooling mode. It will not generate any issue in buildings with low air tightness and/or with doors frequently opened, but we should prevent in other applications. In assemblies with extraction damper and return fans, this overpressure can be completely avoided (pressure balance), or even controlled with a certain value to prevent infiltrations.

VECTIOS™ is the rooftop with the largest offer in airflow configurations to be able to adapt the unit to any kind of application or request. Please, find below comments and recommendations for each assembly.

| Assembly | | Fresh air and free-cooling | Return fans | Energy recovery (extraction) | Pressure control | Comments and recommendations |
|--------------------------------------|-------------------------------------------------------------------------------------|----------------------------|-------------|-------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C0 |  | No | No | No | No control required | Only for building with no need of fresh air . Pressure balance by default. Same return and supply airflow. |
| CS |  | Yes | No | No | No control | Adequate just for buildings with medium or low air tightness and/or doors frequently opened. |
| CS + gravity dampers in the building |  | Yes | No | No | High control | Building overpressure is maintained at the same level than pressure drop before the gravity damper. No limitations in the return pressure drop. |
| CK |  | Yes | No | No | Medium control | Recommended only with low pressure drop in the return ductwork (maximum 50 Pa). The maximum building overpressure is at the same level than pressure drop in the return ductwork. |
| CR, CT |  | Yes | Yes | Yes, Active recovery | High control | Return and supply EC plug-fan(s) are always supplied with pressure sensor to adjust the airflow. To manage pressure balance , supply and return are configured with same airflow. |
| CP, CQ |  | Yes | Yes | No | Total control | In case overpressure want to be managed (to avoid infiltration), the return airflow need to be lower than the supply. Differences up to 10% can be always being configured. Additional overpressure with airflow differences up to 20% are possible adding the option "overpressure control" (*) which manages fresh and exhaust dampers independently. |
| CW, CL (upon request) |  | Yes | Yes | Yes, Passive recovery (wheel) | Total control | To maintain overpressure in case of variable fresh air management (with CO ₂ sensor(s) option), minimum fresh air ratio need to be configured. |

(*) This overpressure option is not available on CR and CT assemblies because this type of control of the dampers penalizes cooling recovery.

Example:



FACTORY OPTIONS AND ACCESSORIES

Electrical power

These units can be supplied for the following power supply voltages:

- 400 V / 3 ph + N / 50 Hz (standard)
- 400 V / 3 ph / 50 Hz (optional)

Coils coating

- Coils with copper pipes and aluminium fins with **polyurethane** coating. Level of corrosion protection: basic. This treatment offers a resistance of more than 1000 hours (ASTM B117 NSST).
- Coils with copper pipes and fins of an aluminium alloy **INERA®**. Level of corrosion protection: basic - medium. This treatment offers a resistance of more than 1000 hours (ASTM B117 NSST).
- **Blygold®** coating. Level of corrosion protection: medium. This treatment offers more protection than 11000 hours in salt spray test (ASTM B117 NSST) and 4000 hours in acid salt spray test.

For further detailed information, please contact our Customer Service Department.

Note: These coating can be applied to various coils (outdoor, indoor and hot water coil) according to the combinations available in our "Selection Software".

Heating

The unit only can incorporate one of these heating elements:

- **Auxiliary electrical heaters**, with two power stages and on/off control, for assembly and connection inside the unit.

Up to 3 values of total power available for each model:

| VECTIOS PJ | E0L (Low) | E0N (Nominal) | E0H (High) |
|--------------|-----------|---------------|-------------|
| 0090 to 0120 | 12 kW | 18 kW | unavailable |
| 0140 to 0190 | 12 kW | 18 kW | 27 kW |
| 0200 to 0380 | 18 kW | 27 kW | 36 kW |

- Electrical heater with proportional control (**upon request**).

- **Auxiliary hot water coil**, with three-way valve and proportional control, for assembly inside the unit.

The unit incorporates an anti-freeze thermostat as safety system.

There are two configuration types available:

- Standard (B0S), the only safety system is the anti-freeze thermostat.
- Great Cold (B0C), with anti-freeze technology based on the water temperature. This protection is made up of a circulation pump and two sensors inserted in the input and the output of the coil.

Important: this option is mandatory for an outdoor temperature lower than -20°C WB. Consult for percentages of glycol water above 20%.

Note: on units with the "Great Cold" option, air supply only may be lateral (factory-configured).

- Natural or propane **gas burner** with modulating actuator, in accordance with the Gas Directive 2009/142/EC, installed inside a pre-assembly roof curb.

The PJ unit with lower air supply will be placed on this roof curb.

Up to 3 values of total power available for each model:

| VECTIOS PJ | G0L (Low) | G0N (Nominal) | G0H (High) |
|--------------|-------------|---------------|------------|
| 0090 to 0190 | PCH020 | PCH034 | PCH045 |
| 0200 to 0240 | unavailable | PCH065 | PCH080 |
| 0280 to 0380 | unavailable | PCH080 | PCH105 |

Note: It's recommended to use the clogged filter pressostat (optional) in units with gas burner.



Protection for low outdoor temperature

- Kit 1: Antifreeze protective kit (<-10°C). Mandatory for an outdoor temperature lower than -10°C WB. This kit includes:
 - Electrical heater for protection of the components of the electrical cabinet.
 - Compressor with protection for low temperature.

- Kit 2: Antifreeze protective kit (<-14°C). Mandatory for an outdoor temperature lower than -14°C WB.

In addition to the options of -10°C, this includes:

- Reinforced electrical heater for protection of the components of the electrical cabinet.
- Electrical heater for anti-freeze protection of dampers of the mixing box (if applicable).
- Protective kit of the gas burner for low temperature (if applicable).
- Kit 3: Kit 1 + Dampers of the mixing box with spring for automatic closing in case of a power failure.
- Kit 4: Kit 2 + Dampers of the mixing box with spring for automatic closing in case of a power failure.

FACTORY OPTIONS AND ACCESSORIES

Available pressure of the indoor fan

- By default, these units are fitted with plug-fans for a nominal available pressure (N), in Polypropylene.

The following fans can optionally be supplied:

- L: Low available pressure, except for models 0140, 0160, 0180, 0190, 0280 and 0320.
- A: Nominal available pressure (Aluminium).
- H: High available pressure.

Note: Aluminium fans are rated A2-s1, d0 (M0) and comply with regulations for public premises in France.

Note: The fans are factory configured with nominal air flow. Consult for any special configuration.

Important: the "Selection Software" will choose the supply fan with lower consumption for the available pressure required.

Air filtration + stop-drop

Options to improve indoor air quality:

- Different combinations of filters are available:
 - G4 gravimetric filters with low pressure drop.
 - G4 gravimetric filters standard type + M6, F7 or F9 folded opacimetric filters.
 - G4 gravimetric filters with low pressure drop + F7 or F9 folded opacimetric filters.
 - Dual-stage of folded opacimetric filters (M6+F7, M6+F9, F7+F9 or F9+F9).

Classification of the filters according to the new **ISO 16890 Standard**:

- G4 → ISO Coarse 60%
- M6 → ISO ePM10 70%
- F7 → ISO ePM1 50%
- F9 → ISO ePM1 80%

- Stop-drop in the indoor air coil. Recommended in cases where a high moisture content in the air is foreseen or when the air flow is high.

Note: with hot water coil it is not possible to assemble the stop-drop.

Type of outdoor fan

- Axial 2-speed outdoor fan(s) directly coupled to the motor. Watertight motor class F, IP54 and internal thermal protection. Dynamically balanced propellers and outdoor protective grille.
- Note: These fans do not allow the transport of two stacked units, as they protrude from the unit cover (+ 275 mm).

External insulation

- Ceramic panel for thermal and acoustic insulation, with Euroclass fire classification A2-s1, d0 (M0) in panels not removable in contact with the indoor air (top, bottom panel).
- Note: the other panels and registers of the indoor circuit always include thermal and acoustic insulation, with Euroclass fire classification A2-s1, d0 (M0).

Indoor circuit configuration

- Condensate drain pan in stainless steel for corrosion protection.
 - Control of the overpressure. Assemblies that include a return fan allow the management of airflow differences between supply air and return air of up to 10%, setting up flow setpoints. Optionally, the fresh air damper and the exhaust damper can be managed independently for greater airflow differences. This option may be necessary to prevent the entry of outside air (CP, CQ, and CW assemblies).
- Note: This option is not available on CT and CR assemblies because this type of control of the dampers penalizes cooling recovery.
- Differential pressure switch to detect clogged filters as safety protection.

Outdoor circuit configuration

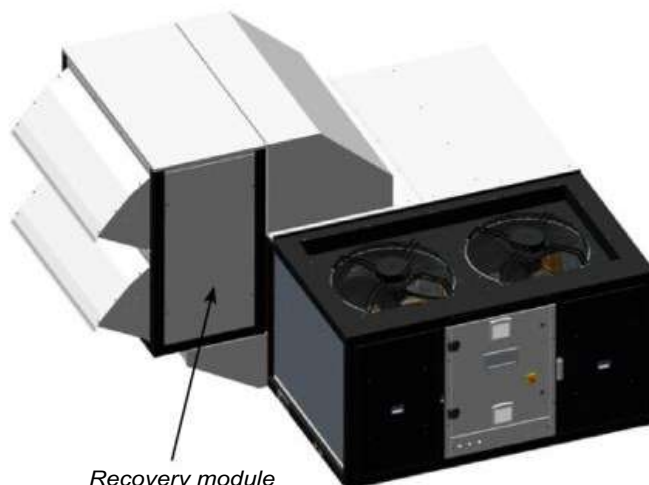
- Fresh air intake protection grid (mesh of 9 x 9 mm).
- Outdoor coil protective grille.
- Antivibration mounts made of rubber.
- Stop-drop at the fresh air intake. This stop-drop and the thermoenthalpic free-cooling are necessary in cases where a high moisture content in the air is foreseen.

Passive recovery

- The rotary heat exchanger is fitted into a module placed on one side of the unit. This module is supplied disassembled with the unit, for installation on site.

Available with CW assembly, and upon request, with CL assembly.

This rotary recovery unit is used to transfer the sensible and latent heat from the air-conditioned room's return air to the fresh air used for ventilation, before it's discharged outdoors. This option reduces the compressors runtime, ensuring energy saving and benefiting the environment.



FACTORY OPTIONS AND ACCESSORIES

The efficiency of energy recovery depend on the wheel selected: material, wheel diameters, channel cross section and type of speed control.

Note: It's recommended to use a CO₂ air quality sensor (optional) in units with rotary heat exchanger.

Extra heating

- **Heat recovery coil (HRC).** The coil function is to pre-heat the air that will pass through the main indoor coil. For this, it uses the temperature of an outdoor water installation.

The coil is supplied with a 3-way valve for installation outside the unit but manages by the electronic control.

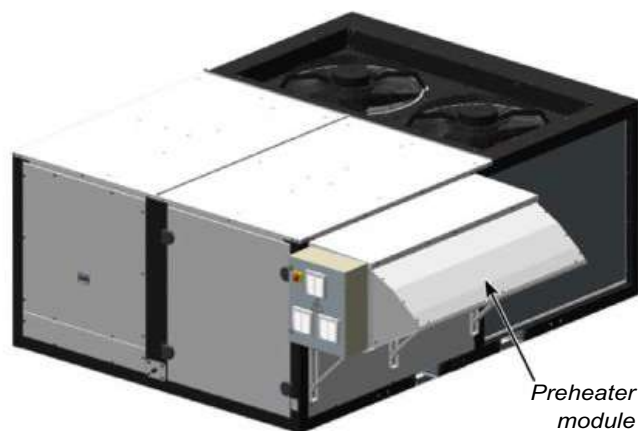
The unit incorporates an anti-freeze thermostat as safety system.

This option is compatible with C0, CS, CF, CQ and CT assemblies.

- With CF assembly, 100% fresh air, it is possible to incorporate a **preheater module** (electrical heater) coupled to the fresh air intake. This module is supplied in kit for installation on site.

The electrical heater with proportional control will modulate capacity to get the condenser inlet conditions within the operating limits of the cooling circuit in case of very low outdoor temperatures.

Two values of power are available: low (B) and nominal (N).



Note: The electrical connection of the kit is the responsibility of the installer.

Special applications

- The mounting **100% fresh air** with no return or extraction air flow (CF assembly) will address special requests where return air flow cannot be used, in order to avoid contamination (kitchens, and some other places with indoor odours or other pollutants).

In order to keep the cooling circuit working inside operation limits, and depending on design conditions, the unit could be selected with lower air flow than minimum used for the same size in the rest of assemblies.

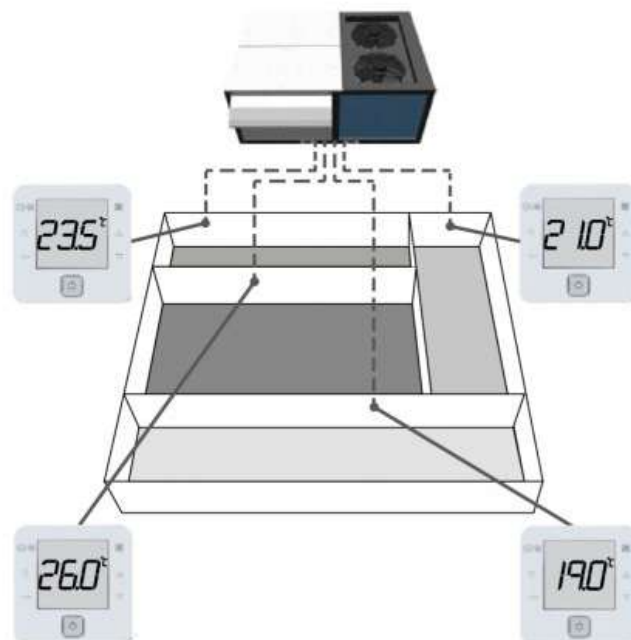
Depending on the heating design conditions, it is also necessary to select an additional electrical heating in the fresh air intake (preheater module, Group 17).



- **Zoning of the air flow** up to 4 different zones.

This option allows the management of the air flow of the unit to condition up to 4 different zones with a minimum air flow of 35% (all of them in same operating mode: heating or cooling). This function allows to adapt the indoor air flow to the installation requirements.

Note: zoning is only possible with plug-fans.



Regulation gives the control signal to the dampers installed in each zone (dampers and servomotors for those dampers not supplied). The unit modifies the air flow and capacity depending on information coming from sensors in each zone and considering active zones in each moment.

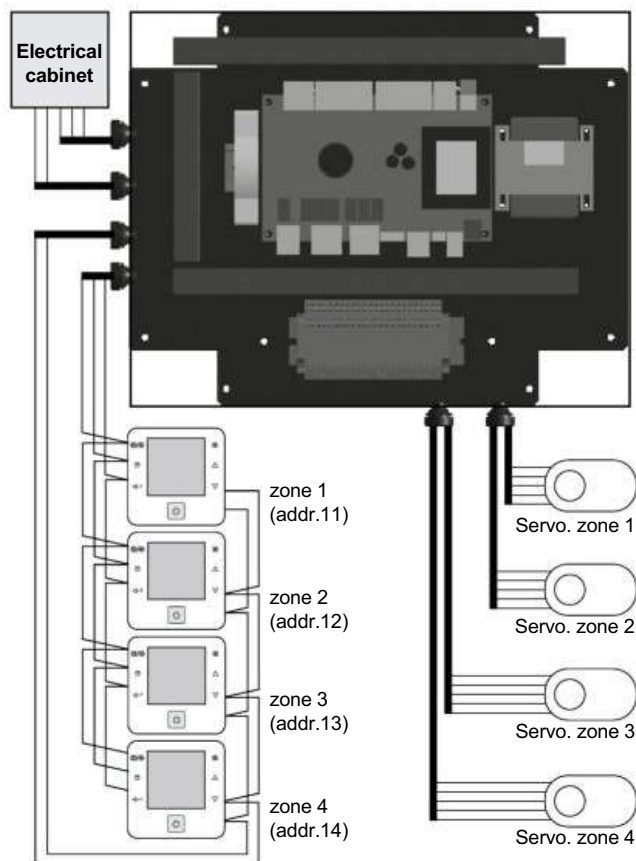
The option includes 4 zone terminals (one for each zone) and a control board supplied in an independent box. The 4 terminals, the PJ unit main board and also the servomotors that control dampers in each zone are connected on this board (dampers and servos not supplied).

The temperature information for each zone is coming from temperature sensor integrated inside each zone terminal. It is not needed to install any extra ambient sensor.

FACTORY OPTIONS AND ACCESSORIES

Note: In case the unit includes enthalpy or thermoenthalpic free cooling (T+H control) an extra return T+H sensor in the offer is required. If the unit additionally includes CO₂ probe, it must be a return probe and not an ambient probe.

In following picture, electronic PCB and 4 zone terminals are detailed. Connections can be found in the Vetric control manual.



Note: There is a new option with **constant supply pressure** that extends the possibilities for multi-zone management. Available upon request.

■ Low return temperature application.

This option is mainly focused to food storage, and can be applied to large warehouses installations.



With this option, the unit adapts all its devices to manage low return temperature (15°C) in cooling mode. This is possible due to some changes in the control operation parameters.

The "Selection Software" includes the option as mandatory when return temperature is lower than 20°C (with 15°C as the minimum allowed value).

Sensors

■ Sensor(s) of ambient temperature. There are 3 options:

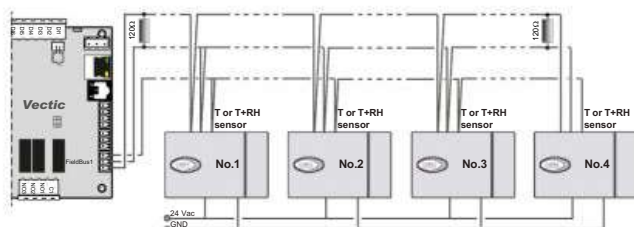
- One NTC sensor connected to the control board.

Note: An ambient sensor with RS485 communication is required for installation at more than 30 meters.

- One to four sensors with RS485 communication.
- Sensor(s) installed on the master unit of the shared network (SHRD).

■ One to four sensors of ambient temperature + humidity, with RS485 communication or installed on the shared network (SHRD).

This sensor is compulsory in units with enthalpic or thermoenthalpic free-cooling (optional). In this case, the outdoor air humidity sensor is also added.



■ Smoke detecting sensor. Smoke detecting station in accordance with the NF S 61-961 standard, 961, that uses a LED to indicate the installation status, and if the probe detects the presence of smoke in the installation, it stops the operation of the unit and gives the order to open or close the outdoor damper (configured by parameter).

To ensure compliance with the French regulations on Fire safety (ERP), it's possible to configure the opening of the fresh air damper and the exhaust air damper to 100% (return air damper closed).

■ Air quality sensor to enable measuring CO₂.

There are different options:

- Ambient air quality sensor.
- Return air quality sensor (duct-mounted) (attached picture).
- Sensor installed on the master unit of the shared network (SHRD).
- Double quality sensor:
 - two ambient air sensors;
 - one ambient air sensor and one outdoor air sensor;
 - one return air sensor (duct-mounted) and one outdoor air sensor.



FACTORY OPTIONS AND ACCESSORIES

Advantages of installing two ambient air quality sensor:

This installation is interesting in large premises, so that ventilation can be done based on the maximum, minimum or average value measured by the two sensors.

Advantages of installing an outdoor CO₂ air quality sensor:

This sensor gives the option to manage fresh air depending on real difference of CO₂ concentration indoor and outdoor⁽¹⁾. It gives the chance to really answer to the request of indirect method for ventilation, without need of estimating outdoor air quality, but measuring it.

⁽¹⁾ Outdoor sensor will be supplied not mounted. It has to be located outdoor, but protected from rain and external agents. For any doubt, please ask.

Options recommended for fresh air management:

| Room | Outdoor | Recommendation |
|---------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Constant occupation | Applied to all locations | Constant fresh air (fresh air % fixed by regulation). No additional option required. |
| Variable occupation | Locations where outdoor CO ₂ is well known | Variable fresh air (considering indoor CO ₂ concentration): • Ambient air quality sensor • Return air quality sensor • Double ambient sensor (in large scale premises) |
| | Locations where outdoor CO ₂ is not well known or variable | Variable fresh air (considering indoor and outdoor CO ₂ concentration): • Double air quality sensor: ambient and outdoor • Double air quality sensor: return and outdoor |

Methodologies fresh air ratio calculation:

The categories of indoor air quality (IEQ) are defined in EN16798:1 based on the level of expectation that the occupants may have.

- A normal level would be a "medium" level.
- A higher level can be selected by occupants with special needs (children, elderly, people with disabilities, etc).
- A lower level does not mean any risk for health, but it can affect to comfort level.

| Category IEQ | DIRECT METHOD: Fresh air ratio by person | INDIRECT METHOD: CO ₂ concentration above outdoor CO ₂ concentration |
|------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------|
| | dm ³ /s by person | ppm |
| I: High level of expectation | 20 | 550 |
| II: Medium level of expectation | 12,5 | 800 |
| III: Moderate level of expectation | 8 | 1.350 |
| IV: Low level of expectation | 5 | 1.350 |

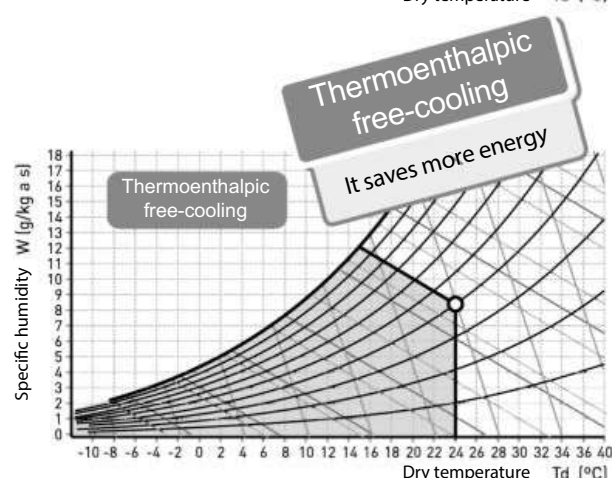
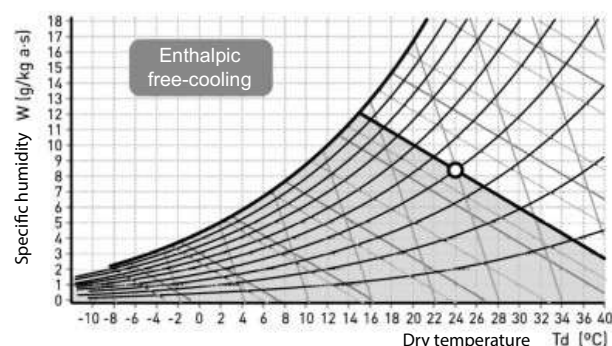
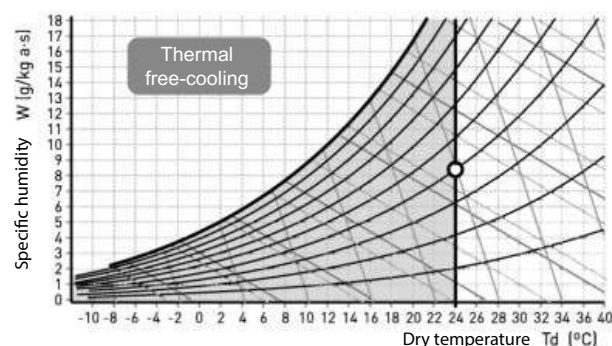
References: EN 16798-3:2017 and EN 16798-1:2019: Energy performance of buildings - Ventilation for buildings, replacing EN 13779:2007.

Free-cooling + outdoor humidity

- **Free-cooling management:** Running the unit in free-cooling mode allows it to make best use of outdoor air conditions when these are more favourable than the return air conditions. This allows the cooling capacity to be reduced. The percentage of outdoor air can vary between 0% and 100%.

There are three options for free-cooling management:

- Thermal, by comparing the temperatures.
- Enthalpic, by comparing the enthalpies. Recommended in cases where a high moisture content in the air is foreseen.
- Thermoenthalpic, by comparing the enthalpies and correcting for temperature. This is the optimum solution as it takes the variability of the climate into account.



One function that helps improve energy management is **nocturnal free-cooling**. This feature allows the compressors to be disabled in summer with programming, the unit works providing free-cooling at night, when the outdoor conditions are favorable. This allows the cooling demand to decrease significantly early in the day.

FACTORY OPTIONS AND ACCESSORIES

- **Outdoor air humidity** sensor (compulsory in units with optional enthalpic or thermoenthalpic free-cooling). There are 2 options:

- Sensor supplied with the unit.
- Sensor installed on the master unit of the shared network (SHRD).

Terminal + unit communication

- By default, the electronic control Vectic is supplied with a graphic terminal installed in the electrical cabinet of the unit, but these other configurations also are available:

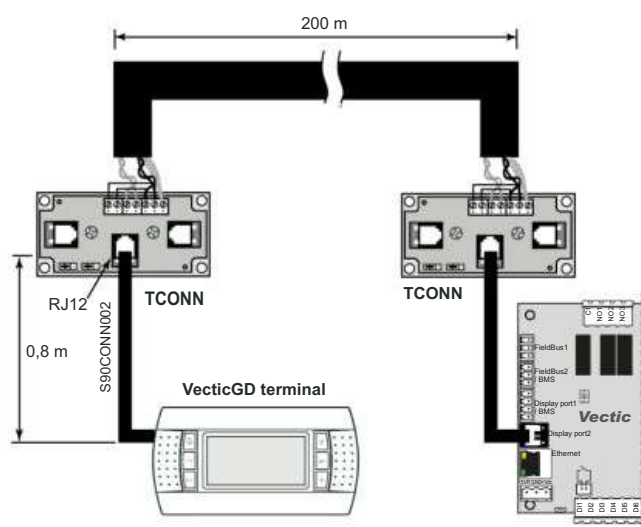


VecticGD graphic terminal



TCO user terminal

- TCO user terminal installed in the electrical cabinet, instead of the VecticGD graphic terminal.
- VecticGD graphic terminal installed in the electrical cabinet and TCO user terminal remote up to 100 meters.
- TCO user terminal installed in the electrical cabinet and VecticGD graphic terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).
- VecticGD terminal installed in the electrical cabinet and VecticGD terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).



- Control without terminal (for units with shared terminal in a pLAN local network).

Note: Multiple units can share a terminal if they are integrated into a local pLAN network (for up to 15 units). This is not possible in units configured as "Backup", since the two units must be fully autonomous in their operation.

- By default, the electronic control is configured for a stand-alone unit, but it is also possible to include it in a shared network (SHRD) as Master, Slave or Backup. The maximum number of units that can be integrated into a "Master/Slave" shared network is 15, and in the case of "Backup" it is 2 units. Important: to use any of the following functionalities it is necessary to configure in the "Selection Program" a unit as Master and all other units as Slaves (including the Backup unit).

The specific functionality will be configured on site (according to the Vectic regulation manual).

The shared network (SHRD) allows to have the following functionalities depending on the parametrized configuration:

• Master/Slave:

It allows to share some of the probes installed in the Master unit: ambient temperature or ambient temperature + humidity, outdoor temperature, outdoor humidity and CO₂ air quality.

• Extended Master/Slave:

It includes "Master/Slave" functionalities and the master unit provides ambient temperature setpoints to the other units.

• Master/Slave with the same operating mode:

It includes the "Extended Master/Slave" functionalities and the master unit also provides the status (Cooling- Heating - Ventilation) to the other units.

• Backup in case of alarm:

One unit is configured as a Backup unit, for activation in case of malfunction of the other unit.

• Extended Backup:

It includes the "Backup in case of alarm" functionalities and also, the control manages the automatic switching between the two units weekly, to compensate the operation times of both units.

Note: In the case of installations with Backup units, it is not possible to share the probes, since both units must be fully autonomous in their operation. If both units are connected to the same supply duct network, it is imperative that the installation consists of non-return dampers (installer responsibility).

- The control board includes two communication ports that allow connection with a centralized technical management system: a BMS port for Modbus RTU protocol and an Ethernet port for Modbus TCP/IP protocol.

A communication card (optional) can also be connected to the board for the following protocols:

- TCP/IP, Modbus TCP/IP, SNMP V1-2-3, FTP, HTTP (E: Ethernet PCoWeb card),
- Ethernet BACnet™ (B: Ethernet BACnet™ card),
- BACnet™ MSTP (C: RS485 BACnet™ card),
- Konnex (K: RS485 Konnex card),
- Modbus RTU (M: RS485 Modbus card).

Note: refer to the electronic control manual for more complete information.

FACTORY OPTIONS AND ACCESSORIES

Local supervision solutions

Different solutions of supervision are available based on the dimensions of the installation:

• pCO Web

It is a solution for the management and supervision of a single unit through an HTML page included in the Ethernet pCO Web card.

• BOSS

This is the solution for the management and supervision of air-conditioning installations with up to 300 units. Communication is via the Modbus TCP/IP port integrated into the control board.

Its main advantages are:

- Integrated WIFI Hotspot for direct access without any extra infrastructure.
- Smartphone compatibility.
- Secure supervisor control from remote through a simple browser.

It offers advanced monitoring and maintenance functions and allows zones and groups to be created to simplify the management of the installation.

It also allows energy meters to be integrated to monitor the installation electricity consumption.

BOSS is available in two versions:

- CPU device.
- CPU device, monitor, mouse and keyboard.

• BOSS mini

This is the solution for the management and supervision of air-conditioning installations with up to 10 units with 50 variables per unit or 50 units with 10 variables maximum per unit, but with the same features as BOSS.

BOSS mini is available in two versions:

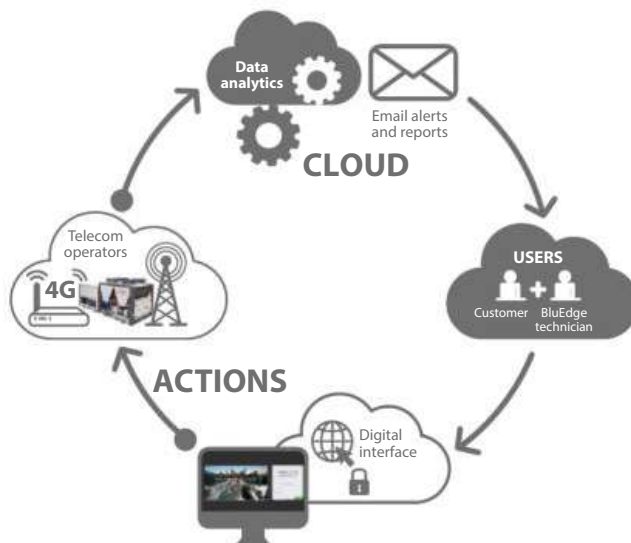
- CPU device.
- CPU device, monitor, mouse and keyboard.



These systems are used to manage the installation remotely. All the information on the system can be accessed via a simple Internet connection. The online interface, the same one used by the local user, enables monitoring and complete configuration of the installation: from the office or anywhere else the user happens to be.

Remote supervision solution ABOUND HVAC Performance

ABOUND HVAC Performance is a remote supervision solution dedicated to monitoring and controlling several CIAT machines in real time.



Advantages

- Access to the operating trend curves for analysis
- Improved energy performance
- Improved availability rate for the machines

Functions

ABOUND HVAC Performance will send data in real time to the supervision website.

The machine operating data can be accessed from any PC, smartphone or tablet.

Any event can be configured to trigger a mail alert.

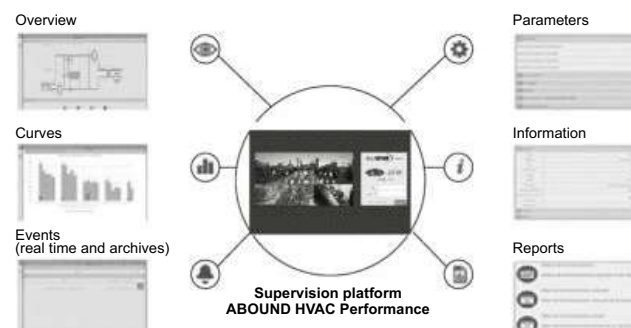
Parameters monitored:

- Overview.
- Control panel for the controllers.
- Events.
- Temperature curves.

Monthly and annual reports are available to analyse :

- The performance and operation of the machine.

Example: operating curves and time, number of compressor start-ups, events, preventive maintenance actions to be performed, etc.



FACTORY OPTIONS AND ACCESSORIES

Incidents such as a drift in the measurements on a temperature sensor, incorrectly set control parameters, or even incorrect settings between one compressor stage and the other are immediately detected, and the corrective actions put in place.

Equipment

This kit box can be used on both machines which are already in use (existing inventory), and on new machines.

- 1 transportable cabinet.

Contents of the box (available in 230V and 400V)

- 1 GPRS / 4G LTE-M modem
- 1 SIM SMART card
- 1 power supply (24 VDC)
- 1 power protection device
- 1 GSM antenna
- Rail mounting
- Enclosed casing to protect the equipment during transport
- Packing box for cable routing (bus, power supply)

Compatibility

Up to five machines per box.

Miscellaneous item 1

- Management of an humidifier with proportional or on/off control.
- Energy meter for monitoring of the power consumption of the installation.
- Energy meter and calculation of the cooling and heating capacities. In addition to the energy meter, the unit incorporates mixing and supply enthalpic sensors with RS485 communication that enable cooling and heating capacities to be calculated.

Miscellaneous item 2

- Compressor soft starter.
- High performance phase monitoring relay, which ensures phase-sequence monitoring and protection against loss of phase, under and overvoltage as well as phase imbalance. Highly recommended for installations with power system voltage instability, high level of electromagnetic disturbances EMC, etc.

- Tropicalization: tropicalised components on the electrical cabinet with protective varnish: control board, cards and terminals.

Return fan

- Centrifugal return fan, coupled by pulleys and belts. Electric motor with tensioner, class F, IP55 and internal thermal protection. Turbine with an impeller of front-curved blades. Greased spherical bearings, with no maintenance required.

Available in CQ and CT assemblies.

There are 9 fan options depending on:

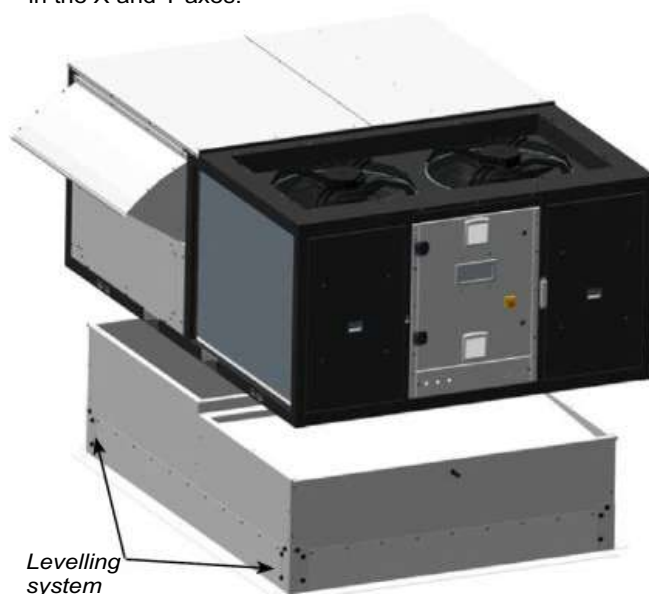
- The air flow: low, nominal and high.
- The available pressure: low, nominal and high.

- Return plug-fan with nominal available pressure, in Aluminium.

Pre-assembly roof curbs

- The units can rest on standardised pre-assembly roof curbs with adjustable height, built in galvanised steel panelling with polyester paint and thermal insulation.

The levelling system uses angle pieces that allow adjustments in the X and Y axes.



- Adaptation roof curbs ready for direct replacement on site of units from different manufacturers (**upon request**).

ADDITIONAL FACTORY OPTIONS UPON REQUEST

This chapter contains additional options available upon request, in addition to those already indicated in the table on the previous page:

| Description | Installation in factory | Installation on site |
|-------------------------------------------------------|-----------------------------------------------------------|----------------------|
| Options of electronic control | Activation of the remote COOLING / HEATING operating mode | ✓ |
| | General alarm signalling by relay | ✓ |
| | Mechanical disconnection of stages | ✓ |
| | Ventilation mode with 100% fresh air by digital input | ✓ |
| | Control of supply and return dampers | ✓ |
| | Ventilation with differential air pressure sensor | ✓ |
| Constant supply pressure | | ✓ |
| Adjustable pre-assembly roof curbs with higher height | | ✓ |

General alarm signalling

The Vectic control allows the management of a relay for remote alarm signalling.

The output for general alarm signal is not compatible with the following options: hot water coil, heat recovery coil, rotary heat exchanger and on/off signal for external humidifier.

In this case, upon request, it would be possible to have a general alarm output in an input/output expansion module.

Mechanical disconnection of stages

This option allows the mechanical disconnection of stages of compressor and/or electrical heaters using digital inputs. This is especially useful in the following cases:

- To reduce electricity consumption in certain time slots.
- When electricity consumption is limited.

Ventilation mode with 100% fresh air by digital input

The Vectic control allows to manage a ventilation mode with 100% fresh air through the VecticGD terminal or by BMS supervision, but on certain occasions it may be interesting to activate this mode through a digital input. This option is especially useful when rapid air renewal is needed, for example in cinema rooms.

Control of supply and return dampers

This function allows the management of external drive and return dampers located in the ducts, so that the closure of the ducts can be controlled after the unit is stopped. This option can also be useful in installations with Backup units.

Ventilation with differential air pressure sensor

In installations with this differential pressure sensor, the percentage of air renewal is adjusted according to the pressure in the room. This option allows dynamic control of the damper opening by measuring the pressure differential between inside and outside.

Constant supply pressure

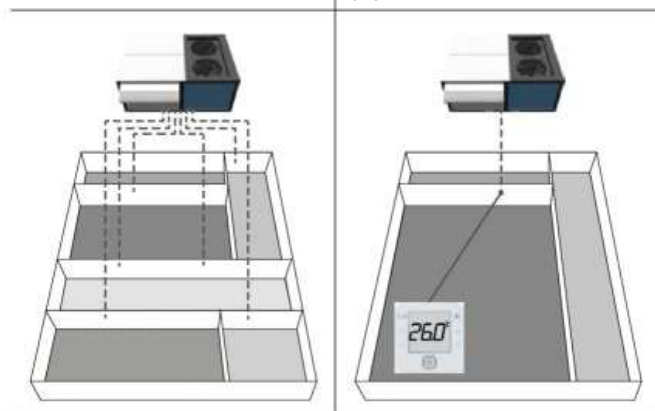
The VECTIOS range provides the greatest choice in terms of multi-zone management. This new option of "Constant supply pressure" is added to the option "Air flow zoning up to 4 zones".

This function allows to control the air flow to maintain constant pressure in the supply duct, with the setpoint value set by parameter.

The following table provides the comparison of the two solutions to facilitate the correct selection according to the customer needs:

| Characteristics | Zoning up to 4 zones | Constant supply pressure |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of zones | Up to 4 | Unlimited |
| Type of fan | Plug-fan | Plug-fan |
| Components included | 4 zone terminals and a control box | Differential pressure sensor (range 0 - 1000 Pa) |
| Dampers and servos per zone | Not supplied | Not supplied |
| Control signal for dampers / servos | Supplied | Not supplied (external control required) |
| Control of the damper for each zone | Yes, control carried out by the electronic control | No (at customer level) |
| Terminal in each zone | yes | No or just one for the main zone (see "Configurations") |
| Minimum air flow | 35% | 35% or 10% in ventilation mode (operating only the fans). There is an associated alarm in case of lower airflow. It is necessary to set the minimum damper opening per zone or provide remote stop control in case all dampers are closed |
| Capacity control | Based on the ambient temperature conditions of each zone terminal (by default) or the return temperature (optional) | <ul style="list-style-type: none"> • Based on the return conditions (by default) • Based on the environment conditions (configurable), in case of a main zone (see "Configurations") |

| Configurations | |
|--------------------------------------------------------------|----------------------------------------------------------------------------|
| Capacity control based on the return conditions (by default) | Capacity control based on the environment conditions (configurable) |
| Several zones | Several zones (one main zone) |
| Same comfort priority by zone | One main zone. Comfort of all zones depends on the demand of the main zone |



Note: For variable management of fresh air it is necessary to select the optional return air quality probe (CO₂) (instead of the ambient probe).

There is only one case in which the ambient air quality probe can be used: with constant supply pressure and capacity based on the environmental conditions of the main zone.

ECODESIGN REGULATIONS

The publication of **regulation 2016/2281** establishes the requirements for Seasonal Energy Efficiency and brings together all the information concerning applicable equipment, including compact ROOFTOP enclosure units.

The challenge of seasonal efficiency: the new ecodesign regulations stipulate that seasonal efficiency must be measured in cooling mode (SEER) and heating mode (SCOP). These coefficients guarantee a standardised assessment of the energy consumption of equipment by including seasonal variations in the measurements. Both these coefficients are calculated according to technical standard EN-14825-2022 and compliance is mandatory for a product to obtain CE marking.

Regulation 2016/2281 established **minimum values for seasonal energy efficiency** in $\eta_{s,c}$ cooling ($\eta_{s,c}$) y $\eta_{s,h}$ heating ($\eta_{s,h}$). SEER and SCOP are therefore expressed in terms of primary energy and these make it possible to compare the energy efficiency of units which use different energy sources. These requirements have been applied in 2 phases, with an initial phase started 1 January 2018, and a second phase with a higher efficiency requirement that have come into force on 1 January 2021.

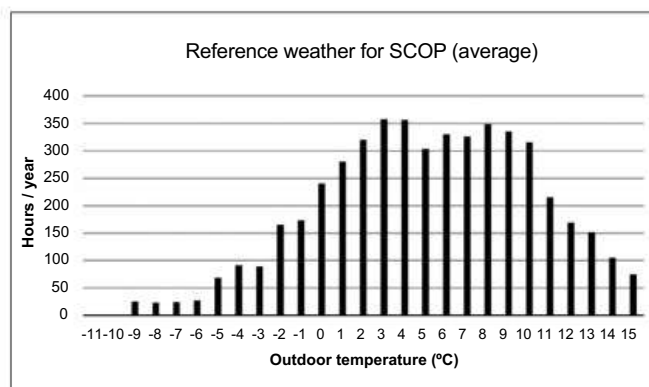
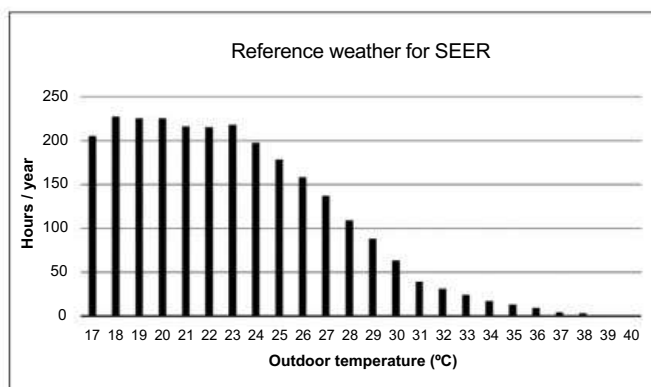


| ROOFTOPS | SEER | $\eta_{s,c}$ (%) | SCOP | $\eta_{s,h}$ (%) |
|---------------|------|------------------|------|------------------|
| Tier 1 - 2018 | 3,00 | 117 | 2,95 | 115 |
| Tier 2 - 2021 | 3,53 | 138 | 3,20 | 125 |

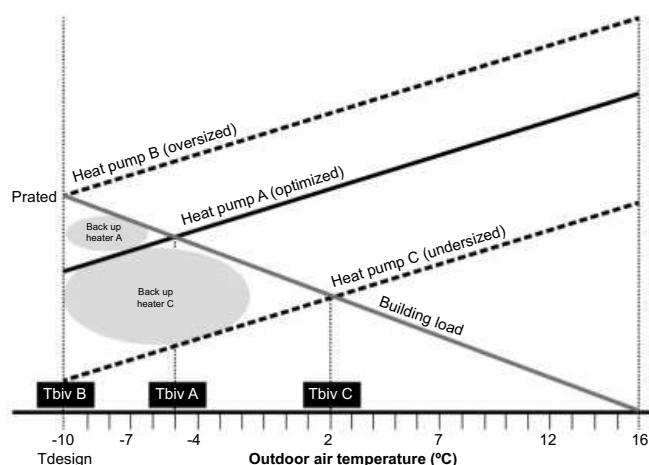
As stipulated in Annex II paragraph 5 of Regulation 2016/2281, the technical data sheets (TDS) for CIAT units are available at www.ciat.com



According to technical standard EN-14825, a reference weather for assessment of the seasonal efficiency is defined in cooling, as well as a partial load depending on the outdoor temperature. It is also establishes for heating, but in this case the standard defines three weathers (the average weather is used to compare with the minimum seasonal efficiency requirements of ecodesign regulations).



In addition, the bivalent temperature is defined in heating. This is the lowest outdoor temperature at which it is declared that the unit provides a capacity that allows to satisfy 100% of the heating load. Below this point, in the calculation of the SCOP, it is considered that the unit can still supply the capacity, but additional heating is required.



TECHNICAL CHARACTERISTICS WITH R-454B REFRIGERANT (EN-14511-2022)

| RPJ series | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 | |
|----------------------------|-------------------------------------|------------------------------------------------------------------------------------|----------|----------|----------|----------|----------|-----------|---------|---------|---------|---------|---------|---------|--|
| Cooling capacities | Cooling capacity ① (kW) | 22,5 | 28,0 | 33,9 | 36,4 | 42,0 | 44,5 | 49,3 | 53,7 | 59,3 | 68,0 | 72,1 | 80,0 | 89,5 | |
| | Power input ③ (kW) | 6,90 | 8,86 | 10,1 | 11,4 | 13,0 | 13,9 | 15,4 | 17,0 | 19,7 | 21,2 | 22,6 | 26,0 | 29,7 | |
| | EER performance | 3,26 | 3,16 | 3,36 | 3,20 | 3,23 | 3,21 | 3,21 | 3,15 | 3,01 | 3,21 | 3,19 | 3,08 | 3,01 | |
| | SEER | 5,06 | 5,06 | 4,75 | 4,58 | 4,48 | 4,48 | 4,86 | 4,79 | 4,71 | 4,69 | 4,71 | 4,52 | 4,45 | |
| | ηs | 199% | 199% | 187% | 180% | 176% | 176% | 192% | 189% | 185% | 185% | 185% | 178% | 175% | |
| Outdoor circuit fan | Nominal air flow (m³/h) | 9.000 | 14.500 | 17.000 | 17.000 | 17.000 | 17.750 | 31.000 | 31.000 | 31.000 | 33.000 | 33.000 | 34.500 | 35.000 | |
| | Available static pressure (mm.w.c) | 5 | | | | | | | | | | | | | |
| | Type | Electronic axial fan | | | | | | | | | | | | | |
| | Number / Diameter (mm) | 1 / 630 | 1 / 800 | | | | | 2 / 800 | | | | | | | |
| | Ingress protection rating | IP54 | IP55 | | | | | IP55 | | | | | | | |
| | Maximum speed (r.p.m.) | 1.140 | 1.020 | | | | | 1.020 | | | | | | | |
| | Motor output (kW) | 0,9 | 2,6 | | | | | 2 x 2,6 | | | | | | | |
| | Maximum absorbed current (A) | 1,6 | 3,9 | | | | | 7,8 | | | | | | | |
| Indoor circuit supply fan | Nominal air flow (m³/h) | 5.100 | 6.500 | 8.500 | 8.750 | 9.000 | 9.000 | 12.000 | 12.500 | 12.500 | 15.500 | 15.500 | 16.000 | 16.000 | |
| | Available static pressure (mm.w.c) | 12 | 12 | 12 | 15 | 15 | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 25 | |
| | Type | Electronic plug-fan | | | | | | | | | | | | | |
| | Number / Diameter (mm) | 1 / 500 | | 1 / 500 | | | | | 2 / 500 | | | | | 2 / 500 | |
| | Speed (r.p.m.) | 1.800 | | 1.855 | | | | | 1.800 | | | | | 1.855 | |
| | Motor output (kW) | 1 x 3,1 | | 1 x 3,1 | | | | | 2 x 3,1 | | | | | 2 x 3,1 | |
| | Maximum absorbed current (A) | 4,7 | | 4,8 | | | | | 9,4 | | | | | 9,6 | |
| Compressor | Type | Scroll | | | | | | | | | | | | | |
| | No. compressors / stages / circuits | 2 / 2 / 1 | | | | | | 2 / 2 / 1 | | | | | | | |
| | Oil type | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC | | | | | | | | | | | | | |
| | Volume of oil (l) | 2 x 1,24 | 2 x 1,24 | 2 x 1,24 | 2 x 1,72 | 2 x 1,72 | 2 x 1,72 | 2 x 3,0 | 2 x 3,3 | 2 x 3,3 | 2 x 3,3 | 2 x 3,3 | 2 x 3,3 | 2 x 3,6 | |
| Electrical characteristics | Mains voltage | 400 V / III ph / 50 Hz (±10%) | | | | | | | | | | | | | |
| | Power supply | 3 Wires + Ground + Neutral | | | | | | | | | | | | | |
| | Maximum absorbed current (A) | 21,2 | 27,5 | 26,8 | 29,6 | 34,7 | 34,9 | 50,3 | 55,6 | 58,8 | 58,9 | 65,1 | 70,1 | 77,6 | |
| Refrigerant | Type | R-454B | | | | | | | | | | | | | |
| | Global warming potential (GWP) ④ | 466 | | | | | | | | | | | | | |
| | Charge (kg) | 7,2 | 7,5 | 9,9 | 9,9 | 10,2 | 10,4 | 10,2 | 10,4 | 10,6 | 16,1 | 16,3 | 16,3 | 16,5 | |
| | Environment impact (tCO2eq) | 3,4 | 3,5 | 4,6 | 4,6 | 4,8 | 4,8 | 4,8 | 4,8 | 4,9 | 7,5 | 7,6 | 7,6 | 7,7 | |
| Weight | C0 assembly (kg) | 594 | 617 | 699 | 698 | 704 | 701 | 914 | 929 | 936 | 1.035 | 1.059 | 1.057 | 1.078 | |

① Cooling capacity calculated in accordance with the EN-14511-2022 standard given for indoor temperature conditions 27°C, 19°C WB and 35°C outdoor temperature.

③ Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2022 standard.

④ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.

TECHNICAL CHARACTERISTICS WITH R-454B REFRIGERANT (EN-14511-2022)

| IPJ series | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 | |
|----------------------------|-------------------------------------|------------------------------------------------------------------------------------|----------|----------|----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|--|
| Cooling capacities | Cooling capacity ① (kW) | 22,6 | 28,2 | 34,0 | 36,5 | 42,2 | 44,6 | 53,9 | 58,6 | 61,2 | 69,5 | 71,3 | 80,7 | 91,5 | |
| | Power input ③ (kW) | 6,95 | 8,92 | 10,1 | 11,4 | 13,1 | 13,9 | 16,4 | 18,3 | 19,2 | 20,9 | 22,3 | 25,2 | 28,3 | |
| | EER performance | 3,25 | 3,16 | 3,36 | 3,19 | 3,23 | 3,21 | 3,28 | 3,21 | 3,18 | 3,32 | 3,20 | 3,20 | 3,23 | |
| | SEER | 5,07 | 5,07 | 4,75 | 4,59 | 4,49 | 4,49 | 4,94 | 4,96 | 5,01 | 4,81 | 4,68 | 4,58 | 4,61 | |
| | ηs | 200% | 200% | 187% | 181% | 177% | 177% | 194% | 195% | 198% | 190% | 184% | 180% | 181% | |
| Heating capacities | Heating capacity ② (kW) | 22,1 | 28,0 | 33,3 | 35,9 | 41,8 | 44,6 | 51,2 | 56,3 | 59,1 | 68,1 | 70,5 | 79,8 | 89,8 | |
| | Power input ③ (kW) | 5,73 | 7,87 | 8,90 | 9,76 | 11,7 | 12,7 | 14,2 | 15,8 | 16,6 | 18,5 | 19,5 | 22,3 | 25,4 | |
| | COP performance | 3,86 | 3,56 | 3,74 | 3,68 | 3,57 | 3,50 | 3,60 | 3,57 | 3,56 | 3,68 | 3,62 | 3,58 | 3,54 | |
| | SCOP | 3,60 | 3,55 | 3,54 | 3,56 | 3,59 | 3,58 | 3,65 | 3,80 | 3,56 | 3,64 | 3,64 | 3,70 | 3,66 | |
| | ηs | 141% | 139% | 139% | 139% | 141% | 140% | 143% | 149% | 139% | 142% | 143% | 145% | 143% | |
| Outdoor circuit fan | Nominal air flow (m³/h) | 9.000 | 14.500 | 17.000 | 17.000 | 17.000 | 17.750 | 31.000 | 31.000 | 31.000 | 33.000 | 33.000 | 34.500 | 35.000 | |
| | Available static pressure (mm.w.c) | 5 | | | | | | | | | | | | | |
| | Type | Electronic axial fan | | | | | | | | | | | | | |
| | Number / Diameter (mm) | 1 / 630 | 1 / 800 | | | | | 2 / 800 | | | | | | | |
| | Ingress protection rating | IP54 | IP55 | | | | | IP55 | | | | | | | |
| | Maximum speed (r.p.m.) | 1.140 | 1.020 | | | | | 1.020 | | | | | | | |
| | Motor output (kW) | 0,9 | 2,6 | | | | | 2 x 2,6 | | | | | | | |
| | Maximum absorbed current (A) | 1,6 | 3,9 | | | | | 7,8 | | | | | | | |
| Indoor circuit supply fan | Nominal air flow (m³/h) | 5.100 | 6.500 | 8.500 | 8.750 | 9.000 | 9.000 | 12.000 | 12.500 | 12.500 | 15.500 | 15.500 | 16.000 | 16.000 | |
| | Available static pressure (mm.w.c) | 12 | 12 | 12 | 15 | 15 | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 25 | |
| | Type | Electronic plug-fan | | | | | | | | | | | | | |
| | Number / Diameter (mm) | 1 / 500 | | 1 / 500 | | | | | 2 / 500 | | | | | 2 / 500 | |
| | Speed (r.p.m.) | 1.800 | | 1.855 | | | | | 1.800 | | | | | 1.855 | |
| | Motor output (kW) | 1 x 3,1 | | 1 x 3,1 | | | | | 2 x 3,1 | | | | | 2 x 3,1 | |
| | Maximum absorbed current (A) | 4,7 | | 4,8 | | | | | 9,4 | | | | | 9,6 | |
| Compressor | Type | Scroll | | | | | | | | | | | | | |
| | No. compressors / stages / circuits | 2 / 2 / 1 | | | | | | 4 / 4 / 2 | | | | | | | |
| | Oil type | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC | | | | | | | | | | | | | |
| | Volume of oil (l) | 2 x 1,24 | 2 x 1,24 | 2 x 1,24 | 2 x 1,72 | 2 x 1,72 | 2 x 1,72 | 4 x 1,24 | 4 x 1,24 | 4 x 1,24 | 4 x 1,24 | 4 x 1,72 | 4 x 1,72 | 4 x 1,72 | |
| Electrical characteristics | Mains voltage | 400 V / III ph / 50 Hz (±10%) | | | | | | | | | | | | | |
| | Power supply | 3 Wires + Ground + Neutral | | | | | | | | | | | | | |
| | Maximum absorbed current (A) | 21,2 | 27,5 | 26,8 | 29,6 | 34,7 | 34,9 | 51,0 | 55,0 | 54,2 | 53,4 | 59,0 | 64,3 | 69,8 | |
| Refrigerant | Type | R-454B | | | | | | | | | | | | | |
| | Global warming potential (GWP) ④ | 466 | | | | | | | | | | | | | |
| | Charge (kg) | 7,2 | 7,5 | 9,9 | 9,9 | 10,2 | 10,4 | 2 x 5,7 | 2 x 5,8 | 2 x 5,9 | 2 x 9,0 | 2 x 9,1 | 2 x 9,1 | 2 x 9,2 | |
| | Environment impact (tCO2eq) | 3,4 | 3,5 | 4,6 | 4,6 | 4,7 | 4,9 | 5,3 | 5,4 | 5,5 | 8,4 | 8,5 | 8,5 | 8,6 | |
| Weight | C0 assembly (kg) | 594 | 617 | 699 | 698 | 704 | 701 | 986 | 986 | 1.004 | 1.146 | 1.146 | 1.135 | 1.160 | |

① Cooling capacity calculated in accordance with the EN-14511-2022 standard given for indoor temperature conditions 27°C, 19°C WB and 35°C outdoor temperature.

② Heating capacity calculated in accordance with the EN-14511-2022 standard given for indoor temperature conditions 20°C and 6°C WB outdoor temperature.

③ Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2022 standard.

④ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.



Eurovent certified values

OPERATION LIMITS

| Inlet air conditions | | Cooling | | Heating |
|----------------------|---------------------|----------|------|------------|
| | | RPJ | IPJ | IPJ |
| Indoor coil | Minimum temperature | 9,7°C WB | | 10°C |
| | Maximum temperature | 24°C WB | | 27°C |
| Outdoor coil | Minimum temperature | -10°C ① | | -15°C WB ② |
| | Maximum temperature | 52°C | 48°C | 15°C WB |

① If the condensation pressure control (standard) is disabled, the minimum temperature will be 12°C.

② When the outdoor temperature is usually below 5°C WB, the installation of a support element is recommended.

SOUND LEVELS dB(A)

Sound power level (LW)

| VECTIOS PJ | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 63 Hz | 55,2 | 60,8 | 61,4 | 60,9 | 61,3 | 63,1 | 64,3 | 64,5 | 64,9 | 64,8 | 64,6 | 64,6 | 65,3 |
| 125 Hz | 64,2 | 66,7 | 68,9 | 66,1 | 70,0 | 71,1 | 69,6 | 69,9 | 71,5 | 72,4 | 71,3 | 71,4 | 74,0 |
| 250 Hz | 71,8 | 74,8 | 76,1 | 72,9 | 76,3 | 76,4 | 77,0 | 77,7 | 78,9 | 79,7 | 78,4 | 77,9 | 79,3 |
| 500 Hz | 70,2 | 76,7 | 76,4 | 76,8 | 77,1 | 78,3 | 79,5 | 80,1 | 80,4 | 79,9 | 80,1 | 80,2 | 80,9 |
| 1000 Hz | 72,0 | 76,2 | 76,3 | 77,5 | 77,3 | 78,2 | 79,4 | 79,9 | 80,2 | 79,8 | 80,4 | 80,6 | 80,7 |
| 2000 Hz | 69,7 | 73,5 | 74,3 | 75,3 | 74,1 | 75,5 | 77,0 | 77,4 | 77,8 | 77,7 | 78,3 | 78,1 | 77,7 |
| 4000 Hz | 62,6 | 69,2 | 70,3 | 70,6 | 70,4 | 72,2 | 73,1 | 73,4 | 73,7 | 73,8 | 73,9 | 74,2 | 74,4 |
| 8000 Hz | 59,0 | 63,7 | 65,5 | 65,8 | 65,6 | 67,5 | 67,9 | 68,2 | 68,6 | 68,9 | 69,1 | 69,4 | 69,6 |
| Total dB(A) | 77,5 | 82,0 | 82,5 | 82,5 | 83,0 | 84,0 | 85,0 | 85,5 | 86,0 | 86,0 | 86,0 | 86,0 | 86,5 |

Sound pressure level (LP)

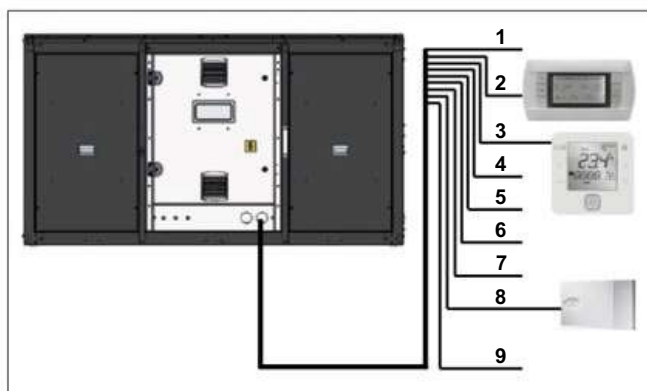
Measurement conditions: in a clear field, measured at a distance of 10 metres, directivity 2 and at 1,5 metres from the ground.

| VECTIOS PJ | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Total dB(A) | 45,8 | 50,3 | 50,8 | 50,8 | 51,3 | 52,3 | 53,1 | 53,7 | 54,2 | 54,2 | 54,1 | 54,1 | 54,6 |

Note: The sound pressure level depends on the installation conditions and, as such, it only indicated as a guide. Values obtained according to the ISO 3744 standard.

ELECTRICAL CONNECTIONS

| No. | VECTIOS PJ | | 0090 to 0380 |
|-----|------------------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------|
| 1 | Main power supply | 400 III (±10%) | 3 wires + ground + neutral |
| 2 | Remote connection of graphic terminal (by default installed on the electrical cabinet) ① | | telephone cable 6 wires standard (RJ12 connector) |
| 3 | Connection of TCO user terminal (optional) ② | | 2 wires for power supply 230V + 1 shielded cable for communication type AGW20 / 22 (1 braided pair + drainwire + shielding) |
| 4 | Remote off/on (optional) | | 2 wires |
| 5 | General alarm signal (optional) ③ | | 2 wires |
| 6 | Remote Cooling/Heating (optional upon request) | | 2 wires |
| 7 | Circulation pump signal for HWC (antifreeze sec.) (opt.) | | 1 wire |
| 8 | Ambient probe | NTC | 2 wires |
| | | RS485 | 5 wires ④ |
| 9 | Air quality probe (optional) | | 3 wires |



① In this case, it's possible to install the user terminal on the electrical cabinet.

② The power supply of the electrical cabinet (230 V) must be used for terminal power.

③ The output for general alarm signal is not compatible with the following options: hot water coil, heat recovery coil, rotary heat exchanger and on/off signal for external humidifier. With these options, possibility of general alarm upon request.

④ Up to four RS485 ambient sensors can be connected in series on the field-bus of the control board.

WEIGHT OVERVIEW OF THE VARIOUS ASSEMBLIES AND THE MAIN OPTIONS

Weight overview of the various assemblies (kg)

| VECTIOS PJ | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|------------|--------------------|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| RPJ series | C0 assembly | 594 | 617 | 699 | 698 | 704 | 701 | 914 | 929 | 936 | 1035 | 1059 | 1057 | 1078 |
| | CS / CF assemblies | 609 | 632 | 718 | 718 | 718 | 720 | 946 | 967 | 969 | 1070 | 1094 | 1112 | 1113 |
| | CK assembly | 682 | 705 | 796 | 796 | 796 | 798 | 1047 | 1062 | 1070 | 1197 | 1221 | 1230 | 1231 |
| | CA assembly | 713 | 736 | 815 | 815 | 815 | 817 | 1090 | 1111 | 1112 | 1248 | 1272 | 1290 | 1291 |
| | CP assembly | 723 | 746 | 831 | 831 | 828 | 833 | 1120 | 1141 | 1142 | 1276 | 1300 | 1309 | 1310 |
| | CR assembly | 781 | 804 | 900 | 900 | 897 | 902 | 1211 | 1232 | 1233 | 1379 | 1403 | 1412 | 1413 |
| | CQ assembly | 774 | 797 | 882 | 882 | 882 | 884 | 1213 | 1228 | 1236 | 1371 | 1395 | 1413 | 1414 |
| | CT assembly | 832 | 855 | 951 | 951 | 951 | 953 | 1304 | 1319 | 1327 | 1474 | 1498 | 1516 | 1517 |
| | CW assembly | Machine | 722 | 745 | 834 | 834 | 837 | 1122 | 1143 | 1145 | 1206 | 1230 | 1248 | 1249 |
| | | Recovery module | 254 | 254 | 254 | 254 | 254 | 348 | 348 | 348 | 454 | 454 | 454 | 454 |
| | | Total weight | 976 | 999 | 1088 | 1088 | 1091 | 1470 | 1491 | 1493 | 1660 | 1684 | 1702 | 1703 |
| IPJ series | C0 assembly | 594 | 617 | 699 | 698 | 704 | 701 | 986 | 986 | 1004 | 1146 | 1146 | 1135 | 1160 |
| | CS / CF assemblies | 609 | 632 | 718 | 718 | 718 | 720 | 1018 | 1024 | 1037 | 1181 | 1181 | 1190 | 1195 |
| | CK assembly | 682 | 705 | 796 | 796 | 796 | 798 | 1119 | 1119 | 1138 | 1308 | 1308 | 1308 | 1313 |
| | CA assembly | 713 | 736 | 815 | 815 | 815 | 817 | 1162 | 1168 | 1180 | 1359 | 1359 | 1368 | 1373 |
| | CP assembly | 723 | 746 | 831 | 831 | 828 | 833 | 1192 | 1198 | 1210 | 1387 | 1387 | 1387 | 1392 |
| | CR assembly | 781 | 804 | 900 | 900 | 897 | 902 | 1283 | 1289 | 1301 | 1490 | 1490 | 1490 | 1495 |
| | CQ assembly | 774 | 797 | 882 | 882 | 882 | 884 | 1285 | 1285 | 1304 | 1482 | 1482 | 1491 | 1496 |
| | CT assembly | 832 | 855 | 951 | 951 | 951 | 953 | 1376 | 1376 | 1395 | 1585 | 1585 | 1594 | 1599 |
| | CW assembly | Machine | 722 | 745 | 834 | 834 | 837 | 1194 | 1200 | 1213 | 1317 | 1317 | 1326 | 1331 |
| | | Recovery module | 254 | 254 | 254 | 254 | 254 | 348 | 348 | 348 | 454 | 454 | 454 | 454 |
| | | Total weight | 976 | 999 | 1088 | 1088 | 1091 | 1542 | 1548 | 1561 | 1771 | 1771 | 1780 | 1785 |

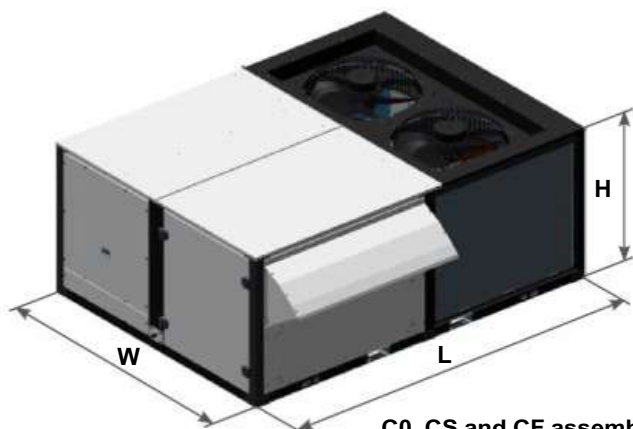
Weight supplement from the main options (kg)

| VECTIOS PJ | | 0090 | 0120 | 0140 | 0160 | 0180 | 0190 | 0200 | 0220 | 0240 | 0280 | 0320 | 0360 | 0380 |
|-----------------------------------------------|------------------------------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|
| Pre-assembly roof curb (without gas burner) | | 145 | 145 | 145 | 145 | 145 | 145 | 205 | 205 | 205 | 237 | 237 | 237 | 237 |
| Pre-assembly roof curb (with gas burner) | G0L (Low) | 265 | 265 | 265 | 265 | 265 | 265 | -- | -- | -- | -- | -- | -- | -- |
| | G0N (Nominal) | 274 | 274 | 274 | 274 | 274 | 274 | 385 | 385 | 385 | 463 | 463 | 463 | 463 |
| | G0H (High) | 284 | 284 | 284 | 284 | 284 | 284 | 411 | 411 | 411 | 483 | 483 | 483 | 483 |
| Electrical heaters | E0L (Low) | 20 | 20 | 20 | 20 | 20 | 20 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| | E0N (Nominal) | 17 | 17 | 17 | 17 | 17 | 17 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| | E0H (High) | -- | -- | 21 | 21 | 21 | 21 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Hot water coil | Standard | Empty | 33 | 33 | 37 | 37 | 37 | 51 | 51 | 51 | 58 | 58 | 58 | 58 |
| | | Service | 40 | 40 | 46 | 46 | 46 | 67 | 67 | 67 | 78 | 78 | 78 | 78 |
| | Great cold | Empty | 41 | 41 | 45 | 45 | 45 | 71 | 71 | 71 | 78 | 78 | 78 | 78 |
| | | Service | 49 | 49 | 55 | 55 | 55 | 89 | 89 | 89 | 100 | 100 | 100 | 100 |
| Heat recovery coil | Empty | 22 | 22 | 21 | 21 | 21 | 21 | 30 | 30 | 30 | 36 | 36 | 36 | 36 |
| | Service | 31 | 31 | 31 | 31 | 31 | 31 | 44 | 44 | 44 | 53 | 53 | 53 | 53 |
| Preheater in fresh air | Low power | 93 | 93 | 93 | 93 | 93 | 93 | 121 | 121 | 121 | 144 | 144 | 144 | 144 |
| | Nominal power | 105 | 105 | 105 | 105 | 105 | 105 | 138 | 138 | 138 | 165 | 165 | 165 | 165 |
| Supply fan | Low pressure (L) | -7 | -7 | -- | -- | -- | -- | -21 | -21 | -21 | -- | -- | -9 | -9 |
| | Nominal pressure. aluminium (A) | 4 | 4 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 0 | 0 |
| | High pressure (H) | 4 | 4 | 28 | 28 | 28 | 28 | 38 | 38 | 38 | 29 | 29 | 29 | 29 |
| Stop-drop | Indoor coil | 24 | 24 | 25 | 25 | 25 | 25 | 34 | 34 | 34 | 43 | 43 | 43 | 43 |
| | Fresh air intake | 8 | 8 | 8 | 8 | 8 | 8 | 11 | 11 | 11 | 14 | 14 | 14 | 14 |
| Filters | G4 l.p.d. | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| | G4 + M6 | 6 | 6 | 6 | 6 | 6 | 6 | 9 | 9 | 9 | 11 | 11 | 11 | 11 |
| | G4 + F7 // G4 + F9 | 6 | 6 | 6 | 6 | 6 | 6 | 9 | 9 | 9 | 12 | 12 | 12 | 12 |
| | G4 l.p.d. + F7 // G4 l.p.d. + F9 | 7 | 7 | 7 | 7 | 7 | 7 | 11 | 11 | 11 | 14 | 14 | 14 | 14 |
| | M6 + F7 // M6 + F9 | 8 | 8 | 8 | 8 | 8 | 8 | 13 | 13 | 13 | 17 | 17 | 17 | 17 |
| | F7 + F9 // F9 + F9 | 9 | 9 | 9 | 9 | 9 | 9 | 13 | 13 | 13 | 17 | 17 | 17 | 17 |
| Centrifugal return fan (CQ and CT assemblies) | 1: Low flow + nominal pressure | -8 | -7 | 7 | 10 | 10 | 10 | -21 | -21 | -21 | 20 | 20 | 20 | 20 |
| | 2: Low flow + high pressure | -1 | 3 | 31 | 31 | 31 | 31 | 0 | 10 | 10 | 30 | 30 | 30 | 30 |
| | 3: Nominal flow + nominal pressure | -7 | 7 | 13 | 17 | 17 | 17 | -1 | -1 | -1 | 47 | 47 | 47 | 47 |
| | 4: Nominal flow + high pressure | 3 | 9 | 38 | 38 | 38 | 38 | 26 | 26 | 26 | 145 | 145 | 145 | 145 |
| | 5: High flow + nominal pressure | 0 | 13 | 17 | 36 | 36 | 36 | 20 | 27 | 27 | 60 | 60 | 60 | 60 |
| | 6: High flow + high pressure | 9 | 15 | 48 | 63 | 48 | 48 | 44 | 44 | 44 | 145 | 145 | 185 | 185 |
| | 7: Low flow + low pressure | -10 | -2 | 1 | 7 | 7 | 7 | -2 | -2 | -2 | 10 | 10 | -2 | -2 |
| | 8: Nominal flow + low pressure | -2 | 7 | 8 | 34 | 35 | 35 | 3 | 3 | 3 | 14 | 14 | 14 | 14 |
| | 9: High flow + low pressure | 1 | 7 | 34 | 40 | 40 | 40 | 21 | 21 | 21 | 56 | 56 | 56 | 56 |
| Return plug-fan | CP, CR assemblies | 3 | 3 | 3 | 3 | 3 | 3 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| | CQ, CT assemblies | 3 | 3 | 3 | 3 | 3 | 3 | -- | -- | -- | 6 | 6 | 6 | 6 |
| | CW assembly | 3 | 3 | 0 | 0 | 0 | 0 | -- | -- | -- | 0 | 0 | 0 | 0 |

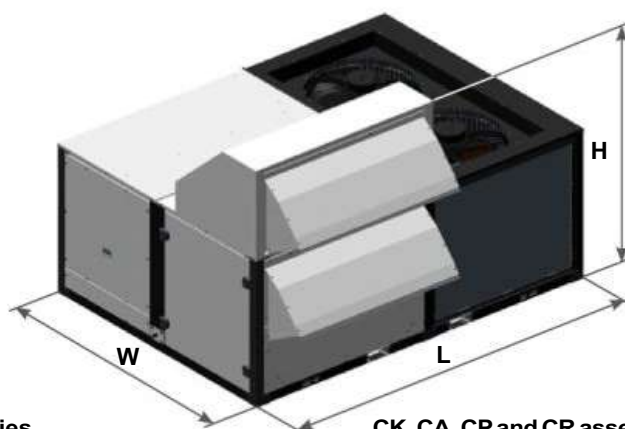
OVERALL DIMENSIONS OF THE DIFFERENT ASSEMBLIES

| VECTIOS PJ | C0, CS and CF assemblies | | | CK, CA, CP and CR assemblies | | | CW assembly | | | CQ and CT assemblies | | |
|---------------|--------------------------|---------------|--------------------|------------------------------|---------------|----------------|----------------|---------------|----------------|----------------------|---------------|----------------|
| | Length (mm) | Width (mm) | Height (*) (mm) | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) |
| 0090 | 2.225 | 1.750 | 1.230 | 2.230 | 1.755 | 1.905 | 2.230 | 2.575 | 1.905 | 2.230 | 1.760 | 1.975 |
| 0120 | 2.225 | 1.750 | 1.230 | 2.230 | 1.755 | 1.905 | 2.230 | 2.575 | 1.905 | 2.230 | 1.760 | 1.975 |
| 0140 | 2.225 | 1.750 | 1.230 | 2.230 | 1.755 | 1.905 | 2.230 | 2.575 | 1.905 | 2.230 | 1.760 | 1.975 |
| 0160 | 2.225 | 1.750 | 1.230 | 2.230 | 1.755 | 1.905 | 2.230 | 2.575 | 1.905 | 2.230 | 1.760 | 1.975 |
| 0180 | 2.225 | 1.750 | 1.230 | 2.230 | 1.755 | 1.905 | 2.230 | 2.575 | 1.905 | 2.230 | 1.760 | 1.975 |
| 0190 | 2.225 | 1.750 | 1.230 | 2.230 | 1.755 | 1.905 | 2.230 | 2.575 | 1.905 | 2.230 | 1.760 | 1.975 |
| 0200 | 3.000 | 2.200 | 1.230 | 3.000 | 2.205 | 1.905 | 3.000 | 3.015 | 1.905 | 3.000 | 2.210 | 1.995 |
| 0220 | 3.000 | 2.200 | 1.230 | 3.000 | 2.205 | 1.905 | 3.000 | 3.015 | 1.905 | 3.000 | 2.210 | 1.995 |
| 0240 | 3.000 | 2.200 | 1.230 | 3.000 | 2.205 | 1.905 | 3.000 | 3.015 | 1.905 | 3.000 | 2.210 | 1.995 |
| 0280 | 3.650 | 2.200 | 1.230 | 3.655 | 2.205 | 1.905 | 3.655 | 3.015 | 1.905 | 3.655 | 2.210 | 1.995 |
| 0320 | 3.650 | 2.200 | 1.230 | 3.655 | 2.205 | 1.905 | 3.655 | 3.015 | 1.905 | 3.655 | 2.210 | 1.995 |
| 0360 | 3.650 | 2.200 | 1.230 | 3.655 | 2.205 | 1.905 | 3.655 | 3.015 | 1.905 | 3.655 | 2.210 | 1.995 |
| 0380 | 3.650 | 2.200 | 1.230 | 3.655 | 2.205 | 1.905 | 3.655 | 3.015 | 1.905 | 3.655 | 2.210 | 1.995 |

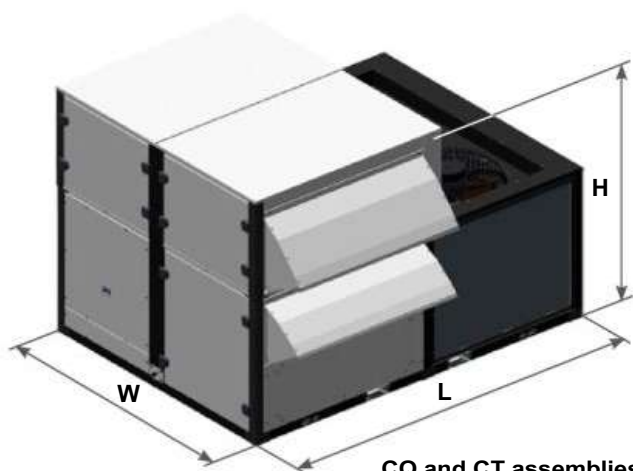
(*) With 2-speed outdoor fan (optional) add +275 mm.



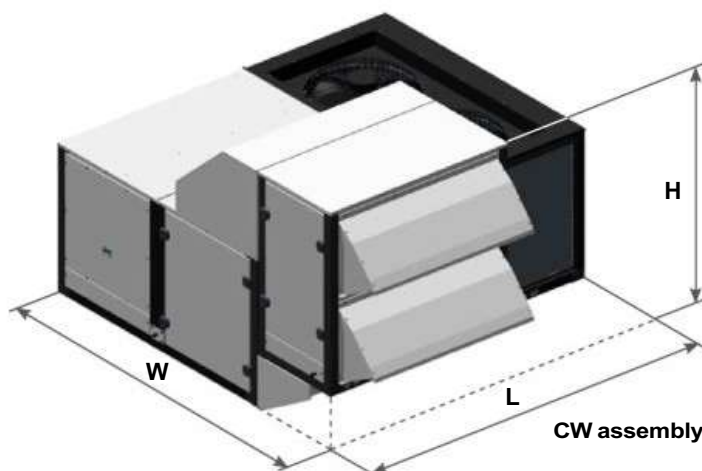
C0, CS and CF assemblies



CK, CA, CP and CR assemblies



CQ and CT assemblies



CW assembly

VECTIOS^{POWER}™ PJ R-454B*

Compact air-air rooftop units

Now available with **R-454B**
 Integrated **“plug&play”** system
 Eco-Design: **high** seasonal **efficiency**
Reliability with superior quality
Compact and **quiet**
Advanced system control
 Packaged system **flexibility**
Extensive scope



Cooling capacity: 96.9 to 273.2 kW

Heating capacity: 97.4 to 299.5 kW



Cooling & heating



Heating recovery



Air filtration



Free cooling

R-454B



(*) Also available in R-410A

DESCRIPTION

The **VECTIOS^{POWER}™** range consists of autonomous and compact air-air units of horizontal construction, rooftop-type design. The units are equipped with all the components required for the correct air conditioning to the installation. Now with R-454B refrigerant.

■ **IPJ series:** Units for **reversible heat pump** operation.

■ **RPJ series:** Units for **cooling** operation.

The unit is connected directly to an air distribution ductwork without additional elements or equipment, pipes, cables, etc. taking up no floor space at all. This design reduces the cost of installation, facilities connections and ensures reliable operation.

The range of capacities of these units allows for the air conditioning of large surface areas used for business or industry.

A vast number of options meet many operating requirements, such as:

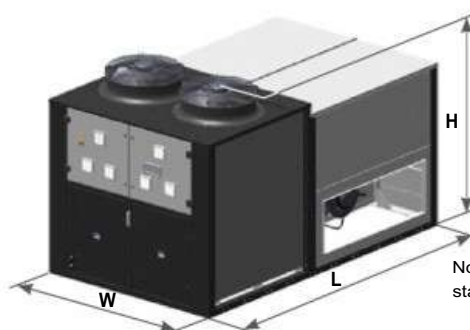
- Recovery of the extracted air energy
- Free-cooling
- Air renewal
- Zoning with variation of air flow
- Indoor air quality control
- Air filtration
- Auxiliary devices for heating
- Heat recovery coil
- Extension of operating limits for adaptation to extreme temperatures
- Available static pressure up to 80 mm.w.c.

These units are equipped with electronic axial fans in the outdoor circuit, electronic plug-fans in the indoor circuit, air coils, hermetic scroll-type compressors in tandem and electronic control with microprocessor.

All of the units are tested and checked in the factory.

RANGE

| VECTIOS ^{POWER} ™ models | Dimensions: L x W x H (mm) |
|-----------------------------------|----------------------------|
| 0420 - 0450 - 0500 | 3.820 x 2.257 x 2.293 |
| 0560 - 0620 - 0680 - 0720 | 4.224 x 2.257 x 2.340 |
| 0760 - 0840 - 0960 | 5.300 x 2.257 x 2.421 |
| 1050 - 1200 | 6.350 x 2.257 x 2.494 |



Note: Dimensions for the standard configuration.

COMPLIANCE

Machinery Directive 2006/42/EC (MD)
 Electromagnetic Compatibility Directive 2014/30/EU (EMC)
 Pressure Equipment Directive 2014/68/EU (Category 3) (PED)
 RoHS Directive 2011/65/EU (RoHS)
 Eco-design Directive 2009/125/EC (ECO-DESIGN)
 Energy Labelling Directive 2017/1369/EU (ECO-LABELLING)
 Harmonised Standard: EN 378-2:2012 (Refrigerating systems and heat pumps - Safety and environmental requirements).

COSTUMER BENEFITS

High energy efficiency & environmental responsibility

CIAT concentrates its efforts on achieving the lowest environmental impact selecting the best low GWP refrigerant for each application. A combination of lower refrigerant charge and much lower GWP leads to an 80% reduction on direct carbon footprint.

The increase on efficiencies with R-454B over the already outstanding energy performance of **VECTIOS^{POWER}** leads to an additional 3% reduction on the indirect emissions. It means up to 42% savings in cooling and up to 10% savings in heating versus Ecodesign requirements.

VECTIOS^{POWER} goes beyond 2021 Ecodesign rooftop requirements.

SEER up to 5,19

SCOP up to 3,53

R-454B



We have designed the **VECTIOS^{POWER}** **R-454B** range with specific features to reduce energy consumption to the minimum for each application: variable ventilation, free-cooling, low pressure drop filters and energy recovery systems.

Packaged system flexibility

VECTIOS^{POWER} **R-454B** offers a wide range of options to address the most specific requirements to be the **perfect solution for every application** with maximum comfort, energy efficiency and indoor air quality in mind



SHOPPING CENTERS



CINEMAS



LOGISTICS



INDUSTRIES



OFFICES



ADMINISTRATION

- Free-cooling
- Energy recovery
- Fresh air
- Quality sensors
- Filtration
- Overpressure control
- Heating back-up
- Humidity control
- All season operations
- Multi zone control
- Heat recovery coil
- Low temperature applications
- Master/slave and back-up
- Energy meter
- Smoke detector
- Anti-corrosion options
- Supervision
- Communication

Weight and dimensions optimized, including **aluminium panels and registers**

Energy savings

We develop energy-efficient solutions that provide substantial savings.

VECTIOS^{POWER} **R-454B** has been designed to reduce energy consumption with advanced features:

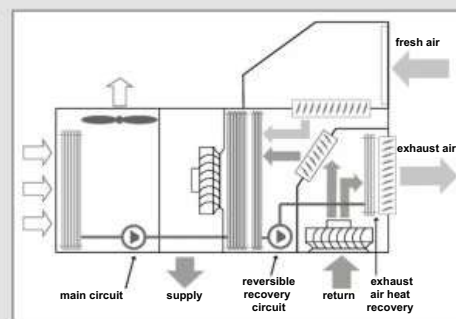
- Variable ventilation with electronic plug-fans.
- Low pressure drop filters.
- Free-cooling allows to make best use of outdoor air conditions when these are more favourable than the return air conditions. This allows the cooling capacity to be reduced. Up to 30% energy savings due to the cooling capacity reduction.

Energy recovery systems:

* Active recovery:

High performances in mild weather.

Additional cooling circuit, independently controlled, for energy recovery from the exhaust air.



* Passive recovery:

Recommended with low outdoor temperatures in winter, and high fresh air ratios.

A rotary heat exchanger, coupled to the machine, transfers heat and humidity from the air-conditioned room's return air to the fresh air used for ventilation, before its discharged outdoors.



Acoustic comfort

VECTIOS^{POWER} **R-454B** guarantee **low noise level** during operation to meet the highest requirements thanks to the design optimization and the use of latest technology for fans and compressors.

- Up to 70% of the operation time below half-load. Sound level reduction in partial load operation.
- Night operation mode available with free-cooling and disabling compressors.

COSTUMER BENEFITS

Extensive scope

More applications in a wider temperature range:

- **Air zoning** to control up to 4 zones or in case of large surfaces with high thermal dispersion.
- **Heat recovery coil** using energy rejected by food refrigeration system or industrial process.
- **Airflow extension** to provide the proper solution when larger airflow in comparison with capacity is required.
- **Low return temperature 15°C** in cooling mode operation which allows to answer the request of certain application as food conservation in large store facilities.



Double panel with 50mm insulation in all indoor parts to fit the higher standard on air quality, and/or when Euro class A2-s1, d0 (M0) fire classification is required.

Full reliability

CIAT designs and manufactures reliable products to meet the highest expectations and facilitate maintenance.



VECTIOS^{POWER} R-454B offers **Eurovent certified** performance.



(up to 200kW)

The robust qualification process guarantees the highest standards.

Advanced system control



VECTIC control is dedicated to optimizing the performance at part load conditions, increases the seasonal efficiency and operational limits in all seasons.

Simplicity

We guarantee an easy installation and integration in the building management system.

- **Plug & play solution** fully programmed and set-up from factory.
- **Communication** with all building management system protocols through Modbus, BACnet, Konnex, TCP/IP, SNMP V1-2-3, FTP and HTTP.
- Wide **supervision** offer from 1 to 300 units.
- **Remote supervision** solution ABOUND HVAC Performance.



It is an advanced monitoring solution that enables customers for all applications to track and monitor their CIAT equipment.

- * 24/7 remote monitoring.
- * Proactivity to anticipate breakdowns.
- * Real-time data.
- * Reports with analysis and recommendations from BluEdge CIAT experts.
- * Email alert for any event concerning the equipment.

Healthier indoor environment

#CIAT4life

Enhanced solutions to contribute to a healthier indoor environment:

- **Ventilation** of spaces with outdoor air. It reduces indoor pollutants to maintain indoor air quality.
- **Air filtration.** It is an efficient way to reduce particles that can harm our health. The filter fouling detector determines when the filter needs to be replaced.
- **CO₂ sensors** that allow ventilation based on the comparison of CO₂ levels between indoor and outdoor sources.
- **Air flow control.** It ensures proper comfort in spaces:
 - * temperature,
 - * humidity,
 - * air flow,
 - * overpressure.



BluEdge® service platform

Our qualified and responsive BluEdge teams of technicians are available to implement actions on site and ensure optimal operation of your equipment.

We have a choice of service levels, enabling you to tailor the level of cover exactly to your needs and budget.

From preventative to full coverage, our **CORE**, **ENHANCE**, **ELITE** tiers are designed to fit your needs.



CORE



ENHANCE



ELITE

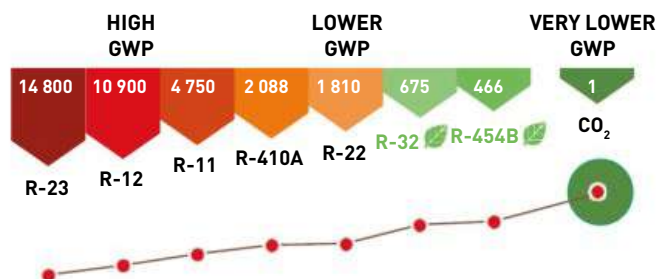
ENVIRONMENTAL RESPONSABILITY



VECTIOS^{POWER} R-454B leads the transition to the lowest environmental impact contributing to sustainable development via an environmentally responsible approach, aimed at balancing ecological and economic concerns. This enables it to meet the requirements of future European thermal regulations and to protect our environment for future generations.

The impact of an air conditioning system on global warming of the planet is in large part caused by CO₂ emissions released into the atmosphere when the electricity required to power the unit is produced (**indirect effect**) and in small part by CO₂ emissions linked to uncontrolled emissions of refrigerant with global warming potential into the atmosphere (**direct effect**).

CIAT offers the best refrigerant choice according to applications, conditions and technologies. Taking into account the energy consumption reduction without losing its energy efficiency



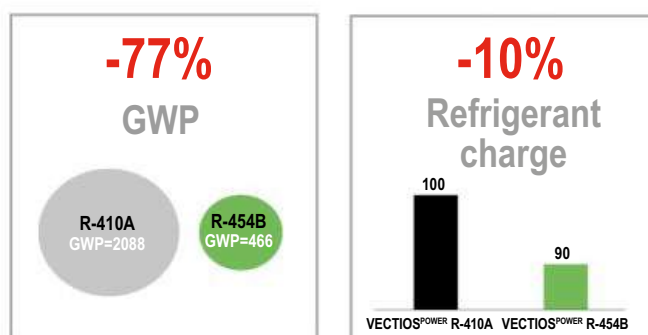
■ 80% reduction in the direct environmental impact, and therefore in the taxes

This performance is the result of the high-quality components used, which have all been rigorously selected:

- ✓ R-454B refrigerant with the lowest environmental impact (Ozone depletion potential = 0, Global warming potential = 466).
- ✓ R-454B is the best alternative for rooftops, with the lowest GWP (77% lower than R-410A, 31% lower than R-32).
- ✓ 10% reduction in refrigerant charge compared to previous version with R-410A.
- ✓ Systematic tightness check of units in leak detection cabinets at end of line production.

To conclude, the potential direct impact of **VECTIOS^{POWER} R-454B** on the environment is reduced by 80% compared to **VECTIOS^{POWER} R-410A**.

Note: Units with R-410A can benefit from a retrofit kit to use R-454B.



80% LESS CO₂ EQUIVALENT THAN R-410A

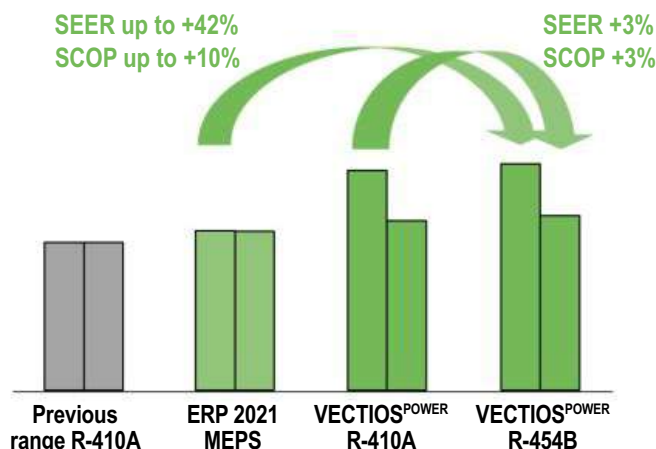
■ Reduced indirect environmental impact (Energy)

The new **VECTIOS^{POWER} R-454B** range also reduces the indirect environmental impact to the minimum thanks to the additional increase on the efficiency over the already **outstanding performance** in the legacy range with R-410A, getting savings versus Ecodesign regulation up to 42% in cooling and 10% in heating.

The high energy performance offered by **VECTIOS^{POWER} R-454B** enables energy consumption to be greatly reduced, therefore reducing energy bills for the user whilst reducing the unit's carbon footprint.

This performance is the result of the high-quality components used, which have all been rigorously selected:

- ✓ New generation of scroll compressors optimized for R-410A and R-454B refrigerants (bivalent compressors) in tandem configuration with 2 frigorific circuits and 4 compressors for high performance in partial load.
- ✓ R-454B refrigerant with high energy performance,
- ✓ Electronic expansion valves.
- ✓ VECTIC electronic control optimizing performance and energy consumption.
- ✓ EC outdoor fans for high efficiency and low noise level.
- ✓ EC indoor plug-fan with pressure transducer.



In addition, the **VECTIOS^{POWER} R-454B** range can be equipped with additional specific features to reduce energy consumption to the minimum for each application: variable ventilation, free-cooling, low pressure drop filters and energy recovery systems.

To conclude, **VECTIOS^{POWER} R-454B** reduces the indirect environmental impact leading the transition to the lowest environmental impact, not only in direct effect, but also in the indirect effect.

EcoPASSPORT®

The PEP ecopassport® programme provides an international reference framework for procedures enabling manufacturers to communicate the environmental specifications of their products in the form of an eco-declaration, known as the Product Environmental Profile (PEP).

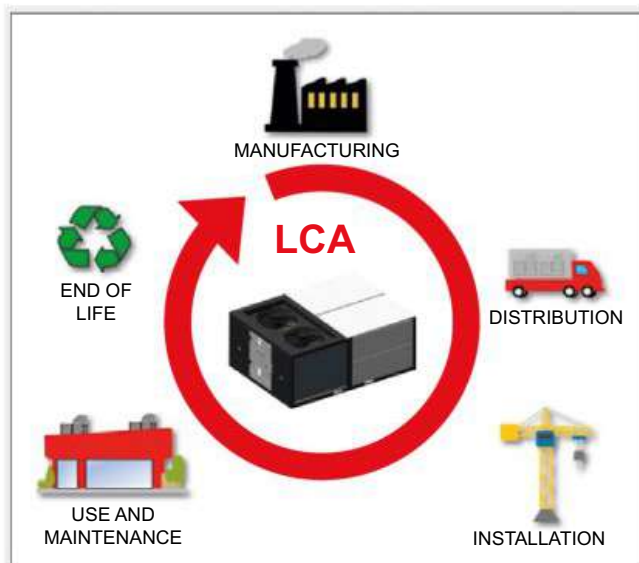
The PEP ecopassport® programme guarantees that PEPs are created, checked and communicated correctly according to the requirements of standard ISO 14025 and standard IEC/PAS 62545.



The Life Cycle Analysis (LCA) PEP is the environmental identity card for an item of equipment which details the environmental impacts of the product during its life cycle according to **eight mandatory indicators**:

1. Global Warming Potential
2. Impact on the ozone layer
3. Acidification of soil and water
4. Eutrophication of water
5. Photochemical ozone creation
6. Abiotic resource depletion
7. Fresh water consumption
8. Total use of primary energy during the life cycle

CIAT is the first HVAC manufacturer to provide PEPs for rooftops, not only the 8 mandatory indicators, but all **27 indicators**.



Products with certified environmental profiles are used to support methods to assess building sustainability such as BREEAM or LEED. They give additional recognition for materials with robust environmental product declaration types using manufacturer data.



The PEP of **VECTIOS^{POWER} R-454B** can be downloaded from the PEP ecopassport® website: <http://www.pep-ecopassport.org>



MODEL NUMBER NOMENCLATURE

| | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|---|---|---|----|----|-----|---|----|----|----|----|-----|------|------|----|----|------|----|-----|-----|------|------|------|
| IPJ_ | 0420 | A | 3 | G | C0 | AA | 000 | 0 | N | B | E | 0 | 000 | 0000 | 0000 | 0 | 0 | T100 | 00 | P00 | 000 | C100 | 0000 | 0000 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |

Group 1: Unit type

- IPJ_: air/air heat pump
- RPJ_: air/air cooling unit

Group 2: Unit model

- 2 circuits: 0420 / 0450 / 0500 / 0560 / 0620 / 0680 / 0720 / 0760 / 0840 / 0960 / 1050 / 1200

Group 3: Version of the series

Group 4: Electrical power

- 3: 400V / 3ph + N / 50Hz
- 4: 400V / 3ph / 50Hz

Group 5: Type of refrigerant

- G: R-454B

Group 6: Air flow + Assembly

- C0: Standard assembly
- CS: 2 dampers
- CP: Lower return plug-fan
- CR: Lower return plug-fan and active recovery
- CQ: Return plug-fan or centrifugal fan in top box
- CT: Return plug-fan or centrifugal fan in top box and active recovery
- CW: Passive recovery

Group 7: Coil coating : Indoor - Outdoor

- AA: Aluminium - Aluminium
- AB: Aluminium - Polyurethane
- AC: Aluminium - Inera®
- BB: Polyurethane - Polyurethane
- BC: Polyurethane - Inera®
- CC: Inera® - Inera®

Group 8: Heating

- 000: Without auxiliary heating
- G0x: Gas burner, 2 power outputs:
x = Nominal (N) / High (H)
- E0x: Electrical heaters, 3 power outputs:
x = Low (L) / Nominal (N) / High (H)
- B0x: Hot water coil:
x = Standard (S)

Group 9: Protection for low outdoor temperature

- 0: Without protection
- 1: Kit 1: Kit for outdoor temperature <-10°C
- 2: Kit 2: Kit for outdoor temperature <-14°C
- 3: Kit 3: Kit 1 + Dampers with spring
- 4: Kit 4: Kit 2 + Dampers with spring

Group 10: Available pressure of the indoor fan

- L: Low available pressure (Aluminium)
- N: Nominal available pressure
- A: Nominal available pressure (Aluminium)
- H: High available pressure (Aluminium)

Group 11: Air filtration + stop-drop

- A: G4
- B: G4 + stop-drop
- C: G4 low pressure drop
- D: G4 low pressure drop + stop-drop
- G: G4 + F7
- H: G4 + F7 + stop-drop
- K: G4 low pressure drop + F7
- L: G4 low pressure drop + F7 + stop-drop
- O: M6 + F7
- P: M6 + F7 + stop-drop
- S: F7 + F9
- T: F7 + F9 + stop-drop

Group 12: Type of outdoor fan

- A: AC (2-speed)
- E: EC (electronic)

Group 13: Insulation

- 0: Standard insulation
- 1: Insulation M0 with double wall (50mm)

Group 14: Indoor circuit configuration

- 000 — Without optional accessories
- A: Condensate drain pan in stainless steel
- 1: Management of the overpressure
- A: Clogged filters pressostat

Group 15: Outdoor circuit configuration

- 0000 — Without optional accessories
- A: Fresh air intake protection grid
- 1: Outdoor coil protective grille
- A: Antivibration mounts
- 1: Stop-drop at the fresh air intake

Group 16: Passive recovery

- 0000 — Without optional accessories
- 4: Wheel diameter: 1500 mm
- 5: Wheel diameter: 1800 mm
- 6: Wheel diameter: 2000 mm
- 7: Wheel diameter: 2200 mm
- A: Wheel speed with on/off control
- B: Wheel speed with variable control
- 1: Channel cross section of 2,0 mm
- 2: Channel cross section of 2,5 mm
- A: Material: Aluminium
- C: Material: Hybrid wheel
- D: Material: aluminium with silicagel

Group 17: Extra heating

- 0: Without extra heating
- C: Heat recovery coil

Group 18: Special applications

- 0: Without special applications
- Z: Air zoning
- I: Low return temperature application
- K: Low T application + Air zoning

Group 19: Sensors

- 0000 — Without optional accessories
- H: Smoke detector sensor
- A: Air quality sensor for environment
- C: Air quality sensor for return (duct-mounted)
- D: Double quality sensor: ambient + ambient
- E: Double quality sensor: ambient + outdoor
- F: Double quality sensor: return + outdoor
- P: Air quality sensor on the SHRD network
- 1: 1 sensor RS485
- 2: 2 sensors RS485
- 3: 3 sensors RS485
- 4: 4 sensors RS485
- 5: 1 sensor NTC
- T: Ambient temperature sensor
- H: Ambient temperature+humidity sensor
- P: Ambient sensor on the SHRD network

Group 20: Free-cooling + Outdoor humidity

- 00 — Without free-cooling + without sensor
- 1: Outdoor humidity sensor on the unit
- 2: Outdoor humidity sensor on SHRD network
- T: Thermal free-cooling
- M: Thermoenthalpic free-cooling
- E: Enthalpic free-cooling

Group 21: Terminal + Unit communication

- 000 — Without terminal + stand-alone + without card
- M: Communication card RS485 Modbus/Carel
- E: Communication card Ethernet PCoWeb
- L: Communication card RS485 LonWorks®
- B: Communication card Ethernet BACnet™
- C: Communication card RS485 BACnet™
- K: Communication card RS485 Konnex
- 0: Free-standing unit
- 1: Master unit
- 2: Slave unit
- P: VectiGD terminal in electrical cabinet
- T: TCO user terminal in electrical cabinet
- R: VectiGD terminal in electrical cabinet + TCO terminal remote up to 100 m
- S: TCO terminal in electrical cabinet + VectiGD terminal remote up to 200 m
- N: VectiGD terminal in electrical cabinet + VectiGD terminal remote up to 200 m

Group 22: Miscellaneous item 1

- 000 — Without optional accessories
- 1: Management of an on/off humidifier
- 2: Management of a proportional humidifier
- E: Energy meter
- M: Energy meter and calculation of cooling and heating capacities
- Unused

Group 23: Miscellaneous item 2

- C100 — Without optional accessories
- Unused
- T: Tropicalization
- Unused
- Unused

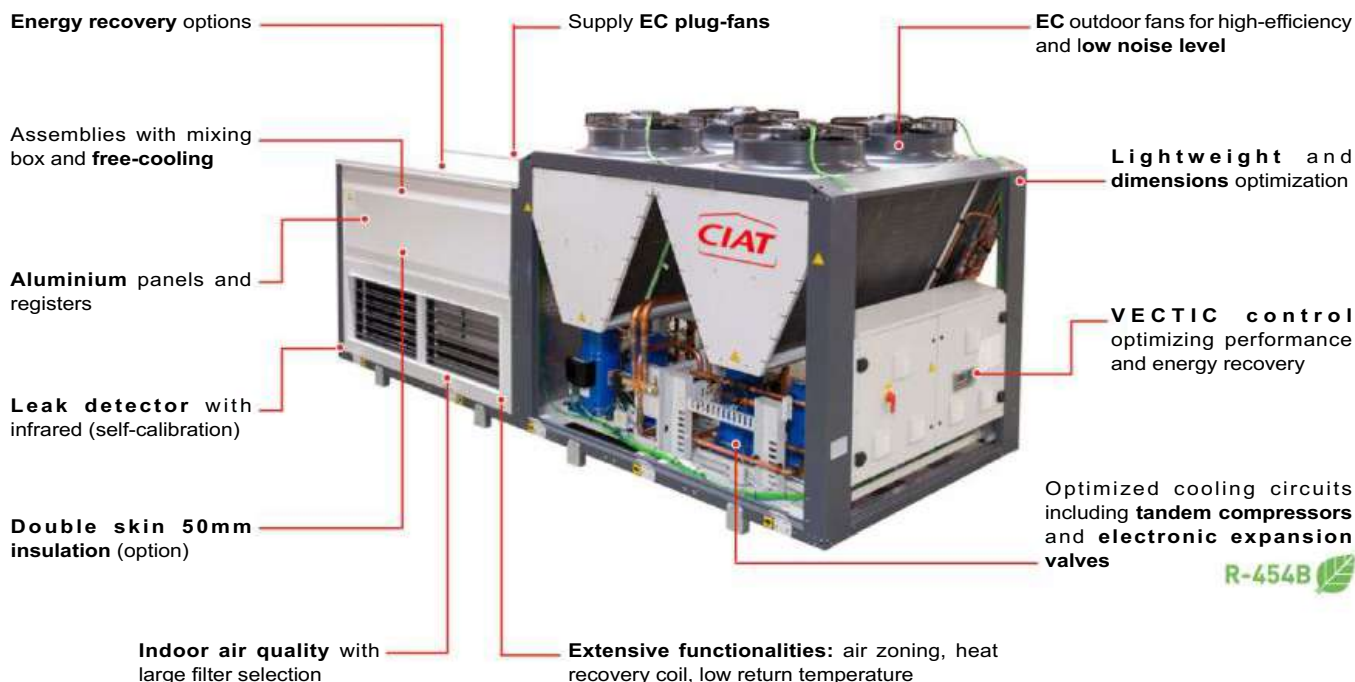
Group 24: Return fan

- 0000 — Without return fan
- 1: Centrifugal, low flow
- 3: Centrifugal, nominal flow
- 5: Centrifugal, high flow
- N: Plug-fan, nominal pressure
- A: Plug-fan, nominal pressure (Aluminium)
- H: Plug-fan, high pressure (Aluminium)
- Unused

Group 25: Indoor airflow direction

- 0000 — Lower direction
- 0: Lower supply and lower return (C0, CS, CP, CR and CW assemblies)
- 1: Lateral supply and lower return (C0, CS, CP, CR and CW assemblies)
- 2: Lower supply and lateral return (C0, CS, CQ and CT assemblies)
- 3: Lateral supply and lateral return (C0, CS, CQ and CT assemblies)
- 4: Upper supply and lower return (C0 and CS assemblies)
- 5: Lateral supply and upper return (C0 and CS assemblies)
- 6: Upper supply and lateral return (C0 and CS assemblies)
- 7: Lower supply and upper return (C0 and CS assemblies)
- 8: Upper supply and upper return (C0 and CS assemblies)
- Unused
- 0: Without pre-assembly roof curbs
- 1: With pre-assembly roof curbs
- Unused

MAIN FEATURES



UNIT COMPONENTS

Casing

- Structure made of galvanised steel metal. Panels and registers in aluminium. Most parts protected with polyester paint finished in two colors: white, RAL 7035 and graphite grey, RAL 7024.
- Removable panels for easy access to all components: electrical cabinet, compressors, fans, filters, etc.
- Skids for easy transport in a container. The dimensions of this range allow all models and assemblies to be transported in a container, so that the special SEI4C maritime packaging is not necessary under any circumstances.

Outdoor circuit

- Coils with copper pipes and aluminium fins.
- EC electronic axial fans which adapt the rotation speed to the installation's requirements, thereby reducing electricity consumption, the sound level at partial charge and improving the unit's average seasonal efficiency. IP55 protection.

Indoor circuit

- Thermal and acoustic insulation in panels and registers with M1 fire classification.
 - Coils with copper pipes and aluminium fins.
 - EC electronic supply plug-fans with variable control speed and flow rate controller. The fans are factory configured with nominal air flow. Consult for any special configuration.
- In tertiary sector installation, a high percentage of the annual air conditioning energy consumption comes from the use of fans for transporting air. Using fans which are more efficient has a direct impact on reducing consumption.

- Reusable gravimetric air filters G4, mounted on a frame. Dual locking system mounted on the access panel to filters.
- Isolated pan of condensates drainage sloping down towards the drain. This pan is removable for easy cleaning in models 0420 to 0720.

Cooling circuit

- Hermetic scroll-type compressors in tandem design that improves the management of stages and the part load efficiencies, assembled over antivibration mounts. Relay for phase-sequence monitoring and phase loss protection.
- Crankcase heater.
- Electronic expansion valves.
- Four-way cycle reversing valves.
- Acid-resistant filters dryer.
- Cooling design in 2-air volumes.



Electrical cabinet

- Complete and fully wired electrical cabinet. Insulated access door to prevent condensation. Forced ventilation of the electrical cabinet. Protection IP54.
- Numeration of wired and identification of components in the electrical cabinet. It permits easy tracing and diagnostics.
- Hinges + quarter-turn latches on the removable access doors.
- Electrical power supply with neutral.
- Main ground connection.
- Compressor and fan motor contacts.

UNIT COMPONENTS

Protections

- High pressure pressostats.
- High and low pressure transducers.
- Refrigerant leak control (by low-pressure alarm).
- Due to the A2L category of refrigerant R-454B (lightly flammable), it requires the installation of a refrigerant leak detector. This detector uses infrared instead of semiconductor technology with no need of calibration (self-calibration), with very fast time response, and high lifetime.

The detector is installed on a panel next to the supply fans of the indoor circuit. This position ensures the correct reading of the gas concentration in the indoor coil.

If the unit is connected to a BMS monitoring system, the electronic control is prepared to send an alarm signal in case of leakage detection.

Note: These units are designed to be installed outdoors in a well ventilated area, but a second leak detector can be installed in the outdoor circuit if in any case it is considered necessary. Available upon request.

- Compressor discharge temperature control.
- Main door switch.
- Protection for power lines of compressors with manual motor starters and power lines of fan motors with magnetothermic switches. These devices provide protection against overload, short circuit, phase failure and undervoltage.
- Automatic switch in the control circuit.

Vectic electronic control

The Vectic control consist of a control board, sensors, a VecticGD graphic terminal and a TCO user terminal (optional).

The control board includes a RS485 field-bus to manage additional components such as: expansion modules and boards, plug-fans, probes of temperature or relative humidity of the ambient air, leak detectors, energy meters, etc.

This board also integrates two communication ports that allow connection with a centralized technical management system such as BOSS and BOSS mini. A BMS port for Modbus RTU protocol and an Ethernet port for Modbus TCP/IP protocol.

A communication card (optional) can also be connected to the control board for the following protocols: TCP/IP, modbus TCP/IP, SNMP V1-2-3, FTP, HTTP, Ethernet BACnet™, BACnet™ MSTP, Konnex and Modbus RTU.

Vectic control enables unit integration with our local supervision solutions: **pCO Web** (1 unit), **BOSS mini** (50 units) and **BOSS** (300 units), as well as with the remote solution: **ABOUND HVAC Performance**.

With this control, it is also possible to connect to a shared network (SHRD) for a maximum of 15 units, with one unit configured as "Master" and the other units as "Slaves". This network allows the exchange of data and information between the units, and depending on the conditions of the installation, it can share the reading of some probes installed on the unit configured as "Master", temperature setpoints, and operating mode. It is also possible to configure one unit as a "Backup", for activation in case of malfunction of the other unit.

Main functions:

- Selection of setpoint and operating mode: HEATING / COOLING / AUTO / VENTILATION.
- Continuous control of the operating parameters.
- Display of the values measured by the sensors.
- Compressors time delays.
- Defrosting management.
- Control of the supply air temperature.
- All-seasons operation via the condensation and evaporation pressure control.
- The management of the unit in cooling mode is based on the principle of a high floating pressure. The condensation pressure setpoint is continually calculated depending on the outdoor temperature. This pressure is regulated by adjusting the air flow on the outdoor fans.
- Setpoint compensation based on the outdoor temperature.
- Hourly and weekly schedule.
- Fire protection.
- Diagnosis of faults and general alarm.
- Management of all the optional components available for the unit: dampers and mixing boxes, Backup heating, air quality sensors, air zoning, energy recovery,...

VecticGD graphic terminal:

This terminal, fitted as standard on the electrical cabinet, is very easy to use. It provides detailed explanations of control in easy to understand English. No decoding is required.



Only 6, large, easy-to-use buttons are required to maneuver through the entire menus.

This terminal is used to:

- Carry out initial programming of the unit.
- Modify operating parameters.
- Switch the unit ON / OFF.
- Select the operating mode and adjust the setpoints.
- Display the variables controlled and sensor values measured.
- Display the current alarms and their historical record.

Note: multiple units can share a single terminal, if they are integrated into a pLAN local network (for up to 15 units).

TCO user terminal (optional):

This terminal can be installed on the electrical cabinet, instead of the VecticGD graphic terminal. In this case, the remote connection of the VecticGD terminal is possible. Please consult the chapter "Options".



This terminal is used to:

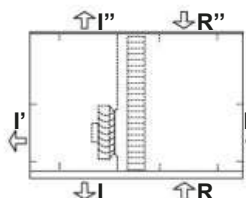
- Switch the unit ON / OFF.
- Select the operating mode and adjust the setpoints.
- Display the installation's temperatures and humidity, outdoor temperature, supply air temperature, CO₂ sensor and opening of the outdoor damper.
- Display alarms codes.

FACTORY OPTIONS AND ACCESSORIES

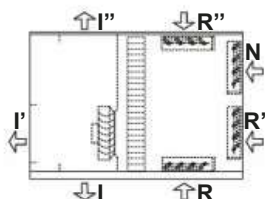
Assembly + Indoor air direction

C0 assembly

Standard

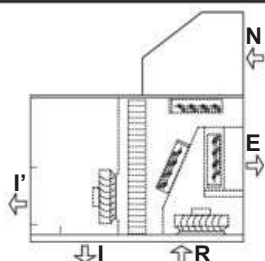


CS assembly

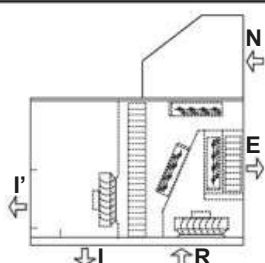
 2 dampers mixing box:
fresh air damper interlocked
with return damper


CP assembly

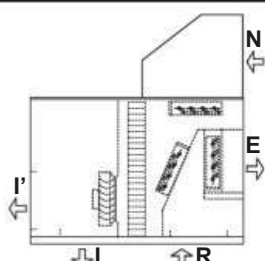
Lower return plug-fan



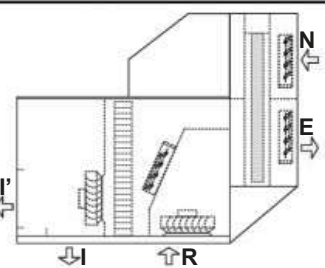
CR assembly

 Lower return plug-fan
+
Cooling recovery circuit
(active recovery)


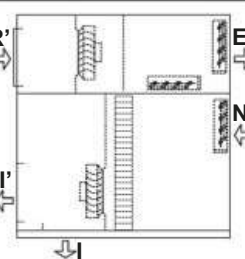
CK assembly (upon request)

 3 dampers mixing box:
fresh air damper and
exhaust air damper


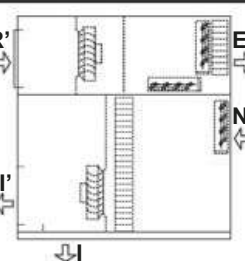
CW assembly

 Lower return plug-fan
+
Rotary heat exchanger
(passive recovery)


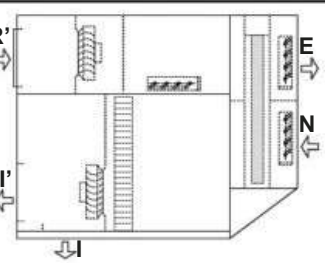
CQ assembly

 Return plug-fan or
centrifugal fan in top box


CT assembly

 Return plug-fan or
centrifugal fan in top box
+
Cooling recovery circuit
(active recovery)


CL assembly (upon request)

 Return plug-fan or
centrifugal fan in top box
+
Rotary heat exchanger
(passive recovery)


Legend

| | | | |
|-----|--------------------|-----|--------------------|
| I | Lower air supply | R | Lower air return |
| I' | Lateral air supply | R' | Lateral air return |
| I'' | Upper air supply | R'' | Upper air return |
| N | Fresh air intake | E | Exhaust air outlet |

Note: only one of the three possible options (lower, lateral or upper) can be selected for both, supply and return.

Indoor airflow direction

| | | | | | |
|---|---------------------------------|---|-----------------------------------|---|---------------------------------|
| 0 | Lower supply and lower return | 3 | Lateral supply and lateral return | 6 | Upper supply and lateral return |
| 1 | Lateral supply and lower return | 4 | Upper supply and lower return | 7 | Lower supply and upper return |
| 2 | Lower supply and lateral return | 5 | Lateral supply and upper return | 8 | Upper supply and upper return |

FACTORY OPTIONS AND ACCESSORIES

Air pressure control in different assemblies

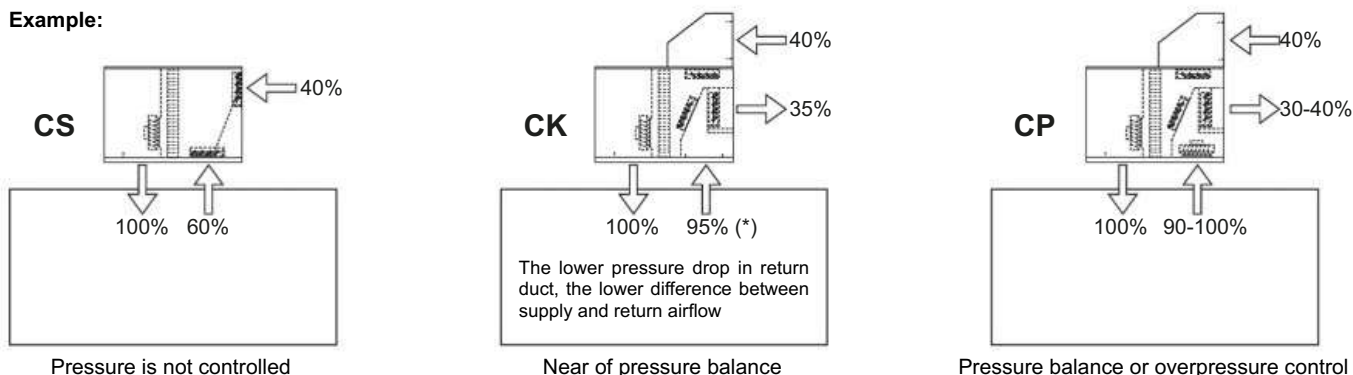
In case of assemblies with fresh air (ventilation) but without extraction air, overpressure will be generated in the building, higher with higher fresh air ratios or in free-cooling mode. It will not generate any issue in buildings with low air tightness and/or with doors frequently opened, but we should prevent in other applications. In assemblies with extraction damper and return fans, this overpressure can be completely avoided (pressure balance), or even controlled with a certain value to prevent infiltrations.

VECTIOS^{POWER} is the rooftop with the largest offer in airflow configurations to be able to adapt the unit to any kind of application or request. Please, find below comments and recommendations for each assembly.

| Assembly | Fresh air and free-cooling | Return fans | Energy recovery (extraction) | Pressure control | Comments and recommendations |
|--------------------------------------|----------------------------|-------------|-------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C0 | | No | No | No control required | Only for building with no need of fresh air . Pressure balance by default. Same return and supply airflow. |
| CS | | No | No | No control | Adequate just for buildings with medium or low air tightness and/or doors frequently opened. |
| CS + gravity dampers in the building | | No | No | High control | Building overpressure is maintained at the same level than pressure drop before the gravity damper. No limitations in the return pressure drop. |
| CK (upon request) | | No | No | Medium control | Recommended only with low pressure drop in the return ductwork (maximum 50 Pa). The maximum building overpressure is at the same level than pressure drop in the return ductwork. |
| CR, CT CL (upon request) | | Yes | Yes, Active recovery | High control | Return and supply EC plug-fan(s) are always supplied with pressure sensor to adjust the airflow. To manage pressure balance , supply and return are configured with same airflow. In case overpressure want to be managed (to avoid infiltration), the return airflow need to be lower than the supply. Differences up to 10% can be always being configured. |
| CP, CQ | | Yes | No | Total control | Additional overpressure with airflow differences up to 20% are possible adding the option "overpressure control" (*) which manages fresh and exhaust dampers independently. |
| CW | | Yes | Yes, Passive recovery (wheel) | Total control | To maintain overpressure in case of variable fresh air management (with CO ₂ sensor(s) option), minimum fresh air ratio need to be configured. |

(*) This overpressure option is not available on CR, CT and CL assemblies because this type of control of the dampers penalizes cooling recovery.

Example:



FACTORY OPTIONS AND ACCESSORIES

Electrical power

These units can be supplied for the following power supply voltages:

- 400 V / 3 ph + N / 50 Hz (standard)
- 400 V / 3 ph / 50 Hz (optional)

Coils coating

- Coils with copper pipes and aluminium fins with **polyurethane** coating. Level of corrosion protection: basic. This treatment offers a resistance of more than 1000 hours (ASTM B117 NSST).
- Coils with copper pipes and fins of an aluminium alloy **INERA®**. Level of corrosion protection: basic - medium. This treatment offers a resistance of more than 1000 hours (ASTM B117 NSST).
- **Blygold®** coating (**upon request**). Level of corrosion protection: medium. This treatment offers more protection than 11000 hours in salt spray test (ASTM B117 NSST) and 4000 hours in acid salt spray test.

For further detailed information, please contact our Customer Service Department.

Note: These coating can be applied to various coils (outdoor, indoor and hot water coil) according to the combinations available in the "Selection Software".

Heating

The unit only can incorporate one of these heating elements:

- Natural or propane **gas burner** with modulating actuator, in accordance with the Gas Directive 2009/142/EC, installed inside a pre-assembly roof curb.

The PJ unit with lower air supply will be placed on this roof curb.



Note: It's recommended to use the clogged filter pressostat (optional) in units with gas burner.

Two values of power available for each model:

| VECTIOS ^{POWER} PJ | 0420 to 0500 | 0560 to 0720 | 0760 to 1200 |
|-----------------------------|--------------|--------------|--------------|
| G0N (Nominal) | PCH080 | PCH130 | PCH160 |
| G0H (High) | PCH130 | PCH160 | PCH210 |

- **Auxiliary electrical heaters**, with two power stages and on/off control, for assembly and connection inside the unit.

Up to 3 values of total power available for each model:

| VECTIOS ^{POWER} PJ | E0L (Low) | E0N (Nominal) | E0H (High) |
|-----------------------------|-----------|---------------|------------|
| 0420 to 0500 | 27 kW | 36 kW | 54 kW |
| 0560 to 0720 | 36 kW | 54 kW | 72 kW |
| 0760 to 0960 | 45 kW | 72 kW | 90 kW |
| 1050 to 1200 | 54 kW | 72 kW | 108 kW |

- Electrical heater with proportional control (**upon request**).
- **Auxiliary hot water coil**, with three-way valve and proportional control, for assembly inside the unit. The unit incorporates an anti-freeze thermostat as safety system.
- Great Cold option (**upon request**):
Anti-freeze technology based on the water temperature. This protection is made up of a circulation pump and two sensors inserted in the input and the output of the coil.
Important: this option is mandatory for an outdoor temperature lower than -20°C WB. Consult for percentages of glycol water above 20%.

Protection for low outdoor T

- Kit 1: Antifreeze protective kit (<-10°C). Mandatory for an outdoor temperature lower than -10°C WB. This kit includes:
 - Electrical heater for protection of the components of the electrical cabinet.
 - Compressor with protection for low temperature.
- Kit 2: Antifreeze protective kit (<-14°C). Mandatory for an outdoor temperature lower than -14°C WB.
In addition to the options of -10°C, this includes:
 - Reinforced electrical heater for protection of the components of the electrical cabinet.
 - Electrical heater for anti-freeze protection of dampers of the mixing box (if applicable).
 - Protective kit of the gas burner for low temperature (if applicable).
- Kit 3: Kit 1 + Dampers of the mixing box with spring for automatic closing in case of a power failure.
- Kit 4: Kit 2 + Dampers of the mixing box with spring for automatic closing in case of a power failure.

Available pressure of the indoor fan

- By default, these units are fitted with plug-fans for a nominal available pressure (N), in Polypropylene.

The following fans can optionally be supplied:

- L: Low available pressure (Aluminum).
- A: Nominal available pressure (Aluminum).
- H: High available pressure (Aluminum).

Note: Aluminum fans are rated A2-s1, d0 (M0) and comply with regulations for public promises in France.

FACTORY OPTIONS AND ACCESSORIES

Note: The fans are factory configured with nominal air flow. Consult for any special configuration.

Important: the "Selection Software" will choose the supply fan with lower consumption for the available pressure required.

Air filtration + stop-drop

Options to improve indoor air quality:

- Different combinations of filters are available:
 - Gravimetric filters G4 with low pressure drop.
 - Gravimetric filters G4 standard type + folded opacimetric filters F7.
 - Gravimetric filters G4 with low pressure drop + folded opacimetric filters F7.
 - Dual-stage of folded opacimetric filters: M6+F7 or F7+F9.

Classification of the filters according to the new **ISO 16890 Standard**:

- G4 → ISO Coarse 60%
 - M6 → ISO ePM10 70%
 - F7 → ISO ePM1 50%
 - F9 → ISO ePM1 80%
- Stop-drop in the indoor air coil. Recommended in cases where a high moisture content in the air is foreseen or when the air flow is high.
- Note: with hot water coil it is not possible to assemble the stop-drop.

Type of outdoor fan

- Axial 2-speed outdoor fan(s) directly coupled to the motor. Watertight motor class F, IP54 and internal thermal protection. Dynamically balanced propellers and outdoor protective grille.

Insulation

- Thermal and acoustic insulation A2-s1,d0 (M0) with sandwich panels with double wall, 50 mm thick, in all indoor section in contact with airflow.



Indoor circuit configuration

- Condensate drain pan in stainless steel for corrosion protection.
- Differential pressure switch to detect clogged filters as safety protection.
- Control of the overpressure. Assemblies that include a return fan allow the management of airflow differences between supply air and return air of up to 10%, setting up flow setpoints. Optionally, the fresh air damper and the exhaust damper can be managed independently for greater airflow differences. This option may be necessary to prevent the entry of outside air (CP, CQ and CW assemblies).

Note: This option is not available on CT and CR assemblies because this type of control of the dampers penalizes cooling recovery.

Outdoor circuit configuration

- Fresh air intake protection grid (mesh of 9 x 9 mm).
- Outdoor coil protective grille.
- Antivibration mounts made of rubber.
- Stop-drop at the fresh air intake. This stop-drop and the thermoenthalpic free-cooling are necessary in cases where a high moisture content in the air is foreseen.

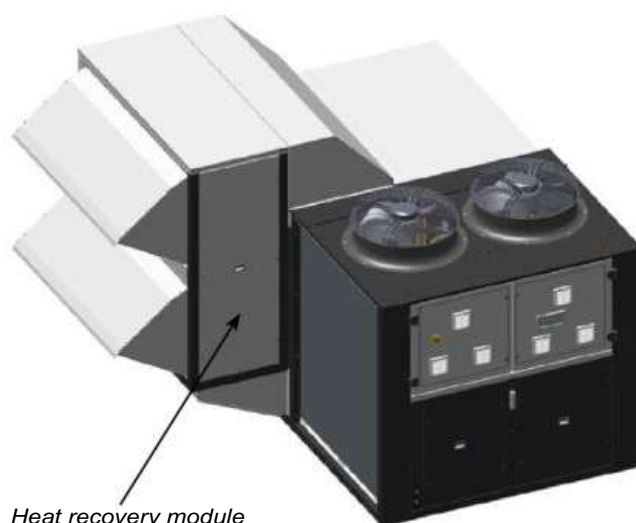
Passive recovery

- The rotary heat exchanger is fitted into a module placed on one side of the unit. This module is supplied disassembled with the unit, for installation on site.

Available with CW assembly, and upon request, with CL assembly.

This rotary recovery unit is used to transfer the sensible and latent heat from the air-conditioned room's return air to the fresh air used for ventilation, before it's discharged outdoors. This option reduces the compressors runtime, ensuring energy saving and benefiting the environment.

The efficiency of energy recovery depend on the wheel selected: material, wheel diameters, channel cross section and type of speed control.



Extra heating

- Heat recovery coil (HRC). The coil function is to pre-heat the air that will pass through the main indoor coil. For this, it uses the temperature of an outdoor water installation.
- The coil is supplied with a 3-way valve for installation outside the unit but manages by the electronic control.
- This option is compatible with C0, CS, CQ and CT assemblies.

Special applications

- Zoning of the air flow up to 4 different zones.

This option allows the management of the air flow of the unit to condition up to 4 different zones with a minimum air flow of 35% (all of them in same operating mode: heating or cooling). This function allows to adapt the indoor air flow to the installation requirements.

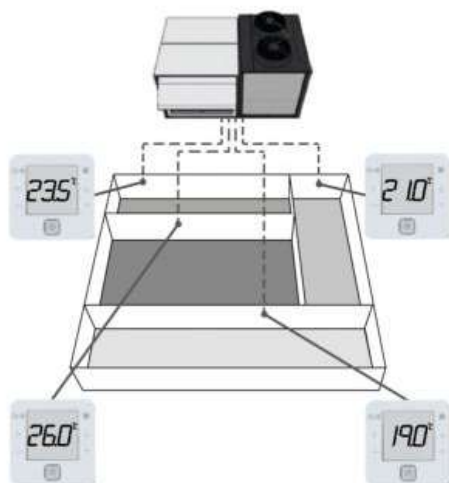
Note: zoning is only possible with plug-fans.

FACTORY OPTIONS AND ACCESSORIES

Regulation gives the control signal to the dampers installed in each zone (dampers and servomotors for those dampers not supplied). The unit modifies the air flow and capacity depending on information coming from sensors in each zone and considering active zones in each moment.

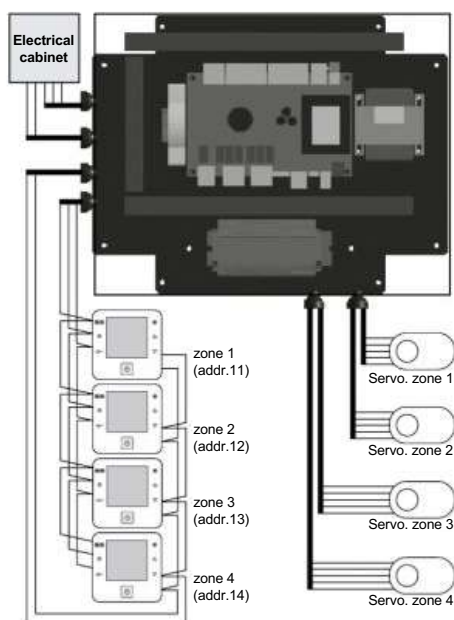
The option includes 4 zone terminals (one for each zone) and a control board supplied in an independent box. The 4 terminals, the PJ unit main board and also the servomotors that control dampers in each zone are connected on this board (dampers and servos not supplied).

The temperature information for each zone is coming from temperature sensor integrated inside each zone terminal. It is not needed to install any extra ambient sensor.



Note: In case the unit includes enthalpy or thermoenthalpic free cooling (T+H control) an extra return T+H sensor in the offer is required. If the unit additionally includes CO₂ probe, it must be a return probe and not an ambient probe.

In following picture, electronic PCB and 4 zone terminals are detailed. Connections can be found in the Vectic control manual.



Note: There is a new option with **constant supply pressure** that extends the possibilities for multi-zone management. Available upon request.

■ Low return temperature application.

This option is mainly focused to food storage, and can be applied to large warehouses installations.



With this option, the unit adapts all its devices to manage low return temperature (15°C) in cooling mode. This is possible due to some changes in the control operation parameters.

The "Selection Software" includes the option as mandatory when return temperature is lower than 20°C (with 15°C as the minimum allowed value).

Sensors

■ Sensor(s) of **ambient temperature**. There are 3 options:

- One NTC sensor connected to the control board.
Note: An ambient sensor with RS485 communication is required for installation at more than 30 meters.
- One to four sensors with RS485 communication.
- Sensor(s) installed on the master unit of the shared network (SHRD).

■ One to four sensors of **ambient temperature + humidity**, with RS485 communication or installed on the shared network (SHRD).

This sensor is compulsory in units with enthalpic or thermoenthalpic free-cooling (optional). In this case, the outdoor air humidity sensor is also added.

■ **Smoke detecting** sensor. Smoke detecting station in accordance with the NF S 61-961 standard, 961, that uses a LED to indicate the installation status, and if the probe detects the presence of smoke in the installation, it stops the operation of the unit and gives the order to open or close the outdoor damper (configured by parameter).

To ensure compliance with the French regulations on Fire safety (ERP), it's possible to configure the opening of the fresh air damper and the exhaust air damper to 100% (return air damper closed).

■ **Air quality** sensor to enable measuring CO₂.

There are different options:

- Ambient air quality sensor.
- Return air quality sensor (duct-mounted) (attached picture).
- Sensor installed on the master unit of the shared network (SHRD).
- Double quality sensor:
 - two ambient air sensors;
 - one ambient air sensor and one outdoor air sensor;
 - one return air sensor (duct-mounted) and one outdoor air sensor.



FACTORY OPTIONS AND ACCESSORIES

Advantages of installing two ambient air quality sensor:

This installation is interesting in large premises, so that ventilation can be done based on the maximum, minimum or average value measured by the two sensors.

Advantages of installing an outdoor CO₂ air quality sensor:

This sensor gives the option to manage fresh air depending on real difference of CO₂ concentration indoor and outdoor⁽¹⁾. It gives the chance to really answer to the request of indirect method for ventilation, without need of estimating outdoor air quality, but measuring it.

⁽¹⁾ Outdoor sensor will be supplied not mounted. It has to be located outdoor, but protected from rain and external agents. For any doubt, please ask.

Options recommended for fresh air management:

| Room | Outdoor | Recommendation |
|---------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Constant occupation | Applied to all locations | Constant fresh air (fresh air % fixed by regulation). No additional option required. |
| Variable occupation | Locations where outdoor CO ₂ is well known | Variable fresh air (considering indoor CO ₂ concentration): • Ambient air quality sensor • Return air quality sensor • Double ambient sensor (in large scale premises) |
| | Locations where outdoor CO ₂ is not well known or variable | Variable fresh air (considering indoor and outdoor CO ₂ concentration): • Double air quality sensor: ambient and outdoor • Double air quality sensor: return and outdoor |

Methodologies fresh air ratio calculation:

The categories of indoor air quality (IEQ) are defined in EN16798:1 based on the level of expectation that the occupants may have.

- A normal level would be a "medium" level.
- A higher level can be selected by occupants with special needs (children, elderly, people with disabilities, etc).
- A lower level does not mean any risk for health, but it can affect to comfort level.

| Category IEQ | DIRECT METHOD: Fresh air ratio by person | INDIRECT METHOD: CO ₂ concentration above outdoor CO ₂ concentration |
|------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------|
| | dm ³ /s by person | ppm |
| I: High level of expectation | 20 | 550 |
| II: Medium level of expectation | 12,5 | 800 |
| III: Moderate level of expectation | 8 | 1.350 |
| IV: Low level of expectation | 5 | 1.350 |

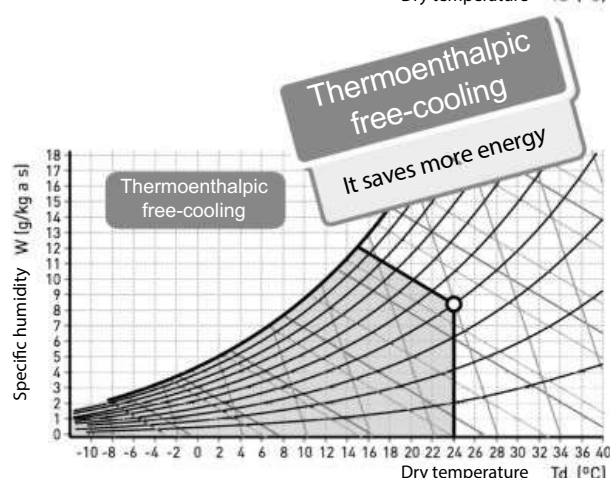
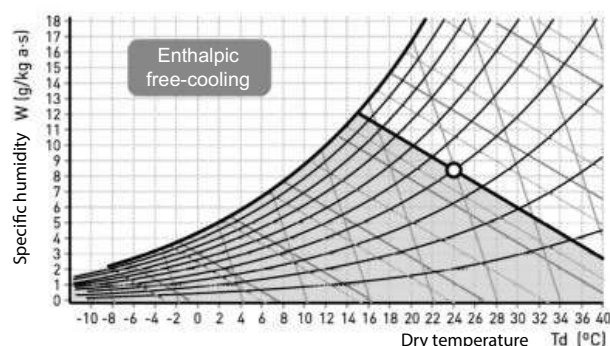
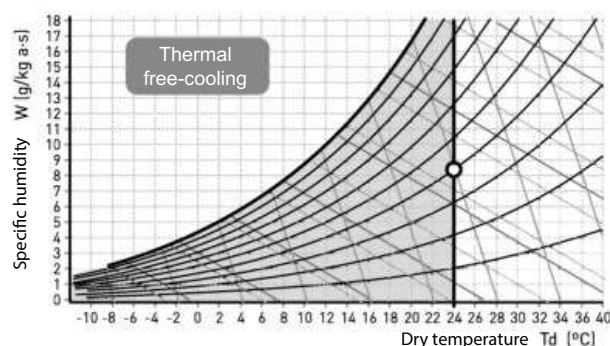
References: EN 16798-3:2017 and EN 16798-1:2019: Energy performance of buildings - Ventilation for buildings, replacing EN 13779:2007.

Free-cooling + outdoor humidity

- **Free-cooling management:** Running the unit in free-cooling mode allows it to make best use of outdoor air conditions when these are more favourable than the return air conditions. This allows the cooling capacity to be reduced. The percentage of outdoor air can vary between 0% and 100%.

There are three options for free-cooling management:

- Thermal, by comparing the temperatures.
- Enthalpic, by comparing the enthalpies. Recommended in cases where a high moisture content in the air is foreseen.
- Thermoenthalpic, by comparing the enthalpies and correcting for temperature. This is the optimum solution as it takes the variability of the climate into account.



One function that helps improve energy management is **nocturnal free-cooling**. This feature allows the compressors to be disabled in summer with programming, the unit works providing free-cooling at night, when the outdoor conditions are favorable. This allows the cooling demand to decrease significantly early in the day.

FACTORY OPTIONS AND ACCESSORIES

- **Outdoor air humidity** sensor (compulsory in units with optional enthalpic or thermoenthalpic free-cooling). There are 2 options:

- Sensor supplied with the unit.
- Sensor installed on the master unit of the shared network (SHRD).

Terminal + unit communication

- By default, the electronic control Vectic is supplied with a graphic terminal installed in the electrical cabinet of the unit, but these other configurations also are available:

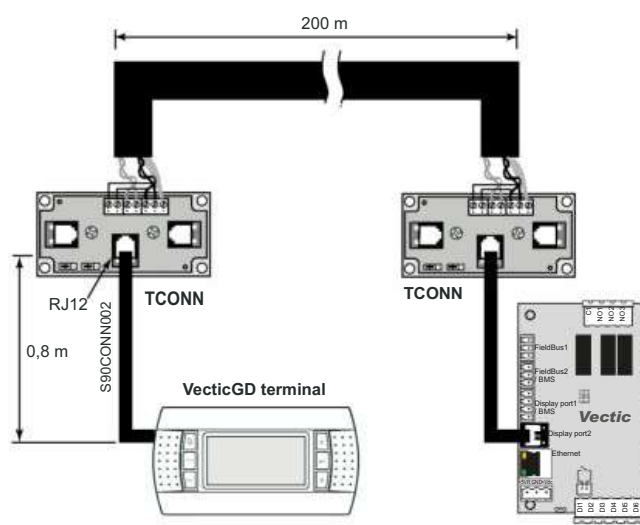


VcticGD graphic terminal



TCO user terminal

- TCO user terminal installed in the electrical cabinet, instead of the VcticGD graphic terminal.
- VcticGD graphic terminal installed in the electrical cabinet and TCO user terminal remote up to 100 meters.
- TCO user terminal installed in the electrical cabinet and VcticGD graphic terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).
- VcticGD terminal installed in the electrical cabinet and VcticGD terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).



- Control without terminal (for units with shared terminal in a pLAN local network).

Note: Multiple units can share a terminal if they are integrated into a local pLAN network (for up to 15 units). This is not possible in units configured as "Backup", since the two units must be fully autonomous in their operation.

- By default, the electronic control is configured for a stand-alone unit, but it is also possible to include it in a shared network (SHRD) as Master, Slave or Backup. The maximum number of units that can be integrated into an "Master/Slave" shared network is 15, and in the case of "Backup" it is 2 units. Important: to use any of the following functionalities it is necessary to configure in the "Selection Program" a unit as Master and all other units as Slaves (including the Backup unit).

The specific functionality will be configured on site (according to the Vectic regulation manual).

The shared network (SHRD) allows to have the following functionalities depending on the parametrized configuration:

• Master/Slave:

It allows to share some of the probes installed in the Master unit: ambient temperature or ambient temperature + humidity, outdoor temperature, outdoor humidity and CO₂ air quality.

• Extended Master/Slave:

It includes "Master/Slave" functionalities and the master unit provides ambient temperature setpoints to the other units.

• Master/Slave with the same operating mode:

It includes the "Extended Master/Slave" functionalities and the master unit also provides the status (Cooling- Heating - Ventilation) to the other units.

• Backup in case of alarm:

One unit is configured as a Backup unit, for activation in case of malfunction of the other unit.

• Extended Backup:

It includes the "Backup in case of alarm" functionalities and also, the control manages the automatic switching between the two units weekly, to compensate the operation times of both units.

Note: In the case of installations with Backup units, it is not possible to share the probes, since both units must be fully autonomous in their operation. If both units are connected to the same supply duct network, it is imperative that the installation consists of non-return dampers (installer responsibility).

- The control board includes two communication ports that allow connection with a centralized technical management system: a BMS port for Modbus RTU protocol and an Ethernet port for Modbus TCP/IP protocol.

A communication card (optional) can also be connected to the board for the following protocols:

- TCP/IP, Modbus TCP/IP, SNMP V1-2-3, FTP, HTTP (E: Ethernet PCoWeb card),
- Ethernet BACnet™ (B: Ethernet BACnet™ card),
- BACnet™ MSTP (C: RS485 BACnet™ card),
- Konnex (K: RS485 Konnex card),
- Modbus RTU (M: RS485 Modbus card).

Note: refer to the electronic control manual for more complete information.

FACTORY OPTIONS AND ACCESSORIES

Local supervision solutions

Different solutions of supervision are available based on the dimensions of the installation:

• pCO Web

It is a solution for the management and supervision of a single unit through an HTML page included in the Ethernet pCO Web card.

• BOSS

This is the solution for the management and supervision of air-conditioning installations with up to 300 units. Communication is via the Modbus TCP/IP port integrated into the control board.

Its main advantages are:

- Integrated WIFI Hotspot for direct access without any extra infrastructure.
- Smartphone compatibility.
- Secure supervisor control from remote through a simple browser.

It offers advanced monitoring and maintenance functions and allows zones and groups to be created to simplify the management of the installation.

It also allows energy meters to be integrated to monitor the installation electricity consumption.

BOSS is available in two versions:

- CPU device.
- CPU device, monitor, mouse and keyboard.

• BOSS mini

This is the solution for the management and supervision of air-conditioning installations with up to 10 units with 50 variables per unit or 50 units with 10 variables maximum per unit, but with the same features as BOSS.

BOSS mini is available in two versions:

- CPU device.
- CPU device, monitor, mouse and keyboard.



These systems are used to manage the installation remotely. All the information on the system can be accessed via a simple Internet connection. The online interface, the same one used by the local user, enables monitoring and complete configuration of the installation: from the office or anywhere else the user happens to be.

Remote supervision solution ABOUND HVAC Performance

ABOUND HVAC Performance is a remote supervision solution dedicated to monitoring and controlling several CIAT machines in real time.



Advantages

- Access to the operating trend curves for analysis
- Improved energy performance
- Improved availability rate for the machines

Functions

ABOUND HVAC Performance will send data in real time to the supervision website.

The machine operating data can be accessed from any PC, smartphone or tablet.

Any event can be configured to trigger a mail alert.

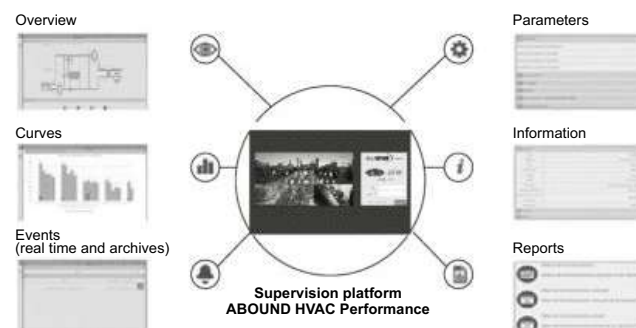
Parameters monitored:

- Overview.
- Control panel for the controllers.
- Events.
- Temperature curves.

Monthly and annual reports are available to analyse :

- The performance and operation of the machine.

Example: operating curves and time, number of compressor start-ups, events, preventive maintenance actions to be performed, etc.



FACTORY OPTIONS AND ACCESSORIES

Incidents such as a drift in the measurements on a temperature sensor, incorrectly set control parameters, or even incorrect settings between one compressor stage and the other are immediately detected, and the corrective actions put in place.

Equipment

This kit box can be used on both machines which are already in use (existing inventory), and on new machines.

- 1 transportable cabinet.

Contents of the box (available in 230V and 400V)

- 1 GPRS / 4G LTE-M modem
- 1 SIM SMART card
- 1 power supply (24 VDC)
- 1 power protection device
- 1 GSM antenna
- Rail mounting
- Enclosed casing to protect the equipment during transport
- Packing box for cable routing (bus, power supply)

Compatibility

Up to five machines per box.

There are 3 fan options depending on the air flow: low, nominal and high.

- Return plug-fan. There are 3 fan options depending on the available pressure:
 - N: Nominal available pressure (Polypropylene).
 - A: Nominal available pressure (Aluminium).
 - H: High available pressure (Aluminium).

Important: the "Selection Software" will choose the fan with lower consumption for the available pressure required.

Pre-assembly roof curbs

- The units can rest on standardised pre-assembly roof curbs with adjustable height, built in galvanised steel panelling with polyester paint and thermal insulation.

The levelling system uses angle pieces that allow adjustments in the X and Y axes.

Miscellaneous item 1

- Management of an humidifier with proportional or on/off control.
- Energy meter for monitoring of the power consumption of the installation.
- Energy meter and calculation of the cooling and heating capacities. In addition to the energy meter, the unit incorporates mixing and supply enthalpic sensors with RS485 communication that enable cooling and heating capacities to be calculated.

Miscellaneous item 2

- Tropicalization: tropicalized components on the electrical cabinet with protective varnish: control board, cards and terminals.

Return fan

- Centrifugal return fan, coupled by pulleys and belts. Electric motor with tensioner, class F, IP55 and internal thermal protection. Turbine with an impeller of front-curved blades. Greased spherical bearings, with no maintenance required. Available in CQ and CT assemblies.



- Adaptation roof curbs ready for direct replacement on site of units from different manufacturers (**upon request**).

FACTORY OPTIONS AND ACCESSORIES (SUMMARY)

| Family | Group | Description | Upon request | Installation in factory | Installation on site |
|-------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------|----------------------|
| Electrical power | 4 | 400 V / 3 ph / 50 (without neutral) | | ✓ | |
| Air flow + Assembly | 6 | CS: 2 dampers mixing box | | ✓ | |
| | | CP: Lower return plug-fan | | ✓ | |
| | | CR: Lower return plug-fan and cooling recovery circuit (active recovery) | | ✓ | |
| | | CQ: Return plug-fan or centrifugal fan in top box | | ✓ | |
| | | CT: Return plug-fan or centrifugal fan in top box and cooling recovery circuit (active recovery) | | ✓ | |
| | | CW: Lower return plug-fan and rotary heat exchanger (passive recovery) | | ✓ (*) | |
| | | CK: 3 dampers mixing box | ✓ | ✓ | |
| Coil coating | 7 | CL: Return plug-fan or centrifugal fan in top box and rotary heat exchanger (passive recovery) | ✓ | ✓ (*) | |
| | | Coil with copper pipes and fins of an aluminium alloy (INERA®) | | ✓ | |
| | | Coil with copper pipes and aluminium fins with polyurethane coating | | ✓ | |
| Heating | 8 | Blygold® coating | ✓ | ✓ | |
| | | Auxiliary hot water coil | | ✓ | |
| | | Standard | | ✓ | |
| | | Great cold | ✓ | ✓ | |
| | | Auxiliary electrical heaters | | ✓ | |
| Protection low temperature | 9 | On-off control | | ✓ | |
| | | Proportional control | ✓ | ✓ | |
| | | Natural or propane gas burner (supplied installed into a pre-assembly roof curb) | | | ✓ |
| | | Kit 1: Antifreeze protection kit for low temperature (<-10°C) | | ✓ | |
| Indoor fan | 10 | Kit 2: Antifreeze protection kit for low temperature (<-14°C) | | ✓ | |
| | | Kit 3: Kit 1 + Dampers with spring | | ✓ | |
| | | Kit 4: Kit 2 + Dampers with spring | | ✓ | |
| | | Indoor plug-fan with nominal available pressure (Aluminum), low pressure (Aluminium) or high pressure (Aluminium) | | ✓ | |
| Air filtration + stop-drop | 11 | Stop-drop in the indoor air coil | | ✓ | ✓ |
| | | Gravimetric filters G4 with low pressure drop | | ✓ | ✓ |
| | | Gravimetric filters G4 + folded opacimetric filters F7 | | ✓ | ✓ |
| | | Gravimetric filters G4 with low pressure drop + folded opacimetric filters F7 | | ✓ | ✓ |
| | | Double stage of folded opacimetric filters: M6+F7; F7+F9 | | ✓ | ✓ |
| Outdoor fan | 12 | Axial 2-speed outdoor fan directly coupled to the motor | | ✓ | |
| Insulation | 13 | Thermal and acoustic insulation, Euroclass A2-s1, d0 (M0), with double wall (50mm) | | ✓ | |
| Indoor circuit | 14 | Condensate drain pan in stainless steel | | ✓ | ✓ |
| | | Differential pressure switch to detect clogged filters | | ✓ | |
| | | Management of the overpressure | | ✓ | |
| Outdoor circuit | 15 | Fresh air intake protection grid | | ✓ | ✓ |
| | | Outdoor coil protective grille | | ✓ | ✓ |
| | | Stop-drop at the fresh air intake | | ✓ | ✓ |
| | | Antivibration mounts made of rubber | | ✓ | ✓ |
| Passive recov. | 16 | Rotary heat exchanger characteristics: diameter, channel cross section and wheel material, type of speed control | | ✓ | |
| Extra heating | 17 | Heat recovery coil | | ✓ (*) | |
| Special applications | 18 | Air zoning | | ✓ (*) | |
| | | Low return temperature application | | ✓ | |
| | | Low return temperature application + Air zoning | | ✓ (*) | |
| Sensors | 19 | Ambient temperature sensor: one NTC sensor connected to the control board or 1 to 4 RS485 sensors | | ✓ | ✓ |
| | | Ambient temperature + humidity sensor: one to four sensors with RS485 communication | | ✓ | ✓ |
| | | Air quality sensor: ambient installed, return (duct-mounted), on a SHRD shared network or double sensor (ambient + ambient; ambient + outdoor; return + outdoor) | | ✓ | ✓ |
| | | Smoke detecting station in accordance with the NF S 61-961 standard | | ✓ | ✓ |
| | | Type of free-cooling: thermal, enthalpic or thermoenthalpic | | ✓ | ✓ |
| Free-cooling + Outd. humidity | 20 | Outdoor air humidity sensor: supplied with the unit or installed on a SHRD shared network | | ✓ | ✓ |
| Terminal + Unit communication | 21 | TCO terminal installed in the electrical cabinet | | ✓ | ✓ |
| | | VecticGD terminal installed in the electrical cabinet + TCO terminal remote up to 100m | | ✓ | ✓ |
| | | TCO terminal installed in the electrical cabinet + VecticGD terminal remote up to 200m | | ✓ | ✓ |
| | | VecticGD terminal installed in the electrical cabinet + VecticGD terminal remote up to 200m | | ✓ | ✓ |
| | | Unit configuration: stand-alone, master or slave | | ✓ | ✓ |
| | | Communication cards: RS485 Modbus/Carel; Ethernet PCoWeb; RS485 LonWorks®; Ethernet BACnet™; RS485 BACnet™; RS485 Konnex | | ✓ | ✓ |
| Miscellaneous item 1 | 22 | Management of an humidifier with proportional or on/off control | | ✓ | |
| | | Energy meter | | ✓ | |
| | | Energy meter and calculation of the cooling and heating capacities | | ✓ | |
| Miscellaneous item 2 | 23 | Tropicalized components on the electrical cabinet: control board, cards and terminals | | ✓ | |
| Return fan | 24 | Centrifugal return fan: 3 airflow options: low, nominal and high | | ✓ | |
| | | Return plug-fan: 3 options depending on the available pressure: nominal pressure (Polypropylene), nominal pressure (Aluminium) or high pressure (Aluminium) | | ✓ | |
| Airflow direction | 25 | There are 9 combinations in the direction of air with: | | ✓ | |
| | | - Supply: lower, lateral and upper | | | |
| Roof curb | 25 | - Return: lower, lateral and upper | | | |
| | | Standardised pre-assembly roof curbs with adjustable height | | | ✓ |
| | -- | Adaptation roof curbs for replacing units on site | ✓ | | ✓ |

(*) Part of this option must be intalled on-site.

ADDITIONAL FACTORY OPTIONS UPON REQUEST

This chapter contains additional options available upon request, in addition to those already indicated in the table on the previous page:

| Description | Installation in factory | Installation on site |
|-------------------------------------------------------|-----------------------------------------------------------|----------------------|
| Options of electronic control | Activation of the remote COOLING / HEATING operating mode | ✓ |
| | General alarm signalling by relay | ✓ |
| | Mechanical disconnection of stages | ✓ |
| | Ventilation mode with 100% fresh air by digital input | ✓ |
| | Control of supply and return dampers | ✓ |
| | Ventilation with differential air pressure sensor | ✓ |
| Constant supply pressure | | ✓ |
| Adjustable pre-assembly roof curbs with higher height | | ✓ |

General alarm signalling

The Vectic control allows the management of a relay for remote alarm signalling.

The output for general alarm signal is not compatible with the following options: hot water coil, heat recovery coil, gas boiler, rotary heat exchanger and on/off signal for external humidifier. In this case, under consultation, you could have a general alarm output in an input/output expansion module. In this case, upon request, it would be possible to have a general alarm output in an input/output expansion module.

Mechanical disconnection of stages

This option allows the mechanical disconnection of stages of compressor and/or electrical heaters using digital inputs. This is especially useful in the following cases:

- To reduce electricity consumption in certain time slots.
- When electricity consumption is limited.

Ventilation mode with 100% fresh air by digital input

The Vectic control allows to manage a ventilation mode with 100% fresh air through the VecticGD terminal or by BMS supervision, but on certain occasions it may be interesting to activate this mode through a digital input. This option is especially useful when rapid air renewal is needed, for example in cinema rooms.

Control of supply and return dampers

This function allows the management of external drive and return dampers located in the ducts, so that the closure of the ducts can be controlled after the unit is stopped. This option can also be useful in installations with Back-up units.

Ventilation with differential air pressure sensor

In installations with this differential pressure sensor, the percentage of air renewal is adjusted according to the pressure in the room. This option allows dynamic control of the damper opening by measuring the pressure differential between inside and outside.

Constant supply pressure

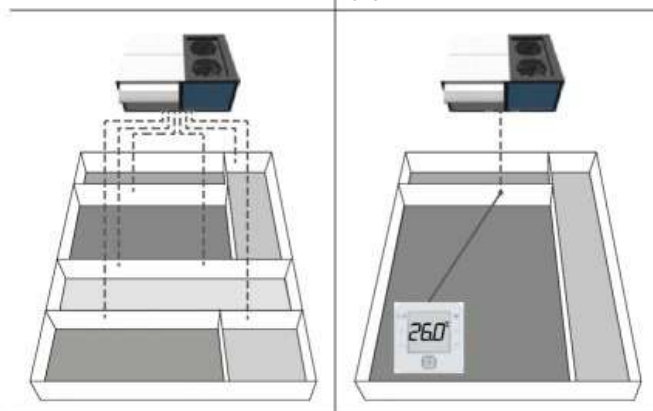
The VECTIOS^{POWER} range provides the greatest choice in terms of multi-zone management. This new option of "Constant supply pressure" is added to the option "Air flow zoning up to 4 zones".

This function allows to control the air flow to maintain constant pressure in the supply duct, with the setpoint value set by parameter.

The following table provides the comparison of the two solutions to facilitate the correct selection according to the customer needs:

| Characteristics | Zoning up to 4 zones | Constant supply pressure |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of zones | up to 4 | unlimited |
| Type of fan | plug-fan | plug-fan |
| Components included | 4 zone terminals and a control box | differential pressure sensor (range 0 - 1000 Pa) |
| Dampers and servos per zone | not supplied | not supplied |
| Control signal for dampers / servos | supplied | not supplied (external control required) |
| Control of the damper for each zone | yes, control carried out by the electronic control | no (at customer level) |
| Terminal in each zone | yes | No or just one for the main zone (see "Configurations") |
| Minimum air flow | 35% | 35% or 10% in ventilation mode (operating only the fans). There is an associated alarm in case of lower airflow. It is necessary to set the minimum damper opening per zone or provide remote stop control in case all dampers are closed |
| Capacity control | Based on the ambient temperature conditions of each zone terminal (by default) or the return temperature (optional) | <ul style="list-style-type: none"> • Based on the return conditions (by default) • Based on the environment conditions (configurable), in case of a main zone (see "Configurations") |

| Configurations | |
|--------------------------------------------------------------|----------------------------------------------------------------------------|
| Capacity control based on the return conditions (by default) | Capacity control based on the environment conditions (configurable) |
| Several zones | Several zones (one main zone) |
| Same comfort priority by zone | One main zone. Comfort of all zones depends on the demand of the main zone |



Note: For variable management of fresh air it is necessary to select the optional return air quality probe (CO₂) (instead of the ambient probe).

There is only one case in which the ambient air quality probe can be used: with constant supply pressure and capacity based on the environmental conditions of the main zone.

ECODESIGN REGULATIONS

The publication of **regulation 2016/2281** establishes the requirements for Seasonal Energy Efficiency and brings together all the information concerning applicable equipment, including compact ROOFTOP enclosure units.

The challenge of seasonal efficiency: the new ecodesign regulations stipulate that seasonal efficiency must be measured in cooling mode (SEER) and heating mode (SCOP). These coefficients guarantee a standardised assessment of the energy consumption of equipment by including seasonal variations in the measurements. Both these coefficients are calculated according to technical standard EN-14825-2022 and compliance is mandatory for a product to obtain CE marking.

Regulation 2016/2281 established **minimum values for seasonal energy efficiency** in $\eta_{s,c}$ cooling ($\eta_{s,c}$) y $\eta_{s,h}$ heating ($\eta_{s,h}$). SEER and SCOP are therefore expressed in terms of primary energy and these make it possible to compare the energy efficiency of units which use different energy sources. These requirements have been applied in 2 phases, with an initial phase started 1 January 2018, and a second phase with a higher efficiency requirement that have come into force on 1 January 2021.

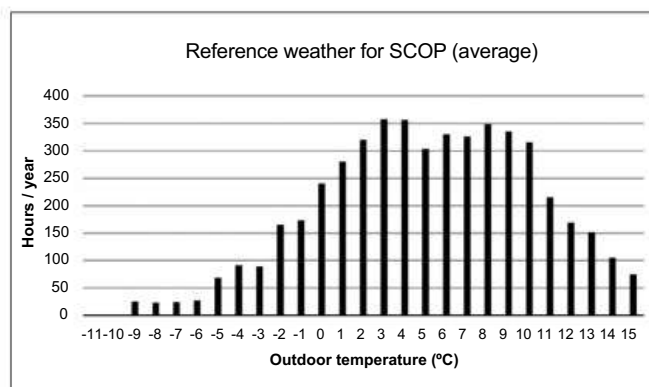
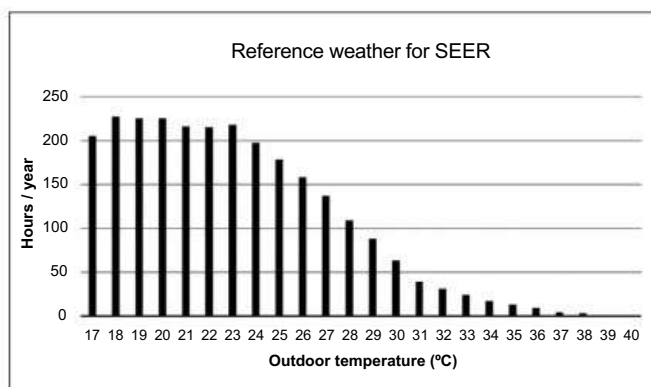


| ROOFTOPS | SEER | $\eta_{s,c}$ (%) | SCOP | $\eta_{s,h}$ (%) |
|----------------------|------|------------------|------|------------------|
| Tier 1 - 2018 | 3,00 | 117 | 2,95 | 115 |
| Tier 2 - 2021 | 3,53 | 138 | 3,20 | 125 |

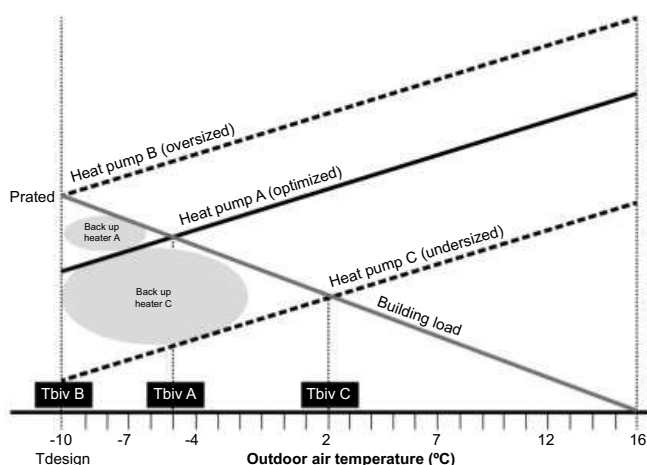
As stipulated in Annex II paragraph 5 of Regulation 2016/2281, the technical data sheets (TDS) for CIAT units are available at www.ciat.com



According to technical standard EN-14825, a reference weather for assessment of the seasonal efficiency is defined in cooling, as well as a partial load depending on the outdoor temperature. It is also establishes for heating, but in this case the standard defines three weathers (the average weather is used to compare with the minimum seasonal efficiency requirements of ecodesign regulations).



In addition, the bivalent temperature is defined in heating. This is the lowest outdoor temperature at which it is declared that the unit provides a capacity that allows to satisfy 100% of the heating load. Below this point, in the calculation of the SCOP, it is considered that the unit can still supply the capacity, but additional heating is required.



TECHNICAL CHARACTERISTICS WITH R-454B REFRIGERANT (EN-14511-2022)

| RPJ series | | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|----------------------------|-----------------------------------------|------------------------------------------------------------------------------------|-------------------|---------|---------|---------|---------|-------------------|-------------------|-------------------|-------------------|---------|---------|
| Cooling capacities | Cooling capacity ① (kW) | 97,4 | 107 | 116 | 126 | 141 | 155 | 163 | 175 | 194 | 212 | 245 | 265 |
| | Power input ③ (kW) | 29,4 | 33,1 | 36,6 | 37,6 | 44,2 | 50,5 | 54,5 | 52,2 | 61,0 | 70,2 | 74,5 | 84,9 |
| | EER performance | 3,31 | 3,23 | 3,17 | 3,35 | 3,19 | 3,07 | 2,99 | 3,35 | 3,18 | 3,02 | 3,29 | 3,12 |
| | SEER | 5,10 | 4,93 | 4,84 | 5,08 | 4,91 | 4,86 | 4,87 | 5,19 | 5,01 | 5,00 | 4,90 | 4,85 |
| | ηs | 201% | 194% | 191% | 200% | 193% | 191% | 192% | 205% | 198% | 197% | 193% | 191% |
| Outdoor circuit fan | Nominal air flow (m³/h) | 44.000 | 44.000 | 44.000 | 58.000 | 58.000 | 64.000 | 64.000 | 80.000 | 86.000 | 86.000 | 120.000 | 120.000 |
| | Available static pressure (mm.w.c) | 5 | | | | | | | | | | | |
| | Type | Electronic axial fan | | | | | | | | | | | |
| | Number / Diameter (mm) | 2 / 800 | | | 2 / 910 | | | | 4 / 800 | | | 4 / 910 | |
| | Maximum speed (r.p.m.) | 1.100 | | | 1.070 | | | | 1.100 | | | 1.070 | |
| | Motor output (kW) | 2 x 3,0 | | | 2 x 3,3 | | | | 4 x 3,0 | | | 4 x 3,3 | |
| | Maximum absorbed current (A) | 2 x 4,6 | | | 2 x 5,0 | | | | 4 x 4,6 | | | 4 x 5,0 | |
| Indoor circuit supply fan | Nominal air flow (m³/h) | 18.000 | 19.800 | 21.600 | 23.400 | 26.100 | 28.800 | 30.600 | 32.400 | 36.000 | 39.000 | 40.500 | 45.000 |
| | Nominal avail. static pressure (mm.w.c) | 25 | 25 | 25 | 30 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 |
| | Minimum air flow (m³/h) | 10.800 | | | 14.040 | | | | 19.440 | | | 24.300 | |
| | Maximum air flow (m³/h) | 25.920 | | | 36.720 | | | | 46.800 | | | 54.000 | |
| | Type / Material | Electronic plug-fan (Polypropylene) ⑤ | | | | | | | | | | | |
| | Number / Diameter (mm) | 3 / 500 | | | | 4 / 500 | | | 5 / 500 | | | 6 / 500 | |
| | Speed (r.p.m.) | 1.800 | | | | | | | | | | | |
| | Motor output (kW) | 3 x 3,1 | | | | 4 x 3,1 | | | 5 x 3,1 | | | 6 x 3,1 | |
| | Maximum absorbed current (A) | 3 x 4,7 | | | | 4 x 4,7 | | | 5 x 4,7 | | | 6 x 4,7 | |
| Compressor | Type | Scroll | | | | | | | | | | | |
| | No. compressors / stages / circuits | 4 / 4 / 2 | | | | | | | | | | | |
| | Oil type | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC | | | | | | | | | | | |
| | Volume of oil (l) | 4 x 3,0 | 2 x 3,0 + 2 x 3,3 | 4 x 3,3 | 4 x 3,3 | 4 x 3,3 | 4 x 3,3 | 2 x 3,3 + 2 x 3,6 | 2 x 3,3 + 2 x 3,6 | 3 x 3,6 + 1 x 3,6 | 1 x 3,6 + 3 x 6,1 | 4 x 6,1 | 4 x 6,1 |
| Electrical characteristics | Mains voltage | 400 V / III ph / 50 Hz (±10%) | | | | | | | | | | | |
| | Power supply | 3 Wires + Ground + Neutral | | | | | | | | | | | |
| | Maximum absorbed current (A) | 80,0 | 84,6 | 94,6 | 100,7 | 117,3 | 126,6 | 133,7 | 146,8 | 162,6 | 180,0 | 202,1 | 223,4 |
| Refrigerant | Type | R-454B | | | | | | | | | | | |
| | Global warming potential (GWP) ④ | 466 | | | | | | | | | | | |
| | Charge (kg) | 31,0 | 31,0 | 31,0 | 34,0 | 34,0 | 34,5 | 35,0 | 49,0 | 51,0 | 51,0 | 61,0 | 62,0 |
| | Environment impact (tCO2eq) | 14,4 | 14,4 | 14,4 | 15,8 | 15,8 | 16,1 | 16,3 | 22,8 | 23,8 | 23,8 | 28,4 | 28,9 |
| Weight | C0 assembly (kg) | 1.430 | 1.450 | 1.470 | 1.640 | 1.680 | 1.690 | 1.700 | 2.265 | 2.370 | 2.475 | 2.795 | 2.860 |

① Cooling capacity calculated in accordance with the EN-14511-2022 standard given for indoor temperature conditions 27°C, 19°C WB and 35°C outdoor temperature

③ Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2022 standard

④ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years

⑤ Or metallic equivalent fan model



Eurovent certified values

TECHNICAL CHARACTERISTICS WITH R-454B REFRIGERANT (EN-14511-2022)

| IPJ series | | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|----------------------------|-----------------------------------------|------------------------------------------------------------------------------------|-------------------|---------|---------|---------|---------|-------------------|-------------------|-------------------|-------------------|---------|---------|
| Cooling capacities | Cooling capacity ① (kW) | 97,7 | 107 | 116 | 126 | 141 | 155 | 163 | 176 | 195 | 215 | 247 | 273 |
| | Power input ③ (kW) | 30,2 | 34,2 | 37,8 | 40,0 | 45,8 | 52,4 | 56,6 | 54,0 | 63,3 | 73,9 | 79,2 | 91,9 |
| | EER performance | 3,24 | 3,13 | 3,07 | 3,15 | 3,08 | 2,96 | 2,88 | 3,26 | 3,08 | 2,91 | 3,12 | 2,97 |
| | SEER | 4,91 | 4,79 | 4,69 | 4,91 | 4,76 | 4,71 | 4,72 | 5,04 | 4,86 | 4,84 | 4,75 | 4,70 |
| | ηs | 193% | 188% | 185% | 193% | 187% | 185% | 186% | 198% | 191% | 191% | 187% | 185% |
| Heating capacities | Heating capacity ② (kW) | 97,2 | 107 | 118 | 127 | 144 | 158 | 166 | 184 | 203 | 228 | 271 | 298 |
| | Power input ③ (kW) | 26,6 | 29,9 | 33,9 | 34,8 | 40,1 | 45,4 | 48,3 | 48,7 | 55,9 | 64,6 | 74,5 | 85,1 |
| | COP performance | 3,66 | 3,58 | 3,48 | 3,65 | 3,59 | 3,48 | 3,44 | 3,78 | 3,63 | 3,53 | 3,64 | 3,50 |
| | SCOP | 3,53 | 3,53 | 3,51 | 3,51 | 3,49 | 3,44 | 3,45 | 3,47 | 3,46 | 3,47 | 3,46 | 3,44 |
| | ηs | 138% | 138% | 137% | 137% | 137% | 135% | 135% | 136% | 135% | 136% | 135% | 135% |
| Outdoor circuit fan | Nominal air flow (m³/h) | 44.000 | 44.000 | 44.000 | 58.000 | 58.000 | 64.000 | 64.000 | 80.000 | 86.000 | 86.000 | 120.000 | 120.000 |
| | Available static pressure (mm.w.c) | 5 | | | | | | | | | | | |
| | Type | Electronic axial fan | | | | | | | | | | | |
| | Number / Diameter (mm) | 2 / 800 | | | 2 / 910 | | | | 4 / 800 | | | 4 / 910 | |
| | Maximum speed (r.p.m.) | 1.100 | | | 1.070 | | | | 1.100 | | | 1.070 | |
| | Motor output (kW) | 2 x 3,0 | | | 2 x 3,3 | | | | 4 x 3,0 | | | 4 x 3,3 | |
| | Maximum absorbed current (A) | 2 x 4,6 | | | 2 x 5,0 | | | | 4 x 4,6 | | | 4 x 5,0 | |
| Indoor circuit supply fan | Nominal air flow (m³/h) | 18.000 | 19.800 | 21.600 | 23.400 | 26.100 | 28.800 | 30.600 | 32.400 | 36.000 | 39.000 | 40.500 | 45.000 |
| | Nominal avail. static pressure (mm.w.c) | 25 | 25 | 25 | 30 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 |
| | Minimum air flow (m³/h) | 10.800 | | | 14.040 | | | | 19.440 | | | 24.300 | |
| | Maximum air flow (m³/h) | 25.920 | | | 36.720 | | | | 46.800 | | | 54.000 | |
| | Type / Material | Electronic plug-fan (Polypropylene) ⑤ | | | | | | | | | | | |
| | Number / Diameter (mm) | 3 / 500 | | | | 4 / 500 | | | 5 / 500 | | | 6 / 500 | |
| | Speed (r.p.m.) | 1.800 | | | | | | | | | | | |
| | Motor output (kW) | 3 x 3,1 | | | | 4 x 3,1 | | | 5 x 3,1 | | | 6 x 3,1 | |
| | Maximum absorbed current (A) | 3 x 4,7 | | | | 4 x 4,7 | | | 5 x 4,7 | | | 6 x 4,7 | |
| Compressor | Type | Scroll | | | | | | | | | | | |
| | No. compressors / stages / circuits | 4 / 4 / 2 | | | | | | | | | | | |
| | Oil type | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC | | | | | | | | | | | |
| | Volume of oil (l) | 4 x 3,0 | 2 x 3,0 + 2 x 3,3 | 4 x 3,3 | 4 x 3,3 | 4 x 3,3 | 4 x 3,3 | 2 x 3,3 + 2 x 3,6 | 2 x 3,3 + 2 x 3,6 | 3 x 3,6 + 1 x 6,1 | 1 x 3,6 + 3 x 6,1 | 4 x 6,1 | 4 x 6,1 |
| Electrical characteristics | Mains voltage | 400 V / III ph / 50 Hz (±10%) | | | | | | | | | | | |
| | Power supply | 3 Wires + Ground + Neutral | | | | | | | | | | | |
| | Maximum absorbed current (A) | 80,0 | 84,6 | 94,6 | 100,7 | 117,3 | 126,6 | 133,7 | 146,8 | 162,6 | 180,0 | 202,1 | 223,4 |
| Refrigerant | Type | R-454B | | | | | | | | | | | |
| | Global warming potential (GWP) ④ | 466 | | | | | | | | | | | |
| | Charge (kg) | 31,0 | 31,0 | 31,0 | 34,0 | 34,0 | 34,5 | 35,0 | 49,0 | 51,0 | 51,0 | 61,0 | 62,0 |
| | Environment impact (tCO2eq) | 14,4 | 14,4 | 14,4 | 15,8 | 15,8 | 16,1 | 16,3 | 22,8 | 23,8 | 23,8 | 28,4 | 28,9 |
| Weight | C0 assembly (kg) | 1.430 | 1.450 | 1.470 | 1.640 | 1.680 | 1.690 | 1.700 | 2.265 | 2.370 | 2.475 | 2.795 | 2.860 |

- ① Cooling capacity calculated in accordance with the EN-14511-2022 standard given for indoor temperature conditions 27°C, 19°C WB and 35°C outdoor temperature
 ② Heating capacity calculated in accordance with the EN-14511-2022 standard given for indoor temperature conditions 20°C and 6°C WB outdoor temperature
 ③ Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2022 standard
 ④ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years
 ⑤ Or metallic equivalent fan model



Eurovent certified values

OPERATION LIMITS

| Inlet air conditions | | Cooling | | Heating |
|----------------------|---------------------|----------|------|--------------|
| | | RPJ | IPJ | IPJ |
| Indoor coil | Minimum temperature | 9,7°C WB | | 10°C |
| | Maximum temperature | 24°C WB | | 27°C |
| Outdoor coil | Minimum temperature | -10°C ① | | -15°C WB ② ③ |
| | Maximum temperature | 52°C | 48°C | 15°C WB |

- ① With the condensation pressure control disabled, operation up to 12°C
- ② When the outdoor temperature is usually below 5°C WB, the installation of a support element is recommended.
- ③ Operation up to -18°C WB at partial load

SOUND LEVELS dB(A)

Sound power level (LW)

| VECTIOS ^{POWER} PJ | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| 63 Hz | 64,6 | 65,1 | 65,6 | 66,1 | 66,6 | 66,9 | 67,1 | 67,1 | 67,9 | 69,1 | 70,6 | 71,6 |
| 125 Hz | 71,4 | 71,9 | 72,4 | 72,9 | 73,4 | 73,7 | 73,9 | 73,9 | 74,7 | 75,9 | 77,4 | 78,4 |
| 250 Hz | 77,9 | 78,4 | 78,9 | 79,4 | 79,9 | 80,2 | 80,4 | 80,4 | 81,2 | 82,4 | 83,9 | 84,9 |
| 500 Hz | 80,2 | 80,7 | 81,2 | 81,7 | 82,2 | 82,5 | 82,7 | 82,7 | 83,5 | 84,7 | 86,2 | 87,2 |
| 1000 Hz | 80,6 | 81,1 | 81,6 | 82,1 | 82,6 | 82,9 | 83,1 | 83,1 | 83,9 | 85,1 | 86,6 | 87,6 |
| 2000 Hz | 78,1 | 78,6 | 79,1 | 79,6 | 80,1 | 80,4 | 80,6 | 80,6 | 81,4 | 82,6 | 84,1 | 85,1 |
| 4000 Hz | 74,2 | 74,7 | 75,2 | 75,7 | 76,2 | 76,5 | 76,7 | 76,7 | 77,5 | 78,7 | 80,2 | 81,2 |
| 8000 Hz | 69,4 | 69,9 | 70,4 | 70,9 | 71,4 | 71,7 | 71,9 | 71,9 | 72,7 | 73,9 | 75,4 | 76,4 |
| Total dB(A) | 86,0 | 86,5 | 87,0 | 87,5 | 88,0 | 88,3 | 88,5 | 88,5 | 89,3 | 90,5 | 92,0 | 93,0 |

Sound pressure level (LP)

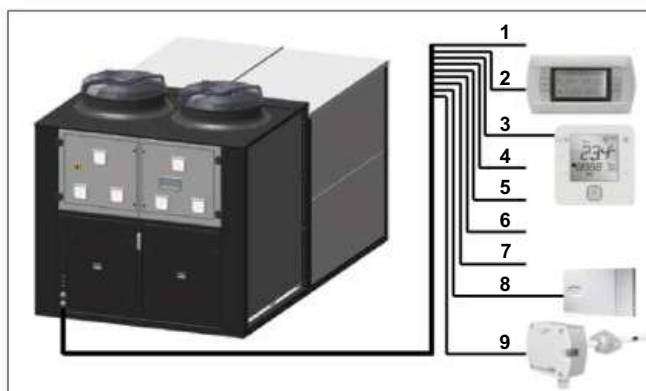
Measurement conditions: in a clear field, measured at a distance of 5 metres, directivity 2 and at 1,5 metres from the ground.

| VECTIOS ^{POWER} PJ | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Total dB(A) | 58,6 | 59,1 | 59,6 | 60,0 | 60,5 | 60,8 | 61,0 | 60,7 | 61,5 | 62,7 | 64,0 | 65,0 |

Note: The sound pressure level depends on the installation conditions and, as such, it only indicated as a guide. Values obtained according to the ISO 3744 standard.

ELECTRICAL CONNECTIONS

| No. | VECTIOS ^{POWER} PJ | | 0420 to 1200 |
|-----|------------------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------|
| 1 | Main power supply | 400 III (±10%) | 3 wires + ground + neutral |
| 2 | Remote connection of graphic terminal (by default installed on the electrical cabinet) ① | | telephone cable 6 wires standard (RJ12 connector) |
| 3 | Connection of TCO user terminal (optional) ② | | 2 wires for power supply 230V + 1 shielded cable for communication type AGW20 / 22 (1 braided pair + drainwire + shielding) |
| 4 | Remote off/on (optional) | | 2 wires |
| 5 | General alarm signal (optional) ③ | | 2 wires |
| 6 | Remote Cooling/Heating (optional upon request) | | 2 wires |
| 7 | Circulation pump signal for HWC (antifreeze sec.) (optional) | | 1 wire |
| 8 | Ambient probe | NTC | 2 wires |
| | | RS485 | 5 wires ④ |
| 9 | Air quality probe (optional) | | 3 wires |



- ① In this case, it's possible to install the user terminal on the electrical cabinet.
- ② It's necessary that the terminal uses the same power supply that the control board.
- ③ The output for general alarm signal is not compatible with the following options: hot water coil, heat recovery coil, rotary heat exchanger and on/off signal for external humidifier. With these options, possibility of general alarm upon request.
- ④ Up to four RS485 ambient sensors can be connected in series on the field-bus of the control board.

WEIGHT OVERVIEW

Weight overview of the various assemblies (kg)

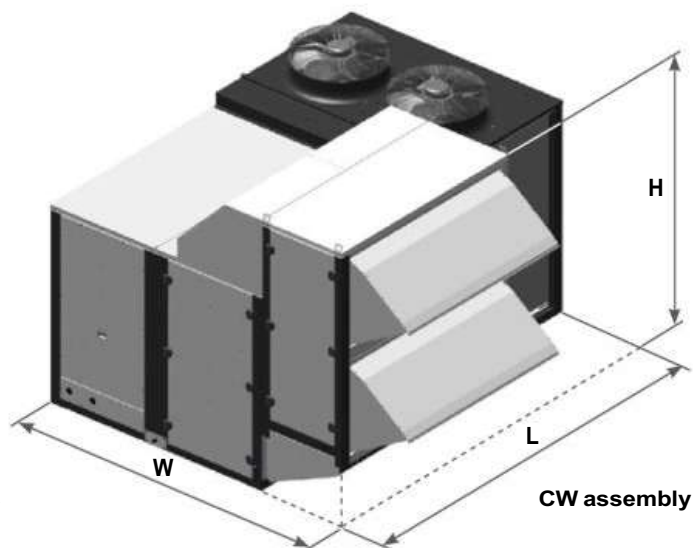
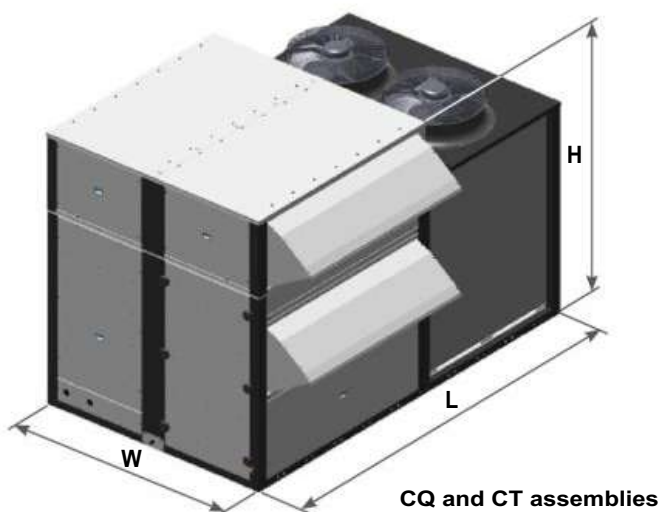
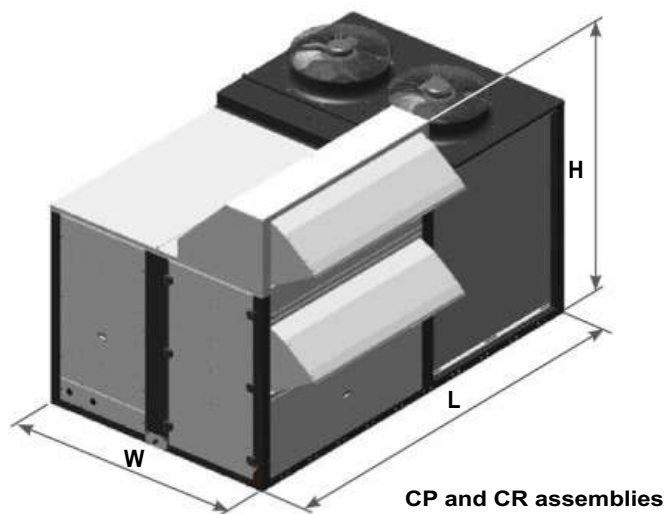
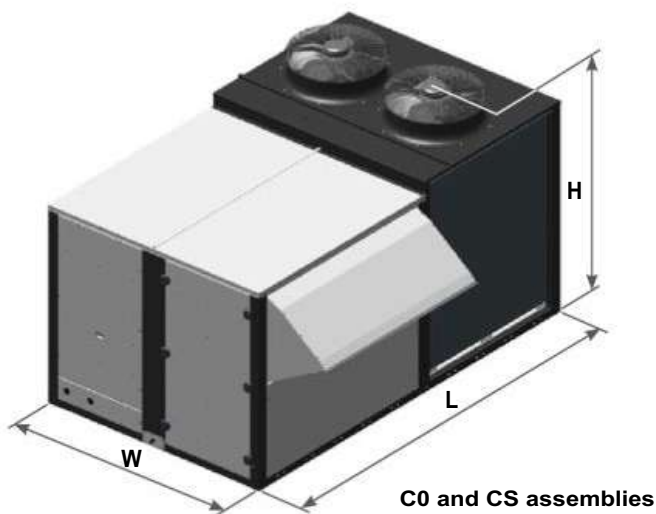
| RPJ / IPJ | | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|---------------------|-------------|------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Standard insulation | C0 assembly | 1430 | 1450 | 1470 | 1640 | 1680 | 1690 | 1700 | 2265 | 2370 | 2475 | 2795 | 2860 |
| | CS assembly | 1505 | 1525 | 1545 | 1713 | 1753 | 1763 | 1773 | 2402 | 2477 | 2582 | 2946 | 3011 |
| | CP assembly | 1713 | 1733 | 1753 | 1982 | 2022 | 2032 | 2042 | 2797 | 2872 | 2977 | 3291 | 3356 |
| | CR assembly | 1824 | 1844 | 1864 | 2132 | 2172 | 2182 | 2192 | 2987 | 3062 | 3167 | 3491 | 3556 |
| | CQ assembly | 1809 | 1829 | 1849 | 2072 | 2082 | 2092 | 2102 | 2907 | 2982 | 3087 | 3341 | 3406 |
| | CT assembly | 1919 | 1939 | 1959 | 2222 | 2232 | 2242 | 2252 | 3057 | 3132 | 3237 | 3541 | 3606 |
| | CW assembly | Machine | 1677 | 1697 | 1717 | 1868 | 1908 | 1918 | 1928 | 2806 | 2881 | 2986 | 3234 |
| | | Wheel module (largest diam.) | 560 | 560 | 560 | 650 | 650 | 650 | 650 | 685 | 685 | 705 | 705 |
| | | Total weight | 2237 | 2257 | 2277 | 2518 | 2558 | 2568 | 2578 | 3491 | 3566 | 3671 | 4004 |
| M0 insulation | C0 assembly | 1550 | 1570 | 1590 | 1735 | 1775 | 1785 | 1795 | 2415 | 2520 | 2625 | 2995 | 3060 |
| | CS assembly | 1630 | 1650 | 1670 | 1808 | 1848 | 1858 | 1868 | 2552 | 2627 | 2732 | 3146 | 3211 |
| | CP assembly | 1834 | 1854 | 1874 | 2097 | 2137 | 2147 | 2157 | 2992 | 3067 | 3172 | 3516 | 3581 |
| | CR assembly | 1949 | 1969 | 1989 | 2267 | 2307 | 2317 | 2327 | 3182 | 3257 | 3362 | 3716 | 3781 |
| | CQ assembly | 1919 | 1939 | 1959 | 2197 | 2237 | 2247 | 2257 | 3102 | 3177 | 3282 | 3566 | 3631 |
| | CT assembly | 2049 | 2069 | 2089 | 2367 | 2407 | 2417 | 2427 | 3252 | 3327 | 3432 | 3766 | 3831 |
| | CW assembly | Machine | 1787 | 1807 | 1827 | 2113 | 2153 | 2163 | 2173 | 3001 | 3076 | 3181 | 3459 |
| | | Wheel module (largest diam.) | 590 | 590 | 590 | 685 | 685 | 685 | 725 | 725 | 725 | 745 | 745 |
| | | Total weight | 2377 | 2397 | 2417 | 2798 | 2838 | 2848 | 2858 | 3726 | 3801 | 3906 | 4204 |

Weight supplement from the main options (kg)

| RPJ / IPJ | | 0420 | 0450 | 0500 | 0560 | 0620 | 0680 | 0720 | 0760 | 0840 | 0960 | 1050 | 1200 |
|--------------------------------------------------------|---------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Larger diameter wheel (recovery module) | | 10 | 10 | 10 | 20 | 20 | 20 | 20 | 10 | 10 | 10 | 10 | 10 |
| Outer security base (only with pre-assembly roof curb) | | -- | -- | -- | -- | -- | -- | -- | 67 | 67 | 67 | 95 | 95 |
| Pre-assembly roof curb (without gas burner) | | 363 | 363 | 363 | 386 | 386 | 386 | 386 | 470 | 470 | 470 | 552 | 552 |
| Pre-assembly roof curb (with gas burner) | G0N (Nominal) | 882 | 882 | 882 | 979 | 979 | 979 | 979 | 1194 | 1194 | 1194 | 1323 | 1323 |
| | G0H (High) | 936 | 936 | 936 | 1026 | 1026 | 1026 | 1026 | 1238 | 1238 | 1238 | 1366 | 1366 |
| Electrical heaters | E0L (Low) | 29 | 29 | 29 | 34 | 34 | 34 | 34 | 40 | 40 | 40 | 45 | 45 |
| | E0N (Nominal) | 32 | 32 | 32 | 41 | 41 | 41 | 41 | 57 | 57 | 57 | 58 | 58 |
| | E0H (High) | 39 | 39 | 39 | 55 | 55 | 55 | 55 | 64 | 64 | 64 | 73 | 73 |
| Hot water coil | Empty | 94 | 94 | 94 | 102 | 102 | 102 | 102 | 113 | 113 | 113 | 128 | 128 |
| | Service | 143 | 143 | 143 | 155 | 155 | 155 | 155 | 181 | 181 | 181 | 201 | 201 |
| Heat recovery coil | Empty | 77 | 77 | 77 | 84 | 84 | 84 | 84 | 90 | 90 | 90 | 109 | 109 |
| | Service | 123 | 123 | 123 | 132 | 132 | 132 | 132 | 153 | 153 | 153 | 181 | 181 |
| Supply fan | Low pressure, Aluminium (L) | -28 | -28 | -28 | 7 | -25 | -25 | -25 | -32 | -32 | -32 | -21 | -21 |
| | Nominal pressure, Aluminium (A) | 7 | 7 | 7 | 41 | 9 | 9 | 9 | 11 | 11 | 11 | 14 | 14 |
| | High pressure, Aluminium (H) | 65 | 65 | 65 | 65 | 33 | 86 | 86 | 108 | 108 | 108 | 129 | 129 |
| Stop-drop | Indoor coil | 67 | 67 | 67 | 78 | 78 | 78 | 78 | 84 | 84 | 84 | 97 | 97 |
| | Fresh air intake: CS, CW assemblies | 23 | 23 | 23 | 26 | 26 | 26 | 26 | 29 | 29 | 29 | 33 | 33 |
| | Fresh air intake: CP, CR, CQ, CT assemblies | 18 | 18 | 18 | 21 | 21 | 21 | 21 | 23 | 23 | 23 | 26 | 26 |
| Outdoor coil protective grille | | 40 | 40 | 40 | 50 | 50 | 50 | 50 | 17 | 17 | 17 | 20 | 20 |
| Filters | G4 low pressure drop | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 5 | 5 |
| | G4 + F7 | 16 | 16 | 16 | 19 | 19 | 19 | 19 | 22 | 22 | 22 | 24 | 24 |
| | G4 low pressure drop + F7 | 17 | 17 | 17 | 30 | 30 | 30 | 30 | 23 | 23 | 23 | 26 | 26 |
| | M6 + F7 | 25 | 25 | 25 | 29 | 29 | 29 | 29 | 34 | 34 | 34 | 35 | 35 |
| | F7 + F9 | 26 | 26 | 26 | 30 | 30 | 30 | 30 | 35 | 35 | 35 | 39 | 39 |
| Centrifugal return fan (CQ and CT assemblies) | Low air flow | 45 | 33 | 41 | 78 | 50 | 46 | 29 | 58 | 62 | 3 | 58 | 69 |
| | Nominal air flow | 102 | 102 | 102 | 61 | 37 | 47 | 48 | 132 | 126 | 83 | 83 | 167 |
| | High air flow | 102 | 84 | 97 | 70 | 48 | 48 | 111 | 132 | -- | -- | 168 | 188 |
| Return plug-fan (CP, CR, CQ, CT, CW assemblies) | Nominal pressure, Aluminium (A) | 4 | 4 | 4 | 43 | 10 | 6 | 6 | 9 | 0 | 0 | 0 | 0 |
| | High pressure, Aluminium (H) | 43 | 43 | 43 | 97 | 65 | 65 | 65 | 65 | 59 | 0 | 78 | 78 |

OVERALL DIMENSIONS OF THE DIFFERENT ASSEMBLIES

| RPJ / IPJ | C0 and CS assemblies | | | CP and CR assemblies CK assembly (upon request) | | | CW assembly | | | CQ and CT assemblies | | | CL assembly (upon request) | | |
|-------------|----------------------|---------------|----------------|----------------------------------------------------|---------------|----------------|----------------|---------------|----------------|----------------------|---------------|----------------|-------------------------------|---------------|----------------|
| | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) | Length (mm) | Width (mm) | Height (mm) |
| 0420 | 3820 | 2257 | 2293 | 3820 | 2257 | 2555 | 3820 | 3112 | 2255 | 3825 | 2268 | 2555 | 3825 | 3112 | 2255 |
| 0450 | 3820 | 2257 | 2293 | 3820 | 2257 | 2555 | 3820 | 3112 | 2255 | 3825 | 2268 | 2555 | 3825 | 3112 | 2255 |
| 0500 | 3820 | 2257 | 2293 | 3820 | 2257 | 2555 | 3820 | 3112 | 2255 | 3825 | 2268 | 2555 | 3825 | 3112 | 2255 |
| 0560 | 4224 | 2257 | 2340 | 4224 | 2257 | 2555 | 4224 | 3112 | 2555 | 4229 | 2268 | 2555 | 4224 | 3112 | 2555 |
| 0620 | 4224 | 2257 | 2340 | 4224 | 2257 | 2555 | 4224 | 3112 | 2555 | 4229 | 2268 | 2555 | 4224 | 3112 | 2555 |
| 0680 | 4224 | 2257 | 2340 | 4224 | 2257 | 2555 | 4224 | 3112 | 2555 | 4229 | 2268 | 2555 | 4224 | 3112 | 2555 |
| 0720 | 4224 | 2257 | 2340 | 4224 | 2257 | 2555 | 4224 | 3112 | 2555 | 4229 | 2268 | 2555 | 4224 | 3112 | 2555 |
| 0760 | 5300 | 2257 | 2421 | 5300 | 2257 | 2555 | 5300 | 3112 | 2555 | 5306 | 2268 | 2555 | 5300 | 3112 | 2555 |
| 0840 | 5300 | 2257 | 2421 | 5300 | 2257 | 2555 | 5300 | 3112 | 2555 | 5306 | 2268 | 2555 | 5300 | 3112 | 2555 |
| 0960 | 5300 | 2257 | 2421 | 5300 | 2257 | 2555 | 5300 | 3112 | 2555 | 5306 | 2268 | 2555 | 5300 | 3112 | 2555 |
| 1050 | 6350 | 2257 | 2494 | 6350 | 2257 | 2555 | 6350 | 3112 | 2555 | 6356 | 2268 | 2555 | 6350 | 3112 | 2555 |
| 1200 | 6350 | 2257 | 2494 | 6350 | 2257 | 2555 | 6350 | 3112 | 2555 | 6356 | 2268 | 2555 | 6350 | 3112 | 2555 |



ISPV

NEW

Vertical autonomous heat pumps

Package and split versions
High adaptability
Flexibility of configuration
Scroll compressors in tandem
Plug-fans with EC HEE motor



R-410A



Cooling capacity: 34,3 to 81,5 kW
 Heating capacity: 34,4 to 83,4 kW

DESCRIPTION

ISPV reversible heat pumps are vertical air-to-air units consisting of two modules (indoor and outdoor), which can be supplied in Package or Split version.

They are units designed for indoor installation with their two modules attached to a network of air distribution ducts. Its cabinet design has a great adaptability, and allows the cooling and heating of premises where the installation on the roof is too complex or it is necessary to respect the architecture of the building.

A vast number of options makes it possible to meet many operating requirements.

These units are equipped with hermetic scroll-type compressors in tandem design, as well as electronic plug-fans for the outdoor and indoor modules, achieving a high seasonal performance.

RANGE

Ten models are available:

- 1 circuit and 2 compressors: models 090, 120, 140 and 180.
- 2 circuits and 4 compressors: models 260, 280, 340, 360, 420 and 490.

OPERATING LIMITS

| Inlet air conditions | | Cooling | Heating |
|----------------------|---------------------|---------|----------|
| Indoor coil | Minimum temperature | 10°C WB | 10°C |
| | Maximum temperature | 24°C WB | 27°C |
| Outdoor coil | Minimum temperature | -10°C ① | -15°C WB |
| | Maximum temperature | 48°C | 15°C WB |

① If the condensation pressure control (standard) is disabled, the minimum temperature will be 12°C.

COMPLIANCE

Machinery Directive 2006/42/EC (MD)
 Electromagnetic Compatibility Directive 2014/30/EU (EMC)
 Pressure Equipment Directive 2014/68/EU (Category 1) (PED)
 Eco-design Directive 2009/125/EC (Eco-design)
 Regulation (EU) 2016/2281 SEER/SEPR HT
 Harmonised Standard: EN 378-2:2016 (Refrigerating systems and heat pumps - Safety and environmental requirements. Part 2: Design, construction, testing, marking and documentation)

CUSTOMER BENEFITS

High energy efficiency & environmental responsibility

CIAT concentrates its efforts on making its units more efficient and more environmentally responsible.

The **ISPV** range goes beyond 2021 Ecodesign requirements. Up to 30% savings.



SEER up to 4,59
SCOP up to 3,41



We have designed the **ISPV** range with specific features to reduce energy consumption to the minimum for each application: variable ventilation, low pressure drop filters and free-cooling.

Full reliability



CIAT designs and manufactures reliable products to meet the highest expectations and facilitate maintenance.

The robust qualification process guarantees the highest standards.

Configuration flexibility

The **ISPV** range offers a wide range of options to address the most specific requirements to be the **perfect solution for every application** with maximum comfort, energy efficiency and indoor air quality in mind.



SHOPPING
CENTERS



LOGISTICS



OFFICES

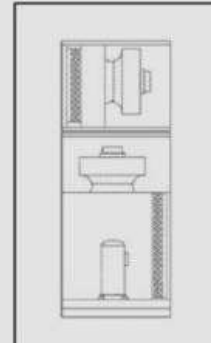


ADMINISTRATION

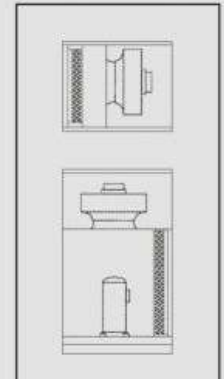
- Package and Split versions
- Fresh air
- Free-cooling
- Quality sensors
- Air filtration
- Heating back-up
- Heat recovery coil
- All seasons operation
- Multi zone control
- Energy meter
- Smoke detector
- Master / Slave and back-up
- Supervision
- Communication

Adaptability

- **Package and Split versions** fit perfectly all types of buildings. Ideal for urban environments where installation on the roof is too complex.



Package version



Split version

- Reduced height (< 2,200 mm) in the Package version.
- Long distance refrigerant connections between the condensing unit and the air treatment unit in the Split version.

Healthier indoor environment

#CIAT4life

Enhanced solutions to contribute to a healthier indoor environment:

- **Air flow control.** It ensures proper comfort in spaces:
 - * temperature,
 - * humidity,
 - * air flow,
 - * overpressure.



- **Air filtration.** It is an efficient way to reduce particles that can harm our health. The filter fouling detector determines when the filter needs to be replaced.



- **CO₂ sensors** that allow ventilation based on the comparison of CO₂ levels between indoor and outdoor sources.



- **Ventilation** of spaces with outdoor air. It reduces indoor pollutants to maintain indoor air quality.



CUSTOMER BENEFITS

Energy savings

We develop energy-efficient solutions that provide substantial savings.

The **ISPV** range has been designed to reduce energy consumption with advanced features:

- Variable ventilation with electronic plug-fans.

In tertiary sector installation, a high percentage of the annual air conditioning energy consumption comes from the use of fans for transporting air. Using fans which are more efficient has a direct impact on reducing consumption.

- Low pressure drop filters.
- Free-cooling allows make the best use of outdoor air conditions when these are more favorable than the return air conditions. This allows the cooling capacity to be reduced. Up to 30% energy savings due to the cooling capacity reduction.



Acoustic comfort

We guarantee **low noise level** during operation to meet the highest requirements thanks to the design optimization and the use of latest technology for fans and compressors.

- Up to 70% of the operation time below half-load. Sound level reduction in partial load operation.
- Night operation mode available with free-cooling and disabling compressors.



Extensive scope

- **Heat recovery coil** using energy extracted from the cooling system
- **Air zoning** to control up to 4 zones or in case of large surfaces with high thermal dispersion.
- **Constant supply pressure** by controlling the supply air flow. This function allows multi-zone control without zone limits.



Advanced system control



VECTIC control is dedicated to optimizing the performance at part load conditions, increases the seasonal efficiency and operational limits in all seasons.

Simplicity

We guarantee an easy installation and integration in the building management system.

- **Plug & play solution** fully programmed and set-up from factory.
- **Communication** with all building management system protocols through Modbus, BACnet, Konnex, TCP/IP, SNMP V1-2-3, FTP and HTTP.
- Wide **supervision** offer from 1 to 300 units.



- **Remote supervision** solution ABOUND HVAC Performance.

It is an advanced monitoring solution that enables customers for all applications to track and monitor their CIAT equipment.

- * 24/7 remote monitoring.
- * Proactivity to anticipate breakdowns.
- * Real-time data.
- * Reports with analysis and recommendations from BluEdge CIAT experts.
- * Email alert for any event concerning the equipment.

BluEdge® service platform

Our qualified and responsive BluEdge teams of technicians are available to implement actions on site and ensure optimal operation of your equipment.

We have a choice of service levels, enabling you to tailor the level of cover exactly to your needs and budget.

From preventative to full coverage, our **CORE**, **ENHANCE**, **ELITE** tiers are designed to fit your needs.


CORE

ENHANCE

ELITE

MAIN FEATURES



UNIT COMPONENTS

Outdoor module

Casing

- Casing made of galvanised steel metal. Most parts protected with polyester paint finished in white color, RAL 7035. Self-supporting frame.
- Transport skids and guides to accommodate the forklift truck.

Outdoor air circuit

- Coil(s) with copper pipes and aluminium fins.
 - EC electronic supply plug-fan(s) with variable control speed and flow rate controller.
- In tertiary sector installation, a high percentage of the annual air conditioning energy consumption comes from the use of fans for transporting air. Using fans which are more efficient has a direct impact on reducing consumption.
- Condensate drain pan.

Refrigerant circuit

- Hermetic scroll-type compressors in tandem design that improves the management of stages and the part load efficiencies, assembled over antivibration mounts. Relay for phase-sequence monitoring and phase loss protection.
- Crankcase heater.
- Thermostatic expansion valve(s) with external equalisation.
- Four-way cycle reversing valve(s).
- Acid-resistant filter(s) dryer.

- Suction accumulator(s) (Split version).
- Refrigerant connections for welding when the unit is supplied in Split version. Optionally, the module can be supplied with service valves and refrigerant precharge.

Electrical cabinet

- Complete and fully wired electrical cabinet. Insulated access door to prevent condensation. Protection IP55.
- Numeration of wired and identification of components in the electrical cabinet. It permits easy tracing and diagnostics.
- Hinges + quarter-turn latches on the removable access door.
- Electrical power supply with neutral.
- Main ground connection.
- Compressor(s) and fan(s) motor contacts.

Protections

- High pressure switch(es).
- High and low pressure transducers.
- Refrigerant leak control (by low-pressure alarm).
- Compressor discharge temperature control.
- Main door switch.
- Protection for power lines of compressors with manual motor starters and power lines of fan motors with magnetothermal switches. These devices provide protection against overload, short circuit, phase failure and undervoltage.
- Automatic switch in the control circuit.

UNIT COMPONENTS

Indoor module

Casing

- Casing made of galvanised steel metal. Most parts protected with polyester paint finished in white colour, RAL 7035. Self-supporting frame.
- Support feet for transport with Split version.

Indoor air circuit

- Coil(s) with copper pipes and aluminium fins.
- EC electronic supply plug-fan(s) with variable control speed and flow rate controller.
The fans are factory configured with nominal air flow. Consult for any special configuration.
- Reusable G4 gravimetric filters, mounted on a frame attached to the air return.
- Condensate drain pan.

Refrigerant circuit

- Thermostatic expansion valve(s) with external equalisation and retainer.
- Refrigerant connections for welding when the unit is supplied in Split version.

Electrical cabinet

- Complete and fully wired electrical cabinet. Insulated access door to prevent condensation. Protection IP55.
This cabinet is foldable to allow access to the interior of the module.
- Fan(s) motor contact(s).

Vectic electronic control

The Vectic control consist of a control board, sensors, a VecticGD graphic terminal and a TCO user terminal (optional).

The control board includes a RS485 field-bus to manage additional components such as: expansion modules and boards, plug-fans, probes of temperature or relative humidity of the ambient air, energy meters, etc.

This board also integrates two communication ports that allow connection with a centralized technical management system such as BOSS and BOSS mini. A BMS port for Modbus RTU protocol and an Ethernet port for Modbus TCP/IP protocol.

A communication card (optional) can also be connected to the control board for the following protocols: Ethernet BACnet™, MSTP BACnet™ and Konnex.

Vectic control enables unit integration with our local supervision solutions: pCO Web (1 unit), BOSS mini (50 units) and BOSS (300 units), as well as with the remote solution: ABOUND HVAC Performance.

With this control, it is also possible to connect to a shared network (SHRD) for a maximum of 15 units, with one unit configured as "Master" and the other units as "Slaves". This network allows the exchange of data and information between the units, and depending on the conditions of the installation, it can share the reading of some probes installed on the unit configured as "Master", temperature setpoints, and operating mode. It is also possible to configure one unit as a "Backup", for activation in case of malfunction of the other unit.

Main functions

- Selection of setpoint and operating mode: HEATING / COOLING / AUTO / VENTILATION.
- Continuous control of the operating parameters.
- Display of the values measured by the sensors.
- Compressors time delays.
- Defrosting management.
- Control of the supply air temperature.
- All-seasons operation via the condensation and evaporation pressure control.
The management of the unit in cooling mode is based on the principle of a high floating pressure. The condensation pressure setpoint is continually calculated depending on the outdoor temperature. This pressure is regulated by adjusting the air flow on the outdoor fans.
- Setpoint compensation based on the outdoor temperature.
- Hourly and weekly schedule.
- Fire protection.
- Diagnosis of faults and general alarm.
- Management of all the optional components available for the unit: dampers and mixing boxes, auxiliary heating, air quality sensors, air zoning...

VecticGD graphic terminal

This terminal, fitted as standard on the electrical cabinet, is very easy to use. It provides detailed explanations of control in easy to understand English. No decoding is required.



Only 6, large, easy-to-use buttons are required to maneuver through the entire menus.

This terminal is used to:

- Carry out initial programming of the unit.
- Modify operating parameters.
- Switch the unit ON / OFF.
- Select the operating mode and adjust the setpoints.
- Display the variables controlled and sensor values measured.
- Display the current alarms and their historical record.

Note: multiple units can share a single terminal, if they are integrated into a pLAN local network (for up to 15 units).

TCO user terminal (optional)

This terminal can be installed on the electrical cabinet, instead of the VecticGD graphic terminal. In this case, the remote connection of the VecticGD terminal is possible. Please consult the chapter "Options".

This terminal is used to:

- Switch the unit ON / OFF.
- Select the operating mode and adjust the setpoints.
- Display the installation's temperatures and humidity, outdoor temperature, supply air temperature, CO₂ sensor and opening of the outdoor damper.
- Display alarms codes.



NOMENCLATURE OF THE MODEL NUMBER

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-----|---|----|---|---|---|----|----|-----|----|----|----|----|----|-----|------|----|----|------|----|-----|----|----|-----|----|
| ISPV | 090 | C | 00 | A | 4 | A | C0 | AA | 000 | 0 | N | A | N | 0 | 000 | 0000 | 0 | 0 | 0000 | 00 | 000 | 00 | 0 | 000 | 00 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

Group 1: Range

- ISPV: air/air heat pump

Group 2: Unit model

- 1 circuit: 090 / 120 / 140 / 180
- 2 circuits: 260 / 280 / 340 / 360 / 420 / 490

Group 3: Unit type

- C: Package
- P: Split

Group 4: Air direction: Indoor circuit - Outdoor circuit

- 00: Lateral supply - Lateral supply
- 01: Lateral supply - Upper supply
- 10: Upper supply - Lateral supply
- 11: Upper supply - Upper supply

Group 5: Version of the series

Group 6: Electrical power

- 3: 400 V / 3 ph + N / 50 Hz
- 4: 400 V / 3 ph / 50 Hz

Group 7: Type of refrigerant

- U: R410A

Group 8: Assembly

- C0: Standard assembly
- CS: Assembly with 2 dampers mixing box

Group 9: Coil coating : Indoor circuit - Outdoor circuit

- AA: Aluminium - Aluminium
- AC: Aluminium - Inera®
- CC: Inera® - Inera®

Group 10: Auxiliary heating

- 000: Without auxiliary heating
- E0x: Electrical heaters, 3 power outputs:
Low (L) / Nominal (N) / High (H)

Group 11: Protection for low outdoor temperature

- 0: Without protection

Group 12: Available pressure of the indoor fan

- N: Nominal available pressure
- H: High available pressure

Group 13: Air filtration + stop-drop

- A: G4
- B: G4+ stop-drop
- C: G4 low pressure drop
- D: G4 low pressure drop + stop-drop
- G: G4 + F7
- H: G4 + F7 + stop-drop
- K: G4 low pressure drop + F7
- L: G4 low pressure drop + F7 + stop-drop

Group 14: Available pressure of the outdoor fan

- N: Nominal available pressure

Group 15: Insulation

- 0: Standard insulation

Group 16: Indoor circuit configuration

- 000 — Without options
- Unused
- A: Compressor insulation
- A: Clogged filters pressostat

Group 17: Outdoor circuit configuration

- 0000 — Without options
- A: Service valves and refrigerant precharge
- 0: Unused
- A: Antivibration mounts
- 1: Long distance

Group 18: Extra heating

- 0: Without extra heating
- C: Heat recovery coil

Group 19: Special applications

- 0: Without special applications
- Z: Air zoning
- I: Low return temperature application
- K: Low return temperature application + Air zoning
- P: Constant supply pressure
- R: Constant supply pressure + Low return temperature application

Group 20: Sensors

- 0000 — Without options
- H: Smoke detector sensor
- A: Air quality sensor for environment
- C: Air quality sensor duct-mounted
- D: Double quality sensor: environment + environment
- E: Double quality sensor: environment + outdoor
- F: Double quality sensor: duct-mounted + outdoor
- P: Air quality sensor on the SHRD network
- 1: 1 sensor RS485
- 2: 2 sensors RS485
- 3: 3 sensors RS485
- 4: 4 sensors RS485
- 5: 1 sensor NTC
- T: Ambient temperature sensor
- H: Ambient temperature + humidity sensor
- P: Ambient sensor on the SHRD network

Group 21: Free-cooling / Outdoor humidity

- 00 — Without free-cooling + without sensor
- 1: Outdoor humidity sensor on the unit
- 2: Outdoor humidity sensor on SHRD network
- T: Thermal free-cooling
- M: Thermoenthalpic free-cooling
- E: Enthalpic free-cooling

Group 22: Terminal + Unit communication

- 000 — Without terminal + stand-alone + without card
- B: Communication card Ethernet BACnet™
- C: Communication card RS485 BACnet™
- K: Communication card RS485 Konnex
- 0: Free-standing unit
- 1: Master unit
- 2: Slave unit
- P: VeticGD terminal in electrical cabinet
- T: TCO user terminal in electrical cabinet
- R: VeticGD terminal in electrical cabinet + TCO terminal remote up to 100 m
- S: TCO terminal in electrical cabinet + VeticGD terminal remote up to 200 m
- N: VeticGD terminal in electrical cabinet + VeticGD terminal remote up to 200 m

Group 23: Miscellaneous item 1

- 00 — Without options
- E: Energy meter
- M: Energy meter and calculation of cooling and heating capacities
- 1: Tropicalization

Group 24: External mixing box

- 0: Without external mixing box
- 1: External mixing box with 3 dampers
- 2: External mixing box with 2 dampers

Group 25: Unused

- 000: Unused

Group 26: Special manufacturing

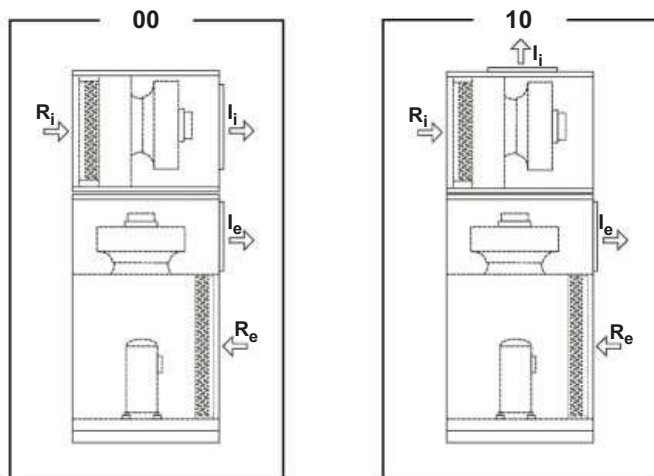
- 00: Without special manufacturing

FACTORY OPTIONS AND ACCESSORIES

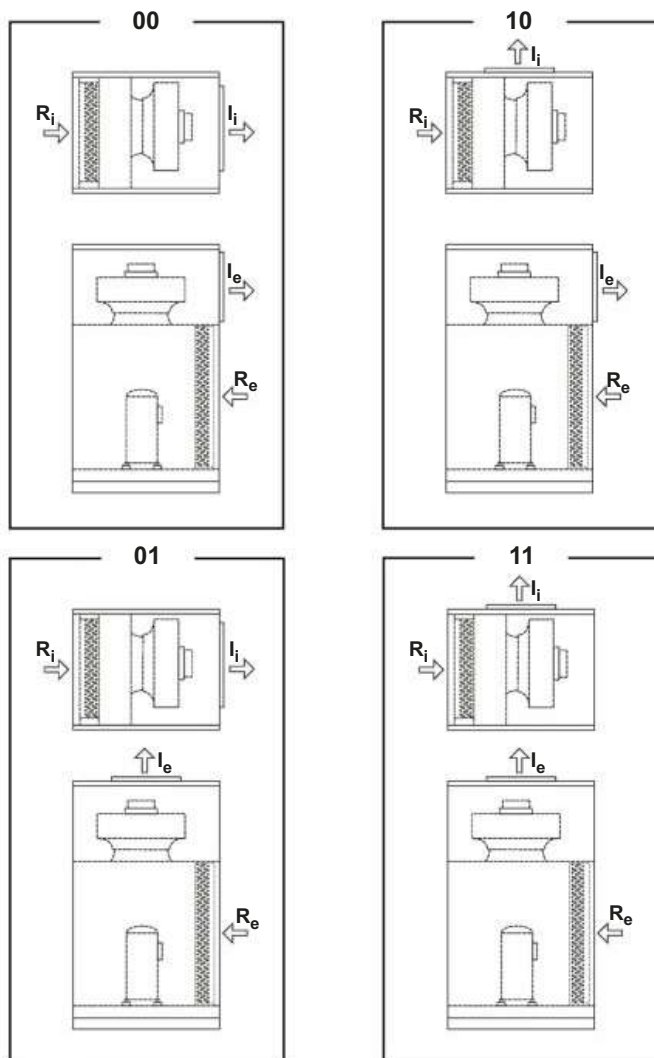
Air direction

(Indoor circuit supply - Outdoor circuit supply)

Package version (C)



Split version (P)



I_i: Indoor circuit supply
R_i: Indoor circuit return

I_e: Outdoor circuit supply
R_e: Outdoor circuit return

Electrical power

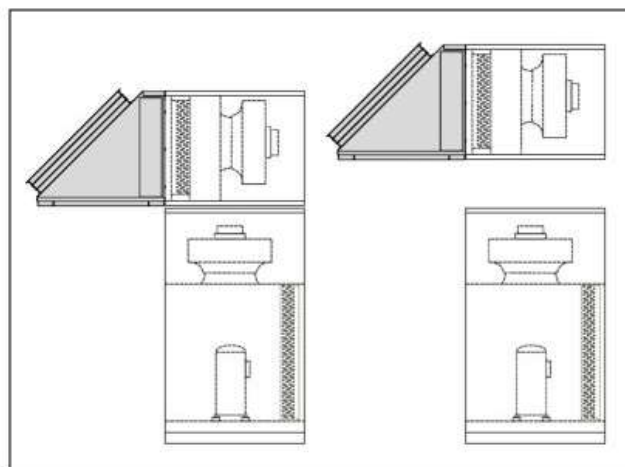
These units can be supplied for the following power supply voltages:

- 400 V / 3 ph + N / 50 Hz (standard)
- 400 V / 3 ph / 50 Hz (optional)

Assembly

- **CS assembly:** Mixing box with for air renewal and free-cooling managed by the electronic control of the unit. The box incorporates two interlocked dampers with a servomotor. Assembly and connection on site, at the return of the indoor module.

Available in Package and Split versions:



Important: In the Package version, both the connection of the mixing box and the construction of a structural support are the responsibility of the installer.

The following image shows the positions of the return air (R) and fresh air (N) dampers:



Coils coating

- Coils with copper pipes and fins of an aluminium alloy **INERA®**. Level of corrosion protection: basic - medium. This treatment offers a resistance of more than 1000 hours (ASTM B117 NSST).

Auxiliary heating

- **Auxiliary electrical heaters**, with two power stages and on/off control. Connection and assembly on site, at the outlet of the supply fan (indoor module).

Note: Electrical heaters with proportional control upon request.

FACTORY OPTIONS AND ACCESSORIES

Up to 3 values of total power available for each model:

| ISPV | E0L (Low) | E0N (Nominal) | E0H (High) |
|------------|-----------|---------------|------------|
| 090 to 120 | 9 kW | 12 kW | 15 kW |
| 140 to 180 | 12 kW | 18 kW | 24 kW |
| 260 to 360 | 18 kW | 24 kW | 36 kW |
| 420 to 490 | 36 kW | 45 kW | 54 kW |



Available pressure of the indoor fan

- By default, these units are fitted with plug-fans for a nominal available pressure (N). Optionally, aluminium fans with high available pressure (H) can be supplied.

Note: Aluminium fans are rated A2-s1, d0 (M0) and comply with regulations for public promises in France.

Important: the "Selection Software" will choose the supply fan with lower consumption for the available pressure required.

Air filtration + stop-drop

Options to improve indoor air quality:

- The unit is shipped as standard with G4 filters, mounted in a frame attached to the return of the indoor module.

Note: This frame can be disassembled for space reasons during transport.



The frame can accommodate other combinations of filters:

- G4 gravimetric filters with low pressure drop (l.p.d.).
- G4 gravimetric filters standard type + F7 opacimetric filters.
- G4 gravimetric filters with low pressure drop (l.p.d.) + F7 opacimetric filters.

Classification of the filters according to the new **ISO 16890 Standard**:

- G4 → ISO Coarse 60%
- F7 → ISO ePM1 50%

- Stop-drop in the indoor air coil. Recommended in cases where a high moisture content in the air is foreseen or when the air flow is high.

Indoor circuit configuration

- Acoustic insulating cover for compressor. The sound level reduction is approximately 2 dB(A).
- Differential pressure switch to detect clogged filters as safety protection.

Outdoor circuit configuration

- Antivibration mounts made of rubber (silent-blocks). The Split version provides anti-vibration mounts for both modules. With mixing box (CS assembly) also its mounts are supplied.
- Service valves for refrigerant connections and refrigerant precharge for a maximum distance between the outdoor module and the indoor module of 7.5 meters (for Split version).
- Oil separator for long-distance (for Split version). The maximum equivalent length of the refrigerant line can be 50 meters when the outdoor module is above. For longer distances, up to 100 meters maximum, it is necessary to use an oil separator per refrigerant circuit.

Extra heating

- Heat recovery coil (HRC). The coil function is to pre-heat the air that will pass through the main indoor coil. For this, it uses the temperature of an outdoor water installation.

The filters + coil set is supplied disassembled for installation on site. The kit with the 3-way valve is also supplied separately from the coil for connection on site.



Special applications

- Low return temperature application. Activation of the evaporation and condensation control of the indoor circuit as a function of the return temperature.

FACTORY OPTIONS AND ACCESSORIES

Multi-zone management solutions:

The Vectic control provides the greatest choice in terms of multi-zone management with two different solutions:

- Air zoning up to 4 zones.
- Constant supply pressure.

The following table provides the comparison of the two solutions to facilitate the correct selection according to the customer needs:

| Characteristics | Zoning up to 4 zones | Constant supply pressure |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of zones | Up to 4 | Unlimited |
| Type of fan | Plug-fan | Plug-fan |
| Components included | 4 zone terminals and a control box | Differential pressure sensor (range 0 - 1000 Pa) |
| Dampers and servos per zone | Not supplied | Not supplied |
| Control signal for dampers / servos | Supplied | Not supplied (external control required) |
| Control of the damper for each zone | Yes, control carried out by the electronic control | No (at customer level) |
| Terminal in each zone | Yes | No or just one for the main zone (see "Configurations") |
| Minimum air flow | 35% | 35% or 10% in ventilation mode (operating only the fans). There is an associated alarm in case of lower airflow. It is necessary to set the minimum damper opening per zone or provide remote stop control in case all dampers are closed |
| Capacity control | Based on the ambient temperature conditions of each zone terminal (by default) or the return temperature (optional) | <ul style="list-style-type: none"> • Based on the return conditions (by default) • Based on the environment conditions (configurable), in case of a main zone (see "Configurations") |

Note: In both cases, with the enthalpic or thermoenthalpic free-cooling option (T+H control), it is necessary to add a return T+H probe in the unit selection.

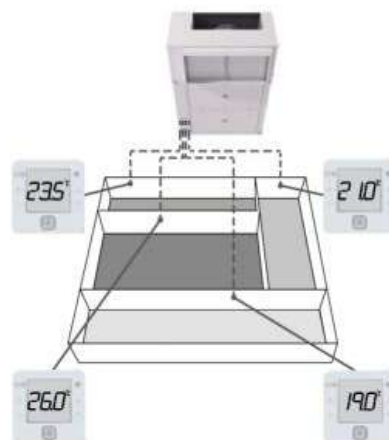
■ Air flow zoning up to 4 zones

This option allows the management of the air flow of the unit to condition up to 4 different zones with a minimum air flow of 35% (all of them in same operating mode: heating or cooling).

Vectic control gives the control signal to the dampers installed in each zone (dampers and servomotors for those dampers not supplied). The unit modifies the air flow and capacity depending on information coming from sensors in each zone and considering active zones in each moment.

The option includes 4 zone terminals (one for each zone) and a control board supplied in an independent box. The 4 terminals, the unit main board and also the servomotors that control dampers in each zone are connected on this board (dampers and servos not supplied).

The temperature information for each zone comes from a temperature sensor integrated inside each zone terminal. It is not needed to install any extra ambient sensor.



Note: If the unit additionally includes a CO₂ air quality probe, it must be a return probe and not an ambient probe.

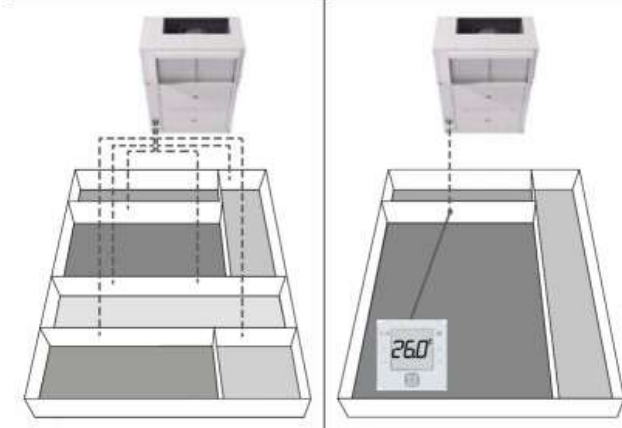
■ Constant pressure supply

Using a differential pressure sensor, the air flow is controlled to maintain constant pressure in the supply duct.

This type of management eliminates the restriction of the number of zones, which facilitates a greater adaptation to the characteristics of the installation, although the customer must carry out the control of dampers in each zone.

It is also possible to choose between two different configurations:

| Configurations | |
|--------------------------------------------------------------|----------------------------------------------------------------------------|
| Capacity control based on the return conditions (by default) | Capacity control based on the environment conditions (configurable) |
| Several zones | Several zones (one main zone) |
| Same comfort priority by zone | One main zone. Comfort of all zones depends on the demand of the main zone |



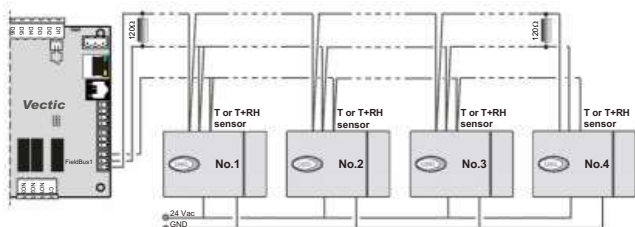
Note: For variable management of fresh air it is necessary to select the optional return air quality probe (CO₂) (instead of the ambient probe). There is only one case in which the ambient air quality probe can be used: with constant supply pressure and capacity based on the environmental conditions of the main zone.

FACTORY OPTIONS AND ACCESSORIES

Sensors

- Sensor(s) of **ambient temperature**. There are 3 options:
 - One NTC sensor connected to the control board.
Note: An ambient sensor with RS485 communication is required for installation at more than 30 meters.
 - One to four sensors with RS485 communication.
 - Sensor(s) installed on the master unit of the shared network (SHRD).
- One to four sensors of **ambient temperature + humidity**, with RS485 communication or installed on the master unit of the shared network (SHRD).

This sensor is compulsory in units with enthalpic or thermoenthalpic free-cooling (optional). In this case, the outdoor air humidity sensor is also added.



- **Smoke detecting** sensor. Smoke detecting station in accordance with the NF S 61-961 standard, 961, that uses a LED to indicate the installation status, and if the probe detects the presence of smoke in the installation, it stops the operation of the unit and gives the order to open or close the outdoor damper (configured by parameter).

To ensure compliance with the French regulations on Fire safety (ERP), it's possible to configure the opening of the fresh air damper and the exhaust air damper to 100% (return air damper closed).

- **Air quality** sensor to enable measuring CO₂.

There are different options:

- Ambient air quality sensor.
- Return air quality sensor (duct-mounted) (attached picture).
- Sensor installed on the master unit of the shared network (SHRD).
- Double quality sensor:
 - two ambient air sensors;
 - one ambient air sensor and one outdoor air sensor;
 - one return air sensor (duct-mounted) and one outdoor air sensor.



Advantages of installing two ambient air quality sensor:

This installation is interesting in large premises, so that ventilation can be done based on the maximum, minimum or average value measured by the two sensors.

Advantages of installing an outdoor CO₂ air quality sensor:

This sensor gives the option to manage fresh air depending on real difference of CO₂ concentration indoor and outdoor⁽¹⁾. It gives the chance to really answer to the request of indirect method for ventilation, without need of estimating outdoor air quality, but measuring it.

⁽¹⁾ Outdoor sensor will be supplied not mounted. It has to be located outdoor, but protected from rain and external agents. For any doubt, please ask.

Options recommended for fresh air management:

| Room | Outdoor | Recommendation |
|---------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Constant occupation | Applied to all locations | Constant fresh air (fresh air % fixed by regulation). No additional option required. |
| Variable occupation | Locations where outdoor CO ₂ is well known | Variable fresh air (considering indoor CO ₂ concentration): <ul style="list-style-type: none"> • Ambient air quality sensor • Return air quality sensor • Double ambient sensor (in large scale premises) |
| | Locations where outdoor CO ₂ is not well known or variable | Variable fresh air (considering indoor and outdoor CO ₂ concentration): <ul style="list-style-type: none"> • Double air quality sensor: ambient and outdoor • Double air quality sensor: return and outdoor |

Methodologies fresh air ratio calculation:

The categories of indoor air quality (IEQ) are defined in EN16798:1 based on the level of expectation that the occupants may have.

- A normal level would be a "medium" level.
- A higher level can be selected by occupants with special needs (children, elderly, people with disabilities, etc).
- A lower level does not mean any risk for health, but it can affect to comfort level.

| Category IEQ | DIRECT METHOD: Fresh air ratio by person | INDIRECT METHOD: CO ₂ concentration above outdoor CO ₂ concentration |
|------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------|
| | dm ³ /s by person | ppm |
| I: High level of expectation | 20 | 550 |
| II: Medium level of expectation | 12,5 | 800 |
| III: Moderate level of expectation | 8 | 1.350 |
| IV: Low level of expectation | 5 | 1.350 |

References: EN 16798-3:2017 and EN 16798-1:2019: Energy performance of buildings - Ventilation for buildings, replacing EN 13779:2007.

Free-cooling + outdoor humidity

- **Outdoor air humidity** sensor (compulsory in units with optional enthalpic or thermoenthalpic free-cooling).

When the unit needs the outdoor humidity probe, this one is connected on the board in place of the NTC ambient temperature probe. In this case, an RS485 ambient temperature probe connected to the Field-bus is used.

There are 2 options:

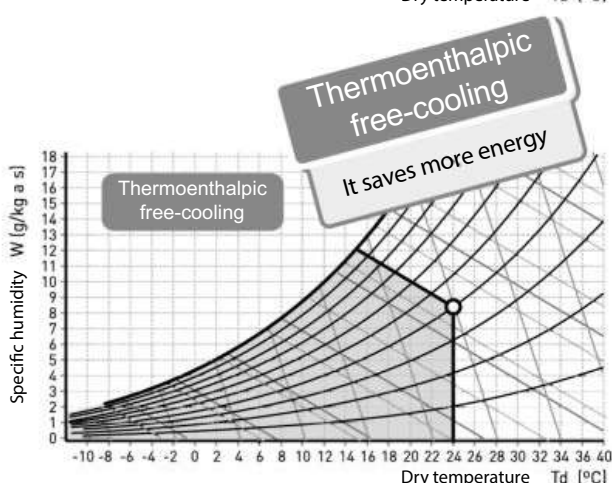
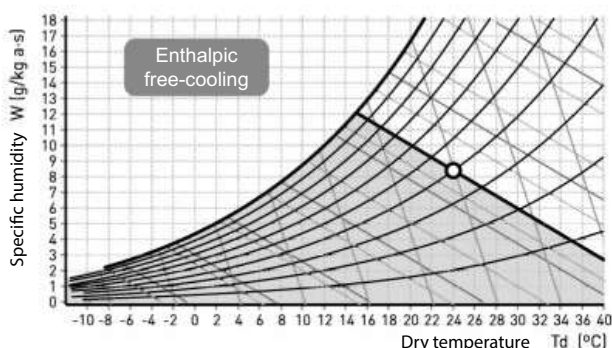
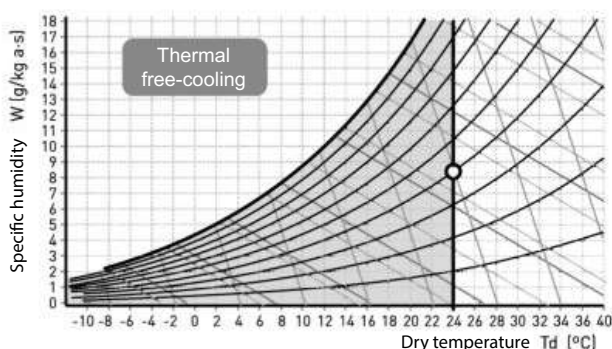
- Sensor supplied with the unit (for duct installation).
- Sensor installed on the master unit of the shared network (SHRD).

FACTORY OPTIONS AND ACCESSORIES

- **Free-cooling management:** Running the unit in free-cooling mode allows it to make best use of outdoor air conditions when these are more favourable than the return air conditions. This allows the cooling capacity to be reduced. The percentage of outdoor air can vary between 0% and 100%.

There are three options for free-cooling management:

- Thermal, by comparing the temperatures.
- Enthalpic, by comparing the enthalpies. Recommended in cases where a high moisture content in the air is foreseen.
- Thermoenthalpic, by comparing the enthalpies and correcting for temperature. This is the optimum solution as it takes the variability of the climate into account.



One function that helps improve energy management is **nocturnal free-cooling**. This feature allows the compressors to be disabled in summer with programming, the unit works providing free-cooling at night, when the outdoor conditions are favourable. This allows the cooling demand to decrease significantly early in the day.

Terminal + unit communication

- By default, the electronic control Vetric is supplied with a graphic terminal installed in the electrical cabinet of the unit, but these other configurations also are available:

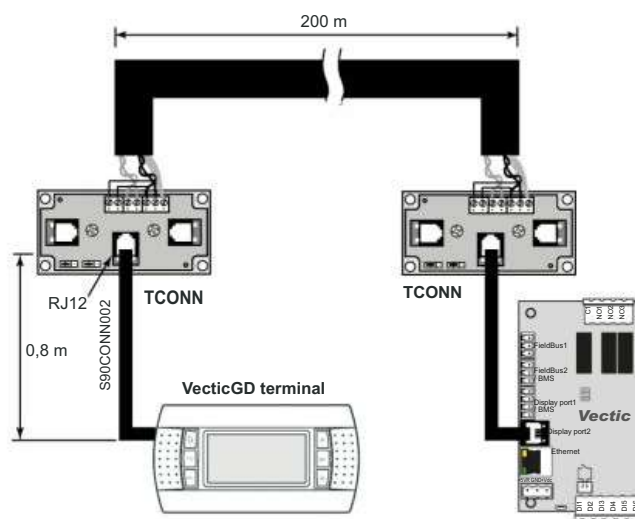


VetricGD graphic terminal



TCO user terminal

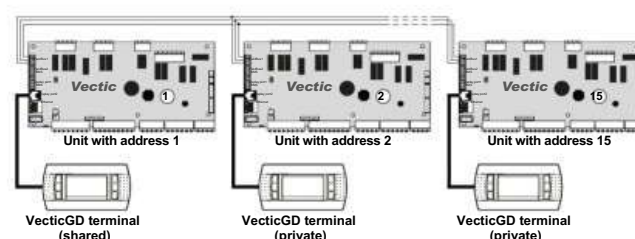
- TCO user terminal installed in the electrical cabinet, instead of the VetricGD graphic terminal.
- VetricGD graphic terminal installed in the electrical cabinet and TCO user terminal remote up to 100 meters.
- TCO user terminal installed in the electrical cabinet and VetricGD graphic terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).
- VetricGD terminal installed in the electrical cabinet and VetricGD terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).



- Control without terminal (for units with shared terminal in a pLAN local network).

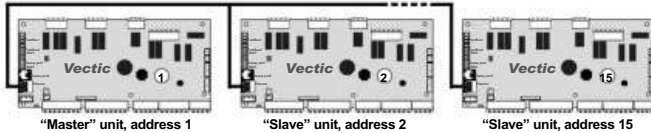
Note: Multiple units can share a terminal if they are integrated into a local pLAN network (for up to 15 units).

This is not possible in units configured as "Backup", since the two units must be fully autonomous in their operation.



FACTORY OPTIONS AND ACCESSORIES

- By default, the electronic control is configured for a stand-alone unit, but it is also possible to include it in an shared network (SHRD) as Master, Slave or Backup. The maximum number of units that can be integrated into an "Master/Slave" shared network is 15, and in the case of "Backup" it is 2 units.



Important: to use any of the following functionalities it is necessary to configure in the "Selection Program" a unit as Master and all other units as Slaves (including the Backup unit). The specific functionality will be configured on site (according to the Vetric regulation manual).

The shared network (SHRD) allows to have the following functionalities depending on the parametrized configuration:

- **Master/Slave:**

It allows the sharing of some of the probes installed in the Master unit: ambient temperature or ambient temperature + humidity, outdoor temperature, outdoor humidity and CO₂ air quality.

Important: These probes can only be shared if installation features allow it.

- **Extended Master/Slave:**

It includes "Master/Slave" functionalities and the master unit provides ambient temperature setpoints to the other units.

- **Master/Slave with the same operating mode:**

It includes the "Extended Master/Slave" functionalities and the master unit also provides the status (Cooling- Heating - Ventilation) to the other units.

- **Backup in case of alarm:**

One unit is configured as a Backup unit, for activation in case of malfunction of the other unit.

- **Extended Backup:**

It includes the "Backup in case of alarm" functionalities and also, the control manages the automatic switching between the two units weekly, to compensate the operation times of both units.

Note: In the case of installations with Backup units, it is not possible to share the probes, since both units must be fully autonomous in their operation. If both units are connected to the same supply duct network, it is imperative that the installation consists of non-return dampers (installer responsibility).

- The control board includes two communication ports that allow connection with a centralized technical management system: a BMS port for Modbus RTU protocol and an Ethernet port for Modbus TCP/IP protocol.

A communication card (optional) can also be connected to the board for the following protocols:

- Ethernet BACnet™ (B: Ethernet BACnet™ card),
- BACnet™ MSTP (C: RS485 BACnet™),
- Konnex (K: RS485 Konnex),

Note: refer to the electronic control manual for more complete information.

Local supervision solutions

Different solutions of supervision are available based on the dimensions of the installation:

- **pCO Web**

It is a solution for the management and supervision of a single unit through an HTML page included in the Ethernet pCO Web card.

- **BOSS**

This is the solution for the management and supervision of air-conditioning installations with up to 300 units. Communication is via the Modbus TCP/IP port integrated into the control board.

Its main advantages are:

- Integrated WIFI Hotspot for direct access without any extra infrastructure.
- Smartphone compatibility.
- Secure supervisor control from remote through a simple browser.

It offers advanced monitoring and maintenance functions and allows zones and groups to be created to simplify the management of the installation.

It also allows energy meters to be integrated to monitor the installation electricity consumption.

BOSS is available in two versions:

- CPU device.
- CPU device, monitor, mouse and keyboard.

- **BOSS mini**

This is the solution for the management and supervision of air-conditioning installations with up to 10 units with 50 variables per unit or 50 units with 10 variables maximum per unit, but with the same features as BOSS.

BOSS mini is available in two versions:

- CPU device.
- CPU device, monitor, mouse and keyboard.



These systems are used to manage the installation remotely. All the information on the system can be accessed via a simple Internet connection. The online interface, the same one used by the local user, enables monitoring and complete configuration of the installation: from the office or anywhere else the user happens to be.

FACTORY OPTIONS AND ACCESSORIES

Remote supervision solution ABOUND HVAC Performance

ABOUND HVAC Performance is a remote supervision solution dedicated to monitoring and controlling several CIAT machines in real time.



Advantages

- Access to the operating trend curves for analysis
- Improved energy performance
- Improved availability rate for the machines

Functions

ABOUND HVAC Performance will send data in real time to the supervision website.

The machine operating data can be accessed from any PC, smartphone or tablet.

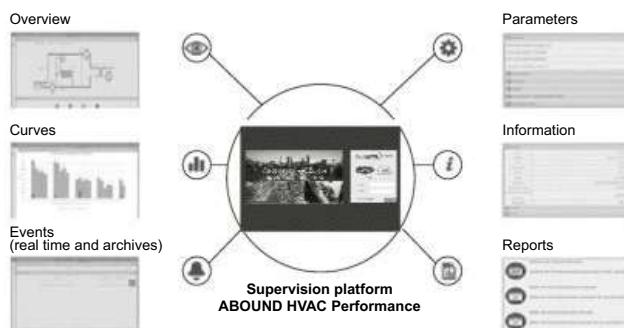
Any event can be configured to trigger a mail alert.

Parameters monitored: overview, control panel for the controllers, events, temperature curves.

Monthly and annual reports are available to analyse :

- The performance and operation of the machine.

Example: operating curves and time, number of compressor start-ups, events, preventive maintenance actions to be performed, etc.



Incidents such as a drift in the measurements on a temperature sensor, incorrectly set control parameters, or even incorrect settings between one compressor stage and the other are immediately detected, and the corrective actions put in place.

Equipment

This kit box can be used on both machines which are already in use (existing inventory), and on new machines.

- 1 transportable cabinet.

Contents of the box (available in 230V and 400V)

- 1 GPRS / 4G LTE-M modem
- 1 SIM SMART card
- 1 power supply (24 VDC)
- 1 power protection device
- 1 GSM antenna
- Rail mounting
- Enclosed casing to protect the equipment during transport
- Packing box for cable routing (bus, power supply)

Compatibility

Up to five machines per box.

Miscellaneous item 1

- **Energy meter** for monitoring of the power consumption of the installation.
- **Energy meter and calculation** of the cooling and heating capacities. In addition to the energy meter, the unit incorporates mixing and supply enthalpic sensors with RS485 communication that enable cooling and heating capacities to be calculated.
- **Tropicalization:** tropicalized components on the electrical cabinet with protective varnish: control board, cards and terminals.

External mixing box

Note: The recommendation is to select CS assembly instead C0 for fresh air and free-cooling management. But if for any reason the mixing box supplied with CS assembly does not fit the need of the installation, this option for external mixing box can be selected.

- **External mixing box with 2 dampers.** Management of the dampers of an external mixing box not supplied (to manage fresh air and free-cooling).

This option is only available with C0 assembly. In this case, it is possible to choose the "Group 21" sensors (free-cooling / outdoor humidity).

- **External mixing box with 3 dampers.** Management of the signal control for dampers and fans of an external mixing box not supplied (to manage fresh air and free-cooling).

In this case, in addition to the sensors of the previous option, the electrical cabinet incorporates two terminals with 230Vac output for activation of the contactor that the customer must install to power its return fan. This output is activated simultaneously with the ISPV unit supply fan.

FACTORY OPTIONS AND ACCESSORIES (SUMMARY)

| Family | Group | Description | Installation in factory | Installation on site |
|---------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------|
| Unit type | 3 | Package (C) or Split (P) | ✓ | |
| Air direction | 4 | 00: Lateral - Lateral | ✓ | |
| | | 01: Lateral - Upper | ✓ | |
| | | 10: Upper - Lateral | ✓ | |
| | | 11: Upper - Upper | ✓ | |
| Electrical power | 6 | 400 V / 3 ph / 50 (without neutral) | ✓ | |
| Assembly | 8 | CS: Assembly with 2 dampers mixing box | | ✓ |
| Coil coating | 9 | Coil with copper pipes and fins of an aluminium alloy (INERA®) | ✓ | |
| Auxiliary heating | 10 | Auxiliary electrical heaters | ✓ (*) | |
| Indoor fan | 12 | Supply plug-fan of high available pressure | ✓ | |
| Air filtration + Stop-drop | 13 | Stop-drop in the indoor air coil | ✓ | ✓ |
| | | G4 gravimetric filters with low pressure drop | ✓ | ✓ |
| | | G4 gravimetric filters + F7 opacimetric filters | ✓ | ✓ |
| | | G4 gravimetric filters with low pressure drop + F7 opacimetric filters | ✓ | ✓ |
| Indoor circuit | 16 | Compressor insulation | ✓ | ✓ |
| | | Differential pressure switch to detect clogged filters | ✓ | |
| Outdoor circuit | 17 | Service valves and refrigerant precharge (Split version) | ✓ | |
| | | Long distance (Split version) | | ✓ |
| | | Antivibration mounts made of rubber | | ✓ |
| Extra heating | 18 | Heat recovery coil | ✓ (*) | |
| Special applications | 19 | Air zoning | ✓ (*) | |
| | | Constant supply pressure | ✓ (*) | |
| | | Low return temperature application | ✓ | |
| Sensors | 20 | Ambient temperature sensor: one NTC sensor connected to the control board or 1 to 4 RS485 sensors | ✓ | ✓ |
| | | Ambient temperature + humidity sensor: 1 to 4 sensors with RS485 communication | ✓ | ✓ |
| | | Air quality sensor environment installed, duct-mounted, on a shared network (SHRD) or double sensor (environment + environment; environment + outdoor; duct-mounted + outdoor) | ✓ | ✓ |
| | | Smoke detecting station in accordance with the NF S 61-961 standard | ✓ | ✓ |
| Free-cooling + Outdoor humidity | 21 | Type of free-cooling: thermal, enthalpic or thermoenthalpic | ✓ | ✓ |
| | | Outdoor air humidity sensor: supplied with the unit or installed on a shared network (SHRD) | ✓ | ✓ |
| Terminal + Unit communication | 22 | TCO terminal installed in the electrical cabinet | ✓ | ✓ |
| | | VecticGD terminal installed in the electrical cabinet + TCO terminal remote up to 100m | ✓ | ✓ |
| | | TCO terminal installed in the electrical cabinet + VecticGD terminal remote up to 200m | ✓ | ✓ |
| | | VecticGD terminal installed in the electrical cabinet + VecticGD terminal remote up to 200m | ✓ | ✓ |
| | | Unit configuration: stand-alone, master or slave | ✓ | ✓ |
| Miscellaneous item 1 | 23 | Communication cards: Ethernet BACnet™; RS485 BACnet™; RS485 Konnex | ✓ | ✓ |
| | | Energy meter | ✓ | |
| | | Energy meter and calculation of the cooling and heating capacities | ✓ | |
| External mixing box | 24 | Tropicalised components on the electrical cabinet: control board, cards and terminals | ✓ | |
| | | External mixing box with 2 dampers | | ✓ |
| | | External mixing box with 3 dampers | | ✓ |

(*) Part of this option must be installed on-site.

ADDITIONAL FACTORY OPTIONS UPON REQUEST

This chapter contains other options available upon request, in addition to those indicated in the table above:

- **Activation of the remote COOLING / HEATING operating mode.** The electronic control allows the operating mode switching by a digital input of an input/output expansion module.
- **General alarm signalling.** The Vectic control allows the management of a relay for remote alarm signalling.
The output for general alarm signal is not compatible with the heat recovery coil. In this case, upon request, it would be possible to have a general alarm output in an input/output expansion module.
- **Ventilation with differential air pressure sensor.** In installations with this differential pressure sensor, the percentage of air renewal is adjusted according to the pressure in the room. This option allows dynamic control of the damper opening by measuring the pressure differential between inside and outside.

- **Mechanical disconnection of stages.** This option allows the mechanical disconnection of stages of compressor and/or electrical heaters using digital inputs. This is especially useful in the following cases:
 - To reduce electricity consumption in certain time slots.
 - When electricity consumption is limited.
- **Control of supply and return dampers.** This function allows the management of external supply and return dampers located in the ducts, so that the closure of the ducts can be controlled after the unit is stopped. This option can also be useful in installations with Back-up units.

| Description of options upon request | Installation in factory | Installation on site |
|---------------------------------------------------|-------------------------|----------------------|
| Activation of the remote COOLING / HEATING mode | ✓ | |
| General alarm signalling by relay | ✓ | |
| Ventilation with differential air pressure sensor | | ✓ |
| Mechanical disconnection of stages | ✓ | |
| Control of supply and return dampers | | ✓ |

TECHNICAL CHARACTERISTICS (EN-14511-2022)

| ISPV series | | 090 | 120 | 140 | 180 | 260 | 280 | 340 | 360 | 420 | 490 |
|-----------------------------------------|------------------------------------------|------------------------------------------------------------------------------------|------|----------|----------|----------|-----------|----------|-------------|-------------|-----|
| Cooling capacities | Cooling capacity ① (kW) | Coming soon | | 34,3 | 39,8 | 56,8 | 62,1 | 70,4 | 81,5 | Coming soon | |
| | Power input ③ (kW) | | | 13,1 | 16,6 | 19,0 | 21,8 | 26,8 | 34,1 | | |
| | EER performance | | | 2,62 | 2,39 | 2,99 | 2,85 | 2,63 | 2,39 | | |
| | SEER | | | 4,13 | 3,95 | 4,59 | 4,37 | 4,14 | 4,03 | | |
| | ηs | | | 162% | 155% | 180% | 172% | 162% | 158% | | |
| Heating capacities | Heating capacity ② (kW) | Coming soon | | 34,4 | 40,4 | 54,7 | 62,2 | 71,2 | 83,4 | Coming soon | |
| | Power input ③ (kW) | | | 11,5 | 13,9 | 16,9 | 19,9 | 23,1 | 28,4 | | |
| | COP performance | | | 2,98 | 2,91 | 3,24 | 3,12 | 3,08 | 2,94 | | |
| | SCOP | | | 3,41 | 3,27 | 3,30 | 3,27 | 3,26 | 3,25 | | |
| | ηs | | | 133% | 128% | 129% | 128% | 127% | 127% | | |
| Outdoor module fan | Type | Electronic plug-fan | | | | | | | | | |
| | Nominal air flow (m³/h) | Coming soon | | 14.000 | 14.500 | 27.300 | 27.300 | 29.500 | 29.500 | Coming soon | |
| | Nominal available static pressure (Pa) | | | 150 | 150 | 100 | 100 | 100 | 100 | | |
| | Number / Diameter (mm) | | | 1 / 560 | 1 / 560 | 2 / 560 | 2 / 560 | 2 / 560 | 2 / 560 | | |
| | Maximum speed (r.p.m.) | | | 1.495 | 1.495 | 1.495 | 1.495 | 1.495 | 1.495 | | |
| | Motor output (kW) | | | 1 x 3,1 | 1 x 3,1 | 2 x 3,1 | 2 x 3,1 | 2 x 3,1 | 2 x 3,1 | | |
| | Maximum absorbed current (A) | | | 1 x 4,6 | 1 x 4,6 | 2 x 4,6 | 2 x 4,6 | 2 x 4,6 | 2 x 4,6 | | |
| Indoor module fan | Type | Electronic plug-fan | | | | | | | | | |
| | Nominal air flow (m³/h) | Coming soon | | 7.000 | 7.400 | 11.000 | 12.600 | 14.400 | 15.200 | Coming soon | |
| | Nominal available static pressure (Pa) | | | 150 | 150 | 150 | 200 | 200 | 200 | | |
| | Maximum available static pressure (Pa) | | | 650 | 592 | 827 | 701 | 522 | 439 | | |
| | Number / Diameter (mm) | | | 1 / 500 | 1 / 500 | 2 / 500 | 2 / 500 | 2 / 500 | 2 / 500 | | |
| | Maximum speed (r.p.m.) | | | 1.800 | 1.800 | 1.800 | 1.800 | 1.800 | 1.800 | | |
| | Motor output (kW) | | | 1 x 3,04 | 1 x 3,04 | 2 x 3,04 | 2 x 3,04 | 2 x 3,04 | 2 x 3,04 | | |
| | Maximum absorbed current (A) | | | 1 x 4,7 | 1 x 4,7 | 2 x 4,7 | 2 x 4,7 | 2 x 4,7 | 2 x 4,7 | | |
| Compressor | Type | Scroll | | | | | | | | | |
| | No. compressors / stages / circuits | 2 / 2 / 1 | | | | | 4 / 4 / 2 | | | | |
| | Oil type | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC | | | | | | | | | |
| | Volume of oil (l) | Coming soon | 3,5 | 3,5 | 4,8 | 6,8 | 7,1 | 7,2 | Coming soon | | |
| Electrical characteristics | Mains voltage | 400 V / III ph / 50 Hz (±10%) | | | | | | | | | |
| | Power supply | 3 Wires + Ground + Neutral | | | | | | | | | |
| | Maximum absorbed current (A) | Coming soon | 33,4 | 38,0 | 56,2 | 59,2 | 66,8 | 76,0 | Coming soon | | |
| | Starting current (A) | | 96,8 | 125,1 | 98,8 | 116,6 | 130,2 | 163,1 | | | |
| Refrigerant connections (Split version) | Circuit 1: Liquid line | Coming soon | | 5/8" | 5/8" | 5/8" | 5/8" | 5/8" | 5/8" | Coming soon | |
| | Circuit 1: Gas line | | | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | | |
| | Circuit 2: Liquid line | | | - | - | 5/8" | 5/8" | 5/8" | 5/8" | | |
| | Circuit 2: Gas line | | | - | - | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | | |
| Refrigerant | Type | R-410A | | | | | | | | | |
| | Global warming potential (GWP) ④ | 2.088 | | | | | | | | | |
| | Charge in Package version (kg) | Coming soon | | 8,6 | 9,4 | 11,3 | 14,9 | 15,5 | 15,8 | Coming soon | |
| | Environment impact (tCO2 e) | | | 17,9 | 19,6 | 23,5 | 31,1 | 32,4 | 33,1 | | |
| | Charge up to 7,5 m in Split version (kg) | | | 9,2 | 10,1 | 12,5 | 16,2 | 16,8 | 17,1 | | |
| | Environment impact (tCO2 e) | | | 19,3 | 21,0 | 26,1 | 33,7 | 35,0 | 35,7 | | |

① Cooling capacity calculated in accordance with the EN-14511-2022 standard given for indoor temperature conditions 27°C, 19°C WB and 35°C outdoor temperature.

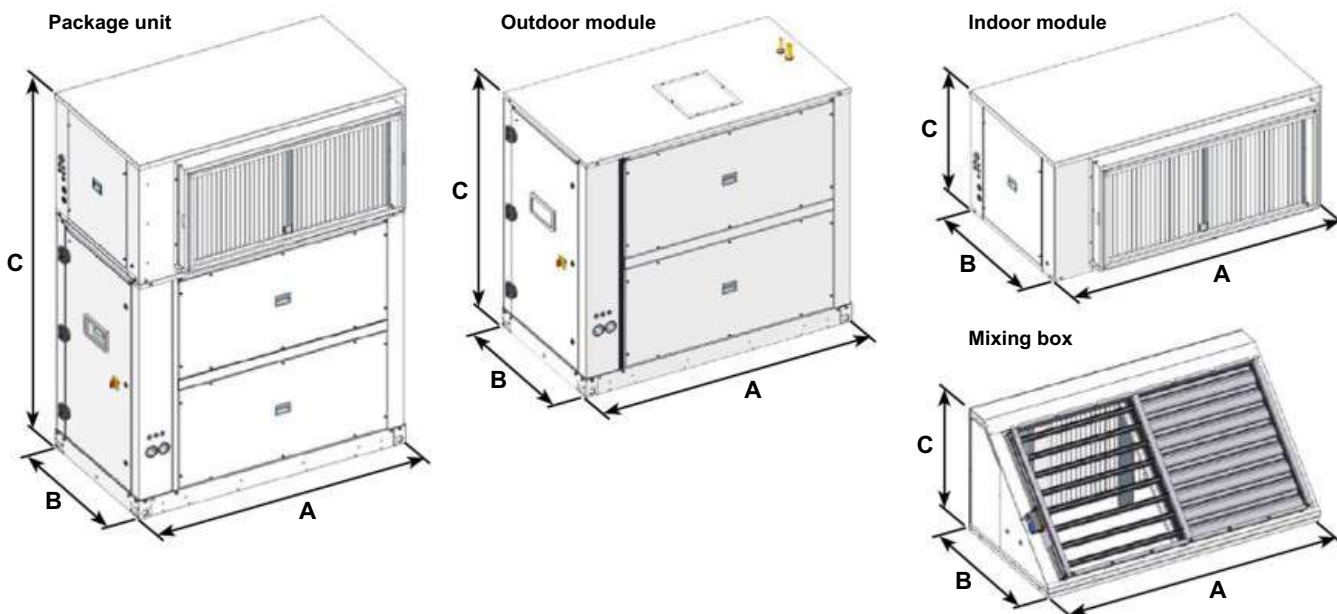
② Heating capacity calculated in accordance with the EN-14511-2022 standard given for indoor temperature conditions 20°C and 6°C WB outdoor temperature.

③ Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2022 standard.

④ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.

OVERALL DIMENSIONS

| ISPV series | Package unit | | | Split unit: Outdoor module | | | Split unit: Indoor module | | | Mixing box (CS assembly) | | |
|-------------|--------------|--------|--------|----------------------------|--------|--------|---------------------------|--------|--------|--------------------------|--------|--------|
| | A (mm) | B (mm) | C (mm) | A (mm) | B (mm) | C (mm) | A (mm) | B (mm) | C (mm) | A (mm) | B (mm) | C (mm) |
| 090 to 120 | Coming soon | | | Coming soon | | | Coming soon | | | Coming soon | | |
| 140 to 180 | 1.640 | 1.030 | 2.175 | 1.640 | 895 | 1.520 | 1.640 | 1.030 | 735 | 1.640 | 890 | 735 |
| 260 to 360 | 2.900 | 1.030 | 2.175 | 2.900 | 895 | 1.520 | 2.900 | 1.030 | 735 | 2.900 | 890 | 735 |
| 420 to 490 | Coming soon | | | Coming soon | | | Coming soon | | | Coming soon | | |



WEIGHT OVERVIEW

| ISPV series | 090 | 120 | 140 | 180 | 260 | 280 | 340 | 360 | 420 | 490 |
|---------------------------------|-------------|-----|-----|-----|-------|-------|-------|-------|-------------|-----|
| Package unit (kg) | Coming soon | | 638 | 643 | 1.069 | 1.098 | 1.109 | 1.116 | Coming soon | |
| Split unit: Outdoor module (kg) | | | 444 | 447 | 758 | 781 | 789 | 796 | | |
| Split unit: Indoor module (kg) | | | 203 | 203 | 330 | 330 | 364 | 364 | | |

Weight supplement from the main options (kg)

| ISPV series | | 090 | 120 | 140 | 180 | 260 | 280 | 340 | 360 | 420 | 490 |
|--------------------------------------------------|-------------------|-------------|-----|-----|-----|-----|-----|-----|-----|-------------|-----|
| Mixing box (CS assembly) | | Coming soon | | 71 | 71 | 108 | 108 | 108 | 108 | Coming soon | |
| Supply fan | High pressure (H) | | | 2 | 2 | 5 | 5 | 5 | 5 | | |
| Filters | G4 l.p.d. | | | 1 | 1 | 2 | 2 | 2 | 2 | | |
| | G4 + F7 | | | 5 | 5 | 10 | 10 | 10 | 10 | | |
| | G4 l.p.d. + F7 | | | 6 | 6 | 12 | 12 | 12 | 12 | | |
| Stop-drop | Indoor coil | | | 17 | 17 | 35 | 35 | 35 | 35 | | |
| Electrical heaters | E0L (Low) | | | 19 | 19 | 36 | 36 | 36 | 36 | | |
| | E0N (Nominal) | | | 22 | 22 | 38 | 38 | 38 | 38 | | |
| | E0H (High) | | | 25 | 25 | 43 | 43 | 43 | 43 | | |
| Heat recovery coil | Empty | | | 35 | 35 | 54 | 54 | 54 | 54 | | |
| | In service | | | 53 | 53 | 87 | 87 | 87 | 87 | | |
| Valves and refrigerant precharge (Split version) | | | | 9 | 10 | 13 | 16 | 17 | 17 | | |
| Long distance (Split version) | | | | 5 | 5 | 9 | 9 | 9 | 9 | | |

SOUND LEVELS dB(A)

Sound power level (LW)

Package unit

| ISPV series | 090 | 120 | 140 | 180 | 260 | 280 | 340 | 360 | 420 | 490 |
|-------------|-------------|-----|-----|-----|-----|-----|-----|-----|-------------|-----|
| 63 Hz | Coming soon | | 57 | 60 | 62 | 62 | 59 | 69 | Coming soon | |
| 125 Hz | | | 66 | 75 | 72 | 72 | 74 | 72 | | |
| 250 Hz | | | 74 | 74 | 79 | 78 | 76 | 77 | | |
| 500 Hz | | | 81 | 81 | 83 | 84 | 82 | 82 | | |
| 1000 Hz | | | 84 | 84 | 85 | 85 | 86 | 86 | | |
| 2000 Hz | | | 84 | 84 | 82 | 83 | 84 | 84 | | |
| 4000 Hz | | | 77 | 77 | 78 | 78 | 77 | 78 | | |
| 8000 Hz | | | 68 | 72 | 72 | 72 | 69 | 73 | | |
| Total dB(A) | | | 88 | 89 | 89 | 89 | 90 | 90 | | |

Split unit: Outdoor module

| ISPV series | 090 | 120 | 140 | 180 | 260 | 280 | 340 | 360 | 420 | 490 |
|-------------|-------------|-----|-----|-----|-----|-----|-----|-----|-------------|-----|
| 63 Hz | Coming soon | | 54 | 57 | 59 | 59 | 56 | 66 | Coming soon | |
| 125 Hz | | | 63 | 72 | 69 | 69 | 71 | 69 | | |
| 250 Hz | | | 71 | 71 | 76 | 75 | 73 | 74 | | |
| 500 Hz | | | 78 | 78 | 80 | 81 | 79 | 79 | | |
| 1000 Hz | | | 81 | 81 | 82 | 82 | 83 | 83 | | |
| 2000 Hz | | | 81 | 81 | 79 | 80 | 81 | 81 | | |
| 4000 Hz | | | 74 | 74 | 75 | 75 | 74 | 75 | | |
| 8000 Hz | | | 65 | 69 | 69 | 69 | 66 | 70 | | |
| Total dB(A) | | | 83 | 83 | 86 | 86 | 87 | 87 | | |

Split unit: Indoor module

Sound power level in the indoor fan supply to be taken into account for the silencer calculation:

| ISPV series | 090 | 120 | 140 | 180 | 260 | 280 | 340 | 360 | 420 | 490 |
|-------------|-------------|-----|-----|-----|-----|-----|-----|-----|-------------|-----|
| 63 Hz | Coming soon | | 72 | 75 | 71 | 70 | 72 | 76 | Coming soon | |
| 125 Hz | | | 68 | 71 | 67 | 67 | 69 | 72 | | |
| 250 Hz | | | 69 | 72 | 69 | 70 | 71 | 75 | | |
| 500 Hz | | | 73 | 76 | 73 | 73 | 77 | 78 | | |
| 1000 Hz | | | 73 | 76 | 73 | 74 | 75 | 78 | | |
| 2000 Hz | | | 69 | 72 | 69 | 70 | 72 | 75 | | |
| 4000 Hz | | | 63 | 66 | 63 | 64 | 66 | 69 | | |
| 8000 Hz | | | 56 | 59 | 55 | 57 | 60 | 63 | | |
| Total dB(A) | | | 79 | 82 | 79 | 79 | 82 | 84 | | |

Sound pressure level (LP)

Measurement conditions: in a clear field, measured at a distance of 10 metres, directivity 2 and at 1,5 metres from the ground.

Note: The sound pressure level depends on the installation conditions and, as such, it only indicated as a guide. Values obtained according to the ISO 3744 standard.

Package unit

| ISPV series | 090 | 120 | 140 | 180 | 260 | 280 | 340 | 360 | 420 | 490 |
|-------------|-------------|-----|-----|-----|-----|-----|-----|-----|-------------|-----|
| Total dB(A) | Coming soon | | 55 | 55 | 56 | 57 | 57 | 57 | Coming soon | |

Split unit: Outdoor module

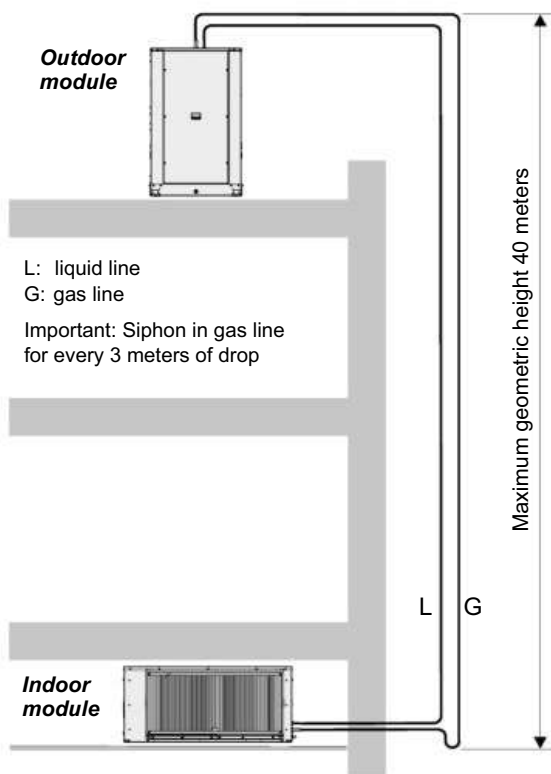
| ISPV series | 090 | 120 | 140 | 180 | 260 | 280 | 340 | 360 | 420 | 490 |
|-------------|-------------|-----|-----|-----|-----|-----|-----|-----|-------------|-----|
| Total dB(A) | Coming soon | | 53 | 53 | 55 | 55 | 55 | 55 | Coming soon | |

REFRIGERANT CONNECTIONS (SPLIT VERSION)

In the case of separate installation of the outdoor and indoor modules the following recommendations should be followed:

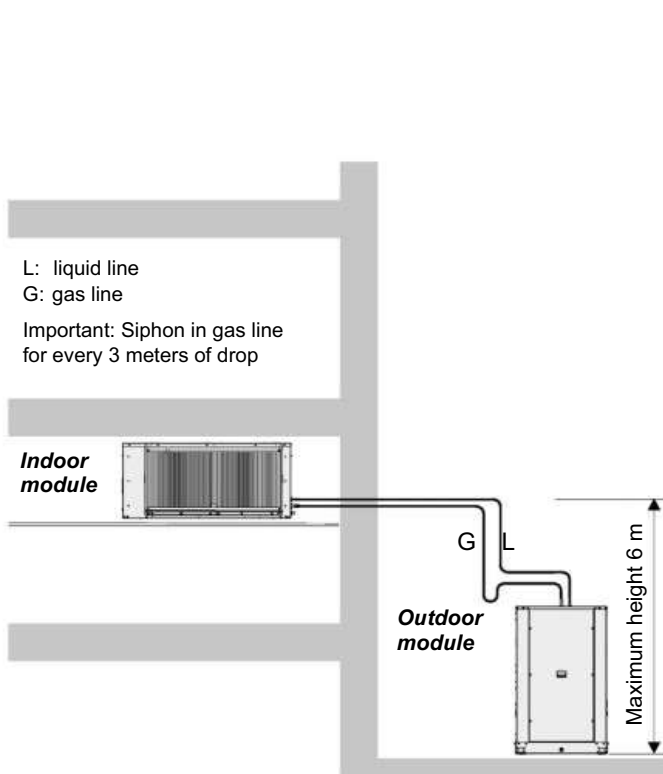
Outdoor module top

Maximum equivalent length of the refrigerant line: 50 metres



Outdoor module bottom

Maximum equivalent length of the refrigerant line: 30 metres



- The maximum equivalent length of the refrigerant line is 50 meters, with a maximum geometric height of 40 meters when the outdoor module is above. For longer distances, up to 100 meters maximum, it is necessary to use an oil separator per refrigerant circuit (long distance option).
- The maximum equivalent length of the refrigerant line is 30 meters, with a maximum geometric height of 6 meters when the indoor module is above.

Refrigerant connections

| ISPV series | | 090 | 120 | 140 | 180 | 260 | 280 | 340 | 360 | 420 | 490 |
|-------------|------------------------------------|-------------|-----|--------|--------|--------|--------|--------|--------|-------------|-----|
| Circuit 1 | Liquid line: Circuit 1 | Coming soon | | 5/8" | 5/8" | 5/8" | 5/8" | 5/8" | 5/8" | Coming soon | |
| | Gas line: Circuit 1 | | | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | | |
| | Charge up to 7.5 m (optional) (kg) | | | 9,20 | 10,10 | 6,25 | 8,10 | 8,40 | 8,55 | | |
| Circuit 2 | Liquid line: Circuit 2 | | | -- | -- | 5/8" | 5/8" | 5/8" | 5/8" | | |
| | Gas line: Circuit 2 | | | -- | -- | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/8" | | |
| | Charge up to 7.5 m (optional) (kg) | | | -- | -- | 6,25 | 8,10 | 8,40 | 8,55 | | |

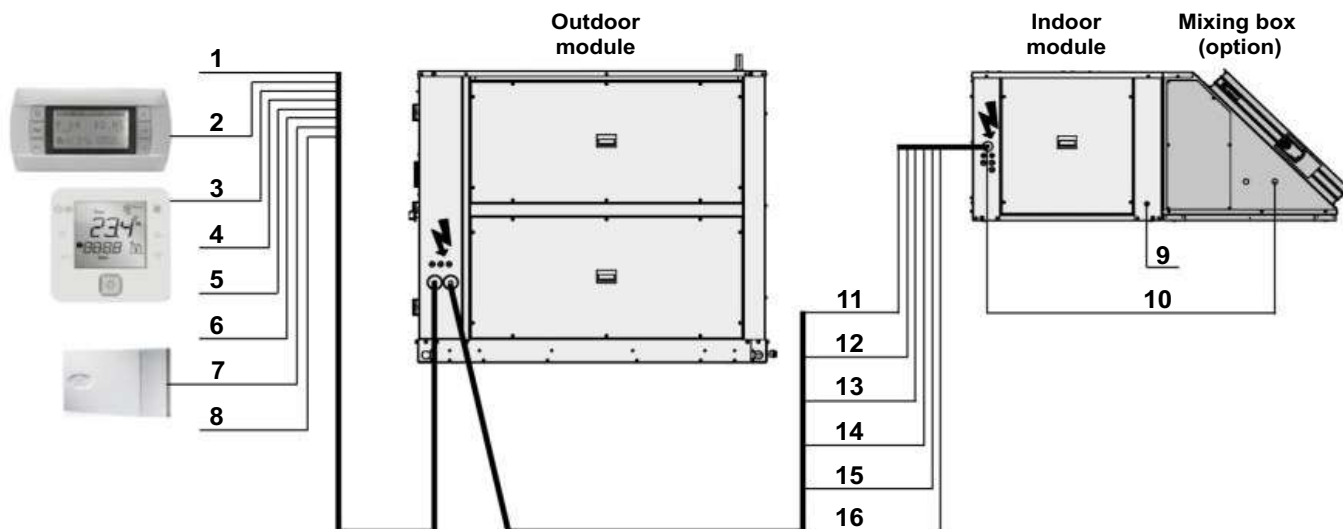
R-410A refrigerant charge

- As an option, the unit can be supplied service valves for refrigerant connections and refrigerant precharge for a maximum distance between the outdoor module and the indoor module of 7.5 meters.
- If the equivalent length of the refrigerant lines is greater than 7.5 meters, an additional charge per metre must be carried out according to the following table:

| Nominal diameter (inches) | 1/4" | 3/8" | 1/2" | 5/8" | 3/4" | 7/8" | 1" | 1 1/8" |
|-------------------------------------|------|------|------|-------|-------|-------|-------|--------|
| Interior section (cm ²) | 0,2 | 0,5 | 1,0 | 1,6 | 2,4 | 3,3 | 4,4 | 5,6 |
| Liquid line charge (g/m) | 17,5 | 48,1 | 93,9 | 154,8 | 229,6 | 318,9 | 422,2 | 539,3 |
| Gas line charge (g/m) | - | 0,2 | 0,3 | 0,6 | 0,8 | 1,2 | 1,5 | 2,0 |

ELECTRICAL CONNECTIONS

The following connections must be made on site by the customer:



| ISPV | No. | Connections | | 090 to 120 | 140 to 180 | 260 to 360 | 420 to 490 | |
|----------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------|-------------|--|
| Package and Split versions | 1 | Main power supply 400 III (±10%) | Standard unit | Coming soon | 5G 25A x 10 mm ² | 5G 25A x 10 mm ² | Coming soon | |
| | | | With electrical heaters (optional) | | 5G 63A x 35 mm ² | 5G 63A x 35 mm ² | | |
| | 2 | Remote connection of VeticGD graphic terminal (by default installed on the electrical cabinet) ① | Telephone cable 6 wires standard (RJ12 connector) | | | | | |
| | 3 | Connection of TCO user terminal (optional) ② | | 2 x 1 mm ² (230V) + 1 shielded cable for communication type AGW20 / 22 (1 braided pair + drainwire + shielding) | | | | |
| | 4 | Remote off/on (optional) | | 2 x 1 mm ² | | | | |
| | 5 | General alarm signal (optional) ③ | | 2 x 1 mm ² | | | | |
| | 6 | Remote Cooling/Heating (optional upon request) | | 2 x 1 mm ² | | | | |
| | 7 | Ambient probe ④ | NTC | 2 x 1 mm ² | | | | |
| | | | RS485 | 4 x 0,5 mm ² + shielding ⑤ | | | | |
| | 8 | Air quality probe (optional) | | 3 x 1 mm ² | | | | |
| 9 | Heat recovery coil (optional) | | 3 x 1 mm ² | | | | | |
| 10 | Connection of mixing box (optional) | Standard (BOX3) | 5 x 1 mm ² | | | | | |
| | | Enthalpique probe for energy measurement (BOX-ENT) (opt.) | 4 x 0,5 mm ² + shielding | | | | | |
| Split version | 11 | Power supply of the indoor module (W96) | Standard unit | Coming soon | 4G x 2,5 mm ² | 4G x 2,5 mm ² | Coming soon | |
| | | | With electrical heaters (optional) | | 4G x 10 mm ² | 4G x 16 mm ² | | |
| | 12 | Control of the indoor module (W30) | Standard unit | 5 x 1 mm ² | | | | |
| | | | With mixing box (optional) | 7 x 1 mm ² | | | | |
| | 13 | Power supply of the indoor fan (230 Vac) (W5) | | 2 x 1 mm ² | | | | |
| | 14 | Control of the indoor fan (W90) | | 7 x 1 mm ² | | | | |
| | 15 | Electrical heaters (W37) (optional) | | 4 x 1 mm ² | | | | |
| 16 | Heat recovery coil (W53) (optional) | | 4 x 1 mm ² | | | | | |

① In this case, it's possible to install the TCO user terminal on the electrical cabinet.

② The power supply of the electrical cabinet (230 V) must be used for terminal power.

③ The output for general alarm signal is not compatible with the heat recovery coil. With this option, possibility of general alarm upon request.

④ The outdoor humidity probe (optional) is connected in the same place as the ambient NTC probe. In this case the ambient probe RS485 connected on the Field-bus will be used.

⑤ Up to four RS485 ambient sensors can be connected in series on the field-bus of the control board.

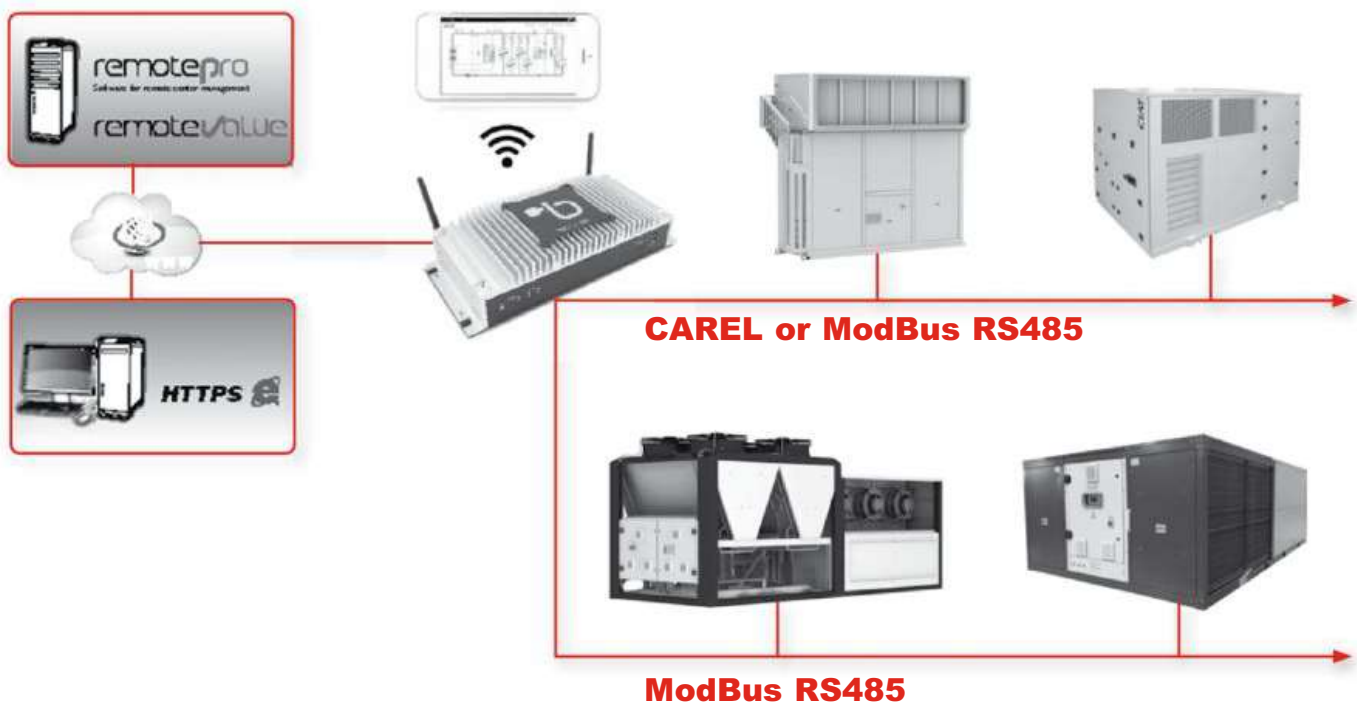
BOSS AND BOSS MINI SUPERVISION

System of connectivity, monitoring and remote management



The complete range for mobile-ready local supervision for medium and large sites

- Hotspot Wi-Fi integrated.
- Remote control.
- Supervisor BOSS: management of up to 300 units (with a total of 3500 variables).
- Supervisor BOSS mini: management of up to 50 units (with a total of 500 variables).
- Management of alarms.
- Creation of diagrams and reports.
- Scheduling and managing of events and operating scenarios.
- Installation drawing with location of machines.
- Energy management.
- Analysis of risks and critical monitoring points.
- Notes.



USE

CIAT BOSS SUPERVISION is a pre-installed PC-based solution for the management and supervision of large air conditioning facilities of up to:

- BOSS: 300 units (3500 variables in total);
- BOSS mini: 50 units (500 variables in total).

It implements advanced monitoring and maintenance functions and enables creating areas and groups which simplify the management of the installation. It integrates an installation drawing and the list of units.

Completely browsable from mobile devices, from commissioning to daily access for system maintenance.

Built-in Wi-Fi to create a network and allow the supervisor to be accessed from the user's devices without requiring other network infrastructure.

The following controls can be managed:

- Vetric: ModBus protocol only.
- CIATrtc and CIATpool: CAREL or ModBus protocol.

MAIN FEATURES



■ BOSS always in your pocket

Responsive web pages offer the possibility to access all BOSS pages for both programming and everyday operations using mobile devices. The graphics automatically to the device they are displayed on (computers with different screen resolutions, tablets, smartphones), minimising the need for the user to resize the pages and scroll the contents.

■ Centralised management

BOSS permits automatic data and alarm synchronisation with RemotePRO, so as to keep the situation on all connected systems under control from just one interface. Centralised system management also increases reliability, through alarm analysis and scheduling of service. It also allows increased energy efficiency by comparing energy consumption and performance between the different sites and identifying possible cost reduction actions.

■ Remote service

Access to typical operating system functions, such as printer driver installation, copying files, etc. is also available via a web interface, another first for a supervisory system. This means that remote service operations can be performed by authorised personnel without needing to travel on site, as is required with other supervisory systems.

PROTOCOLS AND CONNECTIVITY

For the first time ever on a CAREL supervisor, BOSS introduces the BACnet protocol, the leading protocol in HVAC supervision applications.

■ Integration of third party devices

This new feature significantly increases the possibility to integrate third party devices. The BACnet Master protocol is available in both MS/TP (RS485) and TCP/IP modes, and together with the Modbus RS485 and Modbus TCP/IP protocols, these too available on BOSS, offers the possibility to interact with the widest range of devices in the HVAC/R sector.

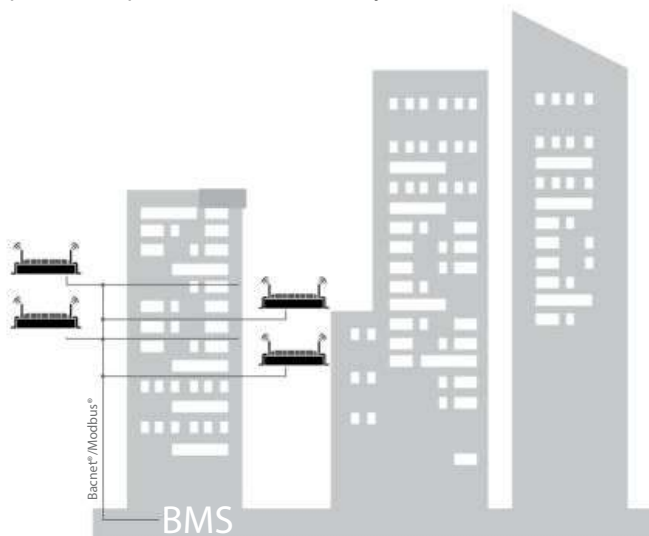
■ BMS integration

In addition to Master mode, the BACnet protocol is also available on BOSS in TCP/IP Slave mode, allowing BOSS to be integrated into a higher-level BMS, sharing the values of interest for overall building management (e.g. unit status, alarm status, ON/OFF controls,...)

■ Wireless field connectivity

If Modbus RTU devices cannot be connected directly to the BOSS / BOSS-mini RS485 network due to installation constraints, these can be integrated into the boss system via

its Wi-Fi network, using the WiFi-Modbus gateways. Nonetheless, when a wired connection is available, this is the preferred option due to its reliability.



SYSTEM OPTIMISATION FUNCTIONS (OPTIONAL)

■ Energy

Consumption control and management. Allows users to monitor system energy consumption using graphs and reports.



CUSTOMISED GRAPHICS

User interfaces that can be customised according to the way in which information is managed by different users.

With the c.web tool, system status and the main variables relating to each controller can be represented using customised graphics.

Indeed c.web offers several powerful features, such as :

- the creation of vectorial images that can adapt to all screen sizes on both desktop and mobile devices without losing resolution;
- the possibility to develop customised animated widgets in just a few clicks;
- the reusability of graphic libraries developed for one project inside another.



THE SAME HARDWARE IS SUITABLE FOR ALL APPLICATIONS

The absence of an internal fan and heat dissipation ensured by a robust aluminium casing mean BOSS / BOSS-mini can

be installed in many different environments, even industrial environments in which conditions are unfavourable.

BOSS mini



BOSS



TECHNICAL CHARACTERISTICS

■ Hardware characteristics:

- Power supply:
 - BOSS: 100-240 V~, 1,5 A max, 50-60 Hz
 - BOSS mini: 24 Vdc 1,5 A max
- Video output:
 - BOSS: VGA/Display Port
 - BOSS mini: micro HDMI
- Double Ethernet port
- Integrated backup memory expansion:
 - BOSS: YES with µSD memory
 - BOSS mini: YES with SD memory
- Serial ports RS485 master:
 - BOSS: 2 opto-isolated
 - BOSS mini: 1 opto-isolated - 1 not opto-isolated
- Digital input : BOSS only
- Temporary IP address reset button: BOSS mini.
- Digital outputs:
 - BOSS : 3 relays : 24 V max, 8 A max
 - BOSS mini : 3 voltage outputs, +24 Vdc
- Standard HOST USB ports with type A connector :
 - BOSS : 2 ports on front; 4 ports at rear
 - BOSS mini : 1 port on front
- Buzzer : Max 80 dB at 10 cm, BOSS only
- Dimensions:
 - BOSS: 340 x 145 x 77 mm
 - BOSS mini: 143 x 100 x 30 mm
- Operating conditions: from 5 to 45 °C

- Storage conditions: from -20 to 65 °C
- Compliance: Directive 2014/35/EU (LVD) - Directive 2014/30/EU (EMCD) - Directive 2011/65/EU (RoHS)
- Pollution degree: 2 as per EN60950-1
- Chassis material: chassis made of SEEC (steel, electro-galvanized, cold-rolled), top and lateral casing in anodized aluminium

■ Software characteristics:

Software available in 14 languages with English remaining the second language for support. CIAT machine variables available in 3 languages: Spanish, English and French (please consult us for other languages).

BOSS Supervision system allows CIAT units with the following control systems to be integrated into the supervision network: Vetric, CIATrtc or CIATpool.

The Vetric control can only be installed on a line with the ModBus protocol. The other control systems can be configured with the CAREL or ModBus protocols.

The devices included in the system have a factory configuration for alarm priorities, recording frequency and the main page presentation.

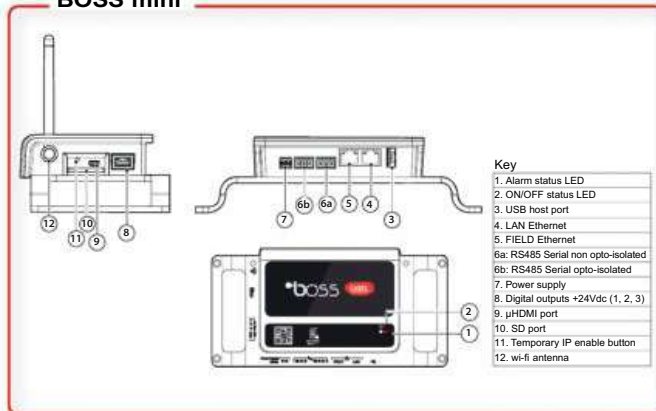
The units can be connected to two RS485 ports on the BOSS system. It is possible to have additional lines by using RS232 RS485 converters on the USB ports.

Four secure access levels are available:

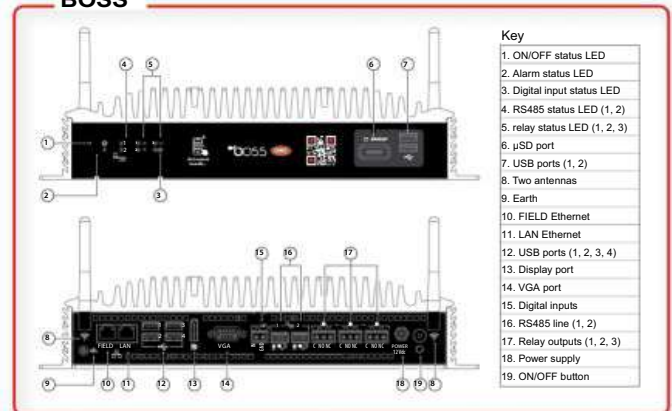
- Administrator (highest level).
- Installer (level 3).
- Maintenance (level 2).
- End user (level 1).

The highest level gives access to all the available functions.

BOSS mini



BOSS





CIAT

HEAT PUMPS & WATER CHILLERS

AIR-COOLED UNITS

EREBATTM ACCESS 17-21 P.329

16 to 21kW

18 to 22kW

EREBATTM ACCESS 26-40 P.335

27 to 39kW

29 to 39kW

AQUACIAT^{CALEO} TM TD P.343

26 to 101kW

AQUACIATTM LD/ILD R-32 P.357

LD 40 to 160kW

ILD 40 to 150kW

ILD 40 to 150kW

DYNACIATTM LGN P.381

23 to 175kW

AQUACIAT^{POWER} TM LD/ILD R-32 P.395

170 to 940kW

160 to 1040kW

POWERCIATTM LX P.441

277 to 1512kW

CONTROL AND SUPERVISION

POWER'CONTROL P.469

NEW TRUVUTM PLANT SEQUENCER P.471

ABOUT HVAC PERFORMANCE P.477



Cooling



Heating

EREBA™ ACCESS

Air-Cooled Liquid Chillers and
Reversible Air-to-Water Heat Pumps



Easy and fast installation
Hydraulic module available
Compact, reliable and efficient

Nominal cooling capacity : 16-21 kW

Nominal heating capacity: 18-22 kW



Cooling or
heating



USE

The **EREBA™ ACCESS** air-to-water heat pump / chiller is designed for heating and cooling applications in individual homes and small commercial applications.

When installed alone, **EREBA™ ACCESS** is compatible with low to medium temperature emitters (underfloor heating, fan coil units, water cassettes, radiators, mixed installations, etc.). **EREBA™ ACCESS** is also compatible with medium to high temperature emitters for boiler backup operation.

The **EREBA™ ACCESS** unit is installed outside in an open area, ideally as close as possible to the machine room.

Each unit is tested in the factory and delivered ready for operation.

- End-of-line test of all unit operating parameters.
- Circuit leakage, electrical compliance, water and refrigerant pressures.

RANGE

EREBA™ ACCESS's range is composed by 2 models in cooling only and 2 models reversible.

Operating range **EREBA™ ACCESS** :

- Cooling mode with an outdoor temperature from -10°C to 48°C
- Heating from -15°C to +40°C.

In heating mode, if the heat pump is not powerful enough, a backup type boiler or electrical heater is necessary. It must be managed by an external device.

COMPLIANCE

Low Voltage Directive 2014/35/EU

EMC : Electromagnetic Compatibility 2014/30/EU

PED : Pressure Equipment Directive 2014/6/EU

WEEE : Waste Electrical & Electronic Equipment 2012/19/EU

RoHS : Restriction of Hazardous Substances Directive 2011/65/EU

The **EREBA™ ACCESS** liquid chiller/heat pump range was designed for commercial applications such as the air conditioning of offices, hotels and residential houses.

The units integrate the latest technological innovations: Non-ozone depleting refrigerant R410A, scroll or rotary compressors, low-noise fans and auto-adaptative microprocessor control.

For added flexibility the **EREBA™ ACCESS** units are available with hydraulic module integrated into the unit chassis, limiting the installation to straightforward operations like connection of the power supply and the water supply and return piping.

Features

The **EREBA™ ACCESS** chiller/heat pump systems can be used with a wide choice of CIAT terminal fan coil units, and ductable products.

Ecodesign is the European Directive that sets mandatory requirements for Energy related Products (ErP) to improve their energy efficiency.

Quiet operation

■ Compressors

- Low-noise rotary/scroll compressor with low vibration levels and maintenance free.

■ Air heat exchanger section

- Vertical air heat exchanger coils
- The latest-generation low-noise fans are now even quieter and do not generate intrusive low-frequency noise
- Rigid fan installation for reduced start-up noise.

Easy and fast installation

■ Integrated hydraulic module

- Fixed-speed pump.
- Water filter protecting the water pump against circulating debris
- High-capacity membrane expansion tank ensures pressurisation of the water circuit
- Overpressure valve, set to 4 bar
- Thermal insulation and frost protection down to -10°C using pump cycling for all sizes and electric resistance heater .

■ Physical features

- Advanced circuit design and component selection has resulted in a compact unit with an exceptionally small footprint that is easy to transport even through narrow doors. Reduced operating weight and a handle on the unit panels to facilitate transport.
- The unit is enclosed by easily removable panels, covering all components (except air heat exchanger and fans).
- A neutral colour (RAL 7035) to facilitate the integration in residential area

■ Simplified electrical connections

- Single power supply point.
- Main disconnect switch with high trip capacity .
- Transformer for safe 24 V control circuit supply included.



Economical operation

■ Increased seasonal efficiency

- In accordance with EN 14825:2022, Average Climate, energy label reach A and B (see physical data).
- Specific Free Defrost algorithm is present to optimise performance and comfort even during defrost period.

■ Reduced maintenance costs

- Maintenance-free scroll or rotary compressors
- Fast diagnosis of possible incidents and their history via the Pro-Dialog+ control.
- R410A refrigerant is easier to use than other refrigerant blends

Environmental care

■ Ozone-friendly R410A refrigerant

- Chlorine-free refrigerant of the HFC group with zero ozone depletion potential
- Very efficient - gives an increased energy efficiency ratio (EER)

■ Leak-tight refrigerant circuit

- Brazed refrigerant connections for increased leak-tightness.
- Verification of pressure transducers and temperature sensors without transferring refrigerant charge

Superior reliability

■ Auto-adaptive control

- Control algorithm prevents excessive compressor cycling and permits reduction of the water quantity in the hydraulic circuit.

■ Exceptional endurance tests

- Corrosion resistance tests in salt mist in the laboratory
- Accelerated ageing test on components that are submitted to continuous operation: Compressor piping, fan supports
- Transport simulation test in the laboratory on a vibrating table.

Pro-Dialog+

■ Pro-Dialog+ control for models 17-21

Pro-Dialog+ combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and of the water heat exchanger water pump for optimum energy efficiency.

Pro-Dialog+ interface



Energy management

- Seven-day internal time schedule clock: Permits unit on/off control and operation at a second set point
- Set point reset based on the outside air temperature or the return water temperature or on the water heat exchanger delta T
- Master/slave control of two units operating in parallel with operating time equalisation and automatic change-over in case of a unit fault.
- Change-over based on the outside air temperature
- Integrated features
 - Night mode: Capacity and fan speed limitation for reduced noise level
- Ease-of-use
 - The new backlit LCD interface includes a manual control potentiometer to ensure legibility under any lighting conditions.
 - The information is displayed clearly in English, French, German, Italian and Spanish (for other languages please consult CIAT)
 - The Pro-Dialog+ navigation uses intuitive tree-structure menus, similar to the Internet navigators. They are user-friendly and permit quick access to the principal operating parameters: Number of compressors operating, suction/discharge pressure, compressor operating hours, set point, air temperature, entering/leaving water temperature.

■ Remote operating mode with volt-free contacts

A simple two-wire communication bus between the RS485 port of the unit offers multiple remote control, monitoring and diagnostic possibilities.

- Start/stop: Opening of this contact will shut down the unit
- Dual set point: Closing of this contact activates a second set point (example: Unoccupied mode)
- Alert indication: This volt-free contact indicates the presence of a minor fault
- Alarm indication: This volt-free contact indicates the presence of a major fault that has led to the shut-down of the unit
- User safety: This contact can be used for any customer safety loop, closing of the contact generates a specific alarm
- Out of service: This signal indicates that the unit is completely out of service
- Unit capacity: This analogue output (0-10 V) gives an immediate indication of the unit capacity
- Compressor operation: This contact signals that the compressor is in operation

PHYSICAL DATA

| EREBA™ ACCESS Cooling only | | | | 17HT | 21HT |
|-----------------------------------------------|-----|----------------------------------------------|---------|------|------|
| Cooling | | | | | |
| Standard unit Full load performances* | CA1 | Nominal capacity | kW | 16,2 | 21,3 |
| | | EER | kW/kW | 2,95 | 3,07 |
| | CA2 | Nominal capacity | kW | 22,6 | 29,5 |
| | | EER | kW/kW | 3,76 | 3,84 |
| Standard unit Seasonal energy efficiency** | | SEPR _{-2/-8°C} Process medium temp. | kWh/kWh | 2,99 | 3,03 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 5,20 | 5,27 |
| | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 3,25 | 3,38 |
| | | SEER _{23/18°C} Comfort medium temp. | kWh/kWh | 4,05 | 4,00 |

* In accordance with standard EN 14511-3:2022.

** In accordance with standard EN 14825:2022, average climate

CA1 Cooling mode conditions: Temperature of the supply/return water to/from the evaporator $12^{\circ}\text{C}/7^{\circ}\text{C}$, outdoor air temperature 35°C .
Evaporator fouling factor $0\text{ m}^2\text{ k/W}$

CA2 Cooling mode conditions: Temperature of the supply/return water to/from the evaporator $23^{\circ}\text{C}/18^{\circ}\text{C}$, outdoor air temperature 35°C .
Evaporator fouling factor $0\text{ m}^2\text{ k/W}$.

SEPR $-2/-8^{\circ}\text{C}$ Values in bold comply with Ecodesign Regulation (EU) No. 2015/1095 for Process application

SEER $12/7^{\circ}\text{C}$ & SEPR $12/7^{\circ}\text{C}$ Values calculated in accordance with EN 14825:2022

SEER $23/18^{\circ}\text{C}$ Values calculated in accordance with EN 14825:2022



Eurovent certified values

| EREBA™ ACCESS Reversible | | | | 17HT | 21HT |
|-----------------------------------------------|-----|----------------------------------------------|---------|------|------|
| Heating | | | | | |
| Standard unit Full load performances* | HA1 | Nominal capacity | kW | 17,7 | 22 |
| | | COP | kW/kW | 3,98 | 3,96 |
| | HA2 | Nominal capacity | kW | 17,2 | 21,6 |
| | | COP | kW/kW | 3,18 | 3,27 |
| Standard unit Seasonal energy efficiency** | HA1 | SCOP _{30/35°C} | kWh/kWh | 3,19 | 3,19 |
| | | ηs heat _{30/35°C} | % | 125 | 125 |
| | | P _{rated} | kW | 13 | 13 |
| | | Energy labelling | A+ | A+ | |
| Cooling | | | | | |
| Standard unit Full load performances* | CA1 | Nominal capacity | kW | 15,6 | 19,7 |
| | | EER | kW/kW | 2,99 | 2,98 |
| | CA2 | Nominal capacity | kW | 21,8 | 26,9 |
| | | EER | kW/kW | 3,88 | 3,66 |
| Standard unit Seasonal energy efficiency** | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 5,15 | 5,07 |
| | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 3,11 | 3,14 |
| | | SEER _{23/18°C} Comfort medium temp. | kWh/kWh | 3,94 | 3,73 |

* In accordance with standard EN 14511-3:2022.

** In accordance with standard EN 14825:2022, average climate

HA1 Heating mode conditions: Water heat exchanger water entering/leaving temperature $30^{\circ}\text{C}/35^{\circ}\text{C}$, outside air temperature tdb/twb = 7°C db/ 6°C wb, evaporator fouling factor $0\text{ m}^2\text{ k/W}$

HA2 Heating mode conditions: Water heat exchanger water entering/leaving temperature $40^{\circ}\text{C}/45^{\circ}\text{C}$, outside air temperature tdb/twb = 7°C db/ 6°C wb, evaporator fouling factor $0\text{ m}^2\text{ k/W}$

CA1 Cooling mode conditions: Temperature of the supply/return water to/from the evaporator $12^{\circ}\text{C}/7^{\circ}\text{C}$, outdoor air temperature 35°C .
Evaporator fouling factor $0\text{ m}^2\text{ k/W}$

CA2 Cooling mode conditions: Temperature of the supply/return water to/from the evaporator $23^{\circ}\text{C}/18^{\circ}\text{C}$, outdoor air temperature 35°C .
Evaporator fouling factor $0\text{ m}^2\text{ k/W}$.

η_s heat $30/35^{\circ}\text{C}$ & SCOP $30/35^{\circ}\text{C}$ Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for heating application

SEER $12/7^{\circ}\text{C}$ & SEPR $12/7^{\circ}\text{C}$ Values calculated in accordance with EN 14825:2022

SEER $23/18^{\circ}\text{C}$ Values calculated in accordance with EN 14825:2022



Eurovent certified values

PHYSICAL DATA

| EREBA™ ACCESS | | | Cooling only | | Reversible | |
|---------------------------------------------|--|--------------------|--------------------------------------|------|--------------|------|
| | | | 17T | 21T | 17HT | 21HT |
| Sound power level ⁽¹⁾ | | dB(A) | 72 | 74 | 72 | 74 |
| Sound pressure level at 10 m ⁽²⁾ | | dB(A) | 40 | 42 | 40 | 42 |
| Length | | mm | 1136 | | 1136 | |
| Width | | mm | 584 | | 584 | |
| Height | | mm | 1580 | | 1580 | |
| Operating weight ⁽³⁾ | | kg | 189 | 208 | 206 | 223 |
| Compressors | | | Scroll | | | |
| Refrigerant R410A charge ⁽³⁾ | | kg | 5,5 | 6,4 | 6,4 | 7,7 |
| | | CO ₂ eq | 11,5 | 13,4 | 13,4 | 16,1 |
| Air heat exchanger | | | Grooved copper tubes, aluminium fins | | | |
| Axial Fans | | | 2 twin-speed | | 2 twin-speed | |
| Diameter | | mm | 495 | | 495 | |
| Air flow | | l/s | 2212 | | 2217 | 1978 |
| Water Heat Exchanger | | | Brazed plate | | | |
| Water volume | | L | 1,52 | 1,9 | 1,52 | 1,9 |
| Expansion tank volume | | L | 5 | | 5 | |
| Pump | | | Fixed speed | | | |
| Available static pressure | | C1/H1 kPa | 152 | 126 | 148 | 130 |
| Available static pressure | | C2/H2 kPa | 110 | 71 | 152 | 134 |
| Minimum system water content | | l | 58 | 75 | 56 | 71 |
| Max. water-side operating pressure | | kPa | 400 | | | |
| Outlet diameter | | | 1"1/4 G male | | | |
| Chassis paint colour | | | RAL 7035 | | | |

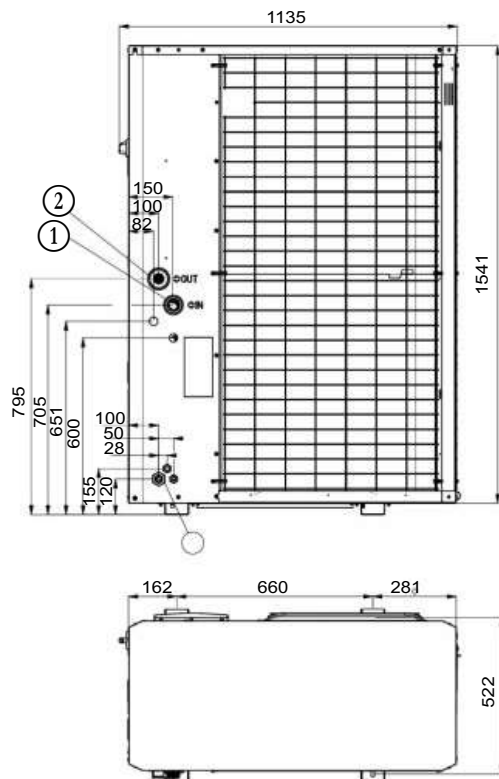
(1) In dB ref=10⁻¹² W, (A) weighting. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 µPa, (A) weighting. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power level Lw(A).

(3) Values are guidelines only. Refer to the unit nameplate.

DIMENSIONS (IN MM)

■ EREBA™ ACCESS 17-21



Key

All dimensions are given in mm

① Water inlet

② Water outlet

③ Power connections

Mounting holes (ø10 mm)

| EREBA™ ACCESS | Weight (in kg) | |
|---------------|---------------------------------|-----------------|
| | Operating weight ⁽¹⁾ | |
| | Cooling only (T) | Reversible (HT) |
| 17 | 189 | 206 |
| 21 | 208 | 223 |

(1) Values are guidelines only. Refer to the unit nameplate

EREBA™ ACCESS

Air-Cooled Liquid Chillers and
Reversible Air-to-Water Heat Pumps



Easy and fast installation

Hydraulic module available

Compact, reliable and efficient

Nominal cooling capacity: 27-39 kW

Nominal heating capacity: 29-39 kW



Cooling or
heating

USE

The **EREBA™ ACCESS** air-to-water heat pump / chiller range is designed for heating and cooling applications in individual homes and small commercial applications.

When installed alone, **EREBA™ ACCESS** is compatible with low to medium temperature emitters (underfloor heating, fan coil units, water cassettes, radiators, mixed installations, etc.). **EREBA™ ACCESS** is also compatible with medium to high temperature emitters for boiler backup operation.

The **EREBA™ ACCESS** unit is installed outside in an open area, ideally as close as possible to the machine room.

Each unit is tested in the factory and delivered ready for operation:

- End-of-line test of all unit operating parameters.
- Circuit leakage, electrical compliance, water and refrigerant pressures.

RANGE

The **EREBA™ ACCESS** range offers 3 models in cooling only and reversible version.

Operating range:

- Cooling mode with an outdoor temperature from -10°C to 46°C (or 48°C for 17-40 models)
- Heating from -15°C to +40°C.

In heating mode, by low external temperature, the heat pump can manage, a backup type boiler or electrical heater if necessary.

COMPLIANCE

Low Voltage Directive 2014/35/EU

EMC: Electromagnetic Compatibility 2014/30/EU

PED: Pressure Equipment Directive 2014/6/EU

WEEE: Waste Electrical & Electronic Equipment 2012/19/EU

RoHS: Restriction of Hazardous Substances Directive 2011/65/EU

The **EREBA™ ACCESS** liquid chiller/heat pump range was designed for commercial applications such as the air conditioning of offices, hotels and residential houses.

The units integrate the latest technological innovations: non-ozone depleting refrigerant R-410A, scroll or rotary compressors, low-noise fans and auto-adaptative microprocessor control.

For more flexibility the **EREBA™ ACCESS** units are available with hydraulic module integrated into the unit chassis, limiting the installation to straightforward operations like connection of the power supply, the water supply and return piping.

Features

The **EREBA™ ACCESS** chiller/heat pump systems can be used with a wide choice of CIAT terminal fan coil units and ductable products.

Quiet operation

- **Compressors**
 - Low-noise rotary/scroll compressor with low vibration levels and maintenance free.
- **Air heat exchanger section**
 - Vertical air heat exchanger coils
 - The latest-generation low-noise fans are now even quieter and do not generate intrusive low-frequency noise.
 - Rigid fan installation for reduced start-up noise.

Easy and fast installation

- **Integrated hydraulic module**
 - Fixed-speed pump.
 - Water filter protecting the water pump against circulating debris.
 - High-capacity membrane expansion tank ensures pressurisation of the water circuit .
 - Overpressure valve, set to 4 bar.
 - Thermal insulation and frost protection down to -10°C using pump cycling and electric resistance heater for sizes.
- **Physical features**
 - Advanced circuit design and component selection has resulted in a compact unit with an exceptionally small footprint that is easy to transport even through narrow doors.
 - Reduced operating weight and a handle on the unit panels to facilitate transport.
 - The unit is enclosed by easily removable panels, covering all components (except air heat exchanger and fans).
 - A neutral colour (RAL 7035) to facilitate the integration in residential area.
- **Simplified electrical connections**
 - Single power supply point.
 - Main disconnect switch with high trip capacity.
 - Transformer for safe 24 V control circuit supply included.



Economical operation

- **Increased seasonal efficiency**
 - In accordance with EN 14825:2022, Average Climate, energy label reach A and B (see physical data).
 - Specific Free Defrost algorithm is present to optimise performance and comfort even during defrost period.
- **Reduced maintenance costs**
 - Maintenance-free scroll or rotary compressors.
 - Fast diagnosis of possible incidents and their history via the Pro-Dialog+ control.
 - R-410A refrigerant is easier to use than other refrigerant blends.

Environmental responsibility

- **Non-ozone depleting refrigerant R-410A**
 - Chlorine-free refrigerant of the HFC group with zero ozone depletion potential.
 - Very efficient - gives an increased energy efficiency ratio (EER/SEER/COP/SCOP).
- **Leak-tight refrigerant circuit**
 - Brazed refrigerant connections for increased leak-tightness.
 - Verification of pressure transducers and temperature sensors without transferring refrigerant charge.

Superior reliability

- **Auto-adaptive control**
 - Control algorithm prevents excessive compressor cycling and permits reduction of the water quantity in the hydraulic circuit.
- **Exceptional endurance tests**
 - Corrosion resistance tests in salt mist in the laboratory.
 - Accelerated ageing test on components that are submitted to continuous operation: compressor piping, fan supports.
 - Transport simulation test in the laboratory on a vibrating table.

Pro-Dialog+

■ Pro-Dialog+ control

Pro-Dialog+ combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and of the water heat exchanger water pump for optimum energy efficiency.

Pro-Dialog+ interface



Energy management

- Seven-day internal time schedule clock: Permits unit on/off control and operation at a second set point
- Set point reset based on the outside air temperature or the return water temperature or on the water heat exchanger delta T
- Master/slave control of two units operating in parallel with operating time equalisation and automatic change-over in case of a unit fault.
- Change-over based on the outside air temperature
- Integrated features
- Night mode: Capacity and fan speed limitation for reduced noise level
- Ease-of-use
- The new backlit LCD interface includes a manual control potentiometer to ensure legibility under any lighting conditions.
- The information is displayed clearly in English, French, German, Italian and Spanish (for other languages please consult CIAT)
- The Pro-Dialog+ navigation uses intuitive tree-structure menus, similar to the Internet navigators. They are user-friendly and permit quick access to the principal operating parameters: number of compressors operating, suction/discharge pressure, compressor operating hours, set point, air temperature, entering/leaving water temperature.

■ Remote operating mode with volt-free contacts

A simple two-wire communication bus between the RS485 port of the unit offers multiple remote control, monitoring and diagnostic possibilities.

- Start/stop: Opening of this contact will shut down the unit
- Dual set point: Closing of this contact activates a second set point (example: Unoccupied mode)
- Alert indication: This volt-free contact indicates the presence of a minor fault
- Alarm indication: This volt-free contact indicates the presence of a major fault that has led to the shut-down of the unit
- User safety: This contact can be used for any customer safety loop, closing of the contact generates a specific alarm
- Out of service: This signal indicates that the unit is completely out of service
- Unit capacity: This analogue output (0-10 V) gives an immediate indication of the unit capacity
- Compressor operation: This contact signals that the compressor is in operation

PERFORMANCES DATA

| EREBA™ ACCESS Cooling only | | | | 26T | 33T | 40T | |
|------------------------------|--|-----|----------------------------------------------|---------|------|------|------|
| Cooling | | | | | | | |
| Standard unit | | CA1 | Nominal capacity | kW | 27,1 | 33,0 | 41,0 |
| Full load performances* | | | EER | kW/kW | 3,01 | 3,22 | 2,91 |
| | | CA2 | Nominal capacity | kW | 38,4 | 45,5 | 56,5 |
| | | | EER | kW/kW | 3,91 | 4,00 | 3,44 |
| Standard unit | | | SEPR _{2/-8°C} Process medium temp. | kWh/kWh | 3,17 | 3,02 | 3,07 |
| Seasonal energy efficiency** | | | SEPR ^{12/7°C} Process high temp. | kWh/kWh | 4,97 | 5,04 | 4,91 |
| | | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 3,15 | 3,36 | 3,22 |
| | | | SEER _{23/18°C} Comfort medium temp. | kWh/kWh | 3,76 | 3,83 | 3,67 |

| EREBA™ ACCESS Heat pump | | | 26HT | 33HT | 40HT | |
|-------------------------------------------------------------|-----|----------------------------|-------|------|------|------|
| Heating | | | | | | |
| <div>Standard unit</div> <div>Full load performances*</div> | HA1 | Nominal capacity | kW | 30,9 | 34,4 | 38,9 |
| | | COP | kW/kW | 3,96 | 3,96 | 3,51 |
| | HA2 | Nominal capacity | kW | 29,9 | 33,3 | 41,0 |
| | | COP | kW/kW | 3,20 | 3,19 | 3,16 |
| Standard unit | HA1 | SCOP _{30/35°C} | | 3,19 | 3,20 | 3,19 |
| Seasonal energy efficiency** | | ηs heat _{30/35°C} | | 125 | 125 | 125 |
| | | P _{rated} | kW | 21 | 24 | 31 |
| | | Energy labelling | | A+ | A+ | A+ |

| Cooling | | | | | | | |
|------------------------------|--|-----|----------------------------------------------|---------|------|------|------|
| Standard unit | | CA1 | Nominal capacity | kW | 26,0 | 32,0 | 38,9 |
| Full load performances* | | | EER | kW/kW | 2,87 | 3,09 | 2,81 |
| | | CA2 | Nominal capacity | kW | 33,7 | 42,7 | 53,8 |
| | | | EER | kW/kW | 3,50 | 3,80 | 3,36 |
| Standard unit | | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 4,78 | 4,97 | 3,86 |
| Seasonal energy efficiency** | | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 3,06 | 3,30 | 3,19 |
| | | | SEER _{23/18°C} Comfort medium temp. | kWh/kWh | 3,57 | 3,73 | 3,64 |

| | |
|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * | In accordance with standard EN14511-3:2022. |
| ** | In accordance with standard EN14825:2022, average climate |
| CA1 | Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fooling factor 0 m².K/W |
| CA2 | Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, outside air temperature 35°C, evaporator fooling factor 0 m².K/W |
| HA1 | Heating mode conditions: Water heat exchanger water entering/leaving temperature 30°C/35°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fooling factor 0 m².K/W |
| HA2 | Heating mode conditions: Water heat exchanger water entering/leaving temperature 40°C/45°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fooling factor 0 m².K/W |
| SEPR _{2/-8°C} | Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application |
| SEER _{12/7°C} & SEPR _{12/7°C} | Values calculated in accordance with EN14825:2022 |
| SEER _{23/18°C} | Values calculated in accordance with EN14825:2022 |
| η _{s heat} _{30/35°C} & SCOP _{30/35°C} | Bold values compliant to Ecodesign regulation: (EU) No 813/2013 for Heat Pump application |



Eurovent certified values

PHYSICAL DATA

| EREBA™ ACCESS | | | Cooling only | | | Reversible | | |
|---------------------------------------------|-------|--------------------|--------------------------------------|------|------|--------------|------|------|
| | | | 26T | 33T | 40T | 26HT | 33HT | 40HT |
| Sound power level ⁽¹⁾ | | dB(A) | 78 | 78 | 80 | 78 | 78 | 80 |
| Sound pressure level at 10 m ⁽²⁾ | | dB(A) | 46 | 46 | 48 | 46 | 46 | 48 |
| Length | | mm | 1002 | | | 1002 | | |
| Width | | mm | 824 | | | 824 | | |
| Height | | mm | 1790 | | | 1790 | | |
| Operating weight ⁽³⁾ | | kg | 255 | 280 | 291 | 280 | 295 | 305 |
| Compressors | | | Scroll | | | | | |
| Refrigerant R-410A charge ⁽³⁾ | | kg | 5,8 | 8,6 | 8,8 | 7,6 | 9,5 | 9,8 |
| | | CO ₂ eq | 12,1 | 18 | 18,4 | 15,9 | 19,9 | 20,5 |
| Air heat exchanger | | | Grooved copper tubes, aluminium fins | | | | | |
| Axial Fans | | | 1 twin-speed | | | 1 twin-speed | | |
| Diameter | | mm | 710 | | | 710 | | |
| Air flow | | l/s | 3530 | | | 3530 | | |
| Water Heat Exchanger | | | Brazed plate | | | | | |
| Water volume | | L | 2,28 | 2,85 | 3,8 | 2,28 | 2,85 | 3,8 |
| Expansion tank volume | | L | 8 | | | 8 | | |
| Pump | | | Fixed speed | | | | | |
| Available static pressure | C1/H1 | kPa | 174 | 160 | 188 | 188 | 176 | 187 |
| Available static pressure | C2/H2 | kPa | 78 | 56 | 106 | 197 | 186 | 193 |
| Minimum system water content | | l | 96 | 117 | 145 | 94 | 115 | 140 |
| Max. water-side operating pressure | | | 400 | | | | | |
| Outlet diameter | | | 1"1/4 G male | | | | | |
| Chassis paint colour | | | RAL 7035 | | | | | |

(1) In dB ref=10⁻¹² W, (A) weighting. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 µPa, (A) weighting. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power level Lw(A).

(3) Values are guidelines only. Refer to the unit nameplate.

ELECTRICAL DATA

| EREBA™ ACCESS | | 26 | 33 | 40 |
|--------------------------------------------------------|---------|--------------------------------|------|-------------------------------|
| Nominal power supply | V-ph-Hz | 400-3+N-50 | | 400-3-50 |
| Voltage range | V | 340-460 | | 360-440 |
| Control circuit supply | | 24 V via internal transformer | | |
| Maximum start-up current (Un) ⁽¹⁾ | A | 118 | 118 | 176 |
| Unit power factor at nominal capacity ⁽²⁾ | | 0,77 | 0,81 | 0,9 |
| Maximum operating power input ⁽²⁾ | kW | 11 | 13,8 | 17,5 |
| Nominal unit operating current drawn ⁽³⁾ | A | 16 | 17 | 25 |
| Maximum operating current draw (Un) ⁽⁴⁾ | A | 20 | 24 | 30 |
| Maximum operating current draw (Un-15%) ⁽⁵⁾ | A | 23 | 27 | 36 |
| Power fuse current (gL fuse) | A | 40 | 50 | 63 |
| Power supply cable section | | H07RN-F - 5x16mm ² | | H07RN-F - 4x16mm ² |
| Pump - power input ⁽⁶⁾ | kW | 0,99 | 1,1 | 1,2 |
| Pump - nominal operating current draw ⁽⁶⁾ | A | 2,4 | 2,6 | 2,8 |
| Pump - maximum current (external pump) | A | 2,5 | | 2,4 |
| Number of fan motor capacitors (5 µF/450 V) | | 0 | 0 | 0 |
| Remote controller - Power supply cable section | | H03VV-F - 7x0,5mm ² | | |

(1) Maximum instantaneous start-up current (locked rotor current of the compressor).

(2) Power input, compressors and fans, at the unit operating limits (saturated suction temperature 10°C, saturated condensing temperature 65°C) and nominal voltage of 400V (data given on the unit nameplate)

(3) Standardised Eurovent conditions: water heat exchanger entering/leaving water temperature 12 °C/7 °C, outside air temperature 35 °C.

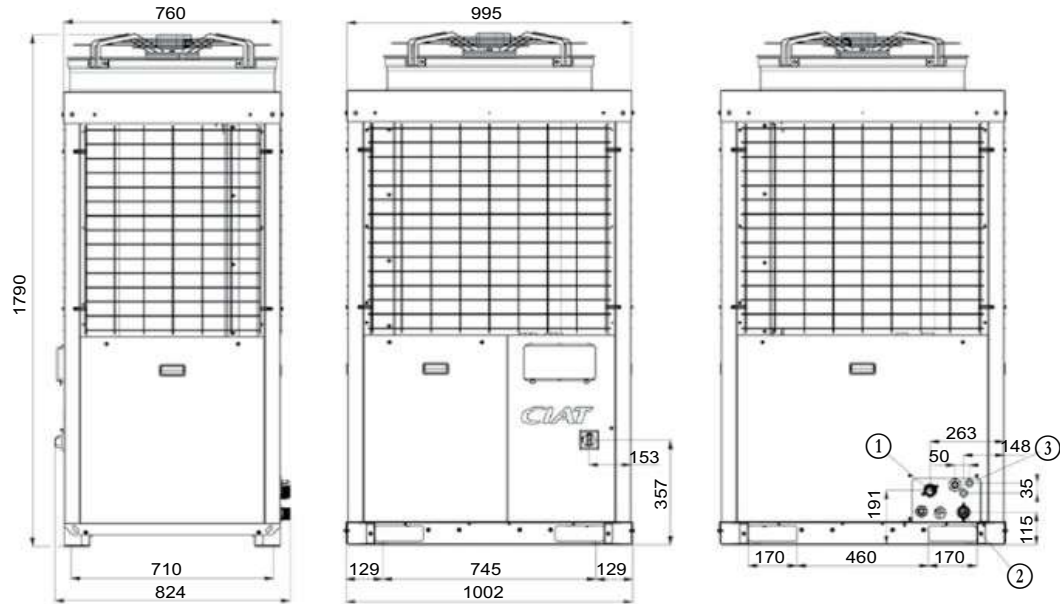
(4) Maximum unit operating current at maximum unit power input and 400 V (data given on the unit nameplate).

(5) Maximum unit operating current at maximum unit power input and 340-460 V for sizes 026 to 033 or 360-440 V for size 040.

(6) Gross performances.

DIMENSIONS (IN MM)

■ EREBA™ ACCESS 26-40



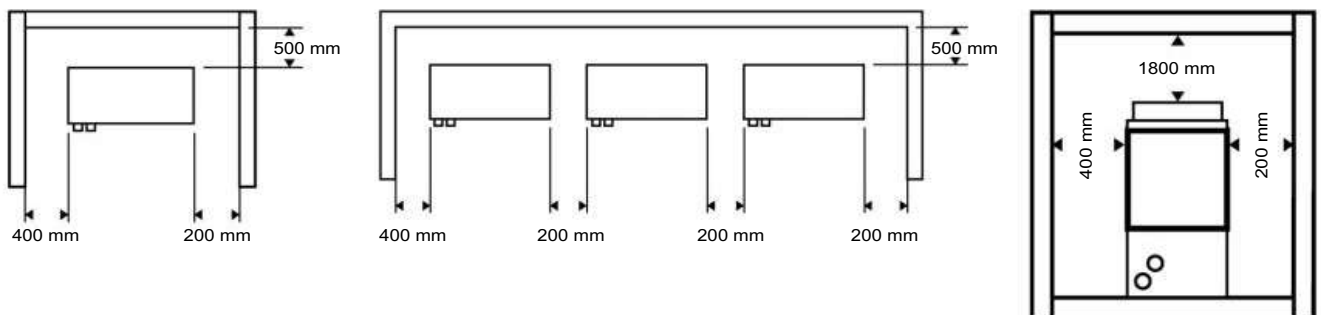
Key
All dimensions are given in mm
① Water inlet
② Water outlet
③ Power connections
Mounting holes (ø10 mm)

| EREBA™ ACCESS | Weight (in kg) | |
|---------------|---------------------------------|-----------------|
| | Operating weight ⁽¹⁾ | |
| | Cooling only (T) | Reversible (HT) |
| 26 | 255 | 280 |
| 33 | 280 | 295 |
| 40 | 291 | 305 |

(1) Values are guidelines only. Refer to the unit nameplate

CLEARANCES (IN MM)

■ EREBA™ ACCESS 26-40



AQUACIAT^{CALEO}™ TD

Heat pump



Compact and silent

Optimised for heating

High energy efficiency

Winter operation down to -20°C

Hot water production up to +65°C

Heating capacity : 26 to 101 kW



Heating



Hydraulic
module

HFC
407C



65°C



Use

The new generation of **AQUACIAT^{CALEO}™** heat pumps offers an optimal solution for all heating applications encountered in the Offices, Healthcare, Hotels, Administration, Shopping Centres and Collective Housing markets.

These units are designed for outdoor installation and require no special protection against adverse weather conditions.

The **AQUACIAT^{CALEO}™** uses outdoor air as the sole source of thermal energy for heating during the winter. Connected to high temperature static radiators, an underfloor heating system or comfort units, it produces hot water at +65°C at an outdoor temperature of -10°C which allows existing buildings to be heated with the greatest of ease.

Connected to a domestic hot water (DHW) production system with buffer tank capacity, the **AQUACIAT^{CALEO}™** allows for complete autonomy of the domestic hot water and conventional heating system, whilst guaranteeing comfort and considerable energy savings.

The **AQUACIAT^{CALEO}™** is optimised to use ozone-friendly HFC R407C refrigerant.

This range guarantees compliance with the most demanding requirements for increased seasonal energy efficiency (SCOP) and CO₂ reduction to comply with the various applicable European directives and regulations.

Range

AQUACIAT^{CALEO}™ TD series

Heating only version.

DESCRIPTION

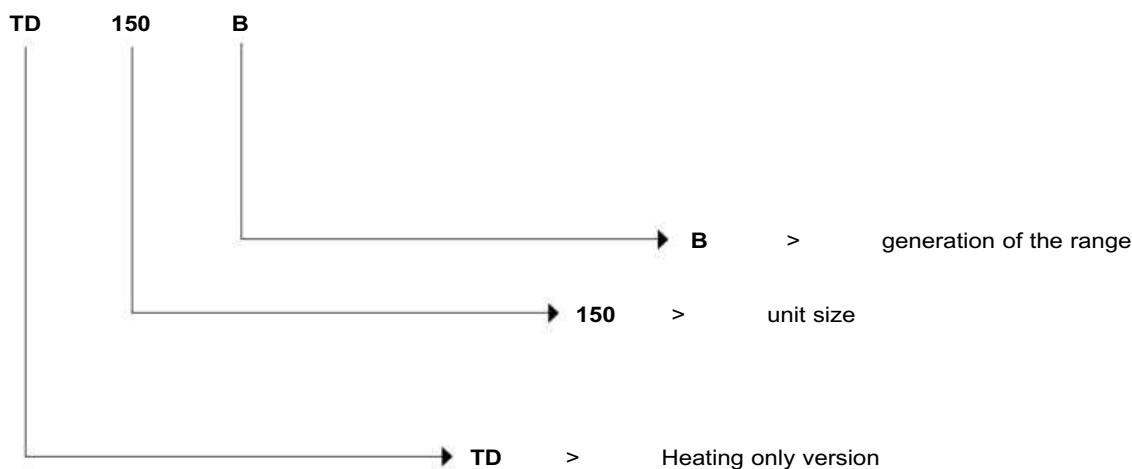
AQUACIAT^{CALEO™} units are packaged machines supplied as standard with the following components:

- Hermetic SCROLL compressors
- Water-cooled condenser, with brazed plates
- Air-cooled evaporator with axial fan motor assembly
 - copper tube coil, aluminium fins
- Electrical power and remote control cabinet:
 - 400V-3ph-50Hz (+/-10%) general power supply + Earth
 - transformer fitted as standard on the machine for supplying the remote control circuit with 24V
- Connect Touch electronic control module
- Hydraulic module with variable speed single pump
- Casing for outdoor installation

The entire AQUACIAT^{CALEO™} range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC
- Electromagnetic compatibility directive 2014/30/EC
- EMC immunity and emissions EN 61800-3 'C3'
- Low voltage directive 2014/35/EU
- RoHS 2011/65/EU
- Pressure equipment directive (PED) 2014/68/EU
- Machinery directive EN 60-204 -1
- Refrigerating systems and heat pumps EN 378-2

DESIGNATION



CONFIGURATION

| | |
|---------------|-------------------------|
| TD | Standard |
| TD LN option | Standard Low Noise |
| TD XLN Option | Standard Xtra Low Noise |

DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

- Hermetic SCROLL type
- Electronic motor overheating protection
- Crankcase heater
- Mounted on anti-vibration mounts

■ Water type heat exchanger

- Brazed-plate exchanger
- Plate patterns optimised for high efficiency
- 19 mm armaflex thermal insulation
- Frost protection with heater

■ Air-cooled exchanger

- Coil made of grooved copper tubes with high-performance aluminium fins
- propeller fans with composite blades offering an optimised profile
- motors – IP 54, class F

■ Refrigerant accessories

- Dehumidifier filters
- Hygroscopic sight glasses
- Electronic expansion valves
- Service valves on the liquid line
- Four-way reverse cycle valve for defrosting

■ Regulation and safety instruments

- Low and high pressure sensors
- Safety valves on refrigerating circuit
- Water temperature control sensors
- Evaporator antifreeze protection sensor
- Factory-fitted evaporator water flow rate controller

■ Electrical cabinet

- Electrical cabinet with IP 44 protection rating
- A connection point without neutral
- Front-mounted main safety switch with handle
- Control circuit transformer
- 24V control circuit
- Fan and compressor motor circuit breaker
- Fan and compressor motor contactors
- Connect Touch microprocessor-controlled electronic control module
- Wire numbering
- Marking of the main electrical components

■ Frame

- Frame made from RAL7035 light grey & RAL 7024 graphite grey painted panels.

■ Connect Touch control module

- User interface with 4.3-inch touch screen
- Intuitive, user-friendly navigation using icons
- Clear text display of information available in 6 languages (F-GB-D-E-I-NL)



The electronic control module performs the following main functions:

- Regulation of the water temperature (at the return or at the outlet)
- Regulation of the water temperature based on the outdoor temperature (water law)
- Regulation for low temperature energy storage
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and operating time balancing
- Self-regulating and proactive functions with adjustment of the control to counter parameter drift
- Optimised defrosting with free defrost function to optimise performance at partial load and the SCOP
- In-series staged power control system on the compressors according to the thermal requirements
- Management of compressor short cycle protection
- Frost protection (exchanger heaters)
- Phase reversal protection
- Management of occupied/unoccupied modes (according to the time schedule)
- Compressor and pump runtime balancing
- Management of the machine operation limit according to outdoor temperature
- Sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- Diagnostics of fault and operating statuses
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- Master/slave management of the two machines in parallel with operating time balancing and automatic changeover if a fault occurs on one machine
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Pump standby based on demand (energy saving)
- Calculation of the water flow rate and operating pressure (hydraulic module version)
- Electronic adjustment of the water pump speed and water flow rate (variable-speed pump option)
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.

AVAILABLE OPTIONS

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics. Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP (certified BTL) as an option, enabling most CMS/BMS to be integrated.

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second Heating setpoint is activated (unoccupied mode, for example)
- Fault reporting: fault reporting: this contact indicates the presence of a major fault which has caused the machine to stop
- Domestic hot water demand
- On/off control for a boiler
- 4-stage on/off management for additional heaters.

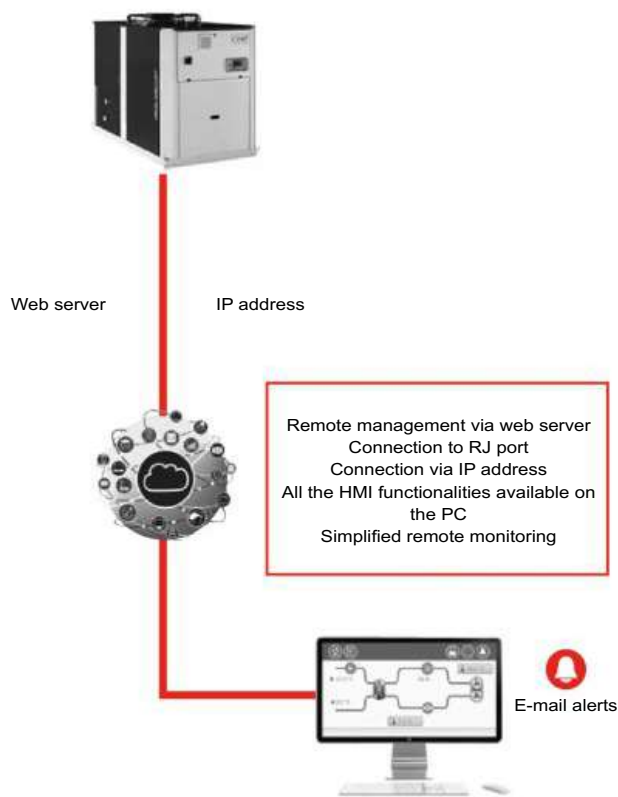
Contacts available as an option:

- Setpoint adjustable via 4-20 mA signal: used to adjust the setpoint

■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.



- the scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- the compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the refrigerant charge, in compliance with the FGAS regulations

AVAILABLE OPTIONS

| Options | Description | Avantages | TD |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Corrosion protection, traditional coils | Fins made of pre-treated aluminium (polyurethane and epoxy) | Improved corrosion resistance, recommended for moderate marine and urban environments | • |
| XtraFan | Fans with 100 Pa maximum available pressure. Each fan equipped with a connection flange & sleeves allowing the connection to the ducting system. | Ducted fan discharge, optimised temperature control, based on the operating conditions and system characteristics | TD 100 to 300 |
| Low Noise | Aesthetic and sound absorbing compressor enclosure | Noise level reduction by 1 to 2 dB(A) | • |
| Xtra Low Noise | Acoustic compressor enclosure and low-speed fans | Noise emission reduction at reduced fan speed | TD 100 to 300 |
| Soft Starter | Electronic starter on each compressor | Reduced start-up current | • |
| Hydraulic module frost protection | Electric heater on the hydraulic module | hydraulic module frost protection at low outside temperatures down to -20°C | • |
| Master/slave operation | Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operating time equalisation | • |
| LON gateway | Two-directional communication board complying with Lon Talk protocol | Connects the unit by communication bus to a building management system | • |
| Bacnet over IP | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy and high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters | • |
| Compliance with Russian regulations | EAC certification | Compliance with Russian regulations | • |
| Condenser screw connection sleeves kit | Condenser inlet/outlet screw connection sleeves | Allows unit connection to a screw connector | • |
| M2M supervision (accessory) | Monitoring solution which allows customers to track and monitor their equipment remotely in real time | Real-time expert technical support to improve equipment availability and reports at customer hand to monitor and optimize operating equipment. | • |
| Anti-vibration mounts | Elastomer antivibratils mounts to be place under the unit (Material classified B2 fire class according to DIN 4102). | Isolate unit from the building, avoid transmission of vibration and associate noise to the buiding. Must be used in conjunction with a flexible connection on the water side | • |
| Condenser flexible sleeves connection | Flexibles connections on the condenser water side | Easy to install. Limits the transmission of vibrations to the water network | • |
| Set point adjustment by 4-20mA signal | Connections enabling a 4-20 mA signal input | Simplified energy management, enabling the setpoint to be set by a 4-20 mA external signal | • |
| Plastic tarp | Plastic sheeting covering the units, with strapping securing it on the wooden pallet. | Allow unit to avoid dust and dirt from the outside environment during stocking and shipping. | • |

• ALL MODELS

Refer to the selection tool to find out which options are not compatible.

TECHNICAL CHARACTERISTICS



| AQUACIAT ^{CALEO™} TD | | | | 80 | 100 | 120 | 150 | 200 | 300 | |
|------------------------------------------------------|-----|----------------------------------------|-------|--------------------------|-------------|-------------|-------------|-------------|-------------|------|
| Heating | | | | | | | | | | |
| Standard unit Full load performances* | HA1 | Nominal capacity | kW | 25,9 | 32,3 | 43,4 | 51,5 | 64,7 | 102,0 | |
| | | COP | kW/kW | 4,02 | 4,04 | 4,27 | 4,32 | 3,97 | 4,24 | |
| | HA2 | Nominal capacity | kW | 25,5 | 32,0 | 43,0 | 51,6 | 66,6 | 102,0 | |
| | | COP | kW/kW | 3,37 | 3,35 | 3,56 | 3,64 | 3,42 | 3,58 | |
| | HA3 | Nominal capacity | kW | 25,0 | 31,6 | 42,7 | 52,2 | 67,9 | 102,0 | |
| | | COP | kW/kW | 2,91 | 2,89 | 3,10 | 3,16 | 3,00 | 3,12 | |
| | HA4 | Nominal capacity | kW | 24,6 | 31,3 | 42,6 | 53,3 | 68,0 | 103,0 | |
| | | COP | kW/kW | 2,43 | 2,42 | 2,60 | 2,66 | 2,52 | 2,64 | |
| Standard unit Seasonal energy efficiency** | HA1 | SCOP _{30/35°C} | kW/kW | 3,33 | 3,44 | 3,58 | 3,66 | 3,57 | 3,62 | |
| | | η _s heat _{30/35°C} | % | 130 | 135 | 140 | 143 | 140 | 142 | |
| | | P _{rated} | kW | 19,2 | 32,8 | 44,5 | 55,9 | 74,1 | 108,7 | |
| | HA3 | SCOP _{47/55°C} | kW/kW | 2,93 | 2,94 | 3,10 | 3,15 | 3,00 | 3,16 | |
| | | η _s heat _{47/55°C} | % | 114 | 115 | 121 | 123 | 117 | 123 | |
| | | P _{rated} | kW | 19 | 31 | 43 | 54 | 63 | 94 | |
| | | Energy labelling | | A+ | A+ | A+ | A+ | A+ | - | |
| Operating weight⁽¹⁾ | | | | | | | | | | |
| Unit + hydraulic module option | | | | kg | 418 | 435 | 555 | 579 | 919 | 1039 |
| Sound levels | | | | | | | | | | |
| Standard unit | | | | | | | | | | |
| Sound power ⁽²⁾ | | | | dB(A) | 78 | 83 | 82 | 84 | 84 | 85 |
| Sound pressure at 10m ⁽³⁾ | | | | dB(A) | 46 | 51 | 51 | 53 | 52 | 53 |
| Unit + Low Noise option | | | | | | | | | | |
| Sound power ⁽²⁾ | | | | dB(A) | 76 | 80 | 80 | 80 | 82 | 82 |
| Sound pressure at 10m ⁽³⁾ | | | | dB(A) | 44 | 49 | 48 | 49 | 50 | 51 |
| Unit + Xtra Low Noise option | | | | | | | | | | |
| Sound power ⁽²⁾ | | | | dB(A) | NA | 76 | 76 | 77 | 79 | 79 |
| Sound pressure at 10m ⁽³⁾ | | | | dB(A) | NA | 45 | 45 | 45 | 47 | 47 |
| Dimensions | | | | | | | | | | |
| Length | | | | mm | 1110 | | 1114 | | 2273 | |
| Depth | | | | mm | 1327 | | 2100 | | 2100 | |
| Height | | | | mm | 1440 | | 1440 | | 1440 | |
| Compressor | | | | Hermetic Scroll 48.3 r/s | | | | | | |
| Quantity | | | | | 1 | 1 | 1 | 1 | 2 | 2 |
| Number of power stages | | | | | 1 | 1 | 1 | 1 | 2 | 2 |

- * In accordance with standard EN14511-3:2022.
- * In accordance with standard EN14825:2022, average climate.
- HA1 Heating mode conditions: Water heat exchanger water entering/leaving temperature 30°C/35°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m2. kW
- HA2 Heating mode conditions: Water heat exchanger water entering/leaving temperature 40°C/45°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m2. kW
- HA3 Heating mode conditions: Water heat exchanger water entering/leaving temperature 47°C/55°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m2. kW
- HA4 Heating mode conditions: Water heat exchanger water entering/leaving temperature 55°C/65°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m2. kW
- η_s heat_{30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN 14825:2022
- η_s heat_{47/55°C} & SCOP_{47/55°C} Values in bold comply with Ecodesign Regulation (EU) No. 813/2018 for heating application
- Not applicable
- (1) Weight given as a guide. Please refer to the unit nameplate.
- (2) In dB ref=10-12 W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-2dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (3) In dB ref 20 μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-2dB(A). For information, calculated from the sound power L_w(A).



Eurovent certified values

TECHNICAL CHARACTERISTICS



| AQUACIAT ^{CALEO™} TD | | 80 | 100 | 120 | 150 | 200 | 300 |
|----------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------|--------|--------|--------|------|------|
| Refrigerant | | R407C PRG = 1800 following AR4 | | | | | |
| Charge | kg | 8,8 | 9,7 | 10 | 13,2 | 22 | 26,5 |
| | tCO ₂ eq | 15,6 | 17,2 | 17,7 | 23,4 | 39,0 | 47,0 |
| Oil | | | | | | | |
| Charge | l | 4,1 | 4,1 | 4,1 | 4,1 | 8,2 | 8,2 |
| Control | | Connect Touch | | | | | |
| Minimum capacity | % | 100 | 100 | 100 | 100 | 50 | 50 |
| Condenser | | Direct expansion, plate heat exchanger | | | | | |
| Water volume | l | 6,4 | 8,2 | 9,6 | 12,1 | 16,4 | 22,7 |
| Max. water-side operating pressure with hydraulic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Fan | | Axial with rotating impeller. | | | | | |
| Quantity | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Total air flow (high speed) | l/s | 3748 | 3736 | 4035 | 4036 | 7479 | 8072 |
| Standard rotation speed | r/s | 12 | 12 | 12 | 12 | 12 | 12 |
| Rotation speed with Xtrafan | r/s | - | 16 | 16 | 16 | 16 | 16 |
| Evaporator | | Grooved copper tube and aluminium fins | | | | | |
| Hydraulic module | | | | | | | |
| Variable speed pump | | Pump. victaulic screen filter. valve. purge valves (water and air). cavitation pressure sensor | | | | | |
| Water connections | | Victaulic | | | | | |
| Connections | inch | 1" 1/4 | 1" 1/2 | 1" 1/2 | 1" 1/2 | 2" | 2" |
| External diameter | mm | 42,4 | 48,3 | 48,3 | 48,3 | 60,3 | 60,3 |
| Chassis paint colour | | Colour code RAL 7035 and RAL7024 | | | | | |

ELECTRICAL SPECIFICATIONS

| AQUACIAT ^{CALEO™} TD | | 80 | 100 | 120 | 150 | 200 | 300 |
|------------------------------------------------------------|---------|-------------------------------|------|------|------|------|------|
| Power circuit | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | |
| Voltage range | V | 360-440 | | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | | |
| Maximum start-up current (Un)⁽¹⁾ | | | | | | | |
| Standard unit | A | 102 | 130 | 172 | 203 | 158 | 243 |
| Unit with soft starter option | A | 54 | 69 | 92 | 103 | 97 | 144 |
| Unit power factor at maximum capacity⁽²⁾ | | 0,82 | 0,83 | 0,87 | 0,87 | 0,83 | 0,87 |
| Max. operating input power⁽²⁾ | kW | 12 | 16 | 21 | 25 | 32 | 48 |
| Nominal unit current draw⁽³⁾ | A | 16 | 20 | 25 | 30 | 42 | 57 |
| Maximum unit current draw (Un)⁽⁴⁾ | A | 21 | 27 | 35 | 41 | 56 | 79 |
| Max. current draw (Un-10%)⁽⁵⁾ | A | 22 | 29 | 38 | 45 | 60 | 86 |

- (1) Maximum instantaneous starting current (maximum operating current of the smallest compressor + fan current + locked rotor current of the largest compressor).
(2) Input power, compressors + fans, at the unit operating limits (saturated suction temperature: 10°C, saturated condensing temperature: 65°C) and nominal voltage of 400 V (data given on the unit nameplate).
(3) Standardised EUROVENT conditions: condenser entering/leaving water temperature = 40/45°C, outside air temperature db/wb = 7°C/6°C.
(4) Maximum unit operating current at maximum unit input power and 400 V (values given on the unit's nameplate).
(5) Maximum unit operating current at maximum unit input power and 360 V.

■ Short circuit current withstand capability (TN system⁽¹⁾)

| AQUACIAT ^{CALEO™} TD - Standard unit (disconnect switch) | | 80 | 100 | 120 | 150 | 200 | 300 |
|-------------------------------------------------------------------|--------|-----------|-----------|-----------|-----------|-----------|-----------|
| Value without upstream protection | | | | | | | |
| Short time (1s) assigned current (I _{cs}) | kA rms | 0,6 | 0,6 | 1,26 | 1,26 | 1,26 | 2 |
| Allowable peak assigned current (I _{pk}) | kA pk | 4,5 | 4,5 | 6 | 6 | 6 | 10 |
| value with upstream protection by circuit breaker | | | | | | | |
| Conditional short circuit assigned current (I _{cc}) | kA rms | 7 | 7 | 7,7 | 7,7 | 6,1 | 10 |
| Circuit breaker - Compact range type | | 40 | 40 | 50 | 63 | 80 | 100 |
| Reference number ⁽²⁾ | | 5SY6340-7 | 5SY6340-7 | 5SY4350-7 | 5SY4363-8 | 5SP4380-7 | 5SP4391-7 |
| Value with upstream protection by fuses | | | | | | | |
| Conditional short circuit assigned current (I _{cc}) | kA rms | 50 | 50 | 50 | 50 | 14,5 | 22 |
| Fuse (gG/gG) | | 40 | 40 | 63 | 63 | 80 | 125 |

- (1) Type of system earthing
(2) If another current limitation protection system is used, its time-current and thermal constraints (I²t) trip characteristics must be at least equivalent to those of the recommended circuit breaker.
The short circuit current stability values given above are for the TN system.

Electrical data and operating conditions notes:

- TD 080-300 units have a single power connection point located immediately upstream of the main disconnect switch.
- The control box includes the following standard features:
 - a main disconnect switch,
 - starter and motor protection devices for each compressor, the fans and the pump,
 - the control devices.
- Field connections:
All connections to the system and the electrical installations must be in full accordance with all applicable local codes.
- The Aquaciat Caléo TD units are designed and built to ensure conformance with these codes. The recommendations of European standard EN 60204-1 (machine safety - electrical machine components - part 1: general regulations - corresponds to IEC 60204-1) are specifically taken into account, when designing the electrical equipment.

NOTES:

- Generally the recommendations of IEC 60364 are accepted as compliance with the requirements of the installation directives. Conformance with EN 60204-1 is the best means of ensuring compliance with the Machines Directive § 1.5.1.
- Annex B of EN 60204-1 describes the electrical characteristics used for the operation of the machines.

- The operating environment for the TD units is specified below:

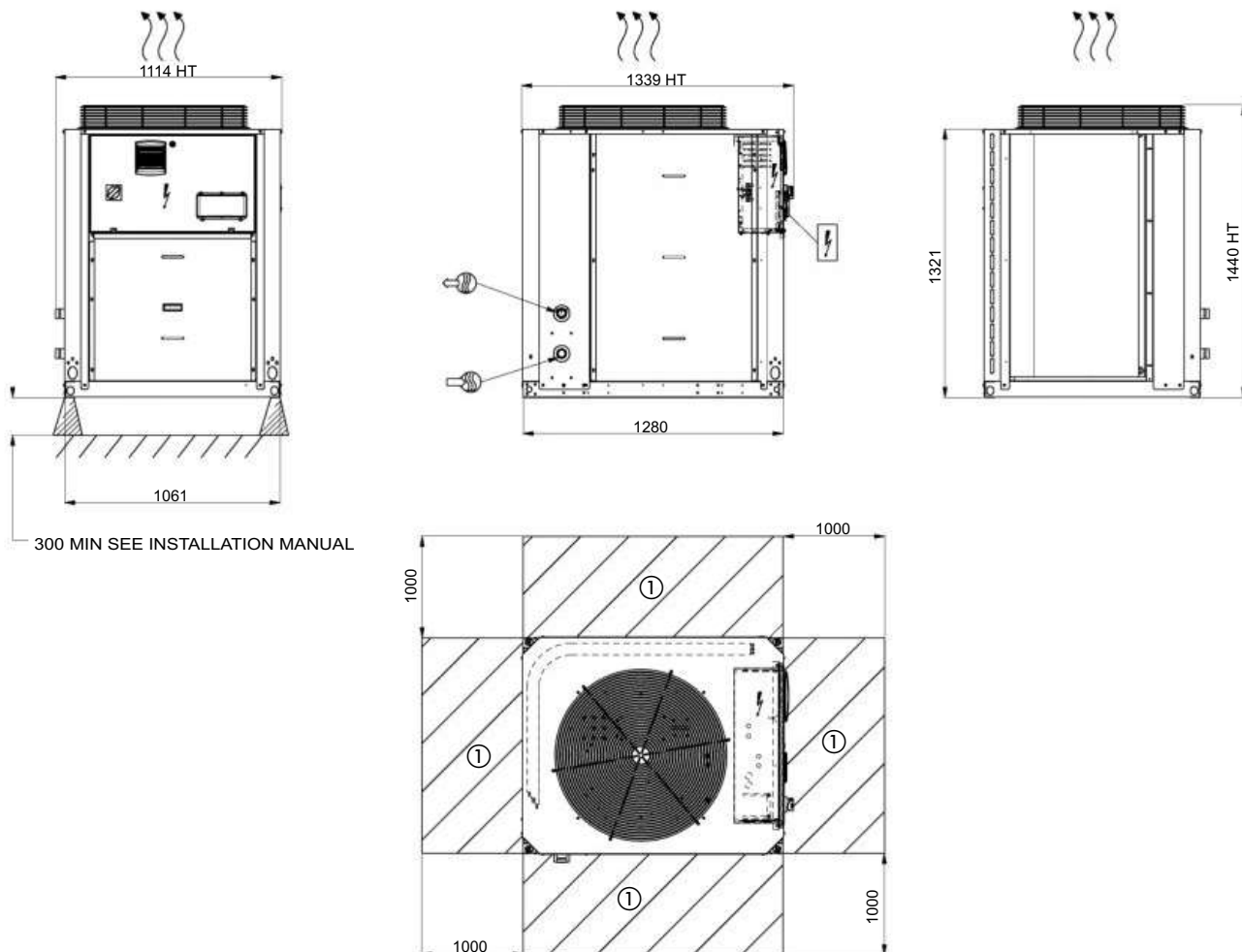
- Environment⁽¹⁾ - Environment as classified in EN 60721 (corresponds to IEC 60721):
 - outdoor installation⁽¹⁾
 - ambient temperature range: -20°C to +40°C, class 4K4H
 - altitude: ≤ 2000 m
 - presence of hard solids, class 4S2 (no significant dust present)
 - presence of corrosive and polluting substances, class 4C2 (negligible)
- Power supply frequency variation: ± 2 Hz.
- The neutral (N) conductor must not be connected directly to the unit (if necessary use a transformer).
- Overcurrent protection of the power supply conductors is not provided with the unit.
- The factory-installed disconnect switch is of a type suitable for power interruption in accordance with EN 60947.
- The units are designed for connection to TN networks (IEC 60364). Units delivered with speed drive (options 116) are not compatible with IT network due to speed drive.

Caution: If particular aspects of an actual installation do not conform to the conditions described above, or if there are other conditions which should be considered, always contact your local CIAT representative.

- (1) The required protection level for this class is IP43BW (according to reference document IEC 60529). All TD units are protected to IP44CW and fulfil this protection condition.

DIMENSIONS

■ AQUACIAT^{CALEO™} TD 80 to 100



Key

Dimensions en mm

① Clearance required for maintenance and air flow



Water inlet



Water outlet



Air outlet, do not obstruct



Electrical cabinet

NOTES :

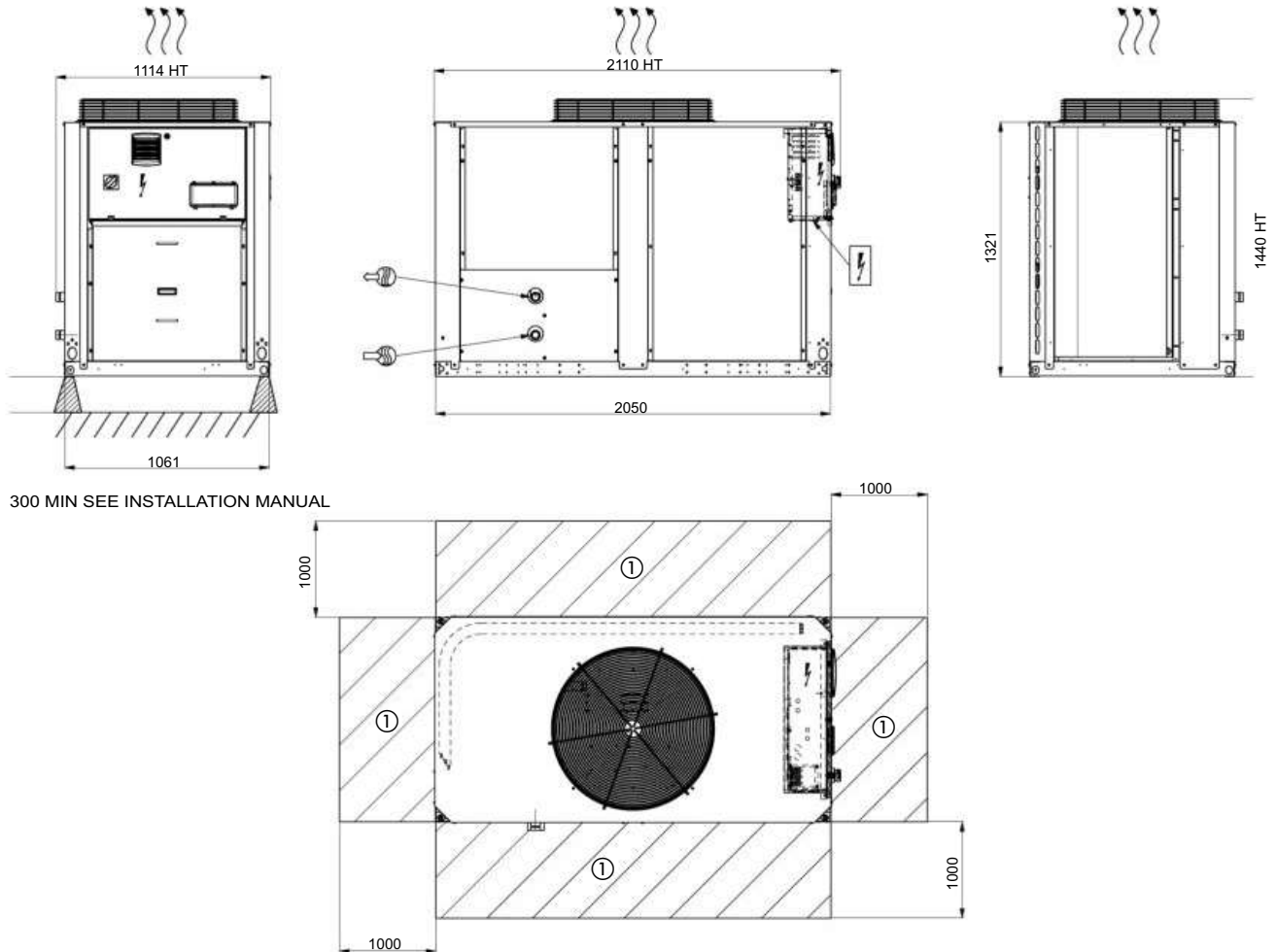
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{CALEO}™ TD 120 to 150



Key

Dimensions en mm

- ① Clearance required for maintenance and air flow
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

NOTES :

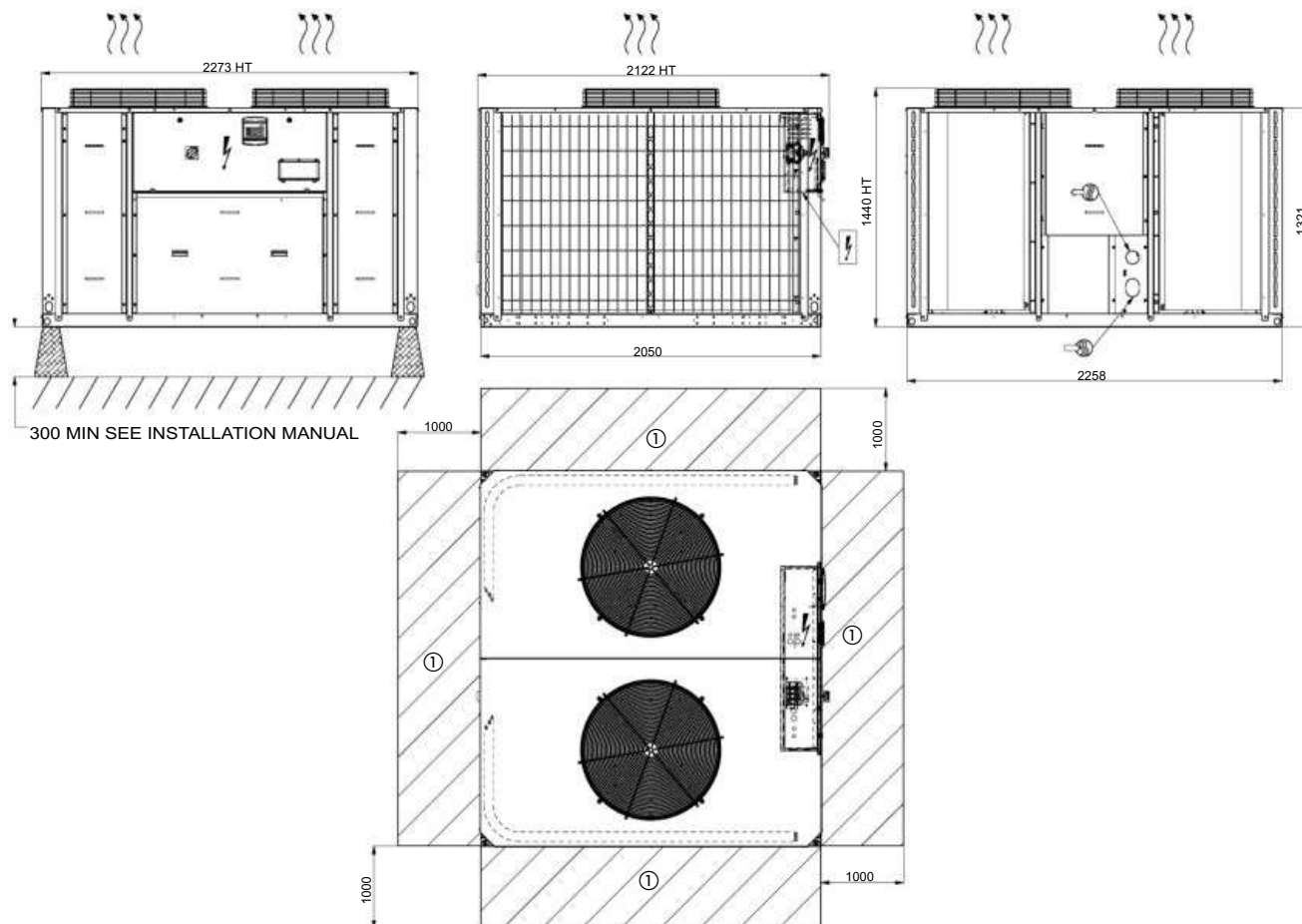
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{CALEO}™ TD 200 to 300



Key

Dimensions en mm

① Clearance required for maintenance and air flow

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

NOTES :

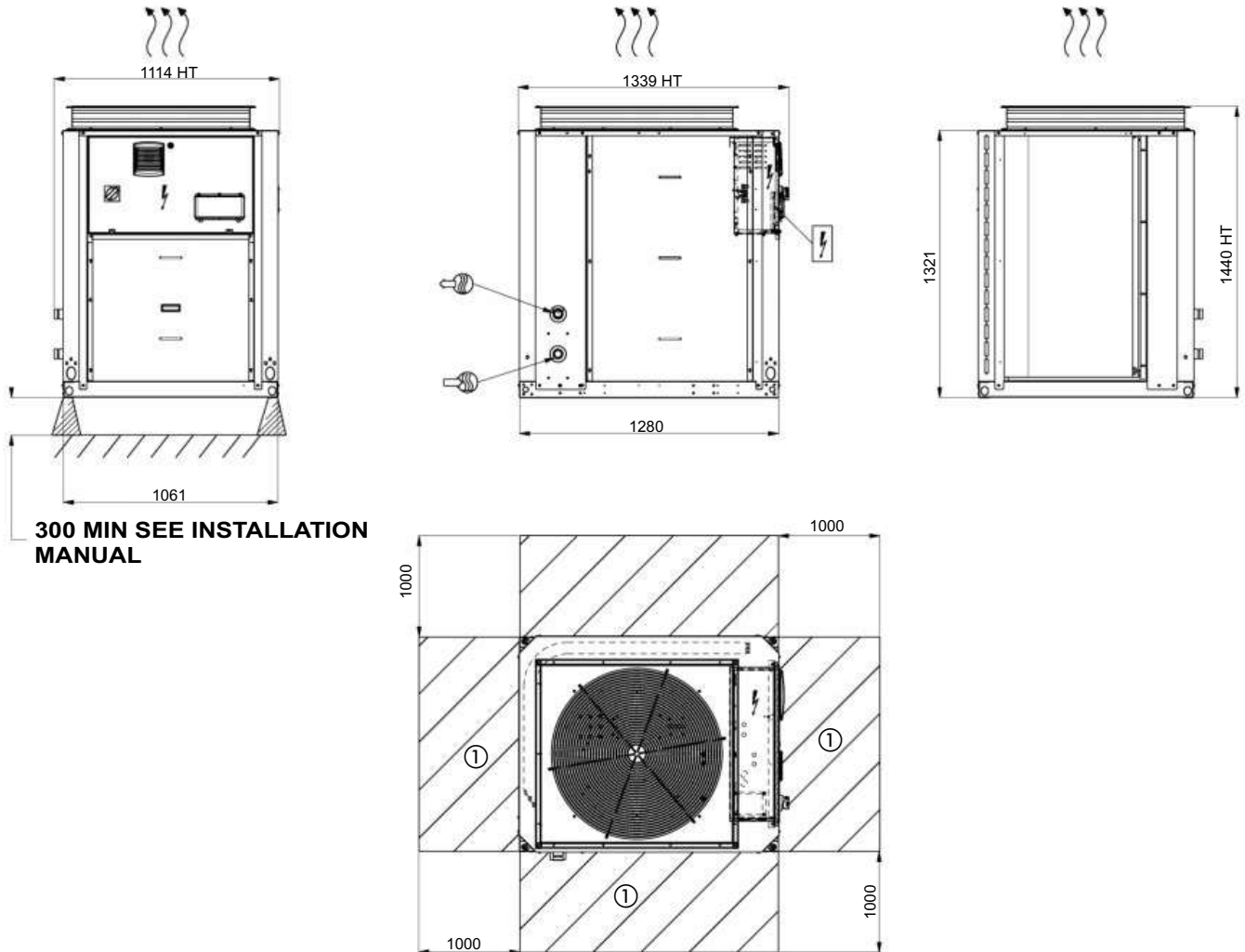
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates..

DIMENSIONS

■ AQUACIAT^{CALEO™} TD 100 XTRA fan option



Key

Dimensions en mm

- ① Clearance required for maintenance and air flow
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

NOTES :

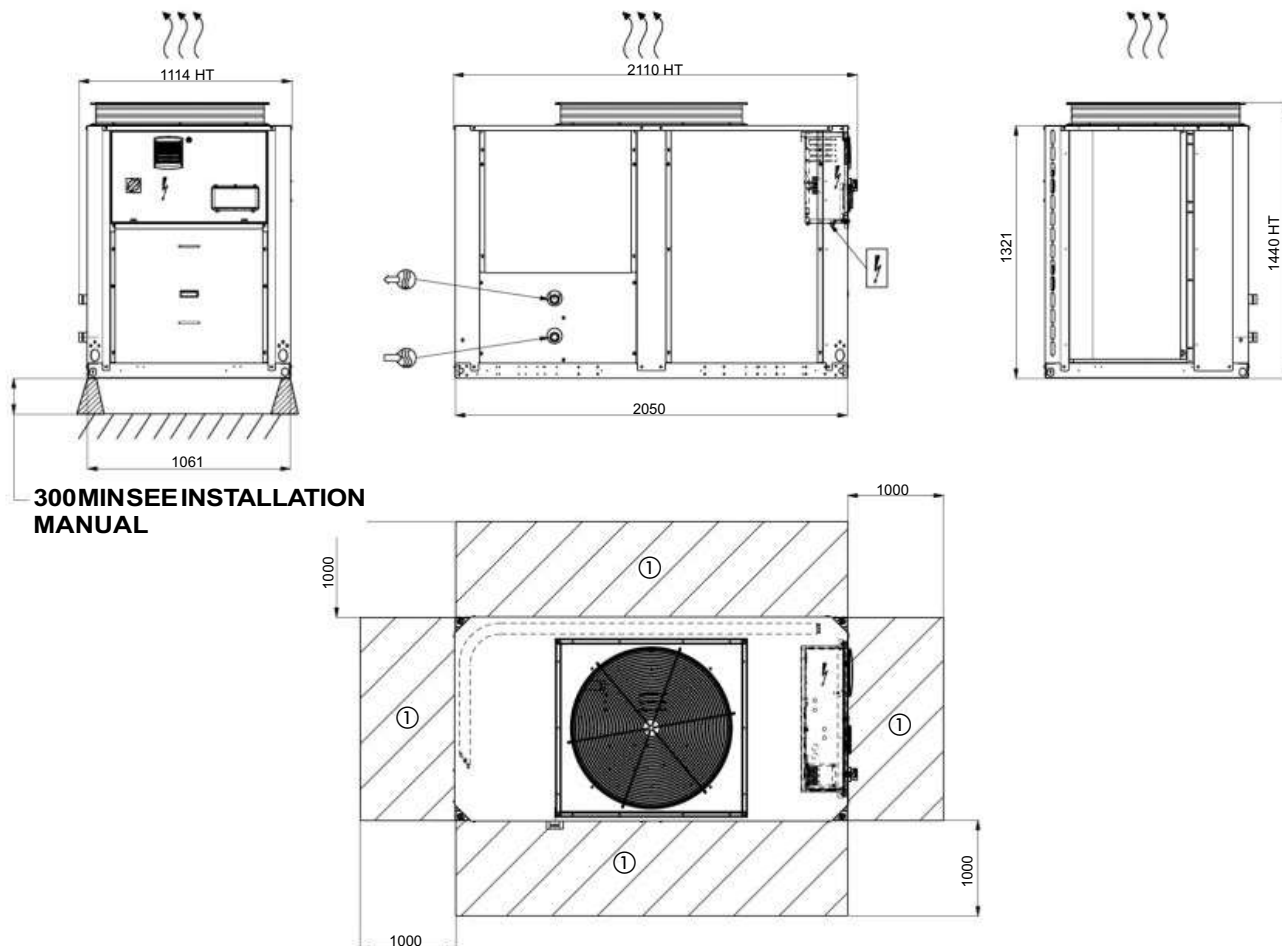
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{CALEO}™ TD 120 - 150 XTRA fan option



**300MINSEE INSTALLATION
MANUAL**

Key

Dimensions en mm

① Clearance required for maintenance and air flow

⬇️ Water inlet

⬆️ Water outlet

⋈ Air outlet, do not obstruct

⚡ Electrical cabinet

NOTES :

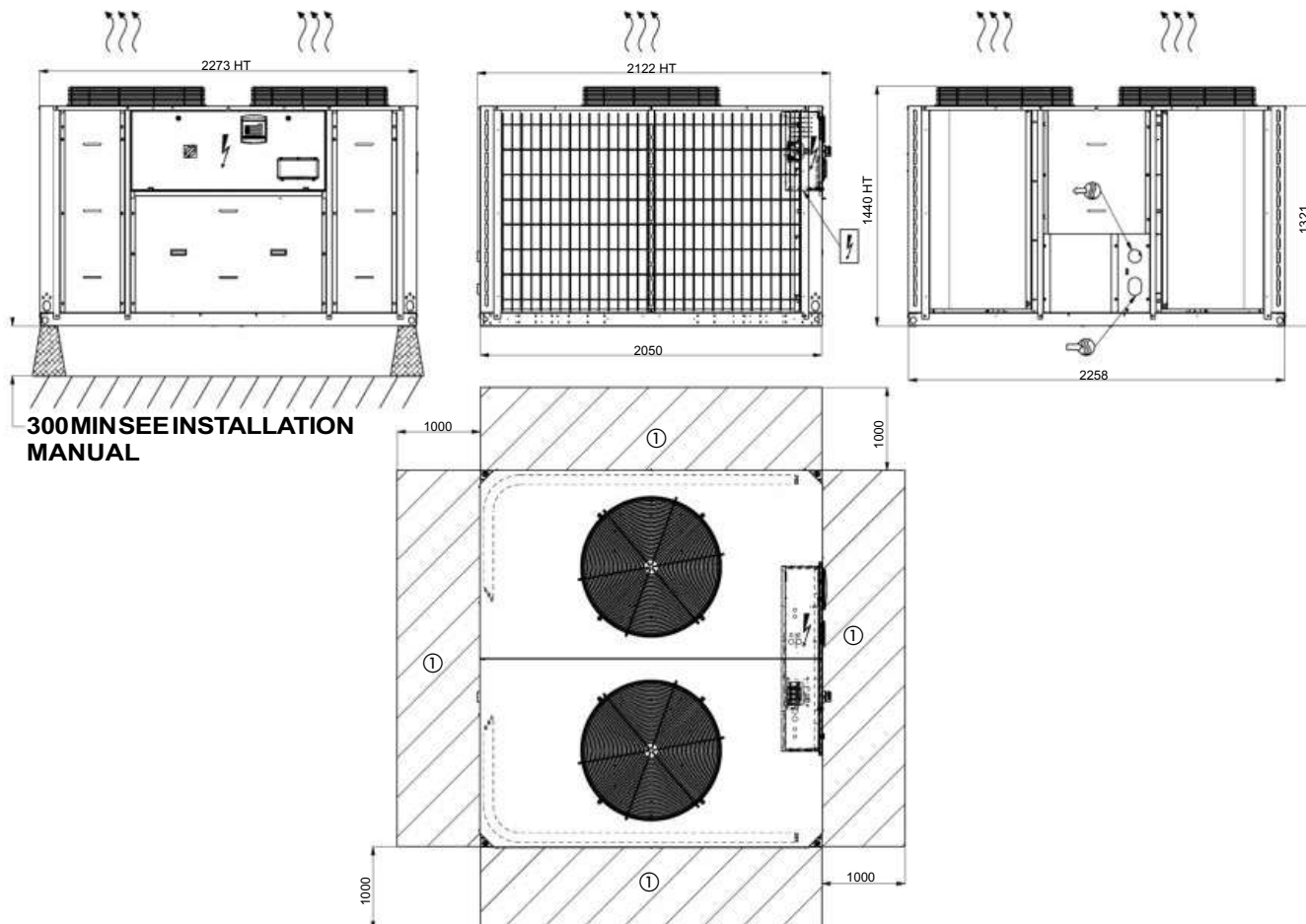
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{CALEO™} TD 200 - 300 XTRA fan option



NOTES :

Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

AQUACIAT™ LD ILD

Water chillers
Heat pump



Unit with protection grille option

Compact and silent

Scroll compressors

High-efficiency brazed-plate heat exchanger

All-aluminium micro-channel condenser

Self-adjusting electronic control

Cooling capacity, LD: 40 to 160 kW
Cooling capacity, ILD: 40 to 150 kW
Heating capacity, ILD: 40 to 150 kW



Cooling only



Cooling and heating



Hydronic module



Heat recovery

R-32



USE

The new generation of **AQUACIAT™** high-efficiency air-to-water heat pumps and water chillers offers an optimal solution for all heating and cooling applications used for the Healthcare, Office, and Hotel sectors.

These units are designed for outdoor installation and require no special protection against adverse weather conditions.

AQUACIAT™ is optimised for R-32, the environmentally-responsible fluid with the lowest GWP.

This range guarantees compliance with the most demanding requirements for increased seasonal energy efficiency (SEER and SCOP) and CO₂ reduction to comply with the various applicable European directives and regulations.

■ Self-regulating operation to adapt to seasonal variations and requirements

With exceptional SEER and SCOP seasonal energy efficiency levels, the **AQUACIAT™** range offers the best technology combined with savings throughout the year.

Due to climatic variations and the different air-conditioning needs of tertiary buildings, most of the time water chillers and heat pumps run at partial load.

Equipped with multiple compressors, **AQUACIAT™** units automatically adjust cooling capacity, anticipating variations in load and starting only the number of compressors needed to ensure optimum operation and energy efficiency.

Thanks to their exceptional thermodynamic performance, provided by radical selection of components, an electronic expansion valve as standard, and a specific control function, standard **AQUACIAT™** units reach a high level of seasonal efficiency in cooling mode (SEER) and in heating mode (SCOP).

■ Acoustic comfort

With different levels of sound equipment available, the **AQUACIAT™** range guarantees the acoustic comfort of occupants and meets the most sensitive environmental requirements as is the case in Hotels, Offices and Hospitals.

■ Quick, simple installation

With a wide variety of connection accessories and equipment, the **AQUACIAT™** range is quick and simple to install.

The advanced controller functions and different communication protocols enable local control via CMS/BMS or remote control, providing building management with peace of mind.



OFFICES



HOTELS



HEALTHCARE



GLOBAL SYSTEM SOLUTIONS

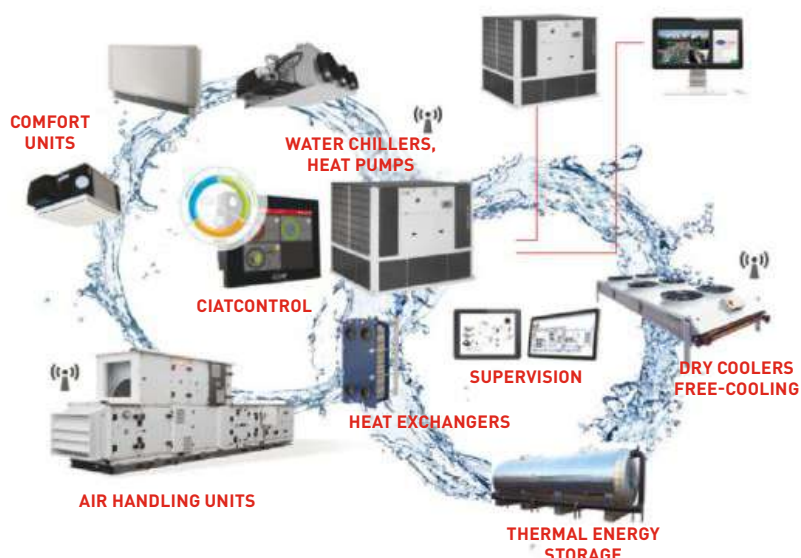
As an expert on customised HVAC solutions, CIAT works to improve the well-being of individuals in their living areas or places of work. Aware of the thermal, energy and air quality issues faced today by every sector of activity, CIAT has responded by developing global systems based on an adapted and efficient combination of products. The latest-generation **AQUACIAT™** with a low environmental footprint is part of our sustainable development process.

■ Global energy systems based on the water loop for heating, cooling and indoor air quality

To comply with today's thermal and environmental regulations, CIAT designs optimised water loop energy systems comprised of comfort units, heat pumps such as **AQUACIAT™** and dual-flow air handling units. As a renewable resource and a highly effective heat-transfer fluid, water not only represents an excellent alternative to direct expansion systems, it also meets F-Gas regulations in terms of confinement and limitation of refrigerants within buildings.

■ Benefits of the water loop

- **More competitive:** equipment that is more cost effective and requires less maintenance than direct expansion systems.
- **Greater comfort:** flexible, precise control of occupant comfort.
- **Greater energy efficiency:** the homogeneity and the thermal stability of water reduce the energy requirements for transferring heat.
- **Environmentally sustainable:** no refrigerant is required on the premises and only a small amount is used in the heat pump installed outside the building's occupied spaces.
- **Easy to install:** no refrigerant specialists are required during installation.
- **Flexibility:** a water loop energy system adapts easily to the configuration of buildings and the changes that may be made to spaces over time.



RANGE

■ AQUACIAT™ LD/ILD series

In the LD water chiller & ILD standard reversible heat pump versions, **AQUACIAT™** units are optimised to meet the most demanding technical and economic requirements.

■ Operation at high outdoor temperatures (options)

In this configuration, the **AQUACIAT™** unit is optimised to operate at outdoor temperatures of +46 °C in cooling mode. In this case, the machine is equipped with high-flow variable-speed fans, enabling a wider range of application while preserving the noise level under nominal outdoor conditions.

■ XtraLow Noise Units (option)

In this configuration, the compressors of the **AQUACIAT™** unit are covered with a soundproofing jacket, the control of the variable-speed fans ensures the lowest noise level in all circumstances while preserving energy performance.

■ All-season operation (options)

In this configuration, the **AQUACIAT™** unit is equipped with variable-speed fans and configured for optimal operation down to outdoor temperatures of -20 °C in cooling mode.

DESCRIPTION

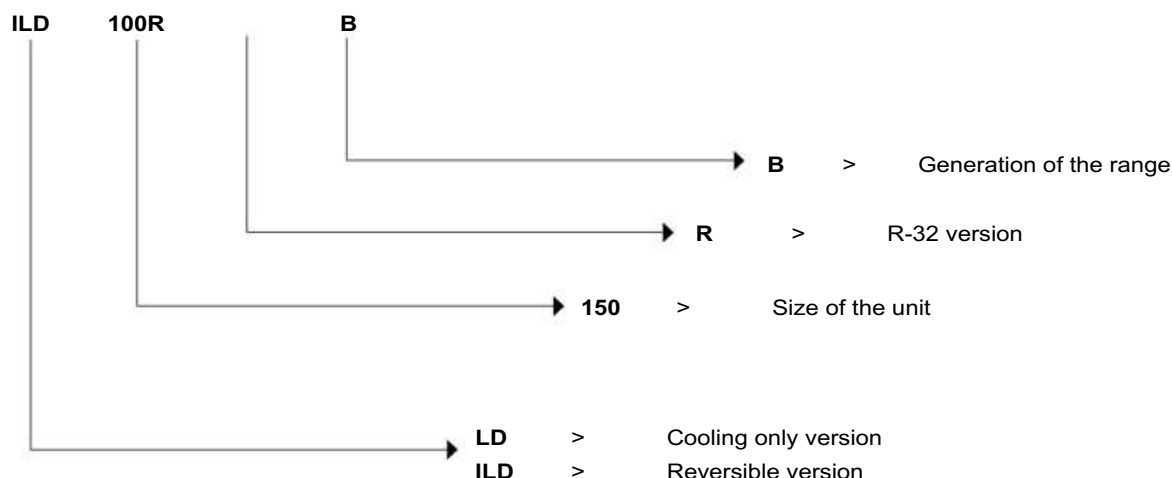
AQUACIAT™ units are packaged machines supplied as standard with the following components:

- Hermetic SCROLL compressors
- Brazed-plate condenser or evaporator water type heat exchanger
- All-aluminium micro-channel condenser (LD) or evaporator air-cooled exchanger, copper tube coil with aluminium fins (ILD) and axial fan motor assembly
- Electrical power and remote control cabinet:
 - 400 V-3ph-50 Hz (+/-10%) mains power supply + earth
 - Transformer fitted as standard on the machine for supplying the remote control circuit with 24 V
- Connect Touch electronic control module
- Casing for outdoor installation

The entire **AQUACIAT™** range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC.
 - Electromagnetic compatibility directive 2014/30/EC
 - Safety of machinery: Electrical equipment of machines EN 60204-1
 - EMC immunity and emissions EN 61800-3 'C3'
 - Regulation (EC) No. 1907/2006 REACH
- Pressure equipment directive (PED) 2014/68/EU
- Refrigerating systems and heat pumps EN 378-2
 - Regulation (EU) No. 813/2013 implementing Directive 2009/125/EC with regard to ecodesign requirements (Heat pump)
 - Regulation (EU) No. 2016/2281 implementing Directive 2009/125/EC with regard to ecodesign requirements (Chiller)

DESCRIPTION



CONFIGURATION

| | |
|--------------------|------------------------|
| LD-ILD | Standard version |
| LD-ILD, XLN option | Xtra Low Noise version |



CUSTOMER BENEFITS

Environmental responsibility

We are committed to meeting your strictest environmental requirements.

We focus our energies on making our products ever more efficient and environmentally friendly.

AQUACIAT™ exceeds the requirements of the 2021 Ecodesign regulations.



R-32



Simplicity

To save you time, we guarantee easy installation and integration in the building management system.

- No machine room required for the pumps and other accessories thanks to the hydronic module option available across the entire range.
- Optimum use of the surface area for easy integration into an existing building.
- Quick, easy installation and commissioning.
- Single-unit solution for quick commissioning and reliable installation.
- Communication with all types of building management system (BMS) via Modbus protocol available as standard, or optional LON or BACNET protocols.



User comfort

We guarantee acoustic comfort for your users.

Thanks to our low-noise fans installed as standard and the noise-reducing technologies integrated in the new **AQUACIAT™** range, we guarantee the level of acoustic comfort which meets your user requirements.

Our optional variable-speed fans reduce the noise level at partial load (night, mid-season, etc.).



EXTRA LOW NOISE LEVEL

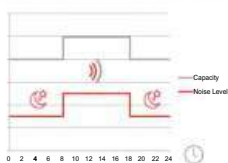
-9 dB(A)

compressors and all noise-generating components equipped with reinforced noise insulation

NIGHT MODE



Sound level reduction



Reliability

We use state-of-the-art monitoring solutions to guarantee complete reliability for your equipment.

ABOUT HVAC Performance lets you track and monitor your CIAT equipment.

- Data extraction in real time via customised access to the **ABOUT HVAC Performance** website (controller dashboard, temperature/event curve, fault memory and alerts and parameter history).
- Email alerts for equipment incidents.
- Monthly and annual reports with analysis and recommendations from CIAT experts



Energy savings

We develop solutions to enable substantial savings while protecting the environment and guaranteeing user comfort.

The partial heat recovery option allows additional hot water to be produced free of charge and at a higher temperature. This hot water can be used to prepare domestic hot water for heating swimming pools, spas and hot tubs.



30% energy



100 % Chilled or hot water production



25 % Domestic hot water production

DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

- Hermetic SCROLL type
- Electronic motor overheating protection
- Crankcase resistance (**AQUACIAT™ ILD**)
- Mounted on anti-vibration mounts

■ Water type heat exchanger

- Brazed-plate exchanger
- Condenser or evaporator mode exchanger on the reversible heat pump version
- Plate profile for high-performance optimisation
- 19-mm armaflex thermal insulation
- Frost protection with heater

■ Air-cooled exchanger

- Air-cooled exchanger:
 - All-aluminium micro-channel coil, cooling only version
 - Copper tube coil with aluminium fins, reversible heat pump version
- Condenser or evaporator mode exchanger on the reversible heat pump version
- Propeller fans with composite blades offering an optimised profile, fixed-speed as standard or variable-speed as an option
- Motors – IP 54, class F

■ Refrigerant accessories

- Dehumidifier filters
- Hygroscopic sight glasses
- Electronic expansion valves
- Service valves on the liquid line
- 4-way cycle inversion valves in cooling/heating mode on the reversible heat pump version

■ Regulation and safety instruments

- Low and high pressure sensors
- Relief valves on the refrigerant circuit
- Water temperature control sensors
- Evaporator antifreeze sensor
- Factory-fitted evaporator water flow controller

■ Electrical cabinet

- Electrical cabinet with IP 44 protection rating
- A connection point without neutral
- Front-mounted main safety switch with handle
- Control circuit transformer
- 24 V control circuit
- Fan and compressor motor circuit breaker
- Fan and compressor motor contactors
- Connect Touch microprocessor-controlled electronic control module
- Wire numbering
- Marking of the main electrical components

■ Frame

Frame made from RAL7035 light grey & RAL 7024 graphite grey painted panels.

■ Connect Touch control module

- User interface with 4.3-inch touch screen
- Intuitive, user-friendly navigation using icons
- Clear text display of information available in 6 languages (F-GB-D-E-I-NL)



The electronic control module performs the following main functions:

- Regulation of the water temperature (at the return or at the outlet)
- Regulation of the water temperature based on the outdoor temperature (water law)
- Regulation for low temperature energy storage
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and runtime balancing
- Self-regulating and proactive functions with adjustment of the control to counter parameter drift
- Optimised defrosting with free defrost function to optimise performance at partial load and the SCOP
- In-series staged power control system on the compressors according to the thermal requirements
- Management of compressor short cycle protection
- Frost protection (exchanger heaters)
- Compressors phase reversal protection
- Management of occupied/unoccupied modes (according to the time schedule)
- Compressor and pump runtime balancing
- Management of the machine operation limit according to outdoor temperature
- Sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- Diagnostics of fault and operating statuses
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- Master/slave management of the two machines in parallel with runtime balancing and automatic changeover if a fault occurs on one machine
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Pump standby based on demand (energy saving)
- Calculation of the water flow rate and operating pressure (hydraulic module version)
- Electronic adjustment of the water pump speed and water flow rate (variable-speed pump option)
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.

DESCRIPTION OF THE MAIN COMPONENTS

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP as an option, enabling most CMS/BMS to be integrated.

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops
- Heating/cooling operating mode selection
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- Power limitation: closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- Fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerant circuits to stop
- Operational status reporting indicates that the unit is in production mode.
- Activation control for partial energy recovery using the desuperheater
- Switch control for the customer pump, external to the machine (on/off).
- 0-10V output available for control of a variable flow pump (unit without hydronic module)

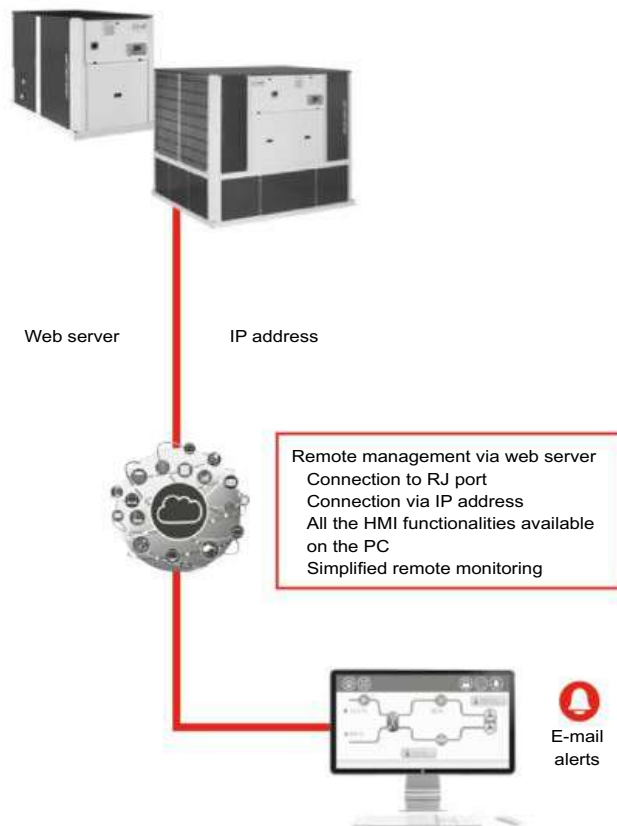
Contacts available as an option:

- Setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in COOLING mode
- On/off control for a boiler
- 4-stage on/off management for additional heaters.

■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.



- The scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- The compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, based on the unit's refrigerant charge, in compliance with the F-GAS regulations

ENVIRONMENTAL RESPONSIBILITY

The **AQUACIAT™** contributes to sustainable development via an environmentally responsible approach, aimed at balancing ecological and economic concerns. This enables it to meet the requirements of future European thermal regulations and to protect our environment for future generations.

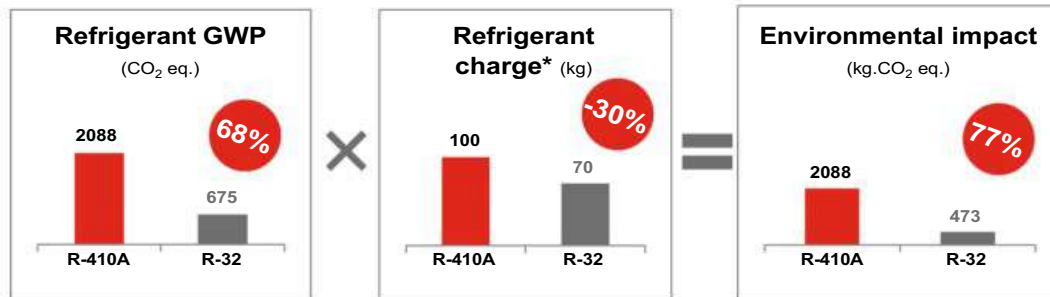
The impact of an air conditioning system on global warming of the planet is in large part caused by CO₂ emissions released into the atmosphere when the electricity required to power the unit is produced (indirect effect) and in small part by CO₂ emissions linked to uncontrolled emissions of refrigerant with global warming potential into the atmosphere (direct effect).

With **AQUACIAT™**, it's a win-win situation: its low charge of R-32 refrigerant with low GWP reduces the direct environmental impact by 80% while reducing the indirect environmental impact thanks to its high energy performance.

■ 77% reduction in the direct environmental impact (refrigerant)

This performance is the result of the high-quality components used, which have all been rigorously selected:

- R-32 refrigerant with low environmental impact (Ozone depletion potential =0, Global warming potential =675)
- Aluminium micro-channel coil on LD chiller versions with a 40% reduction in refrigerant charge compared to a conventional coil
- New generation of copper tube coil-aluminium fins on ILD heat pump versions with a 30% reduction in refrigerant charge compared to a conventional coil
- Asymmetrical brazed-plate heat exchanger (BPHE) with a reduction in the refrigerant charge compared to a shell and tube heat exchanger
- Systematic tightness check of units in leak detection cabinets at end of line production



In conclusion, the direct environmental impact potential of the **AQUACIAT™** with R-32 refrigerant is reduced by 77 % compared to the previous R-410A generation.

ENVIRONMENTAL RESPONSIBILITY

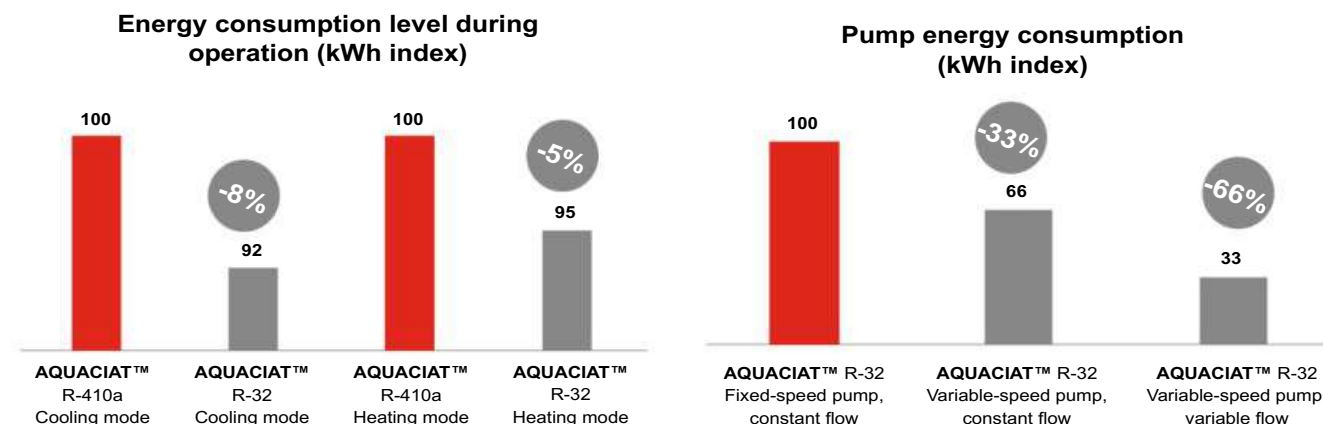


■ Reduced indirect environmental impact (Energy)

The high energy performance offered by **AQUACIAT™** R-32 enables energy consumption to be greatly reduced, thereby cutting energy bills for the user whilst reducing the unit's carbon footprint.

The seasonal efficiency of the **AQUACIAT™** R-32 in cooling mode is 8% greater than that of the previous version with R-410A and 5% greater in heating mode.

In addition, the **AQUACIAT™** unit with R-32 refrigerant can be equipped with a variable-speed pump with constant or variable water flow control to significantly reduce pumping energy costs.



This performance is the result of the high-quality components used, which have all been rigorously selected:

- R-32 refrigerant with high energy performance,
- New generation of scroll compressors optimised for R-32 refrigerant
- Asymmetrical brazed-plate heat exchanger with extremely low water-side pressure drops enabling a reduction in pump electricity consumption
- Optional variable-speed pump enabling automatic adjustment of the rated water flow rate (disposal of the control valve), during operation and during unit shut down periods.

To conclude, the **AQUACIAT™ unit with R-32 refrigerant and variable-speed pump greatly reduces the indirect environmental impact compared to the previous generation R-410A.**

■ EcoPassport®

The PEP ecopassport® programme provides an international reference framework for procedures enabling manufacturers to report the environmental specifications of their products in the form of an environmental claim known as a Product Environmental Profile (PEP).

The PEP ecopassport® programme guarantees that PEPs are correctly drawn up, verified and reported in line with the requirements of the ISO 14025 and IEC/PAS 62545 standards.

The Life Cycle Analysis (LCA) PEP is the environmental identity card for an item of equipment which details the environmental impacts of the product during its life cycle according to eight mandatory indicators:

1. Global Warming Potential
2. Impact on the ozone layer
3. Acidification of soil and water
4. Eutrophication of water
5. Photochemical ozone creation
6. Abiotic resource depletion
7. Fresh water consumption
8. Total use of primary energy during the life cycle



Products with certified environmental profiles are used to support methods to assess building sustainability such as BREEAM, LEED. BREEAM, LEED gives additional recognition for materials with robust environmental product declaration types using manufacturer data.

CIAT is the first HVAC manufacturer to provide the PEP for liquid chillers and heat pumps including not only the 8 mandatory indicators, but all 27 indicators.

The **AQUACIAT™** PEP can be downloaded from the PEP ecopassport® website: <http://www.pep-ecopassport.org/fr/>

AVAILABLE OPTIONS

| Options | Description | Advantages | AQUACIAT™ LD | AQUACIAT™ ILD |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------|
| Corrosion protection, traditional coils | Fins made of pre-treated aluminium (polyurethane and epoxy) | Improved corrosion resistance, recommended for moderate marine and urban environments | No | • |
| Low-temperature brine solution | Low temperature chilled water production down to -8 °C with ethylene or propylene glycol | Covers specific applications such as ice storage and industrial processes | • | According sizes |
| XtraFan | Unit equipped with specific variable-speed fans: XtraFans (See specific chapter for maximum available static pressure according to size), each fan equipped with a connection flange and flexible sleeves | Ducted fan discharge, optimised temperature control, based on the operating conditions and system characteristics | • | • |
| Return air connection frame | Unit equipped with a connection frame at the heat exchange coil inlet | Facilitates channelling of the air at the unit inlet. | • | • |
| Xtra Low Noise | Acoustic compressor enclosure and low-speed fans | Noise emission reduction at reduced fan speed | • | • |
| High ambient temperature | Unit equipped with a higher speed fan | Unit operating range extended to higher ambient temperatures | • | • |
| EC fans | Unit equipped with EC fans | Improves the unit's energy efficiency | • | • |
| Protection grilles | Metallic protection grilles | Coil protection against possible impact | • | • |
| Air filter and return air connection frame | Unit equipped with a connection frame at the heat exchange coil inlet and G2 efficiency washable filter in accordance with EN 779 | Facilitates channelling of the air at the unit inlet and protects the air exchanger against pollution | • | • |
| Electronic starter per compressor | Electronic starter on each compressor | Reduced start-up current | • | • |
| All year round cooling operation down to -20 °C | Fanspeed control via frequency converter | Stable unit operation when the outdoor air temperature is between 0 °C and -20 °C | • | • |
| Water exchanger frost protection | Electric heater on the water exchanger and the water piping | Water exchanger module frost protection between 0 °C and -20 °C outside air temperature | • | • |
| Hydronic module antifreeze protection | Electric heater on the hydronic module | Antifreeze protection of the hydronic module for outdoor temperatures down to -20 °C | • | • |
| Exchanger and hydronic module antifreeze protection | Electric heaters on the water heat exchanger, water pipes, hydronic module, optional expansion tank and buffer tank | Water type heat exchanger and hydronic module frost protection down to an outdoor air temperature of -20°C | • | • |
| Partial heat recovery | Unit equipped with one desuperheater on each refrigerant circuit | Production of free high-temperature hot-water simultaneously with chilled water production (or hot water for heat pump) | • | • |
| Master/slave operation | Unit equipped with supplementary water outlet temperature sensor kit to be field installed allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operating time equalisation | • | • |
| Evaporator single HP pump | High pressure fixed-speed water pump, drain valve, air vent and pressure sensors. (optional expansion tank and built-in safety hydraulic components available) | Quick and easy installation (plug & play) | • | • |
| Evaporator dual HP pump | Dual high pressure fixed-speed water pump, electronic water flow control, pressure sensors. (optional expansion tank and built-in hydraulic safety components available) | Quick and easy installation (plug & play) | • | • |
| Variable-speed single HP pump | Single low pressure water pump, water filter, electronic water flow control, pressure sensors. Multiple variable water flow control options (optional expansion tank and built-in hydraulic safety components available) | Quick and easy installation (plug & play), significant pumping energy cost savings (up to 2/3), tighter water flow control. | • | • |
| Variable-speed dual high pressure pump | Dual high pressure water pump with speed regulator, pressure sensors. Multiple water flow rate control options. For more details, refer to the dedicated section. | Quick and easy installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability | • | • |

• ALL MODELS

(*) Standard equipment on ILD version

Refer to the selection tool to find out which options are not compatible.

AVAILABLE OPTIONS

| Options | Description | Advantages | AQUACIAT™ LD | AQUACIAT™ ILD |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------|---------------|
| Variable-speed single LP pump | Single low pressure water pump with speed regulator, pressure sensors. Multiple water flow rate control options. (optional expansion tank and built-in hydraulic safety components available) | Quick and easy installation (plug & play), significant pumping energy cost savings (up to 2/3), tighter water flow control. | • | • |
| Variable-speed dual LP pump | Evaporator hydronic module equipped with a variable-speed low pressure pump, a drain valve, an air vent and pressure sensors. For more details, refer to the dedicated section (expansion tank not included; option with built-in hydraulic safety components available) | Quick and easy installation (plug & play), significant pumping energy cost savings (up to 2/3), tighter water flow control. | • | • |
| Evaporator single LP pump | Single low pressure fixed-speed water pump, electronic water flow control, pressure sensors. (optional expansion tank and built-in hydraulic safety components available) | Quick and easy installation (plug & play) | • | • |
| Dual LP pump hydronic module | Dual low pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components) | Quick and easy installation (plug & play) | • | • |
| Heating Optimized | Specific configuration to optimized heating mode | Enlarge operating map in heating mode, and increase energetics performances (COP/SCOP) | No | • |
| Lon gateway | Bidirectional communication board using LonTalk protocol | Connects the unit by communication bus to a centralised building management system | • | • |
| Bacnet over IP | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy and high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters | • | • |
| Refrigerant leak detector | Unit equipped with refrigerant leak detector | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions | • | • |
| External boiler management | Control board factory-installed on the unit to control a boiler | Extended remote control capabilities to a boiler on/off command. Permits easy control of a basic heating system | No | • |
| Electric heaters management | Control board factory-installed on the unit with additional inputs/outputs in order to manage up to 4 external heating stages (electrical heaters...) | Extended remote control capabilities to up to 4 electric heaters. Permits easy control of a basic heating system | No | • |
| Input contact for Refrigerant leak detection | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer) | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions | • | • |
| Compliance with Russian regulations | EAC certification | Compliance with Russian regulations | • | • |
| Insulation of the evap. in/out ref. lines | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation | Prevents condensation on the evaporator entering/leaving refrigerant lines | • | • |
| MCHE anti-corrosion protection Protect2 | Coating by conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. Minimal heat transfer variation, salt spray resistance test for 4000 hours (ASTM B117) | Protect2 Improved corrosion resistance of the MCHE coils by 2, recommended for use in moderately corrosive environments | • | No |
| MCHE anti-corrosion protection Protect4 | Extremely durable and flexible epoxy polymer coating applied on micro channel coils by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested 6000 hours constant neutral salt spray per ASTM B117, superior impact resistance per ASTM D2794 | Protect4 Improved corrosion resistance of the MCHE coils by 4, recommended for use in extremely corrosive environments | • | No |
| Evaporator screw connection sleeves (kit) | Evaporator inlet/outlet screw connection sleeves | Allows unit connection to a screw connector | • | • |

• ALL MODELS

(*) Standard equipment on ILD version

Refer to the selection tool to find out which options are not compatible.

AVAILABLE OPTIONS

| Options | Description | Advantages | AQUACIAT™ LD | AQUACIAT™ ILD |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|
| Reinforced ECM filtration for fan VFD | Pump variable frequency drive compliant with IEC 61800-3 class C1 | Allows unit installation in domestic residential environment by reducing electromagnetic interferences | • | • |
| Reinforced ECM filtration for pump VFD | Pump variable frequency drive compliant with IEC 61800-3 class C1 | Allows unit installation in domestic residential environment by reducing electromagnetic interferences | • | • |
| Expansion tank | 6 bar expansion tank integrated in the hydronic module (requires hydronic module option) | Easy and fast installation (plug & play), & protection of closed water systems from excessive pressure | • | • |
| Water buffer tank module | Integrate water buffer tank | Avoid short cycle on compressors and ensure a stable water in the loop | • | • |
| Water buffer tank module with 16,31,45 kW electrical backup | Integrates a water buffer tank module with a 16,31,45 kW auxiliary heater | The tank avoids short cycles on the compressors and ensures the water in the loop is stable. The auxiliary heater provides additional or backup heating in heating mode. | No | • |
| Anti-vibration mounts | Elastomer anti-vibration mounts to be placed under the unit (material classified as fire class B2 according to DIN 4102). | Isolate the unit from the building, prevent the transmission of vibrations and associated noise to the building. Must be used in conjunction with a flexible connection on the water side | • | • |
| Exchangers flexible coupling connection | Heat exchanger flexible connections, water side | Easy to install. Limits the transmission of vibrations to the water network | • | • |
| Exchanger water filter | Water filter | Prevents dust entering the water network | • | • |
| Dry cooler management, free cooling mode | Regulation and connections for a 09PE or 09VE free cooling dry cooler unit equipped with a control box with FC option | Easy system management, control capacity extended to a dry cooler used in free cooling mode | • | No |
| Installation or application process outside Europe | Specific management of option compatibility | Permits non-standard option compatibility for HVAC application in the EU | • | • |
| Compliance with Moroccan regulations | Specific regulatory documentation | Compliance with Moroccan regulations | • | • |
| Delivery with plastic tarp cover | Unit wrapped in a plastic cover and strapped onto a wooden pallet. | Protects against dust and external soiling of the unit during storage and transport. | • | • |

• ALL MODELS

(*) Standard equipment on ILD version

Refer to the selection tool to find out which options are not compatible.



TECHNICAL CHARACTERISTICS - COOLING ONLY

| AQUACIAT™ LD | | | 150R | 180R | 200R | 202R | 240R | 260R | |
|----------------------------------------------------------|----------------------------------------------|------------------|---------|-------|-------|-------|-------|-------|-------|
| Standard unit | | | | | | | | | |
| Cooling Full load performances* | CA1 | Nominal capacity | kW | 41,7 | 47,3 | 52,9 | 56,1 | 63,6 | 71,2 |
| | | EER | kW/kW | 2,95 | 2,94 | 2,93 | 2,97 | 2,89 | 2,90 |
| | CA2 | Nominal capacity | kW | 54,6 | 62,7 | 69,4 | 74,3 | 84,6 | 93,0 |
| | | EER | kW/kW | 3,60 | 3,60 | 3,51 | 3,61 | 3,63 | 3,49 |
| Seasonal energy efficiency** | SEER _{12/7°C} Comfort low temp. | | kWh/kWh | 4,41 | 4,47 | 4,50 | 4,62 | 4,41 | 4,31 |
| | ηs cool _{12/7°C} | | % | 173 | 176 | 177 | 182 | 174 | 169 |
| | SEER _{23/18°C} Comfort medium temp. | | kWh/kWh | 6,10 | 6,11 | 6,06 | 6,17 | 5,61 | 5,72 |
| | SEPR _{12/7°C} Process high temp. | | kWh/kWh | 6,30 | 6,23 | 6,23 | 6,21 | 5,92 | 5,46 |
| | SEPR _{-2/-8°C} Process medium temp. | | kWh/kWh | 3,59 | 3,65 | 3,79 | 3,89 | 3,65 | 3,61 |
| | Part Load integrated values | | IPLV.SI | kW/kW | 4,945 | 5,025 | 5,182 | 5,270 | 5,369 |
| Sound levels | | | | | | | | | |
| Standard unit and High outdoor temperature option | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 81 | 82 | 83,5 | 83,5 | 89 | 89 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 49,5 | 51 | 52 | 52 | 57 | 58 |
| Unit + Xtra Low Noise option | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 78 | 79 | 80 | 80 | 80 | 80 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 47 | 48 | 49 | 49 | 48 | 49 |
| Dimensions | | | | | | | | | |
| Length | | | mm | 2109 | 2109 | 2109 | 2109 | 2109 | 2109 |
| Width | | | mm | 1090 | 1090 | 1090 | 1090 | 1090 | 1090 |
| Height | | | mm | 1330 | 1330 | 1330 | 1330 | 1330 | 1330 |
| Unit height (XtraFan option) | | | mm | 1372 | 1372 | 1372 | 1372 | 1372 | 1372 |
| Unit height (optional buffer tank) | | | mm | 1931 | 1931 | 1931 | 1931 | 1931 | 1931 |
| Unit height (XtraFan + buffer tank option) | | | mm | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 |
| Operating weight ⁽³⁾ | | | | | | | | | |
| Standard unit | | | kg | 408 | 409 | 428 | 428 | 435 | 446 |
| Unit + single high pressure pump option | | | kg | 428 | 429 | 448 | 448 | 455 | 466 |
| Unit + dual high pressure pump option | | | kg | 455 | 456 | 475 | 475 | 482 | 493 |
| Unit + single high pressure pump and buffer tank options | | | kg | 763 | 765 | 784 | 784 | 791 | 801 |
| Unit + dual high pressure pump and buffer tank options | | | kg | 790 | 792 | 811 | 811 | 818 | 828 |

- * In accordance with standard EN14511-3:2022.
- ** In accordance with EN14825:2022, average climatic conditions
- CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
- CA2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
- η_{s cool}_{12/7°C} & SEER_{12/7°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**
- SEER_{23/18 °C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**
- SEPR_{-2/-8°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2015/1095 for HT applications**
- IPLV.SI Calculated as per standard AHRI 551-591
- (1) in dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1.
- (2) In dB ref 20 μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power L_w(A).
- (3) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values



TECHNICAL CHARACTERISTICS - COOLING ONLY

| AQUACIAT™ LD | | 150R | 180R | 200R | 202R | 240R | 260R |
|------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------|------|------|------|------|------|
| Compressors | | Hermetic Scroll 48,3 r/s | | | | | |
| Circuit A | | 2 | 2 | 2 | 2 | 2 | 2 |
| Circuit B | | | | | | | |
| No. of control stages | | 2 | 2 | 2 | 2 | 2 | 2 |
| Refrigerant⁽³⁾ | | R32 / A2L / PRG=675 in accordance with AR4 | | | | | |
| Circuit A | kg | 3,72 | 3,92 | 4,15 | 4,60 | 4,70 | 4,87 |
| | tCO ₂ e | 2,5 | 2,6 | 2,8 | 3,1 | 3,2 | 3,3 |
| Circuit B | kg | | | | | | |
| | tCO ₂ e | | | | | | |
| Oil charge | | POE | | | | | |
| Circuit A | l | 6,00 | 6,00 | 6,60 | 6,60 | 6,60 | 7,20 |
| Circuit B | l | | | | | | |
| Capacity control | | Connect'Touch | | | | | |
| Minimum capacity | % | 50 | 50 | 50 | 50 | 50 | 50 |
| PED category | | III | | | | | |
| Condenser | | All-aluminium micro-channel coils (MCHE) | | | | | |
| Fans | | Axial with rotating impeller | | | | | |
| Quantity | | 1 | 1 | 1 | 1 | 1 | 1 |
| Maximum total air flow | l/s | 3882 | 3802 | 4058 | 3900 | 5484 | 5452 |
| Maximum rotation speed | rps | 12 | 12 | 12 | 12 | 18 | 18 |
| Evaporator | | Direct expansion brazed-plate heat exchanger | | | | | |
| Water volume | l | 3,55 | 4 | 4,44 | 4,44 | 5,18 | 6,07 |
| Max. water-side operating pressure without hydronic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (option) | | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | |
| Pump | | Centrifugal pump, monocell, 48,3 r/s, low- or high pressure (as required), single or dual (as required) | | | | | |
| Expansion tank volume (Option) | l | 18 | 18 | 18 | 18 | 18 | 18 |
| Buffer tank volume (optional) | l | 208 | 208 | 208 | 208 | 208 | 208 |
| Max. water-side operating pressure with hydronic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydronic module | | Victaulic® type | | | | | |
| Connections | inches | 2 | 2 | 2 | 2 | 2 | 2 |
| External diameter | mm | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 |
| Casing paint colour | | Colour code RAL 7035 & 7024 | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.



TECHNICAL CHARACTERISTICS - COOLING ONLY

| AQUACIAT™ LD | | | 300R | 360R | 390R | 450R | 520R | 600R | |
|----------------------------------------------------------|----------------------------------------------|------------------|-------|-------|-------|-------|-------|-------|-------|
| Standard unit | | | | | | | | | |
| Cooling Full load performances* | CA1 | Nominal capacity | kW | 81,1 | 93,4 | 107 | 124 | 140 | 160 |
| | | EER | kW/kW | 2,78 | 2,97 | 2,83 | 2,85 | 2,87 | 2,76 |
| Seasonal energy efficiency** | CA2 | Nominal capacity | kW | 103 | 126 | 142 | 162 | 183 | 203 |
| | | EER | kW/kW | 3,22 | 3,72 | 3,48 | 3,40 | 3,48 | 3,21 |
| | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,24 | 4,38 | 4,51 | 4,57 | 4,46 | 4,37 | |
| | ηs cool _{12/7°C} | % | 167 | 172 | 177 | 180 | 176 | 172 | |
| | SEER _{23/18°C} Comfort medium temp. | kWh/kWh | 5,46 | 5,54 | 5,78 | 5,73 | 5,61 | 5,34 | |
| | SEPR _{12/7°C} Process high temp. | kWh/kWh | 5,21 | 5,45 | 5,19 | 5,24 | 5,37 | 5,15 | |
| | SEPR _{-2/-8°C} Process medium temp. | kWh/kWh | 3,67 | 3,54 | 3,54 | 3,74 | 3,61 | 3,68 | |
| Part Load integrated values | | IPLV.SI | kW/kW | 4,630 | 4,904 | 4,953 | 4,997 | 4,707 | 4,680 |
| Sound levels | | | | | | | | | |
| Standard unit and High outdoor temperature option | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 89 | 91,5 | 91,5 | 92 | 92 | 92 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 57 | 60 | 60 | 60 | 60 | 60 | |
| Unit + Xtra Low Noise option | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 80 | 83 | 83 | 83 | 83 | 83 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 48 | 51 | 51 | 52 | 51 | 51 | |
| Dimensions | | | | | | | | | |
| Length | | mm | 2109 | 2275 | 2275 | 2275 | 2275 | 2275 | |
| Width | | mm | 1090 | 2125 | 2125 | 2125 | 2125 | 2125 | |
| Height | | mm | 1330 | 1330 | 1330 | 1330 | 1330 | 1330 | |
| Unit height (XtraFan option) | | mm | 1372 | 1372 | 1372 | 1372 | 1372 | 1372 | |
| Unit height (optional buffer tank) | | mm | 1931 | 1931 | 1931 | 1931 | 1931 | 1931 | |
| Unit height (XtraFan + buffer tank option) | | mm | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 | |
| Operating weight ⁽³⁾ | | | | | | | | | |
| Standard unit | | kg | 454 | 672 | 734 | 743 | 861 | 877 | |
| Unit + single high pressure pump option | | kg | 474 | 692 | 754 | 768 | 886 | 902 | |
| Unit + dual high pressure pump option | | kg | 501 | 719 | 781 | 790 | 908 | 924 | |
| Unit + single high pressure pump and buffer tank options | | kg | 810 | 1087 | 1149 | 1163 | 1281 | 1297 | |
| Unit + dual high pressure pump and buffer tank options | | kg | 837 | 1114 | 1176 | 1185 | 1303 | 1319 | |

- * In accordance with standard EN14511-3:2022.
- ** In accordance with EN14825:2022, average climatic conditions
- CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
- CA2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
- ηs cool_{12/7°C} & SEER_{12/7°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**
- SEER_{23/18 °C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**
- SEPR_{-2/-8°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2015/1095 for HT applications**
- IPLV.SI Calculated as per standard AHRI 551-591
- (1) in dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1.
- (2) In dB ref 20 μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power Lw(A).
- (3) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values



TECHNICAL CHARACTERISTICS - COOLING ONLY

| AQUACIAT™ LD | | 300R | 360R | 390R | 450R | 520R | 600R |
|------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|
| Compressors | | Hermetic Scroll 48,3 r/s | | | | | |
| Circuit A | | 2 | 2 | 3 | 3 | 2 | 2 |
| Circuit B | | | | | | 2 | 2 |
| No. of control stages | | 2 | 2 | 3 | 3 | 4 | 4 |
| Refrigerant⁽³⁾ | | R32 / A2L / PRG=675 in accordance with AR4 | | | | | |
| Circuit A | kg | 4,94 | 7,75 | 7,95 | 9,00 | 4,87 | 4,94 |
| | tCO ₂ e | 3,3 | 5,2 | 5,4 | 6,1 | 3,3 | 3,3 |
| Circuit B | kg | | | | | 4,87 | 4,94 |
| | tCO ₂ e | | | | | 3,3 | 3,3 |
| Oil charge | | POE | | | | | |
| Circuit A | l | 7,20 | 7,20 | 10,80 | 10,80 | 7,20 | 7,20 |
| Circuit B | l | | | | | 7,20 | 7,20 |
| Capacity control | | Connect'Touch | | | | | |
| Minimum capacity | % | 50 | 50 | 33 | 33 | 25 | 25 |
| PED category | | III | | | | | |
| Condenser | | All-aluminium micro-channel coils (MCHE) | | | | | |
| Fans | | Axial with rotating impeller | | | | | |
| Quantity | | 1 | 2 | 2 | 2 | 2 | 2 |
| Maximum total air flow | l/s | 5414 | 10568 | 10512 | 10974 | 10904 | 10827 |
| Maximum rotation speed | rps | 18 | 18 | 18 | 18 | 18 | 18 |
| Evaporator | | Direct expansion brazed-plate heat exchanger | | | | | |
| Water volume | l | 6,96 | 7,4 | 8,44 | 9,92 | 12,69 | 14,31 |
| Max. water-side operating pressure without hydronic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (option) | | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | |
| Pump | | Centrifugal pump, monocell, 48,3 r/s, low- or high pressure (as required), single or dual (as required) | | | | | |
| Expansion tank volume (Option) | l | 18 | 35 | 35 | 35 | 35 | 35 |
| Buffer tank volume (optional) | l | 208 | 208 | 208 | 208 | 208 | 208 |
| Max. water-side operating pressure with hydronic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydronic module | | Victaulic® type | | | | | |
| Connections | inches | 2 | 2 | 2 | 2 | 2 | 2 |
| External diameter | mm | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 |
| Casing paint colour | | Colour code RAL 7035 & 7024 | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.



TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

| AQUACIAT™ ILD | | | | 150R | 180R | 200R | 240R | 260R | 300R |
|---------------------------------------------------|-----|-------------------------------------------|---------|------|------|------|------|------|------|
| Standard unit | | | | | | | | | |
| Heating Full load performances* | HA1 | Nominal capacity | kW | 44,1 | 47,9 | 54,3 | 61,6 | 68,2 | 61,8 |
| | | COP | kW/kW | 3,91 | 3,97 | 3,89 | 3,80 | 3,81 | 3,03 |
| | HA2 | Nominal capacity | kW | 42,7 | 47,0 | 53,5 | 59,5 | 67,2 | 75,7 |
| | | COP | kW/kW | 3,07 | 3,16 | 3,12 | 3,01 | 3,08 | 3,01 |
| Seasonal energy efficiency** | HA1 | SCOP _{30/35°C} | kWh/kWh | 3,82 | 3,85 | 3,81 | 3,57 | 3,67 | 3,64 |
| | | ηs heat _{30/35°C} | % | 150 | 151 | 149 | 140 | 144 | 143 |
| | | P _{rated} | kW | 31,6 | 33,5 | 36,4 | 42,7 | 49,8 | 55,0 |
| | | | | | | | | | |
| Cooling Full load performances* | CA1 | Nominal capacity | kW | 41,0 | 43,1 | 50,3 | 60,2 | 65,2 | 74,3 |
| | | EER | kW/kW | 2,89 | 2,69 | 2,66 | 2,97 | 2,90 | 2,66 |
| | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,19 | 4,23 | 4,18 | 4,34 | 4,25 | 4,03 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 6,01 | 5,85 | 5,62 | 6,06 | 5,81 | 5,34 |
| Unit with Heating Optimized option | | | | | | | | | |
| Heating Full load performances* | HA1 | Nominal capacity | kW | 44,4 | 48,2 | 54,6 | 62,2 | 68,9 | 62,3 |
| | | COP | kW/kW | 4,02 | 4,09 | 3,99 | 3,93 | 3,92 | 3,15 |
| | HA2 | Nominal capacity | kW | 43,1 | 47,4 | 53,9 | 60,2 | 67,9 | 76,3 |
| | | COP | kW/kW | 3,18 | 3,29 | 3,23 | 3,15 | 3,20 | 3,17 |
| Seasonal energy efficiency** | HA1 | SCOP _{30/35°C} | kWh/kWh | 3,97 | 4,00 | 3,96 | 3,78 | 3,88 | 3,89 |
| | | ηs heat _{30/35°C} | % | 156 | 157 | 155 | 148 | 152 | 153 |
| | | P _{rated} | kW | 31,7 | 33,6 | 36,4 | 42,9 | 50,0 | 55,1 |
| | | | | | | | | | |
| Cooling Full load performances* | CA1 | Nominal capacity | kW | 38,9 | 41,1 | 48,1 | 57,5 | 62,7 | 71,8 |
| | | EER | kW/kW | 2,75 | 2,57 | 2,56 | 2,85 | 2,80 | 2,59 |
| | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 3,95 | 4,00 | 3,98 | 4,15 | 4,06 | 3,89 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 5,68 | 5,56 | 5,39 | 5,79 | 5,56 | 5,17 |
| Sound levels | | | | | | | | | |
| Standard unit and High outdoor temperature option | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 82 | 83 | 84 | 89 | 89,5 | 89,5 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 50 | 52 | 53 | 58 | 58 | 58 |
| Unit + Xtra Low Noise option | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 78,5 | 79 | 80,5 | 80,5 | 80,5 | 80,5 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 47 | 48 | 49 | 49 | 49 | 49 |

| | |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * | In accordance with standard EN14511-3:2022. |
| ** | In accordance with EN14825:2022, average climatic conditions |
| HA1 | Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W |
| HA2 | Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W |
| CA1 | Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W |
| η _{s heat} 30/35°C & SCOP _{30/35°C} | Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications |
| SEER _{12/7 °C} & SEPR _{12/7 °C} | Applicable Ecodesign regulation (EU) No. 2016/2281 |
| (1) | in dB ref=10-12 W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1. |
| (2) | In dB ref 20 µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power Lw(A). |



Eurovent certified values



TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

| AQUACIAT™ ILD | | 150R | 180R | 200R | 240R | 260R | 300R |
|------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------|------|------|------|------|------|
| Dimensions | | | | | | | |
| Standard unit | | | | | | | |
| Length | mm | 2109 | 2109 | 2109 | 2109 | 2109 | 2109 |
| Width | mm | 1090 | 1090 | 1090 | 1090 | 1090 | 1090 |
| Height | mm | 1330 | 1330 | 1330 | 1330 | 1330 | 1330 |
| Unit height (XtraFan option) | mm | 1372 | 1372 | 1372 | 1372 | 1372 | 1372 |
| Unit height (optional buffer tank) | mm | 1931 | 1931 | 1931 | 1931 | 1931 | 1931 |
| Unit height (XtraFan + buffer tank option) | mm | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 |
| Operating weight ⁽³⁾ | | | | | | | |
| Standard unit | | 444 | 446 | 469 | 496 | 506 | 515 |
| Unit + single high pressure pump option | kg | 464 | 466 | 489 | 516 | 526 | 535 |
| Unit + dual high pressure pump option | kg | 491 | 493 | 516 | 543 | 553 | 562 |
| Unit + single high pressure pump and buffer tank options | kg | 800 | 802 | 825 | 852 | 862 | 871 |
| Unit + dual high pressure pump and buffer tank options | kg | 827 | 829 | 852 | 879 | 889 | 898 |
| Compressors | | Hermetic Scroll 48,3 r/s | | | | | |
| Circuit A | | 2 | 2 | 2 | 2 | 2 | 2 |
| Circuit B | | | | | | | |
| No. of control stages | | 2 | 2 | 2 | 2 | 2 | 2 |
| Refrigerant⁽³⁾ | | R-32 / A2L/ PRP= 675 in accordance with AR4 | | | | | |
| Circuit A | kg | 7,30 | 7,30 | 7,80 | 8,70 | 8,95 | 9,20 |
| | tCO ₂ e | 4,9 | 4,9 | 5,3 | 5,9 | 6,0 | 6,2 |
| Circuit B | kg | | | | | | |
| | tCO ₂ e | | | | | | |
| Oil charge | | POE | | | | | |
| Circuit A | l | 6,0 | 6,0 | 6,6 | 6,6 | 7,2 | 7,2 |
| Circuit B | l | | | | | | |
| Capacity control | | Connect®Touch | | | | | |
| Minimum capacity | % | 50 | 50 | 50 | 50 | 50 | 50 |
| PED category | | III | | | | | |
| Condenser | | Grooved copper tubes and aluminium fins | | | | | |
| Fans | | Axial with rotating impeller | | | | | |
| Standard unit | | | | | | | |
| Quantity | | 1 | 1 | 1 | 1 | 1 | 1 |
| Maximum total air flow | l/s | 4034 | 4034 | 4034 | 5613 | 5613 | 5613 |
| Maximum rotation speed | rps | 12 | 12 | 12 | 16 | 16 | 16 |
| Evaporator | | Direct expansion brazed-plate heat exchanger | | | | | |
| Water volume | l | 3,55 | 4 | 4,44 | 5,18 | 6,07 | 6,96 |
| Max. water-side operating pressure without hydronic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (option) | | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | |
| Pump | | Centrifugal pump, monocell, 48,3 r/s, low- or high pressure (as required), single or dual (as required) | | | | | |
| Expansion tank volume (Option) | l | 18 | 18 | 18 | 18 | 18 | 18 |
| Buffer tank volume (optional) | l | 208 | 208 | 208 | 208 | 208 | 208 |
| Max. water-side operating pressure with hydronic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydronic module | | Victaulic® type | | | | | |
| Connections | inches | 2 | 2 | 2 | 2 | 2 | 2 |
| External diameter | mm | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 |
| Casing paint colour | | Colour code RAL 7035 & 7024 | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.



TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

| AQUACIAT™ ILD | | | | 360R | 390R | 450R | 520R | 600R |
|---------------------------------------------------|-----|-------------------------------------------|---------|------|-------|-------|-------|-------|
| Standard unit | | | | | | | | |
| Heating Full load performances* | HA1 | Nominal capacity | kW | 93,3 | 106,6 | 119,1 | 136,8 | 123,0 |
| | | COP | kW/kW | 3,80 | 3,80 | 3,80 | 3,80 | 3,03 |
| | HA2 | Nominal capacity | kW | 91,7 | 104,5 | 117,6 | 134,9 | 150,2 |
| | | COP | kW/kW | 3,10 | 3,09 | 3,09 | 3,08 | 3,00 |
| Seasonal energy efficiency** | HA1 | SCOP _{30/35°C} | kWh/kWh | 3,60 | 3,55 | 3,79 | 3,76 | 3,78 |
| | | η _s heat _{30/35°C} | % | 141 | 139 | 149 | 147 | 148 |
| | | P _{rated} | kW | 59,9 | 68,4 | 87,0 | 99,6 | 109,3 |
| Cooling Full load performances* | CA1 | Nominal capacity | kW | 87,0 | 99,9 | 114,2 | 131,6 | 147,2 |
| | | EER | kW/kW | 2,88 | 2,84 | 2,93 | 2,85 | 2,66 |
| Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,48 | 4,86 | 4,88 | 4,20 | 4,09 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 5,74 | 5,71 | 5,76 | 5,41 | 5,15 |
| Unit with Heating Optimized option | | | | | | | | |
| Heating Full load performances* | HA1 | Nominal capacity | kW | 94,4 | 107,8 | 120,5 | 137,4 | 123,3 |
| | | COP | kW/kW | 3,94 | 3,87 | 3,88 | 3,90 | 3,13 |
| | HA2 | Nominal capacity | kW | 92,9 | 105,8 | 119,0 | 135,6 | 151,1 |
| | | COP | kW/kW | 3,25 | 3,18 | 3,18 | 3,20 | 3,15 |
| Seasonal energy efficiency** | HA1 | SCOP _{30/35°C} | kWh/kWh | 3,77 | 3,71 | 3,95 | 3,98 | 4,00 |
| | | η _s heat _{30/35°C} | % | 148 | 145 | 155 | 156 | 157 |
| | | P _{rated} | kW | 60,3 | 68,8 | 87,5 | 99,8 | 109,4 |
| Cooling Full load performances* | CA1 | Nominal capacity | kW | 83,4 | 96,0 | 109,6 | 127,1 | 142,7 |
| | | EER | kW/kW | 2,77 | 2,74 | 2,83 | 2,76 | 2,58 |
| Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,29 | 4,63 | 4,66 | 4,10 | 4,02 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 5,52 | 5,49 | 5,58 | 5,33 | 5,16 |
| Sound levels | | | | | | | | |
| Standard unit and High outdoor temperature option | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 92 | 92 | 92 | 92,5 | 92 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 60 | 61 | 60 | 61 | 60,0 |
| Unit + Xtra Low Noise option | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 83,5 | 83,5 | 83,5 | 83,5 | 83,5 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 52 | 52 | 52 | 52 | 52 |

- * In accordance with standard EN14511-3:2022.
- ** In accordance with EN14825:2022, average climatic conditions
- HA1 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
- HA2 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
- CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
- η_s heat_{30/35°C} & SCOP_{30/35°C} Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications
- SEER_{12/7°C} & SEPR_{12/7°C} Applicable Ecodesign regulation (EU) No. 2016/2281
- (1) in dB ref=10-12 W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). Measured in accordance with ISO 9614-1.
- (2) In dB ref 20 μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3 dB(A)). For information, calculated from the sound power Lw(A).



Eurovent certified values



TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMP

| AQUACIAT™ ILD | | 360R | 390R | 450R | 520R | 600R |
|------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|
| Dimensions | | | | | | |
| Standard unit | | | | | | |
| Length | mm | 2275 | 2275 | 2275 | 2275 | 2275 |
| Width | mm | 2125 | 2125 | 2125 | 2125 | 2125 |
| Height | mm | 1330 | 1330 | 1330 | 1330 | 1330 |
| Unit height (XtraFan option) | mm | 1372 | 1372 | 1372 | 1372 | 1372 |
| Unit height (optional buffer tank) | mm | 1931 | 1931 | 1931 | 1931 | 1931 |
| Unit height (XtraFan + buffer tank option) | mm | 1973 | 1973 | 1973 | 1973 | 1973 |
| Operating weight ⁽³⁾ | | | | | | |
| Standard unit | | 759 | 818 | 866 | 996 | 1000 |
| Unit + single high pressure pump option | kg | 779 | 838 | 891 | 1021 | 1025 |
| Unit + dual high pressure pump option | kg | 805 | 864 | 923 | 1054 | 1058 |
| Unit + single high pressure pump and buffer tank options | kg | 1174 | 1233 | 1286 | 1416 | 1420 |
| Unit + dual high pressure pump and buffer tank options | kg | 1200 | 1259 | 1318 | 1449 | 1453 |
| Compressors | | Hermetic Scroll 48,3 r/s | | | | |
| Circuit A | | 2 | 3 | 3 | 2 | 2 |
| Circuit B | | | | | 2 | 2 |
| No. of control stages | | 2 | 3 | 3 | 4 | 4 |
| Refrigerant⁽³⁾ | | R-32 / A2L/ PRP= 675 in accordance with AR4 | | | | |
| Circuit A | kg | 15,20 | 15,70 | 19,63 | 8,95 | 9,15 |
| | tCO ₂ e | 10,3 | 10,6 | 13,3 | 6,0 | 6,2 |
| Circuit B | kg | | | | 8,95 | 9,15 |
| | tCO ₂ e | | | | 6,0 | 6,2 |
| Oil charge | | | | | | |
| Circuit A | l | 7,2 | 10,8 | 10,8 | 7,2 | 7,2 |
| Circuit B | l | | | | 7,2 | 7,2 |
| Capacity control | | Connect®Touch | | | | |
| Minimum capacity | % | 50 | 33 | 33 | 25 | 25 |
| PED category | | III | | | | |
| Condenser | | Grooved copper tubes and aluminium fins | | | | |
| Fans | | Axial with rotating impeller | | | | |
| Standard unit | | | | | | |
| Quantity | | 2 | 2 | 2 | 2 | 2 |
| Maximum total air flow | l/s | 10904 | 10904 | 10904 | 11226 | 11226 |
| Maximum rotation speed | rps | 16 | 16 | 16 | 16 | 16 |
| Evaporator | | Direct expansion brazed-plate heat exchanger | | | | |
| Water volume | l | 7,4 | 8,44 | 9,92 | 12,69 | 14,31 |
| Max. water-side operating pressure without hydronic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (option) | | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | |
| Pump | | Centrifugal pump, monocell, 48,3 r/s, low- or high pressure (as required), single or dual (as required) | | | | |
| Expansion tank volume (Option) | l | 35 | 35 | 35 | 35 | 35 |
| Buffer tank volume (optional) | l | 208 | 208 | 208 | 208 | 208 |
| Max. water-side operating pressure with hydronic module | kPa | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydronic module | | Victaulic® type | | | | |
| Connections | inches | 2 | 2 | 2 | 2 | 2 |
| External diameter | mm | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 |
| Casing paint colour | | Colour code RAL 7035 & 7024 | | | | |

(3) Values are guidelines only. Refer to the unit name plate.

ELECTRICAL SPECIFICATIONS

| AQUACIAT™ LD/ILD | 150R | 180R | 200R | 202R | 240R | 260R | 300R | 360R | 390R | 450R | 520R | 600R | |
|-----------------------------------------------------------|-------------------------------|----------|------|------|------|------|------|------|------|------|------|------|------|
| Power circuit supply | | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | | |
| Control circuit supply | 24 V via internal transformer | | | | | | | | | | | | |
| Maximum operating input power ^{(1) or (2)} | | | | | | | | | | | | | |
| Circuit A&B | kW | 19 | 21 | 24 | 24 | 28 | 31 | 36 | 41 | 48 | 55 | 63 | 71 |
| Power factor at maximum power ^{(1) or (2)} | | | | | | | | | | | | | |
| Displacement Power Factor (Cos Phi), standard unit | | 0,81 | 0,82 | 0,82 | 0,82 | 0,84 | 0,84 | 0,85 | 0,82 | 0,84 | 0,85 | 0,84 | 0,85 |
| Nominal unit current draw ⁽⁴⁾ | | | | | | | | | | | | | |
| Standard unit | A | 26 | 29 | 35 | 35 | 36 | 46 | 52 | 59 | 71 | 81 | 91 | 104 |
| Maximum operating current draw (Un) ^{(1) or (2)} | | | | | | | | | | | | | |
| Standard unit | A | 34 | 37 | 42 | 42 | 48 | 54 | 60 | 72 | 84 | 93 | 108 | 121 |
| Maximum current (Un-10%) ^{(1) or (2)} | | | | | | | | | | | | | |
| Standard unit | A | 37 | 39 | 44 | 44 | 51 | 58 | 65 | 77 | 89 | 99 | 115 | 129 |
| Maximum start-up current (Un) ^{(2) + (3)} | | | | | | | | | | | | | |
| Standard unit | A | 116 | 118 | 165 | 165 | 169 | 177 | 191 | 238 | 206 | 223 | 231 | 251 |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(4) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12 °C/7 °C, outdoor air temperature = 35 °C.

■ Short circuit current withstand capability (TN system⁽¹⁾)

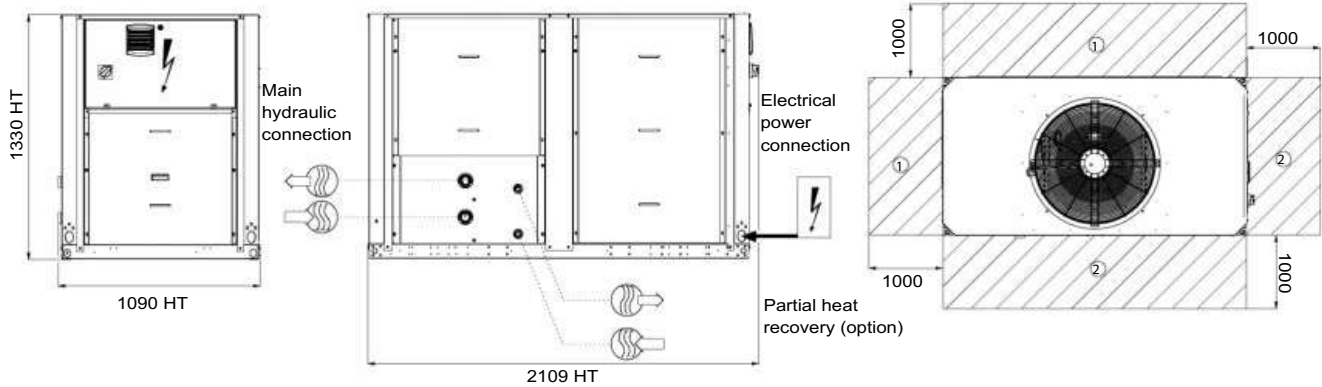
| AQUACIAT™ LD/ILD | | 150R | 180R | 200R | 202R | 240R | 260R | 300R | 360R | 390R | 450R | 520R | 600R |
|------------------------------------------------------------|--------|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Rated short-circuit withstand currents | | | | | | | | | | | | | |
| Short time (1s) assigned current - I _{cw} | kA eff | 3,36 | 3,36 | 3,36 | 3,36 | 3,36 | 3,36 | 5,62 | 5,62 | 5,62 | 5,62 | 5,62 | 5,62 |
| Allowable peak assigned current - I _{pk} | kA pk | 20 | 20 | 20 | 20 | 20 | 20 | 15 | 20 | 20 | 15 | 20 | 15 |
| Value with upstream protection | | | | | | | | | | | | | |
| Conditional short circuit assigned current I _{cc} | kA eff | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 30 | 30 |
| Associated protection | | Circuit breaker/Schneider | | | | | | | | | | | |
| Associated protection | | NS 100H | NS 100H | NS 100H | NS 100H | NS 100H | NS 100H | NS 100H | NS 100H | NS 100H | NS 160H | NS 160H | NS 250H |

(1) If another current limitation protection device is used, its time-current and thermal constraint (I²t) trip characteristics must be at least equivalent to those of the recommended protection.

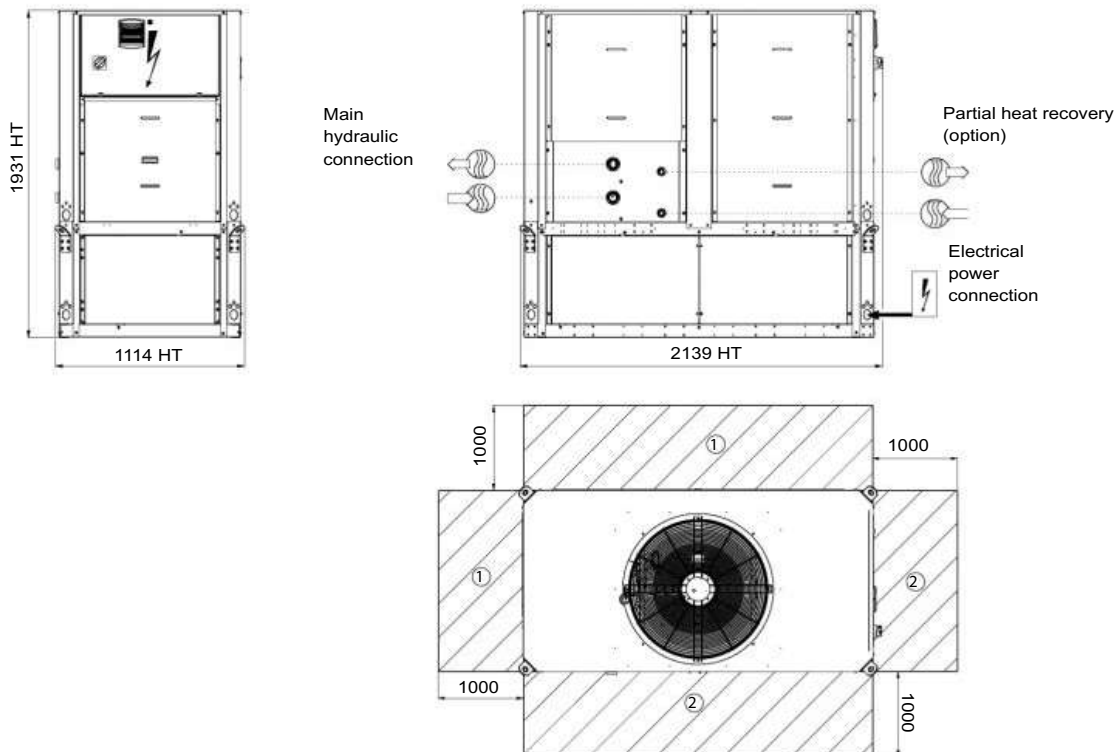
Note: The short-circuit stability current values given above are suitable for the TN system.

DIMENSIONS

■ AQUACIAT™ LD-ILD 150R to 300R without buffer tank



■ AQUACIAT™ LD-ILD 150R to 300R with buffer tank



Key

All dimensions in mm

① Clearance required for maintenance and air flow

② Clearance recommended for coil removal

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

NOTES:

Non-contractual drawings.

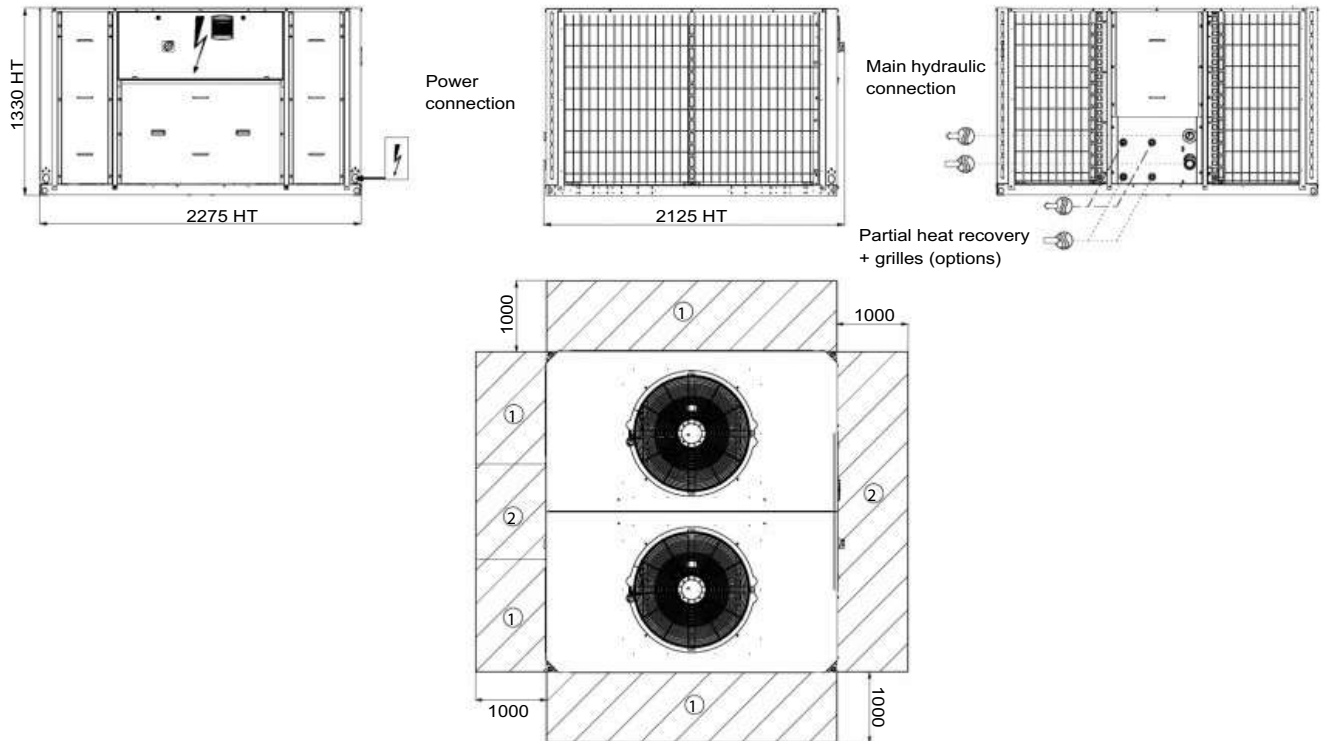
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Refer to the certified dimensional drawings for:

- The location of the fixing points,
- The weight distribution,
- The centre of gravity coordinates,
- Details of the XtraFan and return air frame option connections.

DIMENSIONS

■ AQUACIAT™ LD-ILD 360R to 600R without buffer tank



Key

All dimensions in mm

① Clearance required for maintenance and air flow

② Clearance recommended for coil removal

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

NOTES:

Non-contractual drawings.

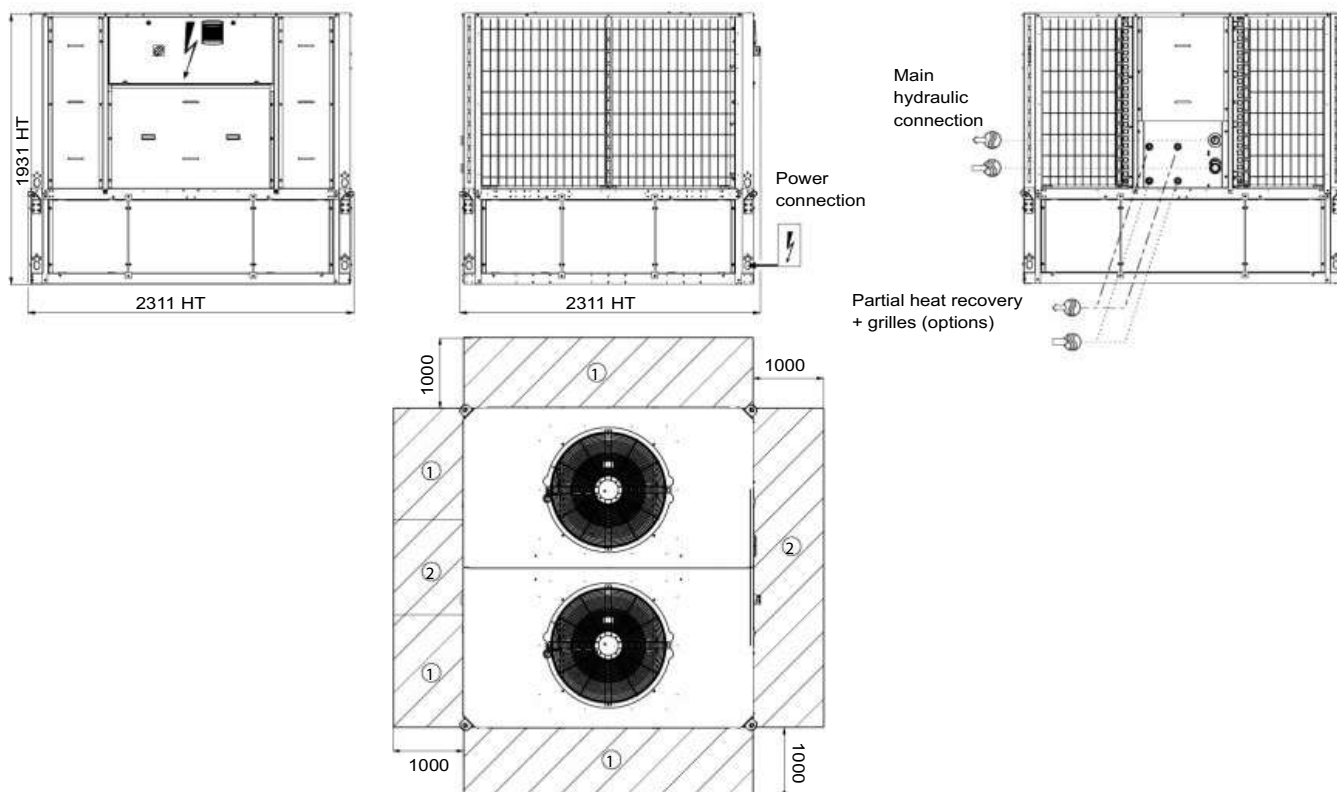
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Refer to the certified dimensional drawings for:

- The location of the fixing points,
- The weight distribution,
- The centre of gravity coordinates,
- Details of the XtraFan and return air frame option connections.

DIMENSIONS

■ AQUACIAT™ LD-ILD 360R to 600R with buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal



Water inlet



Water outlet



Air outlet, do not obstruct



Electrical cabinet

NOTES:

Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Refer to the certified dimensional drawings for:

- The location of the fixing points,
- The weight distribution,
- The centre of gravity coordinates,
- Details of the XtraFan and return air frame option connections.

DYNACIAT™ LGN

Water chillers
Without condenser



Compact and silent

High energy efficiency

Scroll compressors

High-efficiency brazed-plate heat exchangers

Self-adjusting electronic control

Cooling capacity: 23 to 175 kW



Cooling



Hydraulic
module

R-410A 

Use

The latest generation of **DYNACIAT™ LGN** water chillers without condenser are the perfect solution for all cooling applications in the Offices, Healthcare, Industry, Administration, Shopping Centres and Collective Housing markets.

These units are designed to be installed in machine rooms that are protected against freezing temperatures and inclement weather.

For quick and easy installation, an optional hydraulic module offer is available on the evaporator side (chilled water production).

DYNACIAT™ is optimised to use ozone-friendly HFC R410A refrigerant.

This range guarantees compliance with the most demanding requirements for high energy efficiency and CO₂ reduction to comply with the various applicable European directives and regulations.

Range

DYNACIAT™ LGN series

Split system cooling only version without condenser.

Description

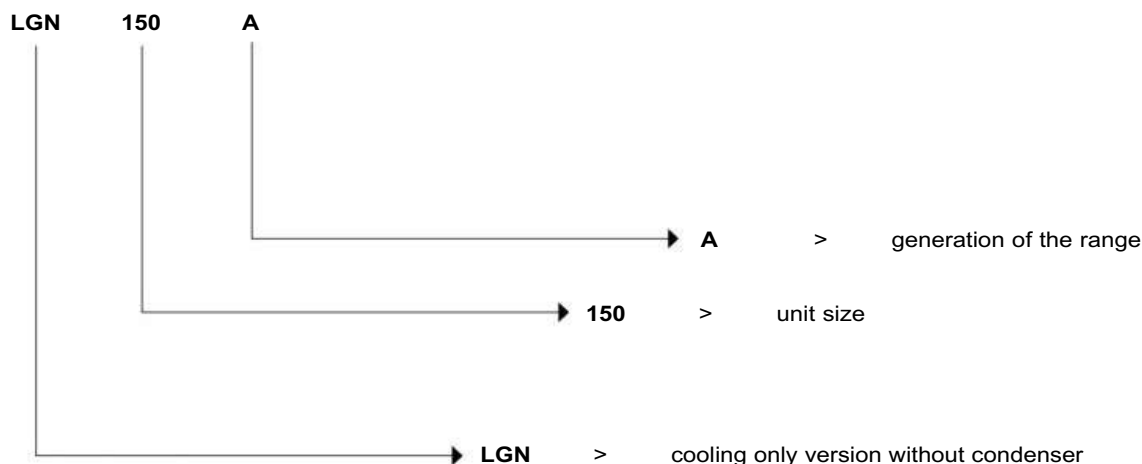
Units in the DYNACIAT™ LGN series are split-system type machines without condenser, supplied as standard with the following components:

- Hermetic SCROLL compressors
- Chilled-water evaporator with brazed plates
- Electrical power and remote control cabinet:
 - 400V-3ph-50Hz (+/-10%) general power supply + Earth
 - transformer fitted as standard on the machine for supplying the remote control circuit with 24V
- Connect Touch electronic control module
- Casing for indoor installation

The entire range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC
- Electromagnetic compatibility directive 2014/30/EC
- EMC immunity and emissions EN 61800-3 'C3'
- Low voltage directive 2014/35/EU
- RoHS 2011/65/EU
- Pressure equipment directive (PED) 2014/68/EU
- Machinery directive EN 60-204 -1
- Refrigeration systems and heat pumps EN 378-2

Description



Configuration

| | |
|---------------|--------------------|
| LGN | Standard |
| LGN LN option | Standard Low Noise |

Description of the main components

■ Compressors

- Hermetic SCROLL type
- Electronic motor overheating protection
- Crankcase heater
- Mounted on anti-vibration mounts

■ Evaporator

- Brazed-plate exchanger
- Plate patterns optimised for high efficiency
- 19 mm armaflex thermal insulation

■ Refrigerating accessories

- Dehumidifier filters
- Hygroscopic sight glasses
- Electronic expansion valves
- Service valves on the liquid line

■ Regulation and safety instruments

- Low and high pressure sensors
- Safety valves on refrigerating circuit
- Water temperature control sensors
- Evaporator antifreeze protection sensor
- Factory-fitted evaporator water flow controller

■ Electrical cabinet

- Electrical cabinet with IP 23 protection rating
- A connection point without neutral
- Main safety switch with handle on front
- Control circuit transformer
- 24V control circuit
- Compressor motor circuit breaker
- Compressor motor contactors
- Connect Touch microprocessor-controlled electronic control module
- Wire numbering
- Marking of the main electrical components

■ Casing

Frame made from RAL7035 light grey & RAL 7024 graphite grey painted panels.

- Connect Touch control module
- User interface with 4.3-inch touch screen
- Intuitive, user-friendly navigation using icons
- Clear text display of information available in 6 languages (F-GB-D-E-I-NL)



The electronic control module performs the following main functions:

- Regulation of the water temperature (at the return or at the outlet)
- Regulation of the water temperature based on the outdoor temperature (water law)
- Regulation for low temperature energy storage
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and operating time balancing
- Self-regulating and proactive functions with adjustment of the control to counter parameter drift
- Optimised defrosting with free defrost function to optimise performance at partial load and the SCOP
- In-series staged power control system on the compressors according to the thermal requirements
- Management of compressor short cycle protection
- Frost protection (exchanger heaters)
- Phase reversal protection
- Management of occupied/unoccupied modes (according to the time schedule)
- Compressor and pump runtime balancing
- Management of the machine operation limit according to outdoor temperature
- Sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- Diagnostics of fault and operating statuses
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- Master/slave management of the two machines in parallel with operating time balancing and automatic changeover if a fault occurs on one machine
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Pump standby based on demand (energy saving)
- Calculation of the water flow rate and operating pressure (hydraulic module version)
- Electronic adjustment of the water pump speed and water flow rate (variable-speed pump option)
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP (Certified BTL) as an option, enabling most CMS/BMS to be integrated.

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- Power limitation: closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- Fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerating circuits to stop
- Operational status reporting indicates that the unit is in production mode.
- Switch control for the customer pump, external to the machine (on/off).

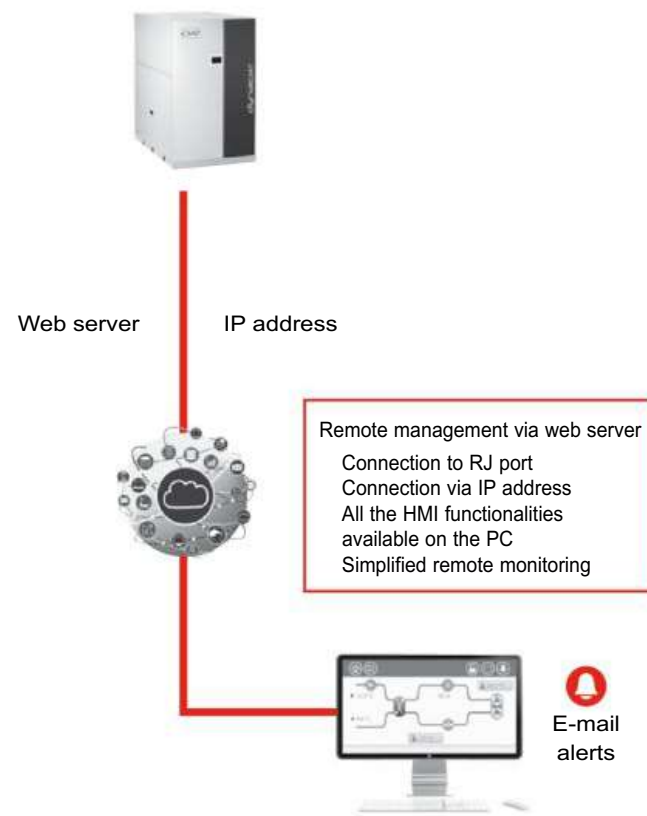
Contacts available as an option:

- Setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in COOLING mode.

■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.



- The scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.

- The compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the refrigerant charge, in compliance with the F-GAS regulations.

Available options

| Options | Description | Advantages | LGN |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Medium-temperature brine solution | Low-temperature chilled water production down to 0 °C with ethylene glycol and propylene glycol. | Covers specific applications such as ice storage and industrial processes | ● |
| Soft Starter | Electronic starter on each compressor | Reduced start-up current | ● |
| Master/slave operation | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operating time equalisation | ● |
| Evap. single pump power/ control circuit | Unit equipped with an electrical power and control circuit for one pump evaporator side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | Sizes 360 to 600 |
| HP evap. single-pump | Evaporator hydraulic module equipped with high-pressure fixed-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available.) | Easy and fast installation (plug & play) | Sizes 360 to 600 |
| LP evap. single-pump | Evaporator hydraulic module equipped with low pressure fixed-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available) | Easy and fast installation (plug & play) | ● |
| HP evap. variable-speed single-pump | Evaporator hydraulic module equipped with high-pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability. | ● |
| LP VSD single-pump | Evaporator hydraulic module equipped with low -pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available.) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability | ● |
| Dual high-pressure variable-speed pump. | Dual high-pressure water pump with variable speed drive (VSD), pressure transducers. Multiple possibilities of water flow control. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability | ● |
| Lon gateway | Bi-directional communication board complying with Lon Talk protocol | Connects the unit by communication bus to a building management system | ● |
| Bacnet over IP | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy and high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters | ● |
| Condenser control | Control box for communication with the condenser via a bus. For OPERA condenser need to select the cabinet with option control cabinet manage by the chiller Connect'Touch control | Permits the use of an energy-efficient plug-and-play system | ● |
| Compliance with Russian regulations | EAC certification | Compliance with Russian regulations | ● |
| Insulation of the evap. in/out ref.lines | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation | Prevents condensation on the evaporator entering/ leaving refrigerant lines | ● |

● ALL MODELS

Refer to the selection tool to find out which options are not compatible

| Options | Description | Advantages | LGN |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Low noise level | Compressor sound enclosure | Reduced sound emissions | ● |
| Evaporator screw connection sleeves (kit) | Evaporator inlet/outlet screw connection sleeves | Allows unit connection to a screw connector | ● |
| Replaceable filter drier | Filter drier with cartridge to replace hermetic filter | Easy filter replacement without emptying the refrigerant circuit | ● |
| Safety hydraulic components, evap. side | Screen filter, expansion tank and relief valve integrated in the evaporator hydraulic module | Easy and fast installation (plug & play), operating safety | ● |
| M2M supervision (accessory) | Monitoring solution which allows customers to track and monitor their equipment remotely in real time | Real-time expert technical support to improve equipment availability and reports at customer hand to monitor and optimize operating equipment. | ● |
| Anti-vibration mounts (kit) | Elastomer antivibratils mounts to be place under the unit (Material classified B2 fire class according to DIN 4102). | Isolate unit from the building, avoid transmission of vibration and associate noise to the building. Must be used in conjunction with a flexible connection on the water side | ● |
| Exchangers flexibles connection (kit) | Flexible connections on the exchanger water side | Easy installation. Limit transmission of vibrations on the water network | ● |
| Flexible refrigerating sleeves | Flexibles connections on the refrigerant pipes | Easy installation. Limits the transmission of vibrations to the refrigerant network | ● |
| Exchangers water filter (kit) | Water filter | Eliminate dust in the water network | ● Without pump option |
| Set point adjustment by 4-20mA signal | Connections to allow a 4-20 mA signal input | Simplified energy management, enabling the setpoint to be set by a 4-20 mA external signal | ● |
| External temperature sensor | External temperature sensor control for using weather compensation | Allow to adjust set point using weather compensation and define autorisation operation mode to external temperature | ● |
| Free Cooling dry cooler management | Control & connections to a Free Cooling Dry cooler Opera or Vextra fitted with option FC control box | Easy system management, Extended control capabilities to a dry cooler used in Free Cooling mode | ● |

● ALL MODELS

Refer to the selection tool to find out which options are not compatible

Technical characteristics

| DYNACIAT™ LGN | | | | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 |
|-------------------------------------------------------------|-----|------------------|-----------|-------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Cooling | | | | | | | | | | | | | | |
| Standard unit | CS1 | Nominal capacity | kW | 22,8 | 27 | 29,1 | 34 | 39,2 | 42,7 | 54,5 | 59,1 | 67,5 | 78,2 | 87,4 |
| | | EER | kW/ kW | 3,70 | 3,76 | 3,68 | 3,73 | 3,75 | 3,70 | 3,70 | 3,66 | 3,64 | 3,81 | 3,77 |
| | CS2 | Nominal capacity | kW | 31,9 | 37,6 | 40,3 | 47 | 53,2 | 61,3 | 74,5 | 81,2 | 94,9 | 108 | 121 |
| | | EER | kW/ kW | 5,35 | 5,25 | 5,11 | 5,09 | 4,99 | 5,15 | 5,16 | 5,15 | 5,18 | 5,26 | 5,13 |
| Sound levels | | | | | | | | | | | | | | |
| Standard unit | | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 67 | 69 | 69 | 69 | 70 | 70 | 72 | 72 | 72 | 73 | 73 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 36 | 37 | 38 | 38 | 39 | 39 | 40 | 41 | 41 | 42 | 42 |
| Unit with Low Noise option | | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 65 | 66 | 66 | 67 | 68 | 68 | 68 | 69 | 69 | 69 | 70 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 34 | 35 | 35 | 35 | 37 | 37 | 37 | 37 | 38 | 38 | 39 |
| Dimensions | | | | | | | | | | | | | | |
| Length | | | mm | 1044 | 1044 | 1044 | 1044 | 1044 | 1044 | 1474 | 1474 | 1474 | 1474 | 1474 |
| Width | | | mm | 600 | 600 | 600 | 600 | 600 | 600 | 880 | 880 | 880 | 880 | 880 |
| Height | | | mm | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 |
| Operating Weight ⁽³⁾ | | | | | | | | | | | | | | |
| Standard unit | | | kg | 164 | 171 | 171 | 177 | 180 | 185 | 321 | 324 | 332 | 339 | 354 |
| Unit with evaporator with single LP pump | | | kg | 250 | 258 | 258 | 263 | 266 | 271 | 431 | 435 | 442 | 449 | 465 |
| Compressors | | | | Hermetic Scroll 48.3 r/s | | | | | | | | | | |
| Circuit A | | | Qty | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| Number of power stages | | | Qty | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| Refrigerant ⁽³⁾ | | | | R410A (GWP=2088 following ARI4) | | | | | | | | | | |
| Oil charge | | | | 160SZ | | | | | | | | | | |
| Circuit A | | | L | 3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,6 | 3,3 | 3,3 | 3,3 | 3,3 | 3,6 |
| Power control | | | | Connect' Touch Control | | | | | | | | | | |
| Minimum capacity | | | % | 100 | 100 | 100 | 100 | 100 | 100 | 50 | 50 | 50 | 50 | 50 |
| Water type heat exchanger | | | | Direct expansion, plate heat exchanger | | | | | | | | | | |
| Evaporator | | | | | | | | | | | | | | |
| Water volume | | | L | 3,3 | 3,6 | 3,6 | 4,2 | 4,6 | 5 | 8,4 | 9,2 | 9,6 | 10,4 | 12,5 |
| Max. water-side operating pressure without hydraulic module | | | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (optional) | | | | | | | | | | | | | | |
| Single pump (as required) | | | | Pump, Victaulic screen filter, drain valves (water and air), pressure sensors | | | | | | | | | | |
| Expansion tank volume | | | L | 8 | 8 | 8 | 8 | 8 | 8 | 12 | 12 | 12 | 12 | 12 |
| Expansion vessel pressure ⁽⁴⁾ | | | bar | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Max. water-side operating pressure with hydraulic module | | | kPa | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Water connections with or without hydronic module | | | | Victaulic® | | | | | | | | | | |
| Connections | | | inch | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 2 | 2 | 2 | 2 | 2 |
| External diameter | | | mm | 48,3 | 48,3 | 48,3 | 48,3 | 48,3 | 48,3 | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 |
| Casing paint | | | | Colour code RAL 7035/RAL 7024 | | | | | | | | | | |

* In accordance with standard EN14511-3:2013.

CS1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m2. kW

CS2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m2. kW

(1) in dB ref=10-12 W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

(2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power Lw(A).

(3) Values are guidelines only. Refer to the unit name plate.

(4) On delivery, the vessels are preinflated to a standard value, which may not be the optimum one for the installation. To enable the water volume to be varied as desired, adapt the inflation pressure to a value close to that which corresponds to the static height of the installation. Fill the installation with water (bleeding out any air) at a pressure more than 10 to 20 kPa higher than the vessel pressure.

Technical characteristics

| DYNACIAT™ LGN | | | 360 | 390 | 450 | 480 | 520 | 600 | |
|-------------------------------------------------------------|-----|------------------|-----------|-------------------------------------------------------------------------------|-------|-------|-------|-------|-------|
| Cooling | | | | | | | | | |
| Standard unit Full load performances * | CS1 | Nominal capacity | kW | 106 | 119 | 132 | 140 | 159 | 175 |
| | | EER | kW/ kW | 3,78 | 3,78 | 3,72 | 3,74 | 3,81 | 3,73 |
| | CS2 | Nominal capacity | kW | 146 | 166 | 185 | 195 | 218 | 247 |
| | | EER | kW/ kW | 5,24 | 5,17 | 5,12 | 5,32 | 5,17 | 5,26 |
| Sound levels | | | | | | | | | |
| Standard unit | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 76 | 77 | 78 | 76 | 77 | 78 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 44 | 45 | 46 | 44 | 45 | 47 |
| Dimensions | | | | | | | | | |
| Length | | | mm | 1583 | 1583 | 1583 | 1583 | 1583 | 1583 |
| Width | | | mm | 880 | 880 | 880 | 880 | 880 | 880 |
| Height | | | mm | 1574 | 1574 | 1574 | 1574 | 1574 | 1574 |
| Operating Weight ⁽³⁾ | | | | | | | | | |
| Standard unit | | | kg | 630 | 647 | 665 | 751 | 774 | 796 |
| Unit with evaporator with single LP pump | | | kg | 674 | 691 | 709 | 797 | 846 | 868 |
| Compressors | | | | Hermetic scroll 48.3 rev/s | | | | | |
| Circuit A | | | Qty | 3 | 3 | 3 | 2 | 2 | 2 |
| Circuit B | | | Qty | - | - | - | 2 | 2 | 2 |
| Number of power stages | | | Qty | 3 | 3 | 3 | 4 | 4 | 4 |
| Refrigerant ⁽³⁾ | | | | R410A (GWP=2088 following ARI4) | | | | | |
| Oil charge | | | | | | | | | |
| Circuit A | | | L | 3,3 | 3,3 | 3,6 | 3,3 | 3,3 | 3,6 |
| Circuit B | | | L | - | - | - | 3,3 | 3,3 | 3,6 |
| Power control | | | | Connect' Touch Control | | | | | |
| Minimum capacity | | | % | 33% | 33% | 33% | 25% | 25% | 25% |
| Water type heat exchanger | | | | | | | | | |
| Evaporator | | | | Direct expansion, plate heat exchanger | | | | | |
| Water volume | | | L | 15,18 | 17,35 | 19,04 | 23,16 | 26,52 | 29,05 |
| Max. water-side operating pressure without hydraulic module | | | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (optional) | | | | | | | | | |
| Single pump (as required) | | | | Pump, Victaulic screen filter, drain valves (water and air), pressure sensors | | | | | |
| Expansion tank volume | | | L | 25 | 25 | 25 | 35 | 35 | 35 |
| Expansion vessel pressure ⁽⁴⁾ | | | bar | 4 | 4 | 4 | 4 | 4 | 4 |
| Max. water-side operating pressure with hydraulic module | | | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydronic module | | | | Victaulic® | | | | | |
| Connections | | | inch | 2,5 | 2,5 | 2,5 | 3 | 3 | 3 |
| External diameter | | | mm | 73 | 73 | 73 | 88,9 | 88,9 | 88,9 |
| Casing paint | | | | Colour code RAL 7035/RAL 7024 | | | | | |

* In accordance with standard EN14511-3:2013.

CS1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m2. kW

CS2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m2. kW

(1) in dB ref=10-12 W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

(2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power Lw(A).

(3) Values are guidelines only. Refer to the unit name plate.

(4) On delivery, the vessels are preinflated to a standard value, which may not be the optimum one for the installation. To enable the water volume to be varied as desired, adapt the inflation pressure to a value close to that which corresponds to the static height of the installation. Fill the installation with water (bleeding out any air) at a pressure more than 10 to 20 kPa higher than the vessel pressure.

Electrical specifications

| LGN- Standard unit (without hydraulic module) | | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 |
|-------------------------------------------------------------------------------|---------|-------------------------------|------|------|------|------|-------|------|------|-------|-------|-------|
| Power circuit | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | | | | | | | |
| Nominal unit operating current draw⁽³⁾ | | | | | | | | | | | | |
| Circuit A&B | A | 11,4 | 13,8 | 14,7 | 16,5 | 18,1 | 21,2 | 27,6 | 29,4 | 33,1 | 36,4 | 42,5 |
| Maximum unit power input⁽²⁾ | | | | | | | | | | | | |
| Circuit A&B | kW | 9,2 | 10,8 | 11,7 | 13,7 | 15,1 | 17,1 | 21,5 | 23,3 | 27,3 | 30,3 | 34,2 |
| Unit power factor at maximum capacity ⁽²⁾ | | 0,85 | 0,83 | 0,85 | 0,85 | 0,86 | 0,85 | 0,83 | 0,85 | 0,85 | 0,86 | 0,85 |
| Unit max. operating current draw (Un-10%) ⁽⁵⁾ | | | | | | | | | | | | |
| Circuit A&B | A | 17,3 | 20,8 | 22 | 25,8 | 28,2 | 32,2 | 41,6 | 44 | 51,6 | 56,4 | 64,4 |
| Maximum unit current draw (Un) ⁽⁴⁾ | | | | | | | | | | | | |
| Circuit A&B - Standard unit | A | 15,6 | 18,7 | 19,8 | 23,2 | 25,4 | 29 | 37,4 | 39,6 | 46,4 | 50,8 | 58 |
| Maximum start-up current, standard unit (Un) ⁽¹⁾ | | | | | | | | | | | | |
| Circuit A&B | A | 98 | 142 | 142 | 147 | 158 | 197 | 161 | 162 | 170 | 183 | 226 |
| Maximum start-up current, unit with a soft-starter (Un) ⁽¹⁾ | | | | | | | | | | | | |
| Circuit A&B | A | 53,9 | 78,1 | 78,1 | 80,9 | 86,9 | 108,4 | 96,8 | 97,9 | 104,1 | 112,3 | 137,4 |

| LGN- Standard unit (without hydraulic module) | | 360 | 390 | 450 | 480 | 520 | 600 |
|-------------------------------------------------------------------------------|---------|-------------------------------|-------|-------|-------|-------|-------|
| Power circuit | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | |
| Voltage range | V | 360-440 | | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | | |
| Nominal unit operating current draw⁽³⁾ | | | | | | | |
| Circuit A&B | A | 49,5 | 54,3 | 63,6 | 66 | 72,4 | 84,8 |
| Maximum unit power input⁽²⁾ | | | | | | | |
| Circuit A&B | kW | 42 | 44,9 | 51,2 | 55,9 | 59,8 | 68,3 |
| Unit power factor at maximum capacity ⁽²⁾ | | 0,87 | 0,85 | 0,85 | 0,87 | 0,85 | 0,85 |
| Unit max. operating current draw (Un-10%) ⁽⁵⁾ | | | | | | | |
| Circuit A&B | A | 77,3 | 84,7 | 96,7 | 103,1 | 112,9 | 128,9 |
| Maximum unit current draw (Un) ⁽⁴⁾ | | | | | | | |
| Circuit A&B - Standard unit | A | 69,6 | 76,2 | 87 | 92,8 | 101,6 | 116 |
| Maximum start-up current, standard unit (Un) ⁽¹⁾ | | | | | | | |
| Circuit A&B | A | 193,4 | 208,8 | 255 | 216,6 | 234,2 | 284 |
| Maximum start-up current, unit with a soft-starter (Un) ⁽¹⁾ | | | | | | | |
| Circuit A&B | A | 127,3 | 137,7 | 166,3 | 150,4 | 163,1 | 195,3 |

- (1) Maximum instantaneous starting current (maximum operating current of the smallest compressor(s) + locked rotor current of the largest compressor).
 (2) Power input, at the unit's permanent operating limits (indication given on the unit's name plate).
 (3) Standardised EUROVENT conditions, water type heat exchanger inlet/outlet 12 °C/7 °C, saturated condensing temperature 45 °C and subcooling 5 K.
 (4) Unit maximum current at 400 V, in non-continuous operation (indicated on the unit name plate).
 (5) Unit maximum current at 360 V, in non-continuous operation.

Electrical specifications

■ Short circuit current withstand capability (TN system⁽¹⁾)

| DYNACIAT™ LGN | | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 |
|--------------------------------------------------------------------------|--------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Value without upstream protection | | | | | | | | | | | | |
| Short time assigned current (1s) - I _{cw} | kA eff | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Allowable peak assigned current - I _{pk} | kA pk | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Value with upstream protection | | | | | | | | | | | | |
| Conditional short circuit assigned current I _{cc} | kA eff | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Associated Schneider circuit breaker - Compact type range ⁽²⁾ | | NSX 100N | | | | | | | | | | |

| DYNACIAT™ LGN | | 360 | 390 | 450 | 480 | 520 | 600 |
|--------------------------------------------------------------------------|--------|----------|-----|-----|-----|-----|-----|
| Value without upstream protection | | | | | | | |
| Short time assigned current (1s) - I _{cw} | kA eff | 5,5 | 5,5 | 5,5 | 5,5 | 5,5 | 5,5 |
| Allowable peak assigned current - I _{pk} | kA pk | 20 | 20 | 20 | 20 | 20 | 20 |
| Value with upstream protection | | | | | | | |
| Conditional short circuit assigned current I _{cc} | kA eff | 154 | 154 | 154 | 154 | 154 | 154 |
| Associated Schneider circuit breaker - Compact type range ⁽²⁾ | | NSX 100N | | | | | |

(1) Type of system earthing

(2) If another current limiting protection device is used, its time-current trip and I²t thermal stress characteristics must be at least equivalent to those of the recommended Schneider circuit breaker.

The short-circuit withstand values given above were determined for the TN system.

Intelligently-designed acoustics

To comply with the various restrictions on integration, the DYNACIAT™ has two sound finish levels enabling it to be easily integrated into a number of zones without causing disruption to users or their neighbours.

■ Basic version

The distinguishing feature of the DYNACIAT™ range is its rigorous design incorporating "noiseless" assembly techniques to reduce vibrations and sources of noise:

- New generation scroll compressors with a continuous scrolling motion to lessen vibrations
- Compressor structure separated from the unit by anti-vibration mounts
- Pipes separated from the unit structure

■ Low Noise option

In this version, the compressors are housed inside noise insulating jackets.

■ Acoustic signature

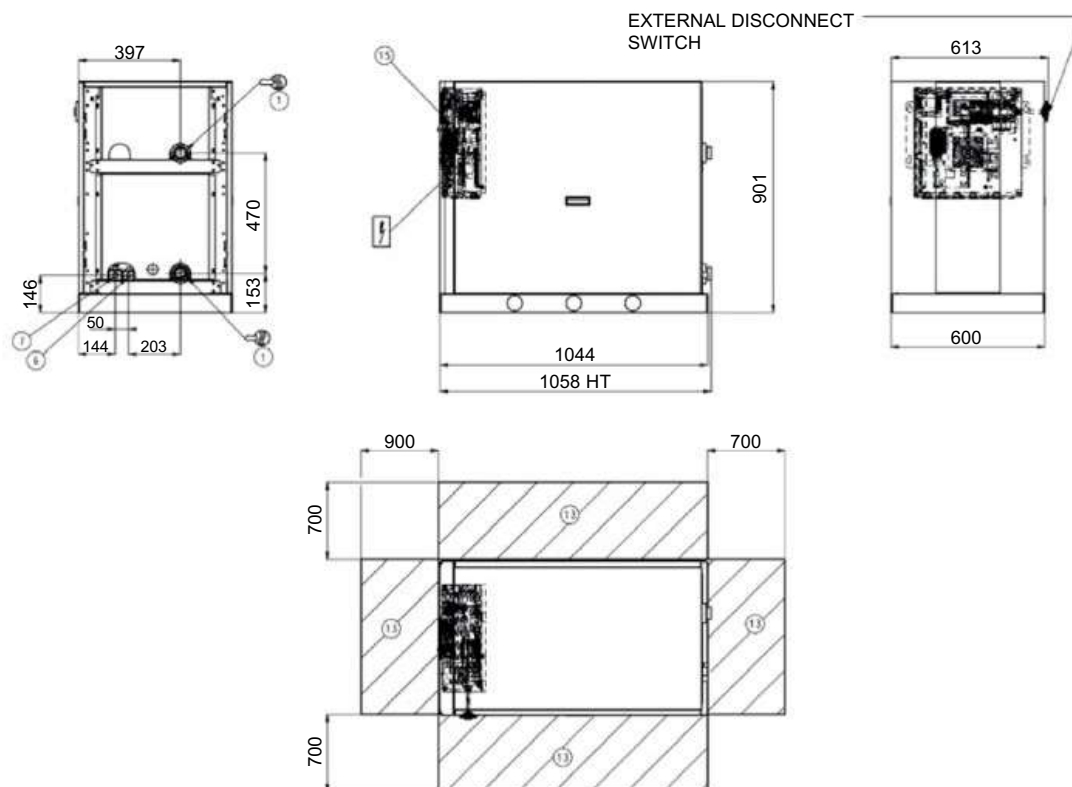
As important as the sound power level, the acoustic signature reflects the noise disturbance generated by the unit.

The installation of a variable-speed pump enables the sound level of the pump function to be reduced by adjusting the pump speed to what is strictly necessary. The soft start improves the signature and reduces nuisance noise.

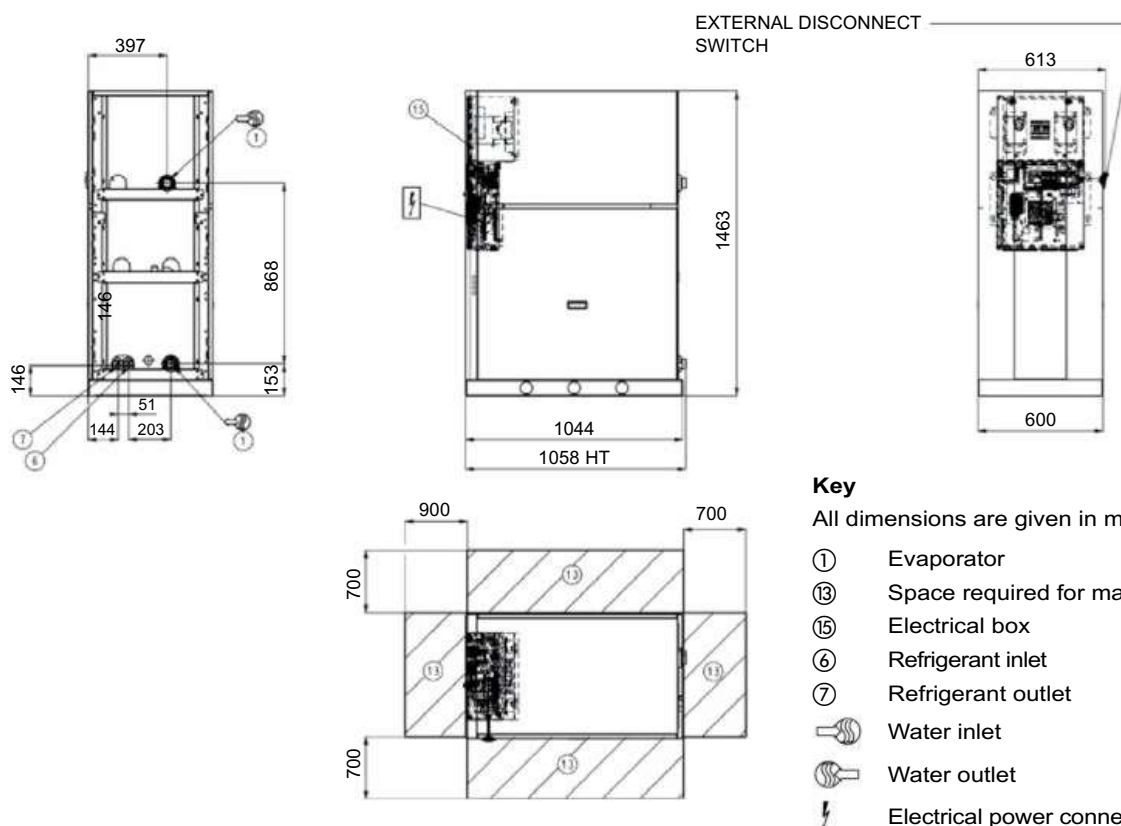
With all these benefits and its two acoustic finish levels (Standard and Xtra Low Noise), the DYNACIAT™ ensures any environmental noise constraints can be met.

Dimensions

■ DYNACIAT™ LGN 80 to 150 without hydraulic module



■ DYNACIAT™ LGN 80 to 150 with hydraulic module



Key

All dimensions are given in mm

- ① Evaporator
- ⑬ Space required for maintenance
- ⑮ Electrical box
- ⑥ Refrigerant inlet
- ⑦ Refrigerant outlet
- Water inlet
- Water outlet
- Electrical power connection

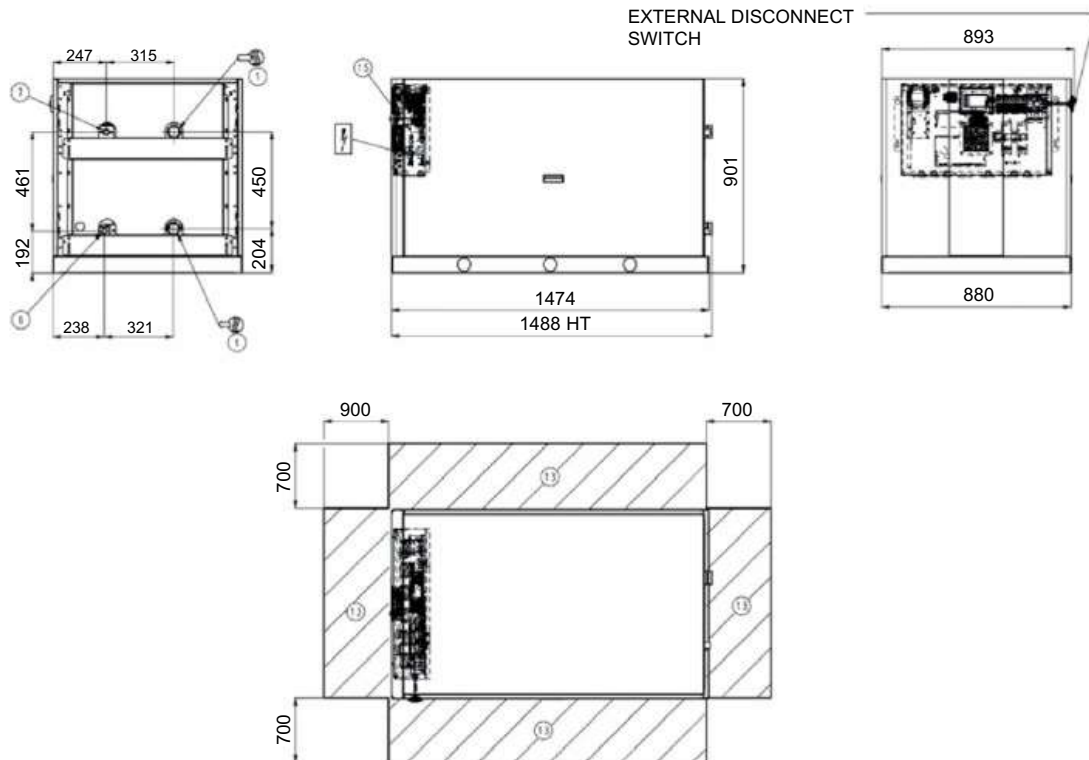
Notes:

Non-contractual drawings.

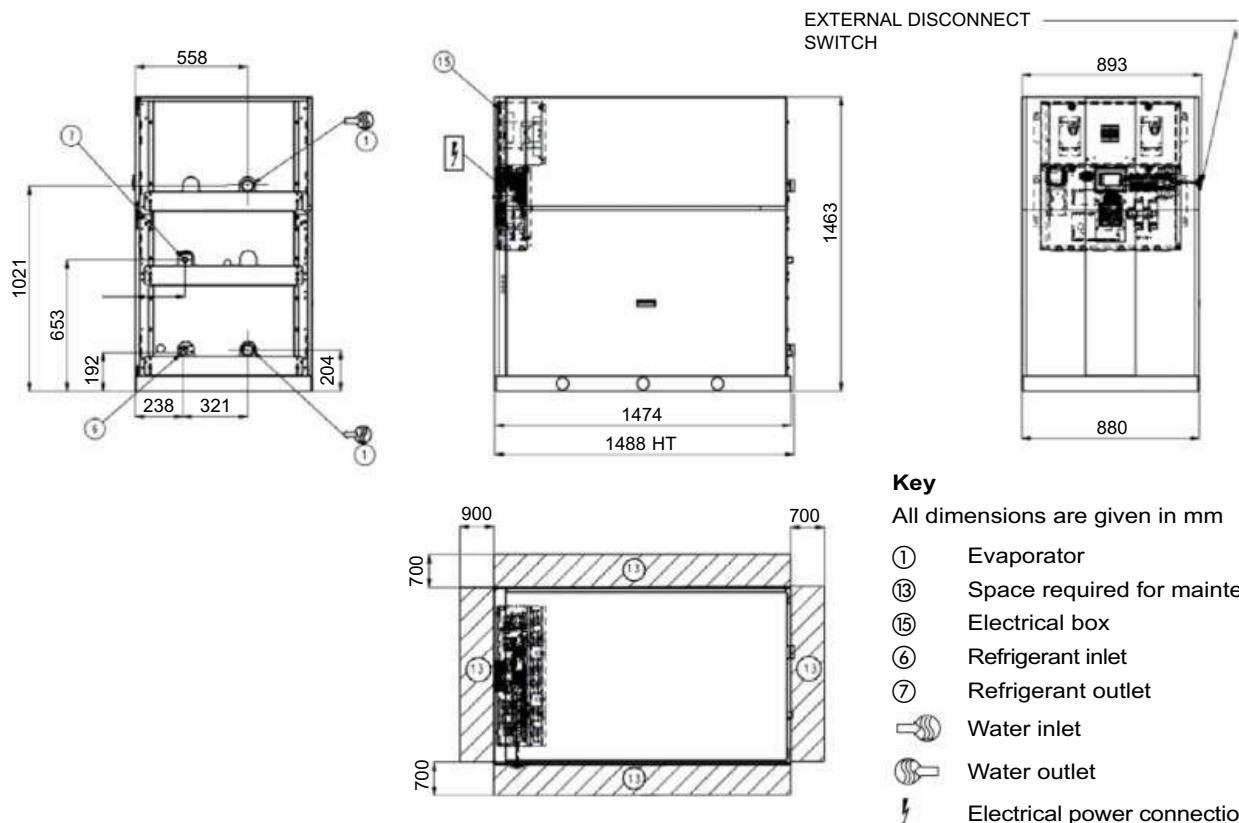
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Dimensions

■ DYNACIAT™ LGN 180 to 300 without hydraulic module



■ DYNACIAT™ LGN 180 to 300 with hydraulic module



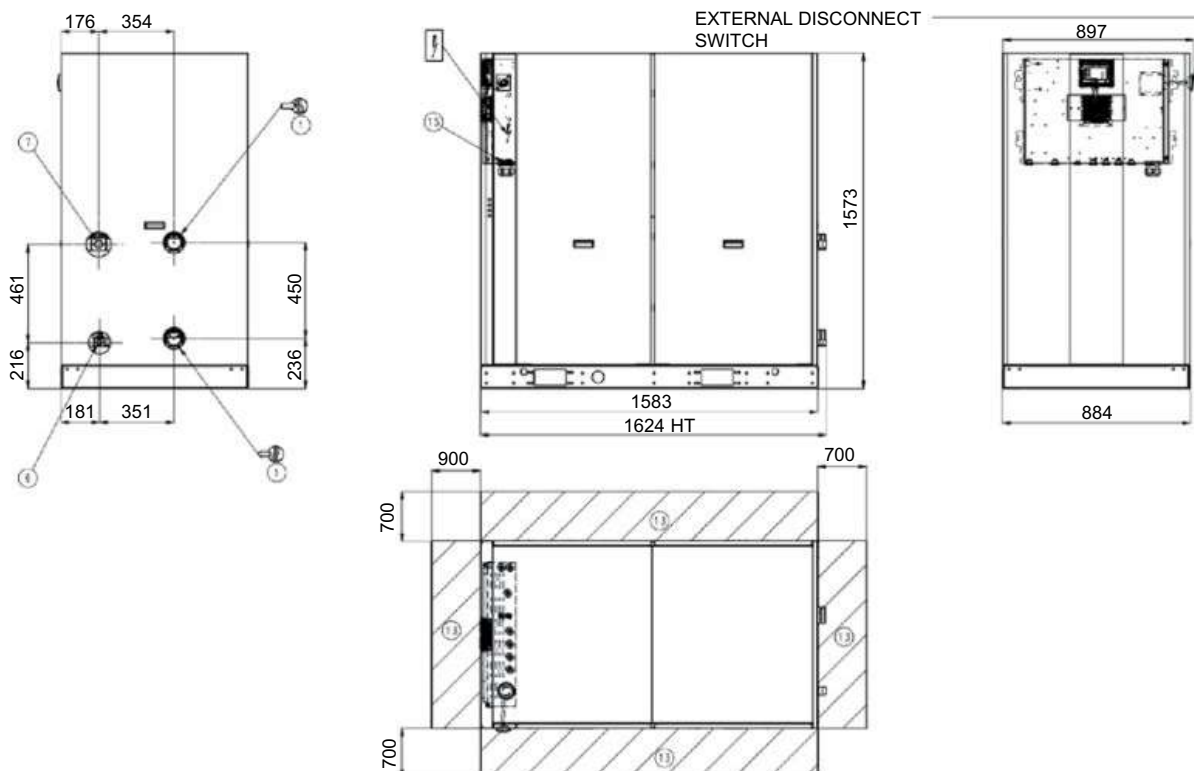
Notes:

Non-contractual drawings.

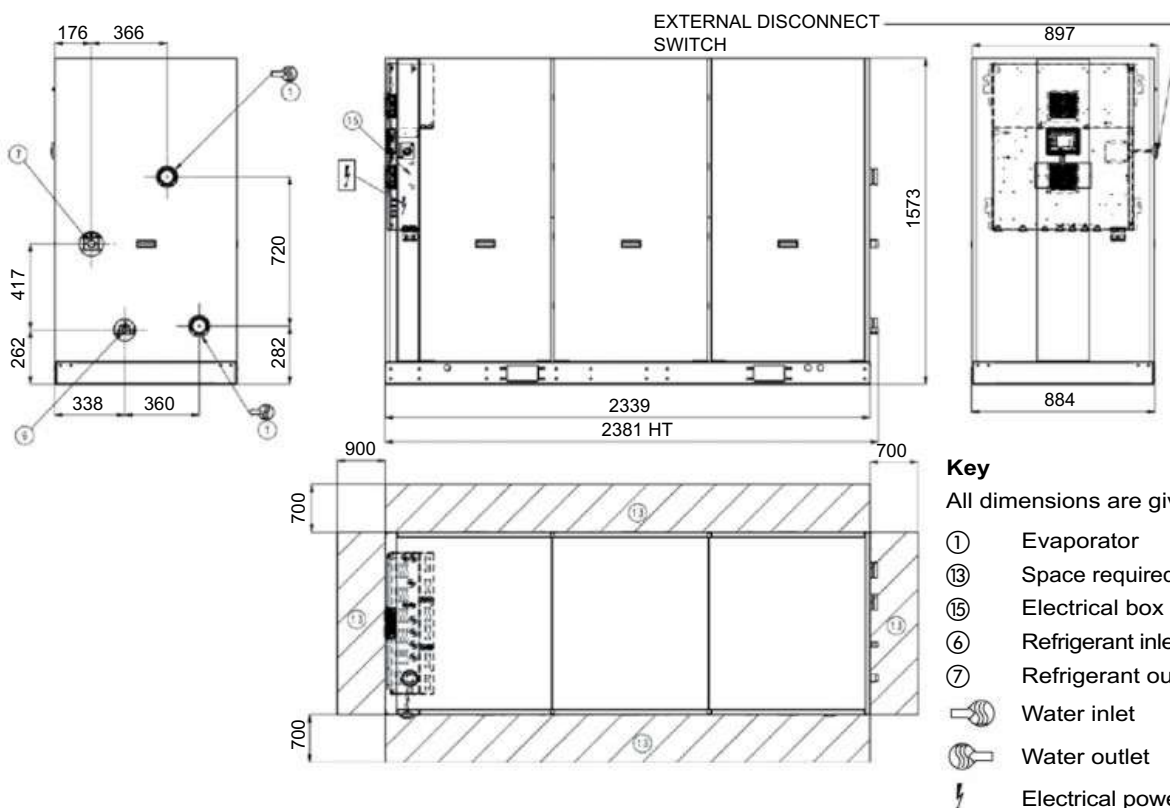
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Dimensions

■ DYNACIAT™ LGN 360 to 450 without hydraulic module



■ DYNACIAT™ LGN 360 to 450 with hydraulic module



Key

All dimensions are given in mm

- ① Evaporator
- ⑬ Space required for maintenance
- ⑮ Electrical box
- ⑥ Refrigerant inlet
- ⑦ Refrigerant outlet
- Water inlet
- Water outlet
- Electrical power connection

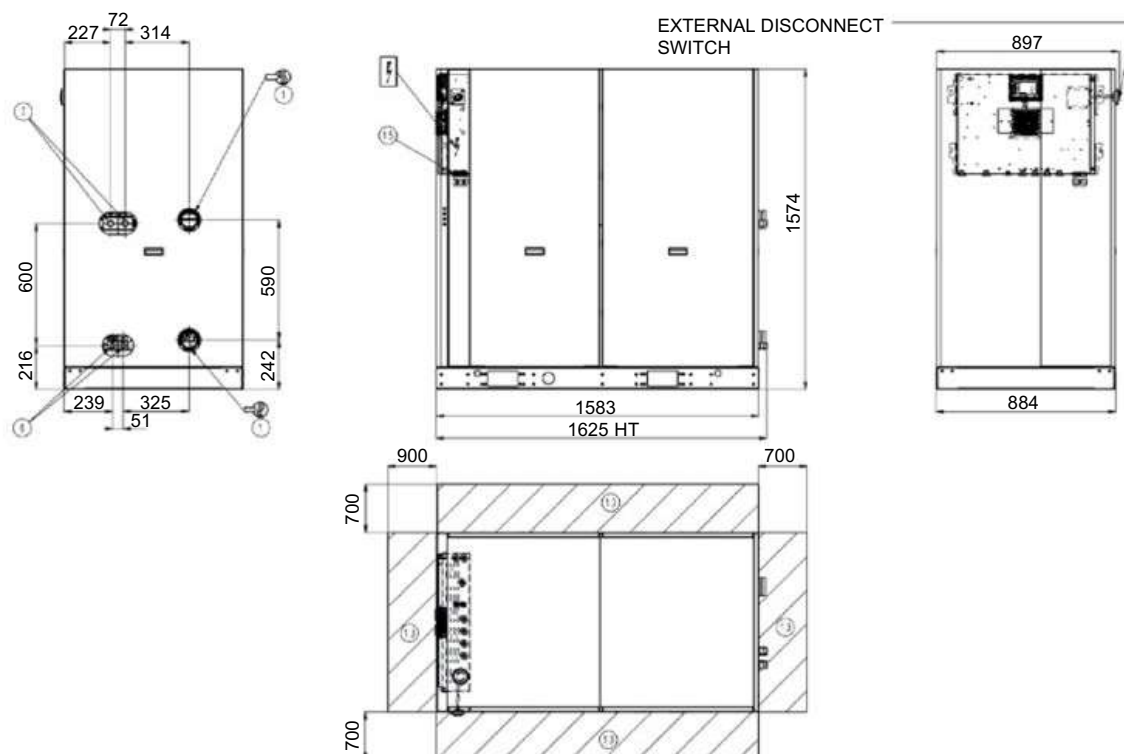
Notes:

Non-contractual drawings.

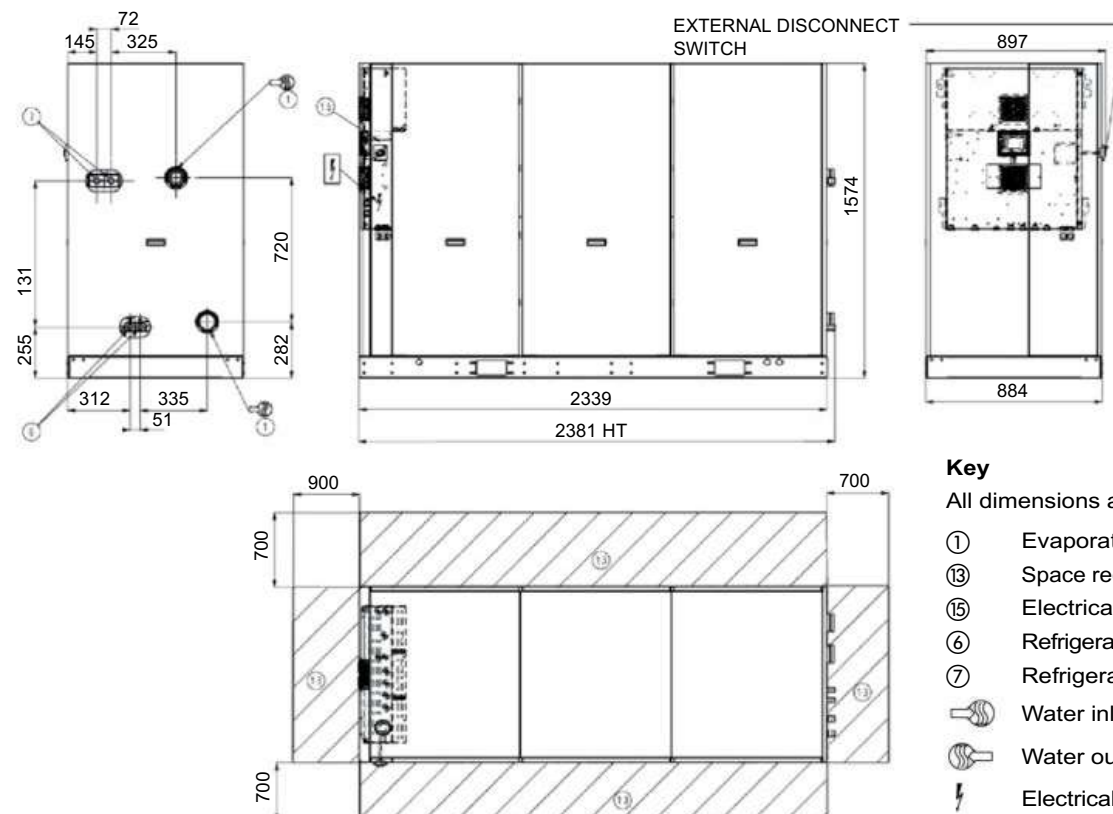
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Dimensions

■ DYNACIAT™ LGN 480 to 600 without hydraulic module



■ DYNACIAT™ LGN 480 to 600 with hydraulic module



Key

All dimensions are given in mm

- ① Evaporator
- ⑬ Space required for maintenance
- ⑮ Electrical box
- ⑥ Refrigerant inlet
- ⑦ Refrigerant outlet
- Water inlet
- Water outlet
- Electrical power connection

Notes:

Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

AQUACIAT^{POWER}™ LD/ILD

Water chiller
& heat pump

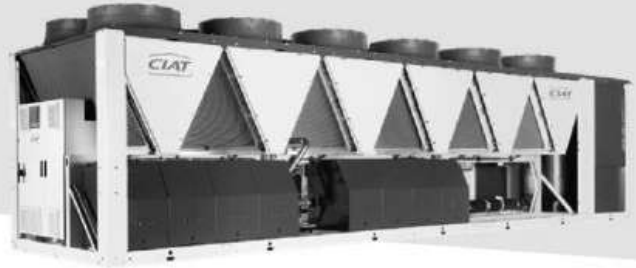
*The high-performance
packaged solution, now
available for R-32*

Compact and silent

Scroll compressors

High-efficiency brazed-plate heat exchangers

Self-adjusting electronic control



Cooling capacity: 170 to 940 kW

Heating capacity: 160 to 1040 kW



Cooling and
heating



Hydraulic
module



Heat
recovery



Free Cooling



R-32



Use

The new generation of **AQUACIAT^{POWER}** high-efficiency air-to-water heat pumps and water chillers offers an optimal solution for all heating and cooling applications used for the Healthcare, Office, and Hotel sectors.

These units are designed for outdoor installation and require no special protection against adverse weather conditions.

AQUACIAT^{POWER} is optimised for R-32, the environmentally-responsible fluid with the lowest GWP.

This range guarantees compliance with the most demanding requirements for increased seasonal energy efficiency (SEER and SCOP) and CO₂ reduction to comply with the various applicable European directives and regulations.

■ Self-regulating operation to adapt to seasonal variations and requirements

With exceptional SEER and SCOP seasonal energy efficiency levels, the **AQUACIAT^{POWER}** range offers the best technology combined with savings throughout the year.

Due to climatic variations and the different air-conditioning needs of tertiary buildings, most of the time water chillers and heat pumps run at part load.

Equipped with multiple compressors, **AQUACIAT^{POWER}** units automatically adjust the cooling capacity by anticipating changes in load and only starting the number of compressors required to guarantee optimal operation and energy efficiency.

The optional variable-speed fan motors guarantee even better results.

Thanks to their exceptional thermodynamic performance, provided by a radical selection of components, an electronic expansion valve as standard and a specific control function, standard **AQUACIAT^{POWER}** units reach a high level of seasonal efficiency in cooling mode (SEER) and in heating mode (SCOP).

■ Acoustic comfort

With different levels of sound equipment available, the **AQUACIAT^{POWER}** range guarantees the acoustic comfort of occupants and meets the needs of the most sensitive environments, including hotels, offices and hospitals.

■ Quick, simple installation

With a wide variety of connection accessories and equipment, the **AQUACIAT^{POWER}** range is quick and simple to install.

The advanced controller functions and different communication protocols enable local control via CMS/BMS or remote control, providing building management with peace of mind.



OFFICES



HOTELS



HEALTHCARE



INDUSTRY



GLOBAL SYSTEM SOLUTIONS

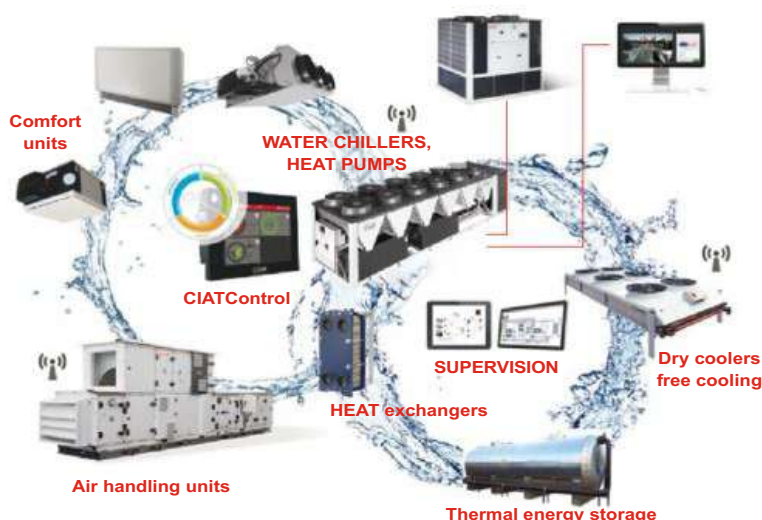
As an expert on customised HVAC solutions, CIAT works to improve the well-being of individuals in their living areas or places of work. Aware of the thermal, energy and air quality issues faced today by every sector of activity, CIAT has responded by developing global systems based on an adapted and efficient combination of products. The latest-generation **AQUACIAT^{POWER}** with a low environmental footprint is part of our sustainable development process.

■ Global energy systems based on the water loop for heating, cooling and indoor air quality

To comply with today's thermal and environmental regulations, CIAT designs optimised energy systems based on the water loop comprised of comfort units, heat pumps such as **AQUACIAT^{POWER}** and dual-flow air handling units. As a renewable resource and a highly effective energy transfer fluid, water not only represents an excellent alternative to direct expansion systems, it also meets F-Gas regulations in terms of confinement and limitation of refrigerants within buildings.

■ Benefits of the water loop

- **More competitive:** equipment that is more cost effective and requires less maintenance than direct expansion systems.
- **Greater comfort:** flexible, precise control of occupant comfort.
- **Greater energy efficiency:** the homogeneity and the thermal stability of water reduce the energy requirements for transferring heat.
- **Environmentally sustainable:** no refrigerant is required on the premises and only a small amount is used in the heat pump installed outside the building's occupied spaces.
- **Easy to install:** no refrigerant specialists are required during installation.
- **Flexibility:** an energy system based on the water loop adapts easily to the configuration of buildings and the changes that may be made to spaces over time.



RANGE

■ AQUACIAT^{POWER} LD/ILD series

In the LD water chiller & ILD standard reversible heat pump versions, **AQUACIAT^{POWER}** units are optimised to meet the most demanding technical and economic requirements.

■ Units with nominal high energy performance (option)

In this configuration, the **AQUACIAT^{POWER}** unit is optimised for full-load applications for which an optimum EER and COP value are required. In this case, the machine is equipped with high-speed fans enabling nominal efficiency and a broader application range.

■ Units equipped with variable-speed fans (option)

High seasonal energy efficiency version.

In this configuration, the **AQUACIAT^{POWER}** unit is optimised for part load applications for which an optimum SEER and SCOP value are required. In this case, the machine is equipped with variable-speed fans, optimising the part load efficiency throughout the year.

DESCRIPTION

AQUACIAT^{POWER} units are packaged machines supplied as standard with the following components:

- Hermetic SCROLL compressors
- Brazed plate condenser or evaporator water type heat exchanger
- All-aluminium micro-channel condenser (LD) or evaporator air-cooled exchanger, copper tube coil with aluminium fins (ILD) and axial fan motor assembly
- Electrical power and remote control cabinet:
 - 400 V-3ph-50 Hz (+/-10%) mains power supply + Earth
 - Transformer fitted as standard on the machine for supplying the remote control circuit with 24 V
- Connect Touch electronic control module
- Casing for outdoor installation

The entire **AQUACIAT^{POWER}** range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC.
 - Electromagnetic compatibility directive 2014/30/EC
 - Safety of machinery: Electrical equipment of machines EN 60204-1
 - EMC immunity and emissions EN 61800-3 'C3'
 - Regulation (EC) No. 1907/2006 REACH
- Pressure equipment directive (PED) 2014/68/EU
- Refrigerating systems and heat pumps EN 378-2
 - Regulation (EU) No. 813/2013 implementing Directive 2009/125/EC with regard to ecodesign requirements (Heat pump)
 - Regulation (EU) No. 2016/2281 implementing Directive 2009/125/EC with regard to ecodesign requirements (Chiller)

CONFIGURATION

| Acoustic versions | Energy versions | |
|-------------------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| | High outdoor temperature option | Rated high performance option |
| | AQUACIAT^{POWER} Standard (AC motor fans) | AQUACIAT^{POWER} Seasonal high-performance version (Optional AC motor fans + Inverter or EC motor fans) |
| | Very Low Noise option | Very Low Noise option |
| | Ultra Low Noise option | Ultra Low Noise option |

Digit number

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|
| L | D | - | - | 0 | 6 | 0 | 2 | R | - | A | 0 | 0 | 0 | 1 | - | - | - |

Product code

Legend

- Digit 1 to 4 : Model series, LD-- = for air cooled cooling only, ILD-- = for air to water heat pump
 Digit 5 to 8 : Model size number
 Digit 9 : R = R32 refrigerant
 Digit 10 : Not used
 Digit 11 : Major revision index
 Digit 12 to 15 : Counter used to generate a one time product code
 Digit 16 : Not used

CUSTOMER BENEFITS

Environmental responsibility

We are committed to meeting your strictest environmental requirements.

We focus our energies on making our products ever more efficient and environmentally friendly.

AQUACIAT^{POWER} R-32 exceeds the requirements of Ecodesign 2021.



R-32



Simplicity

To save you time, we guarantee easy installation and integration in the building management system.

- No machine room required for the pumps and other accessories thanks to the hydraulic module option.
- Optimum use of the surface area for easy integration into an existing building.
- Quick, easy installation and system start-up.
- Packaged solution for quick start-up and reliable installation.
- Communication with all types of building management system (BMS) via Modbus protocol available as standard, or optional LON or BACNET protocols.



User comfort

We guarantee acoustic comfort for your users.

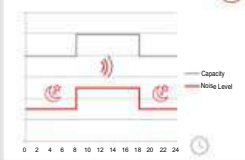
Thanks to fans with low noise levels installed as standard and the noise reduction technologies integrated into the new **AQUACIAT^{POWER}** range, we can guarantee a level of acoustic comfort which meets the expectations of your users, even in night mode.



ULTRA LOW NOISE LEVEL

-5 to -6 dB(A)
reinforced noise insulation on the compressors and all of the components which generate noise

NIGHT MODE



Reliability

We use state-of-the-art monitoring solutions to guarantee complete reliability for your equipment.

ABOUT HVAC Performance lets you track and monitor your CIAT equipment.

- Data extraction in real time via customised access to the ABOUT HVAC Performance website (controller control panel, temperature/event curve, fault memory and alerts and parameter history).
- Email alert.
- Analysis and recommendations from CIAT experts



Energy savings

We develop solutions to enable substantial savings while protecting the environment and guaranteeing user comfort.

Heat recovery options can be used to produce free additional hot water at a high temperature. This hot water can be used to prepare domestic hot water for heating swimming pools, spas and hot tubs.

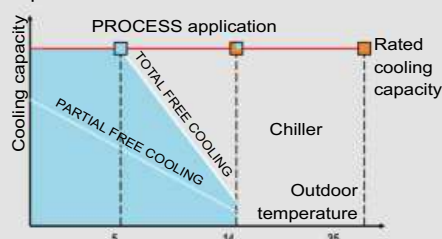
30%
energy



| | | |
|---------|-------|---------------------------------|
| ❄️ / ☀️ | 100 % | Chilled or hot water production |
| 80° | + | |
| 🔥 | 25 % | Domestic hot water production |
| | or | |
| 65° | 100 % | Hot water production |

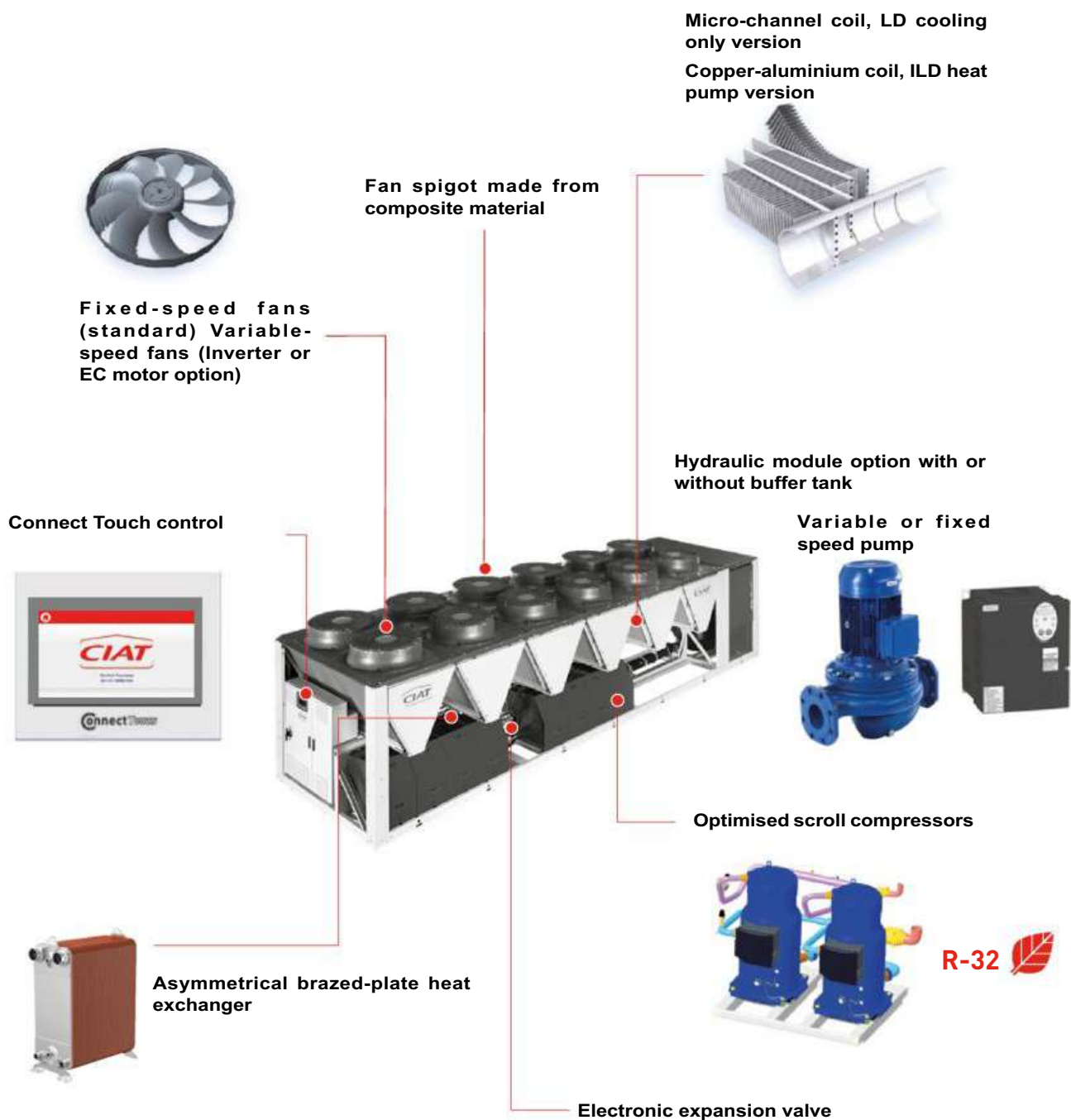
The free cooling option is used to provide significant energy savings for all for applications which require cooling all year round or during the night, particularly in cold regions.

In these regions, free cooling is a very effective and environmentally-friendly means of meeting a large proportion of the cooling requirements.



FREE COOLING: The economical cooling solution

MAIN COMPONENTS



DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

- Hermetic SCROLL type
- Electronic motor overheating protection
- Crankcase heater
- Mounted on anti-vibration mounts

■ Water type heat exchanger

- Asymmetrical brazed plate heat exchanger
- Plate patterns optimised for high efficiency
- 19-mm armaflex thermal insulation

■ Air-cooled exchanger

- Liquid chiller: air-cooled exchanger, all-aluminium, micro-channels
- Heat pump: air-cooled exchanger, copper tube coil, aluminium fins
- Propeller fans with composite blades offering an optimised profile with fixed speed or variable speed depending on the model, variable-speed option using frequency inverter or EC motor
- Motors – IP 54, class F

■ Refrigerating accessories

- Dehumidifier filters with rechargeable cartridges
- Hygroscopic sight glasses
- Electronic expansion valves
- Service valves on the liquid line
- Four-way reverse cycle valve in cooling/heating mode

■ Control and safety instruments

- Low and high pressure sensors
- Safety relief valves on refrigerant circuit
- Water temperature control sensors
- Evaporator antifreeze protection sensor
- Factory-fitted evaporator water flow controller

■ Electrical cabinet

- Electrical cabinet with IP 54 protection rating
- A connection point without neutral
- Front-mounted main disconnect switch with handle
- Control circuit transformer
- 24 V control circuit
- Fan and compressor motor circuit breaker
- Fan and compressor motor contactors
- Connect Touch microprocessor-controlled electronic control module
- Wire numbering
- Marking of the main electrical components



■ Casing

Casing made from RAL 7035 light grey & RAL 7024 graphite grey painted panels

■ Connect Touch control module

- User interface with 4.3-inch touch screen
- Intuitive, user-friendly navigation using icons
- Clear text display of information available in 7 languages (FR-EN-DE-ES-I-PT-NL)



The electronic control module performs the following main functions:

- Regulation of the chilled water temperature (at the return or at the outlet)
- Control of the water temperature based on the outdoor temperature (water law)
- Control for low temperature energy storage
- Management of a second setpoint
- Complete management of the compressors with start-up sequence, timer and operation time balancing
- Self-adjusting and proactive functions with adjustment of settings on drift control
- In-series staged power control system on the compressors according to the thermal requirements
- Management of compressor short-cycle protection
- Frost protection (exchanger heater option)
- Compressor phase reversal protection
- Optimised defrosting with free defrost function to optimise part-load performance and the SCOP
- Management of occupied/unoccupied modes (according to the time schedule)
- Compressor and pump operation time balancing
- Management of the machine operation limit according to outdoor temperature
- Sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- Diagnosis of fault and operating statuses
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with an operating reading taken when the fault occurs
- Blackbox memory
- Master/slave management of the two machines in parallel with operation time balancing and automatic changeover if a fault occurs on one machine
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Pump standby based on demand (energy saving)
- Calculation of the water flow rate and operating pressure (hydraulic module version)
- Electronic adjustment of the water pump speed and water flow rate (variable-speed pump option)
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), operation time.

DESCRIPTION OF THE MAIN COMPONENTS

- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.
- Innovative smart energy monitoring, providing users with smart data such as real-time electrical energy consumption and heating and cooling capacity, and instantaneous and average energy efficiency rates.

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP (BTL certified) as an option, enabling most CMS/BMS to be integrated

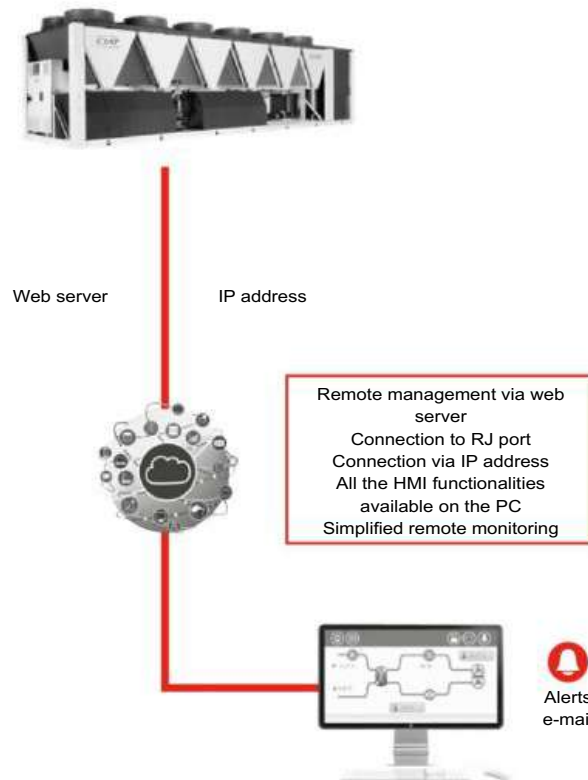
Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops
- Heating/cooling mode selection
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage mode, for example)
- Power limitation: closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- Fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerant circuits to stop
- Operational status reporting indicates that the unit is in production mode.
- Activation control for partial energy heat recovery unit using the desuperheater.
- Switch control for the customer pump, external to the machine (on/off).

Contacts available as an option:

- Setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in COOLING mode
- On/off control for a boiler
- 4-stage on/off management for additional heaters
- Power limitation adjustable by 4-20 mA signal
- Second power limitation level
- Power indication: analogue output (0-10 V) providing an indication of the unit's load rate.
- user fault reporting, enables integration of a fault in the water loop
- General fault reporting: this contact indicates that the unit has stopped completely
- alert reporting: this contact indicates the presence of a minor fault which did not cause the refrigerant circuit in question to stop.

- End of storage signal: enables return to the second setpoint at the end of the storage cycle
- Schedule override: closing this contact cancels the time schedule.
- desuperheater activation control
- Desuperheater pump On/Off control.



■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.

- The scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- The compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the unit's refrigerant charge, in compliance with the F-GAS regulations.

ENVIRONMENTAL RESPONSIBILITY

The **AQUACIAT^{POWER}** contributes to sustainable development via an environmentally responsible approach, aimed at balancing ecological and economic concerns. This enables it to meet the requirements of future European thermal regulations and to protect our environment for future generations.

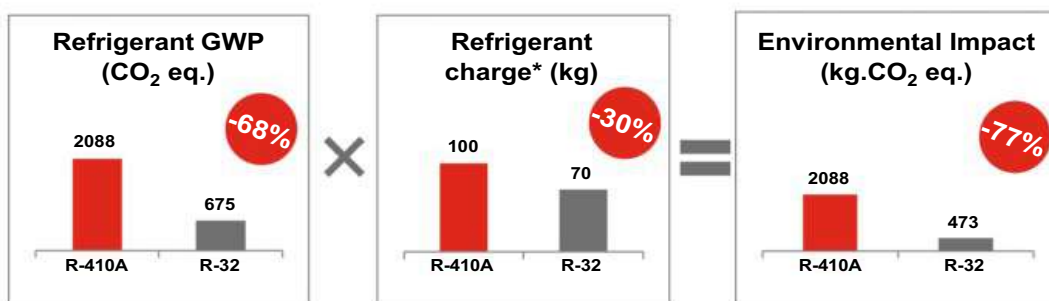
The impact of an air conditioning system on global warming of the planet is in large part caused by CO₂ emissions released into the atmosphere when the electricity required to power the unit is produced (indirect effect) and in small part by CO₂ emissions linked to uncontrolled emissions of refrigerant with global warming potential into the atmosphere (direct effect).

With the **AQUACIAT^{POWER}**, it's a win-win situation: its low charge of R-32 refrigerant with low GWP reduces the direct environmental impact by 80% while reducing the indirect environmental impact thanks to its high energy performance.

■ 77% reduction in the direct environmental impact (refrigerant)

This performance is the result of the high-quality components used, which have all been rigorously selected:

- R-32 refrigerant with low environmental impact (Ozone depletion potential =0, Global warming potential =675)
- Aluminium micro-channel coil on LD chiller versions with a 40% reduction in refrigerant charge compared to a conventional coil
- New generation of copper tube coil-aluminium fins on ILD heat pump versions with a 30% reduction in refrigerant charge compared to a conventional coil
- Asymmetrical brazed-plate heat exchanger (BPHE) with a reduction in the refrigerant charge compared to a shell and tube heat exchanger
- Systematic tightness check of units in leak detection cabinets at end of line production



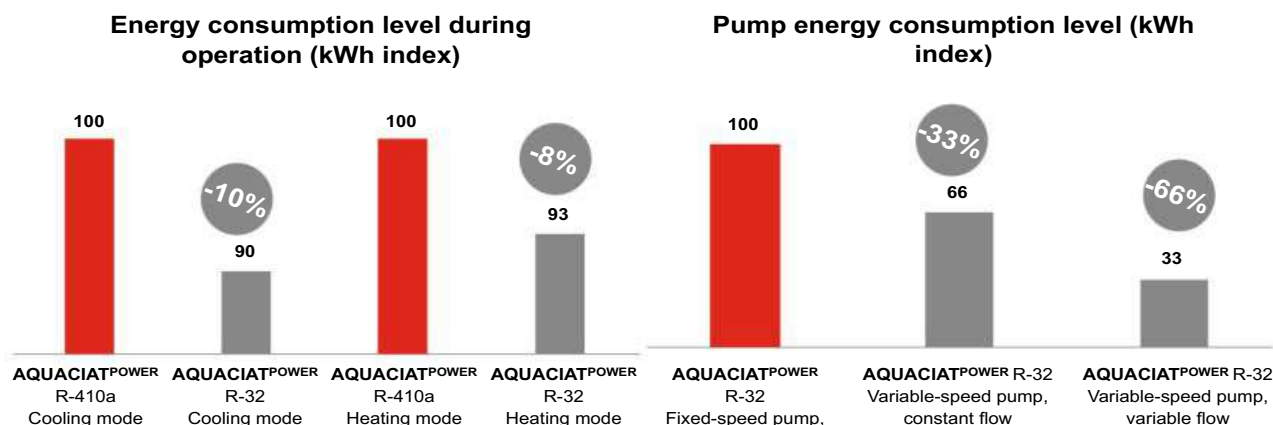
To conclude, the potential direct impact of the **AQUACIAT^{POWER}** on the environment with R-32 refrigerant is reduced by 77% compared to the previous generation R-410A.

■ Reduced indirect environmental impact (Energy)

The high energy performance offered by the **AQUACIAT^{POWER}** R-32 enables energy consumption to be greatly reduced, thereby cutting energy bills for the user whilst reducing the unit's carbon footprint.

The seasonal efficiency of the **AQUACIAT^{POWER}** R-32 in cooling mode is 10% greater than the previous version with R-410A and 6% greater in heating mode.

In addition, the **AQUACIAT^{POWER}** unit with R-32 refrigerant can be equipped with a variable-speed pump with constant or variable water flow control to significantly reduce pumping energy costs.



ENVIRONMENTAL RESPONSIBILITY

This performance is the result of the high-quality components used, which have all been rigorously selected:

- R-32 refrigerant with high energy performance,
- New generation of scroll compressors optimised for R-32 refrigerant
- Asymmetrical brazed-plate heat exchanger with extremely low water-side pressure drops enabling a reduction in pump electricity consumption
- Optional variable-speed pump enabling automatic adjustment of the rated water flow rate (disposal of the control valve), during operation and during unit shut down periods.

To conclude, the AQUACIAT^{POWER} unit with R-32 refrigerant and variable-speed pump greatly reduces the indirect environmental impact compared to the previous generation R-410A.

■ EcoPassport®

The PEP ecopassport® programme provides an international reference framework for procedures enabling manufacturers to report the environmental specifications of their products in the form of an environmental claim known as a Product Environmental Profile (PEP).

The PEP ecopassport® programme guarantees that PEPs are correctly drawn up, verified and reported in line with the requirements of the ISO 14025 and IEC/PAS 62545 standards.

The Life Cycle Analysis (LCA) PEP is the environmental identity card for an item of equipment which details the environmental impacts of the product during its life cycle according to eight mandatory indicators:

1. Global Warming Potential
2. Impact on the ozone layer
3. Acidification of soil and water
4. Eutrophication of water
5. Photochemical ozone creation
6. Abiotic resource depletion
7. Fresh water consumption
8. Total use of primary energy during the life cycle

Products with certified environmental profiles are used to support methods to assess building sustainability such as BREEAM, LEED. BREEAM, LEED gives additional recognition for materials with robust environmental product declaration types using manufacturer data.

CIAT is the first HVAC manufacturer to provide the PEP for liquid chillers and heat pumps including not only the 8 mandatory indicators, but all 27 indicators.

The **AQUACIAT^{POWER} LD** PEP can be downloaded from the PEP ecopassport® website: <http://www.pep-ecopassport.org/fr/>



AVAILABLE OPTIONS

| Options | Description | Advantages | LD | ILD |
|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----|-------------|
| Corrosion protection, traditional coils | Fins made of pre-treated aluminium (polyurethane and epoxy) | Improved corrosion resistance, recommended for moderate marine and urban environments | No | • |
| Low-temperature brine solution | Low temperature chilled water production down to -15 °C with ethylene glycol and down to -12 °C with propylene glycol. | Covers specific applications such as ice storage and industrial processes | • | No |
| XtraFan | Unit equipped with specific variable-speed fans: XtraFans (See specific chapter for maximum available static pressure according to size), each fan equipped with a connection flange and flexible sleeves | Ducted fan discharge, optimised fan speed control, based on the operating conditions and system characteristics | • | • |
| Very Low Noise | Acoustic compressor enclosure and low-speed fans | Noise level reduction for sensitive sites | • | • |
| Ultra Low Noise | Acoustic compressor enclosure, low-speed fans and enhanced sound insulation of main noise sources | Noise level reduction for sensitive sites | • | • |
| High ambient temperature | Unit equipped with a higher speed fan | Unit operating range extended to higher ambient temperatures | • | • |
| Protection grilles | Metallic protection grilles | Coil protection against possible impact | • | • |
| Soft starter per compressor | Electronic starter on each compressor | Reduced start-up current | • | • |
| Soft starter per circuit | Soft starter on each circuit | Economical solution for reduced start-up current | • | • |
| All year round cooling operation down to -20°C | Fanspeed control via frequency converter | Stable unit operation when the outdoor air temperature is between 0°C and -20°C | • | • |
| Water exchanger frost protection | Electric heater on the water type heat exchanger and the water duct | Water type heat exchanger module frost protection for an outdoor air temperature between 0 °C and -20 °C | • | • |
| Water manifold antifreeze protection | Electric heater and insulation on the water collection vessel pipes | Water collection vessel frost protection down to an outdoor temperature of -20 °C | No | 2300R-4000R |
| Recovery condenser frost protection | Electric heater on the heat recovery exchanger | Heat recovery exchanger frost protection down to an outside temperature of -20 °C | • | No |
| Frost protection with glycol-free free cooling option | Electric resistance heater on the water type heat exchanger, and the hydraulic module | Water exchanger and hydraulic module frost protection down to -20°C outside temperature | • | No |
| Frost protection on the evaporator and hydraulic module with the Free Cooling Glycol Free option | Electric resistance heater on the water type heat exchanger and hydraulic module | Water type heat exchanger and hydraulic module frost protection down to -20°C outside temperature | • | No |
| Exchanger & hydraulic module frost protection | Electrical heaters on the water type heat exchanger, water pipes, hydraulic module and expansion tank | Water type heat exchanger and hydraulic module frost protection down to an outdoor air temperature of -20 °C | • | • |
| Exchanger & hydraulic frost protection with buffer tank | Electrical heaters on the water type heat exchanger, water pipes, hydraulic module, optional expansion tank and buffer tank | Water type heat exchanger and hydraulic module frost protection down to an outdoor air temperature of -20 °C | • | • |
| Partial heat recovery | Unit equipped with one desuperheater on each refrigerant circuit | Production of free high-temperature hot water simultaneously with chilled water production (or hot water for heat pump) | • | • |
| Total heat recovery | Unit equipped with additional heat exchanger in series with the condenser coils. | Production of free hot water, adjustable on demand | • | No |
| Master/slave operation | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operation time balancing | • | • |

• ALL MODELS

Refer to the selection tool to find out which options are not compatible.

AVAILABLE OPTIONS

| Options | Description | Advantages | LD | ILD |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|
| Compressor suction and discharge valves | Shut-off valves on the common compressor suction and discharge pipes | Simplified maintenance. Possibility to store the refrigerant charge in the cooler or condenser side during servicing | • | • |
| Evaporator single HP pump | High pressure fixed speed water pump. (optional expansion vessel and built-in hydraulic safety components available) | Quick and easy installation (plug & play) | 0602R-1400R | 0602R-2000R |
| Evaporator dual HP pump | Dual high pressure fixed speed water pump. (optional expansion vessel and built-in hydraulic safety components available) | Quick and easy installation (plug & play) | 0602R-1400R | 0602R-2000R |
| Evaporator single LP pump | Single low pressure fixed speed water pump. (optional expansion vessel and built-in hydraulic safety components available) | Quick and easy installation (plug & play) | 0602R-1400R | 0602R-2000R |
| LP dual-pump hydraulic module | Dual low pressure water pump, fixed speed. (optional expansion vessel and built-in hydraulic safety components available) | Quick and easy installation (plug & play) | 0602R-1400R | 0602R-2000R |
| HP single-pump (variable speed) | Single high-pressure water pump, water filter, electronic water flow control, pressure sensors. Multiple variable water flow control options (optional expansion vessel and built-in hydraulic safety components available) | Quick and easy installation (plug & play), significant reduction in pumping energy consumption level (more than two-thirds), precise water flow control, improved system reliability | • | • |
| Dual HP pump (variable speed) | Dual high pressure water pump with variable speed drive (VSD), pressure transducers. Multiple options for water flow control. For more details, refer to the relevant section | Quick and easy installation (plug & play), significant reduction in pumping energy consumption level (more than two-thirds), precise water flow control, improved system reliability | • | • |
| High nominal energy efficiency | Higher air flow through the condenser coils improving heat exchange efficiency on the condenser | Energy cost reduction and extended operating envelope (full load operation at higher air temperature) | • | • |
| High seasonal energy efficiency (VSD) | Unit equipped with variable-speed fans (VSD) | Enhances the unit seasonal energy efficiency performance and reduces the noise emission thanks to a smooth fan speed variation. | • | • |
| High seasonal energy efficiency (EC) | Variable-speed fans with EC motors | Enhances the unit seasonal energy efficiency performance and reduces the noise emission thanks to a smooth fan speed variation. | • | • |
| High energy efficiency underfloor heating/cooling application | Optimisation of the refrigerant circuit and control for the underfloor heating/cooling system application | Improvement of performance and reduction of energy costs for the underfloor heating/cooling application | No | • |
| Lon gateway | Two-directional communication board complying with Lon Talk protocol | Connects the unit by communication bus to a centralised building management system | • | • |
| Bacnet over IP | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy and high-speed connection by Ethernet line to a BMS. Allows access to multiple unit parameters | • | • |
| Energy management module | EMM Control board with additional inputs/outputs. See Energy Management Module section | Extended remote control capabilities (setpoint reset, ice storage end, demand limits, boiler on/off command...) | • | • |
| Contact for refrigerant leak detection | 0-10 V signal to report any refrigerant leakage in the unit directly (the leak detector itself must be supplied by the customer) | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions | • | • |
| Phase controller | Phase controller on the power supply | Reinforced protection of the unit by monitoring rotation, the absence and asymmetry of the phases, and the over- or under-voltage of the electrical network | • | • |
| Compliance with Russian regulations | EAC certification | Compliance with Russian regulations | • | • |

• ALL MODELS

Refer to the selection tool to find out which options are not compatible.

AVAILABLE OPTIONS

| Options | Description | Advantages | LD | ILD |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----|
| Coil defrost resistance heaters | Electric heaters under the coils and the condensate pans | Prevents frost formation on the coils; compulsory in heating mode if the outdoor temperature is below 0 °C | No | • |
| Insulation of the evaporator inlet/outlet refrigerant lines | Thermal insulation of the evaporator inlet/outlet refrigerant lines, with UV-resistant flexible connection and insulation | Prevents condensation on the evaporator inlet/outlet refrigerant lines | • | • |
| Protect2 anti-corrosion protection | Coating applied using a conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. No heat transfer variation, tested to withstand more than 4000 hours of salt spray as per ASTM B117 | Protect2 Improved corrosion resistance of the MCHE coils by 2, recommended for use in moderately corrosive environments | • | No |
| Anti-corrosion protection on FreeCooling coils | Same anticorrosion treatment as on MCHE condenser coils | Improved corrosion resistance, recommended for use in moderately corrosive environments. | • | No |
| Protect4 anti-corrosion protection | Extremely durable and flexible epoxy polymer coating applied on micro channel coils by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested to withstand more than 6000 hours of constant neutral salt spray as per ASTM B117, improved impact resistance as per ASTM D2794 | Protect4 Improved corrosion resistance of the MCHE coils by 4, recommended for use in corrosive environments | • | No |
| Flanged evaporator water connection kit | Victaulic piping connections with flanged joints | Easy installation | • | • |
| Compressor enclosure | Compressor with enclosure | Improved aesthetics, compressor protection against external elements (dust, sand, water...) | • | • |
| EMC class. C2, as per EN 61800-3 | Additional RFI filters on the unit power line | Reduces electromagnetic interference in accordance with the emission level required by category C2 to allow use in the first environment ("residential environment") | • | • |
| 230 V electrical plug | 230 VAC power source provided with plug socket and transformer (180 VA, 0.8 A) | Enables connection of a laptop or an electrical device during system start-up or maintenance | • | • |
| Expansion tank | 6-bar expansion tank built into the hydraulic module (requires hydraulic module option) | Easy and fast installation (plug & play), & protection of closed water systems from excessive pressure | • | • |
| Electric energy meter | Electric energy meter. Display of energy consumption, instantaneous (U, V, I) and cumulative (kWh) on the machine interface, data available on the communication buses | Enables acquisition, monitoring (remote on CMS/BMS) of energy used. | • | • |
| Ultra-fast full capacity recovery | Built-in capacity module to allow an ultra-rapid restart whilst maintaining the unit's reliability. | Full capacity recovery in less than 10 minutes 30 seconds after a power failure of less than 10 minutes. Matches requirements of typical critical mission applications. (process, data centres) | • | No |
| Screwed water connection sleeves for desuperheater | DSH connections with screw connection sleeves | Easy to install. Allows unit connection to a screw connector | • | • |
| Free cooling (total) | Free cooling hydraulic coils on the two refrigerant circuits | Energy savings for applications which require cooling all year round (e.g.: industrial processes, data centres) | • | No |

• ALL MODELS

Refer to the selection tool to find out which options are not compatible.

AVAILABLE OPTIONS

| Options | Description | Advantages | LD | ILD |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------|
| Free cooling (partial) | Free cooling hydraulic coils on a refrigerant circuit | Energy savings for applications with reduced demand for cooling in the winter (e.g. office space with computer room, meeting rooms) | • | No |
| Free Cooling Glycol Free (Total) | Free cooling hydraulic coils on both refrigerant circuits and decoupling exchanger. | Energy savings for applications which require cooling all year round (e.g.: industrial processes, data centres, etc.) Glycol-free operation | • | No |
| Water buffer tank module | Built-in water buffer tank module | Avoids short cycle on compressors and ensures stable water in the loop | • | • |
| Anti-vibration mounts | Elastomer anti-vibration mounts to be placed under the unit (material classified as fire class B2 according to DIN 4102). | Isolate the unit from the building, prevent the transmission of vibrations and associated noise to the building. Must be used in conjunction with a flexible connection on the water side | • | • |
| Exchangers flexible coupling connection | Flexible connections on the exchanger water side | Easy to install. Limits the transmission of vibrations to the water network | • | • |
| Exchanger water filter | Water filter | Eliminates dust in the water network | • | • |
| Free cooling dry cooler management | Control and connections to an Opera or Vextra free cooling dry cooler fitted with optional FC control box | Easy system management, extended control capabilities to a dry cooler used in free cooling mode | • | No |
| Desuperheater flexible couplings | Flexible connections on the desuperheater water side | Easy to install. Limits the transmission of vibrations to the water network | • | • |
| Water manifold | Pipe system providing a single hydraulic connection point | Easy installation | No | 2300R-4000R |
| Installation or application process outside Europe | Specific management of option compatibility | Permits non-standard option compatibility for HVAC application in the EU | • | No |
| Compliance with Moroccan regulations | Specific regulatory documentation | Compliance with Moroccan regulations | • | • |
| Delivered wrapped in plastic film | Unit wrapped in a plastic cover and strapped onto a wooden pallet. | Protects against dust and external soiling of the unit during storage and transport. | • | • |
| IT neutral system | Specific earthing to insulate the earth neutral point. | The unit still operates after the first electrical isolation fault to guarantee continuity of operation (industrial processes, data centres, hospitals). | • | • |

• ALL MODELS

Refer to the selection tool to find out which options are not compatible.



TECHNICAL SPECIFICATIONS - COOLING ONLY

| AQUACIAT ^{POWER} LD | | | | 0602R-A | 0650R-A | 0750R-A | 0900R-A | 1100R-A | 1200R-A | 1350R-A | 1400R-A | 1600R-A |
|-----------------------------------------------------------------------------|-----|----------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Cooling | | | | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Rated capacity | kW | 165 | 180 | 198 | 217 | 256 | 296 | 328 | 361 | 394 |
| | | EER | kW/kW | 3,05 | 3,24 | 3,04 | 3,02 | 2,81 | 2,96 | 2,86 | 2,94 | 2,86 |
| Seasonal energy efficiency** | | SEER ^{12/7°C} Comfort low temp. | kWh/kWh | 4,49 | 4,64 | 4,45 | 4,47 | 4,35 | 4,70 | 4,67 | 4,62 | 4,89 |
| | | ηs cool ^{12/7°C} | % | 169 | 181 | 178 | 176 | 171 | 185 | 183 | 183 | 193 |
| | | SEER ^{23/18°C} Comfort medium temp. | kWh/kWh | 5,27 | 5,52 | 5,22 | 5,26 | 4,99 | 5,66 | 5,55 | 5,43 | 5,80 |
| | | SEPR ^{12/7°C} Process high temp. | kWh/kWh | 5,27 | 5,42 | 5,34 | 5,19 | 5,14 | 5,44 | 5,47 | 5,60 | 5,63 |
| | | SEPR ^{-2/-8°C} Process medium temp. | kWh/kWh | 3,06 | 3,11 | 3,08 | 3,00 | 3,04 | 3,09 | 3,14 | 3,09 | 3,16 |
| Part Load Integrated Values | | IPLV.SI | kW/kW | 5,06 | 5,16 | 5,04 | 5,16 | 5,08 | 5,25 | 5,23 | 5,21 | 5,52 |
| Unit + Rated & Seasonal high performance options Full load performances* | CA1 | Rated capacity | kW | 172 | 187 | 206 | 227 | 270 | 311 | 346 | 380 | 416 |
| | | EER | kW/kW | 3,20 | 3,36 | 3,21 | 3,16 | 3,03 | 3,15 | 3,09 | 3,14 | 3,10 |
| Seasonal energy efficiency** | | SEER ^{12/7°C} Comfort low temp. | kWh/kWh | 4,82 | 5,02 | 4,84 | 4,94 | 4,79 | 5,25 | 5,15 | 5,09 | 5,11 |
| | | ηs cool ^{12/7°C} | % | 190 | 198 | 191 | 195 | 189 | 207 | 203 | 201 | 201 |
| | | SEER ^{23/18°C} Comfort medium temp. | kWh/kWh | 5,98 | 6,23 | 5,93 | 5,99 | 5,69 | 6,35 | 6,17 | 6,13 | 6,07 |
| | | SEPR ^{12/7°C} Process high temp. | kWh/kWh | 6,30 | 6,61 | 6,42 | 6,13 | 5,97 | 6,30 | 6,24 | 6,36 | 6,30 |
| | | SEPR ^{-2/-8°C} Process medium temp. | kWh/kWh | 3,48 | 3,60 | 3,54 | 3,41 | 3,41 | 3,51 | 3,56 | 3,50 | 3,57 |
| Sound levels | | | | | | | | | | | | |
| Unit + High temperature option/ Rated high performance | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 91,0 | 91,5 | 91,5 | 92,0 | 92,0 | 93,0 | 93,0 | 93,5 | 93,5 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 58,5 | 59,5 | 59,5 | 60,0 | 60,0 | 60,5 | 60,5 | 61,0 | 61,5 | |
| Standard unit | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 88,5 | 89,0 | 89,0 | 89,5 | 89,5 | 90,5 | 90,5 | 91,0 | 91,0 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 56,5 | 57,0 | 57,0 | 57,5 | 57,5 | 58,5 | 58,5 | 59,0 | 58,5 | |
| Unit + Very Low Noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 85,5 | 85,5 | 85,5 | 86,5 | 86,5 | 87,5 | 87,5 | 88,0 | 88,0 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 53,0 | 53,5 | 53,5 | 54,5 | 54,5 | 55,5 | 55,5 | 55,5 | 56,0 | |
| Unit + Ultra Low Noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 83,5 | 83,5 | 83,5 | 84,5 | 84,5 | 85,5 | 85,5 | 86,0 | 86,0 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 51,5 | 51,5 | 51,5 | 52,5 | 52,5 | 53,5 | 53,5 | 53,5 | 53,5 | |

* In accordance with EN14511-3:2022.

** In accordance with EN14825:2022, average climate conditions

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W

ηs cool ^{12/7°C} & SEER ^{12/7°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

SEER ^{23/18 °C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

SEPR ^{12/7 °C} Values calculated in accordance with EN 14825:2022

SEPR ^{-2/-8 °C} Values calculated in accordance with EN 14825:2022

IPLV.SI Calculated as per AHRI standard 551-591.

(1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values



TECHNICAL SPECIFICATIONS - COOLING ONLY

| AQUACIAT ^{POWER} LD | | 0602R-A | 0650R-A | 0750R-A | 0900R-A | 1100R-A | 1200R-A | 1350R-A | 1400R-A | 1600R-A |
|------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Dimensions | | | | | | | | | | |
| Standard unit | | | | | | | | | | |
| Length | mm | 2410 | 2410 | 2410 | 2410 | 2410 | 3604 | 3604 | 3604 | 3604 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 |
| Unit + water buffer tank module option | | | | | | | | | | |
| Length | mm | 3604 | 3604 | 3604 | 3604 | 3604 | 4798 | 4798 | 4798 | 4798 |
| Operating weight ⁽³⁾ | | | | | | | | | | |
| Standard unit | kg | 1349 | 1397 | 1397 | 1521 | 1556 | 1995 | 2049 | 2211 | 2269 |
| Unit + Ultra Low Noise option | kg | 1453 | 1501 | 1501 | 1656 | 1690 | 2153 | 2208 | 2394 | 2452 |
| Unit + Ultra Low Noise + HP dual-pump hydraulic module option | kg | 1588 | 1636 | 1636 | 1791 | 1837 | 2302 | 2403 | 2589 | 2646 |
| Unit + Ultra Low Noise + HP dual-pump hydraulic module + Water buffer tank module option | kg | 2571 | 2619 | 2619 | 2774 | 2819 | 3288 | 3389 | 3575 | 3632 |
| Compressors | | Hermetic Scroll 48.3 r/s | | | | | | | | |
| Circuit A | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 |
| Circuit B | | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| Number of power stages | | 3 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 |
| Unit PED category | | III | III | III | III | III | III | III | III | III |
| Refrigerant⁽³⁾ | | R-32 / A2L/ GWP= 675 in accordance with ARI4 | | | | | | | | |
| Circuit A | kg | 6,3 | 9,4 | 9,4 | 11,1 | 11,5 | 12,2 | 13,0 | 17,7 | 18,5 |
| | tCO ₂ e | 4,2 | 6,3 | 6,3 | 7,5 | 7,8 | 8,2 | 8,8 | 11,9 | 12,5 |
| Circuit B | kg | 11,1 | 11,1 | 11,1 | 11,1 | 11,5 | 17,1 | 17,9 | 18,5 | 19,3 |
| | tCO ₂ e | 7,5 | 7,5 | 7,5 | 7,5 | 7,8 | 11,5 | 12,0 | 12,5 | 13,0 |
| Oil | | | | | | | | | | |
| Circuit A | l | 6,6 | 6,6 | 6,6 | 13,2 | 13,2 | 13,2 | 13,2 | 19,8 | 19,8 |
| Circuit B | l | 13,2 | 13,2 | 13,2 | 13,2 | 13,2 | 19,8 | 19,8 | 19,8 | 19,8 |
| Capacity control | | Connect'Touch | | | | | | | | |
| Minimum capacity | % | 33 | 33 | 33 | 25 | 25 | 20 | 20 | 17 | 17 |
| Condenser | | All-aluminium micro-channel coils (MCHE) | | | | | | | | |
| Fans | | Axial with rotating impeller | | | | | | | | |
| Standard unit | | | | | | | | | | |
| Quantity | | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 6 | 6 |
| Maximum total air flow | l/s | 11790 | 15720 | 15720 | 15720 | 15720 | 19650 | 19650 | 23580 | 23580 |
| Maximum rotation speed | r/s | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Evaporator | | Dual-circuit plate heat exchanger | | | | | | | | |
| Water volume | l | 15 | 15 | 15 | 19 | 27 | 27 | 35 | 44 | 44 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydraulic module (option) | | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | | | | |
| Pump | | Centrifugal pump, monocell, 48.3 r/s, low- or high-pressure (as required), single or dual (as required) | | | | | | | | |
| Expansion tank volume (Option) | l | 50 | 50 | 50 | 50 | 50 | 80 | 80 | 80 | 80 |
| Buffer tank volume (optional) | l | 550 | 550 | 550 | 550 | 550 | 550 | 550 | 550 | 550 |
| Max. water-side operating pressure with hydraulic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydraulic module | | Victaulic® type | | | | | | | | |
| Connections | inches | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 |
| External diameter | mm | 88,9 | 88,9 | 88,9 | 88,9 | 88,9 | 114,3 | 114,3 | 114,3 | 114,3 |
| Casing paint colour | | Colour code RAL 7035 & 7024 | | | | | | | | |

(1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 µPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power L_w(A).

(3) Values are guidelines only. Refer to the unit name plate.



TECHNICAL SPECIFICATIONS - COOLING ONLY

| AQUACIAT ^{POWER} LD | | | | 1750R-A | 1800R-A | 2000R-A | 2200R-A | 2400R-A | 2650R-A | 2800R-A | 2950R-A | 3200R-A | 3500R-A |
|-----------------------------------------------------------------------------|-----|----------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Cooling | | | | | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Rated capacity | kW | 428 | 458 | 523 | 586 | 645 | 688 | 743 | 765 | 836 | 889 |
| | | EER | kW/kW | 2,94 | 2,85 | 2,85 | 2,94 | 2,94 | 2,83 | 2,85 | 2,81 | 2,77 | 2,66 |
| Seasonal energy efficiency** | | SEER ^{12/7°C} Comfort low temp. | kWh/kWh | 5,08 | 5,03 | 4,95 | 5,08 | 5,16 | 5,05 | 5,17 | 5,13 | 4,98 | 4,86 |
| | | ηs cool ^{12/7°C} | % | 200 | 198 | 195 | 200 | 204 | 199 | 204 | 202 | 196 | 191 |
| | | SEER ^{23/18°C} Comfort medium temp. | kWh/kWh | 5,99 | 5,91 | 5,98 | 6,26 | 6,44 | 6,20 | 6,43 | 6,34 | 6,10 | 5,85 |
| | | SEPR ^{12/7°C} Process high temp. | kWh/kWh | 5,58 | 5,58 | 5,54 | 5,52 | 5,58 | 5,44 | 5,46 | 5,41 | 5,36 | 5,22 |
| | | SEPR ^{-2/-8°C} Process medium temp. | kWh/kWh | 3,13 | 3,15 | 3,15 | 3,54 | 3,46 | 3,49 | 3,44 | 3,46 | 3,41 | 3,44 |
| Part Load integrated values | | IPLV.SI | kW/kW | 5,68 | 5,63 | 5,60 | 5,75 | 5,71 | 5,60 | 5,74 | 5,71 | 5,63 | 5,51 |
| Unit + Rated & Seasonal high performance options Full load performances* | CA1 | Rated capacity | kW | 451 | 484 | 553 | 616 | 677 | 726 | 782 | 807 | 882 | 944 |
| | | EER | kW/kW | 3,15 | 3,09 | 3,08 | 3,16 | 3,14 | 3,06 | 3,07 | 3,04 | 3,00 | 2,92 |
| Seasonal energy efficiency** | | SEER ^{12/7°C} Comfort low temp. | kWh/kWh | 5,28 | 5,24 | 5,29 | 5,32 | 5,32 | 5,20 | 5,33 | 5,30 | 5,31 | 5,18 |
| | | ηs cool ^{12/7°C} | % | 208 | 207 | 209 | 210 | 210 | 205 | 210 | 209 | 209 | 204 |
| | | SEER ^{23/18°C} Comfort medium temp. | kWh/kWh | 6,33 | 6,23 | 6,32 | 6,56 | 6,51 | 6,28 | 6,54 | 6,47 | 6,56 | 6,32 |
| | | SEPR ^{12/7°C} Process high temp. | kWh/kWh | 6,41 | 6,32 | 6,27 | 6,27 | 6,33 | 6,14 | 6,25 | 6,18 | 6,07 | 5,86 |
| | | SEPR ^{-2/-8°C} Process medium temp. | kWh/kWh | 3,55 | 3,55 | 3,55 | 3,91 | 3,82 | 3,83 | 3,79 | 3,80 | 3,74 | 3,74 |
| Sound levels | | | | | | | | | | | | | |
| Unit + High temperature option/ Rated high performance | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 94,0 | 94,0 | 94,5 | 97,5 | 97,5 | 98,0 | 98,0 | 98,5 | 98,5 | 99,0 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 61,5 | 61,5 | 62,0 | 65,0 | 65,0 | 66,0 | 65,0 | 66,0 | 66,0 | 66,5 | |
| Standard unit | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 91,5 | 91,5 | 92,0 | 96,5 | 96,5 | 97,0 | 97,0 | 97,5 | 97,5 | 98,0 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 59,5 | 59,0 | 60,0 | 64,0 | 64,0 | 64,5 | 65,0 | 65,0 | 65,0 | 65,5 | |
| Unit + Very Low Noise option | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 88,5 | 88,5 | 89,0 | 92,5 | 92,5 | 93,0 | 93,0 | 93,5 | 93,5 | 94,5 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 56,0 | 56,5 | 57,0 | 60,5 | 60,0 | 60,5 | 60,0 | 61,0 | 60,5 | 61,5 | |
| Unit + Ultra Low Noise option | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | dB(A) | 86,5 | 86,5 | 87,0 | 90,0 | 90,0 | 90,5 | 90,5 | 90,5 | 90,5 | 91,0 | |
| Sound pressure at 10 m ⁽²⁾ | | dB(A) | 54,5 | 54,0 | 55,0 | 57,5 | 57,5 | 58,0 | 58,0 | 57,5 | 58,0 | 58,5 | |

* In accordance with EN14511-3:2022.

** In accordance with EN14825:2022, average climate conditions

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W

η_{s cool} 12/7°C & SEER_{12/7°C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

SEER_{23/18 °C} **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

SEPR_{12/7 °C} Values calculated in accordance with EN 14825:2022

SEPR_{-2/-8 °C} Values calculated in accordance with EN 14825:2022

IPLV.SI Calculated as per AHRI standard 551-591.

(1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values



TECHNICAL SPECIFICATIONS - COOLING ONLY

| AQUACIAT ^{POWER} LD | | 1750R-A | 1800R-A | 2000R-A | 2200R-A | 2400R-A | 2650R-A | 2800R-A | 2950R-A | 3200R-A | 3500R-A |
|------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Dimensions | | | | | | | | | | | |
| Standard unit | | | | | | | | | | | |
| Length | mm | 4798 | 4798 | 4798 | 5992 | 5992 | 5992 | 7186 | 7186 | 7186 | 7186 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 |
| Unit + water buffer tank module option | | | | | | | | | | | |
| Length | mm | 5992 | 5992 | 5992 | 7186 | 7186 | 7186 | 8380 | 8380 | 8380 | 8380 |
| Operating weight ⁽³⁾ | | | | | | | | | | | |
| Standard unit | kg | 2697 | 2722 | 2927 | 3265 | 3511 | 3511 | 4042 | 4042 | 4291 | 4291 |
| Unit + Ultra Low Noise option | kg | 2904 | 2930 | 3158 | 3434 | 3703 | 3703 | 4260 | 4260 | 4535 | 4535 |
| Unit + Ultra Low Noise + HP dual-pump hydraulic module option | kg | 3138 | 3164 | 3430 | 3743 | 4013 | 4013 | 4650 | 4650 | 4925 | 4925 |
| Unit + Ultra Low Noise + HP dual-pump hydraulic module + Water buffer tank module option | kg | 4131 | 4156 | 4421 | 4750 | 5020 | 5020 | 5671 | 5671 | 5946 | 5946 |
| Compressors | | Hermetic Scroll 48.3 r/s | | | | | | | | | |
| Circuit A | | 3 | 3 | 4 | 2 | 3 | 3 | 3 | 3 | 4 | 4 |
| Circuit B | | 4 | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 4 | 4 |
| Number of power stages | | 7 | 7 | 8 | 5 | 6 | 6 | 7 | 7 | 8 | 8 |
| Unit PED category | | IV | IV | IV | III | III | III | IV | IV | IV | IV |
| Refrigerant⁽³⁾ | | R-32 / A2L/ GWP= 675 in accordance with ARI4 | | | | | | | | | |
| Circuit A | kg | 18,8 | 19,1 | 24,4 | 23,0 | 24,5 | 24,5 | 27,3 | 27,3 | 30,4 | 30,4 |
| | tCO ₂ e | 12,7 | 12,9 | 16,5 | 15,5 | 16,5 | 16,5 | 18,4 | 18,4 | 20,5 | 20,5 |
| Circuit B | kg | 24,5 | 24,9 | 25,4 | 24,5 | 24,5 | 24,5 | 30,4 | 30,4 | 30,4 | 30,4 |
| | tCO ₂ e | 16,5 | 16,8 | 17,1 | 16,5 | 16,5 | 16,5 | 20,5 | 20,5 | 20,5 | 20,5 |
| Oil | | | | | | | | | | | |
| Circuit A | l | 19,8 | 19,8 | 26,4 | 13,2 | 19,8 | 19,8 | 19,8 | 19,8 | 26,4 | 26,4 |
| Circuit B | l | 26,4 | 26,4 | 26,4 | 19,8 | 19,8 | 19,8 | 26,4 | 26,4 | 26,4 | 26,4 |
| Capacity control | | Connect ^{Touch} | | | | | | | | | |
| Minimum capacity | % | 14 | 14 | 13 | 20 | 17 | 17 | 14 | 14 | 13 | 13 |
| Condenser | | All-aluminium micro-channel coils (MCHE) | | | | | | | | | |
| Fans | | Axial with rotating impeller | | | | | | | | | |
| Standard unit | | | | | | | | | | | |
| Quantity | | 7 | 7 | 8 | 9 | 10 | 10 | 11 | 11 | 12 | 12 |
| Maximum total air flow | l/s | 27510 | 27510 | 31440 | 35370 | 39300 | 39300 | 43230 | 43230 | 47160 | 47160 |
| Maximum rotation speed | r/s | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Evaporator | | Dual-circuit plate heat exchanger | | | | | | | | | |
| Water volume | l | 44 | 47 | 53 | 73 | 73 | 73 | 84 | 84 | 84 | 84 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydraulic module (option) | | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | | | | | |
| Pump | | Centrifugal pump, monocell, 48.3 r/s, low- or high-pressure (as required), single or dual (as required) | | | | | | | | | |
| Expansion tank volume (Option) | l | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| Buffer tank volume (optional) | l | 550 | 550 | 550 | 550 | 550 | 550 | 550 | 550 | 550 | 550 |
| Max. water-side operating pressure with hydraulic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydraulic module | | Victaulic [®] type | | | | | | | | | |
| Connections | inches | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| External diameter | mm | 114,3 | 114,3 | 114,3 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 |
| Casing paint colour | | Colour code RAL 7035 & 7024 | | | | | | | | | |

(1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 µPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).

(3) Values are guidelines only. Refer to the unit name plate.



TECHNICAL SPECIFICATIONS - REVERSIBLE HEAT PUMP

| AQUACIATPOWER ILD | | | | 0602R | 0700R | 0800R | 0900R | 1000R | 1150R |
|--------------------------------------------------------------------------------|-----|-------------------------------------------|---------|-------|-------|-------|-------|-------|-------|
| Heating | | | | | | | | | |
| Standard unit Full load performances* | HA1 | Rated capacity | kW | 178 | 197 | 237 | 256 | 275 | 317 |
| | | COP | kW/kW | 3,88 | 3,80 | 3,84 | 3,84 | 3,82 | 3,82 |
| | HA2 | Rated capacity | kW | 173 | 192 | 231 | 250 | 269 | 310 |
| | | COP | kW/kW | 3,16 | 3,09 | 3,14 | 3,12 | 3,11 | 3,10 |
| Energy efficiency efficiency** | HA1 | SCOP _{30/35°C} | kWh/kWh | 3,44 | 3,45 | 3,39 | 3,47 | 3,48 | 3,57 |
| | | ηs heat _{30/35°C} | % | 135 | 135 | 133 | 136 | 136 | 140 |
| | | P _{rated} | kW | 139 | 155 | 186 | 200 | 217 | 250 |
| Unit + Rated & Seasonal high performance options Full load performances* | HA1 | Rated capacity | kW | 178 | 197 | 237 | 256 | 275 | 317 |
| | | COP | kW/kW | 3,88 | 3,80 | 3,84 | 3,84 | 3,82 | 3,82 |
| Energy efficiency efficiency** | HA1 | SCOP _{30/35°C} | kWh/kWh | 3,67 | 3,66 | 3,74 | 3,77 | 3,80 | 3,87 |
| | | ηs heat _{30/35°C} | % | 144 | 143 | 147 | 148 | 149 | 152 |
| | | P _{rated} | kW | 138 | 155 | 185 | 200 | 216 | 250 |
| Cooling | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Rated capacity | kW | 155 | 171 | 204 | 223 | 239 | 285 |
| | | EER | | 2,73 | 2,55 | 2,73 | 2,63 | 2,56 | 2,66 |
| Energy efficiency efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,17 | 4,01 | 4,18 | 4,08 | 4,04 | 4,48 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 4,68 | 4,51 | 4,64 | 4,52 | 4,50 | 4,83 |
| Unit + Rated & Seasonal high performance options Full load performances* | CA1 | Rated capacity | kW | 164 | 181 | 215 | 236 | 254 | 302 |
| | | EER | kW/kW | 2,87 | 2,72 | 2,86 | 2,80 | 2,76 | 2,85 |
| Energy efficiency efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,41 | 4,23 | 4,48 | 4,41 | 4,34 | 4,78 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 5,47 | 5,23 | 5,41 | 5,23 | 5,15 | 5,49 |
| Sound levels | | | | | | | | | |
| Unit + High temperature option/Rated high performance | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 90,5 | 91,0 | 91,5 | 92,0 | 92,0 | 93,0 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 58,5 | 59,0 | 59,5 | 60,0 | 60,0 | 61,0 |
| Standard unit | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 88,0 | 88,5 | 89,0 | 89,5 | 89,5 | 90,5 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 55,5 | 56,0 | 56,5 | 57,0 | 57,0 | 58,0 |
| Unit + Very Low Noise option ⁽³⁾ | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 85,0 | 86,0 | 86,5 | 87,0 | 87,0 | 88,0 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 53,0 | 53,5 | 54,0 | 54,5 | 54,5 | 55,5 |
| Unit + Ultra Low Noise option ⁽³⁾ | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 83,0 | 84,0 | 84,5 | 85,0 | 85,0 | 86,0 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 51,0 | 52,0 | 52,5 | 53,0 | 53,0 | 54,0 |

| | |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * | In accordance with EN14511-3:2022. |
| ** | In accordance with EN14825:2022, average climate conditions |
| HA1 | Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m ² . kW |
| HA2 | Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m ² . kW |
| CA1 | Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m ² . kW |
| η _s heat _{30/35°C} & SCOP _{30/35°C} | Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications |
| SEER _{12/7 °C} & SEPR _{12/7 °C} | Applicable Ecodesign regulation (EU) No. 2016/2281 |
| (1) | In dB ref=10 ⁻¹² W, 'A' weighted. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent. Cooling mode operation. |
| (2) | In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A). |



Eurovent certified values



TECHNICAL SPECIFICATIONS - REVERSIBLE HEAT PUMP

| AQUACIAT ^{POWER} ILD | | 0602R | 0700R | 0800R | 0900R | 1000R | 1150R |
|------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|
| Dimensions | | | | | | | |
| Standard unit | | | | | | | |
| Length | mm | 2410 | 2410 | 2410 | 2410 | 2410 | 3604 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 |
| Unit + water buffer tank module option⁽³⁾ | | | | | | | |
| Length | mm | 3604 | 3604 | 3604 | 3604 | 3604 | 4798 |
| Operating weight ⁽³⁾ | | | | | | | |
| Standard unit | kg | 1569 | 1575 | 1784 | 1811 | 1817 | 2394 |
| Unit + Ultra Low Noise option | kg | 1672 | 1678 | 1918 | 1946 | 1952 | 2552 |
| Unit + Ultra Low Noise + HP dual-pump hydraulic module option | kg | 1808 | 1814 | 2065 | 2092 | 2098 | 2747 |
| Unit + Ultra Low Noise + HP dual-pump hydraulic module + Water buffer tank module option | kg | 2791 | 2797 | 3048 | 3075 | 3081 | 3756 |
| Compressors | | Hermetic Scroll 48.3 r/s | | | | | |
| Circuit A | | 1 | 1 | 2 | 2 | 2 | 2 |
| Circuit B | | 2 | 2 | 2 | 2 | 2 | 3 |
| Number of power stages | | 3 | 3 | 4 | 4 | 4 | 5 |
| Unit PED category | | III | III | III | III | III | III |
| Refrigerant⁽³⁾ | | R-32 / A2L/ GWP= 675 in accordance with ARI4 | | | | | |
| Circuit A | kg | 10,5 | 10,5 | 16,0 | 16,0 | 16,0 | 16,0 |
| | tCO ₂ e | 7,1 | 7,1 | 10,8 | 10,8 | 10,8 | 10,8 |
| Circuit B | kg | 16,0 | 16,0 | 16,0 | 16,0 | 16,0 | 28,5 |
| | tCO ₂ e | 10,8 | 10,8 | 10,8 | 10,8 | 10,8 | 19,2 |
| Oil | | | | | | | |
| Circuit A | l | 6,6 | 6,6 | 13,2 | 13,2 | 13,2 | 13,2 |
| Circuit B | l | 13,2 | 13,2 | 13,2 | 13,2 | 13,2 | 19,8 |
| Capacity control | | Connect ^{Touch} | | | | | |
| Minimum capacity | % | 33 | 33 | 25 | 25 | 25 | 20 |
| Condenser | | Grooved copper tubes and aluminium fins | | | | | |
| Fans | | Axial with rotating impeller | | | | | |
| Standard unit | | | | | | | |
| Quantity | | 3 | 3 | 4 | 4 | 4 | 5 |
| Maximum total air flow | l/s | 11790 | 11790 | 15720 | 15720 | 15720 | 19650 |
| Maximum rotation speed | r/s | 12 | 12 | 12 | 12 | 12 | 12 |
| Maximum total air flow with high rated energy efficiency option | l/s | 14460 | 14460 | 19280 | 19280 | 19280 | 24100 |
| Maximum rotation speed with high rated energy efficiency option | r/s | 16 | 16 | 16 | 16 | 16 | 16 |
| Evaporator | | Dual-circuit plate heat exchanger | | | | | |
| Water volume | l | 16,2 | 16,2 | 16,2 | 20,7 | 20,7 | 38,7 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydraulic module (option) | | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | |
| Pump | | Centrifugal pump, monocell, 48.3 r/s, low- or high-pressure (as required), single or dual (as required) | | | | | |
| Expansion tank volume (Option) | l | 50 | 50 | 50 | 50 | 50 | 80 |
| Buffer tank volume (optional) | l | 550 | 550 | 550 | 550 | 550 | 550 |
| Max. water-side operating pressure with hydraulic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydraulic module | | Victaulic [®] type | | | | | |
| Connections | inches | 3 | 3 | 3 | 3 | 3 | 4 |
| External diameter | mm | 88,5 | 88,6 | 88,7 | 88,8 | 88,9 | 114,3 |
| Casing paint colour | | Colour code RAL 7035 & 7024 | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.



TECHNICAL SPECIFICATIONS - REVERSIBLE HEAT PUMP

| AQUACIAT ^{POWER} ILD | | | | 1250R | 1400R | 1500R | 1600R | 1750R | 2000R |
|--------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------|-------------------------|---------|-------|-------|-------|-------|-------|
| Heating | | | | | | | | | |
| Standard unit Full load performances* | HA1 | Rated capacity | kW | 336 | 387 | 406 | 441 | 467 | 537 |
| | | COP | kW/kW | 3,81 | 3,82 | 3,81 | 3,80 | 3,73 | 3,80 |
| | HA2 | Rated capacity | kW | 329 | 378 | 397 | 431 | 458 | 526 |
| | | COP | kW/kW | 3,09 | 3,10 | 3,09 | 3,10 | 3,03 | 3,09 |
| Energy efficiency efficiency** | HA1 | SCOP _{30/35°C} | kWh/kWh | 3,58 | 3,55 | 3,57 | 3,54 | 3,53 | 3,57 |
| | | η _{s heat} _{30/35°C} | % | 140 | 139 | 140 | 139 | 138 | 140 |
| | | P _{rated} | kW | 266 | 305 | 321 | 349 | 371 | 400 |
| Unit + Rated & Seasonal high performance options Full load performances* | HA1 | Rated capacity | kW | 336 | 387 | 406 | 441 | 467 | 537 |
| | | COP | kW/kW | 3,81 | 3,82 | 3,81 | 3,80 | 3,73 | 3,80 |
| | Energy efficiency efficiency** | HA1 | SCOP _{30/35°C} | kWh/kWh | 3,86 | 3,90 | 3,91 | 3,92 | 3,89 |
| η _{s heat} _{30/35°C} | | | % | 151 | 153 | 153 | 154 | 153 | 155 |
| P _{rated} | | | kW | 265 | 305 | 320 | 348 | 370 | 400 |
| Cooling | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Rated capacity | kW | 305 | 341 | 358 | 389 | 414 | 470 |
| | | EER | | 2,59 | 2,64 | 2,57 | 2,64 | 2,55 | 2,55 |
| | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,50 | 4,46 | 4,33 | 4,44 | 4,38 | 4,32 |
| Energy efficiency efficiency** | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 4,76 | 4,93 | 4,79 | 4,94 | 4,82 | 4,83 |
| | | | | | | | | | |
| Unit + Rated & Seasonal high performance options Full load performances* | CA1 | Rated capacity | kW | 324 | 362 | 381 | 413 | 439 | 500 |
| | | EER | kW/kW | 2,80 | 2,82 | 2,76 | 2,81 | 2,74 | 2,73 |
| | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,81 | 4,88 | 4,87 | 4,81 | 4,75 | 4,81 |
| Energy efficiency efficiency** | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 5,34 | 5,60 | 5,40 | 5,60 | 5,43 | 5,47 |
| | | | | | | | | | |
| Sound levels | | | | | | | | | |
| Unit + High temperature option/Rated high performance | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 93,5 | 94,0 | 94,0 | 94,5 | 94,5 | 95,0 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 61,5 | 62,0 | 62,0 | 62,0 | 62,0 | 62,5 |
| Standard unit | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 91,0 | 91,5 | 91,5 | 92,0 | 92,5 | 93,0 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 58,5 | 59,5 | 59,5 | 60,0 | 60,0 | 60,5 |
| Unit + Very Low Noise option ⁽³⁾ | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 88,0 | 89,0 | 89,0 | 89,5 | 90,0 | 90,0 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 55,5 | 56,5 | 56,5 | 57,0 | 57,5 | 57,5 |
| Unit + Ultra Low Noise option ⁽³⁾ | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 86,0 | 86,5 | 87,0 | 87,5 | 87,5 | 88,0 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 54,0 | 54,5 | 55,0 | 55,5 | 55,5 | 56,0 |

* In accordance with EN14511-3:2022.
 ** In accordance with EN14825:2022, average climate conditions
 HA1 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
 HA2 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
η_{s heat}_{30/35°C} & **SCOP**_{30/35°C} Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications
SEER_{12/7 °C} & **SEPR**_{12/7 °C} Applicable Ecodesign regulation (EU) No. 2016/2281
 (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent. Cooling mode operation.
 (2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).
 (3) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values



TECHNICAL SPECIFICATIONS - REVERSIBLE HEAT PUMP

| AQUACIAT ^{POWER} ILD | | 1250R | 1400R | 1500R | 1600R | 1750R | 2000R |
|------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|
| Dimensions | | | | | | | |
| Standard unit | | | | | | | |
| Length | mm | 3604 | 3604 | 3604 | 4798 | 4798 | 4798 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 |
| Unit + water buffer tank module option⁽³⁾ | | | | | | | |
| Length | mm | 4798 | 4798 | 4798 | 5992 | 5992 | 5992 |
| Operating weight ⁽³⁾ | | | | | | | |
| Standard unit | kg | 2452 | 2672 | 2678 | 3154 | 3180 | 3430 |
| Unit + Ultra Low Noise option | kg | 2611 | 2855 | 2861 | 3361 | 3387 | 3661 |
| Unit + Ultra Low Noise + HP dual-pump hydraulic module option | kg | 2806 | 3089 | 3095 | 3595 | 3658 | 3932 |
| Unit + Ultra Low Noise + HP dual-pump hydraulic module + Water buffer tank module option | kg | 3815 | 4098 | 4104 | 4595 | 4658 | 4932 |
| Compressors | | Hermetic Scroll 48.3 r/s | | | | | |
| Circuit A/C | | 2 | 2 | 2 | 3 | 3 | 4 |
| Circuit B/D | | 3 | 4 | 4 | 4 | 4 | 4 |
| Number of power stages | | 5 | 6 | 6 | 7 | 7 | 8 |
| Unit PED category | | IV | IV | IV | IV | IV | IV |
| Refrigerant⁽³⁾ | | R-32 / A2L/ GWP= 675 in accordance with ARI4 | | | | | |
| Circuit A/C | kg | 18,0 | 18,0 | 18,0 | 29,0 | 29,0 | 35,0 |
| | tCO ₂ e | 12,2 | 12,2 | 12,2 | 19,6 | 19,6 | 23,6 |
| Circuit B/D | kg | 28,5 | 34,0 | 34,0 | 34,5 | 35,0 | 35,0 |
| | tCO ₂ e | 19,2 | 23,0 | 23,0 | 23,3 | 23,6 | 23,6 |
| Oil | | | | | | | |
| Circuit A/C | l | 13,2 | 13,2 | 13,2 | 22,8 | 22,8 | 30,4 |
| Circuit B/D | l | 19,8 | 26,4 | 26,4 | 30,4 | 30,4 | 30,4 |
| Capacity control | | Connect'Touch | | | | | |
| Minimum capacity | % | 20 | 17 | 17 | 14 | 14 | 13 |
| Condenser | | Grooved copper tubes and aluminium fins | | | | | |
| Fans | | Axial with rotating impeller | | | | | |
| Standard unit | | | | | | | |
| Quantity | | 5 | 6 | 6 | 7 | 7 | 8 |
| Maximum total air flow | l/s | 19650 | 23580 | 23580 | 27510 | 27510 | 31440 |
| Maximum rotation speed | r/s | 12 | 12 | 12 | 12 | 12 | 12 |
| Maximum total air flow with high rated energy efficiency option | l/s | 24100 | 28920 | 28920 | 33740 | 33740 | 38560 |
| Maximum rotation speed with high rated energy efficiency option | r/s | 16 | 16 | 16 | 16 | 16 | 16 |
| Evaporator | | Dual-circuit plate heat exchanger | | | | | |
| Water volume | l | 48,6 | 48,6 | 48,6 | 48,6 | 52,2 | 58,5 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydraulic module (option) | | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | |
| Pump | | Centrifugal pump, monocell, 48.3 r/s, low- or high-pressure (as required), single or dual (as required) | | | | | |
| Expansion tank volume (Option) | l | 80 | 80 | 80 | 80 | 80 | 80 |
| Buffer tank volume (optional) | l | 550 | 550 | 550 | 550 | 550 | 550 |
| Max. water-side operating pressure with hydraulic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydraulic module | | Victaulic® type | | | | | |
| Module 1/Module 2 connections ^(a) | inches | 4 | 4 | 4 | 4 | 4 | 4 |
| Module 1/Module 2 external diameter ^(a) | mm | 114,4 | 114,5 | 114,6 | 114,7 | 114,8 | 114,9 |
| Casing paint colour | | Colour code RAL 7035 & 7024 | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.

(a) Modules 1 and 2 only relate to sizes 2300R to 4000R.



TECHNICAL SPECIFICATIONS - REVERSIBLE HEAT PUMP

| AQUACIAT ^{POWER} ILD | | | | 2300R | 2500R | 2800R | 3000R | 3200R | 3500R | 4000R |
|--------------------------------------------------------------------------------|-----|-------------------------------------------|---------|-------|-------|-------|-------|-------|-------|-------|
| Heating | | | | | | | | | | |
| Standard unit Full load performances* | HA1 | Rated capacity | kW | 635 | 673 | 774 | 812 | 883 | 935 | 1075 |
| | | COP | kW/kW | 3,82 | 3,81 | 3,82 | 3,81 | 3,80 | 3,73 | 3,80 |
| | HA2 | Rated capacity | kW | 620 | 658 | 757 | 795 | 863 | 915 | 1052 |
| | | COP | kW/kW | 3,10 | 3,09 | 3,10 | 3,09 | 3,10 | 3,03 | 3,09 |
| Energy efficiency efficiency** | HA1 | SCOP _{30/35°C} | kWh/kWh | 3,57 | 3,58 | 3,55 | 3,57 | 3,54 | 3,53 | 3,57 |
| | | η _{s heat} _{30/35°C} | % | 140 | 140 | 139 | 140 | 139 | 138 | 140 |
| | | P _{rated} | kW | 499 | 530 | 609 | 641 | 696 | 741 | 800 |
| Unit + Rated & Seasonal high performance options Full load performances* | HA1 | Rated capacity | kW | 635 | 673 | 774 | 812 | 883 | 935 | 1075 |
| | | COP | kW/kW | 3,82 | 3,81 | 3,82 | 3,81 | 3,80 | 3,73 | 3,80 |
| Energy efficiency efficiency** | HA1 | SCOP _{30/35°C} | kWh/kWh | 3,87 | 3,86 | 3,90 | 3,91 | 3,92 | 3,89 | 3,96 |
| | | η _{s heat} _{30/35°C} | % | 152 | 151 | 153 | 153 | 154 | 153 | 155 |
| | | P _{rated} | kW | 499 | 530 | 609 | 641 | 696 | 741 | 800 |
| Cooling | | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Rated capacity | kW | 569 | 610 | 682 | 716 | 778 | 827 | 941 |
| | | EER | | 2,67 | 2,60 | 2,64 | 2,57 | 2,65 | 2,56 | 2,55 |
| Energy efficiency efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,48 | 4,49 | 4,45 | 4,32 | 4,43 | 4,37 | 4,30 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 4,86 | 4,76 | 4,91 | 4,75 | 4,90 | 4,80 | 4,78 |
| Unit + Rated & Seasonal high performance options Full load performances* | CA1 | Rated capacity | kW | 604 | 648 | 723 | 761 | 825 | 878 | 999 |
| | | EER | kW/kW | 2,85 | 2,80 | 2,82 | 2,76 | 2,81 | 2,74 | 2,73 |
| Energy efficiency efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 4,77 | 4,81 | 4,88 | 4,87 | 4,81 | 4,75 | 4,81 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 5,49 | 5,34 | 5,60 | 5,40 | 5,60 | 5,43 | 5,47 |
| Sound levels | | | | | | | | | | |
| Unit + High temperature option/Rated high performance | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 96,0 | 96,5 | 97,0 | 97,0 | 97,5 | 97,5 | 98,0 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 64,0 | 64,0 | 64,5 | 65,0 | 65,0 | 65,0 | 65,0 |
| Standard unit | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 93,5 | 94,0 | 94,5 | 94,5 | 95,0 | 95,5 | 96,0 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 61,0 | 61,5 | 62,5 | 62,5 | 63,0 | 63,0 | 63,5 |
| Unit + Very Low Noise option ⁽³⁾ | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 91,0 | 91,0 | 92,0 | 92,0 | 92,5 | 93,0 | 93,0 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 58,5 | 58,5 | 59,5 | 59,5 | 60,0 | 60,5 | 60,5 |
| Unit + Ultra Low Noise option ⁽³⁾ | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 89,0 | 89,0 | 89,5 | 90,0 | 90,5 | 90,5 | 91,0 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 57,0 | 57,0 | 57,5 | 58,0 | 58,5 | 58,5 | 59,0 |

- * In accordance with EN14511-3:2022.
- ** In accordance with EN14825:2022, average climate conditions
- HA1 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
- HA2 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m². k/W
- CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W
- η_{s heat}**_{30/35°C} & **SCOP**_{30/35°C} **Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications**
- SEER_{12/7 °C} & SEPR_{12/7 °C} Applicable Ecodesign regulation (EU) No. 2016/2281
- (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent. Cooling mode operation.
- (2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values



TECHNICAL SPECIFICATIONS - REVERSIBLE HEAT PUMP

| AQUACIAT ^{POWER} ILD | | 2300R | 2500R | 2800R | 3000R | 3200R | 3500R | 4000R |
|------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Dimensions | | | | | | | | |
| Standard unit | | | | | | | | |
| Length | mm | 7708 | 7708 | 7708 | 7708 | 10096 | 10096 | 10096 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 |
| Unit + water buffer tank module option ⁽³⁾ | mm | 5992 | 5992 | 5992 | 5992 | 5992 | 5992 | 5992 |
| Length | mm | - | - | - | - | - | - | - |
| Operating weight ⁽³⁾ | | | | | | | | |
| Standard unit | kg | 4787 | 4905 | 5344 | 5356 | 6308 | 6360 | 6859 |
| Unit + Ultra Low Noise option | kg | 5104 | 5222 | 5710 | 5722 | 6722 | 6774 | 7322 |
| Unit + Ultra Low Noise + HP dual-pump hydraulic module option | kg | 5494 | 5611 | 6178 | 6190 | 7191 | 7317 | 7865 |
| Unit + Ultra Low Noise + HP dual-pump hydraulic module + Water buffer tank module option | kg | - | - | - | - | - | - | - |
| Compressors | | Hermetic Scroll 48.3 r/s | | | | | | |
| Circuit A/C | | 2/2 | 2/2 | 2/2 | 2/2 | 3/3 | 3/3 | 4/4 |
| Circuit B/D | | 3/3 | 3/3 | 4/4 | 4/4 | 4/4 | 4/4 | 4/4 |
| Number of power stages | | 10 | 10 | 12 | 12 | 14 | 14 | 16 |
| Unit PED category | | III | IV | IV | IV | IV | IV | IV |
| Refrigerant⁽³⁾ | | R-32 / A2L/ GWP= 675 in accordance with ARI4 | | | | | | |
| Circuit A/C | kg | 16,0 / 16,0 | 18,0 / 18,0 | 18,0 / 18,0 | 18,0 / 18,0 | 29,0 / 29,0 | 29,0 / 29,0 | 35,0 / 35,0 |
| | tCO ₂ e | 10,8 / 10,8 | 12,2 / 12,2 | 12,2 / 12,2 | 12,2 / 12,2 | 19,6 / 19,6 | 19,6 / 19,6 | 23,6 / 23,6 |
| Circuit B/D | kg | 28,5 / 28,5 | 28,5 / 28,5 | 34,0 / 34,0 | 34,0 / 34,0 | 34,5 / 34,5 | 35,0 / 35,0 | 35,0 / 35,0 |
| | tCO ₂ e | 19,2 / 19,2 | 19,2 / 19,2 | 23,0 / 23,0 | 23,0 / 23,0 | 23,3 / 23,3 | 23,6 / 23,6 | 23,6 / 23,6 |
| Oil | | | | | | | | |
| Circuit A/C | l | 13,2 / 13,2 | 13,2 / 13,2 | 13,2 / 13,2 | 13,2 / 13,2 | 22,8 / 22,8 | 22,8 / 22,8 | 30,4 / 30,4 |
| Circuit B/D | l | 22,8 / 22,8 | 22,8 / 22,8 | 30,4 / 30,4 | 30,4 / 30,4 | 30,4 / 30,4 | 30,4 / 30,4 | 30,4 / 30,4 |
| Capacity control | | Connect'Touch | | | | | | |
| Minimum capacity | % | 10 | 10 | 8 | 8 | 7 | 7 | 6 |
| Condenser | | Grooved copper tubes and aluminium fins | | | | | | |
| Fans | | Axial with rotating impeller | | | | | | |
| Standard unit | | | | | | | | |
| Quantity | | 10 | 10 | 12 | 12 | 14 | 14 | 16 |
| Maximum total air flow | l/s | 39300 | 39300 | 47160 | 47160 | 55020 | 55020 | 62880 |
| Maximum rotation speed | r/s | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Maximum total air flow with high rated energy efficiency option | l/s | 48200 | 48200 | 57840 | 57840 | 67480 | 67480 | 77120 |
| Maximum rotation speed with high rated energy efficiency option | r/s | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Evaporator | | Dual-circuit plate heat exchanger | | | | | | |
| Water volume | l | 77,4 | 97,2 | 97,2 | 97,2 | 97,2 | 104,4 | 117 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydraulic module (option) | | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | | |
| Pump | | Centrifugal pump, monocoil, 48.3 r/s, low- or high-pressure (as required), single or dual (as required) | | | | | | |
| Expansion tank volume (Option) | l | - | - | - | - | - | - | - |
| Buffer tank volume (optional) | l | - | - | - | - | - | - | - |
| Max. water-side operating pressure with hydraulic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydraulic module | | Victaulic® type | | | | | | |
| Module 1/Module 2 connections ^(a) | inches | 4 / 4 | 4 / 4 | 4 / 4 | 4 / 4 | 4 / 4 | 4 / 4 | 4 / 4 |
| Module 1/Module 2 external diameter ^(a) | mm | 114,3 / 114,3 | 114,3 / 114,3 | 114,3 / 114,3 | 114,3 / 114,3 | 114,3 / 114,3 | 114,3 / 114,3 | 114,3 / 114,3 |
| Casing paint colour | | Colour code RAL 7035 & 7024 | | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.

(a) Modules 1 and 2 only relate to sizes 2300R to 4000R.

ELECTRICAL SPECIFICATIONS

■ Basic unit (excluding pump)

| AQUACIAT ^{POWER} LD | | 0602R | 0650R | 0750R | 0900R | 1100R | 1200R | 1350R | 1400R | 1600R | 1750R |
|----------------------------------------------------------------------------|---------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Power circuit supply | | | | | | | | | | | |
| Rated voltage | V-ph-Hz | 400-3-50 | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | |
| Control circuit supply | | | | | | | | | | | |
| 24 V via internal transformer | | | | | | | | | | | |
| Maximum operating input power⁽¹⁾ or ⁽²⁾ | | | | | | | | | | | |
| Circuit A&B | kW | 71,6 | 77,2 | 86,8 | 95,4 | 114,6 | 128,9 | 143,3 | 157,5 | 171,9 | 186,2 |
| Power factor at maximum power⁽¹⁾ or ⁽²⁾ | | | | | | | | | | | |
| Displacement Power Factor (Cos Phi), standard unit | | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 |
| Maximum operating current draw (Un)⁽¹⁾ or ⁽²⁾ | | | | | | | | | | | |
| Standard unit | A | 123,9 | 134,4 | 151,0 | 165,2 | 198,4 | 223,1 | 248,0 | 272,7 | 297,6 | 322,3 |
| Maximum current (Un-10%)⁽¹⁾ or ⁽²⁾ | | | | | | | | | | | |
| Standard unit | A | 132,6 | 143,8 | 161,8 | 176,8 | 212,8 | 239 | 266 | 292,2 | 319,2 | 345,4 |
| Maximum start-up current (Un) ⁽²⁾ + ⁽³⁾ | | | | | | | | | | | |
| Standard unit | A | 300 | 347 | 364 | 341 | 411 | 436 | 461 | 485 | 510 | 535 |
| Unit + Electronic soft starter option | A | 257 | 295 | 312 | 298 | 359 | 384 | 409 | 433 | 458 | 483 |

| AQUACIAT ^{POWER} LD | | 1800R | 2000R | 2200R | 2400R | 2650R | 2800R | 2950R | 3200R | 3500R |
|----------------------------------------------------------------------------|---------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Power circuit supply | | | | | | | | | | |
| Rated voltage | V-ph-Hz | 400-3-50 | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | | | | | |
| Maximum operating input power⁽¹⁾ or ⁽²⁾ | | | | | | | | | | |
| Circuit A&B | kW | 200,6 | 229,2 | 246,7 | 271,9 | 295,3 | 316,7 | 328,4 | 361,4 | 392,6 |
| Power factor at maximum power⁽¹⁾ or ⁽²⁾ | | | | | | | | | | |
| Displacement Power Factor (Cos Phi), standard unit | | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 |
| Maximum operating current draw (Un)⁽¹⁾ or ⁽²⁾ | | | | | | | | | | |
| Standard unit | A | 347,2 | 396,8 | 432,3 | 478,0 | 517,0 | 556,2 | 575,7 | 634,4 | 686,4 |
| Maximum current (Un-10%)⁽¹⁾ or ⁽²⁾ | | | | | | | | | | |
| Standard unit | A | 372,4 | 425,6 | 464,8 | 514 | 556 | 598,2 | 619,2 | 682,4 | 738,4 |
| Maximum start-up current (Un) ⁽²⁾ + ⁽³⁾ | | | | | | | | | | |
| Standard unit | A | 560 | 609 | 763 | 815 | 848 | 893 | 906 | 971 | 1017 |
| Unit + Electronic soft starter option | A | 508 | 557 | 680 | 732 | 765 | 811 | 824 | 889 | 934 |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

ELECTRICAL SPECIFICATIONS

| AQUACIAT ^{POWER} ILD | | 0602R | 0700R | 0800R | 0900R | 1000R | 1150R | 1250R | 1400R | 1500R | 1600R |
|----------------------------------------------------------------------------|---------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Power circuit supply | | | | | | | | | | | |
| Rated voltage | V-ph-Hz | 400-3-50 | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | | | | | | |
| Maximum operating input power⁽¹⁾ or ⁽²⁾ | | | | | | | | | | | |
| Circuit A&B (Module 1/Module 2) ^(a) | kW | 71,6 | 81,2 | 95,4 | 105,0 | 114,6 | 133,7 | 143,3 | 162,3 | 171,9 | 186,2 |
| Power factor at maximum power⁽¹⁾ or ⁽²⁾ | | | | | | | | | | | |
| Displacement Power Factor (Cos Phi), standard unit | | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 |
| Maximum operating current draw (Un)⁽¹⁾ or ⁽²⁾ | | | | | | | | | | | |
| Standard unit (Module 1/Module 2) ^(a) | A | 123,9 | 140,5 | 165,2 | 181,8 | 198,4 | 231,4 | 248,0 | 281,0 | 297,6 | 322,3 |
| Maximum current (Un-10%)⁽¹⁾ or ⁽²⁾ | | | | | | | | | | | |
| Standard unit (Module 1/Module 2) ^(a) | A | 135,6 | 151,6 | 180,8 | 196,8 | 212,8 | 250,0 | 266,0 | 303,2 | 319,2 | 348,4 |
| Maximum start-up current (Un) ⁽²⁾ + ⁽³⁾ | | | | | | | | | | | |
| Standard unit (Module 1/Module 2) ^(a) | A | 299,8 | 355,3 | 341,1 | 394,4 | 411 | 444 | 460,6 | 493,6 | 510,2 | 534,9 |
| Unit + Electronic soft starter option (Module 1/Module 2) ^(a) | A | 256,8 | 303 | 298 | 342 | 359 | 392 | 409 | 442 | 458 | 483 |

| AQUACIAT ^{POWER} ILD | | 1750R | 2000R | 2300R | 2500R | 2800R | 3000R | 3200R | 3500R | 4000R |
|----------------------------------------------------------------------------|---------|-------------------------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Power circuit supply | | | | | | | | | | |
| Rated voltage | V-ph-Hz | 400-3-50 | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | | | | | |
| Maximum operating input power⁽¹⁾ or ⁽²⁾ | | | | | | | | | | |
| Circuit A&B (Module 1/Module 2) ^(a) | kW | 200,6 | 229,2 | 139,2 / 139,2 | 148,7 / 148,7 | 169,0 / 169,0 | 178,6 / 178,6 | 193,7 / 193,7 | 208,1 / 208,1 | 237,8 / 237,8 |
| Power factor at maximum power⁽¹⁾ or ⁽²⁾ | | | | | | | | | | |
| Displacement Power Factor (Cos Phi), standard unit | | 0,83 | 0,83 | 0,85 | 0,85 | 0,85 | 0,85 | 0,85 | 0,85 | 0,85 |
| Maximum operating current draw (Un)⁽¹⁾ or ⁽²⁾ | | | | | | | | | | |
| Standard unit (Module 1/Module 2) ^(a) | A | 347,2 | 396,8 | 235,4 / 235,4 | 252 / 252 | 285,8 / 285,8 | 302,4 / 302,4 | 327,9 / 327,9 | 352,8 / 352,8 | 403,2 / 403,2 |
| Maximum current (Un-10%)⁽¹⁾ or ⁽²⁾ | | | | | | | | | | |
| Standard unit (Module 1/Module 2) ^(a) | A | 372,4 | 425,6 | 254 / 254 | 270 / 270 | 308 / 308 | 324 / 324 | 354 / 354 | 378 / 378 | 432 / 432 |
| Maximum start-up current (Un) ⁽²⁾ + ⁽³⁾ | | | | | | | | | | |
| Standard unit (Module 1/Module 2) ^(a) | A | 559,8 | 609,4 | 448 / 448 | 465 / 465 | 498 / 498 | 515 / 515 | 541 / 541 | 565 / 565 | 616 / 616 |
| Unit + Soft Starter option (Module 1/Module 2) ^(a) | A | 508 | 557 | 396 / 396 | 413 / 413 | 446 / 446 | 463 / 463 | 489 / 489 | 513 / 513 | 564 / 564 |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(a) Modules 1 and 2 only relate to sizes 2300R to 4000R.

ELECTRICAL SPECIFICATIONS

■ Short circuit current withstand capability (TN system⁽¹⁾)

| AQUACIAT ^{POWER} LD | 0602R | 0650R | 0750R | 0900R | 1100R | 1200R | 1350R | 1400R | 1600R |
|----------------------------------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------------------|---------------------------------|---------------------------------|
| Rated short-circuit withstand currents | | | | | | | | | |
| Rated short time (1s) current - I _{cw} kA eff | 8,5 | 8,5 | 8,5 | 8,5 | 8,5 | 20 | 20 | 20 | 20 |
| Rated peak current - I _{pk} kA pk | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 |
| Value with upstream protection ⁽¹⁾ | | | | | | | | | |
| Rated conditional short circuit current I _{cc} kA eff | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Associated protection - type | INS250 | INS250 | INS250 | INS250 | INS250 | INS400 | INS400 | INS400 | INS400 |
| Associated protection - rating/reference | TM160D / LV430840 | TM200D / LV431831 | TM200D / LV431831 | TM250D / LV431831 | TM250D / LV431831 | TM250D / LV431831 | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 400 A / LV432693 |

| AQUACIAT ^{POWER} LD | 1750R | 1800R | 2000R | 2200R | 2400R | 2650R | 2800R | 2950R | 3200R | 3500R |
|----------------------------------------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Rated short-circuit withstand currents | | | | | | | | | | |
| Rated short time (1s) current - I _{cw} kA eff | 20 | 20 | 20 | 20 | 20 | 20 | 35 | 35 | 35 | 35 |
| Rated peak current - I _{pk} kA pk | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 |
| Value with upstream protection ⁽¹⁾ | | | | | | | | | | |
| Rated conditional short circuit current I _{cc} kA eff | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Associated protection - type | INS400 | INS500 | INS500 | INS630 | INS630 | INS630 | INS800 | INS800 | INS800 | INS800 |
| Associated protection - rating/reference | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 630 A / LV432893 | Micrologic 2.3 630 A / LV432893 | Micrologic 2.3 630 A / LV432893 | Micrologic 2.3 630 A / LV432893 | Micrologic 2.3 630 A / LV432893 | Micrologic 5.0 800 A / /34426 | Micrologic 5.0 800 A / /34426 | Micrologic 5.0 800 A / /34426 | Micrologic 5.0 800 A / /34426 |

(1) If another current limitation protection device is used, its time-current and thermal constraint (I²t) trip characteristics must be at least equivalent to those of the recommended protection.

Note: The short-circuit withstand current capability values above have been established for the TN system.

ELECTRICAL SPECIFICATIONS

■ Short circuit current withstand capability (TN system⁽¹⁾)

| AQUACIAT ^{POWER} ILD | 0602R | 0700R | 0800R | 0900R | 1000R | 1150R | 1250R | 1400R | 1500R | 1600R |
|--------------------------------------------------------------------------------------------------------|-------------------------|-------------------|-------------------|-------------------|-------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Rated short-circuit withstand currents | | | | | | | | | | |
| Rated short time (1s) current - I _{cw} (Module 1 / Module 2) ^(a) kA eff | 8,5 | 8,5 | 8,5 | 8,5 | 8,5 | 20 | 20 | 20 | 20 | 20 |
| Allowable rated peak current - I _{pk} (Module 1 / Module 2) ^(a) kA pk | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 |
| Value with upstream protection ⁽¹⁾ | | | | | | | | | | |
| Rated conditional short circuit current I _{cc} (Module 1 / Module 2) ^(a) kA eff | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Associated protection - type (Module 1/Module 2) ^(a) | INS250 | INS250 | INS250 | INS250 | INS250 | INS400 | INS400 | INS400 | INS400 | INS400 |
| Associated protection (rating/ reference) | Module 1 ^(a) | TM160D / LV430840 | TM200D / LV431831 | TM250D / LV431831 | TM250D / LV431831 | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 400 A / LV432693 |
| | Module 2 ^(a) | - | - | - | - | - | - | - | - | - |

| AQUACIAT ^{POWER} ILD | 1750R | 2000R | 2300R | 2500R | 2800R | 3000R | 3200R | 3500R | 4000R |
|--------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Rated short-circuit withstand currents | | | | | | | | | |
| Rated short time (1s) current - I _{cw} (Module 1 / Module 2) ^(a) kA eff | 20 | 20 | 20 / 20 | 20 / 20 | 20 / 20 | 20 / 20 | 20 / 20 | 20 / 20 | 20 / 20 |
| Allowable rated peak current - I _{pk} (Module 1 / Module 2) ^(a) kA pk | 330 | 330 | 330 / 330 | 330 / 330 | 330 / 330 | 330 / 330 | 330 / 330 | 330 / 330 | 330 / 330 |
| Value with upstream protection ⁽¹⁾ | | | | | | | | | |
| Rated conditional short circuit current I _{cc} (Module 1 / Module 2) ^(a) kA eff | 50 | 50 | 50 / 50 | 50 / 50 | 50 / 50 | 50 / 50 | 50 / 50 | 50 / 50 | 50 / 50 |
| Associated protection - type (Module 1/Module 2) ^(a) | INS500 | INS500 | INS400 / INS400 | INS400 / INS400 | INS400 / INS400 | INS400 / INS400 | INS400 / INS400 | INS500 / INS500 | INS500 / INS500 |
| Associated protection (rating/ reference) | Module 1 ^(a) | Micrologic 2.3 630 A / LV432893 | Micrologic 2.3 630 A / LV432893 | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 630 A / LV432893 | Micrologic 2.3 630 A / LV432893 |
| | Module 2 ^(a) | - | - | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 400 A / LV432693 | Micrologic 2.3 630 A / LV432893 | Micrologic 2.3 630 A / LV432893 |

(1) If another current limitation protection device is used, its time-current and thermal constraint (I²t) trip characteristics must be at least equivalent to those of the recommended protection.

(a) Modules 1 and 2 only relate to sizes 2300R to 4000R.

Note: The short-circuit withstand current capability values above have been established for the TN system.



FREE COOLING SYSTEM

Reducing operating costs and protecting the environment have become the key concerns, both for air conditioning applications, and for industrial processes and cooling data centres.

The free cooling option allows significant energy savings to be made in all applications that require cooling throughout the year, particularly when used in colder climates. In these regions, free cooling can be used to fulfil a large proportion of the cooling requirements both economically and in a way that respects the environment.

In free cooling mode, the compressors are stopped, and only the fans are in operation. The Connect Touch control automatically switches from compressor cooling mode to free cooling mode depending on the cooler heat load and the temperature differential between the chilled water outlet and the ambient air.

Important: to optimise cooler performance, you are recommended to use the leaving water temperature setpoint offset function.

Operating principle

The unit's Connect Touch control maximises the use of the free cooling based on the needs of the application and the climate conditions. Once the chilled water/ambient air temperature differential exceeds the threshold value by 1K (2K on the Glycol Free version), the Connect Touch control activates Free Cooling and adjusts the air flow rate to optimise the unit's energy performance. If the operating conditions permit the free cooling to operate on its own to meet the requirements, the compressors are stopped. Two motorised valves direct the chilled water to the free cooling coils.

Three operating modes are possible:

Summer (warm weather season): Mechanical cooling mode

The liquid chiller meets the needs traditionally using the refrigerant circuit. The fluid bypasses the free cooling coils and is cooled by the evaporator.

Mid-season: Combination mode

It is possible to operate in combination Free Cooling and mechanical cooling mode. This helps optimise Free Cooling operations while covering the system's cooling requirements. The fluid is pre-cooled by the free cooling coils positioned in series with the refrigerant circuit evaporator which finalises cooling of the fluid.

Winter (cold weather season): Free cooling mode

Depending on the capacity requested and the setpoint, all of the requirements may be fulfilled by the Free Cooling in this operating mode without the fans running, thereby ensuring optimum energy efficiency.

Adaptations to requirements

The **AQUACIAT^{POWER}** LD Free Cooling is available with different performance levels depending on the user's needs:

- Total hydraulic free cooling on the 2 circuits, specifically designed for installations which have major cooling requirements all year round (industrial processes, data centres)
- Total hydraulic free cooling, Glycol Free version, enables the use of pure water in the cooling circuit.
- Partial hydraulic free cooling on 1 circuit, designed for installations which have limited cooling requirements during the winter (offices, hospitals, etc.)

Advantages of the built-in free cooling system

- The free cooling function is independent of the refrigerant circuit, which increases reliability and facilitates maintenance compared to free cooling built into the refrigerant circuit (DX FC).
- The Hydraulic Free Cooling design is intended to expand the scope of application compared to the Free Cooling refrigerant concept (DX FC) by enabling Free Cooling mode to be activated by a higher outdoor temperature, thereby allowing for greater energy savings.
- The built-in Hydraulic Free Cooling version developed based on the **AQUACIAT^{POWER}** range offers all of the advantages of a Free Cooling solution combined with the compact design of the base units.

Advantage of the Free Cooling Glycol Free system

- In applications or countries in which the use of glycol is strictly regulated or banned, the Free Cooling Glycol Free option is equipped with a separation heat exchanger, and only the circuit inside the unit contains glycol, while the user circuit contains pure water.
- This solution with an intermediate exchanger shifts the Free Cooling mode activation thresholds by a few degrees, and the heat exchangers selected by CIAT help to minimise this shift.



FREE COOLING SYSTEM

Physical characteristics of AQUACIAT^{POWER} LD units with Free Cooling option

| AQUACIAT ^{POWER} LD | | | | 0602R | 0650R | 0750R | 0900R | 1100R | 1200R | 1350R | 1400R | 1600R |
|-----------------------------------------------------------------|------|-------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Cooling | | | | | | | | | | | | |
| Unit + High energy efficiency option Full load performances* | CA1 | Maximum rated capacity | kW | 181 | 198 | 220 | 239 | 288 | 328 | 366 | 401 | 440 |
| | | EER | kW/kW | 3,28 | 3,46 | 3,31 | 3,25 | 3,12 | 3,23 | 3,16 | 3,21 | 3,16 |
| FREE COOLING | | | | | | | | | | | | |
| Total free cooling option | CFC1 | Maximum rated capacity | kW | 182 | 243 | 243 | 243 | 243 | 303 | 303 | 364 | 364 |
| | | Free cooling EER | kW/kW | 25,9 | 25,4 | 25,4 | 25,4 | 25,8 | 25,8 | 25,9 | 25,6 | 25,7 |
| | | Rate of coverage by free cooling | % | 101% | 122% | 110% | 102% | 84% | 93% | 83% | 91% | 83% |
| | | Outdoor temperature for 100% coverage by free cooling | °C | 0,1 | 2,3 | 1,2 | 0,2 | -2,3 | -1,0 | -2,6 | -1,3 | -2,6 |
| | | Pressure drops | kPa | 94 | 112 | 112 | 112 | 102 | 107 | 101 | 117 | 112 |
| | | Sound power ⁽¹⁾ | dB(A) | 88,0 | 89,0 | 89,0 | 89,0 | 89,0 | 90,0 | 90,0 | 90,5 | 91,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 69,0 | 70,5 | 70,5 | 70,5 | 70,5 | 70,5 | 70,5 | 71,0 | 71,5 |
| Partial free cooling option | CFC1 | Maximum rated capacity | kW | 121 | 121 | 121 | 121 | 121 | 121 | 121 | 145 | 145 |
| | | Free cooling EER | kW/kW | 25,8 | 25,8 | 25,8 | 25,8 | 25,9 | 26,0 | 26,0 | 19,2 | 19,1 |
| | | Rate of coverage by free cooling | % | 67% | 61% | 55% | 51% | 42% | 37% | 33% | 36% | 33% |
| | | Pressure drops | kPa | 80 | 80 | 80 | 80 | 77 | 75 | 74 | 81 | 79 |
| | | Sound power ⁽¹⁾ | dB(A) | 86,0 | 86,0 | 86,0 | 86,0 | 86,0 | 86,0 | 86,0 | 87,5 | 88,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 67,5 | 67,5 | 67,5 | 67,5 | 67,5 | 66,5 | 66,5 | 68,0 | 68,5 |
| Unit + ultra low noise level option Full load performances* | CA1 | Maximum rated capacity | kW | 171 | 189 | 208 | 226 | 270 | 309 | 343 | 377 | 413 |
| | | EER | kW/kW | 3,06 | 3,29 | 3,08 | 3,03 | 2,82 | 2,96 | 2,85 | 2,94 | 2,86 |
| FREE COOLING | | | | | | | | | | | | |
| Total free cooling option | CFC1 | Maximum rated capacity | kW | 148 | 197 | 197 | 197 | 197 | 247 | 247 | 296 | 296 |
| | | Free cooling EER | kW/kW | 39,9 | 39,8 | 39,8 | 39,8 | 40,3 | 40,6 | 41,0 | 40,1 | 40,5 |
| | | Rate of coverage by free cooling | % | 87% | 104% | 95% | 87% | 73% | 80% | 72% | 79% | 72% |
| | | Outdoor temperature for 100% coverage by free cooling | °C | -2,0 | 0,5 | -0,8 | -1,9 | -4,8 | -3,3 | -5,1 | -3,6 | -5,1 |
| | | Pressure drops | kPa | 65 | 77 | 77 | 77 | 71 | 73 | 70 | 80 | 77 |
| | | Sound power ⁽¹⁾ | dB(A) | 79,5 | 80,5 | 80,5 | 80,5 | 81,0 | 82,0 | 82,0 | 82,0 | 82,5 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 60,5 | 62,0 | 62,0 | 62,0 | 62,5 | 63,0 | 63,0 | 62,5 | 63,0 |
| Partial free cooling option | CFC1 | Maximum rated capacity | kW | 98 | 98 | 98 | 98 | 99 | 99 | 99 | 118 | 118 |
| | | Free cooling EER | kW/kW | 42,4 | 42,4 | 42,4 | 42,4 | 42,7 | 43,1 | 43,2 | 30,4 | 30,5 |
| | | Rate of coverage by free cooling | % | 58% | 52% | 47% | 44% | 37% | 32% | 29% | 31% | 29% |
| | | Pressure drops | kPa | 55 | 55 | 55 | 55 | 54 | 52 | 51 | 56 | 55 |
| | | Sound power ⁽¹⁾ | dB(A) | 77,5 | 77,5 | 77,5 | 77,5 | 78,0 | 78,0 | 78,0 | 79,0 | 79,5 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 59,0 | 59,0 | 59,0 | 59,0 | 59,5 | 59,0 | 59,0 | 59,5 | 60,0 |

* In accordance with EN14511-3:2022.

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 17 °C/10 °C, outdoor air temperature at 35 °C, 30% Mono-Ethylene-Glycol, evaporator fouling factor 0 m². k/W

CFC1 Free cooling mode conditions: evaporator water inlet/outlet temperature 17 °C/10 °C, outdoor air temperature at 0 °C, 30% Mono-Ethylene-Glycol, evaporator fouling factor 0 m². k/W

(1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 µPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power L_w(A).



FREE COOLING SYSTEM

| AQUACIAT ^{POWER} LD | | 0602R | 0650R | 0750R | 0900R | 1100R | 1200R | 1350R | 1400R | 1600R |
|--------------------------------------|-----|------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Total free cooling | | | | | | | | | | |
| Free cooling coil | | All-aluminium micro-channel coils (MCHE) | | | | | | | | |
| Quantity | | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 6 | 6 |
| Hydraulic connection | | | | | | | | | | |
| Connection | in | 3" | 3" | 3" | 3" | 3" | 4" | 4" | 4" | 4" |
| External diameter | mm | 88,9 | 88,9 | 88,9 | 88,9 | 88,9 | 114,3 | 114,3 | 114,3 | 114,3 |
| Additional water volume | l | 60 | 72 | 72 | 72 | 72 | 113 | 113 | 126 | 126 |
| Weight ⁽³⁾ | | | | | | | | | | |
| Additional weight (without water) | kg | 225 | 266 | 266 | 266 | 266 | 357 | 359 | 395 | 397 |
| Additional weight (during operation) | kg | 287 | 341 | 341 | 341 | 341 | 475 | 477 | 526 | 528 |
| Operation | | | | | | | | | | |
| Max. operating pressure, water side | bar | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Partial free cooling | | | | | | | | | | |
| Free cooling coil | | All-aluminium micro-channel coils (MCHE) | | | | | | | | |
| Quantity | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 |
| Hydraulic connection | | | | | | | | | | |
| Connection | in | 3" | 3" | 3" | 3" | 3" | 4" | 4" | 4" | 4" |
| External diameter | mm | 88,9 | 88,9 | 88,9 | 88,9 | 88,9 | 114,3 | 114,3 | 114,3 | 114,3 |
| Additional water volume | l | 48 | 48 | 48 | 48 | 48 | 58 | 58 | 75 | 75 |
| Weight ⁽³⁾ | | | | | | | | | | |
| Additional weight (without water) | kg | 178 | 178 | 178 | 178 | 179 | 210 | 212 | 248 | 250 |
| Additional weight (during operation) | kg | 227 | 227 | 227 | 227 | 228 | 271 | 273 | 326 | 328 |
| Operation | | | | | | | | | | |
| Max. operating pressure, water side | bar | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |

(3) Values are guidelines only. Refer to the unit name plate.



FREE COOLING SYSTEM

| AQUACIAT ^{POWER} LD | | | | 1750R | 1800R | 2000R | 2200R | 2400R | 2650R | 2800R | 2950R | 3200R | 3500R |
|-----------------------------------------------------------------|------|-------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Cooling | | | | | | | | | | | | | |
| Unit + High energy efficiency option Full load performances* | CA1 | Maximum rated capacity | kW | 475 | 512 | 585 | 652 | 718 | 767 | 827 | 852 | 932 | 994 |
| | | EER | kW/kW | 3,22 | 3,16 | 3,15 | 3,23 | 3,22 | 3,12 | 3,14 | 3,10 | 3,06 | 2,96 |
| FREE COOLING | | | | | | | | | | | | | |
| Total free cooling option | CFC1 | Maximum rated capacity | kW | 425 | 425 | 485 | 546 | 607 | 607 | 667 | 667 | 728 | 728 |
| | | Free cooling EER | kW/kW | 26,1 | 26,1 | 26,0 | 26,0 | 25,8 | 25,8 | 25,7 | 25,7 | 25,4 | 25,4 |
| | | Rate of coverage by free cooling | % | 89% | 83% | 83% | 84% | 84% | 79% | 81% | 78% | 78% | 73% |
| | | Outdoor temperature for 100% coverage by free cooling | °C | -1,5 | -2,6 | -2,6 | -2,4 | -2,3 | -3,3 | -3,0 | -3,5 | -3,5 | -4,6 |
| | | Pressure drops | kPa | 103 | 102 | 110 | 111 | 120 | 120 | 126 | 126 | 136 | 136 |
| | | Sound power ⁽¹⁾ | dB(A) | 91,0 | 91,0 | 91,5 | 92,5 | 93,0 | 93,0 | 93,0 | 93,0 | 93,5 | 94,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 71,0 | 71,0 | 71,5 | 72,0 | 72,5 | 72,5 | 72,0 | 72,0 | 72,5 | 73,0 |
| Partial free cooling option | CFC1 | Maximum rated capacity | kW | 182 | 182 | 242 | 204 | 262 | 262 | 303 | 303 | 364 | 364 |
| | | Free cooling EER | kW/kW | 26,5 | 26,5 | 26,6 | 20,4 | 20,9 | 20,9 | 26,7 | 26,7 | 26,6 | 26,6 |
| | | Rate of coverage by free cooling | % | 38% | 35% | 41% | 31% | 36% | 34% | 37% | 36% | 39% | 37% |
| | | Pressure drops | kPa | 75 | 75 | 79 | 77 | 82 | 82 | 80 | 80 | 86 | 86 |
| | | Sound power ⁽¹⁾ | dB(A) | 87,5 | 87,5 | 88,5 | 89,0 | 90,0 | 90,0 | 89,5 | 89,5 | 90,5 | 91,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 67,5 | 67,5 | 68,5 | 68,5 | 69,5 | 69,5 | 68,5 | 68,5 | 69,5 | 70,0 |
| Unit + ultra low noise level option Full load performances* | CA1 | Maximum rated capacity | kW | 447 | 481 | 549 | 613 | 677 | 719 | 777 | 798 | 873 | 925 |
| | | EER | kW/kW | 2,94 | 2,85 | 2,85 | 2,94 | 2,94 | 2,82 | 2,84 | 2,79 | 2,76 | 2,63 |
| FREE COOLING | | | | | | | | | | | | | |
| Total free cooling option | CFC1 | Maximum rated capacity | kW | 345 | 345 | 395 | 444 | 493 | 493 | 543 | 543 | 592 | 592 |
| | | Free cooling EER | kW/kW | 41,4 | 41,5 | 41,1 | 41,2 | 40,7 | 40,7 | 40,5 | 40,5 | 39,9 | 39,9 |
| | | Rate of coverage by free cooling | % | 77% | 72% | 72% | 72% | 73% | 69% | 70% | 68% | 68% | 64% |
| | | Outdoor temperature for 100% coverage by free cooling | °C | -3,8 | -5,1 | -5,1 | -5,0 | -4,8 | -5,9 | -5,6 | -6,1 | -6,2 | -7,3 |
| | | Pressure drops | kPa | 71 | 70 | 75 | 76 | 82 | 82 | 86 | 86 | 93 | 93 |
| | | Sound power ⁽¹⁾ | dB(A) | 82,5 | 83,0 | 83,5 | 85,0 | 85,0 | 85,0 | 85,5 | 84,5 | 85,5 | 86,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 62,5 | 63,0 | 63,5 | 64,0 | 64,5 | 64,5 | 64,5 | 63,5 | 64,5 | 65,0 |
| Partial free cooling option | CFC1 | Maximum rated capacity | kW | 148 | 148 | 197 | 166 | 213 | 213 | 247 | 247 | 296 | 296 |
| | | Free cooling EER | kW/kW | 43,2 | 43,2 | 43,6 | 32,8 | 34,0 | 34,0 | 44,2 | 44,2 | 44,3 | 44,3 |
| | | Rate of coverage by free cooling | % | 33% | 31% | 36% | 27% | 31% | 30% | 32% | 31% | 34% | 32% |
| | | Pressure drops | kPa | 52 | 52 | 55 | 53 | 56 | 56 | 56 | 56 | 59 | 59 |
| | | Sound power ⁽¹⁾ | dB(A) | 79,0 | 79,5 | 80,5 | 81,0 | 82,0 | 82,0 | 82,0 | 81,0 | 82,5 | 83,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 59,0 | 59,5 | 60,5 | 60,5 | 61,5 | 61,5 | 61,0 | 60,0 | 61,5 | 62,0 |

* In accordance with EN14511-3:2022.

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 17 °C/10 °C, outdoor air temperature at 35 °C, 30% Mono-Ethylene-Glycol, evaporator fouling factor 0 m². k/W

CFC1 Free cooling mode conditions: evaporator water inlet/outlet temperature 17 °C/10 °C, outdoor air temperature at 0 °C, 30% Mono-Ethylene-Glycol, evaporator fouling factor 0 m². k/W

(1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 µPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power L_w(A).



FREE COOLING SYSTEM

| AQUACIAT ^{POWER} LD | 1750R | 1800R | 2000R | 2200R | 2400R | 2650R | 2800R | 2950R | 3200R | 3500R |
|--------------------------------------|------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Total free cooling | | | | | | | | | | |
| Free cooling coil | All-aluminium micro-channel coils (MCHE) | | | | | | | | | |
| Quantity | 7 | 7 | 8 | 9 | 10 | 10 | 11 | 11 | 12 | 12 |
| Hydraulic connection | | | | | | | | | | |
| Connection | in | 4" | 4" | 4" | 5" | 5" | 5" | 5" | 5" | 5" |
| External diameter | mm | 114,3 | 114,3 | 114,3 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 |
| Additional water volume | l | 200 | 200 | 213 | 298 | 310 | 310 | 351 | 351 | 364 |
| Weight ⁽³⁾ | | | | | | | | | | |
| Additional weight (without water) | kg | 516 | 515 | 556 | 662 | 700 | 700 | 814 | 814 | 851 |
| Additional weight (during operation) | kg | 725 | 724 | 778 | 972 | 1023 | 1023 | 1180 | 1180 | 1230 |
| Operation | | | | | | | | | | |
| Max. operating pressure, water side | bar | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Partial free cooling | | | | | | | | | | |
| Free cooling coil | All-aluminium micro-channel coils (MCHE) | | | | | | | | | |
| Quantity | 3 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 6 | 6 |
| Hydraulic connection | | | | | | | | | | |
| Connection | in | 4" | 4" | 4" | 5" | 5" | 5" | 5" | 5" | 5" |
| External diameter | mm | 114,3 | 114,3 | 114,3 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 |
| Additional water volume | l | 101 | 101 | 120 | 186 | 198 | 198 | 205 | 205 | 224 |
| Weight ⁽³⁾ | | | | | | | | | | |
| Additional weight (without water) | kg | 306 | 305 | 346 | 406 | 443 | 443 | 499 | 499 | 536 |
| Additional weight (during operation) | kg | 411 | 410 | 471 | 600 | 650 | 650 | 713 | 713 | 770 |
| Operation | | | | | | | | | | |
| Max. operating pressure, water side | bar | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |

(3) Values are guidelines only. Refer to the unit name plate.



FREE COOLING SYSTEM GLYCOL FREE

Physical characteristics of AQUACIAT^{POWER} LD units with Free Cooling option - Glycol Free

| AQUACIAT ^{POWER} LD | | | | 0602R | 0650R | 0750R | 0900R | 1100R | 1200R | 1350R | 1400R | 1600R |
|------------------------------|--|--|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|------------------------------|--|--|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|

Cooling

| | | | | | | | | | | | | |
|------------------------------------------|-----|------------------------|-------|------|------|------|------|------|------|------|------|------|
| Standard unit Full load performances* | CA2 | Maximum rated capacity | kW | 226 | 247 | 277 | 298 | 364 | 409 | 461 | 502 | 553 |
| | | EER | kW/kW | 3,65 | 3,87 | 3,64 | 3,60 | 3,35 | 3,52 | 3,39 | 3,49 | 3,38 |

FREE COOLING

| | | | | | | | | | | | | |
|---------------------------------------|------|-------------------------------------------------------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Glycol-free total free cooling option | CFC2 | Maximum rated capacity | kW | 264 | 342 | 342 | 342 | 342 | 440 | 440 | 516 | 516 |
| | | Free cooling EER | kW/kW | 25,8 | 25,0 | 25,0 | 25,0 | 25,6 | 24,9 | 25,2 | 24,7 | 25,0 |
| | | Rate of coverage by free cooling | % | 117% | 139% | 123% | 115% | 94% | 108% | 96% | 103% | 93% |
| | | Outdoor temperature for 100% coverage by free cooling | °C | 3,30 | 6,40 | 4,40 | 3,00 | -1,50 | 1,60 | -1,00 | 0,70 | -1,60 |
| | | Pressure drops | kPa | 87,2 | 141,2 | 141,2 | 141,2 | 121,6 | 113,5 | 102,0 | 140,8 | 130,7 |
| | | Sound power ⁽¹⁾ | dB(A) | 88,0 | 89,0 | 89,0 | 89,0 | 89,0 | 90,0 | 90,0 | 90,5 | 91,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 69,5 | 70,5 | 70,5 | 70,5 | 70,5 | 70,5 | 70,5 | 71,0 | 71,5 |

| | | | | | | | | | | | | |
|----------------------------------------------------------------|-----|------------------------|-------|------|------|------|------|------|------|------|------|------|
| Unit + ultra low noise level option Full load performances* | CA2 | Maximum rated capacity | kW | 205 | 227 | 253 | 270 | 328 | 370 | 415 | 454 | 500 |
| | | EER | kW/kW | 3,12 | 3,43 | 3,13 | 3,08 | 2,76 | 2,96 | 2,79 | 2,92 | 2,78 |

FREE COOLING

| | | | | | | | | | | | | |
|---------------------------------------|------|-------------------------------------------------------|-------|------|------|------|------|-------|-------|-------|-------|-------|
| Glycol-free total free cooling option | CFC2 | Maximum rated capacity | kW | 216 | 282 | 282 | 282 | 282 | 359 | 359 | 424 | 424 |
| | | Free cooling EER | kW/kW | 27,6 | 28,1 | 28,1 | 28,1 | 29,0 | 26,4 | 26,8 | 27,2 | 27,6 |
| | | Rate of coverage by free cooling | % | 105% | 124% | 111% | 104% | 86% | 97% | 86% | 93% | 85% |
| | | Outdoor temperature for 100% coverage by free cooling | °C | 1,10 | 4,50 | 2,30 | 0,90 | -3,90 | -0,70 | -3,60 | -1,70 | -4,20 |
| | | Pressure drops | kPa | 59,8 | 98,4 | 98,4 | 98,4 | 84,6 | 77,2 | 69,3 | 96,9 | 89,9 |
| | | Sound power ⁽¹⁾ | dB(A) | 80,0 | 81,0 | 81,0 | 81,0 | 81,5 | 82,5 | 82,5 | 82,5 | 83,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 61,0 | 62,5 | 62,5 | 62,5 | 63,0 | 63,0 | 63,0 | 62,5 | 63,0 |

Total glycol-free free cooling

| Free cooling coil | | | All-aluminium micro-channel coils (MCHE) | | | | | | | | | |
|--------------------------------------|--|--|------------------------------------------|------|------|------|------|------|------|------|------|------|
| Quantity | | | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 6 | 6 | |
| Hydraulic connection | | | | | | | | | | | | |
| Connection | | | in | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" |
| External diameter | | | mm | 88,9 | 88,9 | 88,9 | 88,9 | 88,9 | 88,9 | 88,9 | 88,9 | 88,9 |
| Additional water volume | | | l | 51 | 51 | 51 | 51 | 51 | 82 | 82 | 80 | 80 |
| Dimensions | | | | | | | | | | | | |
| Additional length | | | mm | 1194 | 1194 | 1194 | 1194 | 1194 | 1194 | 1194 | 1194 | 1194 |
| Weight ⁽³⁾ | | | | | | | | | | | | |
| Additional weight (without water) | | | kg | 867 | 921 | 921 | 922 | 926 | 1105 | 1115 | 1161 | 1169 |
| Additional weight (during operation) | | | kg | 918 | 973 | 973 | 973 | 977 | 1187 | 1197 | 1241 | 1248 |
| Operation | | | | | | | | | | | | |
| Max. operating pressure, water side | | | bar | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |

* In accordance with EN14511-3:2022.

CA2 Cooling mode conditions: evaporator water inlet/outlet temperature 26°C/20°C, outdoor air temperature at 35 °C, 30%, evaporator fouling factor 0 m². kW

CFC2 Free cooling mode conditions: evaporator water inlet/outlet temperature 26°C/20°C, outdoor air temperature at 0 °C, evaporator fouling factor 0 m². kW

(1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 µPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power L_w(A).

(3) Values are guidelines only. Refer to the unit name plate.



FREE COOLING SYSTEM GLYCOL FREE

| AQUACIAT ^{POWER} LD | | | | 1750R | 1800R | 2000R | 2200R | 2400R | 2650R | 2800R | 2950R | 3200R | 3500R |
|-------------------------------------------------------------------------|------|-------------------------------------------------------------|-------|------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Cooling | | | | | | | | | | | | | |
| Standard unit Full load performances* | CA2 | Maximum rated capacity | kW | 598 | 646 | 738 | 798 | 883 | 935 | 1013 | 1040 | 1136 | 1204 |
| | | EER | kW/kW | 3,50 | 3,39 | 3,38 | 3,40 | 3,41 | 3,25 | 3,28 | 3,22 | 3,16 | 3,00 |
| FREE COOLING | | | | | | | | | | | | | |
| Glycol-free total free cooling option | CFC2 | Maximum rated capacity | kW | 617 | 617 | 695 | 789 | 866 | 866 | 968 | 968 | 1046 | 1046 |
| | | Free cooling EER | kW/kW | 24,9 | 25,0 | 24,8 | 24,2 | 24,1 | 24,1 | 23,1 | 23,1 | 22,9 | 22,9 |
| | | Rate of coverage by free cooling | % | 103% | 96% | 94% | 99% | 98% | 93% | 96% | 93% | 92% | 87% |
| | | Outdoor temperature for 100% coverage by free cooling | °C | 0,70 | -1,00 | -1,40 | -0,20 | -0,40 | -1,80 | -1,00 | -1,70 | -1,90 | -3,40 |
| | | Pressure drops | kPa | 117,5 | 114,8 | 138,9 | 122,9 | 146,5 | 146,5 | 148,8 | 148,8 | 172,4 | 172,4 |
| | | Sound power ⁽¹⁾ | dB(A) | 91,0 | 91,0 | 92,0 | 93,0 | 93,5 | 93,5 | 93,5 | 93,5 | 93,5 | 94,0 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 71,0 | 71,0 | 71,5 | 72,0 | 72,5 | 72,5 | 72,0 | 72,0 | 72,5 | 73,0 |
| Unit + ultra low noise level option Full load performances* | CA2 | Maximum rated capacity | kW | 541 | 582 | 666 | 719 | 797 | 840 | 826 | 924 | 850 | 900 |
| | | EER | kW/kW | 2,92 | 2,79 | 2,78 | 2,84 | 2,85 | 2,69 | 3,06 | 2,69 | 3,28 | 3,09 |
| FREE COOLING | | | | | | | | | | | | | |
| Glycol-free total free cooling option | CFC2 | Maximum rated capacity | kW | 503 | 503 | 568 | 643 | 709 | 709 | 788 | 788 | 854 | 854 |
| | | Free cooling EER | kW/kW | 26,4 | 26,5 | 27,1 | 25,4 | 25,8 | 25,8 | 23,7 | 23,7 | 24,0 | 24,0 |
| | | Rate of coverage by free cooling | % | 93% | 86% | 85% | 89% | 89% | 84% | 95% | 85% | 100% | 95% |
| | | Outdoor temperature for 100% coverage by free cooling | °C | -1,70 | -3,60 | -4,00 | -2,70 | -2,90 | -4,30 | -1,10 | -3,90 | 0,10 | -1,20 |
| | | Pressure drops | kPa | 79,7 | 77,7 | 94,8 | 83,5 | 100,2 | 100,2 | 100,5 | 100,5 | 117,1 | 117,1 |
| | | Sound power ⁽¹⁾ | dB(A) | 83,0 | 83,5 | 84,0 | 85,5 | 86,0 | 86,0 | 87,0 | 86,0 | 87,0 | 87,5 |
| | | Sound pressure at 10 m ⁽²⁾ | dB(A) | 63,0 | 63,5 | 64,0 | 65,0 | 65,5 | 65,5 | 66,0 | 65,0 | 66,0 | 66,5 |
| Total glycol-free free cooling | | | | | | | | | | | | | |
| Free cooling coil | | | | All-aluminium micro-channel coils (MCHE) | | | | | | | | | |
| Quantity | | | | 7 | 7 | 8 | 9 | 10 | 10 | 11 | 11 | 12 | 12 |
| Hydraulic connection | | | | | | | | | | | | | |
| Connection | | | | in | 4" | 4" | 4" | 5" | 5" | 5" | 5" | 5" | 5" |
| External diameter | | | | mm | 114,3 | 114,3 | 114,3 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 |
| Additional water volume | | | | l | 106 | 106 | 104 | 157 | 157 | 157 | 199 | 199 | 199 |
| Dimensions | | | | | | | | | | | | | |
| Additional length | | | | mm | 1194 | 1194 | 1194 | 1194 | 1194 | 1194 | 1194 | 1194 | 1194 |
| Weight ⁽³⁾ | | | | | | | | | | | | | |
| Additional weight (without water) | | | | kg | 1427 | 1430 | 1488 | 1750 | 1797 | 1797 | 2018 | 2018 | 2070 |
| Additional weight (during operation) | | | | kg | 1533 | 1536 | 1592 | 1907 | 1954 | 1954 | 2218 | 2218 | 2269 |
| Operation | | | | | | | | | | | | | |
| Max. operating pressure, water side | | | | bar | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |

* In accordance with EN14511-3:2022.

CA2 Cooling mode conditions: evaporator water inlet/outlet temperature 26°C/20°C, outdoor air temperature at 35 °C, 30%, evaporator fouling factor 0 m². kW

CFC2 Free cooling mode conditions: evaporator water inlet/outlet temperature 26°C/20°C, outdoor air temperature at 0 °C, evaporator fouling factor 0 m². kW

(1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 µPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).

(3) Values are guidelines only. Refer to the unit name plate.



FREE COOLING SYSTEM

Free cooling operating limits

LD 602R to 3500R units

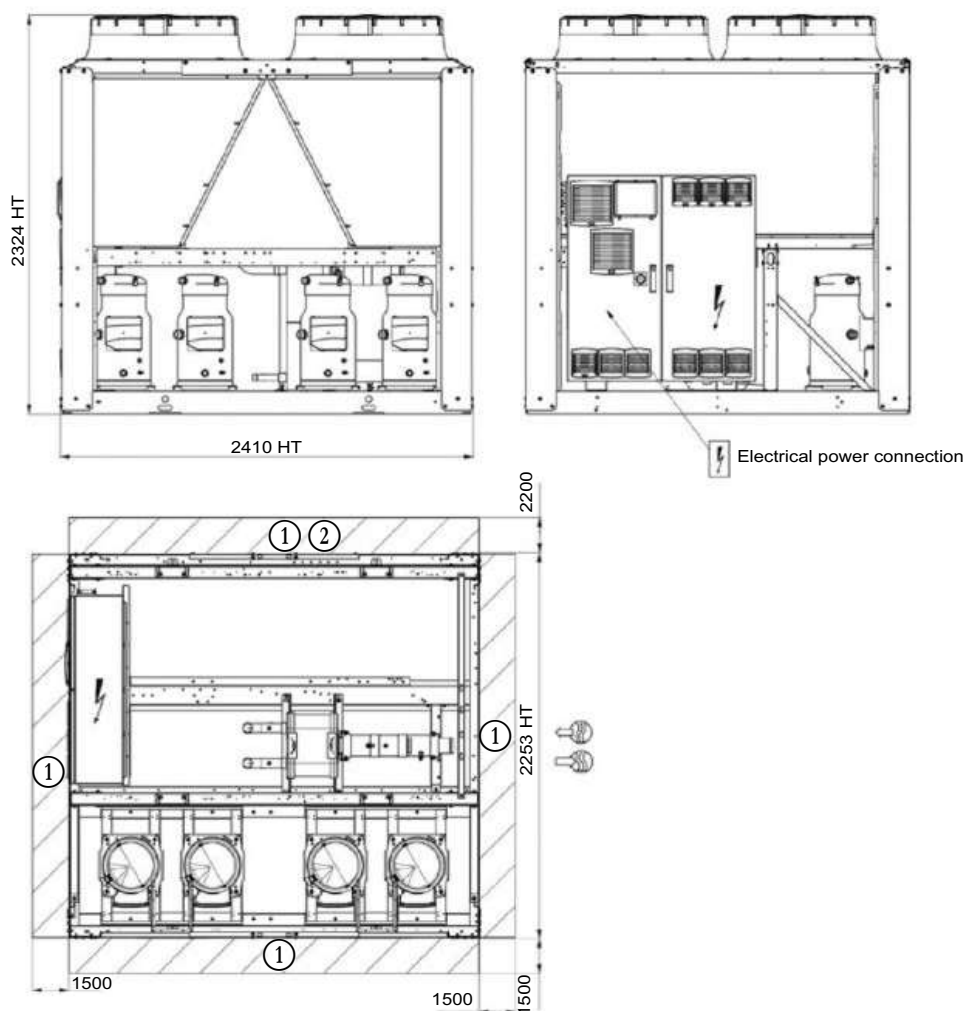
| Water type heat exchanger | | Minimum | Maximum |
|-------------------------------------------|----|---------|-------------------|
| Water inlet temperature at start-up | °C | 8 | 40 |
| Water outlet temperature during operation | °C | 5 | 20 |
| Air-cooled exchanger | | Minimum | Maximum |
| Outdoor ambient operating temperature | | | |
| LD units - Full load | °C | -20 | 47 |
| LD units - Part load | °C | -20 | 52 ⁽¹⁾ |

(1) Part load operation permitted above an outdoor air temperature of 47 °C. Contact the manufacturer to select a unit using the electronic catalogue.

All the free cooling units must be protected against freezing with 30% ethylene glycol in the cooling loop circuit (recommended value).

DIMENSIONS

■ AQUACIAT^{POWER} LD 602R to 1100R/ILD 602R to 1000R Without buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

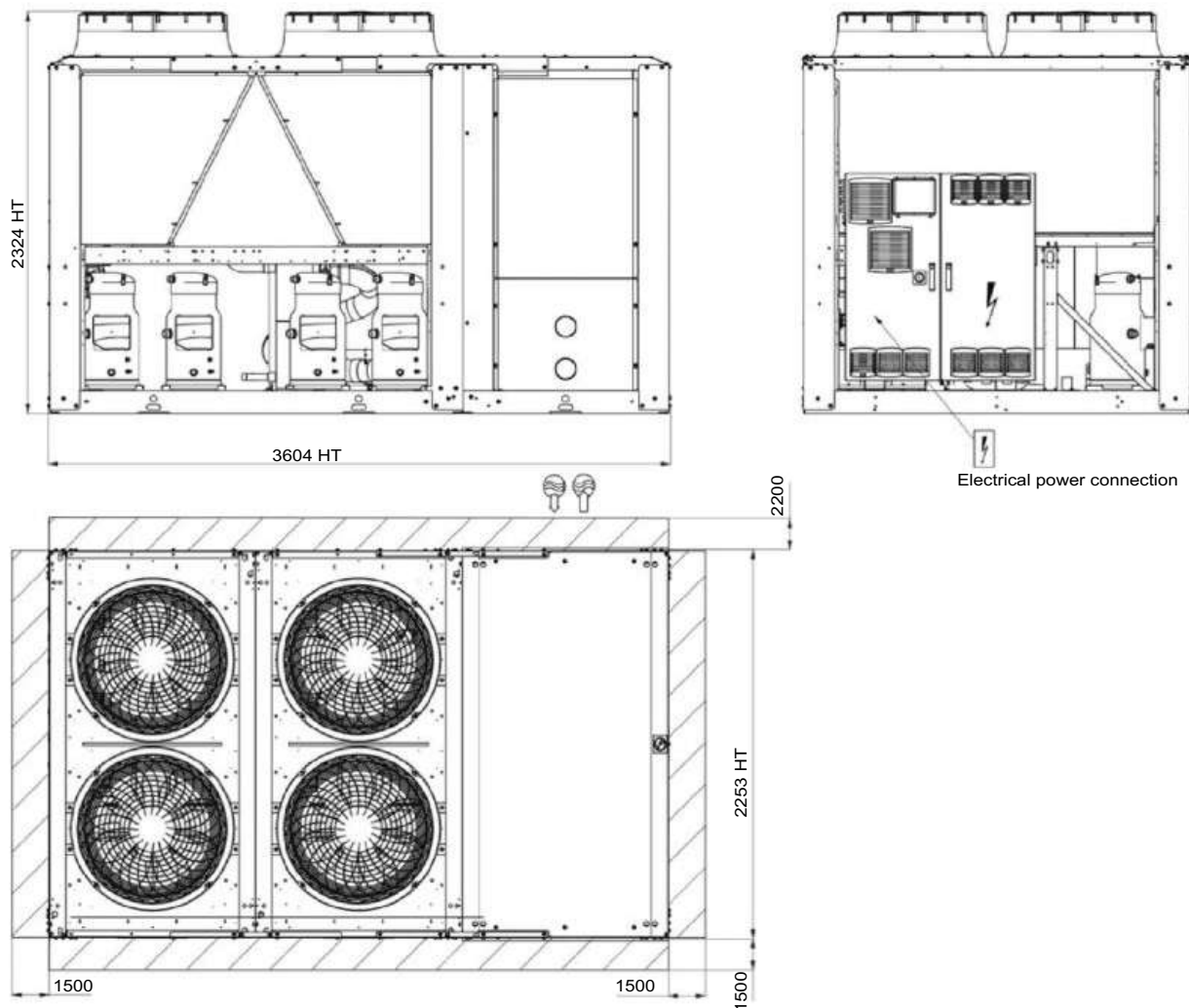
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER} LD 602R to 1100R/ILD 602R to 1000R With buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

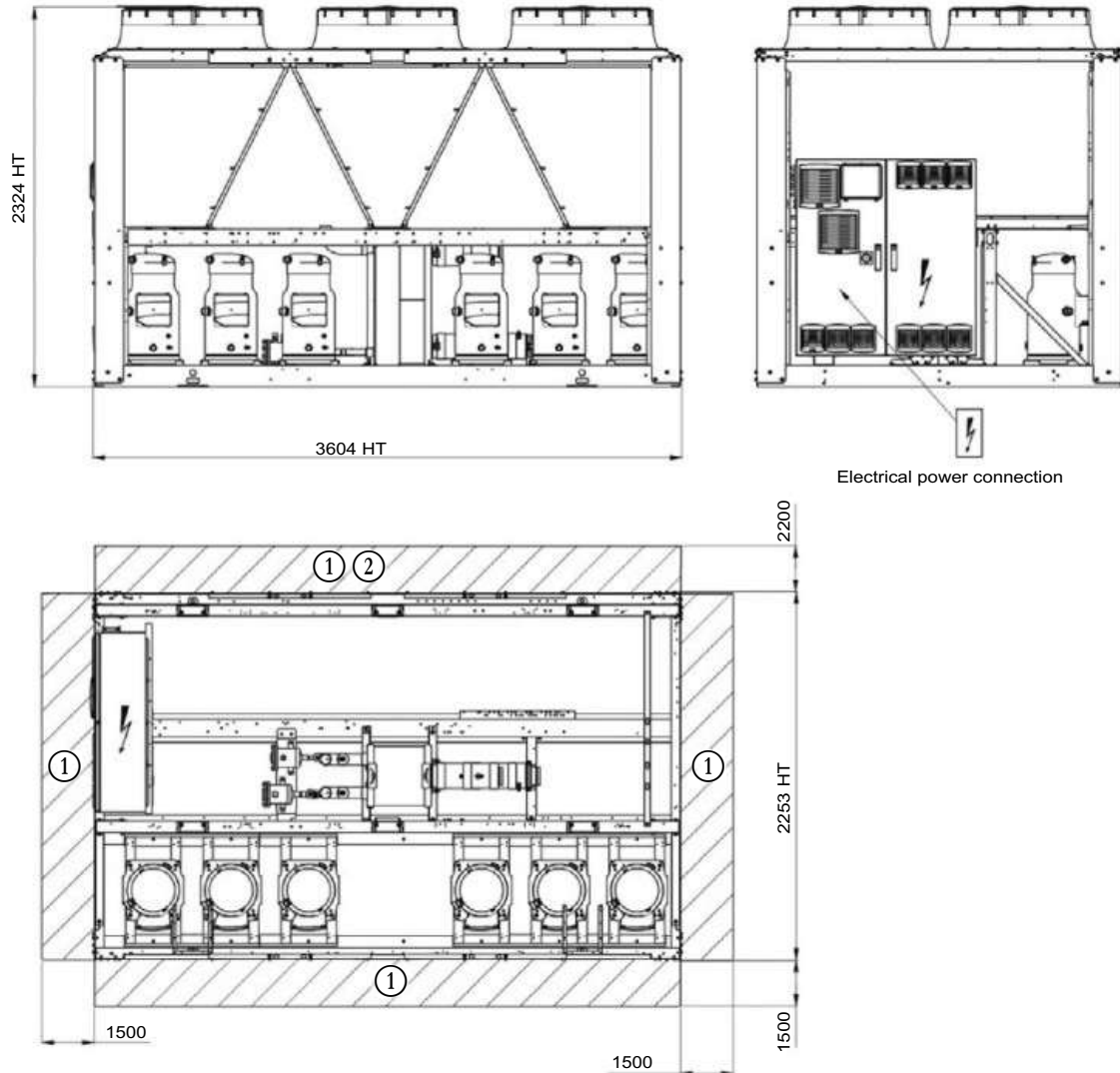
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER} LD 1200R to 1600R/ILD 1150R to 1500R Without buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal

- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

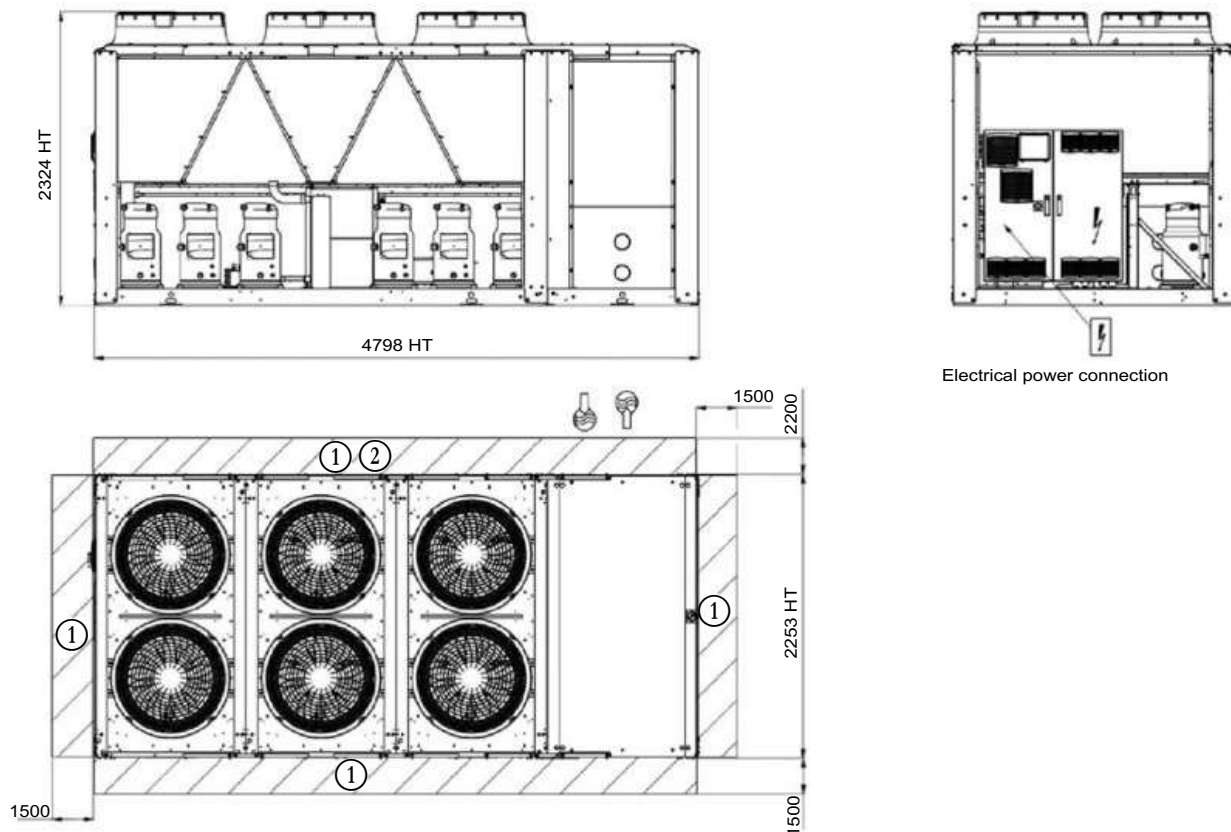
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER} LD 1200R to 1600R/ILD 1150R to 1500R With buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

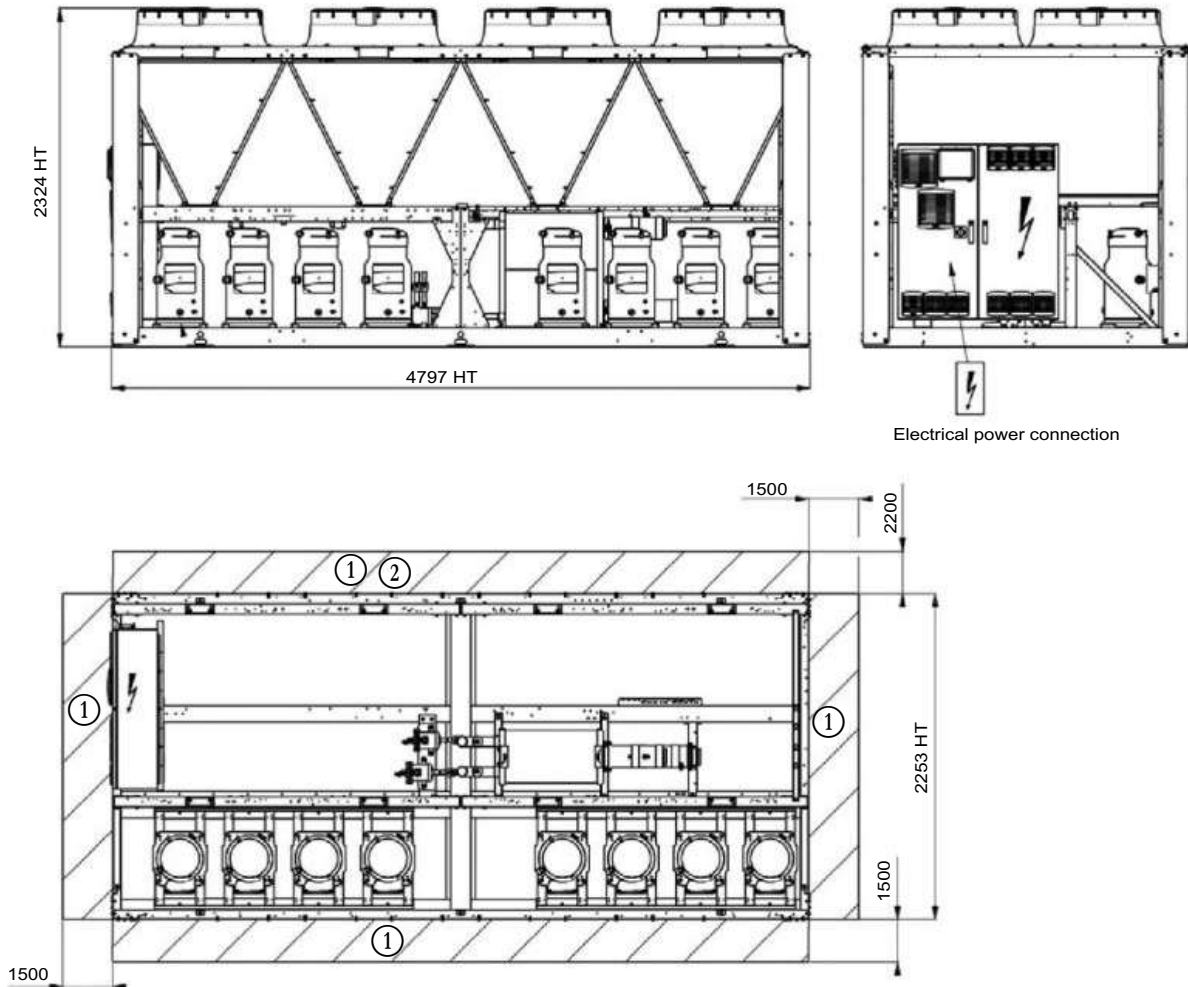
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER} LD 1750R to 2000R/ILD 1600R to 2000R Without buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

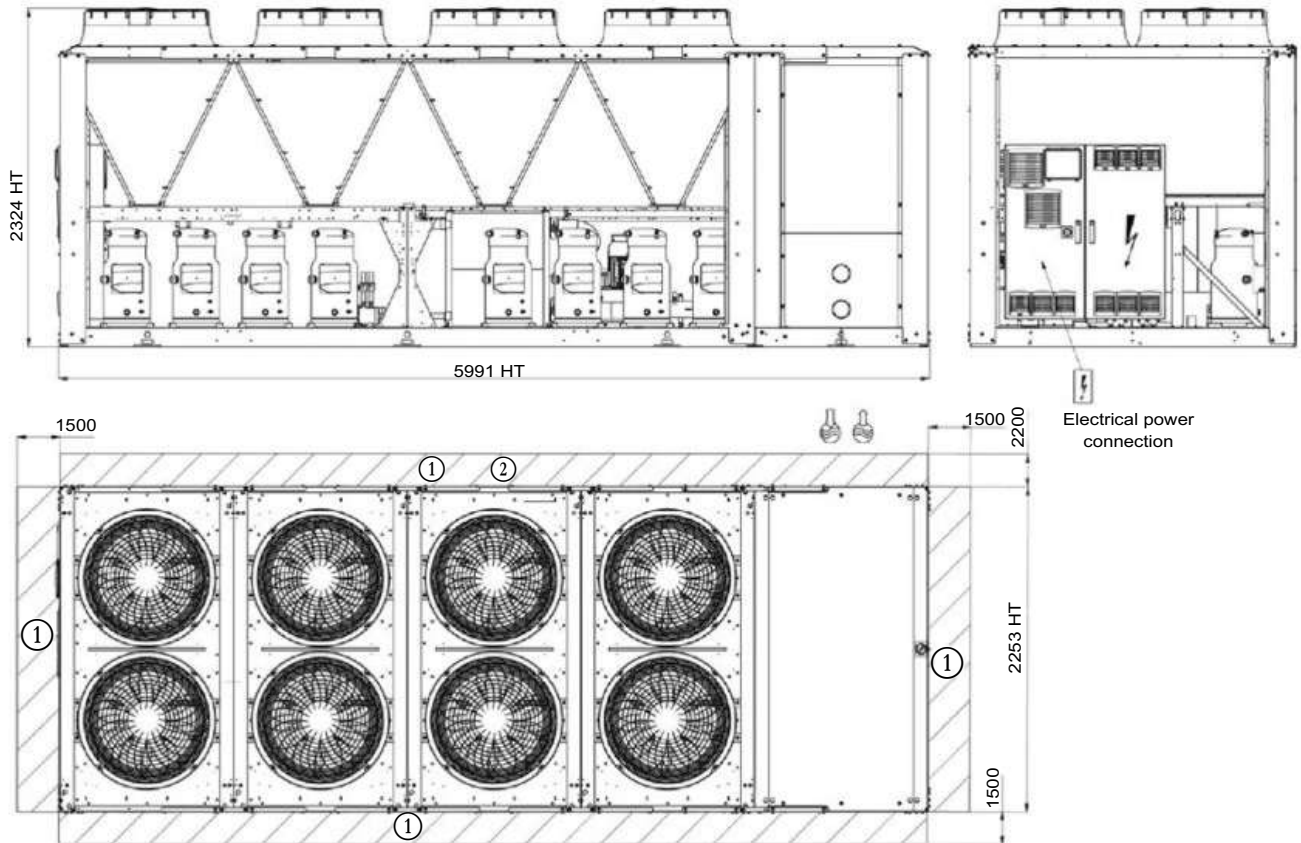
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER} LD 1750R to 2000R/ILD 1600R to 2000R With buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

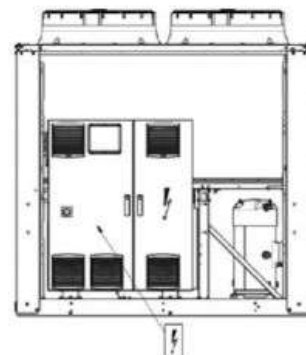
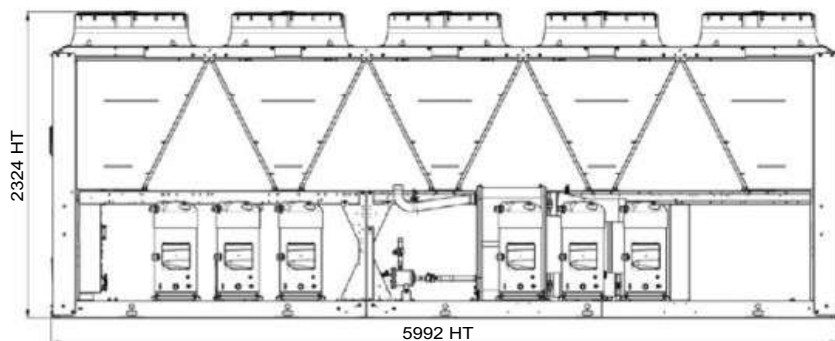
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

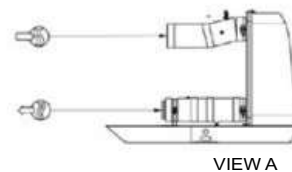
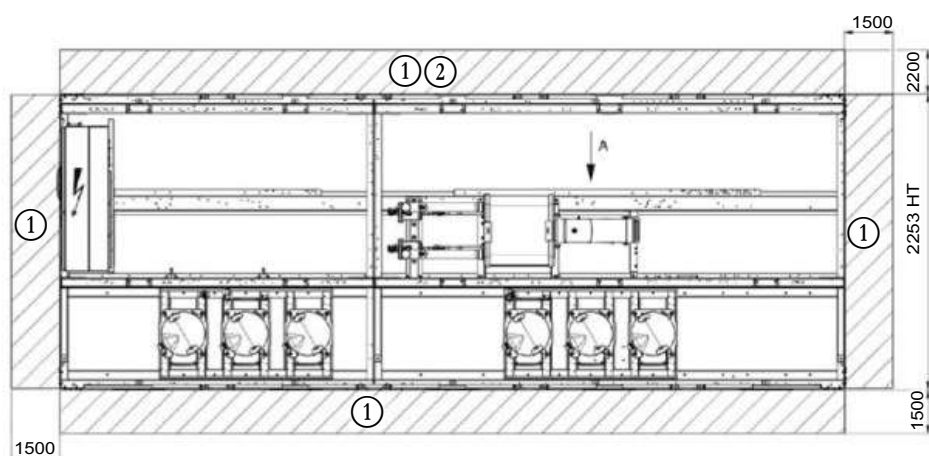
Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER} LD 2200R to 2650R/Without buffer tank



Main hydraulic connection



VIEW A

Key

All dimensions in mm

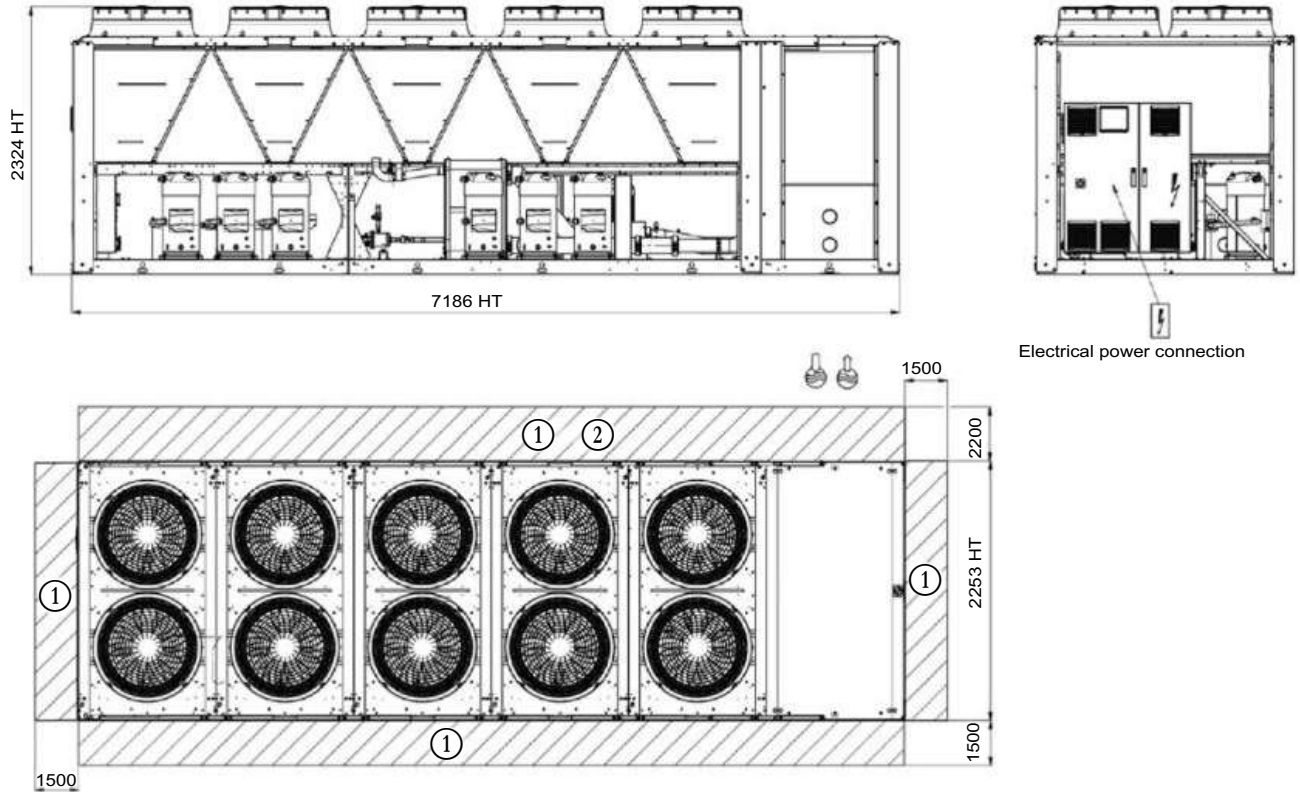
- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

Non-contractual drawings.
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.
Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER} LD 2200R to 2650R/With buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

Notes:

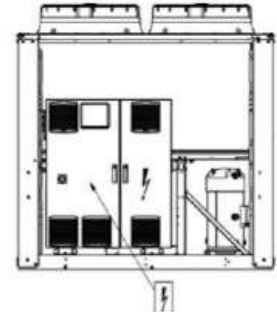
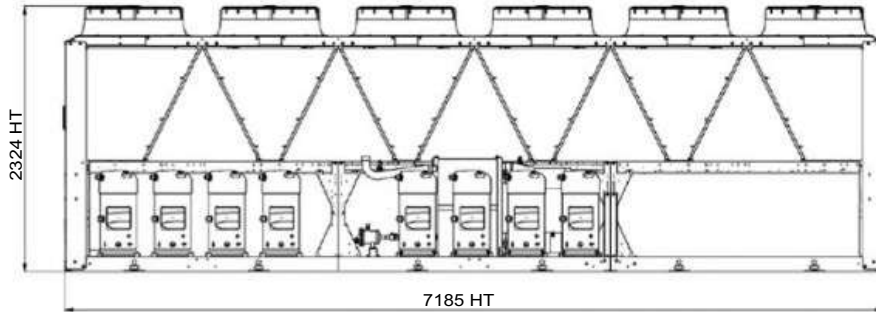
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

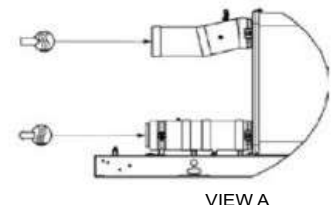
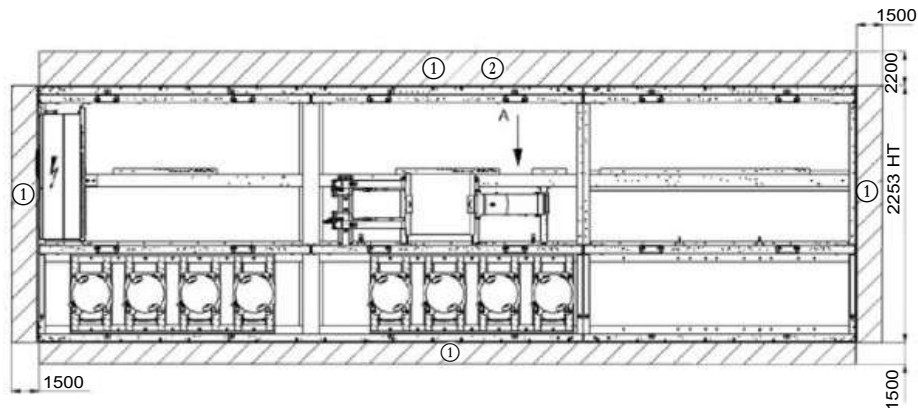
Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER} LD 2800R to 3500R/Without buffer tank



Electrical power connection



VIEW A

Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

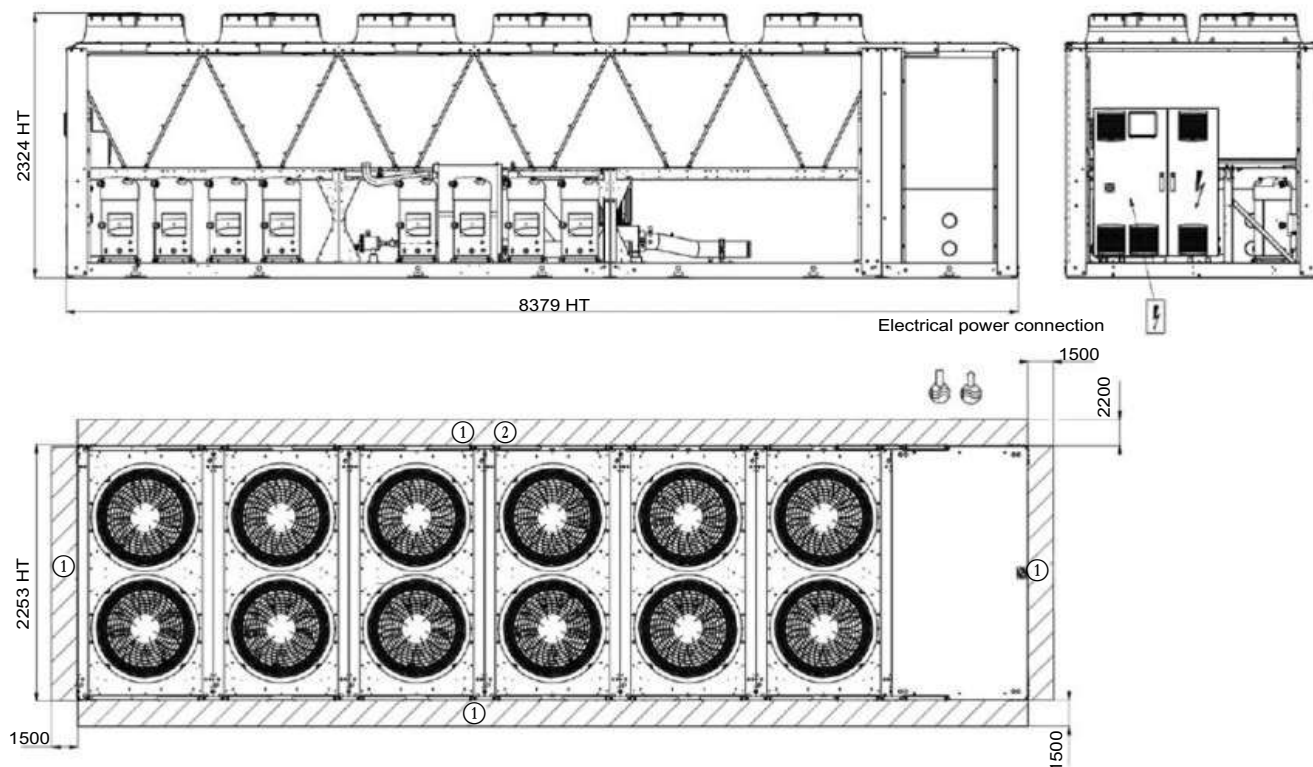
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ AQUACIAT^{POWER} LD 2800R to 3500R/With buffer tank



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

Notes:

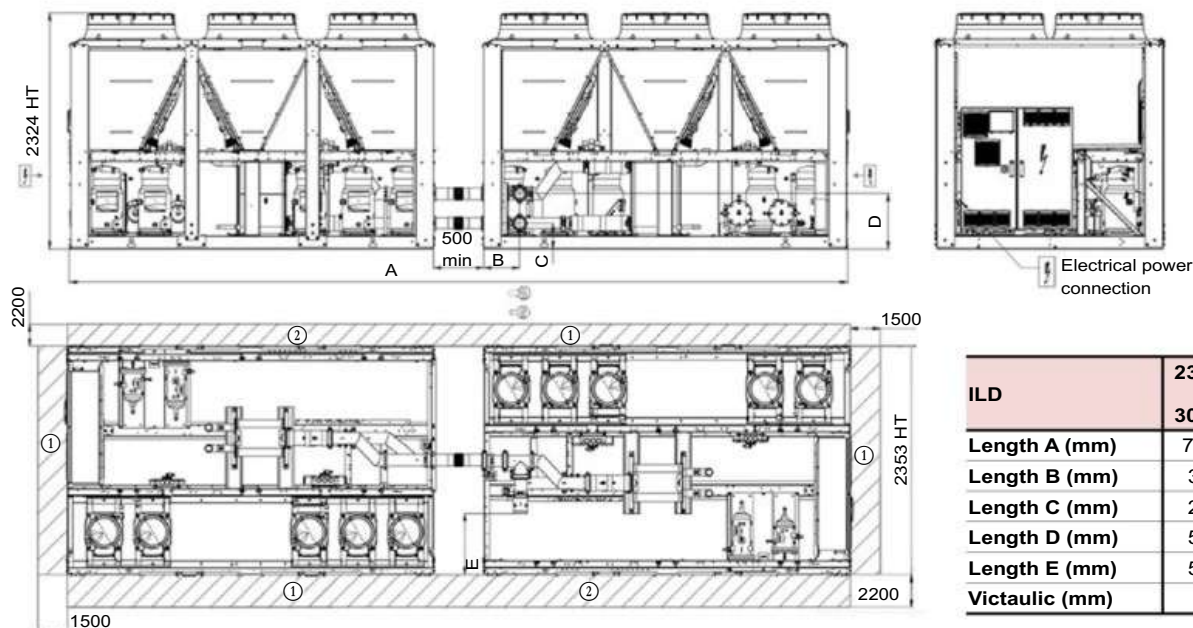
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

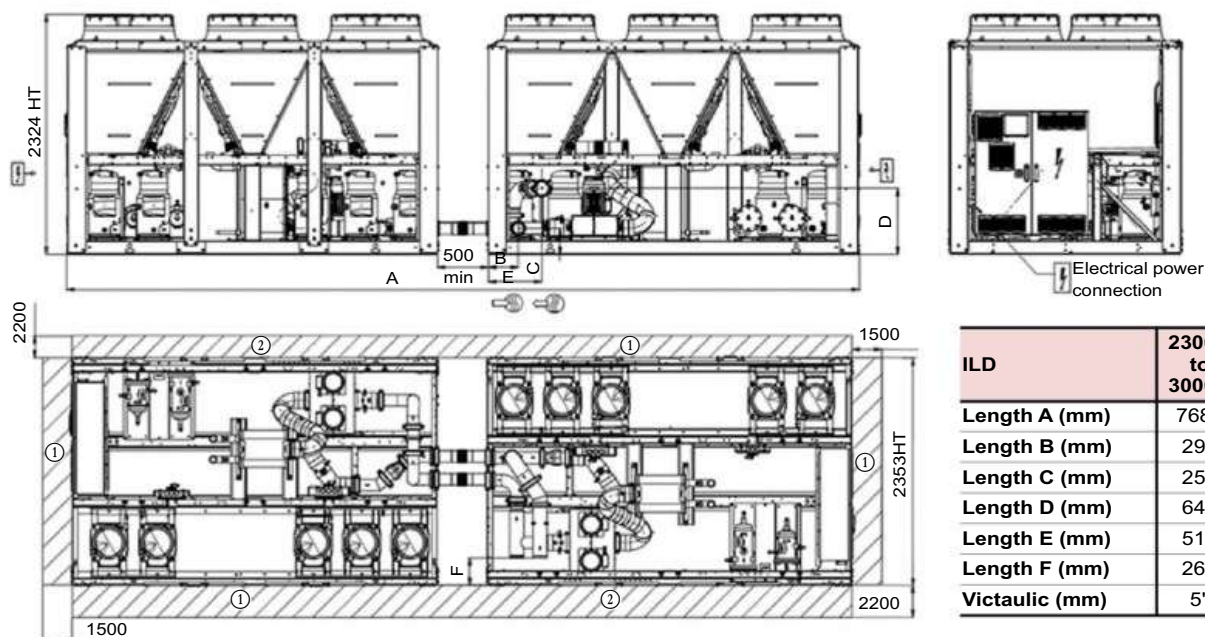
DIMENSIONS

■ **AQUACIAT^{POWER} LD 2300R to 4000R/Without hydraulic module**



| ILD | 2300R to 3000R | 3200R to 4000R |
|----------------|----------------------|----------------------|
| Length A (mm) | 7680 | 10068 |
| Length B (mm) | 357 | 357 |
| Length C (mm) | 251 | 251 |
| Length D (mm) | 544 | 544 |
| Length E (mm) | 597 | 597 |
| Victaulic (mm) | 5" | 5" |

■ **AQUACIAT^{POWER} LD 2300R to 4000R/With hydraulic module**



| ILD | 2300R to 3000R | 3200R to 4000R |
|----------------|----------------------|----------------------|
| Length A (mm) | 7680 | 10068 |
| Length B (mm) | 290 | 251 |
| Length C (mm) | 254 | 254 |
| Length D (mm) | 640 | 640 |
| Length E (mm) | 516 | 509 |
| Length F (mm) | 265 | 265 |
| Victaulic (mm) | 5" | 5" |

Kev

All dimensions in mm

- ① Clearance required for maintenance and air flow
② Clearance recommended for coil removal



Water inlet



Water outlet



Air outlet, do not obstruct



Electrical cabinet

Notes:

Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

POWERCAT™ LX

Water chillers

Energy excellence !

Eurovent-certified

SEER up to 4,7, SEPR up to 6,2

Operating range from -20 °C to +55 °C

Compact and silent

High-efficiency flooded shell and tube evaporator

Aluminium micro-channel condenser

Hydraulic module & heat recovery



Cooling capacity : 277 à 1512 kW



Cooling
only



Hydraulic
module



Heat recovery



USE

The latest generation of **POWERCAT™** high-efficiency air-to-water

water chillers are the perfect solution for all cooling applications in the Offices, Healthcare, Industry, Administration, Shopping Centres and Collective Housing markets.

These units are designed for outdoor installation and require no special protection against adverse weather conditions.

POWERCAT™ is optimised to use ozone-friendly HFC R134a refrigerant.

This range guarantees compliance with the most demanding requirements for increased seasonal energy efficiency (SEER and SEPR) and CO₂ reduction to comply with the various applicable European directives and regulations.

RANGE

■ **POWERCAT™ series LX XE**



Premium cooling only version.

The product is optimised for part load applications and fulfils the provisions of the new Ecodesign regulation governing comfort and process applications, while also facilitating a return on investment. In this case, the machine is equipped with EC type variable-speed fans as standard, enabling the optimum part load efficiency to be achieved throughout the year

■ **POWERCAT™ series LX HE**



Cooling only version High seasonal energy efficiency.

The product is optimised for part load applications and fulfils the provisions of the new Ecodesign regulation governing comfort and process applications. In this case, the machine is equipped as standard with variable-speed fans with AC motor and external speed regulator, allowing for optimisation of the part load efficiency throughout the year.

DESCRIPTION

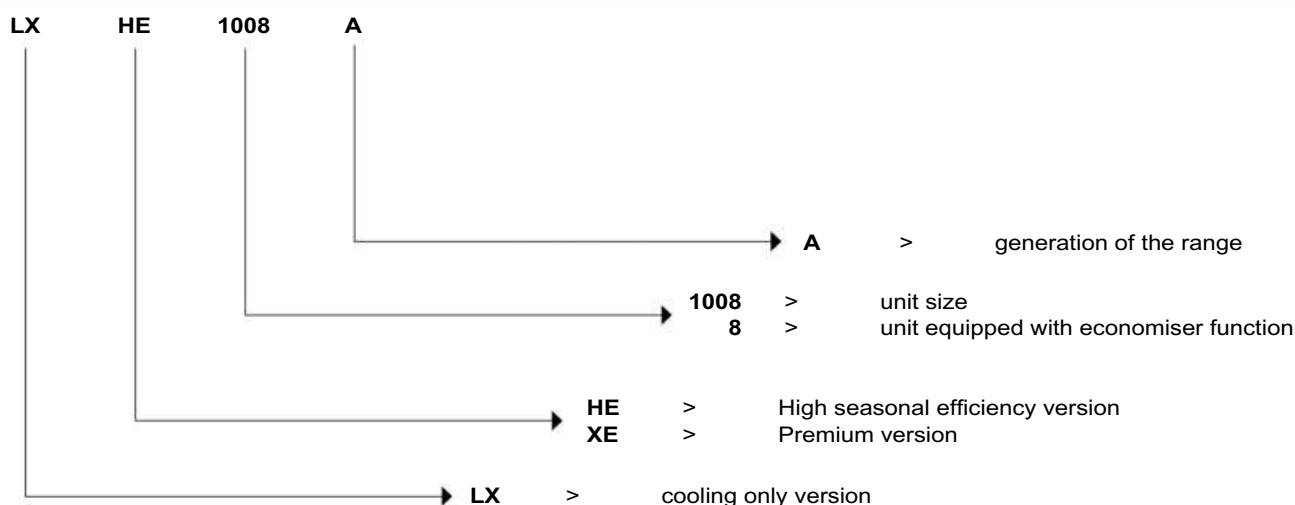
POWERCIAAT™ units are packaged machines supplied as standard with the following components:

- Twin-screw semi-hermetic compressors
- Flooded shell and tube type chilled-water evaporator
- Air-cooled exchanger, all-aluminium micro-channel coil with axial fan motor assembly
- Electrical power and remote control cabinet:
 - 400 V-3ph-50 Hz (+/- 10 %) mains power supply + earth
 - transformer fitted as standard on the machine for supplying the remote control circuit with 24 V
- Connect Touch electronic control module
- Casing for outdoor installation

The entire POWERCIAAT™ range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC.
- Electromagnetic compatibility directive 2014/30/EU.
- EMC immunity and emissions EN 61800-3 'C3'
- Low voltage directive 2014/35/EU.
- RoHS 2011/65/EU
- Pressure equipment directive (PED) 2014/68/EU
- Machinery directive EN 60-204 - 1
- Refrigeration systems and heat pumps EN 378-2
- Regulation (EU) no. 2016/2281 implementing directive 2009/125/EC with regard to Ecodesign requirements

DESCRIPTION



CONFIGURATION

| | |
|---------------|------------------------------------------|
| HE | High Seasonal Efficiency |
| HE LN option | High Seasonal Efficiency Low Noise |
| HE XLN option | High Seasonal Efficiency Xtra Low Noise |
| HE SLN option | High Seasonal Efficiency Super Low Noise |
| XE | Premium |
| XE Option LN | Premium Low Noise |
| XE Option XLN | Premium Xtra Low Noise |

DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

- Twin-screw semi-hermetic type
- 2 screws fitted on ball and roller bearings
- Continuous powerCTRL
- Built-in electric motor, cooled by intake gases
- Integral electronic protection of the motor against thermal and electrical overloads
- Monitoring of rotation direction, absence of phase, over and under voltage, and power supply failure
- Monitoring of lubrication under differential pressure
- Built-in oil filter
- Internal pressure surge valve and valve to prevent reverse rotation during shutdown phases
- Monitoring of maximum head pressure
- Oil separator with integrated silencer to reduce pulses from the discharged gas
- Star-delta start limiting the in-rush current

■ Shell and tube evaporator

- High performance glandless technology
- Copper tube bundle with internal and external grooves
- 19-mm thermal insulation
- Victaulic type coupling
- Maximum pressure, water side, of 10 bar **(21 bar as option)**

■ Condenser

- air-cooled exchanger, all-aluminium micro-channel coil
- propeller fans with composite blades offering an optimised profile, variable speed (HE and XE versions)
- motors – IP 54, class F

■ Refrigerating accessories

- Dehumidifier filters with rechargeable cartridges
- hygroscopic sight glasses
- electronic expansion valves
- service valves on the liquid line

■ Control and safety instruments

- low and high pressure sensors
- safety valves on refrigerant circuit
- water temperature control sensors
- evaporator antifreeze protection sensor
- factory-fitted evaporator water flow controller

■ Electrical cabinet

- Electrical cabinet protection rating: IP 44 (IP 54 optional)
- A connection point without neutral for sizes 808 to 3028
- Two connection points without neutral for sizes 3428 to 4608 (one connection point optional)
- front-mounted main safety switch with handle
- control circuit transformer
- 24 V control circuit
- fan and compressor motor circuit breaker
- fan and compressor motor contactors
- Connect Touch microprocessor-controlled electronic control module
- wire numbering
- marking of the main electrical components

■ Chassis

Frame made from RAL 7035 light grey & RAL 7024 graphite grey painted panels

■ Connect Touch control module

- User interface with 4.3-inch touchscreen
- Intuitive, user - friendly navigation using icons
- Clear text display of information available in 9 languages (F-GBD- NL-E-I-P-RU +Chinese)



The electronic control module performs the following main functions:

- regulation of the chilled water temperature (at the return or at the outlet)
- regulation of the water temperature based on the outdoor temperature (water law)
- regulation for low temperature energy storage
- second setpoint management
- complete management of compressors with start-up sequence, timer and operating time balancing
- self-regulating and proactive functions with adjustment of the control to counter parameter drift
- i n-series staged powerCTRL system on the compressors according to the thermal requirements
- management of compressor short-cycle protection
- frost protection (exchanger heater option)
- phase reversal protection
- management of occupied/unoccupied modes (according to the time schedule)
- compressor and pump operating time balancing
- management of the machine operating limit according to outdoor temperature
- sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- diagnosis of fault and operating statuses
- management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- master/slave management of the two machines in parallel with operating time balancing and automatic changeover if a fault occurs on one machine
- weekly and hourly time schedule for the machine, including 16 periods of absence
- pump standby based on demand (energy saving)
- calculation of the water flow rate and operating pressure (hydraulic module version)
- display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- display of trend curves for the main values
- storage of maintenance manual, wiring diagram and spare parts list.

DESCRIPTION OF THE MAIN COMPONENTS

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP as an option, enabling most CMS/BMS to be integrated

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- automatic operation control: when this contact is open, the machine stops
- setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- Power limitation: closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerant circuits to stop
- operational status reporting indicates that the unit is in production mode.
- switch control for the customer pump, external to the machine (on/off).

Contacts available as an option:

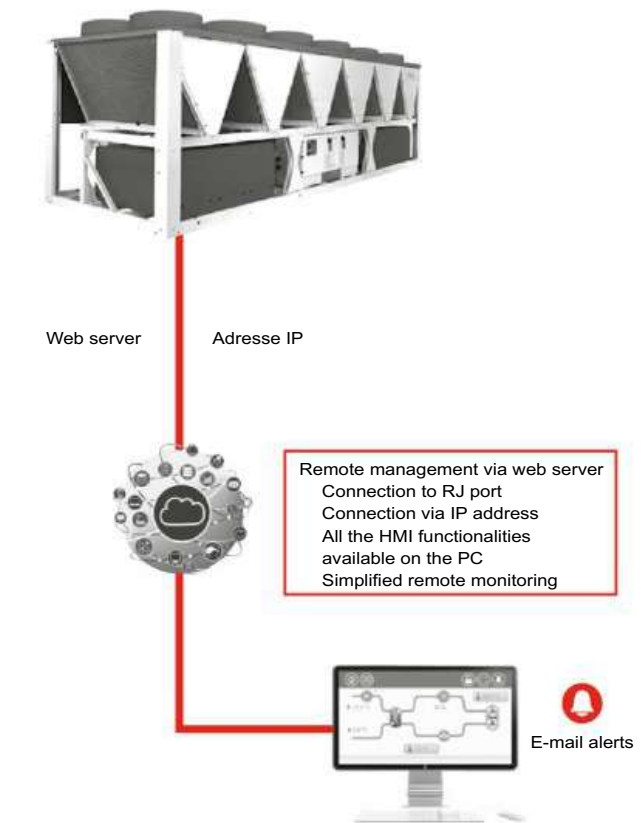
- setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in COOLING mode
- power limitation adjustable by 4-20 mA signal
- Second power limitation level
- Power indication: analogue output (0-10 V) providing an indication of the unit's load rate.
- user fault reporting, enables integration of a fault in the water loop
- general fault reporting: this contact indicates that the unit has stopped completely
- alert reporting: this contact indicates the presence of a minor fault which did not cause the refrigerant circuit in question to stop.
- End of storage signal: enables return to the second setpoint at the end of the storage cycle
- Schedule override: closing this contact cancels the time schedule.

■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator.

The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.



- the scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- the compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the unit's refrigerant charge, in compliance with the F-GAS regulations.

AVAILABLE OPTIONS

| Options | Description | Advantages | LX HE/XE |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Medium-temperature brine solution | Implementation of new algorithms of control and evaporator redesign to allow chilled brine solution production down to -12°C when ethylene glycol is used (-8°C with propylene glycol) | Covers specific applications such as ice storage and industrial processes | • |
| Low-temperature brine solution | Implementation of new algorithms of control and evaporator redesign to allow chilled brine solution production down to -15°C when ethylene glycol is used (-10°C with propylene glycol) | Covers specific applications such as ice storage and industrial processes | • |
| Light-brine solution, down to -3°C | Implementation of new algorithms of control to allow chilled brine solution production down to -3°C when ethylene glycol is used (0°C with propylene glycol) | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements | • |
| Unit equipped for air discharge ducting | Fans equipped with discharge connection flanges - maximum available pressure 60 Pa | Facilitates connections to the discharge ducts | • |
| Low Noise | Aesthetic and sound absorbing compressor enclosure | Noise level reduction | • |
| Xtra Low Noise | Acoustic compressor enclosure and low-speed fans | Noise emission reduction at reduced fan speed | • |
| Super Low Noise | Acoustic compressor enclosure, low-speed fans and enhanced sound insulation of main noise sources | Noise level reduction in sensitive environments | 1308-4608 |
| IP54 control box | Increased leak tightness of the unit | Protects the inside of the electrical box from dust, water and sand. As a rule, this option is recommended for installations located in polluted environments | • |
| Tropicalisation of the electrical box | Electrical box equipped with an electrical heater and a fan. Electrical connections on the compressors painted with a special varnish. | Grant safe operation in typical "tropical" climate. This option is recommended for all applications where humidity inside the electrical box can reach 80% at 40°C and unit can remain in stand-by for a long time under this conditions. | • |
| Protection grilles | Metal grilles on the 4 unit sides. | Improves protection against intrusion to the unit interior, and protects the coil and piping against impacts. | • |
| 230 V electrical plug | 230 V AC power supply source provided with plug socket and transformer (180 VA, 0.8 A) | Permits connection of a laptop or an electrical device during unit commissioning or servicing | • |
| Water exchanger frost protection | Electric resistance heater on the water exchanger and discharge valve | Water exchanger frost protection down to -20°C outside temperature | • |
| Evaporator & hydraulic module frost protection | Electric resistance heater on water exchanger, discharge valve and hydraulic module | Water exchanger and hydraulic module frost protection down to -20°C outside temperature | Sizes 808 to 1108 |
| Total heat recovery | Unit equipped with additional heat exchanger in parallel with the condenser coils. | Production of free hot-water simultaneously with chilled water production | Sizes 808 to 3028 |
| Evaporator with one pass less | Evaporator with one pass more on the water | Optimise chiller operation when the chilled water circuit is designed with low waterflows (high delta T evaporator inlet/outlet) | Sizes 808-3028 |
| Master/slave operation | side | Optimised operation of two units connected in parallel operation with operating time equalisation | • |
| 21 bar evaporator | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar) | Covers applications with a high water column evaporator side (typically high buildings) | • |
| Single power connection point | Unit power connection via one main supply connection | Quick and easy installation | Sizes 3428 to 4608 |
| Evap. and pumps with aluminum jacket | Evaporator and pumps covered with an aluminum sheet for thermal insulation protection | Improved resistance to aggressive climate conditions | Sizes 0808-1108 |
| Reversed evaporator water connections | Evaporator with reversed water inlet/outlet | Easy installation on sites with specific requirements | • |
| Service valve set | Liquid line valve (evaporator inlet), compressor suction and discharge line valves and economiser line valve | Allow isolation of various refrigerant circuit components for simplified service and maintenance | • |
| Evaporator with one pass more | Evaporator with one pass more on the water side | Optimise chiller operation when the chilled water circuit is designed with low waterflows (high delta T evaporator inlet/outlet) | • |
| Set point adjustment by 4-20mA signal | Connections to allow a 4-20mA signal input | Easy energy management, allow to adjust set point by a 4-20mA external signal | • |
| Lon gateway | Two-directional communication board complying with Lon Talk protocol | Connects the unit by communication bus to a building management system | • |
| HP single-pump hydraulic module | Complete hydraulic module equipped with water filter, relief valve, one high pressure pump and drain valve. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in safety hydraulic components available). | Quick and easy installation (plug & play) | Sizes 808 to 1108 |

• ALL MODELS

Refer to the selection tool to find out which options are not compatible.

AVAILABLE OPTIONS

| Options | Description | Advantages | LX HE/XE |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| HP dual-pump hydraulic module | Dual high pressure water pump, water filter, electronic water flow control, pressure transducers. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in safety hydraulic components available) | Quick and easy installation (plug & play) | Sizes 808 to 1108 |
| LP single-pump hydraulic module | Single low pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in safety hydraulic components available) | Quick and easy installation (plug & play) | Sizes 808 to 1108 |
| LP dual-pump hydraulic module | Dual low pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in safety hydraulic components available) | Quick and easy installation (plug & play) | Sizes 808 to 1108 |
| Dual relief valves on 3-way valve | Three-way valve upstream of dual relief valves on the shell and tubes evaporator | Valve replacement and inspection facilitated without refrigerant loss. Conforms to European standard EN378/BGVD4 | Sizes 808 to 3028 |
| Compliance with Swiss regulations | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications | Compliance with Swiss regulations | • |
| Compliance with Russian regulations | EAC certification | Compliance with Russian regulations | • |
| Bacnet over IP | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy, high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters | • |
| Energy Management Module | Control board with additional inputs/outputs. See Contacts available in option on control description | Extended remote control capabilities (setpoint reset by 0-20 mA input, ice storage end, demand limits, boiler on/off command...) | • |
| 7" user interface | Control supplied with a 7 inch colour touch screen user interface | Enhanced ease of use | • |
| Input contact for Refrigerant leak detection | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer) | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions | • |
| Compliance with Australian regulations | Unit approved to Australian code | Compliance with Australian regulations | • |
| Insulation of the evap. in/ out ref.lines | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation | Prevents condensation on the evaporator entering/ leaving refrigerant lines | • |
| MCHE anti-corrosion protection Protect2 | Coating by conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. No heat transfer variation, salt spray resistance test for 4000 hours (ASTM B117) | Protect2 Improved corrosion resistance of the MCHE coils by 2, recommended for use in moderately corrosive environments | • |
| MCHE anti-corrosion protection Protect4 | Extremely durable and flexible epoxy polymer coating applied on micro channel coils by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested 6000 hours constant neutral salt spray per ASTM B117, superior impact resistance per ASTM D2794 | Protect4 Improved corrosion resistance of the MCHE coils by 4, recommended for use in corrosive environments | • |
| Evaporator with aluminium jacket | Evaporator covered with an aluminium sheet for thermal insulation protection | Improved resistance to aggressive climate conditions | • |
| Expansion tank | 6 bar expansion tank integrated in the hydraulic module (requires hydraulic module option) | Easy and fast installation (plug & play), & protection of closed water systems from excessive pressure | Sizes 808 to 1108 |
| Anti-vibration mounts | Elastomer anti-vibration mounts to be placed under the unit (material classified B2 fire class according to DIN 4102). | Isolate the unit from the building, avoid transmission of vibrations and associated noise to the building. Must be used in conjunction with a flexible connection on the water side | • |
| Free cooling dry cooler management | Control & connections to a free cooling dry cooler Opera or Vextra fitted with the FC control box option | Easy system management, extended control capabilities to a dry cooler used in free cooling mode | • |
| Variable Water Flow control | Hydraulic control function package that permits control of the water flow rate based on different possible logics (at customer choice): constant ΔT , constant outlet pressure and fixed-speed control | When variable-speed pumps on the primary circuit, the VWF control modulates flow rate through the evaporator, minimising pump consumption while ensuring safe/optimised chiller operation | Sizes 808 to 1108 |

• ALL MODELS

Refer to the selection tool to find out which options are not compatible.

TECHNICAL SPECIFICATIONS



| POWERCIATT™ LX HE | | | | 0808 | 0908 | 1008 | 1108 | 1358 | 1528 | 1858 | 2008 | 2158 |
|--------------------------------------------------------------------------------------------------------------|-----|---------------------------------------|---------|------|------|------|------|------|------|------|------|------|
| Cooling | | | | | | | | | | | | |
| LX HE standard Full load performances* | CA1 | Nominal capacity | kW | 277 | 300 | 322 | 392 | 444 | 494 | 623 | 676 | 730 |
| | | EER | kW/kW | 3,15 | 3,12 | 3,08 | 3,18 | 3,11 | 3,08 | 3,22 | 3,28 | 3,10 |
| LX HE with Xtra & Super Low Noise option Full load performances* | CA1 | Nominal capacity | kW | 271 | 293 | 313 | 384 | 432 | 478 | 607 | 659 | 709 |
| | | EER | kW/kW | 3,13 | 3,08 | 3,00 | 3,16 | 3,03 | 2,93 | 3,13 | 3,20 | 2,97 |
| LX HE standard Seasonal energy efficiency** | | SEER 12/17 °C Comfort low temp. | kWh/kWh | 4,47 | 4,46 | 4,40 | 4,33 | 4,56 | 4,55 | 4,55 | 4,62 | 4,56 |
| | | ηs cool 12/17 °C | % | 176 | 175 | 173 | 170 | 179 | 179 | 179 | 182 | 179 |
| | | SEPR 12/17 °C Process high temp. | kWh/kWh | 5,70 | 5,69 | 5,65 | 5,78 | 5,72 | 5,74 | 5,68 | 5,79 | 5,63 |
| LX HE with medium-temperature brine solution option Seasonal energy efficiency** | | SEPR -2/-8 °C Process medium temp.*** | kWh/kWh | 2,72 | 3,02 | 3,18 | 2,81 | 3,51 | 3,56 | 3,65 | 3,67 | 3,44 |
| | | | | | | | | | | | | |
| LX HE with variable water flow control option Seasonal energy efficiency** | | SEER 12/17 °C Comfort low temp. | kWh/kWh | 4,47 | 4,47 | 4,43 | 4,49 | - | - | - | - | - |
| | | ηs cool 12/17 °C | % | 176 | 176 | 174 | 177 | - | - | - | - | - |
| | | SEPR 12/17 °C Process high temp. | kWh/kWh | 5,72 | 5,71 | 5,68 | 5,83 | - | - | - | - | - |
| LX HE with low-temperature brine solution option Seasonal energy efficiency** | | SEPR -2/-8 °C Process medium temp.*** | kWh/kWh | 3,29 | 3,46 | 3,52 | 3,26 | 3,42 | 3,50 | 3,50 | 3,62 | 3,38 |
| | | | | | | | | | | | | |
| LX HE with Xtra & Super Low Noise option Seasonal energy efficiency** | | SEER 12/17 °C Comfort low temp. | kWh/kWh | 4,49 | 4,48 | 4,41 | 4,33 | 4,56 | 4,57 | 4,56 | 4,62 | 4,56 |
| | | ηs cool 12/17 °C | % | 176 | 176 | 173 | 170 | 179 | 180 | 179 | 182 | 179 |
| | | SEPR 12/17 °C Process high temp. | kWh/kWh | 5,82 | 5,88 | 5,79 | 5,57 | 5,70 | 5,79 | 5,92 | 5,93 | 5,79 |
| LX HE with medium-temperature brine solution, Xtra & super low noise options Seasonal energy efficiency** | | SEPR -2/-8 °C Process medium temp.*** | kWh/kWh | 2,75 | 3,10 | 3,29 | 2,83 | 3,54 | 3,67 | 3,79 | 3,82 | 3,55 |
| | | | | | | | | | | | | |
| LX HE with variable water flow control option & Xtra & super low noise Seasonal energy efficiency** | | SEER 12/17 °C Comfort low temp. | kWh/kWh | 4,47 | 4,47 | 4,42 | 4,47 | - | - | - | - | - |
| | | ηs cool 12/17 °C | % | 176 | 176 | 174 | 176 | - | - | - | - | - |
| | | SEPR 12/17 °C Process high temp. | kWh/kWh | 5,84 | 5,91 | 5,82 | 5,61 | - | - | - | - | - |
| LX HE with low-temperature brine solution, Xtra & super low noise options Seasonal energy efficiency** | | SEPR -2/-8 °C Process medium temp.*** | kWh/kWh | 3,35 | 3,58 | 3,71 | 3,38 | 3,64 | 3,61 | 3,63 | 3,78 | 3,50 |
| | | | | | | | | | | | | |
| Sound levels | | | | | | | | | | | | |
| LX HE | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 99 | 99 | 99 | 99 | 101 | 99 | 101 | 99 | 103 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 67 | 67 | 67 | 67 | 69 | 67 | 68 | 66 | 70 |
| LX HE + Low Noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 93 | 93 | 94 | 95 | 95 | 95 | 97 | 96 | 97 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 61 | 61 | 62 | 63 | 63 | 63 | 64 | 63 | 64 |
| LX HE + Xtra low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 87 | 87 | 87 | 90 | 91 | 91 | 93 | 92 | 94 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 55 | 55 | 55 | 58 | 59 | 59 | 60 | 59 | 61 |
| LX HE + Super low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | - | - | - | - | 89 | 89 | 91 | 90 | 91 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | - | - | - | - | 57 | 57 | 58 | 57 | 58 |

| | |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * | In accordance with standard EN14511-3:2022. |
| ** | In accordance with standard EN14825:2022, average climate |
| *** | 30 % brine solution |
| CA1 | Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m ² . kW/W |
| ηs cool 12/7 °C & SEER 12/7 °C | Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Comfort application |
| SEPR 12/7 °C | Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Process application |
| SEPR -2/-8 °C | Bold values compliant to Ecodesign Regulation (EU) No. 2015/1095 for Process application |
| - | Non applicable |
| (1) | In dB ref=10 ⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent. |
| (2) | In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A). |



Eurovent certified values

TECHNICAL SPECIFICATIONS



| POWERCIAAT™ LX HE | | 0808 | 0908 | 1008 | 1108 | 1358 | 1528 | 1858 | 2008 | 2158 |
|-------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|-------|-------|-------|
| Dimensions | | | | | | | | | | |
| LX HE | | | | | | | | | | |
| Length | mm | 3604 | 3604 | 3604 | 4798 | 4798 | 4798 | 7186 | 7186 | 7186 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 |
| Operating weight⁽³⁾ | | | | | | | | | | |
| LX HE standard | kg | 3081 | 3112 | 3132 | 3729 | 3791 | 3852 | 4878 | 5024 | 5282 |
| LX HE Unit + Low noise option | kg | 3349 | 3380 | 3400 | 4028 | 4090 | 4151 | 5209 | 5355 | 5613 |
| Compressors | | 06T semi-hermetic screw, 50 r/s | | | | | | | | |
| Circuit A | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant⁽³⁾ | | R134a | | | | | | | | |
| Circuit A | kg | 39 | 37 | 37 | 52 | 53 | 55 | 60 | 61 | 69 |
| | tCO ₂ e | 55,8 | 52,9 | 52,9 | 74,4 | 75,8 | 77,9 | 85,8 | 87,2 | 98,0 |
| Circuit B | kg | 40,0 | 38 | 39 | 40,0 | 40 | 37,0 | 61 | 64 | 61 |
| | tCO ₂ e | 57,2 | 54,3 | 55,8 | 57,2 | 57,2 | 52,9 | 87,2 | 91,5 | 86,5 |
| Oil | | | | | | | | | | |
| Circuit A | l | 20,8 | 20,8 | 20,8 | 23,5 | 23,5 | 23,5 | 23,5 | 23,5 | 27,6 |
| Circuit B | l | 20,8 | 20,8 | 20,8 | 20,8 | 20,8 | 20,8 | 23,5 | 23,5 | 23,5 |
| Capacity control | | Connect Touch, electronic expansion valve (EXV) | | | | | | | | |
| Minimum capacity | % | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Air-cooled exchanger | | Aluminium micro-channel coils (MCHE) | | | | | | | | |
| Fans | | | | | | | | | | |
| LX HE | | Axial type, with rotating impeller, FLYING-BIRD 6 | | | | | | | | |
| Quantity | | 6 | 6 | 6 | 8 | 8 | 8 | 11 | 12 | 12 |
| Maximum total air flow | l/s | 28920 | 28920 | 28920 | 38560 | 38560 | 38560 | 53020 | 57840 | 57840 |
| Maximum rotation speed | r/s | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 |
| LX HE Unit + Xtra Low Noise option | | | | | | | | | | |
| Maximum total air flow | l/s | 23580 | 23580 | 23580 | 31440 | 31440 | 31440 | 43230 | 47160 | 47160 |
| Maximum rotation speed | r/s | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 |
| Exchanger | | Flooded multi-pipe type | | | | | | | | |
| Water volume | l | 58 | 61 | 61 | 66 | 70 | 77 | 79 | 94 | 98 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydraulic module (option) | | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | | | | |
| Pump | | Centrifugal pump, monocell, 48.3 r/s, low- or high-pressure (as required), single or dual (as required) | | | | | | | | |
| Expansion vessel volume | l | 50 | 50 | 50 | 50 | 50 | 80 | | | |
| Max. water-side operating pressure with hydraulic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 | | | |
| Water connections with or without hydraulic module | | Victaulic® type | | | | | | | | |
| Connections | inch | 5 or 4 | 5 or 4 | 5 or 4 | 5 or 4 | 5 or 4 | 5 or 4 | 5 | 6 | 6 |
| External diameter ⁽⁴⁾ | mm | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 141,3 | 168,3 | 168,3 |
| Casing paintwork | | Colour code RAL 7035 & RAL 7024 | | | | | | | | |

- (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power L_w(A).
- (3) Values are guidelines only. Refer to the unit name plate.
- (4) Depends on the number of passes on the evaporator



Eurovent certified values

TECHNICAL SPECIFICATIONS



| POWERCIAT™ LX HE | | | | 2308 | 2528 | 2628 | 3028 | 3428 | 3828 | 4008 | 4408 | 4608 |
|--------------------------------------------------------------------------------------------------------------|-----|---------------------------------------|---------|------|------|------|------|------|------|------|------|------|
| Cooling | | | | | | | | | | | | |
| LX HE standard Full load performances* | CA1 | Nominal capacity | kW | 782 | 825 | 899 | 983 | 1143 | 1262 | 1330 | 1441 | 1512 |
| | | EER | kW/kW | 3,10 | 3,08 | 3,12 | 3,17 | 3,22 | 3,19 | 3,16 | 3,05 | 3,07 |
| LX HE with Xtra & Super Low Noise option Full load performances* | CA1 | Nominal capacity | kW | 757 | 795 | 878 | 969 | 1113 | 1226 | 1290 | 1392 | 1464 |
| | | EER | kW/kW | 2,93 | 2,89 | 2,99 | 3,03 | 3,11 | 3,05 | 2,98 | 2,82 | 2,89 |
| LX HE standard Seasonal energy efficiency** | | SEER 12/7 °C Comfort low temp. | kWh/kWh | 4,55 | 4,56 | 4,56 | 4,60 | 4,58 | 4,61 | 4,55 | 4,55 | 4,55 |
| | | ηs cool 12/7 °C | % | 179 | 179 | 179 | 181 | 180 | 181 | 179 | 179 | 179 |
| | | SEPR 12/7 °C Process high temp. | kWh/kWh | NA | 5,55 | 5,54 | 5,83 | 5,76 | 5,71 | 5,68 | 5,56 | NA |
| LX HE with medium-temperature brine solution option Seasonal energy efficiency** | | SEPR -2/-8°C Process medium temp.*** | kWh/kWh | 3,35 | 3,53 | 3,44 | 3,55 | 3,52 | 3,47 | 3,60 | 3,63 | NA |
| | | | | | | | | | | | | |
| LX HE with variable water flow control option Seasonal energy efficiency** | | SEER 12/7 °C Comfort low temp. | kWh/kWh | - | - | - | - | - | - | - | - | - |
| | | ηs cool 12/7 °C | % | - | - | - | - | - | - | - | - | - |
| | | SEPR 12/7 °C Process high temp. | kWh/kWh | - | - | - | - | - | - | - | - | - |
| LX HE with low-temperature brine solution option Seasonal energy efficiency** | | SEPR -2/-8 °C Process medium temp.*** | kWh/kWh | 3,34 | 3,47 | 3,39 | 3,47 | 3,29 | 2,63 | 3,45 | 3,53 | NA |
| | | | | | | | | | | | | |
| LX HE with Xtra & Super Low Noise option Seasonal energy efficiency** | | SEER 12/7 °C Comfort low temp. | kWh/kWh | 4,58 | 4,56 | 4,57 | 4,56 | 4,60 | 4,62 | 4,59 | 4,56 | 4,55 |
| | | ηs cool 12/7 °C | % | 180 | 179 | 180 | 179 | 181 | 182 | 181 | 179 | 179 |
| | | SEPR 12/7 °C Process high temp. | kWh/kWh | 5,72 | 5,80 | 5,76 | 5,88 | 5,90 | 5,81 | 5,71 | 5,68 | 5,52 |
| LX HE with medium-temperature brine solution, Xtra & super low noise options Seasonal energy efficiency** | | SEPR -2/-8°C Process medium temp.*** | kWh/kWh | 3,57 | 3,66 | 3,55 | 3,78 | 3,61 | 3,31 | 3,22 | 3,27 | 3,28 |
| | | | | | | | | | | | | |
| LX HE with variable water flow control option & Xtra & super low noise Seasonal energy efficiency** | | SEER 12/7 °C Comfort low temp. | kWh/kWh | - | - | - | - | - | - | - | - | - |
| | | ηs cool 12/7 °C | % | - | - | - | - | - | - | - | - | - |
| | | SEPR 12/7 °C Process high temp. | kWh/kWh | - | - | - | - | - | - | - | - | - |
| LX HE with low-temperature brine solution, Xtra & super low noise options Seasonal energy efficiency** | | SEPR -2/-8 °C Process medium temp.*** | kWh/kWh | 3,55 | 3,59 | 3,47 | 3,70 | 3,58 | 3,44 | 3,67 | 3,67 | 3,45 |
| | | | | | | | | | | | | |
| Sound levels | | | | | | | | | | | | |
| LX HE | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 103 | 101 | 104 | 102 | 103 | 102 | 104 | 104 | 104 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 70 | 68 | 71 | 69 | 70 | 69 | 71 | 71 | 71 |
| LX HE + Low Noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 98 | 97 | 99 | 98 | 98 | 98 | 100 | 99 | 99 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 65 | 64 | 66 | 65 | 65 | 65 | 67 | 66 | 66 |
| LX HE + Xtra low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 94 | 94 | 95 | 94 | 94 | 94 | 99 | 95 | 96 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 61 | 61 | 62 | 61 | 61 | 61 | 66 | 62 | 63 |
| LX HE + Super low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 92 | 91 | 93 | 92 | 93 | 93 | 97 | 94 | 95 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 59 | 58 | 60 | 59 | 60 | 60 | 64 | 61 | 62 |

* In accordance with standard EN14511-3:2022.

** In accordance with standard EN14825:2022, average climate

*** 30 % brine solution

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². k/W

ηs cool 12/7 °C & SEER 12/7 °C **Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Comfort application**

SEPR 12/7 °C **Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Process application**

SEPR -2/-8 °C **Bold values compliant to Ecodesign Regulation (EU) No. 2015/1095 for Process application**

NA Not authorised for the specific application for the CEE market

- Non applicable

(1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values

TECHNICAL SPECIFICATIONS



| POWERCIAAT™ LX HE | | 2308 | 2528 | 2628 | 3028 | 3428 | 3828 | 4008 | 4408 | 4608 |
|-------------------------------------------------------------|--------------------|---------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|
| Dimensions | | | | | | | | | | |
| LX HE | | | | | | | | | | |
| Length | mm | 7186 | 7186 | 8380 | 9574 | 11962 | 11962 | 11962 | 11962 | 13157 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 |
| Operating weight⁽³⁾ | | | | | | | | | | |
| LX HE standard | kg | 5594 | 5643 | 6262 | 6772 | 8061 | 8202 | 8793 | 8868 | 9218 |
| LX HE Unit + Low noise option | kg | 5925 | 5974 | 6593 | 7103 | 8435 | 8576 | 9167 | 9242 | 9592 |
| Compressors | | 06T semi-hermetic screw, 50 r/s | | | | | | | | |
| Circuit A | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant⁽³⁾ | | R134a | | | | | | | | |
| Circuit A | kg | 69 | 69 | 72 | 79 | 82 | 84 | 115 | 121 | 124 |
| | tCO ₂ e | 98,7 | 98,7 | 103,0 | 113,0 | 117,3 | 120,1 | 164,5 | 173,0 | 177,3 |
| Circuit B | kg | 67 | 67 | 74 | 83 | 118 | 130 | 121 | 127 | 130 |
| | tCO ₂ e | 95,8 | 95,8 | 105,8 | 118,7 | 168,7 | 185,9 | 173,0 | 181,6 | 185,9 |
| Oil | | | | | | | | | | |
| Circuit A | l | 27,6 | 27,6 | 27,6 | 27,6 | 27,6 | 27,6 | 36,0 | 36,0 | 36,0 |
| Circuit B | l | 23,5 | 23,5 | 27,6 | 27,6 | 36,0 | 36,0 | 36,0 | 36,0 | 36,0 |
| Capacity control | | Connect Touch, electronic expansion valve (EXV) | | | | | | | | |
| Minimum capacity | % | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Air-cooled exchanger | | Aluminium micro-channel coils (MCHE) | | | | | | | | |
| Fans | | Axial type, with rotating impeller, FLYING-BIRD 6 | | | | | | | | |
| LX HE | | | | | | | | | | |
| Quantity | | 12 | 12 | 14 | 16 | 20 | 20 | 20 | 20 | 22 |
| Maximum total air flow | l/s | 57840 | 57840 | 67480 | 77120 | 96400 | 96400 | 96400 | 96400 | 106040 |
| Maximum rotation speed | r/s | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 |
| LX HE Unit + Xtra Low Noise option | | | | | | | | | | |
| Maximum total air flow | l/s | 47160 | 47160 | 55020 | 62880 | 78600 | 78600 | 78600 | 78600 | 86460 |
| Maximum rotation speed | r/s | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 |
| Exchanger | | Flooded multi-pipe type | | | | | | | | |
| Water volume | l | 119 | 119 | 130 | 140 | 164 | 174 | 180 | 189 | 189 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Water connections with or without hydraulic module | | Victaulic® type | | | | | | | | |
| Connections | inch | 6 | 6 | 6 | 8 | 6 | 6 | 6 | 6 | 6 |
| External diameter | mm | 168,3 | 168,3 | 168,3 | 219,1 | 168,3 | 168,3 | 168,3 | 168,3 | 168,3 |
| Casing paintwork | | Colour code RAL 7035 & RAL 7024 | | | | | | | | |

- (1) In dB ref=10⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power L_w(A).
- (3) Values are guidelines only. Refer to the unit name plate.
- (4) Depends on the number of passes on the evaporator



Eurovent certified values

TECHNICAL SPECIFICATIONS



| POWERCIAT™ LX XE | | | | 0808 | 0908 | 1008 | 1108 | 1358 | 1528 | 1858 | 2008 | 2158 | |
|------------------------------------------------------------------------------------------------------|-----|--------------------------------------|---------|-------|------|------|------|------|------|------|------|------|-----|
| Cooling | | | | | | | | | | | | | |
| LX XE standard Full load performances* | CA1 | Nominal capacity | kW | 277 | 301 | 323 | 392 | 445 | 500 | 623 | 677 | 730 | |
| | | EER | kW/kW | 3,21 | 3,18 | 3,14 | 3,23 | 3,16 | 3,23 | 3,27 | 3,34 | 3,14 | |
| LX XE with Xtra Low Noise option Full load performances* | CA1 | Nominal capacity | kW | 271 | 293 | 313 | 384 | 432 | 486 | 607 | 659 | 709 | |
| | | EER | kW/kW | 3,17 | 3,11 | 3,03 | 3,20 | 3,05 | 3,13 | 3,16 | 3,23 | 2,99 | |
| LX XE standard Seasonal energy efficiency** | | SEER 12/17 °C Comfort low temp. | kWh/kWh | 4,66 | 4,64 | 4,55 | 4,50 | 4,62 | 4,67 | 4,66 | 4,77 | 4,61 | |
| | | ηs cool 12/17 °C | % | 183 | 183 | 179 | 177 | 182 | 184 | 183 | 188 | 181 | |
| | | SEPR 12/17 °C Process high temp. | kWh/kWh | 6,12 | 6,16 | 6,11 | 6,06 | 6,01 | 6,13 | NA | 6,18 | 5,81 | |
| LX XE with medium-temperature brine solution option Seasonal energy efficiency** | | SEPR-2/-8 °C Process medium temp.*** | kWh/kWh | 2,86 | 3,26 | 3,39 | 2,97 | 3,67 | 3,80 | 3,84 | 4,02 | 3,61 | |
| | | | | | | | | | | | | | |
| LX XE with variable water flow control option Seasonal energy efficiency** | | SEER 12/17 °C Comfort low temp. | kWh/kWh | 4,59 | 4,57 | 4,52 | 4,61 | - | - | - | - | - | |
| | | ηs cool 12/17 °C | % | 180 | 180 | 178 | 181 | - | - | - | - | - | |
| | | SEPR 12/17 °C Process high temp. | kWh/kWh | 6,13 | 6,18 | 6,15 | 6,10 | - | - | - | - | - | |
| LX XE with low-temperature brine solution option Seasonal energy efficiency** | | SEPR -2/-8°C Process medium temp.*** | kWh/kWh | 3,51 | 3,72 | 3,78 | 3,64 | 3,62 | 3,72 | 3,68 | 3,96 | 3,55 | |
| | | | | | | | | | | | | | |
| LX XE with Xtra Low Noise option Seasonal energy efficiency** | | SEER 12/17 °C Comfort low temp. | kWh/kWh | 4,67 | 4,67 | 4,56 | 4,49 | 4,59 | 4,64 | 4,65 | 4,78 | 4,60 | |
| | | ηs cool 12/17 °C | % | 184 | 184 | 179 | 176 | 181 | 183 | 183 | 188 | 181 | |
| | | SEPR 12/17 °C Process high temp. | kWh/kWh | 6,09 | 6,18 | 6,08 | 5,88 | 5,90 | 6,11 | 6,07 | 6,23 | 5,85 | |
| LX XE with medium-temperature brine solution, Xtra low noise options Seasonal energy efficiency** | | SEPR-2/-8 °C Process medium temp.*** | kWh/kWh | 2,85 | 3,25 | 3,42 | 2,94 | 3,64 | 3,70 | 3,93 | 3,97 | 3,64 | |
| | | | | | | | | | | | | | |
| LX XE with variable water flow control option & Xtra low noise Seasonal energy efficiency** | | SEER 12/17 °C Comfort low temp. | kWh/kWh | 4,59 | 4,59 | 4,51 | 4,58 | - | - | - | - | - | |
| | | ηs cool 12/17 °C | % | 181 | 181 | 177 | 180 | - | - | - | - | - | |
| | | SEPR 12/17 °C Process high temp. | kWh/kWh | 6,11 | 6,20 | 6,11 | 5,91 | - | - | - | - | - | |
| LX XE with low-temperature brine solution, Xtra low noise options Seasonal energy efficiency** | | SEPR-2/-8 °C Process medium temp.*** | kWh/kWh | 3,47 | 3,74 | 3,89 | 3,52 | 3,75 | 3,79 | 3,77 | 3,93 | 3,59 | |
| | | | | | | | | | | | | | |
| Sound levels | | | | | | | | | | | | | |
| LX XE | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | | dB(A) | 99 | 99 | 99 | 99 | 101 | 99 | 101 | 99 | 103 |
| Sound pressure at 10 m ⁽²⁾ | | | | dB(A) | 67 | 67 | 67 | 67 | 69 | 67 | 68 | 67 | 70 |
| LX XE + low noise option | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | | dB(A) | 93 | 93 | 94 | 95 | 95 | 95 | 97 | 96 | 97 |
| Sound pressure at 10 m ⁽²⁾ | | | | dB(A) | 61 | 61 | 62 | 63 | 63 | 63 | 65 | 63 | 64 |
| LX XE + Xtra low noise option | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | | dB(A) | 87 | 87 | 87 | 90 | 91 | 91 | 93 | 92 | 94 |
| Sound pressure at 10 m ⁽²⁾ | | | | dB(A) | 55 | 55 | 55 | 58 | 59 | 59 | 60 | 59 | 61 |
| LX HE + Super low noise option | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | | dB(A) | - | - | - | - | 89 | 89 | 91 | 90 | 91 |
| Sound pressure at 10 m ⁽²⁾ | | | | dB(A) | - | - | - | - | 56 | 56 | 57 | 56 | 58 |

| | |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * | In accordance with standard EN14511-3:2022. |
| ** | In accordance with standard EN14825:2022, average climate |
| *** | 30 % brine solution |
| CA1 | Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m ² . k/W |
| η _s cool _{12/7 °C} & SEER _{12/7 °C} | Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Comfort application |
| SEPR _{12/7 °C} | Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Process application |
| SEPR _{2/-8 °C} | Bold values compliant to Ecodesign Regulation (EU) No. 2015/1095 for Process application |
| NA | Not authorised for the specific application for the CEE market |
| - | Non applicable |
| (1) | In dB ref=10 ⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent. |
| (2) | In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power L _w (A). |



Eurovent certified values

TECHNICAL SPECIFICATIONS



| POWERCIAAT™ LX XE | | 0808 | 0908 | 1008 | 1108 | 1358 | 1528 | 1858 | 2008 | 2158 |
|-------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|-------|-------|-------|
| Dimensions | | | | | | | | | | |
| Standard unit | | | | | | | | | | |
| Length | mm | 3604 | 3604 | 3604 | 4798 | 4798 | 5992 | 7186 | 7186 | 7186 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 |
| Operating weight⁽³⁾ | | | | | | | | | | |
| LX XE standard | kg | 3040 | 3071 | 3090 | 3683 | 3746 | 4091 | 4807 | 4941 | 5208 |
| LX XE + low noise option | kg | 3308 | 3339 | 3358 | 3982 | 4045 | 4390 | 5138 | 5272 | 5539 |
| Compressors | | 06T semi-hermetic screw, 50 r/s | | | | | | | | |
| Circuit A | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant⁽³⁾ | | R134a | | | | | | | | |
| Circuit A | kg | 39 | 37 | 37 | 52 | 53 | 59 | 60 | 61 | 69 |
| | tCO ₂ e | 55,8 | 52,9 | 52,9 | 74,4 | 75,8 | 83,7 | 85,8 | 87,2 | 98,0 |
| Circuit B | kg | 40 | 38 | 39 | 40 | 40 | 36 | 61 | 64 | 61 |
| | tCO ₂ e | 57,2 | 54,3 | 55,8 | 57,2 | 57,2 | 51,5 | 87,2 | 91,5 | 86,5 |
| Oil | | | | | | | | | | |
| Circuit A | l | 20,8 | 20,8 | 20,8 | 23,5 | 23,5 | 23,5 | 23,5 | 23,5 | 27,6 |
| Circuit B | l | 20,8 | 20,8 | 20,8 | 20,8 | 20,8 | 20,8 | 23,5 | 23,5 | 23,5 |
| Capacity control | | Connect Touch, electronic expansion valve (EXV) | | | | | | | | |
| Minimum capacity | % | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Air-cooled exchanger | | Aluminium micro-channel coils (MCHE) | | | | | | | | |
| Fans | | | | | | | | | | |
| LX XE | | Axial type, with rotating impeller | | | | | | | | |
| Quantity | | 6 | 6 | 6 | 8 | 8 | 9 | 11 | 12 | 12 |
| Maximum total air flow | l/s | 28920 | 28920 | 28920 | 38560 | 38560 | 43380 | 53020 | 57840 | 57840 |
| Maximum rotation speed | r/s | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 |
| LX XE + Xtra low noise option | | | | | | | | | | |
| Maximum total air flow | l/s | 23580 | 23580 | 23580 | 31440 | 31440 | 35370 | 43230 | 47160 | 47160 |
| Maximum rotation speed | r/s | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 |
| Exchanger | | Flooded multi-pipe type | | | | | | | | |
| Water volume | l | 58 | 61 | 61 | 66 | 70 | 77 | 79 | 94 | 98 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydraulic module (option) | | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors | | | | | | | | |
| Pump | | Centrifugal pump, monocell, 48.3 r/s, low- or high-pressure (as required), single or dual (as required) | | | | | | | | |
| Expansion vessel volume | l | 50 | 50 | 50 | 50 | 50 | 80 | | | |
| Max. water-side operating pressure with hydraulic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 | | | |
| Water connections with or without hydraulic module | | Victaulic® type | | | | | | | | |
| Connections | inch | 5 or 4 | 5 or 4 | 5 or 4 | 5 or 4 | 5 or 4 | 5 or 4 | 5 | 6 | 6 |
| External diameter | mm | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 114,3 or 141,3 | 141,3 | 168,3 | 168,3 |
| Casing paintwork | | Colour code RAL 7035 & RAL 7024 | | | | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.

TECHNICAL SPECIFICATIONS



| POWERCIAT™ LX XE | | | | 2308 | 2528 | 2628 | 3028 | 3428 | 3828 | 4008 | 4408 | 4608 |
|------------------------------------------------------------------------------------------------------|-----|--------------------------------------|---------|------|------|------|------|------|------|------|------|------|
| Cooling | | | | | | | | | | | | |
| LX XE standard Full load performances* | CA1 | Nominal capacity | kW | 782 | 837 | 899 | 982 | 1143 | 1262 | 1330 | 1441 | 1512 |
| | | EER | kW/kW | 3,13 | 3,27 | 3,15 | 3,21 | 3,28 | 3,24 | 3,20 | 3,08 | 3,11 |
| LX XE with Xtra Low Noise option Full load performances* | CA1 | Nominal capacity | kW | 757 | 813 | 872 | 969 | 1113 | 1227 | 1290 | 1391 | 1466 |
| | | EER | kW/kW | 2,95 | 3,13 | 2,98 | 3,06 | 3,16 | 3,06 | 3,01 | 2,84 | 2,91 |
| LX XE standard Seasonal energy efficiency** | | SEER 12/7 °C Comfort low temp. | kWh/kWh | 4,58 | 4,68 | 4,61 | 4,69 | 4,70 | 4,72 | 4,62 | 4,63 | 4,62 |
| | | ηs cool 12/7 °C | % | 180 | 184 | 181 | 185 | 185 | 186 | 182 | 182 | 182 |
| | | SEPR 12/7 °C Process high temp. | kWh/kWh | 5,69 | 5,96 | 5,84 | 5,83 | 5,90 | 5,87 | 5,99 | 5,65 | 6,16 |
| LX XE with medium-temperature brine solution option Seasonal energy efficiency** | | SEPR-2/-8 °C Process medium temp.*** | kWh/kWh | 3,63 | 3,83 | 3,67 | 3,66 | 3,77 | 3,66 | 3,70 | 3,72 | 3,24 |
| LX XE with variable water flow control option Seasonal energy efficiency** | | SEER 12/7 °C Comfort low temp. | kWh/kWh | - | - | - | - | - | - | - | - | - |
| | | ηs cool 12/7 °C | % | - | - | - | - | - | - | - | - | - |
| | | SEPR 12/7 °C Process high temp. | kWh/kWh | - | - | - | - | - | - | - | - | - |
| LX XE with low-temperature brine solution option Seasonal energy efficiency** | | SEPR -2/-8°C Process medium temp.*** | kWh/kWh | 3,61 | 3,75 | 3,64 | 3,58 | 3,45 | 3,73 | 3,59 | 3,69 | 3,42 |
| LX XE with Xtra Low Noise option Seasonal energy efficiency** | | SEER 12/7 °C Comfort low temp. | kWh/kWh | 4,57 | 4,66 | 4,58 | 4,67 | 4,68 | 4,70 | 4,57 | 4,56 | 4,56 |
| | | ηs cool 12/7 °C | % | 180 | 183 | 180 | 184 | 184 | 185 | 180 | 179 | 179 |
| | | SEPR 12/7 °C Process high temp. | kWh/kWh | 5,85 | 5,97 | 5,87 | 5,91 | 6,17 | 6,12 | 5,98 | 5,77 | 5,98 |
| LX XE with medium-temperature brine solution, Xtra low noise options Seasonal energy efficiency** | | SEPR-2/-8 °C Process medium temp.*** | kWh/kWh | 3,68 | 3,75 | 3,65 | 3,72 | 3,55 | 3,49 | 3,41 | 3,45 | 3,46 |
| LX XE with variable water flow control option & Xtra low noise Seasonal energy efficiency** | | SEER 12/7 °C Comfort low temp. | kWh/kWh | - | - | - | - | - | - | - | - | - |
| | | ηs cool 12/7 °C | % | - | - | - | - | - | - | - | - | - |
| | | SEPR 12/7 °C Process high temp. | kWh/kWh | - | - | - | - | - | - | - | - | - |
| LX XE with low-temperature brine solution, Xtra low noise options Seasonal energy efficiency** | | SEPR-2/-8 °C Process medium temp.*** | kWh/kWh | 3,67 | 3,69 | 3,64 | 3,65 | 3,69 | 3,70 | 3,93 | 3,87 | 3,50 |
| Sound levels | | | | | | | | | | | | |
| LX XE | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 103 | 101 | 104 | 102 | 103 | 102 | 104 | 104 | 104 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 70 | 68 | 71 | 69 | 70 | 69 | 71 | 71 | 71 |
| LX XE + low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 98 | 97 | 99 | 98 | 98 | 98 | 100 | 99 | 99 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 65 | 64 | 66 | 65 | 65 | 65 | 67 | 66 | 66 |
| LX XE + Xtra low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 94 | 94 | 95 | 94 | 94 | 94 | 99 | 95 | 96 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 61 | 61 | 62 | 61 | 61 | 61 | 66 | 62 | 63 |
| LX HE + Super low noise option | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 92 | 91 | 93 | 92 | 93 | 93 | 97 | 94 | 95 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 59 | 58 | 60 | 59 | 60 | 60 | 64 | 61 | 62 |

| | |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * | In accordance with standard EN14511-3:2022. |
| ** | In accordance with standard EN14825:2022, average climate |
| *** | 30 % brine solution |
| CA1 | Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m ² . k/W |
| ηs cool 12/7 °C & SEER 12/7 °C | Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Comfort application |
| SEPR 12/7 °C | Bold values compliant to Ecodesign Regulation (EU) No. 2016/2281 for Process application |
| SEPR -2/-8 °C | Bold values compliant to Ecodesign Regulation (EU) No. 2015/1095 for Process application |
| - | Non applicable |
| (1) | In dB ref=10 ⁻¹² W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent. |
| (2) | In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A). |
| NA | Not authorised for the specific application for the CEE market |



Eurovent certified values

TECHNICAL SPECIFICATIONS



| POWERCIAAT™ LX XE | | 2308 | 2528 | 2628 | 3028 | 3428 | 3828 | 4008 | 4408 | 4608 |
|-------------------------------------------------------------|--------------------|---------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|
| Dimensions | | | | | | | | | | |
| Standard unit | | | | | | | | | | |
| Length | mm | 7186 | 8380 | 8380 | 9574 | 11962 | 11962 | 11962 | 11962 | 13157 |
| Width | mm | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height | mm | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 |
| Operating weight⁽³⁾ | | | | | | | | | | |
| LX XE standard | kg | 5520 | 5889 | 6172 | 6668 | 7945 | 8082 | 8698 | 8773 | 9087 |
| LX XE + low noise option | kg | 5851 | 6220 | 6503 | 6999 | 8319 | 8456 | 9072 | 9147 | 9461 |
| Compressors | | 06T semi-hermetic screw, 50 r/s | | | | | | | | |
| Circuit A | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant⁽³⁾ | | R134a | | | | | | | | |
| Circuit A | kg | 69 | 75 | 72 | 79 | 82 | 84 | 115 | 121 | 124 |
| | tCO ₂ e | 98,7 | 107,3 | 103,0 | 113,0 | 117,3 | 120,1 | 164,5 | 173,0 | 177,3 |
| Circuit B | kg | 67 | 67 | 74 | 83 | 118 | 130 | 121 | 127 | 130 |
| | tCO ₂ e | 95,8 | 95,8 | 105,8 | 118,7 | 168,7 | 185,9 | 173,0 | 181,6 | 185,9 |
| Oil | | | | | | | | | | |
| Circuit A | l | 27,6 | 27,6 | 27,6 | 27,6 | 27,6 | 27,6 | 36,0 | 36,0 | 36,0 |
| Circuit B | l | 23,5 | 23,5 | 27,6 | 27,6 | 36,0 | 36,0 | 36,0 | 36,0 | 36,0 |
| Capacity control | | Connect Touch, electronic expansion valve (EXV) | | | | | | | | |
| Minimum capacity | % | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Air-cooled exchanger | | Aluminium micro-channel coils (MCHE) | | | | | | | | |
| Fans | | Axial type, with rotating impeller, FLYING-BIRD 6 | | | | | | | | |
| LX XE | | | | | | | | | | |
| Quantity | | 12 | 14 | 14 | 16 | 20 | 20 | 20 | 20 | 22 |
| Maximum total air flow | l/s | 57840 | 67480 | 67480 | 77120 | 96400 | 96400 | 96400 | 96400 | 106040 |
| Maximum rotation speed | r/s | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 | 15,7 |
| LX XE + Xtra low noise option | | | | | | | | | | |
| Maximum total air flow | l/s | 47160 | 55020 | 55020 | 62880 | 78600 | 78600 | 78600 | 78600 | 86460 |
| Maximum rotation speed | r/s | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 | 11,7 |
| Exchanger | | Flooded multi-pipe type | | | | | | | | |
| Water volume | l | 119 | 119 | 130 | 140 | 164 | 174 | 180 | 189 | 189 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Water connections with or without hydraulic module | | Victaulic® type | | | | | | | | |
| Connections | inch | 6 | 6 | 6 | 8 | 6 | 6 | 6 | 6 | 6 |
| External diameter | mm | 168,3 | 168,3 | 168,3 | 219,1 | 168,3 | 168,3 | 168,3 | 168,3 | 168,3 |
| Casing paintwork | | Colour code RAL 7035 & RAL 7024 | | | | | | | | |

(3) Values are guidelines only. Refer to the unit name plate.

TECHNICAL SPECIFICATIONS

Basic unit (excluding pump)

| POWERCIAT™ LX HE | | 0808 | 0908 | 1008 | 1108 | 1358 | 1528 | 1858 | 2008 | 2158 | 2308 | 2528 | 2628 | 3028 |
|--------------------------------------------------------------------------|---------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Power circuit supply | | | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | | | | | | | | | |
| Maximum operating input power⁽¹⁾ - LX HE | | | | | | | | | | | | | | |
| Standard unit | kW | 127 | 138 | 148 | 174 | 194 | 212 | 260 | 280 | 310 | 329 | 359 | 381 | 446 |
| Unit + Xtra / Super Low Noise option | kW | 122 | 132 | 143 | 166 | 186 | 205 | 250 | 269 | 300 | 318 | 349 | 369 | 432 |
| Power factor at maximum power⁽²⁾ - LX HE | | | | | | | | | | | | | | |
| Displacement Power Factor (Cos Phi) | | 0,90 | 0,90 | 0,89 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,88 | 0,89 |
| Displacement Power Factor (Cos Phi) unit + Xtra / Super Low noise option | | 0,90 | 0,90 | 0,89 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,88 | 0,89 |
| Nominal unit current draw⁽³⁾ - LX HE | | | | | | | | | | | | | | |
| Standard unit | A | 148 | 164 | 180 | 207 | 238 | 259 | 320 | 345 | 396 | 417 | 433 | 495 | 533 |
| Unit + Xtra / Super Low Noise option | A | 138 | 154 | 170 | 195 | 226 | 247 | 304 | 326 | 377 | 398 | 414 | 473 | 509 |
| Maximum operating current draw (Un)⁽¹⁾ - LX HE | | | | | | | | | | | | | | |
| Standard unit | A | 204 | 222 | 240 | 279 | 312 | 342 | 417 | 449 | 504 | 534 | 580 | 625 | 723 |
| Unit + Xtra / Super Low Noise option | A | 195 | 213 | 231 | 267 | 300 | 330 | 401 | 432 | 487 | 517 | 563 | 605 | 700 |
| Maximum current (Un-10 %)⁽²⁾ - LX HE | | | | | | | | | | | | | | |
| Standard unit | A | 216 | 235 | 254 | 295 | 330 | 362 | 441 | 475 | 534 | 566 | 615 | 663 | 767 |
| Unit + Xtra / Super Low Noise option | A | 207 | 226 | 245 | 283 | 318 | 350 | 425 | 458 | 517 | 549 | 598 | 643 | 744 |
| Start-up current⁽³⁾ + (4) - LX HE | | | | | | | | | | | | | | |
| Standard unit | A | 246 | 246 | 262 | 379 | 480 | 480 | 539 | 564 | 738 | 759 | 759 | 839 | 858 |
| Unit + Xtra / Super Low Noise option | A | 241 | 241 | 257 | 374 | 475 | 475 | 531 | 555 | 730 | 751 | 751 | 828 | 846 |
| Maximum start-up current (Un)⁽²⁾ + (4) - LX HE | | | | | | | | | | | | | | |
| Standard unit | A | 275 | 293 | 293 | 408 | 511 | 511 | 618 | 618 | 783 | 813 | 813 | 906 | 955 |
| Unit + Xtra / Super Low Noise option | A | 270 | 288 | 288 | 403 | 506 | 506 | 610 | 609 | 775 | 805 | 805 | 895 | 943 |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(4) Standardised EUROVENT conditions, water-cooled exchanger inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies refrigerant circuit B.
For units LX 3428 to 4608: circuit 1 supplies circuit A, circuit 2 supplies circuit B

TECHNICAL SPECIFICATIONS

| POWERCIAAT™ LX HE | | 3428 | 3828 | 4008 | 4408 | 4608 |
|------------------------------------------------------------------|---------|-------------------------------|------|------|------|------|
| Power circuit supply | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | |
| Voltage range | V | 360-440 | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | |
| Maximum operating input power⁽¹⁾ - LX HE | | | | | | |
| Standard unit | kW | | | | | |
| Circuit 1 ^(a) | kW | 194 | 223 | 264 | 284 | 307 |
| Circuit 2 ^(a) | kW | 284 | 308 | 282 | 305 | 307 |
| Single power connection point option | kW | 478 | 532 | 546 | 588 | 614 |
| Unit with Xtra & Super Low Noise option | | | | | | |
| Circuit 1 ^(a) | kW | 187 | 216 | 255 | 274 | 297 |
| Circuit 2 ^(a) | kW | 275 | 298 | 273 | 296 | 297 |
| Single power connection point option | kW | 461 | 514 | 528 | 570 | 594 |
| Power factor at maximum power⁽¹⁾ - LX HE | | | | | | |
| Standard unit | | | | | | |
| Displacement Power Factor (Cos Phi) | | 0,89 | 0,89 | 0,89 | 0,89 | 0,89 |
| Unit + Xtra & Super low noise option | | | | | | |
| Displacement Power Factor (Cos Phi) | | 0,89 | 0,89 | 0,89 | 0,89 | 0,89 |
| Nominal unit current draw⁽²⁾ - LX HE | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 251 | 267 | 334 | 347 | 382 |
| Circuit 2 ^(a) | A | 350 | 386 | 347 | 379 | 382 |
| Single power connection point option | A | 601 | 652 | 681 | 726 | 764 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 239 | 255 | 319 | 332 | 366 |
| Circuit 2 ^(a) | A | 334 | 367 | 332 | 364 | 366 |
| Single power connection point option | A | 572 | 621 | 650 | 695 | 731 |
| Maximum operating current draw (Un)⁽¹⁾ - LX HE | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 316 | 362 | 430 | 460 | 498 |
| Circuit 2 ^(a) | A | 463 | 500 | 460 | 495 | 498 |
| Single power connection point option | A | 778 | 862 | 889 | 954 | 995 |
| Unit with Xtra & Super Low Noise option | | | | | | |
| Circuit 1 ^(a) | A | 304 | 350 | 415 | 445 | 482 |
| Circuit 2 ^(a) | A | 447 | 483 | 445 | 480 | 482 |
| Single power connection point option | A | 751 | 833 | 860 | 925 | 963 |
| Maximum current (Un-10 %)⁽¹⁾ - LX HE | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 335 | 384 | 466 | 498 | 529 |
| Circuit 2 ^(a) | A | 501 | 531 | 498 | 526 | 529 |
| Single power connection point option | A | 835 | 915 | 963 | 1023 | 1057 |
| Unit with Xtra & Super Low Noise option | | | | | | |
| Circuit 1 ^(a) | A | 323 | 372 | 451 | 483 | 513 |
| Circuit 2 ^(a) | A | 485 | 514 | 483 | 511 | 513 |
| Single power connection point option | A | 808 | 886 | 934 | 994 | 1025 |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies refrigerant circuit B.
For units LX 3428 to 4608: circuit 1 supplies circuit A, circuit 2 supplies circuit B.

TECHNICAL SPECIFICATIONS

| POWERCIAT™ LX HE | | 3428 | 3828 | 4008 | 4408 | 4608 |
|------------------------------------------------------------|---|------|------|------|------|------|
| Start-up current⁽³⁾ - LX HE | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 687 | 702 | 729 | 744 | 744 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 671 | 684 | 714 | 729 | 727 |
| Maximum start-up current (Un)⁽²⁾ - LX HE | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 802 | 820 | 844 | 862 | 862 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 786 | 802 | 829 | 847 | 845 |

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies refrigerant circuit B.

For units LX 3428 to 4608: circuit 1 supplies circuit A, circuit 2 supplies circuit B.

TECHNICAL SPECIFICATIONS

| POWERCIAT™ LX XE | 0808 | 0908 | 1008 | 1108 | 1358 | 1528 | 1858 | 2008 | 2158 | 2308 | 2528 | 2628 | 3028 |
|--------------------------------------------------------------------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Power circuit supply | | | | | | | | | | | | | |
| Nominal voltage V-ph-Hz | 400-3-50 | | | | | | | | | | | | |
| Voltage range V | 360-440 | | | | | | | | | | | | |
| Control circuit supply | 24 V via internal transformer | | | | | | | | | | | | |
| Maximum operating input power⁽¹⁾ | | | | | | | | | | | | | |
| Standard unit kW | 126 | 137 | 147 | 172 | 192 | 210 | 257 | 278 | 308 | 327 | 357 | 375 | 440 |
| Unit + Xtra / Super Low Noise option kW | 124 | 135 | 145 | 170 | 189 | 208 | 254 | 274 | 304 | 323 | 353 | 371 | 434 |
| Power factor at maximum power⁽²⁾ | | | | | | | | | | | | | |
| Displacement Power Factor (Cos Phi)+ | 0,90 | 0,89 | 0,89 | 0,90 | 0,89 | 0,89 | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,88 | 0,89 |
| Displacement Power Factor (Cos Phi) unit + Xtra / Super Low noise option | 0,90 | 0,89 | 0,89 | 0,90 | 0,89 | 0,89 | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,88 | 0,89 |
| Nominal operating current draw⁽³⁾ | | | | | | | | | | | | | |
| Circuit 1 ^(a) A | 145 | 161 | 177 | 203 | 234 | 255 | 315 | 339 | 390 | 411 | 427 | 483 | 521 |
| Unit + Xtra / Super Low Noise option A | 142 | 158 | 174 | 199 | 230 | 251 | 310 | 333 | 384 | 405 | 420 | 476 | 512 |
| Maximum operating current draw (Un)⁽¹⁾ | | | | | | | | | | | | | |
| Circuit 1 ^(a) A | 203 | 221 | 239 | 277 | 310 | 340 | 414 | 447 | 502 | 532 | 578 | 617 | 715 |
| Unit + Xtra / Super Low Noise option A | 200 | 218 | 236 | 273 | 306 | 336 | 409 | 441 | 496 | 526 | 571 | 610 | 706 |
| Maximum current (Un-10 %)⁽²⁾ | | | | | | | | | | | | | |
| Circuit 1 ^(a) A | 215 | 234 | 253 | 293 | 328 | 360 | 438 | 473 | 532 | 564 | 613 | 655 | 759 |
| Unit + Xtra / Super Low Noise option A | 212 | 231 | 250 | 289 | 324 | 356 | 433 | 467 | 526 | 558 | 606 | 648 | 750 |
| Start-up current^{(3) + (4)} | | | | | | | | | | | | | |
| Circuit 1 ^(a) A | 181 | 174 | 190 | 314 | 408 | 408 | 408 | 432 | 626 | 632 | 632 | 660 | 652 |
| Unit + Xtra / Super Low Noise option A | 179 | 172 | 188 | 312 | 405 | 406 | 405 | 428 | 622 | 628 | 628 | 656 | 646 |
| Maximum start-up current (Un)^{(2) + (3)} | | | | | | | | | | | | | |
| Circuit 1 ^(a) A | 210 | 221 | 221 | 343 | 439 | 439 | 487 | 486 | 671 | 686 | 686 | 727 | 749 |
| Unit + Xtra / Super Low Noise option A | 208 | 219 | 219 | 341 | 436 | 437 | 484 | 482 | 667 | 682 | 682 | 723 | 743 |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(4) Standardised EUROVENT conditions, water-cooled exchanger inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies refrigerant circuit B.
For units LX 3428 to 4608: circuit 1 supplies circuit A, circuit 2 supplies circuit B.

TECHNICAL SPECIFICATIONS

| POWERCIAAT™ LX XE | | 3428 | 3828 | 4008 | 4408 | 4608 |
|--------------------------------------------------------------------------|---------|-------------------------------|------|------|------|------|
| Power circuit supply | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | |
| Voltage range | V | 360-440 | | | | |
| Control circuit supply | | 24 V via internal transformer | | | | |
| Maximum operating input power⁽¹⁾ or (2) | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | kW | 191 | 220 | 262 | 282 | 304 |
| Circuit 2 ^(a) | kW | 279 | 304 | 280 | 303 | 304 |
| Single power connection point option | kW | 469 | 525 | 542 | 584 | 609 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | kW | 188 | 217 | 258 | 278 | 301 |
| Circuit 2 ^(a) | kW | 276 | 301 | 277 | 300 | 301 |
| Single power connection point option | kW | 463 | 518 | 535 | 578 | 602 |
| Power factor at maximum power⁽¹⁾ or (2) | | | | | | |
| Standard unit | | | | | | |
| Displacement Power Factor (Cos Phi) | | 0,88 | 0,89 | 0,88 | 0,89 | 0,89 |
| Unit + Xtra & Super low noise option | | | | | | |
| Displacement Power Factor (Cos Phi) unit + Xtra & Super Low noise option | | 0,88 | 0,89 | 0,88 | 0,89 | 0,89 |
| Nominal operating current draw⁽³⁾ | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 245 | 261 | 330 | 343 | 377 |
| Circuit 2 ^(a) | A | 340 | 377 | 343 | 375 | 377 |
| Single power connection point option | A | 584 | 638 | 672 | 717 | 754 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 240 | 256 | 324 | 337 | 372 |
| Circuit 2 ^(a) | A | 334 | 371 | 337 | 369 | 372 |
| Single power connection point option | A | 574 | 627 | 661 | 706 | 743 |
| Maximum operating current draw (Un)⁽¹⁾ or (2) | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 312 | 358 | 428 | 458 | 495 |
| Circuit 2 ^(a) | A | 455 | 495 | 458 | 493 | 495 |
| Single power connection point option | A | 766 | 853 | 885 | 950 | 990 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 307 | 353 | 422 | 452 | 490 |
| Circuit 2 ^(a) | A | 450 | 490 | 452 | 487 | 490 |
| Single power connection point option | A | 756 | 842 | 874 | 939 | 979 |
| Maximum current (Un-10 %)⁽¹⁾ or (2) | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 331 | 380 | 464 | 496 | 526 |
| Circuit 2 ^(a) | A | 493 | 526 | 496 | 524 | 526 |
| Single power connection point option | A | 823 | 906 | 959 | 1019 | 1052 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 326 | 375 | 458 | 490 | 521 |
| Circuit 2 ^(a) | A | 488 | 521 | 490 | 518 | 521 |
| Single power connection point option | A | 813 | 895 | 948 | 1008 | 1041 |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies the refrigerant circuit B

TECHNICAL SPECIFICATIONS

| POWERCIAAT™ LX XE | | 3428 | 3828 | 4008 | 4408 | 4608 |
|---------------------------------------------------------------------|---|------|------|------|------|------|
| Start-up current⁽³⁾ + ⁽⁴⁾ | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 678 | 691 | 719 | 734 | 733 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 674 | 685 | 714 | 729 | 727 |
| Maximum start-up current (Un)⁽²⁾ + ⁽⁴⁾ | | | | | | |
| Standard unit | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 793 | 809 | 834 | 852 | 851 |
| Unit + Xtra & Super low noise option | | | | | | |
| Circuit 1 ^(a) | A | 587 | 587 | 629 | 629 | 629 |
| Circuit 2 ^(a) | A | 629 | 629 | 629 | 629 | 629 |
| Single power connection point option | A | 789 | 803 | 829 | 847 | 845 |

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(4) Standardised EUROVENT conditions, water-cooled exchanger inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

(a) When the machines are equipped with two power supplies, circuit 1 is intended to supply refrigerant circuit A and circuit 2 supplies the refrigerant circuit B

Short circuit current withstand capability (TN system⁽¹⁾)

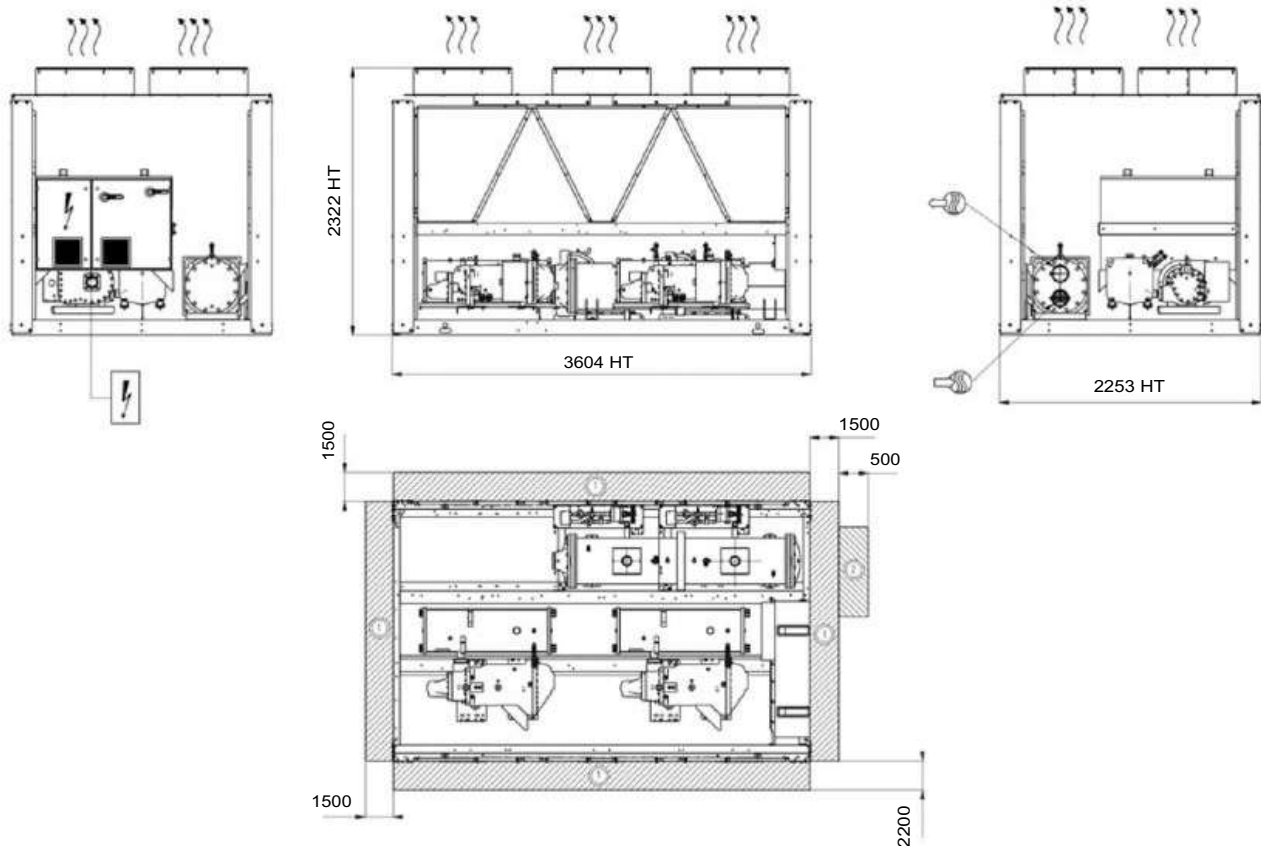
| POWERCIAAT™ LX HE/XE | | 0808 to 1528 | 1858 to 3028 | 3428 to 4608 |
|----------------------------------------------------|----|--------------|--------------|--------------|
| Short-circuit withstand current (TN system) | | | | |
| Circuit A+B | kA | 38 | 50 | 50 |
| Circuit C+D | kA | NA | NA | 50 |
| Unit + single power connection point option | A | NA | NA | 50 |

(1) If another current limitation protection device is used, its time-current and thermal constraint (I^2t) trip characteristics must be at least equivalent to those of the recommended protection.

Note: The short-circuit stability current values above are suitable with the TN system.

DIMENSIONS

■ POWERCIAT™ LX HE-XE 0808 to 1008



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

Notes:

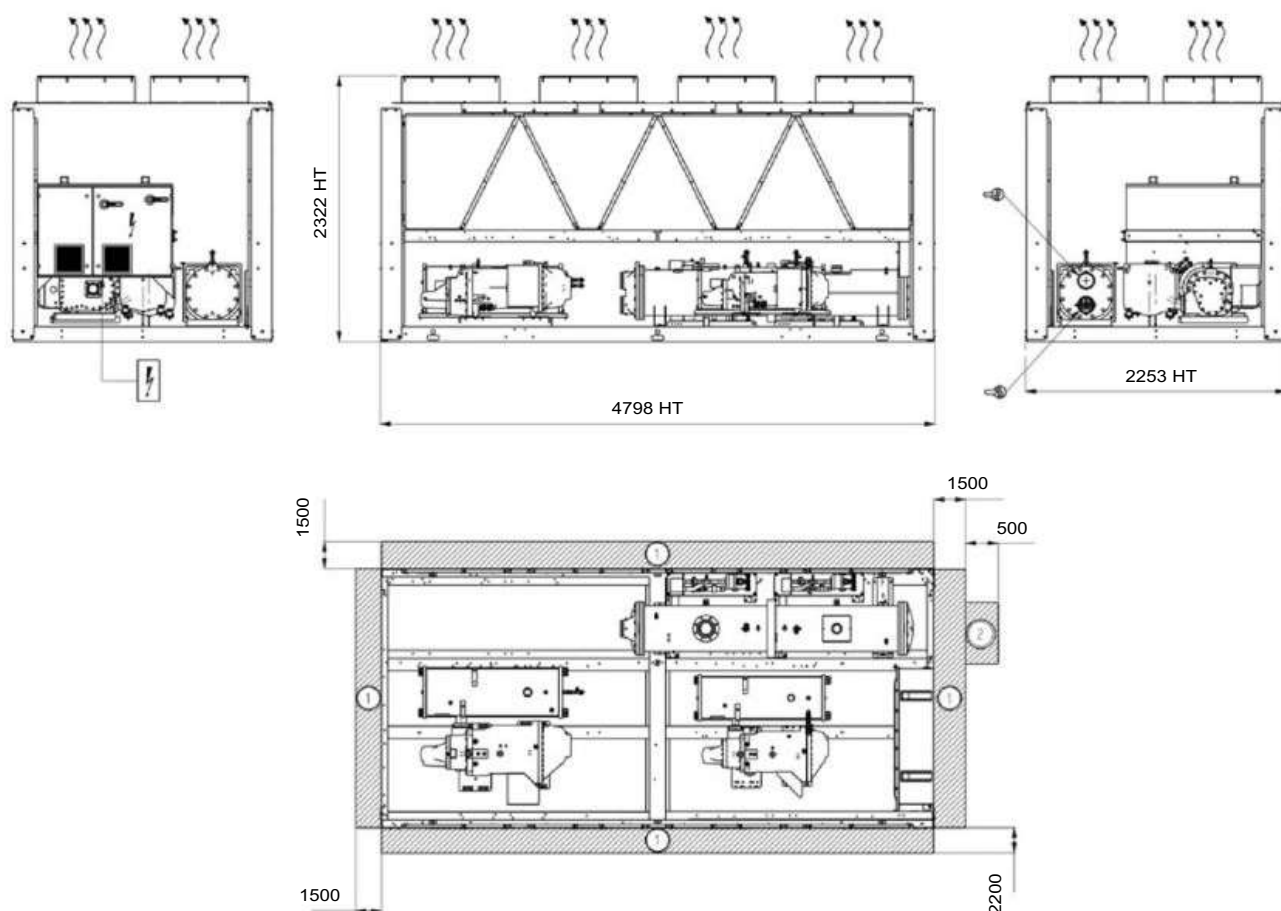
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCAT™ LX HE-XE 1108 to 1358 and LX HE 1528



Key All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

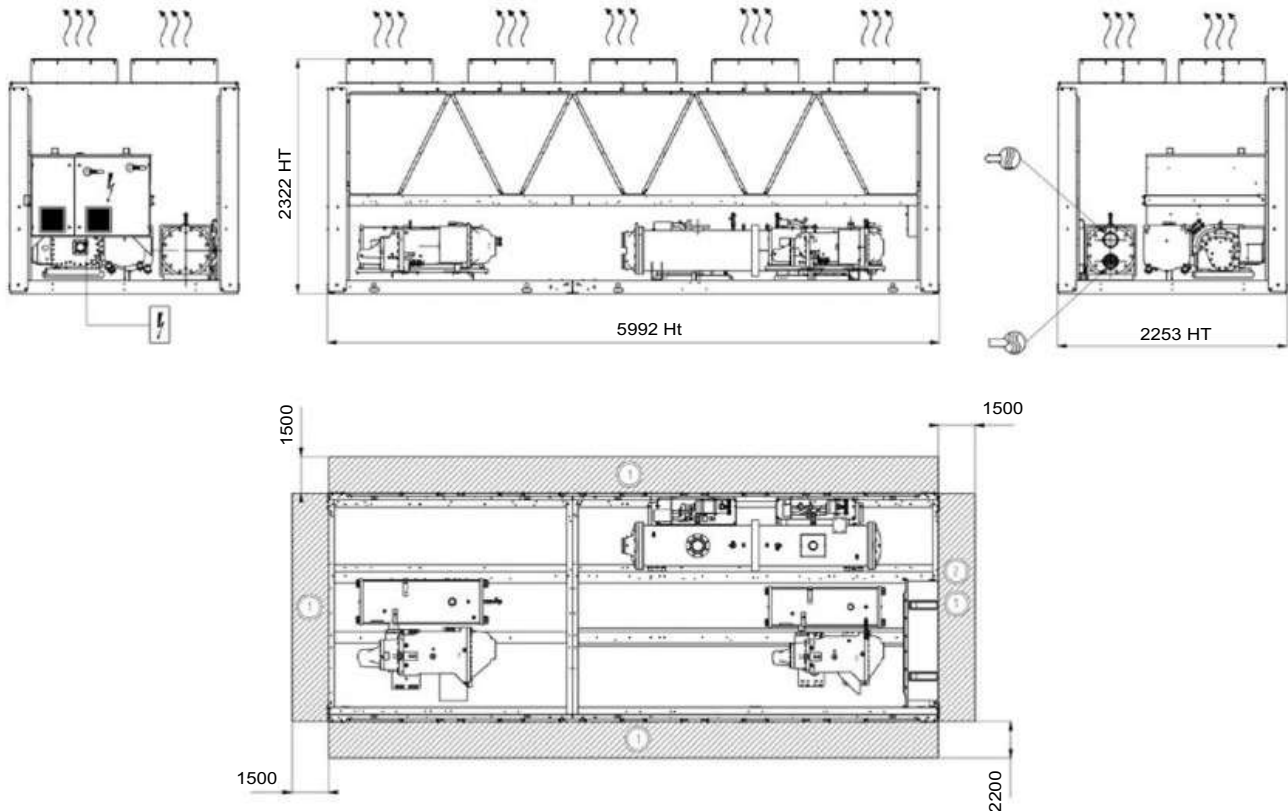
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCIAAT™ LX XE 1528



Key All dimensions in mm

① Clearance required for maintenance and air flow

② Clearance recommended for coil removal

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

Notes:

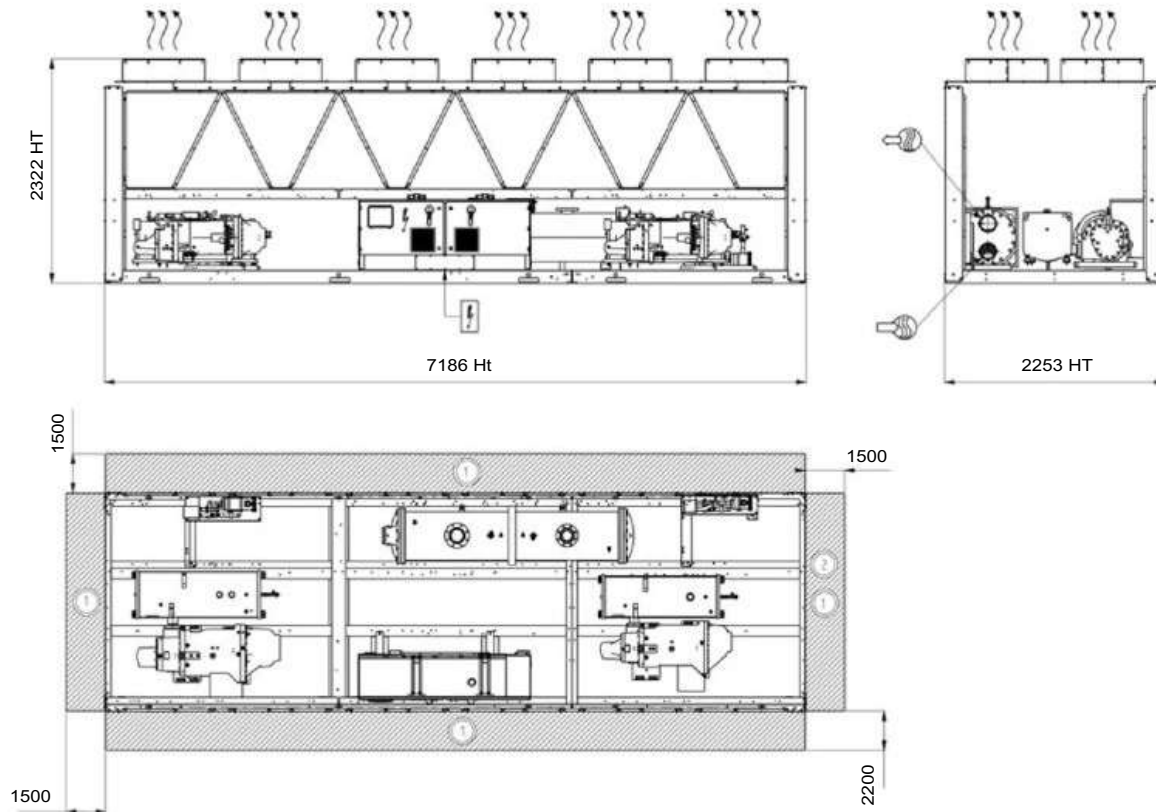
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCIAT™ LX HE-XE 1858 to 2308 and LX HE 2528



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

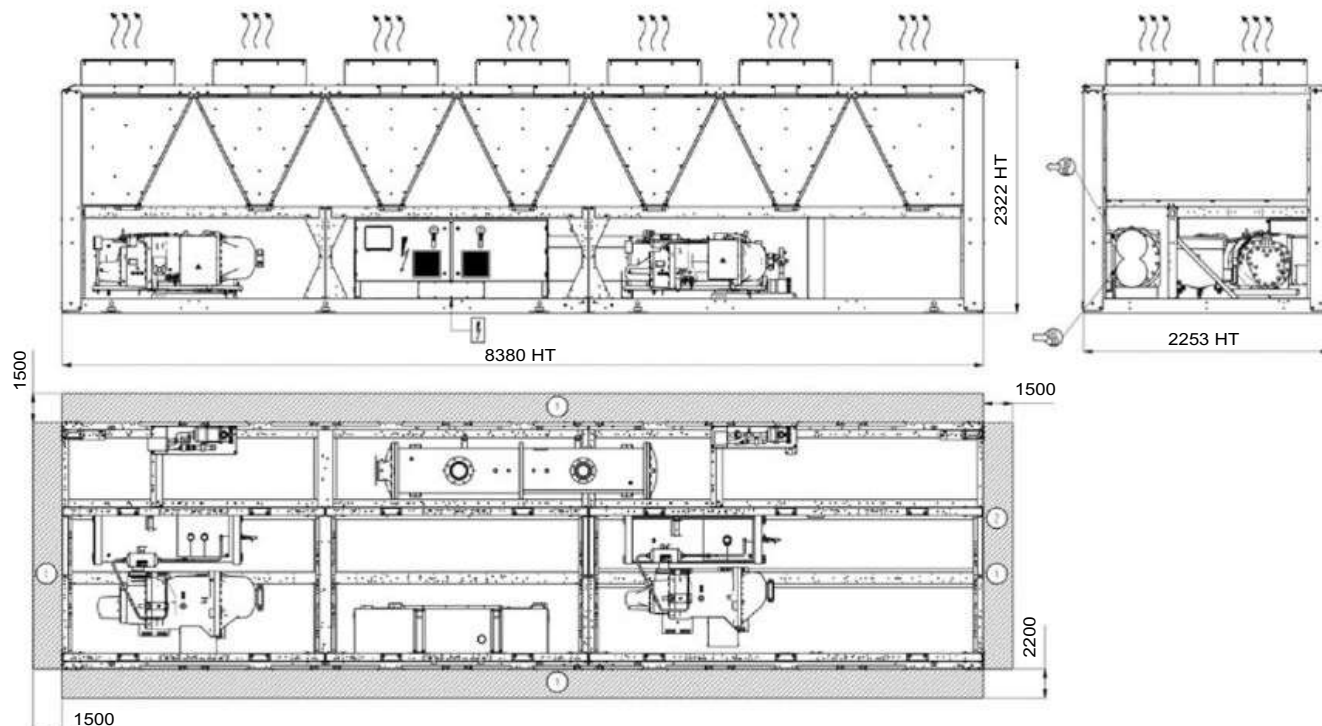
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCIAT™ LX XE 2528 and LX HE-XE 2628



Key All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

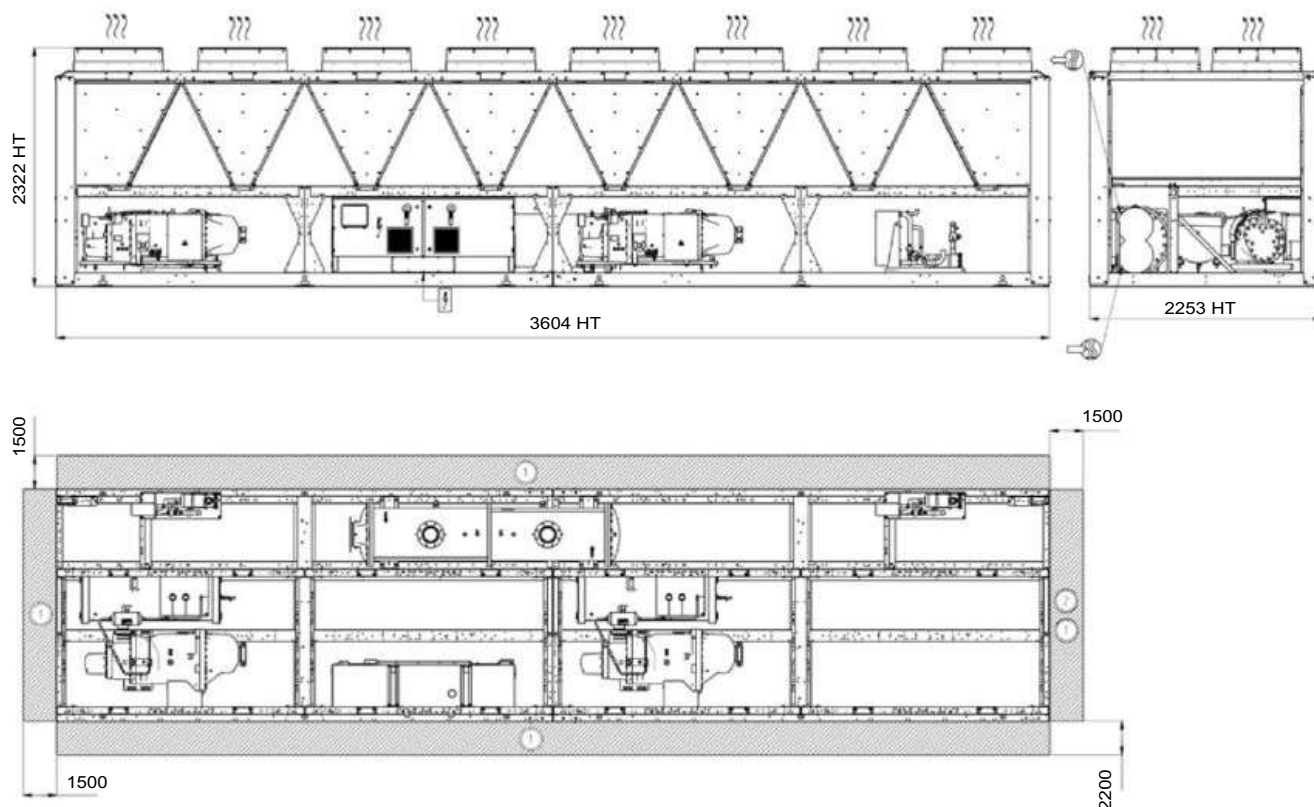
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCIAT™ LX HE-XE 3028



Key

All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

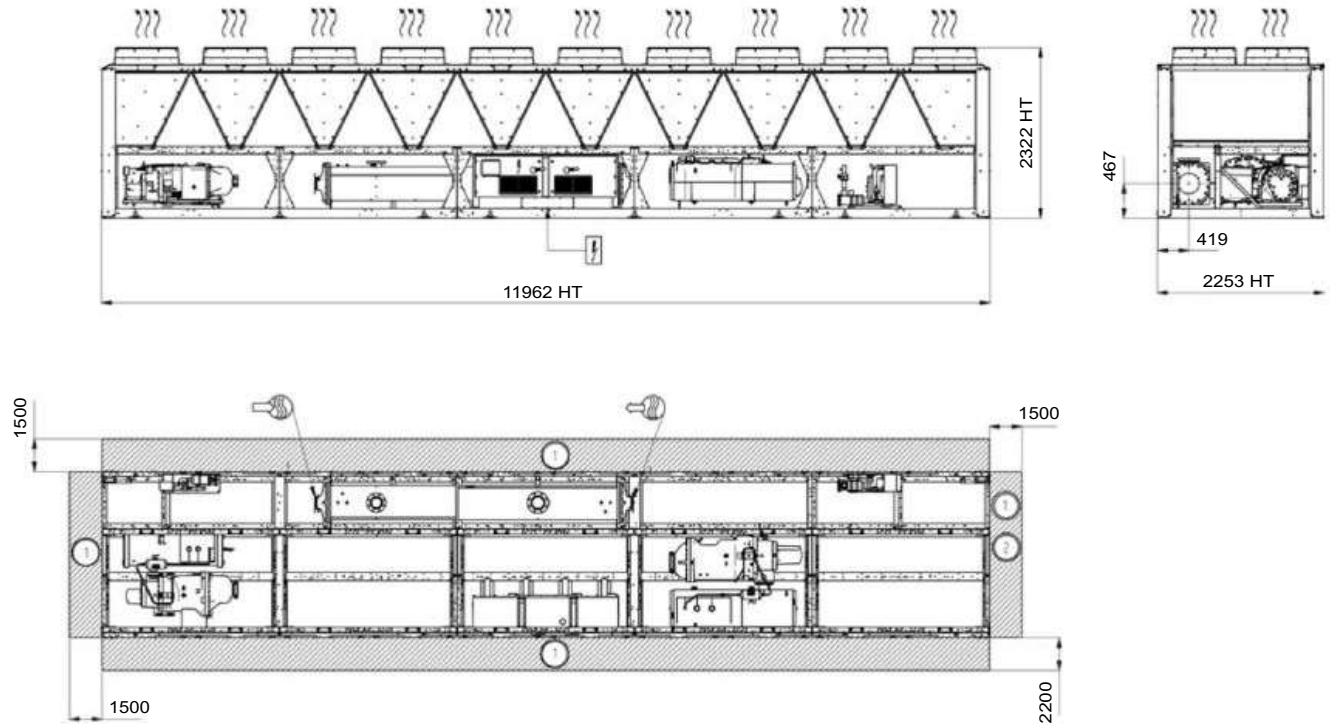
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCIAAT™ LX HE-XE 3428 to 4408



Key All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

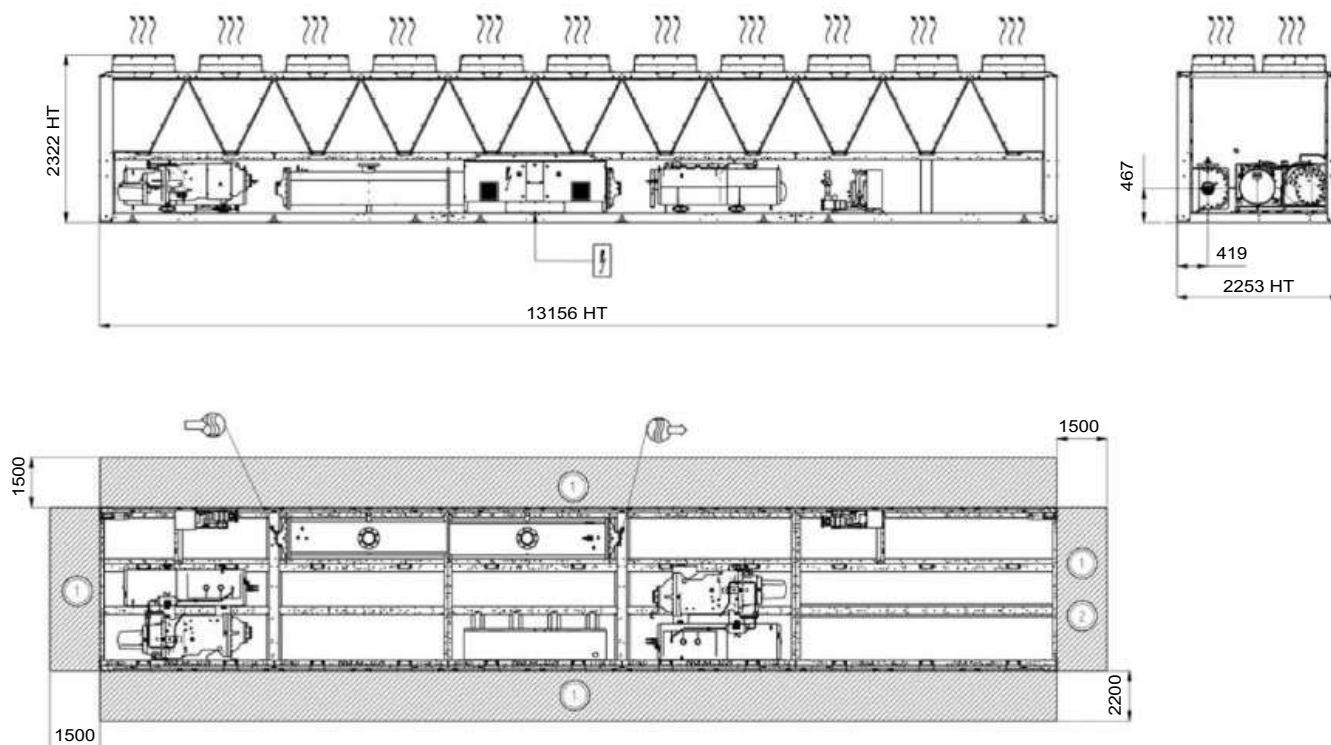
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

DIMENSIONS

■ POWERCIAAT™ LX HE-XE 4608



Key All dimensions in mm

- ① Clearance required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

Notes:

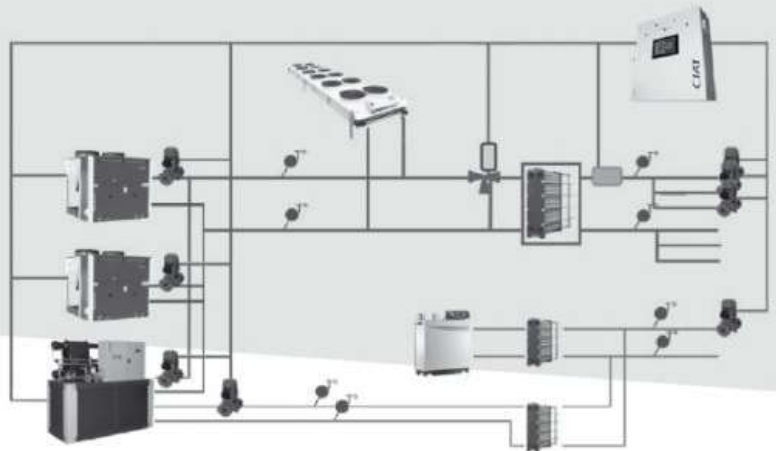
Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Please refer to the certified dimensional drawings for the positioning of the fixing points, weight distribution points and centre of gravity coordinates.

PowerCTRL

Energy optimization
for high-performance
energy systems



Production system management

*Designed to control the entire
thermal energy production system
(heating and cooling)*

MANAGEMENT TOOL FOR YOUR ENERGY HUB

Features

- Command & control all components on the production loop
- Maximize energy optimization
- Optimize & secure system operation
- Local and remote monitoring

Main functions

Command & control

- Controlling water chillers, heat pumps, drycoolers in heating/cooling/free cooling mode, heat recovery, balancing running time.
- Controlling and regulating all hydraulic peripherals on the production loop (pumps, 2-way and 3-way valves, etc.).
- Acquiring analogue signals (on/off contacts) and digital signals (temperature, pressure, Δp , flow rate).

Maximize energy optimization

- Optimizing system energy & maximizing free cooling and heat recovery capacity.
- Optimizing cascading of producers and their peripherals, water law, upholding at best charge rate, etc.
- Managing equipment, alternation/back-up/priority networks.
- Detecting and reporting faults/alarms, corrective management algorithms, etc.

Secure system operation

- Intuitive human/machine communication via a graphic touch screen interface.
- Daily and seasonal programming & setpoint configuration.
- Overview of the system and component states, display of measured values, curves, etc.

Offer local monitoring

- Remote monitoring via the I-Vù software.
- Component status display.
- Overviews, curves and events logs.
- Long-term logging of measured values and events.
- Support Hotline.

Technical characteristics

- IP54 electrics box.
- Supply: 100-230 VAC, 50/60 Hz.
- Operating temperature: -10 °C to +50 °C.
- Humidity: 0 to 90% RH, non-condensing.
- Terminal strips marked with wiring diagram.
- Industrial controller.
- I-Vù monitoring software on user PC or PC panel option.
- Access for remote support via LAN (or 3/4G, SIM supplied by the customer).
- BMS communication via BACnet or ModBus or LON (option) protocols.



TRUVU™ PLANT SEQUENCER

HVAC SERVICE SOLUTIONS

NEW



*Regulation, Control & Optimization
of cooling and heating plant*



RANGE

The **TruVu** Plant Sequencer controls and optimizes cooling and heating plant rooms, benefiting from CIAT's expertise in HVAC systems.

DESCRIPTION

A turnkey solution, with an advanced program, easily commissioned by CIAT service technicians.

Energy savings of cooling / heating plant.

Reduced operating and maintenance costs.

Credit gains for Leed®, Breeam®, Hqe™ certifications.

Compliance with local and european energy regulations.

STANDARD CONTROL SOLUTION TO MANAGE AND OPTIMIZE COOLING & HEATING PLANTS

Main capabilities

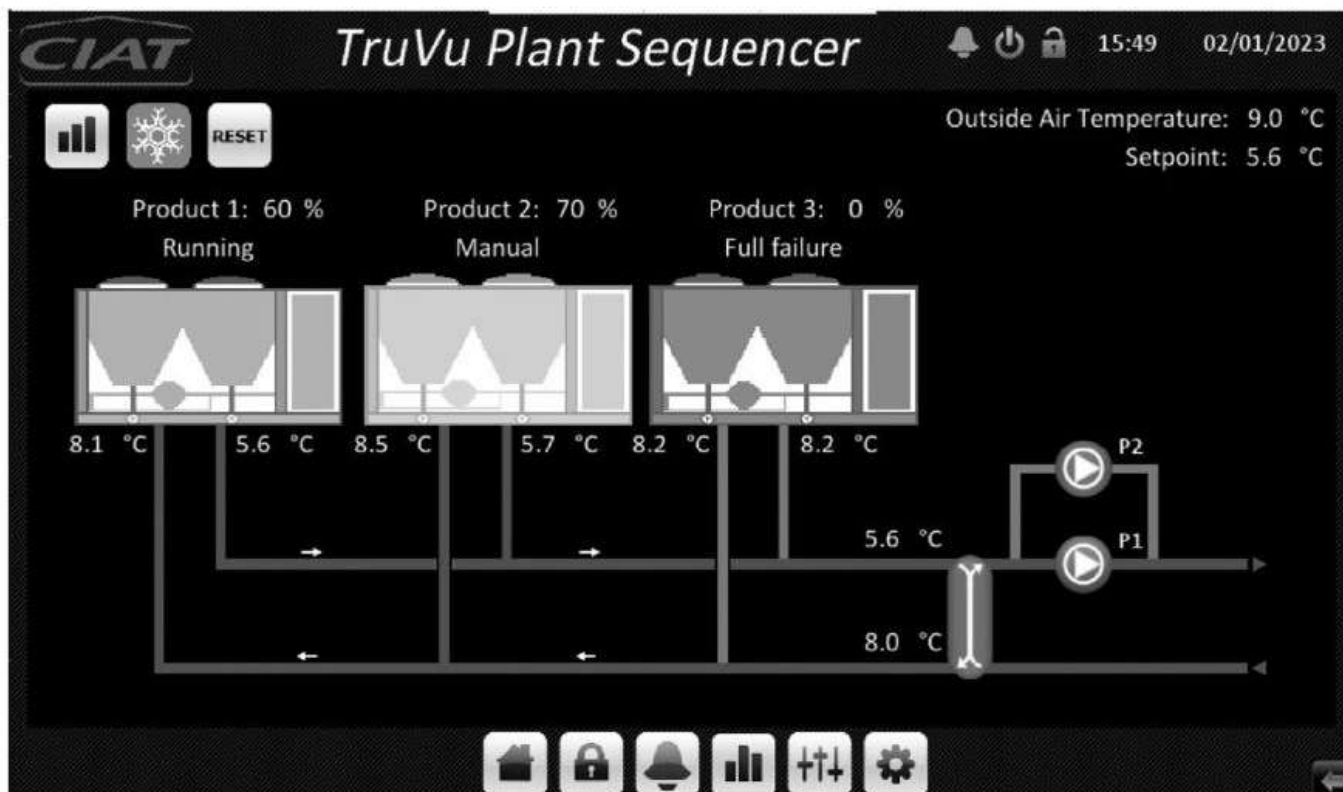
- Up to 4 CIAT chillers or heat pumps.
- Up to 2 secondary pumps.
- Up to 4 dry-coolers (version **TruVu** plant sequencer v2.0).
- 1 x 3-way valve (mutualized dry-coolers, version **TruVu** plant sequencer v3.0).

Local monitoring

- 10" standard touchscreen with web server in the front of the electrical cabinet.

Remote Communication

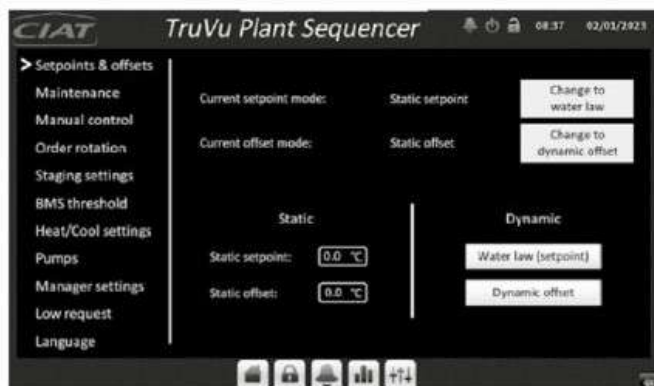
- BMS: BACnet/IP or Modbus TCP/IP.
- Optional CIAT i-Vu® remote monitoring solution.



Requirements

- BACnet/IP communication is compulsory with chillers or heat pumps.
- Evaporator pumps directly managed by the chiller or heat pump.
- Condenser pumps and 3-way valves for water-cooled units directly managed by the chiller or heat pump (version: **TruVu** plant sequencer v2.0).
- Modbus RTU communication compulsory with dry-coolers - optional Modbus RTU to physical I/O card (version: TruVu plant sequencer v2.0.).
- No wired I/O except temperature and allowed components in the standard scope (see electrical diagram or technical data sheet).

STANDARD CONTROL SOLUTION TO MANAGE AND OPTIMIZE COOLING & HEATING PLANTS



Control CIAT chillers and heat pumps with BACnet IP option:

Cascade with time balance and alternation.
Faults, alarms and back up management.
Maintenance mode and manual operation.



Dry-coolers:

CIAT & non-CIAT.
Setpoint configuration.
Faults, alarms and back up management.
Maintenance mode and manual operation.



Secondary pumps:

Normal/rescue operation with time balance and alternation.
Fixed or variable flow with PID regulation on delta pressure.
Faults, alarms and back up management.
Maintenance mode and manual operation.



Energy savings:

Setpoint offset according to outside air temperature (user configurable).
Cascade staging up on predefined units partial load value (user configurable).



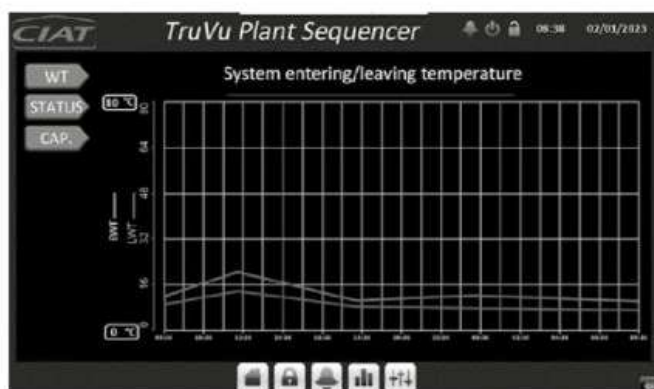
Heat recovery and free-cooling: (version: TruVu plant sequencer v2.0)

Priority given to units with the option enabled when conditions are met.
Setpoint management.



BMS communication:

Communication table (read/write access) feedback of all the main operating parameters, faults, alarms.



Advanced cascade:

Automatic advanced cascade on temperature drift / temperature evolution / plant capacity / delta T°C.
Unit's cascade on full load or predefined partial load.
User setup (setpoints, setpoint offset units-network / mini-maxi running units, units priorities, etc.).



Daily and seasonal programming:

Production start linked to BMS schedule.
Manual or automatic changeover for heating/cooling mode selection.

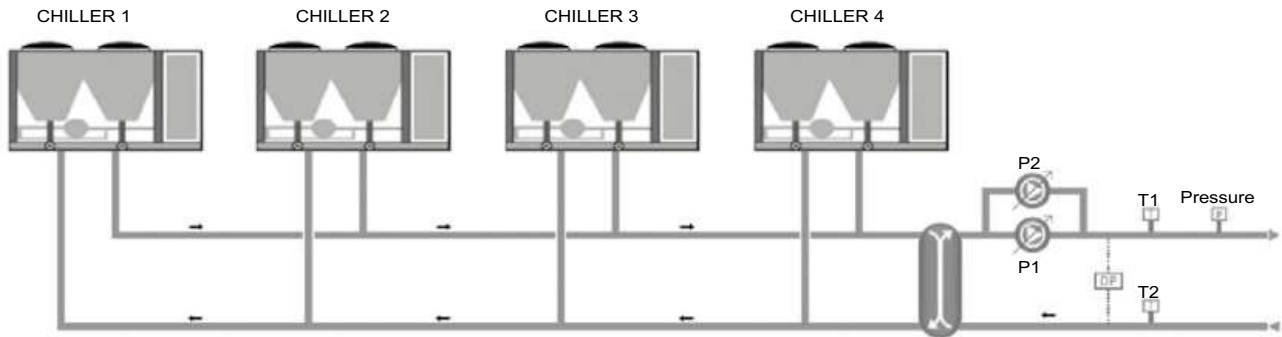


Local Human to Machine Interface (HMI) and remote monitoring (option i-Vu):

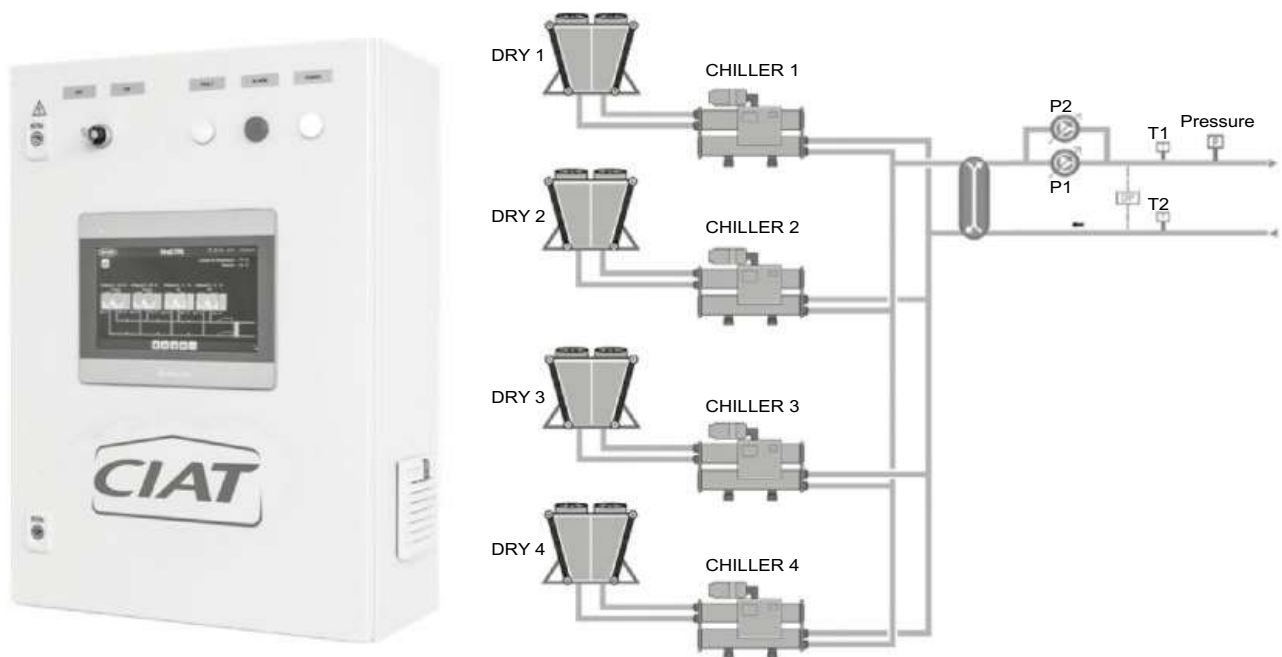
HMI with Real-time synoptic / plant and components status / trends / events / secure access.
Webserver for remote visualization of the HMI.

HYDRAULIC CONFIGURATION EXAMPLES

Air-cooled chillers/heat pumps with secondary pumps



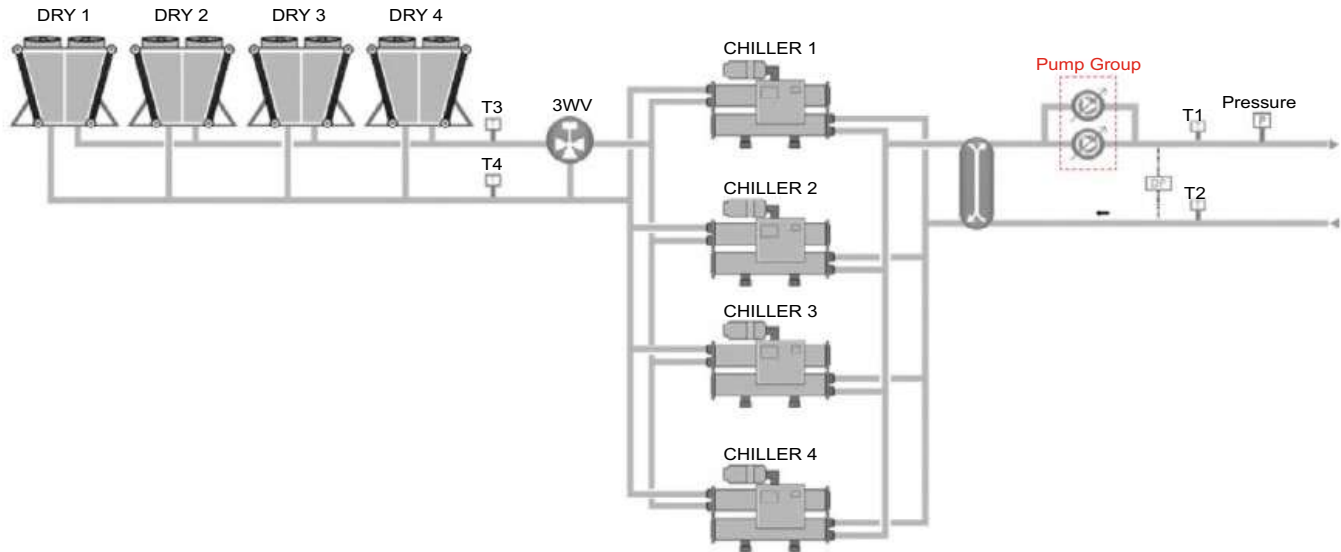
Water-cooled chillers/heat pumps with dedicated dry-coolers, and secondary pumps⁽¹⁾



(1) Available for TruVu plant sequencer v2 or above.

HYDRAULIC CONFIGURATION EXAMPLES

Water-cooled chillers/heat pumps with mutualized dry-coolers, and secondary pumps⁽²⁾



(2) Available for TruVu plant sequencer v3 or above.

ADDITIONNAL EQUIPMENT (not included)

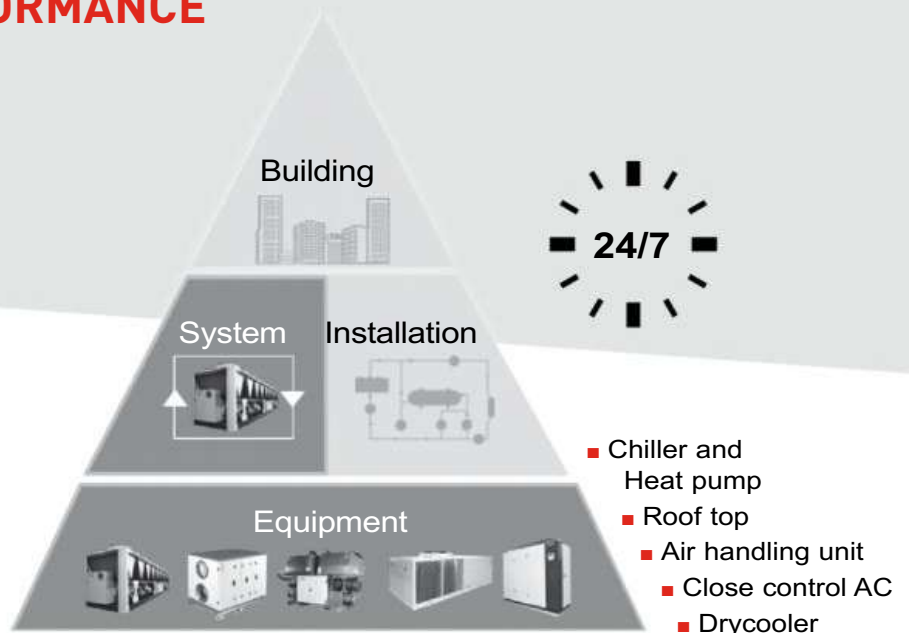
- Pressure switch for lack of water detection.
- Delta P sensor for variable flow secondary pumps - 0/10 V.
- Modbus RTU for electrical meter - 1 on each chiller/heat pump or 1 common.
- Modbus RTU for flow meter or thermal meter - on leaving or return of network.

ABOUND HVAC PERFORMANCE

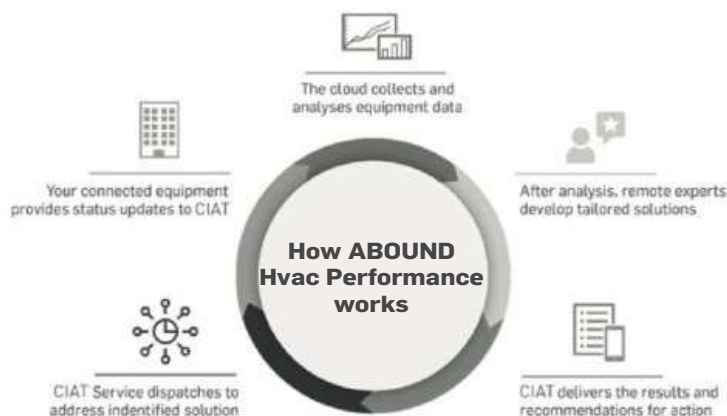
Monitoring solution
for CIAT units

Monitoring solution

To track, monitor
hvac system performance &
take preventive and
corrective actions remotely



Real-time monitoring



The advantages

- Better profitability
- Equipment availability
- Equipment optimal control
- Fully secured connection
- Increased responsiveness; Better technical knowledge of your site

To meet energy regulations

To achieve the 2030 energy efficiency target of $\geq 27\%$, European regulations encourage buildings to install control and monitoring systems.

The European Performance Building Directive (EPBD), the Energy Efficiency Directive (EED), buildings certifications as BREEAM and HQE and all other European local regulations as RT2012 in France, contribute to optimize energy usage and improve smartness indicators of the potential energy savings.

Real time data

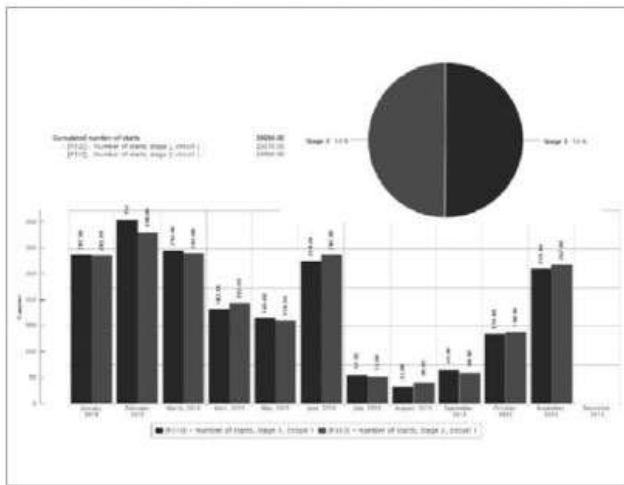
Real-time data dedicated website

- Machine summary
- Controller dashboard
- Temperature curves and events
- Alert & fault log
- Parameters log

Alerts

Be informed

- Email alert at event on the equipment



Reports

Visualize the efficiency of your installation

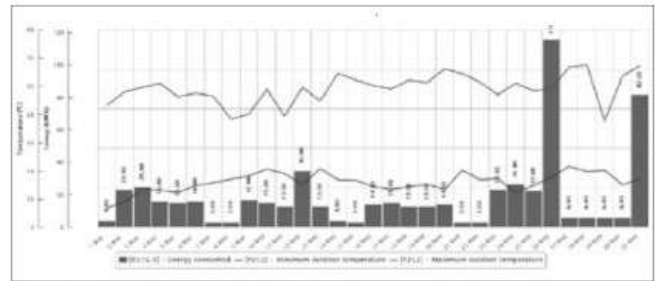
Get reports with expert analysis to optimise your system

Frequency

- Monthly
- Annual

Content

- Trend
- Run times
- Number of starts
- Event reports
- Preventive maintenance actions
- Energy consumption (with optional energy meter)





CIAT

HEAT PUMPS & WATER CHILLERS

WATER-COOLED UNITS

| | |
|-----------------------------|---------------|
| DYNACIAT™ LG | P.483 |
| 25 to 190kW | 29 to 230kW |
| DYNACIAT ^{POWER} ™ | P.499 |
| 200 to 700kW | 230 to 800kW |
| HYDROCIAT™ LW | P.509 |
| 269 to 1736kW | 317 to 2019kW |

CONTROL AND SUPERVISION

| | |
|----------------------------------|-------|
| POWER'CONTROL | P.469 |
| NEW TRUVU PLANT SEQUENCER | P.471 |
| ABOUT HVAC PERFORMANCE | P.477 |

DYNACIAT™ LG

Water chillers
Heat pump



Compact et silent

High energy efficiency

Scroll compressors

High-efficiency brazed-plate heat exchangers

Self-adjusting electronic control

Cooling capacity: 25 to 190 kW

Heating capacity: 29 to 230 kW



Cooling



Heating



Hydraulic
module

R-410A



UTILISATION

The latest generation of **DYNACIAT™** water chillers and heat pumps are the perfect solution for all cooling and heating applications in the Offices, Healthcare, Industry, Administration, Shopping Centres and Collective Housing markets.

These units are designed to be installed in machine rooms that are protected against freezing temperatures and inclement weather.

When producing chilled water, these units can be connected to a dry cooler or a water cooling tower. This range is also available in a "split system" version without a condenser (LGN series).

Connected to an underfloor heating-cooling system, comfort units or an air handling unit, **DYNACIAT™** can heat or cool buildings by reversing the cycle on hydraulic circuits using a set of valves (hydraulic valves not supplied).

For quick and easy installation, a range of hydronic modules is available as an option on the evaporator side (for chilled water production) and the condenser side (for hot water production).

DYNACIAT™ is optimised to use ozone-friendly HFC R410A refrigerant.

This range guarantees compliance with the most demanding requirements for increased seasonal energy efficiency (SEER, SEPR and SCOP) and CO₂ reduction to comply with the various applicable European directives and regulations.

RANGE

DYNACIAT™ LG series

Cooling or heating version.

DYNACIAT™ LGN series

Split system cooling only version without condenser.

DESCRIPTION

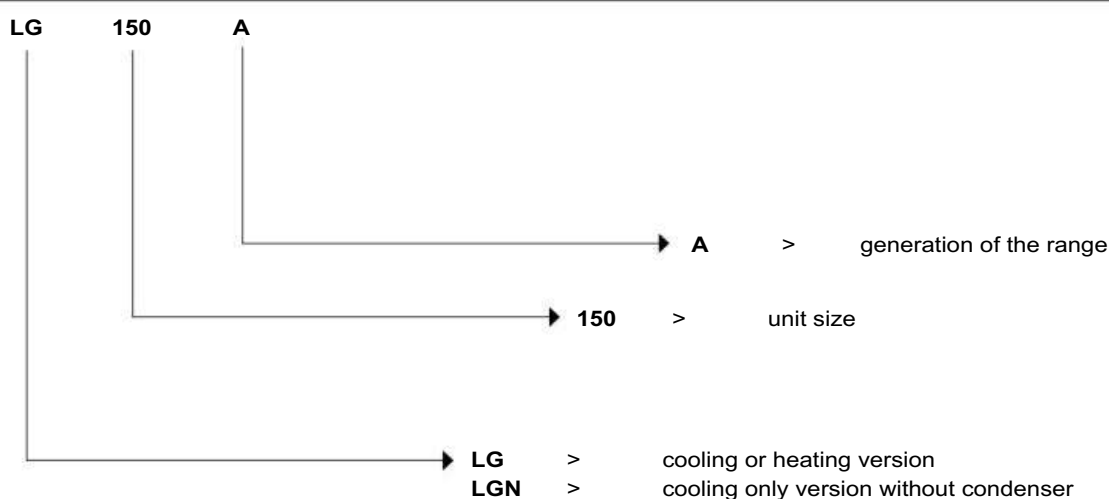
DYNACIAT™ units are packaged machines supplied as standard with the following components:

- Hermetic SCROLL compressors
- Chilled-water evaporator with brazed plates
- Hot water condenser, with brazed plates
- Electrical power and remote control cabinet:
 - 400V-3ph-50Hz (+/-10%) general power supply + Earth
 - transformer fitted as standard on the machine for supplying the remote control circuit with 24V
- Connect Touch electronic control module
- Casing for indoor installation

The entire DYNACIAT™ range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC
- Electromagnetic compatibility directive 2014/30/EC
- EMC immunity and emissions EN 61800-3 'C3'
- Low voltage directive 2014/35/EU
- RoHS 2011/65/EU
- Pressure equipment directive (PED) 2014/68/EU
- Machinery directive EN 60-204 -1
- Refrigeration systems and heat pumps EN 378-2
- Commission Regulation (EU) No. 813/2013 implementing directive 2009/125/EC setting the ecodesign requirements

DESIGNATION



CONFIGURATION

| | |
|------------------|--------------------|
| LG-LGN | Standard |
| LG-LGN LN option | Standard Low Noise |

DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

- Hermetic SCROLL type
- Electronic motor overheating protection
- Crankcase heater
- Mounted on anti-vibration mounts

■ Evaporator

- Brazed-plate exchanger
- Plate patterns optimised for high efficiency
- 19 mm armaflex thermal insulation

■ Condenser

- Brazed-plate exchanger
- Plate patterns optimised for high-efficiency
- 19 mm armaflex thermal insulation (optional)

■ Refrigerating accessories

- Dehumidifier filters
- Hygroscopic sight glasses
- Electronic expansion valves
- Service valves on the liquid line

■ Regulation and safety instruments

- Low and high pressure sensors
- Safety valves on refrigerating circuit
- Water temperature control sensors
- Evaporator antifreeze protection sensor
- Factory-fitted evaporator water flow controller

■ Electrical cabinet

- Electrical cabinet with IP 23 protection rating
- A connection point without neutral
- Main safety switch with handle on front
- Control circuit transformer
- 24V control circuit
- Compressor motor circuit breaker
- Compressor motor contactors
- Connect Touch microprocessor-controlled electronic control module
- Wire numbering
- Marking of the main electrical components

■ Casing

Frame made from RAL7035 light grey & RAL 7024 graphite grey painted panels.

■ Connect Touch control module

- User interface with 4.3-inch touch screen
- Intuitive, user-friendly navigation using icons
- Clear text display of information available in 6 languages (F-GB-D-E-I-NL)



The electronic control module performs the following main functions:

- Regulation of the water temperature (at the return or at the outlet)
- Regulation of the water temperature based on the outdoor temperature (water law)
- Regulation for low temperature energy storage
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and operating time balancing
- Self-regulating and proactive functions with adjustment of the control to counter parameter drift
- Optimised defrosting with free defrost function to optimise performance at partial load and the SCOP
- In-series staged power control system on the compressors according to the thermal requirements
- Management of compressor short cycle protection
- Frost protection (exchanger heaters)
- Phase reversal protection
- Management of occupied/unoccupied modes (according to the time schedule)
- Compressor and pump runtime balancing
- Management of the machine operation limit according to outdoor temperature
- Sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- Diagnostics of fault and operating statuses
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- Master/slave management of the two machines in parallel with operating time balancing and automatic changeover if a fault occurs on one machine
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Pump standby based on demand (energy saving)
- Calculation of the water flow rate and operating pressure (hydraulic module version)
- Electronic adjustment of the water pump speed and water flow rate (variable-speed pump option)
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.

DESCRIPTION OF THE MAIN COMPONENTS

■ Remote management

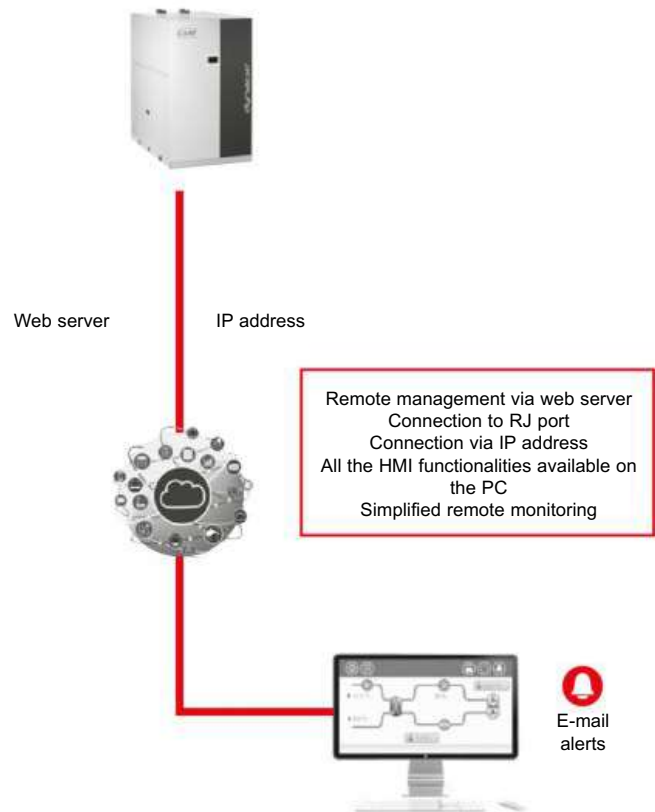
Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP (Certified BTL) as an option, enabling most CMS/BMS to be integrated.

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops
- Heating/cooling operating mode selection
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- Power limitation: closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- Fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerating circuits to stop
- Operational status reporting indicates that the unit is in production mode.



■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.

- The scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- The compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the refrigerant charge, in compliance with the F-GAS regulations

AVAILABLE OPTIONS

| Options | Description | Advantages | LG |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Low-temperature brine solution | Low temperature glycol solution production down to -12°C with ethylene glycol | Covers specific applications such as ice storage and industrial processes | ● |
| Soft Starter | Electronic starter on each compressor | Reduced start-up current | ● |
| Master/slave operation | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operating time equalisation | ● |
| Evap. single pump power/control circuit | Unit equipped with an electrical power and control circuit for one pump evaporator side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | Sizes 360 to 600 |
| Cond. single pump power/control circuit | Unit equipped with an electrical power and control circuit for one pump condenser side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | Sizes 360 to 600 |
| Condenser insulation | Thermal condenser insulation | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) | ● |
| HP single-pump hydraulic module | Single high-pressure water pump, water filter, electronic water flow control, pressure transducers. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available.) | Easy and fast installation (plug & play) | Sizes 360 to 600 |
| LP evap. single-pump | Evaporator hydraulic module equipped with low pressure fixed-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available) | Easy and fast installation (plug & play) | ● |
| HP evap. variable-speed single-pump | Evaporator hydraulic module equipped with high-pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability | ● |
| HP VSD dual-pump hydraulic mod. | Dual high-pressure water pump with variable speed drive (VSD), pressure transducers. Multiple possibilities of water flow control. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability | Sizes 360 to 600 |
| LP VSD single-pump | Evaporator hydraulic module equipped with low -pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included. Option with built-in safety hydraulic components available.) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability | Sizes 360 to 600 |
| Lon gateway | Bi-directional communication board complying with Lon Talk protocol | Connects the unit by communication bus to a building management system | ● |
| Bacnet over IP | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy and high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters | ● |
| Specific dry cooler control | Control box for communication with the dry cooler via a bus. For OPERA dry cooler need to select the cabinet with option control cabinet manage by the chiller Connect'Touch control | Permits the use of an energy-efficient plug-and-play system | ● |
| External boiler management | Control board factory-installed on the unit to control a boiler | Extended remote control capabilities to a boiler on/off command. Permits easy control of a basic heating system | ● |
| Electric heaters management | Control board factory-installed on the unit with additional inputs/outputs in order to manage up to 4 external heating stages (electric heaters, etc.) | Extended remote control capabilities to up to 4 electric heaters. Permits easy control of a basic heating system | ● |
| Compliance with Russian regulations | EAC certification | Compliance with Russian regulations | ● |
| Insulation of the evap. in/ out ref. lines | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation | Prevents condensation on the evaporator entering/leaving refrigerant lines | ● |
| Low noise level | Compressor sound enclosure | Reduced sound emissions | ● |
| Evaporator screw connection sleeves (kit) | Evaporator inlet/outlet screw connection sleeves | Allows unit connection to a screw connector | ● |
| Condenser screw connection sleeves kit | Condenser inlet/outlet screw connection sleeves | Allows unit connection to a screw connector | ● |
| HP single-pump, condenser side | Condenser hydraulic module equipped with high pressure fixed-speed pump, drain valve, air vent and pressure sensors. Built-in safety hydraulic components available in option. | Easy and fast installation (plug & play) | Sizes 360 to 600 |

● ALL MODELS

Refer to the selection tool to find out which options are not compatible

AVAILABLE OPTIONS

| Options | Description | Advantages | LG |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| LP single-pump, cond. side | Condenser hydraulic module equipped with low pressure fixed-speed pump, drain valve, air vent and pressure sensors. Built-in safety hydraulic components available in option. | Easy and fast installation (plug & play) | ● |
| HP cond. variable-speed single-pump | Condenser hydraulic module equipped with high-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included). Built-in safety hydraulic components available in option | Easy and fast installation (plug & play), reduced power consumption of the water circulation pump | ● |
| HP cond. variable-speed dual-pump | Condenser hydraulic module equipped with dual high-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included) Optional hydraulic safety components available | Easy and fast installation (plug & play), reduced power consumption of the water circulation pump | Sizes 360 to 600 |
| LP cond. variable-speed single-pump | Condenser hydraulic module equipped with low-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included) Optional hydraulic safety components available | Easy and fast installation (plug & play), reduced power consumption of the water circulation pump | Sizes 360 to 600 |
| Safety hydraulic components, evap. side | Screen filter, expansion tank and relief valve integrated in the evaporator hydraulic module | Easy and fast installation (plug & play), operating safety | ● |
| Safety hydraulic components, cond. side | Screen filter, expansion tank and relief valve integrated in the condenser hydraulic module | Easy and fast installation (plug & play), operating safety | ● |
| M2M supervision (accessory) | Monitoring solution which allows customers to track and monitor their equipment remotely in real time | Real-time expert technical support to improve equipment availability and reports at customer hand to monitor and optimize operating equipment. | ● |
| Anti-vibration mounts (kit) | Elastomer antivibratils mounts to be place under the unit (Material classified B2 fire class according to DIN 4102). | Isolate unit from the building, avoid transmission of vibration and associate noise to the buiding. Must be used in conjunction with a flexible connection on the water side | ● |
| Exchangers flexibles connection (kit) | Flexible connections on the exchanger water side | Easy installation. Limit transmission of vibrations on the water network | ● |
| Exchangers water filter (kit) | Water filter | Eliminate dust in the water network | ● Without pump option |
| Condenser water filter (kit) | Water filter | Eliminate dust in the water network | ● Without pump option |
| Set point adjustment by 4-20mA signal | Connections to allow a 4-20 mA signal input | Simplified energy management, enabling the setpoint to be set by a 4-20 mA external signal | ● |
| External temperature sensor | External temperature sensor control for using weather compensation | Allow to adjust set point using weather compensation and define autorisation operation mode to external temperature | ● |
| Free Cooling dry cooler management | Control & connections to a Free Cooling Drycoolers Opera or Vextra fitted with option FC control box | Easy system managment, Extended control capabilities to a dryccoler used in Free Cooling mode | ● |
| Desuperheater flexibles connection (kit) | Flexibles connections on the desuperheaterr water side | Easy installation. Limit transmission of vibrations on the water network | Sizes 360 to 600 |

● ALL MODELS

Refer to the selection tool to find out which options are not compatible

TECHNICAL CHARACTERISTICS

| DYNACIAT™ LG | | | | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 |
|---------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating | | | | | | | | | | | | | | |
| Standard unit Full load performances* | HW1 | Nominal capacity | kW | 30 | 35 | 38 | 44 | 51 | 56 | 70 | 77 | 89 | 101 | 114 |
| | | COP | kW/kW | 5,48 | 5,48 | 5,44 | 5,47 | 5,43 | 5,45 | 5,49 | 5,40 | 5,46 | 5,42 | 5,47 |
| | HW2 | Nominal capacity | kW | 29 | 33 | 36 | 43 | 49 | 54 | 68 | 74 | 85 | 97 | 108 |
| | | COP | kW/kW | 4,31 | 4,33 | 4,32 | 4,33 | 4,37 | 4,31 | 4,35 | 4,30 | 4,27 | 4,36 | 4,29 |
| | HW3 | Nominal capacity | kW | 28 | 33 | 35 | 41 | 47 | 52 | 65 | 73 | 81 | 93 | 103 |
| | | COP | kW/kW | 3,57 | 3,61 | 3,59 | 3,58 | 3,65 | 3,59 | 3,55 | 3,60 | 3,51 | 3,68 | 3,54 |
| Standard unit Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 5,35 | 5,33 | 5,24 | 5,28 | 5,23 | 5,26 | 5,95 | 5,9 | 5,93 | 6,01 | 6,03 |
| | | η _s heat _{30/35°C} | % | 206 | 205 | 202 | 203 | 201 | 202 | 230 | 228 | 229 | 232 | 233 |
| | HW3 | SCOP _{47/55°C} | kWh/kWh | 4,31 | 4,31 | 4,29 | 4,31 | 4,33 | 4,28 | 4,79 | 4,83 | 4,74 | 4,96 | 4,81 |
| | | η _s heat _{47/55°C} | % | 164 | 164 | 163 | 164 | 165 | 163 | 184 | 185 | 181 | 191 | 184 |
| | | P _{rated} | kW | 32 | 37 | 40 | 47 | 54 | 59 | 75 | 83 | 93 | 106 | 118 |
| | | Energy labelling | kW/kW | A++ | A++ | A++ | A++ | A++ | A++ | - | - | - | - | - |
| Cooling | | | | | | | | | | | | | | |
| Standard unit Full load performances* | CW1 | Nominal capacity | kW | 25 | 29 | 32 | 37 | 42 | 47 | 58 | 63 | 74 | 84 | 94 |
| | | EER | kW/kW | 4,68 | 4,68 | 4,65 | 4,68 | 4,65 | 4,67 | 4,65 | 4,57 | 4,62 | 4,58 | 4,62 |
| | | Eurovent class | | B | B | B | B | B | B | B | C | C | C | C |
| | CW2 | Nominal capacity | kW | 34 | 39 | 43 | 50 | 57 | 66 | 78 | 86 | 102 | 113 | 129 |
| | | EER | kW/kW | 6,35 | 6,04 | 5,96 | 5,98 | 5,83 | 5,99 | 6,02 | 5,83 | 6,10 | 5,86 | 6,08 |
| | | Eurovent class | | A | A | A | A | A | A | A | A | A | A | A |
| Standard unit Seasonal energy efficiency** | SEER _{12/7°C} Comfort low temp. | | kWh/kWh | 4,79 | 4,78 | 4,69 | 4,72 | 4,69 | 4,72 | 5,41 | 5,34 | 5,31 | 5,45 | 5,41 |
| | SEPR _{12/7°C} Process high temp. | | kWh/kWh | 6,33 | 6,34 | 6,17 | 6,12 | 6,16 | 6,20 | 6,47 | 6,33 | 6,33 | 6,43 | 6,47 |
| Unit with Low-temperature brine solution option Seasonal energy efficiency** | | SEPR _{-2/-8°C} Process medium temp.*** | kWh/kWh | 3,88 | 4,22 | 4,38 | 4,29 | 4,41 | 3,96 | 4,10 | 4,63 | 4,46 | 4,67 | 4,65 |
| Part Load integrated values | | IPLV.SI | kW/kW | 5,840 | 5,850 | 5,760 | 5,780 | 5,770 | 5,820 | 6,580 | 6,680 | 6,560 | 6,810 | 6,720 |
| Sound levels | | | | | | | | | | | | | | |
| Standard unit | | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 67 | 69 | 69 | 69 | 70 | 70 | 72 | 72 | 72 | 73 | 73 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 36 | 37 | 38 | 38 | 39 | 39 | 40 | 41 | 41 | 42 | 42 |
| Unit with Low Noise option | | | | | | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 65 | 66 | 66 | 67 | 68 | 68 | 68 | 69 | 69 | 69 | 70 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 34 | 35 | 35 | 35 | 37 | 37 | 37 | 37 | 38 | 38 | 39 |

| | |
|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * | In accordance with standard EN14511-3:2022. |
| ** | In accordance with standard EN14825:2022, average climate |
| *** | With EG 30% |
| HW1 | Heating mode conditions: Evaporator water inlet/outlet temperature 10 °C/7 °C, condenser water inlet/outlet temperature 30 °C/35 °C, evaporator fouling factor 0 m ² . kW |
| HW2 | Heating mode conditions: Evaporator water inlet/outlet temperature 10 °C/7 °C, condenser water inlet/outlet temperature 40 °C/45 °C, evaporator fouling factor 0 m ² . kW |
| HW3 | Heating mode conditions: Evaporator water inlet/outlet temperature 10 °C/7 °C, condenser water inlet/outlet temperature 47 °C/55 °C, evaporator fouling factor 0 m ² . kW |
| CW1 | Cooling mode conditions: Evaporator water inlet/outlet temperature 12 °C/7 °C, condenser water inlet/outlet temperature 30 °C/35 °C, evaporator fouling factor 0 m ² . kW |
| CW2 | Cooling mode conditions: Evaporator water inlet/outlet temperature 23 °C/18 °C, condenser water inlet/outlet temperature 30 °C/35 °C, evaporator fouling factor 0 m ² . kW |
| η _s heat _{30/35°C} & SCOP _{30/35°C} | Values calculated in accordance with EN14825:2022 |
| η _s heat _{47/55°C} & SCOP _{47/55°C} | Bold values compliant to Ecodesign regulation: (EU) No 813/2013 for Heat Pump application |
| SEER _{12/7°C} & SEPR _{12/7°C} | Values calculated in accordance with EN14825:2022 |
| SEPR _{-2/-8°C} | Values calculated in accordance with EN14825:2022 |
| IPLV.SI | Calculated as per AHRI standard 551-591(SI). |
| - | Not applicable |
| (1) | In dB ref=10 ⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent. |
| (2) | In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A). |



Eurovent certified values

TECHNICAL CHARACTERISTICS

| DYNACIAT™ LG | | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 |
|--------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Dimensions | | | | | | | | | | | | |
| Length | mm | 600 | 600 | 600 | 600 | 600 | 600 | 880 | 880 | 880 | 880 | 880 |
| Width | mm | 1044 | 1044 | 1044 | 1044 | 1044 | 1044 | 1474 | 1474 | 1474 | 1474 | 1474 |
| Height | mm | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 | 901 |
| Operating Weight ⁽³⁾ | | | | | | | | | | | | |
| Standard unit | kg | 191 | 200 | 200 | 207 | 212 | 220 | 386 | 392 | 403 | 413 | 441 |
| Unit with evaporator with single LP pump | kg | 250 | 258 | 258 | 263 | 266 | 271 | 431 | 435 | 442 | 449 | 465 |
| Unit with condenser with single LP pump | kg | 250 | 258 | 258 | 263 | 266 | 271 | 431 | 435 | 442 | 449 | 465 |
| Unit with evaporator with single variable-speed HP pump + condenser with single variable-speed HP pump | kg | 305 | 313 | 313 | 321 | 327 | 334 | 513 | 521 | 533 | 544 | 574 |
| Compressors | | Hermetic Scroll 48.3 r/s | | | | | | | | | | |
| Circuit A | Qty | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| Number of power stages | Qty | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| Refrigerant ⁽³⁾ | | R410A (GWP=2088 following ARI4) | | | | | | | | | | |
| Circuit A | kg | 3,5 | 3,5 | 3,6 | 3,7 | 4 | 4,6 | 7,6 | 7,8 | 7,9 | 8,7 | 11,5 |
| | tCO ₂ e | 7,3 | 7,3 | 7,5 | 7,7 | 8,4 | 9,6 | 15,9 | 16,3 | 16,5 | 18,2 | 24 |
| Oil charge | | TYPE: 160SZ | | | | | | | | | | |
| Circuit A | l | 3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,6 | 3,3 | 3,3 | 3,3 | 3,3 | 3,6 |
| Power control | | Connect Touch Control | | | | | | | | | | |
| Minimum capacity | % | 100 | 100 | 100 | 100 | 100 | 100 | 50 | 50 | 50 | 50 | 50 |
| Water type heat exchanger | | | | | | | | | | | | |
| Evaporator | | Plate heat exchanger with direct expansion | | | | | | | | | | |
| Water volume | l | 3,3 | 3,6 | 3,6 | 4,2 | 4,6 | 5 | 8,4 | 9,2 | 9,6 | 10,4 | 12,5 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | Plate heat exchanger | | | | | | | | | | |
| Water volume | l | 3,3 | 3,6 | 3,6 | 4,2 | 4,6 | 5 | 8,4 | 9,2 | 9,6 | 10,4 | 12,5 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (optional) | | | | | | | | | | | | |
| Single pump | | Pump, Victaulic screen filter, drain valves (water and air), pressure sensors | | | | | | | | | | |
| Expansion tank volume (optional) | l | 8 | 8 | 8 | 8 | 8 | 8 | 12 | 12 | 12 | 12 | 12 |
| Expansion vessel pressure ⁽⁴⁾ | bar | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Max. water-side operating pressure with hydraulic module | kPa | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| Water connections with or without hydronic module | | Victaulic® | | | | | | | | | | |
| Connections | inch | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 2 | 2 | 2 | 2 | 2 |
| External diameter | mm | 48,3 | 48,3 | 48,3 | 48,3 | 48,3 | 48,3 | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 |
| Casing paint | | Colour code: RAL 7035 / RAL 7024 | | | | | | | | | | |

(3) Values shown are a guideline only. Please refer to the unit nameplate

(4) On delivery, the vessels are preinflated to a standard value, which may not be the optimum one for the installation. To enable the water volume to be varied as desired, adapt the inflation pressure to a value close to that which corresponds to the static height of the installation. Fill the installation with water (bleeding out any air) at a pressure more than 10 to 20 kPa higher than the vessel pressure.

TECHNICAL CHARACTERISTICS

| DYNACIAT™ LG | | | | 360 | 390 | 450 | 480 | 520 | 600 |
|---------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------|---------|-------|-------|-------|-------|-------|-------|
| Heating | | | | | | | | | |
| Standard unit Full load performances* | HW1 | Nominal capacity | kW | 137 | 156 | 172 | 183 | 206 | 230 |
| | | COP | kW/kW | 5,60 | 5,57 | 5,49 | 5,64 | 5,59 | 5,56 |
| | HW2 | Nominal capacity | kW | 131 | 148 | 163 | 174 | 197 | 218 |
| | | COP | kW/kW | 4,42 | 4,43 | 4,37 | 4,40 | 4,48 | 4,36 |
| | HW3 | Nominal capacity | kW | 125 | 140 | 155 | 166 | 189 | 209 |
| | | COP | kW/kW | 3,58 | 3,62 | 3,56 | 3,60 | 3,76 | 3,59 |
| Standard unit Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 6,24 | 6,28 | 6,18 | 6,24 | 6,24 | 6,08 |
| | | ηs heat _{30/35°C} | % | 242 | 243 | 239 | 242 | 241 | 235 |
| | HW3 | SCOP _{47/55°C} | kWh/kWh | 5,02 | 5,05 | 5,01 | 4,99 | 5,14 | 4,92 |
| | | ηs heat _{47/55°C} | % | 193 | 194 | 192 | 192 | 198 | 189 |
| | | P _{rated} | kW | 143 | 161 | 178 | 191 | 216 | 239 |
| Cooling | | | | | | | | | |
| Standard unit Full load performances * | CW1 | Nominal capacity | kW | 115 | 130 | 144 | 153 | 172 | 192 |
| | | EER | kW/kW | 4,78 | 4,75 | 4,68 | 4,81 | 4,76 | 4,77 |
| | | Eurovent class | | B | B | B | B | B | B |
| | CW2 | Nominal capacity | kW | 155 | 176 | 196 | 207 | 230 | 262 |
| | | EER | kW/kW | 6,17 | 6,07 | 5,98 | 6,20 | 5,94 | 6,09 |
| | | Eurovent class | | A | A | A | A | A | A |
| Standard unit Seasonal energy efficiency** | SEER _{12/7°C} Comfort low temp. | | kWh/kWh | 6,05 | 6,16 | 6,07 | 5,91 | 5,97 | 5,87 |
| | SEPR _{12/7°C} Process high temp. | | kWh/kWh | 6,92 | 7,05 | 6,90 | 6,69 | 6,69 | 6,69 |
| Unit with Low-temperature brine solution option Seasonal energy efficiency** | | SEPR _{-2/-8°C} Process medium temp.*** | kWh/kWh | 4,30 | 4,45 | 4,42 | 4,66 | 4,72 | 4,68 |
| Part Load integrated values | | IPLV.SI | kW/kW | 6,860 | 6,980 | 6,900 | 6,820 | 6,890 | 6,820 |
| Sound levels | | | | | | | | | |
| Standard unit | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 76 | 77 | 78 | 76 | 77 | 78 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 44 | 45 | 46 | 44 | 45 | 47 |
| Unit with Low Noise option | | | | | | | | | |
| Sound power ⁽¹⁾ | | | dB(A) | 73 | 74 | 75 | 73 | 74 | 75 |
| Sound pressure at 10 m ⁽²⁾ | | | dB(A) | 41 | 42 | 43 | 41 | 42 | 44 |

| | |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * | In accordance with standard EN14511-3:2022. |
| ** | In accordance with standard EN14825:2022, average climate |
| *** | With EG 30% |
| HW1 | Heating mode conditions: Evaporator water inlet/outlet temperature 10 °C/7 °C, condenser water inlet/outlet temperature 30 °C/35 °C, evaporator fouling factor 0 m ² . kW |
| HW2 | Heating mode conditions: Evaporator water inlet/outlet temperature 10 °C/7 °C, condenser water inlet/outlet temperature 40 °C/45 °C, evaporator fouling factor 0 m ² . kW |
| HW3 | Heating mode conditions: Evaporator water inlet/outlet temperature 10 °C/7 °C, condenser water inlet/outlet temperature 47 °C/55 °C, evaporator fouling factor 0 m ² . kW |
| CW1 | Cooling mode conditions: Evaporator water inlet/outlet temperature 12 °C/7 °C, condenser water inlet/outlet temperature 30 °C/35 °C, evaporator fouling factor 0 m ² . kW |
| CW2 | Cooling mode conditions: Evaporator water inlet/outlet temperature 23 °C/18 °C, condenser water inlet/outlet temperature 30 °C/35 °C, evaporator fouling factor 0 m ² . kW |
| η _{gs heat} _{30/35°C} & SCOP _{30/35°C} | Values calculated in accordance with EN14825:2022 |
| η _{gs heat} _{47/55°C} & SCOP _{47/55°C} | Bold values compliant to Ecodesign regulation: (EU) No 813/2013 for Heat Pump application |
| SEER _{12/7°C} & SEPR _{12/7°C} | Values calculated in accordance with EN14825:2022 |
| SEPR _{-2/-8°C} | Values calculated in accordance with EN14825:2022 |
| IPLV.SI | Calculated as per AHRI standard 551-591(SI). |
| (1) | In dB ref=10 ⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent. |
| (2) | In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A). |



Eurovent certified values

TECHNICAL CHARACTERISTICS

| DYNACIAT™ LG | | 360 | 390 | 450 | 480 | 520 | 600 |
|--------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------|------|------|------|-------|-------|
| Dimensions | | | | | | | |
| Length | mm | 880 | 880 | 880 | 880 | 880 | 880 |
| Width | mm | 1583 | 1583 | 1583 | 1583 | 1583 | 1583 |
| Height | mm | 1574 | 1574 | 1574 | 1574 | 1574 | 1574 |
| Operating Weight ⁽³⁾ | | | | | | | |
| Standard unit | kg | 721 | 742 | 765 | 844 | 872 | 899 |
| Unit with evaporator with single LP pump | kg | 996 | 1022 | 1048 | 1158 | 1230 | 1261 |
| Unit with condenser with single LP pump | kg | 1016 | 1042 | 1068 | 1178 | 1230 | 1261 |
| Unit with evaporator with single variable-speed HP pump + condenser with single variable-speed HP pump | kg | 1056 | 1082 | 1108 | 1218 | 1270 | 1301 |
| Compressors | | Hermetic Scroll 48.3 r/s | | | | | |
| Circuit A | Qty | 3 | 3 | 3 | 2 | 2 | 2 |
| Circuit B | Qty | - | - | - | 2 | 2 | 2 |
| Number of power stages | Qty | 3 | 3 | 3 | 4 | 4 | 4 |
| Refrigerant ⁽³⁾ | | R410A (GWP=2088 following ARI4) | | | | | |
| Circuit A | kg | 13,3 | 14,7 | 15,3 | 10,5 | 11,5 | 12,1 |
| | tCO ₂ e | 27,8 | 30,7 | 31,9 | 21,9 | 23,9 | 25,05 |
| Circuit B | kg | - | - | - | 10,5 | 11,25 | 12 |
| | tCO ₂ e | - | - | - | 21,9 | 23,9 | 25,05 |
| Oil charge | | TYPE: 160SZ | | | | | |
| Circuit A | l | 3,3 | 3,3 | 3,6 | 3,3 | 3,3 | 3,6 |
| Circuit B | l | - | - | - | 3,3 | 3,3 | 3,6 |
| Power control | | Connect Touch Control | | | | | |
| Minimum capacity | % | 33 | 33 | 33 | 25 | 25 | 25 |
| Water type heat exchanger | | Plate heat exchanger with direct expansion | | | | | |
| Evaporator | | | | | | | |
| Water volume | l | 15 | 17 | 19 | 23 | 26 | 29 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | Plate heat exchanger | | | | | |
| Water volume | l | 15 | 17 | 19 | 23 | 26 | 29 |
| Max. water-side operating pressure without hydraulic module | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Hydronic module (optional) | | Pump, Victaulic screen filter, drain valves (water and air), pressure sensors | | | | | |
| Single pump | | | | | | | |
| Expansion tank volume (optional) | l | 25 | 25 | 25 | 35 | 35 | 35 |
| Expansion vessel pressure ⁽⁴⁾ | bar | 4 | 4 | 4 | 4 | 4 | 4 |
| Max. water-side operating pressure with hydraulic module | kPa | 400 | 400 | 400 | 400 | 400 | 400 |
| Water connections with or without hydronic module | | Victaulic® | | | | | |
| Connections | inch | 2,5 | 2,5 | 2,5 | 3 | 3 | 3 |
| External diameter | mm | 73 | 73 | 73 | 88,9 | 88,9 | 88,9 |
| Casing paint | | Colour code: RAL 7035 / RAL 7024 | | | | | |

(3) Values shown are a guideline only. Please refer to the unit nameplate

(4) On delivery, the vessels are preinflated to a standard value, which may not be the optimum one for the installation. To enable the water volume to be varied as desired, adapt the inflation pressure to a value close to that which corresponds to the static height of the installation. Fill the installation with water (bleeding out any air) at a pressure more than 10 to 20 kPa higher than the vessel pressure.

ELECTRICAL SPECIFICATIONS

| DYNACIAT™ LG - Standard unit (without hydraulic module) | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 | 360 | 390 | 450 | 480 | 520 | 600 |
|--------------------------------------------------------------------------|-------------------------------|------|------|------|------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Power circuit | | | | | | | | | | | | | | | | | |
| Nominal voltage V-ph-Hz | 400-3-50 | | | | | | | | | | | | | | | | |
| Voltage range V | 360-440 | | | | | | | | | | | | | | | | |
| Control circuit supply | 24 V via internal transformer | | | | | | | | | | | | | | | | |
| Nominal unit current draw⁽³⁾ | | | | | | | | | | | | | | | | | |
| Circuit A&B A | 10,5 | 13,2 | 13,8 | 15,6 | 16,2 | 20,2 | 26,4 | 27,6 | 31,2 | 32,4 | 40,4 | 46,8 | 48,6 | 60,6 | 62,4 | 64,8 | 80,8 |
| Maximum unit power input⁽²⁾ | | | | | | | | | | | | | | | | | |
| Circuit A&B kW | 9,2 | 10,8 | 11,7 | 13,7 | 15,1 | 17,1 | 21,5 | 23,3 | 27,3 | 30,3 | 34,2 | 41 | 44,9 | 51,2 | 54,6 | 59,8 | 68,3 |
| Unit power factor at maximum capacity⁽²⁾ | 0,85 | 0,83 | 0,85 | 0,85 | 0,86 | 0,85 | 0,83 | 0,85 | 0,85 | 0,86 | 0,85 | 0,85 | 0,85 | 0,85 | 0,85 | 0,85 | 0,85 |
| Maximum unit current draw (Un-10%)⁽⁵⁾ | | | | | | | | | | | | | | | | | |
| Circuit A&B A | 17,3 | 20,8 | 22 | 25,8 | 28,2 | 32,2 | 41,6 | 44 | 51,6 | 56,4 | 64,4 | 77,3 | 84,7 | 96,7 | 103,1 | 112,9 | 128,9 |
| Maximum current draw (Un)⁽⁴⁾ | | | | | | | | | | | | | | | | | |
| Circuit A&B - Standard unit A | 15,6 | 18,7 | 19,8 | 23,2 | 25,4 | 29 | 37,4 | 39,6 | 46,4 | 50,8 | 58 | 69,6 | 76,2 | 87 | 92,8 | 101,6 | 116 |
| Maximum start-up current, standard unit (Un)⁽¹⁾ | | | | | | | | | | | | | | | | | |
| Circuit A&B A | 98 | 142 | 142 | 147 | 158 | 197 | 161 | 162 | 170 | 183 | 226 | 193,4 | 208,8 | 255 | 216,6 | 234,2 | 284 |
| Maximum start-up current, unit with soft start (Un)⁽¹⁾ | | | | | | | | | | | | | | | | | |
| Circuit A&B A | 53,9 | 78,1 | 78,1 | 80,9 | 86,9 | 108,4 | 96,8 | 97,9 | 104,1 | 112,3 | 137,4 | 127,3 | 137,7 | 166,4 | 150,5 | 163,1 | 195,4 |

(1) Maximum instantaneous starting current (maximum operating current of the smallest compressor(s) + locked rotor current of the largest compressor).

(2) Power input, at the unit's permanent operating limits (indication given on the unit's name plate).

(3) Standardised EUROVENT conditions, water type heat exchanger input/output = 12°C/7°C, outdoor air temperature = 35°C.

(4) Maximum unit current at 400V, during non-permanent operation (indication given on the unit's name plate)

(5) Maximum unit current at 360V, during non-permanent operation

■ Short circuit current withstand capability (TN system⁽¹⁾)

| DYNACIAT™ LG | 080 | 090 | 100 | 120 | 130 | 150 | 180 | 200 | 240 | 260 | 300 | 360 | 390 | 450 | 480 | 520 | 600 |
|--------------------------------------------------------------------------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Value without upstream protection | | | | | | | | | | | | | | | | | |
| Short time assigned current (1s) - I _{cw} kA eff | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 5,5 | 5,5 | 5,5 | 5,5 | 5,5 | 5,5 |
| Allowable peak assigned current - I _{pk} kA pk | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 20 | 20 | 20 | 20 | 20 | 20 |
| Value with upstream protection | | | | | | | | | | | | | | | | | |
| Conditional short circuit assigned current I _{cc} kA eff | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 154 | 154 | 154 | 154 | 154 | 154 |
| Associated Schneider circuit breaker - Compact type range ⁽²⁾ | NSX 100N | | | | | | | | | | | | | | | | |

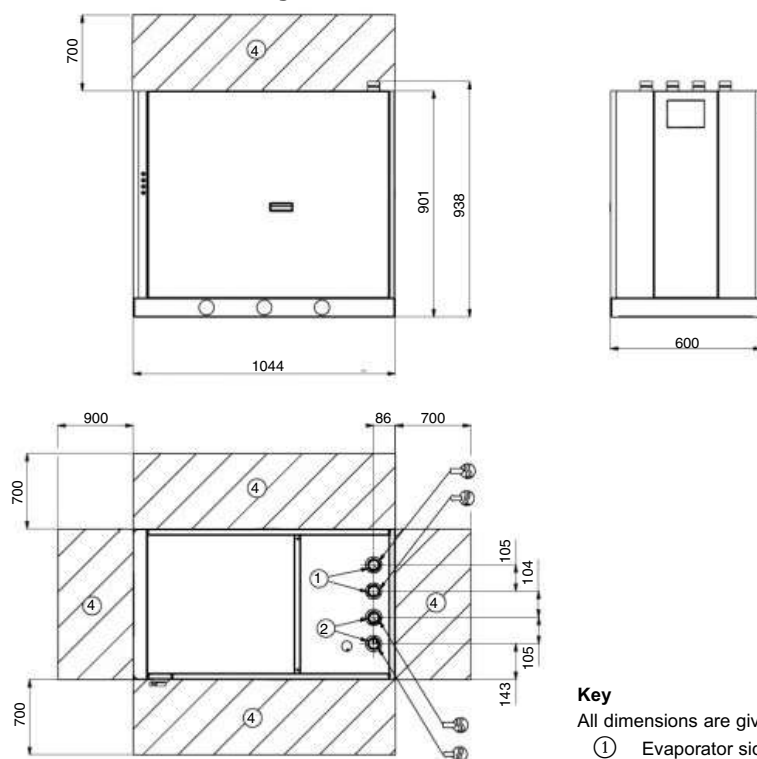
(1) Type of system earthing

(2) If another current limiting protection device is used, its time-current trip and I²t thermal stress characteristics must be at least equivalent to those of the recommended Schneider circuit breaker.

The short-circuit withstand values given above were determined for the TN system.

DIMENSIONS

■ DYNACIAT™ LG 80A to 150 without hydraulic module

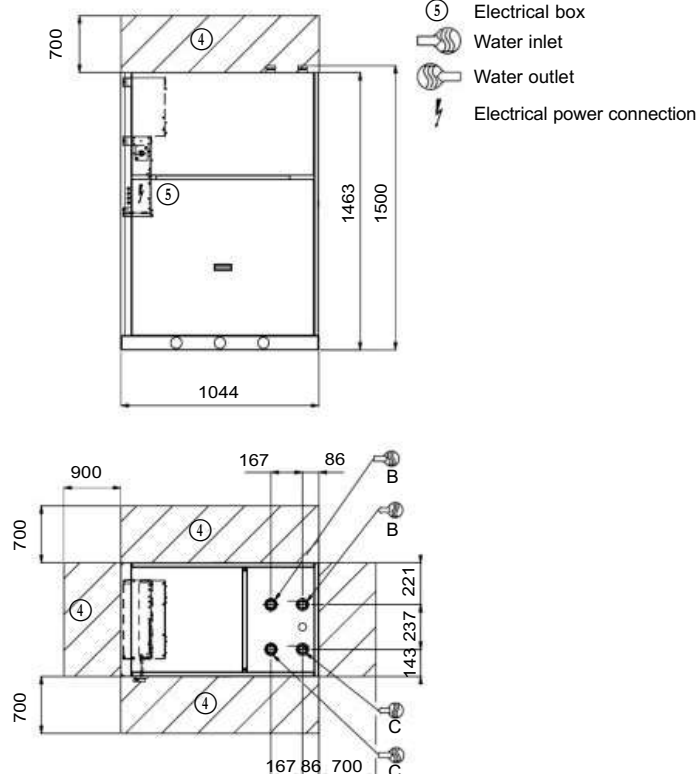


Key

All dimensions are given in mm

- ① Evaporator side
- ② Condenser side
- ③ Valve
- ④ Clearances required for maintenance (see Note)
- ⑤ Electrical box
- Water inlet
- Water outlet
- Electrical power connection

■ DYNACIAT™ LG 80A to 150 with hydraulic module



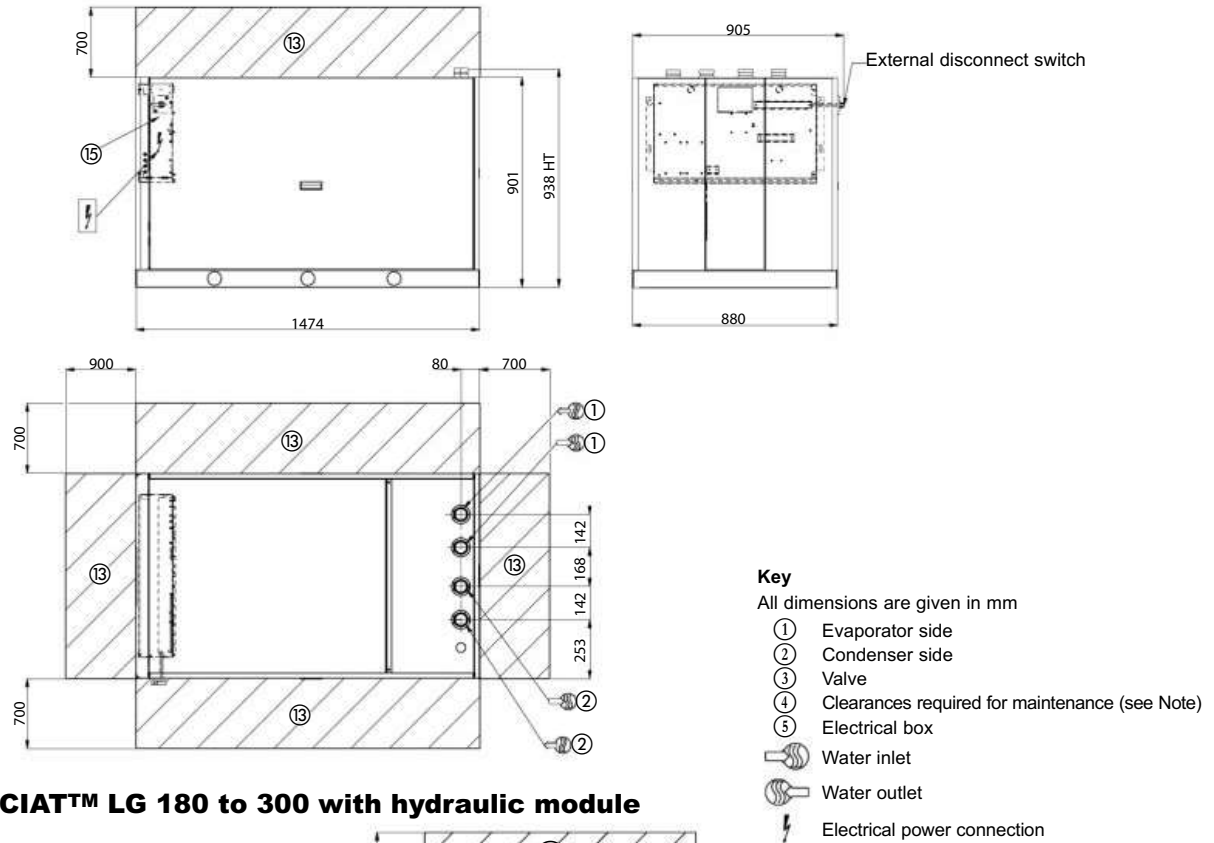
Notes:

Non-contractual drawings.

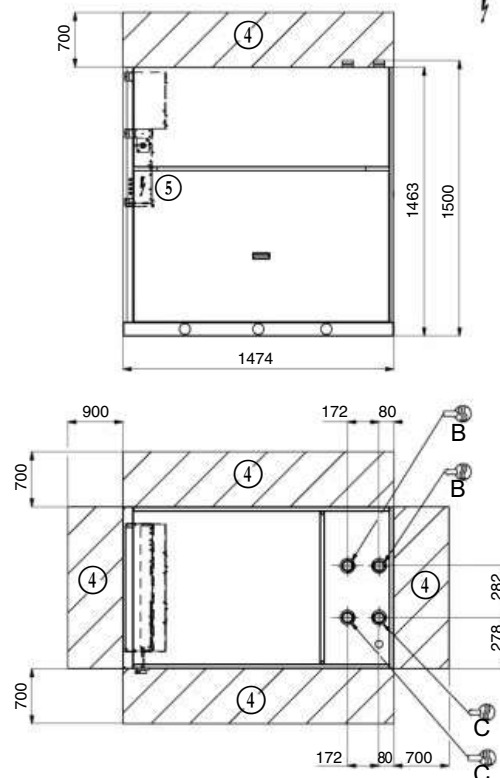
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

DIMENSIONS

■ DYNACIAT™ LG 180 to 300 without hydraulic module



■ DYNACIAT™ LG 180 to 300 with hydraulic module



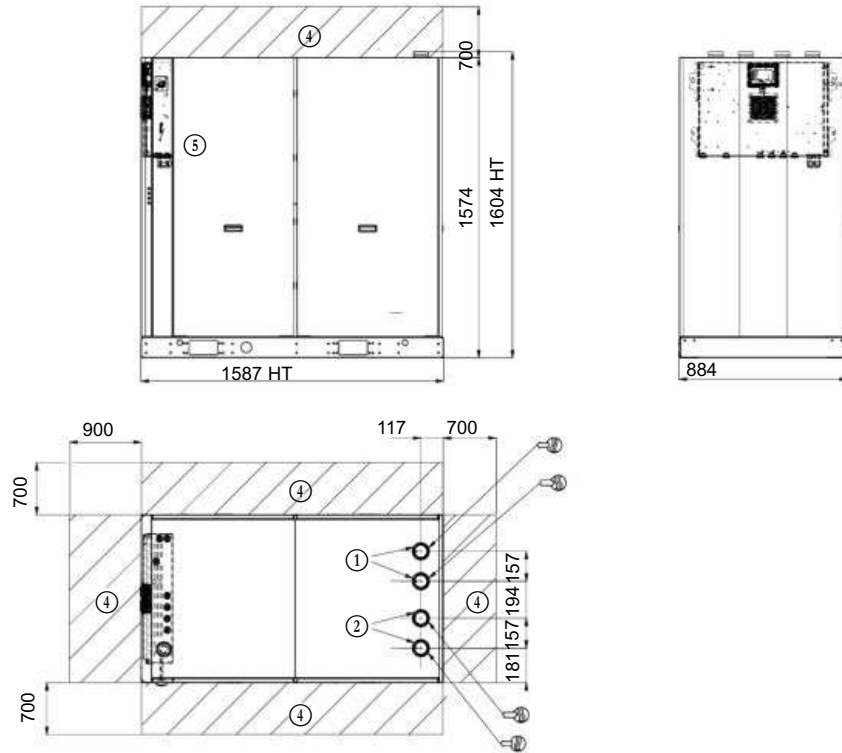
Notes:

Non-contractual drawings.

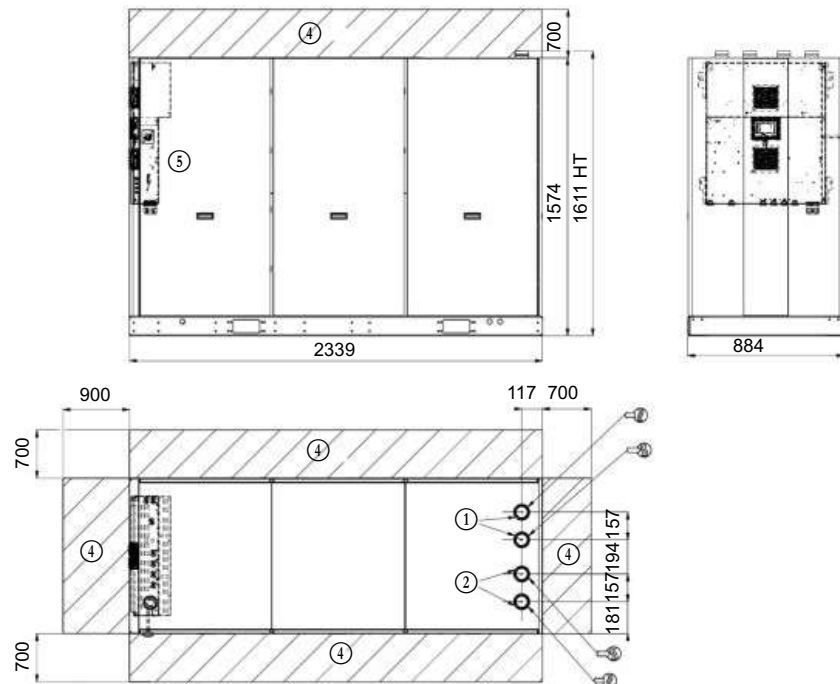
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

DIMENSIONS

■ DYNACIAT™ LG 360 to 450 without hydraulic module



■ DYNACIAT™ LG 360 to 450 with hydraulic module



Key

All dimensions are given in mm

- ① Evaporator side
- ② Condenser side
- ③ Valve
- ④ Clearances required for maintenance (see Note)
- ⑤ Electrical box
- Water inlet
- Water outlet
- Electrical power connection

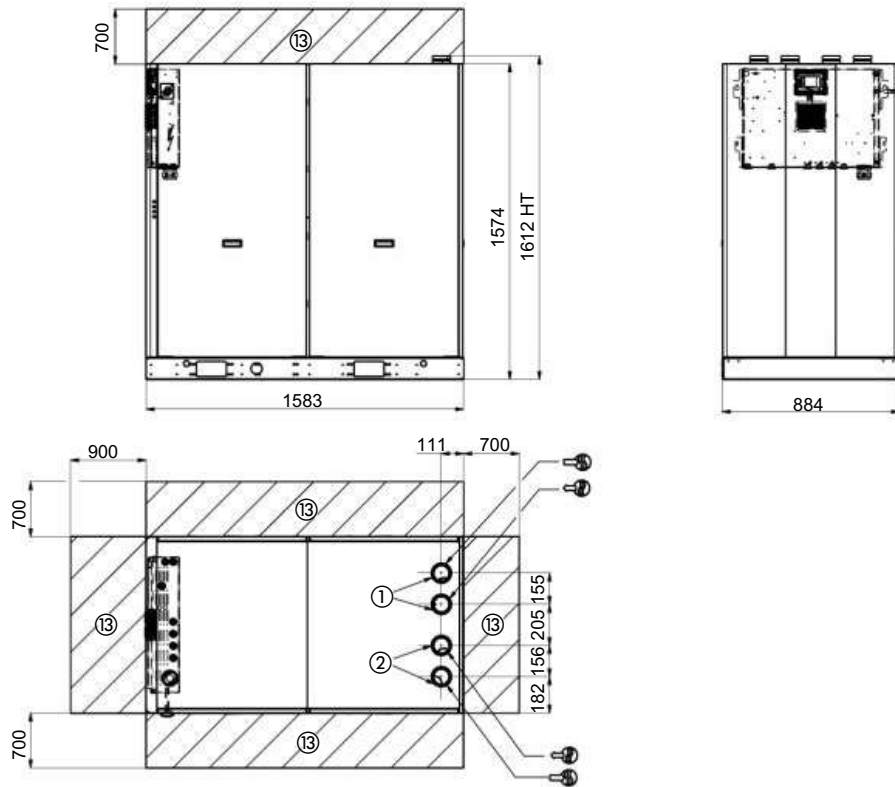
Notes:

Non-contractual drawings.

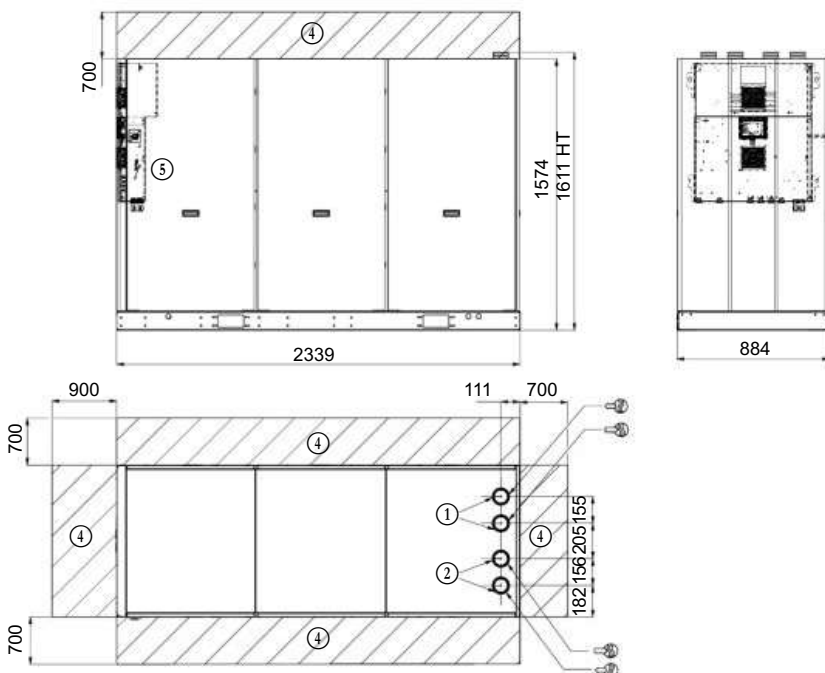
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

DIMENSIONS

■ DYNACIAT™ LG 480 to 600 without hydraulic module



■ DYNACIAT™ LG 480 to 600 with hydraulic module



Key

All dimensions are given in mm

- ① Evaporator side
- ② Condenser side
- ③ Valve
- ④ Clearances required for maintenance (see Note)
- ⑤ Electrical box
- Water inlet
- Water outlet
- Electrical power connection

Notes:

Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

DYNACIAT^{POWER}™

Water cooled
water chillers



High energy efficiency

Compact and quiet

Scroll compressors

High-efficiency brazed-plate

heat exchangers

*CIAT self-adjusting
electronic control*

Cooling capacity: 200 to 700 kW

Heating capacity: 230 to 800 kW



Heating



Cooling
only



Cooling
and
heating

R-410A



USE

The new generation of DYNACIAT^{POWER} water cooled water chillers offers an optimal solution for all heating or process cooling applications.

These units are designed to be installed in machine rooms that are protected against freezing temperatures and inclement weather.

The new range has been optimised to use ozone-friendly HFC R410A refrigerant. The use of this refrigerant guarantees compliance with the most demanding requirements for environmental protection and increased seasonal energy efficiency.

RANGE

DYNACIAT^{POWER} LG series

Cooling-only or heating-only models with water cooled condenser.

The design of the DYNACIAT^{POWER} LGP series heat pump range is identical to that of the DYNACIAT^{POWER} LG series. These machines provide solutions for the most diverse heating problems.

They can also be used in cooling mode by reversing the cycle on the hydraulic circuits.

Acoustic configuration:

- a - STANDARD version
- b - LOW NOISE version. Compressor casing
- c - XTRA LOW NOISE version. Casing with compressor acoustic insulation

DESCRIPTION

The DYNACIAT^{POWER} LG series units are monoblock machines supplied as standard with the following components:

- Hermetic SCROLL compressors,
- Chilled water evaporator with brazed plates,
- Hot water condenser with brazed plates,
- Electrical power and remote control cabinet:
 - 400V-3ph-50Hz (+10%/-10%) general power supply + earth,
 - Transformer fitted as standard on the machine for supplying the remote control circuit with 230V-1ph-50Hz,
- CIAT CONNECT2 electronic control module.

The entire DYNACIAT^{POWER} range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC, modified
- Electromagnetic compatibility directive 2014/30/EU, modified
- EMC Immunity and Emissions EN 61800-3 "C3"
- Low voltage directive 2014/35/EU, modified
- RoHS 2011/65/EU
- Pressure equipment directive (PED) 2014/68/EU
- Machinery directive EN-60-204-1
- Refrigeration systems and heat pumps EN 378-2

DESCRIPTION

| | | | | | |
|-----------|---|----------------------|-------------|---|-------------------|
| LG | > | Cooling only version | 1200 | > | Unit size |
| P | > | Heating only version | V | > | R410A refrigerant |



**LG models 700V to 1600V
Xtra Low Noise Version**

DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

- Hermetic SCROLL type.
- Built-in electric motor, cooled by intake gases.
- Motor protected by internal winding thermostat.
- Placed on anti-vibration mounts.

■ Evaporator

- Brazed-plate exchanger.
- Stainless steel plates.
- Plate patterns optimised for high efficiency.
- Armaflex thermal insulation.

■ Condenser

- Brazed-plate exchanger.
- Stainless steel plates.
- Plate patterns optimised for high efficiency.

■ Refrigerating accessories

- Dehumidifier filters with rechargeable cartridges.
- Hygroscopic sight glasses.
- Solenoid valves on refrigerant lines (700V to 1200V models).
- Thermostatic expansion valves (700V to 1000V models).
- Electronic expansion valves (1100V to 2400V models).

■ Regulation and safety instruments

- High and low pressure sensors.
- High pressure safety valves.
- Water temperature control sensors.
- Evaporator antifreeze protection sensor.
- Factory-fitted evaporator water flow controller.

■ Electrics box

- IP 23.
- 400V-3Ph-50 Hz power supply + Earth (+10%/-10%).
- Disconnect switch with handle on front.
- Control circuit transformer.
- Circuit breaker for compressor motor.
- Contact switches for compressor motor.
- CONNECT2 microprocessor-controlled electronic control module.
- Wire numbering.
- Marking of the main electrical components.
- RAL 7035.

■ CONNECT2 electronic control module

The CIAT electronic control module performs the following main functions:

- Regulation of the chilled or hot water temperature
- Regulation of the water temperature based on the outdoor temperature (water law).
- Regulation for low temperature energy storage.
- Second setpoint management.
- Complete management of compressors with start-up sequence, metering and runtime balancing.
- Self-adjusting and proactive functions with adjustment of parameters on drift control.
- In-series staged capacity-reduction system on compressors based on cooling and heating demands.
- Management of compressor short cycle protection.
- Management of the machine operation limit according to outdoor temperature.
- Operating and fault status diagnostics.

- Management of a fault memory allowing a log of the last 20 incidents to be accessed, with operating readings taken when the fault occurs.
- Master/slave management of the two machines in parallel with runtime balancing and automatic changeover if a fault occurs on one machine.
- Machine time schedule.
- Display and access to the operating parameters via a multilingual LCD screen with 4 lines of 24 characters.

■ Remote management

CONNECT2 is equipped as standard with an RS485 serial port offering a range of remote management, monitoring and diagnostic options via the communication bus.

Several contacts are available as standard which enable the DYNACIAT^{POWER} to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops.
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage mode, for example).
- Heating/cooling operating mode selection: this input switches from one operating mode to another.
Contact closed = heating mode.
Contact open = cooling mode.
- Setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in heating or cooling mode.
- Compressor load shedding: closing the contact(s) concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors.
- Water pump 1 and 2 control: these outputs control the switches for one or two water pumps.
- Fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerating circuits to stop.

■ Power control

In-series staged power control system on the compressors:

- 4 stages for 700V to 1600V models.
- 6 stages for 1800V and 2400V models.
- 8 stages for 2100V models.

■ Casing

Casing made from RAL 7024 and RAL 7035 painted panels.

DESCRIPTION OF THE MAIN COMPONENTS

■ **ABOUND HVAC Performance, the CIAT supervision solution**

ABOUND HVAC Performance is a remote supervision solution dedicated to monitoring and controlling several CIAT machines in real time.

Advantages

- Access to the operating trend curves for analysis
- Improved energy performance
- Improved availability rate for the machines

Functions

ABOUND HVAC Performance will send data in real time to the supervision website.

The machine operating data can be accessed from any PC, smartphone or tablet.

Any event can be configured to trigger a mail alert.

Parameters monitored:

- Overview
- Control panel for the controllers
- Events
- Temperature curves

Monthly and annual reports are available to analyse:

- The performance and operation of the machine
Example: operating curves and time, number of compressor start-ups, events, preventive maintenance actions to be performed, etc.

Incidents such as a drift in the measurements on a temperature sensor, incorrectly set control parameters, or even incorrect settings between one compressor stage and the other, are immediately detected, and the corrective actions put in place.

Equipment

This kit box be used on both machines which are already in use (existing inventory), or on new machines.

- 1 transportable cabinet

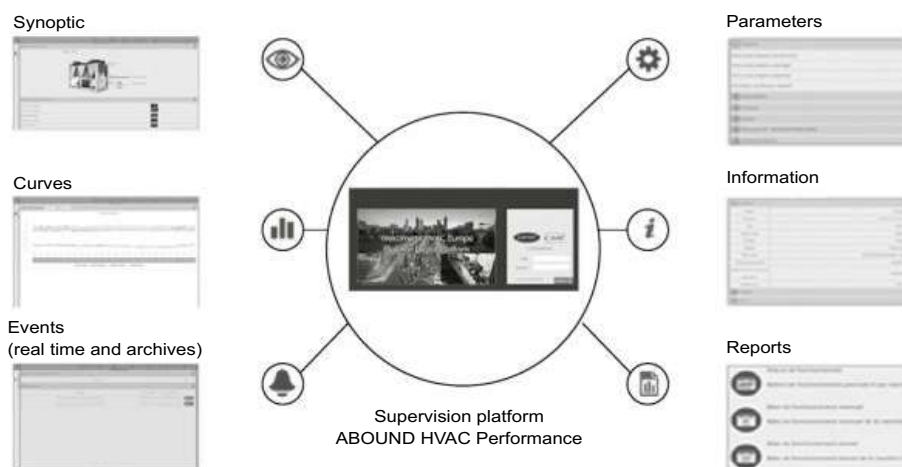


Contents of the box (available in 230v and 400v)

- 1 GPRS / 4G LTE-M modem
- 1 SIM SMART card
- 1 24 VDC power supply
- 1 power protection device
- 1 GSM antenna
- Rail mounting
- Enclosed casing to protect the equipment during transport
- Packing box for cable routing (bus, power supply)

Compatibility

Up to five machines per box



STANDARD EQUIPMENT/AVAILABLE OPTIONS

| DYNACIAT ^{POWER} LG | 700V to 2400V |
|---------------------------------------------------------------------|---------------|
| Low-temperature glycol/water mix (0°C to -12°C) | ● |
| Safety switch | ● |
| Control circuit transformer | ● |
| Electrical cabinet wire numbers | ● |
| RS485 communication interface | ● |
| Water flow controller | ● |
| Master/slave control of two machines | ● |
| ETHERNET gateway MODBUS | ● |
| Electronic expansion valve ⁽¹⁾ | ▲ |
| Low Noise version (compressor casing) | ▲ |
| Xtra Low Noise version (compressor casing with acoustic insulation) | ▲ |
| Compressor intake shut-off valves | ▲ |
| Soft start | ▲ |
| Electrical energy meter | ▲ |
| Water filter on evaporator and condenser | ■ |
| Phase controller (reversal, loss, asymmetry) | ■ |
| Anti-vibration mounts | ■ |
| Flanged connections | ■ |
| Flexible hydraulic couplings on evaporator and condenser | ■ |
| Relay board with dry contacts | ■ |
| LONWORKS/BACNET gateway | ■ |
| Outdoor temperature sensor | ■ |

● Supplied as standard

▲ Factory-mounted option

■ Option supplied as a kit

(1) Standard equipment for 1100V to 2400V models

TECHNICAL SPECIFICATIONS

| DYNACIAT ^{POWER} LG | | | | 700V | 800V | 900V | 1000V | 1100V | 1200V | 1400V | 1600V | 1800V | 2100V | 2400V | |
|--------------------------------------------------|-----|-------------------------------------------------------|----------------------|--------------------------------|----------------------|-----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------------------|----------------------|---------|--|
| Heating | | | | | | | | | | | | | | | |
| Standard unit Seasonal energy efficiency** | HA1 | SCOP _{30/35°C} | kW / kW | 5,30 | 5,53 | 5,45 | 5,47 | 5,43 | 5,49 | 5,49 | 5,48 | 5,44 | 5,46 | 5,24 | |
| | | η _s heat _{30/35°C} | % | 204 | 213 | 210 | 211 | 209 | 212 | 212 | 211 | 210 | 211 | 202 | |
| | | P _{rated} | kW | 246 | 293 | 335 | 384 | 419 | 463 | 530 | 593 | 687 | 795 | 876 | |
| Cooling | | | | | | | | | | | | | | | |
| Standard unit Full load performances* | CA1 | Net cooling capacity | kW | 203 | 242 | 278 | 320 | 348 | 382 | 439 | 495 | 574 | 651 | 703 | |
| | | Net power input | kW | 49 | 56 | 64 | 71 | 79 | 86 | 97 | 108 | 125 | 145 | 165 | |
| | | EER | kW / kW | 4,18 | 4,32 | 4,33 | 4,50 | 4,42 | 4,42 | 4,55 | 4,60 | 4,60 | 4,49 | 4,27 | |
| Standard unit Seasonal energy efficiency** | | SEPR _{-2/-8°C} Process medium temp *** | kWh/ kWh | 3,04 | 3,08 | 3,09 | 3,04 | 3,08 | 3,11 | 3,21 | 3,31 | 3,26 | 3,33 | 3,37 | |
| Standard unit Seasonal energy efficiency** | | SEER _{12/7°C} Comfort Low temp. | kW / kW | 4,66 | 4,96 | 4,92 | 4,96 | 4,91 | 4,92 | 4,98 | 4,97 | 4,99 | 4,89 | 4,60 | |
| Standard unit | | Lw / Lp ⁽¹⁾ | dB(A) | 89/57 | 90/58 | 90/58 | 89/57 | 90/58 | 91/59 | 95/63 | 96/64 | 93/61 | 95/63 | 97/65 | |
| Unit + Low Noise option | | Lw / Lp ⁽¹⁾ | dB(A) | 84/52 | 85/53 | 85/53 | 86/54 | 87/55 | 88/56 | 90/58 | 91/59 | 89/57 | 90/58 | 91/59 | |
| Unit + Xtra Low Noise | | Lw / Lp ⁽¹⁾ | dB(A) | 79/47 | 80/48 | 80/48 | 80/48 | 81/49 | 82/50 | 85/53 | 86/54 | 85/53 | 86/54 | 87/55 | |
| Refrigerating circuit | | | | | | | | | | | | | | | |
| Refrigerant (GWP) | | | | R410 (GWP=2088) | | | | | | | | | | | |
| Number | | | | 2 | | | | | | | | | | | |
| Refrigerant circuit 1 | | kg | 13,5 | 15,5 | 16,4 | 17 | 19,7 | 21,3 | 21,5 | 23 | 31 | 33 | 34 | | |
| Refrigerant circuit 2 | | kg | 14 | 15 | 16,4 | 17,2 | 19,7 | 21,3 | 21 | 22 | 31 | 34 | 34 | | |
| Tonne of CO ₂ equivalent | | TCO ₂ Eq | 57,42 | 63,68 | 68,49 | 71,41 | 82,27 | 88,95 | 88,74 | 93,96 | 129,46 | 139,9 | 141,98 | | |
| Compressor | | | | | | | | | | | | | | | |
| Type | | | | Hermetic SCROLL - 2900 rpm | | | | | | | | | | | |
| Number | | | | 4 | | | | | | | | | | | |
| Start-up mode | | | | Direct in line in series | | | | | | | | | | | |
| Capacity control | | Number of stages | 6 | 4 | 6 | 4 | 6 | 4 | 6 | 4 | 6 | 8 | 6 | | |
| | | % | 100-78-71-50-28-21-0 | 100-75-50-25-0 | 100-78-71-50-28-21-0 | 100-75-50-25-0 | 100-78-71-50-28-21-0 | 100-75-50-25-0 | 100-78-71-50-28-21-0 | 100-75-50-25-0 | 100-83-66-50-33-16-0 | 100-84-66-48-36-30-18-15-0 | 100-83-66-50-33-16-0 | | |
| Type of oil for R410A | | | | Polyolester POE 160SZ (32cP) | | | | | | | | | | | |
| Oil capacity per circuit | | | | 6,7 + 6,7 | 6,7 + 6,7 | 6,7 + 6,7 | 6,7 + 6,7 | 6,7 + 7,2 | 7,2 + 7,2 | 6,3 + 6,3 | 6,3 + 6,3 | 3 x 6,3 | 3 x 6,3 | 3 x 6,3 | |
| Evaporator | | | | | | | | | | | | | | | |
| Type/Number | | | | Brazed-plate heat exchanger/ 1 | | | | | | | | | | | |
| Water capacity | | l | 20 | 23 | 26 | 29 | 32 | 37 | 50 | 57 | 64 | 77 | | | |
| Hydraulic connection | | Ø | VICTAULIC DN100 | | | VICTAULIC DN125 | | | VICTAULIC DN150 | | | | | | |
| Max. pressure, water end | | bar | 10 bars | | | | | | | | | | | | |
| Min/max water flow rate | | m³/h | 22 / 70 | 26 / 81 | 29 / 92 | 33 / 105 | 35 / 113 | 38 / 124 | 44 / 137 | 51 / 151 | 61 / 150 | 68 / 150 | 74 / 150 | | |

* In accordance with standard EN14511-3:2022.
 ** In accordance with standard EN14825:2022, average climate
 *** With EG 30%.
 HA1 Heating mode conditions: Water heat exchanger water entering/leaving temperature 30°C/35°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m². kW.
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m². kW
 η_s heat_{30/35°C} & SCOP_{30/35°C} Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications.
 SEER_{12/7°C} Values calculated according to EN14825:2022.
 SEPR_{-2/-8°C} Values in bold comply with Ecodesign Regulation (EU) No. 2015/1095 for Process application
 (1) Lw : overall power level in accordance with standard ISO3744
 Lp : overall pressure level at 10 metres in a free field calculated using the formula Lp=LW-10logS



Eurovent certified values

TECHNICAL SPECIFICATIONS

| DYNACIAT ^{POWER} LG | | 700V | 800V | 900V | 1000V | 1100V | 1200V | 1400V | 1600V | 1800V | 2100V | 2400V |
|------------------------------|------|--------------------------------|--------|--------|-----------------|---------|---------|---------|---------|-----------------|---------|---------|
| Water condenser | | | | | | | | | | | | |
| Type/ Number | | Brazed-plate heat exchanger/ 1 | | | | | | | | | | |
| Water capacity | l | 23 | 26 | 29 | 32 | 37 | 40 | 55 | 61 | 73 | 77 | 77 |
| Hydraulic connection | Ø | VICTAULIC DN100 | | | VICTAULIC DN125 | | | | | VICTAULIC DN150 | | |
| Max. pressure, water end | bar | 10 bars | | | | | | | | | | |
| Min/max water flow rate | m³/h | 19/ 64 | 22/ 74 | 25/ 84 | 28/ 95 | 31/ 103 | 33/ 112 | 38/ 129 | 43/ 143 | 52/ 150 | 59/ 150 | 66/ 163 |
| Dimensions | | | | | | | | | | | | |
| Length | mm | 2099 | | | | | | 2499 | | 3350 | | |
| Width | mm | 996 | | | | | | | | | | |
| Height | mm | 1869 | | | | | | 1887 | | 1970 | | |
| Weight | | | | | | | | | | | | |
| Weight (empty) | kg | 1044 | 1156 | 1189 | 1312 | 1363 | 1425 | 1613 | 1708 | 2284 | 2376 | 2418 |
| Weight in operation | kg | 1088 | 1205 | 1246 | 1378 | 1436 | 1510 | 1713 | 1818 | 2472 | 2588 | 2637 |
| Max. storage temperature | °C | +50°C | | | | | | | | | | |

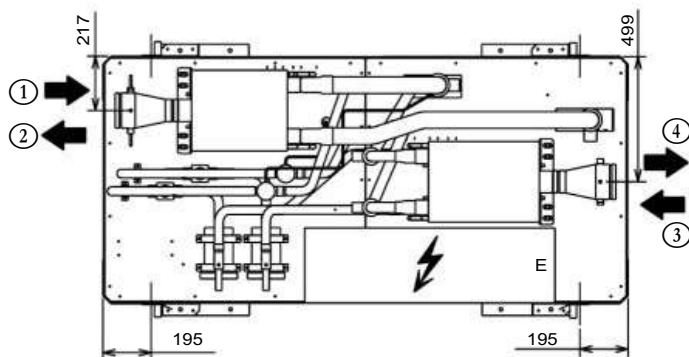
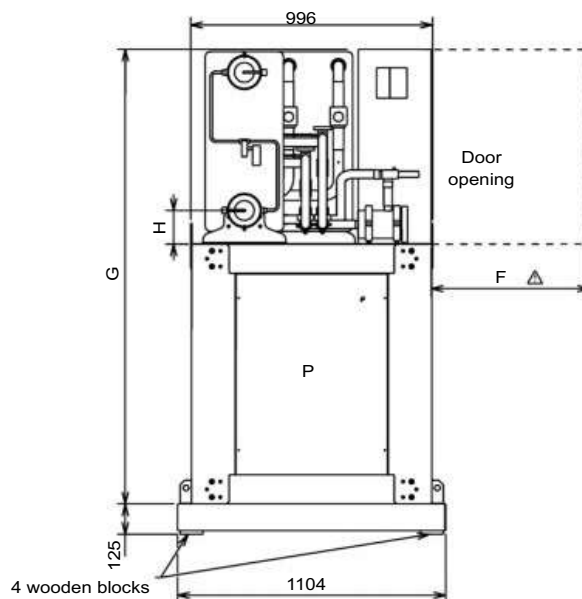
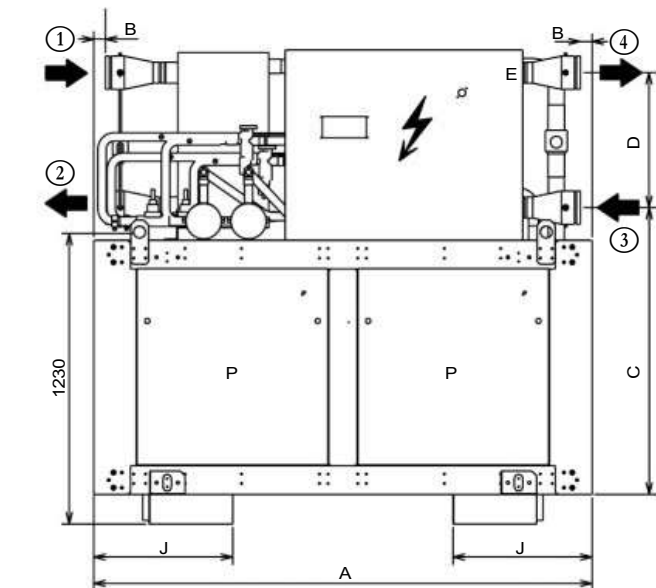
ELECTRICAL DATA

| DYNACIAT ^{POWER} LG | | 700V | 800V | 900V | 1000V | 1100V | 1200V | 1400V | 1600V | 1800V | 2100V | 2400V | |
|--------------------------------------------------------|----|-------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| COMPRESSOR | | | | | | | | | | | | | |
| Voltage | V | 400V - 3Ph - 50Hz (+10/- 10%) | | | | | | | | | | | |
| Maximum nominal current | A | 140 | 160 | 182 | 205 | 218 | 232 | 266 | 295 | 356 | 399 | 443 | |
| Starting current ⁽¹⁾ | A | 316 | 334 | 391 | 414 | 480 | 494 | 586 | 615 | 607 | 720 | 763 | |
| Starting current with Soft Start option ⁽¹⁾ | A | 230 | 248 | 287 | 310 | 352 | 366 | 429 | 458 | 483 | 562 | 605 | |
| REMOTE CONTROL AUXILIARY CIRCUIT | | | | | | | | | | | | | |
| Voltage | V | 230V - 1Ph - 50Hz (+10/- 10%) | | | | | | | | | | | |
| Maximum nominal current | A | 0,8 | | | | | | 1,3 | | | | | |
| Transformer capacity | VA | 160 | | | | | | 250 | | | | | |
| Machine protection rating | | IP 21 | | | | | | | | | | | |

(1) Starting current of largest compressor + maximum current of other compressors under full load
Cable selection nominal current = sum of maximum nominal currents in above tables

DIMENSIONS

■ 700V to 1600V models



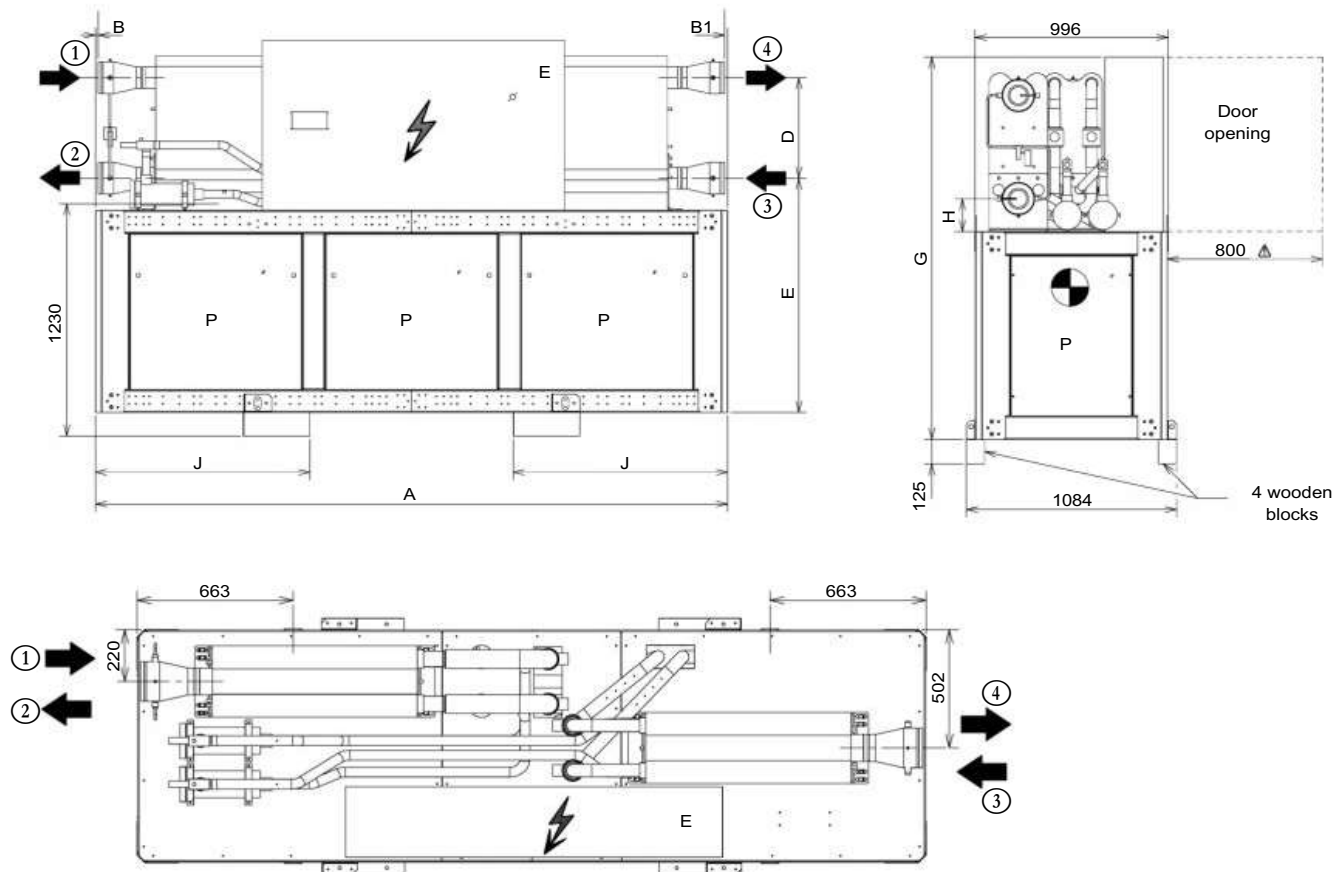
E Electrical connection on the side

P Noise insulation panels option

| Models | Dimensions (mm) | | | | | | | | Chilled water | | Hot water | | Weight (kg) | |
|--------|-----------------|------|------|-----|------|------|-----|-----|---------------------|---------------------|---------------------|----------|-------------|--------------|
| | A | B | C | D | F | G | H | J | Input 1 | Outlet 2 | Input 3 | Outlet 4 | empty | in operation |
| 700V | 2099 | 49 | 1207 | 568 | 1000 | 1869 | 137 | 585 | VICTAULIC DN 100 | | VICTAULIC DN 100 | | 1044 | 1088 |
| 800V | | | | | | | | | | | | | 1156 | 1205 |
| 900V | | | | | | | | | 1189 | 1246 | | | | |
| 1000V | | | | | | | | | VICTAULIC DN 125 | VICTAULIC DN 125 | 1312 | 1378 | | |
| 1100V | | | | | | | | | | | 1363 | 1436 | | |
| 1200V | 1425 | 1510 | | | | | | | | | | | | |
| 1400V | 2499 | 60 | 1240 | 532 | 600 | 1887 | 170 | 715 | | | | | 1613 | 1713 |
| 1600V | | | | | | | | | | | | | 1708 | 1818 |

DIMENSIONS

■ 1800V to 2400V models



E Electrical connection on the side

P Noise insulation panels option

| Models | Dimensions (mm) | | | | | | | | Chilled water | | Hot water | | Weight (kg) | |
|--------|-----------------|-----|----|------|-----|------|-----|------|---------------------|---------------------|-----------|----------|-------------|--------------|
| | A | B | B1 | C | D | G | H | J | Input 1 | Outlet 2 | Input 1 | Outlet 2 | empty | in operation |
| 1800V | 3350 | 159 | 63 | 1240 | 532 | 1970 | 170 | 1135 | VICTAULIC DN 150 | VICTAULIC DN 150 | | | 2284 | 2472 |
| 2100V | | 15 | 15 | | | | | | | | | | 2376 | 2588 |
| 2400V | | | | | | | | | | | | | 2418 | 2637 |

HYDROCIAT™ LW

Water chillers
Heat pump



Energy excellence

Compact and reliable

Screw compressors

Flooded shell and tubes evaporator

Self-adjusting electronic control

Touch screen control interface

Cooling capacity 269-1736 kW

Heating capacity 317-2019 kW



Cooling



Heating



Heat
recovery

HFC
R-134A



USE

The latest generation of **HYDROCIAT LW** water chillers and water-to-water heat pumps are the perfect solution for all heating and cooling applications in the Office, Healthcare, Industry, Administration, Shopping Centres and Collective Housing markets.

HYDROCIAT is optimised to use ozone-friendly HFC R134a refrigerant.

This range guarantees compliance with the most demanding requirements for high energy efficiency and CO₂ reduction to comply with the various applicable European directives and regulations.

When producing chilled water, these units can be connected to a Dry cooler or a water cooling tower.

With the heat pump option, the units can produce hot water for heating applications. They can also be used in cooling mode by reversing the cycle on the hydraulic circuits using a set of valves (hydraulic valves not supplied).

RANGE

HYDROCIAT LW ST series

Standard cooling or heating version

The product is optimised to meet the most demanding technical and economic requirements.

HYDROCIAT LW HE series

High Efficiency cooling or heating version

The product is optimised for high energy efficiency applications for which optimum SEER, SEPR and SCOP values are required, ensuring operating costs are kept to a minimum.

DESCRIPTION

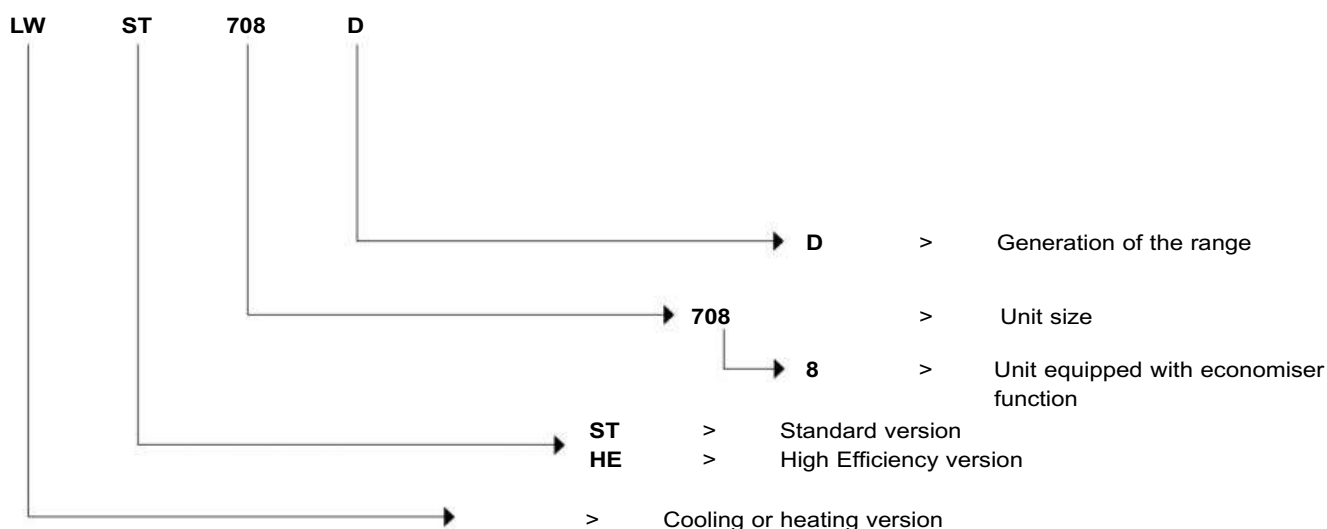
HYDROCIAT units are packaged machines supplied as standard with the following components:

- Twin-screw semi-hermetic compressors
- Shell and tube type chilled-water evaporator
- Shell and tube type hot water condenser
- Electrical power and remote control cabinet:
 - 400 V-3ph-50 Hz general power supply (+/-10%) + Earth
 - transformer fitted as standard on the machine for supplying the remote control circuit with 24 V
- Connect Touch electronic control module
- Casing for indoor installation

The entire **HYDROCIAT** range complies with the following EC directives and standards:

- Machinery Directive 2006/42/EC
- Electromagnetic Compatibility Directive 2014/30/EU
- EMC immunity and emissions EN 61800-3 'C3'
- Low Voltage Directive 2014/35/EU
- RoHS 2011/65/EU
- Pressure Equipment Directive (PED) 2014/68/EU
- Machinery Directive EN 60-204 -1
- Refrigeration systems and heat pumps EN 378-2.
- Regulation (EU) 2016/2281 implementing Directive 2009/125/EC with regard to ecodesign requirements

DESIGNATION



CONFIGURATION

| | | | |
|---------------------|--------------------|---------------------|---------------------------|
| ST | Standard | HE | High Efficiency |
| ST LN option | Standard Low Noise | HE LN option | High Efficiency Low Noise |

DESCRIPTION OF THE COMPONENTS

■ Compressors

- Twin-screw semi-hermetic type
- 2 screws fitted on ball and roller bearings
- Continuous power control
- Built-in electric motor, cooled by intake gases
- Integral electronic protection of the motor against thermal and electrical overloads
- Monitoring of rotation direction, absence of phase, over and under voltage, and power supply failure
- Monitoring of lubrication under differential pressure
- Built-in oil filter
- Internal pressure surge valve and valve to prevent reverse rotation during shutdown phases
- Monitoring of maximum head pressure
- Silencer fitted at the discharge to reduce pulses from the discharged gas
- Star-delta start limiting the in-rush current

■ Shell and tube evaporator

- High performance glandless technology
- Copper tube bundle with internal and external grooves
- 19 mm thermal insulation
- Victaulic type coupling
- Maximum pressure, water side, of 10 bar (21 bar as option)

■ Shell and tube condenser

- Copper tube bundle with internal and external grooves
- 19 mm thermal insulation (option)
- Built-in oil separator
- Victaulic type coupling
- Maximum pressure, water side, of 10 bar (21 bar as option)

■ Economiser function (available on models designated by the figure 8)

- 1 brazed plate heat exchanger on each refrigerating circuit
- Refrigerant flow rate controlled by an electronic expansion valve
- The economiser function allows the cooling capacity to be significantly increased and provides considerable optimisation of the machine's energy efficiency

■ Refrigerant accessories

- Dehumidifier filters with rechargeable cartridges
- Hygroscopic sight glasses
- Electronic expansion valves

■ Regulation and safety instruments

- High and low pressure sensors
- Safety relief valves on refrigerating circuit
- Evaporator antifreeze protection sensor
- Chilled water and hot water control sensors
- Electronic evaporator water circulation controller

■ Electrical cabinet

- Electrical cabinet index of protection IP23
- Safety disconnect switch
- 24 V control circuit
- Remote control transformer circuit
- Protection of the power and control circuits

- Compressor motor contactor
- Connect Touch microprocessor-controlled electronic control module
- Electrical cabinet wire numbers
- Location of main components

■ Connect Touch control module

- User interface with 4.3 inch touchscreen (7-inch option)
- Intuitive, user-friendly navigation using icons
- Clear information display in 8 languages
- (F-GB-E-NL-I-S-P + Chinese)



- The electronic control module performs the following main functions:
- Regulation of the chilled water temperature (at the return or at the outlet)
- Regulation of the water temperature based on the outdoor temperature (water law)
- Regulation for low temperature energy storage
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and operating time balancing
- Self-regulating and proactive functions with adjustment of settings on drift control
- Continuous power control slide system on the compressors according to the thermal requirements
- Management of compressor short cycle protection
- Phase reversal protection
- Management of occupied/unoccupied modes (according to the time schedule)
- Equalisation of compressor operating hours
- Condensing temperature limitation (option)
- Diagnosis of fault and operating statuses
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- Master/slave management of two machines with equalisation of operating hours and automatic switching
- In case of a machine fault
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, flow rate, operation time.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.
- Unit construction
- Electrical cabinet in graphite grey (RAL 7024)
- Compressors in grey (RAL 7037)

DESCRIPTION OF THE COMPONENTS

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

Numerous communication protocols are available: MODBUS/JBUS RTU(RS485) or TC/IP as standard, LONWORKS – BACNET IP optional, enabling integration with most CMS/BMS

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- Heating/cooling operating mode selection
- Power limitation: closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- Fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerating circuits to stop
- Operational status reporting indicates that the unit is in production mode
- 0-10V signal output for external variable speed pump management

Contacts available as an option:

- Setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in COOLING mode
- Power limitation adjustable by 4-20 mA signal
- Second power limitation level
- Power indication: analogue output (0-10 V) providing an indication of the unit's load rate.
- User fault reporting enables integration of a fault in the water loop
- General fault reporting: this contact indicates that the unit has stopped completely
- Alert reporting: this contact indicates the presence of a minor fault which has not caused the circuit affected to stop.
- End of storage signal: enables return to the second setpoint at the end of the storage cycle

■ Maintenance alert as standard

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.

- Schedule override: closing this contact cancels the time schedule.
- Dry cooler management

Direct access to technical literature

- Instruction manual
- Electrical diagram
- Spare parts list



Web server integrate as standard

IP address



Remote management via web server
Connection to RJ port
Connection via IP address
All the HMI functionalities available on the PC
Simplified remote monitoring



E-mail alerts
(2 addresses)



- The scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- The compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the refrigerant charge, in compliance with the F-GAS regulations.

OPTIONS

| Options | Description | Advantages | LW ST/HE |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Low Brine with turbulators down to -15°C | Redesigned evaporator including turbulators to allow chilled brine solution production with low pressure drops on the entire negative application range, down to -15°C (including turbulators, extra insulation and algorithms). | Covers specific applications such as ice storage and industrial processes | Only LW ST |
| Light-brine solution, down to -3°C | Implementation of new control algorithms and redesigned evaporator to allow chilled brine solution production down to -3°C when ethylene glycol is used (0°C with propylene glycol) | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements | • |
| 90-10 Copper-Nickel condensers | - Condenser tubes 90-10 Cu/Ni. - Condenser tube sheets clad with 90-10 Cu/Ni. - Waterboxes not treated against corrosion. | Improved resistance to corrosion | • |
| IP44 electrical protection level | Control box tightness reinforced Electrical box enclosure and outside electrical component following IEC 60529 standard | Permits unit installation in more severe environments | • |
| Unit supplied in two assembled parts | The unit is equipped with flanges that allow disassembly of the unit on site | Facilitates installation in plant rooms with limited access | Only sizes: 4228/4408/4608/4628 |
| Evap. single pump power/control circuit | Unit equipped with an electrical power and control circuit for one pump evaporator side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | 708-3428 |
| 230V electrical plug | 230V AC power supply source provided with plug socket and transformer (180 VA, 0,8 Amps) | Permits connection of a laptop or an electrical device during unit commissioning or servicing | • |
| Evaporator with one pass less | Evaporator with one pass on the water side. Evaporator inlet and outlet on opposite sides. | Easy to install, depending on site. Reduced pressure drops | • |
| Master/slave operation | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operating time equalisation | • |
| Condenser with one pass less | Condenser with one pass on the water side. Condenser inlet and outlet on opposite sides. | Easy to install, depending on site. Reduced pressure drops | • |
| 21 bar evaporator | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar) | Covers applications with a high water column evaporator side (typically high buildings) | • |
| Single power connection point | Unit power connection via one main supply connection | Quick and easy installation | 2800/4628 |
| 21 bar condenser | Reinforced condenser for extension of the maximum water-side service pressure to 21 bar (standard 10 bar) | Covers applications with a high water column condenser side (typically high buildings) | • |
| Reversed evaporator water connections | Evaporator with reversed water inlet/outlet | Easy installation on sites with specific requirements | • |
| Reversed condenser water connections | Condenser with reversed water inlet/outlet | Easy installation on sites with specific requirements | • |
| Condenser insulation | Thermal condenser insulation | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) | • |
| Service valve set | Liquid line valve (evaporator inlet) and compressor suction line valve | Allow isolation of various refrigerant circuit components for simplified service and maintenance | • |
| Lon gateway | Bi-directional communication board complying with Lon Talk protocol | Connects the unit by communication bus to a building management system | • |
| Control for low cond. temperature | Output signal (0-10 V) to control the condenser water inlet valve | Simple installation: for applications with cold water at condenser inlet (ex. ground-source, groundwater-source, superficial water-source applications) the signal permits to control a 2 or 3-way valve to maintain condenser water temperature (and so condensing pressure) at acceptable values | • |
| Compliance with Swiss regulations | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications | Conformance with Swiss regulations | • |
| Compliance with Morocco regulation | Specifics documents according Morocco regulation | Conformance with Morocco regulations | • |
| Dual relief valves on 3-way valve | Three-way valve upstream of dual relief valves on the evaporator and the oil separator | Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4 | • |

• ALL MODELS

Refer to the selection tool to find out which options are not compatible

OPTIONS

| Options | Description | Advantages | LW ST/HE |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Compliance with Russian regulations | EAC certification | Conformance with Russian regulations | • |
| Bacnet over IP | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP) | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters | • |
| High condensing temperature | Optimized compressor for operation at high condensing temperature | Increased condenser leaving water temperature up to 63°C. Allows applications with high condensing temperature (heat pumps, installations with not generously sized dry coolers or more generally, installations with dry coolers in hot climate). NOTE: to ensure control of the condenser leaving water temperature, this option must be fitted on the units. | Available for all LW HE Available for LW ST 708 / 858 / 1008, and for higher LW ST sizes only with heat pump application option |
| Condensing temperature limitation | Limitation of the maximum condenser leaving water temperature to 45°C | Reduced maximum power input and current absorption: power cables and protection elements can therefore be downsized | • |
| Flanged evaporator water connection kit | Victaulic piping connections with flanged joints | Easy installation | • |
| Specific dry cooler control | Control box for communication with the Dry cooler via a bus. For OPERA Dry cooler need to select the cabinet with option control cabinet manage by the chiller Connect'Touch control" | Permits the use of an energy-efficient plug-and-play system | • |
| Flanged condenser water connection kit | Victaulic piping connections with flanged joints | Easy installation | • |
| Energy Management Module | Control board with additional inputs/outputs. See Contacts available in option on control description. | Extended remote control capabilities (Set-point reset by 0-20ma input, ice storage end, demand limits, boiler on/off command...) | • |
| 7" user interface | Control supplied with a 7 inch colour touch screen user interface | Enhanced ease of use. | • |
| Input contact for Refrigerant leak detection | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer) | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions | • |
| Compliance with Australian regulations | Unit approved to Australian code | Conformance with Australian regulations | • |
| Low noise level | Evaporator sound insulation | 3 dB(A) quieter than standard unit | 1308-4608 |
| Evap. dual pumps power/control circuit | Unit equipped with an electrical power and control circuit for two pumps evaporator side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | 708-3428 |
| Thermal compressor insulation | The compressor is covered with a thermal insulation layer | Prevents air humidity to condensate on the compressor surface | • |
| Cond. single pump power/control circuit | Unit equipped with an electrical power and control circuit for one pump condenser side | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control | 708-3428 |
| Anti-vibration mounts (kit) | Elastomer antivibratils mounts to be place under the unit (Material classified B2 fire class according to DIN 4102). | Isolate unit from the building, avoid transmission of vibration and associate noise to the buiding. Must be associate with flexible connection on water side | • |
| Free Cooling dry cooler management | Control & connections to a Free Cooling Dry cooler Opera or Vextra fitted with option FC control box | Easy system managment, Extended control capabilities to a dry cooler used in Free Cooling mode | • |
| Heat Pump application | Unit configured for Heat Pump application, include thermal condenser insulation | Optimisation on heating mode & minimize thermal dispersions condenser side | • |

- ALL MODELS

Refer to the selection tool to find out which options are not compatible

STANDARD UNIT TECHNICAL CHARACTERISTICS

| LW ST / LW ST + Heat pump application option | | | | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 1900 | 2100 | 2300 |
|-----------------------------------------------|-----|-------------------------------------------|--------------------|-----------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating | | | | | | | | | | | | | |
| Standard unit Full load performances* | HW1 | Nominal capacity | kW | 317 | 360 | 422 | 499 | 555 | 626 | 633 | 793 | 858 | 929 |
| | | COP | kW/kW | 5,96 | 5,98 | 5,93 | 5,98 | 6,04 | 5,84 | 5,81 | 6,06 | 5,96 | 5,79 |
| | HW2 | Nominal capacity | kW | 312 | 353 | 417 | 473 | 526 | 595 | 624 | 749 | 812 | 879 |
| | | COP | kW/kW | 4,51 | 4,50 | 4,55 | 4,54 | 4,56 | 4,42 | 4,46 | 4,54 | 4,48 | 4,40 |
| Standard unit Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 5,98 | 6,02 | 5,99 | 6,45 | 6,60 | 6,58 | 6,31 | 6,16 | 6,15 | 6,13 |
| | | ηs heat _{30/35°C} | % | 231 | 233 | 231 | 250 | 256 | 255 | 245 | 238 | 238 | 237 |
| | | P _{rated} | kW | 414 | 426 | 500 | 595 | 660 | 742 | 750 | 945 | 1022 | 1095 |
| Cooling | | | | | | | | | | | | | |
| Standard unit Full load performances* | CW1 | Nominal capacity | kW | 269 | 303 | 354 | 421 | 467 | 525 | 531 | 669 | 720 | 783 |
| | | EER | kW/kW | 5,25 | 5,23 | 5,17 | 5,22 | 5,28 | 5,12 | 5,11 | 5,32 | 5,23 | 5,13 |
| | CW2 | Nominal capacity | kW | 264 | 320 | 396 | 525 | 566 | 520 | 596 | 753 | 788 | 782 |
| | | EER | kW/kW | 7,30 | 5,74 | 6,31 | 6,50 | 6,40 | 5,24 | 5,86 | 6,02 | 5,76 | 5,22 |
| Standard unit Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 6,26 | 6,33 | 6,40 | 6,85 | 7,04 | 7,12 | 6,82 | 6,64 | 6,63 | 6,82 |
| | | ηs cool _{12/7°C} | % | 247 | 250 | 253 | 271 | 279 | 282 | 270 | 263 | 262 | 270 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 8,60 | 8,16 | 8,80 | 8,12 | 8,28 | 7,72 | 7,90 | 8,83 | 8,25 | 8,01 |
| Integrated Part Load Value | | IPLV.SI | kW/kW | 6,791 | 6,845 | 6,850 | 6,861 | 7,165 | 7,430 | 7,110 | 7,185 | 7,168 | 7,212 |
| Sound levels - standard unit | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 95 | 95 | 95 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 78 | 78 | 78 | 82 | 82 | 82 | 82 | 82 | 82 | 82 |
| Sound levels - unit with Low Noise option | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | - | - | - | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | - | - | - | 78 | 78 | 78 | 78 | 78 | 78 | 78 |
| Dimensions - standard unit | | | | | | | | | | | | | |
| Length | | | mm | 2724 | 2724 | 2724 | 2741 | 2741 | 2741 | 2741 | 3059 | 3059 | 3059 |
| Width | | | mm | 928 | 928 | 928 | 936 | 936 | 936 | 936 | 1040 | 1040 | 1040 |
| Height | | | mm | 1567 | 1567 | 1567 | 1692 | 1692 | 1692 | 1692 | 1848 | 1848 | 1848 |
| Operating weight ⁽³⁾ | | | kg | 2017 | 2036 | 2072 | 2575 | 2575 | 2613 | 2644 | 3247 | 3266 | 3282 |
| Compressors | | | | Semi-hermetic screw compressors, 50 r/s | | | | | | | | | |
| Circuit A | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant - standard unit | | | | R-134a | | | | | | | | | |
| | | | kg | 84 | 80 | 78 | 92 | 92 | 92 | 92 | 145 | 135 | 125 |
| Circuit A | | | teqCO ₂ | 120 | 114 | 112 | 132 | 132 | 132 | 132 | 207 | 193 | 179 |

- * In accordance with standard EN14511-3:2022.
- ** In accordance with standard EN14825:2022, average climate
- HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW
- HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². kW
- CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW
- CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW
- η_{js heat}_{30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2022
- η_{js cool}_{12/7°C} & SEER_{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
- SEPR_{12/7°C} Values calculated in accordance with EN14825:2022
- IPLV.SI Calculations according to standard performances AHRI 551-591 (SI)
- (1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
- (3) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values

STANDARD UNIT TECHNICAL CHARACTERISTICS

| LW ST / LW ST + Heat pump application option | | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 1900 | 2100 | 2300 |
|----------------------------------------------|-----|--------------------------------------------------|------|------|------|------|------|------|------|------|------|
| Oil - standard unit | | | | | | | | | | | |
| Circuit A | I | 23,5 | 23,5 | 23,5 | 32 | 32 | 32 | 32 | 36 | 36 | 36 |
| Capacity control | | Connect Touch, electronic expansion valves (EXV) | | | | | | | | | |
| Minimum capacity ⁽⁴⁾ | % | 15 | 15 | 30 | 30 | 30 | 30 | 30 | 15 | 15 | 30 |
| Evaporator | | Shell and tube flooded type | | | | | | | | | |
| Water volume | l | 50 | 56 | 61 | 70 | 70 | 70 | 70 | 109 | 109 | 109 |
| Water connections (Victaulic) | in | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | Shell and tube type | | | | | | | | | |
| Water volume | l | 55 | 55 | 55 | 76 | 76 | 76 | 76 | 109 | 109 | 109 |
| Water connections (Victaulic) | in | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

STANDARD UNIT TECHNICAL CHARACTERISTICS

| LW ST / LW ST + Heat pump application option | | | | 2308 | 2800 | 3000 | 3008 | 3400 | 3800 | 4200 | 4600 | 4408 | 4608 |
|-----------------------------------------------|-------------------------------------------|----------------------------------------|---------|-----------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating | | | | | | | | | | | | | |
| Standard unit Full load performances* | HW1 | Nominal capacity | kW | 981 | 1185 | 1237 | 1324 | 1457 | 1557 | 1689 | 1795 | 1913 | 2001 |
| | | COP | kW/kW | 5,98 | 5,77 | 5,67 | 5,79 | 6,12 | 5,96 | 5,76 | 5,61 | 5,94 | 5,92 |
| | HW2 | Nominal capacity | kW | 958 | 1123 | 1174 | 1297 | 1375 | 1466 | 1592 | 1687 | 1867 | 1948 |
| | | COP | kW/kW | 4,60 | 4,40 | 4,33 | 4,46 | 4,63 | 4,53 | 4,41 | 4,33 | 4,61 | 4,64 |
| Standard unit Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 6,33 | 6,43 | 6,24 | 6,30 | 6,56 | 6,33 | 6,22 | 6,11 | 6,46 | 6,50 |
| | | η _s heat _{30/35°C} | % | 245 | 249 | 242 | 244 | 254 | 245 | 241 | 236 | 251 | 252 |
| | | P _{rated} | kW | 1153 | 1411 | 1473 | 1569 | 1737 | 1856 | 2013 | 2140 | 2265 | 2371 |
| Cooling | | | | | | | | | | | | | |
| Standard unit Full load performances* | CW1 | Nominal capacity | kW | 829 | 1005 | 1049 | 1128 | 1242 | 1327 | 1438 | 1532 | 1637 | 1712 |
| | | EER | kW/kW | 5,33 | 5,19 | 5,12 | 5,25 | 5,55 | 5,45 | 5,31 | 5,24 | 5,54 | 5,55 |
| | CW2 | Nominal capacity | kW | 828 | 1188 | 1322 | 1220 | 1535 | 1677 | 1753 | 1865 | 1726 | 1830 |
| | | EER | kW/kW | 5,43 | 6,93 | 6,30 | 5,75 | 6,72 | 6,71 | 6,30 | 6,36 | 5,95 | 5,91 |
| Standard unit Seasonal energy efficiency** | SEER _{12/7°C} Comfort low temp. | | kWh/kWh | 7,09 | 7,07 | 7,02 | 6,96 | 7,51 | 7,24 | 7,11 | 7,13 | 7,55 | 7,69 |
| | η _s cool _{12/7°C} | | % | 281 | 280 | 278 | 275 | 298 | 287 | 282 | 282 | 299 | 304 |
| | SEPR _{12/7°C} Process high temp. | | kWh/kWh | 8,01 | 8,29 | 8,11 | 7,96 | 8,97 | 9,09 | 8,34 | 8,13 | 8,45 | 8,50 |
| Integrated Part Load Value | | IPLV.SI | kW/kW | 7,289 | 7,478 | 7,367 | 7,435 | 7,804 | 7,725 | 7,666 | 7,504 | 8,000 | 8,020 |
| Sound levels - standard unit | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 99 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 82 | 84 | 84 | 84 | 83 | 83 | 83 | 83 | 83 | 83 |
| Sound levels - unit with Low Noise option | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 96 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 78 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| Dimensions - standard unit | | | | | | | | | | | | | |
| Length | | | mm | 2780 | 4025 | 4025 | 4025 | 4730 | 4730 | 4730 | 4730 | 4790 | 4790 |
| Width | | | mm | 1042 | 1036 | 1036 | 1036 | 1156 | 1156 | 1156 | 1156 | 1902 | 1902 |
| Height | | | mm | 1898 | 1870 | 1870 | 1925 | 2051 | 2051 | 2051 | 2051 | 1515 | 1515 |
| Operating weight ⁽³⁾ | | | kg | 3492 | 5370 | 5408 | 5698 | 7066 | 7267 | 7305 | 7337 | 8681 | 8699 |
| Compressors | | | | Semi-hermetic screw compressors, 50 r/s | | | | | | | | | |
| Circuit A | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | | | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant - standard unit | | | | R-134a | | | | | | | | | |
| Circuit A | kg | | 158 | 85 | 85 | 105 | 120 | 115 | 110 | 105 | 195 | 195 | |
| | teqCO ₂ | | 226 | 122 | 122 | 150 | 172 | 164 | 157 | 150 | 279 | 279 | |
| Circuit B | kg | | - | 85 | 85 | 105 | 120 | 115 | 110 | 105 | 195 | 195 | |
| | teqCO ₂ | | - | 122 | 122 | 150 | 172 | 164 | 157 | 150 | 279 | 279 | |

- * In accordance with standard EN14511-3:2022.
- ** In accordance with standard EN14825:2022, average climate
- HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW
- HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². kW
- CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². K/W
- CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². K/W
- η_s heat_{30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2022
- η_s cool_{12/7°C} & SEER_{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
- SEPR_{12/7°C} Values calculated in accordance with EN14825:2022
- IPLV.SI Calculations according to standard performances AHRI 551-591 (SI)
- (1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
- (3) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values

STANDARD UNIT TECHNICAL CHARACTERISTICS

| LW ST / LW ST + Heat pump application option | | 2308 | 2800 | 3000 | 3008 | 3400 | 3800 | 4200 | 4600 | 4408 | 4608 |
|----------------------------------------------|-----|--------------------------------------------------|------|------|------|------|------|------|------|------|------|
| Oil - standard unit | | | | | | | | | | | |
| Circuit A | l | 36 | 32 | 32 | 32 | 36 | 36 | 36 | 36 | 36 | 36 |
| Circuit B | l | - | 32 | 32 | 32 | 32 | 36 | 36 | 36 | 36 | 36 |
| Capacity control | | Connect Touch, electronic expansion valves (EXV) | | | | | | | | | |
| Minimum capacity ⁽⁴⁾ | % | 30 | 30 | 30 | 30 | 15 | 15 | 15 | 30 | 30 | 30 |
| Evaporator | | Shell and tube flooded type | | | | | | | | | |
| Water volume | l | 98 | 182 | 182 | 205 | 301 | 301 | 301 | 301 | 354 | 354 |
| Water connections (Victaulic) | in | 6 | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | Shell and tube type | | | | | | | | | |
| Water volume | l | 137 | 193 | 193 | 193 | 340 | 340 | 340 | 340 | 426 | 426 |
| Water connections (Victaulic) | in | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.



HIGH EFFICIENCY UNIT TECHNICAL CHARACTERISTICS

| LW HE / LW HE + Heat pump application option | | | | 1328 | 1528 | 1928 | 2128 | 2328 | 2628 | 3028 | 3428 | 3828 | 4228 | 4628 |
|-------------------------------------------------------|--------------------|-------------------------------------------|---------|-----------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating | | | | | | | | | | | | | | |
| Standard unit Full load performances* | HW1 | Nominal capacity | kW | 586 | 667 | 851 | 912 | 995 | 1201 | 1327 | 1522 | 1680 | 1863 | 2019 |
| | | COP | kW/kW | 6,36 | 6,30 | 6,52 | 6,29 | 6,27 | 6,35 | 6,24 | 6,29 | 6,06 | 6,38 | 6,27 |
| | HW2 | Nominal capacity | kW | 573 | 654 | 836 | 896 | 970 | 1179 | 1296 | 1489 | 1643 | 1823 | 1964 |
| | | COP | kW/kW | 4,82 | 4,78 | 4,92 | 4,74 | 4,78 | 4,85 | 4,77 | 4,82 | 4,66 | 4,84 | 4,81 |
| Standard unit Seasonal energy ef- ficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 6,58 | 6,59 | 6,48 | 6,27 | 6,48 | 6,72 | 6,85 | 6,75 | 6,38 | 6,73 | 6,71 |
| | | ηs heat _{30/35°C} | % | 255 | 256 | 251 | 243 | 251 | 261 | 266 | 262 | 247 | 261 | 260 |
| | | P _{rated} | kW | 694 | 791 | 1009 | 1081 | 1180 | 1424 | 1572 | 1805 | 1993 | 2210 | 2395 |
| Cooling | | | | | | | | | | | | | | |
| Standard unit Full load performances* | CW1 | Nominal capacity | kW | 502 | 569 | 727 | 776 | 850 | 1025 | 1143 | 1308 | 1435 | 1606 | 1736 |
| | | EER | kW/kW | 5,63 | 5,57 | 5,75 | 5,55 | 5,59 | 5,67 | 5,71 | 5,74 | 5,53 | 5,80 | 5,72 |
| | CW2 | Nominal capacity | kW | 546 | 643 | 788 | 859 | 886 | 1217 | 1251 | 1554 | 1687 | 1802 | 1865 |
| | | EER | kW/kW | 6,36 | 6,38 | 6,62 | 6,44 | 6,28 | 7,29 | 6,30 | 8,19 | 6,69 | 6,75 | 6,54 |
| Standard unit Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 7,00 | 7,12 | 7,05 | 6,82 | 7,24 | 7,34 | 7,78 | 7,69 | 7,29 | 7,79 | 7,86 |
| | | ηs cool _{12/7°C} | % | 277 | 282 | 279 | 270 | 287 | 291 | 308 | 304 | 289 | 309 | 311 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 8,42 | 8,50 | 9,23 | 8,33 | 8,54 | 8,50 | 8,85 | 9,00 | 8,89 | 8,82 | 8,83 |
| Integrated Part Load Value | | IPLV.SI | kW/kW | 7,391 | 7,473 | 7,556 | 7,301 | 7,538 | 7,639 | 8,053 | 8,150 | 7,485 | 7,757 | 8,089 |
| Sound levels - standard unit | | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 99 | 99 | 99 | 99 | 99 | 102 | 102 | 102 | 102 | 102 | 102 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 82 | 82 | 81 | 81 | 81 | 83 | 83 | 83 | 83 | 83 | 83 |
| Sound levels - standard unit + Low noise level option | | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 96 | 96 | 96 | 96 | 96 | 99 | 99 | 99 | 99 | 99 | 99 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 78 | 78 | 78 | 78 | 78 | 80 | 80 | 80 | 80 | 80 | 80 |
| Dimensions - standard unit | | | | | | | | | | | | | | |
| Length | | | mm | 3059 | 3059 | 3290 | 3290 | 3290 | 4730 | 4730 | 4730 | 4730 | 4832 | 4832 |
| Width | | | mm | 936 | 936 | 1069 | 1069 | 1069 | 1039 | 1039 | 1162 | 1162 | 2129 | 2129 |
| Height | | | mm | 1743 | 1743 | 1950 | 1950 | 1950 | 1997 | 1997 | 2051 | 2051 | 1562 | 1562 |
| Operating weight ⁽³⁾ | | | kg | 2981 | 3020 | 3912 | 3947 | 3965 | 6872 | 6950 | 7542 | 7752 | 10910 | 10946 |
| Compressors | | | | Semi-hermetic screw compressors, 50 r/s | | | | | | | | | | |
| Circuit A | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | | | - | - | - | - | - | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant - standard unit | | | | R-134a | | | | | | | | | | |
| Circuit A | kg | | | 130 | 130 | 180 | 175 | 177 | 120 | 120 | 130 | 130 | 240 | 250 |
| | teqCO ₂ | | | 186 | 186 | 257 | 250 | 253 | 172 | 172 | 186 | 186 | 343 | 358 |
| Circuit B | kg | | | - | - | - | - | - | 120 | 120 | 150 | 130 | 240 | 250 |
| | teqCO ₂ | | | - | - | - | - | - | 172 | 172 | 215 | 186 | 343 | 358 |

- * In accordance with standard EN14511-3:2022.
- ** In accordance with standard EN14825:2022, average climate
- HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW
- HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². kW
- CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². K/W
- CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². K/W
- ηs heat_{30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2022
- ηs cool_{12/7°C} & SEER_{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
- SEPR_{12/7°C} Values calculated in accordance with EN14825:2022
- IPLV.SI Calculations according to standard performances AHRI 551-591 (SI)
- (1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
- (3) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values



HIGH EFFICIENCY UNIT TECHNICAL CHARACTERISTICS

| LW HE / LW HE + Heat pump application option | | 1328 | 1528 | 1928 | 2128 | 2328 | 2628 | 3028 | 3428 | 3828 | 4228 | 4628 |
|----------------------------------------------|-----|--------------------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Oil - standard unit | | | | | | | | | | | | |
| Circuit A | l | 32 | 32 | 36 | 36 | 36 | 32 | 32 | 36 | 36 | 36 | 36 |
| Circuit B | l | - | - | - | - | - | 32 | 32 | 32 | 36 | 36 | 36 |
| Capacity control | | Connect Touch, electronic expansion valves (EXV) | | | | | | | | | | |
| Minimum capacity ⁽⁴⁾ | % | 30 | 30 | 15 | 15 | 30 | 30 | 30 | 15 | 15 | 15 | 30 |
| Evaporator | | Shell and tube flooded type | | | | | | | | | | |
| Water volume | l | 101 | 101 | 154 | 154 | 154 | 293 | 293 | 321 | 321 | 473 | 473 |
| Water connections (Victaulic) | in | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 10 | 10 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | Shell and tube type | | | | | | | | | | |
| Water volume | l | 103 | 103 | 148 | 148 | 148 | 316 | 316 | 340 | 340 | 623 | 623 |
| Water connections (Victaulic) | in | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 10 | 10 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

TECHNICAL CHARACTERISTICS FOR LOW TEMPERATURE UNITS STANDARD AND HIGH-EFFICIENCY LW UNITS (LOW TEMPERATURE BRINE SOLUTION)

| LW ST | | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 2100 | 2300 |
|------------------------------------|--------------------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Operating weight | kg | 2041 | 2063 | 2102 | 2609 | 2609 | 2647 | 2678 | 3492 | 3516 |
| Refrigerant charge ⁽¹⁾ | | R-134a | | | | | | | | |
| Circuit A | kg | 91 | 86 | 84 | 99 | 99 | 99 | 99 | 146 | 135 |
| | teqCO ₂ | 129730 | 123552 | 120463 | 142085 | 142085 | 142085 | 142085 | 208494 | 193050 |
| Circuit B | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | teqCO ₂ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Evaporator | | Single pass, multi-pipe flooded type | | | | | | | | |
| Water volume | l | 50 | 56 | 61 | 70 | 70 | 70 | 70 | 109 | 109 |
| Water connections (Victaulic) | in | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

| LW ST | | 2308 | 2800 | 3000 | 3008 | 3400 | 4200 | 4600 | 4408 | 4608 |
|------------------------------------|--------------------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Operating weight | kg | 3720 | 5467 | 5505 | 5806 | 7392 | 7781 | 7829 | 9193 | 9219 |
| Refrigerant charge ⁽¹⁾ | | R-134a | | | | | | | | |
| Circuit A | kg | 171 | 92 | 92 | 113 | 130 | 119 | 113 | 211 | 211 |
| | teqCO ₂ | 244015 | 131274 | 131274 | 162162 | 185328 | 169884 | 162162 | 301158 | 301158 |
| Circuit B | kg | 0 | 92 | 92 | 113 | 130 | 119 | 113 | 211 | 211 |
| | teqCO ₂ | 0 | 131274 | 131274 | 162162 | 185328 | 169884 | 162162 | 301158 | 301730 |
| Evaporator | | Single pass, multi-pipe flooded type | | | | | | | | |
| Water volume | l | 98 | 182 | 182 | 205 | 301 | 301 | 301 | 354 | 354 |
| Water connections (Victaulic) | in | 6 | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(1) Weights are guidelines only. The refrigerant charge is given on the unit nameplate.

ELECTRICAL DATA NOTES FOR STANDARD UNITS

| LW ST | | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 1900 | 2100 | 2300 | 2308 | 2800 | 3000 | 3008 | 3400 | 3800 | 4200 | 4600 | 4408 | 4608 |
|---------------------------------------------------------------------------|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Power circuit | | | | | | | | | | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | | | | | | | | | | |
| Control circuit | | 24 V via the built-in transformer | | | | | | | | | | | | | | | | | | | |
| Nominal start-up current ⁽¹⁾ | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 233 | 233 | 303 | 414 | 414 | 414 | 414 | 587 | 587 | 587 | 587 | 414 | 414 | 414 | 587 | 587 | 587 | 587 | 587 | 587 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 414 | 414 | 414 | 414 | 587 | 587 | 587 | 587 | 587 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 558 | 574 | 574 | 747 | 780 | 801 | 819 | 819 | 819 |
| Maximum start-up current ⁽²⁾ | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 233 | 233 | 303 | 414 | 414 | 414 | 414 | 587 | 587 | 587 | 587 | 414 | 414 | 414 | 587 | 587 | 587 | 587 | 587 | 587 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 414 | 414 | 414 | 414 | 587 | 587 | 587 | 587 | 587 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 631 | 656 | 656 | 829 | 882 | 904 | 938 | 938 | 938 |
| Cosine phi | | | | | | | | | | | | | | | | | | | | | |
| Nominal ⁽³⁾ | | 0,83 | 0,85 | 0,83 | 0,87 | 0,88 | 0,89 | 0,89 | 0,88 | 0,89 | 0,90 | 0,90 | 0,88 | 0,89 | 0,89 | 0,88 | 0,88 | 0,89 | 0,9 | 0,9 | 0,9 |
| Maximum ⁽⁴⁾ | | 0,89 | 0,89 | 0,88 | 0,90 | 0,90 | 0,91 | 0,91 | 0,90 | 0,91 | 0,92 | 0,92 | 0,90 | 0,91 | 0,91 | 0,90 | 0,90 | 0,91 | 0,92 | 0,92 | 0,92 |
| Total hamonic distortion ⁽⁴⁾ | % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maximum power input* | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | kW | 76 | 89 | 97 | 128 | 135 | 151 | 151 | 184 | 200 | 223 | 223 | 150 | 151 | 151 | 184 | 184 | 200 | 223 | 223 | 223 |
| Circuit B | kW | - | - | - | - | - | - | - | - | - | - | - | 135 | 151 | 151 | 151 | 184 | 200 | 223 | 202 | 223 |
| Single power connection point option | kW | - | - | - | - | - | - | - | - | - | - | - | 284 | 301 | 301 | 334 | 367 | 399 | 447 | 425 | 447 |
| Nominal input current ⁽³⁾ | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 84 | 96 | 113 | 136 | 144 | 162 | 162 | 193 | 214 | 232 | 232 | 162 | 162 | 162 | 193 | 193 | 214 | 232 | 232 | 232 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 144 | 162 | 162 | 162 | 193 | 214 | 232 | 214 | 232 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 306 | 324 | 324 | 355 | 386 | 427 | 464 | 446 | 464 |
| Maximum input current (Un)* | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 123 | 145 | 160 | 206 | 217 | 242 | 242 | 295 | 317 | 351 | 351 | 242 | 242 | 242 | 295 | 295 | 317 | 351 | 351 | 351 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 217 | 242 | 242 | 242 | 295 | 317 | 351 | 317 | 351 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 459 | 484 | 484 | 537 | 590 | 634 | 702 | 668 | 702 |
| Maximum input current (Un -10%) ⁽⁴⁾ | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 138 | 162 | 178 | 218 | 230 | 260 | 260 | 304 | 340 | 358 | 358 | 260 | 260 | 260 | 304 | 304 | 340 | 358 | 358 | 358 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 230 | 260 | 260 | 260 | 304 | 340 | 358 | 340 | 358 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 490 | 520 | 520 | 564 | 608 | 680 | 716 | 698 | 716 |
| Maximum input power with condensing temperature limitation option* | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | kW | 67 | 79 | 87 | 114 | 118 | 133 | 134 | 173 | 183 | 205 | 205 | 133 | 133 | 133 | 173 | 173 | 183 | 207 | 207 | 207 |
| Circuit B | kW | - | - | - | - | - | - | - | - | - | - | - | 118 | 133 | 133 | 133 | 173 | 183 | 207 | 185 | 207 |
| Single power connection point option | kW | - | - | - | - | - | - | - | - | - | - | - | 251 | 265 | 265 | 305 | 346 | 365 | 414 | 391 | 414 |
| Maximum input current (Un) with condensing temperature limitation option* | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 109 | 129 | 142 | 183 | 191 | 212 | 212 | 278 | 290 | 325 | 325 | 212 | 212 | 212 | 278 | 278 | 290 | 325 | 325 | 325 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 191 | 212 | 212 | 212 | 278 | 290 | 325 | 290 | 325 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 403 | 424 | 424 | 490 | 556 | 580 | 650 | 615 | 650 |

- (1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor).
Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.
- (2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor).
Values obtained at operation point with maximum unit power input.
- (3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.
- (4) Values obtained at operation point with maximum unit power input.
- * Values obtained in operation with maximum unit power input. Values given on the unit name plate.

HIGH EFFICIENCY UNIT ELECTRICAL DATA NOTES

| LW HE | | 1328 | 1528 | 1928 | 2128 | 2328 | 2628 | 3028 | 3428 | 3828 | 4228 | 4628 |
|---------------------------------------------------------------------------|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|
| Power circuit | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | |
| Control circuit | | 24 V via the built-in transformer | | | | | | | | | | |
| Nominal start-up current ⁽¹⁾ | | | | | | | | | | | | |
| Circuit A | A | 414 | 414 | 587 | 587 | 587 | 414 | 414 | 587 | 587 | 587 | 587 |
| Circuit B | A | - | - | - | - | - | 414 | 414 | 414 | 587 | 587 | 587 |
| Single power connection point option | A | - | - | - | - | - | 556 | 574 | 747 | 780 | 801 | 819 |
| Maximum start-up current ⁽²⁾ | | | | | | | | | | | | |
| Circuit A | A | 414 | 414 | 587 | 587 | 587 | 414 | 414 | 587 | 587 | 587 | 587 |
| Circuit B | A | - | - | - | - | - | 414 | 414 | 414 | 587 | 587 | 587 |
| Single power connection point option | A | - | - | - | - | - | 631 | 656 | 829 | 882 | 904 | 938 |
| Cosine phi | | | | | | | | | | | | |
| Nominal ⁽³⁾ | | 0,88 | 0,89 | 0,88 | 0,89 | 0,90 | 0,86 | 0,87 | 0,88 | 0,88 | 0,89 | 0,90 |
| Maximum ⁽⁴⁾ | | 0,90 | 0,90 | 0,90 | 0,91 | 0,92 | 0,89 | 0,90 | 0,90 | 0,90 | 0,91 | 0,92 |
| Total harmonic distortion ⁽⁴⁾ | % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maximum power input* | | | | | | | | | | | | |
| Circuit A | kW | 135 | 151 | 184 | 200 | 223 | 134 | 151 | 184 | 184 | 200 | 223 |
| Circuit B | kW | - | - | - | - | - | 134 | 151 | 151 | 184 | 200 | 223 |
| Single power connection point option | kW | - | - | - | - | - | 267 | 301 | 334 | 367 | 399 | 447 |
| Nominal input current ⁽³⁾ | | | | | | | | | | | | |
| Circuit A | A | 144 | 162 | 193 | 214 | 232 | 144 | 162 | 193 | 193 | 214 | 232 |
| Circuit B | A | - | - | - | - | - | 144 | 162 | 162 | 193 | 214 | 232 |
| Single power connection point option | A | - | - | - | - | - | 288 | 324 | 355 | 386 | 427 | 464 |
| Maximum input current (Un)* | | | | | | | | | | | | |
| Circuit A | A | 217 | 242 | 295 | 317 | 351 | 217 | 242 | 295 | 295 | 317 | 351 |
| Circuit B | A | - | - | - | - | - | 217 | 242 | 242 | 295 | 317 | 351 |
| Single power connection point option | A | - | - | - | - | - | 434 | 484 | 537 | 590 | 634 | 702 |
| Maximum input current (Un -10%) ⁽⁴⁾ | | | | | | | | | | | | |
| Circuit A | A | 230 | 260 | 304 | 340 | 358 | 230 | 260 | 304 | 304 | 340 | 358 |
| Circuit B | A | - | - | - | - | - | 230 | 260 | 260 | 304 | 340 | 358 |
| Single power connection point option | A | - | - | - | - | - | 460 | 520 | 564 | 608 | 680 | 716 |
| Maximum input power with condensing temperature limitation option* | | | | | | | | | | | | |
| Circuit A | kW | 118 | 133 | 173 | 183 | 207 | 118 | 133 | 173 | 173 | 183 | 207 |
| Circuit B | kW | - | - | - | - | - | 118 | 133 | 133 | 173 | 183 | 207 |
| Single power connection point option | kW | | | | | | 235 | 265 | 305 | 346 | 365 | 414 |
| Maximum input current (Un) with condensing temperature limitation option* | | | | | | | | | | | | |
| Circuit A | A | 191 | 212 | 278 | 290 | 325 | 191 | 212 | 278 | 278 | 290 | 325 |
| Circuit B | A | - | - | - | - | - | 191 | 212 | 212 | 278 | 290 | 325 |
| Single power connection point option | A | - | - | - | - | - | 382 | 424 | 490 | 556 | 580 | 650 |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

* Values obtained in operation with maximum unit power input. Values given on the unit name plate.

TECHNICAL CHARACTERISTICS

STANDARD UNITS FOR HIGH CONDENSING TEMPERATURES

| LW ST + High condensing option | | | | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 1900 | 2100 | 2300 | |
|------------------------------------------------------------------|-----|-------------------------------------------|---------|-----------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| Heating | | | | | | | | | | | | | | |
| Unit with high condensing option Full load performances* | HW1 | Nominal capacity | kW | 328 | 366 | 413 | 502 | 536 | 597 | 618 | 756 | 845 | 869 | |
| | | COP | kW/kW | 5,49 | 5,48 | 5,44 | 5,11 | 5,41 | 5,27 | 5,41 | 5,31 | 5,37 | 5,17 | |
| | HW2 | Nominal heating capacity | kW | 319 | 356 | 402 | 470 | 501 | 559 | 599 | 706 | 789 | 812 | |
| | | COP | kW/kW | 4,54 | 4,51 | 4,47 | 4,21 | 4,45 | 4,36 | 4,48 | 4,39 | 4,44 | 4,31 | |
| | HW3 | Nominal capacity | kW | 310 | 347 | 391 | 440 | 469 | 523 | 582 | 659 | 738 | 760 | |
| | | COP | kW/kW | 3,80 | 3,78 | 3,75 | 3,47 | 3,67 | 3,61 | 3,76 | 3,62 | 3,68 | 3,57 | |
| Unit with high condensing option Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 5,77 | 5,94 | 5,86 | 5,54 | 5,77 | 5,75 | 5,72 | 5,55 | 5,79 | 5,01 | |
| | | ηs heat _{30/35°C} | % | 223 | 230 | 226 | 214 | 223 | 222 | 221 | 214 | 223 | 193 | |
| | HW3 | SCOP _{47/55°C} | kWh/kWh | 4,58 | 4,63 | 4,56 | 4,20 | 4,42 | 4,45 | 4,50 | 4,26 | 4,45 | 3,86 | |
| | | ηs heat _{47/55°C} | % | 175 | 177 | 175 | 160 | 169 | 170 | 172 | 163 | 170 | 146 | |
| | | P _{rated} | kW | 411 | 415 | 467 | 535 | 571 | 637 | 697 | 803 | 898 | 926 | |
| | | | | | | | | | | | | | | |
| Cooling | | | | | | | | | | | | | | |
| Unit with high condensing option Full load performances* | CW1 | Nominal capacity | kW | 278 | 309 | 348 | NA | NA | NA | NA | NA | NA | NA | |
| | | EER | kW/kW | 4,83 | 4,80 | 4,76 | NA | NA | NA | NA | NA | NA | NA | |
| Unit with high condensing option Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 6,19 | 6,29 | 6,22 | NA | NA | NA | NA | NA | NA | NA | |
| | | ηs cool _{12/7°C} | % | 245 | 249 | 246 | NA | NA | NA | NA | NA | NA | NA | |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 6,67 | 6,72 | 6,57 | NA | NA | NA | NA | NA | NA | NA | |
| Integrated Part Load Value | | IPLV.SI | kW/kW | 6,364 | 6,527 | 6,531 | 5,928 | 6,176 | 6,287 | 6,185 | 5,931 | 6,433 | 5,575 | |
| Sound levels - standard unit | | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 95 | 95 | 95 | 99 | 99 | 99 | 99 | 102 | 102 | 102 | |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 78 | 78 | 78 | 82 | 82 | 82 | 82 | 84 | 84 | 84 | |
| Sound levels - standard unit + low noise level option | | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | - | - | - | 96 | 96 | 96 | 96 | 100 | 100 | 100 | |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | - | - | - | 78 | 78 | 78 | 78 | 82 | 82 | 82 | |
| Dimensions | | | | | | | | | | | | | | |
| Length | | | mm | 2724 | 2724 | 2724 | 2741 | 2741 | 2741 | 2741 | 3059 | 3059 | 3059 | |
| Width | | | mm | 928 | 928 | 928 | 936 | 936 | 936 | 936 | 1090 | 1090 | 1090 | |
| Height | | | mm | 1567 | 1567 | 1567 | 1692 | 1692 | 1692 | 1692 | 1858 | 1858 | 1858 | |
| Operating weight ⁽³⁾ | | | kg | 2017 | 2036 | 2072 | 2575 | 2575 | 2613 | 2644 | 3407 | 3438 | 3462 | |
| Compressors | | | | Semi-hermetic screw compressors, 50 r/s | | | | | | | | | | |
| Circuit A | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Refrigerant ⁽³⁾ | | | | R-134a | | | | | | | | | | |
| | | | | kg | 84 | 80 | 78 | 92 | 92 | 92 | 92 | 145 | 135 | 125 |
| Circuit A | | | | teqCO ₂ | 120 | 114 | 112 | 132 | 132 | 132 | 132 | 207 | 193 | 179 |

* In accordance with standard EN14511-3:2022.

** In accordance with standard EN14825:2022, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². kW

HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m². kW

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW

η_s heat_{30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2022

η_s heat_{47/55°C} & SCOP_{47/55°C} Values calculated in accordance with EN14825:2022

η_s cool_{12/7°C} & SEER_{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR_{12/7°C} Values calculated in accordance with EN14825:2022

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI)

NA Non Authorized for the specific application for CEE market

(1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values

TECHNICAL CHARACTERISTICS

STANDARD UNITS FOR HIGH CONDENSING TEMPERATURES

| LW ST + High condensing option | | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 1900 | 2100 | 2300 |
|------------------------------------|-----|--------------------------------------------------|------|------|------|------|------|------|------|------|------|
| Oil | | | | | | | | | | | |
| Circuit A | l | 23,5 | 23,5 | 23,5 | 32 | 32 | 32 | 32 | 36 | 36 | 36 |
| Capacity control | | Connect Touch, electronic expansion valves (EXV) | | | | | | | | | |
| Minimum capacity ⁽⁴⁾ | % | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 25 | 25 | 25 |
| Evaporator | | Shell and tube flooded type | | | | | | | | | |
| Net water volume | l | 50 | 56 | 61 | 70 | 70 | 70 | 70 | 109 | 109 | 109 |
| Water connections (Victaulic) | in | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | Shell and tube type | | | | | | | | | |
| Net water volume | l | 55 | 55 | 55 | 76 | 76 | 76 | 76 | 109 | 109 | 109 |
| Water connections (Victaulic) | in | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

TECHNICAL CHARACTERISTICS

STANDARD UNITS FOR HIGH CONDENSING TEMPERATURES

| LW ST + High condensing option | | | | 2308 | 2800 | 3000 | 3008 | 3400 | 3800 | 4200 | 4600 | 4408 | 4608 |
|------------------------------------------------------------------|--------------------|-------------------------------------------|---------|-----------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating | | | | | | | | | | | | | |
| Unit with high condensing option Full load performances* | HW1 | Nominal capacity | kW | 963 | 1163 | 1228 | 1338 | 1432 | 1551 | 1671 | 1776 | 1928 | 1991 |
| | | COP | kW/kW | 5,36 | 5,37 | 5,28 | 5,38 | 5,56 | 5,32 | 5,23 | 5,12 | 5,34 | 5,27 |
| | HW2 | Nominal heating capacity | kW | 939 | 1085 | 1146 | 1290 | 1329 | 1445 | 1558 | 1649 | 1873 | 1936 |
| | | COP | kW/kW | 4,46 | 4,46 | 4,40 | 4,48 | 4,63 | 4,45 | 4,38 | 4,34 | 4,50 | 4,46 |
| | HW3 | Nominal capacity | kW | 915 | 1012 | 1068 | 1249 | 1244 | 1345 | 1452 | 1543 | 1821 | 1882 |
| | | COP | kW/kW | 3,73 | 3,71 | 3,66 | 3,77 | 3,83 | 3,68 | 3,64 | 3,63 | 3,81 | 3,77 |
| Unit with high condensing option Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 5,66 | 5,86 | 5,86 | 5,78 | 6,09 | 5,69 | 5,79 | 5,43 | 5,93 | 5,92 |
| | | ηs heat _{30/35°C} | % | 218 | 226 | 226 | 223 | 236 | 220 | 224 | 209 | 229 | 229 |
| | HW3 | SCOP _{47/55°C} | kWh/kWh | 4,47 | 4,73 | 4,73 | 4,61 | 4,68 | 4,38 | 4,45 | 4,35 | 4,74 | 4,76 |
| | | ηs heat _{47/55°C} | % | 171 | 181 | 181 | 176 | 179 | 167 | 170 | 166 | 182 | 182 |
| | | P _{rated} | kW | 1094 | 1234 | 1303 | 1497 | 1518 | 1641 | 1770 | 1882 | 2179 | 2253 |
| | | | | | | | | | | | | | |
| Cooling | | | | | | | | | | | | | |
| Unit with high condensing option Full load performances* | CW1 | Nominal capacity | kW | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | | EER | kW/kW | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Unit with high condensing option Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | | ηs cool _{12/7°C} | % | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Integrated Part Load Value | | IPLV.SI | kW/kW | 6,351 | 6,572 | 6,595 | 6,522 | 6,873 | 6,211 | 6,615 | 6,366 | 6,939 | 7,136 |
| Sound levels - standard unit | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 102 | 102 | 102 | 102 | 105 | 105 | 105 | 105 | 105 | 105 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 84 | 84 | 84 | 84 | 86 | 86 | 86 | 86 | 86 | 86 |
| Sound levels - standard unit + low noise level option | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 100 | 99 | 99 | 99 | 103 | 103 | 103 | 103 | 103 | 103 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 82 | 80 | 80 | 80 | 84 | 84 | 84 | 84 | 84 | 84 |
| Dimensions | | | | | | | | | | | | | |
| Length | | mm | 2780 | 4025 | 4025 | 4025 | 4730 | 4730 | 4730 | 4730 | 4790 | 4790 | |
| Width | | mm | 1090 | 1036 | 1036 | 1036 | 1201 | 1201 | 1201 | 1201 | 1947 | 1947 | |
| Height | | mm | 1920 | 1870 | 1870 | 1925 | 2071 | 2071 | 2071 | 2071 | 1535 | 1535 | |
| Operating weight ⁽³⁾ | | | kg | 3672 | 5370 | 5408 | 5698 | 7233 | 7554 | 7622 | 7670 | 9006 | 9032 |
| Compressors | | | | Semi-hermetic screw compressors, 50 r/s | | | | | | | | | |
| Circuit A | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | | | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Refrigerant ⁽³⁾ | | | | R-134a | | | | | | | | | |
| Circuit A | kg | | 158 | 85 | 85 | 105 | 120 | 115 | 110 | 105 | 195 | 195 | |
| | teqCO ₂ | | 226 | 122 | 122 | 150 | 172 | 164 | 157 | 150 | 279 | 279 | |
| Circuit B | kg | | - | 85 | 85 | 105 | 120 | 115 | 110 | 105 | 195 | 195 | |
| | teqCO ₂ | | - | 122 | 122 | 150 | 172 | 164 | 157 | 150 | 279 | 279 | |

- * In accordance with standard EN14511-3:2022.
- ** In accordance with standard EN14825:2022, average climate
- HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW
- HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². kW
- HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m². kW
- CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW
- η_s heat_{30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2022
- η_s heat_{47/55°C} & SCOP_{47/55°C} Values calculated in accordance with EN14825:2022
- IPLV.SI Calculations according to standard performances AHRI 551-591 (SI)
- (1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
- (3) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values

TECHNICAL CHARACTERISTICS

STANDARD UNITS FOR HIGH CONDENSING TEMPERATURES

| LW ST + High condensing option | | 2308 | 2800 | 3000 | 3008 | 3400 | 3800 | 4200 | 4600 | 4408 | 4608 |
|------------------------------------|-----|--------------------------------------------------|------|------|------|------|------|------|------|------|------|
| Oil | | | | | | | | | | | |
| Circuit A | l | 36 | 32 | 32 | 32 | 36 | 36 | 36 | 36 | 36 | 36 |
| Circuit B | l | - | 32 | 32 | 32 | 32 | 36 | 36 | 36 | 36 | 36 |
| Capacity control | | Connect'Touch, electronic expansion valves (EXV) | | | | | | | | | |
| Minimum capacity ⁽⁴⁾ | % | 25 | 15 | 15 | 15 | 15 | 10 | 10 | 10 | 10 | 10 |
| Evaporator | | Multi-pipe flooded type | | | | | | | | | |
| Net water volume | l | 98 | 182 | 182 | 205 | 301 | 301 | 301 | 301 | 354 | 354 |
| Water connections (Victaulic) | in | 6 | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | Multi-pipe flooded type | | | | | | | | | |
| Net water volume | l | 137 | 193 | 193 | 193 | 340 | 340 | 340 | 340 | 426 | 426 |
| Water connections (Victaulic) | in | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

TECHNICAL CHARACTERISTICS

HIGH EFFICIENCY UNITS FOR HIGH CONDENSING TEMPERATURES



| LW HE + high condensing option | | | | 1328 | 1528 | 1928 | 2128 | 2328 | 2628 | 3028 | 3428 | 3828 | 4228 | 4628 |
|------------------------------------------------------------------|---------|-------------------------------------------|---------|-----------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating | | | | | | | | | | | | | | |
| Unit with high condensing option Full load performances* | HW1 | Nominal capacity | kW | 600 | 670 | 840 | 910 | 975 | 1188 | 1375 | 1514 | 1698 | 1890 | 1983 |
| | | COP | kW/kW | 5,89 | 5,90 | 5,72 | 5,58 | 5,72 | 5,61 | 5,77 | 5,55 | 5,40 | 5,78 | 5,73 |
| | HW2 | Nominal heating capacity | kW | 580 | 646 | 815 | 885 | 950 | 1147 | 1322 | 1465 | 1648 | 1834 | 1929 |
| | | COP | kW/kW | 4,85 | 4,86 | 4,72 | 4,61 | 4,75 | 4,65 | 4,80 | 4,62 | 4,52 | 4,80 | 4,79 |
| | HW3 | Nominal capacity | kW | 561 | 625 | 790 | 862 | 925 | 1110 | 1275 | 1419 | 1598 | 1783 | 1874 |
| | | COP | kW/kW | 4,02 | 4,04 | 3,92 | 3,83 | 3,97 | 3,86 | 4,01 | 3,88 | 3,81 | 4,00 | 4,00 |
| Unit with high condensing option Seasonal energy efficiency** | HW1 | SCOP _{30/35°C} | kWh/kWh | 6,15 | 6,22 | 6,40 | 6,11 | 5,99 | 5,97 | 6,24 | 6,18 | 6,18 | 6,50 | 6,21 |
| | | η _s heat _{30/35°C} | % | 238 | 241 | 248 | 236 | 231 | 231 | 242 | 239 | 239 | 252 | 240 |
| | | SCOP _{47/55°C} | kWh/kWh | 4,78 | 4,86 | 4,97 | 4,76 | 4,73 | 4,63 | 4,88 | 4,88 | 4,94 | 5,07 | 4,92 |
| | HW3 | η _s heat _{47/55°C} | % | 183 | 186 | 191 | 182 | 181 | 177 | 187 | 187 | 189 | 195 | 189 |
| | | P _{rated} | kW | 673 | 749 | 947 | 1030 | 1106 | 1330 | 1531 | 1701 | 1915 | 2133 | 2243 |
| | | | | | | | | | | | | | | |
| Cooling | | | | | | | | | | | | | | |
| Unit with high condensing option Full load performances* | CW1 | Nominal cooling capacity | kW | 510 | 569 | 715 | 770 | 833 | 1011 | 1178 | 1287 | 1437 | 1613 | 1706 |
| | | EER | kW/kW | 5,14 | 5,17 | 5,02 | 4,88 | 5,09 | 4,98 | 5,23 | 4,96 | 4,84 | 5,15 | 5,21 |
| Unit with high condensing option Seasonal energy efficiency** | | SEER _{12/7°C} Comfort low temp. | kWh/kWh | 6,53 | 6,68 | 6,81 | 6,56 | 6,45 | 6,51 | 6,95 | 6,76 | 6,66 | 7,13 | 6,90 |
| | | η _s cool _{12/7°C} | % | 258 | 264 | 269 | 259 | 255 | 258 | 275 | 267 | 264 | 282 | 273 |
| | | SEPR _{12/7°C} Process high temp. | kWh/kWh | 6,90 | 6,93 | 7,23 | 6,68 | 6,38 | 6,71 | 6,97 | 6,88 | 7,03 | 7,15 | 6,63 |
| Integrated Part Load Value | IPLV.SI | kW/kW | 6,612 | 6,804 | 7,029 | 6,703 | 6,782 | 6,505 | 6,997 | 6,946 | 7,131 | 7,302 | 7,308 | |
| Sound levels - standard unit | | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 99 | 99 | 102 | 102 | 102 | 102 | 102 | 105 | 105 | 105 | 105 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 82 | 82 | 84 | 84 | 84 | 83 | 83 | 86 | 86 | 86 | 86 |
| Sound levels - standard unit + low noise level option | | | | | | | | | | | | | | |
| Sound power level ⁽¹⁾ | | | dB(A) | 96 | 96 | 100 | 100 | 100 | 99 | 99 | 103 | 103 | 103 | 103 |
| Sound pressure level at 1 m ⁽²⁾ | | | dB(A) | 78 | 78 | 82 | 82 | 82 | 80 | 80 | 84 | 84 | 84 | 84 |
| Dimensions | | | | | | | | | | | | | | |
| Length | | | mm | 3059 | 3059 | 3290 | 3290 | 3290 | 4730 | 4730 | 4730 | 4730 | 4832 | 4832 |
| Width | | | mm | 936 | 936 | 1105 | 1105 | 1105 | 1039 | 1039 | 1202 | 1202 | 2174 | 2174 |
| Height | | | mm | 1743 | 1743 | 1970 | 1970 | 1970 | 1997 | 1997 | 2071 | 2071 | 1585 | 1585 |
| Operating weight ⁽³⁾ | | | kg | 2981 | 3020 | 4072 | 4117 | 4145 | 6872 | 6950 | 7721 | 8059 | 11225 | 11279 |
| Compressors | | | | Semi-hermetic screw compressors, 50 r/s | | | | | | | | | | |
| Circuit A | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | | | | - | - | - | - | - | 1 | 1 | 1 | 1 | 1 | 1 |

- * In accordance with standard EN14511-3:2022.
- ** In accordance with standard EN14825:2022, average climate
- HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW
- HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². kW
- HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m². kW
- CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². K/W
- η_s heat_{30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2022
- η_s heat_{47/55°C} & SCOP_{47/55°C} Values calculated in accordance with EN14825:2022
- η_s cool_{12/7°C} & SEER_{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
- SEPR_{12/7°C} Values calculated in accordance with EN14825:2022
- IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).
- (1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
- (3) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values

TECHNICAL CHARACTERISTICS

HIGH EFFICIENCY UNITS FOR HIGH CONDENSING TEMPERATURES



| LW HE + high condensing option | | 1328 | 1528 | 1928 | 2128 | 2328 | 2628 | 3028 | 3428 | 3828 | 4228 | 4628 |
|------------------------------------|--------------------|--------------------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Refrigerant⁽³⁾ | | R-134a | | | | | | | | | | |
| Circuit A | kg | 130 | 130 | 180 | 175 | 177 | 120 | 120 | 130 | 130 | 240 | 250 |
| | teqCO ₂ | 186 | 186 | 257 | 250 | 253 | 172 | 172 | 186 | 186 | 343 | 358 |
| Circuit B | kg | - | - | - | - | - | 120 | 120 | 150 | 130 | 240 | 250 |
| | teqCO ₂ | - | - | - | - | - | 172 | 172 | 215 | 186 | 343 | 358 |
| Oil | | | | | | | | | | | | |
| Circuit A | l | 32 | 32 | 36 | 36 | 36 | 32 | 32 | 36 | 36 | 36 | 36 |
| Capacity control | | Connect'Touch, electronic expansion valves (EXV) | | | | | | | | | | |
| Minimum capacity ⁽⁴⁾ | % | 30 | 30 | 20 | 20 | 20 | 15 | 15 | 15 | 10 | 10 | 10 |
| Evaporator | | Multi-pipe flooded type | | | | | | | | | | |
| Net water volume | l | 101 | 101 | 154 | 154 | 154 | 293 | 293 | 321 | 321 | 473 | 473 |
| Water connections (Victaulic) | in | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 10 | 10 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser | | Multi-pipe flooded type | | | | | | | | | | |
| Net water volume | l | 103 | 103 | 148 | 148 | 148 | 316 | 316 | 340 | 340 | 623 | 623 |
| Water connections (Victaulic) | in | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 10 | 10 | 10 | 10 |
| Drain and vent connections (NPT) | in | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 |
| Max. water-side operating pressure | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

ELECTRICAL DATA NOTES

STANDARD UNITS FOR HIGH CONDENSING TEMPERATURES

| LW ST | | 708 | 858 | 1008 | 1300 | 1302 | 1500 | 1508 | 1900 | 2100 | 2300 | 2308 | 2800 | 3000 | 3008 | 3400 | 3800 | 4200 | 4600 | 4408 | 4608 |
|------------------------------------------------|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Power circuit | | | | | | | | | | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | | | | | | | | | | |
| Control circuit | | 24 V via the built-in transformer | | | | | | | | | | | | | | | | | | | |
| Nominal start-up current ⁽¹⁾ | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 303 | 388 | 388 | 587 | 587 | 587 | 587 | 772 | 772 | 772 | 772 | 587 | 587 | 587 | 772 | 772 | 772 | 772 | 772 | 772 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 587 | 587 | 587 | 587 | 772 | 772 | 772 | 772 | 772 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 757 | 757 | 757 | 943 | 965 | 986 | 1004 | 1004 | 1004 |
| Maximum start-up current ⁽²⁾ | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 303 | 388 | 388 | 587 | 587 | 587 | 587 | 772 | 772 | 772 | 772 | 587 | 587 | 587 | 772 | 772 | 772 | 772 | 772 | 772 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 587 | 587 | 587 | 587 | 772 | 772 | 772 | 772 | 772 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 887 | 887 | 887 | 1072 | 1172 | 1202 | 1232 | 1004 | 1232 |
| Cosine phi | | | | | | | | | | | | | | | | | | | | | |
| Nominal ⁽³⁾ | | 0,79 | 0,78 | 0,79 | 0,83 | 0,85 | 0,85 | 0,85 | 0,84 | 0,86 | 0,87 | 0,87 | 0,85 | 0,85 | 0,85 | 0,86 | 0,85 | 0,86 | 0,87 | 0,86 | 0,87 |
| Maximum ⁽⁴⁾ | | 0,88 | 0,87 | 0,88 | 0,90 | 0,90 | 0,91 | 0,91 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 |
| Total harmonic distortion ⁽⁴⁾ | % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maximum power input* | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | kW | 97 | 111 | 122 | 156 | 173 | 191 | 191 | 249 | 268 | 286 | 286 | 191 | 191 | 191 | 252 | 252 | 271 | 290 | 290 | 290 |
| Circuit B | kW | - | - | - | - | - | - | - | - | - | - | - | 173 | 191 | 191 | 191 | 252 | 271 | 290 | 271 | 290 |
| Single power connection point option | kW | - | - | - | - | - | - | - | - | - | - | - | 364 | 382 | 382 | 443 | 504 | 542 | 580 | 562 | 580 |
| Nominal input current ⁽³⁾ | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 95 | 109 | 125 | 150 | 162 | 171 | 171 | 193 | 214 | 232 | 232 | 171 | 171 | 171 | 210 | 210 | 230 | 250 | 250 | 250 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 162 | 171 | 171 | 171 | 210 | 230 | 250 | 230 | 250 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 333 | 342 | 342 | 381 | 420 | 460 | 500 | 480 | 500 |
| Maximum input current (Un)* | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 160 | 185 | 200 | 250 | 275 | 300 | 300 | 400 | 430 | 460 | 460 | 300 | 300 | 300 | 400 | 400 | 430 | 460 | 460 | 460 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 275 | 300 | 300 | 300 | 400 | 430 | 460 | 430 | 460 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 575 | 600 | 600 | 700 | 800 | 860 | 920 | 890 | 920 |
| Maximum input current (Un -10%) ⁽⁴⁾ | | | | | | | | | | | | | | | | | | | | | |
| Circuit A | A | 176 | 206 | 224 | 270 | 300 | 330 | 330 | 419 | 455 | 476 | 476 | 330 | 330 | 330 | 419 | 419 | 455 | 476 | 476 | 476 |
| Circuit B | A | - | - | - | - | - | - | - | - | - | - | - | 300 | 330 | 330 | 330 | 419 | 455 | 476 | 455 | 476 |
| Single power connection point option | A | - | - | - | - | - | - | - | - | - | - | - | 630 | 660 | 660 | 749 | 838 | 910 | 952 | 931 | 952 |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor).
Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor).
Values obtained at operation with maximum unit power input.

(3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

* Values obtained in operation with maximum unit power input. Values given on the unit name plate.

ELECTRICAL DATA NOTES

HIGH EFFICIENCY UNITS FOR HIGH CONDENSING TEMPERATURES



| LW HE | | 1328 | 1528 | 1928 | 2128 | 2328 | 2628 | 3028 | 3428 | 3828 | 4228 | 4628 |
|-----------------------------------------------|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|
| Power circuit | | | | | | | | | | | | |
| Nominal voltage | V-ph-Hz | 400-3-50 | | | | | | | | | | |
| Voltage range | V | 360-440 | | | | | | | | | | |
| Control circuit | | 24 V via the built-in transformer | | | | | | | | | | |
| Nominal start-up current⁽¹⁾ | | | | | | | | | | | | |
| Circuit A | A | 587 | 587 | 772 | 772 | 772 | 587 | 587 | 772 | 772 | 772 | 772 |
| Circuit B | A | - | - | - | - | - | 587 | 587 | 587 | 772 | 772 | 772 |
| Single power connection point option | A | - | - | - | - | - | 749 | 757 | 943 | 965 | 986 | 1004 |
| Maximum start-up current⁽²⁾ | | | | | | | | | | | | |
| Circuit A | A | 587 | 587 | 772 | 772 | 772 | 587 | 587 | 772 | 772 | 772 | 772 |
| Circuit B | A | - | - | - | - | - | 587 | 587 | 587 | 772 | 772 | 772 |
| Single power connection point option | A | - | - | - | - | - | 862 | 887 | 1072 | 1172 | 1202 | 1232 |
| Cosine phi | | | | | | | | | | | | |
| Nominal ⁽³⁾ | | 0,88 | 0,88 | 0,84 | 0,86 | 0,87 | 0,87 | 0,88 | 0,86 | 0,85 | 0,86 | 0,87 |
| Maximum ⁽⁴⁾ | | 0,91 | 0,92 | 0,90 | 0,90 | 0,90 | 0,91 | 0,92 | 0,91 | 0,91 | 0,91 | 0,91 |
| Total harmonic distortion ⁽⁴⁾ | % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Maximum power input* | | | | | | | | | | | | |
| Circuit A | kW | 173 | 191 | 252 | 271 | 290 | 173 | 191 | 252 | 252 | 271 | 290 |
| Circuit B | kW | - | - | - | - | - | 173 | 191 | 191 | 252 | 271 | 290 |
| Single power connection point option | kW | - | - | - | - | - | 346 | 382 | 443 | 504 | 542 | 580 |
| Nominal input current⁽³⁾ | | | | | | | | | | | | |
| Circuit A | A | 162 | 171 | 210 | 230 | 250 | 162 | 171 | 210 | 210 | 230 | 250 |
| Circuit B | A | - | - | - | - | - | 162 | 171 | 171 | 210 | 230 | 250 |
| Single power connection point option | A | - | - | - | - | - | 324 | 342 | 381 | 420 | 460 | 500 |
| Maximum input current (Un)* | | | | | | | | | | | | |
| Circuit A | A | 275 | 300 | 400 | 430 | 460 | 275 | 300 | 400 | 400 | 430 | 460 |
| Circuit B | A | - | - | - | - | - | 275 | 300 | 300 | 400 | 430 | 460 |
| Single power connection point option | A | - | - | - | - | - | 550 | 600 | 700 | 800 | 860 | 920 |
| Maximum input current (Un -10%)(4) | | | | | | | | | | | | |
| Circuit A | A | 300 | 330 | 419 | 455 | 476 | 300 | 330 | 419 | 419 | 455 | 476 |
| Circuit B | A | - | - | - | - | - | 300 | 330 | 330 | 419 | 455 | 476 |
| Single power connection point option | A | - | - | - | - | - | 600 | 660 | 749 | 838 | 910 | 952 |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor).
Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor).
Values obtained at operation with maximum unit power input.

(3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

* Values obtained in operation with maximum unit power input. Values given on the unit name plate.

ELECTRICAL DATA NOTES

■ Standard and high efficiency units

Notes, electrical data and operating conditions **HYDROCIAT** LW

- As standard:
LW 708 to 2328 units have a single power connection point located immediately upstream of the main disconnect switch.
HYDROCIAT LW 2800 to 4628 units have two connection points located immediately upstream of the main disconnect switches.
- The control box includes the following standard features:
 - One main disconnect switch per circuit⁽¹⁾,
 - Starter and motor protection devices for each compressor
 - Anti-short cycle protection devices⁽¹⁾,
 - Control devices
- Field connections:
All connections to the system and the electrical installations must be in full accordance with all applicable codes.
- The CIAT LW units are designed and built to ensure conformance with local codes. The recommendations of European standard EN 60204-1 (corresponds to IEC 60204-1) (machine safety - electrical machine components - part 1: general regulations) are specifically taken into account, when designing the electrical equipment.
- The absence of power supply disconnect switch(es) and short-cycle protection devices in option : Non disconnect switch, but short circuit protection, is an important factor that has to be taken into consideration at the installation site.
Units equipped with one of these two options are supplied with a declaration of incorporation, as required by the machinery directive.

Notes:

- **Generally the recommendations of IEC 60364 are accepted as compliance with the requirements of the installation directives. Conformance with EN 60204-1 is the best means of ensuring compliance with the Machines Directive.**
- **Annex B of EN 60204 1 describes the electrical characteristics used for the operation of the machines.**

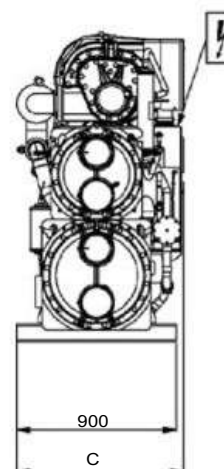
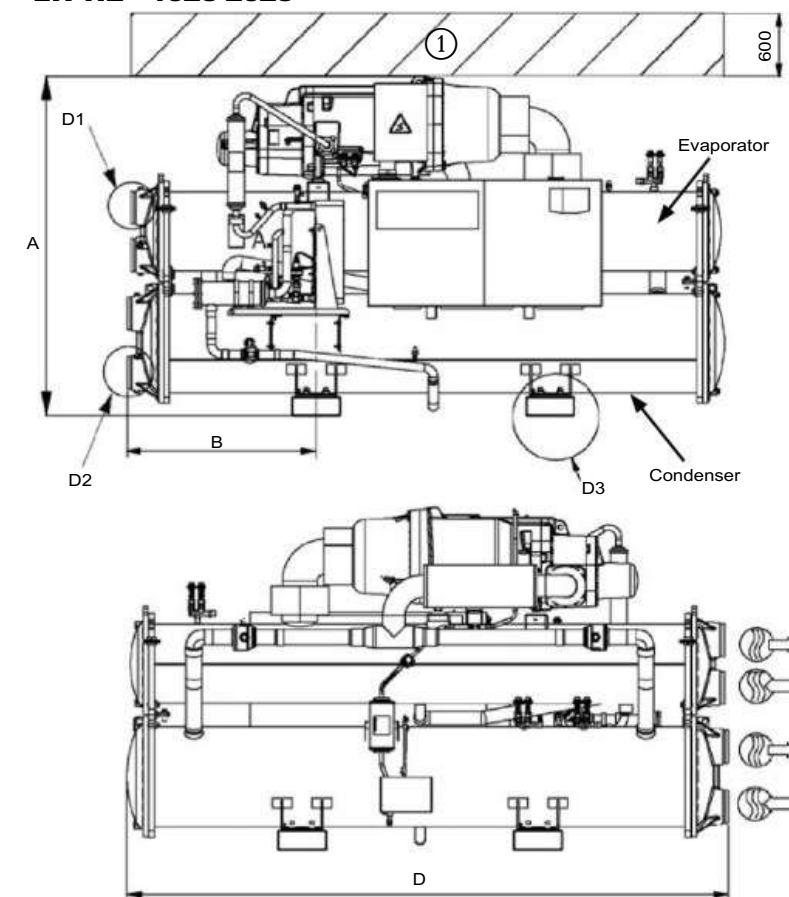
1. The operating environment for the **HYDROCIAT** LW units is specified below:
 - Environment(2): Environment as classified in EN 60721 (corresponds to IEC 60721):
 - Indoor installation
 - Ambient temperature range: minimum temperature +5°C to +42°C, class AA4
 - Altitude: lower than or equal to 2000 m
 - Presence of water: class AD2 (possibility of water droplets)
 - Presence of hard solids, class 4S2 (no significant dust present)
 - Presence of corrosive and polluting substances, class 4C2 (negligible)
2. Power supply frequency variation: ± 2 Hz.
3. The neutral (N) line must not be connected directly to the unit (if necessary use a transformer).
4. Overcurrent protection of the power supply conductors is not provided with the unit.
5. The factory installed disconnect switch(es)/circuit breaker(s) is (are) of a type suitable for power interruption in accordance with EN 60947-3 (corresponds to IEC 60947-3).
6. The units are designed for connection to TN networks (IEC 60364). For IT networks the earth connection must not be at the network earth. Provide a local earth, consult competent local organisations to complete the electrical installation.

NOTE: If particular aspects of an actual installation do not conform to the conditions described above, or if there are other conditions which should be considered, always contact your local CIAT representative.

- (1) Not provided for units equipped with no disconnect switch but short circuit protection option.
- (2) The required protection level for this class is IP21B or 1PX1B (according to reference document IEC 60529). All **HYDROCIAT** LW units fulfil this protection condition. In general the casings fulfil class IP23 or IPX3B.

DIMENSIONS

■ **LW ST - 708-2308**
LW HE - 1328-2328

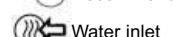


| Units sizes | Dimensions in mm | | | | | | |
|-----------------------------------|------------------|------|------|------|-------|-------|------|
| | A | B | C | D | E | F | G |
| LW ST standard units | | | | | | | |
| 708 | 1567 | 800 | 928 | 2724 | 141,3 | 141,3 | 2600 |
| 858 | 1567 | 800 | 928 | 2724 | 141,3 | 141,3 | 2600 |
| 1008 | 1567 | 800 | 928 | 2724 | 141,3 | 141,3 | 2600 |
| 1300 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1302 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1500 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1508 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1900 | 1848 | 968 | 1044 | 3059 | 168,3 | 168,3 | 2800 |
| 2100 | 1848 | 968 | 1044 | 3059 | 168,3 | 168,3 | 2800 |
| 2300 | 1848 | 968 | 1044 | 3059 | 168,3 | 168,3 | 2800 |
| 2308 | 1898 | 828 | 1044 | 2780 | 219,1 | 168,3 | 2600 |
| LW HE high efficiency units | | | | | | | |
| 1328 | 1743 | 968 | 936 | 3059 | 168,3 | 168,3 | 2800 |
| 1528 | 1743 | 968 | 936 | 3059 | 168,3 | 168,3 | 2800 |
| 1928 | 1950 | 1083 | 1065 | 3290 | 219,1 | 219,1 | 3100 |
| 2128 | 1950 | 1083 | 1070 | 3290 | 219,1 | 219,1 | 3100 |
| 2328 | 1950 | 1083 | 1070 | 3290 | 219,1 | 219,1 | 3100 |
| LW ST with high condensing option | | | | | | | |
| 708 | 1567 | 800 | 928 | 2724 | 141,3 | 141,3 | 2600 |
| 858 | 1567 | 800 | 928 | 2724 | 141,3 | 141,3 | 2600 |
| 1008 | 1567 | 800 | 928 | 2724 | 141,3 | 141,3 | 2600 |
| 1300 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1302 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1500 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1508 | 1693 | 810 | 936 | 2742 | 141,3 | 141,3 | 2600 |
| 1900 | 1868 | 968 | 1090 | 3059 | 168,3 | 168,3 | 2800 |
| 2100 | 1868 | 968 | 1090 | 3059 | 168,3 | 168,3 | 2800 |
| 2300 | 1868 | 968 | 1090 | 3059 | 168,3 | 168,3 | 2800 |
| 2308 | 1920 | 828 | 1090 | 2780 | 168,3 | 219,1 | 2600 |
| LW HE with high condensing option | | | | | | | |
| 1328 | 1743 | 968 | 936 | 3059 | 168,3 | 168,3 | 2800 |
| 1528 | 1743 | 968 | 936 | 3059 | 168,3 | 168,3 | 2800 |
| 1928 | 1970 | 1083 | 1105 | 3290 | 219,1 | 219,1 | 3100 |
| 2128 | 1970 | 1083 | 1105 | 3290 | 219,1 | 219,1 | 3100 |
| 2328 | 1970 | 1083 | 1105 | 3290 | 219,1 | 219,1 | 3100 |

Key:

All dimensions are in mm.

- 1 Required clearance for maintenance
- 2 Recommended clearance for tube removal

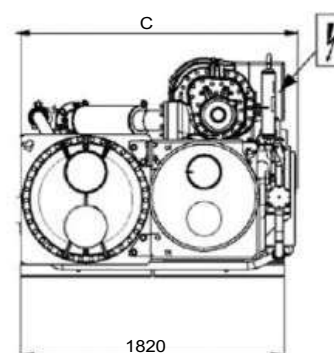
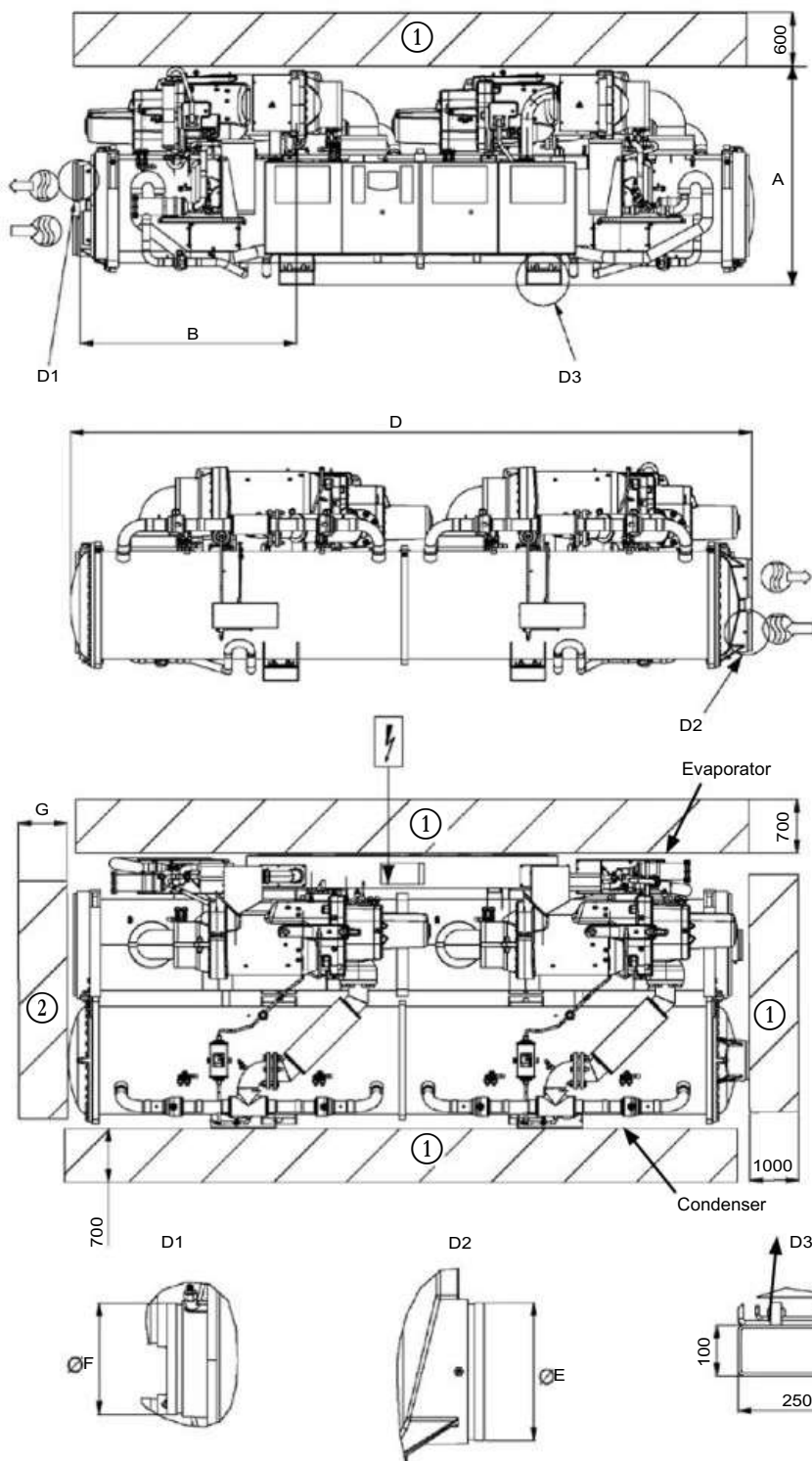


- Low brine option has same dimensions as high condensing option.
- IP44 option has same dimensions as high condensing option on units 1900, 1928, 2300, 2308, 2328. IP44 option has same dimensions as standard on the other units.

NOTE: Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

DIMENSIONS

- **LW ST - 4408-4608**
- **LW HE - 4228-4628**



| Units sizes | Dimensions in mm | | | | | | |
|------------------------------------------|------------------|------|------|------|-------|-------|------|
| | A | B | C | D | E | F | G |
| LW ST standard units | | | | | | | |
| 4408 | 1515 | 1568 | 1902 | 4790 | 219,1 | 219,1 | 4500 |
| 4608 | 1515 | 1568 | 1902 | 4790 | 219,1 | 219,1 | 4500 |
| LW HE high efficiency units | | | | | | | |
| 4228 | 1562 | 1591 | 2129 | 4832 | 273 | 273 | 4600 |
| 4628 | 1562 | 1591 | 2129 | 4832 | 273 | 273 | 4600 |
| LW ST with high condensing option | | | | | | | |
| 4408 | 1535 | 1568 | 1947 | 4790 | 219 | 219 | 4500 |
| 4608 | 1535 | 1568 | 1947 | 4790 | 219 | 219 | 4500 |
| LW HE with high condensing option | | | | | | | |
| 4228 | 1585 | 1591 | 2174 | 4832 | 273,1 | 273,1 | 4600 |
| 4628 | 1585 | 1591 | 2174 | 4832 | 273,1 | 273,1 | 4600 |

Key:

All dimensions are in mm.

- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- Water inlet
- Water outlet
- Electrical cabinet

- Low brine option has same dimensions as high condensing option.
- IP44 option has same dimensions as high condensing option on units 1900, 1928, 2300, 2308, 2328. IP44 option has same dimensions as standard on the other units.

NOTE: Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.



CIAT

DRY COOLERS - CONDENSERS

HEAT EXCHANGERS - THERMAL ENERGY STORAGE

DRY COOLERS - CONDENSERS

OPERA™ P.539

Up to 1 100kW

VEXTRA™ P.545

Up to 1 900kW

ENERGY OPTIMISATION SOLUTIONS P.549

AEROFRESH™ P.551

HEAT EXCHANGERS

ITEX P.553

THERMAL ENERGY STORAGE

THERMAL ENERGY STORAGE P.561

OPERA™

Dry coolers
Air-cooled condensers



MORE

- More efficient
- More flexible
- More intelligent

for LESS

- Less energy
- Less time
- Less noise

Capacity: up to 1100 kW



HFC
R-410A



HFC
407C



HFC
R-134A

USE

The **OPERA** range, available in dry cooler or air-cooled condenser versions, is particularly suited to tertiary, industrial and healthcare applications.

Dry coolers in the **OPERA** range are mainly designed for cooling water or glycol/water mix for:

- Condensers for water chillers,
- Generators,
- Free cooling,
- Processes and machines (presses, compressors, etc.)

Air-cooled condensers in the **OPERA** range are mainly designed for the condensation of refrigerants for water chillers, as a "split system".

These devices are designed to be installed outdoors.

RANGE

OPERA is a large modular range, which offers:

- 3 casing lengths (S, M or L module), allowing either the dimensions, the capacity or the power consumption to be optimised.
- A range of sizes, from 1 to 14 fans.
- 2 impeller diameters, 800 or 910 mm.

- Adaptation of the rotation speed (EC motor).
- Several configurations: horizontal or vertical unit with forced or induced draught for high temperatures.

Various combinations of these elements, as well as the choice of a number of options, allow us to provide devices that are adapted to a range of applications and environments.

DESCRIPTION

Excellent resistance to corrosion

The casing offers 480 hours of resistance in salt spray tests in accordance with ISO 9227, C3 corrosion class Long durability in excess of 15 years or C4 Intermediate durability between 5 and 15 years, in line with ISO standard 12944-2



① Coil

Copper tubing and manifolds, high-performance aluminium fins, resistant to fouling.

Anti-shear system for bundle tubing.

Piping for dry coolers: ISO PN16 02A type rotating flanges as per DIN 2642 in 304L stainless steel (1 or 2 inlets/outlets depending on flow rate).

Piping for condenser: copper (1 input/output per refrigerating circuit for units with 1 fan line, 2 inputs/outputs for units with 2 fan lines). Delivered pressurised with nitrogen.

② Fan motor assemblies

Profiled collars in galvanised steel with RAL 7035 polyester powder paint or RAL 9005 composite depending on the motor reference.

Aluminium and polypropylene impeller.

Class F motor - IP54 - three-phase 400 V +/- 10 % 50 Hz +/- 2 %.

Black protective grille compliant with standard NF ISO 12499.

Individual partitioning.

EC motors can be used in 50 or 60 Hz and from 380 to 480V +/- 10%.

③ Casing

Galvanised steel with polyester powder paint RAL 7035 (light grey). Assembly using stainless rivets and LANTHANUM nuts and bolts for the feet.

④ Feet

Galvanised steel with polyester powder paint.

⑤ Protective enclosures on the elbows and manifolds

Each device is tested:

- The tightness of the coil is subjected to an underwater airtightness test.
- For devices with the terminal box or electrical cabinet option: rotation tests, dielectric tests, current measurement.

The **OPERA** range complies with the following European directives:

- Machinery Directive 2006/42/EC,
- EMC Directive 2014/30/EU,
- Pressure Equipment Directive (PED) 2014/68/EU.

DESIGNATION (EXAMPLE)

OPERA DLN 9124-2 SHI 690E9A

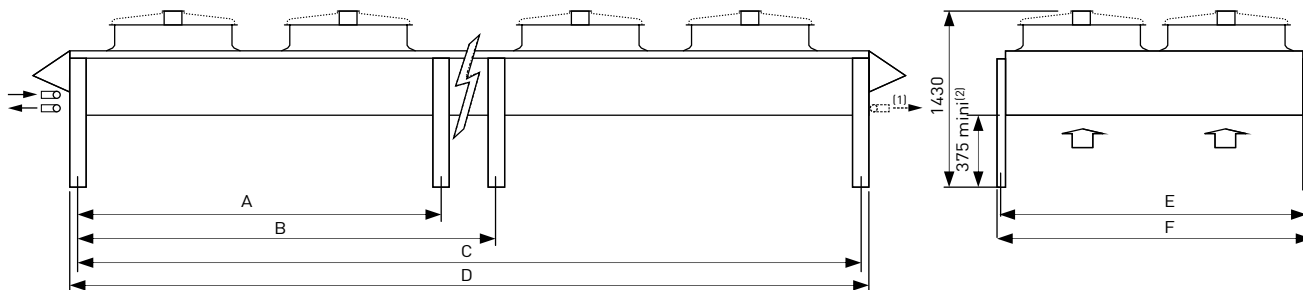
| |
|------------------------------------------------------------|
| Motor (A=AC, E=EC-3 ph 380 and 480 V +/- 10 %.50 or 60 Hz) |
| Rotation speed |
| Draught (I=Induced, F=Forced) |
| Position (H = Horizontal, V = Vertical) |
| Coil type (S=Single, D=Double, T=Twin, Z=Drainable) |
| Number of fan lines (1 or 2) |
| Number of coil rows |
| Number of fans |
| Impeller diameter (8 = 800, 9 = 910 mm) |
| Module size (S=Short, M=Medium, L=Long) |
| D = Dry cooler C = Condenser |

OPTIONS FOR EACH APPLICATION

| | Options | Description/Advantages | DRY COOLER | CONDENSER |
|----------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|
| Protection adapted for the environment | Pre-coated aluminium fins | Improves the resistance of the fins to corrosion. For applications in coastal areas, industrial areas or highly populated areas. | • | • |
| | High efficiency coating on the fins : ALUCOAT®507 - HERESITE (on request) | Improves the resistance of the fins to corrosion. For corrosive environments. | • | • |
| | Corrosiveness resistance category C5M | Casing and fan motor assemblies for corrosive environments. | • | • |
| Quick, simple installation | Terminal box | Connection to the terminals of each motor on the front panel of unit. | • | • |
| | Protection cabinet | Protected by a thermal-magnetic circuit breaker on each motor. | • | |
| | Control cabinet | Motor and control protection, either by electronic board, depending on the temperature, or by the chiller if compatible. | • | • |
| | Maintenance switch | For stopping individual motors. | • | • |
| | Counter-flanges | In stainless steel, with gaskets, bolts and collar. | • | |
| | Raised feet | To ensure a good flow of air depending on how the units are installed: against a wall, side by side, etc. | • | • |
| | Blade protective screen | Protection against hail, impacts, etc. For forced draught, vertical units. | • | • |
| Installation surface constraints | Vertical position | For narrow terraces. | • | • |
| Optimised, secure transport | Stacking of 2 identical devices | | • | • |
| | Skid for transport by container | Secure transport and easy loading/unloading. | • | • |
| High-temperature fluid application | Forced draught | Motors in the flow of fresh air. | • | |
| Generator application | Double circuit dry cooler | Cooling of 2 water circuits (LT - HT) in series using air from just 1 unit. | • | |
| | Expansion tank | Max permissible pressure: 0.5 bar eff. | • | |
| Application for water without glycol | Drainable coil | Device located on a slope to prevent frost - drainage by gravity | • | |
| Free cooling application | Free cooling valve kit | Valves with motor, controlled by the control cabinet. Controlled according to the operation of the dry cooler or chiller. | • | |
| Adiabatic cooling application | AEROFRESH (water misting into the air flow) | Size of the unit reduced by cooling of the ambient air. Operates completely safely due to the antibacterial treatment applied to the water. | • | • |

DIMENSIONS

Horizontal Position - Induced Draught

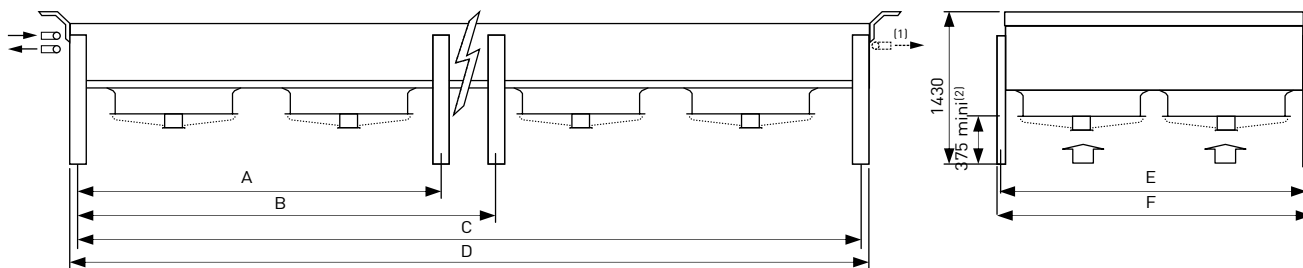


Unit shown has 2 fan lines - no. of motors between the feet is not contractually binding

(1) For units with input/output piping on the opposite side

(2) Standard feet

Horizontal Position - Forced Draught



Unit shown has 2 fan lines - no. of motors between the feet is not contractually binding

(1) For units with input/output piping on the opposite side

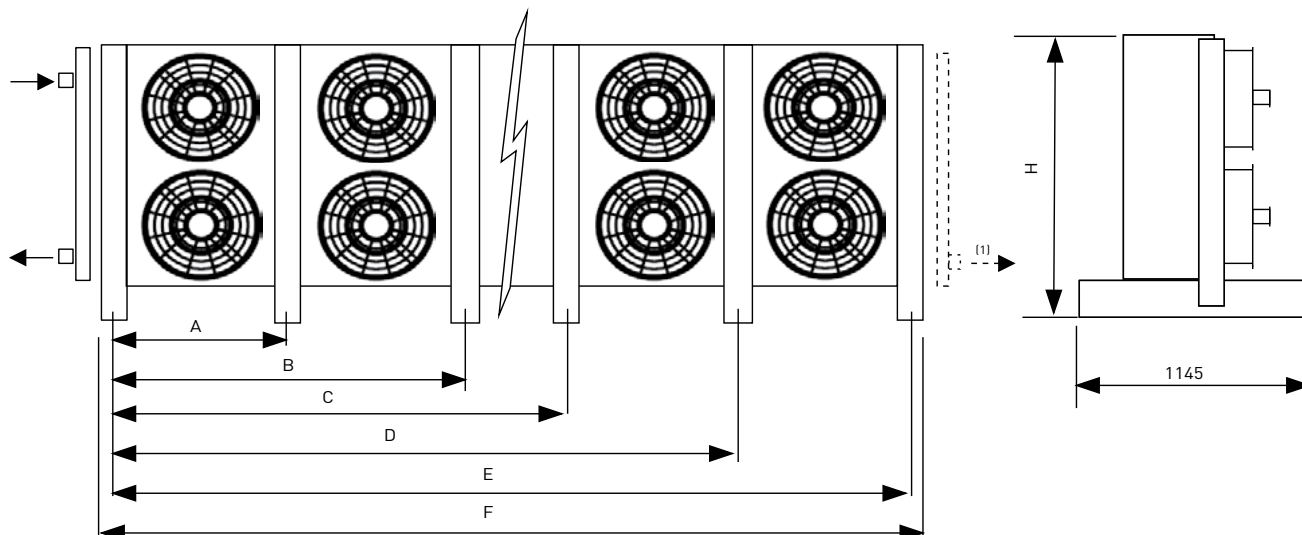
(2) Standard feet

| No. of motors | | | | | | | | | | | | | |
|---------------|----------------------------------------------|-----------------------------------------------------|------|------|------|------|------|------|------|------|------|-------|-------|
| DSNS module | A | - | - | - | - | 1840 | 1840 | - | - | - | 1840 | 1840 | 1840 |
| | B | - | - | - | - | 2790 | 3740 | - | - | - | 2790 | 3740 | 4690 |
| | C | 830 | 1780 | 2730 | 3680 | 4630 | 5580 | 1780 | 2730 | 3680 | 4630 | 5580 | 6530 |
| | D | 950 | 1900 | 2850 | 3800 | 4750 | 5700 | 1900 | 2850 | 3800 | 4750 | 5700 | 6650 |
| | H | 1388 max | | | | | | | | | | | |
| | Max empty weight without options +/-10% (kg) | 233 | 369 | 503 | 666 | 809 | 928 | 638 | 875 | 1135 | 1393 | 1617 | 1874 |
| DMN M module | A | - | - | - | 3140 | 3140 | | - | - | 3140 | 3140 | 4740 | 3140 |
| | B | - | - | - | - | 4740 | | - | - | - | 4740 | - | 7940 |
| | C | 1480 | 3080 | 4680 | 6280 | 7880 | | 3080 | 4680 | 6280 | 7880 | 9480 | 11080 |
| | D | 1600 | 3200 | 4800 | 6400 | 8000 | | 3200 | 4800 | 6400 | 8000 | 9600 | 11200 |
| | H | IMPELLER ø 800: 1388 max - IMPELLER ø 910: 1483 max | | | | | | | | | | | |
| | Max empty weight without options +/-10% (kg) | 314 | 523 | 712 | 958 | 1183 | | 918 | 1298 | 1645 | 2029 | 2388 | 2772 |
| DLNL module | A | - | - | - | 3740 | 3740 | | - | - | 3740 | 3740 | 5640 | |
| | B | - | - | - | - | 5640 | | - | - | - | 5640 | - | |
| | C | 1780 | 3680 | 5580 | 7480 | 9380 | | 3680 | 5580 | 7480 | 9380 | 11280 | |
| | D | 1900 | 3800 | 5700 | 7600 | 9500 | | 3800 | 5700 | 7600 | 9500 | 11400 | |
| | H | IMPELLER ø 800: 1388 max - IMPELLER ø 910: 1483 max | | | | | | | | | | | |
| | Max empty weight without options +/-10% (kg) | 352 | 599 | 846 | 1110 | 1373 | | 1036 | 1474 | 1929 | 2384 | 2806 | |
| All | E | 1240 | | | | | | 2360 | | | | | |
| | F | 1280 | | | | | | 2400 | | | | | |

Dimensions in mm, excluding options.

DIMENSIONS

Vertical position



Unit shown has 2 fan lines - no. of motors between the feet is not contractually binding

(1) For units with input/output piping on the opposite side

| No. of motors | | | | | | | | | | | | | |
|---------------------|----------------------------------------------|------|------|------|------|------|------|------|------|------|------|-------|-------|
| DSN/CSN S module | A | - | - | - | 1840 | 1840 | 1840 | - | - | 1840 | 1840 | 1840 | 1840 |
| | B | - | - | - | - | 2790 | 3740 | - | - | - | 2790 | 3740 | 4690 |
| | C | - | - | - | - | - | - | - | - | - | - | - | - |
| | D | - | - | - | - | - | - | - | - | - | - | - | - |
| | E | 830 | 1780 | 2730 | 3680 | 4630 | 5580 | 1780 | 2730 | 3680 | 4630 | 5580 | 6530 |
| | F | 950 | 1900 | 2850 | 3800 | 4750 | 5700 | 1900 | 2850 | 3800 | 4750 | 5700 | 6650 |
| | Max empty weight without options +/-10% (kg) | 282 | 419 | 554 | 705 | 915 | 1039 | 684 | 922 | 1181 | 1497 | 1727 | 1983 |
| DMN/CMN M module | A | - | - | 1540 | 1540 | 1540 | | - | 1540 | 1540 | 1540 | 3140 | 3140 |
| | B | - | - | 3140 | 4740 | 3140 | | - | 3140 | 4740 | 3140 | 6340 | 4740 |
| | C | - | - | - | - | 4740 | | - | - | - | 4740 | - | 6340 |
| | D | - | - | - | - | 6340 | | - | - | - | 6340 | - | 7940 |
| | E | 1480 | 3080 | 4680 | 6280 | 7880 | | 3080 | 4680 | 6280 | 7880 | 9480 | 11080 |
| | F | 1600 | 3200 | 4800 | 6400 | 8000 | | 3200 | 4800 | 6400 | 8000 | 9600 | 11200 |
| | Max empty weight without options +/-10% (kg) | 356 | 558 | 835 | 1046 | 1339 | | 927 | 1383 | 1734 | 2187 | 2464 | 2920 |
| DLN/CLN L module | A | - | - | 1840 | 1840 | 1840 | | - | 1840 | 1840 | 1840 | 3740 | |
| | B | - | - | 3740 | 5640 | 3740 | | - | 3740 | 5640 | 3740 | 7540 | |
| | C | - | - | - | - | 5640 | | - | - | - | 5640 | - | |
| | D | - | - | - | - | 7540 | | - | - | - | 7540 | - | |
| | E | 1780 | 3680 | 5580 | 7480 | 9380 | | 3680 | 5580 | 7480 | 9380 | 11280 | |
| | F | 1900 | 3800 | 5700 | 7600 | 9500 | | 3800 | 5700 | 7600 | 9500 | 11400 | |
| | Max empty weight without options +/-10% (kg) | 399 | 639 | 972 | 1204 | 1537 | | 1053 | 1572 | 1986 | 2501 | 2842 | |
| All | H | 1370 | | | | | | 2490 | | | | | |

Dimensions in mm, excluding options.

INSTALLATION RECOMMENDATIONS

- These units are designed to operate outside. When starting Bup, frost and snow could adversely affect the operation of horizontal units.

As a general measure, all steps should be taken to avoid the risk of air recycling. This is especially important when the installation comprises several units.

It is not recommended to install units near the hot air extraction duct outlet or close to deciduous plants (this could cause fouling).

- **A horizontal unit** must have a surrounding clearance of 1.0m. Where the use of anti-vibration mounts is required, use a rigid frame which locks the feet together.
- **A vertical unit** should preferably be placed parallel to the direction of the wind. It is not recommended for use with low fan rotation speeds. In addition, we recommend that these units be stabilised using braces connecting their two upper ends to fixed supports (wall or framework).

- Avoid using **speed regulators** and prioritise EC motor solutions.

- For air-cooled condensers, the **calculation of the evacuation capacity** of the air-cooled condenser must be carried out in accordance with professional best practice and particularly in accordance with:

- The type of compressor in the installation (hermetic, semihermetic or open),
- The horizontal and vertical lengths of the connection pipes and their diameter.

- **Commissioning and maintenance:** refer to the instruction manual.

- These units **comply with the European directives**. The installer is responsible for ensuring the compliance of the installation. The installer must ensure safety and protective devices (emergency stop, shut-off valves, lightning protection, etc.) are put in place and are accessible.

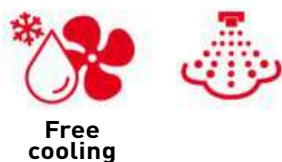
VEXTRA™

Dry coolers



*Slim design and
acoustic comfort*
*Saves up to
40% floor space*

Up to 1900 kW



Use

Dry coolers in this range are mainly designed for cooling water or glycol/water mix for:

- Condensers for water chillers,
- Free cooling,

- Processes and machines (presses, compressors etc.)
- Replacing water cooling towers etc.

These devices are designed to be installed outdoors.

Range

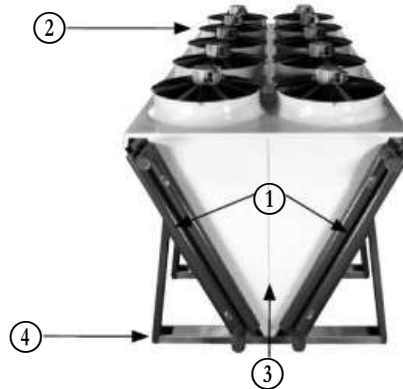
- More than 220 models.
- A range of sizes, from 6 to 20 fans.
- 2 impeller diameters, 800 or 910 mm.
- Adaptation of the rotation speed (EC motor).

Various combinations of these elements, as well as the choice of a number of options, allow us to provide devices that are adapted to a range of applications and environments.

DESCRIPTION

Excellent resistance to corrosion

The casing offers 480 hours of resistance in salt spray tests in accordance with ISO 9227, C3 corrosion class Long durability in excess of 15 years or C4 Intermediate durability between 5 and 15 years, in line with ISO standard 12944-2.



① 2 Non-drainable coils

Copper tubes and high-performance aluminium fins, resistant to fouling.

Manifolds and piping: unpainted copper except for diameter 125 which are RAL 7024 graphite grey painted steel.

② Fan motor assemblies

Profiled collars in galvanised steel with RAL7035 polyester powder paint or RAL9005 composite depending on the motor reference.

Aluminium + polypropylene propeller.

Class F motors - IP54 - TRI400V +/-10% 50Hz+/-2%.

Black protective grille compliant with standard BS ISO 12499.

Partitioning in pairs.

EC motors can be used in 50 or 60 Hz and from 380 to 480V +/- 10%.

③ Casing

Galvanised steel with polyester powder paint in RAL7035 light grey.

④ Feet

Galvanised steel with polyester powder paint in RAL7035 light grey.

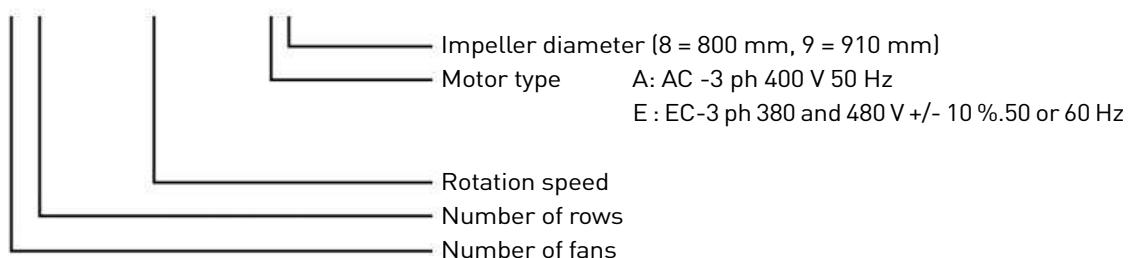
Each device is tested:

- The tightness of the coil is subjected to an underwater airtightness test.
- For devices with the terminal box or electrical cabinet option: rotation tests, dielectric tests, current measurement.

The entire range complies with the following European directives:

- Machinery directive 2006/42/EC,
- EMC directive 2014/30/EU,
- Pressure Equipment Directive (PED) 2014/68 EU.

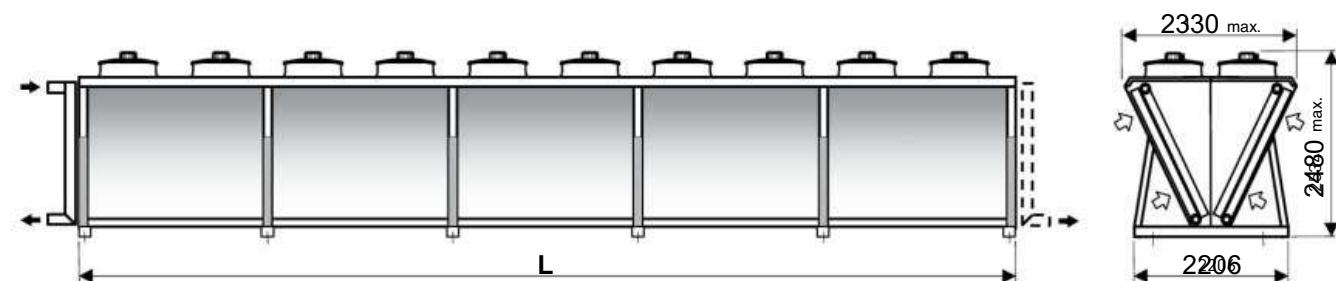
DESCRIPTION

VEXTRA
1 16 4
UI 1000
E 9A


OPTIONS FOR EACH APPLICATION

| | Options | Description/advantages |
|----------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Protection adapted for the environment | Pre-coated aluminium fins | Improves the resistance of the fins to corrosion. For applications in coastal areas, industrial areas or highly populated areas. |
| | High-efficiency coating on fins: ALUCOAT®507/HERESITE (on request) | Improves the resistance of the fins to corrosion. For relatively corrosive environments. |
| | Corrosiveness resistance category C5M | Casing and fan motor assemblies for corrosive environments |
| Quick, simple installation | Terminal box | Connection to the terminals of each motor on the front panel of the device. |
| | Protection cabinet | Protected by a thermal-magnetic circuit breaker on each motor. |
| | Control cabinet | Motor and control protection, either by electronic board, depending on the temperature, or by the chiller if compatible. |
| | Maintenance switch | 1 switch for 2 fan motor assemblies, option on request |
| | Flanges | ISO PN16 02A type rotating flanges as per DIN 2642 in 304L stainless steel up to DN100 and steel flange NFEN 1092-1 for DN125 |
| | Counter-flanges | In 304L stainless steel up to DN100 and steel for DN125, with gaskets and bolts. |
| | Blade protective screen | Impact protection |
| Application for water without glycol | Drainable coil | Device located on a slope to prevent frost - drainage by gravity. Option on request |
| Free cooling application | Free cooling valve kit | Valves with motors controlled by the control cabinet. Controlled according to the operation of the dry cooler or water chiller. |
| Adiabatic cooling application | AEROFRESH (water misting into the air flow) | Water misting into the ambient air allows the size of the device to be reduced or the cooling tower to be replaced. Operates completely safely due to the antibacterial treatment applied to the water. |
| Secure transport | Skid for transport by container | Secure transport and easy loading/unloading. Available for 5-row models up to 18 fan motor assemblies, outside plant consultation. |

DIMENSIONS



| | 1060 | 1080 | 1100 | 1120 | 1140 | 1160 | 1180 | 1200 |
|--------|-------------------------------------|------|------|------|------|------|-------|-------|
| L (mm) | 3550 | 4700 | 5850 | 7000 | 8150 | 9300 | 10450 | 11660 |
| I (mm) | 2305 to 2420 depending on the model | | | | | | | |

Up to size 1180, these units can be transported by container, if the width is compatible.
Dimensions without options.

INSTALLATION RECOMMENDATIONS

- These units are designed to operate outside.
When starting up, frost and snow could adversely impair its operation.
As a general measure, all steps should be taken to avoid the risk of air recycling. This is especially important when the installation comprises several units.
It is not recommended to install units near the hot air extraction duct outlet or close to deciduous plants (this could cause clogging).
- Allow a clearance of 1.0m around the unit. Where the use of anti-vibration mounts is required, use a rigid frame which locks the feet together.
- Avoid using **speed regulators** and prioritise EC motor solutions.
- **Commissioning and maintenance:** refer to the instruction manual.
- These units **comply with the European directives**. The installer is responsible for ensuring the compliance of the installation. The installer must ensure safety and protective devices (emergency stop, shut-off valves, lightning protection, etc.) are put in place and are accessible.

SOLUTIONS FOR ENERGY OPTIMISATION

For dry coolers & air-cooled condensers

CONTROL UNIT WITH AEROCONNECT™ ELECTRONIC BOARD



*Optimised **energy** management
Information in multilingual clear text*

AEROCONNECT™ is used to control the temperature or pressure, check the operating parameters, communicate with CIAT water chillers and diagnose and memorise faults.

- Control of AC motor stages, or management of EC motor speed by 0/10 V signal, based on the temperature or pressure.
- 2 setpoints: for example for summer/winter or daytime/night-time use. Used to reduce the operating speed and to improve the seasonal energy efficiency coefficient.
- Stage runtime balancing (AC motors).
- EC motor speed limitation.
- Management of misting.
- Management of free cooling.
- Communication:
 - Open ModBus-JBUS RS 485 protocol,
 - ModBus-ETHERNET TC/IP protocol,
 - LONWORKS/BACNET Protocol (option).

CONTROL CABINET CONTROLLED BY THE CHILLER

For dry coolers or air-cooled condensers linked to one of the following water chillers:

- DYNACIAT™ LG
- DYNACIAT™ LGN
- HYDROCIAT™ LW
- AQUACIAT™ LD
- AQUACIAT^{POWER}™ LD
- DYNACIAT^{POWER}™ LG
- POWERCIAT™ LX

The dry cooler or condenser can be equipped, as an option, with a managed control cabinet, to be linked to the water chiller. The unit will be controlled by the water chiller and the electricity consumption of the assembly will be optimised by shifting the condensing temperature according to the outdoor temperature.



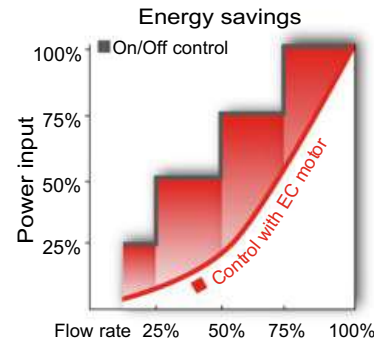
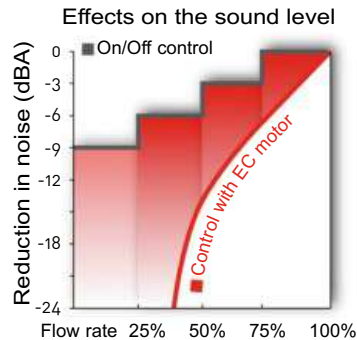
EC MOTOR

- Integrated electronic switching,
- Speed variation from 0 to 100% by 0/10V signal, as required,
- Operation in 50 Hz and 60 Hz,
- Excellent efficiency,
- Integrated monitoring and protection device,
- Easy to wire up,
- Maintenance-free operation.

This new generation of motor offers High Energy Efficiency solutions.

Advantages of speed management by the control cabinet:

- A considerable reduction in annual electricity consumption,
- Optimisation of the sound level.



FREE COOLING

Free cooling can be used to significantly reduce annual consumption of electricity.

The CIAT System offer comprises a water chiller, a dry cooler and their associated control boards.

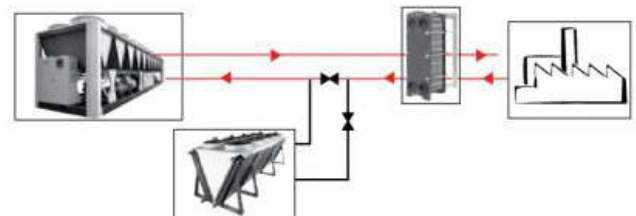
As a dry cooler consumes much less electricity than a water chiller, it is beneficial to make best use of the cool air in winter and mid-season to directly cool the process fluid using the dry cooler instead of the water chiller.

This system will therefore considerably reduce your annual electricity consumption.

In summer, the dry cooler is stopped.

In mid-season, it pre-cools the process fluid.

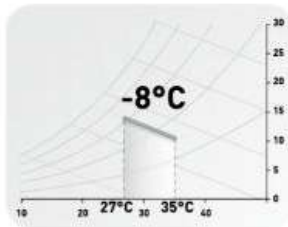
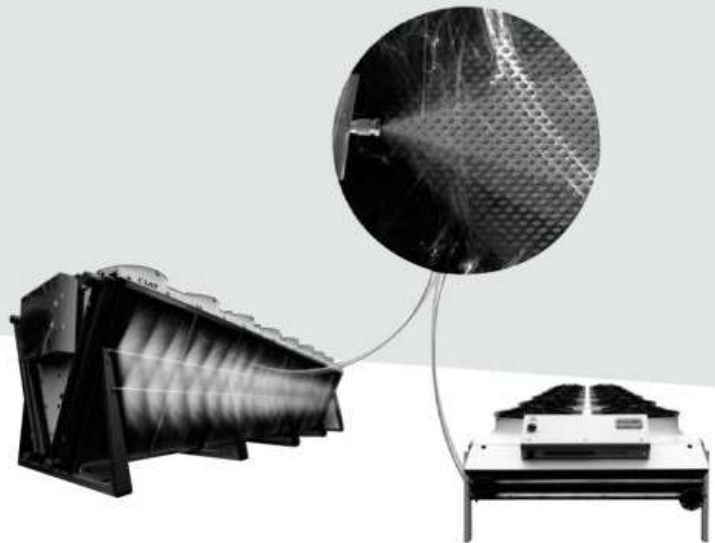
In winter, the water chiller is stopped; the dry cooler directly cools the process fluid.



AEROFRESH™

Adiabatic cooling system

*Alternative
to cooling towers
Smaller units*



USE

AEROFRESH™ is integrated in dry coolers and air condensers, and provides adiabatic cooling of the air.

- Available for the VEXTRA and OPERA ranges (in horizontal position - induced draught).
- Used during the warmest periods.

DESCRIPTION

AEROFRESH™ is a complete air cooling system which uses water misting.

Misting is obtained using a high-pressure water spray technique (up to 100 bar). Ultra-fine droplets are sprayed in the opposite direction to the flow of air, causing them to evaporate instantly. The air is cooled before it enters the dry cooler.

This system avoids having to oversize the system to cope with extreme but infrequent high temperatures.

AEROFRESH™ is composed of:

- an unit with a pump, solenoid valve, pressure gauge, pressure switch and 5 µ filter,
- stainless steel misting rails with brass nozzles.

As an option, a premium version of this unit is available with an additional UV lamp for antibacterial water treatment and automatic controller for managing faults or maintenance.

AEROFRESH™ is also available in an ionised water version. All metal parts in contact with water are made from stainless steel, including the nozzles.

AEROFRESH™ is controlled by an **AEROCONNECT** control cabinet.

ADVANTAGES

- Smaller units.
- An alternative to cooling towers, misting allows the fluid temperature to be reduced.
- Increases the power of existing units.

AEROFRESH™ ADVANTAGES

- Optimised water consumption:
 - Very limited water supply wastage thanks to optimised evaporation of ultra-fine droplets.
 - To meet the requirements as closely as possible, several nozzle diameters are available and the pressure is set between 50 and 100 bar.
- Health and hygiene with the optional premium unit:
 - Thanks to the antibacterial UV lamp.
 - Thanks to daily flushing (pipes + cabinet) to prevent the formation of biofilm.

ITEX

Gasketed plate
heat exchanger



*Offers high
heat
transfer capacity
Particularly suited
to small temperature
differences between the two fluids*



USE

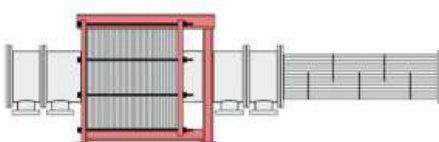
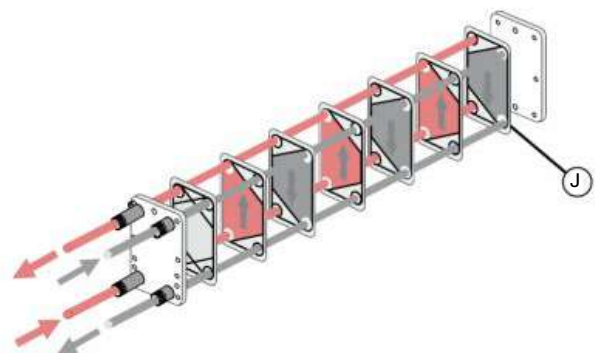
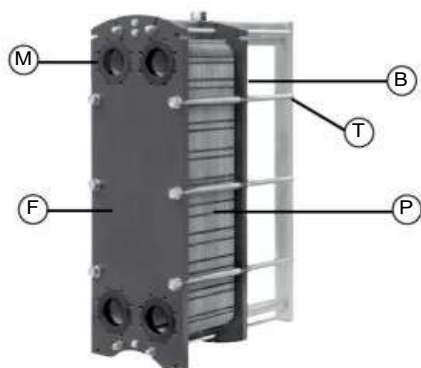
ITEX gasketed plate heat exchangers are particularly well suited to exchanges between two fluids, and therefore to a wide range of applications:

- Heat pump installations
- Water cooled chillers
- Heat recovery
- Heating and cooling sub-stations
- Domestic water heating
- Swimming pool heating
- Recovery on corrosive waste
- Geothermal energy recovery
- Industrial processes

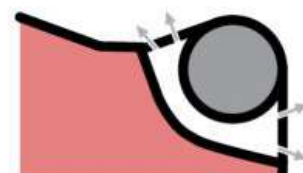
DESCRIPTION

The unit is made of a set of stamped plates (**P**) and gaskets tightened between 2 plates, one fixed (**F**) and one movable (**B**), using compression bolts (**T**). The gaskets (**J**) create flow channels between the plates and prevent venting to the atmosphere. The fluid connection is provided by four pipes (**M**) either integrated in the plate(s) or separate.

Note: the 1 pass/1 pass selection is the only case in which the four pipes are on the same plate.



Compact footprint



Double gasket between fluids

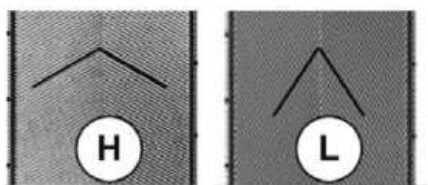
HEATING SELECTION

Due to the range's extreme modularity, the selection has been optimised based on the thermal requirements and the allowable pressure drops for the fluids utilised. The importance of this factor must not be underestimated when selecting a heat exchanger, as it influences the choice and number of plates and thus the transfer area.

The transfer area is also influenced by other factors, such as the height to width ratio, and the angle and depth of the chevron patterns.

ADVANTAGES

- Excellent transfer coefficient, giving a reduced surface area.
- Very low pinch point temperatures possible.
- High corrosion resistance.
- Compact footprint.
- Easy to install and maintain.
- Low-capacity circuits and fluid retention volume.
- Possibility of surface area extension.
- Unit can be cleaned in-place using a circulation system (NEP or CIP).
- Max. differential pressure = max. operating pressure.



Different patterns

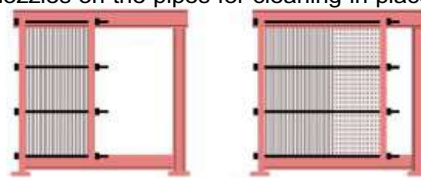
PRECAUTIONS

Do not damage the exchanger gaskets:

- Prevent overheating, water hammer and overpressure, and limits on-off cycles.
- Do not use 1/4-turn valves.
- Use with steam between 0 and 3 bar (effective) (Except for PWB 46 & PWB 76).
- Provide a control system adapted to the requirements and which takes the low capacity of the circuits into account..

Keep the plates clean to guarantee thermal efficiency:

- Filter fluids containing suspended particles.
- Ensure the fluids are constantly circulating in the exchanger to prevent any build-up or scale.
- Install nozzles on the pipes for cleaning in place.



Plates can be added and removed easily

RANGE

| | | PWB 2+ | | | PWB 4+ | | | PWB 8+ | | | PWB 7 | | | PWB 16 | | | PWB 26 | | | PWB 10 | | | PWB 21 | | | PWB 41 | | |
|---------------------------|------|------------|----|----|--------|----|----|--------|----|----|---------|----|----|--------|----|----|--------|----|----|------------|----|----|--------|----|----|--------|----|----|
| Width | mm | 145 | | | | | | | | | 245 | | | | | | | | | 320 | | | | | | | | |
| Height | mm | 305 | | | 455 | | | 740 | | | 527 | | | 857 | | | 1202 | | | 584 | | | 848 | | | 1375 | | |
| Connections diameter | | DN32 1"1/4 | | | | | | | | | DN50 2" | | | | | | | | | DN65 2"1/2 | | | | | | | | |
| Corrugation angle | | H/L | | | | | | | | | H/L | | | | | | | | | H/L | | | | | | | | |
| Max. water flowrate | m³/h | 19 | | | | | | | | | 63 | | | | | | | | | 80 | | | | | | | | |
| PS=> Max working pressure | bar | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 |

| | | PWB 27 | | | PWB 30 | | | PWB 45 | | | PWB 46 | | | PWB 76 | | | PWB 40 | | | PWB 60 | | | PWB 90 | | | PWB 65 | | | PWB 99 | | |
|---------------------------|-------------------|---------|----|----|--------|----|----|----------|----|----|--------|----|----|--------|----|----|----------|----|----|--------|----|----|--------|----|----|----------|----|----|--------|----|----|
| Width | mm | 320 | | | 425 | | | 427 | | | | | | | | | 500 | | | | | | | | | 678 | | | 668 | | |
| Height | mm | 1071 | | | 877 | | | 1322 | | | 1325 | | | 1770 | | | 1055 | | | 1503 | | | 1951 | | | 1340 | | | 1825 | | |
| Connections diameter | | DN80 3" | | | | | | DN100 4" | | | | | | | | | DN150 6" | | | | | | | | | DN200 8" | | | | | |
| Corrugation angle | | H/L | | | | | | H/L | | | | | | | | | H/L | | | | | | | | | H/L | | | | | |
| Max. water flowrate | m ³ /h | 110 | | | | | | 240 | | | | | | | | | 380 | | | | | | | | | 800 | | | 730 | | |
| PS=> Max working pressure | bar | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 | 10 | 16 | 25 |

- Plate thickness : 0,4mm - 0,5mm - 0,6mm - 0,7mm (Except for PWB46 & PWB76) - availability according to model, material, pressure
- Plate material : 304 stainless steel - 316L stainless steel - 254 SMO (Except for PWB46, PWB76 & PWB99) - Titanium (Except for PWB46 & PWB76).
- Gasket material : NBR - EPDM Prx - FPM (Except for PWB46 & PWB76)
- Frame material : Carbon steel - Stainless steel (Except for PWB46 & PWB76)
- The ITEX range is built with plug-in gaskets and lateral circulation (parallel flow).

FL INSULATION

Option DN 32 - DN50 - DN65

Description

FL is the thermal insulation jacket designed to combine thermal insulation performance, compactness and versatility in heating and cooling applications of our plate heat exchangers up to size DN65 (2"1/2).

Made of closed cell expanded elastomer with and external PVC protection layer it's highly flexible and soft-touch.

Supplied as a four pieces kit, it can be easily and quickly assembled thanks to practical hook and loop closure system.

Range

DN 32: PWB 2+, PWB 4+ and PWB 8+ models.

DN 50: PWB 7, PWB 16 and PWB 26 models

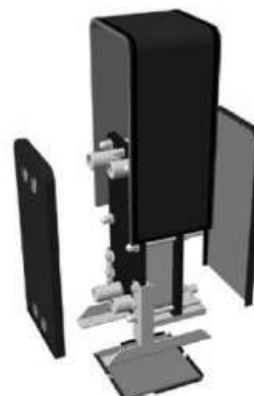
DN 65: PWB 10, PWB 21 models.

Advantages

- Minimized energy losses and condensation, higher level of safety and comfort
- Easy and quick installation, reduced installation costs.
- Lightweight and highly flexible material: easy to adapt on site to any product's configuration and to fulfill different customer's needs.
- Reduced transport and stockage costs

Technical specifications

- Operating temperature limits: -10°C / + 110°C
- Thermal conductivity coefficient (λ -value): $\leq 0,038 \text{ W/(m}^2\text{K)}$ at 40°C (EN12667).
- Insulating material is Black closed-cell flexible elastomeric foam (FEF).
- Fire reaction: B – s3, d0 (EN 13501-1).



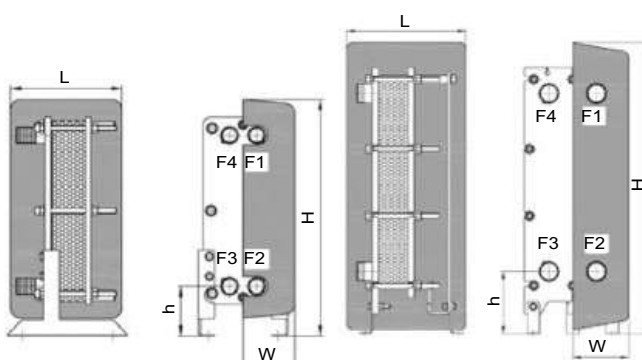
Dimensions

| DN 32 | | | | |
|-----------------|-----|-----|-----|-----|
| PWB 2+ | L | H | W | h |
| Max. 29 plates | 280 | 450 | 130 | 125 |
| Max. 49 plates | 380 | 450 | 130 | 125 |
| Max. 75 plates | 580 | 450 | 130 | 125 |
| PWB 4+ | L | H | W | h |
| Max. 29 plates | 280 | 595 | 130 | 125 |
| Max. 49 plates | 380 | 595 | 130 | 125 |
| Max. 75 plates | 580 | 595 | 130 | 125 |
| PWB 8+ | L | H | W | h |
| Max. 29 plates | 280 | 865 | 130 | 125 |
| Max. 49 plates | 380 | 865 | 130 | 125 |
| Max. 75 plates | 580 | 865 | 130 | 125 |
| Max. 101 plates | 580 | 865 | 130 | 125 |

| DN 65 | | | | |
|-----------------|------|------|-----|-----|
| PWB 10 | L | H | W | h |
| Max. 41 p. | 490 | 900 | 233 | 251 |
| Max. 71 p. | 630 | 900 | 233 | 251 |
| Max. 101 p. | 770 | 900 | 233 | 251 |
| Max. 151 p. | 1000 | 900 | 233 | 251 |
| PWB21 | L | H | W | h |
| Max. 41 plates | 490 | 1160 | 233 | 251 |
| Max. 71 plates | 630 | 1160 | 233 | 251 |
| Max. 101 plates | 770 | 1160 | 233 | 251 |
| Max. 151 plates | 1000 | 1160 | 233 | 251 |

All dimensions are given in mm. The dimensional tolerance is compatible with the accuracy permitted by the thermoforming process.

| DN 50 | | | | |
|-----------------|------|------|-----|-----|
| PWB 7 | L | H | W | h |
| Max. 41 plates | 472 | 858 | 185 | 250 |
| Max. 71 plates | 612 | 858 | 185 | 250 |
| Max. 101 plates | 752 | 858 | 185 | 250 |
| Max. 151 plates | 982 | 858 | 185 | 250 |
| PWB 16 | L | H | W | h |
| Max. 41 plates | 472 | 1188 | 185 | 250 |
| Max. 71 plates | 612 | 1188 | 185 | 250 |
| Max. 101 plates | 752 | 1188 | 185 | 250 |
| Max. 151 plates | 982 | 1188 | 185 | 250 |
| Max. 251 plates | 1442 | 1188 | 185 | 250 |
| PWB 26 | L | H | W | h |
| Max. 41 plates | 472 | 1533 | 185 | 250 |
| Max. 71 plates | 612 | 1533 | 185 | 250 |
| Max. 101 plates | 752 | 1533 | 185 | 250 |
| Max. 151 plates | 982 | 1533 | 185 | 250 |
| Max. 251 plates | 1442 | 1533 | 185 | 250 |



PANEL INSULATION

Option DN 65 - DN 80 - DN 100 - DN 150 - DN 200

■ Description

This insulation is specially designed for the HVAC applications performed by our jointed plate heat exchangers.

It has a modular, self-supporting structure created from insulating panels (45 mm thick) anchored together using hook fasteners and coupled so as to minimise thermal bridges.

The distinctive sandwich structure of the insulating panels, obtained by combining polyurethane foam with sheet aluminium, offers the assembly a high degree of thermal insulation, good structural rigidity and a usable surface finish. Provided as a kit, it is quick and easy to assemble with no special tools needed.

■ Advantages

- The exchanger is completely contained within the insulation: this not only minimises condensation and heat loss, but also provides a high level of safety and comfort to operators working around the exchanger.
- Quick and easy access to the heat exchanger for inspection.
- Low installation costs.

■ Technical specifications

- External finish of the panels: smooth sheet aluminium, pre-painted in RAL 2306 (0.5 mm thick).
- Insulating material: rigid polyurethane foam with a high percentage of closed cells (more than 95 %) and a density of 48 kg/m³.
- Initial thermal conductivity (λ) of the insulating material: 0.024 W/m°C (value measured at an average temperature of 10 °C as per ISO standard 8302).
- Operating temperature range: -10 ° / +130 °C.
- Material fire rating: B – 2 s, d 0 (in accordance with UNI EN 13501-1 :2007).



PANEL INSULATION

■ Dimensions

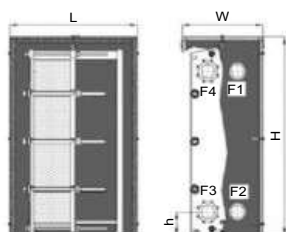
| DN 65 | | | | |
|-------------|------|------|-----|-----|
| PWB41 | L | H | W | h |
| Max. 41 p. | 842 | 1637 | 554 | 171 |
| Max. 71 p. | 842 | 1637 | 554 | 171 |
| Max. 101 p. | 982 | 1637 | 554 | 171 |
| Max. 151 p. | 1212 | 1637 | 554 | 171 |
| Max. 251 p. | 1701 | 1637 | 554 | 171 |

| DN 80 | | | | |
|-------------|------|------|-----|-----|
| PWB27 | L | H | W | h |
| Max. 41 p. | 842 | 1357 | 554 | 198 |
| Max. 71 p. | 842 | 1357 | 554 | 198 |
| Max. 101 p. | 982 | 1357 | 554 | 198 |
| Max. 151 p. | 1212 | 1357 | 554 | 198 |
| Max. 251 p. | 1701 | 1357 | 554 | 198 |

| DN 100 | | | | |
|-----------------|------|------|-----|-----|
| PWB30 | L | H | W | h |
| Max. 101 plates | 1074 | 1180 | 678 | 198 |
| Max. 201 plates | 1574 | 1180 | 678 | 198 |
| Max. 301 plates | 2074 | 1180 | 678 | 198 |
| Max. 401 plates | 2574 | 1180 | 678 | 198 |
| PWB45 & PWB46 | L | H | W | h |
| Max. 101 plates | 1074 | 1625 | 678 | 198 |
| Max. 201 plates | 1574 | 1625 | 678 | 198 |
| Max. 301 plates | 2074 | 1625 | 678 | 198 |
| Max. 401 plates | 2574 | 1625 | 678 | 198 |
| PWB76 | L | H | W | h |
| Max. 101 plates | 1074 | 2090 | 678 | 198 |
| Max. 201 plates | 1574 | 2090 | 678 | 198 |
| Max. 301 plates | 2074 | 2090 | 678 | 198 |
| Max. 401 plates | 2574 | 2090 | 678 | 198 |

| DN 150 | | | | |
|-----------------|------|------|-----|-----|
| PWB40 | L | H | W | h |
| Max. 101 plates | 1074 | 1433 | 757 | 256 |
| Max. 201 plates | 1574 | 1433 | 757 | 256 |
| Max. 301 plates | 2074 | 1433 | 757 | 256 |
| Max. 401 plates | 2574 | 1433 | 757 | 256 |
| Max. 551 plates | 3374 | 1433 | 757 | 256 |
| PWB60 | L | H | W | h |
| Max. 101 plates | 1074 | 1881 | 757 | 256 |
| Max. 201 plates | 1574 | 1881 | 757 | 256 |
| Max. 301 plates | 2074 | 1881 | 757 | 256 |
| Max. 401 plates | 2574 | 1881 | 757 | 256 |
| Max. 551 plates | 3374 | 1881 | 757 | 256 |
| PWB90 | L | H | W | h |
| Max. 101 plates | 1074 | 2374 | 757 | 256 |
| Max. 201 plates | 1574 | 2374 | 757 | 256 |
| Max. 301 plates | 2074 | 2374 | 757 | 256 |
| Max. 401 plates | 2574 | 2374 | 757 | 256 |
| Max. 551 plates | 3374 | 2374 | 757 | 256 |
| Max. 701 plates | 4204 | 2374 | 757 | 256 |

| DN200 | | | | |
|-----------------|------|------|-----|-----|
| PWB65 | L | H | W | h |
| Max. 151 plates | 1504 | 1764 | 957 | 285 |
| Max. 251 plates | 2104 | 1764 | 957 | 285 |
| Max. 351 plates | 2504 | 1764 | 957 | 285 |
| Max. 551 plates | 3404 | 1764 | 957 | 285 |
| PWB99 | L | H | W | h |
| Max. 151 plates | 1504 | 2263 | 957 | 285 |
| Max. 251 plates | 2104 | 2263 | 957 | 285 |
| Max. 351 plates | 2504 | 2263 | 957 | 285 |
| Max. 551 plates | 3404 | 2263 | 957 | 285 |



The dimensions of the hooks on the closure panels are not included. Add 30 mm to sides W and L, 15 mm to side H.

All dimensions are given in mm. The dimensional tolerance is compatible with the accuracy permitted by the thermoforming process.

CONDENSATE DRAIN PAN

Option for all sizes

■ Description

The recovery pan is designed to drain not just the water forming condensation on the exchanger, but also any fluid which could come from an accidental leak around the exchanger, or during opening for maintenance.

Its use is recommended in all applications which carry a risk of condensation and those which carry a risk of environmental pollution.

The pan is made from stainless steel and is designed to be installed underneath the exchanger.

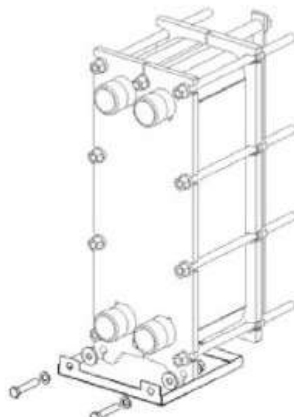
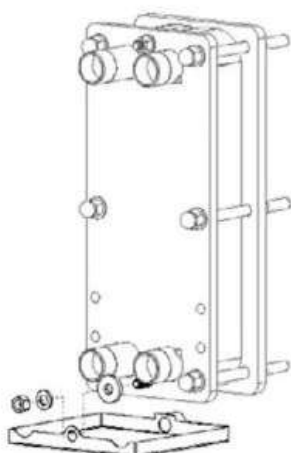
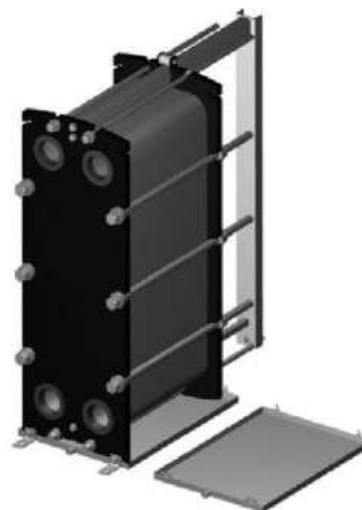
It is positioned and secured to the exchanger using a system of screws, nuts and washers.

■ Advantages

- Recovery and drainage of all traces of condensation which could form on the external surface of the exchanger.
- Recovery and drainage of any fluids which could accidentally escape from the exchanger: ensuring the safety of personnel and of the environment.

■ Technical specifications

- Stainless steel panels (AISI 304).
- $\frac{3}{4}$ " sleeve (internal tapping) for drainage of the collected fluids.



DOUBLE-WALL PLATES

PWB4+ PWB8 PWB16

■ Description

Double-wall plates consist of two identical heat transfer plates embossed together and then joined by laser welding around the inlet and outlet portholes.

Such kind of coupling generates a thin air gap between the two plates that, in case of welding or plate's failure, prevents fluids intermixing and brings to an external leakage visually detectable. Suitable for all the heat transfer processes where cross-contamination is to avoid, the double-wall plates are the right solution for all those HVAC applications where a higher level of safety is recommendable and/or required by local rules.

■ Benefits

Minimize the risk of fluids intermixing.

Allow visual detection from the outside of any internal leak.

Offer all the advantages of Gasketed Plate Heat

Exchanger technology: maximum heat transfer, compact design and easy maintenance.

■ Technical data

Material of plates: AISI 316L

Design standard: PED 2014/68/EU up to risk cat. IV

Pressure design / test (g): up to 16 / 26 bar

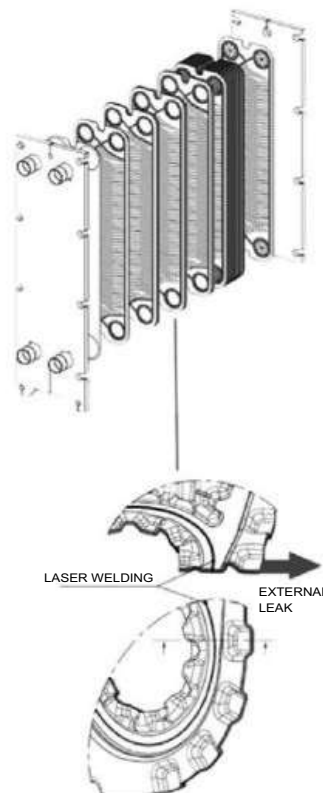


PLATE PACK PROTECTION

ALL MODELS

■ Description

The Plate Pack Protection is a safeguard device specifically designed to protect personnel in case of unexpected leakage. Strongly recommended in case of hazardous services, it should be always used when temperatures are over 60°C also when handling uncritical media.

The Plate Pack Protection consists of two or more metal sheets shaped to cover the plate pack and to fit the plate heat exchangers. On smaller units the sheets cover the plate pack enveloping the frame plates. On larger units the sheets are fitted between the tightening bolts and the plate pack.

Supplied as a kit, it is easily and quickly assembled without the use of tools nor screws or bolts.

■ Benefits

Higher level of safety for those who work around the heat exchanger.

Protection of the plate pack in case of aggressive or polluted environment.

Quick and easy access to the heat exchanger for inspection.

Low installation costs.

■ Technical data

Material of construction: Stainless steel AISI 304 (thickness 1 mm).

■ Main dimensions

Each Plate Pack Protection is factory-tailor-made to fit to the specific plate heat exchanger.



THERMAL ENERGY STORAGE

A sustainable approach to buildings

For your systems ≥ 500 kW

CIAT optimizes the design and the operation of your installation for all applications in both commercial and industrial buildings



HVAC SYSTEM WITH STORAGE

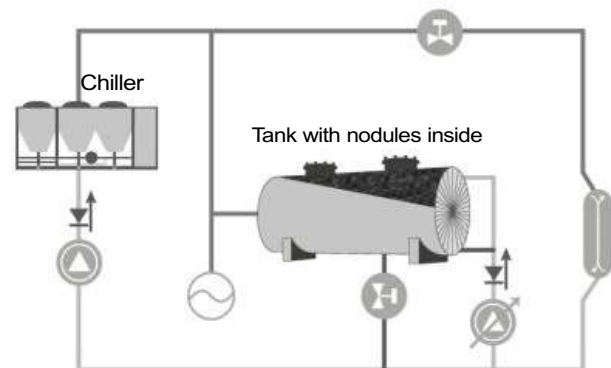
The Thermal Energy Storage (TES) system along with your chillers is composed of one or several tanks filled with spherical elements called nodules that contain the Phase Change Materials (PCM). The use of PCM in nodules provides very high energy density and power exchange.



Nodules
Core TES Technology
Encapsulation of PCM



Reliability
Competitiveness



UNIQUE GLOBAL PCM EXPERTISE

- PCM (formulation, nucleation, characterisation, durability, recyclability)
- Packaging and encapsulation of PCM
- Envelope materials (material compatibility, aging)
- Industrial manufacturing process

MONITORED & CONTROLLED SYSTEM CRISTO'CONTROL2

The control and monitoring system Cristo'Control2 optimizes the operation of the installation. It helps contractors and owners to optimize energy consumption, lower CO₂ and greenhouse gas emissions and reduce operating costs.

Controls

- Operating modes automatic management
- Thermal equipment regulation
- Stored energy optimization

Monitoring

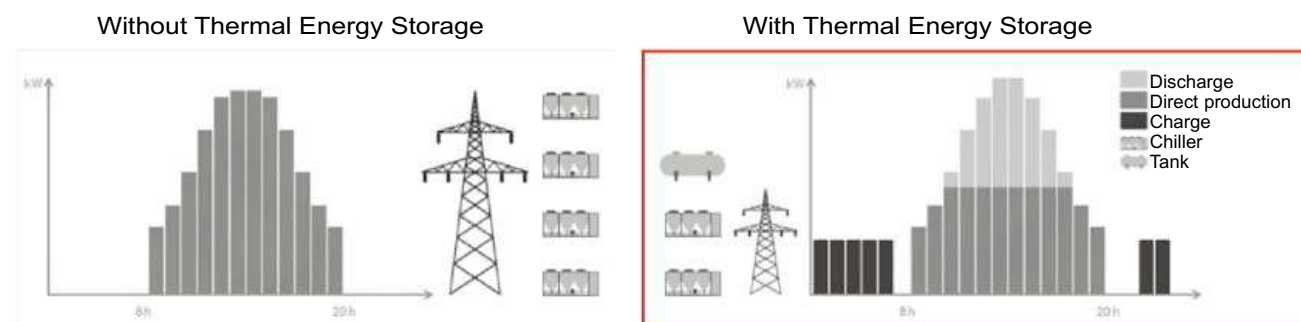
- Local and remote monitoring
- Alarm notification
- Real-time view of operating parameters

Auto-adaptive module

- Daily optimization
- Predictive calculation of the daily cooling demand
- Permanent operating adaptation

SHIFT YOUR ELECTRICITY CONSUMPTION FROM PEAK TO OFF PEAK HOURS

Histogram Of A Building's Daily Cooling Needs And Its Electricity Consumption Profile



OPTIMAL COOLING

The expertise to tailor-make your cooling solution

Turnkey solution

CIAT supports consulting engineers by customizing the hydraulic layout for each project: application, operating conditions and specific customer needs. When necessary, complementary technologies such as free cooling or energy recovery are integrated.

Proven technology

CIAT has unique expertise in Phase Change Materials (PCM) based on over 30 years of Research & Development in partnership with universities and technical centers in Europe. This Thermal Energy Storage (TES) solution by latent heat allows TEWI* benefits from 15% to 40%**.

Unique expertise

CIAT engineers have unique and proven expertise, including in-depth knowledge of dual cooling and automation. The team collaborates closely with Sophia-Antipolis, Europe's largest technology park and is involved in several European research and innovation projects.



OPTIMIZED SAVINGS

Smart energy use for operational optimization

Reduced operating costs

By storing thermal energy during the night and releasing it during the day, the Thermal Energy Storage system consumes electricity at lowest prices and avoids peak times. By spreading thermal energy production over 24 hours, this solution can reduce chiller capacity by 30 to 70%***.

Non-stop support

CIAT expert engineers advise and support you daily. Thanks to regular monitoring and follow-up you can optimize the operation of your cooling installation. CIAT also offers additional services (training, on-site intervention, trending...) throughout the lifecycle of your installation.

Smart-grid ready

By shutting down electricity-hungry energy producers on demand and forcing the discharge of the system, the TES system regulates equipment to respond to peak electricity alerts on the power grid. This solution can also be combined with renewable energy (wind turbines, photovoltaics).

*TEWI: Total Equivalent Warming Impact - ** / ***Source: Measured differences between equivalent systems designed with and without TES.



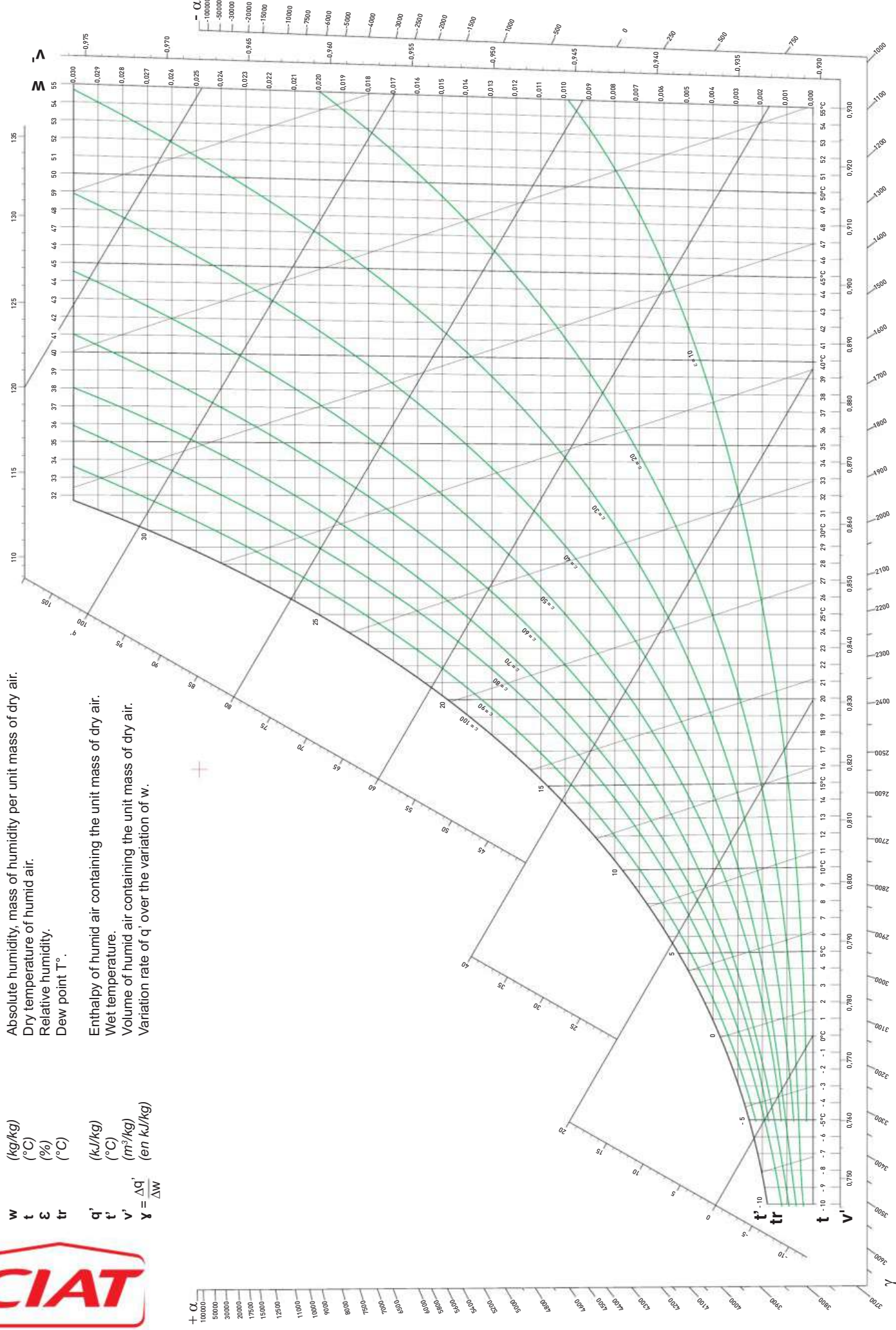


HUMID AIR DIAGRAM



w (kg/kg)
 t (°C)
 ε (%)
 tr (°C)
 q' (kJ/kg)
 t' (°C)
 v' (m³/kg)
 $\gamma = \frac{\Delta q'}{\Delta w}$ (en kJ/kg)

Absolute humidity, mass of humidity per unit mass of dry air.
 Dry temperature of humid air.
 Relative humidity.
 Dew point T° .
 Enthalpy of humid air containing the unit mass of dry air.
 Wet temperature.
 Volume of humid air containing the unit mass of dry air.
 Variation rate of q' over the variation of w .





www.cidb.com