ENVIRONMENTAL
CLIMATE CONTROL
EQUIPMENT
& SOLUTIONS





Green Line

CINEFFI R32 LC

Double flow rooftop heat pump & air conditioning unit with rotary heat exchanger

MADE IN FRANCE

www.ett-hvac.com

CINEFFI R32 LC: ErP Ready 4-damper heat pump

When they adopted the KYOTO protocol, the Member States of the European Union (EU) voted a set of measures known as the "energy-climate package", aiming at:

- ✓ Reduce greenhouse gas emissions by 20%
- ✓ Reduce energy consumption by 20%
- ✓ Increase the share of renewable energy in final energy consumption to 20%

Directive 2009/125/EC on the Eco-Design of ErPs (Energy related Products) has been adopted to achieve these objectives.

This directive applies to all products using energy or having an impact on energy consumption. It encompasses a **" bunch of regulations "** setting performance requirements by product type. Regulation **(EU) 2016/2281 on cooling products, high temperature process chillers and fan coil units**.

- **1 January 2021**

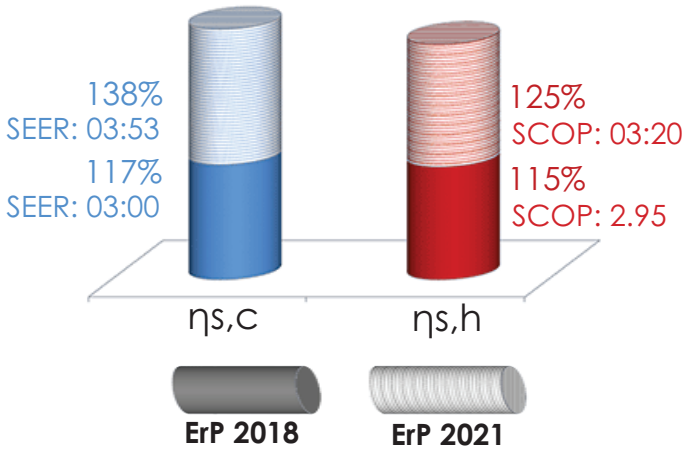
4-Damper heat pumps failing to comply with Regulation (EU) 2281/2016 shall no longer be marketed in Europe

Regulatory impacts since January 1, 2018

The European Parliament compels rooftop manufacturers to comply with Regulation (EU) 2281/2016 on ErPs, in order to give the users the possibility to evaluate their energy consumption.

This regulation defines the Ecodesign minimum requirements and sets a new rating method for rooftop energy efficiency: **the seasonal efficiency**.
This new measure gives a **more realistic indication of the energy efficiency** and environmental impact of any heating or cooling system.

Seasonal efficiency to be reached according to ErP 2018 and ErP 2021.



A summary sheet stating **rated capacity & seasonal efficiency** is available on request.

SCOP

Seasonal Coefficient of Performance

SCOP corresponds to the ratio between the annual demand in heating for the reference climate and the annual electricity consumption for heating.

$$\eta s,h = \frac{SCOP}{2.5} - 3\%$$

SEER

Seasonal efficiency

SEER corresponds to the ratio between the annual demand in cooling for the reference climate and the annual electricity consumption for cooling.

$$\eta s,c = \frac{SEER}{2.5} - 3\%$$

2.5: Conversion coefficient to the primary energy
3 % : Control-related factor

ENERGIE TRANSFERT THERMIQUE

C O N T E N T S

General description

The **ETT** packaged unit is delivered ready to operate. Its full aluminium structure (frame and casing) ensures an excellent corrosion protection (20-year anti- corrosion guarantee).

Aluminium promotes the REFURBISHING of machines for a second life: Aluminium allows our machines to be refurbished for a second life, unlike a steel structure.

Environmental impact :

The Ultima Green Line is environmentally responsible and uses the R32, a refrigerant with low environmental impact:

- ✓ Zero ozone depletion (ODP)
- ✓ Global Warming Potential (GWP) of 675

Our technical choices have a major impact on the environment

- **DECARBONATION:**

ETT is committed to an ambitious approach to reducing Greenhouse Gas Emissions:

- Reducing the energy consumption of our machines
- Fluid refrigerants with low GWP
- Energy monitoring & AI
- Adiabatic cooling
- Development of machine retrofits

- **ALUMINIUM: PERFORMANCE AND DURABILITY!**
  - Lightweight: 3 times lighter than steel
  - Corrosion resistant and long lifespan
  - Thermal performance
  - 100% recyclable indefinitely
  - Facilitates the refurbishing of our machines

- **ECO-DESIGN:**

Our technologies are designed with sustainability in mind, reducing their environmental impact throughout their life cycle.

- **LOW-POLLUTION MANUFACTURING PROCESS:**
  - Selective sorting: 80% recovery rate
  - No paint or solvents

- **END OF MACHINE LIFE:**

In compliance with regulations, ETT is a member of the Ecologic eco-organisation for the end-of-life processing of machines, which are 98% recyclable.

EcoLogic

- **ETT CERTIFICATIONS**

- **CSR assessment: ECOVADIS Gold Medal** for our CSR approach

- **Iso 14001 & Iso 9001 certification** for our Quality and Environmental Management system

- **Certificate of competence for handling refrigerants**

- **Membership of the UN Global Compact**

- **Qualiopi certification** for our training centre

As a positive-impact company, ETT contributes to a more sustainable world through our decarbonising products and services.

CE In addition, each unit is delivered with an certificate of conformity to EU standards and complies with the following standards:

- Machinery Directive 2006/42/EC - Operator's safety
- Low Voltage Directive (LVD) 2014/35/EU - Electricity
- Electromagnetic Compatibility (EMC) Directive 2014/30/EU
- Regulation (EU) 2016/426 – Gas appliances
- Standard NF EN 60204 -1- Electrical appliances
- Standard EN 378-2 : 2017 – Safety and environmental requirements
- PED Directive 2014/68/EU (in accordance with Articles 2.10, 2.11, 3.4, 5a and 5d of Annex 1) - Pressure equipment
- EcoDesign regulations ErP UE 2281/2016

20-year guarantee against corrosion frame - casing

ENERGY SAVING

ENVIRONMENTAL ATTITUDE

SERVICE LINK

Unit description

20-year guarantee against corrosion frame - casing

Eco-design filtration

Low pressure drop.

Fouling analogue control.

Options ISO Coarse 65% (G4) Refillable, ISO ePM10 50% (M5), ISO Coarse 65% (G4)+ISO ePM1 50% (F7), ISO Coarse 65% (G4)+ISO ePM1 80%(F9), ISO ePM1 50% (F7), ISO ePM1 80%(F9).

aluminium frame-body assembly

Optimised tightness and thermal insulation.

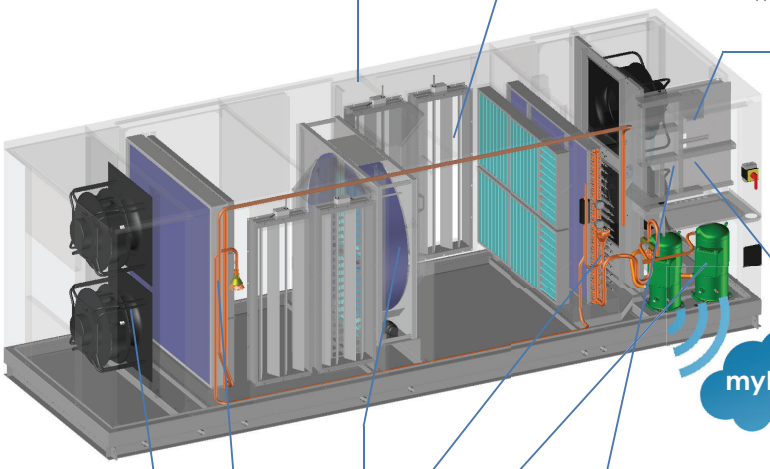
Reduced weight, for new and renovation projects.

Numerous available arrangements.

20-Year anti-corrosion guarantee.

Waterproof electrical enclosure

Separate electrical plate in IP44 waterproof housing for added safety.



Solution ErP 2021 READY *

Connected components

Optimum unit operation.

Connection to myETTvision communication platform possible

Internal fans

Variable-speed fans with air flow rate measurement.

Analogue air flow controller (AFC), communicating, direct transmission, electronically commutated (EC) motor, optimum performance and low acoustic level.

Low Noise configuration as an option

AFC option available with flow rate auto-adjustment.

New generation controller with display

Control enabling optimum operation in all conditions.

Multi-stage circuit with new generation R32 compressors

Optimum performance whatever the part load.

Electronic expansion valves.

Thermal exchangers

Heat exchangers optimized for better energy efficiency.

Vinyl coating as an option

Leak detection

Reduces the number of periodic visits.

R32

Rotary scavenge exchanger

EUROVENT certified

** Energy related Product (ERP) 2021: THE CINEFFI R32 LC Green Line meets the environmental design requirements applicable to air heaters, cooling appliances (Regulation 2016/2281).*

Unit description

ENERGYsaving

The CINEFFI R32 LC is an environmentally friendly, economical solution for heating or cooling buildings.

Because of its design, The ULTI+ R32 LC DX provides precise regulation for optimum and continuous energy performance throughout its years of operation.

PREMIUM

Process and component quality

- **Sustainable and recyclable equipment**: **aluminium body and frame,** 100% recyclable, 20 year corrosion proof warranty
- Non-polluting process
- **Eco Design approach** to combine **economy** and **optimum performance** (SEER, SCOP)
- Reduced unit size and weight

DX module

Extraction and energy recovery module

The DX module enables **heat recovery** on exhaust air thanks to its rotary exchanger, **reducing the unit operating costs**.

It is recommended for applications that require significant air renewal.

Connected components

New Generation PLC

- allows communication between units
- Sending technical data from the units to an external server to allow optimum remote control with myETTvision

R32 fluid

Low GWP

- New **CINEFFI R32 LC Green Line** using R32, low GWP fluid (675).
- **Actively participates in compliance with the quota in tonnage equivalent CO_2**, legally imposed on the producer / importer of gas.
- minimizes the impact on the greenhouse effect.

Inside air quality

- Ecodesign filtration
- Optimised casing with high performance tightness level
- VOC or CO_2 sensor controlling the supply of fresh air.
- Free access to filters via removable panels allowing quick **and easy replacement of filters**.

Acoustic performance

MAIN FEATURES

- **Low Noise selection of fans optimized for low noise operation**
- **Acoustic treatment of technical section and compressors**

Because environmental noise reduction is essential, our **standard** self-contained units **are designed to meet your acoustic requirements**.

ETT goes the extra mile...

Installation

Outdoor, on the rooftop or at ground level.

ETT services

- 5-year guarantee as standard
- A team to guide you from commissioning to operational support
- Manufacturer visits and audits
- Installation optimisation and retrofit
- Service contracts
- Staff training
- Access to the ETT Services hotline

myETTvision platform

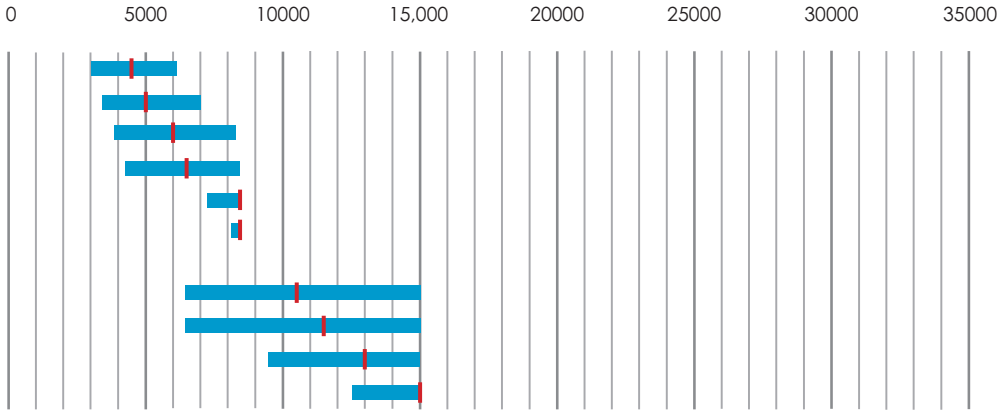
myETTvision allows you to control and optimize your installation remotely.

Unit description

A WIDE RANGE

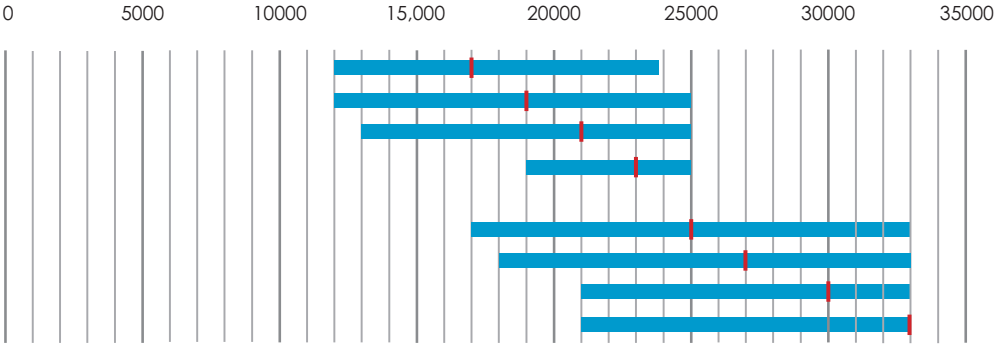
Unit	Power*
CINEFFI R32 LC 01-020	18.1
CINEFFI R32 LC 01-025	20.4
CINEFFI R32 LC 01-030	24.9
CINEFFI R32 LC 01-035	30.4
CINEFFI R32 LC 01-045	40.1
CINEFFI R32 LC 01-050	41.8
CINEFFI R32 LC 11-050	47.1
CINEFFI R32 LC 11-055	53.0
CINEFFI R32 LC 11-065	59.9
CINEFFI R32 LC 11-075	66.9

Flow range (m³/h) & nominal flow (|)



Unit	Power*
CINEFFI R32 LC 21-080	77.4
CINEFFI R32 LC 21-090	82.6
CINEFFI R32 LC 21-095	89.4
CINEFFI R32 LC 21-110	108.7
CINEFFI R32 LC 22-115	107.6
CINEFFI R32 LC 22-130	122.0
CINEFFI R32 LC 22-140	130.2
CINEFFI R32 LC 22-150	147.2

Flow range (m³/h) & nominal flow (|)



**Refrigeration capacity according to Eco-Design regulation 2016/2281*

Operating principles

The unit operates as a reversible heat pump :

> Source: outside air + inside air (in recovery mode)
> Treated fluid: inside air + hygienic fresh air

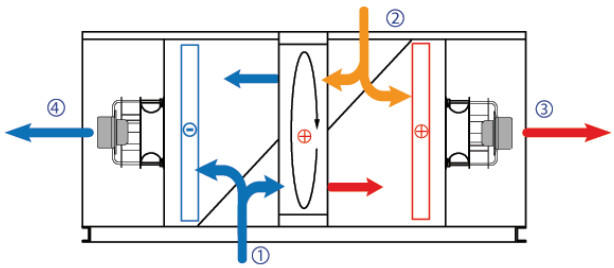
The following operating modes are available:

- Heat pump
- Cooling
- Free Cooling: cooling with outside air, without thermodynamics

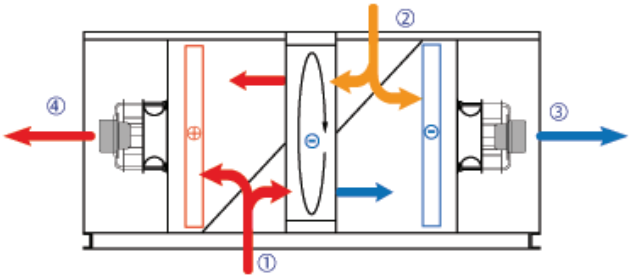
In these modes, the unit can operate:

> With all recirculated air
> Fresh air - any air exhausted according to the size of the unit
> With mixed-air
> The unit ensures air extraction and fresh air modulation without indoor pressure change.

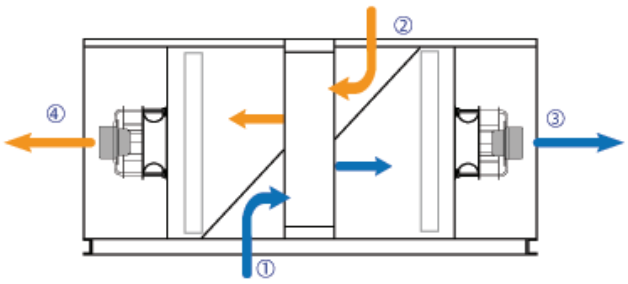
Heating mode



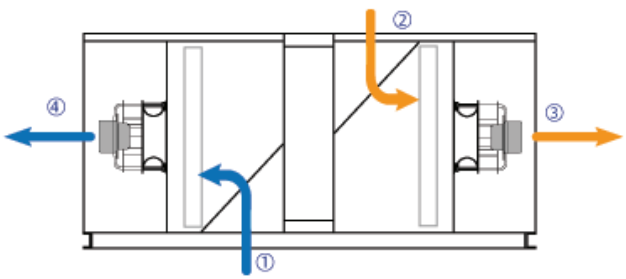
Cooling mode



Free Cooling mode

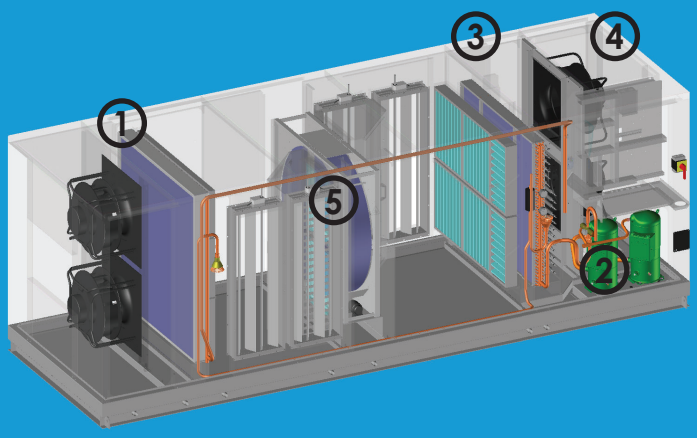


Recycling mode



① Fresh air ② Return air ③ Supply air ④ Exhaust air

Detailed components



The ETT packaged unit comprises 5 different sections:

1. The exhaust air section allows heat recovery and/or heat rejection on exhaust air (depending on the operating mode).
2. a separate technical compartment containing the refrigerating and regulating components.
3. The internal section ensures air change and air treatment.
4. a sealed electrical compartment (IP44).
5. The heat recovery section features a rotary heat exchanger.

Aluminium frame-body assembly :

- **Equipped with an aluminium, motorized, low-load, 4-flap damper mixing chamber with Class 3 upstream-downstream sealing and Class B frame sealing (according to EN1751), CINEFFI R32 LC enables:**
  - ✓ An optimized fresh air supply dosage, combined with the CO_2 or VOC sensor.
  - ✓ Free Cooling mode switch to delay thermodynamic circuit operation and allow significant energy savings.
  - ✓ **Perfect weather resistance, 20-year anti corrosion guarantee on casing.**
- **Watertight floor** with drainage outlets around the unit, connected to rubber siphons.
- **Aluminium vertical panels and roof, mounted on aluminium frame.**
- A separate **technical section** facilitates unit control and maintenance and allows measurement and adjustment during operation.
- **Access through large removable panels**. Doors tightness is ensured by a flexible gasket under compression, providing ideal sealing day after day.
- **Sound and thermal insulation provided by rock wool from 80 mm to 100 mm** (classification M0) in the chassis and **by glass wool from 50 mm** (classification M0 in accordance with **the regulations on ERP** (article CH36) **at the walls and roof.**
- **Optional new rain-on-air cover** (to be fitted by the installer).

Air assembly:

- **Eco-design type filtration,** easily dismantled - ISO Coarse efficiency 65% (G4) in pleated media **98 mm** at supply air to increase filter life and reduce pressure drop, fouling controlled by analogue pressure switch.
- **Various filtration levels available** to suit your project needs: ISO Coarse 65% refillable (G4) 98mm, ISO ePM10 50% (M5) 98mm, ISO Coarse 65% (G4) + ISO ePM1 50% (F7) 48+48mm, ISO ePM1 50% (F7) 98mm, ISO Coarse 65% (G4) + ISO ePM1 80% (F9) 48+48mm, ISO ePM1 80% rejection (F9). 65
- **Replacement filter kit available as an option**
- **Two sets (supply and exhaust air) of eco-design type filters** can be easily removed - 95% ASHRAE gravimetric (G4) efficiency in 98 mm pleated media, fouling controlled by pressure switch.
- **Two sets (wheel inlets) of easily removable eco-design type filters** - 95% ASHRAE gravimetric (G4) efficiency in 48 mm pleated media, pressure switch controlled fouling.
- **High-performance free-wheel ventilation** at supply air and exhaust air in order to eliminate losses due to pulley - belt transmissions and thus improve the energy performance of the assembly.

Detailed components

- **Last generation internal fans (High Energy Performance):**
  - ✓ **Direct transmission** (gain on maintenance, reliability and consumption).
  - ✓ **Electronically commutated (EC) variable-speed motor**, with analogue air flow controller (AFC) flow rate measurement (gain on commissioning).
  - ✓ With an aluminium wheel design,
  - ✓ Communicating for real time operation adjustment.
  - ✓ Integrated Soft Starter system for reduced starting current and soft start (textile ducting).

- **Low Noise option** available.
- **AFC option with flow rate auto-adjustment**, for filter fouling compensation.

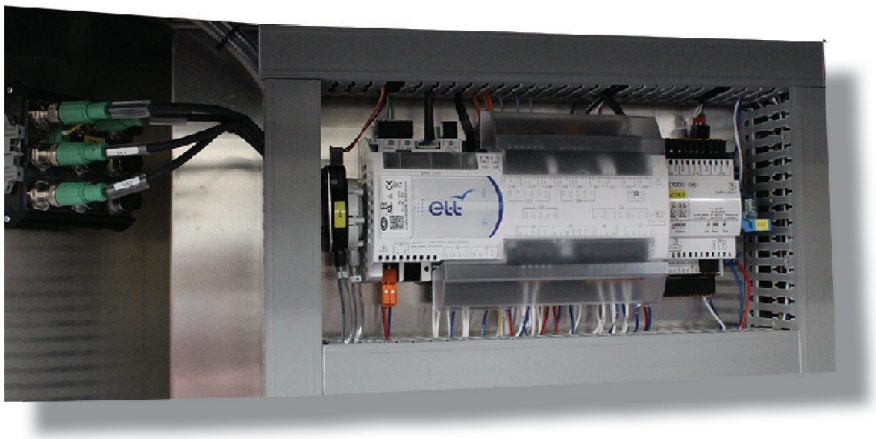
Energy and thermodynamic assembly:

- **High efficiency aluminium rotary scavenge exchanger** (Eurovent certified) with integrated purge sector.
- **For units with several thermodynamic circuits,** only the first circuit is equipped with a tandem. This allows the thermal power supplied to be staggered according to the needs of the application, for less consumption and more comfort.
- **Communicating electronic expansion valves** combining increased optimisation of the exchangers and fast stabilisation of the thermodynamic system.
- **Reinforced thermal exchangers** made with aluminium fins and copper pipes with double helical grooving for better thermal exchange. Design of the external exchangers ensuring delayed frost build-up and fast and efficient defrosting.
  Vinyl coating available on request.
- **Refrigeration circuits** compliant with the European directive on pressure equipment (PED 2014/68/EU).
- **R32 refrigerant**.
- **Tandem or variable speed circuits,** allowing to spread the power supplied and achieve energy savings during partial load operations. Operation in part load considerably reduces the number of defrost cycles and their duration.
- **The refrigerant circuit is equipped with isolation valves** at the compression unit terminals depending on the model. When working on the compression unit, these isolation valves make it easier to repair and maintain the refrigerant circuit.
- **Anti-acid filter drier.**
- **Cycle reversal valve**.
- **Leak detection :** The **CINEFFI R32 LC** is equipped with leak detection as standard. The leakage detection warns the user in case of a leakage of R32 refrigerant. The leak detection also allows you to reduce the periodic visits of your equipment, according to the French decree of 29/02/2016 on certain refrigerants and fluorinated greenhouse gases.

Detailed components

Electrical assembly in a sealed compartment (IP44):

- **Electric stage** in accordance with NF EN C 15-100 and NF EN 60204-01 comprising:
  - ✓ **An ETT PLC** with optional Touch screen remote display or by native Modbus GTC.
  - ✓ **Power switch** with lockable external handle for full load cut-off. Connection using standard universal cable. Optional copper/aluminium connection boxes.
  - ✓ **A 400-230-24 volt transformer** for control circuits.
  - ✓ **Fault synthesis** with pending dry contact on terminal.
  - ✓ **Numbered terminal blocks** with disconnecting terminals for remote controls and transfers.
  - ✓ **Terminal block** for compressors load shedding.
  - ✓ **Internal wiring** with numbered ferrules at both extremities
  - ✓ **An Ik3 breaking capacity** of 10 kA basic.
  - ✓ **Dry contact:** Basic emergency stop, which allows customer connection in the SSI test frame.
  - ✓ **All components protected** by circuit breakers.
  - ✓ **A phase controller.**
  - ✓ **The LV distribution voltage rating** is governed by the Interministerial Order of 24 December 2007. This sets the nominal voltage level at 230/400 V. It defines minimum and maximum values that are acceptable at a user's point of delivery (average value over 10 ml), corresponding to a range of -10 % / +10 % around the nominal values. It also defines the maximum allowable value of the voltage drop gradient: 2%. This is the additional voltage drop generated at a point in the network if 1 single phase kW is added at the same point.



Detailed components

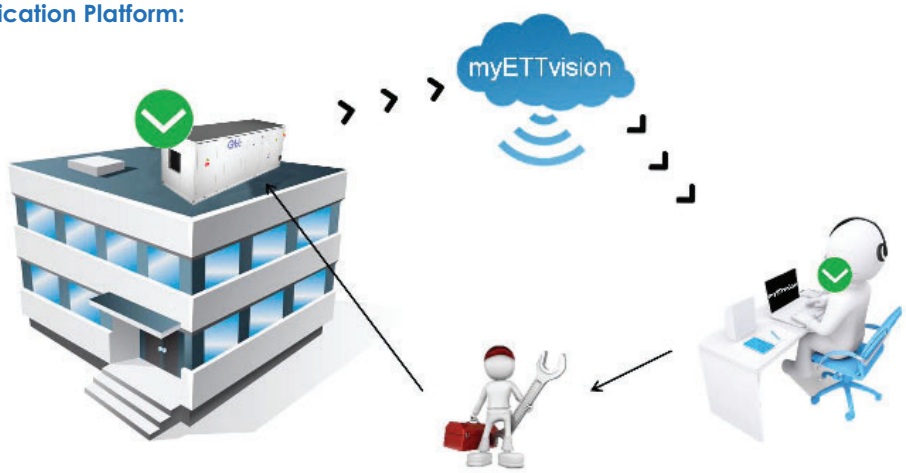
✓ Advanced control assembly:

- **Temperature control with 2 setpoints for Cooling/Heating mode according to 2002/91/EC Directive: reactivity, accuracy and anticipation.**

  Economy mode or Comfort mode controls available.
- **Filters fouling analogue control** (FFAC), fouling measurement and indication on the controller enabling preventive filter replacement for optimum air quality and reduced consumption.
- **Analogue Air Flow Controller (AFC)**, for measuring and indicating the air flow of the blower fans on the PLC, with optional self-adaptation of the air flow, in particular to compensate for filter fouling.
- **Air quality regulation by CO_2 or VOC sensor** to optimize new air dosing and reduce energy consumption.
- **Free Cooling** mode, free cooling by outside air, delaying thermodynamic operation for significant energy savings, depending on the size of the machine.
- **Function Prohibition of Free Cooling by weight of water** comparison, optional, to limit latent intakes in Free Cooling phase by comparison of indoor and outdoor water weights.
- **Electrical energy metering**, with distribution of power consumption according to operating modes.
- **Monitoring, diagnostic and security and fault management** (freezestat, smoke detector, fire thermostat, HP switch, compressor MAP monitoring…), with written fault history.
- **Refrigerant leak detection aid**.
- **myETTvision remote communication platform allowing access to parametrization, operation and energy monitoring, access to faults in your fleet of machines**.
- **De-stratification** (comparison between ambient and outdoor temperature)

myETTvision:

ETT Remote Communication Platform:



OPERATION: COSTS, PERFORMANCE AND GUARANTEES

Equipment installation and optimisation have a major impact on **units total cost.**

They affect 3 levers:

- **Total cost**
  - ✓ Purchase and Implementation (20-25%)
  - ✓ Operating costs (75-80%)
- **Installation efficiency**
  - ✓ **Operating cost**
  - ✓ **Users' comfort**
  - ✓ **Durability**
  - ✓ **Availability**
- **Conformity**
  - ✓ **Regulations**
  - ✓ Manufacturer's guarantee

Equipment operation and maintenance must ensure regulatory compliance, starting with commissioning. Operating instructions aim at optimising unit performance and settings. Also, the validity of the guarantee is conditional upon strict compliance with these instructions.

Periodic checks must include, at least:

- **Technical features control and setting** (safety devices, ventilation, refrigeration circuits, etc.)
- **Control adjustment** (setpoints, operating schedule, advanced parameters, etc.)
- **Technical and regulatory checks:**
  - Leakage checking, once or twice a year
  - Commissioning, periodic checks and periodic requalification (pressure equipment monitoring)
  - Filters replacement, 2 to 4 times a year depending on the type of filters and installation environment
  - Sensor element control and replacement for humidity sensors, CO_2 sensors and smoke detectors
- Related equipment control and maintenance (diffusion networks, sensors condition, etc.)

ETT services allow **trouble-free operation of your equipment** and guarantee **optimum performance** and **regulatory compliance** of the installation.

Main options

Frame - Casing	▪ External damper powered by blowing except blow down (CH38 - Directive 2006/42/EC)
Acoustics	▪ EC Low Noise supply and exhaust fans
Air handling	▪ Operation with all recirculated air (excluding Public Buildings) ▪ Operation with all fresh air ▪ Actuating smoke detector with battery back-up ▪ Epoxy coating for supply air and exhaust air fans ▪ Epoxy protection on rotary exchangers ▪ Analogue air flow controller (AFC) with supply and exhaust air fans flow rate auto-adjustment ▪ Pressure gauge for supply air and exhaust air filters ▪ Pressure gauge for filters on rotary exchanger ▪ Coarse 65% (G4) refillable 98mm blow-by ISO filters with analogue sensor ▪ EPM10 50% (M5) 98mm on supply air ISO filters with analogue sensor ▪ Dual ISO Coarse 65% (G4) + ISO ePM1 50% (F7) or ISO ePM1 80% (F9) (48 + 48mm) supply air filters with analogue sensor ▪ EPM1 55% (F7) 98mm blow-by ISO filters with analogue sensor ▪ ISO EPM1 80% (F9) 98mm supply air filters with analogue sensor ▪ ISO Coarse 65% (G4) refillable 48mm on supply air filters with analogue sensor
Thermodynamics	▪ Compressor MAP monitoring ▪ Vinyl coating on thermodynamic coils ▪ Refrigerant leak detection aid ▪ HP and LP pressure gauge
Auxiliaries	▪ Auxiliary hot water coil with analogue frost protection thermostat ▪ Progressive 3-way valve for hot water coil ▪ Stop valve on outlet + TA regulating valve on inlet for hot water coil ▪ Auxiliary 2-sequential stage electric heaters + Load shedding using dry contact ▪ Fresh air preheating through auxiliary 3-stage electric heaters
Electricity	▪ Total electrical energy metering according to 2002/91/EC ▪ Aluminium/ Copper connection terminal blocks (Mandatory for aluminium supply cables) ▪ 230V / 16A single phase PC socket in the technical room (separate power supply at the cost of the installer) ▪ IT earthing system compatibility ▪ Cable protective cowl for outside power supply (to be mounted by the installer)
Installation	▪ Aluminium adjustable connection roof curb ▪ Aluminium adaptation connection roof curb ▪ Aluminium adjustable ventilated roof curb ▪ Aluminium ventilated adaptation roof curb ▪ aluminium feet 200, 400 or 600 mm

Main options

Control	▪ Year-round operation (compressor authorization in air conditioning with external T° < +15°C) ▪ Control function in Comfort mode (set point temperatures control by PID) ▪ Free Cooling banning based on specific humidity comparison ▪ Average room temperature (4 sensors) ▪ Minimum fresh air slaving using turret contacts (3 maximum)
Communication	▪ myETTvision ▪ ETT ControlBox Remote Touch Display ▪ CCAD remote display ▪ Native RS485 Modbus ▪ Modbus IP ▪ BacNet IP

Technical features

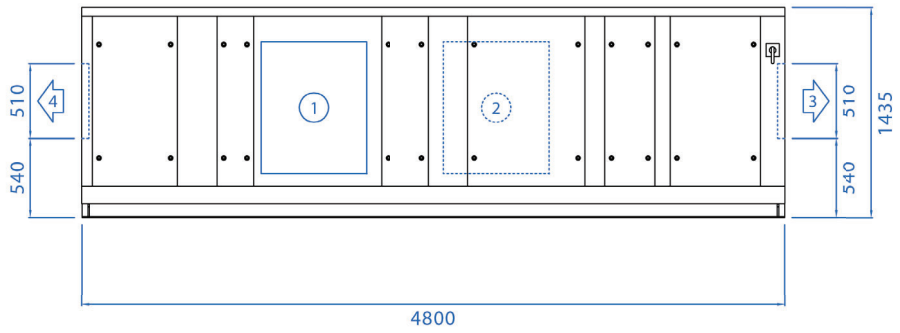
	DESIGNATION	Unit	020	025	030	035	045	050
VENTILATION	**FLOW RATES**							
	Rated air flow rate	**m³/h**	4500	5000	6000	6500	8500	8500
	Minimum air flow rate	**m³/h**	3000	3500	4000	4500	7000	8000
	Maximum air flow rate	**m³/h**	6300	7000	8400		8500	
	Rated exhaust air flow rate	**m³/h**	6300	7000	8400	9100	11900	11900
	SUPPLY VENTILATION (1)							
	Absorbed electrical power	**kW**	1.5	1.7	2.3	2.7	4.3	4.3
	ACOUSTICS(1)							
	Sound power level on supply air	**dB(A)**	80	81	83	84	88	88
	Outside sound power level	**dB(A)**	70	71	73	75	77	77
	Resulting outside sound pressure at 10 m, reference 10^{-5} in free field	**dB(A)**	39	40	42	44	46	46
AIR CONDITIONING PERFORMANCE	**NOMINAL PERFORMANCE AT +35°C** (1)							
	Net cooling capacity	**kW**	24.1	26.8	32.6	38.8	50.0	51.7
	Net EER	**kW/kW**	3.81	3.56	3.19	3.07	2.51	2.41
	SEASONAL EFFICIENCY(2)							
	Design net cooling capacity	**kW**	18.1	20.4	24.9	30.4	40.1	41.8
	SEER	**kW/kW**	6.16	6.06	5.62	5.39	4.32	4.29
	ns,C	**%**	244	239	222	213	170	168
HEATING PERFORMANCE	**NOMINAL PERFORMANCE AT +7°C** (1)							
	Net heating capacity	**kW**	27.4	30.9	37.0	43.0	59.8	62.7
	Net COP	**kW/kW**	5.30	5.07	4.53	4.42	3.82	3.81
	NOMINAL PERFORMANCE AT -7°C (1)							
	Net heating capacity	**kW**	35.0	38.4	45.9	52.2	67.6	70.3
	Net COP	**kW/kW**	7.50	7.04	6.36	6.06	4.94	4.93
	SEASONAL EFFICIENCY(2)							
	Design net heating capacity	**kW**	17.4	19.9	23.3	26.5	36.0	37.5
	SCOP	**kW/kW**	4.51	4.44	4.19	3.85	3.47	3.53
	ns,H	**%**	177	175	165	151	136	138
ROTARY COLLECTOR PERFORMANCE (7)	**COOLING MODE PERFORMANCE AT +35°C** (1) (7)							
	Recovery capacity	**kW**	5.9	6.5	7.5	7.9	9.6	9.6
	Thermal recovery efficiency on fresh air	**%**	80	78	75	74	68	68
	PERFORMANCE IN HEATING MODE AT +7°C (1) (7)							
	Recovery capacity	**kW**	9.2	10	11.5	12.2	14.7	14.7
	Thermal recovery efficiency on fresh air	**%**	77	76	73	71	65	65
	PERFORMANCE IN HEATING MODE A -7°C (1) (7)							
	Recovery capacity	**kW**	21.4	23.3	26.5	28	32.9	32.9
	Thermal recovery efficiency on fresh air	**%**	77	76	72	71	65	65
GENERAL	**ELECTRICAL DATA**							
	Total installed electrical power (3)	**kW**	23.3	23.3	23.3	23.3	29.5	30.9
	Total installed electrical intensity (3)	**A**	36	36	36	36	52	54
	Starting current (3)	**A**	43	43	43	43	122	130
	Maximum absorbed electrical power (3)	**kW**	29.0	32.7	37.5	38.5	55.3	59.9
	Recommended electric auxiliary	**kW**	15	18	21	21	27	30
	REFRIGERATION CIRCUIT(S)							
	Power stages	**-**	Variable				2	2
	OPERATING LIMITS IN COOLING MODE							
	Maximum outside temperature(5)	**°C**	45					
	Minimum outside temperature (5)	**°C**	15					
	Minimum internal coil inlet temperature	**°C**	18					
	OPERATING LIMITS IN HEATING MODE							
	Minimum outside temperature	**°C**	-15					
	Minimum internal coil inlet temperature	**°C**	12					
	POIDS (6)							
	Unit weight without any option	**kg**	894					

(1) Outside static pressure: 250 Pa at supply air, 150 Pa at exhaust air
Cooling mode: Indoor conditions: +27°C DB / +19°C WB & External conditions + 35°C DB/24°C WB Fresh air percentage: 60%
Heating mode: Indoor conditions: +20°C DB */+12°C WB and outside conditions: +7°C DB / +6°C WB Fresh air percentage: 60%
Heating mode: Indoor conditions: +20°C DB */+12°C WB and outside conditions: -7°C DB / -8°C WB Fresh air percentage: 60%
(2) According to EcoDesign regulations 2016/2281.

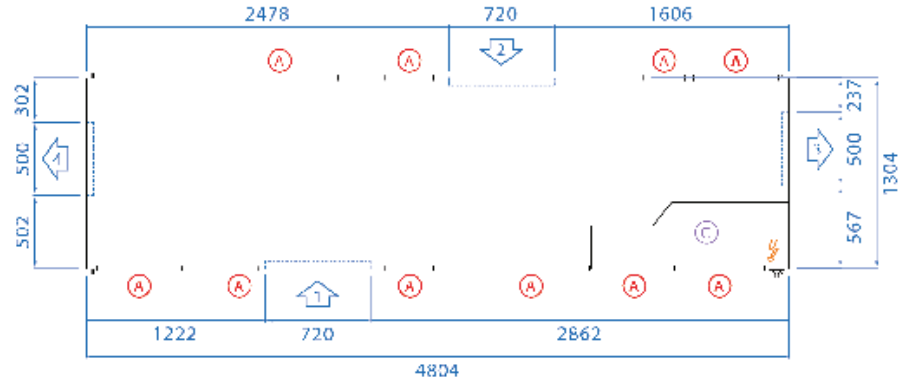
(3) Power to be retained for power cables (excluding auxiliary) three-phase power supply 400V - 50HZ + earth without neutral
(4) Heating mode : Defrost with top-up recommended
(5) For inside conditions: +27°C DB / +19°C WB at nominal air flow
(6) Weight for a unit in its nominal configuration
No. (7) Eurovent certified rotary collector

Dimensions and connections

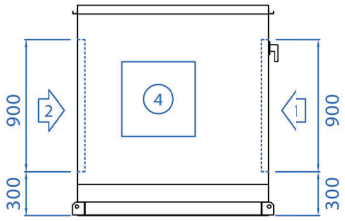
Side view:



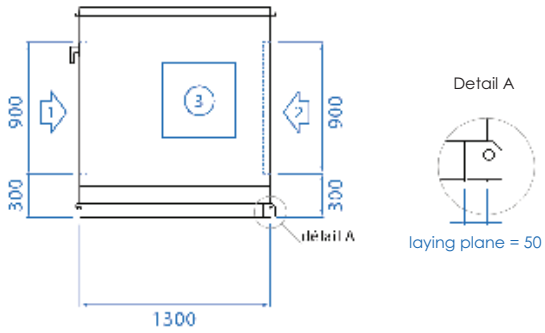
Top view:



Exhaust air side view:



Supply air side view:



- Fresh air
- Return air
- Supply air
- Exhaust air
- Access
- Power supply
- Technical section
- Provide a service area of 1200 mm on the TC side and 850 on the opposite side

	Length	Width	Height
Casing dimensions	4804 mm	1304 mm	1435 mm
Transport overall dimensions	4804 mm	1399 mm	1435 mm

Nota: Fresh air cowls shall be installed by the installer. Feet shall be installed by the installer. The connection of the ducts (supply, return, fresh and exhaust air) is made by insert (ETT supply) for fastening ducts per METU 40 mm frame.

The unit must be raised by 200 mm (slab or ETT feet) for the installation of the syphons.

Technical features

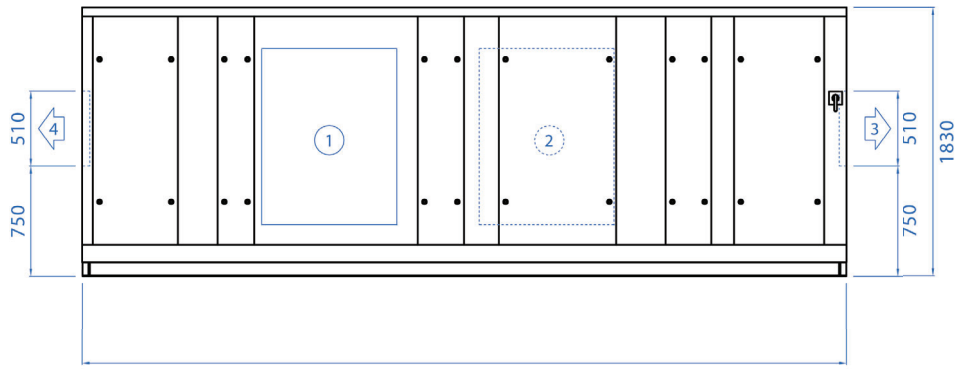
	DESIGNATION	Unit	050	055	065	075
VENTILATION	**FLOW RATES**					
	Rated air flow rate	**m³/h**	10500	11500	13000	15000
	Minimum air flow rate	**m³/h**	6500	7500	9500	12500
	Maximum air flow rate	**m³/h**	14700		15000	
	Rated exhaust air flow rate	**m³/h**	14700	16100	18200	21000
	SUPPLY VENTILATION (1)					
	Absorbed electrical power	**kW**	4.1	4.8	6	7.7
	ACOUSTICS(1)					
	Sound power level on supply air	**dB(A)**	85	87	88	90
	Outside sound power level	**dB(A)**	75	76	78	79
	Resulting outside sound pressure at 10 m, reference 10^{-5} in free field	**dB(A)**	44	45	47	48
AIR CONDITIONING PERFORMANCE	**NOMINAL PERFORMANCE AT +35°C** (1)					
	Net cooling capacity	**kW**	61.0	68.3	76.2	84.0
	Net EER	**kW/kW**	3.17	3.12	2.84	2.57
	SEASONAL EFFICIENCY(2)					
	Design net cooling capacity	**kW**	47.1	53.0	59.9	66.9
	SEER	**kW/kW**	5.51	5.47	5.10	4.32
	ns,C	**%**	218	216	201	170
HEATING PERFORMANCE	**NOMINAL PERFORMANCE AT +7°C** (1)					
	Net heating capacity	**kW**	71.2	78.8	89.5	101.7
	Net COP	**kW/kW**	4.66	4.51	4.25	3.97
	NOMINAL PERFORMANCE AT -7°C (1)					
	Net heating capacity	**kW**	86.0	94.7	106.2	118.8
	Net COP	**kW/kW**	6.41	6.13	5.69	5.27
	SEASONAL EFFICIENCY(2)					
	Design net heating capacity	**kW**	43.3	48.0	53.9	60.1
	SCOP	**kW/kW**	4.27	4.16	3.98	3.73
	ns,H	**%**	168	163	156	146
ROTARY COLLECTOR PERFORMANCE (7)	**COOLING MODE PERFORMANCE AT +35°C** (1) (7)					
	Recovery capacity	**kW**	13.4	14.4	15.8	17.5
	Thermal recovery efficiency on fresh air	**%**	77	76	73	70
	PERFORMANCE IN HEATING MODE AT +7°C (1) (7)					
	Recovery capacity	**kW**	20.8	22.3	24.4	27
	Thermal recovery efficiency on fresh air	**%**	75	73	71	68
	PERFORMANCE IN HEATING MODE A -7°C (1) (7)					
	Recovery capacity	**kW**	48.1	51.3	55.8	61
	Thermal recovery efficiency on fresh air	**%**	75	73	70.7	68
GENERAL	**ELECTRICAL DATA**					
	Total installed electrical power (3)	**kW**	48.1	51.3	55.8	61
	Total installed electrical intensity (3)	**A**	75	73	70.7	68
	Starting current (3)	**A**	43	43	43	43
	Maximum absorbed electrical power (4)	**kW**	29.0	32.7	37.5	38.5
	Recommended electric auxiliary	**kW**	15	18	21	21
	REFRIGERATION CIRCUIT(S)					
	Power stages	**-**	2	2	2	2
	OPERATING LIMITS IN COOLING MODE					
	Maximum outside temperature(5)	**°C**		45		
	Minimum outside temperature (5)	**°C**		15		
	Minimum internal coil inlet temperature	**°C**		18		
	OPERATING LIMITS IN HEATING MODE					
	Minimum outside temperature	**°C**		-15		
	Minimum internal coil inlet temperature	**°C**		12		
	POIDS (6)					
	Unit weight without any option	**kg**		1400		

(1) Outside static pressure: 250 Pa at supply air, 150 Pa at exhaust air
Cooling mode: Indoor conditions: +27°C DB / +19°C WB & External conditions + 35°C DB/24°C WB Fresh air percentage: 60%
Heating mode: Indoor conditions: +20°C DB */+12°C WB and outside conditions: +7°C DB / +6°C WB Fresh air percentage: 60%
Heating mode: Indoor conditions: +20°C DB */+12°C WB and outside conditions: -7°C DB / -8°C WB Fresh air percentage: 60%
(2) According to EcoDesign regulations 2016/2281.

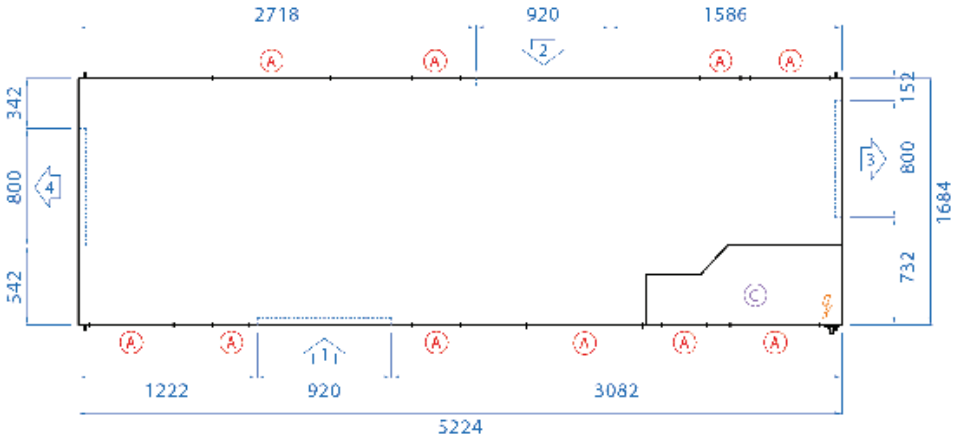
(3) Power to be retained for power cables (excluding auxiliary) three-phase power supply 400V - 50HZ + earth without neutral
(4) Heating mode : Defrost with top-up recommended
(5) For inside conditions: +27°C DB / +19°C WB at nominal air flow
(6) Weight for a unit in its nominal configuration
No. (7) Eurovent certified rotary collector

Dimensions and connections

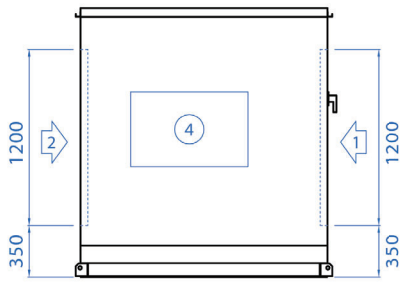
Side view :



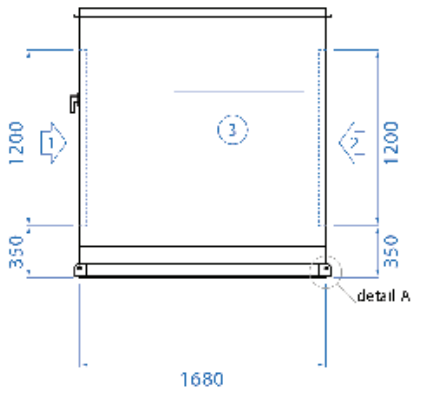
Top view:

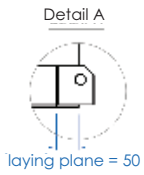


Exhaust air side view:



Supply air side view:





- Fresh air
- Return air
- Supply air
- Exhaust air
- Access
- Power supply
- Technical section
- Provide a service area of 1550 mm on the technical compartment side and 850 mm on the opposite side.

	Length	Width	Height
Casing dimensions	5224 mm	1684 mm	1830 mm
Transport overall dimensions	5224 mm	1779 mm	1830 mm

Nota: Fresh air cowls shall be installed by the installer. Feet shall be installed by the installer. The connection of the ducts (supply, return, fresh and exhaust air) is made by insert (ETT supply) for fastening ducts per METU 40 mm frame.

The unit must be raised by 200 mm (slab or ETT feet) for the installation of the syphons.

Technical features

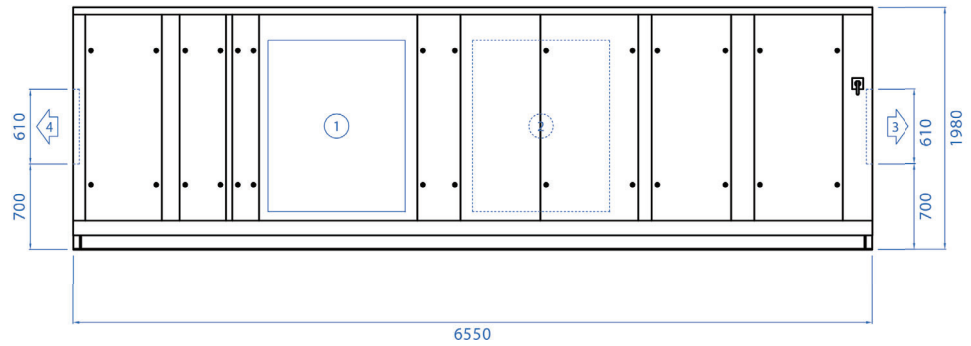
	DESIGNATION	Unit	080	090	095	110
VENTILATION	**FLOW RATES**					
	Rated air flow rate	**m³/h**	17000	19000	21000	23000
	Minimum air flow rate	**m³/h**	12000	12000	13000	19000
	Maximum air flow rate	**m³/h**	23800		25000	
	Rated exhaust air flow rate	**m³/h**	23800	26600	29400	32200
	SUPPLY VENTILATION (1)					
	Absorbed electrical power	**kW**	6.7	8.1	9.7	11.1
	ACOUSTICS(1)					
	Sound power level on supply air	**dB(A)**	91	93	94	96
	Outside sound power level	**dB(A)**	76	76	77	78
	Resulting outside sound pressure at 10 m, reference 10^{-5} in free field	**dB(A)**	45	45	46	47
AIR CONDITIONING PERFORMANCE	**NOMINAL PERFORMANCE AT +35°C** (1)					
	Net cooling capacity	**kW**	100.5	106.4	114.2	135.6
	Net EER	**kW/kW**	3.22	3.07	2.84	2.90
	SEASONAL EFFICIENCY(2)					
	Design net cooling capacity	**kW**	77.4	82.6	89.4	108.7
	SEER	**kW/kW**	3.83	3.74	3.53	3.53
	ns,C	**%**	150	147	138	138
HEATING PERFORMANCE	**NOMINAL PERFORMANCE AT +7°C** (1)					
	Net heating capacity	**kW**	116.6	126.9	137.8	154.3
	Net COP	**kW/kW**	4.66	4.71	4.66	4.37
	NOMINAL PERFORMANCE AT -7°C (1)					
	Net heating capacity	**kW**	140.6	152.4	165.1	181.1
	Net COP	**kW/kW**	6.41	6.34	6.20	5.71
	SEASONAL EFFICIENCY(2)					
	Design net heating capacity	**kW**	70.1	75.0	81.5	86.0
	SCOP	**kW/kW**	3.22	3.21	3.39	3.20
	ns,H	**%**	126	125	133	125
ROTARY COLLECTOR PERFORMANCE (7)	**COOLING MODE PERFORMANCE AT +35°C** (1) (7)					
	Recovery capacity	**kW**	21.6	23.6	25.4	27.1
	Thermal recovery efficiency on fresh air	**%**	77	75	73	71
	PERFORMANCE IN HEATING MODE AT +7°C (1) (7)					
	Recovery capacity	**kW**	33.5	36.4	39.2	41.8
	Thermal recovery efficiency on fresh air	**%**	74	72	70	69
	PERFORMANCE IN HEATING MODE A -7°C (1) (7)					
	Recovery capacity	**kW**	77.3	83.6	89.4	94.6
	Thermal recovery efficiency on fresh air	**%**	74	72	70	68
GENERAL	**ELECTRICAL DATA**					
	Total installed electrical power (3)	**kW**	64.8	66.5	69.6	75.2
	Total installed electrical intensity (3)	**A**	111	117	118	129
	Starting current (3)	**A**	233	227	246	257
	Maximum absorbed electrical power (4)	**kW**	80.4	86.0	96.6	109.4
	Recommended electric auxiliary	**kW**	33	33	36	39
	REFRIGERATION CIRCUIT(S)					
	Power stages	**-**	4	4	4	4
	OPERATING LIMITS IN COOLING MODE					
	Maximum outside temperature(5)	**°C**		45		
	Minimum outside temperature (5)	**°C**		15		
	Minimum internal coil inlet temperature	**°C**		18		
	OPERATING LIMITS IN HEATING MODE					
	Minimum outside temperature	**°C**		-15		
	Minimum internal coil inlet temperature	**°C**		12		
	POIDS (6)					
	Unit weight without any option	**kg**		2171		

(1) Outside static pressure: 250 Pa at supply air, 150 Pa at exhaust air
Cooling mode: Indoor conditions: +27°C DB / +19°C WB & External conditions + 35°C DB/24°C WB Fresh air percentage: 60%
Heating mode: Indoor conditions: +20°C DB */+12°C WB and outside conditions: +7°C DB / +6°C WB Fresh air percentage: 60%
Heating mode: Indoor conditions: +20°C DB */+12°C WB and outside conditions: -7°C DB / -8°C WB Fresh air percentage: 60%
(2) According to EcoDesign regulations 2016/2281.

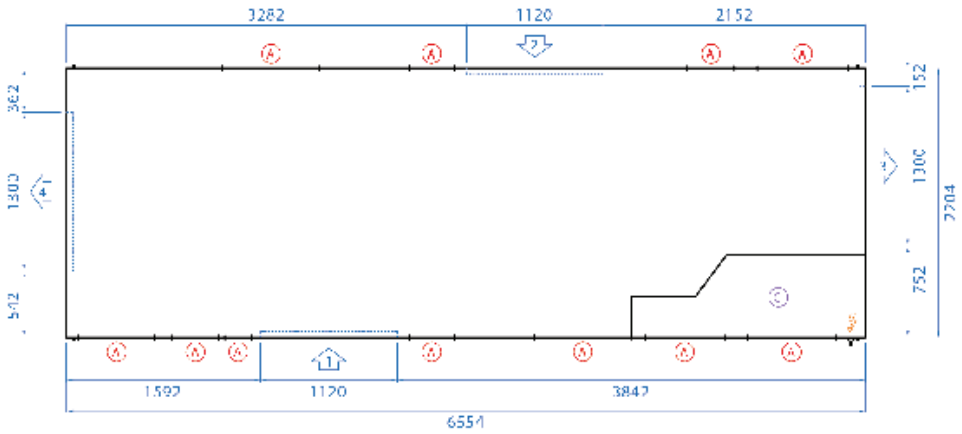
(3) Power to be retained for power cables (excluding auxiliary) three-phase power supply 400V - 50HZ + earth without neutral
(4) Heating mode : Defrost with top-up recommended
(5) For inside conditions: +27°C DB / +19°C WB at nominal air flow
(6) Weight for a unit in its nominal configuration
No. (7) Eurovent certified rotary collector

Dimensions and connections

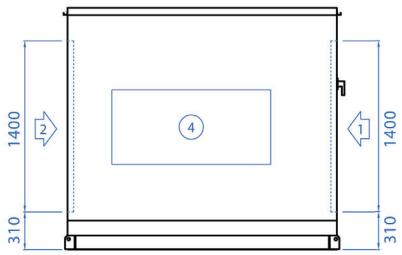
Side view :



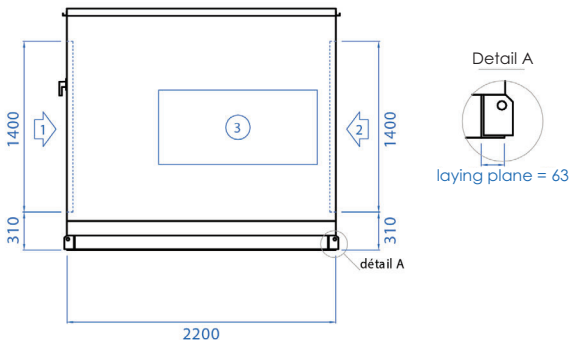
Top view:



Exhaust air side view:



Supply air side view:



- Fresh air
- Return air
- Supply air
- Exhaust air
- Access
- Power supply
- Technical section
- Provide a service area of 2100 mm on the technical compartment side and 850 mm on the opposite side.

	Length	Width	Height
Casing dimensions	6554 mm	2204 mm	1980 mm
Transport overall dimensions	6554 mm	2298 mm	1980 mm

Nota: Fresh air cowls shall be installed by the installer. Feet shall be installed by the installer. The connection of the ducts (supply, return, fresh and exhaust air) is made by insert (ETT supply) for fastening ducts per METU 40 mm frame.

The unit must be raised by 200 mm (slab or ETT feet) for the installation of the syphons.

Technical features

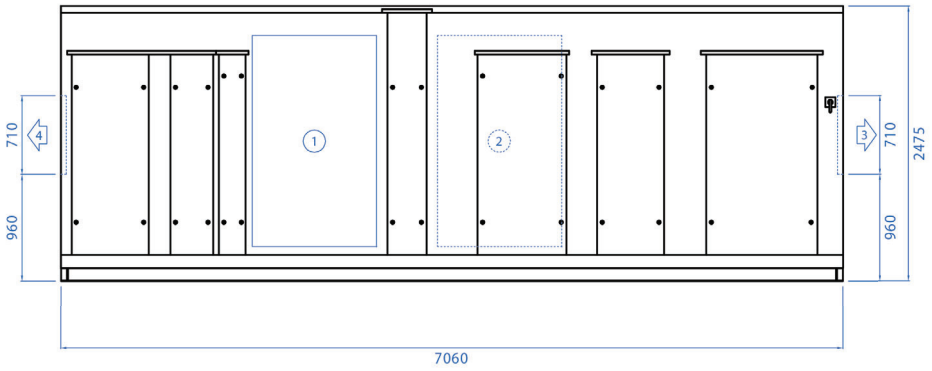
	DESIGNATION	Unit	115	130	140	150
VENTILATION	**FLOW RATES**					
	Rated air flow rate	**m³/h**	25000	27000	30000	33000
	Minimum air flow rate	**m³/h**	17000	18000	21000	21000
	Maximum air flow rate	**m³/h**		33000		
	Rated exhaust air flow rate	**m³/h**	35000	37800	42000	46200
	SUPPLY VENTILATION (1)					
	Absorbed electrical power	**kW**	8.0	9.1	11.1	13.1
	ACOUSTICS(1)					
	Sound power level on supply air	**dB(A)**	89	90	91	92
	Outside sound power level	**dB(A)**	78	79	80	82
	Resulting outside sound pressure at 10 m, reference 10^{-5} in free field	**dB(A)**	47	48	49	51
AIR CONDITIONING PERFORMANCE	**NOMINAL PERFORMANCE AT +35°C** (1)					
	Net cooling capacity	**kW**	143.6	159.0	170.3	190.7
	Net EER	**kW/kW**	3.62	3.41	3.21	3.10
	SEASONAL EFFICIENCY(2)					
	Design net cooling capacity	**kW**	107.6	122.0	130.2	147.2
	SEER	**kW/kW**	4.04	4.06	3.64	3.63
	ns,C	**%**	159	159	142	142
HEATING PERFORMANCE	**NOMINAL PERFORMANCE AT +7°C** (1)					
	Net heating capacity	**kW**	163.1	182.1	196.6	217.4
	Net COP	**kW/kW**	5.32	5.08	4.91	4.69
	NOMINAL PERFORMANCE AT -7°C (1)					
	Net heating capacity	**kW**	205.0	223.8	241.8	263.3
	Net COP	**kW/kW**	7.51	7.11	6.84	6.47
	SEASONAL EFFICIENCY(2)					
	Design net heating capacity	**kW**	94,8	108,4	113,6	126,8
	SCOP	**kW/kW**	3,59	3,55	3,32	3,23
	ns,H	**%**	140	139	130	126
ROTARY COLLECTOR PERFORMANCE (7)	**COOLING MODE PERFORMANCE AT +35°C** (1) (7)					
	Recovery capacity	**kW**	33.1	35.2	38.3	41.2
	Thermal recovery efficiency on fresh air	**%**	80	79	77	75
	PERFORMANCE IN HEATING MODE AT +7°C (1) (7)					
	Recovery capacity	**kW**	51.3	54.6	59.3	63.8
	Thermal recovery efficiency on fresh air	**%**	77	76	75	73
	PERFORMANCE IN HEATING MODE A -7°C (1) (7)					
	Recovery capacity	**kW**	119.3	126.7	137	146.6
	Thermal recovery efficiency on fresh air	**%**	77	76	75	73
GENERAL	**ELECTRICAL DATA**					
	Total installed electrical power (3)	**kW**	89.8	94.9	96.6	102.0
	Total installed electrical intensity (3)	**A**	153	161	163	174
	Starting current (3)	**A**	281	363	365	412
	Maximum absorbed electrical power (4)	**kW**	104.3	115.7	126.2	144.1
	Recommended electric auxiliary	**kW**	42	45	48	54
	REFRIGERATION CIRCUIT(S)					
	Power stages	**-**	4	4	4	4
	OPERATING LIMITS IN COOLING MODE					
	Maximum outside temperature(5)	**°C**		45		
	Minimum outside temperature (5)	**°C**		15		
	Minimum internal coil inlet temperature	**°C**		18		
	OPERATING LIMITS IN HEATING MODE					
	Minimum outside temperature	**°C**		-15		
	Minimum internal coil inlet temperature	**°C**		12		
	POIDS (6)					
	Unit weight without any option	**kg**		2880		

(1) Outside static pressure: 250 Pa at supply air, 150 Pa at exhaust air
Cooling mode: Indoor conditions: +27°C DB / +19°C WB & External conditions + 35°C DB/24°C WB Fresh air percentage: 60%
Heating mode: Indoor conditions: +20°C DB */+12°C WB and outside conditions: +7°C DB / +6°C WB Fresh air percentage: 60%
Heating mode: Indoor conditions: +20°C DB */+12°C WB and outside conditions: -7°C DB / -8°C WB Fresh air percentage: 60%
(2) According to EcoDesign regulations 2016/2281.

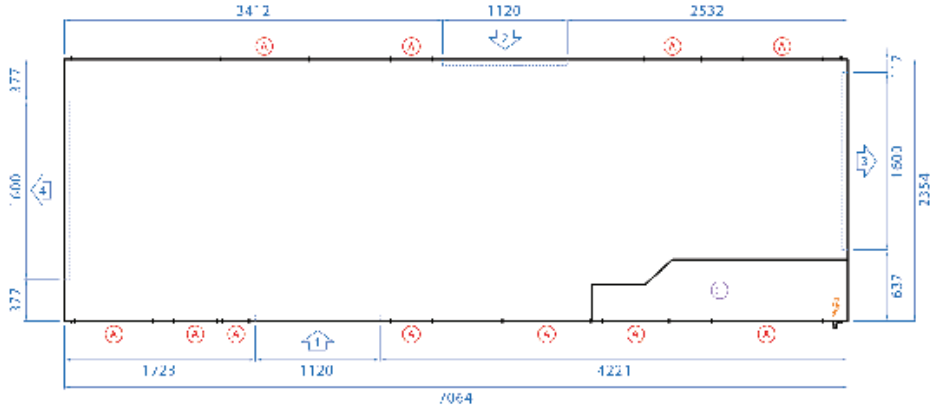
(3) Power to be retained for power cables (excluding auxiliary) three-phase power supply 400V - 50HZ + earth without neutral
(4) Heating mode : Defrost with top-up recommended
(5) For inside conditions: +27°C DB / +19°C WB at nominal air flow
(6) Weight for a unit in its nominal configuration
No. (7) Eurovent certified rotary collector

Dimensions and connections

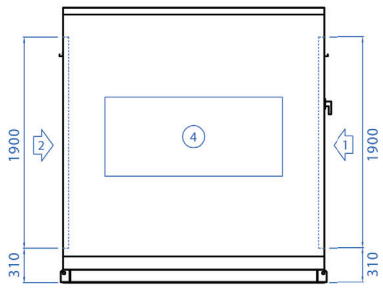
Side view :



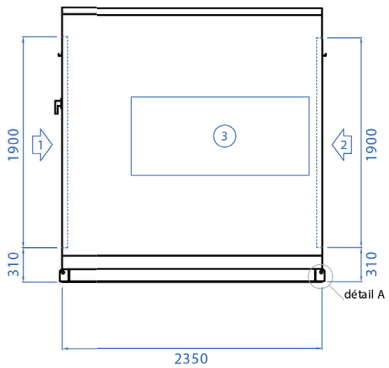
Top view:

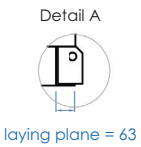


Exhaust air side view:



Supply air side view:





- Fresh air
- Return air
- Supply air
- Exhaust air
- Access
- Power supply
- Technical section
- Provide a service area of 2200 mm on the technical compartment side and 850 mm on the opposite side.

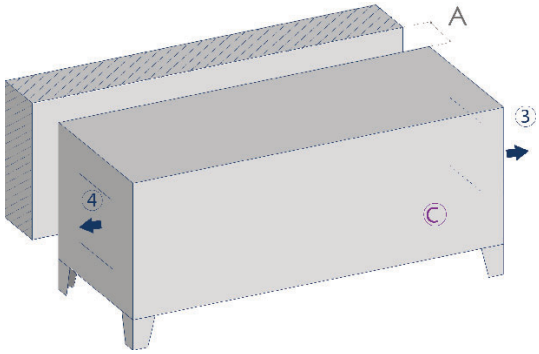
	Length	Width	Height
Casing dimensions	7064 mm	2354 mm	2475 mm
Transport overall dimensions	7064 mm	2448 mm	2475 mm

Nota: Fresh air cowls shall be installed by the installer. Feet shall be installed by the installer. The connection of the ducts (supply, return, fresh and exhaust air) is made by insert (ETT supply) for fastening ducts per METU 40 mm frame.

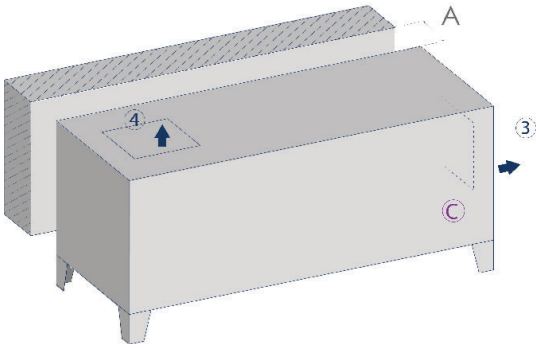
The unit must be raised by 200 mm (slab or ETT feet) for the installation of the syphons.

Supply and exhaust air

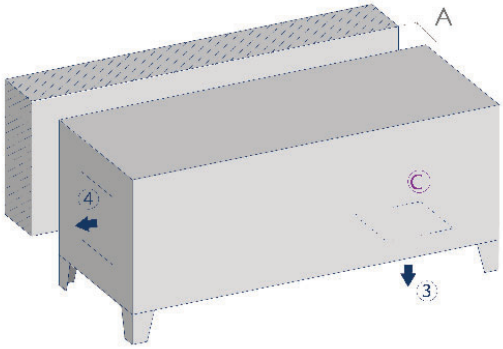
Arrangement A



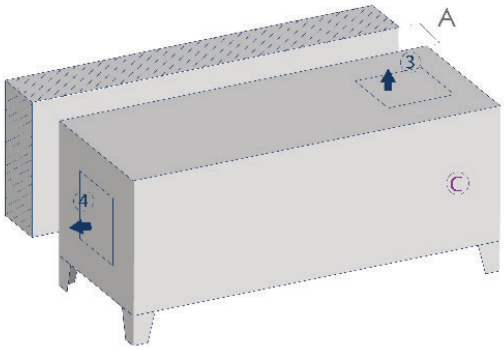
Arrangement B



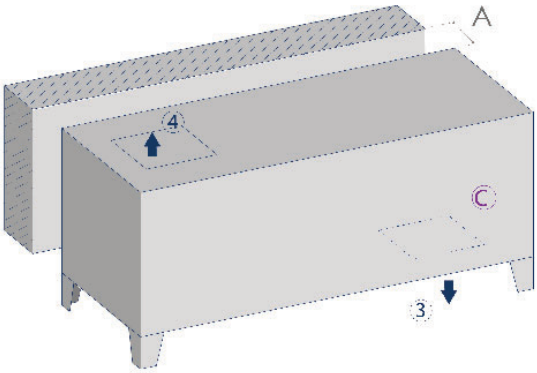
Arrangement C



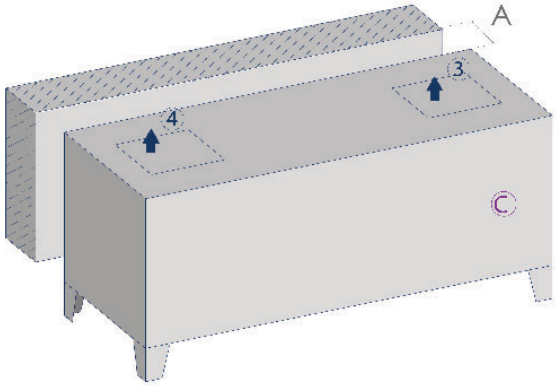
Arrangement D



Arrangement E



Arrangement F



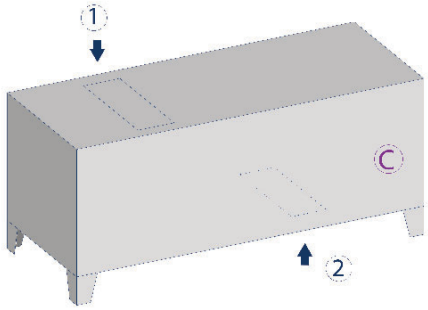
Supply air Exhaust air Technical section

A: Minimum maintenance area between the wall and the unit : 800 mm

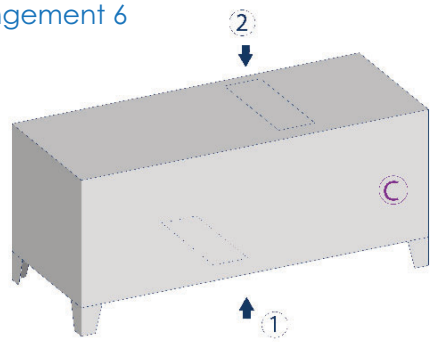
Nota: Feet can be supplied as an option. Feet laying shall be made by the user.

Return air and fresh air

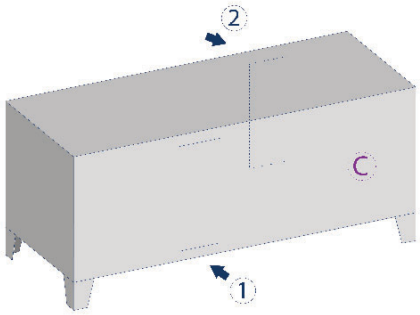
Arrangement 3



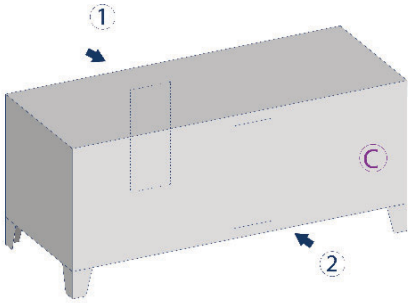
Arrangement 6



Arrangement 11



Arrangement 12

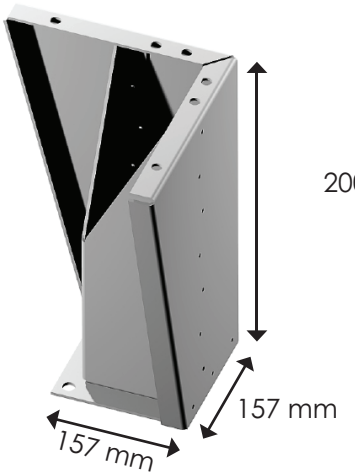


Fresh air Exhaust air Technical section

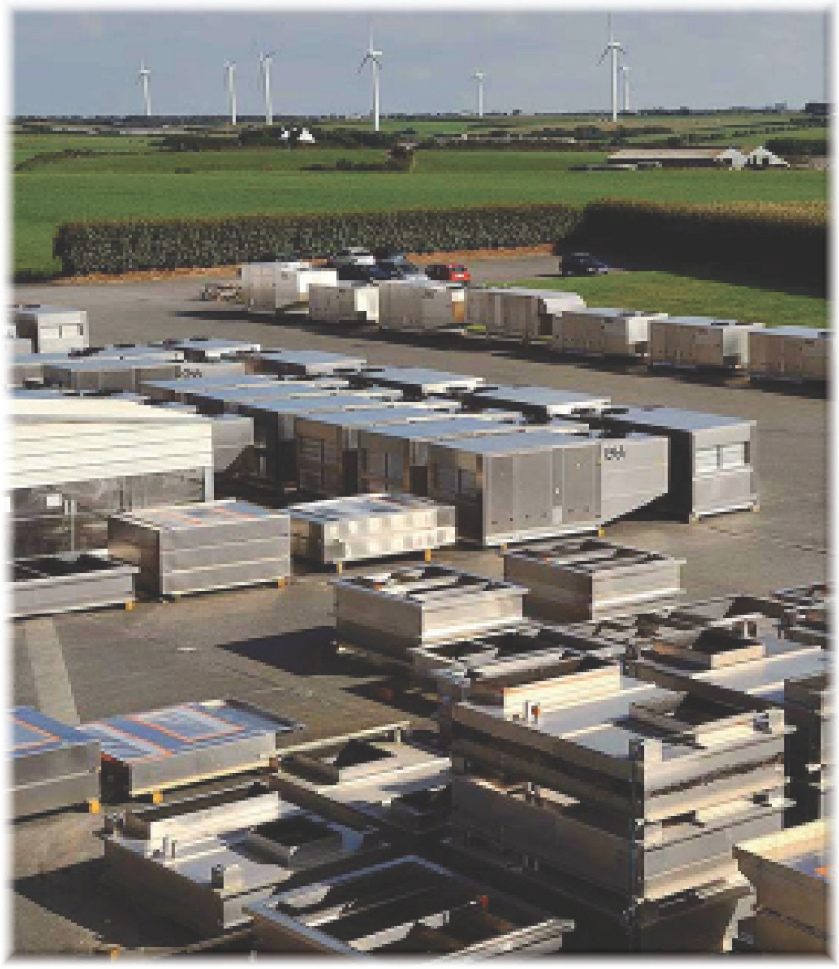
Nota: Feet can be supplied as an option. Feet laying shall be made by the user.

Installation accessories: Feet

Aluminium fixed foot
Unit weight: 1 kg



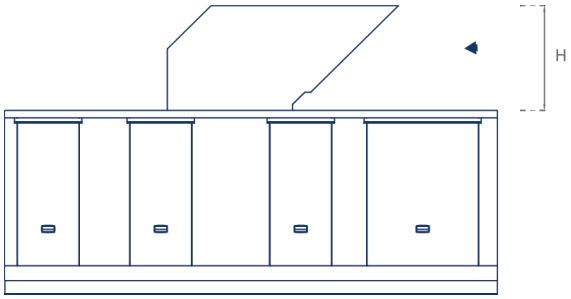
Serial number	01	11	21	22
No. of feet	6	6	6	8



Installation accessories: Fresh air and exhaust air covers

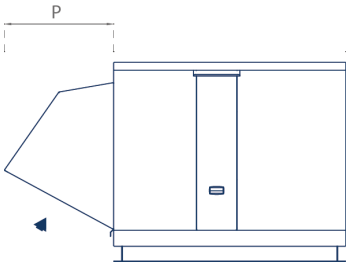
Fresh air cowl

Inlet on top (optional)



	Serial number	01						11				21				22			
	Unit	020	025	030	035	045	050	050	055	065	075	080	090	095	110	115	130	140	150
H	mm	550						750				800				900			

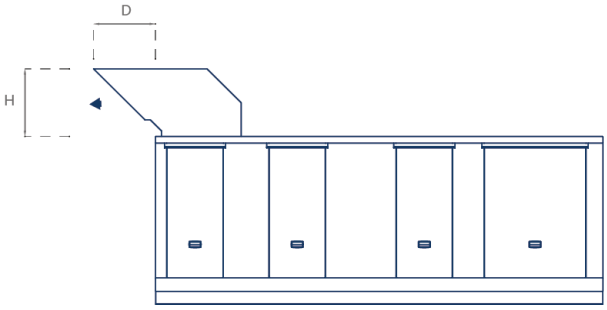
Inlet on side



	Serial number	01						11				21				22			
	Unit	020	025	030	035	045	050	050	055	065	075	080	090	095	110	115	130	140	150
H	mm	550						700				880				980			

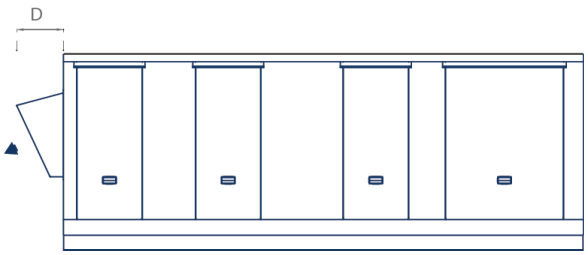
Exhaust air cowl

On top (optional)



	Serial number	01						11				21				22			
	Unit	020	025	030	035	045	050	050	055	065	075	080	090	095	110	115	130	140	150
H	mm	450						600				600				600			
D	mm	365						510				480				450			

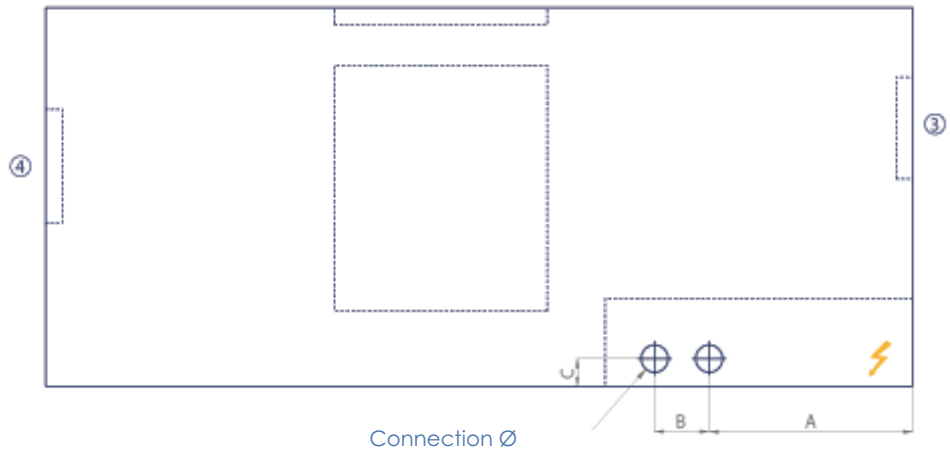
On end



	Serial number	01						11				21				22			
	Unit	020	025	030	035	045	050	050	055	065	075	080	090	095	110	115	130	140	150
D	mm	365						365				410				450			

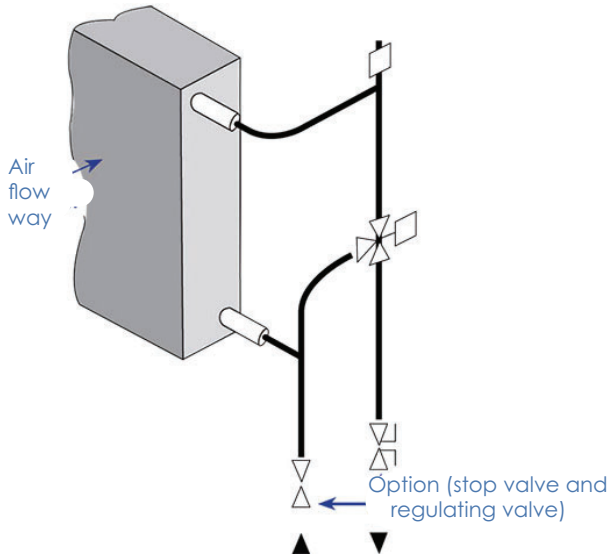
Schematic diagram

Top view



③ Supply air ④ Exhaust air ⑤ Technical section ⚡ Power supply

Installation principle



Auxiliaries: Hot water coils

Dimensions

	Serial number	01						11				21				22			
	Unit	020	025	030	035	045	050	050	055	065	075	080	090	095	110	115	130	140	150
A	mm	873						972				1300				1672			
B	mm	163						107				200				186			
C	mm	98						98				134				167			
Customer connection diameter	mm	40* 49						40* 49				50* 60				50* 60			
Weight of coil + 3WV with water	kg	23						37				63				79			

Capacity

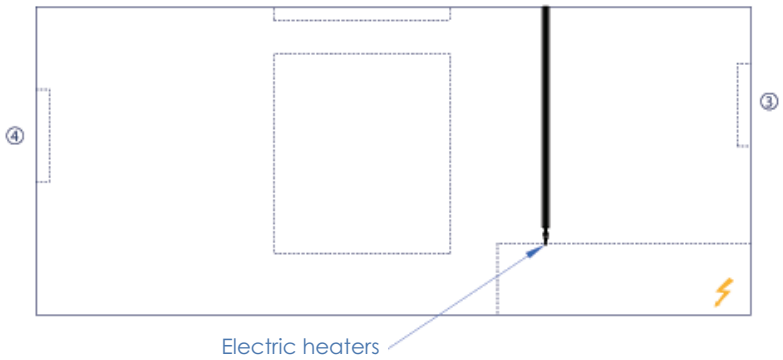
For an air inlet temperature on the coils of +10°C

		Serial number	01						11				21				22			
		Unit	020	025	030	035	045	050	050	055	065	075	080	090	095	110	115	130	140	150
Water level 90/70°C	Max. power	kW	77	83	93	98	116	116	167	177	192	209	274	294	313	332	306	322	344	365
	Max. flow rate	m³/h	3.4	3.7	4.1	4.3	5.1	5.1	7.4	7.8	8.5	9.2	12.1	13	13.8	14.6	13.5	14.2	15.2	16.1
	3WV + coil pressure drop	mWC	1.3	1.5	1.8	2	2.6	2.6	4	4.5	5.2	6.1	3.2	3.4	3.6	4.1	3.6	3.9	4.5	5.2
	Stop and TA valves pressure drop (opened by 3 turns)	mWC	0.8	0.9	1.1	1.2	1.7	1.7	3.5	3.8	4.5	5.3	3.2	3.7	4.1	4.6	3.9	4.3	5	5.6
Water regime 80/60°C	Max. power	kW	65	70	79	83	97	97	142	150	163	177	231	248	264	279	259	272	290	308
	Max. flow rate	m³/h	2.9	3.1	3.5	3.6	4.3	4.3	6.2	6.6	7.1	7.8	10.2	10.9	11.6	12.3	11.4	11.9	12.7	13.5
	3WV + coil pressure drop	mWC	1	1.2	1.4	1.5	2	2	3	3.4	3.9	4.6	2.5	2.7	2.9	3.2	2.6	2.7	3.3	3.6
	Stop and TA valves pressure drop (opened by 3 turns)	mWC	0.6	0.7	0.9	0.9	1.2	1.2	2.5	2.8	3.2	3.8	2.3	2.6	2.9	3.3	2.8	3.1	3.5	3.9

Optional: stop valve on outlet and TA regulating valve on inlet

Auxiliaries: Electric heaters

Schematic diagram



③ Supply air ④ Exhaust air ⚡ Supply air

Available capacities (in kW)

				01						11				21				22			
Total capacity (kW)	Current (A)	1st stage	2nd stage	020	025	030	035	045	050	050	055	065	075	080	090	095	110	115	130	140	150
6	8.7	3	3																		
9	13.0	3	6	•	•	•	•	•	•												
12	17.3	4.5	7.5	•	•	•	•	•	•												
12	17.3	3	9							•	•	•	•	•	•	•	•				
15	21.7	6	9	•	•	•	•	•	•	•	•	•	•	•	•	•	•				
18	26.0	9	9	•	•	•	•	•	•												
18	26.0	6	12							•	•	•	•	•	•	•	•				
21	30.3	6	15							•	•	•	•	•	•	•	•	•	•	•	•
21	30.3	9	12	•	•	•	•	•	•												
24	34.6	9	15	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
27	39.0	9	18	•	•	•	•	•	•												
27	39.0	12	15							•	•	•	•	•	•	•	•	•	•	•	•
30	43.3	12	18	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
33	47.6	9	24							•	•	•	•	•	•	•	•				
33	47.6	15	18																		
33	47.6	12	21															•	•	•	•
36	52.0	12	24																		
36	52.0	15	21															•	•	•	•
39	56.3	15	24																		
39	56.3	18	21															•	•	•	•
42	60.6	18	24															•	•	•	•
45	65.0	15	30																		
45	65.0	21	24															•	•	•	•
48	69.3	18	30															•	•	•	•
54	77.9	18	36															•	•	•	•
60	86.6	24	36																		
60	86.6	18	42															•	•	•	•
66	95.3	24	42															•	•	•	•
72	103.9	30	42																		

Nota: An additional coil can be mounted in the supply air duct or on the fresh air inlet for higher performances. Please consult us.

Sound level * Fan at fresh air and exhaust air

On supply air side

Available pressure: 250 Pa at supply air and 150 Pa at reject

		FREQUENCY BAND Hz ►		63	125	250	500	1000	2000	4000	8000	Lw general level (dB(A))
		Supply air flow rate (m^3/h) ▼	Exhaust air flow rate (m^3/h) ▼									
01	020	4500	6300	55	73	70	73	73	72	68	65	80
	025	5000	7000	54	72	71	74	74	73	70	66	81
	030	6000	8400	53	74	72	76	76	76	72	69	83
	035	6500	9100	53	75	73	77	77	77	73	70	84
	045	8500	11900	54	69	80	82	82	81	78	74	88
	050	8500	11900	54	69	80	82	82	81	78	74	88
11	050	10500	14700	59	77	76	79	79	78	74	71	85
	055	11500	16100	59	79	76	80	80	79	76	72	87
	065	13000	18200	59	80	79	82	82	81	78	74	88
	075	15000	21000	60	79	83	84	84	83	80	76	90
21	080	17000	23800	61	75	78	85	87	85	79	74	91
	090	19000	26600	60	75	79	86	89	86	81	75	93
	095	21000	29400	60	76	80	87	91	88	82	77	94
	110	23000	32200	60	75	82	87	93	89	84	78	96
22	115	25000	35000	59	79	74	82	86	82	77	73	89
	130	27000	37800	56	78	74	83	87	83	78	74	90
	140	30000	42000	53	76	74	84	87	85	80	75	91
	150	33000	46200	52	75	74	85	88	86	81	77	92

On exhaust air side

Available pressure: 250 Pa at supply air and 150 Pa at reject

		FREQUENCY BAND Hz ►		63	125	250	500	1000	2000	4000	8000	Lw general level (dB(A))
		Supply air flow rate (m^3/h) ▼	Exhaust air flow rate (m^3/h) ▼									
01	020	4500	6300	47	60	68	76	80	79	73	67	84
	025	5000	7000	48	59	70	77	82	81	75	68	86
	030	6000	8400	50	59	72	80	84	83	80	72	88
	035	6500	9100	50	59	73	81	86	85	82	73	90
	045	8500	11900	53	61	78	86	91	91	86	79	95
	050	8500	11900	53	61	78	86	91	91	86	79	95
11	050	10500	14700	52	62	75	82	86	85	81	73	90
	055	11500	16100	53	62	76	83	88	87	83	75	92
	065	13000	18200	54	63	77	85	90	89	85	77	94
	075	15000	21000	55	63	79	87	92	91	86	80	96
21	080	17000	23800	58	73	72	81	85	81	77	72	88
	090	19000	26600	54	73	72	82	86	83	78	74	89
	095	21000	29400	51	73	73	84	87	85	80	75	91
	110	23000	32200	52	72	74	84	88	86	82	77	92
22	115	25000	35000	47	67	73	80	91	85	85	74	93
	130	27000	37800	48	69	74	81	94	86	88	76	95
	140	30000	42000	49	70	75	83	95	88	90	78	97
	150	33000	46200	51	71	77	84	94	90	93	81	98

*Lw: sound power level (dB(A))

Sound level * Fan at the fresh air intake and on return air

THE fresh air intake of the unit

Available pressure: 250 Pa at supply air and 150 Pa at reject

		FREQUENCY BAND Hz ▶		63	125	250	500	1000	2000	4000	8000	Lw general level (dB(A))
		Supply air flow rate (m³/h) ▼	Exhaust air flow rate (m³/h) ▼									
01	020	4500	6300	51	64	67	71	71	71	66	58	77
	025	5000	7000	50	63	68	72	72	72	67	60	78
	030	6000	8400	49	64	70	75	75	75	70	64	81
	035	6500	9100	50	64	71	76	76	76	71	65	82
	045	8500	11900	51	61	76	80	80	81	76	71	86
	050	8500	11900	51	61	76	80	80	81	76	71	86
11	050	10500	14700	55	67	73	77	77	77	72	65	83
	055	11500	16100	54	68	74	78	78	78	73	67	84
	065	13000	18200	54	68	76	80	80	80	75	69	86
	075	15000	21000	54	68	78	82	81	82	77	72	88
21	080	17000	23800	57	72	73	73	79	77	71	64	83
	090	19000	26600	55	71	73	74	80	78	73	66	84
	095	21000	29400	55	71	74	75	80	80	75	68	85
	110	23000	32200	54	71	75	76	81	81	77	69	86
22	115	25000	35000	53	71	72	72	79	79	81	66	85
	130	27000	37800	51	71	73	73	79	80	83	68	87
	140	30000	42000	48	71	74	75	80	81	86	70	89
	150	33000	46200	48	71	76	76	82	83	89	73	91

On return air side

Available pressure: 250 Pa at supply air and 150 Pa at reject

		FREQUENCY BAND Hz ▶		63	125	250	500	1000	2000	4000	8000	Lw general level (dB(A))
		Supply air flow rate (m³/h) ▼	Exhaust air flow rate (m³/h) ▼									
01	020	4500	6300	54	67	66	68	68	67	63	56	75
	025	5000	7000	52	66	67	69	69	69	64	57	76
	030	6000	8400	50	67	69	72	71	71	67	61	78
	035	6500	9100	50	67	70	73	72	72	68	62	79
	045	8500	11900	51	62	74	78	77	77	72	66	83
	050	8500	11900	51	62	74	78	77	77	72	66	83
11	050	10500	14700	57	70	72	74	73	73	69	62	80
	055	11500	16100	56	71	73	76	75	74	70	64	81
	065	13000	18200	55	71	75	77	76	76	72	66	83
	075	15000	21000	55	71	77	79	78	78	74	68	85
21	080	17000	23800	59	72	75	75	79	78	73	66	84
	090	19000	26600	58	72	76	76	80	79	75	67	85
	095	21000	29400	57	72	77	77	80	81	76	69	86
	110	23000	32200	57	72	78	77	81	82	78	71	87
22	115	25000	35000	55	74	72	72	79	77	75	64	83
	130	27000	37800	53	73	72	73	80	78	77	65	84
	140	30000	42000	50	72	73	74	80	79	80	67	85
	150	33000	46200	49	71	74	75	80	81	83	69	87

*Lw: sound power level (dB(A))

Sensors connection principle

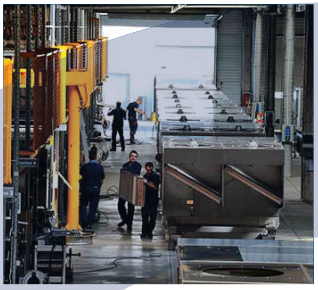
- ① **Room sensor:** 1 pair shielded cable, 2 x 0,75 mm² (max. length 100ml)
- ② **Co_2 /VOC sensor:** Shielded 2-pair cable, 3 x 0,75 mm² (max. length 100ml)
- ③ **Humidity sensor:** Shielded 2-pair cable, 5 x 0,75 mm² (max. length 100ml) *(optional)*

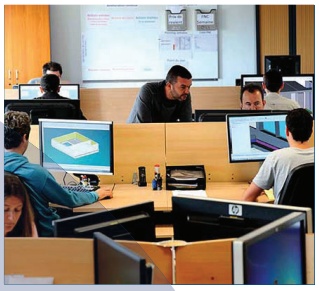
Nota: Please note that the value indicated can vary depending on sensor location. For more representative results, do not install them:

> Close to heat sources (spotlight, cooking appliances, glass wall, flues)
> In draft zones (close to entrance, stockrooms, openings)
> In dead zones (behind shelves, in a corner)
> Close to crowded areas (checkout, fitting rooms)

For accurate measurements:

> Do not install the sensors in the axis of the duct used for their wiring.
> Do not install control cables and power cables in the same duct (risk of electromagnetic interference).





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