



BALTIC BAC - BAH

Air cooled and water cooled rooftop packaged units

Application guide



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Product designed and manufactured under :

- Quality management system: ISO 9001
- Environmental management system: ISO 14001.
- Occupational health and safety management systems : OHSAS 18001



www.eurovent-certification.com
www.certiflash.com



Our company's products comply with European standards*

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The specifications and technical characteristics in this booklet are given for information purposes. The manufacturer reserves the right to modify them without prior notice or obligation to modify in a similar manner, the equipments previously supplied.

* For out of EEC countries, non CE marked, and non EUROVENT certified units are available on request, please consult us.



THE EXPERIENCE & COMMITMENT OF THE EUROPEAN LEADER TO DRIVE CONTINUOUS ENERGY SAVINGS

Lennox contribution to combat rising energy costs and global warming is to design innovative, efficient and dependable products, while providing best comfort and air quality.

As a major player in the European HVAC market, Lennox is a reference in sustainable development and has been assembling its products in ISO-14001 certified factories since 2007.

Like any other Lennox rooftop unit, the entire Baltic range is Eurovent certified.

ECODESIGN DIRECTIVE 2009/125/EC – ROOFTOP RANGES

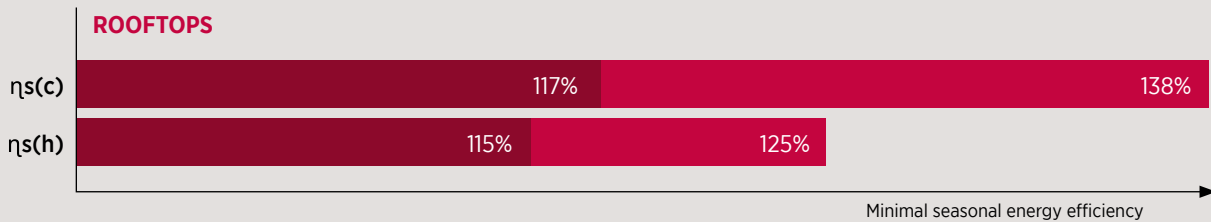
ORIGINS & PERSPECTIVES

- KYOTO (1997), COP21 (Paris 2015) and COP 22 (Marrakech 2016) define the targets to restrict the global warming to 1,5°C.
- EcoDesign directive 2009/125/EC define a framework for all energy-consuming equipment. It is mandatory for all products sold and used in European Union.
- The regulations resulting from EcoDesign define, for each product family, minimum efficiencies to achieve in 2 steps.

Air heating products, cooling products high temperature process chillers and fan coil units EU 2016/2281:

1st tier: 1st July 2018

2nd tier: 1st January 2021



BALTIC : THE BEST LIFE CYCLE COST IN THE MARKET

LOW ENERGY CONSUMPTION

35% energy savings with Baltic when compared to a standard rooftop installed on a retail building.

Innovative solutions for long lasting energy savings:

- eDrive Direct transmission variable speed ventilation system
- Advanced refrigeration system with multiscroll R410A compressor assemblies, electronic expansion valves, extended heat exchange surface area, alternate and dynamic defrost cycles.
- Fresh air and free cooling management.
- Optimized operation with eClimatic

BETTER RECYCLING MANAGEMENT

- Unit assembled in an ISO14001 certified facility.
- Refrigerant R410A to reduce refrigerant charge.
- Reduced material usage with compact packaged design.

REDUCED MAINTENANCE COSTS

- Fully factory tested plug and play packaged system.
- eDRIVE direct transmission plug-fan with zero maintenance and airflow measurement with eFlow.
- eClimatic, eClimatic Wizard, unit remote management and supervision through GPRS with e-savvy.

BA_(A) **C**_(B) **065**_(C) **D**_(D) **N**_(E) **M**_(F) **5**_(G) **M**_(H)

- (A) **BA** = BALTIC
- (B) **C** = Cooling - **H** = Heat pump
- (C) Cooling capacity in kW or airflow (x 1.000 m³/h)
- (D) **S** = 1 circuit - **D** = 2 circuits - **T** = 3 circuits - **F** = 4 circuits
- (E) **H** = High heat - **S** = Standard heat - **N** = No heat
- (F) **M** = R410A - **H** = HFO - **Z** = No refrigerant
- (G) Revision number
- (H) **M** = 400V/3/50Hz - **T** = 230V/1/50Hz

KEY FEATURES

- Installation and replacement made easy thanks to the unit's compactness, same footprint and weight than previous models.
 - Optimized design and integration of highly efficient components, allowing significant energy savings.
- Flexibility in capacity and airflow rates, ventilation options, energy sources and design (configurations and roof curbs) to best fit your application's needs.
- Low noise level thanks to several sound attenuation options available.



ECODESIGN 2021



HIGHLY EFFICIENCY COMPRESSORS

Tandem scroll compressors allowing capacity modulation.



EC FANS

Variable speed EC axial fans with swept blades for improved efficiency.



HEAT RECOVERY

Thermodynamic heat recovery, heat recovery wheel and eRecovery systems available.

GENERAL FEATURES

BALTIC R410A has been designed to perfectly match light commercial applications such as offices, restaurants, shopping outlet-villages and supermarkets.

BALTIC is available in cooling only, heat pump, gas heater or dual fuel (gas heater and heat pump). It operates with environmentally friendly R410A HFC, providing cooling capacities from 24 kW up to 125 kW in 4 different box sizes.

Lennox contribution to counter rising energy costs was to develop BALTIC the most efficient rooftop unit designed to provide the best and lowest life cycle cost.



GUARANTIED SUSTAINABLE PERFORMANCE WITH eDRIVE

eDrive is Lennox' answer for high efficiency ventilation with direct transmission, variable speed drives to save energy and reduce maintenance costs.

ADVANCED REFRIGERATION CIRCUIT

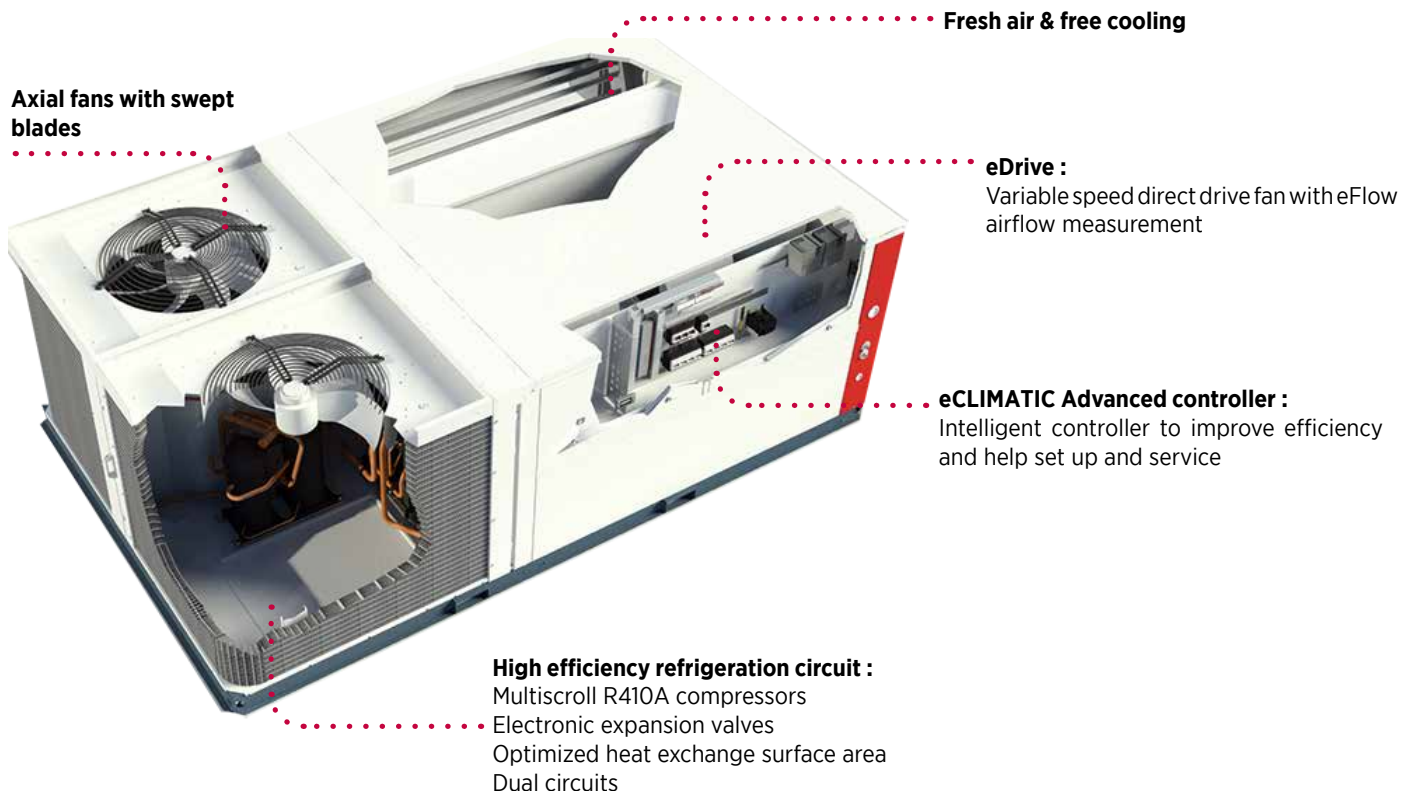
New BALTIC features high efficiency, environmentally friendly refrigeration circuits. The new refrigeration circuit is fitted with multiscroll R410A compressors, electronic expansion valves and optimized heat exchange surface area. It includes advanced condenser fan design and allows Dynamic and alternate defrost.

FRESH AIR & FREE COOLING

Fresh air management and Free Cooling are standard features of new BALTIC that can reduce annual energy consumption.

eCLIMATIC ADVANCED CONTROLLER

eCLIMATIC controller intelligently improves efficiency and helps set up and service operations to guarantee long lasting performance.



EC FAN-MOTORS IN SUPPLY AIR TREATMENT

EC fan technology offers the maximum efficiency together with the minimum power consumption. That is the reason why **BALTIC** is equipped with EC fan-motor technology.

BALTIC will adapt the fan pressure to any building’s need, and will provide high pressure available in the duct even when all the options have been selected.

The EC plug-fan technology allows:

- Adapting airflow at commissioning
- Varying airflow during unit operation providing progressive inflation of smooth /textile ductworks
- Easy maintenance operations, as there is not pulleys and belts regulation

eClimatic profits about this EC technology by:

- Monitoring the airflow in the service terminal
- Compensating the airflow if the filters are dirty
- Regulating the airflow to arrive to the desired set point temperature.
- Optimize the air-flow to the load demand (reduce consumption when possible)

eDRIVE VENTILATION

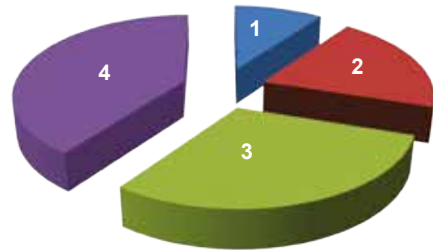
eDrive is a standard feature of Lennox BALTIC units for ventilation with direct transmission, variable speed drives that saves energy and reduces maintenance costs.

SAVING ENERGY WITH EDRIVE VARIABLE SPEED, DIRECT DRIVE FAN.

With a rooftop, the blower fan motor is one of the major contributors to annual energy consumption. Fans usually run 97% of the year at full speed to circulate the air inside the building. 42% of the annual energy consumption of an air conditioner is due to the fan motor, which can be more than compressors.



1	Remaining annual fan motor consumption	12%
2	Energy savings thanks to eDrive	18%
3	Annual consumption of other electrical systems	30%
4	Annual compressor consumption	40%

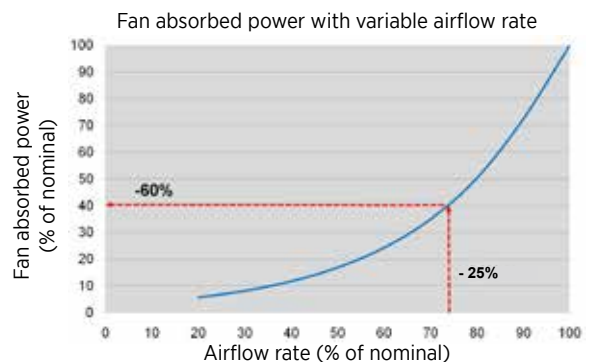


VARIABLE SPEED DRIVE

Airflow reduction during part load operation and dead zone can help save on energy consumption.

There is no need to reduce airflow rate too much to achieve important energy savings: For example reducing airflow rate by only 25% will save 60% on the fan motor energy usage.

- BALTIC integrates the new eDrive which automatically adjust airflow rate to the needs, saving up to 30% annual rooftop energy consumption.
- Airflow Rate can be easily adjusted to the exact needs, thanks to eFlow the airflow measurement and display system.
- eDrive will correct power factor to reduce current.
- eDrive integrates soft starter feature as standard, that will reduce inrush current during fan starts and makes the unit fully compatible with flexible ducts air diffusion systems.



DIRECT TRANSMISSION

eDrive is a direct transmission system without pulleys nor belts. It eliminates friction losses improving energy efficiency even at full speed. Worn-out or loose fan belts can increase fan energy consumption by up to 15%. eDrive direct transmission system guaranties the performance over the life cycle of the unit.

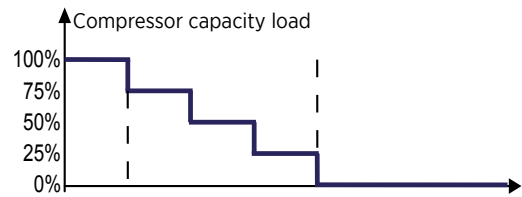
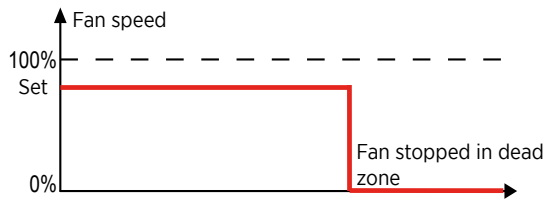
AIRFLOW RATE MANAGEMENT WITH EDRIE

eCLIMATIC and eFlow manage airflow rate passing through the unit following 3 possible strategies. eDrive control strategies can be changed with each time zone in occupied or unoccupied mode. Whatever the control strategy, soft starter is still available to inflate flexible ducts and reduce inrush current during fan starts.

STANDARD MODE

CONSTANT AIRFLOW RATE

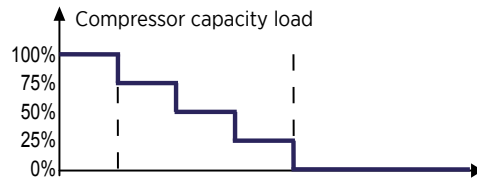
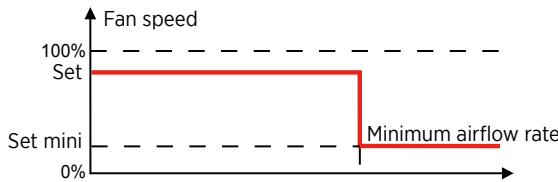
In this case the airflow rate is set to the required value during start up but does not change with the building load or when the unit goes into “dead zone”. In this case On/Off fan control is still available during dead zones.



DEAD ZONE MODE

REDUCED AIRFLOW RATE IN “DEAD ZONE”.

In this case the airflow rate is set to the required value during start up and reduced to a minimum airflow rate set value when the unit goes into “dead zone”. In this case the fan will not stop when the unit operates in dead zone.

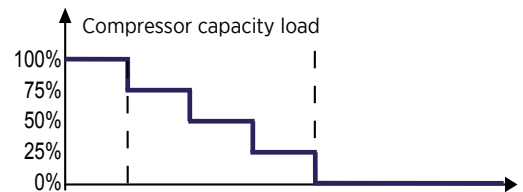
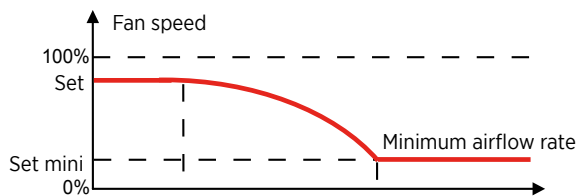


PART LOAD MODE

VARIABLE AIRFLOW RATE DURING PART LOAD AND DEAD ZONE.

In this case the airflow rate is set to the required value during start up and reduced to the minimum set value according to the compressor capacity factor. As the compressors are being stopped the fan will slowly decrease the airflow rate to reach the minimum set value. In this case again the fan will not stop when the unit operates in dead zone.

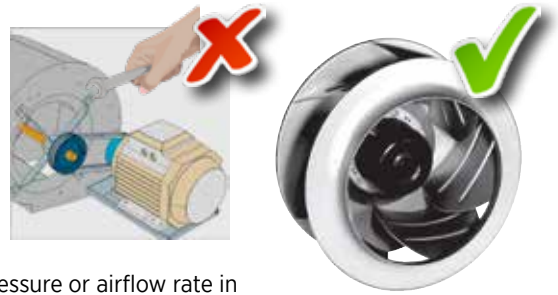
In any case the choice between the different strategies will depend on the application constraints but they will all generate to some extents, energy savings and improved comfort when compared to the basic ventilation systems usually installed in our industry.



eDRIVE - START-UP AND SERVICE MADE EASY

BALTIC rooftop unit helps reduce set-up time and maintenance costs thanks to eDrive, the most reliable and easiest fan system available.

- No more pulleys nor belts to adjust during start up and service
→ **Maintenance free fan.**



- Thanks to eFlow, the airflow rate can be read and adjusted directly on the electronic display without any intervention on the fan. With eFlow, any change in pressure or airflow rate in the system can be diagnosed quickly.

- eCLIMATIC and eFlow can monitor the airflow rate and compensates for the dirty filters, while waiting for the necessary maintenance.



- Constant airflow rate and dirty filters.

On top of all the above control strategies eDrive with eFlow airflow measurement system, gives the possibility to maintain airflow rate as the filters are getting dirty. If enabled, this new standard feature will maintain the airflow rate, normally reduced by the additional pressure drop created by the dirty filters, while waiting for the necessary maintenance.

MANAGING AIRFLOW RATE WITH VARIABLE SPEED AND DIRECT TRANSMISSION IS THE FIRST STEP TOWARD ENERGY SAVINGS AND IMPROVED COMFORT. EDRIVE GUARANTIES LONG LASTING ENERGY SAVINGS AND EASY START UP AND SERVICE.

ADVANCED REFRIGERATION SYSTEM

The refrigeration circuit is responsible for up to 40% of the annual energy consumption of a typical packaged air conditioning unit.

The BALTIC features high efficiency, environmentally friendly refrigeration circuits with multiscroll R410A compressors, electronic expansion valves and optimized heat exchange surface area.



WATER HEAT EXCHANGER

- Mono or dual circuit plate heat exchanger
- Copper brazed Stainless steel plate heat exchanger.
- 13 mm thermal insulation foam.
- Located in a technical cabinet protecting the insulation against climatic conditions (UV light, rain).
- Anti-freeze protection (down to -20°C) with resistance heaters on the plate exchanger.

KIT FOR GROOVE LOCK COUPLING

The chilled water connections of the condensers are Victaulic type.

SAVING ENERGY WITH ADVANCED REFRIGERATION CIRCUIT DESIGN

R410A REFRIGERANT

Efficient systems such as BALTIC are designed around R410A refrigerant to achieve the best performances.

- Energy efficient refrigerant thanks with pressure drop in the pipes: Higher evaporating pressure and lower condensing pressure improve compressor EER & COP.
- R410A compressors have a better isentropic efficiency.
- Environmentally friendly refrigerant:
It contains No Chlorine (ODP =0). Significant refrigerant charge reduction (-40%) that limits the global warming potential of the system. R410A optimized heat exchangers use less material (copper, aluminum ...)



ELECTRONIC EXPANSION VALVE

In order to achieve superior efficiency in all conditions, the BALTIC is fitted as standard with state of the art electronic expansion valves.

- The new electronic expansion valves are directly driven by eCLIMATIC controller and optimize performance in both cooling and heating modes and provide reliable and accurate operation in all conditions all year round.
- The new valve profile is design to ensure smooth and precise control at low capacities for improved part load performances.
- Increased serviceability with replaceable parts.

OPTIMIZED HEAT EXCHANGE SURFACE AREA

To achieve the best performance in all load conditions, the new BALTIC is designed around optimized heat exchangers.

- Optimized heat exchange surface area (geometry and design)
- Larger heat exchangers reduce pressure drop on the air side lowering fan motor consumption.

ADVANCED CONDENSER FAN DESIGN

New outlet fan design with swept blades brings the latest fan technology to improve energy consumption and airflow rate on the outdoor coils while reducing sound power level.



DYNAMIC AND ALTERNATE DEFROST

Defrost is necessary to ensure efficient operation of heat pumps in winter. Typical rooftop starts defrost cycle when the outside temperature is below a set temperature and repeat the defrost cycles periodically. It results sometimes in starting an expensive defrost cycle when it is very cold outside but very dry, or too warm, in other words when the coil is not frozen.

- Dynamic Defrost is Lennox' answers to unnecessary defrost cycles. Dynamic defrost detects icing of the coil by monitoring the difference between refrigerant and outside temperature and starts the defrost cycle only when required. Under certain conditions a rooftop unit equipped with this built in dynamic defrost feature can run several hours in heat pump mode without starting any defrost cycle. Dynamic defrost can save up to 15% on annual energy consumption.
- Alternate defrost saves energy by reducing the need for auxiliary heating during defrost cycles. With Alternate defrost when one circuit starts a defrost cycle the other circuit is running in heat pump at full capacity to minimize the need for auxiliary heating. Alternate defrost is available as standard on all dual circuit BALTIC units starting from size 045.



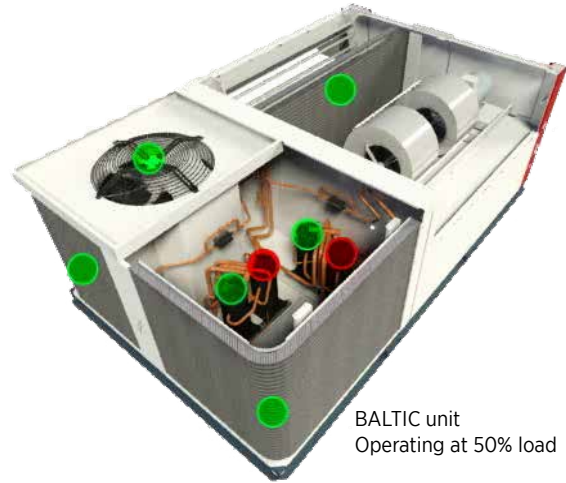
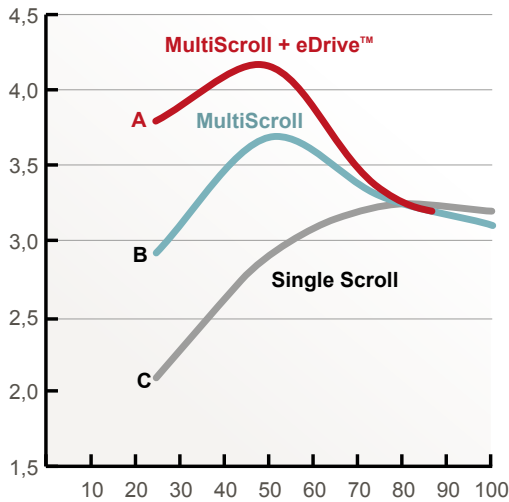
HIGH EFFICIENCY MULTISCROLL TECHNOLOGY

Air conditioning equipments are sized to cover the need for the most critical weather conditions which most likely will occur only a few days or even a few hours during the year. But, in Europe, the external reference temperatures are reached only 4% of the time. The systems consequently usually operate 96% of the time at part load.

It is therefore important to design system around part load performance to achieve the lowest possible annual energy consumption.

MULTISCROLL R410A COMPRESSOR TECHNOLOGY WITH ELECTRONIC EXPANSION VALVES AND OPTIMIZED HEAT EXCHANGE AREA BRINGS THE BEST POSSIBLE ENERGY EFFICIENCY YEAR ROUND.

Evolution of the net EER with varying capacity load



BALTIC unit
Operating at 50% load

- A** Multiscroll + eDrive
- B** Multiscroll
- C** Single scroll

Source: PERSAPAC Study by Cetiat, Eurovent, Armine & EDF
Lennox Europe Laboratory comparative testing on rooftops

eCLIMATIC NEW CONTROL

Our **BALTIC** range includes our New e-climatic control generation. The main features of this control are :

- Plastic cover to protect the circuit board from water entry and humidity and with all the different connection terminals correctly identified.
- Two independent buses, one for display and sensors connection and another one for internal components.
- Possibility of storing all parameterized conditions before an alarm is produced.
- Stronger hardware thanks to the plastic cover which protects the circuit board from water entry and humidity (and at the same time clearly identify all the different connection terminals)
- More reliable hardware thanks to the different communication buses for internal/main devices (compressors, fans, etc.) and for the remote/accessory ones (display, probes), which preserve the regular unit operation even in case of commissioning miswirings
- Enhanced eCLIMATIC regulation thanks to the better embedded processor and to the new Universal I/O chip, which allows to match better contacts, probes and relays to the controller board.
- Internal log memory to record unit operating trends (e.g. temperatures before alarm occurrence).



OPTIMIZED OPERATION AND SETUP SAVES ENERGY

eClimatic is designed to provide the best efficiency throughout unit's lifecycle while ensuring reliable and consistent operation with user-friendly interfaces. This controller monitors more machine parameters than ever to improve energy efficiency and reliability

- 1 Indoor air temperature (humidity and CO2 levels as an option)
- 2 Outdoor air temperature (outdoor humidity as an option)
- 3 Return and supply air temperature
- 4 Filter pressure drop
- 5 Airflow rate with eFlow
- 6 Refrigerant pressures, temperatures & compressor monitoring
- 7 Power energy metering (option)



REFRIGERATION CIRCUIT EFFICIENCY MANAGEMENT

The algorithm of the eCLIMATIC controls the supply air temperature and a temperature difference between supply and return. It is able to optimize the refrigeration circuit operation to match perfectly the required cooling or heating load maximizing efficiency and comfort thanks to multiscroll compressor staging and electronic expansion valves.

It will also improve reliability with features such as compressor operating limits monitoring, (High and Low refrigerant pressure and temperature now measured and displayed on DM and Bus) refrigerant leak detection or compressor operating time equalization and protection against excessive short cycling.

The new BALTIC benefits from an extended operating envelop thanks to its large heat exchangers and the possibility to unload compressors when outdoor temperature is very high (above 48°C) This feature will ensure that some cooling is still provided even with temperatures above 48°C.

DYNAMIC DEFROST:

It is a standard feature of all Lennox heat pumps. It limits the number and the duration of the defrost cycles in winter to maximize COP.

FREE COOLING:

It is one of the most important features of this new rooftop as it maximise seasonal efficiency by reducing the use of thermodynamic cooling in mid season.

INTELLIGENT FRESH AIR MANAGEMENT:

With accurate percentage of fresh air the dampers are regularly calibrated to introduce just the required amount of fresh air in the building to reduce annual energy consumption. The fresh air ratio can also be controlled using the indoor CO2 level as an input.

INTELLIGENT HEATING PRIORITY OPTIMIZATION:

This unique feature on the market, allows the user to program the priority between the different heating elements (thermodynamic, electric pre-heaters or auxiliary heating). This is particularly interesting on dual fuel units or units with electrical pre-heaters. This feature maximizes energy efficiency by optimizing heat pump operation depending on the outdoor temperature.

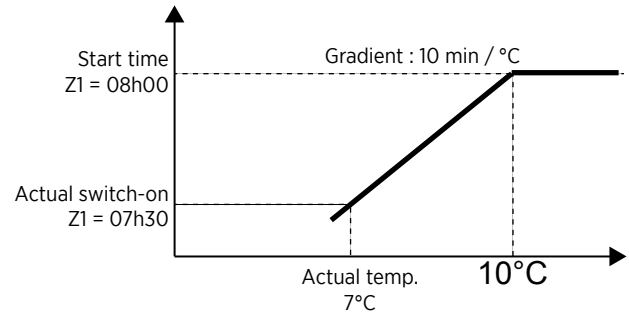
MORNING ANTICIPATION AND DYNAMIC SET POINT

The unit can be programmed to switch-on in the morning to reach the occupied zone temperature set point just in time.

The rooftop will start heating the building at a different time in the morning depending on the outdoor temperature: The lower the outdoor temperature, the earlier the rooftop would start to ensure that the set point is reached by the time the first occupied zone (Z1) is starting. This is to avoid early start when outdoor temperature is mild.

Example for a unit programmed to anticipate morning switch-on if outdoor temperature is below 10°C at a rate of 10 minutes/°C. Dynamic set point can be used in summer to offset the ambient temperature set point according to the outdoor temperature. This is to avoid large temperature difference between indoor and outdoor.

The indoor temperature set point would then increase with the outdoor temperature improving comfort and saving large amount of energy.



STAGGERED START FEATURE

If there is a power shortage, units will not restart at the same time. To make this feature available, units have to be addressed with a different number between 1 and 12. The unit will start a number of minutes after power return depending on its address (Address * 10 seconds).

Example: unit number 3 will start 30 seconds after power is back. This is a very important feature to avoid current peaks during start up.

COMMUNICATION AND UNIT INTERLINK

Master/slave or cascade control is a standard feature of the new BALTIC units. It can be used to connect up to 24 rooftops. The units can then be programmed to optimize efficiency and improve reliability following 6 different strategies:

1: MASTER SLAVE «TOTAL»:

The master gives the ventilation order, its set point and its room temperature/humidity/CO2 to all other rooftops.

2: MASTER SLAVE «TEMPERATURE»:

The master gives the ventilation order and its room temperature/humidity/CO2 to all other rooftops, but they have their own set point.

3: MASTER SLAVE «AVERAGE»:

The master gives the ventilation order and the room temperature/humidity/CO2 used by all rooftop is the average of all rooftop, each rooftop has its own set point.

4: MASTER SLAVE «COOLING/HEATING»:

All rooftop are stand-alone but the slaves have to have the same running mode as the master (Cooling or heating).

5: MASTER SLAVE «BACK-UP»:

One rooftop is the back-up unit and will operate if any of the other rooftops is stopped due to a major problem.

6: ROLLING BACK-UP MODE:

Same as above, except the «back-up» unit will change once a week on Tuesday.

Note that, the outside temperature/humidity/CO2 given to all rooftops can either be the average of all unit connected or the external humidity/temperature of the master, allowing the use of a single «weather station» for the whole site.

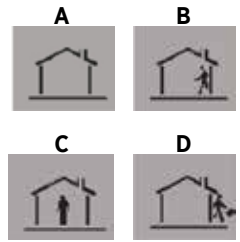
FAULTS AND ALARMS

eCLIMATIC manages more than 90 different faults and alarms codes and can store the last 32 with time and date. The stored faults and alarms can then be displayed on the DS60 and on the communication bus with the full text detail.

SCHEDULING

In order to ensure the unit perfectly matches the requirements of the most difficult applications in terms of occupation and varying internal loads, the new eCLIMATIC offers now up to 7 time zones per day (Z0 to Z6) adjustable by steps of 10 minutes.

Each time zone can be programmed to follow one of four possible operating modes: A,B,C & D



NEW ECLIMATIC COMMISSIONING WIZARD

eCLIMATIC Wizard is Lennox new commissioning assistant to help service engineers configure the rooftop and ensure reliable and long lasting efficient operation.



With the eCLIMATIC Wizard the unit can be connected to a PC through RS485. Each set point and unit parameter can then be accessed and configured through the wizard. Every change of setting on the wizard immediately updates the eCLIMATIC program. Factory settings are always available and the wizard can give dynamic help for each setting in different languages. Site and customer information can also be added to the site information page.

Once the commissioning is done, the configuration can be saved to be copied to another unit or on another site. The commissioning engineer can then create a print out version summarising configuration details such as: unit type, model and serial number, site information, software/hardware version, name of the engineer and full detailed unit configuration.

CONSTRUCTION - TRANSPORT - INSTALLATION AND SERVICE

UNIT CONSTRUCTION

Assembled in compliance with CE requirements, BALTIC units comply with current directives and standards. They are manufactured in ISO 9001, ISO14001 and OHSAS 18001 factories.

Electrical components are selected to the highest standards, refrigeration components are generously sized to ensure maximum performance and reliability.

Quality manufacturing procedures together with a culture of continuous improvement at all LENNOX factories ensure the products are built to the highest standards.

Anticorrosion fixings and anticorrosion coating on the casing: BALTIC is designed to ensure long operational life time.

Its casing is made of corrosion resistant galvanized steel with UV resistant RAL9003 polyester paint.

Further resistance is provided on the BALTIC range through the use of anticorrosion fixings (A2 Anticorrosion) as standard.

TRANSPORT AND HANDLING

To facilitate handling and to minimize risk of damage to the units, from site lifting and positioning, LENNOX has equipped the BALTIC units with «lifting lugs» located in the base frame. All units are also fitted with lifting rails to facilitate handling with a forklift.

Note that ONE of the base rails must be removed before installation on roof curb. The rail located under the condenser coil MUST stay in place.



For transport and handling, the units are wrapped in a retractable plastic protection.



All BALTIC units have a flat top design 1.2 m high to improve architectural integration. This unique feature allows discrete installation on the roof, reducing the need for costly cladding solutions around the units.

Thanks to their low height, all BALTIC units are stackable for transport, doubling the number of units in a truck compared.

PLUG AND PLAY UNIT

All options are factory installed on the unit, which means that they are ready for use, optimizing the time spent on site for the installation. Bottom entry (through the base) for electrical power and Hot Water (if option fitted) lines are available as standard. To make installation easier, BALTIC power supply does not require «neutral» connection. It is powered by 400 V, 3 phases, 50 Hz.



CIRCUIT BREAKERS

To improve safety and extend life time, circuit breakers protect against over-loading, over current and a disconnected supply phase. Maintenance is also improved as there is no requirement to change fuses. The electrical panel is manufactured in accordance with European electrical directive.

NUMBERED WIRES

All wires and connectors are numbered as shown on the electrical drawing to facilitate maintenance and diagnostic

AIRFLOW CONFIGURATION AND ECONOMIZER

All BALTIC units are supplied with economizer and fresh air hood as a standard feature to improve comfort through better fresh air management and allow energy savings with free cooling.

Unless specified otherwise when ordered, BALTIC rooftops are shipped with downflow configuration and with 100 Pa external static pressure and nominal airflow. However, the airflow and pressure characteristics can be set up at the factory to your particular project requirements that will help reducing time spent on site.



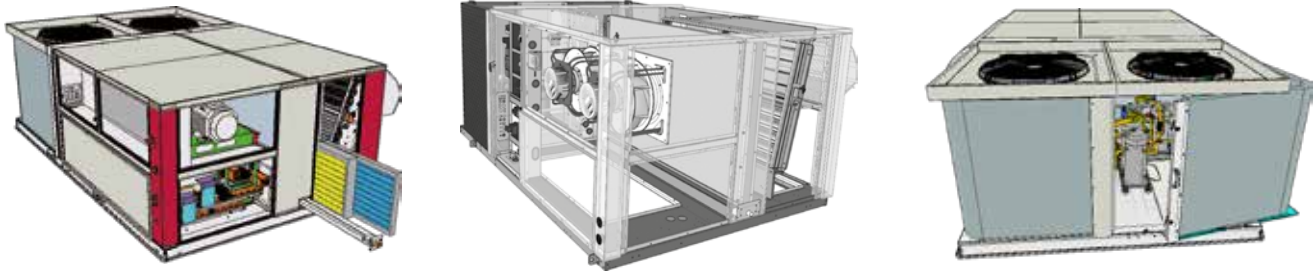
VARIABLE SPEED DRIVE AND AIRFLOW ADJUSTMENT

For cases where the actual external static pressure or airflow on a particular project is different from what is specified on an order, LENNOX has enhanced the BALTIC rooftop by providing variable speed drive and airflow rate measurement capability as standard. The installer can easily and quickly measure and adjust the airflow within a 20% window without moving the mounted fan motors. The variable speed fan with direct transmission provides flexibility and peace of mind for commissioning.

EASY ACCESS TO ALL COMPONENTS

External panels are easily removed providing clear access to all components.

On the size 045 and above, the compressor's compartment is accessible through the LENNOX «Hinged Access coil». This very unique feature gives a very good access to the compressors while keeping the machine compactness.



REFRIGERANT PRESSURE READINGS

No need to access to refrigerant pressure gauges. With the New BALTIC, refrigerant pressures and superheat on each circuit can be read directly on the service display DS or a BMS as all units are equipped with high and low pressure sensors and refrigerant suction temperature probes.



INDOOR AIR QUALITY

A1 EUROCLASS FIREPROOF INSULATION

Because, for LENNOX, health and safety issues cannot be compromised, all rooftops feature A1 Euroclass (M0 NF) fire proof insulation. This Rockwool insulation is mechanically fitted to the unit improving the safety of the rooftop against fire (the insulation section will not burn and smoke will not be generated in case of fire). As standard, most of the doors and panels around the air treatment section of the new BALTIC already include double skin.

EDRIVE VENTILATION SYSTEM

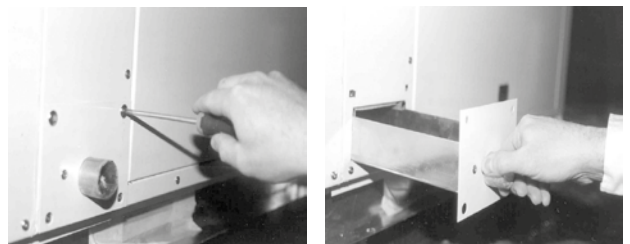
eDrive features a direct transmission assembly between the fan and motor ensuring that no belt particles can be carried away into the building. This ventilation system is compliant with EN13779 air quality norm.

ANALOGUE DIRTY FILTER INDICATION

It is provided as standard by a differential pressure sensor that measures the pressure drop across the evaporator coil and filters. If this pressure drop is above 50 Pa, the rooftop is considered to be operating. The exact pressure drop can be seen through the Intelligent eCLIMATIC service display or BMS. This feature further improves safety and reliability of the BALTIC rooftops. It prevents overheating of any device if the fan belt is broken. The set point between «dirty» and «clean» can be adjusted by the installer/users (default value is approximately 250 Pa).

REMOVABLE DRAIN PAN

All BALTIC units are equipped with a sloped removable drain pan and a drain trap supplied loose as a kit to be assembled on site. The drain pan can slide out of the insulated base of the unit to be cleaned, preventing growth of bacteria and algae in the drain pan.



FILTERS

EU3 standard filters ensure easy service and maintenance. On start-up we recommend that you change these basic filters for ones with replaceable media and metal frame (G4/F7-ePM1).

Note that filters fire classification compliance with local regulation must be checked.

REFRIGERATION OPTIONS

LOW NOISE OPTION

This option consists in replacing the standard AC condenser fans by high efficiency EC (Electronically Commutated) axial fans. The noise reduction is achieved by managing the fan rotation speed depending on outdoor temperature, building load and time zone. They are managed using the Active Acoustic Attenuation algorithm.

The low noise option also includes a compressor jacket;

ALL SEASONS OPERATION KIT / NOISE REDUCTION SOLUTION

Variable speed EC (Electronically commutated) axial fans on condenser that regulate the speed depending outdoor temperature, building load and time zone .

This option is mandatory for cooling mode operation below 15°C outdoor temperature.

AUTOMATIC REFRIGERANT LEAK DETECTION

With this option the unit will be equipped with refrigerant high and low pressure sensor and suction / liquid temperature probes. The eCLIMATIC will then monitor the sub cooling and the superheat on each circuit to detect any refrigerant leak.

LENGUARD ANTI-CORROSION COIL TREATMENT

LenGuard water-based anti-corrosion protection non toxic for coils. Pass 10 000 hours salt spray test (ASTM B117).

Available for condenser, evaporator, thermodynamic heat recovery coil, water coil.

FRESH AIR OPTIONS

As managing fresh air is becoming mandatory in most buildings economiser is now fitted as standard with the New BALTIC

ADVANCED CONTROL PACK

Where a higher level of controllability is required to make the

BALTIC even more flexible, LENNOX have compiled a pack that includes two advanced control features.

- **"Enthalpy control on economiser"**.

The eCLIMATIC and its humidity sensors (return air and fresh air) ensures that the economiser does not use 100% fresh air if the outside air has a higher enthalpy than the return air. This feature is relevant in regions where the relative humidity is high or when the desired room air condition is very dry.

- **"Humidity control"**

The eCLIMATIC and its humidity sensors, analyze dry and wet bulb temperatures to control dehumidification. Humidity control is only available if ambient temperature is in cooling or dead zone. The dehumidification algorithm can dry the air by passing it through the coil in cooling mode.

A specific function in the program can be activated to control the minimum supply air temperature, by maintaining it equal to the heating set point, using auxiliary heaters (Electric, Hot water coil or gas burner).

A proportional 0-10V contact is also available to control an external humidifier.

INDOOR AIR QUALITY SENSOR

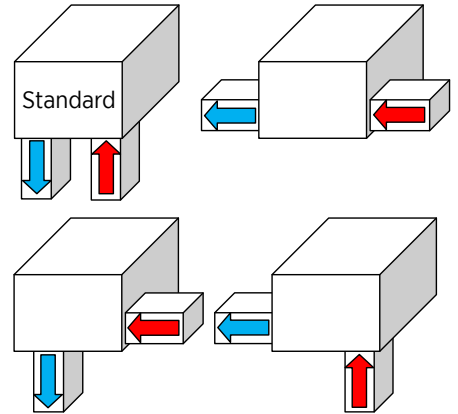
Indoor air quality is controlled from the eCLIMATIC main controller. A VOC (Volatile Organic Component) sensor detects the amount of CO₂ in the ambient air between 0 and 2000PPM. (This obviously varies depending upon space occupancy levels). The VOC sensor sends a proportional signal (0-20 mA) to the eCLIMATIC controller which will then modulate the fresh air.

AIRFLOW CONFIGURATIONS AND ROOFCURBS

BASIC AIRFLOW CONFIGURATIONS

Unless specified otherwise when ordered, BALTIC rooftops are shipped with downflow supply and return configuration. Units can be configured before shipment with the required airflow configurations to suit the building needs.

Note that with the new BALTIC it is still possible to change the airflow configuration once the unit is assembled.



DRIVE KITS UP TO 800PA

As all installations are different, it is useful to have the ability to adapt to different airflow and pressure conditions and this can be achieved through the selection of various choices of motors and drives that can provide up to 800Pa at nominal airflow rate.

BALTIC features the new eDrive direct transmission variable speed drive. Each kit is then made of a motor a fan and the corresponding coupling. There are only five drive kits to cover the full airflow and pressure range for each unit. This means that commissioning on site can be done easily and quickly, minimizing installation costs.

AIR SOCK CONTROL

It is a standard feature of the new BALTIC and it allows the air socks to be progressively filled with air on start up. It takes 1 minute to go from 0% of air to nominal air flow.

Note that in order to minimize energy consumption and reliability, it is highly recommended not to oversize the drive kits of the Rooftop during the selection.



NON ADJUSTABLE NON ASSEMBLED ROOFCURB.

A sturdy mounting frame designed for single package units providing an automatic weatherproof sealed rooftop installation.

THIS ROOFCURB IS SHIPPED KNOCKED DOWN AND MUST BE ASSEMBLED ON SITE.

ADJUSTABLE ROOFCURB.

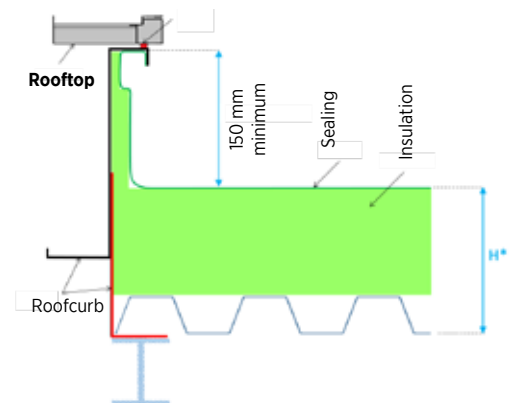
The adjustable roofcurb are made of galvanized steel with 2.5mm thick mounting flanges. This adjustable roofcurb is designed to be installed on roofs with slopes up to 4 to 5% in all directions enabling the BALTIC to be compatible with most roof profiles.

Downflow roof curbs are the easiest and cheapest way to install packaged air-conditioning systems to a single volume building. The frame can be secured directly to the roof structure thanks to its built-in adjustable flanges and sealing liner returns.

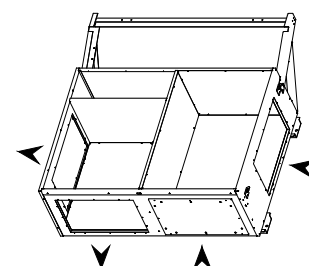
MULTIDIRECTIONAL ROOFCURB

This option is a required when customer wants to have horizontal return and horizontal supply on the same side.

It is also required with the power exhaust fan or gravity exhaust damper options combined with horizontal return flow configuration.



Check that the roofcurb height is enough to respect a sealing height of 150mm minimum (french dtu 43.3) Considering the building specifications : geometry of the roof, material and thickness of the insulations and other protection layers, slope of the roof...).



EXHAUST AIR

UNIT WITH NO EXHAUST AIR OPTION

1 → 2: ESP (external static pressure) given in eLencal correspond to the static pressure between inlet and outlet of the unit and includes all options and accessories delivered with the unit with the exception of the ductwork. This external static pressure will be used to push the air through the supply and the return ductwork installed on site.

$$\text{ESP} = \text{SUPPLY DUCT PRESSURE DROP} + \text{RETURN DUCT PRESSURE DROP}$$

EXAMPLE :

With an eLencal ESP = 350 Pa and a return ductwork pressure drop of 150 Pa → Remaining available static pressure for the supply ductwork = 200Pa

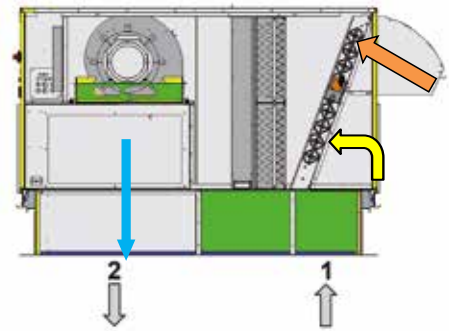
In any case, on a basic unit, the return ductwork pressure drop should be lower than 150 Pa.

The airflow is usually set during start up for a given fresh air rate. During normal operation the fresh air ratio will change and eventually the unit will go to full fresh air during free cooling operation. If the pressure drop in the return ductwork is high, the fan may trip on over current protection when it operates with full fresh air where the pressure drop is much lower.

If the return ductwork pressure drop is higher than 150 Pa :

- Select an extraction roofcurb which will include an extraction fan and the appropriate drive kit for the given airflow and pressure drop.
- BALTIC with eDrive includes constant airflow operation that can control and limit the airflow as the pressure drop reduces.

Building air tightness	Low air tightness
Fresh air & Free cooling	Medium fresh air rate Free cooling possible
Pressure drop in the return ductwork	Medium < 150 Pa
Building pressure control	NO control
Typical applications	Existing hypermarkets and supermarkets (old buildings with high leakage rates)

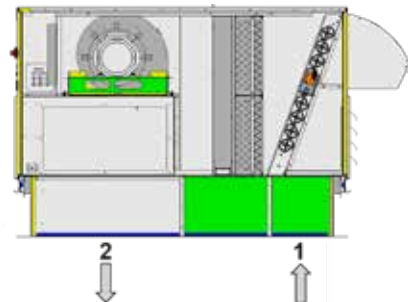


GRAVITY EXHAUST DAMPER

1 → 2: External static pressure “Supply”

Gravity exhaust dampers are used to relief pressure when outside air is being introduced in a building with good air tightness.

Building air tightness	Medium
Fresh air & Free cooling	High fresh air rate Free cooling
Pressure drop in the return ductwork	Low < 50 Pa
Building pressure control	Low control
Typical applications	Warehouses



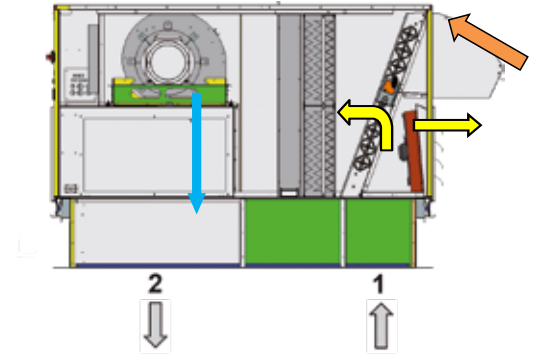
POWER EXHAUST FAN

1 → 2: External static pressure “Supply”.

Power exhaust axial fans with gravity exhaust dampers provide exhaust air pressure relief when high levels of outside air are being introduced in the building with good air tightness.

It is interlocked to run when return air dampers are being closed and supply air blower is in operation. The power exhaust fan runs when outdoor air dampers are at least 50% open (adjustable by set point). It is also overload protected. A gravity exhaust damper is supplied with this option to prevent air from entering the unit when fan is off.

Building air tightness	Medium
Fresh air & Free cooling	High fresh air rate Free cooling
Pressure drop in the return ductwork	Medium 50 Pa to 150 Pa
Building pressure control	Low control
Typical applications	Light commercial, petrol stations...



EXTRACTION ROOFCURB

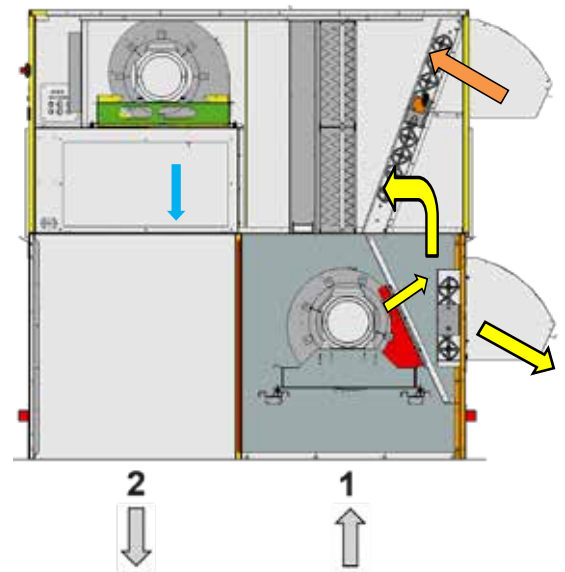
1 → 3: External static pressure “Return”

3 → 2: External static pressure “Supply”

Where system balancing is critical and return ductwork pressure drop is high, it is recommended to use extraction fan such as the one located in the extraction roofcurb.

A centrifugal fan installed with a 3rd damper (1 inside the Roofcurb + 2 inside the rooftop), is able to extract up to 300Pa with the nominal air flow of the unit. This roof curb can be used in either horizontal or downflow applications.

Building air tightness	High
Fresh air & Free cooling	High fresh air rate Free cooling
Pressure drop in the return ductwork	High > 150 Pa
Building pressure control	Pressure balance possible
Typical applications	Theatres, cinemas, data centres, new air tight buildings with long return ductworks



INDOOR AIR QUALITY

BUILDING AIR QUALITY

According to the EN 13779 the filtration level should be in accordance with the application and the environment.

The outdoor air is categorized in 3 levels, from ODA 1 where the air is pure except for temporary pollution such as pollen, up to ODA 3 with high concentrations of both gases and particles.

The indoor air is also categorized in 4 levels (IDA1 is not applicable for rooftop ranges).

For rooftop applications :

- IDA2: Offices, University, Retirement houses, Hotel lobbies, Museums, Pools
- IDA3: Commercial buildings, cinemas, Theatres, Restaurants, Bars, Sport halls...
- IDA4: Low Air Quality such as Industrial Buildings

		Indoor air quality		
		IDA2	IDA3	IDA4
		Medium	Moderate	Low
		CO ₂ (ppm)		
		400-600	600-1000	> 1000
		Rate of outdoor air (m ³ /h/person) Non-smoking area		
		36-54	22-36	< 22
Outdoor air quality	ODA1	F8	F7	M5
	ODA2	M6/F8	M5/F7	M5/M6
	ODA3	F7/GF*/F9	M5/F7	M5/M6

* GF = Gas filter

FILTERS EFFICIENCY CORRESPONDANCE

Standards correspondance EN779:2012/ISO1689

		ISO16890		
Class		ePM1	ePM2,5	ePM10
EN779:2012	M5	< 20%	< 40%	> 50%
	M6	< 40%	50-60%	> 60%
	F7	50-75%	> 70%	> 80%
	F8	70-85%	> 80%	> 90%
	F9	> 85%	> 90%	> 95%

- Not compliant to minimum 50% efficiency
- Compliant to minimum 50% efficiency
- Exceed the minimum efficiency

BALTIC OPTIONS:

- G4 with 50 mm depth metallic frame
- G4 with 50 mm depth metallic frame with replaceable media
- F7-ePM1 with 100 mm depth.

With the new 100 mm F7 filter, the pressure drop is reduced by up to 50% compared to the previous 50 mm version. Lower pressure drop gives more available pressure for the customer and lower fan running costs. It also takes 4 times longer to get plugged with dirt reducing maintenance costs.



F7-ePM1 filter

DOUBLE SKIN

Where insulation protection against damages or when surface cleaning is required, double skin on insulated panels should be considered. As standard the BALTIC is fitted with double skin doors and corner posts. The double skin option provides double skin panelling on all insulated surfaces including the roof. This will protect the insulation material, allow cleaning and prevent any insulation particles to be carried away by the passing air stream.

ENERGY RECOVERY

ERECOVERY : HEAT RECOVERY FROM FOOD REFRIGERATION SYSTEMS

eRecovery is the most advanced heat transfer and recovery solution to recover free heat produced by food refrigeration systems.

50% of supermarket total annual energy consumption is used to cool chilled and frozen food in display cases and cold rooms. Most supermarket applications with food refrigeration systems reject thermal energy to the ambient environment through air cooled condensers.

- With eRecovery, free thermal energy is transferred to the sales area through a hot water coil located in the rooftop before the thermodynamic heating coil.
- eRecovery provides more than just preheating, as it is designed to cover up to 100% of the heating needs.
- It is also the most flexible heat recovery solution on the market as when heating demand is high, BALTIC can always supply additional thermodynamic and auxiliary heating.

FREEZE PROTECTION ON ERECOVERY COIL

From 8°C supply air temperature:

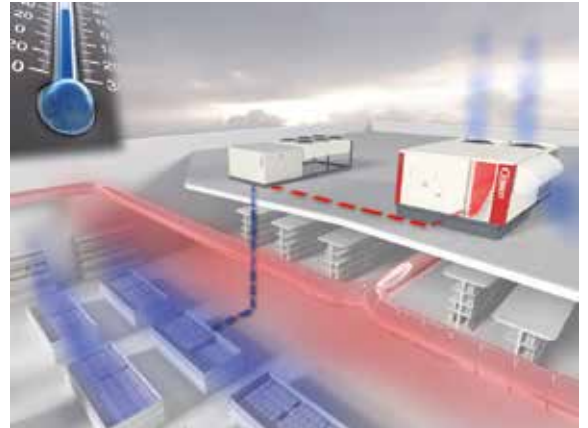
- The fresh air damper is closed ► 100% return air
- The 3 way valve is forced to open fully.

From 6°C supply air temperature:

- Unit is stopped completely: no ventilation and no cooling and 3 way valve is still open.
- The Low Supply Air Temperature alarm is “ON”

In addition to that, the 3 ways is also opened at 10% (adjustable) if the outdoor air temperature falls below a pre set value.

As this heat recovery hot water coil is located just after the fresh air intake it is highly recommended to use glycoled water in the circuit to prevent risks of freezing.



ENERGY RECOVERY ON EXHAUST AIR

Built around a EUROVENT certified plate heat exchanger equipped with bypass damper, the heat recovery module is fully controlled by the eCLIMATIC.

It has been designed to handle free-cooling (when heat recovery shouldn't apply) and the exchanger is protected against freezing of the exhaust air.

This module is fitted as a standard with G4 filters on the fresh air section. This will protect the exchanger against outdoor dust and increase the global filtration capacity of the machine.

AUXILIARY HEATING OPTIONS

ELECTRIC HEATER

The auxiliary electric heater is made of shielded resistance heaters, which are smooth 6 W/cm² resistances. The heater is protected against high temperature with a thermal overload protection set at 90°C 150mm after the heating elements. For any rooftop unit size, two sizes of electric heater are available as option, S (standard) and H (high).

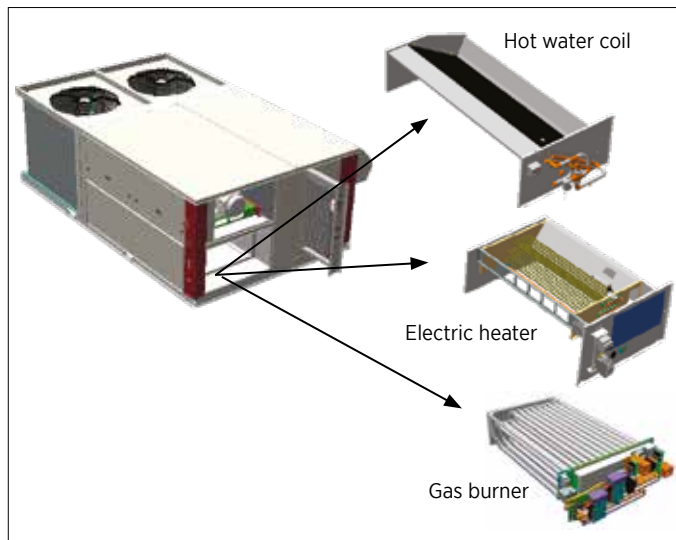
C Box: from 024 to 042

- Standard heat 18 kW 2 Stages
- High heat 36 kW modulating (Triac)

D & E Box: from 045 to 085

- Standard heat 27 kW 2 Stages
- High heat 54 kW modulating (Triac)

CAPACITY OF THE HIGH HEAT HEATER CAN BE LIMITED ELECTRONICALLY TO AN EXACT VALUE THROUGH THE ECLIMATIC. TO REDUCE INSTALLATION TIME INSURE RELIABILITY, ELECTRIC HEATERS ARE ALWAYS FACTORY FITTED, FULLY WIRED AND TESTED, PRIOR TO SHIPMENT.



ELECTRIC PRE-HEATER

The electric pre-heater is located before the main thermodynamic coil.

This option is designed to authorize heat pump operation with low mixed air temperature.(low outdoor temperature with units running with a high fresh air rate in winter)

C Box: from 024 to 042

- Standard heat 18kW modulating
- High heat 36kW modulating

D Box: from 045 to 065

- Standard heat 24kW modulating
- High heat 48kW modulating

E Box: from 075 to 085

- Standard heat 36kW modulating
- High heat 72kW modulating

HOT WATER COIL

Hot water coils provide auxiliary heating with a coil located after the thermodynamic coil and offer full modulation heating control through the use of a 3 way valve. The hot water coil, connections and valves are all pressure tested at 15 bars.

FREEZE PROTECTION ON HOT WATER COIL

From 8°C supply air temperature:

- The fresh air damper is closed ► 100% return air
- The 3 way valve is forced to open fully.

FROM 6°C SUPPLY AIR TEMPERATURE

- Unit is stopped completely: no ventilation and no cooling and 3 way valve is still open.
- The low supply air temperature alarm is “ON”

In any case the 3 way valve will be forced to open fully if the freeze protection thermostat located on the surface of the hot water coil reached the low temperature limit.(around 2°C adjustable mechanically)

In addition to that, the 3 ways is can be forced to open by 10% (adjustable) if the outdoor air temperature falls below a pre set value.

Hot water coils are always factory fitted, wired and fully tested, prior to shipment.

ATMOSPHERIC GAS BURNER

All BALTIC units could be fitted with a gas burner. It is a safe and reliable atmospheric gas burner made of aluminized steel tube heat exchanger designed to offer maximum heat transfer and 93% efficiency (PCI%).

It runs with natural gas 20 mbar and an operating range of 13-26 mbar.

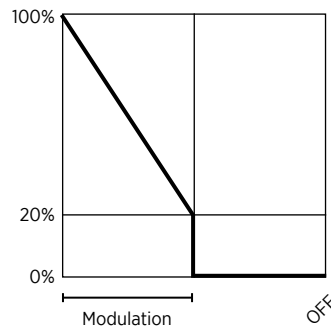
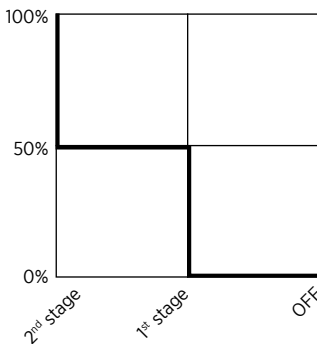
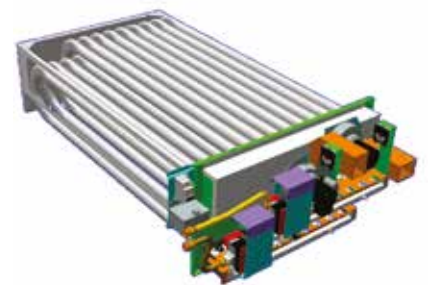
The standard gas module offers 2 stages of control which helps in improving space comfort by avoiding large supply air temperature deviations. Where more capacity control is required a modulating version is available with high heat burner models. With the modulating gas burner the air flow rate in the burner is controlled as the gas flow is being reduced maintaining the burner to its highest efficiency level.

If required, an expansion device can be provided with the unit allowing it to operate with gas pressures of up to 300 mbar.

A «propane gas» option at 37 mbar is also available.

Gas fired rooftop cannot be installed inside a technical room.

Hot water coils provide auxiliary heating with a coil located after the thermodynamic coil and offer full modulation heating control through the use of a 3 way valve. The hot water coil, connections and valves are all pressure tested at 15 bars.



CONDENSING GAS BURNER

This condensing gas burner is developed to reach condensing behavior, allowing both very high efficiency and high modulating ratios. Efficiency level reaches 108%. This gas burner has been designed to guarantee a level of NOx emissions < 30 ppm, no CO emissions. This gas burner uses Venturi air/gas valve as an additional safety. When there isn't air suction in the combustion chamber, there will be not gas intake on the chamber. This gas burner includes a pre-installed gas pilot that allows safety start-up cycles independently from different gas supply conditions that may vary from country to country and also from one period to another. It is possible to regulate the OFF-SET ratio in order to optimize combustion, although already fixed in factory assembly.

The system is completely pre-regulated and tested in the production line with high efficiency valves, safety devices and emission values certified on each single case. Finally, this range of burners comply with LOT 21 as well as all Eco design EU requirements, starting 2018 & 2021.

ELECTRICAL OPTIONS

FIRE-STAT

It is a thermostat that provides a signal to switch off the unit, close the fresh air damper and open the return damper when the temperature in the return air stream is above an adjustable set point (Factory setting: 70°C).

SMOKE DETECTOR

Located downstream of the filter, the optical head of the smoke detector can detect any type of smoke. When this occurs the unit will stop operating, the return air damper will be fully closed and the fresh air damper will fully open while sending an alarm signal to the unit.

In accordance with the European norm, it is also compliant with the French regulation on public buildings.



ENERGY METER

- The energy meter is now available on new BALTIC. It measures and displays the following parameters:
- Average, total and maximum current, voltage and frequency for each phase.
- Active & reactive power
- Power factor (Cosφ)
- Total active & reactive energy consumption in Wh

Values for energy, current and absorbed power can be reset with password.

Some of these data will be collected by eCLIMATIC and made available in the BMS tables for ModBus, BACnet and Trend protocols.

- Active & reactive power measurements (steps of 100W & kvar)
- Power factor (Cosφ)
- Active and reactive energy measurement (kWh & kvarh)
- Possibility to initialize the energy meter through password

3-PHASE RELAY FOR ELECTRICAL PROTECTION OF THE UNIT

Multifunction phase control relay that we ask you to use each time the local electrical power supply is not safe, or in case of use of backup generator.

This option will secure mainly direction of rotation compressor of the Rooftop unit.

Main characteristics :

- Modular measurement and control relays
- Monitored parameters :
 - Asymmetry
 - Phase failure detection
 - Phase sequence
 - Undervoltage and overvoltage
 - Adjustable time delay

CONTROL BY VARIABLE AIR FLOW AND CONSTANT PRESSURE

Pressure transducer for constant pressure on the supply duct with the help of variable speed EC Fan-motor, allow the Control of variable air volume on the diffusion system.

MULTI AMBIENT TEMPERATURE SENSOR

This option includes : 1 temperature duct sensor + 3 ambient temperature sensors + external drive contact on controller. Each of those temperature sensors are connected to separate input on controller for proper average zone temperature management. Non communicating temperature sensors, delivered loose

CONTROL OPTIONS

DC : REMOTE COMFORT DISPLAY

This is a remote controller for non-technical customer. It is designed to fit aesthetically inside a room and be very easy to use. It has a 24V supply to be connected to the rooftop and can be installed at maximum 150 meters away from the unit.

The graphical display gives information such as running mode of the unit, status of the fan, set point, % of fresh air, outside air temperature. It is a “multi-rooftop” display that can be connected to a maximum of 8 rooftops.

Customer can set for each unit the temperature set point for a given time zone, switch the unit “On” or “Off” and adjust the clock. DC can display fault codes with a reset possibility, ambient, supply and outdoor temperature, fresh air damper position (%), time zone and operating mode pictogram, heating or cooling status.

It is also able to display supply fan airflow rate (0-33-66-100%) and component status for compressors, defrost, condenser fans and auxiliary heaters.



DS : REMOTE SERVICE DISPLAY

This new plug and play service display and controller allows service personal to set up to read and modify all unit parameters (Unit settings, operating time and number of compressor starts, low and high pressure reading, airflow rate of supply fan, and read the history of last 32 faults...).

This controller has been designed to be very user friendly, with 6 different keys and graphic display. It includes scrolling menus and full text (no codes) explanation. It is available in English or another alternate language.



DM : REMOTE MULTI-UNITS DISPLAY

The DM remote display can manage up to 8 rooftops on a single Bus. On a multi-rooftop site, it makes the installation less expensive, not only because of DM price, but also because only one bus-wire has to be connected down to the DM.

In addition to the functions offered by the DC display, the DM display provides the percentage of power factor for compressors and auxiliary heater. Moreover DM display allows to set time zones and to modify working modes for the given time zone. These information are available for each of the units connected to the Bus. It can be installed up to 1000 meters from the unit.

DRY CONTACT BOARD

This board has been developed for any customer who wants to take over the control of the unit using Digital or analogue input signal. With this dry contact board option the customer can set:

- 4 digital inputs (On/Off, clear faults, various component unloading, heating priority modifications, thermostat orders...)
- 4 digital Outputs (alarms reporting, components status, scheduling time zone and operating mode status, cooling, heating, defrost and auxiliary heating status...)
- Up to 4 analogue inputs (external temperature humidity probes, fresh air input signal, force fan speed and temperature setpoint offset).
- 1 analogue output (Humidifier)

Note that eCLIMATIC controller always stays in charge of all safety algorithms, defrost operation and free cooling. This option is required to control the rooftop unit with a “universal thermostat”

COMMUNICATION INTERFACES AND SUPERVISION

The CLIMATIC ModBus interface is required to connect the unit to a BMS using «ModBus protocol». No other hardware than this board is required to have ModBus communication. One board required per rooftop. The ModBus interface is available in two versions to be connected with RS485 or TCP/IP depending on site requirements.

This board is also mandatory for any connection between one or several BALTIC units and e-savvy supervision solutions. One BMS interface required per rooftop.

BACNET® INTERFACE

The CLIMATIC BACnet® interface is required to connect the unit to a BMS using BACnet® protocol. No other hardware than this board is required to have BACnet® communication. One board required per rooftop. The BACnet® interface is available in two versions to be connected with RS485 or TCP/IP depending on site requirements.



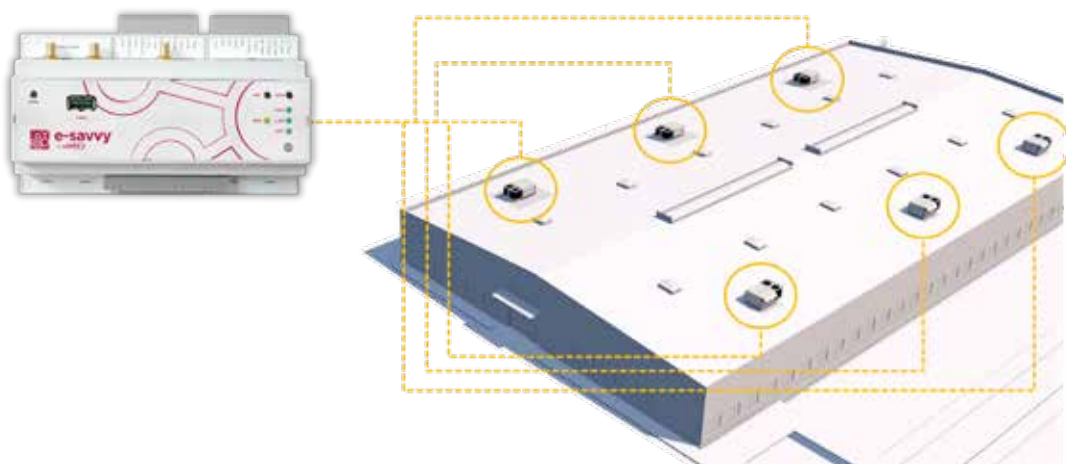
E-SAVVY

General Description

e-savvy is an innovative solution from Lennox for the monitoring and management of HVAC systems. Thanks to its intuitive man machine interface, **e-savvy** allows you to monitor in real time the status of all the devices. The interactive system allows the modification of several parameters such as settings and schedules of each area and to follow the trends. **e-savvy** is a connected system able to send alerts in real time to it's users. **e-savvy** is a simple, intuitive and user friendly tool allowing the zoning and the creation of several schedules in order to closely follow the needs of its end users.

Customer benefits

- Compatible with Climatic 60 and eClimatic from Lennox
- Electrical load shedding function (stop, 50% and 100% capacity)
- Very easy to install, it is compatible with several devices such as tablets and PC computers
- Alarm function by mail



LENNOX CLOUD

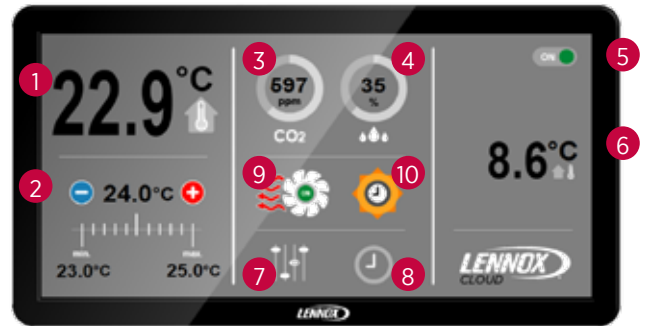
Lennox cloud is the best tool to remotely monitor and manage all your rooftop and chiller units, independent of their location and condition. It allows you to monitor and control all units on the same place, from any web browser. Remotely adjust set points from any installation site through a friendly and self-explanatory layout. Lennox Cloud grants you access to alarm history and dashboards with real-time system performance and energy consumption¹ from the entire installation site or from individual units.



WEBVIEW

Remote adjust of system setpoints:

1. Room temperature;
2. Room temperature set points;
3. Indoor CO2 levels²;
4. Indoor humidity levels³;
5. System ON or OFF button;
6. External temperature;
7. Adjust settings;
8. Adjust time schedule;
9. Fan status;
10. Time schedule status;



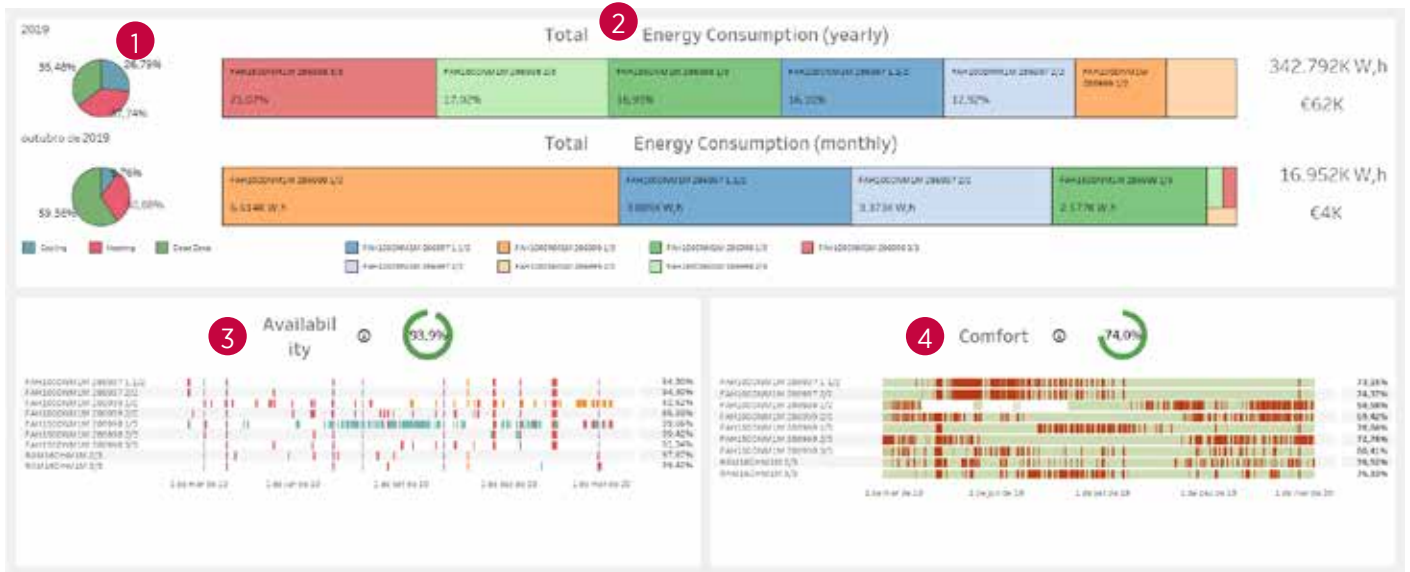
 Dead Zone operation (Fan ON)	 Heating operation (Fan ON)	 Cooling operation (Fan ON)	 System stop (Fan OFF)
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 BMS mode (building management system)	 Day 2 mode	 Day 1 mode	 Daytime operation	 Night operation
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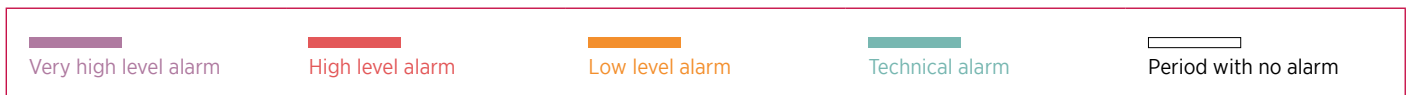
1. Require Electric Energy Meter - optional feature
 2. Require Air Quality Sensor (CO2) - optional feature
 3. Require Humidity Control Pack - optional feature

SITE DASHBOARD

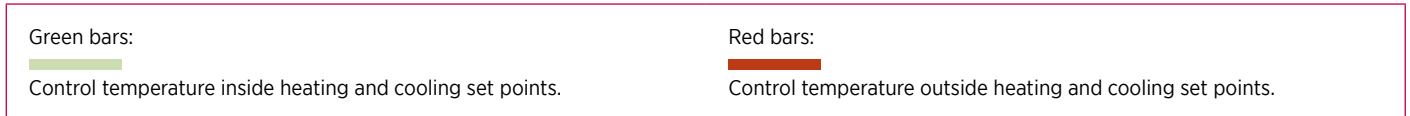
Provides real-time analysis of all units on the installation site.



1. Evaluate cooling, heating and dead zone periods (yearly or monthly);
2. Measure energy consumption¹ of all units on the site (yearly or monthly);
Identify which unit is consuming the most or highlight individual units by selecting them.
3. Identify the unit availability in the designated period by colored bars:



4. Identify average Comfort condition for the selected period:



ANNUAL ENERGY CONSUMPTION COMPARISON
Energy “slices” should keep very similar along the months, if not a check should be done.

TOTAL COST OF OWNERSHIP
Evaluate savings on each maintenance procedure by using real time collected data.

MAINTENANCE & SERVICE TRACKING
Rate the quality of the provided maintenance by checking Alarm frequency and Comfort ratio.

REMOTE MONITORING
Ease identification of proper unit performance by comparing energy consumption.

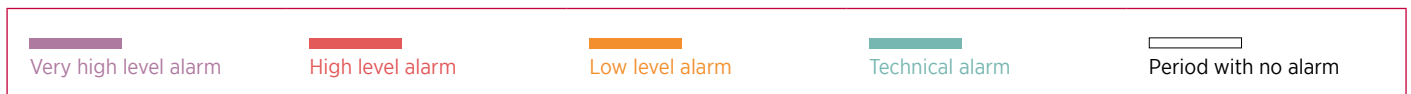
1. Require Electric Energy Meter - optional feature

UNIT DASHBOARD


Provides individual real-time analysis of each unit from the installation site.



1. Evaluate temperature evolution within selected period:
Indoor temperature, outdoor temperature, heating set point and cooling set point.
2. Evaluate Relative Humidity¹ within the selected period:
Indoor humidity, outdoor humidity and dehumidification set point.
3. Evaluate CO2 levels² inside the building and configure Set Point for Fresh Air management on the supply air stream;
4. Identify alarms detail and duration for the specified period:




5. Measure monthly energy consumption³ and the accumulated for the designated period.




REMOTE ADJUSTMENTS
Detect set points changes over time and adjust them remotely.



GUARANTEED COMFORT
Ensure comfort condition at any season with automatic management of humidity¹ and CO2 levels².



MAINTENANCE & SERVICE TRACKING
Rate the quality of the provided maintenance by checking the indoor temperature oscillation.



MAXIMUM PERFORMANCE
Comparing the energy consumption with the outdoor temperature oscillation to evaluate system performance.

1. Require Humidity Control Pack - optional feature
 2. Require Air Quality Sensor (CO2) - optional feature
 3. Require Electric Energy Meter - optional feature

OPTIONAL FEATURES COMBINED WITH LENNOX CLOUD

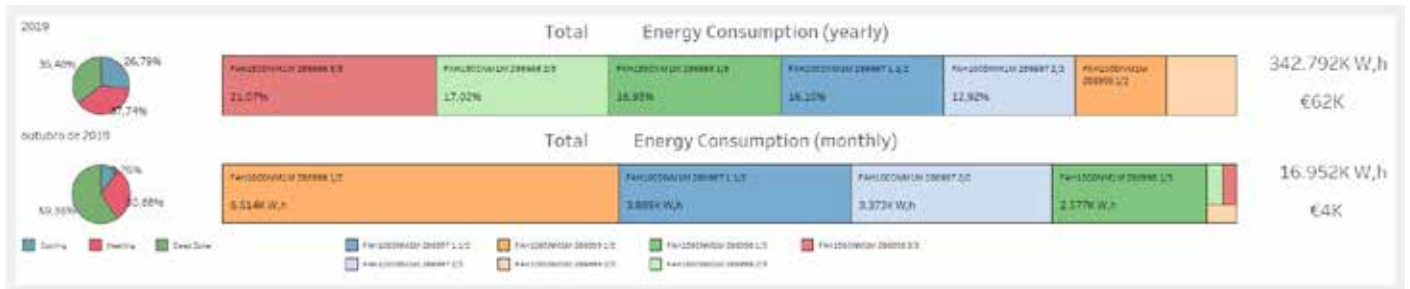
ELECTRIC ENERGY METER

When combined with the Lennox Cloud, it allows the estimation of electrical expenses (based on an average energy cost defined by the user), and the energy consumption of each or all units available on an installation site.

All collected data can be remotely managed on the Lennox Cloud Dashboard visualization:

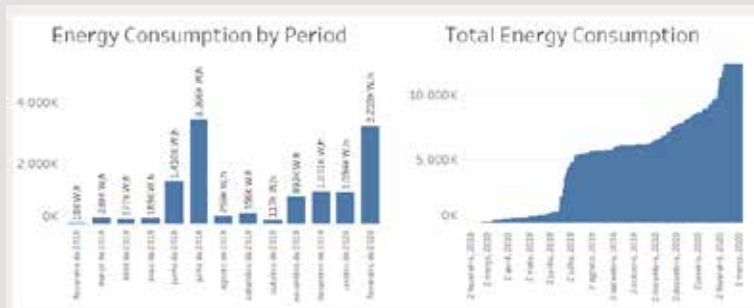
SITE DASHBOARD

- Compare energy consumption of all units (monthly and yearly);
- Measure energy consumption on each operation type (heating, cooling or dead zone).



UNIT DASHBOARD

- Estimate monthly energy cost;
- Estimate accumulated energy cost for the specified period




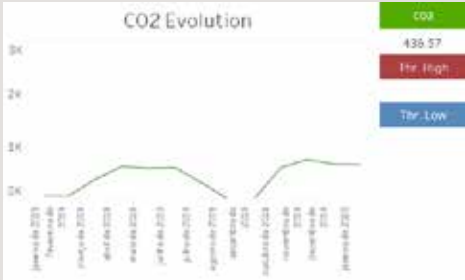
EVALUATE UNIT PERFORMANCE


Analyze monthly energy consumption of each unit and compare it to outside temperature oscillations along the year.

AIR QUALITY SENSOR (CO2)

When combined with the Lennox Cloud, it displays real-time measurement of the indoor CO2 levels and automatically controls the fresh air rate on the supply air stream.

All collected data can be remotely managed on the Lennox Cloud Webview and Dashboard:

<p>WEBVIEW</p> <ul style="list-style-type: none"> Displays the real-time CO2 level on the indoor air and adjusts the fresh air dampers to improve air quality. 	<p>UNIT DASHBOARD</p> <ul style="list-style-type: none"> Real time measurements and display of indoor air quality; Allows remote set point configuration through Lennox Cloud. 
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GUARANTEED COMFORT


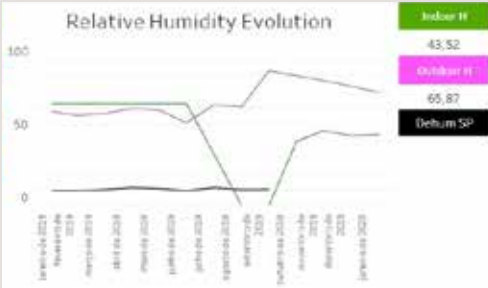
Ensure comfort condition at any season with automatic management of CO₂ levels inside the building.


HUMIDITY CONTROL PACK

When combined with the Lennox Cloud, it displays real-time measurement of the indoor and outdoor humidity levels and automatically controls the fresh air entry.

- Controls Fresh Air entry by its Relative Humidity;
- Reduces energy consumption by limiting the Fresh Air entry with high enthalpy levels (high relative humidity);
- Avoid indoor air with high humidity levels;
- Improve air quality and comfort;
- Reduces frost formation on supermarket open display cases;

All collected data can be remotely managed on the Lennox Cloud Webview and Dashboard:

<p>WEBVIEW</p> <ul style="list-style-type: none"> Displays the real-time Relative Humidity of the indoor air and adjusts the fresh airdampers avoid entry of wet air. 	<p>UNIT DASHBOARD</p> <ul style="list-style-type: none"> Real time measurements of Relative Humidity for Indoor and Outdoor Air. Allows adjustment of Dehumidification Set Point on Lennox Cloud. 
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GUARANTEED COMFORT

Ensure comfort condition at any season with automatic management of indoor humidity.



AIR COOLED UNITS - HEAT PUMP

NOMINAL THERMAL PERFORMANCES

BALTIC		25	30	40	42	45	55	57
Cooling capacity ⁽¹⁾	kW	22,3	27,7	36,6	40,3	44,3	49,9	55,2
EER ⁽¹⁾		3,48	3,22	3,12	2,90	3,45	3,35	3,30

Heating capacity ⁽²⁾	kW	20,9	25,7	34,6	38,3	40,4	45,0	53,7
COP ⁽²⁾		3,74	3,62	3,47	3,38	3,49	3,44	3,61
Nominal airflow rate	m ³ /h	4200	5700	6300	6900	7100	8300	9900

BALTIC		65	75	85	95	115	125
Cooling capacity ⁽¹⁾	kW	62,6	73,5	82,0	100,5	114,9	122,2
EER ⁽¹⁾		3,09	3,22	3,08	3,22	3,08	2,98

Heating capacity ⁽²⁾	kW	60,8	70,7	78,3	95,6	107,5	114,8
COP ⁽²⁾		3,38	3,30	3,20	3,54	3,39	3,24
Nominal airflow rate	m ³ /h	11100	13500	14500	19500	22000	23500

(1) **Cooling mode :**
Outdoor temperature 35°C DB
Indoor temperature 27°C DB / 19°C WB

(2) **Heating mode :**
Outdoor temperature 7°C DB / 6°C WB
Indoor temperature 20°C DB

(1) & (2) According to **EN14511** nominal conditions
Cooling and heating modes

SEASONAL EFFICIENCIES

BALTIC		25	30	40	42	45	55	57
Seasonal Energy Efficiency Ratio SEER ⁽¹⁾		4.44	4.26	4,00	3.85	4.93	4.71	4.66
Seasonal energy efficiency η_{s,c} ⁽²⁾	%	175	167	157	151	194	186	184
EUROVENT energy class		B	B	B	B	A	A	B

Seasonal Coefficient of Performance SCOP ⁽³⁾		3.49	3.4	3.27	3.21	3.33	3.29	3.32
Seasonal energy efficiency η_{s,h} ⁽⁴⁾	%	137	133	128	126	130	128	130
EUROVENT energy class		B	B	B	B	B	B	B

BALTIC		65	75	85	95	115	125
Seasonal Energy Efficiency Ratio SEER ⁽¹⁾		4.50	4.36	4.21	4.33	4.26	4.18
Seasonal energy efficiency η_{s,c} ⁽²⁾	%	177	172	166	170	168	164
EUROVENT energy class		B	B	B	B	B	B

Seasonal Coefficient of Performance SCOP ⁽³⁾		3.30	3.21	3.22	3.40	3.33	3.20
Seasonal energy efficiency η_{s,h} ⁽⁴⁾	%	129	125	126	133	130	125
EUROVENT energy class		B	B	B	B	B	B

(1) SEER in accordance with standard EN14825.

(2) Space cooling energy efficiency following Ecodesign regulation EU 2016/2281

(3) SCOP in accordance with standard EN14825 (average climate).

(4) Space heating energy efficiency following Ecodesign regulation EU 2016/2281.



AIR COOLED UNITS - HEAT PUMP

AIRFLOW DATA

BALTIC		25	30	40	42	45	55	57
Air treatment unit								
Minimum airflow rate	m ³ /h	3500	3500	3780	4140	5000	5000	5940
Maximum airflow rate		5600	6800	10000	10000	9700	11200	16000
Maximum available static pressure	Pa	800						

BALTIC		65	75	85	95	115	125
Air treatment unit							
Minimum airflow rate	m ³ /h	6660	9500	9500	12900	13800	14700
Maximum airflow rate		16000	22000	22000	23000	23000	24500
Maximum available static pressure	Pa	800					

ACOUSTIC DATA

BALTIC		25	30	40	42	45	55	57
Sound power level Outdoor unit	dB(A)	80,2	80,7	81,4	81,9	83,3	83,5	84,1
Sound power level Indoor unit ⁽¹⁾		71,0	77,3	79,4	81,4	72,1	74,5	77,6

BALTIC		65	75	85	95	115	125
Sound power level Outdoor unit	dB(A)	84,5	81,9	83,2	82,6	84,6	87,3
Sound power level Indoor unit ⁽¹⁾		80,0	83,1	84,5	84,1	86,7	88,2

(1) Supply duct



AIR COOLED UNITS - HEAT PUMP

ELECTRICAL DATA

⚠️ VALUES FOR STANDARD UNITS ONLY

BALTIC		25	30	40	42	45	55	57
Voltage	V	400						
Frequency	Hz	50						
Maximum current	A	56,4	66,4	93,3	121,5	76,4	86,4	89,2
Starting current		20,5	23,5	30,3	34,8	40,5	43,5	46,3
Short circuit current	kA	10						

BALTIC		65	75	85	95	115	125	
Voltage	V	400						
Frequency	Hz	50						
Maximum current	A	116,2	133,4	166,1	188,4	208,9	222,3	
Starting current		53,2	70,5	79,4	77,6	90,1	103,4	
Short circuit current	kA	10						

REFRIGERATION CIRCUIT

BALTIC		25	30	40	42	45	55	57
Number of circuits/Number of compressors		1/2				2/4		
Refrigerant		R410A						
Refrigerant load per circuit	kg	6,1	6,1	8,1	8,1	6,5 + 6,5	6,5 + 6,5	8 + 8

BALTIC		65	75	85	95	115	125	
Number of circuits/Number of compressors		2/4						
Refrigerant		R410A						
Refrigerant load per circuit	kg	8 + 8	10,5 + 10,5	10,5 + 10,5	10 + 10	10,4 + 10,4	10,8 + 10,8	

OPERATING LIMITS

BALTIC		25 → 125	
Maxi. outdoor temperature Indoor 27 °C DB / 19°C WB ⁽¹⁾	°C	48	
Maxi. outdoor temperature with unloading		50	
Mini. outdoor temperature Indoor 20°C DB		-5	
Maxi. entering indoor coil temperature Outdoor 38°C DB		35	
Mini. entering indoor coil temperature Outdoor 35°C DB		18	
Operating limits - Heating mode			
Mini. outdoor temperature Indoor 20 °C DB ⁽¹⁾	°C	-12	
Mini. entering indoor coil temperature Outdoor 7°C DB		5	



WATER COOLED UNITS - HEAT PUMP

NOMINAL THERMAL PERFORMANCES

BALTIC		45	52	57	65	75	85
Cooling capacity ⁽¹⁾	kW	47,6	53,2	61,3	71,2	84,7	90,7
EER ⁽¹⁾		4,47	4,24	4,49	4,20	4,25	3,94
Energy class - Full load operation		A	B	A	B	B	C
Heating capacity ⁽²⁾	kW	60,2	68,2	79,2	91,3	106,5	117,1
COP ⁽²⁾		4,61	4,66	4,71	4,41	4,66	4,39
Energy class - Full load operation		B	B	A	B	B	C
Nominal airflow rate	m ³ /h	7100	8300	9900	11100	13500	14500

(1) **Cooling mode :**
Outdoor temperature 35°C DB
Indoor temperature 27°C DB / 19°C WB

(2) **Heating mode :**
Outdoor temperature 7°C DB / 6°C WB
Indoor temperature 20°C DB

(1) & (2) According to **EN14511** nominal conditions
Cooling and heating modes

SEASONAL EFFICIENCIES

BALTIC		45	52	57	65	75	85
Seasonal Energy Efficiency Ratio SEER ⁽¹⁾		5,08	5,88	6,43	5,93	5,39	5,26
Seasonal energy efficiency η_{s,c} ⁽²⁾	%	198	230	252	232	210	205
Seasonal Coefficient of Performance SCOP ⁽³⁾		2,94	3,44	4,79	4,55	4,41	4,25
Seasonal energy efficiency η_{s,h} ⁽⁴⁾		113	132	187	177	171	165

(1) SEER in accordance with standard EN14825.

(2) Space cooling energy efficiency following Ecodesign regulation EU 2016/2281

(3) SCOP in accordance with standard EN14825 (average climate).

(4) Space heating energy efficiency following Ecodesign regulation EU 2016/2281.

AIRFLOW DATA

BALTIC		45	52	57	65	75	85
Air treatment unit							
Minimum airflow rate	m ³ /h	5000	5000	5940	6660	9500	9500
Maximum airflow rate		9700	11200	13100	13100	17000	19000
Maximum available static pressure	Pa	800					

WATER COOLED UNITS - HEAT PUMP

ACOUSTIC DATA

BALTIC		45	52	57	65	75	85
Sound power level Outdoor unit	(dB(A))	74.4	75.5	77.2	78.8	81.6	82.9
Sound power level Indoor unit ⁽¹⁾		75.2	78	81.4	86.6	87	88.5

(1) Supply duct

ELECTRICAL DATA

⚠️ VALUES FOR STANDARD UNITS ONLY

BALTIC		45	52	57	65	75	85
Voltage	V	400					
Frequency	Hz	50					
Maximum current	A	22.2	25.4	28.6	31.6	39.6	43.7
Starting current		124.2	127.1	86.2	113.2	127.7	160.4
Short circuit current	kA	10					

REFRIGERATION CIRCUIT

BALTIC		45	52	57	65	75	85
Number of circuits/Number of compressors		2/2	2/3	2/4	2/4	2/4	2/4
Refrigerant		R410A					
Refrigerant load	kg	7,6+6,4	7,6+6,4	9,6+8,5	9,6+8,5	12+11,9	12+11,9

OPERATING LIMITS

BALTIC		45	52	57	65	75	85
Operating limits - Cooling mode							
Maxi. outdoor air temperature (Indoor temp. 27°C DB / 19°C WB)	°C	46					
Max. Outdoor relative air humidity	%	75					
Mini. inlet water temperature (Indoor temp. 20°C DB)	°C	25					
Maxi. inlet water temperature 100% fresh air / Outdoor air temperature 35°C		38					
Maxi. inlet water temperature with unloading		48					
Operating limits - Heating mode							
Mini. inlet glycoled water temperature ⁽¹⁾ (Indoor temp. 20°C DB)	°C	10					
Mini. outlet glycoled water temperature ⁽¹⁾ (Indoor temp. 20°C DB)		5					
Mini. entering indoor coil air temperature (Outdoor temp. 7°C DB)		0					
Maxi. entering indoor air temperature		30					

(1) Cooling and heating operating limits are given for steady operation with specific temperature conditions.



AIR COOLED AND WATER COOLED UNITS

RETURN AIR AT 0°C

Casing	Airflow	Δ water temperature (°C)											
		90 - 70				80 - 60				70 - 50			
		Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate
m ³ /h	kW	kPa	°C	m ³ /h	kW	kPa	°C	m ³ /h	kW	kPa	°C	m ³ /h	
C BOX	3600	53	43	41	2,3	46	32	35	2,0	38	23	29	1,7
	4200	58	52	38	2,6	50	38	33	2,2	42	27	28	1,8
	5600	69	72	34	3,0	59	53	29	2,6	50	38	25	2,2
	4600	61	57	37	2,7	53	43	32	2,3	44	30	27	1,9
	5700	69	73	34	3,1	60	54	29	2,6	50	38	24	2,2
	6800	76	89	31	3,4	66	66	27	2,9	55	46	22	2,4
	5100	65	65	35	2,9	56	48	30	2,5	47	34	26	2,1
	6300	73	82	32	3,2	63	61	28	2,8	53	43	23	2,3
	8400	85	111	28	3,8	73	82	24	3,2	62	58	20	2,7
	5500	68	70	34	3,0	58	52	29	2,6	49	37	25	2,1
	6900	77	90	31	3,4	66	67	27	2,9	56	47	22	2,4
	8400	85	111	28	3,8	73	82	24	3,2	62	58	20	2,7
D BOX	5700	86	25	42	3,8	74	19	36	3,3	63	13	30	2,7
	7100	99	32	38	4,3	85	24	33	3,7	72	17	28	3,1
	9700	118	46	34	5,2	102	34	29	4,5	86	25	24	3,7
	6700	95	30	39	4,2	82	23	34	3,6	69	16	29	3,0
	8300	108	38	36	4,8	93	29	31	4,1	79	21	26	3,4
	11200	128	53	32	5,6	110	40	27	4,8	93	29	23	4,0
	7900	105	36	37	4,6	91	27	32	4,0	76	20	27	3,3
	9900	120	47	33	5,3	103	35	29	4,5	87	25	24	3,8
	13100	139	63	29	6,1	120	47	25	5,3	101	34	21	4,4
	8900	113	42	35	5,0	97	31	30	4,3	82	22	25	3,6
E BOX	11100	127	53	32	5,6	110	40	27	4,8	92	28	23	4,0
	13100	139	63	29	6,1	120	47	25	5,3	101	34	21	4,4
	10500	178	89	47	7,8	154	67	41	6,8	131	49	34	5,7
	13500	208	121	43	9,2	180	91	37	7,9	152	66	31	6,6
	17000	238	157	39	10,5	206	119	34	9,0	174	85	28	7,6
	10500	178	89	47	7,8	154	67	41	6,8	131	49	34	5,7
14500	217	131	41	9,6	188	99	36	8,2	159	71	30	6,9	
19000	254	178	37	11,2	220	134	32	9,6	186	97	27	8,1	

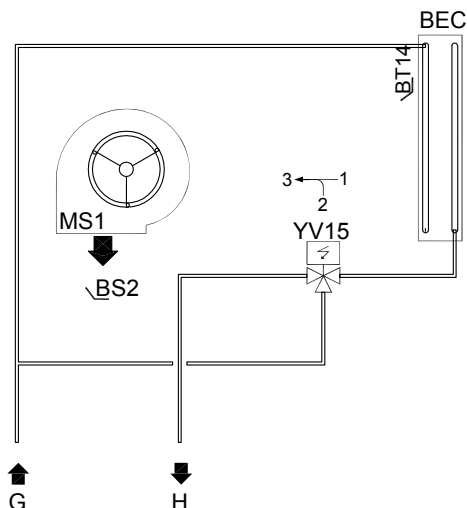
(1) Pressure drop = internal coil + 3 way valve
All data calculated for water without glycol

Note : 10 kPa=1mCe

Correction factor to get data for 82 - 71 from 90 - 70

SIZE	Heating capacity	Pressure drop	Water flow rate
	kW	kPa	kg/s
024 → 042	0,97	3,06	1,76
045 → 065	0,97	3,05	1,75
075 - 085	0,96	3,00 / 3,04*	1,74

* For return air 20°C / for return air 10°C



Legend

- MS1 Blower fan
- BS2 Supply air temperature
- BEC Hot water coil
- BT14 Antifreeze thermostat
- YV15 3-way valve
- G Water inlet
- H Water outlet

Size	G - H	Connection
024 → 042	1/2"	Male
045 → 085	1"	

AIR COOLED AND WATER COOLED UNITS

RETURN AIR AT 10°C

Casing	Airflow	Δ water temperature (°C)											
		90 - 70				80 - 60				70 - 50			
		Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate
m ³ /h	kW	kPa	°C	m ³ /h	kW	kPa	°C	m ³ /h	kW	kPa	°C	m ³ /h	
C BOX	3600	45	32	36	2,0	38	22	30	1,7	31	15	25	1,3
	4200	50	38	34	2,2	42	27	29	1,8	34	18	23	1,5
	5600	59	53	30	2,6	49	37	25	2,2	40	25	21	1,7
	4600	52	42	33	2,3	44	30	27	1,9	36	20	22	1,6
	5700	59	54	30	2,6	50	38	25	2,2	40	25	20	1,8
	6800	65	66	28	2,9	55	46	23	2,4	45	31	19	1,9
	5100	56	48	31	2,5	47	34	26	2,1	38	22	21	1,7
	6300	63	60	29	2,8	53	43	24	2,3	43	28	19	1,9
	8400	73	82	25	3,2	62	58	21	2,7	50	38	17	2,2
	5500	58	52	30	2,6	49	37	26	2,1	40	24	21	1,7
	6900	66	67	27	2,9	55	47	23	2,4	45	31	19	2,0
	8400	73	82	25	3,2	62	58	21	2,7	50	38	17	2,2
D BOX	5700	74	18	37	3,3	62	13	31	2,7	51	9	26	2,2
	7100	84	24	34	3,7	71	17	29	3,1	58	12	23	2,5
	9700	101	34	30	4,5	85	24	25	3,7	69	16	21	3,0
	6700	81	22	35	3,6	69	16	29	3,0	56	11	24	2,4
	8300	93	29	32	4,1	78	21	27	3,4	64	14	22	2,8
	11200	110	40	28	4,8	93	29	24	4,1	75	19	19	3,3
	7900	90	27	33	4,0	76	19	28	3,3	62	13	22	2,7
	9900	103	35	30	4,5	86	25	25	3,8	70	17	20	3,1
	13100	120	47	26	5,3	101	34	22	4,4	82	22	18	3,6
	8900	96	31	31	4,3	81	22	26	3,6	66	15	21	2,9
	11100	109	39	28	4,8	92	28	24	4,0	75	19	19	3,3
13100	120	47	26	5,3	101	34	22	4,4	82	22	18	3,6	
E BOX	10500	152	66	42	6,7	129	48	35	5,7	106	33	29	4,6
	13500	178	90	38	7,9	151	65	32	6,6	124	44	26	5,4
	17000	205	117	35	9,0	173	84	29	7,6	142	57	24	6,2
	10500	152	66	42	6,7	129	48	35	5,7	106	33	29	4,6
	14500	186	97	37	8,2	158	70	31	6,9	129	48	26	5,6
	19000	218	132	33	9,6	184	95	28	8,1	151	65	23	6,6

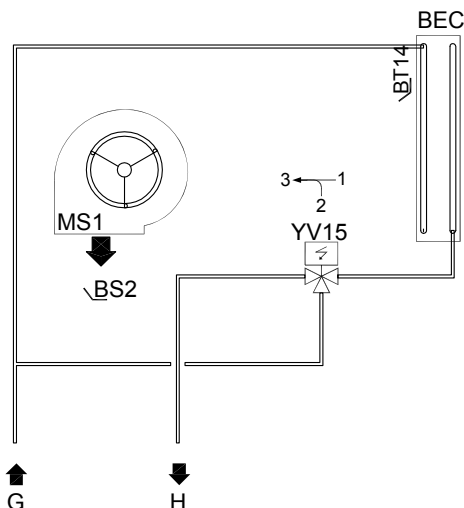
(1) Pressure drop = internal coil + 3 way valve
All data calculated for water without glycol

Note : 10 kPa=1mCe

Correction factor to get data for 82 - 71 from 90 - 70

SIZE	Heating capacity	Pressure drop	Water flow rate
	kW	kPa	kg/s
024 → 042	0,97	3,06	1,76
045 → 065	0,97	3,05	1,75
075 - 085	0,96	3,00 / 3,04*	1,74

* For return air 20°C / for return air 10°C



Legend

- MS1** Blower fan
- BS2** Supply air temperature
- BEC** Hot water coil
- BT14** Antifreeze thermostat
- YV15** 3-way valve
- G** Water inlet
- H** Water outlet

Size	G - H	Connection
024 → 042	1/2"	Male
045 → 085	1"	



AIR COOLED AND WATER COOLED UNITS

RETURN AIR AT 20°C

Casing	Airflow	Δ water temperature (°C)												
		90 - 70				80 - 60				70 - 50				
		Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate	
m ³ /h	kW	kPa	°C	m ³ /h	kW	kPa	°C	m ³ /h	kW	kPa	°C	m ³ /h		
C BOX	3600	38	22	31	1,7	31	15	25	1,4	24	9	20	1,0	
	4200	41	27	29	1,8	34	18	24	1,5	26	11	18	1,1	
	5600	49	37	26	2,2	40	25	21	1,8	31	15	16	1,3	
	4600	44	30	28	1,9	36	20	23	1,6	28	12	18	1,2	
	5700	50	38	26	2,2	40	25	21	1,8	31	15	16	1,4	
	6800	55	46	24	2,4	45	31	19	2,0	34	18	15	1,5	
	5100	47	34	27	2,1	38	22	22	1,7	29	13	17	1,3	
	6300	53	43	25	2,3	43	28	20	1,9	33	17	15	1,4	
	8400	61	58	22	2,7	50	38	18	2,2	38	23	14	1,7	
	5500	49	37	26	2,1	40	24	21	1,7	31	14	16	1,3	
	6900	55	47	24	2,4	45	31	19	2,0	35	18	15	1,5	
	8400	61	58	22	2,7	50	38	18	2,2	38	23	14	1,7	
	D BOX	5700	62	13	32	2,7	51	9	26	2,2	39	5	20	1,7
		7100	71	17	30	3,1	58	11	24	2,5	45	7	19	2,0
9700		85	24	26	3,7	69	16	21	3,0	54	10	16	2,3	
6700		68	16	30	3,0	56	11	25	2,4	43	7	19	1,9	
8300		78	20	28	3,4	63	14	23	2,8	49	8	18	2,1	
11200		92	28	24	4,1	75	19	20	3,3	58	12	15	2,5	
7900		75	19	28	3,3	62	13	23	2,7	48	8	18	2,1	
9900		86	25	26	3,8	70	17	21	3,1	54	10	16	2,4	
13100		100	33	23	4,4	82	22	18	3,6	63	14	14	2,7	
8900		81	22	27	3,6	66	15	22	2,9	51	9	17	2,2	
11100		92	28	24	4,0	75	19	20	3,3	58	11	15	2,5	
13100	100	33	23	4,4	82	22	18	3,6	63	14	14	2,7		
E BOX	10500	128	47	36	5,6	105	32	30	4,6	82	20	23	3,6	
	13500	150	64	33	6,6	123	43	27	5,4	96	27	21	4,2	
	17000	172	83	30	7,6	141	57	25	6,2	110	35	19	4,8	
	10500	128	47	36	5,6	105	32	30	4,6	82	20	23	3,6	
	14500	156	69	32	6,9	128	47	26	5,6	100	29	21	4,4	
	19000	183	94	29	8,1	150	64	23	6,6	117	39	18	5,1	

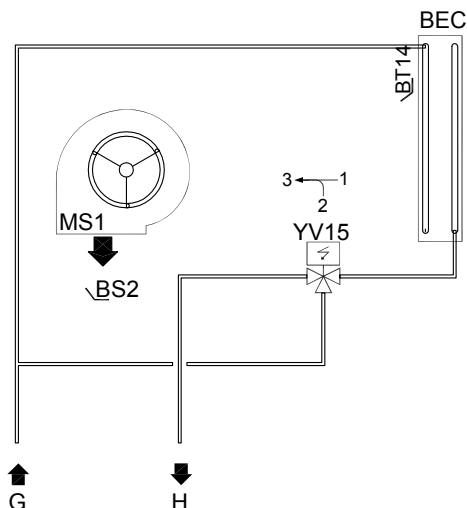
(1) Pressure drop = internal coil + 3 way valve
All data calculated for water without glycol

Note : 10 kPa=1mCe

Correction factor to get data for 82 - 71 from 90 - 70

SIZE	Heating capacity	Pressure drop	Water flow rate
	kW	kPa	kg/s
024 → 042	0,97	3,06	1,76
045 → 065	0,97	3,05	1,75
075 - 085	0,96	3,00 / 3,04*	1,74

* For return air 20°C / for return air 10°C



Legend

- MS1 Blower fan
- BS2 Supply air temperature
- BEC Hot water coil
- BT14 Antifreeze thermostat
- YV15 3-way valve
- G Water inlet
- H Water outlet

Size	G - H	Connection
024 → 042	1/2"	Male
045 → 085	1"	

AIR COOLED AND WATER COOLED UNITS

HEAT RECOVERY FROM FOOD REFRIGERATION SYSTEMS

More details on page 23

RETURN AIR AT 0°C

30% GLYCOL WATER

Casing		Δ water temperature (°C)											
		45 - 40				40 - 35				35 - 30			
		Airflow	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature
m ³ /h	kW	kPa	°C	m ³ /h	kW	kPa	°C	m ³ /h	kW	kPa	°C	m ³ /h	
C BOX	3600	35	76	27	6.55	31	59	24	5.71	26	44	20	4.88
	4200	39	94	26	7.29	34	73	22	6.36	29	54	19	5.43
	5600	47	136	23	8.84	41	106	20	7.71	35	78	17	6.58
	4600	42	106	25	7.76	36	82	22	6.77	31	61	19	5.78
	5700	48	140	23	8.96	42	108	20	7.8	36	80	17	6.65
	6800	54	174	22	10.03	47	135	19	8.74	40	100	16	7.45
	5100	45	121	24	8.32	39	94	21	7.26	33	70	18	6.19
	6300	51	159	23	9.56	45	122	20	8.33	38	91	17	7.10
	8400	61	225	20	11.45	53	173	18	9.97	45	128	15	8.48
	5500	47	133	24	8.74	41	103	21	7.62	35	77	18	6.50
6900	54	177	22	10.13	47	137	19	8.82	40	101	16	7.52	
8400	61	225	20	11.45	53	173	18	9.97	45	128	15	8.48	
D BOX	5700	56	136	27	10.43	49	108	24	9.14	42	82	20	7.85
	7100	65	182	25	12.16	57	143	22	10.64	49	109	19	9.13
	9700	80	269	23	14.95	70	212	20	13.08	60	160	17	11.21
	6700	63	169	26	11.68	55	133	23	10.23	47	101	19	8.78
	8300	72	221	24	13.49	63	174	21	11.81	54	132	18	10.13
	11200	88	320	22	16.38	77	251	19	14.33	66	190	16	12.27
	7900	70	208	25	13.06	61	164	21	11.43	53	125	18	9.81
	9900	81	276	23	15.14	71	217	20	13.25	61	164	17	11.35
	13100	97	385	20	18.06	85	302	18	15.79	72	228	15	13.52
	8900	76	242	24	14.13	66	190	21	12.37	57	144	18	10.60
11100	87	316	22	16.29	76	249	19	14.25	65	188	16	12.20	
13100	97	385	20	18.06	85	302	18	15.79	72	228	15	13.52	
E BOX	10500	91	92	24	17.01	80	71	21	14.83	68	53	18	12.66
	13500	108	126	22	20.03	94	97	19	17.45	80	72	16	14.88
	17000	124	166	20	23.14	108	128	18	20.15	92	95	15	17.15
	10500	91	92	24	17.01	80	71	21	14.83	68	53	18	12.66
	14500	113	137	21	20.96	98	106	19	18.26	83	79	16	15.56
	19000	133	189	19	24.75	116	146	17	21.54	98	108	14	18.33

AIR COOLED AND WATER COOLED UNITS

HEAT RECOVERY FROM FOOD REFRIGERATION SYSTEMS

More details on page 23

RETURN AIR AT 10°C

30% GLYCOL WATER

Casing		Δ water temperature (°C)											
		45 - 40				40 - 35				35 - 30			
		Airflow	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature
m ³ /h	kW	kPa	°C	m ³ /h	kW	kPa	°C	m ³ /h	kW	kPa	°C	m ³ /h	
C BOX	3600	26	43	21	4,84	22	30	17	4,03	17	20	14	3,22
	4200	29	52	20	5,39	24	37	16	4,48	19	24	13	3,58
	5600	35	76	18	6,54	29	54	15	5,43	23	35	12	4,32
	4600	31	59	19	5,73	26	42	16	4,77	20	27	13	3,80
	5700	35	78	18	6,61	29	55	15	5,49	23	36	12	4,37
	6800	40	97	17	7,41	33	68	14	6,15	26	44	11	4,89
	5100	33	68	19	6,15	27	48	15	5,11	22	31	12	4,07
	6300	38	88	17	7,06	31	62	14	5,86	25	40	11	4,66
	8400	45	125	16	8,46	38	88	13	7,01	30	57	10	5,56
	5500	35	74	18	6,46	29	52	15	5,37	23	34	12	4,27
6900	40	99	17	7,48	33	69	14	6,21	26	45	11	4,93	
8400	45	125	16	8,46	38	88	13	7,01	30	57	10	5,56	
D BOX	5700	42	78	21	7,75	35	56	18	6,49	28	38	14	5,23
	7100	48	104	20	9,03	41	75	16	7,55	33	51	13	6,08
	9700	60	153	18	11,11	50	111	15	9,28	40	74	12	7,45
	6700	47	96	20	8,68	39	70	17	7,26	31	47	13	5,84
	8300	54	126	19	10,03	45	91	16	8,38	36	61	12	6,73
	11200	65	182	17	12,18	55	131	14	10,16	44	88	11	8,15
	7900	52	119	19	9,71	44	86	16	8,11	35	58	13	6,52
	9900	60	157	18	11,25	50	113	15	9,40	40	76	12	7,54
	13100	72	219	16	13,42	60	158	13	11,20	48	105	11	8,97
	8900	56	138	18	10,50	47	100	15	8,78	38	67	12	7,05
11100	65	180	17	12,11	54	130	14	10,11	43	87	11	8,11	
13100	72	219	16	13,42	60	158	13	11,20	48	105	11	8,97	
E BOX	10500	67	51	18	12,57	56	36	15	10,45	45	24	12	8,32
	13500	79	70	17	14,80	66	50	14	12,28	52	32	11	9,77
	17000	92	93	15	17,10	76	65	13	14,17	60	42	10	11,25
	10500	67	51	18	12,57	56	36	15	10,45	45	24	12	8,32
	14500	83	77	16	15,49	69	54	14	12,85	55	35	11	10,21
	19000	98	106	15	18,29	81	74	12	15,15	64	48	10	12,02

AIR COOLED AND WATER COOLED UNITS

HEAT RECOVERY FROM FOOD REFRIGERATION SYSTEMS

More details on page 23

RETURN AIR AT 20°C

30% GLYCOL WATER

Casing	Airflow	Δ water temperature (°C)											
		45 - 40				40 - 35				35 - 30			
		Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate	Heating capacity	Pressure drop ⁽¹⁾	Δ air temperature	Water flow rate
m ³ /h	kW	kPa	°C	m ³ /h	kW	kPa	°C	m ³ /h	kW	kPa	°C	m ³ /h	
C BOX	3600	17	19	14	3,20	13	11	11	2,41	9	5	7	1,62
	4200	19	24	14	3,56	14	14	10	2,68	10	6	7	1,79
	5600	23	34	12	4,32	17	20	9	3,24	12	9	6	2,16
	4600	20	27	13	3,79	15	15	10	2,85	10	7	7	1,90
	5700	23	35	12	4,37	18	20	9	3,27	12	9	6	2,18
	6800	26	43	11	4,89	20	25	9	3,66	13	12	6	2,43
	5100	22	30	13	4,06	16	18	10	3,05	11	8	6	2,03
	6300	25	40	12	4,66	19	23	9	3,49	12	11	6	2,32
	8400	30	56	11	5,57	22	32	8	4,16	15	15	5	2,75
	5500	23	33	12	4,27	17	19	9	3,20	11	9	6	2,13
6900	26	44	11	4,93	20	25	9	3,69	13	12	6	2,45	
8400	30	56	11	5,57	22	32	8	4,16	15	15	5	2,75	
D BOX	5700	28	36	14	5,18	21	22	11	3,95	15	11	8	2,71
	7100	32	48	14	6,03	25	29	10	4,58	17	15	7	3,14
	9700	40	71	12	7,41	30	43	9	5,62	20	21	6	3,82
	6700	31	45	14	5,80	24	27	10	4,41	16	14	7	3,02
	8300	36	59	13	6,69	27	36	10	5,08	19	18	7	3,47
	11200	44	85	12	8,12	33	51	9	6,15	22	25	6	4,18
	7900	35	55	13	6,48	26	33	10	4,92	18	17	7	3,36
	9900	40	73	12	7,51	31	44	9	5,69	21	22	6	3,87
	13100	48	102	11	8,95	36	61	8	6,77	25	30	6	4,59
	8900	38	64	13	7,00	28	39	9	5,31	19	19	6	3,62
	11100	43	84	12	8,07	33	50	9	6,11	22	25	6	4,15
13100	48	102	11	8,95	36	61	8	6,77	25	30	6	4,59	
E BOX	10500	45	23	13	8,31	33	14	9	6,23	22	6	6	4,16
	13500	52	32	12	9,77	39	18	9	7,31	26	9	6	4,85
	17000	60	42	11	11,27	45	24	8	8,41	30	11	5	5,56
	10500	45	23	13	8,31	33	14	9	6,23	22	6	6	4,16
	14500	55	35	11	10,22	41	20	8	7,64	27	9	6	5,07
	19000	65	47	10	12,05	48	27	8	8,98	32	12	5	5,93



AIR COOLED AND WATER COOLED UNITS

AUXILIARY ELECTRIC HEATER

SIZE		Heating capacity kW	Amps A	Nr of stages	Temperature rise at nominal airflow rate		
					°C	°C	°C
025	-	18	25	2 (A : B)	A: 6	B: 13	
		36	50	0-100%	50%	100%	25
030	-	18	25	2 (A : B)	A: 5	B: 9	
		36	50	0-100%	50%	100%	19
040	-	18	25	2 (A : B)	A: 4	B: 8	
		36	50	0-100%	50%	100%	17
042	-	18	25	2 (A : B)	A: 4	B: 8	
		36	50	0-100%	50%	100%	15
045	045	27	37,6	2 (A : B)	A: 6	B: 11	
		54	75,2	0-100%	50%	100%	23
055	052	27	37,6	2 (A : B)	A: 5	B: 10	
		54	75,2	0-100%	50%	100%	19
057	057	27	37,6	2 (A : B)	A: 4	B: 8	
		54	75,2	0-100%	50%	100%	16
065	065	27	37,6	2 (A : B)	A: 4	B: 7	
		54	75,2	0-100%	50%	100%	14
075	075	27	37,6	2 (A : B)	A: 3	B: 6	
		54	75,2	0-100%	50%	100%	12
085	085	27	37,6	2 (A : B)	A: 3	B: 6	
		54	75,2	0-100%	50%	100%	11

ELECTRIC PRE-HEATER

SIZE		Heating capacity kW	Amps A	Nr of stages	Temperature rise at nominal airflow rate			
					°C	°C	°C	
025	-	18	25	0-100%	50%	6	100%	13
		36	50		50%	13	100%	25
030	-	18	25		50%	5	100%	9
		36	50		50%	9	100%	19
040	-	18	25		50%	4	100%	8
		36	50		50%	8	100%	17
042	-	18	25		50%	4	100%	8
		36	50		50%	8	100%	15
045	045	24	33,3		50%	5	100%	10
		48	66,7		50%	10	100%	20
055	052	24	33,3		50%	4	100%	9
		48	66,7		50%	9	100%	17
057	057	24	33,3		50%	4	100%	7
		48	66,7		50%	7	100%	14
065	065	24	33,3		50%	3	100%	6
		48	66,7		50%	6	100%	13
075	075	36	50		50%	4	100%	8
		72	100		50%	8	100%	16
085	085	36	50		50%	4	100%	7
		72	100		50%	7	100%	15



The use of electric pre-heater allows heat pump operation with mixed air temperatures below 5 °C on the indoor coil. It impacts overall COP of the unit.

  AIR COOLED AND WATER COOLED UNITS

SIZE		Gas power input	Heating capacity	Electrical absorbed power	Number of stages
		kW	kW	kW	
025	-	20	18,6	0,1	2
		46	42,8	0,1	2
030	-	20	18,6	0,1	2
		46	42,8	0,1	2
040	-	20	18,6	0,1	2
		46	42,8	0,1	2
042	-	20	18,6	0,1	2
		46	42,8	0,1	2
045	045	33	30,7	0,1	2
		60	55,8	0,1	2
055	052	33	30,7	0,1	2
		60	55,8	0,1	2
057	057	33	30,7	0,1	2
		60	55,8	0,1	2
065	065	33	30,7	0,1	2
		60	55,8	0,1	2
075	075	60	55,8	0,1	2
		120	112	0,2	4
085	085	60	55,8	0,1	2
		120	112	0,2	4

AIR COOLED AND WATER COOLED UNITS

SIZE		Airflow rate m ³ /h	G4 filter (Pa)	G4 + F7-ePM1 filter (Pa)	Hot water coil (Pa)	Electric heater		Electric pre-heater	
						S (Pa)	H (Pa)	S (Pa)	H (Pa)
025	-	3600	2,7	23,1	26,8	8,0	12,0	13,4	16,4
		4200	3,6	31,5	35,0	9,3	14,0	18,2	22,3
		5600	6,5	56,0	56,9	12,4	18,7	32,4	39,7
030	-	4600	4,4	37,8	40,9	10,2	15,3	21,9	26,8
		5700	6,7	58,0	58,6	12,7	19,0	33,6	41,1
		6800	9,5	82,6	78,7	15,1	22,7	47,8	58,5
040	-	5100	5,4	46,4	48,7	11,3	17,0	26,9	32,9
		6300	8,2	70,9	69,3	14,0	21,0	41,0	50,2
		8400	14,5	126,0	112,8	18,7	28,0	72,9	89,2
042	-	5500	6,2	54,0	55,2	12,2	18,3	31,3	38,3
		6900	9,8	85,0	80,6	15,3	23,0	49,2	60,2
		8400	14,5	126,0	112,8	18,7	28,0	72,9	89,2
045	045	5700	3,0	25,8	19,9	12,7	19,0	12,8	16,5
		7100	4,6	40,0	28,7	15,8	23,7	19,8	25,7
		9700	8,6	74,7	47,3	21,6	32,3	37,0	47,9
055	052	6700	4,1	35,6	26,1	14,9	22,3	17,7	22,9
		8300	6,3	54,7	37,0	18,4	27,7	27,1	35,1
		11200	11,5	99,5	59,3	24,9	37,3	49,4	63,9
057	057	7900	5,7	49,5	34,1	17,6	26,3	24,6	31,8
		9900	9,0	77,8	48,9	22,0	33,0	38,6	49,9
		13100	15,7	136,2	76,1	29,1	43,7	67,5	87,4
065	065	8900	7,3	62,9	41,3	19,8	29,7	31,2	40,3
		11100	11,3	97,8	58,5	24,7	37,0	48,5	62,8
		13100	15,7	136,2	76,1	29,1	43,7	67,5	87,4
075	075	10500	5,7	49,2	36,3	23,3	35,0	22,3	27,4
		13500	9,4	81,4	54,0	30,0	45,0	36,8	45,2
		17000	14,9	129,0	77,5	37,8	56,7	58,4	71,7
085	085	10500	5,7	49,2	36,3	23,3	35,0	22,3	27,4
		14500	10,8	93,8	60,4	32,2	48,3	42,5	52,2
		19000	18,6	161,1	92,7	42,2	63,3	72,9	89,6

SIZE		Airflow rate m ³ /h	Adjustable roofcurb (Pa)	Multi directional Roofcurb (Pa)	eRecovery hot water coil on refrigeration (Pa)
		4200	10,9	17,0	33,5
		5600	19,4	30,2	53,6
030	-	4600	13,1	20,4	38,8
		5700	20,1	31,3	55,2
		6800	28,5	44,5	73,7
040	-	5100	16,1	25,0	46,0
		6300	24,5	38,2	65,0
		8400	43,6	67,9	104,2
042	-	5500	18,7	29,1	52,1
		6900	29,4	45,8	75,5
		8400	43,6	67,9	104,2
045	045	5700	10,0	16,3	23,4
		7100	15,6	25,3	33,5
		9700	29,0	47,2	55,9
055	052	6700	13,9	22,5	30,5
		8300	21,3	34,6	43,3
		11200	38,7	62,9	70,7
057	057	7900	19,3	31,3	39,9
		9900	30,3	49,2	57,8
		13100	53,0	86,1	91,4
065	065	8900	24,4	39,7	48,5
		11100	38,0	61,8	69,7
		13100	53,0	86,1	91,4
075	075	10500	21,3	25,5	48,4
		13500	35,2	42,2	73,1
		17000	55,7	66,9	106,6
085	085	10500	21,3	25,5	48,4
		14500	40,6	48,7	82,1
		19000	69,6	83,6	127,9

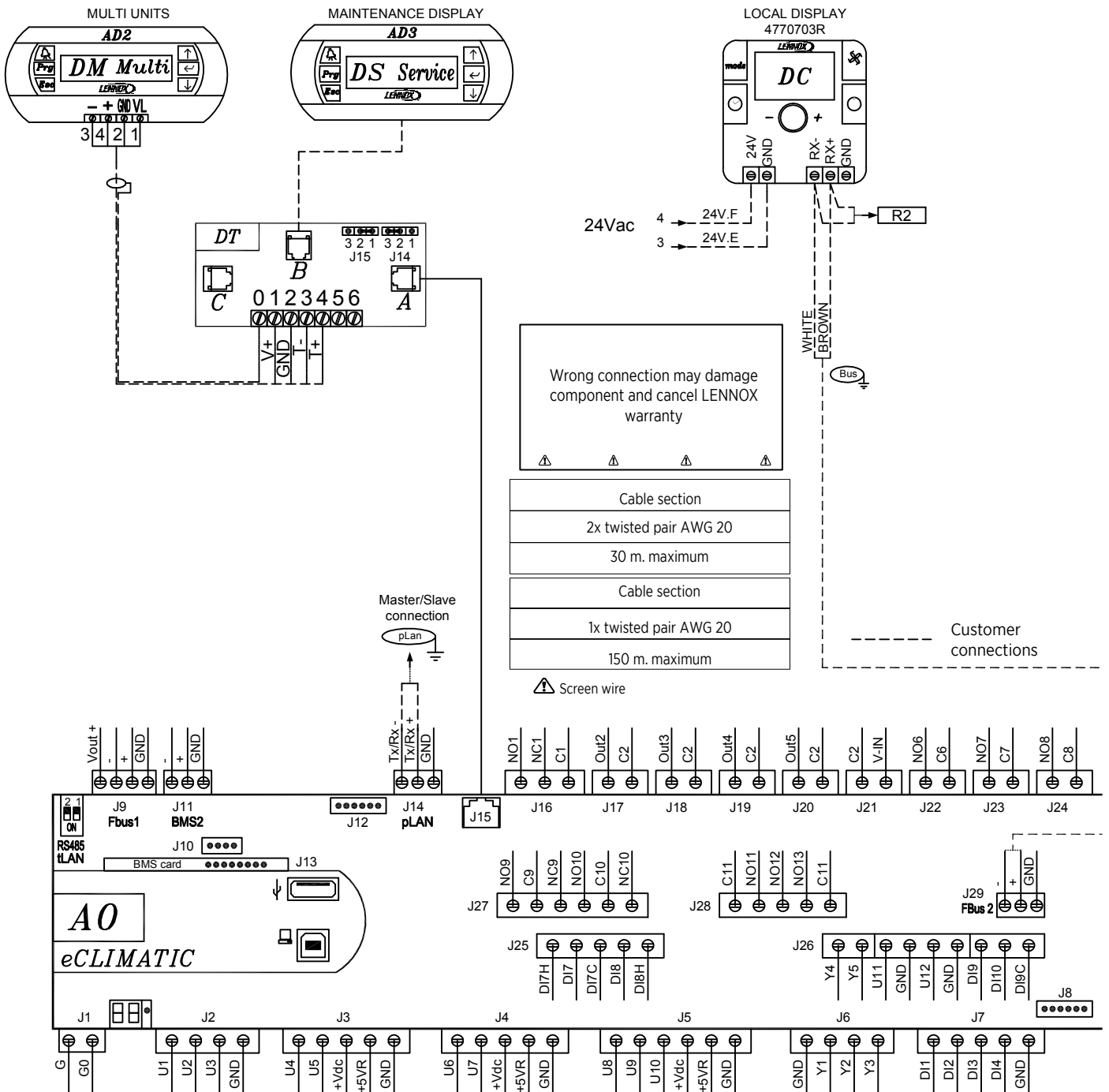
(1) : To be added to extraction fan external static pressure.

AIR COOLED AND WATER COOLED UNITS

CONTROL TERMINAL CONNECTION

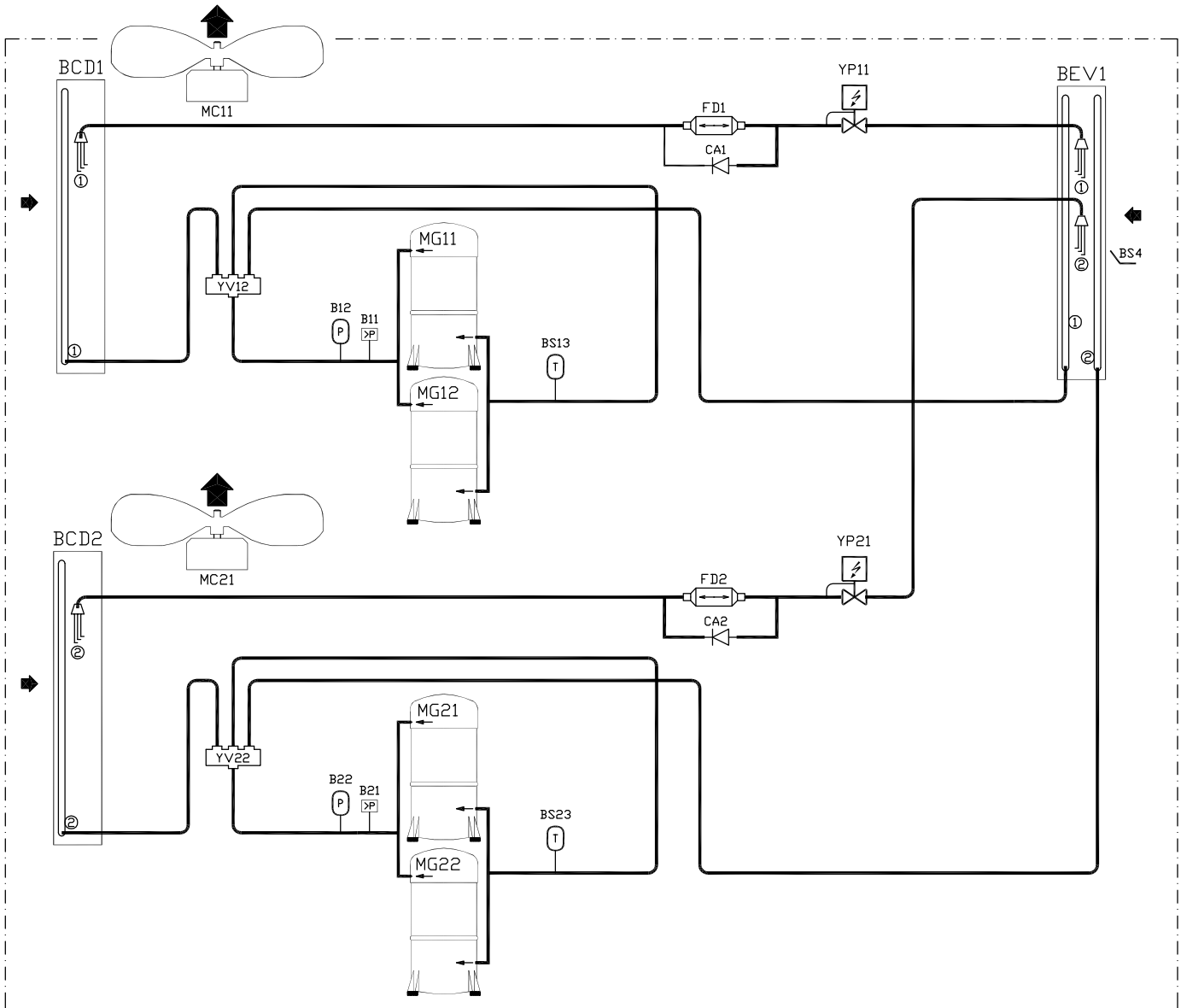
DS : REMOTE SERVICE DISPLAY / DC : COMFORT REMOTE DISPLAY

DM : REMOTE MULTI-UNITS DISPLAY



- For securing and connecting the Control Panel, consult the control panel Manual supplied with the unit.
- Connection between the DC and the unit must be made using shielded twisted pair cables (where the screen is connected to the earth by the side of the electrical panel) and with a two-lead cable.
- The Tx+ and Tx- polarities must strictly comply with the electrical diagram supplied with the unit.
- Wire the control. Minimum distance of 500 mm between control and power cables.
- Wire the control. Minimum distance of 500 mm between control and halogen lamps.
- Wire the control. Minimum distance of 500 mm between control and switchboard, antennas, transmitters...
- **NEVER ROLL UP THE EXCESSING CABLE, CUT THE CABLE FROM THE SIDE OF THE TERMINAL.**

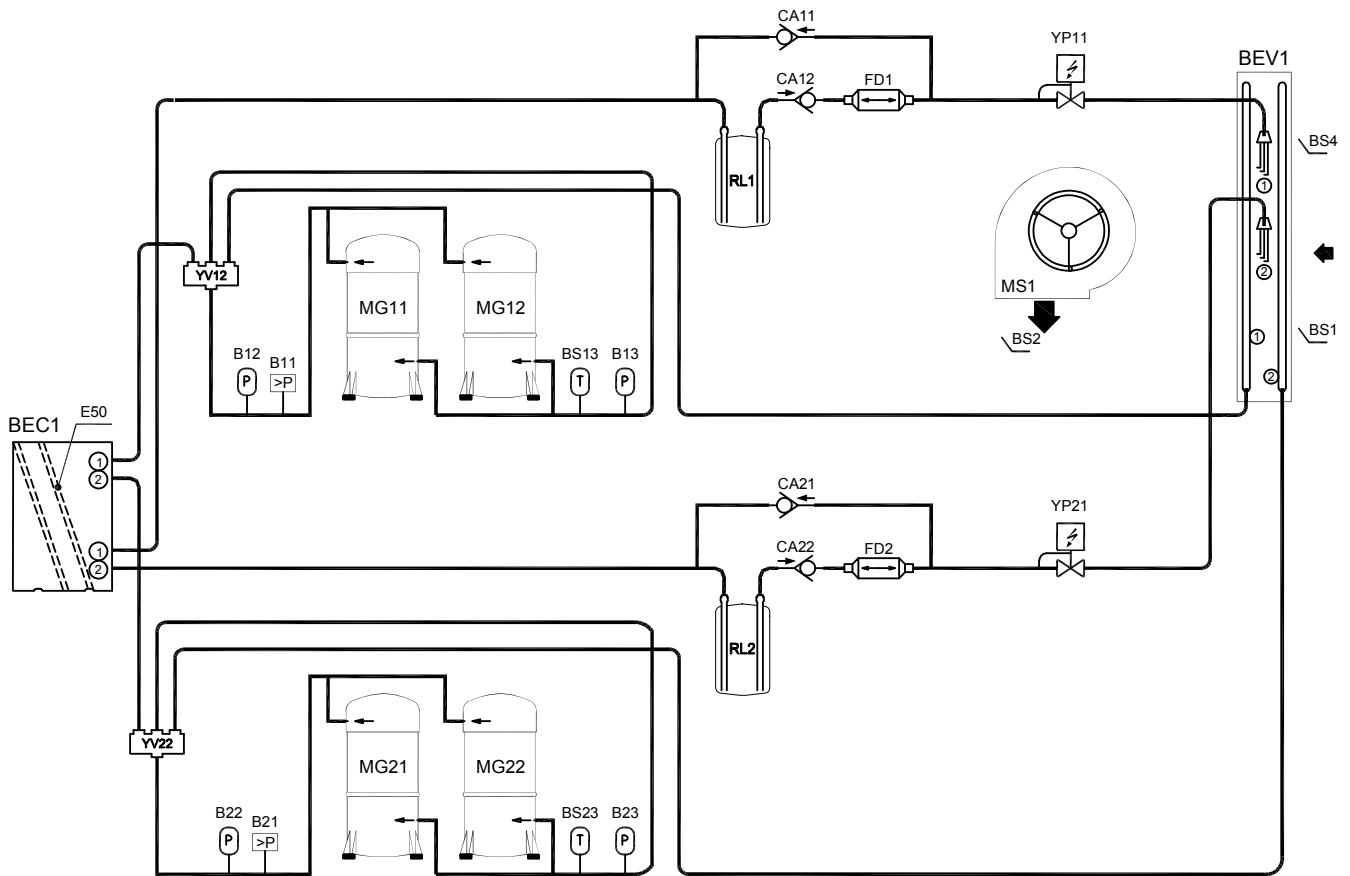
AIR COOLED UNITS



B 11/21	High pressure switch	CA 1/2	Non return valve
B 12/22	High pressure transducer	FDn	Filter dryer
BCDn	Outdoor coil	MC 11/21	Outdoor axial fan
BEV	Indoor coil	MG 11/12/21/22	Compressor
BS 13/23	Suction temperature sensor	YP 11/21	Electronic expansion valve
BS4	Return air temperature sensor	YV 12/22	4-way valve



WATER COOLED UNITS



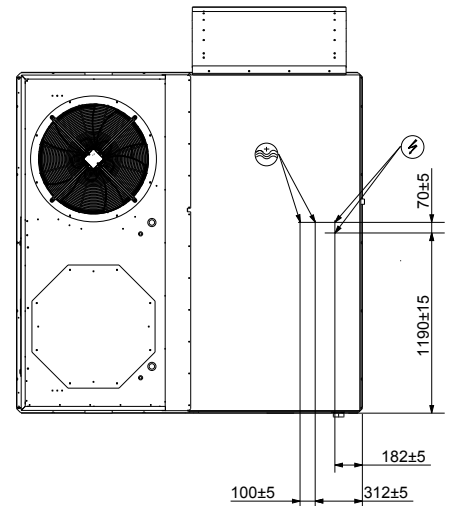
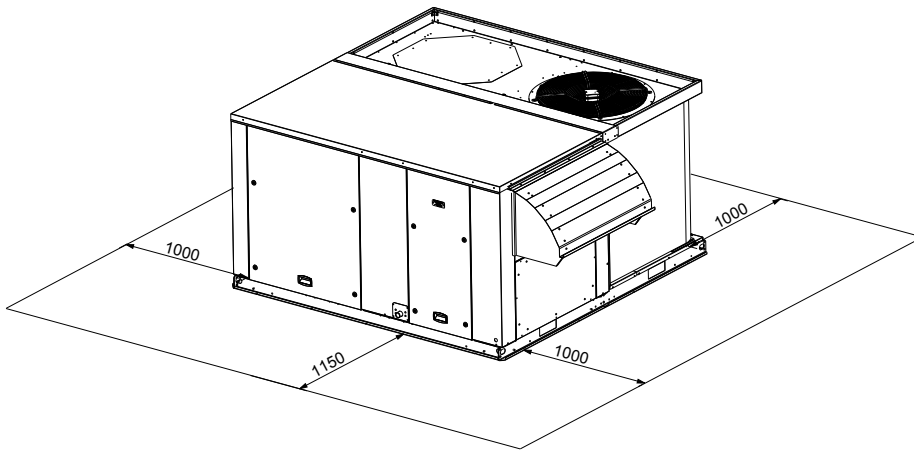
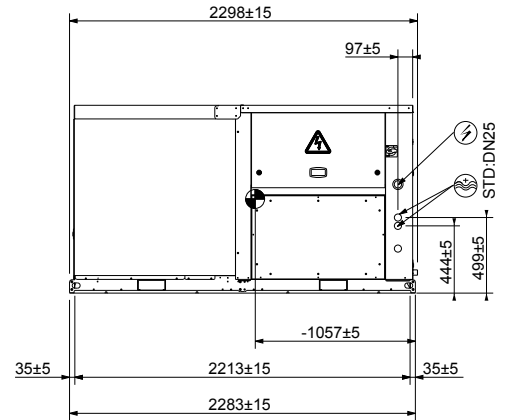
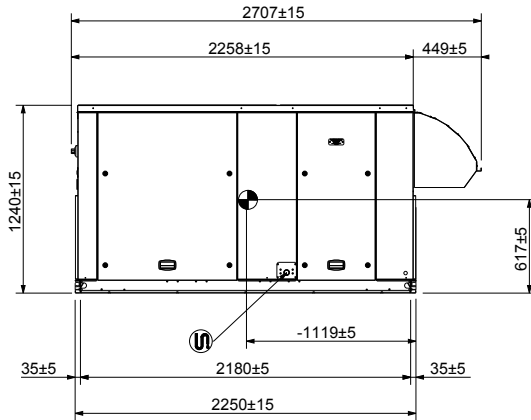
B11/21	High pressure switch	CA 11/12/21/22	Non return valve
B12/22	High pressure transducer	E50	Condenser antifreeze heater
BEC	Hot water coil	FDn	Filter drier
BEVn	Indoor coil	MG 11/12/21/22	Compressor
BS 13/23	Suction temperature sensor	MS1	Fan motor
BS1	External temperature sensor	YP 11/21	Electronic expansion valve
BS2	Fan temperature sensor	YV 12/22	4- way valve
BS4	Return air temperature sensor		



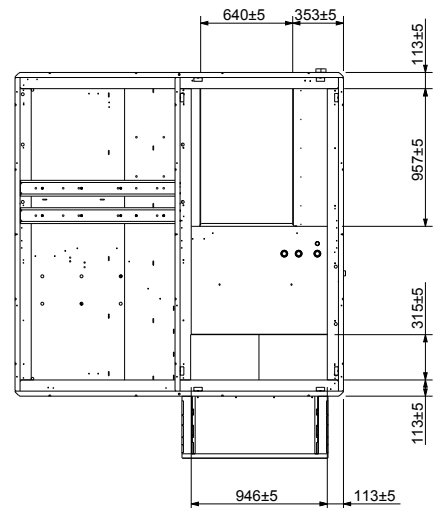
AIR COOLED UNITS

**BASIC UNITS
C BOX**

025 - 030 - 040 - 042

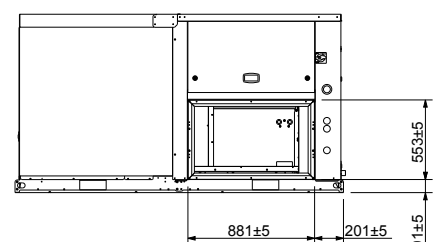
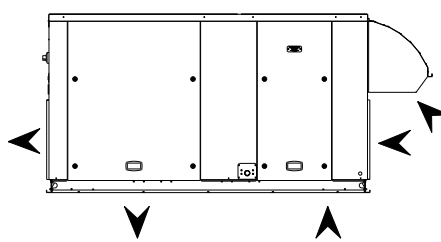
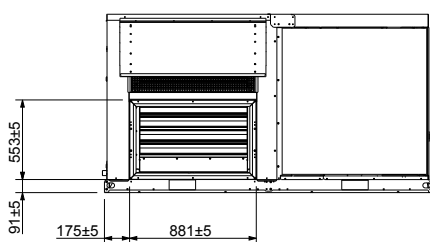


- Electrical connection
- Condensate draining
- Water connection
- Centre of gravity



WEIGHTS - KG

BALTIC - EC MOTOR		025	030	040	042
Standard air cooled unit	BAC	580	620	660	660
	BAH				



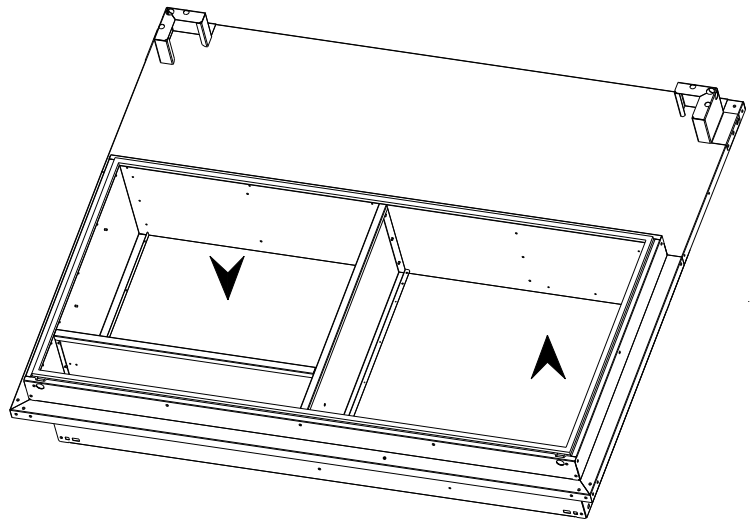
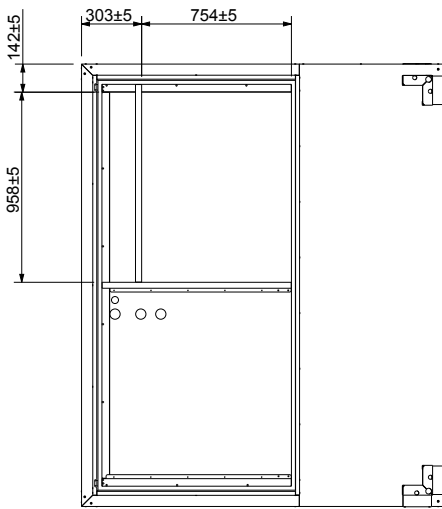
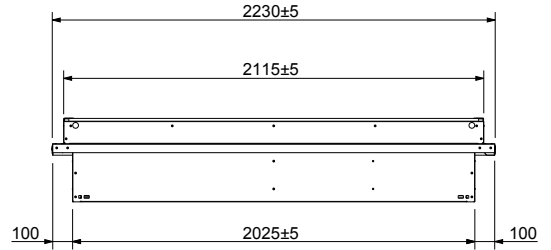
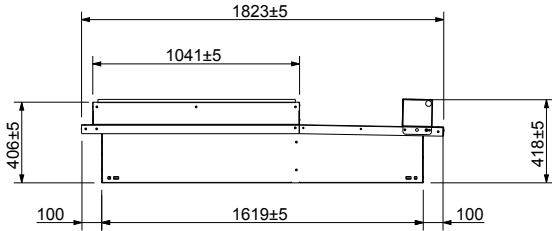
All dimensions expressed in mm.
Water cooled units overall dimensions are identical. Weight data available on request.



AIR COOLED UNITS

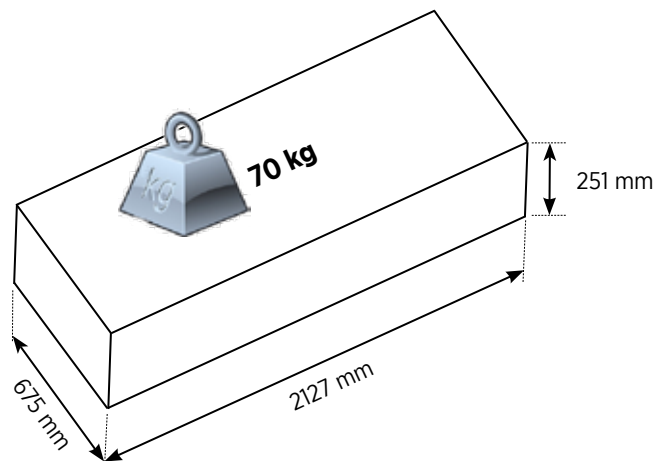
**NON ADJUSTABLE ROOFCURB
C BOX**

025 - 030 - 040 - 042



All dimensions expressed in mm

**NON ADJUSTABLE ROOFCURB KIT
DIMENSIONS AND WEIGHT FOR TRANSPORT**



All dimensions expressed in mm

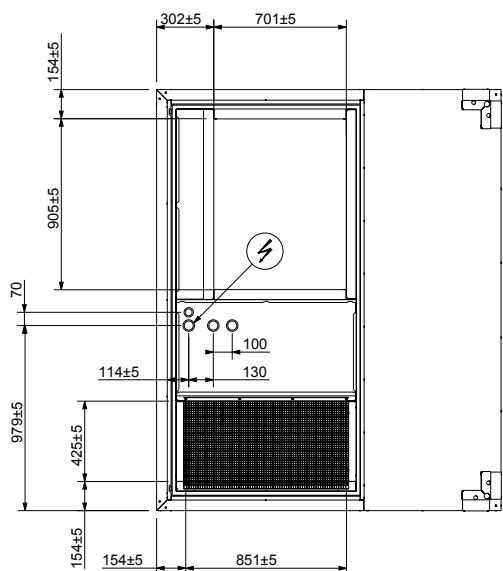
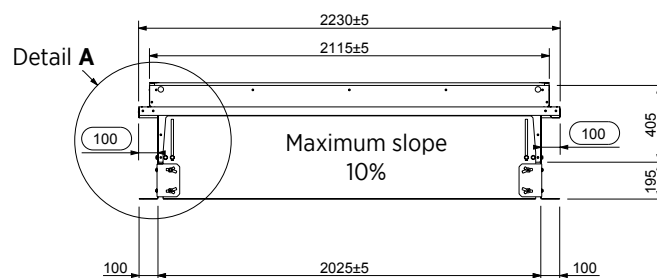
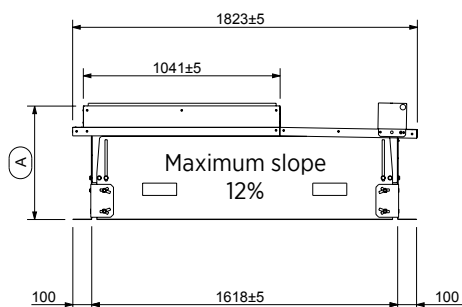
ACC10019_A



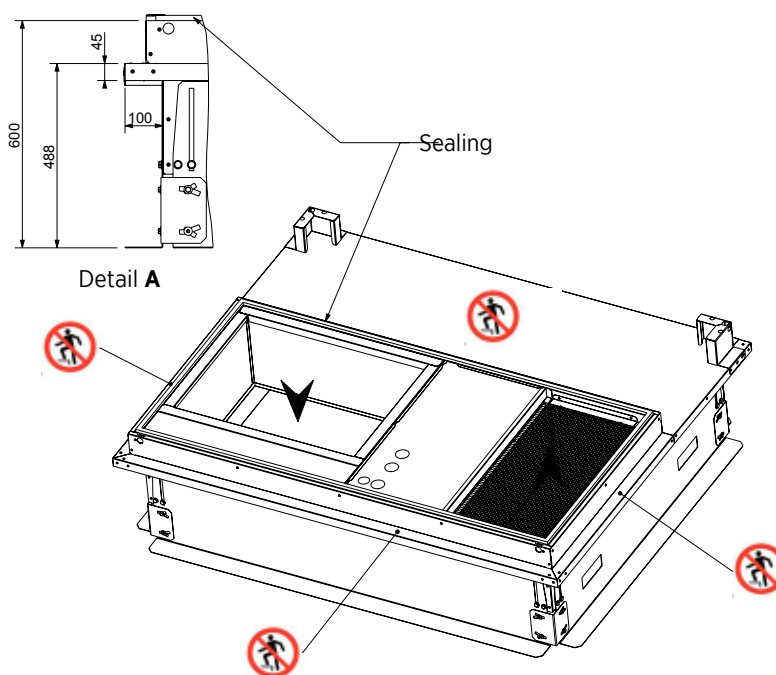
AIR COOLED UNITS

**ADJUSTABLE ROOFCURB
C BOX**

025 - 030 - 040 - 042



	Transport	Minimum	Maximum
H	640	600	797

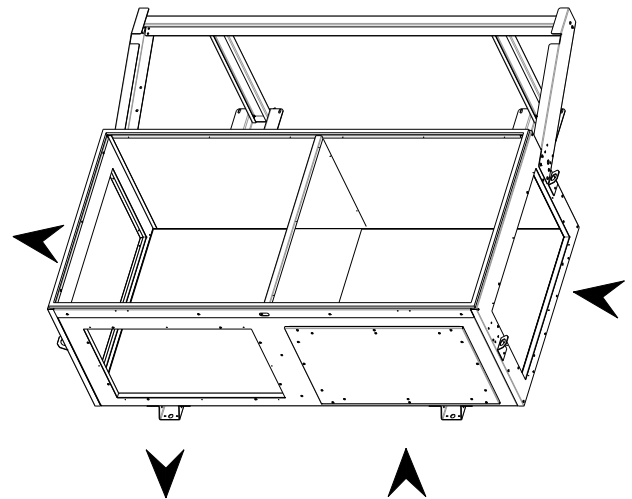
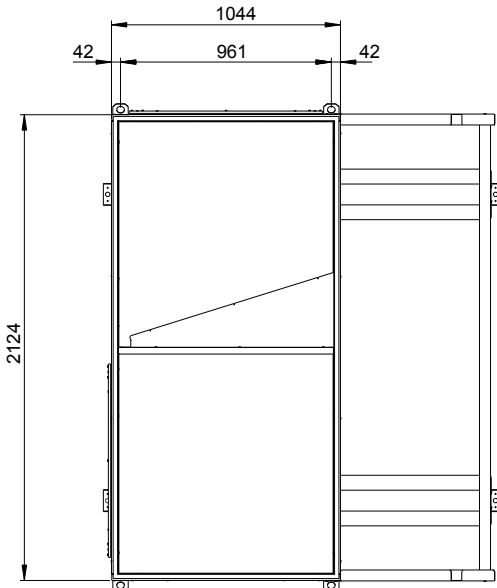
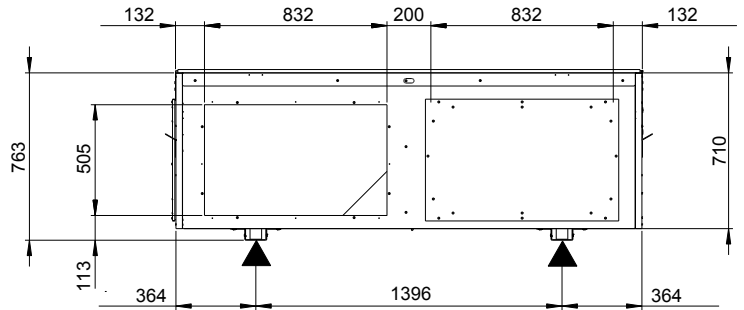
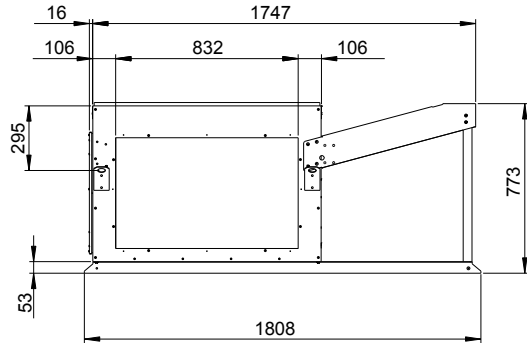




AIR COOLED UNITS

**MULTIDIRECTIONNAL ROOFCURB
C BOX**

025 - 030 - 040 - 042

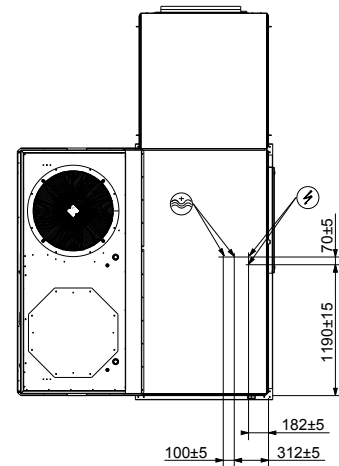
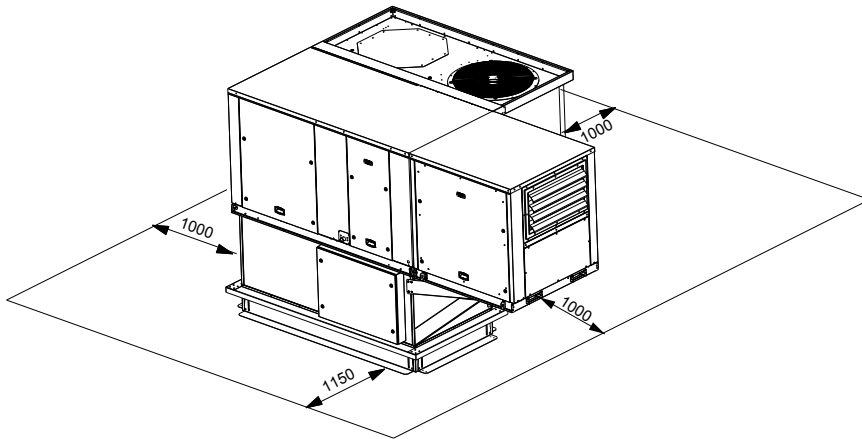
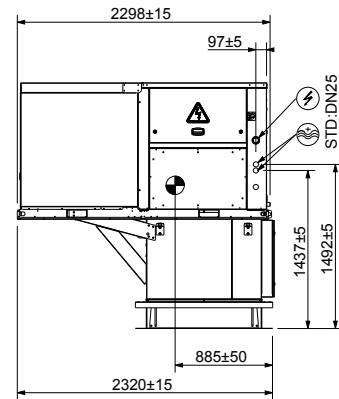
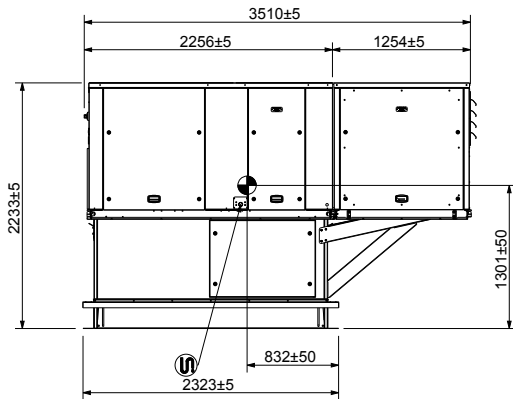




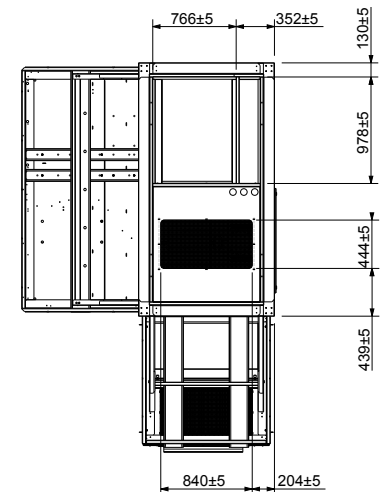
AIR COOLED UNITS

**UNIT WITH HEAT RECOVERY MODULE (option)
C BOX**

025 - 030 - 040 - 042

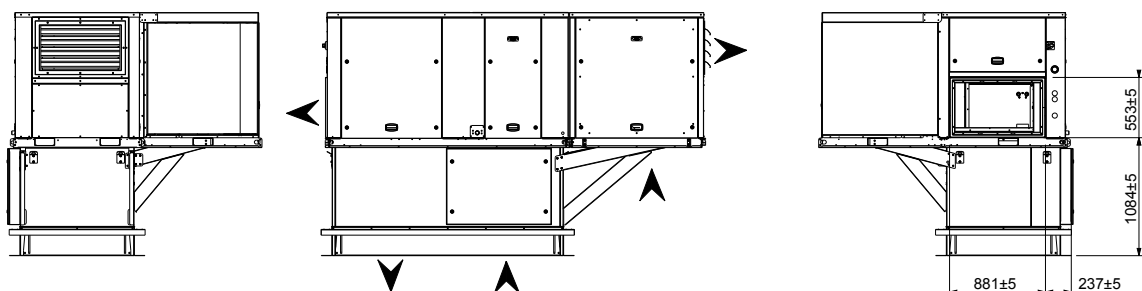


- Electrical connection
- Condensate draining
- Water connection
- Centre of gravity



WEIGHTS - KG

BALTIC - EC MOTOR		025	030	040	042
Air cooled unit with heat recovery module (option)	BAC	1120	1160	1200	1200
	BAH				

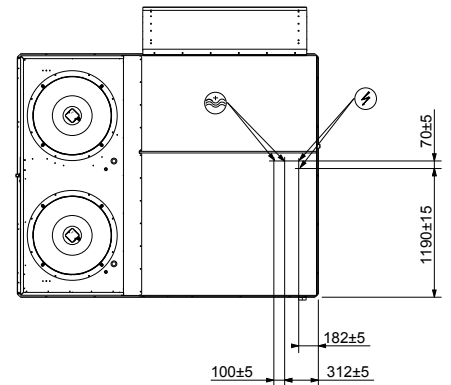
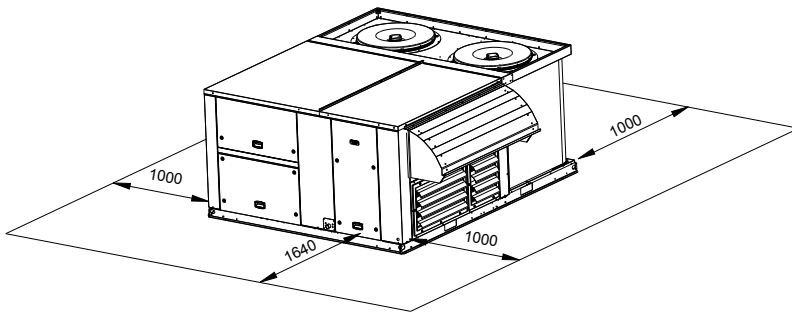
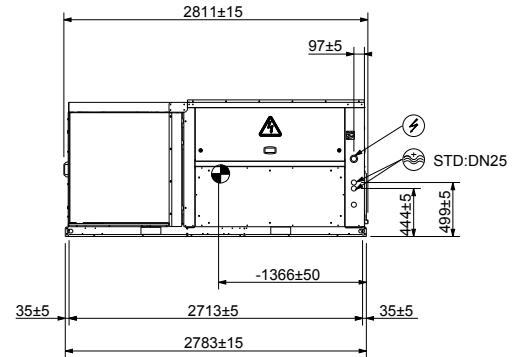
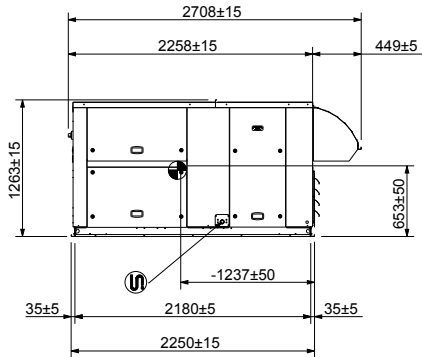


All dimensions expressed in mm.
Water cooled units : identical overall dimensions. Weight data available on request.

AIR COOLED UNITS

**BASIC UNITS
D BOX**

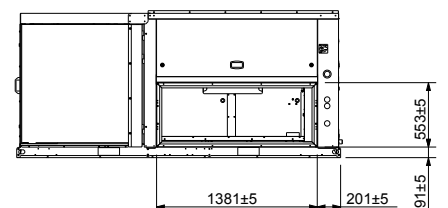
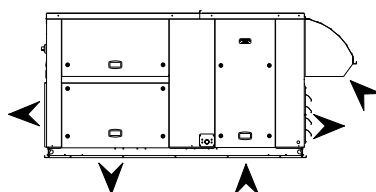
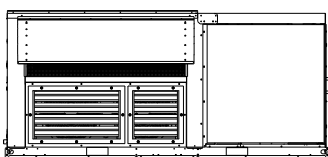
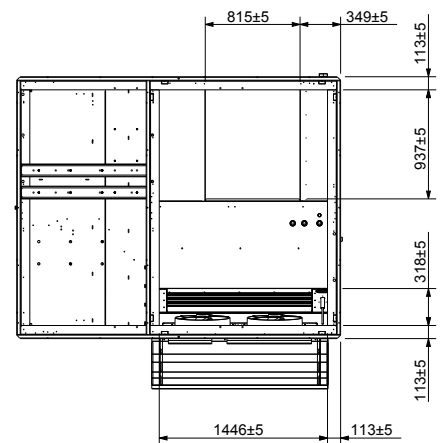
045 - 055 - 057 - 065



- Electrical connection
- Condensate draining
- Water connection
- Centre of gravity

WEIGHTS - KG

BALTIC - EC MOTOR		045	055	057	065
Standard air cooled unit	BAC	800	840	920	920
	BAH				



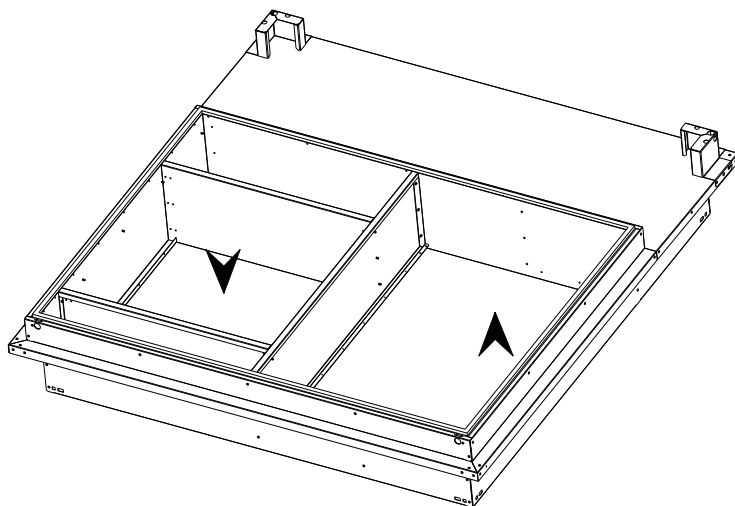
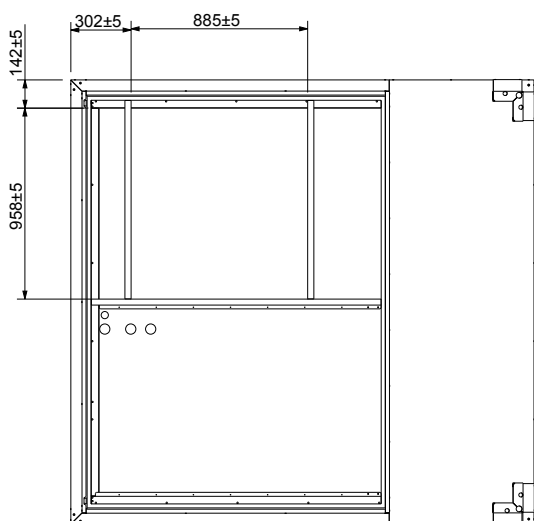
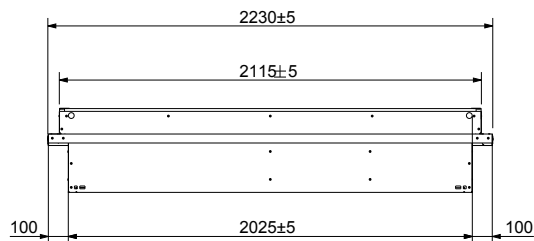
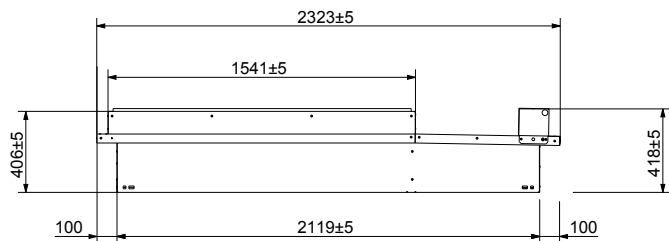
All dimensions expressed in mm.
Water cooled units : identical overall dimensions. Weight data available on request.

R14AH_D_CI(2)

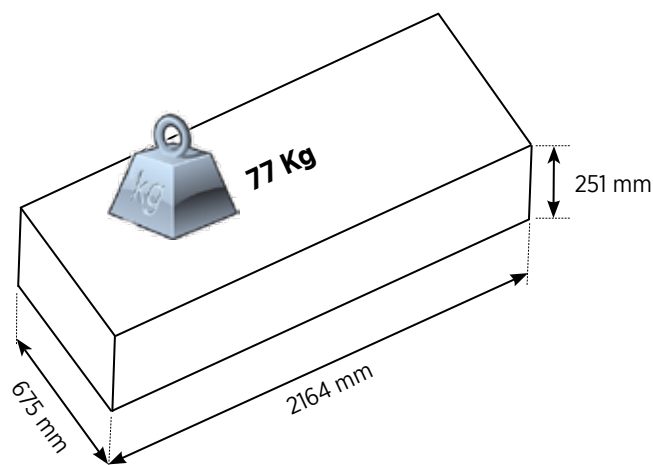


**NON ADJUSTABLE ROOFCURB
D BOX**

**045 - 055 - 057 - 065
045 - 052 - 057 - 065**



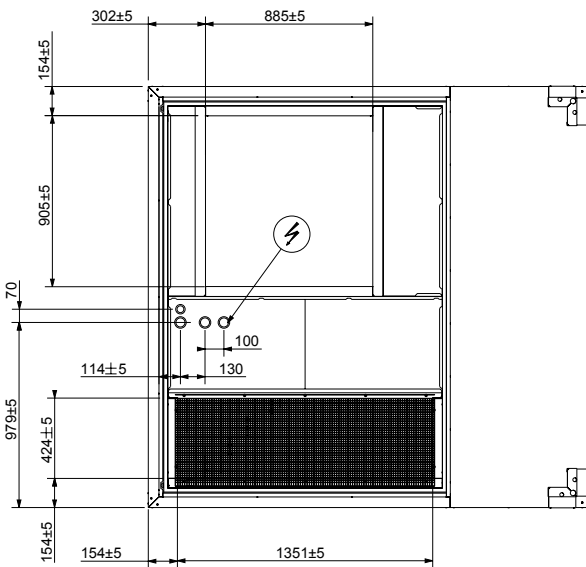
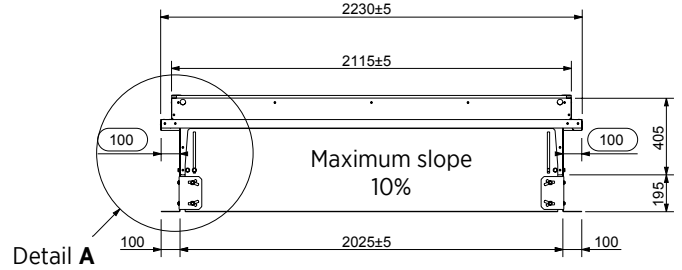
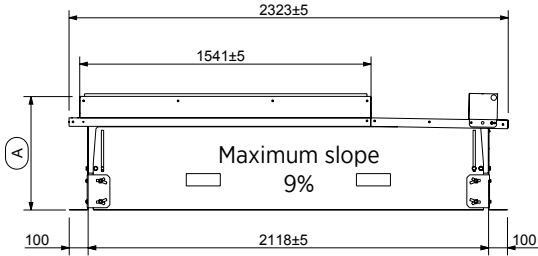
**NON ADJUSTABLE ROOFCURB KIT
DIMENSIONS AND WEIGHT FOR TRANSPORT**



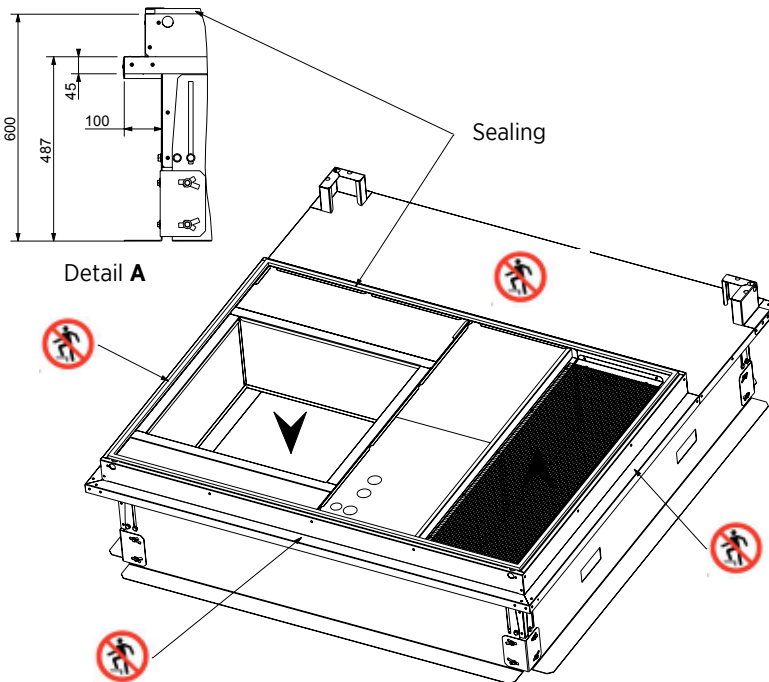
AIR COOLED AND WATER COOLED UNITS

**ADJUSTABLE ROOFCURB
D BOX**

**045 - 055 - 057 - 065
045 - 052 - 057 - 065**



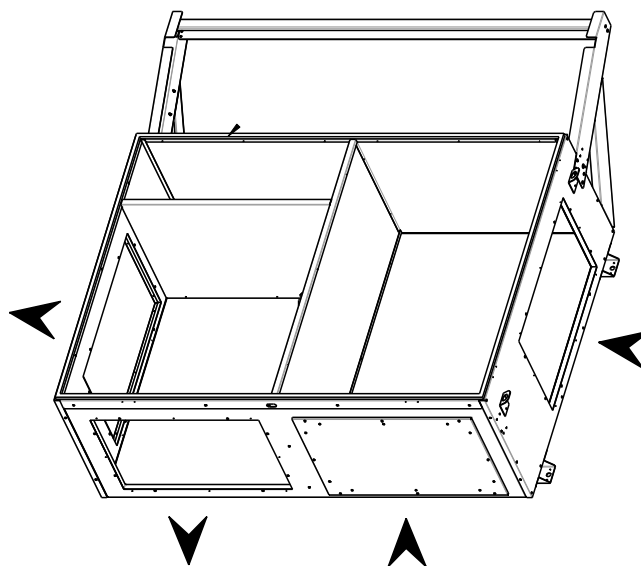
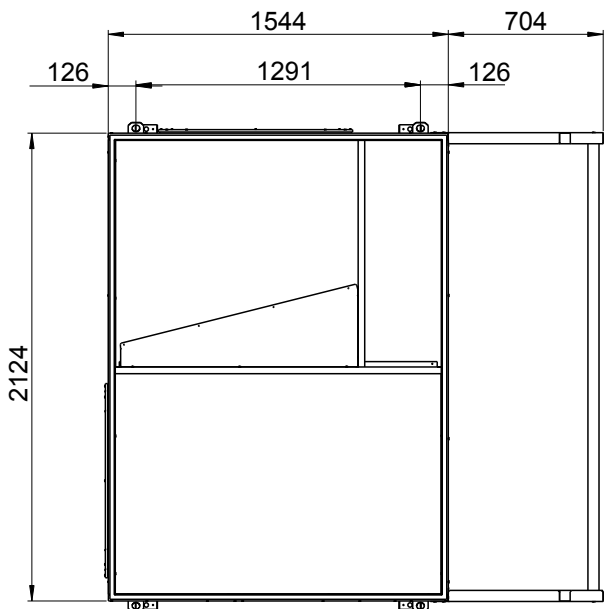
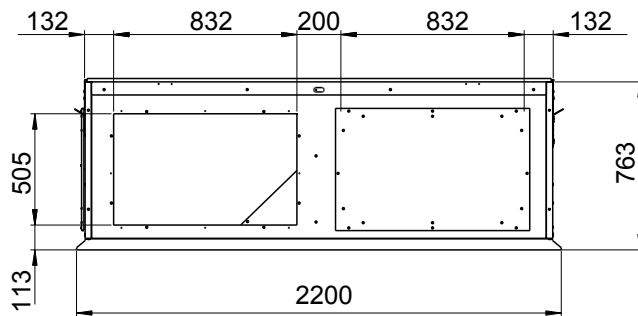
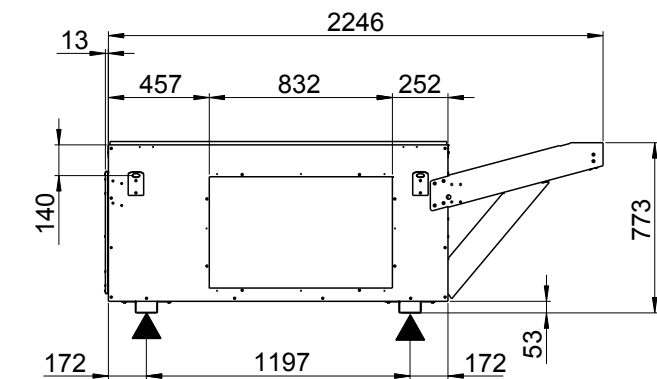
	Transport	Minimum	Maximum
A	640	600	797





**MULTIDIRECTIONAL ROOFCURB
D BOX**

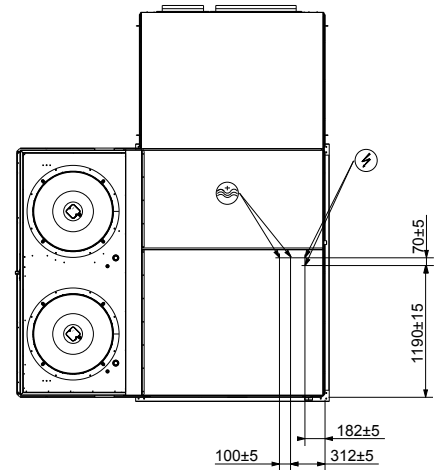
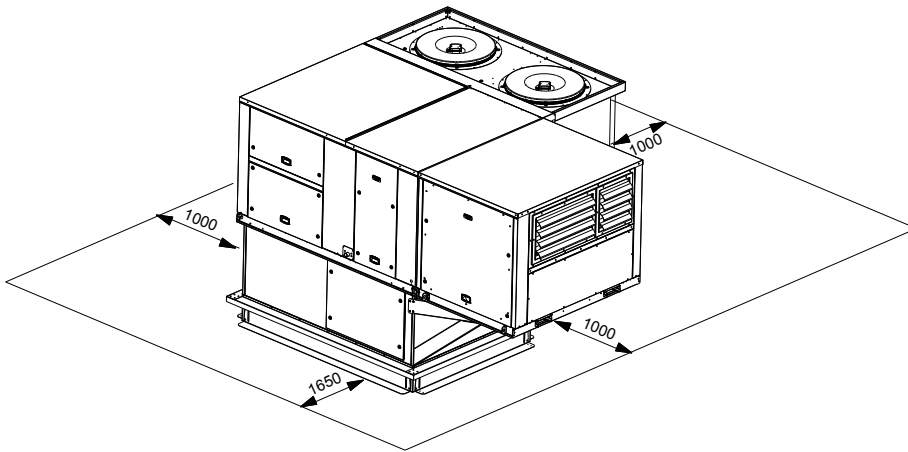
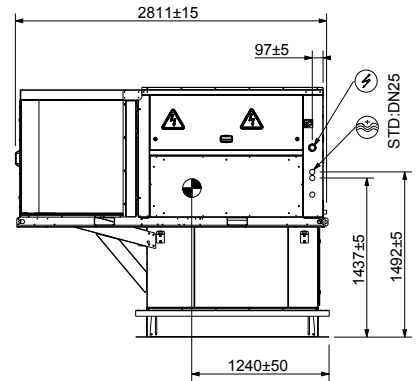
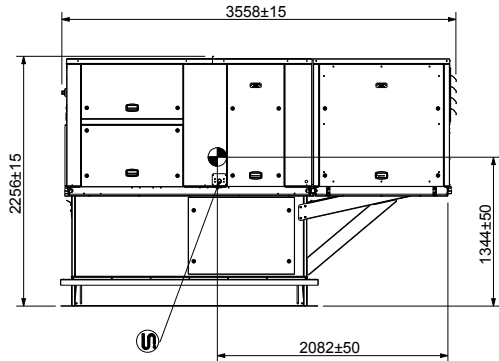
**045 - 055 - 057 - 065
045 - 052 - 057 - 065**



AIR COOLED UNITS

**UNIT WITH HEAT RECOVERY MODULE (option)
D BOX**

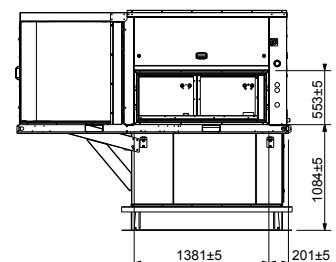
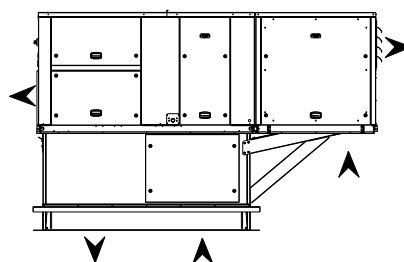
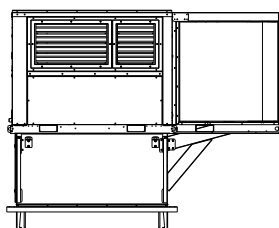
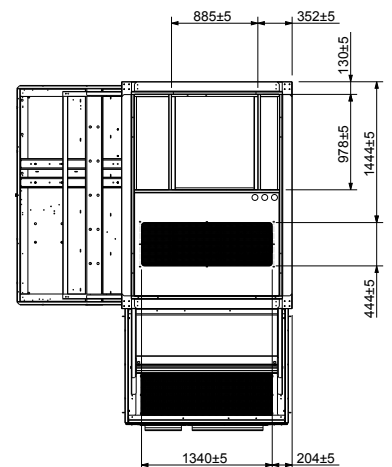
045 - 055 - 057 - 065



- Electrical connection
- Condensate draining
- Water connection
- Centre of gravity

WEIGHTS - KG

BALTIC - EC MOTOR		045	055	057	065
Air cooled unit with heat recovery module (option)	BAC	1470	1490	1580	1580
	BAH				



All dimensions expressed in mm.
Water cooled units : identical overall dimensions. Weight data available on request.

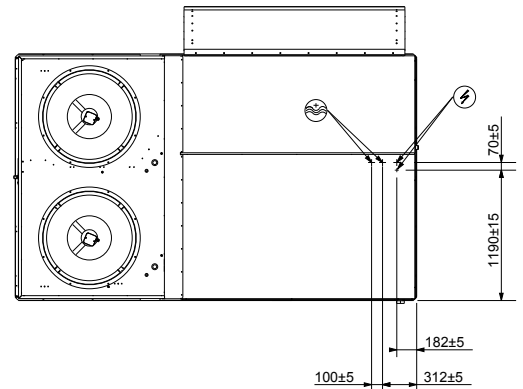
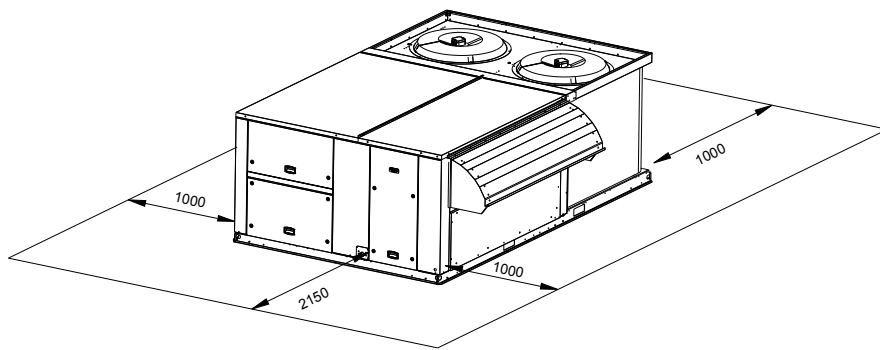
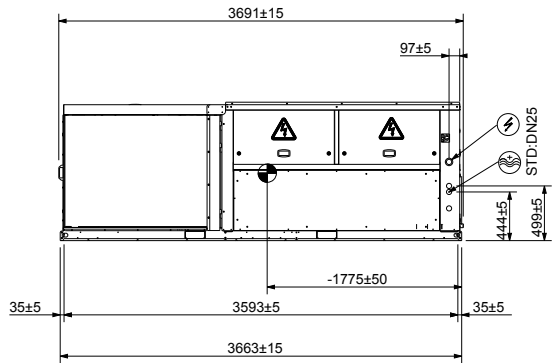
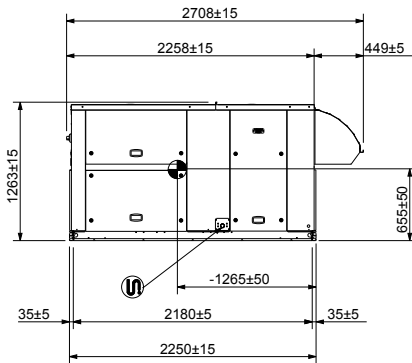
R14AH_D_ERVF_HRMV(z)



AIR COOLED UNITS

BASIC UNITS
E BOX

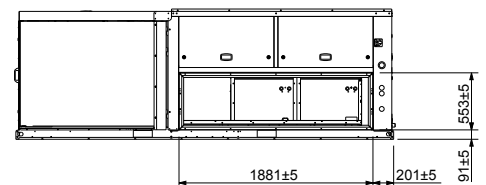
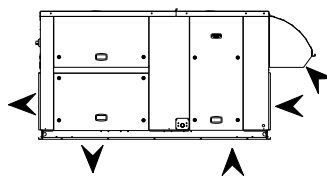
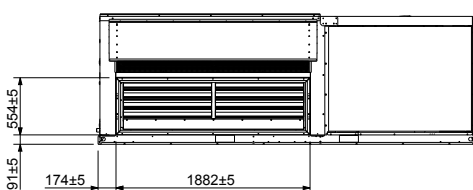
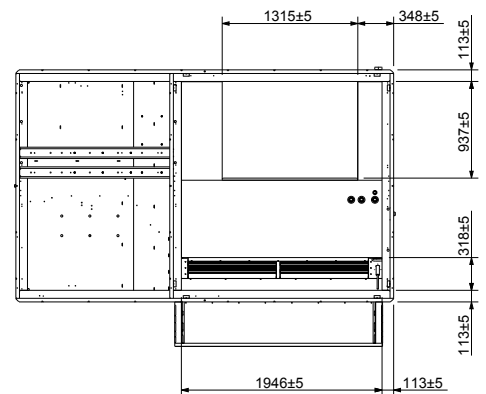
075 - 085



- Electrical connection
- Condensate draining
- Water connection
- Centre of gravity

WEIGHTS - KG

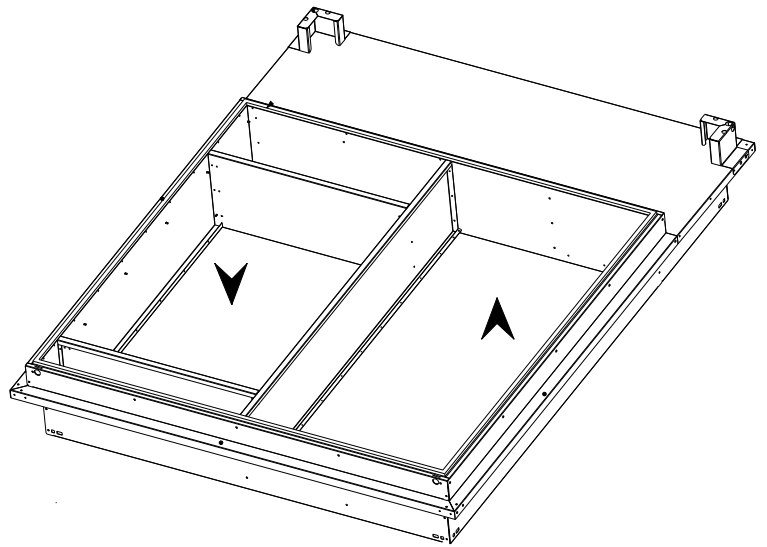
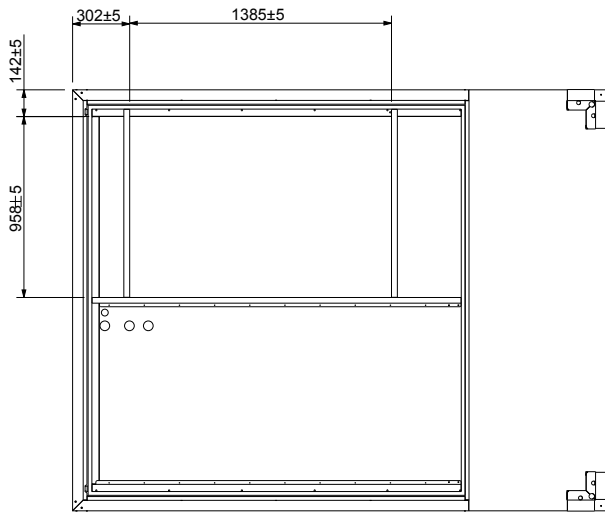
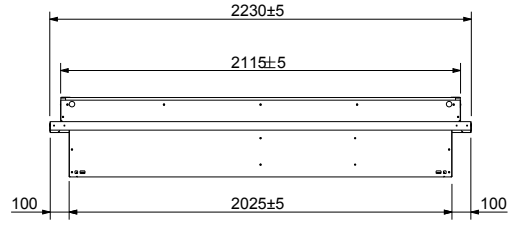
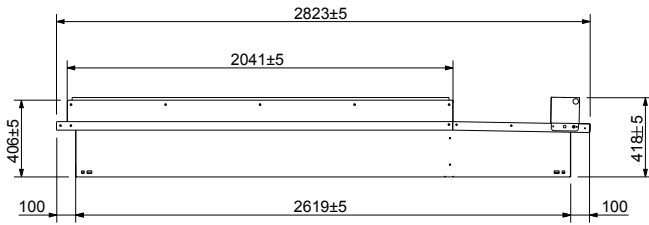
BALTIC - EC MOTOR		075	085
Standard air cooled unit	BAC	1150	1150
	BAH		



All dimensions expressed in mm.
Water cooled units : identical overall dimensions. Weight data available on request.

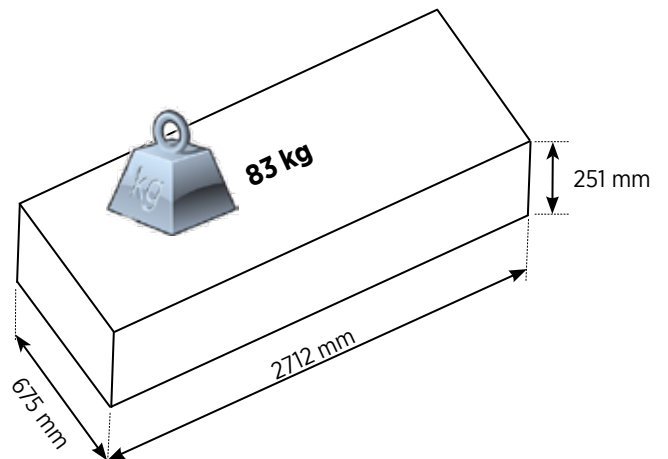
**NON ADJUSTABLE ROOFCURB
E BOX**

075 - 085



All dimensions expressed in mm

**NON ADJUSTABLE ROOFCURB KIT
DIMENSIONS AND WEIGHT FOR TRANSPORT**

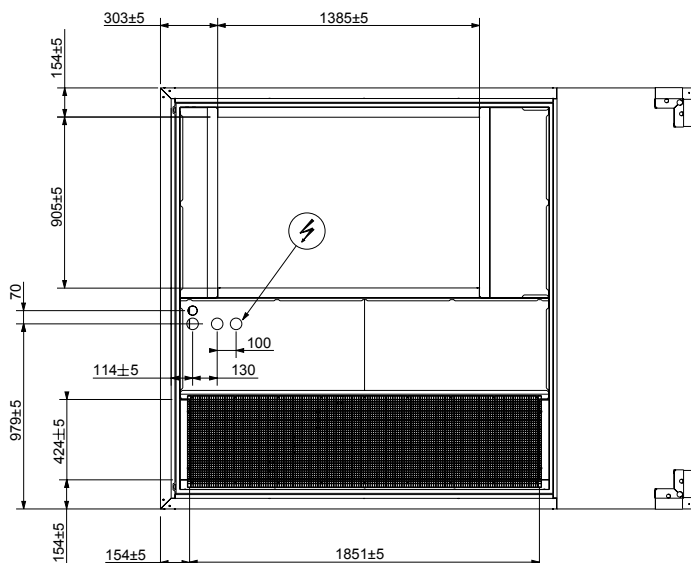
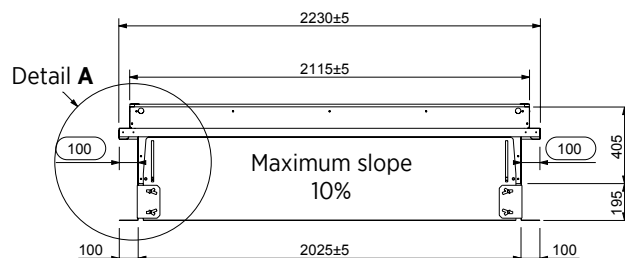
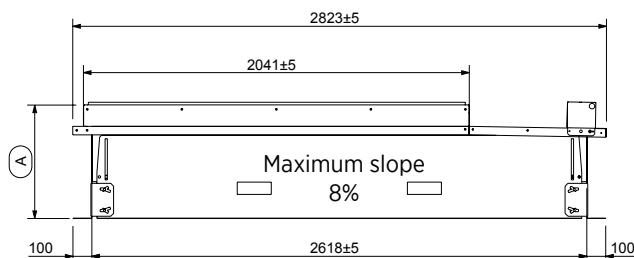


All dimensions expressed in mm

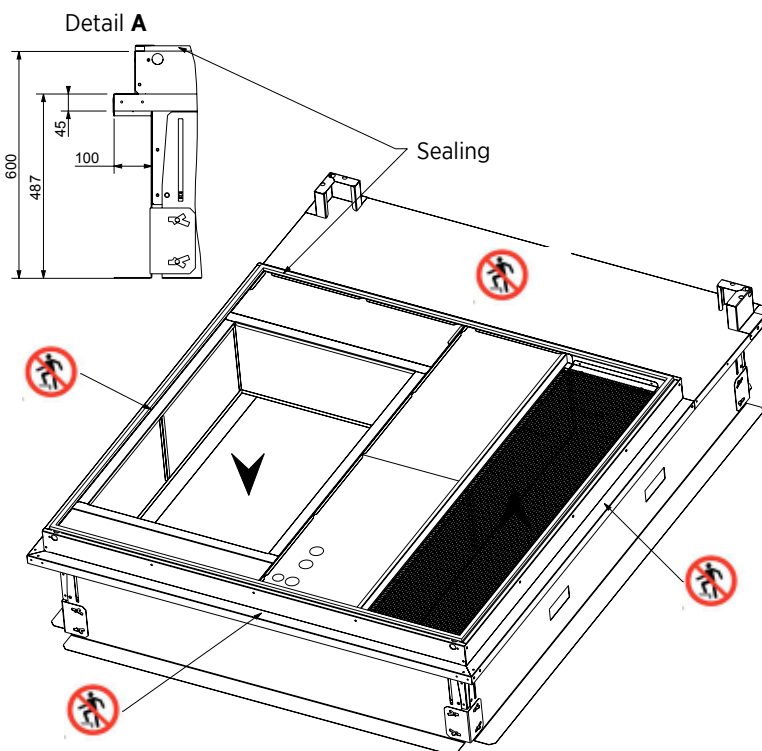


ADJUSTABLE ROOFCURB
E BOX

075 - 085

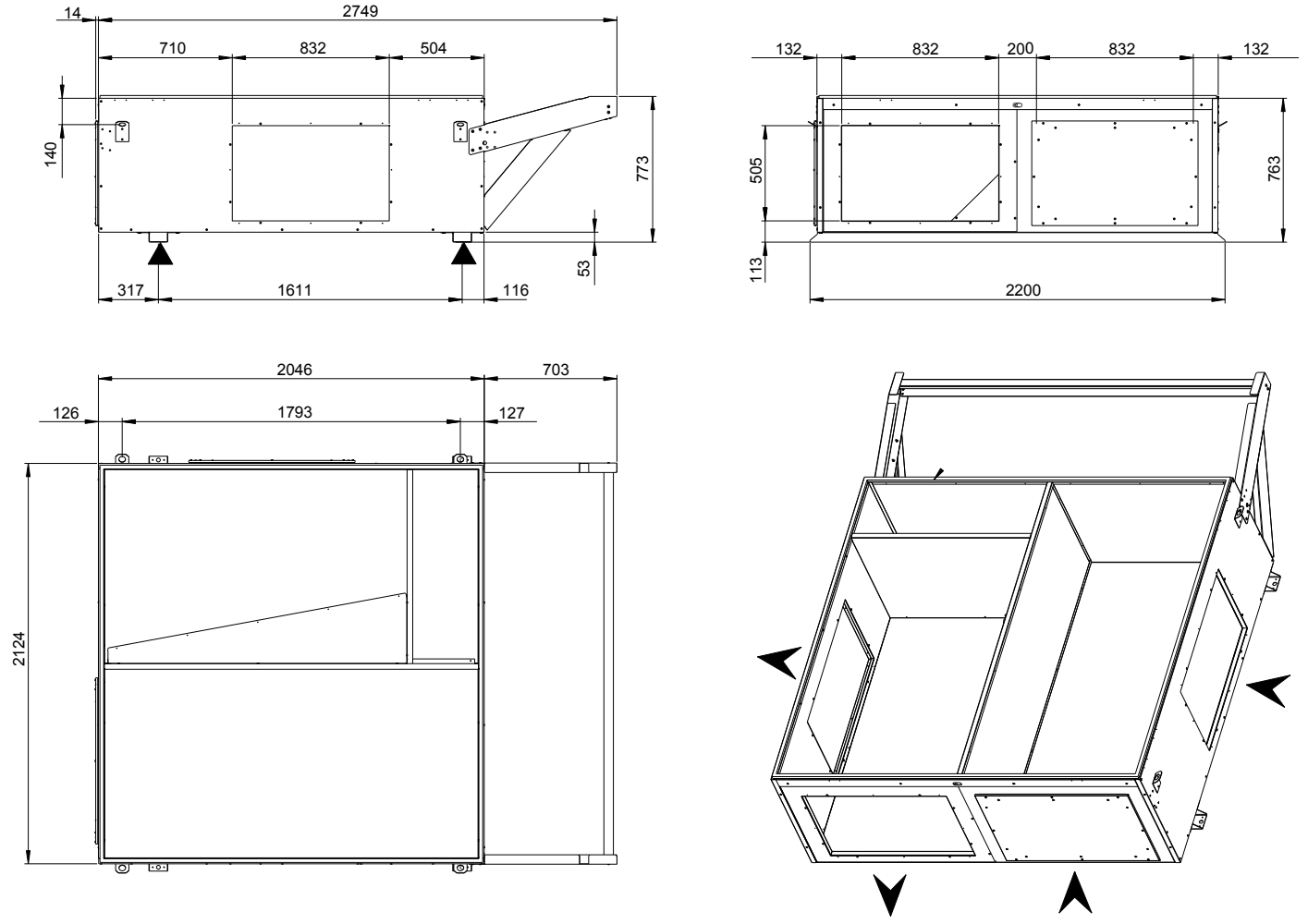


	Transport	Minimum	Maximum
A	640	600	797



MULTIDIRECTIONNAL ROOFCURB
E BOX

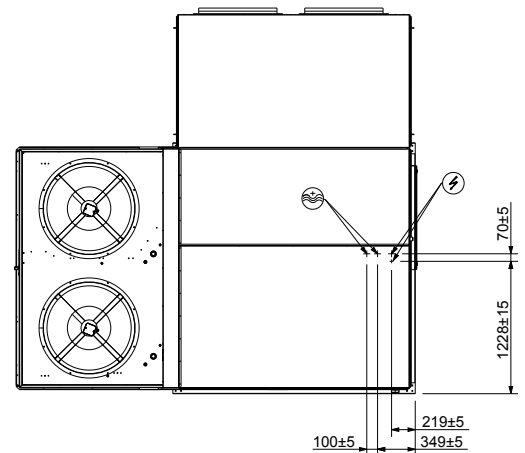
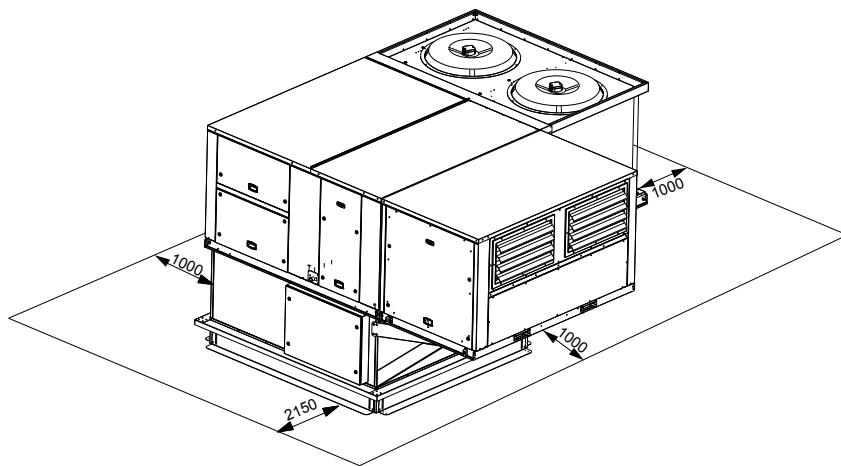
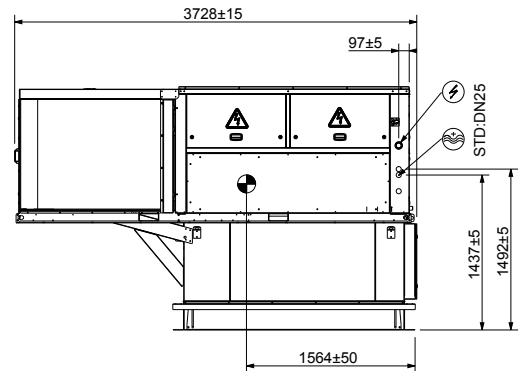
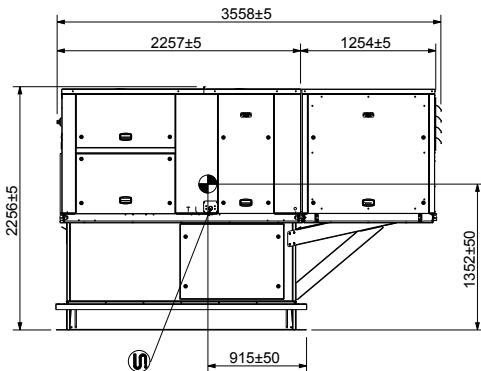
075 - 085



AIR COOLED UNITS

**UNIT WITH HEAT RECOVERY MODULE (option)
E BOX**

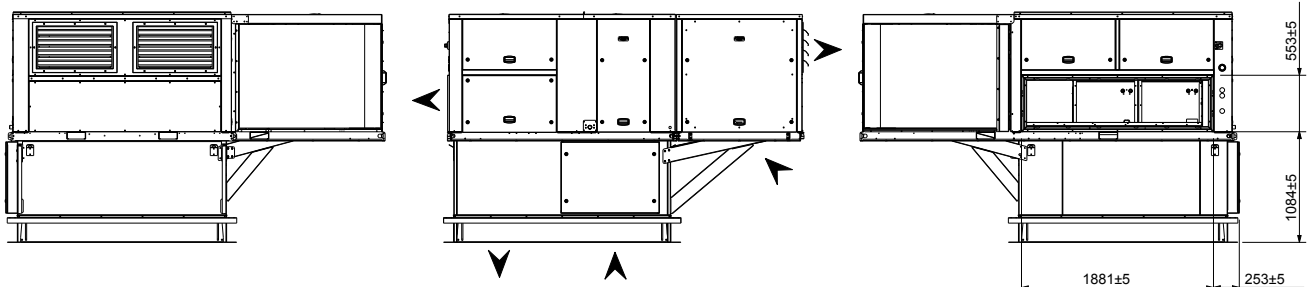
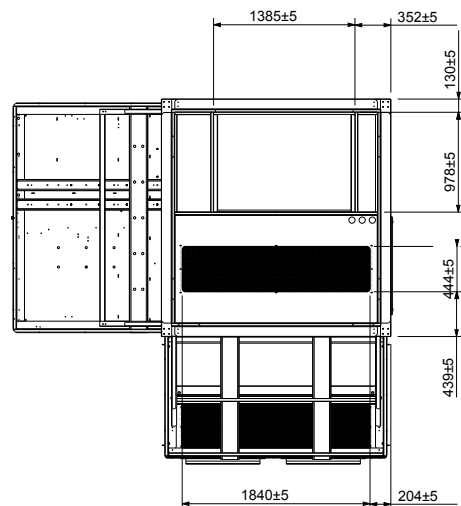
075 - 085



- Electrical connection
- Condensate draining
- Water connection
- Centre of gravity

WEIGHTS - KG

BALTIC - EC MOTOR		075	085
Air cooled unit with heat recovery module (option)	BAC	1930	1930
	BAH		



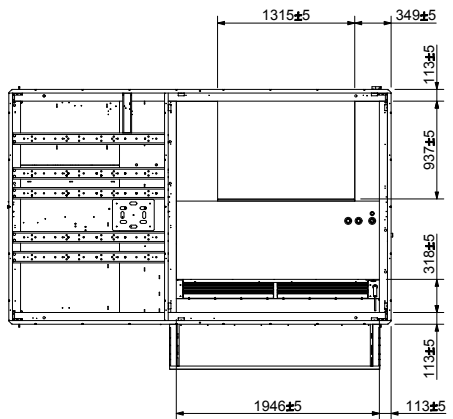
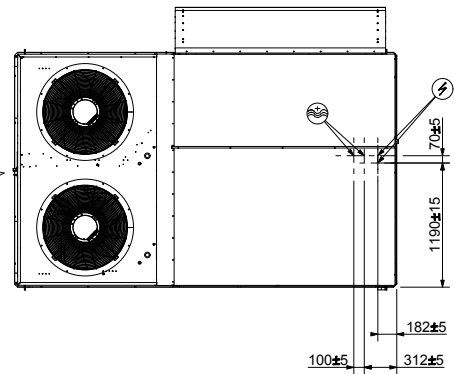
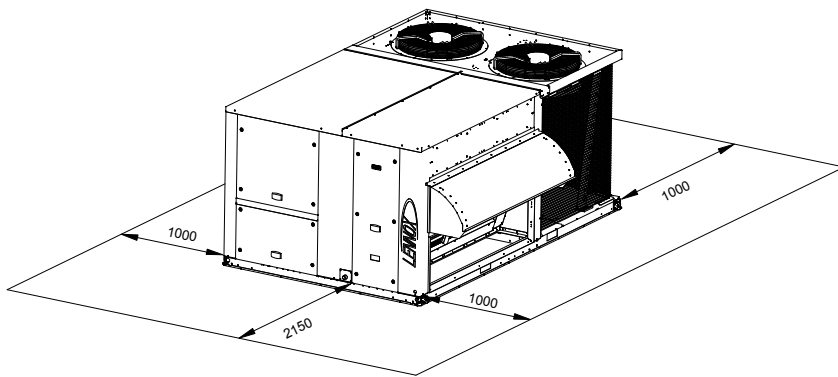
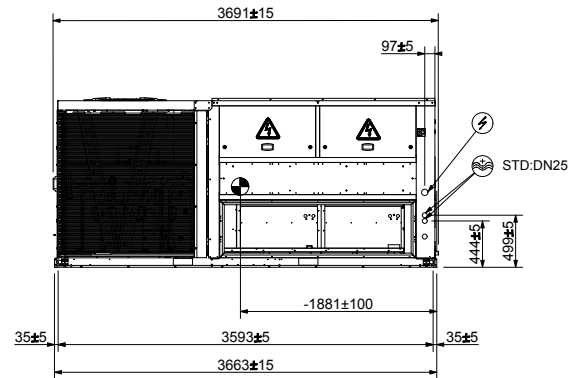
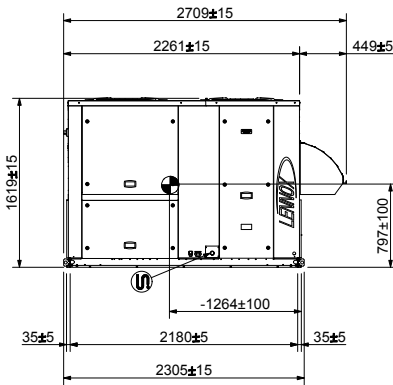
All dimensions expressed in mm.
Water cooled units : identical overall dimensions. Weight data available on request.

R14AH_ERVF_HRMV_Z

AIR COOLED UNITS

**BASIC UNITS
Ex BOX**

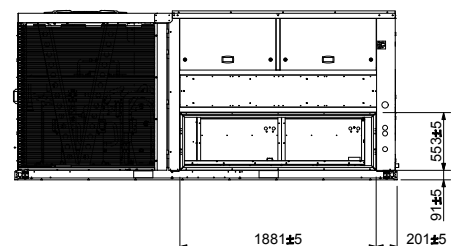
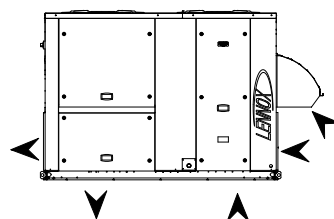
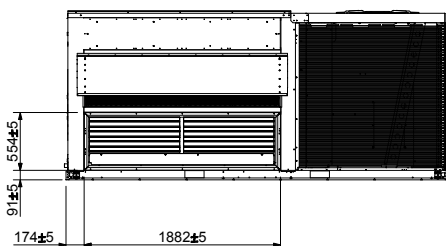
095 - 115 - 125



- Electrical connection
- Condensate draining
- Water connection
- Centre of gravity

WEIGHTS - KG

BALTIC - EC MOTOR		095	115	125
Standard air cooled unit	BAC	1350	1350	1350
	BAH			



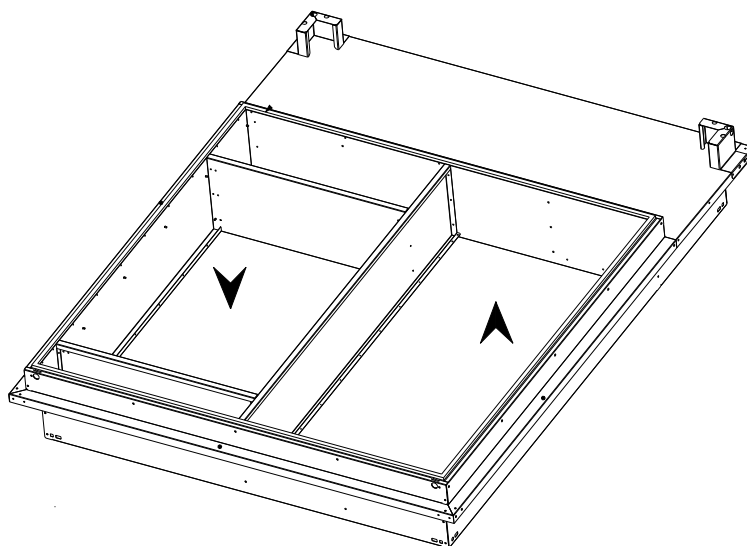
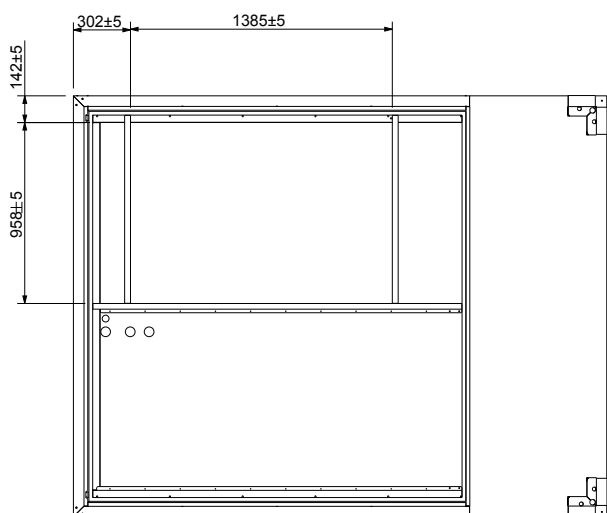
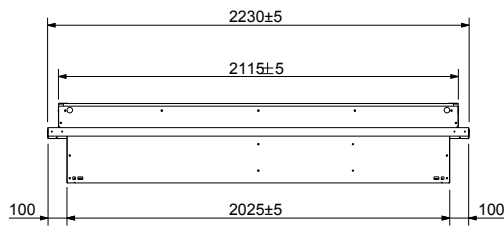
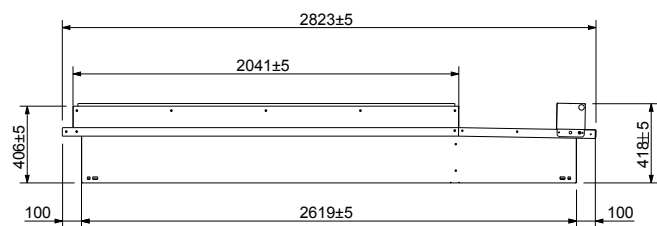
All dimensions expressed in mm.
Water cooled units : identical overall dimensions. Weight data available on request.



NON ADJUSTABLE ROOFCURB

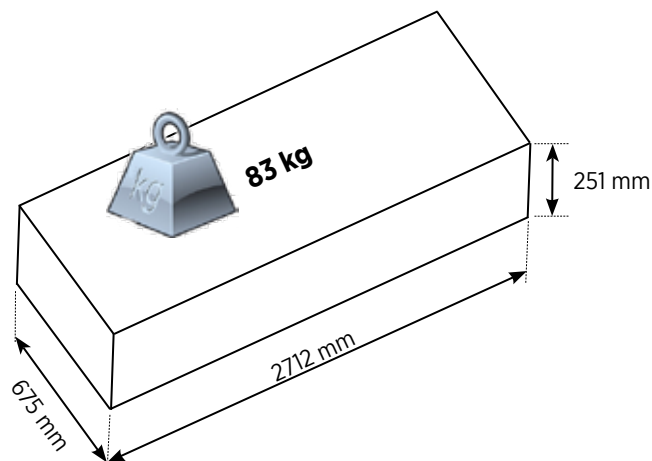
Ex BOX

095 - 115 - 125



All dimensions expressed in mm

**NON ADJUSTABLE ROOFCURB KIT
DIMENSIONS AND WEIGHT FOR TRANSPORT**

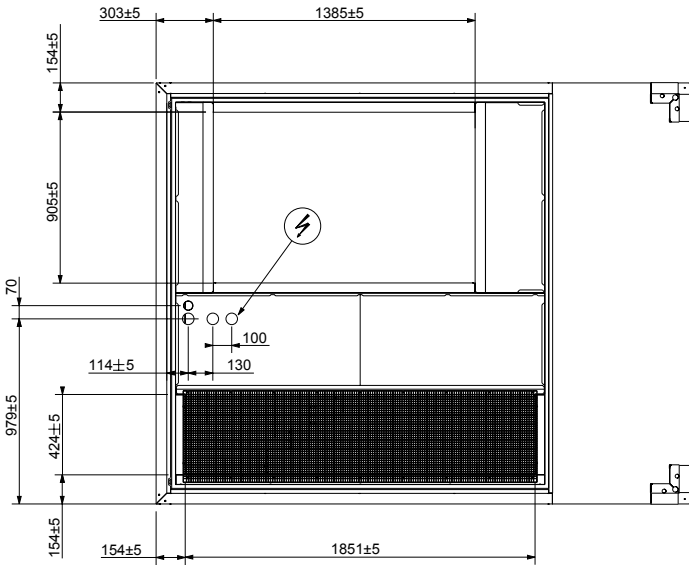
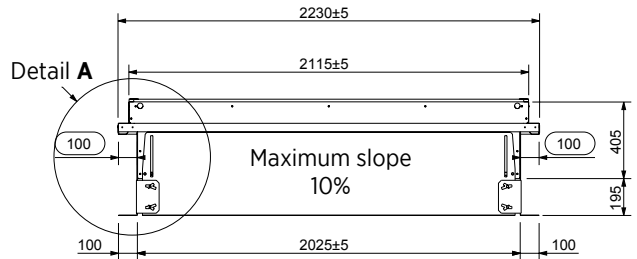
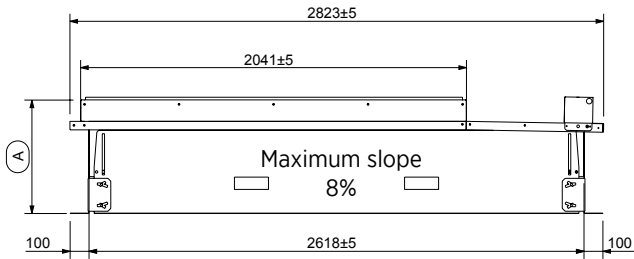


All dimensions expressed in mm

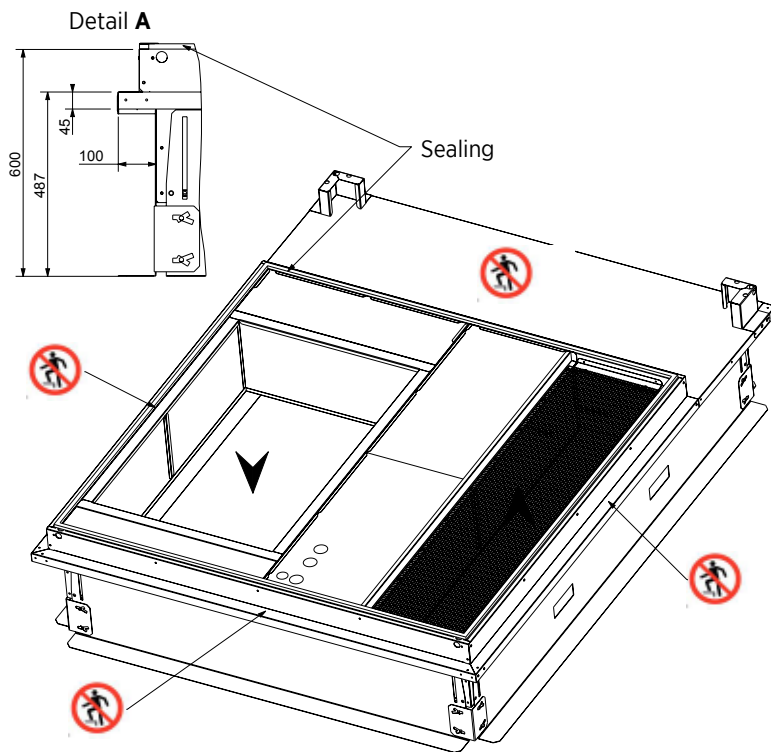
AIR COOLED AND WATER COOLED UNITS

**ADJUSTABLE ROOFCURB
Ex BOX**

095 - 115 - 125



	Transport	Minimum	Maximum
A	640	600	797



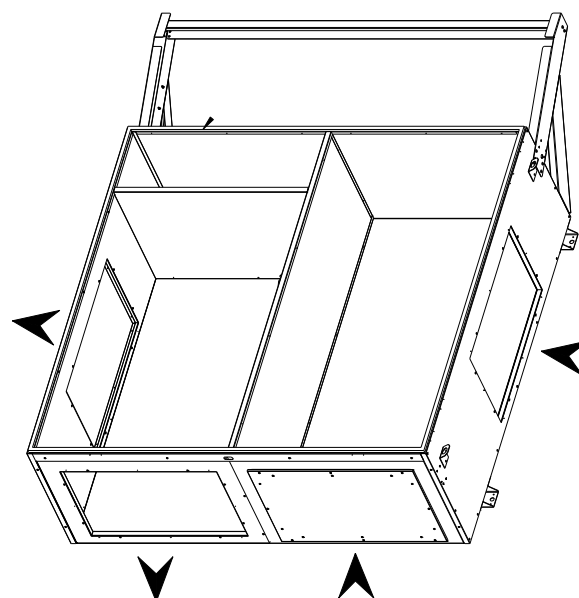
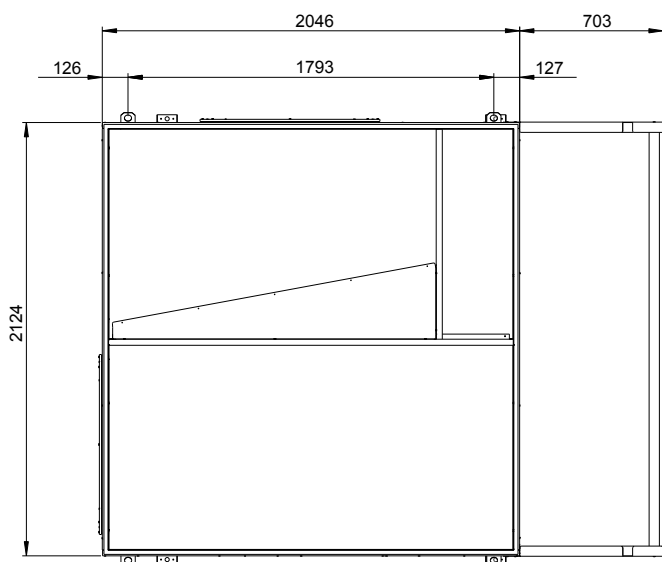
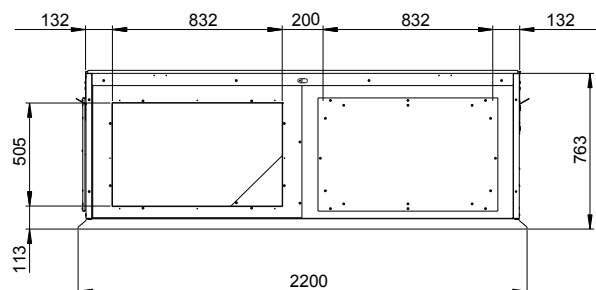
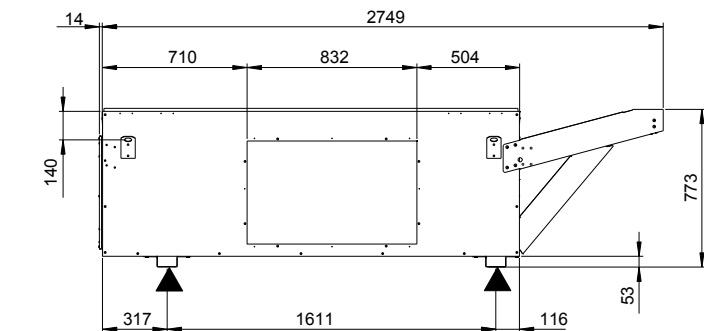
All dimensions expressed in mm



MULTIDIRECTIONAL ROOFCURB

Ex BOX

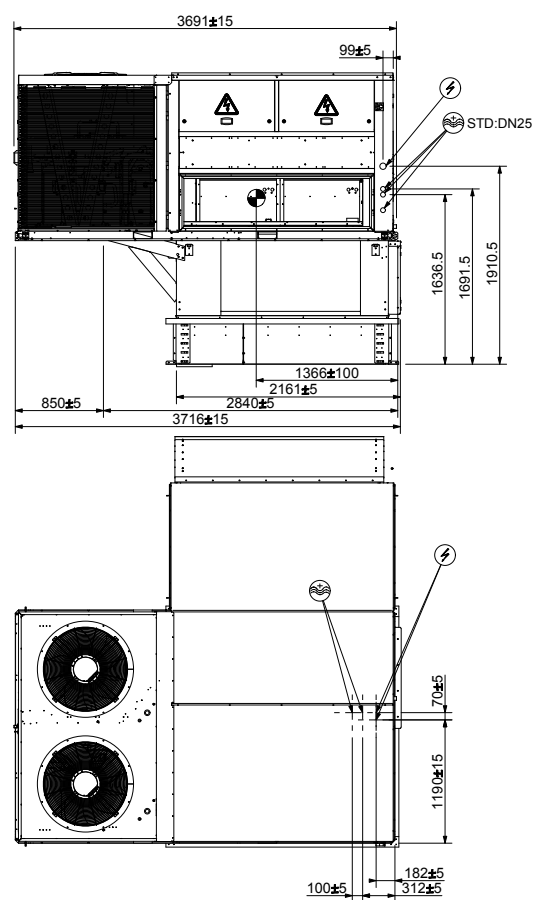
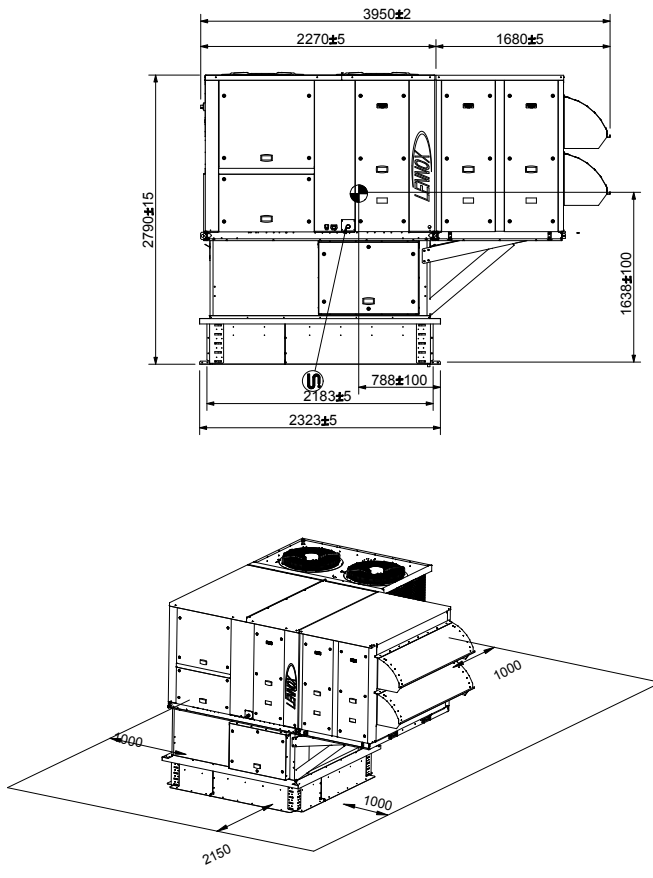
095 - 115 - 125



AIR COOLED UNITS

**UNIT WITH HEAT RECOVERY MODULE (option)
Ex BOX**

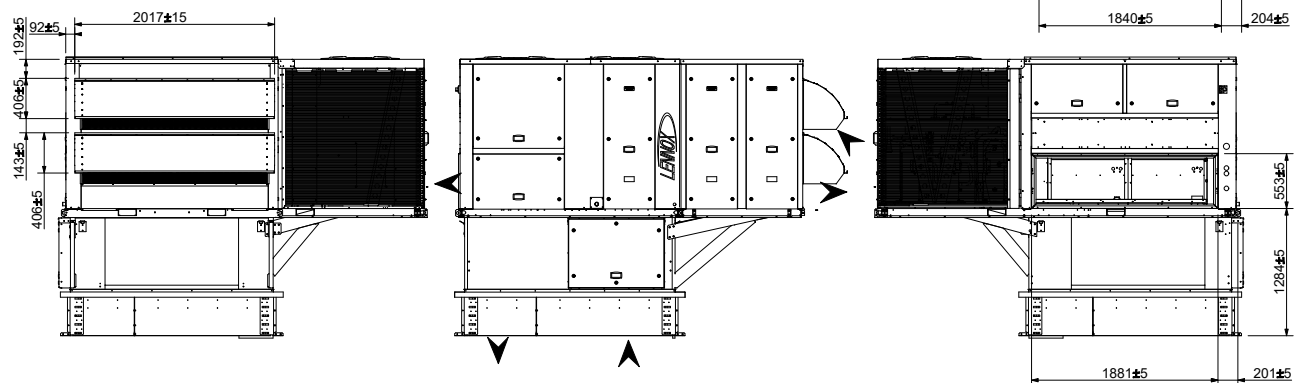
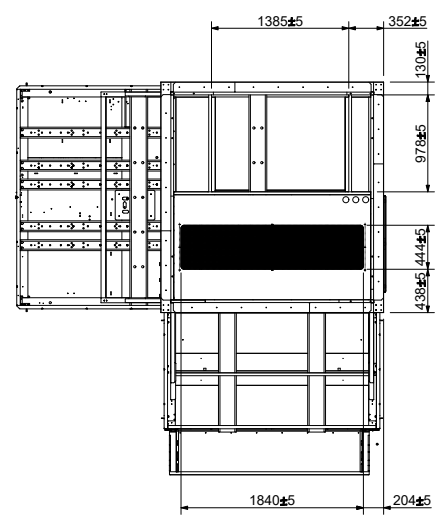
095 - 115 - 125



- Electrical connection
- Condensate draining
- Water connection
- Centre of gravity

WEIGHTS - KG

BALTIC - EC MOTOR		095	115	125
Air cooled unit with heat recovery module (option)	BAC	2340	2340	2340
	BAH	2340	2340	2340



All dimensions expressed in mm.
Water cooled units : identical overall dimensions. Weight data available on request.

Due to LENNOX EMEA ongoing commitment to quality, the specifications, ratings and dimensions are subject to change without notice and without incurring liability. Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury. Installation and service must be performed by a qualified installer and servicing agency.



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