LENNOX
EMEA

GENERAL CATALOGUE

www.lennoxemea.com

LENNOX

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LENNOX
EUROPE MIDDLE-EAST AFRICA

LENNOX EMEA (**E**urope **M**iddle-**E**ast **A**frica), part of Lennox International Incorporated (LII) is a leading provider of climate control solutions for heating, air conditioning and refrigeration markets and has the commitment to assisting its customers in their projects, to provide optimized and sustainable solutions.

LENNOX EMEA ensures that each employee flourishes within the group, so as to contribute to the success of our customers' projects. Every day we develop our reputation by providing maximum comfort and efficiency through our air conditioning and refrigeration solutions.

Our reputation as a leading market player is based on simple principles that guide our action: capacity to listen to our customers, knowledges of their fields of applications and understanding of their needs.

The devotion and expertise of all employees of **LENNOX EMEA** are key assets in building the trust shown to us by our customers every day and in ensuring the continuity of our relations.

More than ever, **LENNOX EMEA** is committed to meeting the challenges of tomorrow, by your side.

Ricardo FREITAS
VP, Managing Director LENNOX EMEA

Facts and figures

LENNOX INTERNATIONAL

9 800
people

3,84
Billion $ turnover in 2016.
Quoted on NYSE

Presence on
5 continents

LENNOX EMEA (EUROPE, MIDDLE EAST, AFRICA)

1 000
permanent people

Commercial presence in
46 countries

3 European production sites

1 HVAC&R European development center

LENNOX EMEA UNIVERSITY :
More than
700 hours of bespoke training provided each year for our teams and our customers' teams

3 commercial brands:
Lennox, Friga Bohn, HK Refrigeration.

Quality standards :
ISO 9001

Environmental standards :
ISO 14001

Occupational health and safety management systems(*) :
OHSAS 18001

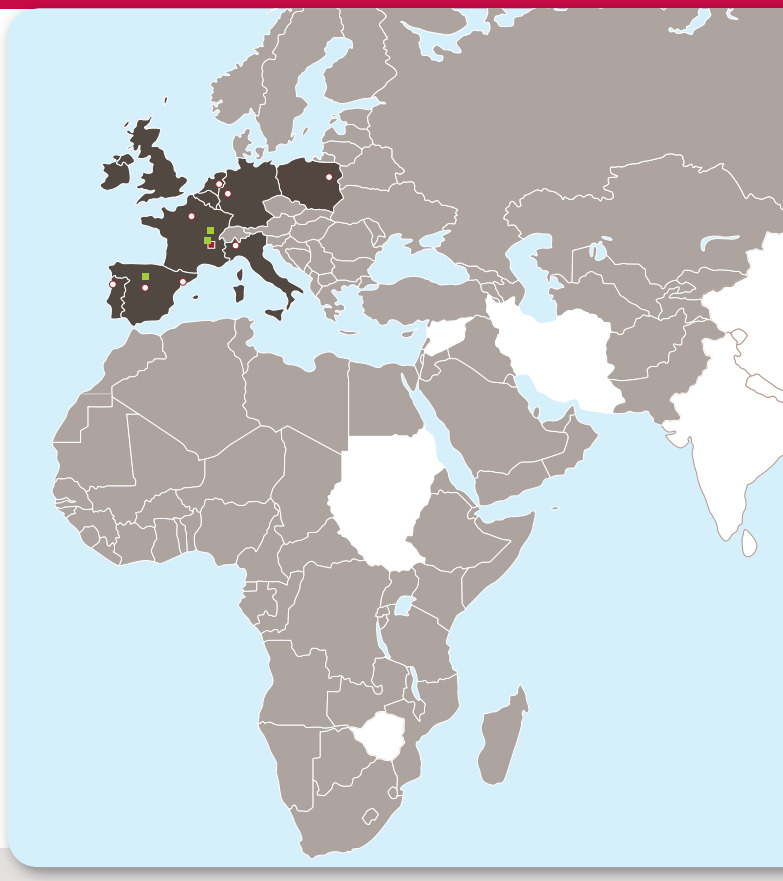
(*) : Longvic production site

HEAD OFFICE EMEA :
Lyon (France)

EUROPEAN PRODUCTION AND R&D SITES :
Burgos (Spain): Plant
Dijon, Lyon (France): Plants
Lyon (France): European Development center

SUBSIDIARIES AND REPRESENTATIVE OFFICES :
Belgium and Luxembourg, France, Germany, Italy, Poland,
Portugal, Spain, The Netherlands,
United Arab Emirates, United Kingdom.

CURRENT DISTRIBUTION NETWORK :
Algeria, Bahrain, Belarus, Botswana, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Ghana, Greece, Hungary, India, Iraq, Israel, Jordan, Kazakhstan, Kuwait, Latvia, Lebanon, Morocco, Norway, Oman, Romania, Russia, Serbia, Slovakia, Slovenia, South Africa, Sweden, Switzerland, Tunisia, Turkey, Ukraine, Yemen.



Our production centers

LENNOX EMEA has 3 production sites located in France and Spain.
Customer focus and Lean concept has driven the evolution of these factories for years, and result in a very flexible and efficient organization ready to meet customer needs, even outside our standard portfolio.

GENAS (FRANCE)
(Lyon area)
This 14000 sqm plant produces medium and large scroll chillers as also refrigeration equipments. This plant is also fully autonomous in sheet metal manufacturing.

LONGVIC (FRANCE)
(Dijon area)
This 13000 sqm plant is dedicated to rooftop assembly, with its own sheet metal facility.

BURGOS (SPAIN)
(between Madrid and San Sebastian),
This 7000 sqm plant produces monobloc units and ductable splits, small and medium chillers and rooftops.

PRODUCTS CERTIFICATIONS

CE The manufactured units comply with EEC regulations, and each year an approved organism carries out a specific audit to check conformity with pressure equipment directives.

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

As of today, the majority of our products are **EUROVENT** certified.
With this program, we remain resolutely committed to reinforcing integrity and transparency in our commercial relationship with our customers.

INNOVATION

Technologies evolve, regulations too: the **LENNOX EMEA** R&D teams work to invent solutions that, day after day, improve the lives of our customers, responding to ever changing expectations :

- Ease of installation
- Energy efficiency: how to provide the highest level of comfort while minimising energy costs
- Reduction of maintenance frequencies and costs
- Common solutions between HVAC and Refrigeration
- Environmentally friendly solutions

We focus on the overall cost of use of our solutions, from the start to the end of their lives.

LENNOX EMEA is really focused on innovation and just built a brand new development center.
This European development center, located in Mions (Lyon area, France), has been designed to handle tests for both medium to high capacity HVAC products and Refrigeration equipments, and is qualified for welcoming external inspectors for yearly Eurovent campaigns on Rooftop and Chillers (full load, seasonal efficiencies).

On a 4000 m² site, product ranges are tested in one of our 5 tests chambers including Rooftop room, Chiller rooms, Refrigeration room and 2 Lifetest cold rooms.

The Rooftop room is the largest in Europe, able to qualify units up to 250 kW cooling capacity and 45.000 m³/h airflow. The tests can be run for temperatures between -15°C to +55°C.

Chiller units in cooling only or heat pump version up to 750 kW are qualified in dedicated rooms, between -20°C and +55°C.

These test capabilities allow us to optimize and control seasonal efficiencies of all of our units.

For chillers and rooftops, the tests are run according to new EN 14825 eco-design standard.

QUALITY

As stated in our QSE Policy, **LENNOX EMEA**, with its employees and shareholders undertakes to supply its customers with products and services whose quality meets their requirements and expectations, both implicit and explicit.
To do so, a dedicated Quality team, reporting directly and independently to the **LENNOX EMEA** General Management, works closely with every department to ensure that products and services meet our customers expectations at all time.

In all departments we are developing continuous improvement processes and all our production centers are ISO 9001 and ISO 14001 certified, audited twice a year by our certification companies – SGS in Spain and LRQA in France. Our Longvic plant is also ISO 18001 Certified.

SERVICE

Training Center

To enhance your refrigeration and air conditioning skills, in an ever changing technological and regulatory environment

To increase your competitive advantage in an ever changing technological and regulatory environment, for refrigeration and air conditioning, **LENNOX EMEA** offers you a European training center, to :

- Improve your operational knowledge
- Optimise your professional activities
- Become more competitive.

Modern and innovative, situated at the heart of one of our European manufacturing site in France, this complex benefits from all the experience and technological resources you would expect of an international manufacturer.

THE COURSES

LENNOX EMEA University adapts itself to your requirements and trains you in the operation of our cooling and air conditioning systems to optimise energy management with greater respect for the environment:

- Regulation and control of air conditioning equipment
- Commissioning, management and maintenance of machinery
- Initiation and improvement in cooling technologies
- Initiation and improvement in air conditioning
- Building Management System
- Specification and rating of air conditioning plant
- Handling, retrofit of refrigerants

LENNOX EMEA University offers practical experience on a complete range of equipment, permanently installed at the disposition of students in test stations, exclusively dedicated to training.
LENNOX EMEA University also offers specially tailored courses;
we will find a solution suited to your specific requirements : content, date or place at your course.
The courses combine alternate theoretical and practical modules and are sanctioned by a **LENNOX EMEA certificate**, the mark of quality for your customer and enable you to work on our equipment under the best conditions.

THE EQUIPMENT

- 500 sqm dedicated to training
- An audiovisual room to follow the theory courses in comfort
- Roof top and chiller test stations
- Real life test benches for unit products (Split, ducted, cabinet, etc.)
- “System” workshops combining several types of unit.
- Simulator for the programmed controllers in our range
- A relaxation room for refreshments and meals

E-LEARNING

- E-learning is an ideal solution if your busy lifestyle does not allow you to attend our **LENNOX EMEA University** trainings.
- Our student-centred and flexible online subjects offer the same rigorous learning requirements as our traditional courses.

PARTNER COMPANIES WHO FOLLOWED THE COURSES

Alcatel
Auchan
Axima
Carrefour
Cegelec

City Facilities
Cofely
Dalkia
Elyo Suez
Ikea

Johnson Control
Jtek
Mc Donald’s
Veolia
and more ...

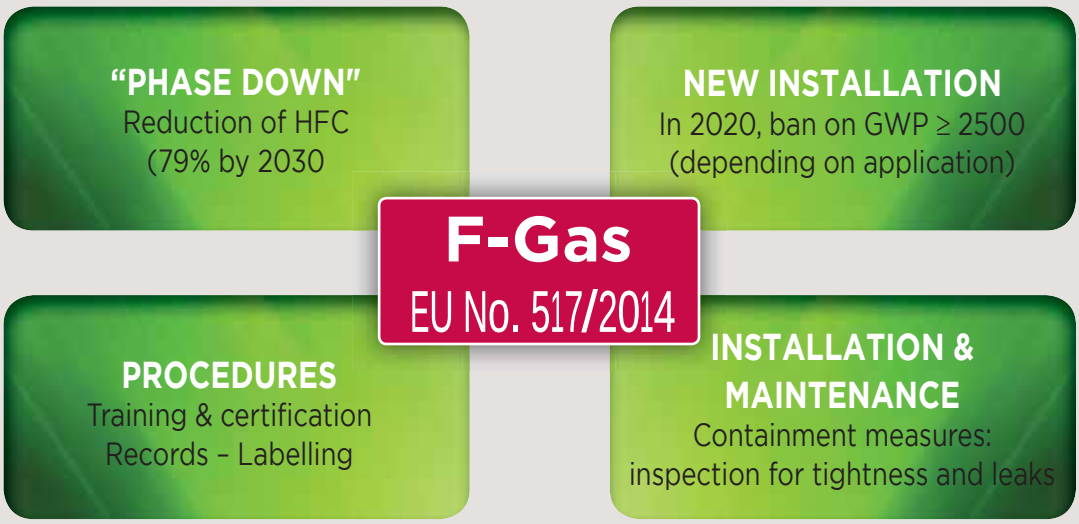
Sustainable development

Sustainable performance

Perfectly aware of the importance of all ecologic issues, LENNOX EMEA is involved in :

- Planning and making commitments for the long term, conducive to the fulfilment of everyone's needs and the development of ever more efficient and environmentally friendly solutions.
- Answering high environmental standards by developing low GWP solutions, respecting all environmental directives and our customers needs in energy consumption savings.
- All of our products, developed by a team of technical experts, meet the normative requirements Ecodesign and F-gaz. The design of products with natural fluids such as CO_2 is a major axis of development of LENNOX EMEA. We are eager to support our customers in these regulatory developments and offer them the best systems and services.

F-Gas regulations



The context

The chlorofluorocarbon (CF) and hydrofluorocarbon (HCFC) refrigerant fluids used in cooling systems today are considered to be powerful greenhouse gases.
To prevent climatic changes and global warming, the European Commission has adopted a roadmap to reduce global emissions by 2050.
This directive, which relates to **EU regulation No. 517/2014**, is called **F-Gas**:

- Defines rules regarding containment, use, recovery and destruction of fluorinated greenhouse gases and related measures.
- Defines the conditions for introduce on the market certain products and equipment containing HFCs.
- Imposes conditions on certain specific uses of fluorinated greenhouse gases.
- Sets quantitative limits (quotas) for marketing HFCs.

This decree is for all companies that install, maintain and sell equipments containing refrigerant fluids, as well as those handling and distributing them.

Prevention and restrictions

Prevention of fluorinated greenhouse gas emissions

The (EU) regulation No. 517/2014 imposes the rules concerning fluorinated greenhouse gas used in air conditioning and refrigeration applications.

All equipment must be designed to prevent accidental discharge of greenhouse gas.

F-Gas regulations

The F-Gas recommendation on fluorinated fluids imposes :

- Bans of some refrigerant for some applications
- Frequent inspections (with or without leak protection systems)
- Qualification of companies and participants.

Usage restrictions for new equipment:

Concerning air conditioning applications, the only regulatory point to be taken into account is the following one :

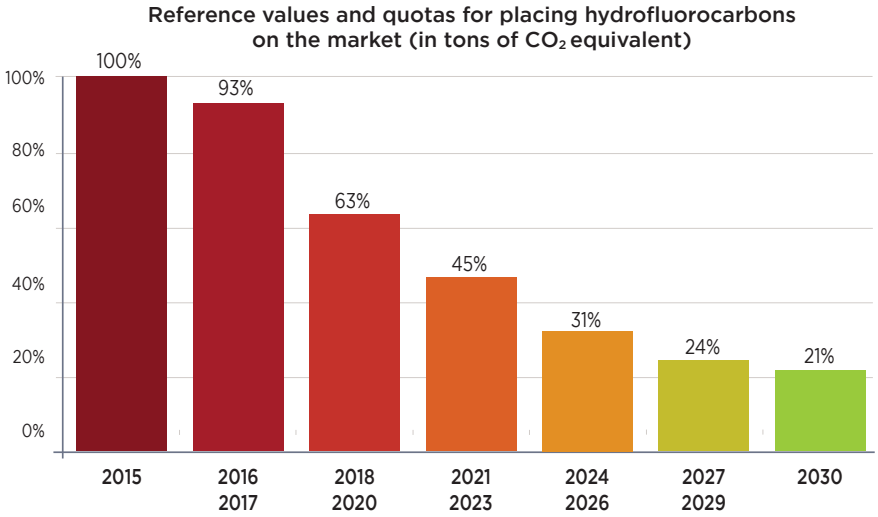
Year of prohibition	GWP (Global warming potential)	Applications/prohibitions
2025	GWP ≥ 750	Residential air conditioning (bilateral blocks) containing less than 3 kg of greenhouse gas.

Perfectly aware of the importance of all ecologic issues, LENNOX EMEA have been working hardly since a long time, on alternative solutions reducing as much as possible the environmental impact of their units.

Phase down :

The Global Warming Potential (GWP) enables to measure the polluting potential of each refrigerant.
The (EU) regulation Nr 517/2014 sets quantitative limits (quotas) to place HFCs on the market, following a calendar running from 2015 to 2030.

The phase down measure establishes a gradual decrease in gas measured with global warming potential (cf diagram)



Provisions relating to the recycling of waste electrical and electronic equipment (WEEE):

Directive 2002/96/CE aims to make recycling of WEEE (Waste Electronic and Electrical Equipment) mandatory.
As a manufacturer of heat exchange equipment, LENNOX is a member of an Eco Organisation approved by Ministerial Decree of 19/12/2012 and supports you in the recycling of your equipment.

Ecodesign directive 2009/125/EC
GENERAL INFORMATION

1st June 2017

Ecodesign: origins & perspectives

- KYOTO (1997), COP21 (Paris 2015) and COP 22 (Marrackech 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 equipments. 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.

Rules

The regulation ensue from Ecodesign are mandatory to apply, even if the local governments don't implement them into national regulations or decrees:

- **Electric motors EC 640/2009:**
  1st tier: 16th june 2011. . . . . motors IE2
  2nd tier: 1st january 2015 . . . motors IE3 if P>7.5 kW
  3rd tier: 1st january 2017 . . . moteurs IE3
- **Fans EU 327/2011:**
  1st tier: 1st january 2013
  2nd tier: 1st january 2015
- **Air conditioners (P<12 kW) and comfort fans EU 206/2012:**
  1st tier: 1st january 2013
  2nd tier: 1st january 2014
- **Ventilation units EU 1253/2014:**
  1st tier: 1st january 2016
  2nd tier: 1st january 2018
- **Space heaters and combination heaters EU 813/2013:**
  1st tier: 26th september 2015
  2nd tier: 26th september 2017
- **Low temperature process chillers and condensing units EU 2015/1095 (dedicated to industrial application and/or refrigeration):**
  1st tier: 1st July 2016
  2nd tier: 1st january 2018
- **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

The following directive are not connected to Ecodesign, but they are also directives and European regulations:

- F gaz (517/2014/EU) Fluorinated greenhouse gases used,
- DESP (2014/68/EU) for pressure equipment,
- DEEE (2012/19/EU) for waste electrical and electronic equipment,
- Machinery directive (2006/42/EC),
- Low voltage directive (2014/35/EU),
- Electromagnetic compatibility (2014/30/EU)....

ROOFTOP ranges
Rules EU 2016/2281

1st january 2017/Rev 2018.02

Which ROOFTOP range products are concerned by regulation EU 2016/2281 ?

Are concerned since 1st January 2018:

- **All the air to air rooftop units,**
- **All the water to air rooftop units**

Are not concerned:

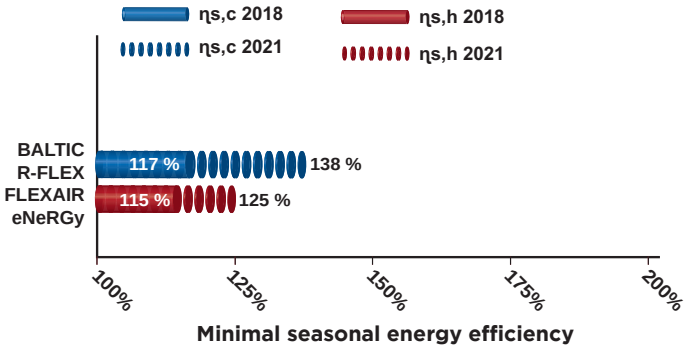
- The units sold without condenser

The units equipped with « gas burner » option are not considered as “warm air heaters using fuels” but only as “rooftop air conditioners” or “rooftop heat pumps”.

It means that:

The minimum performances to achieve are summed up in the following graph:

BALTIC & FLEXAIR, water cooled units	Concerned without minimum performance to achieve
eNeRGy without condenser	Range concerned by EU 2014/1253 (ventilation units)



A new document

Since the 1st of January 2018, each unit is delivered with a datasheet as defined in EU 2281/2016.

Nominal capacity

Seasonal efficiency

Model(s):	
Outdoor side heat exchanger of heat pump:	
Indoor side heat exchanger of heat pump:	
Indication if the heater is equipped with a supplementary heater	
If applicable: driver of compressor	
Item	**Symbol**
Rated heating capacity (*)	$P_{rated,h}$
Declared heating capacity for part load at indoor temperature 20°C and outdoor	
T_j = – 7 °C	Pdh
T_j = + 2 °C	Pdh
T_j = + 7 °C	Pdh
T_j = + 12 °C	Pdh
T_{biv} = bivalente temperature °C	Pdh
T_{OL} = opeation limit °C	Pdh
For air-to-water heat pumps: Tj = – 15 °C (si TOL < – 20 °C)	Pdh
Bivalent temperature	Tbiv
Degration coefficent heat pumps (**)	Cdh
Power consumption in modes other than "activ	
Off mode	P_{OFF}
Thermostat-off mode	P_{TO}
Crankcase heater mode	P_{CK}
Capacity control	
Sound power level indoor/outdoor measured	L_{WA}
Emission of nitrogen oxides (if applicable)	NOx(**
GWP of the refrigerant	

Item	**Symbol**
Seasonal space heating energy efficiency	η_s
Declared coefficient of performance or gas utilisation efficicency/auxiliary energy fa temperature Tj	
T_j = – 7 °C	COPd
T_j = + 2 °C	COPd
T_j = + 7 °C	COPd
T_j = + 12 °C	COPd
T_{biv} = bivalente temperature °C	COPd
T_{OL} = opeation limit °C	COPd
For air-to-water heat pumps: Tj = – 15 °C (si TOL < – 20 °C)	COPd
For water-to-air heat pumps: Operation limit temeprature	T_{OL}
Supplementary heater	
Back up heating capcity (*)	elbu
Type of enerrgy input	
Stanby mode	P_{SB}
Other items	
For air-to-air heat pumps: air flow rate, outdoor measured	
For water/brine-to-air heat pumps: Rated brine or water flow rate, outdoor side heat exchanger	

Sound power level Outdoor/Indoor

Ranges concerned

BALTIC C-SEASON

FLEXAIR C-SEASON

eNeRGy ADVANCED

UNITARY ranges
Rules EU 2016/2281

1st january 2017/Rev 2018.02

Which UNITARY range products are concerned by regulation EU 2016/2281 ?

Are concerned since 1st January 2018:

- **Split and packaged air to air units,**
- **Water to air units**
- **Multi split and VRF units**

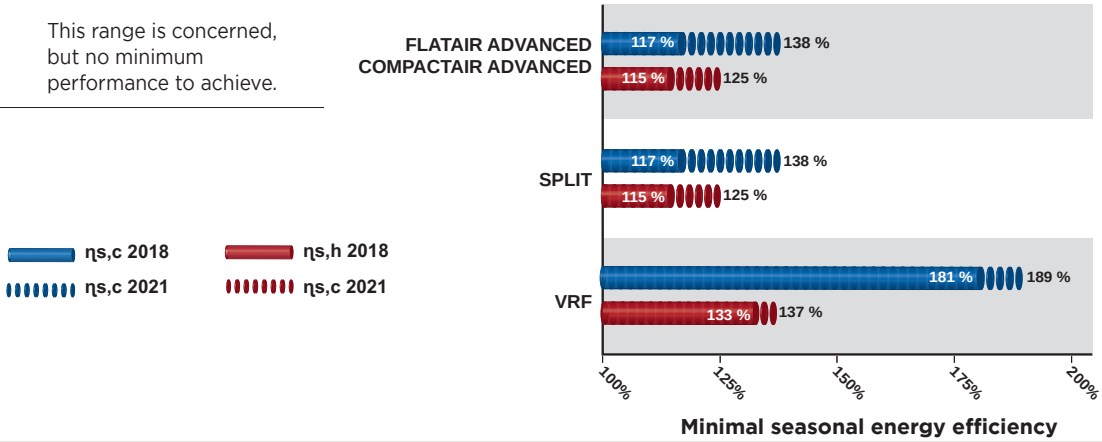
Are not concerned:

- Air handling units sold separately (without condensing unit),
- The condensing units (without air treatment unit)

It means that :

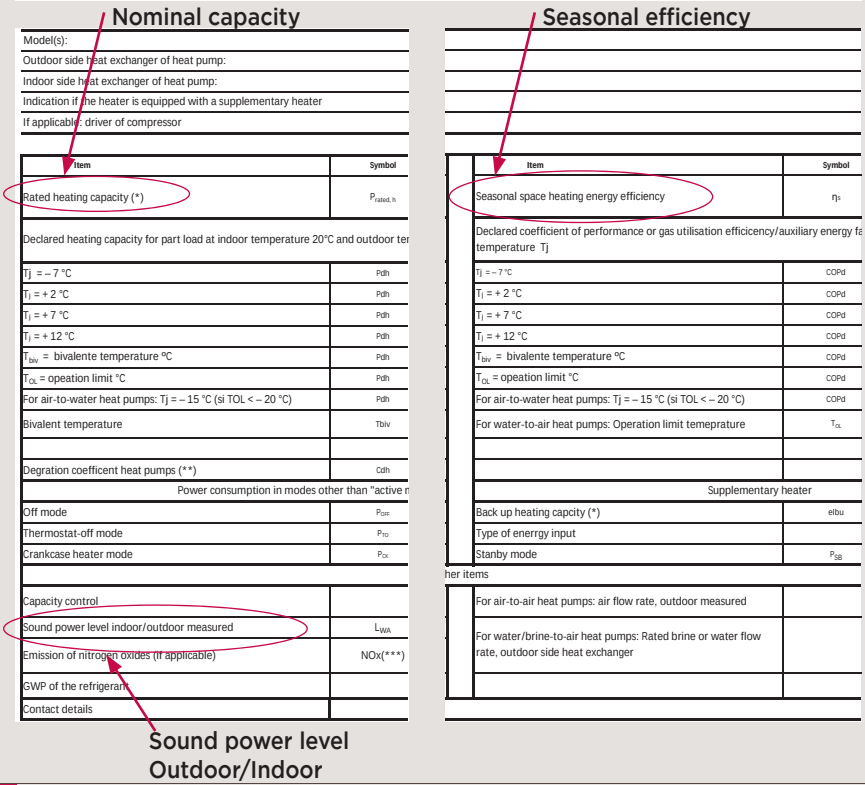
The minimum performances to achieve are summed up in the following graph:

AQUALEAN — This range is concerned, but no minimum performance to achieve.



A new document

Since the 1st of January 2018, each unit is delivered with a datasheet as defined in EU 2281/2016.



Ranges concerned

COMPACTAIR ADVANCED

FLATAIR ADVANCED

AQUALEAN

CHILLER ranges
Rules EU 2016/2281 & 813/2013

1st June 2017/Rev 2018.02

Which CHILLERS range products are concerned by regulations EU 2016/2281 & 813/2013 ?

Are concerned since 1st January 2018:

- Air cooled liquid chillers,
- Water cooled liquid chillers.

Are concerned since 26th September 2015:

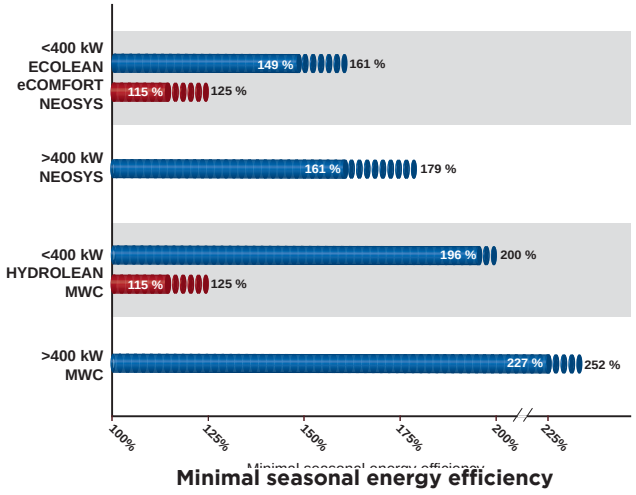
- Air cooled heat pumps,
- Water cooled heat pumps.

It means that:

The minimum performances to achieve are summed up in the following graph:

According to **EU 2016/2281** rule.
- ηs,c 2018
- ηs,c 2021

According to **EU 813/2013** rule.
- ηs,h 2015 Heat pump
- ηs,h 2017 Heat pump



A new document

Since the 1st of January 2018, each unit will be delivered with a datasheet as defined in EU 2281/2016.

Nominal capacity

Indoor side heat exchanger of heat pump:

Indication if the heater is equipped with a supplementary heater

If applicable: driver of compressor

Item	Symbol
Rated heating capacity (*)	$P_{rated,\ h}$
Declared heating capacity for part load at indoor temperature 20°C and outdoor te	
Tj = – 7 °C	Pdh
Tj = + 2 °C	Pdh
Tj = + 7 °C	Pdh
Tj = + 12 °C	Pdh
T_{biv} = bivalente temperature °C	Pdh
T_{OL} = opeation limit °C	Pdh
For air-to-water heat pumps: Tj = – 15 °C (si TOL < – 20 °C)	Pdh
Bivalent temperature	Tbiv
Degration coefficient heat pumps (**)	Cdh
Power consumption in modes other than "active r	
Off mode	P_{OFF}
Thermostat-off mode	P_{TO}
Crankcase heater mode	P_{CK}
Capacity control	
Sound power level indoor/outdoor measured	L_{WA}
Emission of nitrogen oxides (if applicable)	NOx(***)
GWP of the refrigerant	
Contact details	

Seasonal efficiency

Item	Symbol
Seasonal space heating energy efficiency	ηs
Declared coefficient of performance or gas utilisation efficiency/auxiliary energy fa temperature Tj	
Tj = – 7 °C	COPd
Tj = + 2 °C	COPd
Tj = + 7 °C	COPd
Tj = + 12 °C	COPd
T_{biv} = bivalente temperature °C	COPd
T_{OL} = opeation limit °C	COPd
For air-to-water heat pumps: Tj = – 15 °C (si TOL < – 20 °C)	COPd
For water-to-air heat pumps: Operation limit temeprature	T_{OL}
Supplementary heater	
Back up heating capcity (*)	elbu
Type of enerrgy input	
Stanby mode	P_{SB}
her items	
For air-to-air heat pumps: air flow rate, outdoor measured	
For water/brine-to-air heat pumps: Rated brine or water flow rate, outdoor side heat exchanger	

Ranges concerned

ECOLEAN

ECOMFORT

AQUA4

NEOSYS

HYDROLEAN

MWC

Sound power level Outdoor/Indoor

FANCOIL ranges
Rules EU 2016/2281

1st january 2017

Which FAN COILS ranges are concerned by regulation EU 2016/2281 ?

Are concerned since 1st January 2018:

- **All the LENNOX fan coil units, but no minimum performance to achieve.**

Are not concerned:

- EQUITHERM units (encased ventilation fan, included in rule nr 327/2011).

Ranges concerned

ALLEGRA

INALTO

ARMONIA

ARIA 2

COMFAIR HH/HV

COMFAIR HD

AXIL

A new document

Since the 1st of January 2018, each unit is delivered with a datasheet as defined in EU 2281/2016.

Cooling capacity

Information to identify the model(s) to which the information relates:

Item	Symbol	Value	Unit		Item	Symbol	Value	Unit
Cooling capacity (sensible)	$P_{rated,\,c}$		kW		Total electric power input	P_{elec}		kW
Cooling capacity (latent)	$P_{rated,\,c}$		kW		Sound power level (per speed setting if applicable)	L_{WA}	–	dB
Heating capacity	$P_{rated,\,h}$		kW					
Contact details	Name and address of the manufacturer or of its authorised representative.							

Heating capacity

Sound power level
Outdoor/Indoor

VENTILATION UNITS
Rule UE 1253/2014

1st january 2017

Which VENTILATION UNITS are concerned by regulations UE 1253/2014 ?

Are concerned since 1st january 2016 :

- The **CLEANAIR LX** air handling unit,
- The **eNeRGy** range, without condenser

Are not concerned:

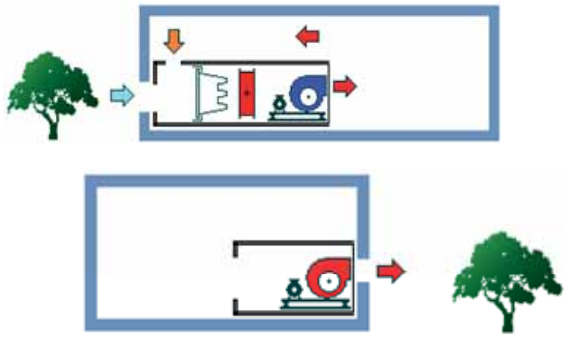
- Ventilation units equiped with a thermodynamic energy recovery module
- Rooftops units (included in the rule nr UE2016/2281).

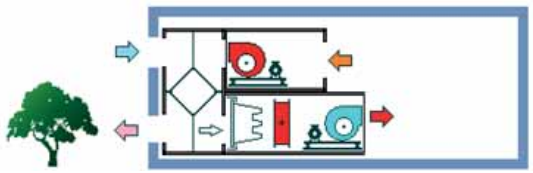
It means that :

According to the UE1253/2014 rule, the **unidirectional ventilation units** (UVU) are diffferent from the **Bidirectional ventilation units** (BVU).

Unidirectional ventilation units (UVU) :
Air stream from outside toward inside **or** from inside toward outside (with or without mixing section).

Bidirectional ventilation units (BVU)
Air stream from outside toward inside **and** from inside toward outside (with or without mixing section).





Requirements for unidirectional ventilation units (UVU) :

	2016	2018
Fan efficiency	Please consult the texts of the rule nr UE1253/2014 or the selection software	
Fan motor	3-speed or variable speed fan motor (may be installed by the installer)*	
Clogging of the filter	-	Filter change warning signal (may be installed by the installer)*

Requirements for bidirectional ventilation units (BVU)

	2016	2018
Fan efficiency	Please consult the texts of the rule nr UE1253/2014 or the selection software	
Fan motor	3-speed or variable speed fan motor (may be installed by the installer)*	
Clogging of the filter	-	Filter change warning signal (may be installed by the installer)*
Fan absorbed power	Please consult the texts of the rule nr UE1253/2014 or the selection software	
Heat recovery module	It must be possible to bypass the energy recovery system (by-pass system must be integrated in the unit).	
Minimum efficiency of the heat recovery system (SRC)	Please consult the texts of the rule nr UE1253/2014 or the selection software	

* In accordance with the guidelines of the manufacturer.

Ranges concerned

CLEANAIR LX

ENERGY WITHOUT CONDENSEUR

Non food retail

Air cooled rooftop packaged unit
FLEXAIR C-SEASON
85 → 227 kW
Page 51

Fan coil unit
ALLEGRA
0,6 → 6,7 kW
Page 135

Air cooled chiller/Heat pump
eCOMFORT
20 → 190 kW
Page 87

Vertical packaged air conditioner
COMPACTAIR ADVANCED
9 → 83 kW
Page 71

Chilled water cassette
ARMONIA
1,3 → 11 kW
Page 155

Air treatment unit
CIC/CIH
19 → 135 kW
Page 82

Condensing unit
ASC/ASH
20 → 230 kW
Page 83

Food retail

CO_2 Compressor rack
ECO2GEN*
17 → 83 kW

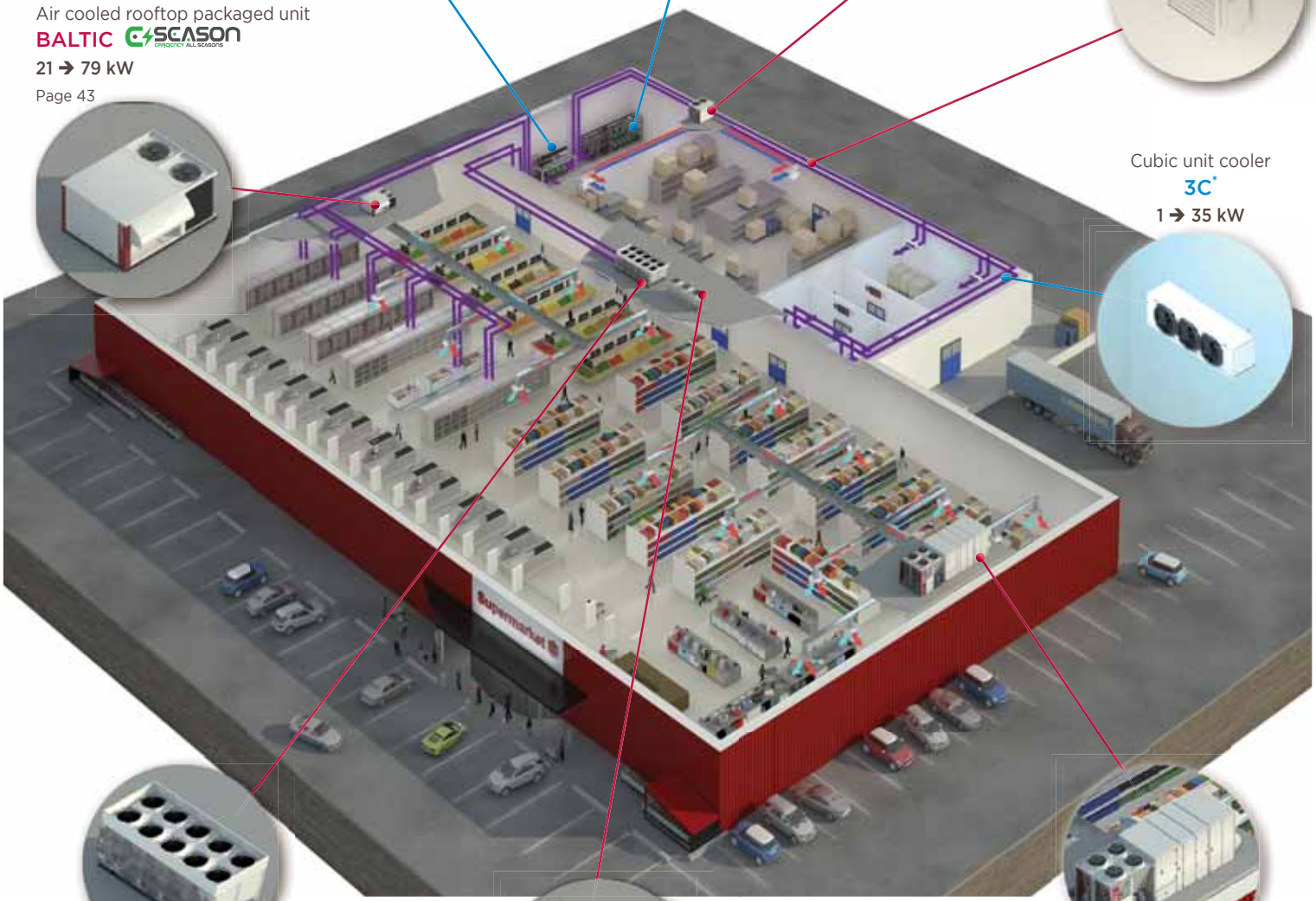
CO2 transcritical booster rack
eCO$_2$BOOST
50 → 250 kW

Air cooled chiller/Heat pump
eCOMFORT
20 → 190 kW
Page 87

Unit heater
AXIL
12 → 105 kW
Page 166

Air cooled rooftop packaged unit
BALTIC SCASON
21 → 79 kW
Page 43

Cubic unit cooler
3C*
1 → 35 kW



Axial fan condenser
MXW
50 → 1670 kW
Page 132

"V shape" or "flat bed"
Gas cooler

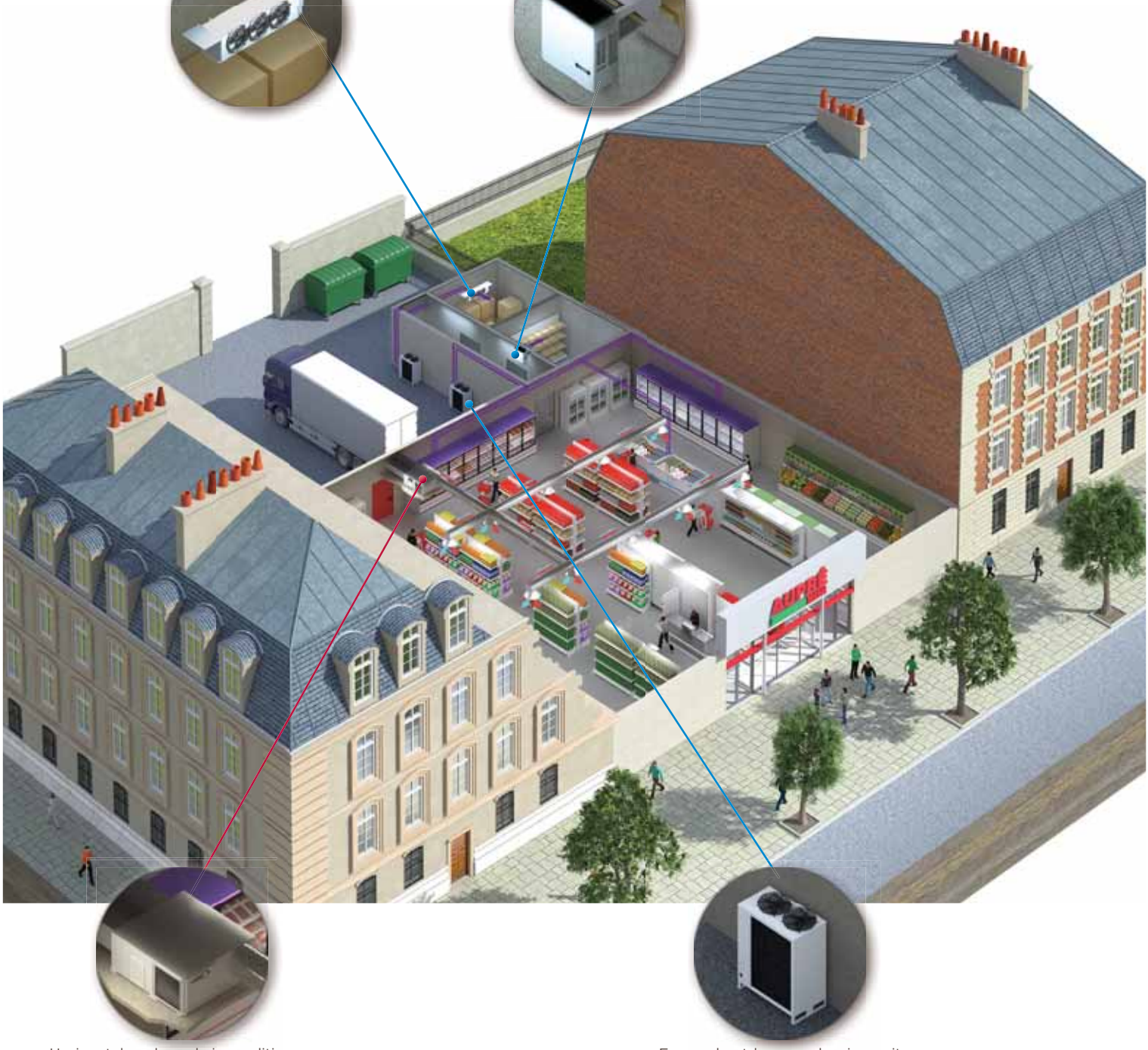
Packaged air treatment unit
eNeRGy ADVANCED
50 → 180 kW
Page 27

* : For more information on this product, please consult the refrigeration product catalogue

Convenience store

Cubic unit cooler
3C*
1 → 35 kW

Refrigeration packaged unit
EUROMON*
0,7 → 4,5 kW



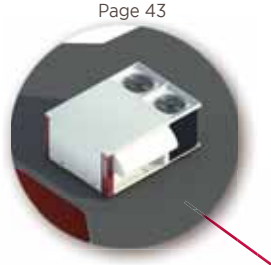
Horizontal packaged air conditioner
FLATAIR ADVANCED
6 → 34 kW
Page 67

Encased outdoor condensing unit
DUO CU*
6 → 49 kW

* : For more information on this product, please consult the refrigeration product catalogue

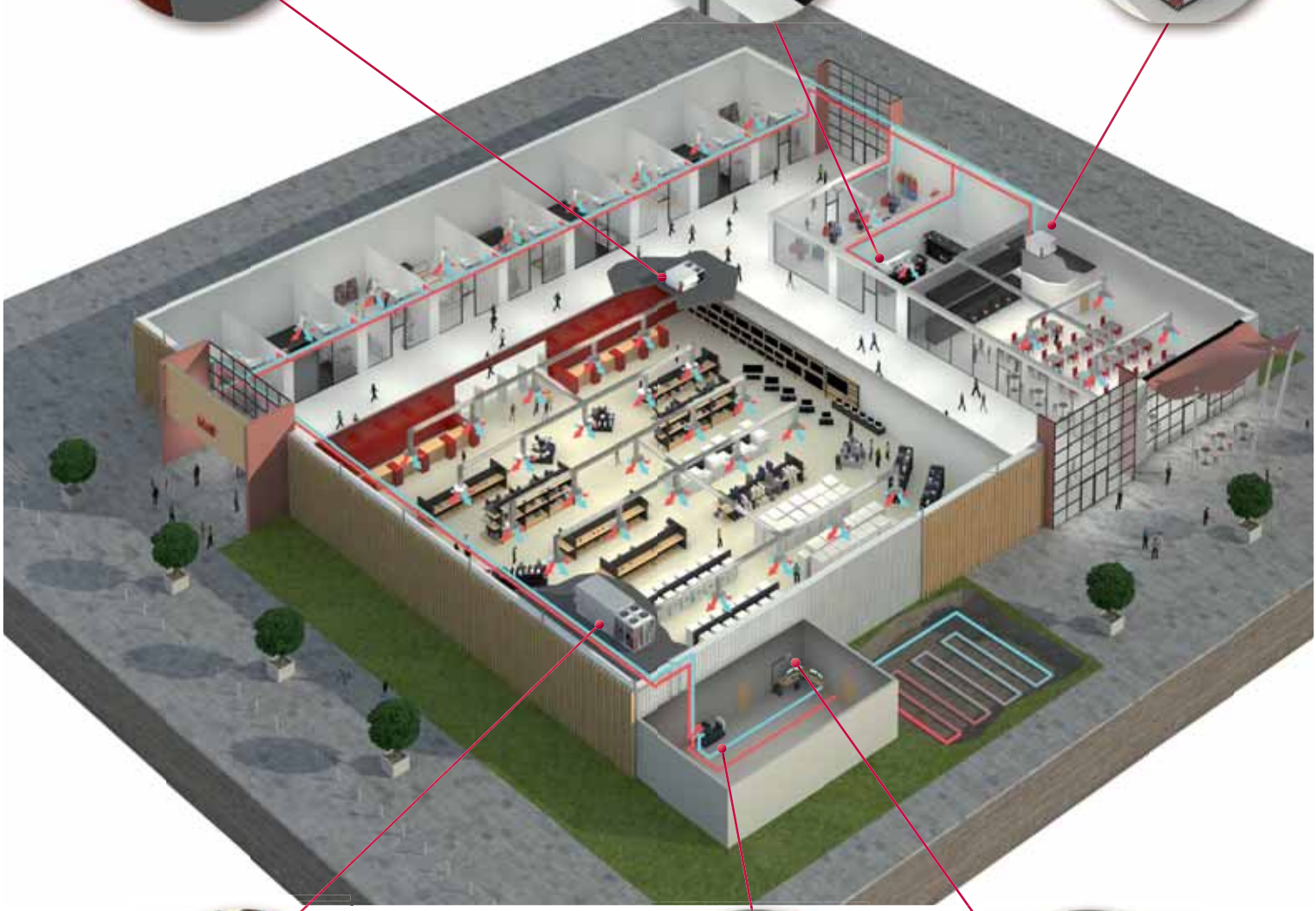
Shopping malls

Air cooled rooftop packaged unit
BALTIC C-SEASON
21 → 79 kW
Page 43



Horizontal water cooled packaged air conditioner
AQUALEAN C-SEASON
2 → 20 kW
Page 63

Water cooled rooftop packaged unit
BALTIC C-SEASON
21 → 79 kW
Page 43



Packaged air treatment unit
eNeRGy ADVANCED
50 → 180 kW
Page 27

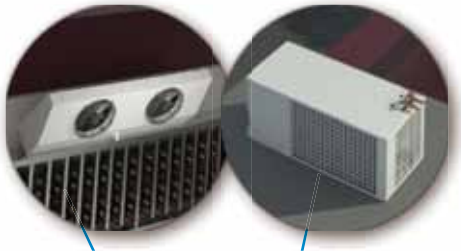
Water cooled chiller/Heat pump
MWC
180 → 720 kW
Page 117

LENNOX web server
ADALINK
Page 192

Cafés/Restaurants

Air cooled rooftop packaged unit
BALTIC C-SEASON
21 → 79 kW
Page 43

Split system for wine cellar
CLIMACAVE*
1,3 → 3,5 kW



Cubic unit cooler
3C*
1 → 35 kW

Chilled water cassette
ARMONIA
1,3 → 11 kW
Page 155

Air cooled chiller/Heat pump
eCOMFORT
20 → 190 kW
Page 87

Condensing unit
VANGUARD*
0,7 → 12,2 kW

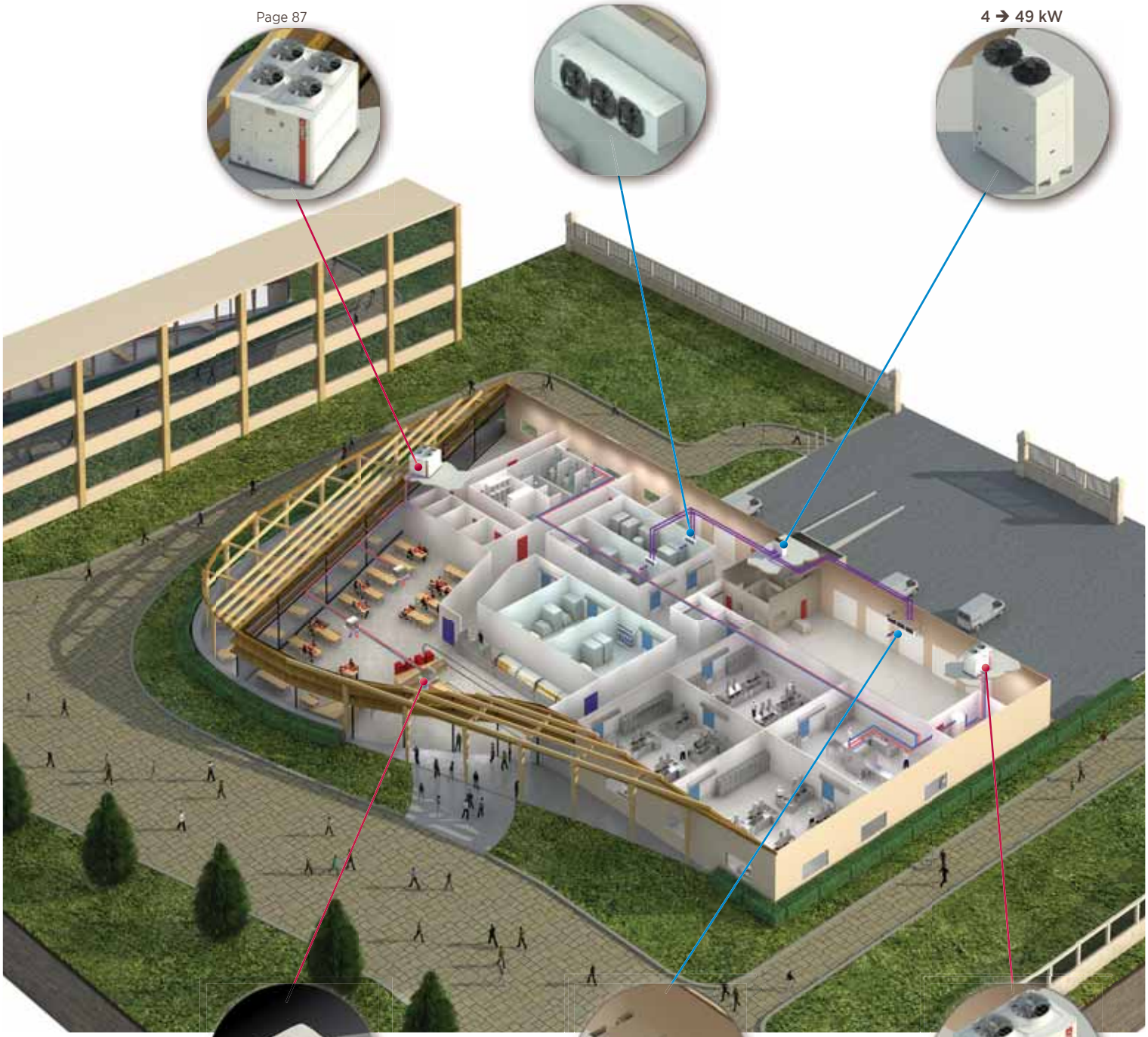
* : For more information on this product, please consult the refrigeration product catalogue

Central kitchens

Air cooled chiller/Heat pump
eCOMFORT
20 → 190 kW
Page 87

Cubic unit cooler
3C*
1 → 35 kW

Encased outdoor condensing unit
DUO CU
4 → 49 kW



Chilled water cassette
ARMONIA
1,3 → 11 kW
Page 155

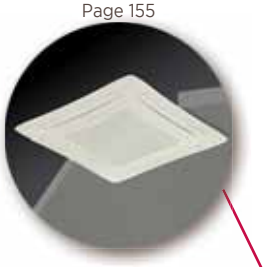
Industrial unit cooler
GTA*
11 → 82 kW

Air cooled chiller/Heat pump
eCOMFORT
20 → 190 kW
Page 87

* : For more information on this product, please consult the refrigeration product catalogue

Office Buildings

Chilled water cassette
ARMONIA
1,3 → 11 kW
Page 155



Air cooled chiller/Heat pump
NEOSYS
200 → 1000 kW
Page 103

Ceiling mounted fan coil unit
ALLEGRA
0,6 → 6,7 kW
Page 135

Polyvalent air cooled heat pump
AQUA⁴
50 → 320 kW
Page 99

Modular air handling unit
CLEANAIR LX
1000 → 10000 m³/h
Page 163

Lennox HVAC hydronic system
LennoxHydroControl
Page 195

"In Row" close control unit for high density systems
R@CKCOOLAIR
3 → 75 kW
Page 186

Dry cooler
FC/FI NEOSTAR
20 → 1200 kW
Page 124

Hotel

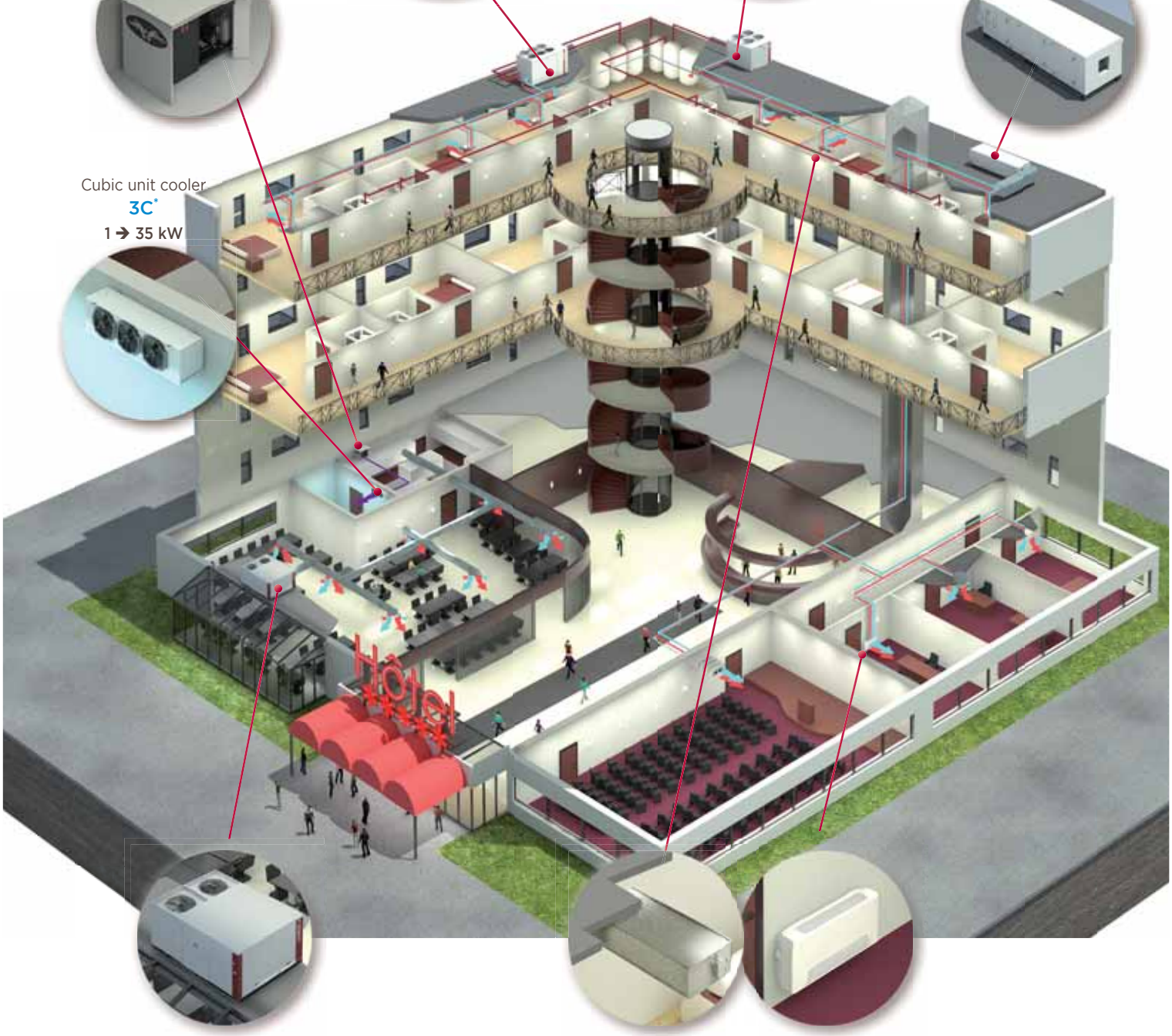
Polyvalent air cooled heat pump
AQUA⁴
50 → 320 kW
Page 99

Air cooled chiller/Heat pump
eCOMFORT
20 → 190 kW
Page 87

Condensing unit
VANGUARD*
0,7 → 12,2 kW

Modular air handling unit
CLEANAIR LX
1000 → 10000 m³/h
Page 163

Cubic unit cooler
3C*
1 → 35 kW



Air cooled rooftop packaged unit
BALTIC C-SEASON
21 → 79 kW
Page 43

Fan coil unit
ALLEGRA
0,6 → 6,7 kW
Page 135

* : For more information on this product, please consult the refrigeration product catalogue

A world of applications

Storage and Logistic

Packaged air treatment unit
eNeRGy ADVANCED
50 → 180 kW
Page 27

Air cooled rooftop packaged unit
BALTIC C4SEASON
21 → 79 kW
Page 43

Industrial unit cooler
NK*
7 → 130 kW

Compressor rack
MOVSH*
70 → 700 kW

Industrial unit cooler
GTA*
11 → 82 kW

Cubic unit cooler
3C*
1 → 35 kW

Centrifugal unit cooler
NCN*
5 → 95 kW

Condenser
MXW
50 → 1670 kW
Page 132

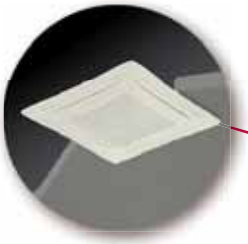
* : For more information on this product, please consult the refrigeration product catalogue

Industry

Air cooled chiller/Heat pump
eCOMFORT
20 ➔ 190 kW
Page 87

Air cooled chiller/Heat pump
NEOSYS
200 ➔ 1000 kW
Page 103

Chilled water cassette
ARMONIA
1,3 ➔ 11 kW
Page 155



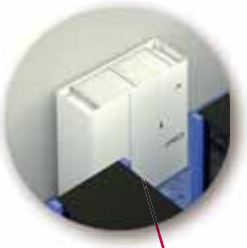
Dry cooler
FC/FI NEOSTAR
20 ➔ 1200 kW
Page 124

Packaged air treatment unit
eNeRGy ADVANCED
50 ➔ 180 kW
Page 27

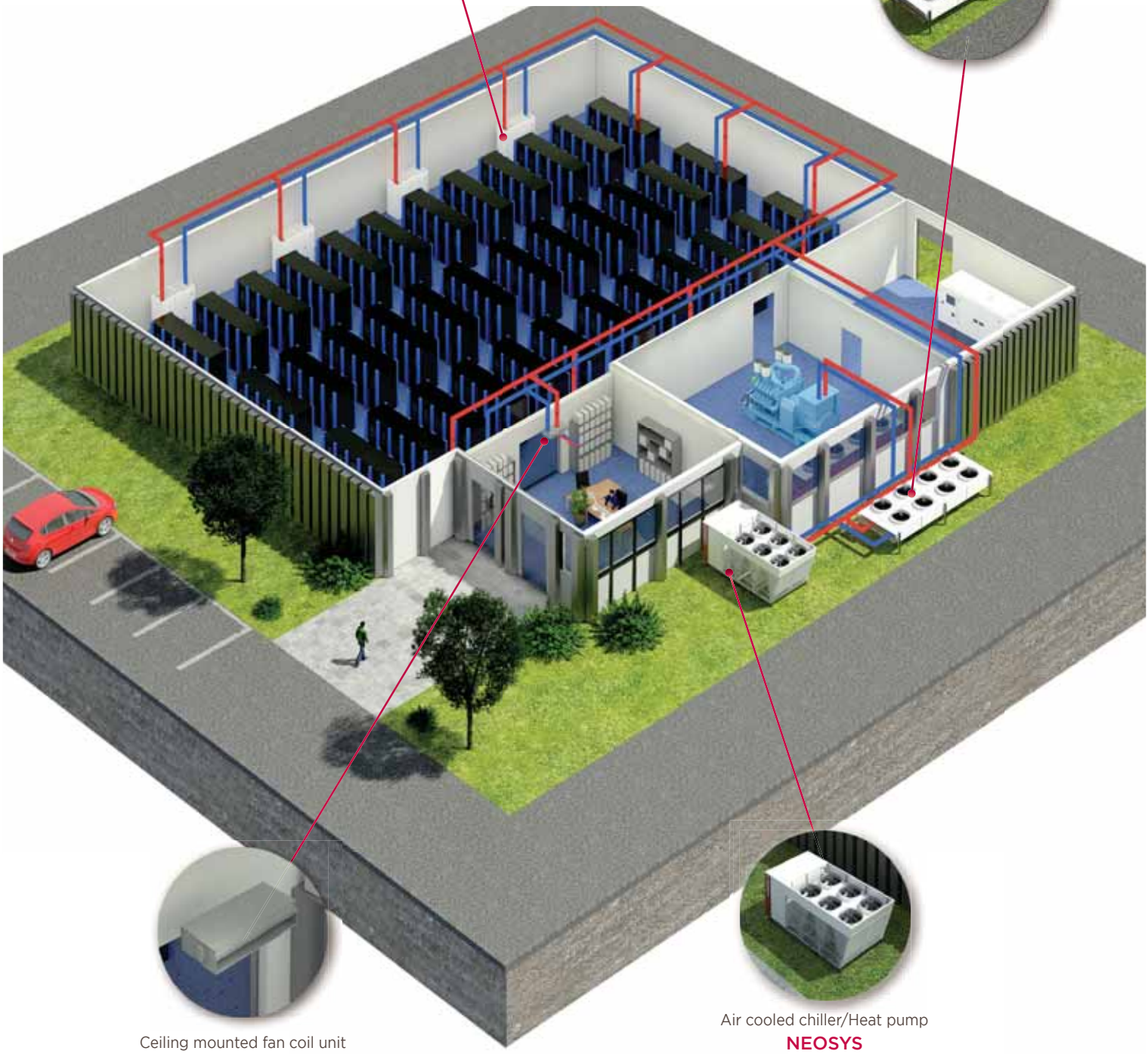
Process to be cooled

Data Centers

Close control unit
INNOV@
6 → 240 kW
Page 175



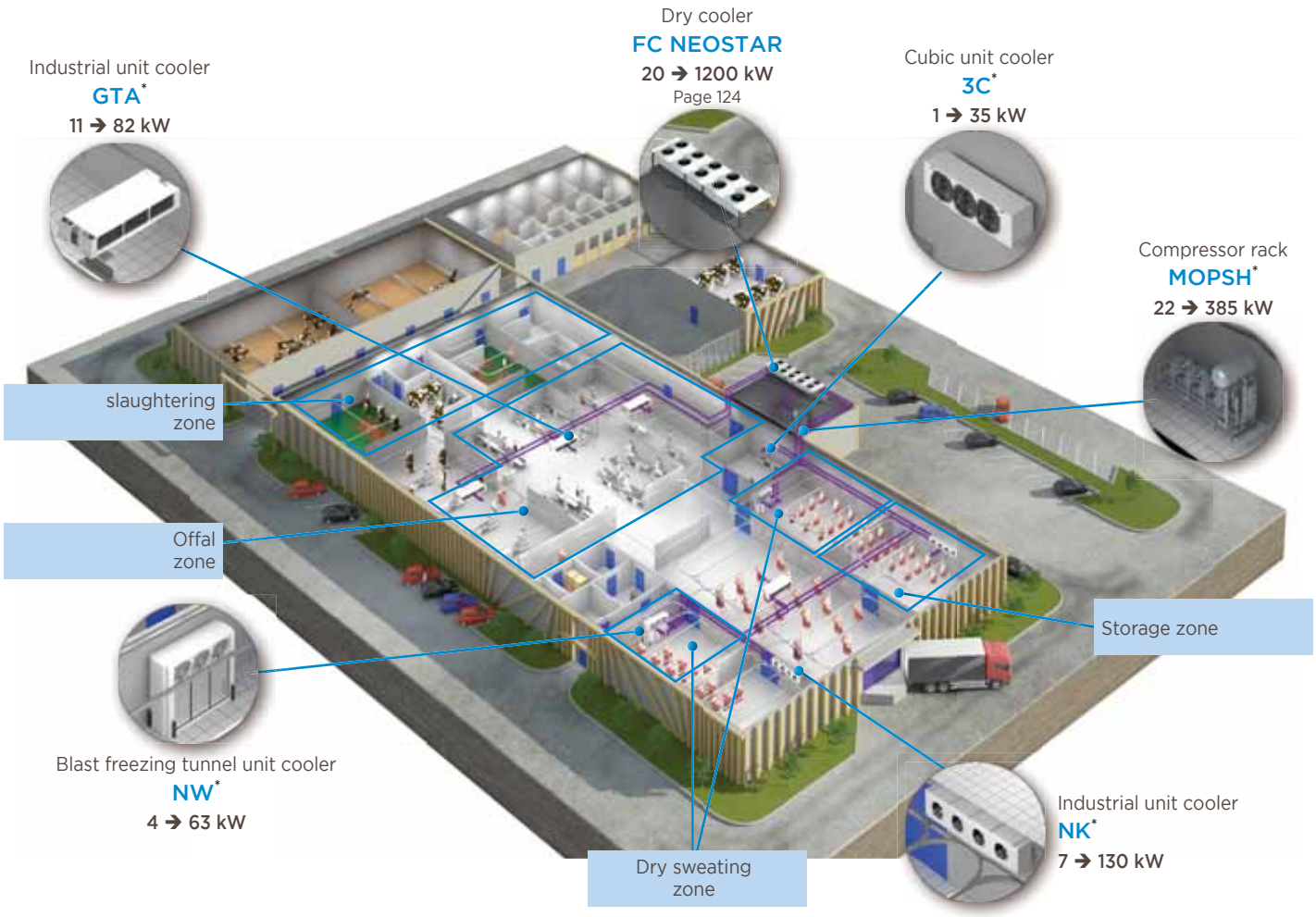
Dry cooler
FC/FI NEOSTAR
20 → 1200 kW
Page 124



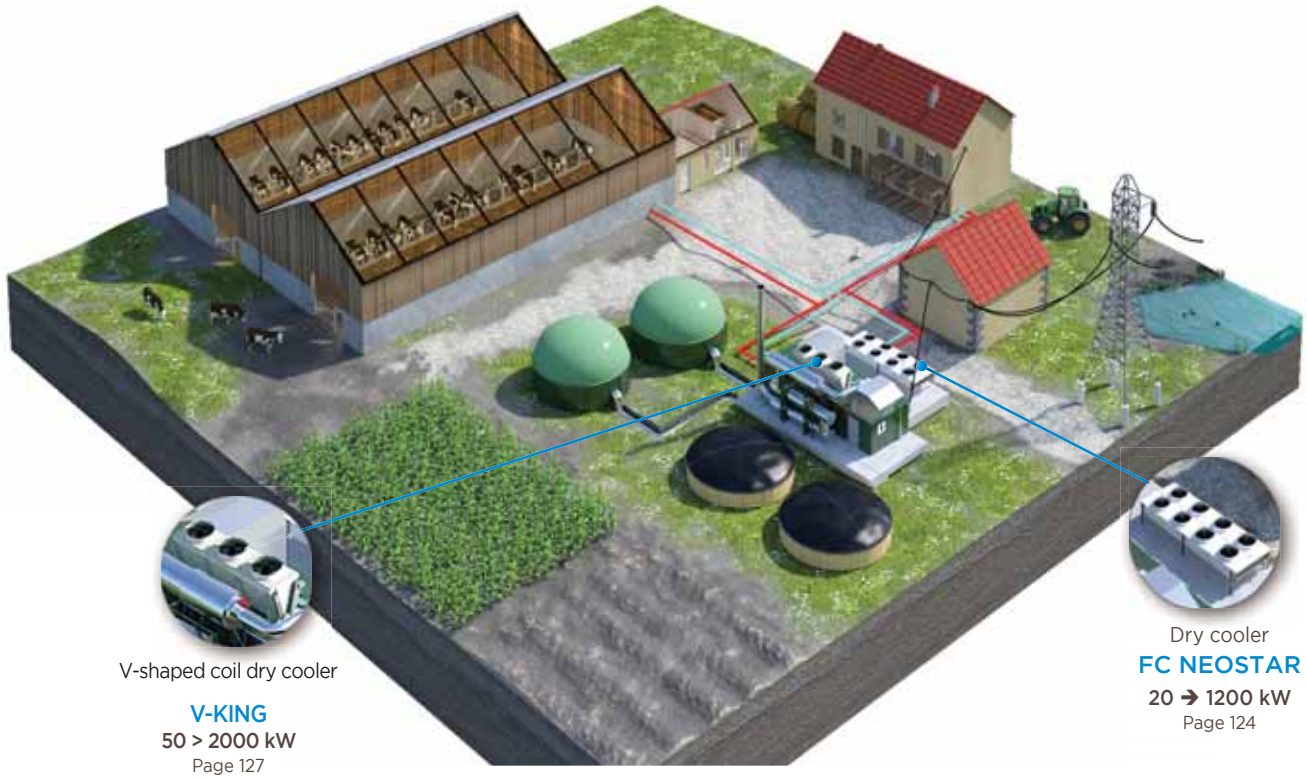
Ceiling mounted fan coil unit
ALLEGRA
0,6 → 6,7 kW
Page 135

Air cooled chiller/Heat pump
NEOSYS
200 → 1000 kW
Page 103

Food processing



Energy



* : For more information on this product, please consult the refrigeration product catalogue

High efficiency packaged air treatment unit

High efficiency packaged air treatment unit

eNeRGy
50 → 180 kW 27

eNeRGy +
16 → 160 kW 33

- Standard equipments and options 40

LENNOX
EMEA

HIGH EFFICIENCY PACKAGED AIR TREATMENT UNIT

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for RT.
Check ongoing validity of certificate : www.eurovent-certification.com

eNeRGy ADVANCED

ULTRA HIGH EFFICIENCY & COMFORT

- Energy efficiency
- Indoor air quality
- Modularity
- Accurate control

Airflow rate :
9500 - 32000 m³/h

Cooling capacity :
50 - 180 kW

Heating capacity :
50 - 180 kW

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

LENNOX

High efficiency packaged air treatment unit

eNeRGy ADVANCED
ULTRA HIGH EFFICIENCY & COMFORT

50 → 180 kW
9500 → 32000 m³/h

Main applications
Industry/Logistic
Commercial HVAC

ENERGY EFFICIENCY :

- **Axial fans**
  With optional EC motor
- **High efficiency indoor fan**
  Variable speed direct drive fan with eFlow airflow measurement and display
- **eRecovery**
  Energy recovery on food refrigeration systems
- Ecodesign compliant performances (EU 2016/2281) exceeding 2021 targets for cooling mode

2021 READY — **AIR COOLING PRODUCT** EU 2016/2281

Electronic expansion valve

Tandem compressors

ACCURATE CONTROL :

- **e-CLIMATIC Advanced controller**
  Intelligent controller to improve efficiency and help set up and service
- **High efficiency refrigeration circuit**
  Multiscroll R410A compressors
  Electronic expansion valves

EC plug fan

LENNOX monitoring solutions

ADALINK II : LENNOX WEB SERVER
One site/Several units

ADALINK II is the Lennox solution for managing air-conditioning and air-handling installations.
It can be connected to various LENNOX units.

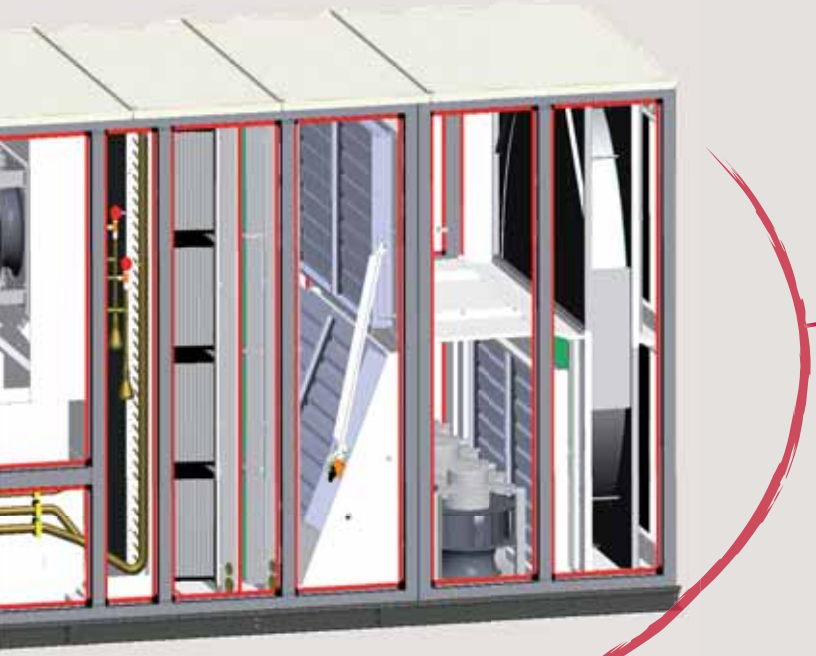
- Simplified BMS system
- Small installations: up to 16 LENNOX units

LennoxCloud: LENNOX WEB PORTAL
Multi sites/Multi units

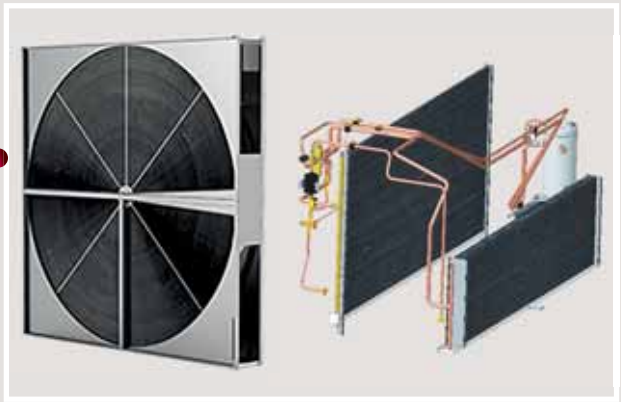
LennoxCloud allows remote monitoring of unit operation across various customer sites. Thanks to LennoxCloud, LENNOX units can be remotely controlled, adjusted and diagnosed by our experts. It helps achieve significant energy savings while optimising performance throughout the unit's life cycle.

INDOOR AIR QUALITY :

- **Filtration options**
  Several levels of filtration :
  G4 / F7 (ePM1) / F9 (ePM1)
- **Innovative casing**
  50 mm double skin casing, aluminium frame.



Heat recovery solutions



MODULARITY :

- **Extraction module**
  With EC fan technology
- **Integrated rotary hybrid wheel**
  Especially designed to transfer sensible (temperature) and optional latent (humidity) heat from the exhaust air to the supply air.

eCLIMATIC

General data - Heat pump units

ENERGY		E014 AH 065	E019 AH 086	E019 AH 106	E024 AH 108	E024 AH 126	E024 AH 141
Nominal thermal performances - Cooling mode							
Cooling capacity (1)	kW	67,2	89,4	107,7	114,6	121,8	139,9
EER (1)		3,21	3,16	3,03	3,15	3,14	3,01
Eurovent energy efficiency class Full load operation		A					
Nominal thermal performances - Heating mode							
Heating capacity (2)	kW	65,1	86,2	106,1	109,3	118,1	140,1
COP (2)		3,45	3,37	3,27	3,53	3,54	3,22
Eurovent energy efficiency class Full load operation		A	B	B	A	A	B
Seasonal efficiencies							
Seasonal Energy Efficiency Ratio **SEER** (3)		3,72	4,41	4,41	4,54	4,60	4,56
Seasonal energy efficiency **ηs,c** (4)	%	146	173	173	179	181	180
Seasonal Coefficient of Performance **SCOP** (5)		3,72	3,37	3,41	3,63	3,63	3,50
Seasonal energy efficiency **ηs,h** (6)	%	146	132	134	143	142	137
Auxiliary heating							
Gas heating capacity Standard / High	kW	82/130			100/200		
Electric heater capacity Standard / High		36/108			54/144		
Hot water coil capacity (Air inlet 20°C / Water 90-70 °C) Standard / High		69/122	81/146	81/146	117/188		
Ventilation							
Nominal airflow rate	m^3/h	13500	18900	18900	24300	24300	24300
Maximum airflow rate		24000	24000	24000	32000	32000	32000
Acoustic data							
Outdoor sound power Standard unit (1)	dB(A)	78,6	81,7	81,7	78,2	80,8	82
Indoor blower outlet sound power Standard unit (1)		77,4	86,3	86,3	84	84,4	84,4

(1) **Cooling mode :**
According to EN14511 nominal conditions
Outdoor temperature 35°C DB
Indoor temperature 27°C DB / 19°C WB

(2) **Heating mode :**
According to EN14511 nominal conditions
Outdoor temperature 7°C DB / 6°C WB
Indoor temperature 20°C DB

(3) SEER in accordance with standard EN14825.

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

(5) SCOP in accordance with standard EN 14825 (average climate conditions).

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

Maxi ESP 1000 Pa

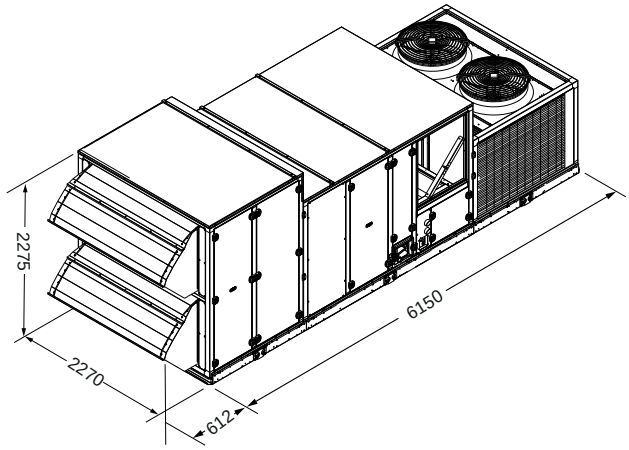
To get the data of the complete range, please consult us

Check ongoing validity of certificate : eurovent-certification.com

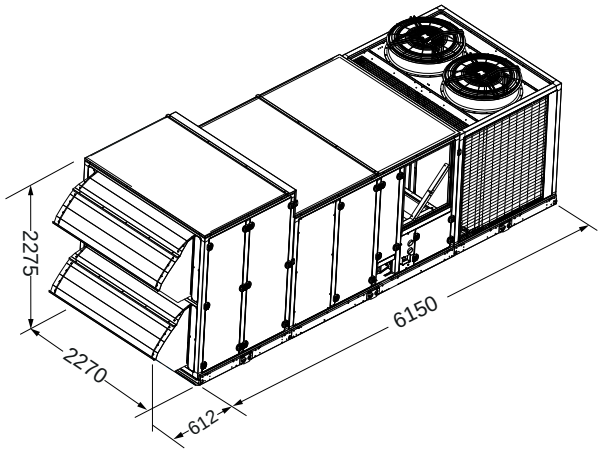
Dimensions (vertical configuration)

All drawings and dimensions are given for vertical configuration.
Units with condensing section and heat recovery wheel option

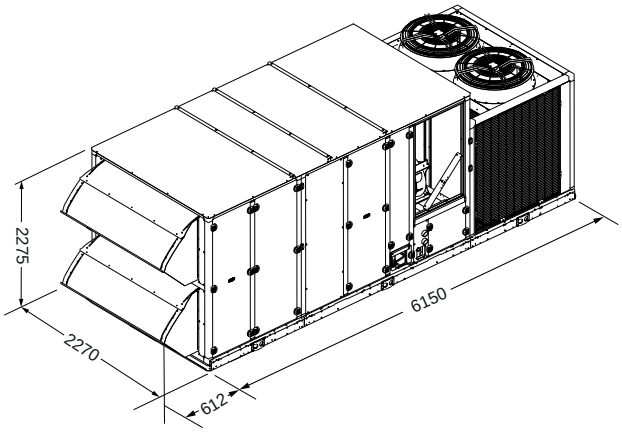
E014 AH 065



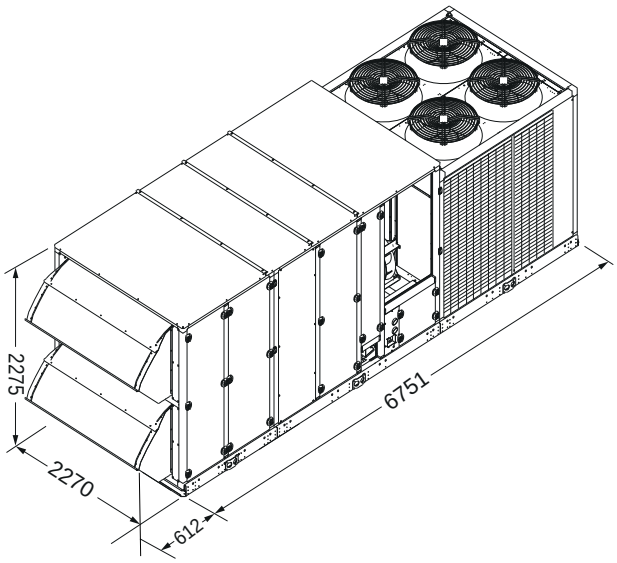
E019 AH 086
E019 AH 106



E024 AH 108

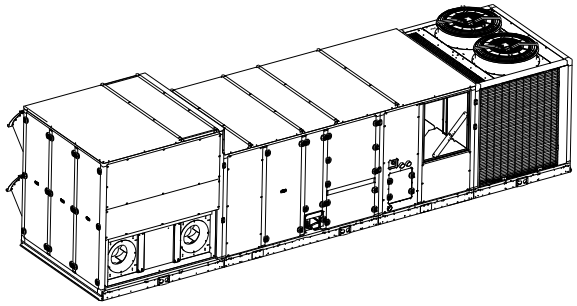


E024 AH 126
E024 AH 141

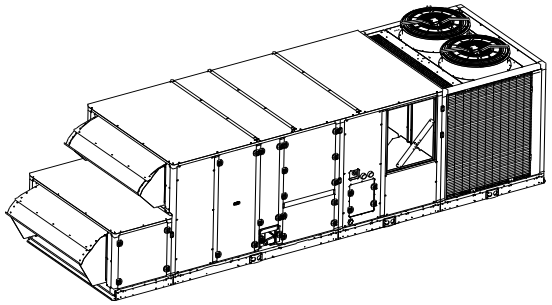


Other possible configurations

Horizontal configuration,
with heat recovery module



Vertical configuration,
without heat recovery module



LENNOX
EMEA

HIGH EFFICIENCY PACKAGED AIR TREATMENT UNIT

EUROVENT CERTIFIED PERFORMANCE
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Check ongoing validity of certificate :
www.eurovent-certification.com

COP up to 5,5*

eNeRGy+ ADVANCED
ULTRA HIGH EFFICIENCY & COMFORT

Inverter

- Reduced energy bill
- All seasons operation
- Very high comfort level
- Reliability

Airflow rate :
Up to 32000 m³/h

Cooling capacity :
16 - 160 kW

Heating capacity :
16 - 160 kW

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

2021 READY — AIR COOLING PRODUCT n°2016/2281

2021 READY — AIR HEATING PRODUCT n°2016/2281

* Nominal heating conditions (EN14511) - At partial load

LENNOX

High efficiency
packaged air treatment unit

eNeRGy +

16 → 160 kW

10500 → 32000 m³/h

Main applications

Industry/Logistic
Commercial HVAC

REDUCED ENERGY BILL :

- **eRecovery**
  Energy recovery on food refrigeration systems
- **High efficiency indoor fan**
  Variable speed direct drive fan with eFlow airflow measurement and display
- **Extraction module**
  With variable speed direct drive fan

Variable compressors (Inverter)

VERY HIGH COMFORT LEVEL :

- **Filtration options**
  Several levels of filtration :
  G4 / F7 (ePM1) / F9 (ePM1)
- **High efficiency refrigeration circuit**
  Multiscroll R410A compressors
  Electronic expansion valves
  Variable compressor (Inverter)

EC plug fan

Electronic expansion valve

LENNOX monitoring solutions

ADALINK II : LENNOX WEB SERVER
One site/Several units

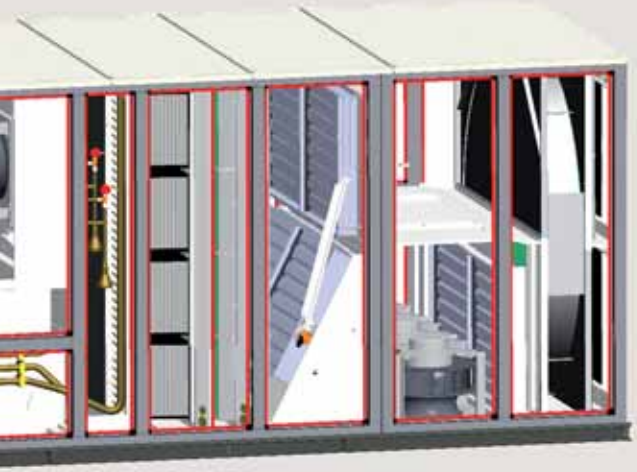
ADALINK II is the Lennox solution for managing air-conditioning and air-handling installations.
It can be connected to various LENNOX units.

- Simplified BMS system
- Small installations: up to 16 LENNOX units

LennoxCloud: LENNOX WEB PORTAL
Multi sites/Multi units

LennoxCloud allows remote monitoring of unit operation across various customer sites. Thanks to LennoxCloud, LENNOX units can be remotely controlled, adjusted and diagnosed by our experts. It helps achieve significant energy savings while optimising performance throughout the unit's life cycle.

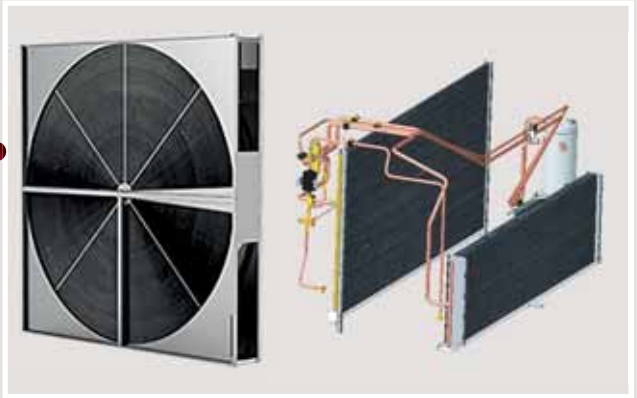
Building timeline



RELIABILITY :

- **Innovative casing**
  50 mm double skin casing, aluminium frame
- **e-CLIMATIC advanced controller**
  Intelligent controller to improve efficiency and help set up and service

Heat recovery solutions



eCLIMATIC

ALL SEASONS OPERATION :

- **Integrated rotary hybrid wheel**
  Especially designed to transfer sensible (temperature) and optional latent (humidity) heat from the exhaust air to the supply air.
- **Axial fans**
  With variable speed direct drive fan

General data - Heat pump units

ENERGY +		E016 AH105	E019 AH 124	E027 AH 160
Nominal thermal performances - Cooling mode				
Cooling capacity (1) (Mini/Maxi)	kW	16 → 97	21 → 116	30 → 159
EER (1)		3,03	2,91	2,82
Eurovent energy efficiency class Full load operation		A	B	B
Nominal thermal performances - Heating mode				
Heating capacity (2) (Mini/Maxi)	kW	16 → 102	21 → 119	31 → 163
COP (2)		3,25	3,26	3,21
Eurovent energy efficiency class Full load operation		B	B	B
Seasonal efficiencies				
Seasonal Energy Efficiency Ratio **SEER** (3)		5,09	4,94	5,18
Seasonal energy efficiency **ηs,c** (4)	%	200	194	204
Seasonal Coefficient of Performance **SCOP** (5)		3,76	3,71	3,81
Seasonal energy efficiency **ηs,h** (6)	%	147,5	145,4	149,5
Auxiliary heating				
Gas heating capacity Standard / High	kW	82/130	82/130	100/200
Electric heater capacity Standard / High		36/108	36/108	54/144
Hot water coil capacity (Air inlet 20°C / Water 90-70 °C) Standard / High		74/132	81/146	123/198
Ventilation				
Nominal airflow rate	m^3/h	15500	18900	27000
Maximum airflow rate		24000	24000	32000
Acoustic data				
Outdoor sound power Standard unit (1)	dB(A)	85,3	86,8	89,9
Indoor blower outlet sound power Standard unit (1)		81	86,1	87,3

(1) **Cooling mode :**
According to EN14511 nominal conditions
Outdoor temperature 35°C DB
Indoor temperature 27°C DB / 19°C WB

(2) **Heating mode :**
According to EN14511 nominal conditions
Outdoor temperature 7°C DB / 6°C WB
Indoor temperature 20°C DB

(3) SEER in accordance with standard EN14825.

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

(5) SCOP in accordance with standard EN 14825 (average climate conditions).

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

Maxi ESP 1000 Pa

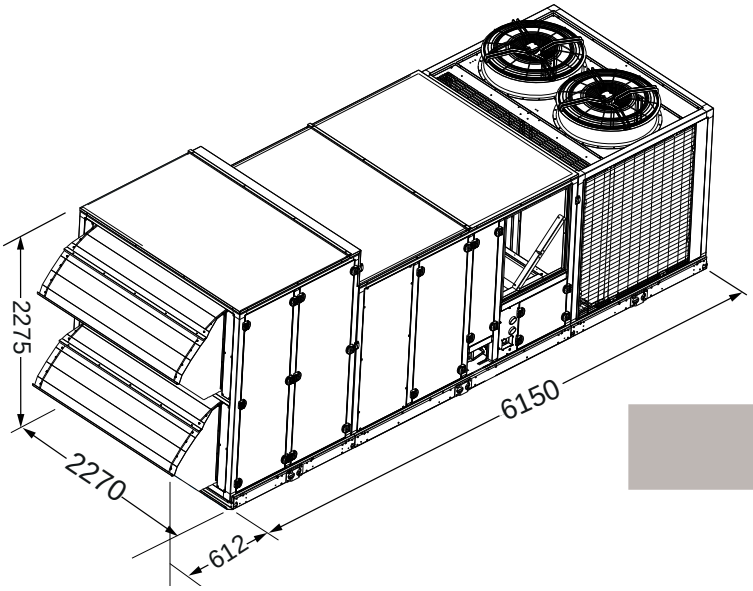
To get the data of the complete range, please consult us

Check ongoing validity of certificate : eurovent-certification.com

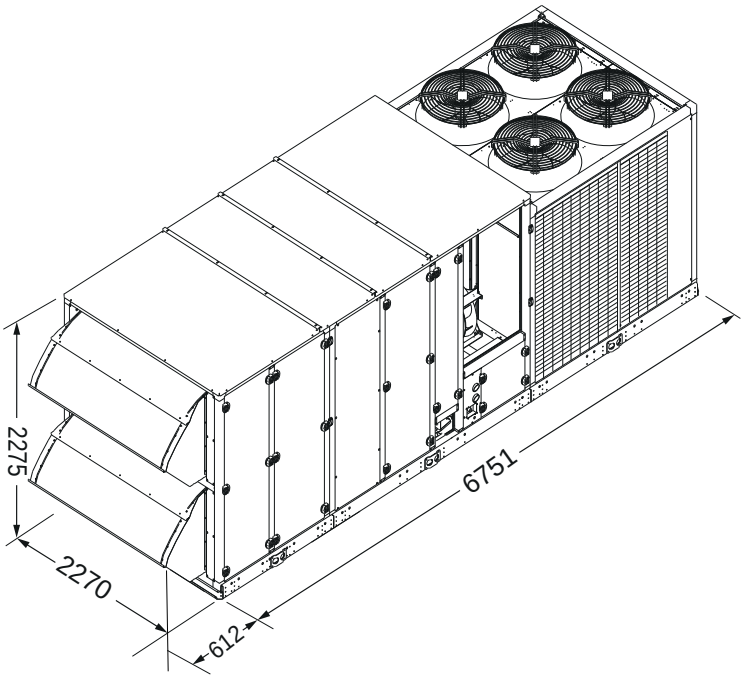
Dimensions (vertical configuration)

All drawings and dimensions are given for vertical configuration.
Units with condensing section and heat recovery wheel option

E016 AH 105
E019 AH 124

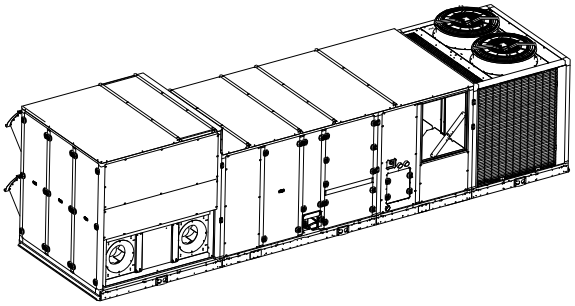


E027 AH 160

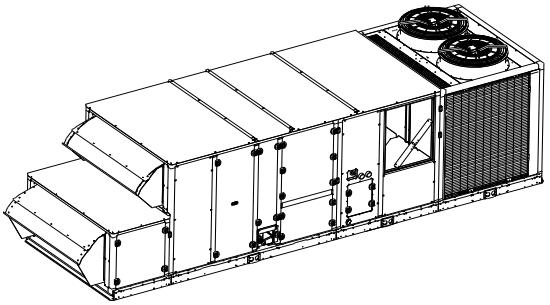


Other possible configurations

Horizontal configuration,
with heat recovery module



Vertical configuration,
without heat recovery module



CLIMATIC regulation

DC «Comfort» display:
This is a remote controller for non-technical customer. It was designed to aesthetically fit in the room and be very easy to use. The **DC** display allows the customer to modify the set point of the current time zone and to manage start and stop of the unit.

Display ⇔ unit maximum distance = 30 meters.

DM «Multi-units» display:
In addition to DC features, the **DM** makes programming of time zones, temperature setpoints and fresh air percentage possible. It may pilot up to 8 units through only one bus.

Display ⇔ unit maximum distance = 500 meters.

DS «Maintenance» display:
This display allows the service personal to set up up all the parameters and to read up all the variables and faults. It allows to read the history of last 99 faults too.

Communication interfaces :

Modbus | BACnet | TCP/IP | LonWorks

Supervisions solutions detailed on page 194 to 197

Standard features and options

Auxiliary heating and cooling options

- **Auxiliary electric heater:** Standard medium and high heat as option with modulating Triac control heater for medium and high heat.
- **Auxiliary electric pre-heater:** The electric pre-heater is located before the main thermodynamic coil. It 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). Modulating Triac control.
- **Cooling and heating water coils:** As in air handling units, eNeRGy can integrate cooling or heating water coils offered through a fully modulating control through the use of a 3 way valve. Frost protection is done through a thermostat controlled valve.
- **Modulating condensing gas burner:** A new generation of modulating condensing gas burner is developed to reach condensing behavior, allowing both very high efficiency and high modulating ratios. Efficiency level reaches 108% value. This new gas burner will guarantee a level of NOx emissions < 30 ppm.

Easy installation

In the new eNeRGy range, the condensing section and the air treatment section are combined together. This configuration makes the mounting easier and do not require extra casing for installing the extraction fans. The roofcurb will be proposed only if the installation requires this structure.

To make the installation of eNeRGy unit easier, the following options are available :

- Airflow configurations : Vertical supply and return as standard, horizontal configurations of air supply as an option.
- Adjustable roofcurb: This adjustable roofcurb can be installed on a sloped roof with vertical supply and return airflow configuration.

Indoor air quality

- **High filtration quality options :** eNeRGy range offer G4 filters as standard, and several high levels of filtration : G4 / F7 (ePM1) / F9 (ePM1)
- **Fresh air management:** The economiser is able to ensure that fresh air is provided to the building to meet the indoor air quality requirement.
- **Indoor air quality sensor:** This feature gives the possibility to match minimum fresh air requirements with occupancy.It measures CO2 levels and adjusts fresh airflow rate accordingly (option).
- **Gravity exhaust damper:** Gravity exhaust damper relieves the pressure when outside air is being introduced in the system (option).
- **Axial power exhaust fan:** Provides exhaust air pressure relief when high levels of fresh air are being introduced in the system (option).
- **Refillable G4 filter:** Instead of replacing the whole filter frame, only the media has to be changed. It's a good cost saving solution (option).
- **Analog dirty filter sensor:** A differential pressure sensor measures the pressure drop across the filters and coil to allow preventive filter change, thus reducing energy consumption and improving air quality (standard).

Safety

- **M0 fire proof insulation:** eNeRGy units feature M0 rock or glass wool insulation as standard.
  The insulation will not burn and will not generate smoke in case of fire.
- **Smoke detector:** 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 close fully and the fresh air damper will open completely.
- **Fire-stat:** This safety thermostat provides fire protection by switching off the unit and closing the fresh air damper.
- **Three phase relay detector :** This device offers the guarantee of the correct phase connection, together with an overvoltage and under voltage protection.
- **Refrigerant leak detection:** this option enables the customer to check if the refrigerant charge has variations during the life cycle of the unit, through sensors placed in the refrigerant pipes, to easier maintenance operations and prevent failures.

HIGH EFFICIENCY PACKAGED AIR TREATMENT UNIT
STANDARD EQUIPMENTS AND OPTIONS

Standard equipment ●
Option ●

		eNeRGy & eNeRGy+
Auxiliary heating (*)	Natural gas (modulating 33-100%)	●
	Propane	●
	Electric (2-step or modulating 0-100%)	●
	Electric pre-heater (modulating 0-100%)	●
	Hot water coil	●
Energy recovery	Rotary wheel heat exchanger on exhaust air	●
	Thermodynamic heat recovery on exhaust air	●
	Erecovery on food refrigeration systems	●
Refrigerant	R410A	●
	Leak detection (*)	●
	Electronic pressure sensors	●
Compressors	Multiscroll	●
	Tandem	●
	Silent start	●
	Refrigerant lock-out safety	●
	Compressor noise jacket	●
Expansion valves	Electronic (& bi-flow for heat pump)	●
	Dual circuit	●
Supply fans	Direct drive & variable speed centrifugal EC plug fan	●
Condenser fans	Constant speed axial fan	●
	Variable speed & low noise axial EC fan	●
Economiser	Motorised free-cooling/heating (class 1)	●
Casing	Main disconnect switch	●
	Aluminium (white)	●
Insulation	M0 fire-proof (*)	●
	50 mm double skin	●
Condensate drain pan	Aluminium & removable	●
Air filter (*)	EU3	●
	EU4	●
	F7/ePM1	●
	F9/ePM1	●
Anti-corrosion protection	LenGuard anti-corrosion protection on evaporator coil	●
	LenGuard anti-corrosion protection on condenser coil	●
Air flow configuration	Downflow supply	●
	Horizontal supply	●
	Downflow return	●
	Horizontal return	●
Exhaust (*)	Gravity exhaust damper (vertical exhaust)	●
	Power exhaust axial fan & gravity damper (vertical exhaust)	●
	EC plug fan	●

(*) : More details on page 39

HIGH EFFICIENCY PACKAGED AIR TREATMENT UNIT
STANDARD EQUIPMENTS AND OPTIONS

Standard equipment ●
Option ●

		eNeRGy & eNeRGy+
Roofcurbs	Non adjustable non assembled roofcurb	●
	Adjustable roofcurb	●
Packing	Container packing	●
Control and communication	eClimatic	●
	Regulation on supply or ambiant temperature	●
	7 time zones per day with 4 different operating modes	●
	Dirty filter alarm (*)	●
	Dynamic defrost	●
	Alternate defrost	●
	Morning anticipation	●
	Dynamic setpoint	●
	Variable airflow management of supply fan	●
	eFlow airflow rate on display	●
	Variable airflow management of condenser fan	●
	Economiser power stage & free-cooling/heating	●
	Heat recovery module power stage	●
	Compressors capacity steps (up to 4)	●
	Auxiliary heating capacity steps	●
	Intelligent fresh air management (Patent 03 50616) (*)	●
	Reading of suction pressure on DS display	●
	Reading of suction temperature on DS display	●
	Reading of condensing pressure on DS display	●
	Reading of liquid temperature on DS display	●
	Reading of superheating on DS display	●
	Reading of subcooling on DS display	●
	Master/Slave operation up to 24 units	●
	Distance Management System	●
	Dry & analogic contacts board	●
	ModBus RS485 interface	●
	LonWorks® FTT10 interface	●
	BACnet RS485 interface	●
	ModBus & BACnet TCP/IP interface	●
	Service display	●
	Multi-units display	●
	Comfort display	●
Additional control and safety	Smoke detector (*)	●
	Fire thermostat (*)	●
	Soft starter/Air sock control	●
	CO2 control	●
	Humidity control	●
	Energy meter	●

(*) : More details on page 39

Rooftop packaged units

Air cooled rooftop packaged unit

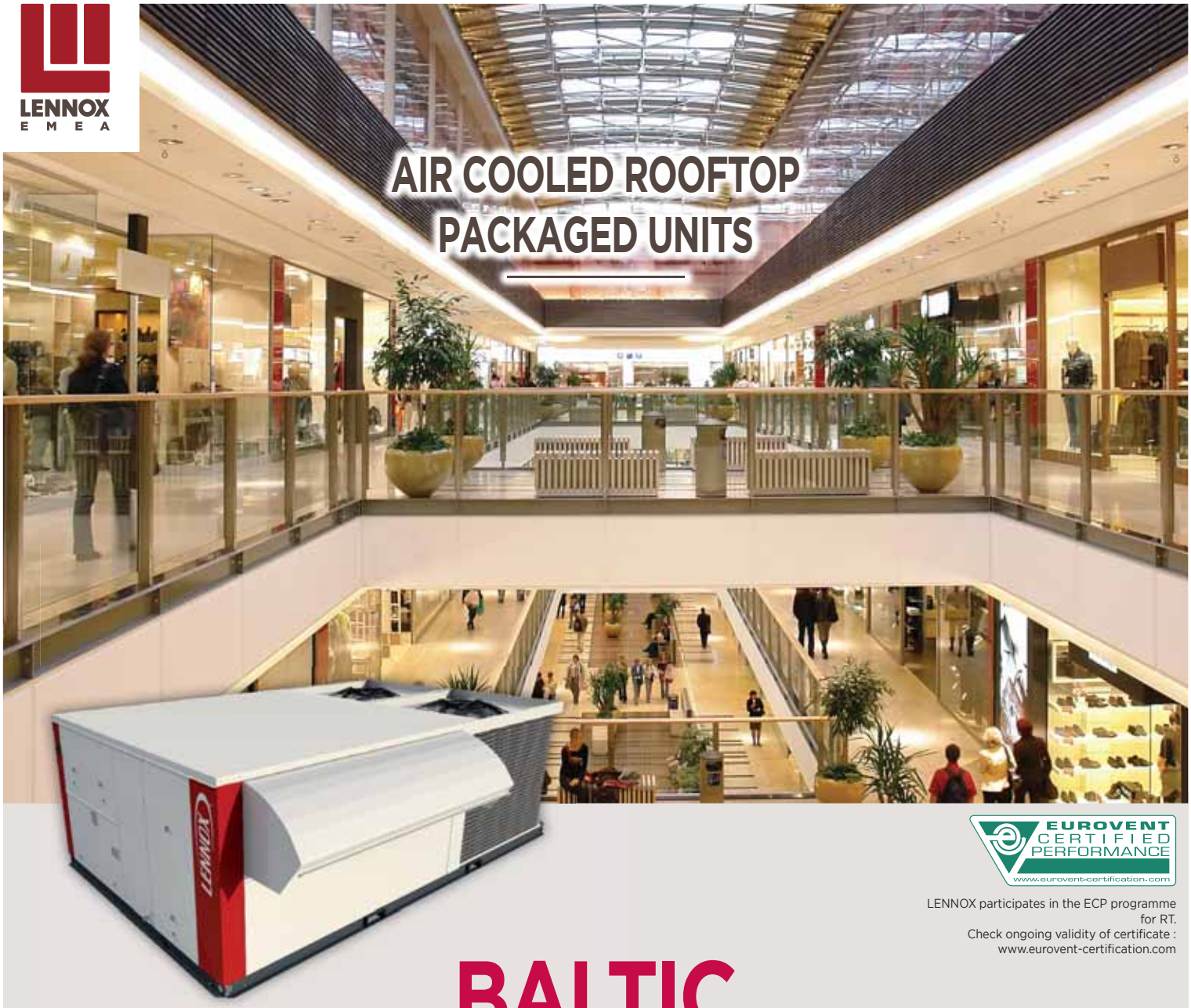
BALTIC
21 → 79 kW 43

FLEXAIR
85 → 227 kW 51

- Standard equipments and options 60

LENNOX
EMEA

AIR COOLED ROOFTOP PACKAGED UNITS



EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for RT.
Check ongoing validity of certificate : www.eurovent-certification.com

BALTIC

C-SEASON
EFFICIENCY ALL SEASONS

- Energy efficiency
- Comfort and air quality
- Flexibility
- Reliability

Airflow rate :
3600 - 19000 m³/h

Cooling capacity :
21 - 79 kW

Heating capacity :
21 - 82 kW

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

LENNOX

Air cooled and water cooled rooftop packaged unit

BALTIC C-SEASON

EFFICIENCY ALL SEASONS

21 → 79 kW

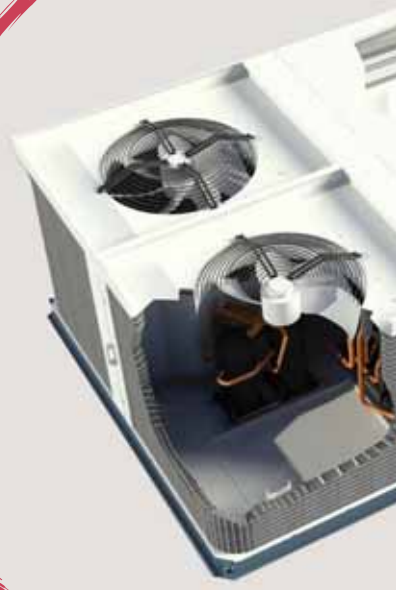
Main applications

- Medium and light commercial buildings
- Restaurants
- Retail

FLEXIBILITY :

- Compact design with 1260 mm maximum height
- Large range of capacity and airflow rates
- Many ventilation solutions to fit to your need
- Different energy source solutions : gas, water, electrical, thermodynamic
- Large range of configurations and roofcurbs

Tandem compressor



RELIABLE :

- New eClimatic electronic controller with internal unit fieldbus
- Intelligent control parameters
- Integrated communication solutions (master/slave, Modbus, BACnet LonWorks®)
- Several displays available
- Optimum "Total Cost of Ownership"
- Different options for corrosion protection
- Quality production certified : ISO 9001 / ISO 14001 / ISO 18001

EC plug fan

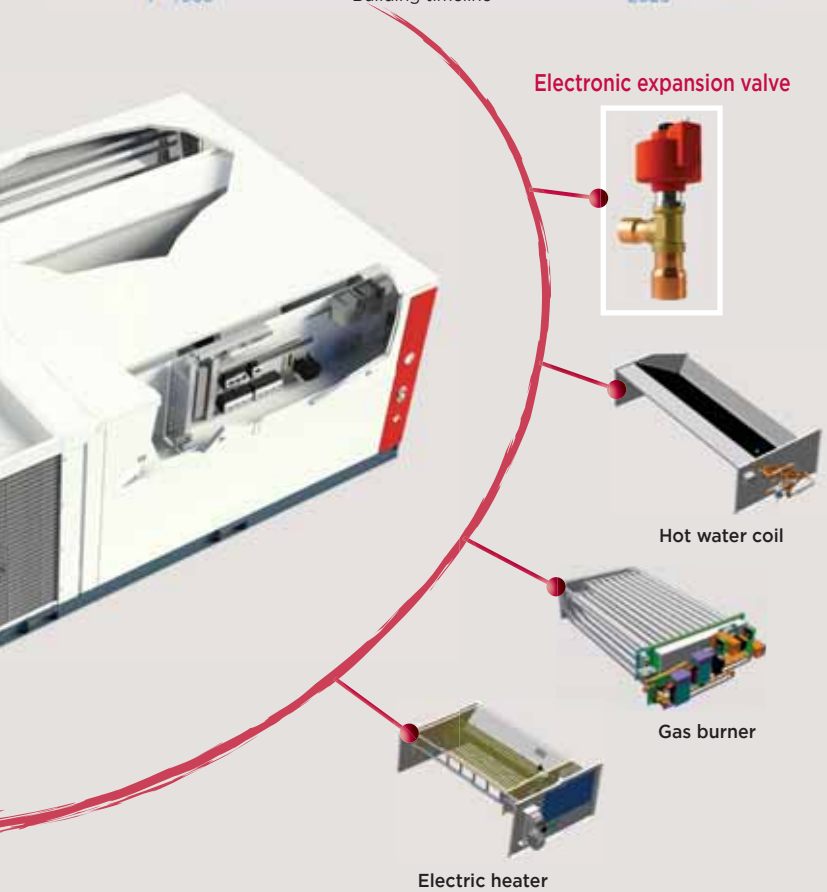
LENNOX monitoring solutions

ADALINK II : LENNOX WEB SERVER
One site/Several units

ADALINK II is the Lennox solution for managing air-conditioning and air-handling installations. It can be connected to various LENNOX units.
- Simplified BMS system
- Small installations: up to 16 LENNOX units

LennoxCloud: LENNOX WEB PORTAL
Multi sites/Multi units

LennoxCloud allows remote monitoring of unit operation across various customer sites. Thanks to LennoxCloud, LENNOX units can be remotely controlled, adjusted and diagnosed by our experts. It helps achieve significant energy savings while optimising performance throughout the unit's life cycle.



ENERGY EFFICIENCY :

- A or B energy class certified by EUROVENT
- Different solutions of heat recovery for winter and summer modes
- Full variable airflow rate for part load efficiency
- IE4 high efficiency permanently excited motor (EC)
- Staggered thermodynamic control (tandem design)
- Variable refrigerant control with electronic expansion valve
- Ecodesign compliant performances (EU 2016/2281) exceeding 2021 targets for cooling mode

2021 AIR COOLING PRODUCT EU 2016/2281

COMFORT AND AIR QUALITY :

- Free wheel fan (no fan scroll)
- Direct drive transmission (maintenance free)
- Different options for low noise solutions

Thermodynamic heat recovery

BALTIC - Air cooled version

General data - Heat pump units

BALTIC		024	030	038	042	045	052	057	065	075	085
Nominal thermal performances - Cooling mode											
Cooling capacity (1)	kW	21,3	28,2	37,4	39,8	41,6	47,9	56,2	63,9	75,0	81,7
EER (1)		3,01	2,97	3,15	2,95	3,07	3,03	3,34	3,14	3,25	3,08
Eurovent energy efficiency class Full load operation		A	B	A	B	A	A	A	A	A	A
Nominal thermal performances - Heating mode											
Heating capacity (2)	kW	20,8	26,0	34,5	37,7	41,0	46,3	53,4	61,0	73,8	80,2
COP (2)		3,46	3,49	3,48	3,38	3,49	3,43	3,50	3,41	3,58	3,47
Eurovent energy efficiency class Full load operation		A	A	A	B	A	A	A	A	A	A
Seasonal efficiencies											
Seasonal Energy Efficiency Ratio **SEER** (3)		5,15	4,71	4,32	4,14	4,97	5,26	5,28	5,00	4,27	4,26
Seasonal energy efficiency **ηs,c** (4)	%	196	180	166	159	190	201	203	192	164	164
Seasonal Coefficient of Performance **SCOP** (5)		3,51	3,50	3,33	3,28	3,46	3,36	3,53	3,29	3,20	3,18
Seasonal energy efficiency **ηs,h** (6)	%	138	137	130	128	136	132	138	129	125	124
Auxiliary heating											
Gas heating capacity Standard /High	kW	19/43				31/56				56/112	
Electric heater capacity Standard /High		18/36				27/54				27/54	
Electric pre-heater capacity Standard /High		18/36				24/48				36/72	
Hot water coil capacity Air inlet 10°C/Water 90-70°C		50	59	63	66	84	93	103	109	178	186
Ventilation data											
Nominal airflow rate	m^3/h	4200	5700	6300	6900	7100	8300	9900	11100	13500	14500
Maximum airflow rate		5600	6800	8400	8400	9700	11200	13100	13100	17000	19000
Acoustic data											
Outdoor sound power Standard unit (1)	dB(A)	80,4	81	81,9	82,6	83,3	83,5	84,1	84,5	82	83,2
Indoor blower outlet sound power Standard unit (1)		74,4	80,4	82,6	84,6	75,2	78	81,4	83,6	87,1	88,5

(1) **Cooling mode :**
According to EN14511 nominal conditions
Outdoor temperature 35°C DB
Indoor temperature 27°C DB / 19°C WB

(2) **Heating mode :**
According to EN14511 nominal conditions
Outdoor temperature 7°C DB / 6°C WB
Indoor temperature 20°C DB

(3) SEER in accordance with standard EN14825.

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

(5) SCOP in accordance with standard EN 14825 (average climate conditions).

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

Maxi ESP
800 Pa

Check ongoing validity of certificate :
eurovent-certification.com

BALTIC - Water cooled version

General data - Heat pump units

BALTIC		045	052	057	065	075	085
Nominal thermal performances - Cooling mode							
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
Eurovent energy efficiency class Full load operation		A	B	A	B	B	C
Nominal thermal performances - Heating mode							
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
Eurovent energy efficiency class Full load operation		B	B	A	B	B	C
Seasonal efficiencies							
Seasonal Energy Efficiency Ratio **SEER** (3)		5,08	5,88	6,43	5,93	5,39	5,26
Seasonal energy efficiency **ηs,c** (4)	%	198	230	252	232	210	205
Seasonal Coefficient of Performance **SCOP** (5)		2,94	3,44	4,79	4,55	4,41	4,25
Seasonal energy efficiency **ηs,h** (6)	%	113	132	187	177	171	165
Auxiliary heating							
Gas heating capacity Standard /High	kW	31/56				56/112	
Electric heater capacity Standard /High		27/54				27/54	
Electric pre-heater capacity Standard /High		24/48				36 / 72	
Hot water coil capacity Air inlet 10°C/Water 90-70°C		84	93	103	109	178	186
Ventilation data							
Nominal airflow rate	m^3/h	7100	8300	9900	11100	13500	14500
Maximum airflow rate		9700	11200	13100	13100	17000	19000
Acoustic data							
Outdoor sound power Standard unit	dB(A)	74,4	75,5	77,2	78,8	81,6	82,9
Indoor blower outlet sound power Standard unit		75,2	78	81,4	83,6	87	88,5

(1) **Cooling mode :**
According to EN14511 nominal conditions

(2) **Heating mode :**
According to EN14511 nominal conditions

(3) SEER in accordance with standard EN14825.

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

(5) SCOP in accordance with standard EN 14825 (average climate conditions).

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

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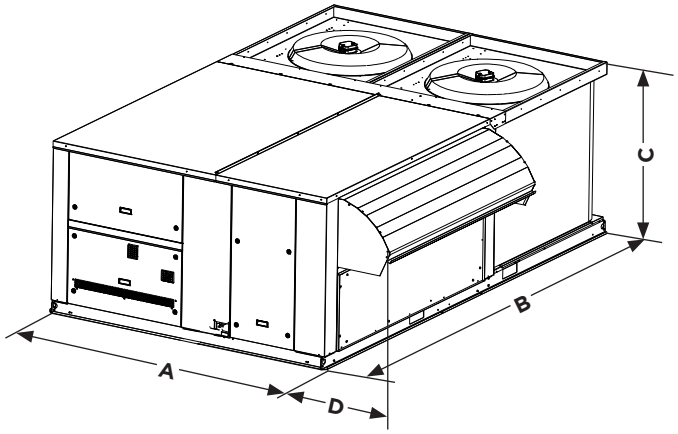
Dimensions and weights



Air cooled BALTIC

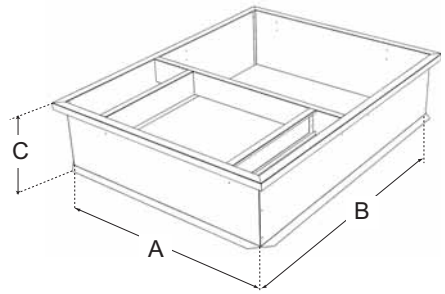
BALTIC BAC/BAH		024	030	038	042	045	052	057	065	075	085
A	mm	2259				2259				2259	
B		2283				2783				3663	
C		1260				1260				1260	
D		435				435				435	
Weight of standard units											
Basic unit	kg	556	591	641	644	772	803	887	911	1092	1100
Weight of gas units											
Basic unit Standard Heat	kg	599	634	684	687	827	858	942	966	1162	1170
Basic unit High Heat		618	653	703	706	849	880	964	988	1222	1230

Water cooled BALTIC

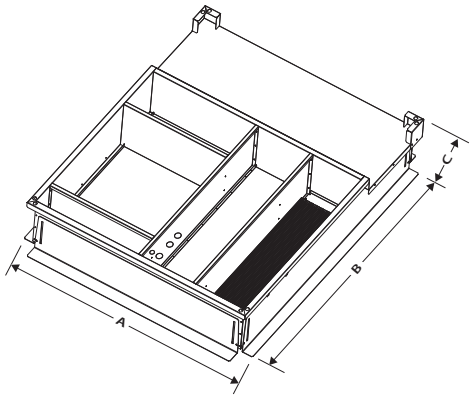
BALTIC BAC/BAH		045	052	057	065	075	085
A	mm	2259					
B		2783				3283	
C		1260					
D		435					
Weight of standard units							
Basic unit		760	795	842	876	987	1007
Weight of gas units							
Basic unit Standard heat	kg	819	854	913	931	1077	1079
Basic unit High heat		841	876	935	953	1135	1137

Roofcurbs dimensions and weights

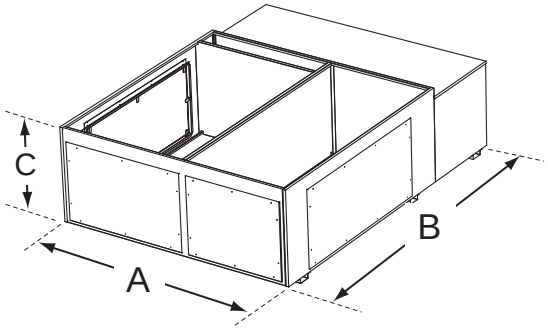
NON ADJUSTABLE, NON ASSEMBLED ROOFCURB



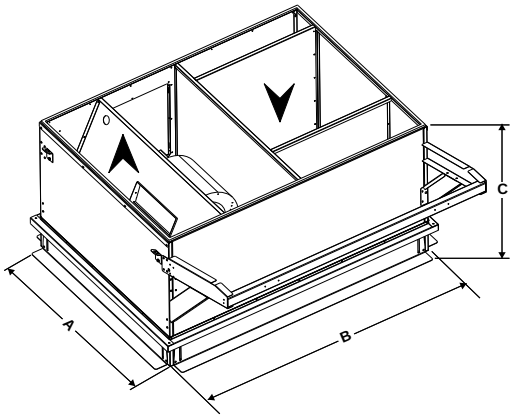
ADJUSTABLE ROOFCURB



MULTIDIRECTIONAL ROOFCURB



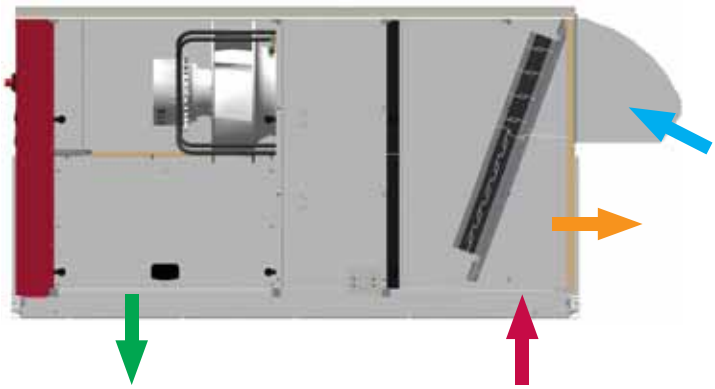
VERTICAL EXHAUST ROOFCURB



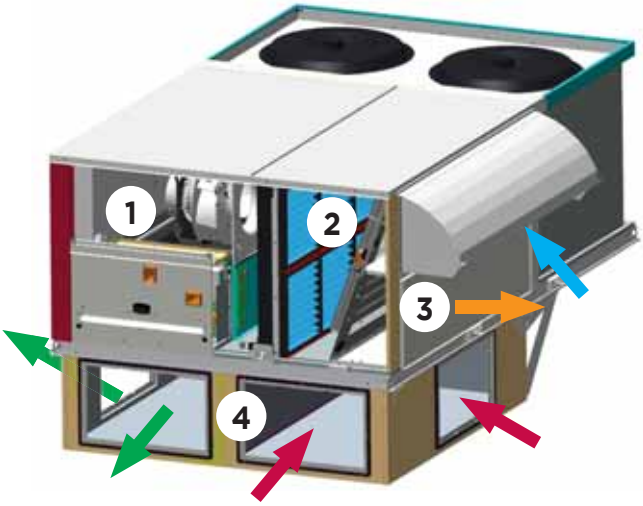
BALTIC BAC/BAH			Air cooled version				Air cooled & water cooled versions					
			024	030	038	042	045	052	057	065	075	085
Non-adjustable, non assembled roofcurb	A	mm	2123				2123				2123	
	B		1818				2217				2719	
	C		415				415				415	
Assembled adjustable roofcurb	A		2225				2225				2225	
	B		1719				2318				2818	
	C		495				495				495	
Multidirectional roofcurb (External dimensions. No roof opening required)	A		2222				2222				2222	
	B		1808				2260				2763	
	C		795				795				795	
Vertical exhaust roofcurb	A		1872				2349				2731	
	B		2323				2323				2127	
	C		1110				1110				1110	

Principle sketches

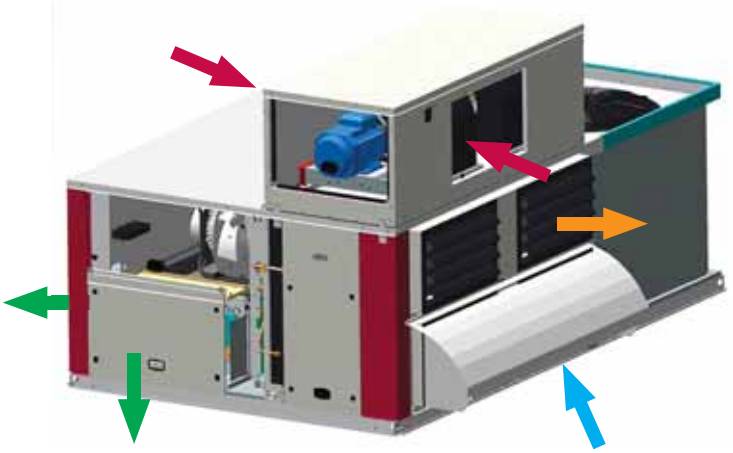
BALTIC (vertical flow)



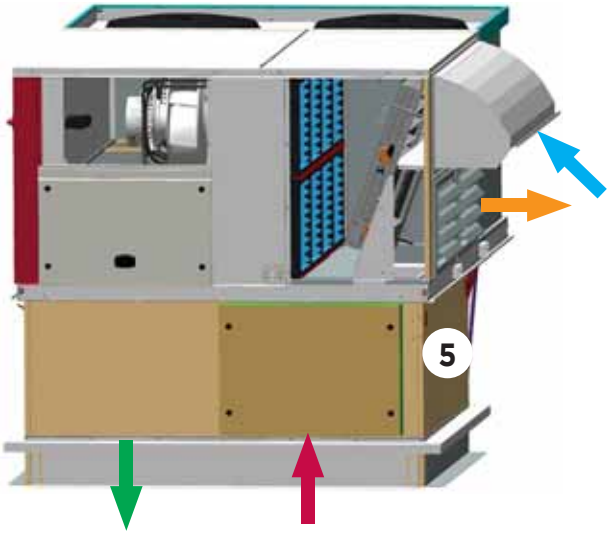
BALTIC MULTIDIRECTIONAL ROOFCURB



BALTIC HORIZONTAL EXTRACTION BOX



BALTIC VERTICAL EXHAUST ROOFCURB



→	Fresh air
→	Return air
→	Exhaust air
→	Supply air

1	Supply fan
2	Economiser damper
3	Exhaust damper and exhaust fan
4	Multidirectional roofcurb
5	Exhaust roofcurb

LENNOX
EMEA

AIR COOLED ROOFTOP PACKAGED UNITS

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for RT.
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FLEXAIR

ECSEASON
EFFICIENCY ALL SEASONS

- Energy efficiency
- Comfort and air quality
- Flexibility
- Reliability

Airflow rate :
12000 - 43000 m³/h

Cooling capacity :
85 - 227 kW

Heating capacity :
86 - 227 kW

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

LENNOX

Air cooled and water cooled rooftop packaged unit

FLEXAIR ECSEASON

EFFICIENCY ALL SEASONS

85 → 227 kW

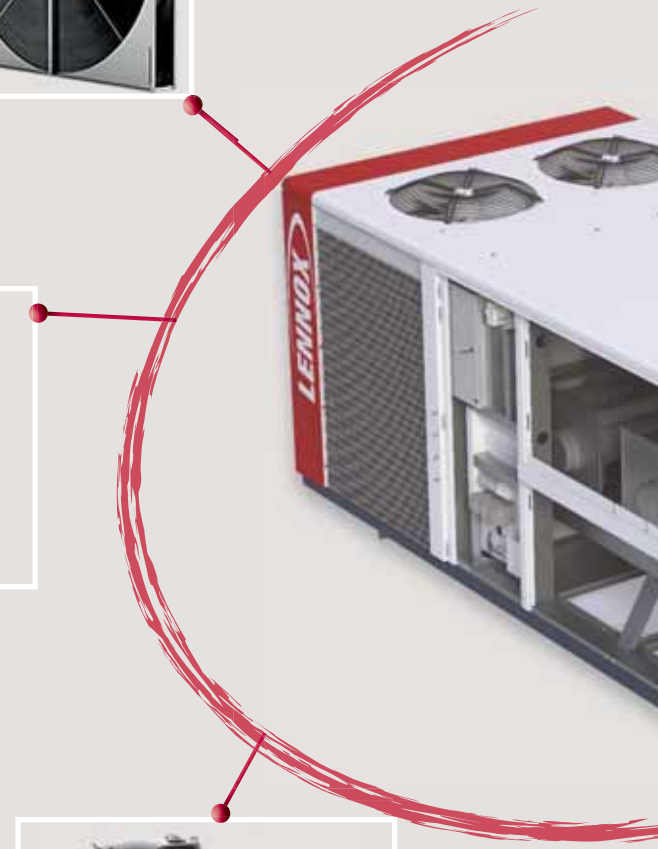
Main applications

Medium and large and commercial buildings
High volume buildings
Logistic centers

FLEXIBILITY :

- Compact vertical design
- Large range of capacity and airflow rates
- Many ventilation solutions to fit to your need
- Different energy source solutions : gas, water, electrical, thermodynamic
- Large range of configurations and roofcurbs

Heat recovery solutions



eCLIMATIC

DS
«Maintenance» display

RELIABLE :

- New eClimatic electronic controller with internal unit fieldbus
- Intelligent control parameters
- Integrated communication solutions (master/slave, Modbus, BACnet LonWorks®)
- Several displays available
- Optimum "Total Cost of Ownership"
- Different options for corrosion protection
- Quality production certified ISO 9001 / ISO 14001 / ISO 18001

Tandem compressor

LENNOX monitoring solutions

ADALINK II : LENNOX WEB SERVER
One site/Several units

ADALINK II is the Lennox solution for managing air-conditioning and air-handling installations.
It can be connected to various LENNOX units.

- Simplified BMS system
- Small installations: up to 16 LENNOX units

LennoxCloud: LENNOX WEB PORTAL
Multi sites/Multi units

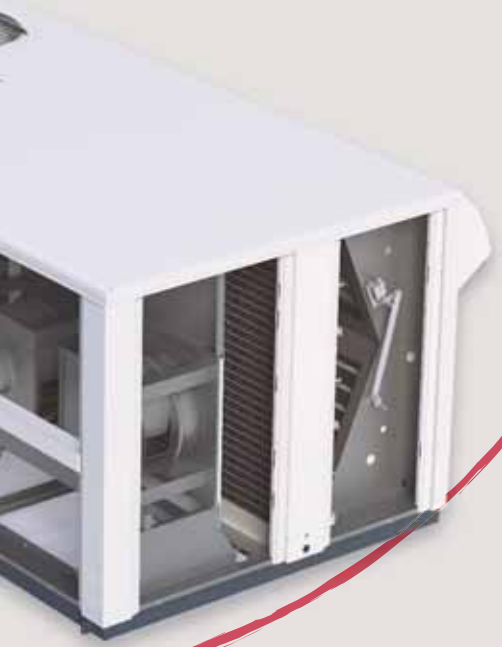
LennoxCloud allows remote monitoring of unit operation across various customer sites. Thanks to LennoxCloud, LENNOX units can be remotely controlled, adjusted and diagnosed by our experts. It helps achieve significant energy savings while optimising performance throughout the unit's life cycle.

ENERGY EFFICIENCY :

- High energy efficiency, certified by EUROVENT EN14511-2013
- Different solutions of heat recovery for winter and summer modes
- Full variable airflow rate for part load efficiency
- IE4 high efficiency permanently excited motor (EC)
- Staggered thermodynamic control (tandem design)
- Variable refrigerant control with electronic expansion valve
- Ecodesign compliant performances (EU 2016/2281) exceeding 2021 targets for cooling mode

2021 READY — **AIR COOLING PRODUCT** EU 2016/2281

Electronic expansion valve



Corrosion resistant and lightened aluminium casing
Double skin with A2 s1 d0 (M0) insulation

EC plug fan

COMFORT AND AIR QUALITY :

- Free wheel fan (no fan scroll)
- Direct drive transmission (maintenance free)
- Different options for low noise solutions

FLEXAIR - Air cooled version

General data - Heat pump units

FLEXAIR		085	100	120	150	170	200	230
Nominal thermal performances - Cooling mode								
Cooling capacity (1)	kW	84,6	102,7	114,5	130,6	151,8	179,8	217,1
EER (1)		3,23	2,94	2,82	2,81	2,83	2,93	2,87
Eurovent energy efficiency class Full load operation		A	B	B	B	B	B	B
Nominal thermal performances - Heating mode								
Heating capacity (2)	kW	79,0	99,6	109,8	132,3	158,0	179,3	222,1
COP (2)		3,35	3,31	3,22	3,48	3,39	3,48	3,18
Eurovent energy efficiency class Full load operation		B	B	B	A	B	A	C
Seasonal efficiencies								
Seasonal Energy Efficiency Ratio **SEER** (3)		4,51	5,04	3,96	4,99	4,90	3,90	3,67
Seasonal energy efficiency **ηs,c** (4)	%	173	193	151	191	187	149	144
Seasonal Coefficient of Performance **SCOP** (5)		3,56	3,29	3,13	3,09	3,29	3,19	2,97
Seasonal energy efficiency **ηs,h** (6)	%	140	129	122	121	129	125	116
Auxiliary heating								
Gas heating capacity Standard /High	kW	55,2/110,4			110,4/165,6		165,6/220,8	
Electric heater capacity Standard /Medium/High	kW	30/54/72			45/72/108		72/108/162	
Hot water coil capacity (20°C in/water 90-70 °C) Standard /High	kW	112/175	124/197	130/209	140/251	149/272	177/296	199/313
Ventilation								
Nominal airflow rate	m^3/h	15000	18500	20500	26000	30000	35000	39000
Maximum airflow rate	m^3/h	23000	23000	23000	35000	35000	43000	43000
Acoustic data								
Outdoor sound power Standard unit (1)	dB(A)	80,8	83	85,5	86,9	86,2	84,7	92
Indoor blower outlet sound power Standard unit (1)	dB(A)	87,8	89,4	93,4	92,6	95,5	94	93,7

(1) **Cooling mode :**
According to EN14511 nominal conditions
Outdoor temperature 35°C DB
Indoor temperature 27°C DB / 19°C WB

(2) **Heating mode :**
According to EN14511 nominal conditions
Outdoor temperature 7°C DB / 6°C WB
Indoor temperature 20°C DB

(3) SEER in accordance with standard EN14825.

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

(5) SCOP in accordance with standard EN 14825 (average climate conditions).

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

Maxi ESP 800 Pa

Check ongoing validity of certificate : eurovent-certification.com

FLEXAIR - Water cooled version

General data - Heat pump units

FLEXAIR		085	100	120	150	170
Nominal thermal performances - Cooling mode						
Cooling capacity (1)	kW	90,2	114,4	125,9	159,8	175,2
EER (1)		4,66	4,64	4,36	5,02	4,48
Eurovent energy efficiency class Full load operation		A	A	B	A	A
Nominal thermal performances - Heating mode						
Heating capacity (2)	kW	111,9	131,5	153,2	191,6	226,9
COP (2)		4,74	4,48	4,41	4,97	4,41
Eurovent energy efficiency class Full load operation		B	B	C	A	C
Seasonal efficiencies						
Seasonal Energy Efficiency Ratio **SEER** (3)		5,16	5,11	4,65	5,73	5,44
Seasonal energy efficiency **ηs,c** (4)	%	201	199	181	224	212
Seasonal Coefficient of Performance **SCOP** (5)		3,53	3,69	3,12	4,21	4,27
Seasonal energy efficiency **ηs,h** (6)	%	136	143	120	163	166
Auxiliary heating						
Gas heating capacity Standard /High	kW	55,2/110,4			110,4 / 165,6	
Electric heater capacity Standard /Medium/High	kW	30/54/72			45/72/108	
Hot water coil capacity (20°C in/water 90-70 °C) Standard /High	kW	134/210	149/236	156/250	169/301	180/326
Ventilation data						
Nominal airflow rate	m^3/h	15000	18500	20500	26000	30000
Maximum airflow rate	m^3/h	23000	23000	23000	35000	35000
Acoustic data						
Outdoor sound power Standard unit (1)	dB(A)	82,2	84,7	87,4	86,2	87,5
Indoor blower outlet sound power Standard unit (1)	dB(A)	87,8	89,4	93,3	92,7	95,5

(1) **Cooling mode :** According to EN14511 nominal conditions

(2) **Heating mode :** According to EN14511 nominal conditions

(3) SEER in accordance with standard EN14825.

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

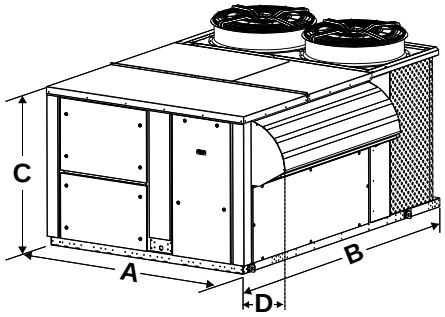
(5) SCOP in accordance with standard EN 14825 (average climate conditions).

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

Maxi ESP 800 Pa

Check ongoing validity of certificate : eurovent-certification.com

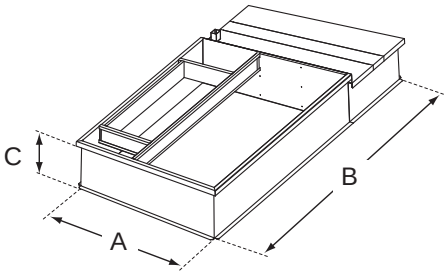
Dimensions and weights



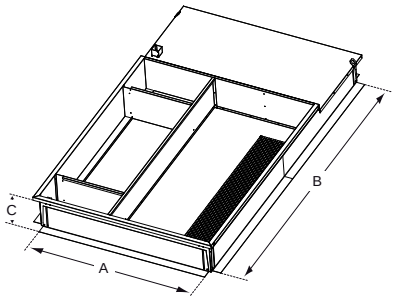
FLEXAIR		Air cooled FLEXAIR							Water cooled FLEXAIR				
		085	100	120	150	170	200	230	085	100	120	150	170
A	mm	2245			2245		2260		2290				
B	mm	3315			4360		5166		3348			4385	
C	mm	1750			1885		2235		1510			1830	
D	mm	360			456		620		415				
Weight of standard units													
Basic unit - FAC	kg	966	1055	1054	1454	1550	2027	2143	790	874	955	1237	1300
Weight of gas unit													
Basic unit Standard Heat	kg	1013	1117	1108	1576	1681	2257	2371	897	981	1062	1478	1541
Basic unit High Heat	kg	1083	1187	1178	1599	1704	2297	2411	967	1051	1132	1501	1564

Roofcurb dimensions and weights

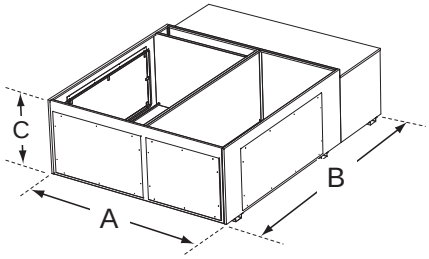
NON ADJUSTABLE, NON ASSEMBLED ROOFCURB



ADJUSTABLE ROOFCURB

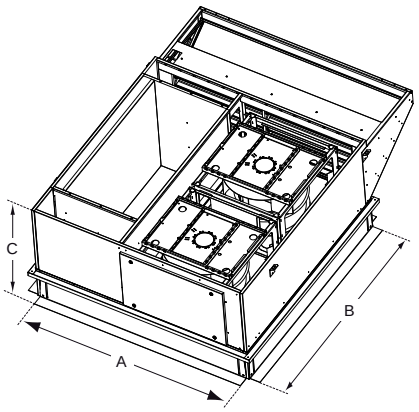


MULTIDIRECTIONAL ROOFCURB



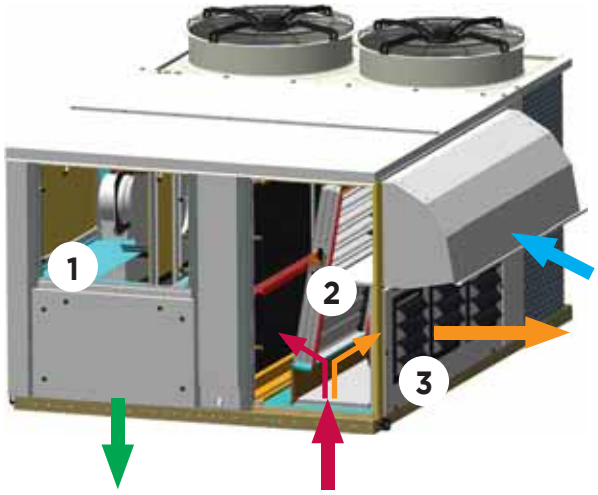
FLEXAIR			085	100	120	150	170	200	230
Non-adjustable, non assembled roofcurb	A	mm	2059			2059		2059	
	B	mm	2771			3466		4066	
	C	mm	410			410		425	
Assembled adjustable roofcurb	A	mm	2159			2159		2159	
	B	mm	2872			3567		4167	
	C	mm	400			400		425	
Multidirectional roofcurb	A	mm	2154			2154		2154	
	B	mm	2745			3441		4067	
	C	mm	840			1140		1340	
Vertical return roofcurb	A	mm	2256			2256		2256	
	B	mm	3005			3496		3493	
	C	mm	1220			1220		1220	
Horizontal return roofcurb	A	mm	2083			2083		2083	
	B	mm	2805			3293		3293	
	C	mm	1220			1220		1220	

CENTRIFUGAL RETURN ROOFCURB (vertical and horizontal)

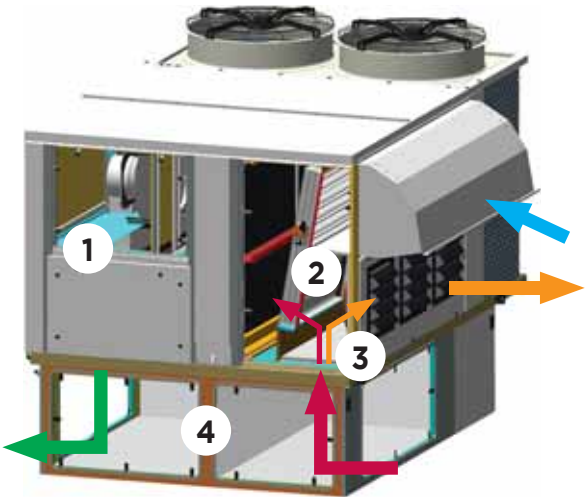


Principle sketches

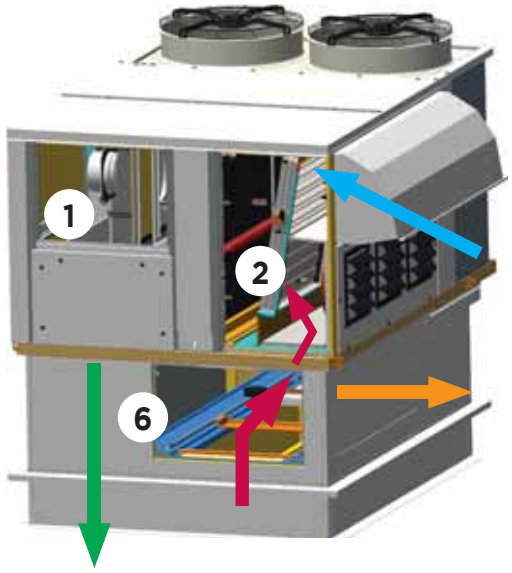
FLEXAIR (vertical flow)



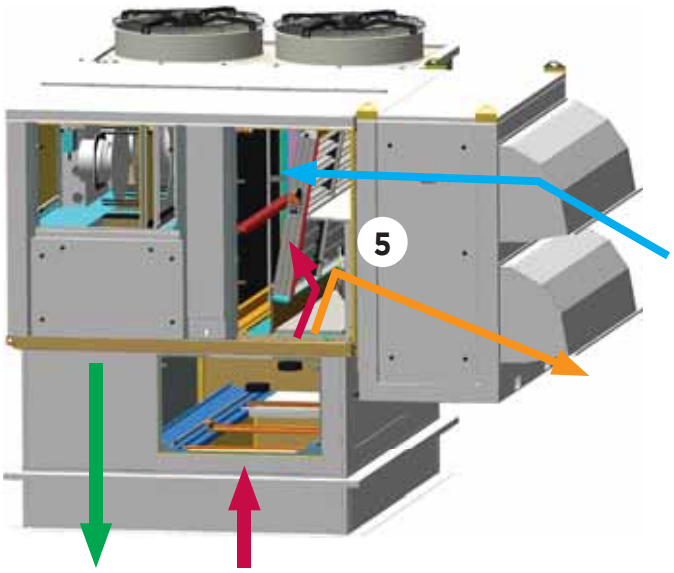
MULTIDIRECTIONAL ROOFCURB



EXHAUST RETURN ROOFCURB (vertical flow)



ENERGY RECOVERY MODULE



→	Fresh air
→	Return air
→	Exhaust air
→	Supply air

1	Supply fan
2	Return air damper
3	Exhaust damper
4	Multidirectional roofcurb
5	Heat recovery exchanger
6	Return/Exhaust fan

CLIMATIC regulation

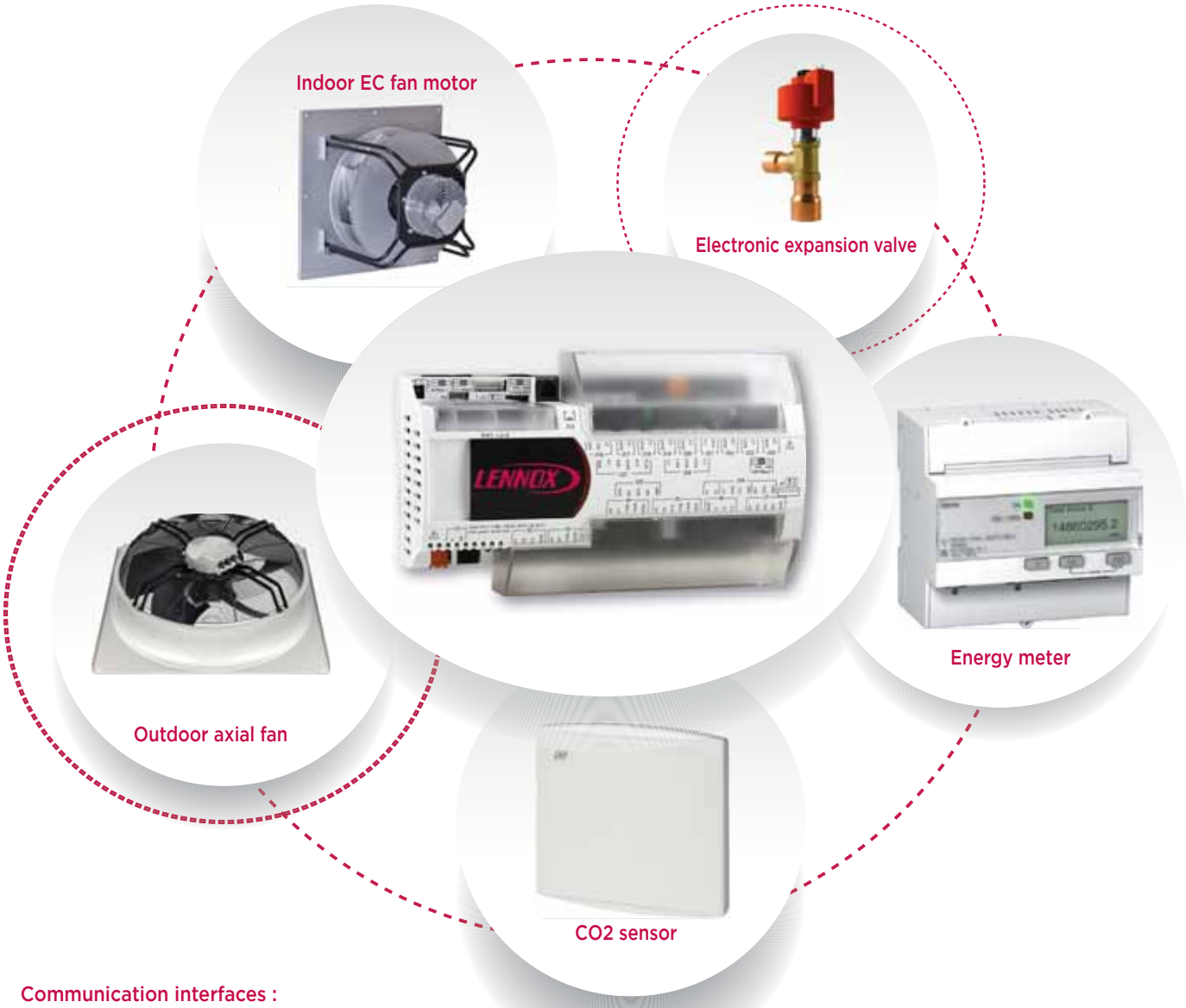
DC «Comfort» display:
This is a remote controller for non-technical customer. It was designed to aesthetically fit in the room and be very easy to use. The **DC** display allows the customer to modify the set point of the current time zone and to manage start and stop of the unit.

Display ⇔ unit maximum distance = 30 meters.

DM «Multi-units» display:
In addition to DC features, the **DM** makes programming of time zones, temperature setpoints and fresh air percentage possible. It may pilot up to 8 units through only one bus.

Display ⇔ unit maximum distance = 500 meters.

DS «Maintenance» display:
This display allows the service personal to set up up all the parameters and to read up all the variables and faults. It allows to read the history of last 99 faults too.



Communication interfaces :

Modbus | BACnet | TCP/IP | LonWorks

Supervisions solutions detailed on page 194 to 197

Options

Auxiliary heating

- **Auxiliary electric heater :**
  Staged or modulating Triac control, available in different sizes (small, medium, high).

- **Auxiliary electric pre-heater :**
  Located before the main thermodynamic coil, designed to allow heat pump operation with low mixed air temperature (low outdoor temperature with units running with a high fresh air rate in winter). Modulating Triac control.

- **Hot water coil :**
  1 and 2 rows hot water coils offer fully modulating control through the use of a 3 way valve. Frost protection through thermostat controlled valve.

- **92% high efficiency gas burner :**
  This high efficiency gas burner offers improved space comfort through stages or by modulation.

Energy recovery

- **Energy recovery on exhaust air :**
  This option is designed to recover energy in the exhaust air to pre heat or pre cool the fresh air and save energy. Lennox heat recovery modules are built around EUROVENT certified heat exchangers and are fully controlled by the CLIMATIC. On BALTIC range, an additional thermodynamic circuit may be available to recover calories on exhaust air.

- **Electrical Energy meter :**
  This option measures and displays electrical energy consumption and displays the absorbed power, power factor, intensity and tension values of each phase. Connected to the time counter of the CLIMATIC, it also provides these information for each heating or cooling period, as well as periods when the ventilation is activated.

Indoor air quality

- **Indoor air quality sensor :**
  This feature gives the possibility to match minimum fresh air requirements with occupancy. It measures CO_2 levels and adjusts fresh airflow rate accordingly.

- **Gravity exhaust damper :**
  Gravity exhaust damper relieves the pressure when outside air is being introduced in the system.

- **Axial power exhaust fan :**
  Provides exhaust air pressure relief when high levels of fresh air are being introduced in the system.

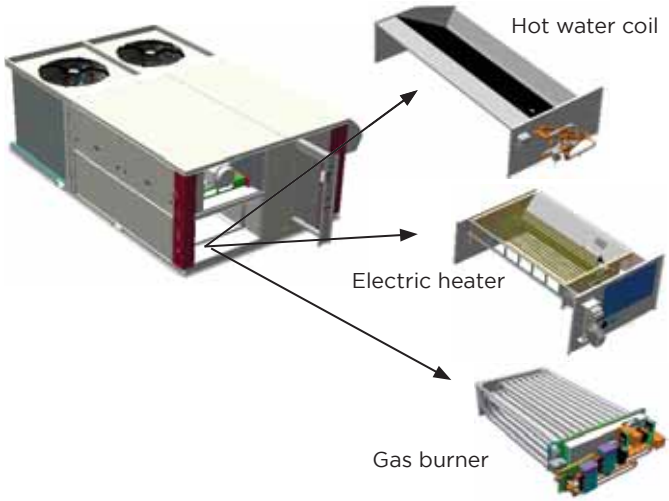
- **Centrifugal return roofcurb :**
  Where system balancing is critical, the fan is able to exhaust up to the nominal airflow rate of the unit and improves energy and maintenance cost.

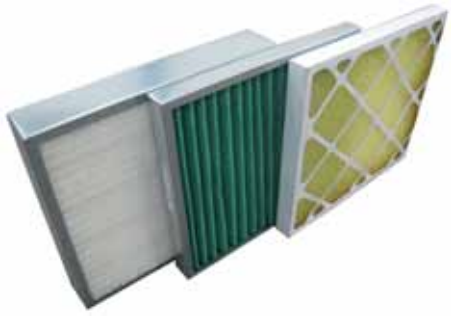
- **Refillable G4 filter :**
  Instead of replacing the whole filter frame, only the media has to be changed. It's a good cost saving solution.

- **G4/F7-ePM1 panel filters :**
  Adding a G4 pre-filter before the F7-ePM1 filter reduces excessive replacement of this one.

- **Double skin :**
  This feature prevents bacteria development on porous surface and allows an easy cleaning of the panel. It also prevents insulation particles to be carried away in the air stream.

- **Analog dirty filter sensor :**
  A differential pressure sensor measures the pressure drop across the filters and coil to allow preventive filter change, thus reducing energy consumption and improving air quality.





AIR COOLED ROOFTOP PACKAGED UNITS
STANDARD EQUIPMENTS AND OPTIONS

Standard equipment ●
Option ●

		BALTIC BAC/BAH	FLEXAIR FAC/FAH
Auxiliary heating	Natural gas burner	●	●
	Propane gas burner	●	
	Electric (2-step or modulating 0-100%)	●	●
	Electric pre-heater (modulating 0-100%)	●	
	Hot water coil	●	●
Energy recovery	Cross flow plate heat exchanger on exhaust air	●	
	Rotary wheel heat exchanger on exhaust air		●
	Thermodynamic heat recovery on exhaust air	●	
	Erecovery on food refrigeration systems	●	
Refrigerant	R410A	●	●
	Leak detection	●	
	Electronic pressure sensors	●	●
Compressors	Multiscroll	●	●
	Silent start	●	
	Refrigerant lock-out safety	●	
	Compressor noise jacket	●	●
Expansion valves	Electronic (& bi-flow for heat pump)	●	●
Supply fans	Direct drive & variable speed centrifugal fan	●	
	Direct drive & variable speed centrifugal EC plug fan	●	●
Condenser fans	Constant speed axial fan	●	
	Variable speed & low noise axial EC fan	●	●
	Low noise axial 2-speed fan	●	●
Economiser	Motorised free-cooling/heating (class 1)	●	●
Casing	Main disconnect switch	●	●
	Pre-coated galvanised steel (white)	●	
	Aluminium (white)		●
Insulation (*)	M0 fire-proof	●	●
	25 mm double-skin doors & corners	●	
	Double-skin (all parts in contact with airflow)	●	●
Condensate drain pan	Stainless steel & removable	●	
	Aluminium & removable		●
Air filter	EU3	●	●
	EU4	●	●
	Refillable EU4	●	●
	EU4 + F7 (ePM1)	●	●
Anti-corrosion protection	LenGuard anti-corrosion protection on evaporator coil	●	●
	LenGuard anti-corrosion protection on condenser coil	●	●
Air flow configuration	Downflow supply	●	●
	Horizontal supply	●	●
	Downflow return	●	●
	Horizontal return	●	●

(*) : More details on page 59

AIR COOLED ROOFTOP PACKAGED UNITS
STANDARD EQUIPMENTS AND OPTIONS

Standard equipment ●
Option ●

		BALTIC BAC/BAH	FLEXAIR FAC/FAH
Exhaust	Gravity exhaust damper (vertical exhaust)	●	●
	Power exhaust axial fan & gravity damper (vertical exhaust)	●	●
	Centrifugal exhaust fan (direct drive and variable speed) & gravity damper (vertical or horizontal exhaust)	●	
	EC plug fan		●
Roofcurbs	Non adjustable non assembled roofcurb	●	●
	Adjustable roofcurb	●	●
	Multidirectional horizontal flow roofcurb	●	●
Packing	Container packing	●	●
Control and communication	eClimatic	●	●
	Regulation on supply or ambiant temperature	●	●
	7 time zones per day with 4 different operating modes	●	●
	Dirty filter alarm	●	●
	Dynamic defrost	●	●
	Alternate defrost (1)	●	●
	Morning anticipation	●	●
	Dynamic setpoint	●	●
	Variable airflow management of supply fan	●	●
	eFlow airflow rate on display	●	●
	Variable airflow management of condenser fan	●	●
	Economiser power stage & free-cooling/heating	●	●
	Heat recovery module power stage	●	●
	Compressors capacity steps (up to 4)	●	●
	Auxiliary heating capacity steps	●	●
	Intelligent fresh air management (Patent 03 50616)	●	●
	Reading of suction pressure on DS display	●	●
	Reading of suction temperature on DS display	●	●
	Reading of condensing pressure on DS display	●	●
	Reading of liquid temperature on DS display	●	●
	Reading of superheating on DS display	●	●
	Reading of subcooling on DS display	●	●
	Master/Slave operation up to 24 units	●	●
	Distance Management System	●	●
	Dry & analogic contacts board	●	●
	ModBus RS485 interface	●	●
	LonWorks® FTT10 interface	●	●
	BACnet RS485 interface	●	●
	ModBus & BACnet TCP/IP interface	●	●
	Service display	●	●
	Multi-units display	●	●
	Comfort display	●	●
Additional control and safety	Smoke detector	●	●
	Fire thermostat	●	●
	Soft starter/Air sock control	●	●
	CO2 control	●	●
	Humidity control	●	●
	Energy meter	●	●

(1) : BALTIC air to air : from 45 kW / FLEXAIR : depending on models

(*) : More details on page 59

Packaged air units

Horizontal water cooled packaged air conditioner

AQUALEAN
2 → 20 kW 63

Horizontal packaged air conditioner

FLATAIR ADVANCED
6 → 34 kW 67

Vertical packaged air conditioner

COMPACTAIR ADVANCED
9 → 83 kW 71

- Standard equipments and options 76

Air treatment units

FIC/FIH/FIX - CIC/CIH
10 → 28 kW / 19 → 140 kW 78/79

Horizontal air cooled condensing units, with centrifugal fan

FSC/FSH - CSC/CSH
20 → 140 kW / 20 → 100 kW 80

Vertical air cooled condensing units, with axial fan

ASC/ASH
20 → 230 kW 82

LENNOX
EMEA

HORIZONTAL WATER COOLED PACKAGED AIR CONDITIONER

AQUALEAN

SEASON
EFFICIENCY ALL SEASONS

- High efficiency system
- Compact solution and reduced height
- Ceiling installation : floor space optimization
- Quiet operation: variable speed fan motor
- Zoning requirements in cellular office buildings or shopping center
- Low energy consumption : airflow rate variation
- Independent consumption and maintenance in buildings
- Wide choice of communication interfaces (ModBus, LonWorks® and BACnet)

Cooling capacity :
2 - 20 kW

ErP
COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

LENNOX

Horizontal water cooled packaged air conditioner

AQUALEAN

2 → 20 kW

Main applications

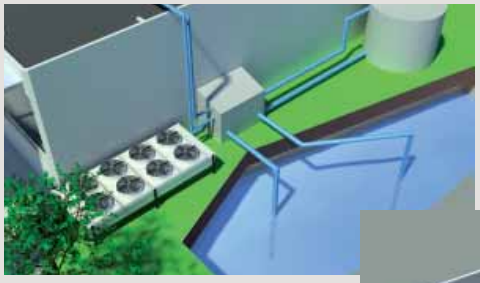
- Medium and light commercial buildings
- Restaurants
- Retail

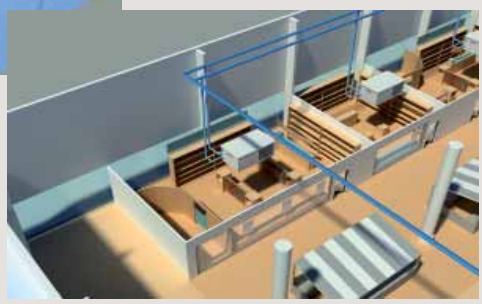
High efficiency system :

- Water source heat pump enabling to reach very high efficiency in cooling and heating modes
- Variable speed direct transmission ventilation to save energy and lower operational costs
- Electronic expansion valve to ensure optimized performances
- Scroll /rotary compressor operating

Compact and adaptable solution :

- Compact self supporting casing with very low height to lower dropped ceilings dimension
- Numerous different air configurations available
- Low water kit option





Comfort :

- Each unit answers to the heating or cooling load of the individual zone
- Advanced Climatic controller with accurate operation managed by electronic expansion valves pressure transducers and temperature sensors

General data

AWC/AWH		02	03	07	08	10	12	15	18	20
Nominal thermal performances - Cooling mode - AWC										
Cooling capacity (1) For variable speed only	kW	2,04	2,82	6,8	8,0	10,2	11,2	14,5	17,0	19,0
Absorbed power		0,47	0,62	1,7	2,1	2,6	2,8	3,4	4,2	4,8
EER (1)		4,34	4,55	4,00	3,81	3,92	4,00	4,26	4,05	3,96
Nominal thermal performances - Heating mode - AWH										
Heating capacity (2) For variable speed only	kW	2,6	3,84	8,0	9,5	12,3	13,5	17,0	19,5	22,0
Absorbed power		0,58	0,82	2,1	2,5	3,2	3,6	4,6	5,1	6,0
COP (1)		4,48	4,68	3,81	3,80	3,84	3,75	3,70	3,82	3,67
Seasonal efficiencies										
Seasonal Energy Efficiency Ratio **SEER** (3)		3,87	4,03	4,14	3,94	3,89	3,88	4,33	4,12	3,98
Seasonal energy efficiency **ηs,c** (4)	%	150	156	161	153	151	150	168	160	154
Seasonal Coefficient of Performance **SCOP** (5)		2,96	3,15	2,71	2,69	2,84	2,76	2,78	2,76	2,60
Seasonal energy efficiency **ηs,h** (6)	%	114	121	103	103	109	105	106	106	99
Electrical data										
Voltage		230 V/1 Ph/50 Hz						-	-	-
		-	-	-	-	-	400 V/3 Ph/50 Hz			
Refrigerant circuit										
Number of compressors/Number of circuits		1/1								
Total refrigerant load (*) Cooling only	kg	-	-	1,03	1,11	1,89	1,89	2,05	2,30	2,45
Total refrigerant load (*) Heat pump mode		0,58	0,65	1,25	1,35	2,2	2,3	2,5	2,8	3,0
Air treatment section										
Nominal airflow rate	m^3/h	430	575	1200	1500	1900	2100	2350	2800	3100
Minimum airflow rate		275	350	960	1250	1520	1680	1750	2240	2500
Maximum airflow rate		440	650	1400	1600	2300	2400	2600	3400	3500
Nominal available static pressure	Pa	50	50	50	50	50	50	50	70	70
Available static pressure (Mini. / Maxi.)	°C	25/90	25/110	25/130	25/130	25/140	25/140	25/140	50/140	50/140
Water cooled condenser										
Nominal water flow rate	l/h	495	560	1390	1650	2100	2320	2980	3480	3960
Water pressure drop - Cooling mode	kPa	30	29	25	30	40	48	35	45	55
Water pressure drop - Heating mode		29	26	23	28	38	46	33	43	53
Auxiliary heating (option)										
Electric heater capacity Standard /Medium/High Cooling only	kW	-	-	2/5/-	2/5/-	3/5/-	3/5/9	3/5/9	5/9/12	5/9/12
Electric heater capacity Standard /Medium/High Heat pump mode		-	-	2	2	3	3	3	5	5
Acoustic data										
Sound power level (7) Supply ductwork	dB(A)	46/48	52/54	62/64	66/69	65/68	67/70	69/72	66/70	69/73
Hydraulic connections										
Connection diameter		1/2" G		1" G						

(1) **Cooling mode :**
According to EN14511 nominal conditions
Outdoor temperature 35°C DB
Indoor temperature 27°C DB / 19°C WB

(2) **Heating mode :**
According to EN14511 nominal conditions
Outdoor temperature 7°C DB / 6°C WB
Indoor temperature 20°C DB

(3) SEER in accordance with standard EN14825.

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

(5) SCOP in accordance with standard EN 14825 (average climate conditions).

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

(7) At nominal airflow rate

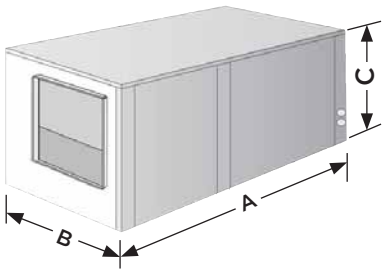
(*) All the AQUALEAN units are delivered filled with refrigerant charge.

General data

AWC/AWH		02	03	07	08	10	12	15	18	20
Cooling mode										
Maxi. indoor air temperature (DB/WB)	°C	32 / 23								
Mini. indoor air temperature (DB/WB)	°C	21 / 15								
Maximum water inlet temperature	°C	45								
Minimum water inlet temperature	°C	16 (1)								
Heating mode										
Maxi. indoor air temperature (DB) (5)	°C	24°C if inlet water temperature < 22°C 20°C if 22°C < inlet water temperature < 25°C								
Mini. indoor air temperature (DB) (5)	°C	17								
Maximum water inlet temperature	°C	25°C si 17°C < temp. d'entrée d'eau < 20°C 22°C si 20°C < temp. d'entrée d'eau < 24°C								
Minimum water inlet temperature	°C	10 (1)		10						

(1) Minimum water inlet temperature = 0°C with low water temperature kit.

Dimensions and weights



AWC/AWH		02	03	07	08	10	12	15	18	20
A	mm	1000		792		1083			1503	
B	mm	500		492		623			703	
C	mm	230		440		490			530	
Weight - Standard unit	kg	50	55	77	80	105	110	120	160	165

LENNOX
EMEA

HORIZONTAL PACKAGED AIR CONDITIONER

COP up to 5,5*

FLATAIR ADVANCED

ULTRA HIGH EFFICIENCY & COMFORT

Inverter

- Reduced energy bill
- Comfort
- Reliability
- Adaptability

Cooling capacity :
6 - 34 kW

Heating capacity :
6 - 29 kW

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

* Nominal heating conditions (EN14511) - At partial load

LENNOX

Horizontal packaged air conditioner

FLATAIR ADVANCED

ULTRA HIGH EFFICIENCY & COMFORT

6 → 34 kW

Main applications

- Stores in urban areas
- Small sizes offices buildings
- Restaurants & bars

Reduced energy bill :

Inverter

- Optimized efficiency at full and part load operations, thanks to **variable speed compressor** and EC fans in both sides
- Possibility to heat or to cool without thermodynamic operation with economizer option enabling to minimize energy bill
- Dynamic defrost detects icing by monitoring the difference between refrigerant and outside temperatures: save up to 15% on annual energy consumption
- Ecodesign compliant performances (EU 2016/2281) exceeding 2021 targets for cooling mode

2021 READY — AIR COOLING PRODUCT EU 2016/2281

Reliability :

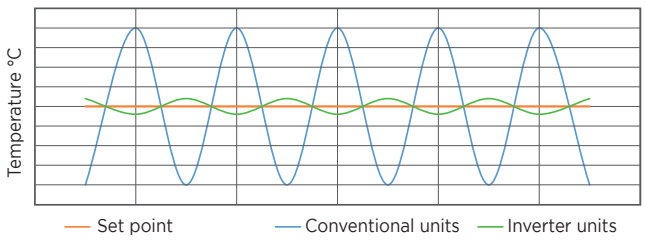
- Products manufactured according ISO 9001 quality standards
- Variable speed compressor: reduced number of startings, enabling to increase units lifetime
- Smooth starting and reduced peak current compared to conventional technology

Adaptability :

- Horizontal design to be installed in false ceilings
- Preservation of architecture: 100% indoor installation
- Packaged and split versions, adaptable to any building configuration
- Up to 30 m (length connection) between condensing unit and air treatment unit

Comfort :

- Inverter compressor produces energy, continuously adapted to building thermal needs
- Air quality: Variable speed technology for stabilized air flow rate and accurate supply temperature
- Very high efficiency filter option (M5+F7) offering an optimized indoor air quality
- Acoustic comfort: fans equipped with optimized blade geometry to reduce acoustic level
- Variable speed fan-motor enabling noise reduction when operating at part load capacity.



General data

FLATAIR ADVANCED range only available as heat pump version

FLATAIR FAMH/FASH+FAIH		020	035
Nominal thermal performances - Cooling mode - Packaged unit			
Cooling capacity (1) (Mini/Maxi)	kW	7,0 / 22,4	11,2 / 33,6
EER (1)		2,91	2,79
Nominal thermal performances - Heating mode - Packaged unit			
Heating capacity (2) (Mini/Maxi)	kW	6,0 / 20,0	9,5 / 28,8
COP (2)		3,15	3,16
Seasonal efficiencies			
Seasonal Energy Efficiency Ratio **SEER** (3)		4,05	4,35
Seasonal energy efficiency **ηs,c** (4)	%	159,0	170,9
Seasonal Coefficient of Performance **SCOP** (5)		3,06	3,10
Seasonal energy efficiency **ηs,h** (6)	%	119,4	120,9
Auxiliary heating			
Electric heater capacity Standard /Medium	kW	4,5/9	
High modulating electric heater		15,0	
Ventilation data - Air treatment unit			
Minimum airflow rate	m^3/h	1800	2800
Maximum airflow rate		4500	6200
Acoustic data			
Outdoor sound power Standard unit (1)	dB(A)	74	78
Indoor blower outlet sound power Standard unit (1)		77	79

(1) **Cooling mode :**
According to EN14511 nominal conditions
Outdoor temperature 35°C DB
Indoor temperature 27°C DB / 19°C WB

(2) **Heating mode :**
According to EN14511 nominal conditions
Outdoor temperature 7°C DB / 6°C WB
Indoor temperature 20°C DB

(3) SEER in accordance with standard EN14825.

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

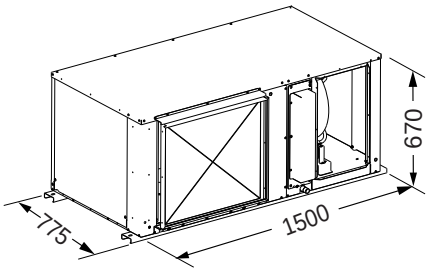
(5) SCOP in accordance with standard EN 14825 (average climate conditions).

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

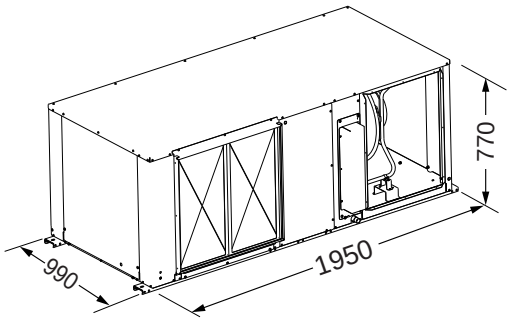
Dimensions

Air treatment section - Indoor unit

FAIH 020

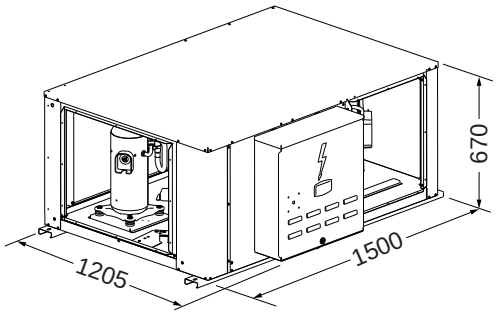


FAIH 035

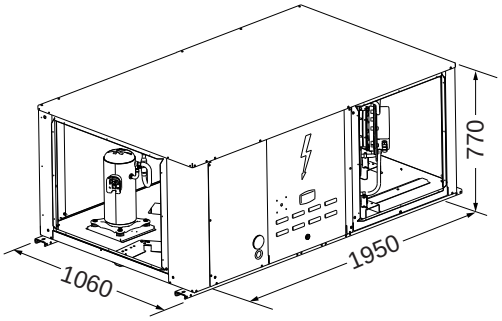


Condensing unit - Outdoor unit

FASH 020

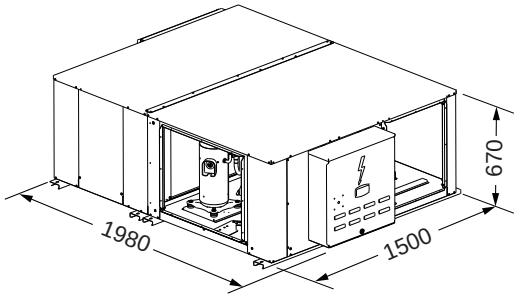


FASH 035

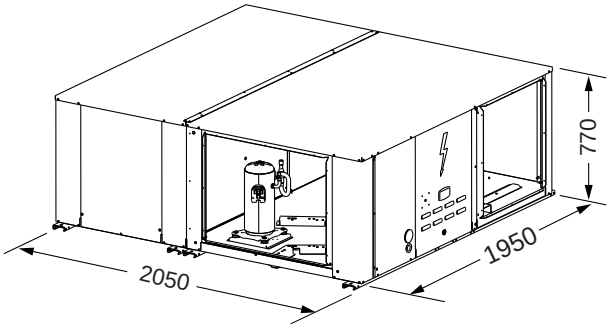


Packaged unit

FAMH 020



FAMH 035



Weights

		20	35
Indoor unit **FAIH**	kg	135	225
Outdoor unit **FASH**		220	330
Packaged unit **FAMH**		340	555

LENNOX
EMEA

VERTICAL PACKAGED AIR CONDITIONER

COP up to 5,5*

COMPACTAIR

Inverter

ADVANCED

ULTRA HIGH EFFICIENCY & COMFORT

- Reduced energy bill
- Comfort
- Reliability
- Adaptability

Cooling capacity :
9 - 83 kW

Heating capacity :
6 - 81 kW

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

* Nominal heating conditions (EN14511) - At partial load

LENNOX

Vertical packaged air conditioner

COMPACTAIR ADVANCED

ULTRA HIGH EFFICIENCY & COMFORT

9 → 83 kW

Main applications

- Stores in urban areas
- Small sizes offices buildings
- Restaurants & bars

CASH

CAIH

Reduced energy bill :

Inverter

- Optimized efficiency at full and part loads thanks to **variable speed compressor** and EC fans in both sides
- Possibility to heat or to cool without thermodynamic operation with economizer option enabling to minimize energy bill
- Dynamic defrost detects icing by monitoring the difference between refrigerant and outside temperatures : save up to 15% on annual energy consumption
- Ecodesign compliant performances (EU 2016/2281) exceeding 2021 targets for cooling mode

2021 READY — **AIR COOLING PRODUCT** EU 2016/2281

Reliability :

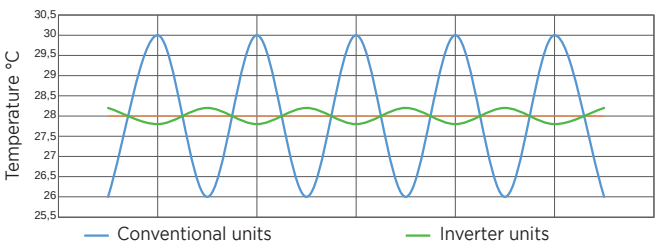
- Products manufactured according to ISO 9001 quality standards
- Variable speed compressor: reduced number of startings, enabling to increase units lifetime
- Smooth starting and reduced peak current compared to conventional technology

Adaptability :

- Vertical design, minimising the footprint
- Preservation of architecture: 100% indoor installation
- Packaged and split versions, adaptable to any building configuration
- Up to 45 m (length connection) between condensing unit and air treatment unit

Comfort :

- Inverter compressor produces energy continuously adapted to building thermal needs
- Air quality: Variable speed technology for stabilized air flow rate and accurate supply temperature
- Very high efficiency filter option (M5+F7) offering an optimized indoor air quality
- Acoustic comfort: fans equipped with optimized blade geometry to reduce acoustic level
- Variable speed fan-motor enabling noise reduction when operating at part load capacity



General data

COMPACTAIR ADVANCED range only available as heat pump version

COMPACTAIR CAMH		025	035	045	060	075	085
Nominal thermal performances - Cooling mode - Packaged unit							
Cooling capacity (1) (Mini/Maxi)	kW	7,2/22,6	11,1/32,6	16,0/45,5	28,1/60,4	35,1/71,0	40,9/85,3
EER (1)		3,06	2,86	2,5	2,78	2,66	2,69
Nominal thermal performances - Heating mode - Packaged unit							
Heating capacity (2) (Mini/Maxi)	kW	5,8/19,6	9,5/29,5	13,9/42,2	35,4/56,2	45,3/67,7	50,9/80,8
COP (2)		3,42	3,03	2,96	2,99	2,77	2,79
Seasonal efficiencies							
Seasonal Energy Efficiency Ratio **SEER** (3)		3,60	4,15	4,35	3,85	4,00	4,05
Seasonal energy efficiency **ηs,c** (4)	%	140	166	174	154	160	162
Seasonal Coefficient of Performance **SCOP** (5)		3,00	3,03	2,98	3,05	3,03	2,98
Seasonal energy efficiency **ηs,h** (6)	%	120	121	119	122	121	119
Auxiliary heating							
Electric heater capacity Standard /High	kW	10/15			15/20		
High modulating electric heater		20			40		
Ventilation data (Indoor unit)							
Minimum airflow rate	m^3/h	1800	2800	3700	6200	6700	7500
Maximum airflow rate		4500	6200	7500	12500	13500	15000
Acoustic data							
Outdoor sound power Standard unit (1)	dB(A)	70	78	81	83	83	85
Indoor blower outlet sound power Standard unit (1)		77	77	82	79	81	84

(1) **Cooling mode :**
According to EN14511 nominal conditions
Outdoor temperature 35°C DB
Indoor temperature 27°C DB / 19°C WB

(2) **Heating mode :**
According to EN14511 nominal conditions
Outdoor temperature 7°C DB / 6°C WB
Indoor temperature 20°C DB

(3) SEER in accordance with standard EN14825.

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

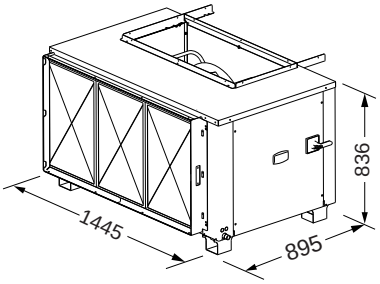
(5) SCOP in accordance with standard EN 14825 (average climate conditions).

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

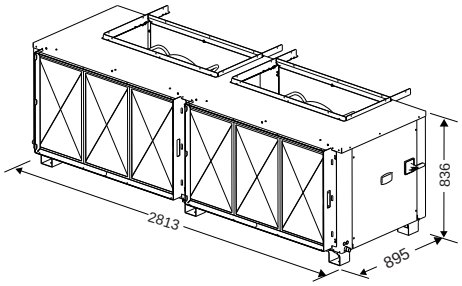
Dimensions

Air treatment section - Indoor unit

CAIH 025 - 035 - 045

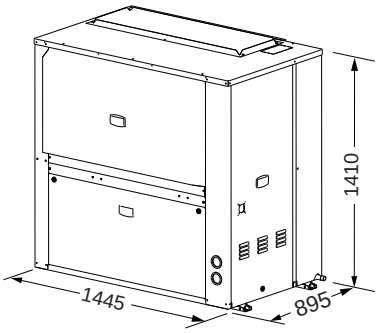


CAIH 060 - 075 - 085

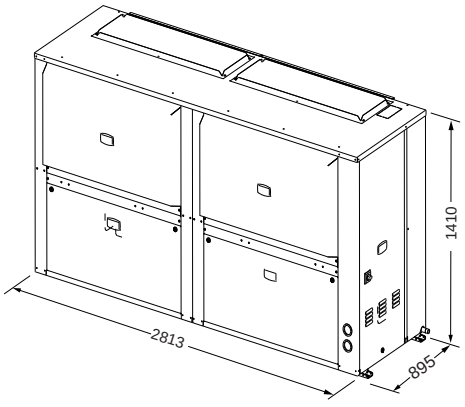


Condensing unit - Outdoor unit

CASH 025 - 035 - 045

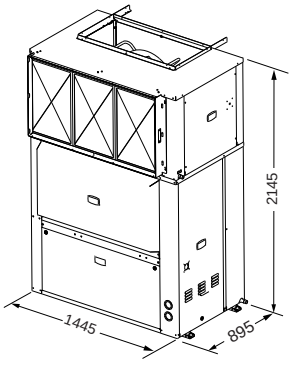


CASH 060 - 075 - 085

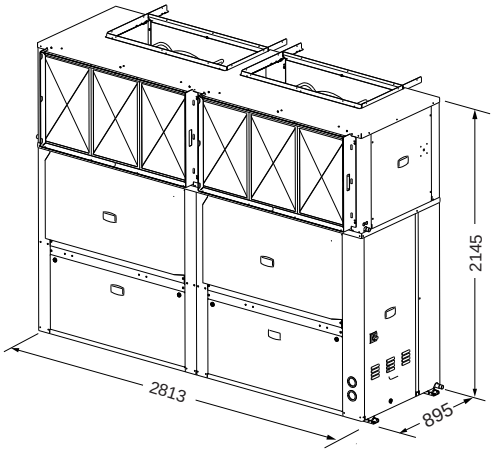


Packaged unit

CAMH 025 - 035 - 045



CAMH 060 - 075 - 085



AVAILABLE CONTROLS PER RANGE

3 different remote displays are available :

DC «Comfort» display:
This is a remote controller for non-technical customer. It was designed to aesthetically fit in the room and be very easy to use. The **DC** display allows the customer to modify the set point of the current time zone and to manage start and stop of the unit.

Display ⇔ unit maximum distance = 30 meters.

DM «Multi-units» display:
In addition to DC features, the **DM** makes programming of time zones, temperature setpoints and fresh air percentage possible. It may pilot up to 8 units through only one bus.

Display ⇔ unit maximum distance = 500 meters.

DS «Maintenance» display:
This display allows the service personal to set up all the parameters and to read up all the variables and faults. It allows to read the history of last 99 faults too.

	AQUALEAN AWC/AWH	**FLATAIR ADVANCED** FAMH	**COMPACTAIR ADVANCED** CAMH
Controller integrated to the unit	**CLIMATIC 60** 	**eCLIMATIC** 
Remote display Delivered with the unit	**DC** (as an option on sizes 002 & 003). 	No display delivered with the unit
Optional remote displays	**DC** For sizes **002** and **003**  **DM 60** Non available on sizes 002 and 003.  **DS** 	**DC**  **DM**  **DS** 

REGULATION SENSORS

- **AQUALEAN/FLATAIR ADVANCED /COMPACTAIR ADVANCED** : A return sensor is used for control. Return sensor used to control the unit (if needed, the control with a remote ambient sensor is possible as an option).

STANDARD EQUIPMENTS AND OPTIONS

Standard equipment ●
Option ●

		AQUALEAN AWC/AWH	FLATAIR ADVANCED FAIH/FASH/FAMH	COMPACTAIR ADVANCED CAIH/CASH/CAMH
Auxiliary heating (*)	1 or 2 steps electric heater	●	●	●
	Modulating electric heater		●	●
Refrigerant	R410A	●	●	●
	Pressure transducers		●	●
Compressors	Scroll/MultiScroll	●	●	●
	Tandem (1)			●
	Inverter compressor		●	●
	Compressor noise jacket (*)	●	●	●
Air flow configuration	Horizontal supply	●	●	●
	Up supply			●
	Horizontal return			●
Supply fans	Direct drive fan	●	●	●
	Variable speed fan		●	●
Condenser fans	Direct drive fan		●	●
	Variable speed fan		●	●
	Variable speed centrifugal fan	●		
Economiser (*)	Motorised free-cooling/heating		●	●
Casing	Main disconnect switch	●	●	●
	Pre-coated galvanised steel (White)		●	●
Insulation (*)	A1 (M0) fire-proof	● (2)	●	●
Air filter (*)	G2	●	●	
	G4			●
	M5 + F7		●	●
Anti-corrosion protection (*)	Blue fin coated coil protection for outdoor coil			●
	Blue fin coated coil protection for indoor and outdoor coil			●
Exhaust (*)	Exhaust fan			●
Control and communication	Dry & analogic contacts board	●	●	●
	ModBus RS485 interface	●	●	●
	LonWorks® FTT10 interface	●	●	●
	BACnet RS485 interface	●	●	●
	ModBus & BACnet TCP/IP interface	●	●	●
	Service display	●	●	●
	Multi-units display	●	●	●
Additional control and safety	Smoke detector (*)		●	●
	Remote ambient temperature sensor		●	●
	CO_2 control		●	●
	Humidity control		●	●
	3 phase detector		●	●
Hydraulic options	Water filter	●		
	Flow switches (paddle one, or through differential pressure measurement)	●		
	3-way mixing valve	●		

(1) : 2 circuits units
(2) : Size 007 to 020 : As standard on the air treatment unit
(*) More details on following page.

Options

Fresh air

- **Economizer:**
  Allows to considerably reduce the operating costs by using free-cooling at the appropriate time. In adidtion, the economizer is able to ensure that fresh air provided to the building meets the Indoor Air Quality requirement.

- **Exhaust fan module:**
  This ensures overpressure extraction in case of high level of fresh air inlet.

Indoor air quality

- **High efficiency filtration :**
  AQUALEAN : Set of G4 prefilter and F7 (ePM1) filter at return, operating on return air and fresh air. Adding a G4 pre-filter before the F7 (ePM1) filter reduces excessive replacement of this one.
  FLATAIR & COMPACTAIR ADVANCED : Set of M5 (ePM10) prefilter and F7 (ePM1) filter at return, operating on return air and fresh air. Adding a M5 (ePM10) pre-filter before the F7 (ePM1) filter reduces excessive replacement of this one.

- **Analog dirty filter sensor:**
  A differential pressure sensor measures the pressure drop across the filters and coil to allow preventive filter change, thus reducing energy consumption and improving air quality.

Auxiliary heating

- **Electrical heater:**
  Standard (S), Medium (M) and High (H) capacity heaters. Available with steps or modulating control.

Electrical and safety

- **A1 insulation air treatment unit:**
  A1 (M0) rock or glass whool insulation as an option.

- **Smoke detector:**
  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 close fully and the fresh air damper will open fully.

- **Compressor electrical protection:**
  This device prevents the compressor from starting if the phases are reversed (3-phase units only).

Refrigeration options

- **Long refrigerant piping:**
  Allows up to 30 m (FLATAIR ADVANCED) and 45 m (COMPACTAIR ADVANCED) piping between the internal and external units.

- **Refrigerant pre-charged:**
  Split condenser supplied with factory filled refrigerant pre-charge. Includes shut off service valves, on liquid and gas loop sides.

Other options

- **Low noise:**
  Reduce acoustic level thanks to compressor jackets.

- **Precoated coil:**
  Outdoor or indoor coils anticorrosion treatment. Particularly recommended in salin or polluted environment.

Air treatment unit

FIC/FIH/FIX

10 → 28 kW

Main applications

- Stores in urban area
- Small size office buildings
- Bank offices
- Restaurant & Bars

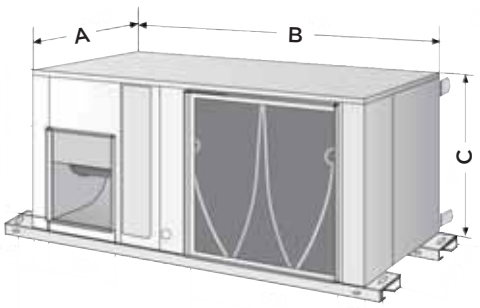
FIX/FIC/FIH		10	10	12	15	20	25	30
Cooling mode								
Net cooling capacity (1)	kW	9,7		12,1	15,0	19,5	23,5	27,0
Heating mode								
Net heating capacity (2)	kW	10,0		12,5	15,5	20,5	25,0	27,9
Electric heater capacity (option) Standard/Medium/High		3/6/-	3/6/9	4,5/6/9			7,5/9/12	
Air treatment section								
Minimum airflow rate	m³/h	1500		1650	2410	3090	3455	3695
Nominal airflow rate		2140		2040	3170	4500	5470	5060
Maximum airflow rate		2350		2300	3575	4850	5750	5500
Maximum available static pressure	Pa	120		110	160	200	240	180
Acoustic data								
Global sound power level (3)	dB(A)	72			76	80	84	83

(1) : Ambient air temperature : 27 °C DB, 19 °C WB
Outdoor air temperature : 35 °C DB, 24 °C WB.

(2) : Ambient air temperature : 20°C DB, 12°C WB
Outdoor air temperature : 7°C DB, 6°C WB.

(3) : EUROVENT conditions.

Dimensions



FIX/FIC/FIH		10	12	15	20	25	30
A	mm	430	430	500	620	775	775
B		1250	1250	1300	1450	1500	1500
C		500	500	595	595	645	645
Weight	kg	58	58	85	109	121	131

Air treatment unit

CIC/CIH

19 → 135 kW

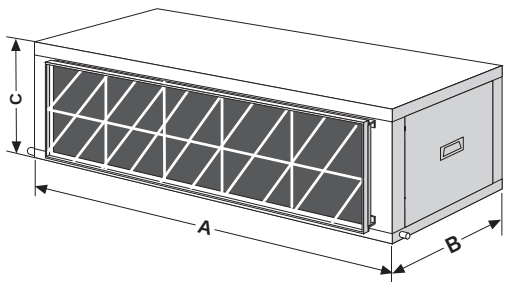
Main applications

- Retail premises in urban area
- Shopping malls
- Industry

CIC/CIH		20S	25S	30S	35S	40S	45D	55D	70D	85D	100D	120D	140D
Cooling mode - CIC													
Gross cooling capacity (1)	kW	19,9	24,2	27,9	36,5	41,9	48,7	57,3	72,4	86,0	103,9	116,2	140,6
Net cooling capacity (1)	kW	19,5	23,5	27,0	35,5	40,5	46,5	55,5	69,5	82,0	100,0	111,0	135,0
Heating mode - CIH													
Net heating capacity (2)	kW	19,5	25	28,5	36	40	49,5	56,5	72,5	80	108	118	137
Electrical heater capacity (option) Standard/Medium/High	kW	10	10	10	15	15	15	20	20	20	27	27	27
	kW	15	15	15	20	20	20	27	27	27	40	40	40
	kW	20	20	20	27	27	27	40	40	40	50	50	50
Hot water coil capacity (2)	kW	31	38	40	56	61	66	91	105	113	171	183	192
Ventilation													
Minimum airflow rate	m^3/h	3150	4250	4650	6200	6950	7950	9950	12450	14000	17350	19300	21000
Maximum airflow rate	m^3/h	4100	5500	6000	8050	9050	9750	12850	15090	16725	22450	24950	24750
Maximum available static pressure	Pa	685	672	650	729	833	812	747	711	680	812	784	828
Acoustic data (3)													
Blower outlet sound power level (Lw)		75	82	82	82	85	86	80	85	87	85	87	89

(1) Evaporating temperature = 7 °C / Ambiant air temperature = 35 °C
(2) Condensing temperature = 50 °C / Ambiant air temperature = 7 °C BS/6 °C BH

Dimensions



CIC/CIH		20 S	25 S	30 S	35 S	40 S	45 D	55 D	70 D	85 D	100 D	120 D	140 D
A	mm	1195			1445			2250			2900		
B	mm	840			960			960			1140		
C	mm	645			735			735			1140		
Operating weight (1)	kg	108	111	115	150	160	170	242	259	276	470	480	490

(1) Standard unit - Heat pump version

Horizontal ductable condensing unit

FSC/FSH

10 → 28 kW

Main applications

- Stores in urban area
- Small size office buildings
- Bank offices
- Restaurant & Bars

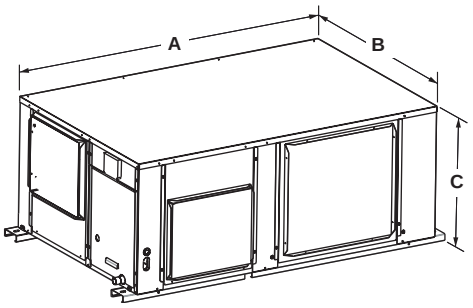
FSC/FSH		10	10	12	15	20	25	30
Cooling mode								
Net cooling capacity (1)	kW	9,7		12,1	15,0	19,5	23,5	27,0
Absorbed power		3,7		5,2	5,9	8,0	9,6	11,7
Heating mode								
Net heating capacity (2)	kW	10,0		12,5	15,5	20,5	25,0	27,9
Absorbed power		3,2		4,5	5,4	6,8	8,7	9,9
Electrical data								
Electrical supply	V/Ph/Hz	230/1/50 +N	400/3+N/50					
Refrigerant circuit								
Number of compressors/Number of circuits		1/1						
Total refrigerant charge - Cooling only	kg	2,14		2,57	3,55	4,46	5,38	6,15
Total refrigerant charge - Heat pump		2,5		2,93	4,0	4,9	6,3	7,0
Thermodynamic section (FSC/FSH)								
Minimum airflow rate	m^3/h	2350		2400	3740	4095	4760	5000
Nominal airflow rate		2970		2890	4250	5150	5600	5400
Maximum airflow rate		3500		3400	4500	5650	6000	5850
Maximum available static pressure	Pa	100		90	120	150	160	100
Acoustic data								
Global sound power level (3)	dB(A)	77			82	86	81	81

(1) : Ambient air temperature : 27 °C DB, 19 °C WB
Outdoor air temperature : 35 °C DB, 24 °C WB

(2) : Ambient air temperature : 20°C DB, 12°C WB
Outdoor air temperature : 7°C DB, 6°C WB.

(3) : EUROVENT conditions.

Dimensions



FSC/FSH		10	12	15	20	25	30
A	mm	1250		1300	1450	1500	
B		820		830	900	1025	
C		500		595	595	645	
Weight	kg	175	179	255	273	327	343

Vertical ductable condensing unit

CSC/CSH

20 → 100 kW

Main applications

- Retail premises in urban area
- Shopping malls
- Industry

CSC/CSH		20S	25S	30S	35S	40S	45D	55D	70D	85D	100D
Cooling mode											
Net cooling capacity (1)	kW	18,8	23,1	26,0	33,8	38,8	43,5	54,0	66,2	78,0	96,8
Absorbed power (1)	kW	7,3	9,3	11,0	13,7	15,9	18,9	21,5	27,8	32,6	40,7
Heating mode											
Net heating capacity (1)	kW	19,7	25,9	30,4	37,2	43,7	52,0	61,0	72,8	86,0	105,1
Absorbed power (1)	kW	6,6	8,6	10,7	12,4	14,0	17,4	20,3	24,8	28,5	35,4
Electrical data											
Electrical supply		400V/3Ph/50Hz									
Refrigeration circuit											
Number of compressors / Number of circuits		1/1									
Total refrigerant load Cooling only / Heat pump	kg	4,3/ 4,5	5,4/ 5,5	6,0/ 6,2	7,8/ 8,0	9,0/ 9,3	10,3/ 10,6	12,5/ 12,6	15,5/ 16,0	18,5/ 19,1	23,0/ 25,2
Ventilation data											
Nominal airflow rate	m^3/h	7600	8500	10000	12000	11700	14000	20000	21000	22000	15500 + 11700
Maximum available static pressure	Pa	178	223	272	209	205	237	299	272	277	239 + 201
Acoustic data											
Blower outlet sound power level (Lw)	dB(A)	82	85	86	85	85	88	87	88	89	92

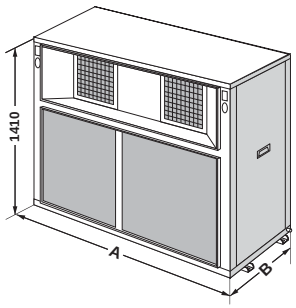
(1) EUROVENT conditions data

Cooling :
Outdoor temperature = 35°C DB
Entering coil temperature 27°C DB / 19°C WB

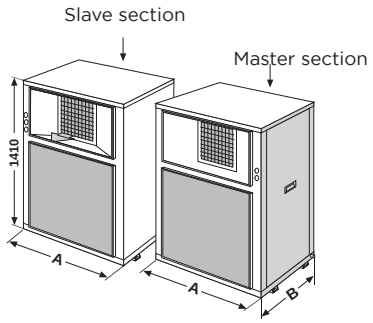
Heating :
Outdoor temperature = 7°C DB / 6°C WB
Indoor temperature = 20°C DB

Dimensions

Sizes 20S to 85D



Sizes 100D



CSC/CSH		20S	25S	30S	35S	40S	45D	55D	70D	85D	100D
A	mm	1194			1445			2251			2 x 1450
B	mm	745			870			870			870
Operating weight (1)	kg	262	295	302	357	370	448	529	554	586	2 x 435

(1) Standard unit - Heat pump version

Air cooled condensing unit

ASC / ASH

20 → 230 kW

Main applications

- Retail premises in urban area
- Shopping malls
- Industry

ASC / ASH		020S	025S	030S	035S	040S	045D	055D
Cooling mode - ASC								
Cooling capacity (1)	kW	19,7	24,7	28,4	36,1	42	49,4	56,7
EER (1)		3,06	3,05	2,95	3,03	2,98	3,05	2,94
Heating mode - ASH								
Heating capacity (2)	kW	19,8	25,0	28,6	36,0	40,2	50,1	57,1
COP (2)		3,20	3,21	3,12	3,24	2,98	3,21	3,1
Refrigeration circuit								
Number of compressors / Number of circuits		1/1	1/1	1/1	1/1	1/1	2/2	2/2
Capacity steps		1	1	1	1	1	2	2
Electrical data								
Voltage		400 V/3-Ph/50 Hz						
Maximum absorbed power	kW	8,55	10,8	12,5	16,4	17,7	21,6	25
Acoustic data								
Sound power level (3)	dB(A)	76	78	81	80	81	81	84

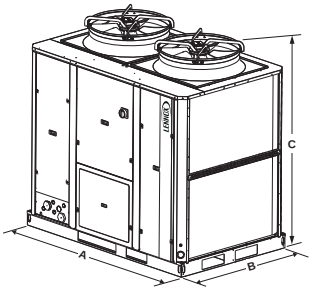
ASC / ASH		070D	085D	100D	120D	140D	200D	230D
Cooling mode - ASC								
Cooling capacity (1)	kW	72,1	83,9	104	115	141	197	228
EER (1)		3,04	2,96	3,03	3,1	3,05	3,11	3,06
Heating mode - ASH								
Heating capacity (2)	kW	71,9	80,3	105	114	137	191	218
COP (2)		3,24	3,1	3,24	3,2	3,13	3,19	3,06
Refrigeration circuit								
Number of compressors / Number of circuits		2/2	2/2	3/2	3/2	3/2	4/2	4/2
Capacity steps		2	2	2	2	2	2	2
Electrical data								
Voltage		400 V/3-Ph/50 Hz						
Maximum absorbed power	kW	32,8	35,5	45,6	48,7	59,9	83,0	96,2
Acoustic data								
Sound power level (3)	dB(A)	83	84	87	87	90	89	82

(1) Température d'évaporation = 7 °C / Température ambiante = 35 °C
(2) Température de condensation = 50 °C / Température ambiante = 7 °C BS/6 °C BH
(3) Données aux conditions Eurovent

Dimensions

ASC / ASH		20 S	25 S	30 S	35 S	40 S	45 D	55 D	70 D	85 D	100 D	120 D	140 D	200 D	230 D
A	mm	1195	1195				1960				2250			2250	
B		660	980				1195				1420			2300	
C		1375	1635				1635				2155			2250	
Operating weight (1)	kg	168	219	221	239	258	452	463	499	537	748	828	932	1684	1704

(1) Standard unit - Heat pump version



AVAILABLE CONTROLS PER RANGE

3 different remote displays are available :

DC «Comfort» display:
This is a remote controller for non-technical customer. It was designed to aesthetically fit in the room and be very easy to use. The **DC** display allows the customer to modify the set point of the current time zone and to manage start and stop of the unit.

Display ⇔ unit maximum distance = 30 meters.

DM «Multi-units» display:
In addition to DC features, the **DM** makes programming of time zones, temperature setpoints and fresh air percentage possible. It may pilot up to 8 units through only one bus.

Display ⇔ unit maximum distance = 500 meters.

DS «Maintenance» display:
This display allows the service personal to set up all the parameters and to read up all the variables and faults. It allows to read the history of last 99 faults too.

	FSC/FSH	CSC/CSH & ASC/ASH
Controller integrated to the unit	**CLIMATIC 40** 	**CLIMATIC 60** 
Remote display Delivered with the unit	**DC** 	No display delivered with the unit
Optional remote displays	No display option	**DC**  **DM**  **DS** 

REGULATION SENSORS

- **CSC/CSH/ASC/ASH** : A return sensor is used for control. Return sensor used to control the unit (if needed, the control with a remote ambient sensor is possible as an option).

Chillers and heat pumps

Air cooled chiller/Heat pump

eCOMFORT
20 → 190 kW 87

ECOLEAN
40 → 200 kW 93

Polyvalent air cooled heat pump

AQUA⁴
50 → 320 kW 99

Air cooled chiller/Heat pump

NEOSYS
200 → 1000 kW 103

Water cooled chiller & Heat pump

HYDROLEAN
20 → 160 kW 111

MWC/MRC
180 → 720 kW 117

- Standard equipments and options 122

Air cooled condensers and dry-coolers

Dry-cooler

FC/FI NEOSTAR
20 → 1200 kW 124

V-KING
50 → 2000 kW 127

Condenser

NEOSTAR
18 → 1240 kW 130

MXW
50 → 1670 kW 132

LENNOX
EMEA

AIR COOLED CHILLER AND HEAT PUMP

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for LCP-HP.
Check ongoing validity of certificate : www.eurovent-certification.com

eCOMFORT

- Reduced energy bill, seasonal efficiency best in class
- Plug & play with full hydraulic module integrated
- Year-round comfort, comfort ensured and secured
- Acoustic efficient and smart noise management
- Connected for comfort and performance

Cooling capacity :
20 - 190 kW

Heating capacity :
20 - 180 kW

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN & LABELLING

LENNOX

Air cooled chiller/Heat pump

eCOMFORT

20 → 190 kW

Main applications

- Small size office buildings
- Hotels
- Hospitals
- Industry process

ErP COMPLIANT DIRECTIVE 2009/125/EC ECODESIGN & LABELLING

2021 READY COMFORT COOLING n°2016/2281

Comfort applications

Plug & Cool/Heat :

- **Full hydraulic module** integrated with single or dual pump with low or high external static pressure
- High content **water tank**, up to 400 liters
- **Low ambient** operation in heating mode down to -15°C
- Modulating immersion heater for full capacity in heating mode down to -15°C

Connectivity for comfort :

- **Packaged smart system connectivity** for chiller or heat pump with fan coils and AHU installation (Lennoxhydrocontrol)w

Reduced energy bill :

- Energy cost saving thanks to **high efficiencies all year round**, high SEER and SCOP (A+ Class)
- **eDrive** reduces operating cost thanks to inverter on water pump
- **Free hot sanitary water up to 70°C**, thanks to partial heat recovery

Acoustic efficiency :

- Low and **adjustable noise level** thanks to Active Acoustic Attenuation system

CONTROL

LennoxHydroControl is the smartest solution for hydronic systems, it manages and coordinates cooling and heating production (chiller/heat-pump units) through up to 32 fancoils.
It ensures customer comfort, providing important energy savings through building zoning, time scheduling and set points control. This function is uniqUE compared to the other standard stand-alone systems.

eCOMFORT

Process cooling applications

Reduced energy bill :

- Reduced energy cost thanks to **high SEPR**
- **eDrive** reduces operating cost thanks to inverter on water pump
- **Free cooling kit** managed by the unit

Plug & Cool :

- **Full hydraulic module** integrated
- High content **water tank** up to 400 liters
- Large range of options : electric energy meter, power factor correction and softstarter

Reliability :

- **Low ambient**, winter cooling operation down to -20°C (EC fan)
- **Accurate operation**, thanks to the combination of multi-scroll compressors, electronic expansion valve and buffer tank
- **Redundancy** with 2 circuits from 100 kW to 180 kW
- **Dual pump** mounted in parallel with low or high external static pressure

Serviceability :

- **Connectivity for performance, LennoxCould** allows significant energy savings by avoiding performance drift
- **Very low refrigerant load** and high corrosion resistance (micro channel coil)

SUPERVISION

LennoxCloud is the remote supervision system of LENNOX units. It's a uniqUE system for multi units located in different installations.
Through LennoxCloud, the unit can be remotely controlled, adjusted, or diagnosed by our experts.
LennoxCloud can check (live data trends), optimize (store data analysis) and troubleshoot (alarm/alert reports) customer units.
LennoxCloud allows significant energy savings optimizing performances during all the unit's life cycle.

Check ongoing validity of certificate : eurovent-certification.com

General data - Standard version

eCOMFORT			020S	025S	030S	035S	040S	045S	055S	060S	070S	080S
Cooling mode - GAC												
Cooling capacity (1)		kW	20	24	31	36	39	45	54	60	68	81
EER (1)			3,31	3,05	2,77	2,94	2,94	2,92	3,02	2,99	2,96	3,05
Eurovent energy class (1) Full load operation			A	B	C	B	B	C	B	B	B	B
ESEER (2)			4,45	4,41	4,11	4,16	4,17	4,05	4,35	4,15	4,30	4,25
Comfort applications	Seasonal Energy Efficiency Ratio (3) **SEER**	GAC/ GAH	4,20/ 4,45	4,23/ 4,38	4,10/ 4,10	4,13/ 4,10	4,18/ 4,18	4,10/ 4,10	4,28/ 4,33	4,18/ 4,10	4,28/ 4,30	4,25/ 4,28
Comfort applications	Seasonal energy efficiency (4) **ηs,c**	GAC/ GAH	165% / 175%	166% / 172%	161% / 161%	162% / 161%	164% / 164%	161% / 161%	168% / 170%	164% / 161%	168% / 169%	167% / 168%
Process applications	Seasonal Energy Performance Ratio (5) **SEPR** - High temperature (7°C)	GAC/ GAH	5,64/ 5,69	5,80/ 5,70	5,39/ 5,31	5,41/ 5,32	5,44/ 5,44	5,28/ 5,20	5,62/ 5,55	5,36/ 5,28	5,39/ 5,40	5,30/ 5,29
Process applications	Seasonal Energy Performance Ratio (6) **SEPR** - Medium temperature (-8°C)	GAC/ GAH	3,33/ 3,39	3,53/ 3,52	3,54/ 3,51	3,64/ 3,62	3,44/ 3,46	3,46/ 3,44	3,73/ 3,72	3,63/ 3,60	3,65/ 3,68	3,58/ 3,60
Heating mode - GAH												
Heating capacity (1)		kW	19,8	24,5	31,9	36,7	39,2	44,6	53,6	61,3	67,6	79,3
COP (1)			3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,01	3,11	3,06
Eurovent energy class (1) Full load operation			B	B	B	B	B	B	B	B	B	B
Comfort applications	Seasonal Coefficient of Performance (7) **SCOP**		3,45	3,28	3,23	3,23	3,23	3,23	3,28	3,23	3,45	3,33
Comfort applications	Seasonal energy efficiency (8) **ηs,h**		135%	128%	126%	126%	126%	126%	128%	126%	135%	130%
Comfort applications	Seasonal energy efficiency class (9)		**A+**									
Electrical data												
Voltage			400 V/3 Ph/50 Hz									
Refrigeration circuit												
Number of circuits / Number of compressors (cooling only/heat pump unit)			1 / 2									
Evaporator type			Brazed plate heat exchanger									
Capacity steps			0-50-100%									
Total refrigerant load (cooling only/heat pump unit)		kg	3,3/ 7,0	3,3/ 6,1	4,4/ 8,3	4,6/ 7,7	4,8/ 9,4	4,8/ 9,6	7,0/ 13,5	8,0/ 17,0	8,5/ 18,4	9,5/ 18,4
Pressure drop												
Nominal water flow rate		m^3/h	3,47	4,24	5,47	6,36	6,92	7,85	9,45	10,56	11,99	14,26
Pressure drop		kPa	17	25	27	36	30	39	33	40	18	24
Hydraulic connection												
Type			Threaded - Male						Victaulic or welded			
Diameter			1 1/2"						2"			

(1) EUROVENT certified data, in accordance with standard EN 14511 :

Cooling mode :
Evaporator water temperature = 12/7°C
Outdoor air temperature = 35°C

Heating mode :
Condenser water temperature = 40/45°C
Outdoor air temperature = 7°C

(2) ESEER following Eurovent calculation method, in accordance with standard EN 14511

(3) SEER in accordance with standard EN 14825.

(4) Following ecodesign regulation EU **2016/2281** on space cooling, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(5) Following ecodesign regulation EU **2016/2281** on process cooling units, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(6) Following ecodesign regulation EU **2015/1095** on process cooling chillers, normalized leaving water temperature at -8°C, in accordance with standard EN 14825

(7) SCOP in accordance with standard EN 14825. Heating mode performance is defined for average climate conditions.

(8) Following ecodesign regulation EU **813/2013** on space heaters, normalized leaving water temperature at 7°C, in accordance with standard EN 14825, average climate conditions.

(9) Following energy labelling regulation EU **811/2013** on space heaters.

Check ongoing validity of certificate : eurovent-certification.com

General data - Standard version

eCOMFORT			090S	110S	125S	110D	125D	140D	160D	185D
Cooling mode - GAC										
Cooling capacity (1)		kW	91	106	120	105	121	137	159	181
EER (1)			2,98	3,15	2,95	2,80	2,90	2,95	2,95	2,91
Eurovent energy class (1) Full load operation			B	A	B	C	B	B	B	B
ESEER (2)			4,37	4,00	4,00	4,42	4,00	4,13	4,19	4,00
Comfort applications	Seasonal Energy Efficiency Ratio (3) **SEER**	GAC/ GAH	4,33/ 4,45	4,13/ 4,10	4,15/ 4,10	4,30/ 4,43	4,13/ 4,10	4,23/ 4,18	4,25/ 4,23	4,10
	Seasonal energy efficiency (4) **ηs,c**		170% / 175%	162% / 161%	163% / 161%	169% / 174%	162% / 161%	166% / 164%	167% / 166%	161%
Process applications	Seasonal Energy Performance Ratio (5) **SEPR** - High temperature (7°C)		5,45/ 5,48	5,04/ 5,05	5,06/ 5,04	5,58/ 5,64	5,00/ 4,98	5,08/ 5,05	5,15/ 5,12	5,01/ 4,98
	Seasonal Energy Performance Ratio (6) **SEPR** - Medium temperature (-8°C)		3,56/ 3,59	3,33/ 3,36	3,38/ 3,39	3,78/ 3,83	3,39/ 3,39	3,49/ 3,48	3,54/ 3,53	3,39/ 3,39
Heating mode - GAH										
Heating capacity (1)		kW	91,2	103,4	118,1	106,3	121,1	135,8	157,2	174,5
COP (1)			3,01	3,03	3,0	3,12	3,02	3,12	3,06	3,0
Eurovent energy class (1) Full load operation			B	B	B	B	B	B	B	B
Comfort applications	Seasonal Coefficient of Performance (7) **SCOP**		3,75	3,40	3,35	3,65	3,25	3,38	3,40	3,25
	Seasonal energy efficiency (8) **ηs,h**		147%	133%	131%	143%	127%	132%	133%	127%
	Seasonal energy efficiency class (9)		**A+**							
Electrical data										
Voltage			400 V/3 Ph/50 Hz							
Refrigeration circuit										
Number of circuits / Number of compressors (cooling only/heat pump unit)			1 / 3			2 / 2+2		2 / 2+2		
Evaporator type			Brazed plate heat exchanger							
Capacity steps			0-33-66-100%			0-25-50-75-100%		0-25-50-75-100%		0-20-40-60-80-100%
Total refrigerant load (cooling only/heat pump unit)		kg	12,5/ 23,5	12,5/ 25,5	14,0/ 26,0	13,0/ 27,6	13,6/ 29,0	16,0/ 35,0	16,6/ 37,0	16,8/ 38,0
Pressure drop										
Nominal water flow rate		m^3/h	15,75	18,40	21,10	18,21	21,25	23,94	27,94	31,91
Pressure drop		kPa	29	25	32	42	56	46	61	58
Hydraulic connection										
Type			Victaulic connection							
Diameter			2 1/2"					3"		

(1) EUROVENT certified data, in accordance with standard EN 14511 :

Cooling mode :
Evaporator water temperature = 12/7°C
Outdoor air temperature = 35°C

Heating mode :
Condenser water temperature = 40/45°C
Outdoor air temperature = 7°C

(2) ESEER following Eurovent calculation method, in accordance with standard EN 14511

(3) SEER in accordance with standard EN 14825.

(4) Following ecodesign regulation EU **2016/2281** on space cooling, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(5) Following ecodesign regulation EU **2016/2281** on process cooling units, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(6) Following ecodesign regulation EU **2015/1095** on process cooling chillers, normalized leaving water temperature at -8°C, in accordance with standard EN 14825

(7) SCOP in accordance with standard EN 14825. Heating mode performance is defined for average climate conditions.

(8) Following ecodesign regulation EU **813/2013** on space heaters, normalized leaving water temperature at 7°C, in accordance with standard EN 14825, average climate conditions.

(9) Following energy labelling regulation EU **811/2013** on space heaters.

Operating limits

eCOMFORT		Cooling mode	Heating mode
Maximum outside air temperature	°C	+48	+30 (option)/ +20 (standard)
Minimum outside air temperature		-20 (option)/ +5 (standard)	-15
Maximum outlet water temperature		+20	+55
Minimum outlet water temperature		-12 (option)/ +5 (standard)	+20

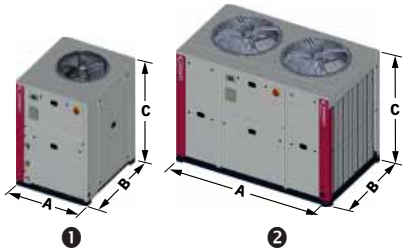
Acoustic data

eCOMFORT			020S	025S	030S	035S	040S	045S	055S	060S	070S	080S
Sound power level (4)	SLN (1)	dB(A)	70	72	72	72	75,5	74,6	77,5	78,5	79,3	80,3
	STD (2)		74	75,6	75,6	76,4	79,2	78,4	80,9	81,8	82,5	83,8

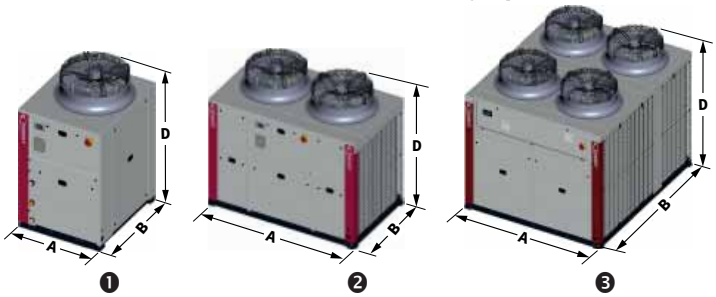
eCOMFORT			090S	110S	125S	110D	125D	140D	160D	185D
Acoustic data										
Sound power level (4)	SLN (1)	dB(A)	80	81,1	82,1	80,5	81,5	82,3	83,3	83,7
	STD (2)		83,5	85,6	86,3	84,0	85,8	86,4	86,8	87,7

Dimensions

Standard unit



Unit with variable airflow control by optional EC fans



		GAC/GAH		GAC	GAH	GAC/GAH	
		020S-045S ❶	055S-080S ❷	090S-125S ❷	90S-125S ❶	110D-125D ❷	140D-185D ❸
A		1125	2250	2250	2250	2250	2250
B		1320	1320	1320	1740	1740	2650
C	With standard fan	1540	1540	1815	1815	1815	1815
D	With EC fan	1790	1790	2065	2065	2065	2065

Weights (operating weights)

eCOMFORT		020S	025S	030S	035S	040S	045S	055S	060S	070S	080S
GAC	kg	312	319	342	366	371	386	602	627	657	706
GAH		335	341	370	394	400	421	645	683	715	773

eCOMFORT		090S	110S	125S	110D	125D	140D	160D	185D
GAC	kg	876	892	892	989	1000	1401	1508	1575
GAH		927	995	995	1061	1073	1483	1592	1663

LENNOX
EMEA

AIR COOLED CHILLER AND HEAT PUMP

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for LCP-HP.
Check ongoing validity of certificate : www.eurovent-certification.com

ECOLEAN

- Plug and play, integrated hydraulic module
- Small footprint, compact for indoor or outdoor installation
- Quiet, "best in class" acoustic performance

Cooling capacity:
40 - 200 kW

Heating capacity:
47 - 205 kW

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN & LABELLING

LENNOX

Air cooled chiller/Heat pump

ECOLEAN

40 → 200 kW

Main applications

- Small size office buildings
- Residential buildings
- Hotels
- Hospitals
- Industry

PLUG AND PLAY, INTEGRATED HYDRAULIC MODULE :

- Very compact integral hydraulic equipment inside the unit :
  . With pum (HY version)
  . With pump and water tank (HN version)

SMALL FOOTPRINT, COMPACT FOR INDOOR OR OUTDOOR INSTALLATION :

- Mainly for outdoor installation, 75 Pa available static pressure (S version)
- Suited for indoor installation where high static pressure is required, from 75 to 250 Pa (F version)

eDRIVE, INVERTER ON WATER PUMP :

- Up to 75% cost saving on pump energy consumption
- Electronically adjusted water flow rate

eDrive™

QUIET, "BEST IN CLASS" ACOUSTIC PERFORMANCE :

- - 7 dB(A) average noise level reduction compared to traditional unit (LN version)
- - 10 dB(A) average noise level reduction compared to traditional unit (SLN version)

Check ongoing validity of certificate : eurovent-certification.com

General data - Standard version

EAC/EAR			0472	0552	0672	0812	1003	1103
Cooling mode								
Cooling capacity (1)		kW	44,1	50,7	63,4	75,4	88,2	102
EER (1)			2,9	2,79	2,83	2,82	2,83	2,9
ESEER (2)			3,91	3,87	3,86	3,96	4,19	3,97
Comfort applications	Seasonal Energy Efficiency Ratio (3) **SEER**	EAC/ EAR	3,88/ 3,86	3,84/ 3,83	3,85/ 3,84	3,83/ 3,83	3,92/ 3,91	3,85/ 3,84
	Seasonal energy efficiency (4) **ηs,c**		152%/ 151%	151%/ 150%	151% / 150%	150% / 150%	154% / 154%	151% / 151%
Process applications	Seasonal Energy Performance Ratio (5) **SEPR** - High temperature (7°C)		5,25/ 5,40	5,18/ 5,32	4,97/ 5,03	4,97/ 4,95	5,33/ 5,29	5,03/ 5,05
	Seasonal Energy Performance Ratio (6) **SEPR** - Medium temperature (-8°C)		3,32/ 3,70	3,44/ 3,93	3,36/ 3,71	3,37/ 3,65	3,63/ 3,66	3,45/ 3,46
Heating mode								
Heating capacity (1)		kW	47,8	54,7	68,0	75,7	95	108
COP (1)			3,00	2,94	3,00	2,92	3,05	3,00
Comfort applications	Seasonal Coefficient of Performance (7) **SCOP**		3,23					
	Seasonal energy efficiency (8) **ηs,h**		126%					
	Seasonal energy efficiency class (9)		A+					

EAC/EAR			1203	1303	1403	1604	1804	2104
Cooling mode								
Cooling capacity (1)		kW	112	126	139	149	174	199
EER (1)			2,79	2,86	2,87	2,76	2,9	2,8
ESEER (2)			3,83	3,87	3,98	4,02	3,98	3,76
Comfort applications	Seasonal Energy Efficiency Ratio (3) **SEER**	EAC/ EAR	3,82/ 3,82	3,80/ 3,80	3,89/ 3,86	3,92/ 3,89	3,89/ 3,92	3,81/ 3,80
	Seasonal energy efficiency (4) **ηs,c**		150% / 150%	149% / 149%	153%/ 151%	154%/ 153%	153%/ 154%	149% / 149%
Process applications	Seasonal Energy Performance Ratio (5) **SEPR** - High temperature (7°C)		4,83/ 4,72	4,82/ 4,80	4,95/ 4,92	4,90/ 4,81	5,23/ 4,89	4,80/ 4,70
	Seasonal Energy Performance Ratio (6) **SEPR** - Medium temperature (-8°C)		3,33/ 3,34	3,58/ 3,30	3,65/ 3,41	3,63/ 3,37	3,69/ 3,43	3,66/ 3,17
Heating mode								
Heating capacity (1)		kW	118	130	143	159	180	205
COP (1)			3,00	2,92	2,97	3,00	2,95	2,85
Comfort applications	Seasonal Coefficient of Performance (7) **SCOP**		3,23					
	Seasonal energy efficiency (8) **ηs,h**		126%					
	Seasonal energy efficiency class (9)		A+					

(1) EUROVENT certified data, in accordance with standard EN 14511 :

Cooling mode :
Evaporator water temperature = 12/7°C
Outdoor air temperature = 35°C

Heating mode :
Condenser water temperature = 40/45°C
Outdoor air temperature = 7°C

(2) ESEER following Eurovent calculation method, in accordance with standard EN 14511

(3) SEER in accordance with standard EN 14825.

(4) Following ecodesign regulation EU **2016/2281** on space cooling, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(5) Following ecodesign regulation EU **2016/2281** on process cooling units, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(6) Following ecodesign regulation EU **2015/1095** on process cooling chillers, normalized leaving water temperature at -8°C, in accordance with standard EN 14825

(7) SCOP in accordance with standard EN 14825. Heating mode performance is defined for average climate conditions.

(8) Following ecodesign regulation EU **813/2013** on space heaters, normalized leaving water temperature at 7°C, in accordance with standard EN 14825, average climate conditions.

(9) Following energy labelling regulation EU **811/2013** on space heaters.

Check ongoing validity of certificate : eurovent-certification.com

General data - Standard version

EAC/EAR		0472	0552	0672	0812	1003	1103	1203	1303	1403	1604	1804	2104
Electrical data													
Voltage		400 V/3 Ph/50 Hz											
Refrigeration circuit													
Refrigerant type		R410A											
Number of circuits (cooling/heating mode)		1				2							
Number of compressors		2				3					4		
Capacity steps		2				3					4		
Total refrigerant load (cooling only/heat pump unit)	kg	11/ 12,5	12,2/ 13,5	15,5/ 16,0	19,5/ 19,3	23,5/ 23,3	26/ 28	27/ 29,5	30/ 32,2	33,7/ 35,5	36,2/ 40	45/ 52	47/ 54
Evaporator type		Brazed plate heat exchanger											
Pressure drop													
Nominal water flow rate	m^3/h	7,59	8,72	10,9	12,98	15,2	17,6	19,2	21,6	23,9	25,7	29,9	34,2
Pressure drop without water filter	kPa	32	34	40	47	35	34	40	48	48	43	48	64
Pressure drop with optional water filter	kPa	50	57	71	87	43	47	57	69	76	61	73	95
Hydraulic connection													
Type		Threaded - Female									Flange		
Diameter		2"				2 1/2"					3"		

Operating limits

ECOLEAN		Cooling mode		Heating mode
		0472 → 0812	1003 → 2104	
Maximum outside air temperature	°C	+ 48		+ 23
Minimum outside air temperature	°C	-15 (option)/ +6 (standard)		-12
Maximum outlet water temperature	°C	+ 14		+50
Minimum outlet water temperature	°C	-10 (option)/ +5 (standard)		+25

Acoustic data

EAC/EAR			0472	0552	0672	0812
Sound power level / Sound pressure level (1)	LN (2)	dB(A)	74/43	73/42	74/43	75/44
	STD	dB(A)	79/47	79/47	80/48	81/49

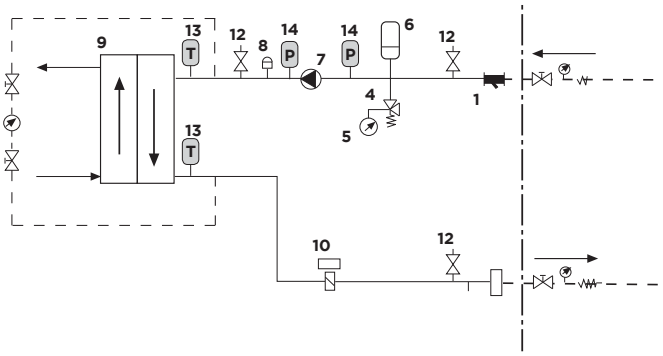
EAC/EAR			1003	1103	1203	1303	1403	1604	1804	2104
Sound power level / Sound pressure level (1)	SLN (2)	dB(A)	72/40	75/43	76/44	78/46	78/46	76/44	77/45	80/48
	LN (2)	dB(A)	75/43	76/44	79/47	81/49	81/49	78/46	81/49	83/51
	STD	dB(A)	80/48	82/50	85/53	87/55	87/55	85/53	87/55	90/57

(1) Sound power level and sound pressure level at 10 m from the unit, in free field, conformity with ISO3744 norm

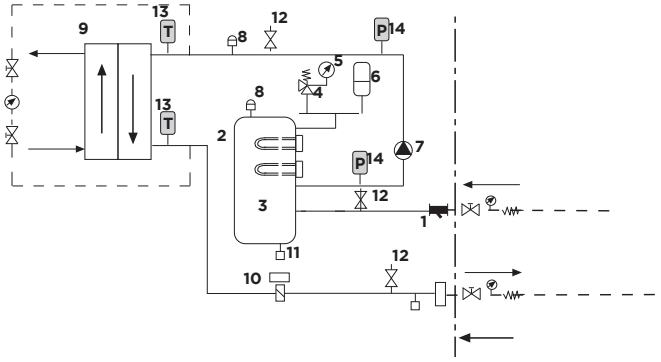
(2) Maximum sound power level only if "Quiet" mode is selected. If "Auto Quiet" mode is selected, the unit may operate the high fan speed to work at full load and avoid compressor unloading in case of very high or very low ambient temperatures.

Principle sketches - Integrated hydraulic module

"Hydraulic" module (HY)



"Hydronic" module (HN)



1	Detachable water filter	8	Air purge valve
2	Water tank	9	Plate heat exchanger
3	Water tank heater (in option)	10	Flow switch
4	Safety valve	11	Drain valve
5	Manometer	12	Pressure check points
6	Expansion vessel	13	Water temperature sensor
7	Water pump	14	Water pressure transducer (when variable water flow option is selected)

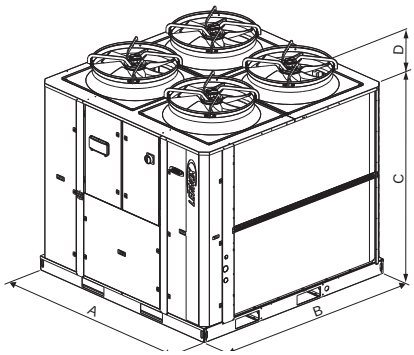
General data - Integrated hydraulic module

ECOLEAN HY / HN		0472	0552	0672	0812	1003	1103	1203	1303	1403	1604	1804	2104
Pump module													
Nominal water flow rate	m^3/h	7,59	8,72	10,9	12,98	15,17	17,61	19,23	21,62	23,87	25,66	29,93	34,23
Available static pressure	kPa	128	115	165	107	186	176	155	132	119	116	140	176
Voltage		400 V/3 Ph/50 Hz											
Absorbed power	kW	1,17		1,55		2,45		2,45		2,93		3,7	4
Expansion vessel volume	l	18				35					50		
Maximum pressure Expansion vessel	Bar	4											
Weight (EAC/EAR)	kg	23		24		26		26		29	74	92/97	
Buffer tank (1)													
Volume	l	100				240					350		
Weight	kg	32		33		55					70		
Antifreeze heater (option)	kW	2,25				6					8,25		
Additional electrical heater (option for HN units only)		12				24					36		

(1) Available only for the "Hydronic" type version

Dimensions and weights

Standard and high static versions



EAC/EAR			472	552	672	812	1003	1103
A		mm	1960				2250	
B			1195				1420	
C			1375				1855	
D	Standard version		241	260	260	260	273	273
	High static version		248	248	248	248	312	312
Operating weight (1)	Standard version	kg	480	492	534	578	663	831
	High static version		510	522	564	608	703	871
Additional weight (standard unit)								
«HYDRAULIC» module without water (2)		kg	23		24		26	
«HYDRONIC» module without water (2)			55		57		81	

EAC/EAR			1203	1303	1403	1604	1804	2104
A		mm	2250					
B			1420			2300		
C			1855			1954		
D	Standard version		273					
	High static version		312					
Operating weight (1)	Standard version	kg	964	1016	1045	1347	1703	1723
	High static version		1004	1056	1085	1387	1783	1803
Additional weight (standard unit)								
«HYDRAULIC» module without water (2)		kg	26		29	74	92/97	
«HYDRONIC» module without water (2)			81		84	144	162/167	

(1) Not including the «HYDRAULIC» or «HYDRONIC» module
(2) Weight to be added to the unit's one - Warning! Be sure to allow for the volume of the components when calculating the load weight - These data are also available for high static version

LENNOX
EMEA

POLYVALENT AIR COOLED HEAT PUMP

AQUA^4

- Conserving and optimizing energy consumption
- Quieter unit
- Secured operating map as standard
- Defrosting without impacting comfort

Cooling capacity:
50 - 320 kW

Heating capacity:
50 - 340 kW

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN & LABELLING

LENNOX

Polyvalent air cooled heat pump

AQUA^4

50 → 320 kW

Main applications

- Small and medium size office buildings
- Hotels
- Hospitals
- Administration

CONSERVING AND OPTIMIZING ENERGY CONSUMPTION :

- Simultaneous or independent demands for heating and cooling
- Constant balancing of heating and cooling needs to obtain maximum Total Efficiency Ratio
- 100% heat recovery at any conditions

QUIETER UNIT :

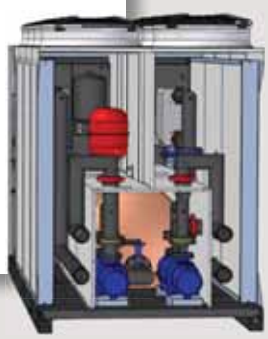
- As standard, -8 dB(A) noise level reduction compared to traditional heat pump (S version)
- Low noise unit : up to -12 dB(A) noise level reduction (L version)
- UniqUE sound proof cabinet, enclosing all components to reduce radiated sound levels

SECURED OPERATING MAP AS STANDARD :

- Winter cooling operation down to -15°C ambient
- Heating operation down to -10°C ambient with 45°C outlet water temperature
- Heat recovery or production of hot water temperature from 25°C to 55°C

DEFROSTING WITHOUT IMPACTING COMFORT :

- Dynamic control on defrost
- Circuits defrost completely independent with hydrophilic treatment on coil
- Integrated high content water tank (up to 765 liters)



General data

AAH		041	051	061	071	081	094	104	124	144	164	194	214	244	274	294	324
Cooling mode - 12/7°C with ambiant air at 35°C																	
Cooling capacity	kW	50	54	65	71	81	98	107	129	142	162	181	216	236	259	296	314
EER		3,1	3,0	3,2	3,1	3,1	3,0	2,9	3,0	2,9	3,0	2,7	2,9	2,8	2,8	2,9	2,7
ESEER		4,1	4,1	4,2	4,2	4,1	4,5	4,6	4,0	4,1	4,2	4,3	4,4	4,2	4,2	4,3	4,3
Water flow rate	m^3/h	8,53	9,31	11,16	12,25	13,95	16,89	18,46	22,22	24,42	27,77	30,99	37,14	40,57	44,48	50,84	53,93
Total pressure drop	kPa	27	31	32	38	31	34	40	42	51	46	41	57	57	38	47	63
Heating at 40/45°C with ambiant air at 7°C																	
Heating capacity	kW	51,9	57,2	67,9	74,5	84,6	102,8	113,5	135,7	150	170,4	194,9	229,4	253,5	279,9	316,6	340,8
COP		3,24	3,21	3,26	3,21	3,24	3,22	3,20	3,04	3,02	3,08	3,05	3,13	3,23	3,20	3,25	3,14
Seasonal energy efficiency : **SCOP** (1)		3,55	3,58	3,65	3,58	3,58	3,65	3,70	3,20	3,25	3,43	3,43	3,58	3,70	3,58	3,63	3,58
Seasonal energy efficiency : **ηs,h** (2)	%	139	140	143	140	140	143	145	125	127	134	134	140	145	140	142	140
Seasonal energy efficiency class (3)		A+															
Water flow rate	m^3/h	9,02	9,95	11,81	12,95	14,63	17,86	19,73	23,56	26,07	29,61	33,87	39,86	44,05	48,64	54,67	59,23
Total pressure drop	kPa	30	36	36	43	35	39	47	47	58	53	49	66	66	54	66	76
Cooling 12/7°C and Heating at 40/45°C																	
Cooling capacity	kW	48,9	53,9	63,6	70,3	82,3	97,9	107,9	125,9	139,2	160,3	184,3	217,9	243,3	263,4	301,5	326,6
Heating capacity	kW	63,3	70	81,9	90,9	105,5	126,7	140	162,8	180,6	207	239,2	281,8	313,1	340	387,6	422,7
Total Efficiency Ration (TER)		7,43	7,33	7,54	7,43	7,70	7,44	7,31	7,44	7,35	7,47	7,33	7,44	7,56	7,49	7,61	7,40
Electrical data																	
Power supply		400 V/3 Ph/50 Hz															
Refrigeration circuit																	
Number of circuits		2															
Number of compressors/capacity step		2					4										
Water exchangers type		Brazed plate heat exchanger															
Air exchangers type		Copper tubes and aluminum fins coils with hydrophilic coating															
Hydraulic connections (all pipes)																	
Type		Victaulic															
Diameter In/Out		2"					2"1/2		3"				4"				
Water tank volume (option)	l	200	200	220	220	220	340	340	600	600	600	600	600	600	765	765	765
Acoustic data																	
Sound power level (S version)	db(A)	80	80	81	81	81	82	82	84	84	85	85	86	86	86	87	87
Sound pressure level (4) (S version)	db(A)	52	52	53	53	53	54	54	56	56	57	57	58	58	58	59	59
Sound power level (L version)	db(A)	73	73	75	75	75	77	77	79	80	80	80	82	82	82	83	83
Sound pressure level (4) (L version)	db(A)	45	45	47	47	47	49	49	51	52	52	52	54	54	54	55	55

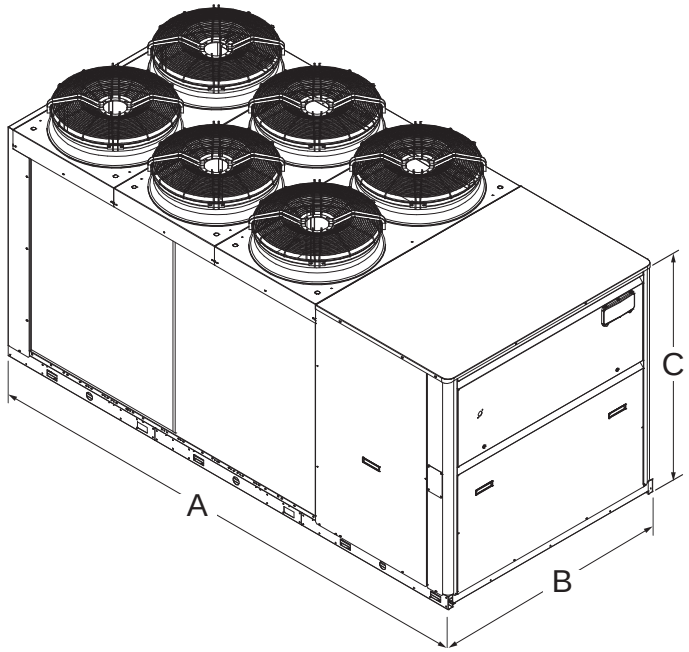
(1) SCOP in accordance with standard EN 14825. Heating mode performance is defined for average climate conditions.

(2) Following ecodesign regulation EU **813/2013** on space heaters, normalized leaving water temperature at 7°C, in accordance with standard EN 14825, average climate conditions.

(3) Following energy labelling regulation EU **811/2013** on space heaters

(4) Sound power level and sound pressure level at 10 m from the unit, in free field, conformity with ISO3744 norm

Dimensions and weights



AAH		041	051	061	071	081	094	104	124
A	mm	2510	2510	2862	2862	2862	3610	3610	3610
B		1183	1183	1183	1183	1183	1183	1183	1654
C		1735	1735	1735	1735	1735	1679	1679	1679
Weight	kg	680	690	800	810	850	1190	1210	1530

AAH		144	164	194	214	244	274	294	324
A	mm	3610	3610	3610	3610	3610	4276	4276	4276
B		1654	1654	1654	1654	1654	1654	1654	1654
C		1846	1846	1846	2330	2330	2330	2330	2330
Weight	kg	1550	1690	1710	1890	1910	2260	2290	2320

AAH 324 PS

LENNOX
EMEA

AIR COOLED CHILLER AND HEAT PUMP

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for LCP-HP.
Check ongoing validity of certificate : www.eurovent-certification.com

NEOSYS

- Low profile, best architectural integration
- Smart noise management
- Easy installation, service and maintenance
- High performance of energy saving options

Cooling capacity:
200 - 1000 kW

Heating capacity:
220 - 510 kW

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN & LABELLING

3 YEAR WARRANTY *

Quality makes the difference (1)

LENNOX

Air cooled chiller/Heat pump

NEOSYS

200 → 1000 kW

Main applications

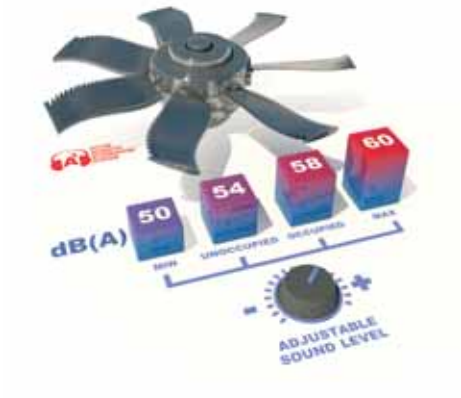
- Medium and large size office buildings
- Hotels
- Hospitals
- Industry

LOW PROFILE, BEST ARCHITECTURAL INTEGRATION :

- State of the art design for perfect architectural integration
- Flat top, very low unit height (< 2m) for discrete installation
- Aesthetic side anti-intrusion grilles as standard

SMART NOISE MANAGEMENT :

- Active Acoustic Attenuation System, adjustable sound level during day and night to satisfy local environmental constraints



EASY INSTALLATION, SERVICE AND MAINTENANCE :

- Hydraulic module mounted in a sound-proofed technical cabinet
- Compact hydraulic equipment with pump providing 150 or 250 kPa external static pressure

HIGH PERFORMANCE OF ENERGY SAVING OPTIONS :

- Partial and total heat recovery
- eDrive, variable speed pump, electronically adjusted water flow rate
- Fully integrated Free-Cooling

eDrive™

General data

Check ongoing validity of certificate : eurovent-certification.com

NAC			200	230	270	300	340	380	420	480
Cooling mode										
Cooling capacity (1)		kW	208	236	273	308	351	387	430	490
EER (1)			2,89	2,75	2,56	2,88	2,80	2,60	2,82	2,81
ESEER (2)			4,24	4,03	3,99	4,04	4,15	3,90	4,19	4,01
Comfort applications	Seasonal Energy Efficiency Ratio (3) **SEER**		3,83	3,85	3,82	3,89	3,89	3,99	4,12	4,11
	Seasonal energy efficiency (4) **ηs,c**	%	150	151	150	153	153	157	162	161
Process applications	Seasonal Energy Performance Ratio (5) **SEPR** - High temperature (7°C)		4,88	4,93	5,01	4,95	4,98	5,01	5,02	5,04
	Seasonal Energy Performance Ratio (6) **SEPR** - Medium temperature (-8°C)		3,20	3,26	3,50	3,30	3,40	3,50	3,50	3,60
Electrical data										
Voltage			400 V/3 Ph/50 Hz							
Refrigeration circuit										
Number of circuits			2							
Number of compressors			4				5		6	
Capacity steps			4				5		6	
Total refrigerant load		kg	25,6	25,5	29,3	35,2	37,1	39,0	52,4	55,3
Evaporator type			Brazed plate heat exchanger							
Condenser type			Microchannel aluminium tube & fins - Air cooled							
Pressure drop										
Pressure drop (1)		kPa	43	54	56	48	35	42	50	48
Hydraulic connections										
Type			Victaulic							
Diameter In/Out			4"				5"			

(1) EUROVENT certified data, in accordance with standard EN 14511 :
Cooling mode :
Evaporator water temperature = 12/7°C
Outdoor air temperature = 35°C

(2) ESEER following Eurovent calculation method, in accordance with standard EN 14511

(3) SEER in accordance with standard EN 14825.

(4) Following ecodesign regulation EU **2016/2281** on space cooling, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(5) Following ecodesign regulation EU **2016/2281** on process cooling units, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(6) Following ecodesign regulation EU **2015/1095** on process cooling chillers, normalized leaving water temperature at -8°C, in accordance with standard EN 14825

General data

Check ongoing validity of certificate : eurovent-certification.com

NAC			540	600	640	680	760	840	960	1080
Cooling mode										
Cooling capacity (1)		kW	531	605	627	702	774	860	980	1062
EER (1)			2,63	2,76	2,77	2,80	2,60	2,82	2,81	2,63
ESEER (2)			4,0	4,15	4,17	4,15	3,90	4,19	4,01	4,0
Comfort applications	Seasonal Energy Efficiency Ratio (3) **SEER**		4,17	4,15	4,17	4,14	4,14	4,22	4,11	4,11
	Seasonal energy efficiency (4) **ηs,c**	%	164	163	164	163	163	166	162	162
Process applications	Seasonal Energy Performance Ratio (5) **SEPR** - High temperature (7°C)		5,02	5,01	5,01	5,05	5,03	5,01	5,04	5,01
	Seasonal Energy Performance Ratio (6) **SEPR** - Medium temperature (-8°C)		3,60	3,70	3,70	3,60	3,50	3,50	3,60	3,60
Electrical data										
Voltage			400 V/3 Ph/50 Hz			2 x 400 V/3 Ph/50 Hz				
Refrigeration circuit										
Number of circuit			2			4				
Number of compressors			6			10		12		
Capacity steps			6			10		12		
Total refrigerant load		kg	59,8	73,4	69,0	74,2	78,0	104,8	110,6	119,6
Evaporator type			Brazed plate heat exchanger							
Condenser type			Microchannel aluminium tube & fins - Air cooled							
Pressure drop										
Pressure drop (1)		kPa	56	59	58	57	51	56	66	71
Hydraulic connections										
Type			Victaulic							
Diameter In/Out			6"			8"				

(1) EUROVENT certified data, in accordance with standard EN 14511 :
Cooling mode :
Evaporator water temperature = 12/7°C
Outdoor air temperature = 35°C

(2) ESEER following Eurovent calculation method, in accordance with standard EN 14511

(3) SEER in accordance with standard EN 14825.

(4) Following ecodesign regulation EU **2016/2281** on space cooling, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(5) Following ecodesign regulation EU **2016/2281** on process cooling units, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(6) Following ecodesign regulation EU **2015/1095** on process cooling chillers, normalized leaving water temperature at -8°C, in accordance with standard EN 14825

General data

Check ongoing validity of certificate : eurovent-certification.com

NAH			200	230	270	300	340	380	420	480
Cooling mode										
Cooling capacity (1)		kW	191	217	266	295	324	361	398	442
EER (1)			2,60	2,34	2,54	2,52	2,46	2,71	2,50	2,41
ESEER (2)			3,99	3,76	3,98	3,94	4,01	4,08	3,86	4,14
Comfort applications	Seasonal Energy Efficiency Ratio (3) **SEER**		3,93	3,91	3,92	4,00	4,23	4,20	4,12	4,16
	Seasonal energy efficiency (4) **ηs,c**	%	154	154	154	157	166	165	162	163
Process applications	Seasonal Energy Performance Ratio (5) **SEPR** - High temperature (7°C)		5,20	5,04	5,06	5,01	5,21	5,25	5,11	5,12
	Seasonal Energy Performance Ratio (6) **SEPR** - Medium temperature (-8°C)		3,15	3,20	3,02	3,09	3,23	3,09	3,11	3,19
Heating mode										
Heating capacity (1)		kW	219	235	291	339	363	404	452	499
COP (1)			3,05	2,80	2,78	3,01	3,00	3,04	2,98	2,95
Comfort applications	Seasonal Coefficient of Performance (7) **SCOP**		3,44	3,32	3,39	3,45	3,47	3,39	3,33	3.35
	Seasonal energy efficiency (8) **ηs,h**	%	134	130	132	135	136	132	130	131
	Seasonal energy efficiency class (9)		A+							
Electrical data										
Voltage			400 V/3 Ph/50 Hz							
Refrigeration circuit										
Number of circuit			2							
Number of compressors			4				5	6		
Total refrigerant load		kg	52,0	52,0	81,0	81,0	83,0	102,0	102,0	104,0
Capacity steps			4				5	6		
Evaporator type			Brazed plate heat exchanger							
Pressure drop										
Pressure drop (1)		kPa	37	46	55	44	30	37	44	42
Hydraulic connections										
Type			Victaulic							
Diameter In/Out			4"				5"			

(1) EUROVENT certified data, in accordance with standard EN 14511 :
Cooling mode :
Evaporator water temperature = 12/7°C
Outdoor air temperature = 35°C

Heating mode :
Condenser water temperature = 40/45°C
Outdoor air temperature = 7°C

(2) ESEER following Eurovent calculation method, in accordance with standard EN 14511

(3) SEER in accordance with standard EN 14825.

(4) Following ecodesign regulation EU **2016/2281** on space cooling, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(5) Following ecodesign regulation EU **2016/2281** on process cooling units, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(6) Following ecodesign regulation EU **2015/1095** on process cooling chillers, normalized leaving water temperature at -8°C, in accordance with standard EN 14825

(7) SCOP in accordance with standard EN 14825. Heating mode performance is defined for average climate conditions.

(8) Following ecodesign regulation EU **813/2013** on space heaters, normalized leaving water temperature at 7°C, in accordance with standard EN 14825, average climate conditions.

(9) Following energy labelling regulation EU **811/2013** on space heaters.

Operating limits

NAC		200	230	270	300	340	380	420	480	540	600	640	680	760	840	960	1080
Min. outlet water temperature	°C	+5 (standard) / -10 (option)															
Max. Intlet water temperature		20															
Min. difference water inlet/outlet		3															
Max. difference water inlet/outlet		8															
Min. outside air temperature		+6 (standard) / -20 (option)															
Max. outside air temperature		46	46	46	46	46	43	46	46	43	46	46	46	43	46	46	43

NAH		200	230	270	300	340	380	420	480
Min. outlet water temperature Cooling mode	°C	+5 (standard) / -10 (option)							
Max. inlet water temperature		20							
Min. outside air temperature Cooling mode		+6 (standard) / -20 (option)							
Max. outside air temperature Cooling mode		46							
Max. outlet water temperature Heating mode		50							
Min. outdoor air temperature Heating mode		-12							

Acoustic data

NAC		200	230	270	300	340	380	420	480
Global sound power level (1)	dB(A)	89	89	89	91	91	91	92	92
Sound pressure level 10 meters from the unit		57	57	58	59	59	59	61	61
Minimum global sound power level with A³ system (2)		82	83	84	85	86	86	87	87
Minimum sound pressure level with A³ system (2) 10 meters from the unit		51	52	54	54	55	55	56	56

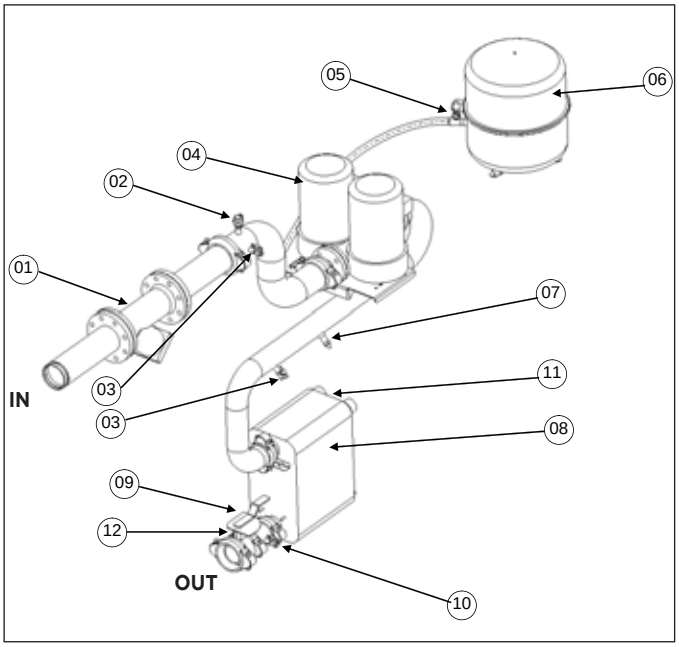
NAC		540	600	640	680	760	840	960	1080
Global sound power level (1)	dB(A)	93	94	94	94	94	96	96	96
Sound pressure level 10 meters from the unit		61	62	62	62	62	64	64	64
Minimum global sound power level with A³ system (2)		88	89	89	89	90	90	90	91
Minimum sound pressure level with A³ system (2) 10 meters from the unit		57	59	59	58	58	59	59	60

NAH		200	230	270	300	340	380	420	480
Global sound power level (1)	dB(A)	89	89	91	91	91	92	92	92
Sound pressure level 10 meters from the unit		57	57	59	59	59	61	61	61
Minimum global sound power level with A³ system (2)		82	83	85	85	86	87	87	87
Minimum sound pressure level with A³ system (2) 10 meters from the unit		51	52	54	54	55	56	56	56

(1) All data are at Eurovent conditions,

(2) A³ system : Active Acoustic Attenuation system to automatically adjust the air flow rate to respect night and day sound level constraints as standard

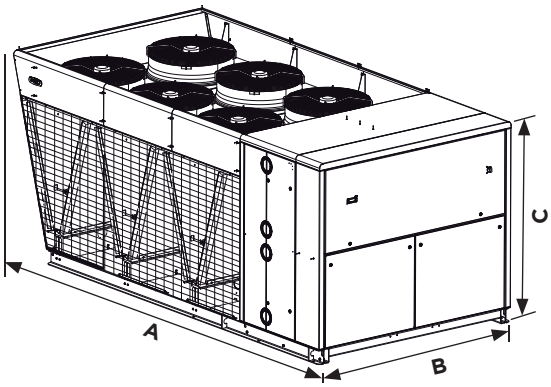
Integrated hydraulic module



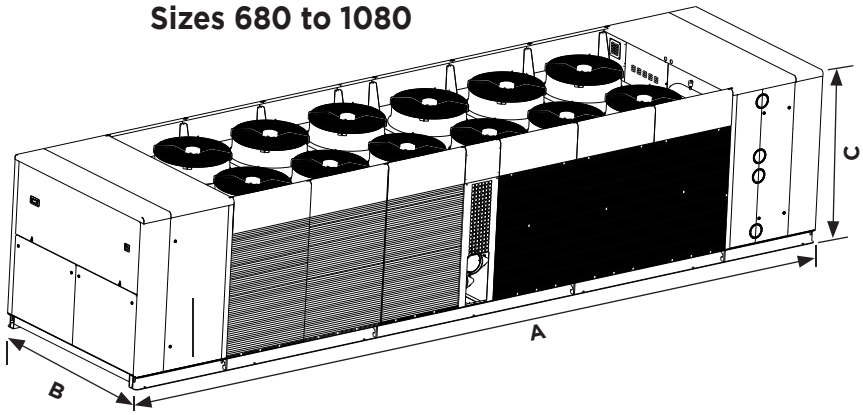
01	Water filter (supplied loose)
02	Air purge
03	Pressure tap
04	Pump
05	Safety valve with manometer
06	Expansion vessel
07	Electronic flow switch
08	Plate heat exchanger
09	Setting valve
10	Pressure tap and drain valve
11	Return temperature sensor
12	Supply temperature sensor

Dimensions and weights

Sizes 200 to 640



Sizes 680 to 1080



NAC		200	230	270	300	340	380	420	480
A	mm	3590	3590	3590	4620	4620	4620	5650	5650
B		2280	2280	2280	2280	2280	2280	2280	2280
C		2025	2025	2025	2025	2025	2025	2025	2025
Shipping weight	kg	1961	1989	2253	2643	2955	2997	3532	3604
Operating weight		1983	2011	2278	2676	3003	3045	3580	3661

NAC		540	600	640	680	760	840	960	1080
A	mm	5650	6680	6680	9040	9040	11100	11100	11100
B		2280	2280	2280	2280	2280	2280	2280	2280
C		2025	2025	2025	1964	1964	1964	1964	1964
Shipping weight	kg	3655	4086	4105	6495	6564	7681	7806	7884
Operating weight		3712	4152	4175	6770	6854	7981	8141	8229

NAH		200	230	270	300	340	380	420	480
A	mm	3590	3590	4620	4620	4620	5650	5650	5650
B		2280	2280	2280	2280	2280	2280	2280	2280
C		2025	2025	2025	2025	2025	2025	2025	2025
Shipping weight	kg	2154	2153	2881	3347	3301	3972	4020	4091
Operating weight		2176	2175	2906	3380	3349	4020	4066	4148

LENNOX
EMEA

WATER COOLED CHILLER AND HEAT PUMP
CONDENSERLESS LIQUID CHILLER

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for LCP-HP.
Check ongoing validity of certificate :
www.eurovent-certification.com

HYDROLEAN

- Reduced energy bills, high seasonal efficiency
- Very compact
- Easy installation and maintenance
- Available in 3 versions

Cooling capacity:
20 - 160 kW

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN & LABELLING

LENNOX

Water cooled chiller & Heat pump /
Condenserless liquid chiller

HYDROLEAN

20 → 160 kW

Main applications

- Residential buildings
- Small size office buildings
- Hotels
- Industry
- Administration

REDUCED ENERGY BILLS, HIGH SEASONAL EFFICIENCY :

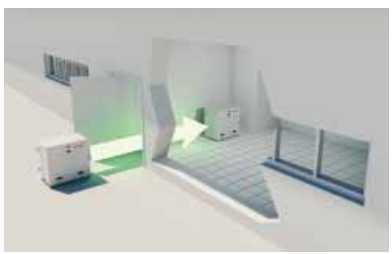
- Very high seasonal efficiency in comfort cooling and heating ($\eta_{s,c}$ and $\eta_{s,h}$ above 180 %, A+++ class)

EASY INSTALLATION AND MAINTENANCE :

- Fully enclosed
- Easy to service, optimal access to components

VERY COMPACT :

- Easy installation in small space
- One unit can be placed on top of another for better use of place (from 25 to 80 kW)



AVAILABLE IN 3 VERSIONS :

- Cooling only unit : SWC
- Real reversible heat pump unit : SWH
- Unit with remote condenser : SWR
- Connectable with a remote dry cooler (FC NEOSTAR/FI NEOSTAR/V-KING) or with a remote condenser (NEOSTAR).

General data

Check ongoing validity of certificate : eurovent-certification.com

HYDROLEAN SWC			025	035	050	070	080	100	120	135	160
Cooling mode											
Cooling capacity (1)		kW	25,8	37,9	50,8	71,9	83,6	95,7	117,5	132,7	156,4
EER (1)			4,37	4,26	4,27	3,89	3,77	4,25	4,04	4,19	3,96
ESEER (2)			4,78	4,59	5,40	5,13	4,80	5,68	5,55	5,33	5,25
Comfort applications	Seasonal Energy Efficiency Ratio (3) **SEER**		5,33	5,26	5,72	5,12	5,03	5,43	5,19	5,30	5,10
	Seasonal energy efficiency (4) **ηs,c**	%	208	206	224	200	196	212	203	207	199
Process applications	Seasonal Energy Performance Ratio (5) **SEPR** - Medium temperature (-8°C)		4,15	4,16	3,96	3,93	3,84	4,18	4,10	4,11	4,05
Electrical data											
Voltage			400 V/3 Ph/50 Hz								
Refrigeration circuit											
Number of circuits			1					2			
Number of compressors			1		2			3			
Number of capacity steps			1		2			3			
Total refrigerant load		kg	3,5	4,5	6,6	7,0	7,2	12,0	12,1	15,1	15,5
Hydraulic connections											
Hydraulic connections type			Threaded male								
Water inlet/outlet			1" 1/2 DN40								
Condenser											
Condenser type			Brazed plate heat exchanger								
Water flow rate		m^3/h	5,3	7,8	10,4	15,0	17,0	19,5	24,1	26,9	32,8
Water volume		l	3,0	4,0	5,2	5,7	5,7	10,0	10,0	12,8	12,8
Pressure drop		kPa	21,6	26,9	33,6	56,9	71,4	30,3	48,1	42,7	58,6
Water operating pressure			600								
Evaporator											
Evaporator type			Brazed plate heat exchanger								
Water flow rate		m^3/h	4,4	6,5	8,6	12,6	14,4	16,5	20,6	22,7	28,0
Water volume		l	3,0	4,0	5,2	5,7	5,7	10,0	10,0	12,8	12,8
Pressure drop		kPa	16,5	20,5	25,4	41,4	52,9	24,7	34,5	31,6	41,7
Water operating pressure			600								

(1) EUROVENT certified data, in accordance with standard EN 14511 :
Cooling mode :
Evaporator water temperature = 12/7°C
Condenser water temperature = 30/35°C

(2) ESEER following Eurovent calculation method, in accordance with standard EN 14511

(3) SEER in accordance with standard EN 14825.

(4) Following ecodesign regulation EU **2016/2281** on space cooling, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(5) Following ecodesign regulation EU **2015/1095** on process cooling chillers, normalized leaving water temperature at -8°C, in accordance with standard EN 14825

General data

Check ongoing validity of certificate : eurovent-certification.com

HYDROLEAN - SWH			025	035	050	070	080	100	120	135	160
Cooling mode											
Cooling capacity (1)		kW	25,5	37,6	50,3	71,6	81,8	95,0	116,5	131,9	155,8
EER (1)			4,01	3,89	3,92	3,56	3,68	3,93	3,72	3,88	3,70
ESEER (2)			4,57	4,48	5,48	4,60	4,62	5,26	5,33	5,14	5,11
Comfort applications	Seasonal Energy Efficiency Ratio (3) **SEER**		5,32	5,23	5,76	5,13	5,03	5,55	5,22	5,25	5,12
Comfort applications	Seasonal energy efficiency (4) **ηs,c**	%	208	204	225	200	196	217	204	205	200
Process applications	Seasonal Energy Performance Ratio (5) **SEPR** - Medium temperature (-8°C)		4,16	4,14	4,00	3,93	3,82	4,19	4,09	4,11	4,03
Heating mode											
Heating capacity (1)		kW	28,0	41,4	55,5	79,6	91,7	104,6	129,3	145,1	173,0
COP (1)			3,73	3,73	3,68	3,51	3,62	3,70	3,61	3,70	3,60
Comfort applications	Seasonal Coefficient of Performance (6) **SCOP**		4,98	4,95	5,15	4,93	4,73	5,23	5,05	5,13	4,78
Comfort applications	Seasonal energy efficiency (7) **ηs,h**	%	194	193	201	192	184	204	197	200	186
Comfort applications	Seasonal energy efficiency class (8)		**A+++**								
Electrical data											
Voltage			400 V/3 Ph/50 Hz								
Refrigeration circuit											
Number of circuits			1		1			2			
Number of compressors			1		2			3			
Number of capacity steps			1		2			3			
Total refrigerant load		kg	3,5	4,5	6,9	7,4	7,6	12,3	12,3	15,5	16,0
Hydraulic connections											
Hydraulic connections type			Victaulic								
Water inlet/outlet			1" 1/2 / DN40					2" DN50			
Condenser											
Condenser type			Brazed plate heat exchanger								
Water flow rate		m^3/h	5,3	7,8	10,4	15,0	17,0	19,5	24,1	26,9	32,9
Water volume		l	3,0	4,0	5,2	5,7	5,7	10,0	10,0	12,8	12,8
Pressure drop **SWC/SWH**		kPa	17,6	25,0	31,3	59,0	73,6	30,3	45,3	39,8	58,6
Water operating pressure		kPa	600								
Evaporator											
Evaporator type			Brazed plate heat exchanger								
Water flow rate		m^3/h	4,4	6,5	8,6	12,6	14,4	16,5	20,6	22,7	28,0
Water volume		l	3,0	4,0	5,2	5,7	5,7	10,0	10,0	12,8	12,8
Pressure drop **SWC/SWH**		kPa	16,5	20,5	25,4	41,4	52,9	22,6	31,3	29,0	40,9
Water operating pressure		kPa	600								

(1) EUROVENT certified data, in accordance with standard EN 14511 :

Cooling mode
Evaporator water temperature = 12/7°C
Condenser water temperature = 30/35°C

Heating mode :
Condenser water temperature = 40/45°C
Temperatura da água no evaporador = 10 °C

Evaporator water outlet temperature calculated with the same water flow as in cooling mode

(2) ESEER following Eurovent calculation method, in accordance with standard EN 14511

(3) SEER in accordance with standard EN 14825.

(4) Following ecodesign regulation EU **2016/2281** on space cooling, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(5) Following ecodesign regulation EU **2015/1095** on process cooling chillers, normalized leaving water temperature at -8°C, in accordance with standard EN 14825

(6) SCOP in accordance with standard EN 14825. Heating mode performance is definedfor average climate conditions.

(7) Following ecodesign regulation EU **813/2013** on space heaters, normalized leaving water temperature at 35°C, in accordance with standard EN 14825, average climate conditions.

(8) Following energy labelling regulation EU **811/2013** on space heaters.

General data

SWR		025	035	050	070	080
Cooling mode						
Cooling capacity (1)	kW	23,9	35,3	47,3	68,2	80,1
EER (1)		3,51	3,50	3,45	3,33	3,24
Electrical data						
Voltage		400 V/3 Ph/50 Hz				
Refrigeration circuit						
Number of circuit		1				
Number of compressors		1		2		
Capacity steps		1		2		
Charge per circuit	kg	Nitrogen charge				
Hydraulic connections						
Hydraulic connections type		Threaded male				
Discharge line		5/8"		7/8"		
Liquid line		7/8"		1"1/8		1"3/8
Evaporator						
Evaporator type		Brazed plate heat exchanger				
Water flow rate	m³/h	4,1	6,1	8,2	11,8	13,8
Water volume	l	3,0	4,0	5,2	5,7	5,7
Pressure drop	kPa	12,0	16,0	20,0	37,0	48,3
Water operating pressure		600				

SWR		100	120	135	160
Cooling mode					
Cooling capacity (1)	kW	89,4	110,9	124,2	148,2
EER (1)		3,52	3,43	3,46	3,39
Electrical data					
Voltage		400 V/3 Ph/50 Hz			
Refrigeration circuit					
Number of circuit		2			
Number of compressors		3			
Capacity steps		3			
Charge per circuit	kg	Nitrogen charge			
Hydraulic connections					
Hydraulic connections type		Victaulic			
Discharge line		7/8" - 5/8"		7/8"	
Liquid line		1"1/8 - 7/8"		1" 1/8	1" 3/8 - 1" 1/8
Evaporator					
Evaporator type		Brazed plate heat exchanger			
Water flow rate	m³/h	15,4	19,1	21,4	25,6
Water volume	l	10,0	10,0	12,8	12,8
Pressure drop	kPa	20,0	29,3	25,8	36,3
Water operating pressure		600			

(1) Conditions data :
Cooling mode : Evaporator water temperature = 12/7°C - Condensing temperature = 45 °C

Operating limits

		SWC - SWH 025 > 160	SWR 025 > 160
Mini. evaporator outlet water temperature	°C	+5 (standard) -10 (option)	
Maxi. evaporator inlet water temperature		25	
Maxi. evaporator outlet water temperature		20	
Mini. condenser inlet water temperature (1)		20	-
Mini. condensing temperature		-	35
Mini. condenser outlet water temperature		25	-
Maxi. condensing temperature		-	62
Maxi. condenser outlet water temperature		55	-

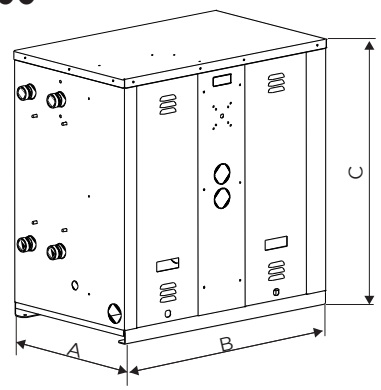
(1) Below this value, water pressostatic valve is mandatory (option).

Acoustic data

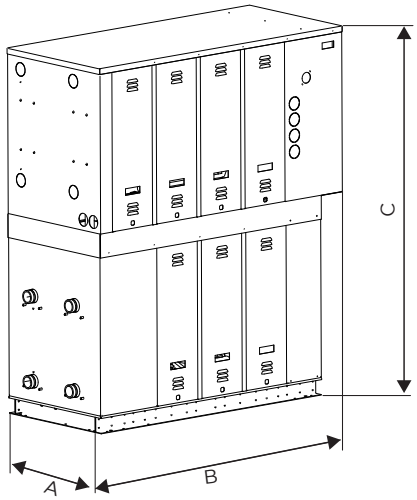
HYDROLEAN - SWC/SWH/SWR		025	035	050	070	080	100	120	135	160
Global sound power level (1)	dB(A)	69	71	72	74	75	75	76	79	81
Global sound power level with acoustic jacket option (1)		61	62	64	65	65	66	66	71	73

Dimensions and weights

Sizes 025 to 100



Sizes 120 to 160



HYDROLEAN		025	035	050	070	080	100	120	135	160
A	mm	502		645						
B		802		1470						
C		815		854			1705			
SWC										
Operating weight	kg	176	249	333	378	309	606	617	739	760
Weight without water		166	236	316	360	290	574	585	698	719
SWH										
Operating weight	kg	178	251	338	385	404	614	625	747	771
Weight without water		168	238	321	366	385	582	593	706	729
SWR										
Operating weight	kg	155	196	293	314	321	499	510	600	621
Weight without water		148	187	281	301	308	477	488	572	593

LENNOX
EMEA

WATER COOLED CHILLER AND HEAT PUMP
CONDENSERLESS LIQUID CHILLER

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for LCP-HP.
Check ongoing validity of certificate : www.eurovent-certification.com

MWC/MRC

- Reduced energy bills, "best in class" seasonal efficiency
- Easy installation and maintenance
- Available in 3 versions

Cooling capacity:
MWC 180 - 400 kW
MRC 180 - 720 kW

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN & LABELLING

LENNOX

Water cooled chiller & Heat pump /
Condenserless liquid chiller

MWC 180 → 400 kW
MRC 180 → 720 kW

Main applications

- Medium and large size office buildings
- Hotels
- Hospitals
- Industry

MWC with optional casing

REDUCED ENERGY BILLS, HIGH SEASONAL EFFICIENCY :

- Very high seasonal efficiency in comfort cooling, exceeding 2021 ErP target (**η**s,c above 200 %)
- Very high seasonal efficiency in comfort heating (**η**s,h above 200 %, A+++ class)

2021 READY — COMFORT COOLING n°2016/2281

AVAILABLE IN 3 VERSIONS :

- Cooling only unit : MWC
- Heat pump unit : MWC with hot water setpoint control option and supply hot water up to 56°C
- Unit with remote condenser : MRC
- Connectable with a remote dry cooler (FC NEOSTAR/FI NEOSTAR/V-KING) or with a remote condenser (NEOSTAR or MXW).

EASY INSTALLATION AND MAINTENANCE :

- Very compact dimension and limited footprint
  MWC : Width 820 mm / Length 2150 mm
- Easy to service, optimal access to components

General data

Check ongoing validity of certificate : eurovent-certification.com

MWC			180	230	280	330	380
Cooling mode							
Cooling capacity (1)		kW	182	228	275	327	372
EER (1)			4,64	4,56	4,60	4,60	4,60
ESEER (2)			6,74	6,31	6,21	6,25	6,03
Comfort applications	Seasonal Energy Efficiency Ratio (3) **SEER**		5,13	5,45	5,40	5,45	5,58
Comfort applications	Seasonal energy efficiency (4) **ηs,c**	%	200	213	211	213	218
Process applications	Seasonal Energy Performance Ratio (5) **SEPR** - Medium temperature (-8°C)		4,16	4,21	4,18	4,19	4,15
Heating mode							
Heating capacity (1)		kW	196	246	297	351	401
COP (1)			4,05	4,00	4,06	4,05	4,05
Comfort applications	Seasonal Coefficient of Performance (6) **SCOP**		5,43	5,63	5,50	5,53	5,58
Comfort applications	Seasonal energy efficiency (7) **ηs,h**	%	212	220	215	216	218
Comfort applications	Seasonal energy efficiency class (8)		**A+++**				
Electrical data							
Voltage			400 V/3 Ph/50 Hz				
Refrigeration circuit							
Number of circuit			2				
Number of compressor			4				
Capacity steps			4	5	6	5	4
Total refrigerant load		kg	16	24	28	28	44
Hydraulic connections			Victaulic				
Water inlet/outlet			4"				
Condenser			Brazed plate heat exchanger				
Water flow rate		m^3/h	33,8	42,4	51,1	60,5	69,1
Water volume		l	13	24	35	35	43
Pressure drop		kPa	38,6	32,1	25,4	34,8	33,7
Water operating pressure		kPa	600				
Evaporator			Brazed plate heat exchanger				
Water flow rate (1)		m^3/h	31,3	39,2	47,3	56,2	63,9
Water volume		l	13	24	24	35	35
Pressure drop (1)		kPa	34,9	28,9	40,7	31,5	40,2
Water operating pressure		kPa	600				

(1) EUROVENT certified data, in accordance with standard EN 14511 :

Cooling mode
Evaporator water temperature = 12/7°C
Condenser water temperature = 30/35°C

Heating mode :
Condenser water temperature = 40/45°C
Temperatura da água no evaporador = 10 °C
Evaporator water outlet temperature calculated with the same water flow as in cooling mode

(2) ESEER following Eurovent calculation method, in accordance with standard EN 14511

(3) SEER in accordance with standard EN 14825.

(4) Following ecodesign regulation EU **2016/2281** on space cooling, normalized leaving water temperature at 7°C, in accordance with standard EN 14825.

(5) Following ecodesign regulation EU **2015/1095** on process cooling chillers, normalized leaving water temperature at -8°C, in accordance with standard EN 14825

(6) SCOP in accordance with standard EN 14825. Heating mode performance is definedfor average climate conditions.

(7) Following ecodesign regulation EU **813/2013** on space heaters, normalized leaving water temperature at 35°C, in accordance with standard EN 14825, average climate conditions.

(8) Following energy labelling regulation EU **811/2013** on space heaters.

General data

MRC		180	230	280	330	380
Cooling mode						
Cooling capacity (1)	kW	161	202	242	289	329
EER (1)		3,24	3,21	3,18	3,23	3,20
Electrical data						
Voltage		400 V/3 Ph/50 Hz				
Refrigeration circuit						
Number of circuit		2				
Number of compressor		4				
Capacity steps		4	5	6	5	4
Hydraulic connections		Victaulic				
Discharge line		1" 1/8	1" 3/8 - 1"1/8	2 x 1" 3/8		
Liquid line		7/8"	1" 1/8 - 7/8"	2 x 1" 1/8		
Evaporator		Brazed plate heat exchanger				
Water flow rate	m^3/h	26,8	22,3	31,0	24,1	30,6
Water volume	l	13	24	24	35	35
Pressure drop	kPa	148,3	186,3	223,3	266,4	303,3
Water operating pressure		600				

MRC		450	510	570	650	720
Cooling mode						
Cooling capacity (1)	kW	382	433	494	555	615
EER (1)		3,18	3,16	3,21	3,15	3,10
Electrical data						
Voltage		400 V/3 Ph/50 Hz				
Refrigeration circuit						
Number of circuit		2				
Number of compressor		6				
Capacity steps		6				
Hydraulic connections		Victaulic				
Discharge line		2 x 1" 5/8			2" 1/8- 1" 5/8	2 x 2" 1/8
Liquid line		2 x 1" 3/8			1" 5/8 - 1" 3/8	2 x 1" 5/8
Evaporator		Brazed plate heat exchanger				
Water flow rate	m^3/h	30,7	31,3	35,0	43,6	53,2
Water volume	l	43	43	61	61	61
Pressure drop	kPa	352,6	399,9	456,5	512,2	568,0
Water operating pressure						

(1) Conditions data :
Cooling mode : Evaporator water temperature = 12/7°C - Condensing temperature = 45 °C

Operating limits

MWC		MWC 180 > 380	MRC 180 > 720
Mini. evaporator outlet water temperature	°C	-10	
Maxi. evaporator outlet water temperature		20	
Mini. difference water inlet/outlet		3	
Maxi. difference water inlet/outlet		8	
Mini. condenser outlet water temperature		20	-
Minimum discharge temperature		-	25
Maximum condenser outlet water temperature : Full capacity operation		56	-
Maximum discharge temperature : Full capacity operation		-	62

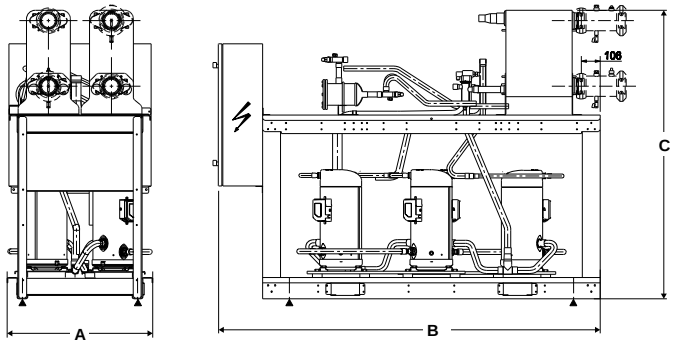
Evaporator and condenser water Delta T = 5°C

Acoustic data

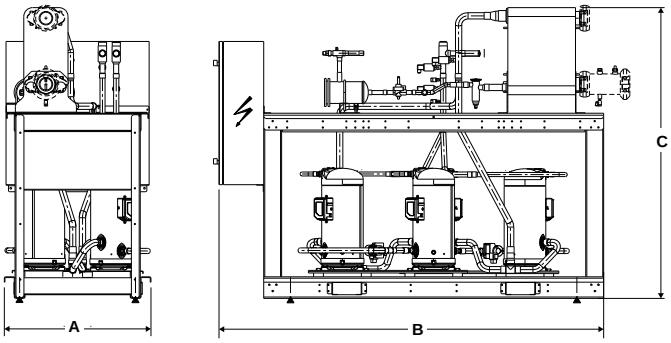
		MWC / MRC					MRC				
		180	230	280	330	380	450	510	570	650	720
Global sound power level (1)	dB(A)	82	87	89	91	92	93	93	94	96	98
Global sound power level with panel enclosure option (1)		71	78	81	83	84	85	85	86	87	88

Dimensions and weights

MWC



MRC



		MWC/MRC					MRC				
		180	230	280	330	380	450	510	570	650	720
A	mm	820					1200				
B		2150					2200				
C		1645	1870				1870				
MWC											
Footprint	m^2	1,8					2,6				
Operating weight	kg	756	974	1158	1328	1534	1984	2100	2240	2440	2480
Weight without water		736	914	1088	1248	1444	1894	1990	2110	2270	2310
MRC											
Footprint	m^2	1,8					2,6				
Operating weight	kg	650	810	950	1120	1290	1660	1740	1870	1980	2020
Weight without water		620	770	910	1080	1240	1620	1690	1790	1890	1930

AIR COOLED CHILLERS AND HEAT PUMPS
STANDARD EQUIPMENTS AND OPTIONS

Standard equipment ●
Option ●

		eCOMFORT	**ECOLEAN** EAC/EAR	**NEOSYS** NAC/NAH	**AQUA**[4] AAH
Refrigerant circuit	R410A	●	●	●	●
	Winter cooling operation	●	●	●	●
	Low leaving water temperature down to -10°C	●	●	●	
Compressor	Multiscroll	●	●	●	●
	Low noise	●	●	●	●
	Super low noise	●	●	●	●
Expansion valve	Thermostatic		●	●	●
	Electronic	●		●	
Fans	Axial fan	●	●	●	●
	Variable air flow control of condensation : HP floating	●	●	●	●
	EC fan	●			●
	Fan static pressure	●	●		
Air coil	Standard copper tube/aluminum fin (1)	●	●	●	●
	Micro channel heat exchanger (2)	●		●	
	Heavy anti-corrosion coil treatment	●	●	●	●
	Coils protection guards	●	●	●	●
Heat exchanger	Braze plate heat exchanger	●	●	●	●
Electrical	Main disconnect switch	●	●	●	●
	Phase reversal protection	●	●	●	●
	Antifreeze protection	●	●	●	●
	Softstarter	●	●	●	●
	Water tank modulating auxiliary electrical heater (heat pump)	●	●		
	Power factor correction	●		●	●
	Energy meter	●		●	
Hydraulic module	Paddle flow switch	●	●	●	●
	Electronic flow switch	●	●	●	
	Water filter	●	●	●	●
	Flange connection	●		●	
	Water tank	●	●		●
	Low-pressure single pump	●		●	●
	Low-pressure twin pump	●		●	●
	High-pressure single pump	●	●	●	●
	High-pressure twin pump	●	●	●	●
	eDrive high-pressure single pump (variable primary flow)	●	●	●	
	eDrive high-pressure twin pump (variable primary flow)	●	●	●	
	By-pass valve for Delta P control (eDrive)	●			
Control and communication	Modbus RS485 communication interface	●	●	●	●
	Lonworks® FTT10 communication interface	●	●	●	●
	BACnet MSTP communication interface	●	●	●	
	Modbus/BACnet/Ethernet TCP/IP communication interface	●	●	●	●
	Basic display		●		
	Advanced display	●	●	●	●
	Service display	●	●	●	●
	Remote comfort display	●	●	●	●
	Extension board for aditional input /output	●	●	●	
Energy saving	Partial heat recovery	●		●	
	Total heat recovery			●	●
	Free-cooling			●	
Miscellaneous	Rubber anti-vibration mounts	●	●	●	●
	Spring anti-vibration mounts				●
Packing	Truck packaging for long distance	●	●	●	
	Container packing	●	●	●	

(1) : NAH only / (2) : NAC only

WATER COOLED CHILLERS AND HEAT PUMPS
STANDARD EQUIPMENTS AND OPTIONS

Standard equipment ●
Option ●

		HYDROLEAN SWC/SWH/SWR	MWC MWC/MWR
Refrigerant circuit	R410A	●	●
	Brine operation down to -10°c	●	●
	HP/LP pressure gauges	●	
Compressor	Multiscroll	●	●
	Low noise	●	●
Expansion valves	Thermostatic	●	●
	Electronic		●
Electrical	Main disconnect switch	●	●
	Control & power equipment single evaporator pump	●	●
	Control & power equipment dual evaporator pump		●
	Control & power equipment single condenser pump	●	●
	Control & power equipment dual condenser pump		●
	Control & power equipment of outside fans (1 to 4)	●	
Hydraulic options	Paddle flow switch	●	
	Electronic flow switch		●
	Evaporator water filter	●	●
	Condenser water filter	●	●
	Evaporator flange connections		●
	Condenser flange connections		●
	Pressure regulated water valve	●	
Control and communication	Modbus RS485 communication interface	●	●
	Lonworks® FTT10 communication interface		●
	BACnet MSTP communication interface		●
	Hot water set-point control (heat pump mode)		●
	Remote comfort display	●	●
	Service display		●
	Extension board for aditional input /output		●
Miscellaneous	Rubber anti-vibration mounts	●	●

LENNOX
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FLAT BED DRY COOLER

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for HE.
Check ongoing validity of certificate : www.eurovent-certification.com

FC / FI NEOSTAR

FC NEOSTAR "City"

20 - 1200 kW

- Compactness and high efficiency

FI NEOSTAR "Industry"

- Low pressure drop and high capacity
- Wide range up to 1,200 kW, optimized pressure drops

Range non subject to the ErP directive

LENNOX

Dry cooler

FC/FI NEOSTAR
20 → 1200 kW

Main applications

- Air conditioning, free cooling, co-generation, power plants, process, industry ... and cooling all kinds of fluids compatible with copper, with a maximum inlet temperature of 100°C.

DESCRIPTION :

Usefully replaces cooling towers :

- No air and water bacteria contamination
- No water consumption
- No steam production
- Flexible use in winter
- Easy control of fluid temperature in winter
- Optimised solution (noise level, energy consumption, size, type of temperature control...) thanks to many selection choices
- Sustainable performance thanks to the type of louvers

CASING:

- Galvanized and white pre-painted sheet steel
- Long-lasting corrosion resistance (standard ISO 7253) and aesthetic quality
- Facilitated maintenance thanks to a trapdoor between two fans for a direct access to the battery (as standard, except on A modules)
- Salt mist corrosion and Kesternich tests on all components
- Units delivered screwed to a wooden base
- Full crate packaging as option

VENTILATION :

- Motor fans : Ø 800 or 910
- Motor fan wired as standard and factory connected as follows :
  . 1 to 3 electrical boxes for the models L (motors connected in series),
  . 2 to 8 electrical boxes for the models P (motors connected in parallel).
- Possibility to deliver the units unwired (on request, option SCU or SCM).
- Fan guards compliant with safety standards.
- Special voltage ratings (FC/FI NEOSTAR):
  . M60 : Fan motor 400V/3/60Hz, IP54, class F, in version 06P Ø 910 mm
  . M26 : Fan motor 230V/3/60Hz, IP54, class F, in version 06P Ø 910 mm

More details on following page.

COIL :

- Dry coolers equipped with coils with the following characteristics :
  . Special fins to reduce clogging and to enable efficient maintenance to ensure a sustainable performance
  . Copper tubes in a staggered arrangement and corrugated aluminium fins for optimum heat transfer
  . Headers with air vents and drain plugs
  . Connections : steel pipe, flanges
- Options :
  . Vinyl protection (BAE) or Blygold Polual XT protection (BXT) offering greater corrosion resistance when used in aggressive atmospheres
  . Superposed circuits HT / LT

PERFORMANCES :

As the performance of a dry cooler varies a lot with each working condition, it is not possible to present a selection method in this document.
Only the selection software, at your disposal on www.lennoxemea.com, will allow you to select the dry cooler which suits the best your needs.

Nomenclature

FI (1)	H (2)	PU (3)	06 (4)	D (5)	L (6)	04 (7)	D5 (8)

(1) **FC** = Dry cooler "City"
FI = Dry cooler "Industry"

(2) **H** = H Class motor (PU and SN versions only)

(3) Type of fans
PN - PU - PM - FCH PU - PU EC
SN - SE - SU - SE EC - SU EC

(4) Number of poles

(5) **D** = delta coupling - **Y** = star coupling

(6) Fan arrangement :
L : fans in line - **P** : fans in parallel

(7) Number of fans

(8) Type of module

Options

Casing :	
RAL	Special colour
REH	Legs extended by 240 mm (ground clearance = 800 mm)
RE2	Legs extended by 840 mm (ground clearance = 1400 mm)
RE3	Legs extended by 1340 mm (ground clearance = 1900 mm)
RE4	Legs extended by 1840 mm (ground clearance = 2400 mm)
ECB	Full crate packaging
Ventilation:	
MTH	Motors equipped with a protection thermostat. Recommended if frequent starting sequences (more than 30 startings per hour) or when used with a speed controller
IRP	Proximity rotary switch
C2V	2-speed factory wired in the switching box
SCU	Unwired fans (to be specified while ordering)
M60	Motor fan 400 V/3/60Hz (1)
M26	Motor fan 230 V/3/60Hz (1)

(1) : Please consult us for details

Coil :	
VEX	Expansion vessel
VID	Special circuits, totally drainable
BAE	Vinyl protection of the fins
BXT	Blygold Polual XT protection of fins

Ventilation

FC/FI NEOSTAR		POWER					SILENCE						
		PN	PU	PM	FCH PU	PU EC	SN	SN	SE	SU		EC motor SE EC	EC motor SU EC
Air temperature		<70°C	<60°C	<60°C	<°80C	60°C	<80°C	<80°C	<80°C	<80°C		<60°C	<60°C
Ø		800	910	910	910	910	800	910	800	800		800	800
Number of poles		06P	06P	04P	06P	-	08P	08P	12P	12P	16P	-	-
400V / 3 / 50 Hz		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Class		F	F	F	H	F	F	H	F	F		F	F
DELTA (D)	rpm	880	885	1230	890	1195	680	650	440	-		1020	730
	dB(A)	83	84	95	85	91	73	75	68	-		88	78
STAR (Y)	rpm	670	685	900	730	-	540	480	-	330	255	-	-
	dB(A)	75	78	88	80	-	69	68	-	61	48	-	-

Control options

See page 129

LENNOX
EMEA

V-SHAPED DRY COOLER

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for HE.
Check ongoing validity of certificate :
www.eurovent-certification.com

V-KING

- **Very powerful,** even with a smaller footprint than a flat model
- **Many possible configurations (in line or parallel)**
- **Raliable capacity**

50 - 2000 kW

Range non subject to the ErP directive

LENNOX

V-shaped dry cooler

V-KING

50 → 2000 kW*

Main applications

- Air conditioning, free cooling, cogeneration, power plants, process, industry, with a maximum inlet temperature of 80°C.

DESCRIPTION :

- Large range :
  - From L2 (in line, 2 fans) to L10
  - From P4(parallel, 4 fans) to P20

In line configuration

Parallel configuration

VENTILATION :

- **Standard :** 400V/3/50Hz (class F) with external rotor, two-speed (delta-star connection)
- **H class :** 400V/3/50Hz, two-speed (delta-star connection)
- **EC :** motor fan units with electronic switching to reduce energy consumption
- Wiring path inside the product

COIL :

- Staggered copper tubes and embossed aluminum fins for optimal heat exchange.
- Fin spacing of 1,9 mm to 3 mm, depending on application and fouling constraints.
- Stacked HT/LT circuits possible

CASING:

- Self-supporting, highly rigid metal frame, with horizontal feet every 2 fans
- Magnesium-zinc material 20 mm or 30/10 mm thick
- Epoxy painted structure for maximum corrosion resistance

Ventilation

V-KING		POWER					SILENCE					
		PN	PU	PM	PU	PU EC	SN	SN	SU	SE	EC motor SE EC	EC motor SU EC
Air temperature		<70°C / 80°C	<60°C	<40°C / 60°C	<°80C	60°C	<80°C	<80°C	<80°C	<80°C	<60°C	<60°C
Ø		800	910	910	910	910	800	910	800	800	800	800
Number of poles		06P	06P	04P	06P	EC	08P	08P	12 -16P	12P	-	-
400V / 3 / 50 Hz		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Class		F	F	F	H	F	F	H	F	F	F	F
DELTA (D)	rpm	880	885	1230	890	250-1195	680	650	-	430	250-1020	250-735
	dB(A)	82	89	95	85	91	73	75	-	68	88	78
STAR (Y)	rpm	670	685	900	730	-	540	480	255 - 330	-	-	-
	dB(A)	75	81	87	80	-	69	68	48 - 61	-	-	-

* Air inlet temperature : 25°C / Fluid : water / Maximum pressure drop : 10 m of water column / Fluid inlet temperature : 40°C / Fluid outlet temperature : 35°C

Options

Casing :	
RAL	Special colour
PAV	Anti-vibration pads
Ventilation:	
M60	Motor fan 400 V/3/60Hz
MTH	Motors equipped with a thermal protection
IRP	Motor proximity rotary switch
IRP G	General proximity rotary switch
C2V	2-speed factory wired in the switching box
SCU	Unwired fans (to be specified while ordering)
EC	EC motor
RDB RNR	Noise reduction (Diffusor/AxiTop)

Coil :	
VEX	Expansion vessel
MCI	Multi-circuits HT/LT
BCB	Flange against flange
BAE	Protection of the fin
BXT	Blygold Polual XT protection of fins

Control options

FC/FI NEOSTAR and V-KING ranges

AC MOTOR

Wiring and power	
SCU	Without factory wiring
APC *	Power wired on connections (no protection integrated)
Wiring and protection	
CMP	IP 54 Motor protection cabinet, With one contactor /fan, one general fault report, one main switch
Control / Simple control (cascade ON/OFF)	
RT1	CMP included A thermostatic cascade control in a IP54 electrical box, allowing management of several capacity steps : **1 to 4 capacity steps :** . Management of 2 circuits **4 to 10 capacity steps :** . Possible to program a day/night operation . Integrated clock . Management of floating HP
Advanced control (variation)	
RT2	CMP included / Voltage variation Control IP54 box
RT3	CMP included / frequency variation Control IP 54 boxe

EC MOTOR

Wiring and power	
SCM	Without factory wiring
CSB *	Power wired on connections
CCE	Power wired in box and protection for each stage included (for L each fan, for P every 2 fans)
Simple control (cascade ON/OFF)	
SE1*	Direct signal toward fan and signal duplicated from one fan to another
SE3	Direct signal to master fan and duplication of signal for slaves fans
Advanced control	
CE1..3	Electronic regulator
Additional functions	
WMA	Max speed pre set
MJN	Max speed for night
ADR	Fan bus

* : If no other choice selected while ordering, the unit with EC motor will be delivered with CSB connection and SE1 control.

NEOSTAR

NEOSTAR POWER

18 - 1240 kW

Performance and low space requirement

- Capacity up to 1,250 kW
- Compactness: optimized heat exchange for reduced size

NEOSTAR SILENCE

Efficiency and low noise

- Low rotation speed motors with optimized electrical power consumption
- Perfect integration in an urban environment, extremely quiet motors
- Electronic switching motor (EC) as option

Range non subject to the ErP directive

Axial fan condenser

NEOSTAR

18 → 1240 kW

Main applications

- The NEOSTAR air cooled condensers are designed for refrigeration or air conditioning applications and outdoor installation. The 470 basic models cover a capacity range from 18 to 1250 kW.

DESCRIPTION :

COMPATIBLE WITH MANY REFRIGERANTS

To perfectly fit any application, NEOSTAR range is available in :

- **NEOSTAR POWER** range : more power in a space-saving unit. As an option, an electronic switching motor (EC) is proposed on all models to help reduce the energy footprint of the user's installations.
- **NEOSTAR SILENCE** range : perfectly adapted to town centre commercial applications and any other applications where quiet operation is a key factor.
  In compliance with EUROVENT standards, the sound pressure level measured 10 metres from the unit is 19 dB(A) per module

VENTILATION :

- NEOSTAR range equipped as standard with 2-speed, external rotor fans (star or delta connections).

  NEOSTAR POWER equipped with the following motor fan units:
  . Ø 800 mm (PN) : 06P (D/Y) = 885/685 rpm
  . Ø 910 mm (PU) : 06P (D/Y) = 880/670 rpm

  NEOSTAR SILENCE equipped with the following motor fan units:
  . Ø 800 mm : 08P (D/Y) = 680/540 rpm,
  . Ø 800 mm : 12P (D/Y) = 440/330 rpm (special fan)
  . Ø 800 mm : 16P (Y) = 255 rpm.

- Enclosed motors : 400V/3/50Hz, IP54, class F, compliant with standard EN 60529, permanently lubricated.
  Please contact us when the temperature exceeds 60°C :
- Possibility to deliver the units unwired (on request, option SCU).
- Fan guards compliant with safety standards
- EC motor : Electronic switching fan motors (EC) proposed as an option ensuring optimised operation of your installation.
  This motor allows energy savings for a given power rating: a detailed comparison of the energy balance may be carried out for each project.

CASING:

- Galvanized and white pre-painted sheet steel.
- Salt mist corrosion and Kesternich tests on all components
- Units delivered screwed to a wooden base.

COIL :

- NEOSTAR range equipped with high-performance, finned coil designed with profiled aluminium fins crimped onto internally grooved copper tubes
- New optimised fin specially designed to improve performance, efficiency and compactness of the units
- Special coil coatings available (Vinyl protection (BAE), Blygold Polual XT protection (BXT)), offering greater corrosion resistance when used in aggressive atmospheres

OPTIONS :

- Same as FC/FI NEOSTAR range (see previous page)

Nomenclature

PN (1)	06 (2)	D (3)	P (4)	08 (5)	A2 (6)

(1) Type of fans
PN - PU - SN - SE - SU16Y - SN - SE EC - SU EC
(2) Number of poles
(3) **D** = delta coupling - **Y** = star coupling
(4) Fan arrangement :
L : fans in line - **P** : fans in parallel
(5) Number of fans
(6) Type of module

LENNOX
EMEA

CONDENSER

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for HE.
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MXW

MICROCHANNEL COIL TECHNOLOGY

50 - 1670 kW

- Range designed to minimize unit footprint
- High power density for optimised energy consumption
- Micro channel technology allowing significant reduction of refrigerant load
- State of the art design with hidden fans for a perfect architectural integration

Range non subject to the ErP directive

LENNOX

Axial fan condenser

MXW

50 → 1670 kW

Main applications

- Refrigeration applications for outside installation.
- Supermakets and food-processing industry

DESCRIPTION :

Condenser with microchannel coil technology

- **Optimised Total Cost of Ownership** :
  Reduced installation time and cost, reduced energy consumption, reduced maintenance costs
- **Environmental impact** :
  Reduced greenhouse gas emissions,
- **Architectural integration** :
  Minimum footprint
  Low noise level

VENTILATION :

- MXW range equipped with highly reliable external rotor fans.
- Fan guards compliant with safety standards
- **EC motors** :
  Highly reliable electronic switching fan motors (EC), enabling optimized operation of your installation
  . Ø 800 mm: EC1 (EC oversized motor) = up to 1020 rpm
  . Ø 800 mm: EC2 = up to 730 rpm

  Motor allowing reduction of energy consumption for a given power rating: a detailed comparison of the energy balance may be carried out for each project. (please consult us).
  EC fan motors wired as standard and factory connected
- **AC motors (option)** :
  Ø 800 mm : 06P (D/Y) heavy-duty motor = 910/730 rpm
  Ø 800 mm : 06P (D/Y) = 885/685 rpm
  Ø 800 mm : 08P (D/Y) = 660/485 rpm
  Ø 800 mm : 12P (D/Y) = 435/340 rpm.
  Ø 800 mm : 16P (Y) = 255 rpm
  Ø 800 mm: EC1 (EC oversized motor) = up to 1020 rpm

  Enclosed motors : 400V/3/50Hz, IP54, with 2-speed (star or delta connections), class F, compliant with standard EN 60529, permanently lubricated.
  Please contact us when the temperature exceeds 60°C

CASING:

- Galvanised steel sheet metal painted with a white powdered polyester paint.
- Painted lateral anti-intrusive grilles offering protection against external impacts (option).
- Unit with attractive design and low height (< 2m) for a perfect integration into the surrounding environment.

Protection guard

COIL :

- MXW range equipped with aluminium micro-channel heat exchanger offering reliability, robustness (high mechanical fin resistance) and high corrosion resistance
- This technology has proven its valUE in the automobile sector and is now used for its numerous advantages in the refrigeration sector and air conditionning sectors.
- Greater efficiency than traditional coils (copper tubes/ aluminum fins) : significantly lighter for easier handling.
- Minimal risk of leakage thanks to a single brazing operation
- Stringent quality inspections : 100% of the products are tested.
- Special coating available to ensure an improved protection against corrosive atmospheres

Nomenclature

MXW	EC1 (1)	06 (2)	D (3)	8 (4)	P (5)	04 (6)

MXW		Range name
EC motors		
(1)	**EC1**	Oversized motor = up to 1020 rpm
	EC2	Up to 730 rpm

AC motors		
(2)		Number of poles
(3)	**D**	Delta coupling
	Y	Star coupling
(4)		Fan diameter
(5)		Number of fans

Options

Casing :	
ACR	SilenTop (acoustic attenuation)
G2F	Protection grilles (2 faces)
Ventilation:	
CMU	Factory wired motors (AC motors)
SCM	Without wired motors (EC motors)
C2V	2-speed factory wired in the switching box
IRP	Proximity rotary switch
MTH	Motors equipped with a protection thermostat. Recommended if frequent starting sequences (more than 30 startings per hour) or when used with a speed controller

Coil :	
MCI	Multi-circuits
BXT	Blygold Polual XT coil protection
BOE	Lenguard coil protection
Protection and controls :	
CMP	Motor protection cabinet (AC fans)
RP2	CMP + condensing pressure control with speed variation (voltage)
RP3	CMP + condensing pressure control with speed variation (frequency)
CSC	Signal comparator (multi-circuits configuration)
Other options :	
PAV	Anti vibration pads
CON	Packaging for shipping in container

SilenTop option hides fans and acts as acoustic enclosure, ideal for urban environment

Airside products

Fan coil unit

ALLEGRA
0,6 → 6,7 kW / 105 → 1500 m³/h 136

High wall fan coil unit

COMFAIR HD
1,2 → 4 kW / 230 → 620 m³/h 141

High pressure modular fan coil unit

COMFAIR HH/HV
2,8 → 61 kW / 840 → 8000 m³/h 144

Ductable fan coil unit with EC fan

ARIA 2
1,3 → 6,6 kW / 290 → 1080 m³/h 148

Ductable air treatment unit

INALTO
2,6 → 28 kW / 380 → 5670 m³/h 152

Chilled water cassette

ARMONIA / ARMONIA EC
1,3 → 11 kW / 310 → 1820 m³/h 157

Remote controls and communicating controllers 163

Modular air handling unit

CLEANAIR LX
1 000 → 100 000 m³/h 165

Unit heater • Destratifier fan

AXI L • EQUITHERM
12 → 105 kW 168

LENNOX
EMEA

FAN COIL UNIT

EUROVENT CERTIFIED PERFORMANCE
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LENNOX participates in the ECP programme for FCU.
Check ongoing validity of certificate : www.eurovent-certification.com

ALLEGRA

- Range of fan coil with innovative designs
- Noise performance among the best on the market
- eDrive EC motor for comfort and energy saving
- Sober and attractive design

Cooling capacity:
0,6 - 6,7 kW

Airflow rate:
105 - 1500 m³/h

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

LENNOX

Fan coil unit

ALLEGRA

0,6 → 6,7 kW

105 → 1500 m³/h

Main applications

- Office buildings
- Hotels

DESCRIPTION :

- One of the most versatile ranges of fan coils on the market
- 9 sizes - 4 different versions :
  Wall and ceiling mounted units
  Exposed or concealed with centrifugal fan
- 9 flow rates (5 sizes with EC motor)
- 3 or 4 row coil and with the possibility to add a 1 or 2 row coil for 4-pipe systems
- Meet all air-conditioning requirements of work environments like offices, shops, restaurants and hotel rooms featuring ducted installations with available pressure up to 40 Pa
- Control : Available fitted on the unit, remote wall mounted, or infra-red with also master-slaves and BMS possibility in the different common protocols

ACCESSORIES :

- 3-way or 2-way valve ON/OFF fitted
- Electric heater with integral: safety thermostat and relay control
- Extension condensate collection tray
- Feet
- Fresh air mixing damper (can be motorized)
- Rear and Bottom closing panel(unit with cabinet)
- Frame for wall concealed installation
- Straight and 90° inlet and outlet flange
- Air inlet grid with or without filter
- Spigot plenum for return and discharge
- Auxiliary drain pan
- Condensate drain pump

MAIN COMPONENTS :

- Cabinet :
  Galvanized and pre-painted steel casing.
  Plastic top grid with fixed louvres is reversible in order to distribute the air in two different directions
- Frame : galvanized steel with closed cell insulation
- Filter : Polypropylene cellular fabric regenerating filter with galvanized steel frame
- The fans :
  Aluminium or plastic blades directly keyed on the motor with double aspiration
  Dynamically and statically balanced
- AC motor :
  Wired for single-phase
  Six speeds, three of which are connected.
  Motor fitted on sealed for life bearings and secured on anti-vibration and self-lubricating mountings.
  Internal thermal protection with automatic reset,
  Protection IP 20, class B
- EC motor : Three phase permanent magnet brushless electronic motor. 230 Volt, single-phase
- Coil :
  Copper tube and the aluminium fins.
  Pipe connections on the left or right side. May be modify easily on site during installation
- Condensate collection tray : made from plastic with an “L”-shape fitted on the inner casing

General data

Check ongoing validity of certificate : eurovent-certification.com

3-row coil - AC motor

ALLEGRA			100			200			300			400			500		
Speed			1	4	6	1	3	5	2	3	5	2	3	5	2	4	6
			MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Airflow rate		m^3/h	105	175	220	145	220	295	235	270	385	265	335	485	315	495	650
Total cooling capacity		kW	0,57	0,84	1,00	0,9	1,23	1,53	1,55	1,76	2,35	1,71	2,11	2,83	2,01	2,9	3,13
Sensible cooling capacity		kW	0,45	0,69	0,83	0,68	0,95	1,21	1,13	1,3	1,76	1,26	1,57	2,15	1,49	2,19	2,38
Heating capacity	2 pipes	kW	0,64	0,98	1,19	0,94	1,34	1,7	1,56	1,79	2,44	1,74	2,18	2,97	2,02	3,0	3,24
	4 pipes (1 row)	kW	0,55	0,77	0,91	0,83	1,09	1,33	1,4	1,56	1,99	1,52	1,81	2,33	1,84	2,5	2,66
Dp cooling		kPa	2,5	4,7	6,3	2,5	4,4	6,5	9,4	11,8	19,7	11,2	16,2	27,2	5,8	11,1	12,7
Dp heating	2 pipes	kPa	1,0	1,8	2,5	2,2	4,2	6,4	7,8	10,0	17,1	9,5	14	24,3	5,0	9,6	11,0
	4 pipes (1 row)	kPa	0,5	1,0	1,3	1,3	2,2	3,1	4,2	5,1	7,8	4,9	6,6	10,3	1,3	2,3	2,6
Fan		W	16	25	33	14	22	32	20	25	41	21	28	44	22	39	46
Sound pressure (*)		dB(A)	23	30	36	21	31	38	27	31	40	24	30	38	22	32	39

ALLEGRA			600			700			800			900		
Speed			1	3	5	2	4	6	2	4	6	2	4	6
			MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Airflow rate		m^3/h	415	590	760	535	735	925	655	1020	1200	830	1210	1500
Total cooling capacity		kW	2,5	3,32	4,01	3,29	4,21	5,01	3,68	5,09	5,69	4,38	5,74	6,56
Sensible cooling capacity		kW	1,87	2,54	3,12	2,45	3,19	3,85	2,82	4,02	4,55	3,4	4,6	5,37
Heating capacity	2 pipes	kW	2,56	3,45	4,26	3,34	4,33	5,23	4,02	5,75	6,55	4,86	6,62	7,78
	4 pipes (1 row)	kW	2,19	2,79	3,33	2,89	3,59	4,2	3,16	4,26	4,75	3,71	4,79	5,46
Dp cooling		kPa	8,6	14,1	19,8	16,2	25,1	34,2	10,3	18,4	22,5	13,8	22,4	28,6
Dp heating	2 pipes	kPa	7,5	12,3	17,8	13,5	21,3	29,7	8,3	15,6	19,6	11,6	19,9	26,5
	4 pipes (1 row)	kPa	1,8	2,8	3,8	3,5	5,1	6,7	4,1	6,9	8,3	5,4	8,5	10,7
Fan		W	37	55	78	54	79	103	62	105	130	92	134	176
Sound pressure (*)		dB(A)	28	37	43	33	42	47	36	47	51	41	49	55

3-row coil - EC motor

ALLEGRA			200			400			600			700			900		
Inverter power		V	1	5	10	1	5	10	1	5	10	1	5	10	1	5	10
Speed			MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Airflow rate		m^3/h	120	220	330	210	350	515	305	495	735	400	610	890	605	945	1395
Total cooling capacity		kW	0,73	1,18	1,59	1,41	2,18	2,95	1,96	2,93	3,96	2,6	3,68	4,94	3,45	4,82	6,26
Sensible cooling capacity		kW	0,55	0,92	1,28	1,03	1,64	2,26	1,46	2,22	3,08	1,92	2,77	3,8	2,63	3,79	5,1
Heating capacity	2 pipes	kW	0,77	1,29	1,8	1,42	2,26	3,14	1,96	3,0	4,14	2,56	3,72	5,08	3,74	5,41	7,38
	4 pipes (1 row)	kW	0,71	1,08	1,43	1,29	1,85	2,41	1,76	2,45	3,22	2,33	3,13	4,06	2,99	4,05	5,24
Dp cooling	2 pipes	kPa	2,2	5,0	8,6	7,9	17,0	28,9	5,5	11,1	19	10,5	19,4	32,6	8,9	16,1	25,9
	4 pipes (1 row)	kPa	2,3	5,4	9,4	7,3	16,0	28,1	6,4	13,2	23,3	9,7	18,4	31,8	8,9	16,1	25,9
Dp heating	2 pipes	kPa	1,6	3,9	7,0	6,6	14,9	26,7	4,5	9,6	17,0	8,5	16,4	28,3	7,3	14,0	24,2
	4 pipes (1 row)	kPa	1,0	2,1	3,5	3,6	6,9	11,0	1,2	2,2	3,6	2,4	4,0	6,3	3,7	6,3	9,9
Fan		W	7,0	11,0	21,0	6,0	12,0	25,0	7,0	15,0	32,0	9,0	19,0	41,0	16,0	41,0	99,0
Sound pressure (*)		dB(A)	21	32	42	21	33	42	24	35	45	28	39	48	35	46	55

Operating conditions :

Air inlet 27°C DB/19°C WB – Chilled water 7/12°C

Air inlet 20°C - 2-pipe unit : hot water inlet = 50°C – 4-pipe unit : hot water = 70/60°C

Standard connected speeds

MIN Minimum speed **MED** Average speed **MAX** Maximum speed

(*) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

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4-row coil - AC motor - 2-pipe units

ALLEGRA		100			200			300			400			500		
Speed		1	4	6	1	3	5	2	3	5	2	3	5	2	4	6
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Airflow rate	m³/h	105	175	220	145	220	295	235	270	385	265	335	485	315	495	650
Total cooling capacity	kW	0,65	1,0	1,2	1,0	1,41	1,78	1,63	1,87	2,53	1,81	2,25	3,08	2,17	3,21	3,49
Sensible cooling capacity	kW	0,49	0,77	0,94	0,73	1,05	1,35	1,18	1,36	1,86	1,32	1,65	2,3	1,58	2,36	2,58
Heating capacity	kW	0,69	1,07	1,31	0,99	1,43	1,83	1,62	1,87	2,59	1,8	2,27	3,14	2,1	3,16	3,46
Dp cooling	kPa	1,9	4,0	5,6	4,9	9,2	13,9	5,3	6,7	11,5	6,1	9,0	15,5	10,4	20,8	31,3
Dp heating	kPa	1,7	3,7	5,3	4,0	7,6	11,8	4,2	5,4	9,8	5,0	7,2	12,8	8,1	16,6	19,5
Fan	W	16	25	33	14	22	32	20	25	41	21	28	44	22	39	46
Sound pressure (*)	dB(A)	23	30	36	21	31	38	27	31	40	24	30	38	22	32	39

ALLEGRA		600			700			800			900		
Speed		1	3	5	2	4	6	2	4	6	2	4	6
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Airflow rate	m³/h	415	590	760	535	735	925	655	1020	1200	830	1210	1500
Total cooling capacity	kW	2,79	3,81	4,71	3,51	4,56	5,48	3,97	5,63	6,34	4,79	6,41	7,42
Sensible cooling capacity	kW	2,03	2,81	3,52	2,57	3,39	4,13	2,98	4,33	4,93	3,63	4,98	5,87
Heating capacity	kW	2,82	3,9	4,92	3,49	4,62	5,59	4,26	6,27	7,2	5,23	7,18	8,52
Dp cooling	kPa	14,4	24,8	36,2	12,5	20,0	27,7	7,6	14,1	17,5	10,6	17,8	23,2
Dp heating	kPa	12,0	21,1	31,8	10,1	16,6	23,2	13,8	27,6	35,2	10,0	17,6	23,7
Fan	W	37	55	78	54	79	103	62	105	130	92	134	176
Sound pressure (*)	dB(A)	28	37	43	33	42	47	36	47	51	41	49	55

4-row coil - EC motor - 2-pipe units

ALLEGRA		200			400			600			700			900		
Inverter power	V	1	5	10	1	5	10	1	5	10	1	5	10	1	5	10
Speed		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Airflow rate	m³/h	115	210	325	200	340	505	290	475	720	380	585	875	575	910	1365
Total cooling capacity	kW	0,77	1,32	1,86	1,43	2,27	3,17	2,05	3,19	4,51	2,61	3,82	5,3	3,59	5,21	7,04
Sensible cooling capacity	kW	0,56	0,98	1,42	1,03	1,67	2,39	1,48	2,34	3,38	1,9	2,82	3,99	2,69	3,99	5,53
Heating capacity	kW	0,78	1,37	1,98	1,42	2,3	3,32	2,02	3,23	4,68	2,57	3,84	5,43	3,76	5,63	7,93
Dp cooling	kPa	3,2	8,0	14,8	4,0	8,9	16,1	8,2	17,8	33,0	7,3	14,3	25,6	6,3	12,1	20,8
Dp heating	kPa	2,6	7,1	13,6	3,2	7,6	14,7	6,6	15,1	29,1	5,9	12,0	22,0	5,6	11,4	20,9
Fan	W	7,0	11,0	21,0	6,0	12,0	25,0	7,0	15,0	32,0	9,0	19,0	41,0	16,0	41,0	99,0
Sound pressure (*)	dB(A)	21	32	42	21	33	42	24	35	45	28	39	48	35	46	55

Operating conditions :

Air inlet 27°C DB/19°C WB – Chilled water 7/12°C

Air inlet 20°C - 2-pipe unit : hot water inlet = 50°C – 4-pipe unit : hot water = 70/60°C

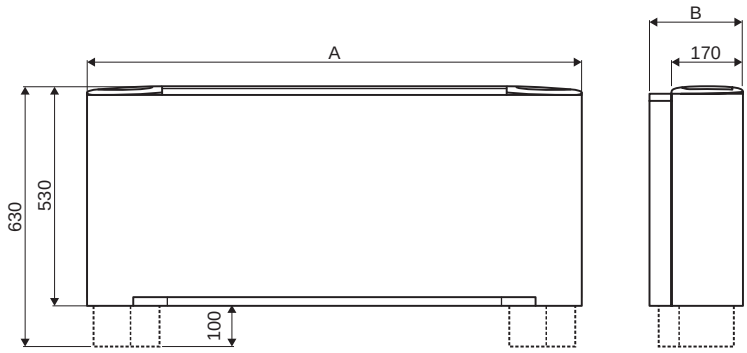
Standard connected speeds

MIN Minimum speed **MED** Average speed **MAX** Maximum speed

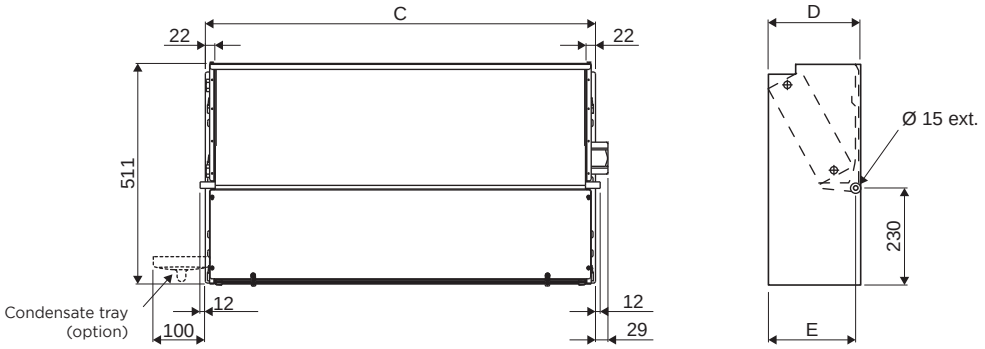
(*) The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

Dimensions and weights

Cased units



Chassis units



ALLEGRA		100	200	300	400	500	600	700	800	900
A	mm	675	775	990	990	1205	1205	1420	1420	1420
B		225	225	225	225	225	225	225	255	255
C		374	474	689	689	904	904	1119	1119	1119
D		218	218	218	218	218	218	218	248	248
E		205	205	205	205	205	205	205	235	235
Weight - Without cabinet										
3 rows	kg	13,9	15,4	19,1	20,2	24,1	24,9	28,8	32	32,2
3 + 1 rows		14,6	16,2	20,3	21,4	25,6	26,4	30,6	33,8	34
3 + 2 rows		15,1	16,8	21	22,1	26,5	27,3	31,7	34,9	35,1
4 rows		14,4	16,2	20,1	21,2	25,3	26,2	30,3	33,5	33,7
4 + 1 rows		15,1	17	21,3	22,4	26,8	27,7	32,1	35,3	35,5

LENNOX
EMEA

HIGH WALL FAN COILS UNIT

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for FCU.
Check ongoing validity of certificate :
www.eurovent-certification.com

COMFAIR HD

- Modern design and innovative technical features designed for quality and room enhancement
- Tangential fan that offers the maximum acoustic comfort
- Display Integrated in the cover cabinet shows the set-up of the unit
- An innovative solution including valve allows an easier

Cooling capacity:
1,2 - 4 kW

Airflow rate:
230 - 620 m^3/h

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

LENNOX

High wall fan coils unit

COMFAIR HD

1,2 → 4 kW

230 → 620 m³/h

Main applications

- Office buildings
- Residential buildings

Description :

- Consistent range with a tangential fan
- Four different sizes in 2 pipes
- Maximum acoustic comfort,

Control :

- Display integrated in the cover cabinet : shows room temperature, fan speed and running mode.
- Remote control : comfortable and intuitive, its minimal and ergonomic design enhances its functionality and handiness.
- Automatic swing : complete control of the airflow through the remote control, ensuring maximum room comfort
- Sleep mode : Activating this mode sets automatically temperature and fan speed to ensure the maximum comfort, noiselessness and low cost.
- Real time programmable timer : allowing to program (within 24 hours) the startup and shutdown of the unit, in a completely automatic way even in your absence, so that you will find the right room comfort at your arrival.

Main components :

- Tangential fan :
  Designed to reach high capacities at low motor speed,
- Copper tubes and aluminium fins coil with hydrophilic treatment : avoid any risk of water dragging and corrosion
- Easily reachable **air vent** : directly discharging in the condensate drain pan
- **Integrated valve** supplied as standard :
  Efficiently avoid waste of energy, because the water flow is stopped when the unit is off
  Easy installation, without requiring any niche in the wall

General data

Check ongoing validity of certificate : eurovent-certification.com

COMFAIR HD			1			2			3			4		
Speed			MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
(1)	Total cooling capacity	W	1550	1730	1960	1830	2100	2380	2420	2960	3340	2920	3640	4000
	Sensible cooling capacity		1170	1330	1520	1410	1640	1900	1890	2320	2680	2260	2850	3130
	Water flow	l/h	266	297	336	314	359	409	415	508	573	501	625	686
	Water pressure drop	kPa	10	12,5	15,9	14,3	18,3	22,9	9,7	11,3	14,8	11,8	17,8	21,6
(2)	Heating capacity	W	1880	2110	2420	2280	2610	2970	3000	3800	4390	3860	4450	4920
	Water flow	l/h	266	297	336	314	359	409	415	508	573	501	625	686
	Water pressure drop	kPa	9,3	11,6	15	13	16,4	20,5	8,3	13,8	17,3	10,6	15,9	19,8
(3)	Heating capacity	W	3390	3810	4390	3850	4400	5030	5070	6450	7480	6540	7500	8280
	Water flow	l/h	298	334	386	338	386	442	445	566	657	574	659	727
	Water pressure drop	kPa	10,9	13,8	18,4	14,1	17,7	22,4	8,8	16	21,1	13,1	16,9	21,2
Air flow rate		m^3/h	234	282	344	273	333	417	375	476	553	426	544	620
Sound power level		dB(A)	47	50	53	45	50	54	43	50	54	45	52	56
Sound pressure level			38	41	45	37	41	45	34	41	45	37	44	48
Power supply			230V/50Hz											
Power input		W	25	26	29	25	27	29	35	42	48	35	45	51
Absorbed current		A	0,11	0,12	0,13	0,11	0,12	0,13	0,17	0,22	0,26	0,18	0,24	0,30
Water content		l	0,81			0,85			1,24			1,85		

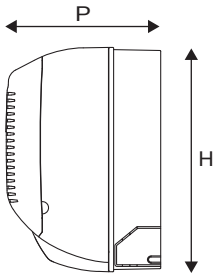
(1) Cooling mode :
Inlet water temperature = 7°C
Outlet water temperature = 12°C
Inlet air temperature : 27°C DB/19°C WB

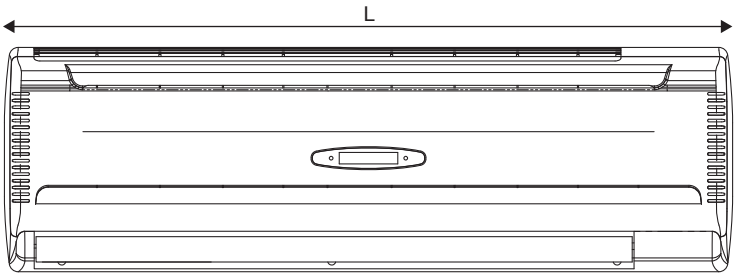
(2) Heating mode :
Air temperature = 20°C
Inlet water temperature = 50°C

(3) Heating mode :
Air temperature = 20°C
Inlet water temperature = 70°C / 60°C

- Standard unit with free outlet: external static pressure = 0 Pa
- Sound power level: ISO 23741
- Sound pressure level: 8,6 dB(A) lower that the sound power level for a room of 90 m^3 with a reverberation time of 0,5 sec.
- Supported power supply: ~230V±10%/1 Ph/50 Hz

Dimensions and weights





COMFAIR HD		1	2	3	4
L	mm	880	990	1172	1172
H		298	305	360	360
P		205	210	220	220
Weight	kg	11,5	12,4	19	20,5

LENNOX
EMEA

HIGH PRESSURE FAN COIL UNIT

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for FCU.
Check ongoing validity of certificate :
www.eurovent-certification.com

COMFAIR HH/HV

- Very high performances
- Easy and quick to install like a fan coil

Cooling capacity:
2,8 - 61 kW

Airflow rate:
840 - 8000 m³/h

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

Sizes 60 & 70
non subject to the
ErP directive

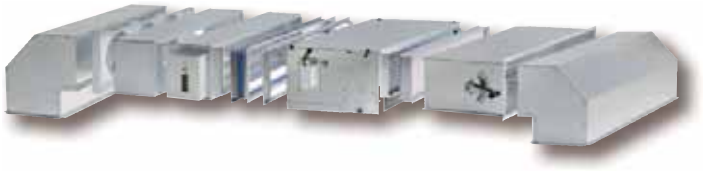
LENNOX

High pressure fan coil unit

COMFAIR HH/HV

2,8 → 61 kW

840 → 8000 m³/h



Main applications

- Small size commercial building
- Offices buildings
- Food and non food retail
- Hotels

Description :

- Centrifugal high pressure fan coils
- Available in
  7 capacity sizes,
  Vertical (HV) or horizontal (HH) configuration,
  2 and 4 pipe systems or 2 pipe system with additional electric heater.

Main components :

- Main structure in galvanized sheet metal, 1 mm thickness, with insulation
- Heat exchanger condensate drain pan and drainage fittings supplied as standard
- Ventilation group factory tested. One or two dual inlet centrifugal fans with horizontally extending aluminium blades; static and dynamical balancing. Single phase asynchronous electric motor with overload cut-off.
- Copper tubes heat exchanger, expanded into aluminium fins. Male fittings and standard air vents. Left side water connection as standard, right side on request.

Accessories :

- Internal or external thermal or/and acoustic insulation
- G3 or activated carbons G2 filters
- Coils with different row numbers (4, 5 or 6 row coils, 1 or 2 row auxiliary coils)
- Direct expansion coils
- Electric heaters (from 3 to 24 kW)
- 2 and 3 way regulation valves, 230 ON/OFF, 24V ON/OFF, 24V 3 points, 24 V 0-10V
- Manual or motorized fresh air dampers
- Condensate drain pumps
- Straight or 90° supply or return plenums with or without spigots, antivibrating joints, connecting flanges
- Supply or return aluminium diffusers (with or without filters)
- Wide range of remote controls
- Non standard units built on customer request

General data

Check ongoing validity of certificate : eurovent-certification.com

COMFAIR HH/HV		Speed		10	20	30	40	50	60	70
2 pipe system (3 row coil for HH/HV 10-50 - 4 row coil for HH/HV 60-70)										
Cooling capacity (1)	Sensible	1	kW	2,18	3,30	5,26	5,75	6,67	15,3	29,2
		2		2,20	4,10	6,22	7,13	8,40	17,4	32,8
		3		2,30	4,34	6,51	7,51	9,60	18,4	34,4
	Total	1		2,83	4,50	7,39	7,40	8,32	20,8	38,4
		2		2,90	5,30	7,80	8,98	11,5	23,3	2,9
		3		3,09	5,60	8,26	9,40	13,1	24,6	44,8
Heating capacity (2)		1		3,60	5,30	8,35	8,80	10,5	24,0	51,9
		2		3,70	6,31	9,40	10,8	14,4	27,2	50,9
		3		3,97	6,70	10,0	11,2	16,5	28,8	53,2
Water flow			l/h	531	1051	1531	1616	2253	4231	7705
Water pressure drop	Cooling	1	kPa	13,1	17,2	22,2	16,5	13,3	21,1	28,0
		2		14,2	23,2	22,5	25,3	20,8	25,3	27,2
		3		15,3	26,9	31,4	27,8	26,0	27,7	29,3
	Heating	1		11,0	14,4	18,5	13,9	11,2	17,4	18,6
		2		12,0	19,5	19,7	21,2	17,6	20,5	22,4
		3		13,0	22,6	26,1	23,3	22,0	22,6	23,9
Electrical heater	Standard		kW	3	6	6	9	9	12	18
	High			4,5	9	9	12	12	18	24
Airflow rate		1	m^3/h	570	737	1293	1262	1480	3102	6193
		2		610	940	1627	1728	2163	3645	7248
		3		650	1064	1764	1780	2650	3946	7731
Sound power level (3)	Suction + radiated	1	dB(A)	54	51	57	57	54	64	65
		2		57	56	61	61	57	69	70
		3		60	57	63	62	60	74	75
	Air supply	1		58	55	60	60	59	61	62
		2		61	58	65	64	61	66	67
		3		64	61	67	66	65	70	72
Available static pressure/Maximum external static pressure (50% performance reduction)										
2 pipes system		1	Pa	35	35	31	35	35	67	77
		2		50	50	50	50	50	100	100
		3		60	60	59	60	60	122	121

Data given at medium speed - 50 Pa available static pressure, except for sizes 60 & 70 : 100 Pa available static pressure.
(1) Cooling: Water inlet temperature: 7°C; water outlet temperature: 12°C; air inlet temperature: 27°C D.B - 19°C W.B
(2) Heating: Water inlet temperature: 50°C; water flow rate as in cooling mode; air inlet temperature: 20°C
(3) Sound power level: according to ISO 23741

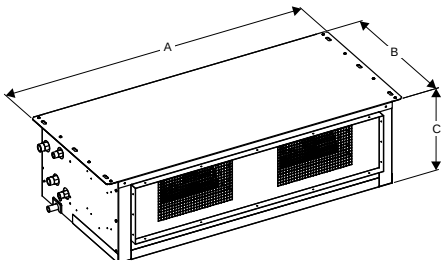
General data

Check ongoing validity of certificate : eurovent-certification.com

COMFAIR HH/HV		Speed		10	20	30	40	50	60	70
4 pipe system (3 +1 row coil for HH/HV 10-50 - 4+2 row coil for HH/HV 60-70)										
Cooling capacity (1)	Sensible	1	kW	2,38	3,45	5,07	5,40	6,34	14,3	26,7
		2		2,36	3,94	6,00	6,70	7,54	15,9	30,1
		3		2,40	4,34	6,70	6,95	9,65	17,0	32,0
	Total	1		2,75	4,50	5,50	6,60	8,47	18,3	33,3
		2		2,86	5,07	6,34	8,10	9,97	20,2	37,3
		3		2,87	6,11	8,10	8,44	12,3	21,5	39,5
Heating capacity (2)		1		3,23	4,70	6,73	7,80	8,15	29,4	52,8
		2		3,37	5,90	8,00	9,10	9,50	31,9	58,1
		3		3,40	6,20	8,25	9,45	11,50	33,7	61,0
Water flow	Cooling		l/h(1)	494	1051	1394	1451	2116	3698	6794
	Heating		l/h(3)	292	534	710	814	990	2900	5246
Water pressure drop	Cooling	1	kPa	13,4	15,0	19,9	21,7	13,2	16,0	52,8
		2		14,8	19,0	22,0	25,9	17,5	18,9	58,1
		3		15,4	26,9	31,5	37,9	25,8	21,0	61,0
	Heating	1		17,7	8,00	21,0	9,50	12,4	13,4	14,8
		2		19,5	11,1	29,0	11,4	16,3	15,6	17,7
		3		20,3	13,0	23,7	15,9	23,0	17,6	19,6
Airflow rate		1	m^3/h	580	850	1180	1460	1470	2905	5613
		2		631	1014	1461	1700	1860	3308	6570
		3		654	1065	1750	2400	2640	3623	7143
Sound power level (3)	Air suction + radiated	1	dB(A)	54	52	57	54	58	64	65
		2		56	56	60	56	65	69	70
		3		60	57	63	60	69	74	75
	Air supply	1		58	55	62	58	58	61	62
		2		60	60	64	60	66	66	67
		3		64	61	68	64	69	70	72
Available static pressure/Maximum external static pressure (50% performance reduction)										
4 pipes system		1	Pa	35	35	35	35	25	68	80
		2		50	50	50	50	50	100	100
		3		60	60	60	50	60	123	125

Data given at medium speed - 50 Pa available static pressure, except for sizes 60 & 70 : 100 Pa available static pressure.
(1) Cooling: Water inlet temperature: 7°C; water outlet temperature: 12°C; air inlet temperature: 27°C D.B - 19°C W.B
(2) Heating: Water inlet temperature: 70°C; water outlet temperature: 60°C; air inlet temperature: 20°C
(3) Sound power level: according to ISO 23741

Dimensions and weights



COMFAIR HH/HV			10	20	30	40	50	60	70
Standard coil	Number of rows		3	3	3	3	3	4	4
	Connections Ø		1/2"	1/2"	3/4"	3/4"	1"	1" 1/4	1" 1/2
Auxiliary coil	Number of rows		1	1	1	1	1	2	2
	Connection Ø		1/2"	1/2"	1/2"	1/2"	3/4"	1"	1" 1/4
Drain connection (out)		Ø mm	20	20	20	20	20	20	20
A		mm	650	1000	1100	1339	1339	1341	2028
B			533	533	533	533	533	853	853
C			299	299	324	324	374	674	674
Net weight		kg	28	36	41	46	57	117	192

LENNOX
EMEA

DUCTABLE FAN COIL UNIT WITH EC FAN

ARIA 2

- Low energy consumption
- Easy maintenance
- Low noise
- Reliability

Cooling capacity:
1,3 - 6,6 kW

Airflow rate:
290 - 1080 m^3/h

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

LENNOX

High pressure ductable fan coil
With EC fan

ARIA 2

1,3 → 6,6 kW

Main applications

- Office buildings
- Hotels

Description :

- Horizontal ducted fan coil unit for installations requiring medium to high static pressure
- Available in
  4 sizes,
  2 or 4 pipes,
  standard or low noise execution
- 9 airflow configurations available.

Accessories :

- G1 metallic filter or G3 or G4 filter
- Auxiliary coil for 4 pipe installation
- 2 or 3 way valve ON/OFF or 24V 3points or modulating 24V 0-10V
- Fresh air connection 100 or 125mm
- Auxiliary condensate drain pan
- Condensate drain pump
- Stand alone or communicating controls

Main components :

- Main structure in galvanized steel, 10/10 mm thickness with internal insulation (10 mm polyurethane foam EN 13501-1 Euroclass B-s2, d0 / BL-s1, d0)
- Water coil (copper with aluminum fins) provided with manual air vent
- Single or double direct driven centrifugal fan with brushless motor (EC fan)
- Galvanized drain pan
- Mounting brackets
- G2 filter
- Built-in silencer (in low noise execution)

General data

2 pipes		Fan speed	213	216	223	226
Number of rows			**3**	**6**	**3**	**6**
Air flow rate	m^3/h	Maximum	490	480	1090	1080
		Average	390	380	890	880
		Minimum	290	280	690	680
Static pressure	Pa	Maximum	76	65	75	65
		Average	50	50	50	50
		Minimum	27	27	30	30
Cooling mode						
Total cooling capacity (1)	W	Maximum	1760	2850	4270	6620
		Average	1550	2430	3810	5730
		Minimum	1300	1940	3270	4740
Sensible cooling capacity (1)	W	Maximum	1520	2200	3540	5030
		Average	1300	1830	3090	4280
		Minimum	1060	1430	2580	3470
Water flow rate	l/h	Maximum	302	490	734	1138
		Average	266	418	655	984
		Minimum	223	334	563	815
Pressure drop	kPa	Maximum	6	9	20	10
		Average	5	7	17	8
		Minimum	4	5	13	6
Heating mode						
Heating capacity (2)	W	Maximum	2540	3750	5940	8530
		Average	2190	3110	5190	7250
		Minimum	1790	2420	4360	5860
Water flow rate	l/h	Maximum	302	490	734	1138
		Average	266	418	655	984
		Minimum	223	334	563	815
Pressure drop	kPa	Maximum	7	10	16	11
		Average	5	8	14	8
		Minimum	4	5	10	6
Acoustic data						
Sound power level Air suction + Radiated	dB(A)	Maximum	63	63	67	67
		Average	60	60	65	65
		Minimum	52	52	62	62
Sound power level Air supply	dB(A)	Maximum	61	61	66	66
		Average	58	58	63	63
		Minimum	48	48	60	60

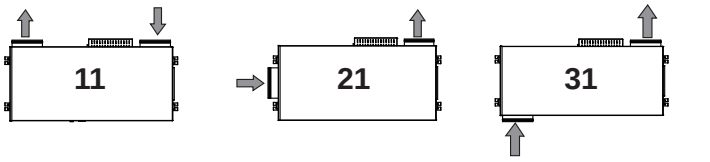
4 pipes		Fan speed	413	416	423	426
Number of rows (main coil)			**3**	**6**	**3**	**6**
Number of rows (auxiliary coil)			**2**	**2**	**2**	**2**
Heating mode						
Heating capacity (2)	W	Maximum	3190	3190	7700	7700
		Average	2750	2750	6760	6760
		Minimum	2250	2250	5710	5710
Water flow rate	l/h	Maximum	279	279	673	673
		Average	241	241	591	591
		Minimum	196	196	499	499
Pressure drop	kPa	Maximum	4	4	26	26
		Average	3	3	21	21
		Minimum	2	2	16	16

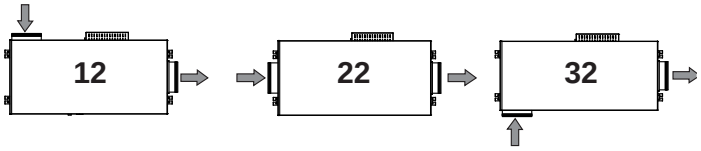
(1) Cooling mode :
Water inlet temperature: 7°C
Water outlet temperature: 12°C
Air inlet temperature : 27°C DB / 19 °C WB

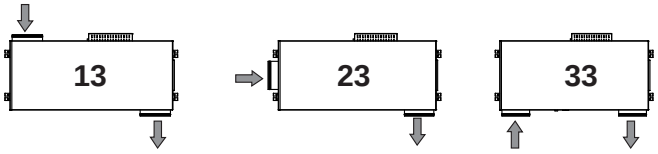
(2) Heating mode :
Air temperature: 20°C
Water inlet temperature: 50°C

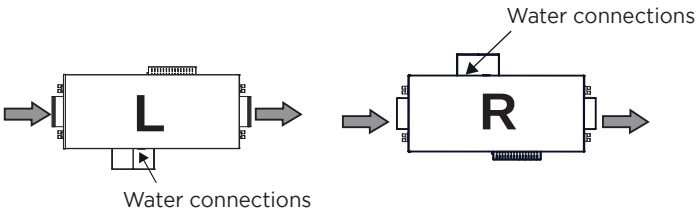
Air supply configurations

ARIA 2 : 213-216 / 413-416

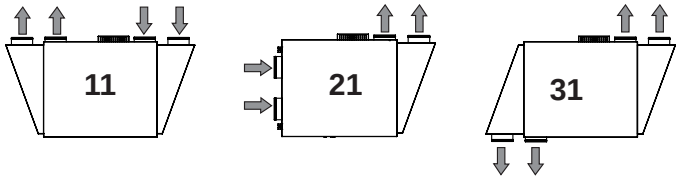


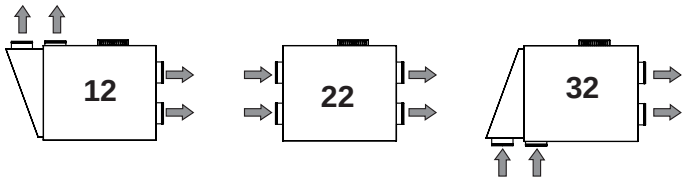


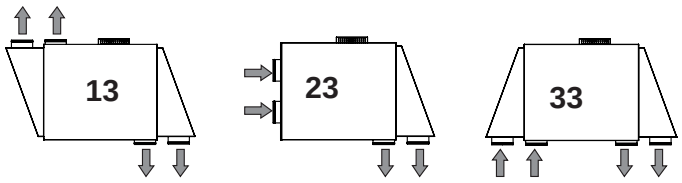


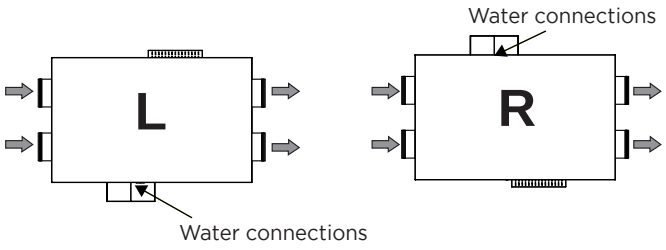


ARIA 2 : 223-226 / 423-426



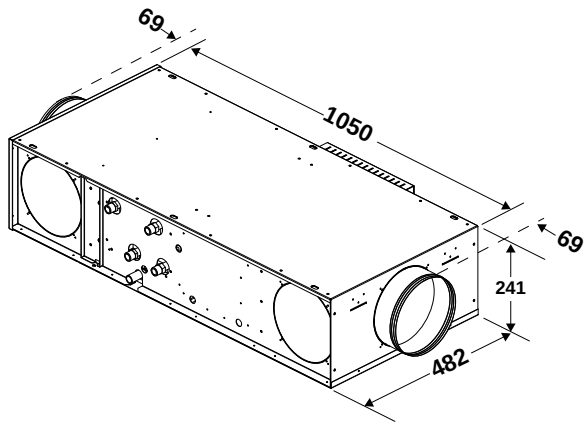




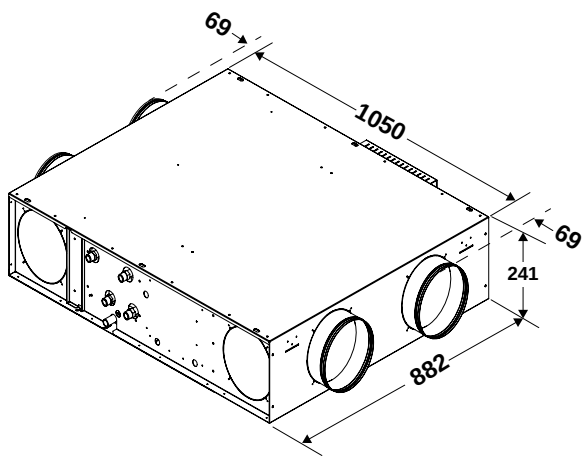


Dimensions and weights

ARIA 2 213-216 / 413-416



ARIA 2 223-226 / 423-426



	2 pipes				4 pipes			
ARIA 2	**213**	**216**	**223**	**226**	**413**	**416**	**423**	**426**
Weight Standard unit	33	35	50	55	41	43	60	65
Weight Low noise unit	50	52	71	76	58	68	89	94

LENNOX
EMEA

DUCTABLE AIR TREATMENT UNIT

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

LENNOX participates in the ECP programme for FCU.
Check ongoing validity of certificate :
www.eurovent-certification.com

INALTO

- High performances
- Modularity
- Easy and quick to install
- Easy maintenance,
- Reliability,
- Low energy consumption (EC version)

Cooling capacity:
2,6 - 28 kW

Airflow rate:
380 - 5670 m³/h

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

LENNOX

Ductable air treatment unit

INALTO

2,6 → 28 kW

Main applications

- Small size commercial buildings
- Office buildings
- Food and non-food retail
- Hotels

INALTO-H
INALTO-DS-H

INALTO-V
INALTO-DS-V

Description :

- High pressure ductable air treatment unit for installations requiring medium to high static pressure
- Available in
  7 sizes,
  Horizontal (H) or Vertical (V) installation
  2 or 4 pipes,
  With EC or AC fan
  Single or double skin version
- Reduced height for installation in suspended ceiling (horizontal version).

Main components :

- Main structure in galvanized steel, 10/10 mm thickness with internal insulation (10 mm polyurethane foam EN 13501-1 Euroclass B-s2, d0 / BL-s1, d0)
- Double skin panels, 15 mm thickness in galvanized steel inside, white pre-painted galvanized steel outside. Thermal and sound insulation with 35 kg/m^3 density mineral wool (double skin version only).
- Water coil (copper with aluminum fins) provided with manual air vent.
- Double direct driven centrifugal fan (with EC or AC motor).
- Galvanized drain pan

Accessories :

- G3 or G4 filter
- Auxiliary coil for 4 pipe installation
- 6 rows main coil
- 2 or 3 way valve ON/OFF or 24V 3 points or modulating 24V 0-10V
- Electric heating section (4,5 to 19,2 kW)
- Humidification section
- Supply and air return plenums
- Fresh air connection 100 or 125 mm
- Auxiliary condensate drain pan
- Condensate drain pump
- Stand alone or communicating controls

General data

2 pipes (4 rows coil)		Fan speed	05	11	15	25	28	49	57
Air flow rate	m³/h	Maximum	516	1039	1528	1946	2806	4916	5668
		Average	484	1007	1267	1470	2349	4357	4776
		Minimum	381	939	1092	976	1997	3161	4027
Static pressure	Pa	Maximum	57	55	73	88	72	63	72
		Average	50	50	50	50	50	50	50
		Minimum	39	44	37	22	37	26	37
Cooling mode									
Total cooling capacity (1)	W	Maximum	2987	6058	9016	11274	15131	24480	27851
		Average	2856	5924	7825	9140	13329	22568	24818
		Minimum	2581	5618	6966	6630	11810	17979	22020
Sensible cooling capacity (1)	W	Maximum	2256	4388	6506	8144	11081	18260	20801
		Average	2147	4284	5585	6490	9649	16688	18308
		Minimum	1926	4048	4926	4640	8470	13039	16050
Water flow rate	l/h	Maximum	530	1065	1590	1994	2695	4348	4976
		Average	506	1041	1380	1614	2373	4003	4430
		Minimum	457	988	1229	1171	2103	3182	3931
Water pressure drop	kPa	Maximum	10,8	14,6	18,6	18	21	21,1	28,9
		Average	9,9	14,1	14,5	12,4	16,8	18,2	22,8
		Minimum	8,3	12,8	11,8	7	13,6	12,1	18,1
Heating mode									
Heating capacity (2)	W	Maximum	3760	7830	11560	14600	20030	33210	37740
		Average	3570	7640	9930	11640	17440	30310	33190
		Minimum	3240	7220	8790	8260	15330	23620	29110
Water flow rate	l/h	Maximum	529	1062	1585	1994	2687	4348	4960
		Average	504	1038	1377	1614	2365	4003	4416
		Minimum	459	984	1225	1171	2098	3182	3918
Pressure drop	kPa	Maximum	9,2	11,9	15,2	14,6	17,1	17,1	23,2
		Average	8,3	11,5	11,8	10,1	13,6	14,8	18,9
		Minimum	6,7	10,4	9,6	5,7	11	9,9	15,3
Acoustic data									
INALTO Single skin unit	Sound power level Air suction + radiated	Maximum	62	68	63	64	70	72	74
		Average	60	67	59	58	67	69	70
		Minimum	56	67	55	55	63	61	66
	Sound power level Air supply	Maximum	61	65	66	66	71	74	75
		Average	59	64	60	59	66	70	69
		Minimum	55	64	57	56	62	61	65
	Sound pressure level Air suction + radiated	Maximum	53	59	54	55	61	63	65
		Average	51	58	50	49	58	60	61
		Minimum	47	58	46	46	54	52	57
	Sound pressure level Air supply	Maximum	52	56	57	57	62	65	66
		Average	50	55	51	50	57	61	60
		Minimum	46	55	48	47	53	52	56
INALTO Double skin unit	Sound power level Air suction + radiated	Maximum	61	64	66	67	71	74	75
		Average	59	63	60	58	66	70	69
		Minimum	55	64	57	53	62	61	65
	Sound power level Air supply	Maximum	61	64	66	67	71	74	75
		Average	59	63	60	58	66	70	69
		Minimum	55	64	57	53	62	61	65
	Sound pressure level Air suction + radiated	Maximum	52	55	57	58	62	65	66
		Average	50	54	51	49	57	61	60
		Minimum	46	55	48	44	53	52	56
	Sound pressure level Air supply	Maximum	52	55	57	58	62	65	66
		Average	50	54	51	49	57	61	60
		Minimum	46	55	48	44	53	52	56

(1) Cooling mode :
Water inlet temperature: 7°C
Water outlet temperature: 12°C
Air inlet temperature : 27°C DB / 19 °C WB

(2)Heating mode :
Air temperature: 20°C
Water inlet temperature: 50°C

In case of AC motor, the MIN/MED/MAX speeds are the wired speeds among the 6 available on the motor.
In case of EC motor, the MIN/MED/MAX speeds are the EUROVENT tested speeds.

- Data given at medium speed - 50 Pa available static pressure
- Sound power level: ISO 23741
- Sound pressure level: 8,6 dB(A) lower that the sound power level for a room of 90 m3 with a reverberation time of 0,5 sec.
- Supported power supply: ~230V / 1ph / 50-60Hz

General data

4 pipes (4 rows coil + 2 coils)		Fan speed	05	11	15	25	28	49	57
Air flow rate	m³/h	Maximum	484	966	1478	1868	2651	4598	5187
		Average	459	944	1245	1437	2275	4144	4548
		Minimum	369	894	1079	963	1956	3062	3904
Static pressure	Pa	Maximum	57	55	73	88	72	63	72
		Average	50	50	50	50	50	50	50
		Minimum	39	44	37	22	37	26	37
Cooling mode									
Total cooling capacity (1)	W	Maximum	3010	5728	8786	10924	14511	23350	26171
		Average	2896	5634	7725	8970	13009	21768	23958
		Minimum	2662	5408	6896	6550	11620	17549	21520
Sensible cooling capacity (1)	W	Maximum	2136	4138	6326	7864	10581	17320	19401
		Average	2047	4064	5505	6370	9389	16038	17608
		Minimum	1876	3888	4876	4590	8320	12689	15650
Water flow rate	l/h	Maximum	536	1009	1551	1934	2589	4167	4687
		Average	513	991	1363	1586	2318	3878	4282
		Minimum	471	952	1217	1158	2071	3117	3845
Water pressure drop	kPa	Maximum	9,9	13,3	17,8	17	19,5	20,2	26,4
		Average	9,1	12,9	14,2	12	16,1	18,4	22,2
		Minimum	7,9	12	11,6	6,9	13,2	12,1	18,8
Heating mode									
Heating capacity (2)	W	Maximum	4610	8560	12860	16030	21520	35230	38850
		Average	4430	8420	11380	13300	19360	32840	35570
		Minimum	4130	8110	10260	9910	17410	26640	32050
Water flow rate	l/h	Maximum	405	752	1130	1408	1890	3095	3413
		Average	390	740	1000	1169	1702	2885	3124
		Minimum	362	712	901	870	1529	2341	2815
Pressure drop	kPa	Maximum	15,5	20,3	13,9	9,6	18,6	40,8	27,9
		Average	14,5	19,7	11,2	6,9	15,5	36,1	23,9
		Minimum	12,7	18,4	9,4	4,1	12,8	25	19,9
Acoustic data									
INALTO Single skin unit	Sound power level Air suction + radiated	Maximum	62	68	63	66	70	72	74
		Average	60	67	59	58	67	69	70
		Minimum	56	67	55	55	63	61	66
	Sound power level Air supply	Maximum	61	65	66	67	71	74	75
		Average	59	64	60	59	66	70	69
		Minimum	55	64	54	56	62	61	65
	Sound pressure level Air suction + radiated	Maximum	53	59	54	57	61	63	65
		Average	51	58	50	49	58	60	61
		Minimum	47	58	46	46	54	52	57
	Sound pressure level Air supply	Maximum	52	56	57	58	62	65	66
		Average	50	55	51	50	57	61	60
		Minimum	46	55	45	47	53	52	56
INALTO Double skin unit	Sound power level Air suction + radiated	Maximum	61	64	66	67	71	74	75
		Average	59	63	60	58	66	70	69
		Minimum	55	64	57	53	62	61	65
	Sound power level Air supply	Maximum	61	64	66	67	71	74	75
		Average	59	63	60	58	66	70	69
		Minimum	55	64	57	53	62	61	65
	Sound pressure level Air suction + radiated	Maximum	52	55	57	58	62	65	66
		Average	50	54	51	49	57	61	60
		Minimum	46	55	48	44	53	52	56
	Sound pressure level Air supply	Maximum	52	55	57	58	62	65	66
		Average	50	54	51	49	57	61	60
		Minimum	46	55	48	44	53	52	56

dB(A)

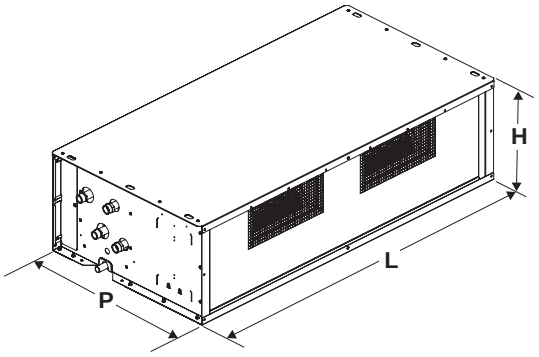
Data given at medium speed - 50 Pa available static pressure

(1) Cooling mode :
Water inlet temperature: 7°C
Water outlet temperature: 12°C
Air inlet temperature : 27°C DB / 19 °C WB

(2) Heating mode :
Air temperature: 20°C
Water inlet temperature: 70/60°C

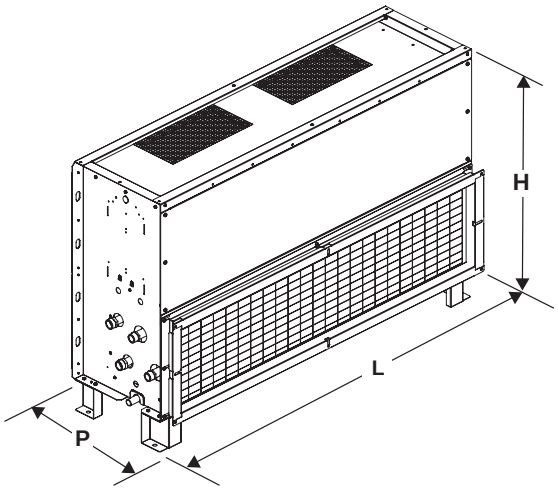
Dimensions and weights

HORIZONTAL UNIT



INALTO			05	11	15	25	28	49	57
			SINGLE SKIN						
Lenght	L	mm	770	1070	1270	1420	1520	2190	2190
Height	H		297	297	347	372	397	373	398
Depth	P		643	643	643	770	770	770	770
Weight		kg	28	38	49	62	72	127	134
			DOUBLE SKIN						
Lenght	L	mm	793	1093	1293	1443	1543	2233	2233
Height	H		325	325	375	400	425	401	426
Depth	P		643	643	643	770	770	770	770
Weight		kg	41	56	68	88	96	159	167

VERTICAL UNIT



INALTO			05	11	15	25	28	49	57
			SINGLE SKIN						
Lenght	L	mm	770	1070	1270	1420	1520	2190	2190
Height	H		740	740	815	890	915	891	916
Depth	P		347	347	397	422	447	423	448
			DOUBLE SKIN						
Lenght	L	mm	793	1093	1293	1443	1543	2213	2213
Height	H		754	754	829	904	929	905	930
Depth	P		367	367	417	442	467	443	468

LENNOX
EMEA

CHILLED WATER CASSETTE

EUROVENT CERTIFIED PERFORMANCE
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LENNOX participates in the ECP programme for FCU.
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ARMONIA / ARMONIA EC

- Silent operation
- Low energy consumption with EC fan
- Optimized air distribution
- Easy installation and maintenance
- ABS or metallic diffuser
- Condensate pump with floating switch is supplied as standard
- 4-pipe units - With enhanced cooling coil

Cooling capacity:
1,3 - 11 kW

Airflow rate:
310 - 1820 m^3/h

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

LENNOX

Chilled water cassette

ARMONIA
ARMONIA EC
1,3 → 11 kW

Main applications

- Small size commercial buildings
- Food and non-food retail

Metallic diffusers (option)

Description :

- Standard version :
  7 capacity sizes for 2 pipe systems/2 pipes with additional electric heater
  11 capacity sizes for 4 pipe systems
- EC version
  5 capacity sizes for 2 pipe systems/2 pipes with additional electric heater,
  5 capacity sizes for 4 pipe systems
- Plastic and metallic diffusers, designed to perfectly fit into 600 x 600 mm false ceiling standard modules
- 800 x 800 mm size available too
- Sound level/capacity ratio
- Controls available : infrared remote control, stand alone controls and master slave kit.

Accessories :

- Different RAL colours for ABS diffusers (on request, with minimum quantities)
- 2 and 3 way control valves
- Infrared remote control
- Stand alone controls
- Master/Slave card (MSC)
- EC fan control
- Fresh air kit (1 way metallic duct and bypass) and fresh air duct (Ø 105 mm plastic connection)

Main components :

- Main casing is made of galvanised steel with inside closed cell polyethylene 10 mm thick thermal insulation and outside anti-condensate lining.
- Air diffuser available in ABS white colour and metallic white colour (up to size 320)
- Washable air filter, easily accessible and removable
- Fan-motor assembly includes single inlet radial fan and 6 speed electric motor with single phase 230V/50 Hz supply, class B insulation and klixon thermal contact motor protection.
- In standard supplied wired in 3 speeds; but can be chosen among the 6 available and modified on site.
- EC low energy consumption motor is also available. Thanks to inverter card continuous air flow/ heating/ cooling variation is allowed.
- Heat exchangers are made of copper tubes and bonded aluminium fins. 2 pipe range are 1,2 or 3 rows while 4 pipe range are 2+1 rows mono block coils.
- 4 pipe range has been especially designed to reply higher cooling (CWC 260-360-560-660) or higher heating (CWC 040-140-240-340-440-540-640) site demand.
- Condensate pump with floating switch is supplied as standard and has 650 mm maximum head.
- Main and auxiliary condensate drain pan are supplied as standard. Main drain pan is high density ABS polystyrene foam and fire retardant B2 rating.
- Auxiliary drain pan is ABS and it is connected with the main drain pan to collect condensate of heat exchanger and control valve(s).
- Control board is easily accessible and positioned externally.

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General data - Standard version

CWC		600 x 600											
2-pipe version		020			120			220			320		
Speed		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Airflow	m³/h	310	420	610	310	420	520	320	500	710	430	610	880
Cooling capacity	kW	1,25	1,6	1,92	1,82	2,31	2,64	2,23	3,3	4,26	2,91	3,82	4,93
Sensible cooling capacity	kW	0,99	1,29	1,58	1,33	1,72	2	1,55	2,35	3,11	2,05	2,75	3,65
Heating capacity	kW	1,38	1,8	2,24	1,85	2,42	2,8	2,12	3,28	4,37	2,85	3,85	5,15
Water flow	l/h	216	284	349	317	403	461	393	583	752	511	677	864
Δ P cooling	kPa	4,5	7	10	4,9	7,6	9,7	6,4	13	20,9	7,5	12,4	19,7
Δ P heating	kPa	4,4	7,2	10,7	4,3	6,9	9	2,8	6,1	10,2	6,2	10,6	17,8
Fan	W	25	32	57	25	32	44	25	44	68	32	57	90
	A	0,11	0,15	0,27	0,11	0,15	0,2	0,11	0,2	0,32	0,15	0,27	0,45
Water content	l	0,8	0,8	0,8	1,4	1,4	1,4	2,1	2,1	2,1	2,1	2,1	2,1
Sound power level - Lw	dB(A)	33	40	49	33	40	45	33	45	53	41	49	59
Sound pressure level - Lp	dB(A)	24	31	40	24	31	36	24	36	44	32	40	50

CWC		800 x 800								
2-pipe version		420			520			620		
Speed		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Airflow	m³/h	630	820	1140	710	970	1500	710	1280	1820
Cooling capacity	kW	4,18	4,86	6,08	5,27	6,72	9,39	5,27	8,36	10,93
Sensible cooling capacity	kW	3	3,53	4,51	3,42	4,42	6,36	3,67	6	8,08
Heating capacity	kW	4,27	5,03	6,5	4,92	6,4	9,23	5,12	8,55	11,72
Water flow	l/h	7,27	850	1058	925	1160	1660	925	1483	1930
Δ P cooling	kPa	10,9	14,3	21,6	9,4	14,7	26,9	9,4	21,8	35,6
Δ P heating	kPa	7	9,4	15	7,1	11,4	22	7,6	19,2	33,8
Fan	W	34	50	77	42	63	120	42	95	170
	A	0,15	0,23	0,36	0,18	0,28	0,53	0,18	0,42	0,74
Water content	l	3	3	3	4	4	4	4	4	4
Sound power level - Lw	dB(A)	33	40	48	34	40	53	34	48	58
Sound pressure level - Lp	dB(A)	24	31	39	25	31	44	25	39	49

CWC		600 x 600																		
4-pipe version		040			140			240			260			340			360			
Speed		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	
Airflow	m³/h	310	420	610	310	420	510	320	500	710	320	500	710	430	610	880	430	610	880	
Cooling capacity	kW	1,49	1,93	2,27	1,83	2,33	2,66	1,83	2,61	3,27	2,07	3,02	3,86	2,33	2,96	3,72	2,69	3,47	4,44	
Sensible cooling capacity	kW	1,13	1,52	1,84	1,32	1,68	1,94	1,32	1,94	2,49	1,47	2,2	2,88	1,72	2,23	2,88	1,94	2,56	3,37	
Water flow	l/h	263	342	407	320	407	464	320	457	572	371	540	691	407	522	648	479	623	788	
Δ P cooling	kPa	6	10	13,5	4,6	6,9	8,8	4,6	8,8	13,4	4	7	10,5	7,2	11,2	17	6	9	14	
Heating capacity	kW	1,72	2,23	2,66	2,13	2,66	3,04	2,13	3,04	3,86	1,73	2,36	2,91	2,61	3,33	4,19	2,14	2,66	3,29	
Water flow	l/h	176	223	266	202	256	292	202	284	356	176	238	288	256	324	410	216	263	320	
Δ P heating	kPa	5,2	8,3	11,4	4,6	6,8	8,7	4,6	8,7	13,3	2,6	4,6	6,7	6,4	9,9	15	3,9	5,7	8,4	
Fan	W	25	32	57	25	32	44	25	44	68	25	44	68	32	57	90	32	57	90	
	A	0,11	0,15	0,27	0,11	0,15	0,2	0,11	0,5	0,32	0,11	0,2	0,32	0,15	0,27	0,45	0,15	0,27	0,45	
Water content Cooling mode	l	1	1	1	1,4	1,4	1,4	1,4	1,4	1,4	1,7	1,7	1,7	1,4	1,4	1,4	1,7	1,7	1,7	
Water content Heating mode	l	0,6	0,6	0,6	0,7	0,7	0,7	0,7	0,7	0,7	0,5	0,5	0,5	0,7	0,7	0,7	0,5	0,5	0,5	
Sound power level - Lw	dB(A)	33	40	49	33	40	45	33	45	53	33	45	53	41	49	59	41	49	59	
Sound pressure level - Lp	dB(A)	24	31	40	24	31	36	24	36	44	24	36	44	32	40	50	32	40	50	

Cooling : Air inlet temperature: 27°C D.B - 19°C W.B/Water temperature 7/12 °C.
Heating: Air inlet temperature: 20°C - Water inlet temperature: 50°C; water flow rate as in cooling mode.
The sound pressure levels apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 seconds.

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General data - Standard version

CWC		800 x 800														
4-pipe version		440			540			560			640			660		
Speed		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Airflow	m³/h	630	820	1140	710	970	1500	710	970	1500	710	1280	1820	710	1280	1820
Cooling capacity	kW	4,11	4,98	6,26	4,48	5,6	7,59	4,95	6,27	8,65	4,48	6,84	8,72	4,95	7,75	10,03
Sensible cooling capacity	kW	2,93	3,6	4,61	3,21	4,09	5,71	3,49	4,49	6,37	3,21	5,09	6,67	3,49	5,64	7,51
Water flow	l/h	720	875	1098	785	983	1325	896	1141	1580	785	1199	1512	896	1418	1829
Δ P cooling	kPa	8,8	12,5	18,9	10,3	15,4	26,9	9	14	25	10,3	22,1	34,7	9	20	32
Heating capacity	kW	5,21	6,33	8,02	5,69	7,15	9,66	4,59	5,63	7,5	5,69	8,8	11,16	4,59	6,78	8,58
Water flow	l/h	518	626	785	565	702	954	464	565	738	565	857	1105	464	673	839
Δ P heating	kPa	7,9	11,2	17,2	9,3	14	24	4,9	7	11,8	9,3	20,3	31,2	4,9	9,9	15
Fan	W	33	48	77	42	63	120	42	63	120	42	95	170	42	95	170
	A	0,15	0,23	0,36	0,18	0,28	0,53	0,18	0,28	0,53	0,18	0,42	0,74	0,18	0,42	0,74
Water content Cooling mode	l	3	3	3	3	3	3	3,6	3,6	3,6	6	6	6	3,6	3,6	3,6
Water content Heating mode	l	1,4	1,4	1,4	1,4	1,4	1,4	1,1	1,1	1,1	1,4	1,4	1,4	1,1	1,1	1,1
Sound power level - Lw	dB(A)	33	40	48	34	40	53	34	40	53	34	48	58	34	48	58
Sound pressure level - Lp	dB(A)	24	31	39	25	31	44	25	31	44	25	39	49	25	39	49

General data - EC Version

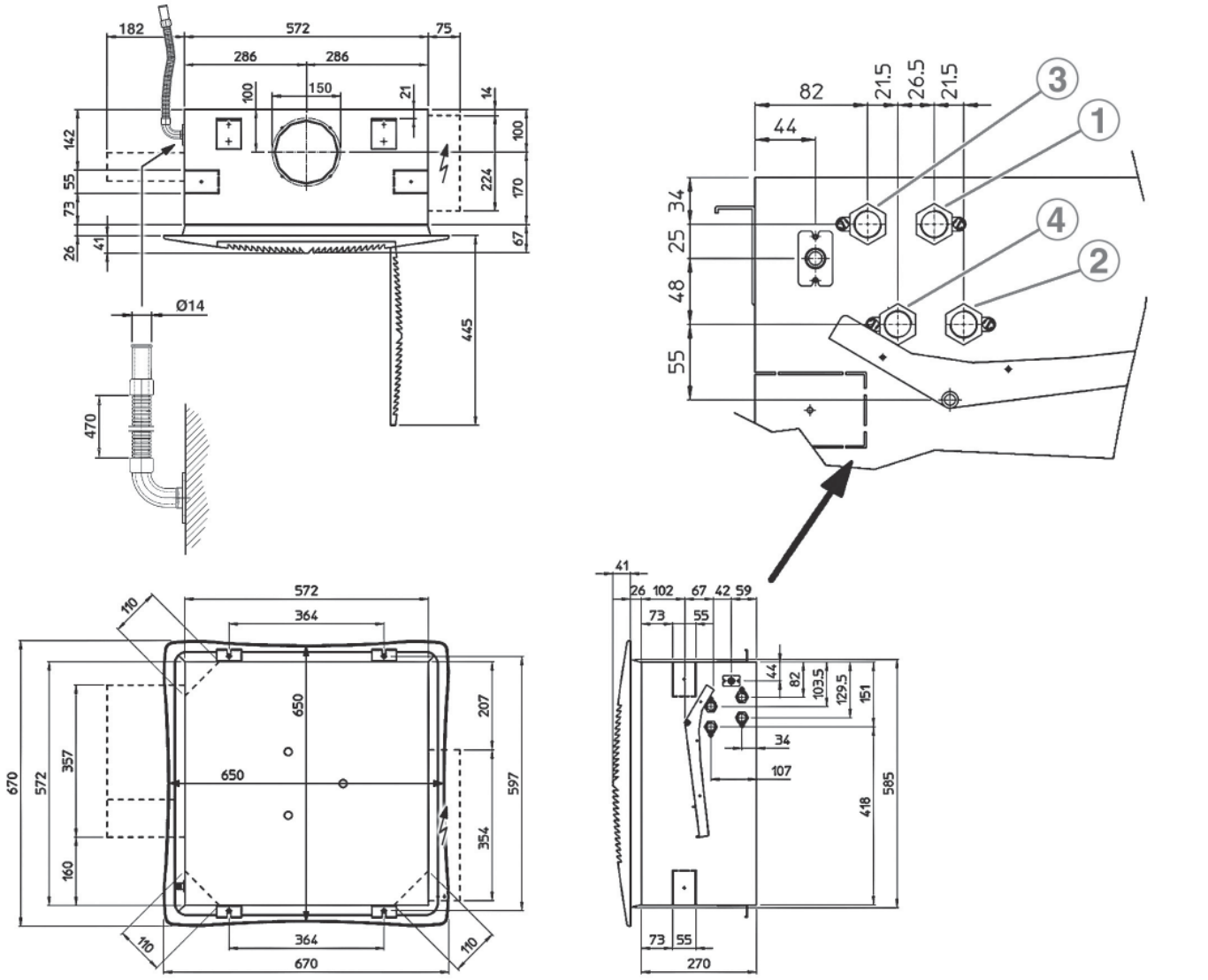
CWC EC		600 x 600									800 x 800					
2-pipe version		120			220			320			420			520		
Speed		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Airflow	m³/h	310	380	535	310	445	710	360	610	880	630	870	1165	710	1130	1770
Cooling capacity	kW	1,84	2,16	2,73	2,24	3,04	4,3	2,55	3,85	4,96	4,2	5,13	6,3	5,28	7,69	10,69
Sensible cooling capacity	kW	1,35	1,6	2,07	1,57	2,16	3,15	1,8	2,79	3,68	3,02	3,75	4,69	3,68	5,5	7,83
Water flow	l/h	327	385	486	400	544	767	457	691	885	745	907	1112	943	1382	1915
Δ P cooling	kPa	4,9	6,6	10,1	4,6	9,4	15,1	5,9	12,4	19,7	10,9	15,6	22,7	9,4	18,5	33,6
Δ P heating	kPa	4,3	5,9	9,4	3,6	6,6	13,2	4,7	10,6	17,8	9,6	14,2	21,6	7	14,6	28,1
Fan	W	5	8	16	5	11	31	7	21	62	10	17	33	10	32	108
Water content	l	1,4	1,4	1,4	2,1	2,1	2,1	2,1	2,1	2,1	3	3	3	4	4	4

CWC EC		600 x 600									800 x 800					
4-pipe version		140			260			360			440			560		
Speed		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Airflow	m³/h	310	380	535	310	445	710	360	610	880	630	870	1165	710	1130	1770
Cooling capacity	kW	1,85	2,17	2,75	2,09	2,8	3,9	2,37	3,51	4,47	4,29	5,26	6,48	4,97	7,14	9,76
Sensible cooling capacity	kW	1,34	1,59	2,06	1,49	2,03	2,92	1,7	2,6	3,4	3,07	3,82	4,8	3,51	5,17	7,29
Water flow	l/h	328	385	490	371	497	691	421	623	788	763	936	1156	893	1296	1768
Δ P cooling	kPa	4,6	6,2	9,5	3,5	5,7	10,5	4,1	8,4	13,1	9,4	13,6	19,8	8,8	17	30,1
Heating capacity	kW	2,13	2,51	3,18	1,73	2,2	2,91	1,92	2,66	3,29	5,41	6,65	8,24	4,58	6,27	8,33
Water flow	l/h	212	248	313	176	220	288	194	263	320	536	655	806	461	626	817
Δ P heating	kPa	4,6	6,1	9,4	2,6	4,1	6,7	3,2	5,7	8,4	8,5	12,3	18,1	4,9	8,6	14,3
Fan	W	5	8	16	5	11	31	7	21	62	10	17	33	10	32	108
Water content Cooling mode	l	1,4	1,4	1,4	1,7	1,7	1,7	1,7	1,7	1,7	3	3	3	3,6	3,6	3,6
Water content Heating mode	l	0,7	0,7	0,7	0,5	0,5	0,5	0,5	0,5	0,5	1,4	1,4	1,4	1,1	1,1	1,1
Sound power level - Lw	dB(A)	33	39	47	33	43	54	37	50	60	33	39	48	34	47	57
Sound pressure level - Lp	dB(A)	24	30	38	24	34	45	28	41	51	24	30	39	25	38	48

Cooling : Air inlet temperature: 27°C D.B - 19°C W.B/Water temperature 7/12 °C.
Heating: Air inlet temperature: 20°C - Water inlet temperature: 50°C; water flow rate as in cooling mode.
The sound pressure levels apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 seconds.

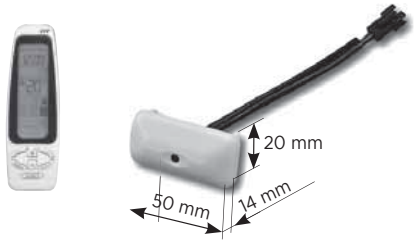
Dimensions

CWC 020 - 040 - 120 - 140 - 220 - 240 - 260 - 320 - 340 - 360
Version 600 x 600

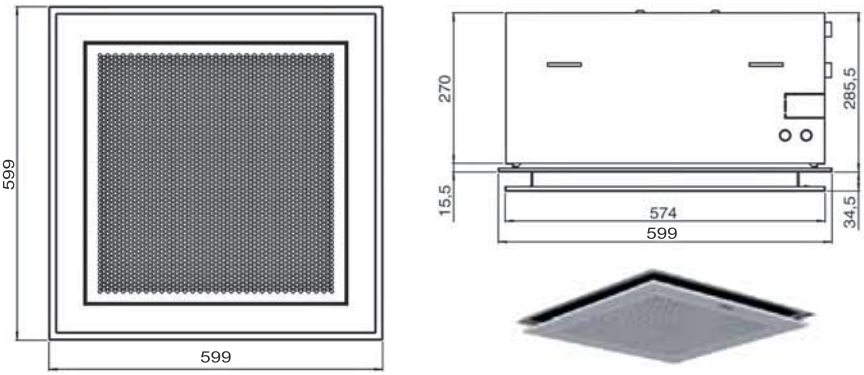


2-pipe units		4-pipe units	
3	Inlet, heating/cooling 1/2"	1	Heating 1/2"
4	Outlet, heating/cooling 1/2"	2	Heating 1/2"
		3	Cooling 1/2"
		4	Cooling 1/2"

Metallic diffuser



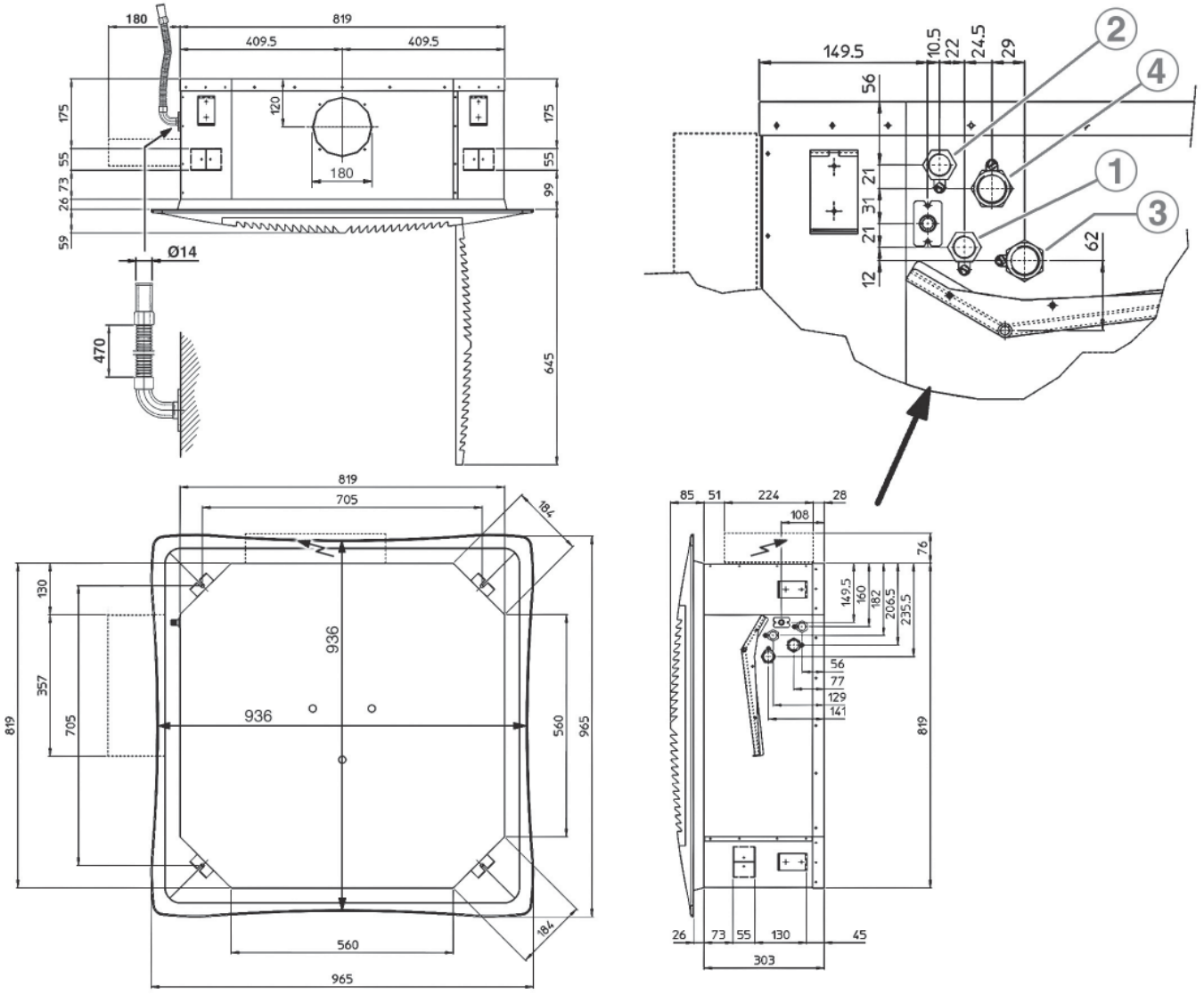
Infrared receiver mandatory
With metallic diffuser (option)
+ infrared remote control



Dimensions

CWC 420 - 440 - 520 - 540 - 560 - 620 - 640 - 660

Version 800 x 800



2-pipe units		4-pipe units	
3	Inlet, heating/cooling 3/4"	1	Inlet, heating 1/2"
4	Outlet, heating/cooling 3/4"	2	Outlet, heating 1/2"
		3	Inlet, cooling 3/4"
		4	Outlet, cooling 3/4"

COMMUNICATING CONTROLLERS

Main applications

- Office buildings
- Residential buildings
- Light industrial buildings
- LennoxHydroControls system

LONWORKS (CTRL2302D2A-L-DC) and BACNET (CTRL2303D4A-B-DC) protocols :

LONWORKS®

BACNET

- LENNOX controllers communicating on the LONWORKS® network (LONWORKS 2.0, latest Neuron microprocessor) or BACNET
- Optimized occupants comfort thanks to terminal controllers allowing room parameters management (fan coils units and ceiling cassettes)
- Configurable controller, 230 VAC power supply, electric heater 2 kW, 230 VAC valves.
- 5 x configurable inputs (window contact/presence contact/ auxiliary contact for dew point detector or change-over/room, air return or blow temperature sensor/flow controller/impulse counter/air quality sensor)
- 1 x 0-10V input air quality sensor
- 1 x RJ9 digital input
- 8 x configurable outputs (electric battery relay 230 VAC/2 analog outputs 0-10 VDC/2 TRIAC outputs 230 VAC/3 fan speed outputs)
- Temperature control by regulating heating and cooling (using a valve and an electric heater)
- Limiting electric heater (load shedding)
- Control of ventilation : 3 speed or variable fan (EC)
- Valves management : On/off , 3 – pin , 0-10V
- Air quality management by controlling an air damper
- Pulse counting
- Presence detection management
- Limiting high and low discharge temperatures
- Latest generation processor LON FT5000 eliminating LNS costs.
- Integration into a global HVAC management solution (controllers + accessories) and energy savings enhancement
- Integrated into a multi-discipline solution too, (communication with lighting and sunblind controllers through the LONWORKS® network).
- Eu.bac certified solutions ensuring users an optimal energy efficiency and quality in buildings, certifying solutions meeting the strictest guidelines of European Directives and Standards.

Accessories :

LONWORKS accessories

RC-LCD-DC :
Wall mounted LCD remote control

RC-4F-DC :
Wall mounted remote control

BACNET accessories

SMART VIEW :
Wall mounted LCD remote control

SMART COMFORT :
Wall mounted remote control

Common to LONWORKS and BACNET

RC-IR-DC :
Infrared technology remote control

RC-RF-DC :
Radio technology remote control

COMMUNICATING CONTROLLERS

KNX PROTOCOL :

- KNX communication.
- Operating voltage : 24V
- Backlit display
- PI/P control
- Output for ON/OFF, PWM, 3-position or DC 0-10V, output valve
- 0-10V output for EC fan
- 3 multifunctional inputs for keycard contact, external sensor, etc...
- Operating modes : Comfort, Economy and Protection
- Automatic or manual adjustment of the fan speed
- Automatic or manual heating/cooling change-over
- Minimum and maximum limitation of the room temperature setpoint
- Control depending on the room temperature or the return air temperature
- Adjustable commissioning and control parameters.

REMOTE CONTROLS

Stand alone controls

Main applications

- Office buildings
- Residential buildings
- Light industrial buildings

Description :

- Electronic remote controls
- For heating and cooling systems
- Designed to satisfy any request of control and to be the most efficient solutions in terms of comfort and energy saving

Accessories :

LXSTLD01M : Remote sensor suitable for LXTFF01M and LXTFZ01M. Two sensors can be connected in order to have the following functions ;

- Change-over and minimum temperature thermostat
- Remote temperature control (air return or ambient temperature)

DIGITAL THERMOSTAT :

. LXTFZ01M for EC MOTOR FAN COIL
. LXTFF01M for 3 SPEED MOTOR FAN COIL

- Digital configurable thermostat with automatic or manual fan speed selection (LCD shows all set functions).
- Manual, automatic or centralized heating/cooling with an external input selection; dead zone function and changeover based on supply water.
- Special functions: Economy, Dirty Filter Warning, Window contact.
- Facility for remote sensor and supply water pipe sensor
- **LXTFZ01M** : Possibility to control valves or fan or both. Suitable for 0-10V actuators, resistor and heat pump control.
- **LXTFF01M** : Possibility to control valves or fan or both. Suitable for On/Off, PWM, Floating actuators, resistor and heat pump control.

LENNOX
EMEA

MODULAR AIR HANDLING UNIT

EUROVENT CERTIFIED PERFORMANCE
AHU Nr 09.12.446
CLEANAIR LX
www.eurovent-certification.com

LENNOX participates in the ECP programme for AHU.
Check ongoing validity of certificate :
www.eurovent-certification.com

CLEANAIR LX

- Available in 44 sizes,
  with total pressure up to 2.500 Pa
- Modular unit
- Aluminium frame with 60 mm sandwich panels
- EN 1886 classification for standard construction

Airflow rate:
1000 - 100000 m³/h

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

LENNOX

Modular air handling unit

CLEANAIR LX

1000 → 100000 m³/h

Main applications

- Food and non food retail, shopping malls (airports restaurants, shops, ...)
- Industrial buildings
- Hospitals

Description :

- Modular air handling units
- Adapted to any air treatment application : ventilation, filtration, heating, cooling, humidity and recovery, and allowing the best choice in relation to the requested face velocity
- Wide range : 44 sizes from 1 000 up to 100 000 m³/h with total pressures up to 2 500 Pa (28 basic sizes and 16 low profile sizes)
- **CLEANAIR LX** units developed and dimensioned in length, width and height, using a module of 160 mm
- If necessary, distinctly rectangular cross-section fitted with ow profile units, in order to reduce the height while increasing the width

Main components :

Base frame :

- Galvanized steel “C” shaped frame 2,5 mm thickness according to the unit length. Unit supplied with four corner feet with lifting holes suitable for 2” diameter thickness walled steel pipe

Frame and panels :

- Frame and panel structure developed with particular care on thermal insulation and resistance
- Casing in aluminium with 60 mm sandwich panels, insulated with injected polyurethane to 45 kg/m³ density or mineral wool to 90 kg/m³ density
- Internal surface of the unit is completely smooth and no screws are visible inside the unit
- Gasket between the panels to ensure airtight seal, to eliminate thermal bridges, to reduce air leakages and to eliminate dust accumulation
- 3 way corner joint in glass fibre reinforced nylon
- EN 1886 Classification for standard construction:
  - Mechanical resistance: D1
  - Leakage : L1/L2
  - Filter by-pass: F9
  - Transmittance: T2
  - Thermal bridges: TB2 or TB3 or TB4 depending on the casing (see selection data sheet)
- Auxiliary drain pan in ABS and connected with the main drain pan to collect condensate of heat exchanger and control valve(s).
- Externally positioned control board : easily accessible

Available configurations :

- **Recovery sections :** heat recovery module available in R/A coils, cross flow, heat wheel and heat pipes, heat wheels and run around coils.
- **Fan sections:**
  Includes fan, electric motor, motor slide rail, belt driven transmission, base frame with anti-vibrating mounts, flexible connection on the fan outlet, earthing cable on the fan and motor base frame.
  Also possible to install direct driven plug fan with AC motor and inverter or EC motor or EC fan wall (multi-fan)
- Empty sections
- Mixing box with external or internal damper
- 3-way in line mixing box external or internal damper

Options :

- **Coils:**
  Water, direct expansion, steam and electric coils, housed in a separate section on slide rails.
  On request, ARI certified coils.
  Factory tested at 30 Bar by injecting with dry air while the coil is immersed in water.
  Electric coils supplied with safety thermostat with manual reset.
- **Drain pans:**
  Condensate drain pans in aluminium or stainless steel
  Can be inclined to ensure complete drainage (option).
- **Safety devices:**
  Motors fitted on belt tensioning skid provided with manual adjustment.
  Transmission achieved by V-belt and pulleys
- Roof (aluminium alloy perimetral rain shelter suitable for outdoor unit application, with PVC joints covers and man-safe covers on the angles)
- **Inspection doors** with nylon hinges and handles.
  Optionally supplied with inner handle and keyed lock.
  May be supplied with dual well sight glass made of polycarbonate along with bulk light bulb.
- **Dampers :** aluminium airfoil shaped, provided with nylon gears.
  Optionally supplied with manual operated control or suitable linkages for motorized control application

- Flexible connections, DIN certified
- **Filters:**
  Medium efficiency flat filters
  Medium efficiency bag filters (loose or rigid)
  Medium efficiency roll filters
  High efficiency bag filters (loose or rigid)
  High efficiency rigid bag filters
  HEPA filters
  Activated carbon filters
- Droplet eliminators, in several materials
- **Humidifiers:** adiabatic, recirculated, steam generators, atomized water, air washers with single or twin spray nozzle bank.
- **Gas fired burner** : Available as standard with CIB unigaz or WEISHAUPT burner, for gas and fuel.
- **Built-in control :** This range can be delivered with full control managed by CAREL controller – with communication possibility in common protocole : Modbus, LonWorks, BACnet, TCP/IP – SNMP, TREND

LENNOX
EMEA

UNIT HEATER AND DESTRATIFIER FAN

AXIL EQUITHERM

- High heating performances
- Long lasting and sturdy coils
- Easy and quick to install

Airflow rate:
12 - 105 kW

ErP COMPLIANT
DIRECTIVE 2009/125/EC
ECODESIGN

LENNOX

Unit heater/Destratifier fan

AXIL EQUITHERM 12 → 105 kW

Main applications

- Industrial buildings
- Large surfaces

Description :

AXIL unit heaters and EQUITHERM destratifier fan

- Suitable to any industrial building or large surface
- Very high performances thanks to their advanced engineering
- Operating limits :
  . 120°C – 16 bars hot water for AXIL and AXIL F
  . 210°C – 20 bars steam and superheated water

Available configurations :

- **AXIL:** hot water version
- **AXIL F:** chilled water version
- **AXIL Z:** electrical heating version
- **AXIL V:** steam heating and superheated water version
- **EQUITHERM:** destratifier fans without heating

Main components :

AXIL unit heaters and EQUITHERM destratifier fan

- Main casing in galvanized prepainted steel finished in dove grey
- Hermetically sealed motor (three phase 230/400V/50 Hz), fan and finger proof guard
- Heat exchangers of Axil and Axil F with 3/8" OD copper tubes and aluminium fins
- Heat exchangers of Axil V with 22 mm OD steel tubes and aluminium fins

Accessories :

- Control for EQUITHERM (thermostat + protection)
- Motor 1 speed (6P) 230/1/50 Hz
- Motor 1 speed (4P) 230/1/50 Hz
- Star/Delta switch
- Control without clock - 2 speeds/2 setpoints/Antifreeze protection suplied without thermostats
- Control with electromechanical clock - 2 speeds/2 setpoints/Antifreeze protection supplied without thermostats
- Control with digital clock - 2 speeds/2 setpoints/ Antifreeze protection supplied without thermostats
- 2 speeds manual control
- 2 speeds automatic control - With thermostat
- AXIL Z : 2/3 manual power step control - with electronic thermostat
- AXIL Z : 2/3 automatic power step control - with electronic thermostat
- Remote control board for motorized Jetstream
- Wall bracket
- Multidirectional diffuser
- High air stream diffuser
- Air curtain diffuser
- Return air duct with or without filter
- Return air duct with mixing damper with or without filter
- Return air plenum with or without filter
- Return air plenum with damper with or without filter
- Mixing box with flaps (Manual operation) with or without filter
- Mixing box with dampers with or without filter
- Outdoor air intake grill
- Straight duct for full fresh air introduction
- Rain hood
- Straight duct
- Additional protection grill
- Jetstream VERTICAL or CEILING install/manual or with actuator

General data

AXIL		402-4	403-4	404-4	502-4	503-4	504-4	602-4	602-6
Technical information									
Airflow rate	m³/h	2300/1600	2200/1500	2000/1400	3950/2550	3800/2500	3400/2150	6500/4500	4500/3700
Heating capacity	kW	15,0/12,1	20,4/16,2	23,6/18,8	25,2/20,9	34,8/27,2	40,4/30,4	42,3/34,1	34,1/30,1
Number of rows		2	3	4	2	3	4	2	2
Motor poles		4/6	4/6	4/6	4/6	4/6	4/6	4/6	6/8
Fan speed	rpm	1350/950	1350/950	1350/950	1350/950	1350/950	1350/950	1350/950	950/700
Water connection		1 "	1 "	1 "	1 "	1 "	1 "	1"1/4	1"1/4
Sound pressure level at 5 m	dB(A)	59/51	59/51	59/51	64/54	64/54	64/54	69/60	60/52
Air throat – Horizontal discharge									
Height - High speed	m	3-4	3-4	3-4	3,5-4,5	3,5-4,5	3,5-4,5	4,5-6	4-5,5
Height - Low speed		2,5/3,5	2,5 - 3,5	2,5 - 3,5	3-4	3-4	3-4	4-5,5	3,5-5
Air throat - High speed		11	10	9,5	16	15	14	25	18
Air throat - Low speed		7,5	7,5	7	12	10	9	19	15
Air throat – Vertical discharge									
Height - High speed	m	4,5	4,5	4,5	5,5	5,5	5,5	7	6
Height - Low speed		3,5	3,5	3,5	4,5	4,5	4,5	6	5,5
Air throat - High speed		60	58	56	80	75	70	145	110
Air throat - Low speed		45	43	41	60	55	50	125	90

AXIL		603-4	603-6	604-4	604-6	902-6	903-6	904-6
Technical information								
Airflow rate	m³/h	6200/4350	4350/3600	5500/4000	4000/3150	9500/7200	9100/6000	8500/6500
Heating capacity	kW	58,1/47,3	47,3/41,3	69,8/53,5	53,5/45,5	73,1/63,1	96,0/82,0	111,9/89,9
Number of rows		3	3	4	4	2	3	4
Motor poles		4/6	6/8	4/6	6/8	6/8	6/8	6/8
Fan speed	rpm	1350/950	950/700	1350/950	950/700	950/700	950/700	950/700
Water connection		1"1/4	1"1/4	1"1/4	1"1/4	1"1/2	1"1/2	1"1/2
Sound pressure level at 5 m	dB(A)	69/60	60/52	69/60	60/52	68/62	68/62	68/62
Air throat – Horizontal discharge								
Height - High speed	m	4,5-6	4-5,5	4,5-6	4-5,5	4-6	4-6	4-6
Height - Low speed		4-5,5	3,5-5	4-5,5	3,5-5	3,5-5,5	3,5-5,5	3,5-5,5
Air throat - High speed		23	16	22	15	28	25	22
Air throat - Low speed		17	13	18	12	21	18	15
Air throat – Vertical discharge								
Height - High speed	m	7	6	7	6	11	11	11
Height - Low speed		6	5,5	6	5,5	9	9	9
Air throat - High speed		135	100	125	90	200	180	160
Air throat - Low speed		115	80	105	70	160	140	120

(1) Air inlet temperature = 12°C / Hot water temperature = 90/70°C

AXIL F		403-4	404-4	503-4	504-4	603-6	604-6	903-6	904-6
Technical information									
Airflow rate	m³/h	1600	1600	2500	2500	3600	3600	6900	6900
Total cooling capacity (1)	kW	4,8	5,7	8,2	9,6	12,5	14,4	22,7	25,6
Sensible cooling capacity (1)	kW	3,4	4,0	5,9	6,6	8,7	9,7	16,0	17,5
Number of rows		3	4	3	4	3	4	3	4
Motor poles		4/6	4/6	4/6	4/6	6/8	6/8	6/8	6/8
Fan speed	rpm	1350/950	1350/950	1350/950	1350/950	950/700	950/700	950/700	950/700
Sound pressure level at 5 m	dB(A)	51	51	54	54	52	52	62	62
Air throat – Horizontal discharge									
Height	m	2,5/3,5	2,5/3,5	3-4	3-4	3,5-5	3,5-5	3,5-5,5	3,5-5,5
Air throat		7,5	7	10	9	13	12	18	15

(1) Air inlet temperature = 26°C/55% - Chilled water temperature = 7/12°C

General data

AXIL Z		414	524	639
Airflow rate	m³/h	1560	2910	4790
Electrical heater capacity	kW	14 (7+7)	24 (12+12)	39 (3 x 13)
Air temperature increase	°K	25,7	23,6	23,3
Stages		2	2	3
Motor poles		6	6	6
Fan speed	rpm	900	900	900
Sound pressure level at 5 m	dB(A)	51	54	60

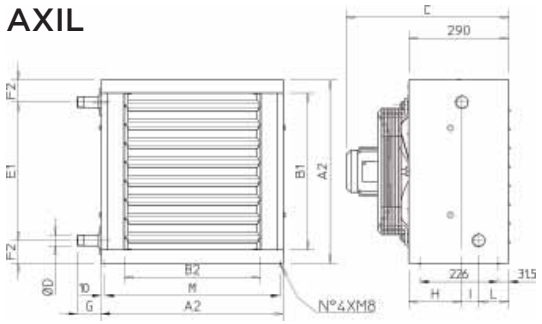
AXIL V		402-4	502-4	602-4	902-6
Technical information					
Airflow rate	m³/h	2100/1400	3600/2400	6300/4100	9200/7000
Heating capacity (steam 8 bs)	kW	18,6/15,1	29,9/24,6	49,6/40,3	87,7/78,4
Heating capacity (water 120/100)	kW	32,1/26,2	52,2/43,2	87,2/70,3	154,6/138,6
Number of rows		2	2	2	2
Motor poles		4/6	4/6	4/6	6/8
Fan speed	rpm	1350/950	1350/950	1350/950	950/700
Sound pressure level at 5 m	dB(A)	59/51	64/54	69/60	68/62
Air throat – Horizontal discharge					
Height - High speed	m	3-4	3,5-4,5	4,5-6	4-6
Height - Low speed		2,5/3,5	3-4	4-5,5	3,5-5,5
Air throat - High speed		11	16	25	28
Air throat - Low speed		7,5	12	19	21

(1) Air inlet temperature = 12°C

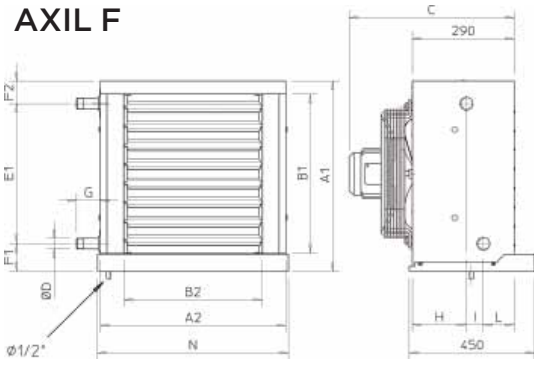
EQUITHERM		404	406	504	506	604	606	906	908
Airflow rate	m³/h	2500	1700	4200	3000	7500	5200	13000	8500
Motor poles		4	6	4	6	4	6	6	8
Fan speed	rpm	1400	900	1400	900	1400	900	900	700
Installation height	m	5 - 7	3 - 6	7 - 10	6 - 8	7 - 12	6 - 10	8 - 12	6 - 10
Sound pressure level at 5 m	dB(A)	59	51	64	54	69	60	68	62

Dimensions and weights

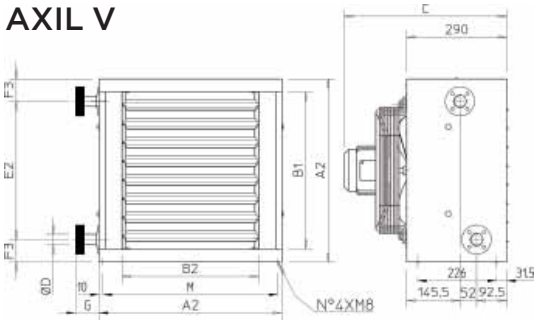
AXIL



AXIL F



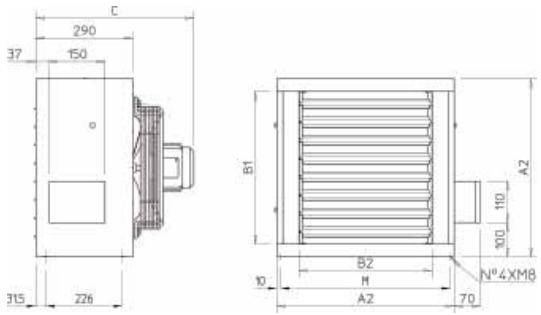
AXIL V



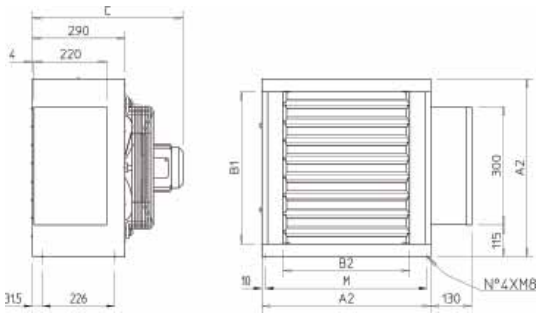
Dimension data on next page

Dimensions and weights

AXIL Z



Without control

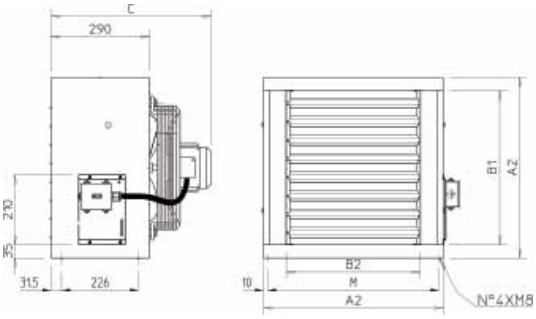


With control

AXIL Z		414	524	639
A2	mm	526	636	743
B1		450	550	641
B2		394	500	610
C		468	468	468
M		506	616	723

AXIL Z		414	524	639
Weight without control	kg	22	30	38
Weight with control		24	32	40

EQUITHERM



EQUITHERM		400	500	600	900
A2	mm	526	636	743	1011
B1		450	550	641	885
B2		394	500	610	875
C		468	468	468	576
M		506	616	723	991
Weight	kg	14	20	25	42

AXIL - AXIL F - AXIL V

AXIL / -V / -F		4...	5...	6...	9...
A1	mm	537	647	754	1022
A2		526	636	743	1011
B1		450	550	641	885
B2		394	500	640	875
C		468	468	468	576
Ø D		1"	1"	1" 1/4	1" 1/2
E1	mm	397	467	588	832
E2		330	467	588	832
F1		75,5	80,5	88,5	100,5

AXIL / -V / -F		4...	5...	6...	9...
F2	mm	64,5	69,5	77,5	89,5
F3		98	69,5	77,5	89,5
G		69	69	60	91,5
H		154	154	154	150
I		48	48	48	50
L		88	88	88	90
M		506	616	723	991
N		542	650	758	1026

AXIL / -V / -F			4...	5...	6...	9...
Water						
Content	2R	l	1,4	2,1	3,1	6,1
	3R		1,9	2,9	4,3	8,4
	4R		2,7	4	5,7	11,2
Weight	2R	kg	22	25	34	81
	3R		23	28	39	90
	4R		25	32	45	100
Steam						
Content		l	2,5	4,5	5,9	12
Weight		kg	30	38	51	92

Close control units

Telecom unit

@DNOVA
2,5 → 38 kW 174

Close control unit

INNOV@
6 → 240 kW 177

INNOV@ ENERGY INVERTER
3 → 90 kW 182

INNOV@ DFCDR & DSCDR
57 → 266 kW 185

"in Row" close control unit for high density systems

R@CKCOOLAIR
3 → 75 kW 188

Ranges non subject to the ErP directive

LENNOX
EMEA

TELECOM UNIT

@DNOVA

- Energy efficiency
- Reliability
- High quality

Cooling capacity:
2,5 - 38 kW

Range non subject to the ErP directive

LENNOX

Telecom unit

@DNOVA

2,5 → 38 kW

Main applications

- Telecom shelters

THS

THN

THX

Description :

- Designed for **inside or outside installation of Telecom shelters**
- Used for efficient and reliable management of temperature of technological environments with high thermal loads
- Configurations :
  - **. THN :** Wall mounted packaged indoor unit (Upflow/Downflow/Displacement)
  - **. THX :** Wall mounted packaged outdoor unit (Upflow/Downflow on request for several models)
  - **. THX D :** Wall mounted packaged outdoor unit (Downflow)
  - **. THS :** Ceiling mounted split unit
- Easy installation
- Components are fully accessible from the front of the units
- Fitted as standard with Basic Microprocessor with LCD display.

Main components :

- Unit supports made of thick galvanised sheet
- Outer part in aluminium alloy 5005 (THX) or in painted galvanized sheet metal (white) (THN, THS)
- Refrigerant circuit manufactured according to the PED 2014/68/UE, and relevant components certified according to the same directive
- Rotary or scroll compressors available in refrigerant HFC (R410A, R134a, R407C)
- Centrifugal fans, with backward curved blades and single intake
- Evaporator made of copper tubes and aluminium fins (steel).
- Galvanized drip tray as standard (stainless steel as an option)
- Condensing axial fan (THX, THS) with 6 poles motor to limit the sound emissions

Options :

- Emergency Free-cooling
- Dual power supply
- Potential free contacts for alarms
- Epoxy condenser coating
- High sensible heat ratio
- Electronic expansion valve
- EU4 filtration + clogged filter
- Free-cooling
- Microprocessor
- Electronic condenser fans speed control Interconnectivity (ModBus, TCP/IP, Bacnet ...)

General Data

@DNOVA - THN - R410A		045H	056H	073H	090H	105H	120H	150H	170H	180H	200H	220H	250H
Total cooling capacity (1)	kW	4,3	6	7	10,8	10,6	12,7	14,9	16,3	17,8	20,9	24,8	27,9
Sensible cooling capacity		4,3	5,4	6,6	10,6	10,6	11,5	14,7	15,4	17,8	20,9	24,8	26,2
Sensible heat ratio		1	0,9	0,95	0,99	1	0,91	0,99	0,95	1	1	1	0,94
Number of scroll compressors (2)		1r											
Airflow rate	m^3/h	1450	1450	2100	3020	3020	3020	3800	3800	5500	5500	6500	6500
Sound power level	dB(A)	69	69	69	72	72	72	72	72	80	80	81	82
Sound pressure level (10 m free field)		41	41	41	44	44	44	44	44	52	52	53	54
Height	mm	1850	1850	1850	1850	1850	1850	1850	1850	2050	2050	2050	2050
Width		800	800	800	1000	1000	1000	1160	1160	1500	1500	1500	1500
Depth		550	550	550	550	550	550	550	550	800	800	800	800

@DNOVA - THX - R410A		045H	056H	073H	0902H	090H	105H	1102H	120H	145H	1302H	230H	290H
Total cooling capacity (1)	kW	4,2	5,9	4,1	8	10	10,8	11,2	12,7	14,4	14,2	23	28,9
Sensible cooling capacity		4,2	5,1	6,5	8	9,2	10,7	9,5	11,5	13,2	12,5	23	27,2
Sensible heat ratio		1	0,88	0,92	1	0,92	0,99	0,85	0,91	0,92	0,88	1	0,94
Number of scroll compressors (2)		1r	1	1	2	1	1	2	1	1	2	2	2
Airflow rate	m^3/h	1450	1450	2150	2800	3020	3020	2800	3020	3020	2800	6500	6500
Sound power level	dB(A)	69	70	70	72	71	71	72	71	74	74	82	82
Sound pressure level (10 m free field)		42	43	43	45	44	44	45	44	46	46	51	51
Height	mm	1580	1580	1580	1790	1630	1630	1790	1790	1790	1790	2050	2050
Width		804	804	804	1000	1000	1000	1000	1000	1000	1000	1600	1600
Depth		498	498	498	596	596	596	596	596	596	596	815	815

@DNOVA - THXD - R410A		0045H	0056H	0073H	0090H	0105H	0120H	0145H
Total cooling capacity (1)	kW	4,3	5,9	6,6	9,1	10,2	12,6	13,3
Sensible cooling capacity		4,3	5,3	5,6	7,28	10,2	11,8	12,2
Sensible heat ratio		1	0,9	0,85	0,8	1	0,94	0,92
Number of scroll compressors (2)		1r	1	1	1	1	1	1
Airflow rate	m^3/h	1400	1400	1400	1400	3200	3200	3200
Sound power level	dB(A)	69	70	70	70	71	71	74
Sound pressure level (10 m free field)		41	43	43	43	44	44	46
Height	mm	1040	1040	1040	1040	1040	1040	1040
Width		2145	2145	2145	2275	2275	2275	2275
Depth		730	730	730	730	730	730	730

@DNOVA - THS - R410A		025H	035H	045H	056H	073H	090H	105H	120H	145H	310H	381H
Total cooling capacity (1)	kW	2,9	4,1	4,6	6,3	7,6	9,8	10,5	13,4	15,3	31,2	39,2
Sensible cooling capacity		2,9	4	4,6	5,6	7,2	9	9,3	12,3	13,1	30,5	34,5
Sensible heat ratio		1	0,99	1	0,89	0,95	0,92	0,89	0,92	0,86	0,98	0,88
Number of scroll compressors (2)		1r	1r	1r	1	1	1	1	1	1	1	1
Evaporator airflow rate		950	930	1400	1400	2300	2300	2300	3200	3200	7750	7750
Condensor airflow rate		2250	2050	3450	3350	3350	5100	5100	5580	5450	9300	16280
Sound power level		62	65	65	67	68	65	71	68	70	73	75
Sound pressure level (10 m free field)		34	37	37	39	40	37	42	40	42	45	47
Indoor unit												
Height	mm	350	350	350	350	350	350	350	400	400	685	675
Width		590	590	990	990	990	990	990	1090	1090	1090	1090
Depth		1040	1040	1040	1040	1040	1040	1040	1140	1140	1500	1500
Outdoor unit												
Height	mm	580	580	630	630	630	630	630	1128	1128	1300	1485
Width		600	600	990	990	990	990	990	1120	1120	1565	1990
Depth		350	350	360	360	360	360	360	578	578	600	950

(1) Indoor conditions 27°C/40% / Outdoor temperature : 35 °C
(2) 1r means Rotary compressor

LENNOX
EMEA

CLOSE CONTROL UNIT

INNOV@

- Energy efficiency
- Reliability
- High quality
- Full frontal access

Cooling capacity:
DX: 6 - 128 kW
CW: 8 - 240 kW

Range non subject to the ErP directive

LENNOX

Close control unit

INNOV@

DX : 6 → 128 kW

CW : 8 → 240 kW

Main applications

- Computer rooms
- Data centers

Description :

- **Perfect answer to all technical requirements of different technological plant concepts (computer rooms, datacenters, control rooms, EDP rooms, textile industry, metrological rooms, etc ...)**
- Exclusive design with rounded edges, innovative colour and excellent performances
- High energy efficiency, small dimensions and low noise levels: INNOV@ series are designed to operate 24 hours a day, 365 days a year
- Configurations :
  - . Downflow version
  - . Upflow version
  - . Displacement version
- Operating modes
  - . Air cooled with remote condenser
  - . Water cooled with remote dry-cooler
  - . Water cooled for city tap water
  - . Chilled water
- Indirect free-cooling
  - . Water cooled with remote dry-cooler and indirect free-cooling
- Dual cooling units
  - . Air cooled with remote condenser and chilled water coil
  - . Water cooled with remote dry-cooler and chilled water coil
  - . Water cooled for city tap water and chilled water coil
- Control
  - . INNOV@ range equipped with microprocessor control, allowing to connect up to 8 units together creating a local network (LAN) and allowing, among different options, to balance operation times in an automatic stand by and rotation function.

Main components :

- Only internationally recognised quality components and latest technology devices are used in the INNOV@ series
- All main components (electrical panel, compressor, fans, humidifier, electrical heaters, expansion valve and liquid flow filter) reachable from the front of the unit in order to reduce costs for installation and maintenance.

Accessories :

- Dual fluid
- Potential free alarms contacts
- Water detection kit
- Flash memory
- Microprocessor
- Electronic condenser fans speed control
- Interconnectivity (ModBus, TCP/IP, Bacnet ...)
- Touch screen graphic display

General data

DM RANGE / Air cooled and water cooled INNOV@ DX

INNOV@ DX - R410A			0060	0080	0100	0110	0130	0132	0160	0190	0205	0212
Airflow rate		m^3/h	1785	2150	3530	3530	3700	3700	5100	5100	5100	5100
Maximum available static pressure		Pa	776	725	624	624	574	574	292	292	292	292
Number of radial EC fan			1									
Total cooling capacity	Air cooled unit (1)	kW	6,6	8	10,4	11,7	13,8	12,8	17	19,7	22	22,3
	Water cooled unit (2)		6,7	8,1	10,5	11,6	13,9	13,2	16,6	19,5	21,5	22,7
Sensible heat ratio	Air cooled unit		0,98	0,98	1	0,98	0,9	0,92	0,99	0,95	0,9	0,89
	Water cooled unit		0,97	0,97	1	0,98	0,9	0,9	0,99	0,96	0,91	0,88
Number of scroll compressors/Number of circuits			1/1	1/1	1/1	1/1	1/1	2/2	1/1	1/1	1/1	2/2
Height		mm	1875									
Length			600	600	900	900	900	900	900	900	900	900
Depth			600									
Weight	Air cooled unit	kg	150	157	195	210	230	230	245	255	260	264
	Water cooled unit		165	172	214	231	253	253	269	280	286	291
Sound pressure level (3)		dB(A)	47	49	52	52	53	53	55	56	56	56

Performances given considering units installed in combination with the suggested remote condenser and with 35°C outside air temperature

(1) Indoor conditions 24°C/50%.

(2) Indoor conditions 24°C/ 50% - Water temperature 7/12°C

(3) 1,5 meter above and 2 meters from the unit in free field – downflow units (30 Pa AESP), nominal airflow rate, compressor speed 50Hz

DM-R RANGE / Chilled water INNOV@

INNOV@ CW		0150	0170	0210	0250	0270	0320
Airflow rate	m^3/h	4130	4130	4130	6130	6060	5930
Total cooling capacity (1)	kW	14,6	17	21,2	24,8	27,2	31,7
Sensible heat ratio		0,9	0,88	0,9	0,84	0,86	0,8
Height	mm	1998					
Width		600	600	600	900	900	900
Depth		600					
Weight	kg	139	143	150	173	180	195
Sound pressure level (2)	dB(A)	59	60	61	62	62	62

(1) Indoor conditions 24°C/ 50%.- Water temperature 7/12°C

(2) 1,5 meter above and 2 meters from the unit in free field – downflow units (30 Pa AESP), nominal airflow rate, compressor speed 50Hz

DM-C RANGE / Chilled water INNOV@

INNOV@ CW		0080	0110	0140	0160	0200	0230
Airflow rate	m^3/h	1785	2150	3530	3470	5115	4990
Total cooling capacity (1)	kW	6,9	10	12,8	14,5	18	20,8
Sensible heat ratio		0,87	0,85	0,88	0,87	0,87	0,85
Height	mm	1875	1875	1875	1875	1875	1875
Width		600	600	900	900	1200	1200
Depth		449	449	449	449	449	449
Weight	kg	125	135	150	160	170	175
Sound pressure level (2)	dB(A)	48	50	51	51	52	52

(1) Indoor conditions 24°C/ 50%.- Water temperature 7/12°C

(2) 1,5 meter above and 2 meters from the unit in free field – downflow units (30 Pa AESP), nominal airflow rate, compressor speed 50Hz

DH RANGE / Air cooled and water cooled INNOV@ DX

INNOV@ DX - R410A			0201	0251	0272	0281	0302	0311	0362	0401	0422
Airflow rate		m^3/h	6800	6800	12950	7280	12950	7280	12950	12950	12950
Maximum available static pressure		Pa	650	650	686	549	686	549	686	686	686
Number of radial EC fan			1	1	2	1	2	1	2	2	2
Total cooling capacity	Air cooled unit (1)	kW	22,9	25,4	27,3	30,2	35,3	34	38,9	40,9	43,2
	Water cooled unit (2)		23,4	25,5	28,3	29,9	34,3	32,4	39,7	43,9	44
Sensible heat ratio	Air cooled unit		0,99	0,97	1	0,92	1	0,86	0,99	0,98	0,96
	Water cooled unit		0,97	0,95	1	0,92	1	0,88	0,99	0,96	0,94
Number of scroll compressors/Number of circuits			1 / 1	1 / 1	2 / 2	1 / 1	2 / 2	1 / 1	2 / 2	1 / 1	2 / 2
Height		mm	1998								
Length			1010	1010	1760	1280	1760	1280	1760	1760	1760
Depth			805	805	805	805	805	805	805	805	805
Weight	Air cooled unit	kg	375	385	565	394	580	401	590	552	605
	Water cooled unit		412	723	621	433	638	442	649	611	665
Sound pressure level (3)		dB(A)	55	56	59	58	61	58	62	63	65

DH RANGE / Air cooled and water cooled INNOV@ DX

INNOV@ DX			0452	0532	0592	0602	0692	0762	0852	1002	1204
Airflow rate		m^3/h	12950	14150	14150	19415	19415	19415	21500	21500	24000
Maximum available static pressure		Pa	686	539	539	667	667	667	245	245	492
Number of radial EC fan			2	2	2	3	3	3	2	2	3
Total cooling capacity	Air cooled unit (1)	kW	49,4	58,1	63,9	65,3	75,4	84,6	88,1	99,9	126,9
	Water cooled unit (2)		48,4	56	61,5	65,7	73,4	80,3	85,7	97,7	130,7
Sensible heat ratio	Air cooled unit		0,91	0,9	0,85	0,89	0,89	0,85	0,93	0,86	0,81
	Water cooled unit		0,9	0,88	0,85	0,88	0,86	0,84	0,93	0,86	0,8
Number of scroll compressors/Number of circuits			2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	4 / 2
Height		mm	1998								
Length			1760	2030	2030	2510	2510	2510	2510	2510	3160
Depth			805	805	805	805	805	805	950	950	950
Weight	Air cooled unit	kg	615	740	905	940	958	979	1001	1013	1390
	Water cooled unit		376	985	995	1034	1053	1076	1099	114	1529
Sound pressure level (3)		dB(A)	65	67	67	68	68	68	76	76	79

Performances given considering units installed in combination with the suggested remote condenser and with 35°C outside air temperature
(1) Indoor conditions 24°C/ 50%.
(2) Indoor conditions 24°C/ 50%.- Water temperature 7/12°C
(3) 1,5 meter above and 2 meters from the unit in free field – downflow units (30 Pa AESP), nominal airflow rate, compressor speed 50Hz

DH RANGE / Chilled water INNOV@

INNOV@ CW		0300	0380	0400	0450	0500	0550	0650	0750
Airflow rate	m^3/h	7450	7450	7450	8233	9120	9120	14550	14550
Maximum available static pressure	Pa	609	557	557	328	305	305	576	541
Number of radial EC fan		1	1	2	1	2	1	2	2
Total cooling capacity (1)	kW	26,2	40,3	41,4	47,9	51,8	53,5	70,9	81,1
Sensible heat ratio		0,94	0,8	0,92	0,81	0,92	0,77	0,83	0,79
Height	mm	1998							
Length		1010	1010	1750	1270	1750	1270	1760	1760
Depth		805							
Weight	kg	310	350	370	360	410	395	430	475
Sound pressure level (2)	dB(A)	58	60	60	62	63	63	62	62

INNOV@ CW		0890	0900	1000	1090	1200	1500	1800	2100
Airflow rate	m^3/h	18020	21400	18961	18020	21400	26200	26200	39864
Maximum available static pressure	Pa	271	30	578	238	543	124	110	153
Number of radial EC fan		2	2	2	2	3	2	2	3
Total cooling capacity (1)	kW	93,3	81,1	110,4	109,6	125,4	150,6	165,4	232,1
Sensible heat ratio		0,8	0,89	0,8	0,76	0,77	0,78	0,75	0,75
Height	mm	1998							
Length		2020	2500	2500	2020	2510	2510	2510	3160
Depth		805	805	805	805	805	950	950	950
Weight	kg	470	490	510	497	530	720	753	785
Sound pressure level (2)	dB(A)	66	63	64	67	65	71	72	74

(1) Indoor conditions 24°C/ 50%.- Water temperature 7/12°C
(2) 1,5 meter above and 2 meters from the unit in free field – downflow units (30 Pa AESP), nominal airflow rate, compressor speed 50Hz

LENNOX
EMEA

CLOSE CONTROL UNIT

INNOV@ ENERGY INVERTER

- Energy efficiency
- Reliability
- High quality

Cooling capacity:
3 - 90 kW

Range non subject to the ErP directive

LENNOX

Close control unit

INNOV@ ENERGY INVERTER 3 → 90 kW

Main applications

- Computer rooms
- Data centers

Description :

- **Close control air conditioning units with modulating cooling capacity for computer room and datacenter solutions**
- e-Drive technology to optimize cooling capacity, especially in X-treme density environments where the cooling capacity is normally lower than the design value
- High flexibility thanks to modulating cooling capacity from 25 – 100%, combined with quick reaction against heat load variation [6 Hz/second].
- EC motors, on fans and on compressors to maximize the energy savings
- High energy efficiency, small dimensions and low noise levels: INNOV@ ENERGY series are designed to operate 24 hours a day, 365 days a year
- Configurations :
  . Downflow version
  . Upflow version
  . Displacement version
- Control
  . **INNOV@ ENERGY** range equipped with microprocessor control, allowing to connect up to 8 units together creating a local network (LAN) and allowing, among different options, to balance operation times in an automatic stand by and rotation function.

Main components :

- Only internationally recognised quality components and latest technology devices are used in the **INNOV@ ENERGY** series
- All main components (electrical panel, compressor, fans, humidifier, electrical heaters, expansion valve and liquid flow filter) reachable from the front of the unit in order to reduce costs for installation and maintenance.

Accessories :

- Freecooling optional (direct / indirect)
- Potential free alarms contacts
- Water detection kit
- Full frontal access
- Flash memory
- Microprocessor
- Electronic condenser fans speed control
- Interconnectivity (ModBus, TCP/IP, Bacnet...)
- Dataweb
- Touch screen graphic display

eDrive™

General Data

INNOV@ ENERGY INVERTER - R410A		0091	0131	0241	0341	0462	0682	0902
Airflow rate	m³/h	2150	3700	6800	7280	14150	19420	22500
Maximum available static pressure	Pa	726	574	650	549	539	667	230
Radial-EC fan		1	1	1	1	2	3	2
Compressor frequency : 30 Hz								
Total cooling capacity (1)	kW	3	3,9	7,3	12,1	14,3	24,2	30,8
Sensible heat ratio		1,00						
Compressor frequency : 70 Hz								
Total cooling capacity (1)	kW	6,6	8,6	16,9	23,9	32,2	49,5	62,4
Sensible heat ratio		1,00						
Compressor frequency : 120 Hz								
Total cooling capacity (1)	kW	9	12	24	35,7	46,3	72,1	84,6
Sensible heat ratio		0,9	0,95	0,96	0,83	0,99	0,91	0,91
EC motor compressors		1 x Twin-Rotary		1 x Scroll		2 x Scroll		
Height	mm	1875	1875	1998	1998	1998	1998	1998
Width		600	900	1010	1280	2030	2510	2510
Depth		600	600	795	795	795	795	950
Weight	kg	157	230	375	605	632	979	1013
Sound pressure level (2)	dB(A)	49	53	55	58	65	66	61

Performances given considering units installed in combination with the suggested remote condenser and with 35°C outside air temperature

(1) Indoor conditions 24°C/ 50%.

(2) At 1,5 meter height, 2 meters frontal distance in free field – down flow units (30 Pa AESP), nominal airflow rate, cp speed 50Hz

LENNOX
EMEA

CHILLED WATER CLOSE CONTROL UNITS WITH UNDERFLOOR FANS

INNOV@ DFCDR / DSCDR

- Energy efficiency
- Ideal for free-cooling systems
- Ideal for high density computer rooms
- Reliability

Cooling capacity:
57 - 266 kW

Range non subject to the ErP directive

LENNOX

Chilled water close control units with underfloor fans

INNOV@ DFCDR / DSCDR 57 → 266 kW

Main applications

- Computer rooms
- Data centers

Description :

- **INNOV@ DFCDR and DSCDR close control units developed in order to increase energy efficiency in data centers and to reduce operating costs**
- Increased specific cooling [kW/m²];
- Minimized operating energy costs through reduced fan power;
- Reduced coil pressure drops;
- Limited air stream deflection losses;
- Better air distribution under raised floor

Main components :

- Modulating 3-way valve;
- Drain pan made of AISI 403 stainless steel;
- Panels made in galvanized and powder coated;
- Hydrophilic treated evaporating coil;
- Air-flow switch;
- G4 filter
- Supply and return air T sensors;
- Backward curved blades fan with EC motors and plastic impeller.
- Full front accessibility for maintenance/servicing even with running unit;
- Automatic breakers;
- Programmable microprocessor control with LCD display;
- Base Module with integrated fans H 550mm;
- Optimized coil to reduce pressure drops and maximize the heat exchange
- Adjustable legs +/- 250mm;
- Modulation of fans speed in agreement with cooling demand (constant DT)
- Fans selected to maximize efficiency with low pressures

Accessories :

- Remote control
- Hydraulic valve kit
- Humidification and dehumidification
- Electric heater
- G3 – F7 filter
- Supervision
- Plenums and dampers

General Data

DFCDR - Chilled water with underfloor fans

INNOV@ DFCDR		0450	0550	0650	0750	1500	1800	2000	2100
Net cooling capacity (1) Maximum power	kW	67	74	121	136	179	200	231	266
Airflow rate	m³/h	14000	14000	26500	26300	39400	39000	51900	51400
Sensible heat ratio		1							
EER		27	30	23	26	23	25	22	25
Fans power input	kW	2,5	2,5	5,2	5,2	7,8	7,9	10,5	10,5
Fans absorbed current	A	4,0	4,1	8,3	8,3	12,6	12,6	16,8	16,9
Net cooling capacity Maximum efficiency	kW	33	36	58	66	85	90	106	122
Airflow rate	m³/h	6100	6400	10800	11600	15900	16100	20200	21400
Sensible heat ratio		1							
EER		100	100	101	99	101	100	100	101
Fans power input	kW	0,33	0,36	0,57	0,67	0,84	0,90	1,06	1,21
Sound pressure level (2)	A	0,53	0,58	0,91	1,07	1,35	1,44	1,69	1,94
Dimensions									
Width	mm	1280	1280	1760	1760	2500	2500	3160	3160
Depth		950							
Height without base module		1998							
Height with base module		2548							
Weights									
Weight	kg	866	899	972	1005	1127	1160	1187	1220

(1) Indoor conditions 24°C/ 50%
Water temperature 16/22°C

DSCDR - Chilled water with underfloor fans - Slim version

INNOV@ DSCDR		0450	0550	0650	0750	1500	1800	2000	2100
Net cooling capacity (1) Maximum power	kW	57	67	93	111	137	165	179	211
Airflow rate	m³/h	14200	14100	23500	23500	34600	34600	45100	45100
Sensible heat ratio		1							
EER		27,3	30,6	28,2	30,9	27,4	30,0	27,5	29,3
Fans power input	kW	2,1	2,2	3,3	3,6	5,0	5,5	6,5	7,2
Fans absorbed current	A	3,4	3,6	5,3	5,8	7,9	8,8	10,4	11,6
Dimensions									
Width	mm	1280	1280	1760	1760	2500	2500	3160	3160
Depth		890							
Height without base module		1998							
Height with base module		2548							
Weights									
Weight	kg	470	500	590	636	970	1038	1141	1230

(1) Indoor conditions 24°C/ 50%
Water temperature 16/22°C

LENNOX
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«IN ROW» CLOSE CONTROL UNIT FOR HIGH DENSITY SYSTEMS

R@CKCOOLAIR

- EC motor compressor technology
- Electronic direct expansion valve
- High pressure radial EC fans
- Flexibility
- High quality standard
- Full accessibility from front and back

Cooling capacity:
3 - 75 kW

Airflow rate:
700 - 11000 m^3/h

Range non subject to the ErP directive

LENNOX

"In Row" close control unit
for high density systems

R@CKCOOLAIR

DX : 3 → 49 kW

CW : 20 → 75 kW

Main applications

- Medium and small sizes data centers
- Computer rooms

Description :

- **Ideal solution for cooling of server racks in medium and small sizes data centres**
- Suitable for extension of existing sites or in server rooms without raised floor;
- Installation next to the heat source to guarantee an immediate and efficient reaction to varying heat dissipations from the servers.

Accessories :

- Dehumidification with humidity sensor
- Clogged filter sensors
- Water leakage, fire and smoke sensors
- Temperature and humidity additional sensors
- Condensate water pump
- Water-flowmeter with current cooling capacity display
- Integrated IT racks and hotspot cooling solutions
- Automatic airflow control with display visualization
- Serial cards for protocols: Carel/Modbus/LonWorks®/ Trend
- PCOWEB Hardware: Ethernet card for protocols: BACnet/SNMP
- DATAWEB Software: Ethernet card for web connectivity
- Touch-Screen colour graphic display

Main components :

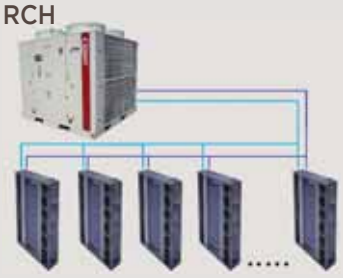
- Spot cooling: where and when you need it
- Airflow switch
- Full accessibility
- High pressure radial fans with backward curved blades
- High efficiency hydrophilic finned coil with aluminium structure
- Two drain pans made of AISI 430 stainless steel EDX
- Hydraulic connections from the top or from the bottom
- Powder-coated metal sheet structure
- Footprint : 300 x 1200 mm or 600 x 1200 mm only
- Fully insulated panels
- 2 or 3 way water valve, modulating by means of a 0-10 V signal
- Display of 3-way water valve mixing percentage
- Programmable control with LCD display
- Two separate zones control (top and bottom of the unit)
- Different airflow configurations
- Modulating airflow rate according to the cooling capacity for a much higher energy saving
- Built-in condensing control for air-cooled units (modulating fan-speed control) with dedicated automatic breaker
- Lockable panels
- LAN connection up to 8 units
- 4 alarms with extra potential free contacts

Configurations :

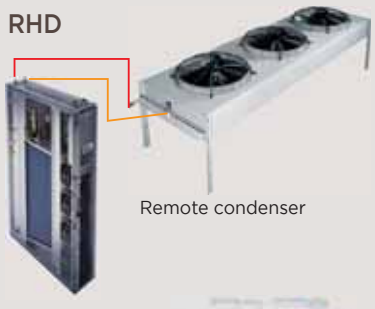
- **RHC units**
  Chilled water unit with high performance coil and modulating water valve for:
  - Highest specific cooling capacity (W/m²) due to the large heat exchanger surface,
  - Precise temperature control (PID type regulation),
  - The possibility to increase return air temperature, thus to rise the medium chilled water temperature (while keeping the cooling capacity stable). This results in a maximized EER of the chiller and extends free-cooling operation range.
- **RHD : Motor-evaporating**
  RHV : Motor-condensing unit with variable speed compressors which guarantee:
  - Precise temperature control (PID type regulation),
  - Reduced power consumption at partial load,
  - Avoiding of electrical peaks and compressor's mechanical stress in ON/OFF cycles,
  - Extension of the application field.

  This is the solution for small and medium size installations where no chilled water system is available or where no chiller can be placed or where site specific constraints do not allow water in the datacenter. Adjusting the facility configuration with the distance between indoor and outdoor unit enables a simple and economical installation.

RCH

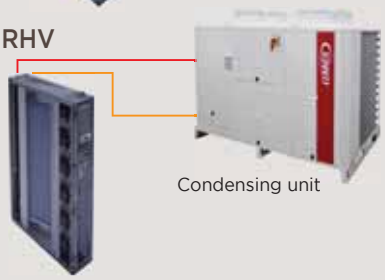


RHD



Remote condenser

RHV



Condensing unit

Ventilation :

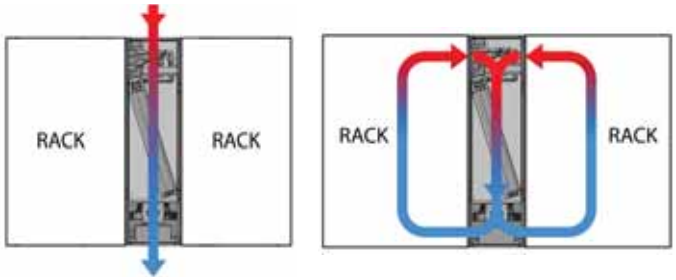
- Positioning of the **R@CKCOOLAIR** unit next to the server itself minimizes the ventilation consumption needed to overcome pressure drops from ducting or raised floor systems.
- Using of plug fans with backward curved blades (in contrast to axial fans) particularly guarantees maximum stability in airflow even in most packed server racks where as the optionally available EC fans allows efficient modulation of the air volume.
- The integrated microprocessor modulates the airflow rate in combination with either the chilled water valve (on RHC units) or the compressor frequency (on RHD/RHV units) and thus significantly reduces the electrical consumption of the airflow ($P = k \times [airflow]^3$).
- Optional "automatic airflow control" is available, which keeps the airflow constant in case of variable pressure drops of the system, or the "Delta P control" for a pressure control in the cold aisle.

eDrive™

Airflow configuration :

- No ducting systems or raised floors are necessary, the HRC units simplify the installation of the system.
- Several available configurations fit to all needs of modern data centers such as retrofit/expansion of existing sites

In row :
(horizontal airflow)
ideal for typical
hot aisle/cold aisle
applications



In Rack:
(re-circulating left-right)
For a total closed loop
hotspot cooling

➔ Hot air flow / ➔ Cold air flow

General Data

RHC : chilled water unit

R@CKCOOLAIR		RHC 0200			RHC 0250			RHC 0450			RHC 0510		
Indoor operating conditions Temperature - Relative humidity		24°C 50%	30°C 35%	35°C 26%	24°C 50%	30°C 35%	35°C 26%	24°C 50%	30°C 35%	35°C 26%	24°C 50%	30°C 35%	35°C 26%
Total cooling capacity (1)	kW	12,7	20,1	26,2	17,6	27,7	35,4	30,4	46,2	59,1	36,1	57,0	72,8
Sensible cooling capacity	kW	12,7	20,1	26,2	17,6	27,7	35,4	30,4	46,2	59,1	36,1	57,0	72,8
Fan absorbed power	kW	0,4			0,7			1,2			1,4		
Voltage		230 V/1 Ph/50 Hz						400 V/3 Ph/50 Hz					
Water flow rate	l/h	2176	3459	4511	3023	4769	6083	5236	7945	10155	6202	9807	12519
Airflow rate	m^3/h	4000			5300			9000			11000		
Dimensions Length x Height x Depth	mm	300 x 2000 x 1200						600 x 2000 x 1200					

RHD : DX unit with remote condenser

R@CKCOOLAIR		RHD 0100			RHD 0260		
Indoor operating conditions Temperature - Relative humidity		24°C 50%	30°C 35%	35°C 26%	24°C 50%	30°C 35%	35°C 26%
Compressor frequency	Hz	30	70	120	30	70	120
Total cooling capacity	kW	2,4	7,2	11,9	5,2	19,6	28,3
Sensible heat ratio		1					
Compressor absorbed power	kW	0,6	1,5	3,4	0,8	4,1	7,3
Compressor absorbed current	A	2,8	7,3	16,4	1,3	6,6	11,7
Evaporator airflow rate	m^3/h	700	1600	2700	2500	4075	5000
Fan absorbed power	kW	0,05	0,11	0,20	0,10	0,20	0,60
Voltage		230 V/1 Ph/50 Hz			400 V/3 Ph/50 Hz		
Compressor type		1 x EC motor compressor - Twin Rotary					
Dimensions Length x Height x Depth	mm	300 x 2000 x 1200			600 x 2000 x 1200		

R@CKCOOLAIR		RHD 0400			RHD 0450		
Indoor operating conditions Temperature - Relative humidity		24°C 50%	30°C 35%	35°C 26%	24°C 50%	30°C 35%	35°C 26%
Compressor frequency	Hz	30	70	120	30	70	120
Total cooling capacity	kW	8,2	31,3	43,3	14,9	37,1	49,0
Sensible heat ratio		1					
Compressor absorbed power	kW	1,3	7,0	12,5	2,2	6,5	14,9
Compressor absorbed current	A	2,1	11,2	20,1	3,6	13,7	23,4
Evaporator airflow rate	m^3/h	4500	7335	9000	4500	7335	9000
Fan absorbed power	kW	0,20	0,70	2,00	0,40	0,70	1,20
Voltage		400 V/3 Ph/50 Hz					
Compressor type		1 x EC motor compressor - Scroll					
Dimensions Length x Height x Depth	mm	600 x 2000 x 1200					

RHV : DX unit with remote motor-condensing unit

R@CKCOOLAIR		RHV 0140			RHV 0240			RHV 0330		
Indoor unit										
Compressor frequency	Hz	30	70	120	30	70	120	30	70	120
Total cooling capacity	kW	4.1	10.2	13.3	5.8	19.4	24.8	8.5	26.8	34.6
Sensible heat ratio		1	1	1	1	1	1	1	0,91	0,89
Evaporator airflow rate	m^3/h	1550	2527	3100	2650	4328	5300	2650	4320	5300
Fan absorbed power	kW	0.1	0.2	0.3	0.1	0.5	0.8	0.1	0.5	0.8
Voltage		230 V/1 Ph/50 Hz								
Dimensions Length x Height x Depth	mm	300 x 2000 x 1200								
Outdoor unit										
Compressor frequency	Hz	30	70	120	30	70	120	30	70	120
Compressor absorbed power	kW	0.5	1.7	2.9	0.8	4.0	6.9	1.2	6.2	10.3
Compressor absorbed current	A	2.5	8.3	14.0	1.2	6.4	11.1	2.0	9.9	16.6
Compressor type		BLDC Twin rotary			BLDC Scroll					
Condenser airflow rate	m^3/h	6950			9300			16300		
Soud power level	dB(A)	61			63			63		
Sound pressure level (10 m free field)	dB(A)	46			46			49		
Voltage		230 V/1 Ph/50 Hz			400 V/3 Ph/50 Hz					
Dimensions Length x Height x Depth	mm	1250 x 560 x 1220			1300 x 600 x 1565			1890 x 1300 x 950		
Weight	kg	100			332			492		

Controls & BMS

Lennox web server
One site - Several units

ADALINK II 194

Lennox BMS
One site - Multi protocol

LennoxVision 195

LENNOX web server
One site - Only one unit

LennoxOneWeb 195

Lennox web portal
Multi sites - Multi units

LennoxCloud 196

Lennox HVAC hydronic system
Fan coils and chillers control

LennoxHydroControl 197

Lennox web server
One site - Several units

ADALINK II

Main applications

- BMS “light” system
- Small installations: up to 16 LENNOX units

DESCRIPTION :

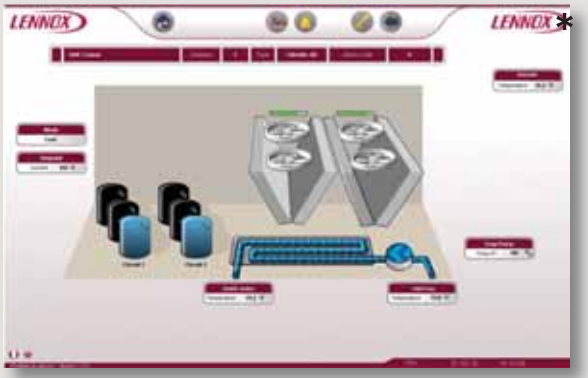
- Lennox solution for HVAC installation monitoring. It can be connected to different LENNOX units
- As an option, possibilty to integrate other communication devices (energy meters, boilers, lighting...)
- ADALINK II allows an overview of the whole site map showing the status of the different units, zooming on each unit and allowing the user to graphically change the set-point, the access to the alarm list, and giving the access to the trend curves
- Ideal tool for both genuine users giving access only to specific set-points of the unit, or maintenance specialists (expert mode) giving access to all the parameters of the unit
- Easy scheduling and zoning management
- CLIMATIC 50, CLIMATIC 60 and eCLIMATIC compatible
- Unloading function (50% and 100% of capacity)
- Compatible with one CLIMATIC 60 Chiller
- Very easy to install, it can be used on any computer through Internet navigator locally and remotely via IP network
- I/O are available for counter and energy meter
- Option Modbus table is available for specific device (Chiller, AHU, energy meter...)
- Export trends with report alarm by email

∗ Logo and background may be easily customized (FTP)

ADALINK CHILLER

Lennox web server
1 Site - Several liquid chillers

- ADALINK can monitor up to 8 CL50 and CL60 units, with same functionalities as ADALINK II.



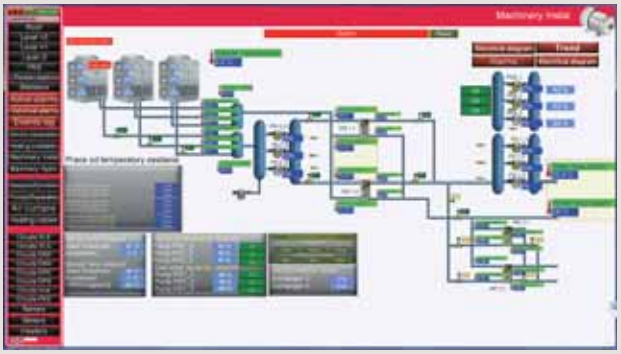
∗ Logo and background may be easily customized (FTP)

Lennox BMS
One site - Multi protocol

LennoxVision

Main applications

- Real and full BMS system
- Large installations: unlimited number of units



DESCRIPTION :

- Lennox supervision and remote maintenance system
  - . Can be connected to any compatible Lennox unit and external components
  - . Real BMS system allowing access to the variables of all the units and carrying out monitoring, scheduling and energy management
- Full management of the different units on the site : unit, service, alarm, curves and scheduling screens
  - . Including remote connection via an internet connection (options), communication with other BMS, management of alert messages by SMS or email and lighting management
- LennoxVision can be used as a local system, or as a monitoring system with access from a remote workstation via an internet connection
- LennoxVision includes a complete pre-configured version of software running on dedicated hardware, and features all the communication ports required to best exploit its Web Server and installation supervision functions

Lennox web server
1 Site - Only one unit

LennoxOneWeb

DESCRIPTION :

- Web page (animated gif)
- Time scheduler (weekly basis)
- Parameters access
- Software upgrade
- Alarm alerts (mailing)
- Trends
- Ethernet connexion

Lennox web portal
Multi sites - Multi units

LennoxCloud

Main applications

- Cloud storage
- Remote monitoring

DESCRIPTION :

- LennoxCloud remotely tracks the units operation on the customer site.
- Through LennoxCloud, the unit can be remotely controlled, adjusted, or diagnosed by our experts.
- LennoxCloud can check (live data trends), optimize (store data analysis) and troubleshoot (alarm/alert reports) customer units.
- LennoxCloud allows significant energy savings optimizing performances during all the unit's life cycle.

ADVANCED DIAGNOSTIC & PROGNOSTIC OPTION :

- In order to optimize the installation, both increasing the unit performance and decreasing the energy consumption, LennoxCloud solution can be enhanced through the advanced diagnostic & prognostic option.
- Through this option, Lennox experts can analyze and follow your installation, improving the performance of your HVAC system, raising appropriate scenari for maintenance and energy savings. It can also provide you periodical reports and diagnostics. In addition to data storage, several options allow optimization of your data management by improving the use of your HVAC system
  - . Data processing and analysis
  - . Optimized HVAC engineering scenari
  - . Monthly report to customer
  - . Savings' follow-up (on a money point of view)
  - . 24h/24h alarm alerts
  - . Remote Assistance

Lennox HVAC hydronic system
Fan coils and chillers control

LennoxHydroControl

Main applications

- Fan coils and chillers control
- Small and medium-size applications for offices

DESCRIPTION :

- Smartest solution for hydronic systems:
  - Manages and coordinates cooling and heating production (chiller/heat-pump units) through fancoils
  - Ensures customer comfort, providing important energy savings through building zoning, time scheduling and set points
- Available for all hydronic installations (cooling only, heating only, reversible system).
- Optimized for small and medium size applications.
- LennoxHydroControl manages up to 8 zones for fancoils and one for chiller/heatpump.
- Managed locally, through simplified local color touch screen interface (HMI), or remotely by internet browser thanks to the Web-Server embedded in the HMI.
- Based on a shared communication system among Lennox devices, which ensures full compatibility, best performances and easy commissioning and maintenance.
- High performances and high energy savings compared to traditional cooling/heating systems.
- Lennox fancoils are equipped with EC fan motors, allowing to match perfectly the airflow rate to the customer comfort requirement.

LennoxHydroControl available for all hydronic installations

Fancoil units

Chillers & heat-pumps

Air handling units

LENNOX EMEA

www.lennoxemea.com

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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