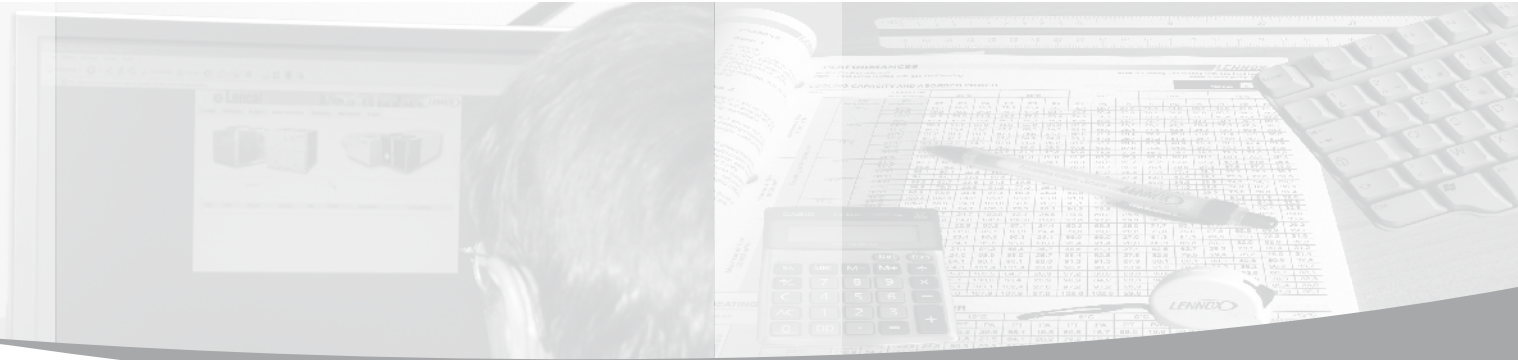


# Application guide NEOSYS



- Providing indoor climate comfort





# NEOSYS™

## APPLICATION GUIDE

Ref : NEOSYS-AGU-0308-E

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Our products comply with the European standards,



Product designed and manufactured under a quality management system certified ISO 9001,



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**PROGRAM: LCP-A-P-C-AC**

**NEOSYS - COOLING ONLY VERSION**

| <b>NEOSYS</b>            | <b>NAC</b> | <b>200</b> | <b>230</b> | <b>270</b> | <b>300</b> | <b>340</b> | <b>380</b> | <b>420</b> | <b>480</b> |
|--------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Cooling capacity         | kW         | 202,1      | 228,6      | 266,3      | 298,8      | 336,5      | 377,0      | 420,1      | 460,2      |
| Power input              | kW         | 69,7       | 83,9       | 103,9      | 104,9      | 122,0      | 146,6      | 149,3      | 170,1      |
| EER                      |            | 2,90       | 2,72       | 2,56       | 2,85       | 2,76       | 2,57       | 2,81       | 2,70       |
| CLASS EER                |            | B          | C          | D          | C          | C          | D          | C          | C          |
| ESEER                    |            | 4,18       | 3,97       | 3,93       | 4,11       | 4,09       | 3,92       | 4,48       | 3,95       |
| Pressure drop            | kPa        | 28,6       | 36,6       | 37,5       | 47,2       | 45,3       | 38,6       | 39,2       | 46,9       |
| Global sound power level | dB(A)      | 89,2       | 89,3       | 89,7       | 91,2       | 91,3       | 91,4       | 92,5       | 92,6       |

**PROGRAM: LCP-A-P-R-AC**

**NEOSYS - REVERSIBLE VERSION**

| <b>NEOSYS</b>            | <b>NAH</b> | <b>200</b> | <b>230</b> | <b>270</b> | <b>300</b> |
|--------------------------|------------|------------|------------|------------|------------|
| Cooling capacity         | kW         | 191        | 215        | 271        | 295        |
| Power input              | kW         | 69,5       | 84,8       | 96,9       | 111,5      |
| EER                      |            | 2,75       | 2,54       | 2,79       | 2,65       |
| CLASS EER                |            | C          | D          | C          | D          |
| ESEER                    |            | 4,00       | 3,76       | 3,99       | 3,94       |
| Heating capacity         | kW         | 219        | 252        | 313        | 346        |
| Power input              | kW         | 68,1       | 80,4       | 97,7       | 110,7      |
| COP                      |            | 3,21       | 3,13       | 3,20       | 3,12       |
| CLASS COP                |            | A          | B          | A          | B          |
| Pressure drop            | kPa        | 25,7       | 32,5       | 38,8       | 46,2       |
| Global sound power level | dB(A)      | 89,2       | 89,3       | 91,1       | 91,2       |

**Air-cooled Liquid Chiller for outdoor installation (NAC)  
Air-to-water Heat Pump for outdoor installation (NAH)**

**Nominal cooling capacity: 200 to 460 kW (NAC) - 200 to 300 kW (NAH)**

**Nominal heating capacity: 200 to 300 kW (NAH)**



## Sustainable Performance

- **Extended qualification tests** (vibration tests, run tests, field tests) to ensure superior reliability.
- **High efficiency aluminium micro channel heat exchanger** (MCHX) with improved corrosion resistance for moderate marine or urban applications (Cooling only version). **3-year warranty\***.
- **Specific MCHX coil design** with high mechanical fin resistance that offers easy cleaning with high pressure air or water washers for extended life cycle.
- **V-coil design**, compressor and hydraulic enclosure to protect the unit against climatic conditions (e.g. sun rays, UV light, hail).
- **Exclusive Compliant Scroll® compressor design** with both axial and radial compliance to increase compressor operation tolerance of liquid refrigerant or debris, substantially improving durability and reliability. **3-year warranty\***.
- **Exclusive fan design with SKF hybrid Ceramic bearings** to double (treble in some cases) the service life of the motors and to reduce noise level. With these sealed hybrid ceramic bearings, our customer can expect little or no maintenance of the motor throughout its life. **3-year warranty\***.

## Quiet performance

- **Unique design** with compressor, pump(s) and fan acoustic enclosure to reduce radiated noise emissions.
- **Variable speed driven fans** using external rotor technology associated with high performance aluminium fan blades of the latest generation (Shark design).
- **Elimination of intrusive fan start/stop noise** that is irritating to the human ear.
- **Active Acoustic Attenuation System™** to meet changing building load requirements while automatically adjusting the air flow to meet night and day sound level constraints (Time schedule with 4 time zones per day).

## Quick performance and service

- **Complete hydraulic module** with single or twin, low or high pressure pump (options) that includes all necessary equipment for quick connection: pump(s), regulating valve, expansion tank vessel with pressure gauge, pressure tapping points, water filter, air vent, pressure relief valve and Victaulic connections.
- 400V, 50 Hz, 3 phase power supply (without neutral) with a single point of power connection. Main on/off switch included in as standard.
- **Air spring powered Butterfly Electrical Panel™** with

jacks top opening providing protection to service engineers against rain or snow during commissioning and maintenance operations.

## Energy performance

- **High Energy Performance** (ESEER above 4; EER up to 2.9 ; COP up to 3,2) for improved energy consumption all around the year.
- **Aluminium micro channel heat exchanger** that offers +10% outstanding system efficiency (cooling only version).
- **R410A refrigerant** for optimized system performance.
- **Energy savings** due to lower system minimum water content reducing the time to reach setpoint. This can also eliminate the need for a buffer tank.

## Architectural integration

- **State of the art design** with hidden compressors, fans and pump for perfect architectural integration.
- **Flat top, aesthetic grilles\*\*, very low unit height (< 2m)** for discrete installation on a roof reducing the requirement of costly cladding solutions around the unit.

\* This warranty covers parts only. The above warranty is liable if the start-up and periodic maintenance agreement is contracted by a LENNOX company or any company accredited by LENNOX. Refer to LENNOX 3 year warranty conditions.

\*\* : Thanks to microchannel coil, NAC version does not include rear grille.

**Flat top and low profile for best architectural integration**



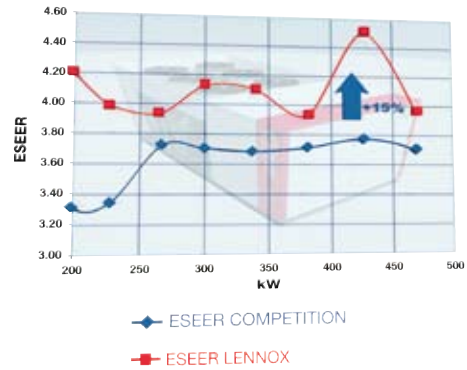
The NEOSYS design is minded to be perfectly integrated into urban or residential environments. The state of the art design of NEOSYS includes a painted casing with rounded side panels, a flat top that hides the fans, aesthetic protection grilles. The very low unit height less than two meters makes easier for architects and design engineers to integrate the unit on a roof. Many interviewed customers confirm that the state of the art design of NEOSYS will replace any requirement of costly cladding solutions around the unit.

**Smarts acoustics with variable speed driven fans**



No more need to make a choice between a high efficiency version, a low noise or an ultra low noise version. NEOSYS can adapt all situations with only one version. NEOSYS is fitted in standard with the Active Acoustic Attenuation System™ that is using an electronic control associated with variable speed fans. NEOSYS can change automatically the speed of all the fans – from 0% to 100% of the nominal air flow – to meet the building load requirements while respecting maximum authorised noise level in the time zone. NEOSYS is surely achieving the best acoustic signature of the market thanks to the latest generation of shark high performance aluminium fan blades and noiseless ceramic bearings.

**A high energy performance**



By using R410A refrigerant associated with high efficiency micro channel coils and variable speed fans NEOSYS is contributing to a very low energy consumption all year around with an average energy efficiency ratio (ESEER)\* in cooling mode above 4.0. NEOSYS Heat-pumps are also achieving very high performances in cooling and heating mode (COP\* up to 3.2).

Furthermore NEOSYS advanced control allows energy savings all year around by using smart control functions:

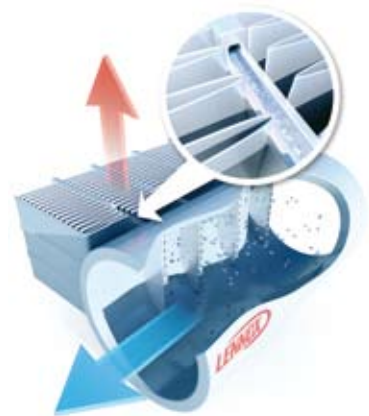
- Low water system quantity to reduce the time to reach the set-point.
- Dynamic defrost (patented) to limit the number of defrost cycles.
- Set-point reset based on outside air temperature to relax the chilled water set-point.

\*ESEER : European Seasonal Energy Efficiency Ratio in cooling mode. COP : Coefficient of Performance in heating mode.

**R410A Micro channel heat exchanger**

With the use of fully aluminium coils already used in the automotive industry, NEOSYS™ offers many customer benefits:

- Up to 40% less refrigerant charge that contributes to reduce the total amount of refrigerant used in the system.
- A more efficient system (EER + 10%).
- An air heat exchanger with significantly improved corrosion resistance results (x 2) from the same aluminium alloy (no galvanic action) vs. the traditional copper tube/aluminium fin coils. By using this type of coil, units can be used in light corrosive or seacoast environments without any need for additional, and expensive, pre-treated fins or coil coating.
- High mechanical resistance eases the cleaning with high pressure air or water washers without any risk of damaging the fins.



Available in cooling only version, this technology will surely be enlarged shortly to reversible applications.

## GENERAL CHARACTERISTICS OF THE UNIT

The NEOSYS unit is designed to be integrated into urban or residential environments.

As main characteristics the NEOSYS unit offers **state of the art design** to match architectural constraints and **adjustable sound level performances** during day and night to satisfy local environmental constraints.

## CASING/CHASSIS

- Casing made of galvanised steel sheet metal painted with a white RAL 9002 powdered polyester paint and a RAL3003 red stripe.
- Fully RAL 7016 grey colour painted chassis protecting against corrosion.
- **State of the art design** with hidden compressors, fans and pump for perfect architectural integration.
- Flat top, aesthetic grilles, **very low unit height (< 2m)** for discrete installation on a roof reducing the requirement of costly cladding solutions around the unit
- **Aesthetic side anti-intrusion grilles** as standard to protect the unit during transportation and against human aggressions.

## COMPRESSOR

- Exclusive Compliant Scroll® design with both axial and radial compliance to increase compressor operation tolerance to liquid refrigerant, substantially improving durability and reliability. **3-year warranty\***.
- Motor cooled by suction gas.
- Electronic control of the compressor discharge temperature.
- Motor protection device against high temperature or over current situations.
- Discharge non-return valve.
- Low noise scroll compressors mounted in a sound-proofed technical cabinet to reduce noise emissions.
- Compressors assembly installed on an independent chassis supported by anti-vibration mountings.

## WATER HEAT EXCHANGER

- True dual circuit plate heat exchanger
- Copper brazed Stainless steel plate heat exchanger.
- 13 mm thermal insulation foam.
- Water heat exchanger located in a technical cabinet protecting the insulation against climatic conditions (UV light, rain).

## AIR HEAT EXCHANGER

- High efficiency aluminium Micro Channel heat exchangers (MCHX) with improved corrosion resistance in moderate marine or urban environment (cooling only version). **3-year warranty\***.
- Standard copper tubes/aluminium fins heat exchanger (heat pump version).
- V-coil design to protect the unit against climatic conditions (e.g. hail).

## FANS

- Variable speed driven fans (0 to 900 rpm operating range).
- **Active Acoustic Attenuation System™** to meet changing building load requirements while automatically adjusting the air flow to respect night and day sound level constraints (adjustable setting over time schedule with 4 time zones per day).
- Elimination of intrusive start/stop noise that is irritating to the human ear.
- Fan-motor assembly using external rotor technology associated with Shark high performance aluminium fan blades of the latest generation.
- IP 54 electrical motor, class F protected against high temperature with an internal sensor.
- Exclusive fan design with hybrid Ceramic bearings to extend the service life of motors and to reduce noise level. With these sealed hybrid ceramic bearings, our customer can expect little or no maintenance of the motor throughout its life. **3-year warranty\***.
- Extremely rigid fan assembly via the integration of the fans mounted within a pre-formed bell mouth roof panel, thus improving rigidity while reducing vibrations.
- Rounded top acoterion panels to hide the fans and reduce noise emissions for quieter operation.

## REFRIGERANT CIRCUIT

NEOSYS is using R410A refrigerant in 2 independent circuits. Each circuit includes:

- **A refrigerant charge reduced by 30%** due to the use of R410A combined with micro channel heat exchanger (NAC/Cooling only version).
- Suction piping with thermal insulation.
- Filter drier with removable cartridge filter.
- Thermostatic or electronic expansion valve (Electronic device only when "winter operation" option selected).
- Temperature sensors and pressure transducers.
- Four-way valve and liquid receiver (heat pump units only).
- Leak-tight refrigerant circuit with brazing carried out under nitrogen by certified engineers.
- Each refrigerant circuit is pressure and leak tested with a Hydrogen/Nitrogen mixture, and vacuumed before being charged with refrigerant. All units are then subjected to a complete functional and operational run test to guarantee perfect sealing before leaving the factory.

\* Warranty under conditions - See page 4



## ELECTRICAL BOX

- Unit electrical cabinet, components and wiring in compliance with EN 60204-1 electrical directive.
- 400V, 50 Hz, 3 phase power supply (without neutral) with a single point of power connection.
- Bottom entry (through the base) for electrical power.
- IP54 protection class.
- **Air spring powered Butterfly Electrical Panel™** with top opening providing protection to the service engineers against rain or snow during commissioning and maintenance operations.
- Recognized brand electrical components (Schneider) for ease of maintenance.
- Main on/off switch mounted on the front panel.
- DC50™ user interface mounted on the front panel.
- Main disconnect switch with high trip capacity allowing optimized sizing of the customer power supply.
- 400/24 V transformer to supply the control circuit.
- Numbered electrical wires to facilitate maintenance and diagnostic.
- Variable Frequency Drives (VFD) to control the fan speed.

## CONTROL

CLIMATIC™ microprocessor based control is providing the following functions:

- 4 scheduling time zones per day over 7 days to allow energy consumption and sound level management according to the building use and environmental constraints.
- PI control of the water temperature with operating time equalisation of the compressors.
- Water set-point offset based on outdoor air temperature (BE50™ option needed).
- **Active variable speed control of all fans** to optimize the unit condensing pressure and energy performances at full- and part-load while meeting authorized maximum noise level in the time zone (Active Acoustic Attenuation System™ control patented).
- Intelligent advanced control algorithm to protect the compressors against excessive short-cycling and to allow **operation of the unit without buffer tank** in most comfort air conditioning applications (e.g. unit with fan-coils). Refer to minimum installation water loop volume recommendations.
- **Dynamic defrost** to limit the number and the duration of the defrost cycles in winter for high performance of the unit (Dynamic Defrost patented).
- Automatic compressor unloading in case of excessive condensing pressure allowing the operation of the machine at high outdoor air temperature (operation extended up to 46°C ambient).
- Water pump control with operating time equalization and automatic change-over in case of a pump fault (Twin pump only).
- Master/slave or cascade control of two chillers operating in parallel with operating time equalization and automatic change-over in case of a unit fault.

CLIMATIC™ is pre-factory configured with default settings allowing a fast commissioning on site. The DC50™ user interface with graphical display is easy to use, intuitive. Main

customer parameters can be read or modified without main power shut-off (Entering/leaving water temperatures, outdoor air temperature, alarm history, scheduling of the different time zone, water and noise level set-points, high and low pressure reading).

The DS50™ service display (optional) is a “plug and play” controller that allows service people to read and modify all unit parameters (Unit settings, operating time and number of compressor starts, low and high pressure reading, read the history of last 32 faults...).

## COMMUNICATION

The control board is equipped with a RS485 serial communication port to allow remote management through communication bus. According to the wished communication protocol, our control board can be fitted with **ModBUS®, LonWorks® or BacNET® communication interface** (options).

The main control board has free dry contacts that allow remote control of the unit by wired cable:

- Remote on/off of the unit.
- Remote alarm reset to re-start the unit.
- Alarm or alert indications.
- Free customer contact.

With the optional extension board BE50™, it is possible to get additional customized digital or analog inputs / outputs for remote control of the unit:

- Fault fans or pumps (dry contact).
- Operation indication at 100% on circuit 1 or 2 (dry contact).
- Dual water set-point management (dry contact).
- Force heating or cooling mode (24V AC input).
- Power limitation by disabling circuit 1 or 2 (24V AC input).
- Force unoccupied mode (24V AC input).
- Water set-point offset based on outdoor air temperature (4-20mA input). Note: non available with heat-pump units.

## DIRECTIVES

The unit is built to meet European norms and standards & Eurovent certification performance standards.

- DI 97/23/CE Pressure Equipment Directive.
- DI 98/37/CE Machinery Directive.
- DI 73/23/CE Low Voltage Directive.
- DI 89/336/CE Electro Magnetic Compatibility Directive
- EN 378-2 Safety and Environmental Directive.
- **The European Restriction of the Use of Certain Hazardous Substances (RoHS).**

| OPTIONS  | DESCRIPTION   | ADVANTAGES   | MODELS                         |
|--|---|--|--------------------------------|
| Low-pressure single-pump hydraulic module                          | Low-pressure single pump, regulating valve, Victaulic couplings, filter and all necessary hydraulic devices. Refer to specific chapter.   | Quick start-up on job site. Available pressure around 150 kPA.   | NAC 200 ► 480<br>NAH 200 ► 300 |
| High-pressure single-pump hydraulic module                         | High-pressure single pump, regulating valve, Victaulic couplings, filter and all necessary hydraulic devices. Refer to specific chapter.  | Quick start-up on job site. Available pressure around 250 kPA.   | NAC 200 ► 480<br>NAH 200 ► 300 |
| Low-pressure twin-pump hydraulic module                            | Low-pressure twin pumps, regulating valve, Victaulic couplings, filter and all necessary hydraulic devices. Refer to specific chapter.    | Quick start-up on job site. Available pressure around 150 kPA.   | NAC 200 ► 480<br>NAH 200 ► 300 |
| High-pressure twin-pump hydraulic module                           | High-pressure twin pumps, regulating valve, Victaulic couplings, filter and all necessary hydraulic devices. Refer to specific chapter.   | Quick start-up on job site. Available pressure around 250 kPA.   | NAC 200 ► 480<br>NAH 200 ► 300 |
| Winter operation (from +6°C down to -10°C)<br>– Cooling only units | Unit fitted with electronic expansion valve and variable frequency driven fans. Select “anti-freeze protection” option if no glycol water | Increased operating range in cooling down to -10°C ambient temperature. (+6°C as standard).                          | NAC 200 ► 480                  |
| Brine operation (From +5°C down to -10°C)                          | Unit fitted with electronic expansion valve, variable frequency driven fans and reinforced evaporator and piping thermal insulation.      | Increased operating range in cooling down to -10°C water leaving temperature for thermal storage or process cooling. | NAC 200 ► 480                  |
| Heavy anti-corrosion coil treatment                                | Application of Thermoguard® treatment on the entire coil surface.   | High corrosion resistance for severe industrial and marine environments.   | NAC 200 ► 480<br>NAH 200 ► 300 |
| Anti-freeze protection (down to -20°C)                             | Resistance heaters on the evaporator and the hydraulic module. To be selected if no glycol water.   | Evaporator and hydraulic module frost protection down to -20°C ambient temperature                                   | NAC 200 ► 480<br>NAH 200 ► 300 |
| Soft starter   | Soft starter fitted into the electrical cabinet   | Start-up current reduced by 15 % up to 30 %.   | NAC 200 ► 480<br>NAH 200 ► 300 |
| Power Factor correction  | Capacitors fitted into the unit   | Cos phi correction up to 0.95 to reduce current and energy consumption.  | NAC 200 ► 480<br>NAH 200 ► 300 |

| <b>OPTIONS</b>                                       | <b>DESCRIPTION</b>  | <b>ADVANTAGES</b>   | <b>MODELS</b>                  |
|--|---|---|--------------------------------|
| BE50™ extension board for additional inputs/ outputs | Electronic extension board with additional analog inputs (4), digital inputs (4) and digital outputs (4). See control manual. | Relay card for remote control and alarm report using dry contacts, 24 Vac or 4-20 mA signals. | NAC 200 ► 480<br>NAH 200 ► 300 |
| Modbus communication interface                       | Communication card using ModBus/JBus protocol.  | Communication interface with a building management system                                     | NAC 200 ► 480<br>NAH 200 ► 300 |
| LonWorks® communication interface                    | Communication card using LonTalk® protocol.   | Communication interface with a building management system.                                    | NAC 200 ► 480<br>NAH 200 ► 300 |
| BACnet® communication interface                      | Communication card using Bacnet® protocol.  | Communication interface with a building management system.                                    | NAC 200 ► 480<br>NAH 200 ► 300 |

| <b>ACCESSORIES</b>           | <b>DESCRIPTION</b>  | <b>ADVANTAGES</b>  | <b>MODELS</b>                  |
|------------------------------|---|--|--------------------------------|
| Water filter                 | 1000 microns water filter delivered with piping and Victaulic connections. Not necessary if 'hydraulic module' option selected. | This protection must be fitted in the customer water supply piping to protect the evaporator from any possible impurities. | NAC 200 ► 480<br>NAH 200 ► 300 |
| Victaulic connection sleeve  | Connection sleeve with Victaulic groove at one end and unfinished at the other.   | Connection sleeve for the customer to make the connection of his choice (grooved, welded, flanged).                        | NAC 200 ► 480<br>NAH 200 ► 300 |
| Anti-vibration mounts        | Rubber anti-vibration mounts to be mounted under the unit.  | Reduction of the transmission of vibration to the ground and the general level.  | NAC 200 ► 480<br>NAH 200 ► 300 |
| DC50™ remote comfort display | Customer display located at 600 meters maximum from the unit.   | Remote customer parameter reading and modification.  | NAC 200 ► 480<br>NAH 200 ► 300 |
| DS50™ service display        | Plug and play display delivered with 1 meter cable and connector for quick connection on Climatic controller.                   | Display for service technicians only.  | NAC 200 ► 480<br>NAH 200 ► 300 |
| Adalink™ supervision         | Electronic board with RS485 cables, RJ11 phone cable, Ethernet cable and power supply cable.                                    | Remote supervision of the unit via an intuitive web page.  | NAC 200 ► 480<br>NAH 200 ► 300 |

**COOLING ONLY**

**NAC**

| <b>NEOSYS</b>   | <b>NAC</b>        | <b>200</b>                                   | <b>230</b>                      | <b>270</b>                      | <b>300</b>                 |
|---|-------------------|--|---------------------------------|---------------------------------|----------------------------|
| <b>Cooling mode</b>   |                   |  |                                 |                                 |                            |
| Cooling capacity <sup>(1)</sup>   | kW                | 202,1  | 228,6                           | 266,3                           | 298,8                      |
| Power input <sup>(1)</sup>  | kW                | 69,7   | 83,9                            | 103,9                           | 104,9                      |
| Full load amps <sup>(1)</sup>   | A                 | 123,9  | 145,5                           | 174,9                           | 185,4                      |
| EER <sup>(1)</sup>  |                   | 2,90   | 2,72                            | 2,56                            | 2,85                       |
| ESEER <sup>(2)</sup>  |                   | 4,18   | 3,97                            | 3,93                            | 4,11                       |
| <b>Compressor</b>   |                   |  |                                 |                                 |                            |
| <b>Scroll - Hermetic</b>  |                   |  |                                 |                                 |                            |
| Number of compressor  | nr                | 4  | 4                               | 4                               | 4                          |
| Capacity steps  | %                 | 19 - 31 - 50 - 62<br>- 81 - 100              | 16 - 34 - 50 - 68<br>- 84 - 100 | 22 - 28 - 50 - 57<br>- 78 - 100 | 20 - 27 - 53 - 73<br>- 100 |
| Oil charge per compressor   | l                 | (3,2+6,8)<br>+ (3,2+6,8)                     | (3,2+6,3)<br>+ (3,2+6,3)        | (6,8+6,3)<br>+ (6,8+6,3)        | (6,8x2)<br>+ (6,8+6,3)     |
| Oil type  | type              | MOBIL EAL Arctic 22CC or ICI EMKARATE RL32CF |                                 |                                 |                            |
| <b>Refrigerant</b>  |                   |  |                                 |                                 |                            |
| <b>R410A</b>  |                   |  |                                 |                                 |                            |
| Expansion   | type              | Thermostatic expansion valve                 |                                 |                                 |                            |
| Number of circuit   | nr                | 2  | 2                               | 2                               | 2                          |
| Charge per circuit  | kg                | 17   | 17                              | 17                              | 25,5                       |
| <b>Condenser</b>  |                   |  |                                 |                                 |                            |
| <b>Microchannel Aluminium Tube and fins</b>                             |                   |  |                                 |                                 |                            |
| Face area   | m <sup>2</sup>    | 9,6  | 9,6                             | 9,6                             | 14,4                       |
| Number of rows  |                   | 1  | 1                               | 1                               | 1                          |
| Fin spacing   | mm                | MCHX 1,6                                     | MCHX 1,6                        | MCHX 1,6                        | MCHX 1,6                   |
| <b>Fan &amp; Motor</b>  |                   |  |                                 |                                 |                            |
| <b>Variable speed fans</b>  |                   |  |                                 |                                 |                            |
| Number of fan   |                   | 4  | 4                               | 4                               | 6                          |
| Diameter  | mm                | 800  | 800                             | 800                             | 800                        |
| Maximum speed   | RPM               | Variable speed - 900 rpm maximum             |                                 |                                 |                            |
| Nominal air flow (100%)   | m <sup>3</sup> /h | 87 200                                       | 87 200                          | 87 200                          | 130 800                    |
| External static pressure  | Pa                | 0  | 0                               | 0                               | 0                          |
| Total motor power input (900 rpm)                                       | kW                | 6,4  | 6,4                             | 6,4                             | 9,6                        |
| <b>Evaporator</b>   |                   |  |                                 |                                 |                            |
| <b>AISI 316 stainless steel plate brazed with copper heat exchanger</b> |                   |  |                                 |                                 |                            |
| Water flow <sup>(1)</sup>   | m <sup>3</sup> /h | 34,8   | 39,3                            | 45,8                            | 51,4                       |
| Water volume  | l                 | 20   | 20                              | 23,2                            | 23,2                       |
| Pressure drop <sup>(1)</sup>  | kPa               | 28,6   | 36,6                            | 37,5                            | 47,2                       |
| Water operating pressure  | kPa               | 600  | 600                             | 600                             | 600                        |
| <b>Hydraulic connections</b>  |                   |  |                                 |                                 |                            |
| <b>Victaulic</b>  |                   |  |                                 |                                 |                            |
| Water inlet/outlet  | Inches            | 4"   | 4"                              | 4"                              | 4"                         |
| <b>Acoustic</b>   |                   |  |                                 |                                 |                            |
| <b>Active Acoustic Attenuation System™</b>                              |                   |  |                                 |                                 |                            |
| Global sound power level <sup>(3)</sup>                                 | dB(A)             | 89,2   | 89,3                            | 89,7                            | 91,2                       |
| <b>Electrical data</b>  |                   |  |                                 |                                 |                            |
| <b>400V / III / 50 Hz</b>   |                   |  |                                 |                                 |                            |
| Start-up intensity  | A                 | 395,1  | 444,8                           | 473,7                           | 504,3                      |
| Maximum current   | A                 | 168,0  | 191,4                           | 220,3                           | 250,9                      |
| <b>Operating limits</b>   |                   |  |                                 |                                 |                            |
| Min. outlet water temperature   | °C                | 5  |                                 |                                 |                            |
| Max. inlet water temperature  | °C                | 20   |                                 |                                 |                            |
| Min. difference water inlet/outlet                                      | °C                | 3  |                                 |                                 |                            |
| Max. difference water inlet/outlet                                      | °C                | 8  |                                 |                                 |                            |
| Min. outside air temperature  | °C                | 6  |                                 |                                 |                            |
| Max. outside air temperature  | °C                | 46   |                                 |                                 |                            |
| <b>Dimensions</b>   |                   |  |                                 |                                 |                            |
| Length  | mm                | 3590   | 3590                            | 3590                            | 4620                       |
| Width   | mm                | 2280   | 2280                            | 2280                            | 2280                       |
| Height  | mm                | 1964   | 1964                            | 1964                            | 1964                       |
| Footprint   | m <sup>2</sup>    | 8,2  | 8,2                             | 8,2                             | 10,5                       |
| Operating weight  | kg                | 1937   | 1963                            | 2215                            | 2579                       |
| Shipping weight   | kg                | 1900   | 1926                            | 2175                            | 2531                       |
| <b>Construction</b>   |                   |  |                                 |                                 |                            |
| Frame   |                   | Galvanised steel                             |                                 |                                 |                            |
| Casing  |                   | Aluminium and galvanised steel               |                                 |                                 |                            |
| Painting  |                   | Polyester - RAL 9002/RAL 7016                |                                 |                                 |                            |

(1) All data are at Eurovent condition,  
Gross cooling capacity with 12/7°C water temperature and 35°C air ambient,  
Gross heating capacity with 7°C air inlet temperature and 40/45°C water temperature

(2) ESEER according to EN14511 Eurovent calculation method.  
(3) Sound power level at 100% of the nominal airflow.  
(NA) Not available.

**COOLING ONLY**

**NAC**

| <b>NEOSYS</b>   | <b>NAC</b>        | <b>340</b>                                   | <b>380</b>           | <b>420</b>                           | <b>480</b>                      |
|---|-------------------|--|----------------------|--------------------------------------|---------------------------------|
| <b>Cooling mode</b>   |                   |  |                      |                                      |                                 |
| Cooling capacity <sup>(1)</sup>   | kW                | 336,5  | 377,0                | 420,1                                | 460,2                           |
| Power input <sup>(1)</sup>  | kW                | 122,0  | 146,6                | 149,3                                | 170,1                           |
| Full load amps <sup>(1)</sup>   | A                 | 206,3  | 243,4                | 252,7                                | 284,8                           |
| EER <sup>(1)</sup>  |                   | 2,76   | 2,57                 | 2,81                                 | 2,70                            |
| ESEER <sup>(2)</sup>  |                   | 4,09   | 3,92                 | 4,48                                 | 3,95                            |
| <b>Compressor</b>   |                   |  |                      |                                      |                                 |
| <b>Scroll - Hermetic</b>  |                   |  |                      |                                      |                                 |
| Number of compressor  | nr                | 5  | 5                    | 6                                    | 6                               |
| Capacity steps  | %                 | 18 - 23 - 36 - 59<br>- 77 - 100              | 20 - 40 - 60 - 100   | 14 - 19 - 29 - 48<br>- 67 - 81 - 100 | 14 - 33 - 48 - 67<br>- 81 - 100 |
| Oil charge per compressor   | l                 | (6,8x3)<br>+ (6,3x2)                         | (6,3x3)<br>+ (6,3x2) | (6,3x3)<br>+ (6,8x3)                 | (6,3x3)<br>+ (6,3x3)            |
| Oil type  | type              | MOBIL EAL Arctic 22CC or ICI EMKARATE RL32CF |                      |                                      |                                 |
| <b>Refrigerant</b>  |                   |  |                      |                                      |                                 |
| <b>R410A</b>  |                   |  |                      |                                      |                                 |
| Expansion   | type              | Thermostatic expansion valve                 |                      |                                      |                                 |
| Number of circuit   | nr                | 2  | 2                    | 2                                    | 2                               |
| Charge per circuit  | kg                | 25,5   | 25,5                 | 34                                   | 34                              |
| <b>Condenser</b>  |                   |  |                      |                                      |                                 |
| <b>Microchannel Aluminium Tube and fins - Air cooled</b>                |                   |  |                      |                                      |                                 |
| Face area   | m <sup>2</sup>    | 14,4   | 14,4                 | 19,2                                 | 19,2                            |
| Number of rows  |                   | 1  | 1                    | 1                                    | 1                               |
| Fin spacing   | mm                | MCHX 1.6                                     | MCHX 1.6             | MCHX 1.6                             | MCHX 1.6                        |
| <b>Fan &amp; Motor</b>  |                   |  |                      |                                      |                                 |
| <b>Variable speed fans</b>  |                   |  |                      |                                      |                                 |
| Number of fan   |                   | 6  | 6                    | 8                                    | 8                               |
| Diameter  | mm                | 800  | 800                  | 800                                  | 800                             |
| Maximum speed   | RPM               | Variable speed - 900 rpm maximum             |                      |                                      |                                 |
| Nominal air flow (100%)   | m <sup>3</sup> /h | 130 800                                      | 130 800              | 174 400                              | 174 400                         |
| External static pressure  | Pa                | 0  | 0                    | 0                                    | 1                               |
| Total motor power input (900 rpm)                                       | kW                | 9,6  | 9,6                  | 12,8                                 | 12,8                            |
| <b>Evaporator</b>   |                   |  |                      |                                      |                                 |
| <b>AISI 316 stainless steel plate brazed with copper heat exchanger</b> |                   |  |                      |                                      |                                 |
| Water flow <sup>(1)</sup>   | m <sup>3</sup> /h | 57,9   | 64,9                 | 72,3                                 | 79,2                            |
| Water volume  | l                 | 27,2   | 34,4                 | 39,2                                 | 39,2                            |
| Pressure drop <sup>(1)</sup>  | kPa               | 45,3   | 38,6                 | 39,2                                 | 46,9                            |
| Water operating pressure  | kPa               | 600  | 600                  | 600                                  | 600                             |
| <b>Hydraulic connections</b>  |                   |  |                      |                                      |                                 |
| <b>Victaulic</b>  |                   |  |                      |                                      |                                 |
| Water inlet/outlet  | Inches            | 5"   | 5"                   | 5"                                   | 5"                              |
| <b>Acoustic</b>   |                   |  |                      |                                      |                                 |
| <b>Active Acoustic Attenuation System™</b>                              |                   |  |                      |                                      |                                 |
| Global sound power level <sup>(3)</sup>                                 | dB(A)             | 91,3   | 91,4                 | 92,5                                 | 92,6                            |
| <b>Electrical data</b>  |                   |  |                      |                                      |                                 |
| <b>400V / III / 50 Hz</b>   |                   |  |                      |                                      |                                 |
| Start-up intensity  | A                 | 526,2  | 561,3                | 591,3                                | 626,5                           |
| Maximum current   | A                 | 272,8  | 307,9                | 338,0                                | 373,0                           |
| <b>Operating limits</b>   |                   |  |                      |                                      |                                 |
| Min. outlet water temperature   | °C                | 5  |                      |                                      |                                 |
| Max. inlet water temperature  | °C                | 20   |                      |                                      |                                 |
| Min. difference water inlet/outlet                                      | °C                | 3  |                      |                                      |                                 |
| Max. difference water inlet/outlet                                      | °C                | 8  |                      |                                      |                                 |
| Min. outside air temperature  | °C                | 6  |                      |                                      |                                 |
| Max. outside air temperature  | °C                | 46   |                      |                                      |                                 |
| <b>Dimensions</b>   |                   |  |                      |                                      |                                 |
| Length  | mm                | 4620   | 4620                 | 5650                                 | 5650                            |
| Width   | mm                | 2280   | 2280                 | 2280                                 | 2280                            |
| Height  | mm                | 1964   | 1964                 | 1964                                 | 1964                            |
| Footprint   | m <sup>2</sup>    | 10,5   | 10,5                 | 12,9                                 | 12,9                            |
| Operating weight  | kg                | 2853   | 2898                 | 3431                                 | 3509                            |
| Shipping weight   | kg                | 2801   | 2838                 | 3358                                 | 3436                            |
| <b>Construction</b>   |                   |  |                      |                                      |                                 |
| Frame   |                   | Galvanised steel                             |                      |                                      |                                 |
| Casing  |                   | Aluminium and galvanised steel               |                      |                                      |                                 |
| Painting  |                   | Polyester - RAL 9002/RAL 7016                |                      |                                      |                                 |

(1) All data are at Eurovent condition,  
Gross cooling capacity with 12/7°C water temperature and 35°C air ambient,  
Gross heating capacity with 7°C air inlet temperature and 40/45°C water temperature

(2) ESEER according to EN14511 Eurovent calculation method.  
(3) Sound power level at 100% of the nominal airflow.  
(NA) Not available.

**HEAT PUMP**

**NAH**

| <b>NEOSYS</b>                                | <b>NAH</b>        | <b>200</b>  | <b>230</b>                   | <b>270</b>                   | <b>300</b>           |
|--|-------------------|---|------------------------------|------------------------------|----------------------|
| <b>Cooling mode</b>                          |                   |   |                              |                              |                      |
| Cooling capacity <sup>(1)</sup>              | kW                | 191   | 215                          | 271                          | 295                  |
| Power input <sup>(1)</sup>                   | kW                | 69,5  | 84,8                         | 96,9                         | 111,5                |
| Full load amps <sup>(1)</sup>                | A                 | 127,5   | 151,1                        | 170,9                        | 193,5                |
| EER <sup>(1)</sup>                           |                   | 2,75  | 2,54                         | 2,79                         | 2,65                 |
| ESEER <sup>(2)</sup>                         |                   | 4,00  | 3,76                         | 3,99                         | 3,94                 |
| <b>Heating mode</b>                          |                   |   |                              |                              |                      |
| Heating capacity <sup>(1)</sup>              | kW                | 219   | 252                          | 313                          | 346                  |
| Power input <sup>(1)</sup>                   | kW                | 68,1  | 80,4                         | 97,7                         | 110,7                |
| Full load amps <sup>(1)</sup>                | A                 | 125,9   | 145,3                        | 172,8                        | 192,5                |
| COP <sup>(3)</sup>                           |                   | 3,21  | 3,13                         | 3,20                         | 3,12                 |
| <b>Compressor</b>                            |                   | <b>Scroll - Hermetic</b>  |                              |                              |                      |
| Number of compressor                         | nr                | 4   | 4                            | 4                            | 4                    |
| Capacity steps                               | %                 | 19 - 31 - 50 - 62 - 81 - 100  | 16 - 34 - 50 - 68 - 84 - 100 | 22 - 28 - 50 - 57 - 78 - 100 | 25 - 50 - 75 - 100   |
| Oil charge per compressor                    | l                 | (3,2+6,8)<br>+ (3,2+6,8)  | (3,2+6,3)<br>+ (3,2+6,3)     | (6,8+6,3)<br>+ (6,8+6,3)     | (6,8x2)<br>+ (6,8x2) |
| Oil type                                     | type              | MOBIL EAL Arctic 22CC or ICI EMKARATE RL32CF                            |                              |                              |                      |
| <b>Refrigerant</b>                           |                   | <b>R410A</b>  |                              |                              |                      |
| Expansion                                    | type              | Thermostatic expansion valve  |                              |                              |                      |
| Number of circuit                            | nr                | 2   | 2                            | 2                            | 2                    |
| Charge per circuit                           | kg                |   |                              |                              |                      |
| <b>Condenser</b>                             |                   | <b>Copper tube - Aluminium fin - Air-cooled</b>                         |                              |                              |                      |
| Face area                                    | m <sup>2</sup>    | 9,6   | 9,6                          | 14,4                         | 14,4                 |
| Number of rows                               |                   | 3   | 3                            | 3                            | 3                    |
| Fin spacing                                  | mm                | 1,6   | 1,6                          | 1,6                          | 1,6                  |
| <b>Fan &amp; Motor</b>                       |                   | <b>Variable speed fans</b>  |                              |                              |                      |
| Number of fan                                |                   | 4   | 4                            | 6                            | 6                    |
| Diameter                                     | mm                | 800   | 800                          | 800                          | 800                  |
| Maximum speed                                | RPM               | Variable speed - 900 rpm maximum  |                              |                              |                      |
| Nominal air flow (100%)                      | m <sup>3</sup> /h | 76 000  | 76 000                       | 114 000                      | 114 000              |
| External static pressure                     | Pa                | 0   | 0                            | 0                            | 0                    |
| Total motor power input                      | kW                | 6,4   | 6,4                          | 9,6                          | 9,6                  |
| <b>Evaporator</b>                            |                   | <b>AISI 316 stainless steel plate brazed with copper heat exchanger</b> |                              |                              |                      |
| Water flow <sup>(1)</sup>                    | m <sup>3</sup> /h | 32,9  | 37,0                         | 46,6                         | 50,8                 |
| Water volume                                 | l                 | 20  | 20                           | 23,2                         | 23,2                 |
| Pressure drop <sup>(1)</sup>                 | kPa               | 25,7  | 32,5                         | 38,8                         | 46,2                 |
| Water operating pressure                     | kPa               | 600   | 600                          | 600                          | 600                  |
| <b>Hydraulic connections</b>                 |                   | <b>Victaulic</b>  |                              |                              |                      |
| Water inlet/outlet                           | Inches            | 4"  | 4"                           | 4"                           | 4"                   |
| <b>Acoustic</b>                              |                   | <b>Active Acoustic Attenuation System™</b>                              |                              |                              |                      |
| Global sound power level <sup>(3)</sup>      | dB(A)             | 89,2  | 89,3                         | 91,1                         | 91,2                 |
| <b>Electrical data</b>                       |                   | <b>400V / III / 50 Hz</b>   |                              |                              |                      |
| Start-up intensity                           | A                 | 39531   | 444,8                        | 480,9                        | 504,3                |
| Maximum current                              | A                 | 168,0   | 191,4                        | 227,5                        | 250,9                |
| <b>Operating limits</b>                      |                   |   |                              |                              |                      |
| Min. outlet water temperature - Cooling mode | °C                | 5   |                              |                              |                      |
| Max. inlet water temperature                 | °C                | 20  |                              |                              |                      |
| Min. outside air temperature - Cooling mode  | °C                | 6   |                              |                              |                      |
| Max. outside air temperature - Cooling mode  | °C                | 46  |                              |                              |                      |
| Max. outlet water temperature - Heating mode | °C                | 50  |                              |                              |                      |
| Max. outside air temperature - Heating mode  | °C                | - 12  |                              |                              |                      |
| <b>Dimensions</b>                            |                   |   |                              |                              |                      |
| Length                                       | mm                | 3590  | 3590                         | 4620                         | 4620                 |
| Width  | mm                | 2280  | 2280                         | 2280                         | 2280                 |
| Height                                       | mm                | 1964  | 1964                         | 1964                         | 1964                 |
| Footprint                                    | m <sup>2</sup>    | 8,2   | 8,2                          | 10,5                         | 10,5                 |
| Operating weight                             | kg                | 2137  | 2163                         | 2835                         | 2861                 |
| Shipping weight                              | kg                | 2088  | 2114                         | 2769                         | 2795                 |
| <b>Construction</b>                          |                   |   |                              |                              |                      |
| Frame  |                   | Galvanised steel  |                              |                              |                      |
| Casing                                       |                   | Aluminium and galvanised steel  |                              |                              |                      |
| Painting                                     |                   | Polyester - RAL 9002/RAL 7016   |                              |                              |                      |

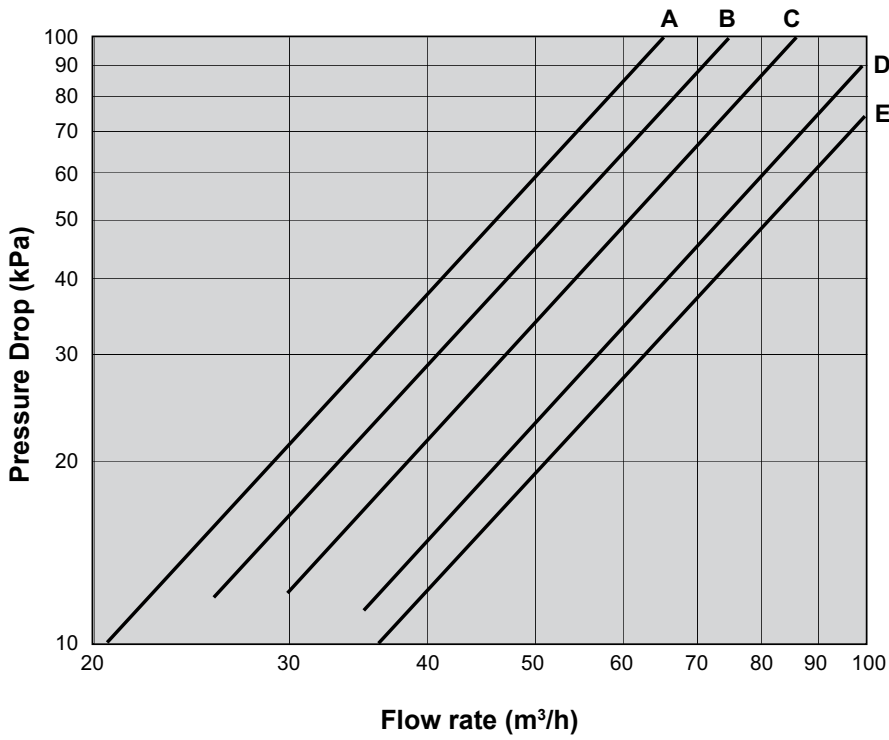
(1) All data are at Eurovent condition,  
Gross cooling capacity with 12/7°C water temperature and 35°C air ambient,  
Gross heating capacity with 7°C air inlet temperature and 40/45°C water temperature

(2) ESEER according to EN14511 Eurovent calculation method.

(3) Sound power level at 100% of the nominal airflow.

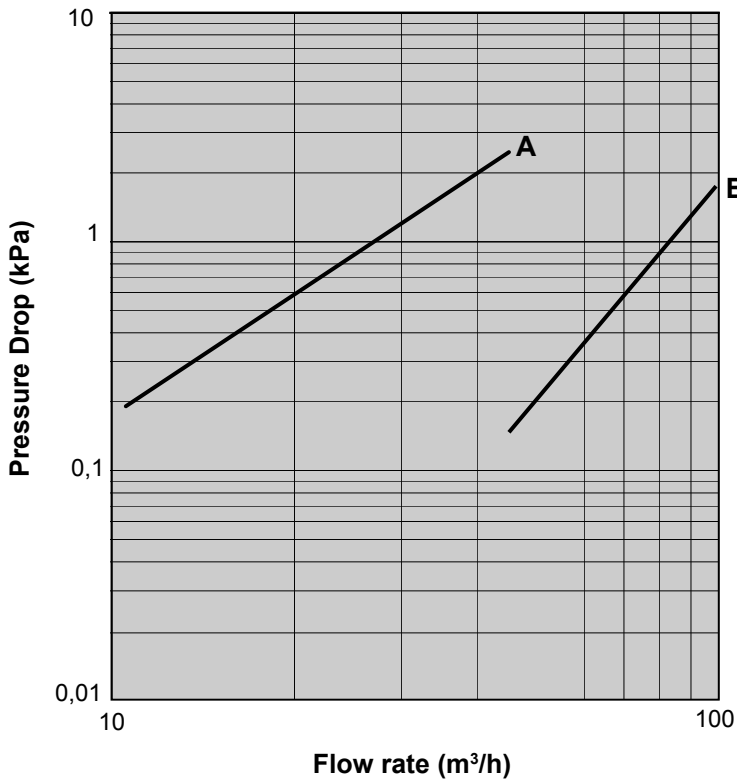
(NA) Not available,

**EVAPORATORS CURVE**



| NAC/NAH | Curve |
|---------|-------|
| 200     | A     |
| 230     | A     |
| 270     | B     |
| 300     | B     |
| 340     | C     |
| 380     | D     |
| 420     | E     |
| 480     | E     |

**FILTER CURVE**

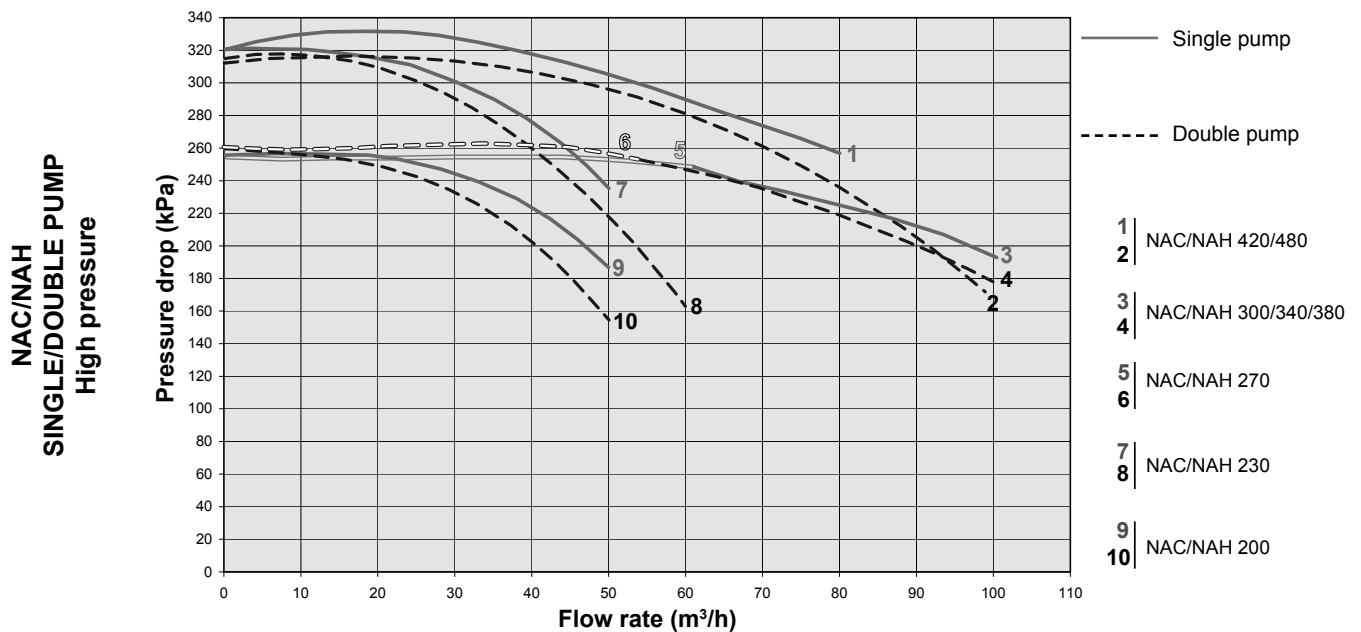
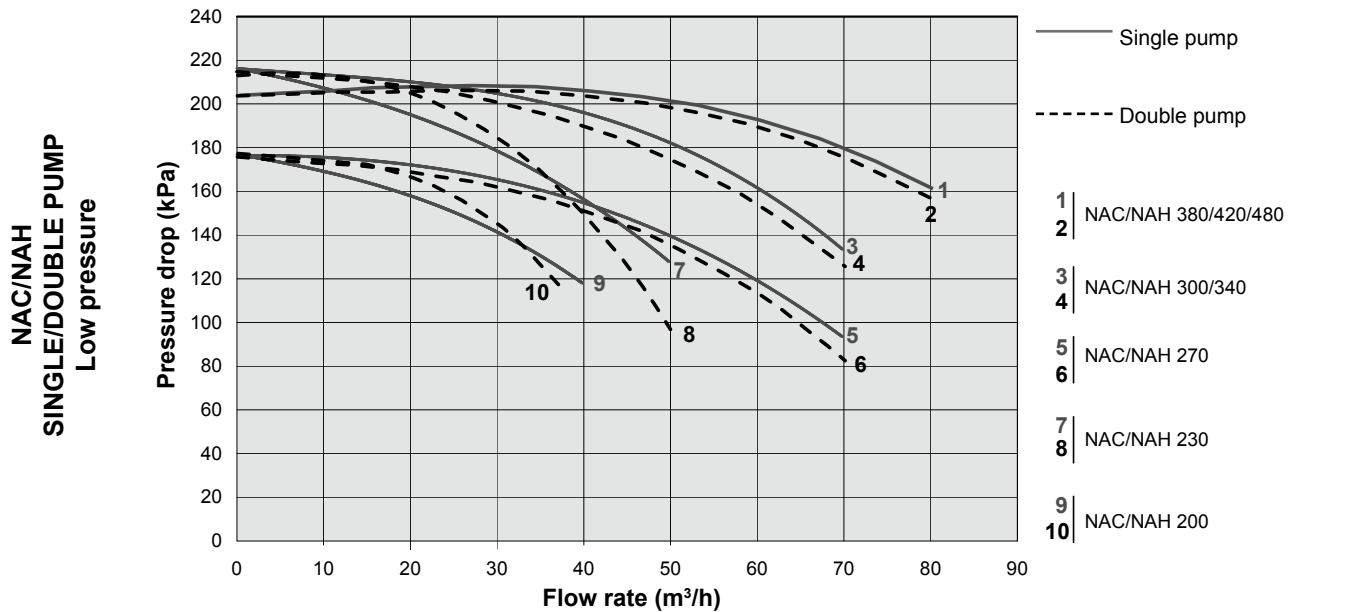


| NAC/NAH | Curve |
|---------|-------|
| 200     | A     |
| 230     | A     |
| 270     | A     |
| 300     | A     |
| 340     | A     |
| 380     | B     |
| 420     | B     |
| 480     | B     |

*Pressure drops are given for information only, A tolerance of +/- 20kPa must be considered when selecting water pumps,*

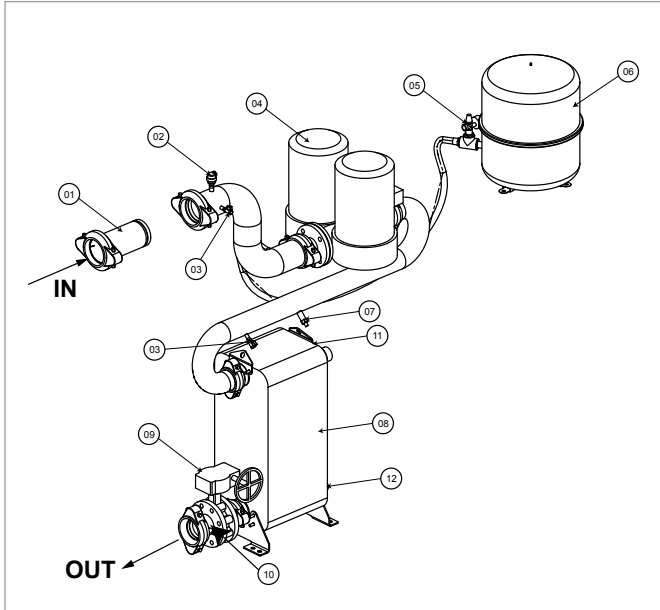
| <b>NAC - NAH</b>              |             | <b>200</b> | <b>230</b> | <b>270</b> | <b>300</b> | <b>340</b> | <b>380</b> | <b>420</b> | <b>480</b> |
|-------------------------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <i>Nominal water flow</i>     | <i>m³/h</i> | 34.8       | 39.3       | 45.8       | 51.4       | 57.9       | 64.9       | 72.3       | 79.2       |
| <b>Single pump</b>            |             |            |            |            |            |            |            |            |            |
| Available static pressure (1) | kPa         | 110        | 119        | 107        | 117        | 121        | 147        | 132        | 114        |
| <b>Double pump</b>            |             |            |            |            |            |            |            |            |            |
| Available static pressure (1) | kPa         | 105        | 109        | 102        | 112        | 111        | 137        | 127        | 109        |
| <b>Single pump HP</b>         |             |            |            |            |            |            |            |            |            |
| Available static pressure (1) | kPa         | 208        | 236        | 215        | 200        | 205        | 206        | 225        | 207        |
| <b>Double pump HP</b>         |             |            |            |            |            |            |            |            |            |
| Available static pressure (1) | kPa         | 198        | 226        | 215        | 200        | 205        | 201        | 215        | 192        |
| <b>Expansion vessel</b>       |             |            |            |            |            |            |            |            |            |
| Volume                        | l           | 50         | 50         | 80         | 80         | 80         | 80         | 80         | 80         |
| Maximum pressure              | kPa         | 400        | 400        | 400        | 400        | 400        | 400        | 400        | 400        |
| Gross Weight                  | kg          | 6.9        | 6.9        | 6.9        | 6.9        | 6.9        | 6.9        | 6.9        | 6.9        |

(1) : Available static pressure for the installation.





**UNIT WITH HYDRAULIC MODULE**



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

**MINIMUM WATER CONTENT OF AN INSTALLATION**

Thanks to multi step capacity control and smart anti-short compressor cycling, NEOSYS can work with minimum water loop volume as defined here below. This can eliminate the need for a buffer tank in most of air-conditioning applications (e.g. NEOSYS application with fan-coil units). :

$$V_{\text{mini}} = 86 \times Q / (N_{\text{stages}} \times Dt)$$

Where : **V** is the minimum water content of the installation

**Q** is the cooling capacity of the chiller

**Nstage** is the number of control stages available in the unit

**Dt** is the maximum acceptable temperature rise (Dt = 6°C for an air conditioning application)

Important note: In case NEOSYS is used in air-conditioning applications with a short water system (e.g. NEOSYS application with air handling units) or in case NEOSYS is used for industrial process cooling, it is mandatory to use a buffer tank.

**For NAC cooling only Chiller**

| Unit Size | Number of stages | Mini water volume (L) |
|-----------|------------------|-----------------------|
| 200       | 6                | 478                   |
| 230       | 6                | 549                   |
| 270       | 6                | 645                   |
| 300       | 5                | 860                   |
| 340       | 6                | 812                   |
| 380       | 5                | 1089                  |
| 420       | 7                | 860                   |
| 480       | 6                | 1147                  |

**For NAH Heat Pump Chiller**

| Unit Size | Number of stages | Mini water volume (L) |
|-----------|------------------|-----------------------|
| 200       | 6                | 478                   |
| 230       | 6                | 549                   |
| 270       | 6                | 645                   |
| 300       | 4                | 1075                  |

**MAXIMUM WATER CONTENT OF AN INSTALLATION**

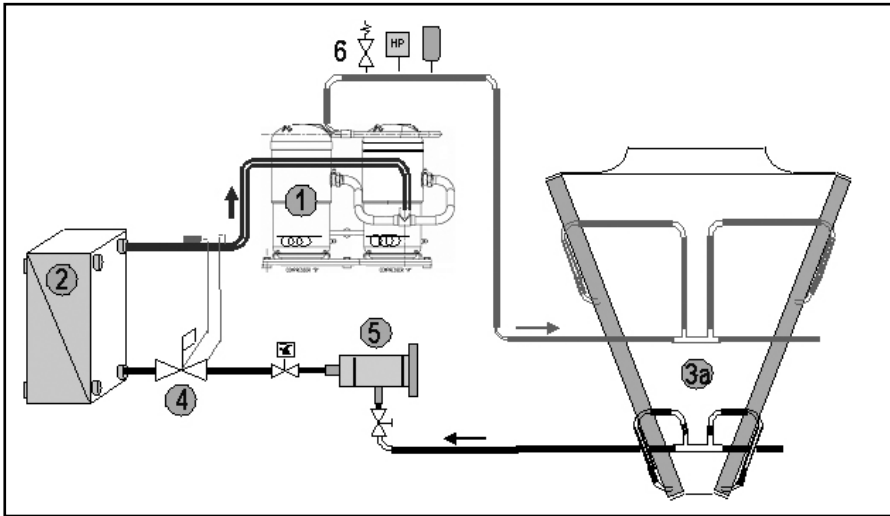
The maximum water content of the installation is determined by the capacity of the expansion vessel.

On units fitted with a standard Hydraulic Module it is possible to determine the maximum water content of the installation.

| Unit Size          | Expansion vessel volume | Pressure in the expansion vessel | Max. volume clear water (L) |         | Max. volume Glycol water (L) |         |
|--------------------|-------------------------|----------------------------------|-----------------------------|---------|------------------------------|---------|
|                    |                         |                                  | Static pressure             |         | Static pressure              |         |
|                    |                         |                                  | 5 m                         | 10 m    | 5 m                          | 10 m    |
| 200-230<br>270-300 | 50 L                    | 1,5 bar                          | 5 230 L                     | 4 180 L | 4 020 L                      | 3 210 L |
| 340-380<br>420-480 | 80 L                    | 2 bar                            | 8 370 L                     | 6 690 L | 6 430                        | 5 150 L |

REFRIGERANT DRAWING

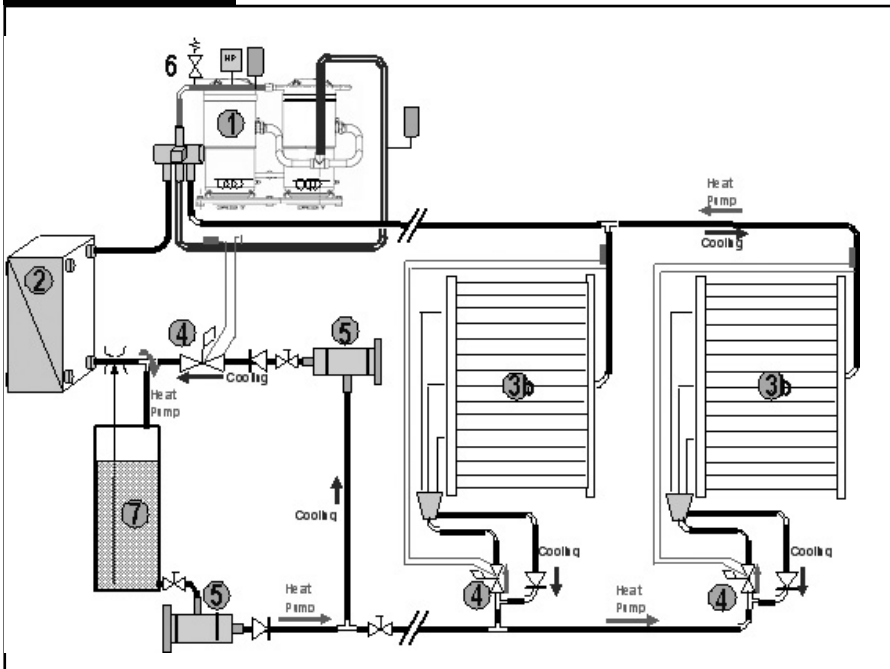
**NAC**



**LEGEND**

|    |                               |
|----|-------------------------------|
| 1  | Compressors                   |
| 2  | Plate heat exchanger          |
| 3a | MCHX condenser                |
| 3b | Fin and tube coil             |
| 4  | Thermostatic expansion valves |
| 5  | Cartridge filter dryer        |
| 6  | High pressure relief valve    |
| 7  | Liquid receiver               |
|    | Crankcase heaters             |

**NAH**



**IMPORTANT NOTE :** Thanks to variable speed fans, maximum sound level can be reduced. NEOSYS maximum air flow can be adjusted between 70 % and 100 % of the nominal airflow to meet maximum sound level requirements.



**Please contact LENNOX for noise level calculations.**

| Spectrum per octave band (dBa) |       |        |        |        |         |         |         |         | Maximum global sound power | Maximum sound pressure at 10 meters | Maximum sound pressure at 10 meters envelopping surface |
|--------------------------------|-------|--------|--------|--------|---------|---------|---------|---------|----------------------------|-------------------------------------|---|
| NAC                            | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz | EUROVENT Lw dB(A)          | (1) Pw dB(A)                        | (2) Pw dB(A)  |
| 200                            |       | 68     | 79     | 83     | 85      | 82      | 75      | 68      | <b>89.2</b>                | 61                                  | 58  |
| 230                            |       | 68     | 80     | 84     | 85      | 82      | 76      | 68      | <b>89.3</b>                | 61                                  | 58  |
| 270                            |       | 68     | 80     | 84     | 85      | 83      | 76      | 68      | <b>89.7</b>                | 62                                  | 58  |
| 300                            |       | 70     | 82     | 85     | 87      | 84      | 78      | 70      | <b>91.2</b>                | 63                                  | 60  |
| 340                            |       | 70     | 82     | 85     | 87      | 84      | 78      | 70      | <b>91.3</b>                | 63                                  | 60  |
| 380                            |       | 70     | 82     | 86     | 87      | 84      | 78      | 70      | <b>91.4</b>                | 63                                  | 60  |
| 420                            |       | 71     | 83     | 87     | 88      | 85      | 79      | 71      | <b>92.5</b>                | 64                                  | 61  |
| 480                            |       | 71     | 83     | 87     | 88      | 86      | 79      | 71      | <b>92.6</b>                | 65                                  | 61  |

(1) : For information only.  
Data calculated by semi spheric method in free open field

(2) : For information only.  
Data calculated by envelopping surface method in free open field

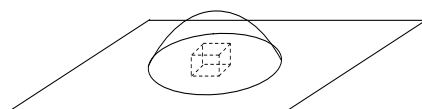


| Spectrum per octave band (dBa) |       |        |        |        |         |         |         |         | Maximum global sound power | Maximum sound pressure at 10 meters | Maximum sound pressure at 10 meters envelopping surface |
|--------------------------------|-------|--------|--------|--------|---------|---------|---------|---------|----------------------------|-------------------------------------|---|
| NAH                            | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz | EUROVENT Lw dB(A)          | (1) Pw dB(A)                        | (2) Pw dB(A)  |
| 200                            |       | 68     | 79     | 83     | 85      | 82      | 75      | 68      | <b>89.2</b>                | 61                                  | 58  |
| 230                            |       | 68     | 80     | 84     | 85      | 82      | 76      | 68      | <b>89.3</b>                | 61                                  | 58  |
| 270                            |       | 70     | 82     | 85     | 87      | 84      | 78      | 70      | <b>91.1</b>                | 63                                  | 60  |
| 300                            |       | 70     | 82     | 85     | 87      | 84      | 78      | 70      | <b>91.2</b>                | 63                                  | 60  |

(1) : For information only.  
Data calculated by semi spheric method in free open field

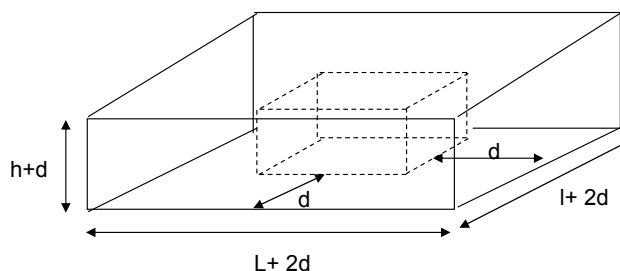
(2) : For information only.  
Data calculated by envelopping surface method in free open field

**Free field Semi Spherique**



$$L_p = L_w - 10 \log 2\pi d^2$$

**Enveloping Surface**



$$A = 2(L+2d)(h+d) + 2(L+2d)(L+2d)$$

**NAC**

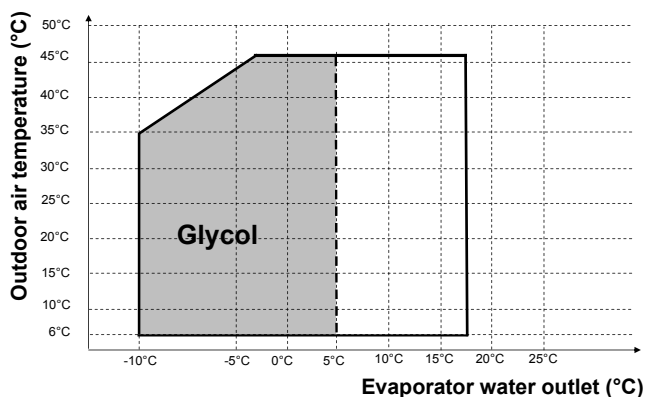
| <b>NAC</b>   |    | <b>200 - 230 - 270 - 300 - 340 - 380 - 420 - 480</b> |
|--|----|--|
| Min. outlet water temperature                                | °C | 5  |
| Max. inlet water temperature                                 | °C | 20   |
| Min. difference water inlet/outlet                           | °C | 3  |
| Max. difference water inlet/outlet                           | °C | 8  |
| Min. outside air temperature                                 | °C | 6  |
| Min. outside air temperature with low ambient kit            | °C | - 10   |
| Maximum outside air temperature :<br>Full capacity operation | °C | 46   |

**NAH**

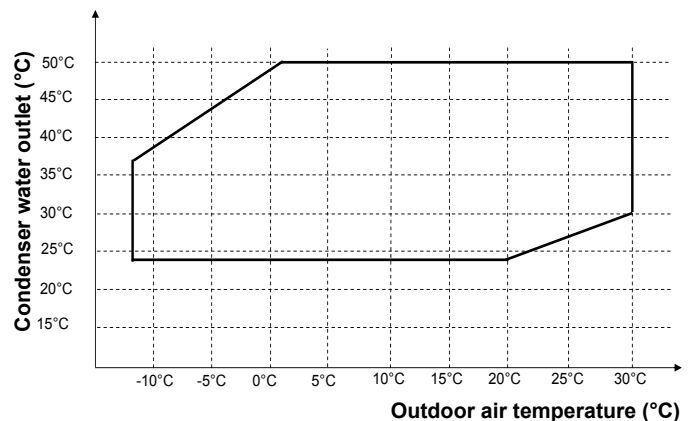
| <b>NAH - Cooling mode</b>                                    | <b>NAH</b> | <b>200</b> | <b>230</b> | <b>270</b> | <b>300</b> |
|--|------------|------------|------------|------------|------------|
| Min. outlet water temperature                                | °C         | 5          |            |            |            |
| Max. inlet water temperature                                 | °C         | 20         |            |            |            |
| Min. difference water inlet/outlet                           | °C         | 3          |            |            |            |
| Max. difference water inlet/outlet                           | °C         | 8          |            |            |            |
| Min. outside air temperature                                 | °C         | 6          |            |            |            |
| Min. outside air temperature with low ambient kit            | °C         | - 10       |            |            |            |
| Maximum outside air temperature :<br>Full capacity operation | °C         | 46         |            |            |            |

| <b>NAH - Heating mode</b>                                  | <b>NAH</b> | <b>200</b> | <b>230</b> | <b>270</b> | <b>300</b> |
|--|------------|------------|------------|------------|------------|
| Min. condenser outlet water temperature                    | °C         | 24         |            |            |            |
| Max. condenser outlet water temperature                    | °C         | 50         |            |            |            |
| Min. difference water inlet/outlet                         | °C         | 3          |            |            |            |
| Max. difference water inlet/outlet                         | °C         | 8          |            |            |            |
| Min. outside air temperature (Water outlet temp. : 12/7°C) | °C         | - 12       |            |            |            |
| Max. outside air temperature                               | °C         | 30         |            |            |            |

**NAC / NAH**  
Operating envelope  
Cooling mode



**NAH**  
Operating envelope  
Heating mode



**NAC / NAH**

**UNITS**

| <b>NEOSYS</b>                                 |    | <b>NAC</b> | <b>200</b>    | <b>230</b> | <b>270</b> | <b>300</b> | <b>340</b> | <b>380</b> | <b>420</b> | <b>480</b> |
|---|----|------------|---------------|------------|------------|------------|------------|------------|------------|------------|
|   |    | <b>NAH</b> | <b>200</b>    | <b>230</b> | <b>270</b> | <b>300</b> | -          | -          | -          | -          |
| Minimum and maximum voltage                   | V  |            | 380 V / 420 V |            |            |            |            |            |            |            |
| Maximum power                                 | kW | <b>NAC</b> | 95,8          | 113,4      | 134,1      | 154,9      | 164,8      | 191,2      | 204,4      | 230,8      |
|   |    | <b>NAH</b> | 95,8          | 113,4      | 137,3      | 154,9      | -          | -          | -          | -          |
| Maximum current                               | A  | <b>NAC</b> | 168,0         | 196,8      | 225,7      | 261,7      | 278,2      | 321,4      | 346,0      | 389,3      |
|   |    | <b>NAH</b> | 168,0         | 196,8      | 232,9      | 261,7      | -          | -          | -          | -          |
| Maximum current (with cos phi 0,95 option)    | A  | <b>NAC</b> | 146,9         | 173,7      | 205,3      | 236,9      | 252,0      | 292,1      | 313,1      | 353,2      |
|   |    | <b>NAH</b> | 146,9         | 173,7      | 210,1      | 236,9      | -          | -          | -          | -          |
| Start-up intensity                            | A  | <b>NAC</b> | 395,1         | 447,5      | 476,4      | 512,4      | 528,9      | 572,1      | 596,8      | 640,0      |
|   |    | <b>NAH</b> | 395,1         | 447,5      | 483,6      | 512,4      | -          | -          | -          | -          |
| Start-up intensity (with sofstarter option)   | A  | <b>NAC</b> | 286,3         | 323,5      | 352,4      | 388,4      | 404,9      | 448,1      | 472,8      | 516,0      |
|   |    | <b>NAH</b> | 286,3         | 323,5      | 359,6      | 388,4      | -          | -          | -          | -          |
| Start-up intensity (with cos phi 0,95 option) | A  | <b>NAC</b> | 268,7         | 304,8      | 336,4      | 368,0      | 383,1      | 423,3      | 444,2      | 484,3      |
|   |    | <b>NAH</b> | 268,7         | 304,8      | 341,3      | 368,0      | -          | -          | -          | -          |

**FANS**

| <b>NEOSYS</b>             |      | <b>NAC</b> | <b>200</b> | <b>230</b> | <b>270</b> | <b>300</b> | <b>340</b> | <b>380</b> | <b>420</b> | <b>480</b> |
|---------------------------|------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
|                           |      | <b>NAH</b> | <b>200</b> | <b>230</b> | <b>270</b> | <b>300</b> | -          | -          | -          | -          |
| Nominal air flow          | m³/h | <b>NAC</b> | 87200      | 87200      | 87200      | 130800     | 130800     | 130800     | 174400     | 174400     |
|                           |      | <b>NAH</b> | 87200      | 87200      | 130800     | 130800     | -          | -          | -          | -          |
| Available static pressure | kPa  | kPa        | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| Total absorbed power      | kW   | <b>NAC</b> | 6,4        | 6,4        | 6,4        | 9,6        | 9,6        | 9,6        | 12,8       | 12,8       |
|                           |      | <b>NAH</b> | 6,4        | 6,4        | 9,6        | 9,6        | -          | -          | -          | -          |

**OPTIONS**

| <b>NEOSYS</b>                                    |  | <b>NAC</b> | <b>200</b> | <b>230</b> | <b>270</b> | <b>300</b> | <b>340</b> | <b>380</b> | <b>420</b> | <b>480</b> |
|--|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|
|  |  | <b>NAH</b> | <b>200</b> | <b>230</b> | <b>270</b> | <b>300</b> | -          | -          | -          | -          |
| Low pressure                                     | Single pump<br>Double pump                   | kW         | 2.20       | 3.00       | 3.00       | 4.00       | 4.00       | 5.50       | 5.50       | 5.50       |
|  | Single pump - Double pump<br>Maximum current | A          | 4.90       | 6.10       | 6.10       | 7.50       | 7.50       | 10.50      | 10.50      | 10.50      |
| High pressure                                    | Single pump<br>Double pump                   | kW         | 4.00       | 5.50       | 5.50       | 7.50       | 7.50       | 7.50       | 7.50       | 7.50       |
|  | Single pump - Double pump<br>Maximum current | A          | 7.50       | 10.50      | 10.50      | 14.30      | 14.30      | 14.30      | 14.30      | 14.30      |
| Evaporator anti-freeze heater (option)           |  | kW         | 0.13       | 0.13       | 0.13       | 0.13       | 0.13       | 0.13       | 0.13       | 0.13       |
| Evaporator anti-freeze heater<br>Maximum current |  | A          | 0.32       | 0.32       | 0.32       | 0.32       | 0.32       | 0.32       | 0.32       | 0.32       |
| Hydraulic anti-freeze heater (option)            |  | kW         | 0.23       | 0.23       | 0.23       | 0.23       | 0.34       | 0.34       | 0.34       | 0.34       |
| Hydraulic anti-freeze heater<br>Maximum current  |  | A          | 0.56       | 0.56       | 0.56       | 0.56       | 0.84       | 0.84       | 0.84       | 0.84       |

| NAC  | Air inlet temperature |          |            |           |          |          |            |           |          |          |            |           |          |          |            |           |          |          |            |           |          |          |            |           |      |       |       |      |      |       |       |      |      |
|------|-----------------------|----------|------------|-----------|----------|----------|------------|-----------|----------|----------|------------|-----------|----------|----------|------------|-----------|----------|----------|------------|-----------|----------|----------|------------|-----------|------|-------|-------|------|------|-------|-------|------|------|
|      | 28 °C                 |          |            | 30 °C     |          |          | 32 °C      |           |          | 35 °C    |            |           | 38 °C    |          |            | 40 °C     |          |          | 43 °C      |           |          | 46 °C    |            |           |      |       |       |      |      |       |       |      |      |
|      | Pc<br>kW              | Pe<br>kW | Wf<br>m³/h | Dp<br>kPa | Pc<br>kW | Pe<br>kW | Wf<br>m³/h | Dp<br>kPa | Pc<br>kW | Pe<br>kW | Wf<br>m³/h | Dp<br>kPa | Pc<br>kW | Pe<br>kW | Wf<br>m³/h | Dp<br>kPa | Pc<br>kW | Pe<br>kW | Wf<br>m³/h | Dp<br>kPa | Pc<br>kW | Pe<br>kW | Wf<br>m³/h | Dp<br>kPa |      |       |       |      |      |       |       |      |      |
| 5°C  | 200                   | 204.2    | 61.1       | 35.1      | 29.2     | 200.1    | 63.1       | 34.4      | 28.1     | 195.8    | 65.3       | 33.7      | 26.9     | 189.0    | 68.8       | 32.5      | 25.1     | 181.9    | 72.6       | 31.3      | 23.2     | 176.9    | 75.3       | 30.4      | 22.0 | 169.2 | 79.6  | 29.1 | 20.1 | 161.0 | 84.3  | 27.7 | 18.2 |
|      | 230                   | 229.9    | 73.3       | 39.6      | 37.0     | 225.8    | 75.7       | 38.8      | 35.7     | 221.2    | 78.3       | 38.1      | 34.3     | 213.9    | 82.7       | 36.8      | 32.1     | 205.8    | 87.4       | 35.4      | 29.7     | 200.1    | 90.9       | 34.4      | 28.1 | 190.9 | 96.4  | 32.8 | 25.6 | 180.9 | 102.4 | 31.1 | 23.0 |
|      | 270                   | 272.3    | 90.9       | 46.8      | 39.2     | 266.7    | 93.8       | 45.9      | 37.7     | 260.8    | 97.0       | 44.1      | 36.0     | 251.2    | 102.3      | 43.2      | 33.4     | 240.8    | 108.3      | 41.4      | 30.7     | 233.5    | 112.6      | 40.4      | 28.9 | 221.7 | 119.5 | 38.8 | 32.6 | 209.0 | 127.1 | 36.0 | 23.2 |
|      | 300                   | 307.3    | 92.5       | 51.8      | 48.0     | 295.9    | 95.3       | 50.9      | 46.3     | 290.2    | 98.5       | 49.9      | 44.5     | 280.8    | 103.6      | 48.3      | 41.7     | 270.7    | 109.4      | 46.6      | 38.8     | 263.4    | 113.6      | 45.3      | 36.7 | 251.8 | 120.3 | 43.3 | 33.2 | 239.4 | 127.7 | 41.2 | 30.4 |
|      | 340                   | 342.8    | 128.1      | 66.2      | 40.2     | 377.5    | 132.2      | 64.9      | 38.7     | 369.5    | 136.8      | 63.6      | 37.1     | 356.4    | 144.5      | 61.3      | 34.5     | 305.4    | 127.2      | 52.5      | 37.4     | 296.8    | 132.0      | 51.1      | 35.3 | 283.2 | 139.9 | 48.7 | 32.2 | 268.7 | 148.4 | 46.2 | 29.0 |
| 6°C  | 200                   | 384.8    | 128.1      | 66.2      | 40.2     | 377.5    | 132.2      | 64.9      | 38.7     | 369.5    | 136.8      | 63.6      | 37.1     | 356.4    | 144.5      | 61.3      | 34.5     | 341.8    | 153.0      | 58.8      | 31.8     | 331.3    | 159.3      | 57.0      | 29.9 | 314.3 | 169.4 | 54.1 | 26.9 | 295.9 | 180.5 | 50.9 | 23.8 |
|      | 230                   | 426.4    | 131.3      | 73.4      | 40.3     | 418.3    | 135.5      | 72.0      | 38.8     | 409.6    | 139.9      | 70.5      | 37.2     | 395.8    | 147.4      | 68.1      | 34.8     | 380.7    | 155.6      | 65.5      | 32.2     | 370.1    | 161.6      | 63.7      | 30.4 | 353.2 | 171.3 | 60.8 | 27.7 | 335.2 | 181.7 | 57.7 | 25.0 |
|      | 270                   | 465.7    | 149.3      | 80.1      | 48.0     | 457.4    | 154.0      | 78.7      | 46.4     | 448.5    | 159.2      | 77.2      | 44.6     | 433.7    | 167.8      | 74.6      | 41.7     | 417.3    | 177.6      | 71.8      | 38.6     | 405.4    | 184.7      | 69.8      | 36.5 | 386.3 | 196.2 | 66.5 | 33.2 | 365.6 | 208.7 | 62.9 | 29.7 |
|      | 300                   | 509.8    | 152.8      | 87.7      | 57.5     | 500.3    | 157.5      | 86.1      | 55.4     | 490.2    | 162.7      | 84.3      | 53.2     | 473.6    | 171.3      | 81.5      | 49.7     | 455.4    | 181.1      | 78.3      | 46.0     | 442.3    | 188.1      | 76.1      | 43.4 | 421.4 | 199.6 | 72.5 | 39.4 | 398.9 | 212.2 | 68.6 | 35.3 |
|      | 340                   | 539.8    | 155.2      | 92.9      | 64.4     | 529.5    | 159.9      | 91.1      | 62.0     | 518.5    | 165.1      | 89.2      | 59.5     | 500.7    | 173.7      | 86.1      | 55.5     | 481.3    | 183.5      | 82.8      | 51.3     | 467.5    | 190.6      | 80.4      | 48.4 | 445.4 | 202.1 | 76.6 | 44.0 | 421.7 | 214.7 | 72.5 | 39.5 |
| 7°C  | 200                   | 218.3    | 62.0       | 37.6      | 33.4     | 213.9    | 64.0       | 36.8      | 32.1     | 209.3    | 66.2       | 36.0      | 30.7     | 202.1    | 69.7       | 34.8      | 28.6     | 194.4    | 73.6       | 33.5      | 26.5     | 189.2    | 76.3       | 32.5      | 25.1 | 180.9 | 80.7  | 31.1 | 23.0 | 172.3 | 85.3  | 29.6 | 20.9 |
|      | 230                   | 246.2    | 74.5       | 42.3      | 42.4     | 241.5    | 76.9       | 41.6      | 40.8     | 236.6    | 79.6       | 40.7      | 39.2     | 228.6    | 83.9       | 39.3      | 36.6     | 219.9    | 88.7       | 37.8      | 33.9     | 213.7    | 92.2       | 36.8      | 32.0 | 203.9 | 97.7  | 35.1 | 29.2 | 193.3 | 103.7 | 33.3 | 26.2 |
|      | 270                   | 288.9    | 92.4       | 49.7      | 44.2     | 282.9    | 95.4       | 48.7      | 42.3     | 276.5    | 98.6       | 47.6      | 40.5     | 266.3    | 103.9      | 45.8      | 37.5     | 255.2    | 109.9      | 43.9      | 34.5     | 247.3    | 114.2      | 42.5      | 32.4 | 234.8 | 121.2 | 40.4 | 29.2 | 221.5 | 128.8 | 38.1 | 26.0 |
|      | 300                   | 321.0    | 93.8       | 55.2      | 54.5     | 315.1    | 96.6       | 54.2      | 52.5     | 308.9    | 99.7       | 53.1      | 50.5     | 298.8    | 104.9      | 51.4      | 47.2     | 287.9    | 110.7      | 49.5      | 43.9     | 280.1    | 114.9      | 48.2      | 41.5 | 267.8 | 121.6 | 46.1 | 38.0 | 254.6 | 129.0 | 43.8 | 34.3 |
|      | 340                   | 363.5    | 108.9      | 62.5      | 52.9     | 356.2    | 112.2      | 61.3      | 50.8     | 348.6    | 115.9      | 60.0      | 48.7     | 336.5    | 122.0      | 57.9      | 45.3     | 323.5    | 128.8      | 55.7      | 41.9     | 314.3    | 133.7      | 54.1      | 39.6 | 299.9 | 141.5 | 51.6 | 36.1 | 284.6 | 150.1 | 49.0 | 32.5 |
| 8°C  | 200                   | 225.4    | 62.4       | 38.8      | 35.6     | 220.8    | 64.5       | 38.0      | 34.2     | 216.1    | 66.7       | 37.2      | 32.7     | 208.6    | 70.2       | 35.9      | 30.5     | 200.7    | 74.1       | 34.5      | 28.3     | 195.3    | 76.8       | 33.6      | 26.8 | 186.8 | 81.2  | 32.1 | 24.5 | 177.9 | 85.9  | 30.6 | 22.2 |
|      | 230                   | 254.2    | 75.1       | 43.7      | 45.2     | 249.4    | 77.6       | 42.9      | 43.5     | 244.2    | 80.2       | 42.0      | 41.8     | 235.9    | 84.6       | 40.6      | 39.0     | 226.9    | 89.4       | 39.0      | 36.1     | 220.5    | 92.8       | 37.9      | 34.1 | 210.3 | 98.4  | 36.2 | 31.0 | 199.4 | 104.4 | 34.3 | 27.9 |
|      | 270                   | 297.3    | 93.2       | 51.1      | 46.7     | 291.0    | 96.2       | 50.1      | 44.8     | 284.4    | 99.4       | 48.9      | 42.8     | 273.8    | 104.8      | 47.1      | 39.7     | 262.4    | 110.7      | 45.1      | 36.5     | 254.3    | 115.1      | 43.8      | 34.3 | 241.5 | 122.1 | 41.5 | 30.9 | 227.8 | 129.7 | 39.2 | 27.5 |
|      | 300                   | 331.0    | 94.4       | 56.9      | 57.9     | 324.8    | 97.3       | 55.9      | 56.8     | 318.4    | 100.4      | 54.8      | 53.6     | 307.9    | 105.6      | 53.0      | 50.1     | 296.6    | 111.3      | 51.0      | 46.5     | 288.6    | 115.5      | 49.7      | 44.1 | 275.9 | 122.3 | 47.5 | 40.3 | 262.3 | 129.7 | 45.1 | 36.4 |
|      | 340                   | 374.1    | 109.6      | 64.4      | 56.0     | 366.6    | 113.0      | 63.1      | 53.8     | 358.7    | 116.7      | 61.7      | 51.5     | 346.1    | 122.8      | 59.5      | 48.0     | 332.7    | 129.6      | 57.2      | 44.3     | 323.3    | 134.5      | 55.6      | 41.9 | 308.5 | 142.4 | 53.1 | 38.1 | 292.8 | 151.0 | 50.4 | 34.4 |
| 10°C | 200                   | 419.4    | 131.3      | 72.2      | 47.8     | 411.1    | 135.5      | 70.7      | 45.9     | 402.2    | 140.1      | 69.2      | 43.9     | 387.5    | 147.7      | 66.7      | 40.8     | 371.5    | 156.3      | 63.9      | 37.5     | 359.9    | 162.5      | 61.9      | 35.2 | 341.5 | 172.6 | 58.7 | 31.7 | -     | -     | -    | -    |
|      | 230                   | 466.7    | 134.1      | 80.3      | 48.2     | 457.6    | 138.3      | 78.7      | 46.4     | 447.9    | 142.8      | 77.1      | 44.5     | 432.5    | 150.2      | 74.4      | 41.5     | 415.9    | 158.5      | 71.6      | 38.4     | 404.3    | 164.5      | 69.6      | 36.3 | 385.9 | 174.2 | 66.4 | 33.1 | 366.3 | 184.7 | 63.0 | 29.8 |
|      | 270                   | 509.8    | 152.8      | 87.7      | 57.5     | 500.3    | 157.5      | 86.1      | 55.4     | 490.2    | 162.7      | 84.3      | 53.2     | 473.6    | 171.3      | 81.5      | 49.7     | 455.4    | 181.1      | 78.3      | 46.0     | 442.3    | 188.1      | 76.1      | 43.4 | 421.4 | 199.6 | 72.5 | 39.4 | 398.9 | 212.2 | 68.6 | 35.3 |
|      | 300                   | 539.8    | 155.2      | 92.9      | 64.4     | 529.5    | 159.9      | 91.1      | 62.0     | 518.5    | 165.1      | 89.2      | 59.5     | 500.7    | 173.7      | 86.1      | 55.5     | 481.3    | 183.5      | 82.8      | 51.3     | 467.5    | 190.6      | 80.4      | 48.4 | 445.4 | 202.1 | 76.6 | 44.0 | 421.7 | 214.7 | 72.5 | 39.5 |
|      | 340                   | 595.7    | 111.3      | 68.1      | 62.6     | 387.6    | 114.7      | 66.7      | 60.1     | 379.2    | 118.4      | 65.2      | 57.6     | 365.9    | 124.6      | 62.9      | 53.6     | 351.7    | 131.4      | 60.5      | 49.5     | 341.7    | 136.3      | 58.8      | 46.8 | 326.1 | 144.2 | 56.1 | 42.6 | 309.7 | 152.9 | 53.3 | 38.4 |

XXX :  
Data according to Eurovent standard conditions

Pc :  
Net cooling capacity in kW

Pe :  
Effective absorbed power in cooling mode

Wf :  
Water flow in m³ per hour

Dp :  
Water pressure drop in KPa

| NAH                      |       | Air inlet temperature |       |                   |       |       |       |       |       |                   |       |       |       |       |       |                   |       |       |       |       |       |                   |       |       |       |       |       |                   |       |       |       |       |      |                   |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|--------------------------|-------|-----------------------|-------|-------------------|-------|-------|-------|-------|-------|-------------------|-------|-------|-------|-------|-------|-------------------|-------|-------|-------|-------|-------|-------------------|-------|-------|-------|-------|-------|-------------------|-------|-------|-------|-------|------|-------------------|----|-----|----|-------|--|--|--|--|--|-------|--|--|--|--|--|
|                          |       | 28 °C                 |       |                   |       |       |       | 30 °C |       |                   |       |       |       | 32 °C |       |                   |       |       |       | 35 °C |       |                   |       |       |       | 38 °C |       |                   |       |       |       | 40 °C |      |                   |    |     |    | 43 °C |  |  |  |  |  | 46 °C |  |  |  |  |  |
|                          |       | Pc                    | Pe    | Wf                | Dp    | Pc    | Pe    | Wf    | Dp    | Pc                | Pe    | Wf    | Dp    | Pc    | Pe    | Wf                | Dp    | Pc    | Pe    | Wf    | Dp    | Pc                | Pe    | Wf    | Dp    | Pc    | Pe    | Wf                | Dp    | Pc    | Pe    | Wf    | Dp   | Pc                | Pe | Wf  | Dp |       |  |  |  |  |  |       |  |  |  |  |  |
| Cooling mode             |       | kW                    |       | m <sup>3</sup> /h |       | kPa   |       | kW    |       | m <sup>3</sup> /h |       | kPa   |       | kW    |       | m <sup>3</sup> /h |       | kPa   |       | kW    |       | m <sup>3</sup> /h |       | kPa   |       | kW    |       | m <sup>3</sup> /h |       | kPa   |       | kW    |      | m <sup>3</sup> /h |    | kPa |    |       |  |  |  |  |  |       |  |  |  |  |  |
| Water outlet temperature | 5°C   | 200                   | 194,5 | 60,2              | 33,5  | 26,6  | 190,2 | 62,4  | 32,7  | 25,4              | 185,8 | 64,8  | 32,0  | 24,2  | 179,0 | 68,4              | 30,8  | 22,5  | 171,9 | 72,3  | 29,6  | 20,8              | 167,1 | 75,1  | 28,7  | 19,6  | 159,6 | 79,4              | 27,5  | 17,9  | 151,9 | 83,9  | 26,1 | 16,2              |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          |       | 230                   | 218,2 | 73,2              | 37,5  | 33,4  | 213,7 | 75,9  | 36,8  | 32,0              | 208,9 | 78,8  | 35,9  | 30,6  | 201,5 | 83,3              | 34,7  | 28,5  | 193,5 | 88,2  | 33,3  | 26,3              | 187,9 | 91,6  | 32,3  | 24,8  | 179,2 | 97,0              | 30,8  | 22,6  | 170,0 | 102,7 | 29,2 | 20,3              |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          |       | 270                   | 275,3 | 84,6              | 47,4  | 40,1  | 269,7 | 87,5  | 46,4  | 38,5              | 263,8 | 90,6  | 45,4  | 36,8  | 254,5 | 95,6              | 43,8  | 34,3  | 244,7 | 101,1 | 42,1  | 31,7              | 237,9 | 105,0 | 40,9  | 30,0  | 227,1 | 111,3             | 39,1  | 27,3  | 215,8 | 118,0 | 37,1 | 24,7              |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          | 6°C   | 300                   | 299,6 | 96,9              | 51,5  | 47,5  | 293,7 | 100,3 | 50,5  | 45,6              | 287,6 | 104,0 | 49,5  | 43,8  | 277,6 | 109,9             | 47,8  | 40,8  | 266,9 | 116,4 | 45,9  | 37,7              | 259,3 | 121,0 | 44,6  | 35,6  | 247,3 | 128,5             | 42,5  | 32,4  | 234,5 | 136,5 | 40,3 | 29,1              |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          |       | 200                   | 201,0 | 60,8              | 34,6  | 28,4  | 196,6 | 63,0  | 33,8  | 27,1              | 192,1 | 65,3  | 33,0  | 25,9  | 185,1 | 68,9              | 31,8  | 24,1  | 177,8 | 72,8  | 30,6  | 22,2              | 172,9 | 75,6  | 29,7  | 21,0  | 165,2 | 79,9              | 28,4  | 19,2  | 157,3 | 84,4  | 27,1 | 17,4              |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          |       | 230                   | 225,6 | 74,0              | 38,8  | 35,7  | 220,9 | 76,7  | 38,0  | 34,2              | 216,1 | 79,5  | 37,2  | 32,7  | 208,4 | 84,0              | 35,8  | 30,5  | 200,2 | 88,9  | 34,4  | 28,1              | 194,5 | 92,3  | 33,5  | 26,6  | 185,6 | 97,6              | 31,9  | 24,2  | 176,2 | 103,3 | 30,3 | 21,8              |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          | 7°C   | 270                   | 284,0 | 85,3              | 48,9  | 42,7  | 278,2 | 88,2  | 47,9  | 41,0              | 272,2 | 91,3  | 46,8  | 39,2  | 262,7 | 96,3              | 45,2  | 36,5  | 252,6 | 101,7 | 43,5  | 33,8              | 245,5 | 105,6 | 42,2  | 31,9  | 234,5 | 111,9             | 40,3  | 29,1  | 222,9 | 118,6 | 38,4 | 26,4              |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          |       | 300                   | 309,1 | 97,9              | 53,2  | 50,5  | 303,1 | 101,2 | 52,1  | 48,6              | 296,7 | 104,8 | 51,0  | 46,6  | 286,5 | 110,7             | 49,3  | 43,4  | 275,5 | 117,1 | 47,4  | 40,2              | 267,7 | 121,7 | 46,1  | 37,9  | 255,4 | 129,1             | 43,9  | 34,5  | 242,3 | 137,0 | 41,7 | 31,1              |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          |       | 200                   | 207,6 | 61,3              | 35,7  | 30,2  | 203,0 | 63,5  | 34,9  | 28,9              | 198,4 | 65,8  | 34,1  | 27,6  | 191,2 | 69,5              | 32,9  | 25,7  | 183,8 | 73,4  | 31,6  | 23,7              | 178,7 | 76,1  | 30,7  | 22,4  | 170,9 | 80,4              | 29,4  | 20,5  | 162,8 | 84,9  | 28,0 | 18,6              |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          | 8°C   | 230                   | 232,9 | 74,8              | 40,1  | 38,0  | 228,1 | 77,5  | 39,3  | 36,5              | 223,1 | 80,3  | 38,4  | 34,9  | 215,3 | 84,8              | 37,0  | 32,5  | 206,9 | 89,5  | 35,6  | 30,0              | 201,1 | 92,9  | 34,6  | 28,4  | 191,9 | 98,2              | 33,0  | 25,9  | 182,3 | 103,8 | 31,4 | 23,4              |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          |       | 270                   | 292,8 | 86,1              | 50,4  | 45,4  | 286,9 | 88,9  | 49,4  | 43,5              | 280,6 | 92,0  | 48,3  | 41,7  | 270,9 | 96,9              | 46,6  | 38,8  | 260,5 | 102,4 | 44,8  | 35,9              | 253,3 | 106,2 | 43,6  | 34,0  | 242,0 | 112,5             | 41,6  | 31,0  | 230,2 | 119,1 | 39,6 | 28,1              |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          |       | 300                   | 318,6 | 96,8              | 54,8  | 53,7  | 312,4 | 102,1 | 53,8  | 51,6              | 305,9 | 105,7 | 52,6  | 49,5  | 295,4 | 111,5             | 50,8  | 46,2  | 284,1 | 117,9 | 48,9  | 42,7              | 276,2 | 122,4 | 47,5  | 40,4  | 263,6 | 129,8             | 45,3  | 36,8  | 250,2 | 137,6 | 43,0 | 33,2              |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
| 9°C                      | 200   | 214,1                 | 61,9  | 36,8              | 32,1  | 209,4 | 64,1  | 36,0  | 30,8  | 204,7             | 66,4  | 35,2  | 29,4  | 197,3 | 70,0  | 33,9              | 27,3  | 189,7 | 73,9  | 32,6  | 25,3  | 184,5             | 76,6  | 31,7  | 23,9  | 176,5 | 80,9  | 30,4              | 21,9  | 168,2 | 85,4  | 28,9  | 19,9 |                   |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          | 230   | 240,2                 | 75,7  | 41,3              | 40,4  | 235,3 | 78,3  | 40,5  | 38,8  | 230,2             | 81,1  | 39,6  | 37,1  | 222,1 | 85,5  | 38,2              | 34,6  | 213,5 | 90,2  | 36,7  | 32,0  | 207,6             | 93,5  | 35,7  | 30,2  | 198,3 | 98,8  | 34,1              | 27,6  | 188,5 | 104,4 | 32,4  | 24,9 |                   |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          | 270   | 301,7                 | 86,8  | 51,9              | 48,2  | 295,6 | 89,6  | 50,9  | 46,2  | 289,2             | 92,6  | 49,8  | 44,2  | 279,1 | 97,6  | 48,0              | 41,2  | 268,5 | 103,0 | 46,2  | 38,2  | 261,1             | 106,9 | 44,9  | 36,1  | 249,6 | 113,1 | 42,9              | 33,0  | 237,5 | 119,7 | 40,9  | 29,9 |                   |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
| 10°C                     | 300   | 328,3                 | 99,8  | 56,5              | 57,0  | 321,9 | 103,1 | 55,4  | 54,8  | 315,2             | 106,6 | 54,2  | 52,5  | 304,4 | 112,3 | 52,4              | 49,0  | 292,8 | 118,6 | 50,4  | 45,4  | 284,7             | 123,2 | 49,0  | 42,9  | 271,8 | 130,4 | 46,8              | 39,1  | 258,1 | 138,2 | 44,4  | 35,3 |                   |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          | 200   | 227,2                 | 63,0  | 39,1              | 36,2  | 222,3 | 65,2  | 38,2  | 34,6  | 217,3             | 67,5  | 37,4  | 33,1  | 209,6 | 71,1  | 36,1              | 30,8  | 201,6 | 74,9  | 34,7  | 28,5  | 196,1             | 77,6  | 33,7  | 27,0  | 187,8 | 81,9  | 32,3              | 24,8  | 179,1 | 86,4  | 30,8  | 22,5 |                   |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
|                          | 230   | 254,8                 | 77,3  | 43,8              | 45,4  | 249,6 | 79,9  | 42,9  | 43,6  | 244,2             | 82,6  | 42,0  | 41,7  | 235,7 | 86,9  | 40,6              | 38,9  | 226,8 | 91,5  | 39,0  | 36,0  | 220,5             | 94,8  | 37,9  | 34,1  | 210,8 | 100,0 | 36,3              | 31,2  | 200,6 | 105,5 | 34,5  | 28,2 |                   |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
| 270                      | 319,8 | 86,3                  | 55,0  | 54,1              | 313,3 | 91,1  | 53,9  | 51,9  | 306,6 | 94,1              | 52,7  | 49,7  | 296,0 | 99,0  | 50,9  | 46,3              | 284,8 | 104,3 | 49,0  | 42,9  | 277,1 | 108,1             | 47,7  | 40,6  | 265,0 | 114,3 | 45,6  | 37,2              | 252,4 | 120,9 | 43,4  | 33,7  |      |                   |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |
| 300                      | 347,7 | 101,7                 | 59,8  | 63,9              | 341,0 | 104,9 | 58,7  | 61,4  | 333,9 | 108,4             | 57,4  | 58,9  | 322,5 | 114,0 | 55,5  | 55,0              | 310,4 | 120,2 | 53,4  | 51,0  | 301,9 | 124,6             | 51,9  | 48,2  | 288,4 | 131,8 | 49,6  | 44,0              | 274,2 | 139,5 | 47,2  | 39,8  |      |                   |    |     |    |       |  |  |  |  |  |       |  |  |  |  |  |

|  |   |   |  |   |
|--|---|---|--|---|
| <b>XXX :</b><br>Data according to Eurovent standard conditions | <b>Pc :</b><br>Net cooling capacity in kW | <b>Pe :</b><br>Effective absorbed power in cooling mode | <b>Wf :</b><br>Water flow in m <sup>3</sup> per hour | <b>Dp :</b><br>Water pressure drop in KPa |
|--|---|---|--|---|

| NAH          |                          | Outdoor air temperature |          |            |           |          |          |            |           |          |          |            |           |          |          |            |           |          |          |            |           |          |          |            |           |        |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |
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|              |                          | 10 °C                   |          |            |           |          |          | 7 °C       |           |          |          |            |           | 0 °C     |          |            |           |          |          | -6 °C      |           |          |          |            |           | -10 °C |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |
|              |                          | Ph<br>kW                | Pe<br>kW | Wf<br>m³/h | Dp<br>kPa | Ph<br>kW | Pe<br>kW | Wf<br>m³/h | Dp<br>kPa | Ph<br>kW | Pe<br>kW | Wf<br>m³/h | Dp<br>kPa | Ph<br>kW | Pe<br>kW | Wf<br>m³/h | Dp<br>kPa | Ph<br>kW | Pe<br>kW | Wf<br>m³/h | Dp<br>kPa | Ph<br>kW | Pe<br>kW | Wf<br>m³/h | Dp<br>kPa |        |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |       |      |      |       |       |      |      |       |      |      |      |       |      |      |      |       |      |      |      |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |      |      |      |       |      |      |      |       |      |      |      |   |   |   |   |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |     |       |       |      |      |       |       |      |      |       |       |      |      |   |   |   |   |   |   |   |   |
| Heating mode | Water outlet temperature | 200                     | 250,7    | 52,2       | 43,1      | 44,0     | 37,6     | 192,3      | 51,0      | 33,1     | 26,0     | 164,0      | 50,2      | 28,2     | 18,9     | 148,0      | 49,7      | 25,5     | 15,4     | 230        | 284,6     | 61,5     | 49,0     | 56,6       | 263,2     | 61,0   | 45,3 | 48,5 | 218,5 | 59,9 | 37,6 | 33,5 | 167,6 | 58,3 | 28,8 | 19,8 | 270 | 357,9 | 75,8 | 61,6 | 67,6 | 330,6 | 75,0 | 56,9 | 57,8 | 273,8 | 73,3 | 47,1 | 39,7 | 232,7 | 72,0 | 40,0 | 28,7 | 209,2 | 71,2 | 36,0 | 23,2 | 300 | 392,8 | 85,2 | 67,6 | 81,4 | 363,0 | 84,2 | 62,4 | 69,6 | 300,8 | 82,3 | 51,7 | 47,8 | 255,5 | 80,8 | 44,0 | 34,6 | 229,5 | 80,0 | 39,5 | 27,9 | 200 | 245,7 | 56,9 | 42,3 | 42,3 | 227,3 | 56,5 | 39,1 | 36,2 | 189,3 | 55,4 | 32,6 | 25,2 | 162,2 | 54,4 | 27,9 | 18,5 | 146,9 | 53,8 | 25,3 | 15,2 | 230 | 280,5 | 66,9 | 48,3 | 55,0 | 259,7 | 66,4 | 44,7 | 47,2 | 216,3 | 65,1 | 37,2 | 32,8 | 185,2 | 64,0 | 31,9 | 24,1 | 167,4 | 63,3 | 28,8 | 19,7 | 270 | 350,6 | 82,2 | 60,3 | 64,9 | 324,2 | 81,4 | 55,8 | 55,6 | 269,6 | 79,7 | 46,4 | 38,5 | 230,4 | 78,4 | 39,6 | 28,1 | 208,1 | 77,7 | 35,8 | 23,0 | 300 | 386,4 | 92,4 | 66,5 | 78,8 | 357,5 | 91,5 | 61,5 | 67,5 | 297,5 | 89,6 | 51,2 | 46,8 | 254,1 | 88,2 | 43,7 | 34,2 | 229,3 | 87,4 | 39,4 | 27,9 | 200 | 242,8 | 60,1 | 41,8 | 41,3 | 224,7 | 59,6 | 38,7 | 35,4 | 187,5 | 58,4 | 32,3 | 24,7 | 161,1 | 57,4 | 27,7 | 18,3 | 146,3 | 56,6 | 25,2 | 15,1 | 230 | 277,9 | 70,7 | 47,8 | 54,0 | 257,4 | 70,1 | 44,3 | 46,4 | 214,9 | 68,8 | 37,0 | 32,4 | 184,4 | 67,6 | 31,7 | 23,9 | 167,2 | 66,8 | 28,8 | 19,7 | 270 | 346,3 | 86,7 | 59,6 | 63,4 | 320,5 | 85,9 | 55,1 | 54,3 | 267,1 | 84,2 | 46,0 | 37,8 | 229,0 | 83,0 | 39,4 | 27,8 | 207,5 | 82,2 | 35,7 | 22,8 | 300 | 382,4 | 97,4 | 65,8 | 77,2 | 354,1 | 96,6 | 60,9 | 66,3 | 295,3 | 94,7 | 50,8 | 46,1 | 253,0 | 93,4 | 43,5 | 33,9 | 229,0 | 92,6 | 39,4 | 27,8 | 200 | 240,8 | 62,4 | 41,4 | 40,6 | 223,0 | 61,9 | 38,4 | 34,9 | 186,4 | 60,6 | 32,1 | 24,4 | 160,4 | 59,5 | 27,6 | 18,1 | 145,9 | 58,7 | 25,1 | 15,0 | 230 | 276,2 | 73,5 | 47,5 | 53,3 | 255,9 | 72,8 | 44,0 | 45,8 | 214,0 | 71,4 | 36,8 | 32,1 | 183,9 | 70,2 | 31,6 | 23,8 | - | - | - | - | 270 | 343,4 | 89,9 | 59,1 | 62,3 | 318,0 | 89,1 | 54,7 | 53,5 | 265,5 | 87,5 | 45,7 | 37,3 | 228,1 | 86,2 | 39,2 | 27,6 | 207,1 | 85,5 | 35,6 | 22,8 | 300 | 379,7 | 101,2 | 65,3 | 76,1 | 351,8 | 100,3 | 60,5 | 65,4 | 293,9 | 98,5 | 50,6 | 45,7 | 252,3 | 97,2 | 43,4 | 33,7 | 228,7 | 96,4 | 39,4 | 27,7 | 200 | 238,9 | 64,8 | 41,1 | 40,0 | 221,3 | 64,3 | 38,1 | 34,3 | 185,2 | 62,9 | 31,9 | 24,1 | 159,8 | 61,7 | 27,5 | 18,0 | - | - | - | - | 230 | 274,4 | 76,4 | 47,2 | 52,6 | 254,4 | 75,7 | 43,8 | 45,3 | 212,9 | 74,2 | 36,6 | 31,8 | 183,4 | 72,9 | 31,6 | 23,6 | - | - | - | - | 270 | 340,5 | 93,4 | 58,6 | 61,3 | 315,5 | 92,6 | 54,3 | 52,6 | 263,9 | 90,9 | 45,4 | 36,9 | 227,3 | 89,7 | 39,1 | 27,4 | - | - | - | - | 300 | 376,9 | 105,1 | 64,8 | 75,0 | 349,4 | 104,3 | 60,1 | 64,5 | 292,3 | 102,5 | 50,3 | 45,2 | 251,5 | 101,2 | 43,3 | 33,5 | - | - | - | - | 200 | 236,1 | 68,7 | 40,6 | 39,0 | 218,9 | 68,1 | 37,7 | 33,6 | 183,6 | 66,6 | 31,6 | 23,7 | 158,8 | 65,3 | 27,3 | 17,7 | - | - | - | - | 230 | 271,6 | 81,1 | 46,7 | 51,6 | 251,9 | 80,4 | 43,3 | 44,4 | 211,3 | 78,8 | 36,4 | 31,3 | - | - | - | - | - | - | - | - | 270 | 336,3 | 99,0 | 57,9 | 59,8 | 312,5 | 97,7 | 53,6 | 51,4 | 261,5 | 96,5 | 45,0 | 36,2 | 226,0 | 95,3 | 38,9 | 27,1 | - | - | - | - | 300 | 372,6 | 111,6 | 64,1 | 73,3 | 345,6 | 110,7 | 59,5 | 63,1 | 289,9 | 109,0 | 49,9 | 44,5 | - | - | - | - | - | - | - | - | 200 | 233,3 | 72,9 | 40,1 | 38,1 | 216,4 | 72,2 | 37,2 | 32,8 | 182,0 | 70,6 | 31,3 | 23,3 | - | - | - | - | - | - | - | - | 230 | 268,8 | 86,1 | 46,2 | 50,5 | 249,5 | 85,4 | 42,9 | 43,6 | 209,7 | 83,7 | 36,1 | 30,8 | - | - | - | - | - | - | - | - | 270 | 332,1 | 105,0 | 57,1 | 58,3 | 308,1 | 104,3 | 53,0 | 50,2 | 259,1 | 102,6 | 44,6 | 35,6 | - | - | - | - | - | - | - | - | 300 | 368,2 | 118,6 | 63,4 | 71,6 | 341,8 | 117,8 | 58,8 | 61,7 | 287,3 | 116,1 | 49,4 | 43,7 | - | - | - | - | - | - | - | - | 200 | 231,5 | 75,8 | 39,8 | 37,5 | 214,8 | 75,1 | 37,0 | 32,4 | 180,9 | 73,4 | 31,1 | 23,0 | - | - | - | - | - | - | - | - | 230 | 266,9 | 89,7 | 45,9 | 49,8 | 247,8 | 89,0 | 42,6 | 43,0 | 208,5 | 87,2 | 35,9 | 30,5 | - | - | - | - | - | - | - | - | 270 | 329,3 | 109,3 | 56,6 | 57,3 | 305,7 | 108,6 | 52,6 | 49,4 | 257,6 | 107,0 | 44,3 | 35,1 | - | - | - | - | - | - | - | - | 300 | 365,2 | 123,6 | 62,8 | 70,5 | 339,2 | 122,8 | 58,4 | 60,8 | 285,6 | 121,2 | 49,1 | 43,2 | - | - | - | - | - | - | - | - |

**Ph :**  
Net heating capacity in kW

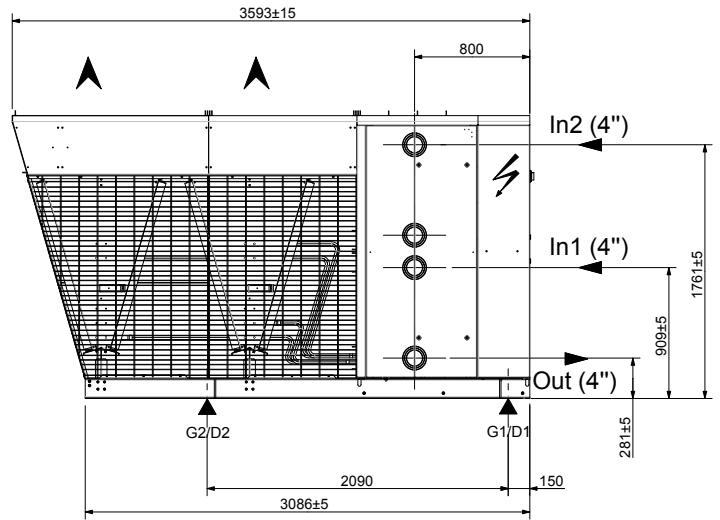
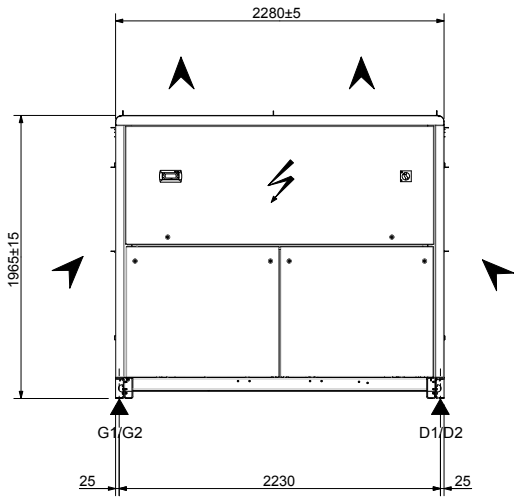
**Pe :**  
Effective absorbed power in heating mode

**Wf :**  
Water flow in m³ per hour

**Dp :**  
Water pressure drop in KPa

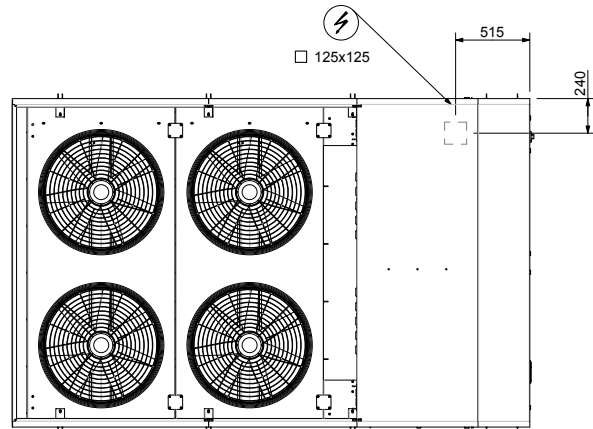


**NAC 200 / 230 / 270  
NAH 200 / 230**



**LEGEND :**

- IN1 :** Water inlet - Unit without hydraulic module
- IN2 :** Water inlet - Unit with hydraulic module
- OUT :** Water outlet

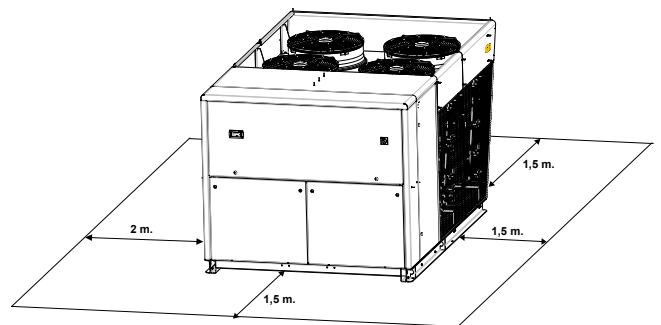


**LOAD DITRIBUTION**  
(Kg - Operating weights)

|                | <b>G1</b> | <b>G2</b> | <b>D1</b> | <b>D2</b> |
|----------------|-----------|-----------|-----------|-----------|
| <b>NAC 200</b> | 545       | 545       | 545       | 545       |
| <b>NAC 230</b> | 568       | 568       | 568       | 568       |
| <b>NAC 270</b> | 632       | 632       | 632       | 632       |
| <b>NAH 200</b> | 597       | 597       | 597       | 597       |
| <b>NAH 230</b> | 620       | 620       | 620       | 620       |

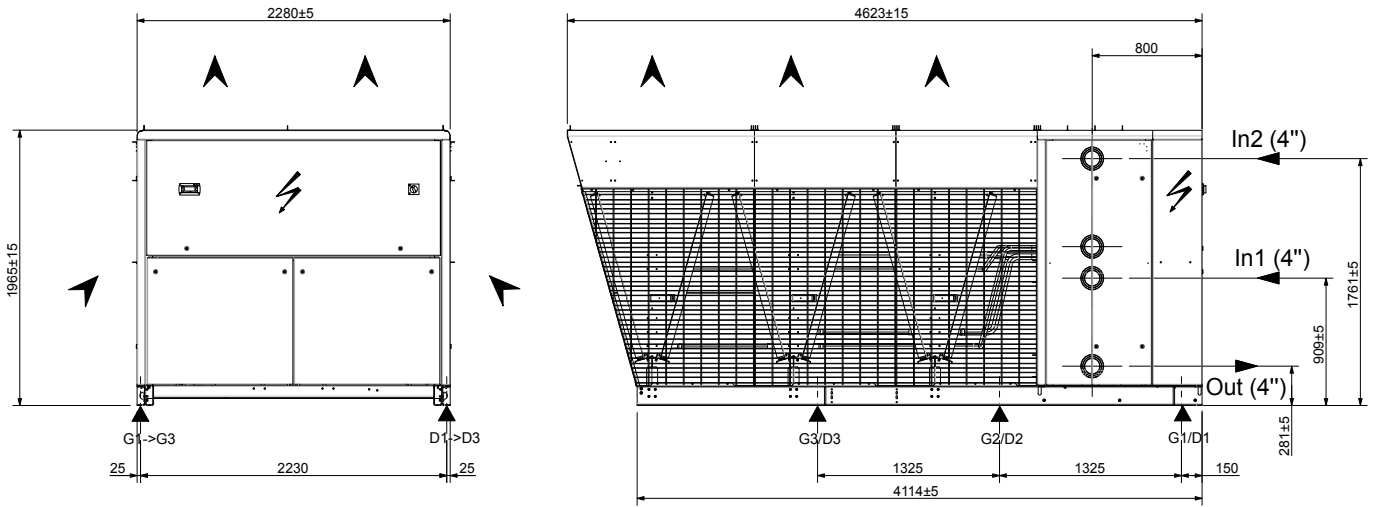
**CLEARANCES**

Overhead obstruction are not permitted



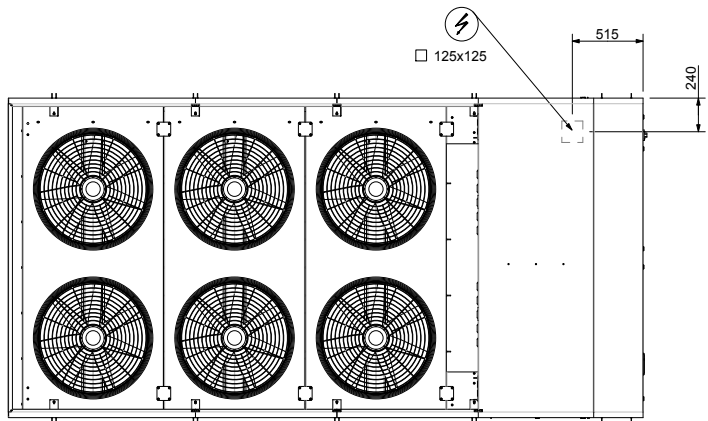
Lennox recommend load distribution as detailed above,

**NAC 300  
NAH 270 / 300**



**LEGEND :**

- IN1 :** Water inlet - Unit without hydraulic module
- IN2 :** Water inlet - Unit with hydraulic module
- OUT :** Water outlet

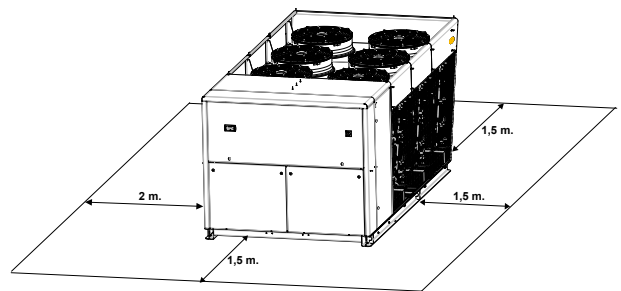


**LOAD DITRIBUTION**  
(Kg - Operating weights)

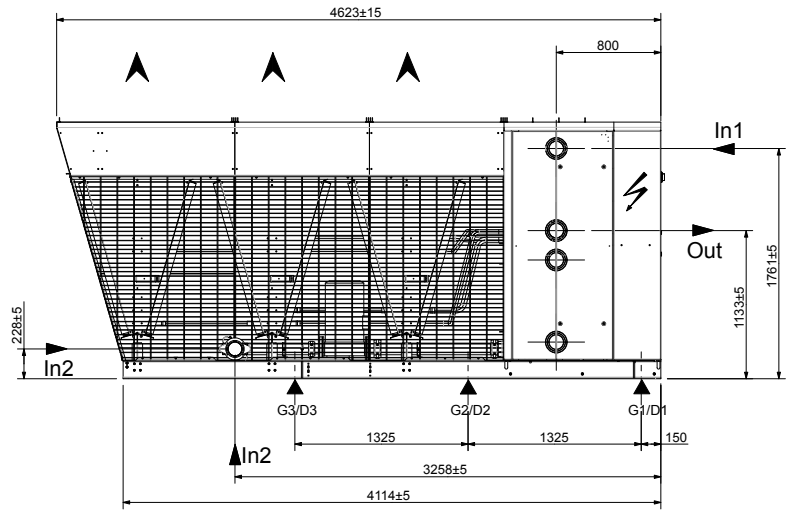
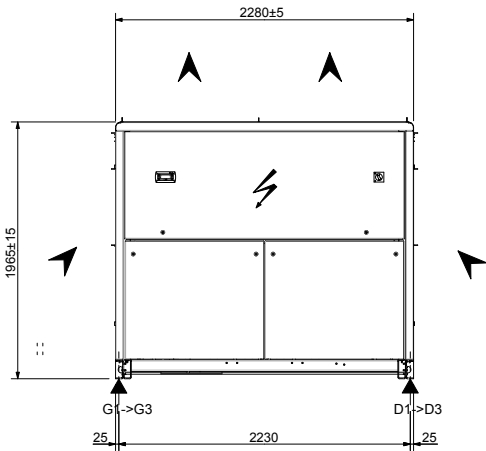
|                | G1  | G2  | G3  | D1  | D2  | D3  |
|----------------|-----|-----|-----|-----|-----|-----|
| <b>NAC 300</b> | 485 | 485 | 485 | 485 | 485 | 485 |
| <b>NAH 270</b> | 527 | 527 | 527 | 527 | 527 | 527 |
| <b>NAH 300</b> | 534 | 534 | 534 | 534 | 534 | 534 |

**CLEARANCES**

Overhead obstruction are not permitted

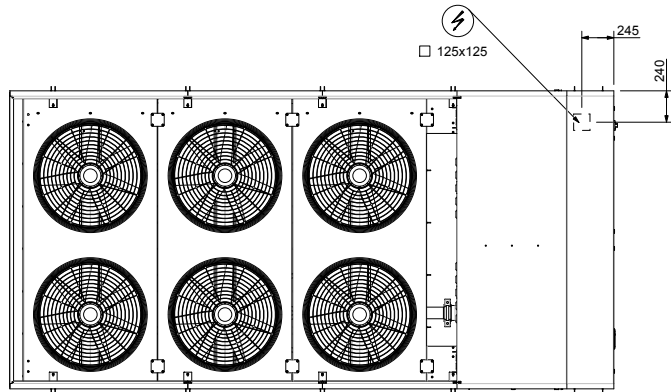


**NAC 340 / 380**



**LEGEND :**

- IN1 :** Water inlet - Unit without hydraulic module
- IN2 :** Water inlet - Unit with hydraulic module
- OUT :** Water outlet

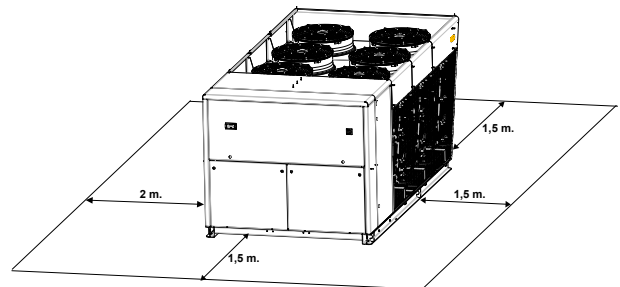


**LOAD DITRIBUTION**  
(Kg - Operating weights)

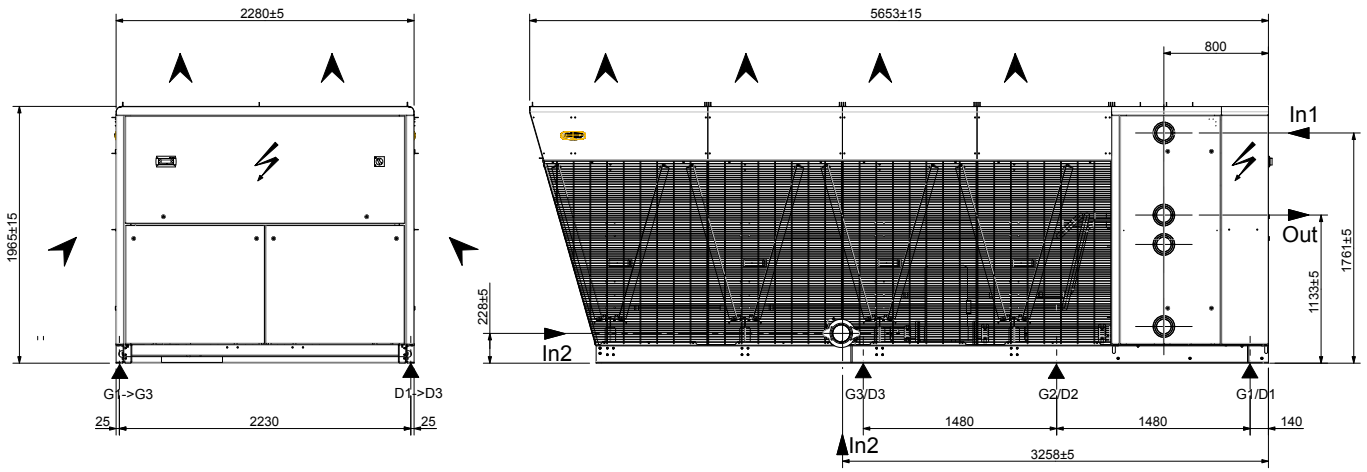
|                | <b>G1</b> | <b>G2</b> | <b>G3</b> | <b>D1</b> | <b>D2</b> | <b>D3</b> |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>NAC 340</b> | 533       | 533       | 533       | 533       | 533       | 533       |
| <b>NAC 380</b> | 543       | 543       | 543       | 543       | 543       | 543       |

**CLEARANCES**

Overhead obstruction are not permitted

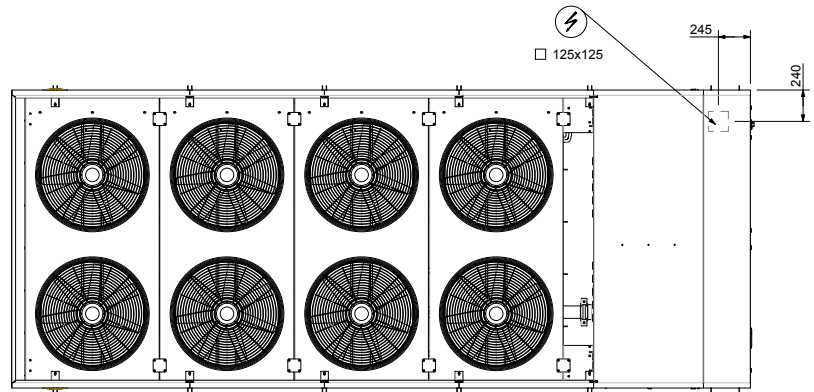


**NAC 420 / 480**



**LEGEND :**

- IN1 :** Water inlet - Unit without hydraulic module
- IN2 :** Water inlet - Unit with hydraulic module
- OUT :** Water outlet

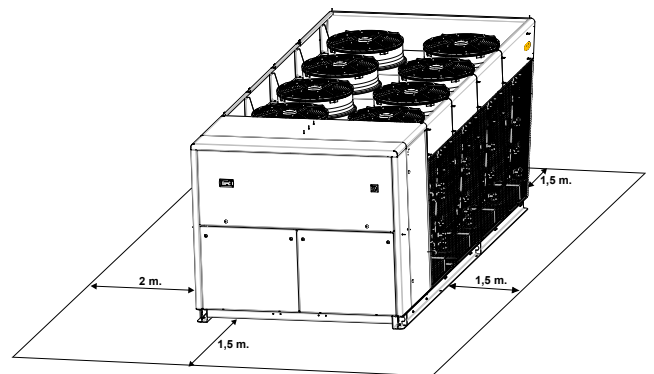


**LOAD DITRIBUTION**  
(Kg - Operating weights)

|                | G1  | G2  | G3  | D1  | D2  | D3  |
|----------------|-----|-----|-----|-----|-----|-----|
| <b>NAC 420</b> | 634 | 634 | 634 | 634 | 634 | 634 |
| <b>NAC 480</b> | 647 | 647 | 647 | 647 | 647 | 647 |

**CLEARANCES**

Overhead obstruction are not permitted



**NAC**

|                                       | <b>NAC</b> | <b>200</b> | <b>230</b> | <b>270</b> | <b>300</b> | <b>340</b> | <b>380</b> | <b>420</b> | <b>480</b> |
|---------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Without hydraulic module</b>       |            |            |            |            |            |            |            |            |            |
| Operating weight                      | kg         | 1937       | 1963       | 2215       | 2579       | 2853       | 2898       | 3431       | 3509       |
| Shipping weight                       | kg         | 1900       | 1926       | 2175       | 2531       | 2801       | 2838       | 3358       | 3436       |
| <b>With low pressure single pump</b>  |            |            |            |            |            |            |            |            |            |
| Operating weight                      | kg         | 2131       | 2160       | 2416       | 2786       | 3075       | 3166       | 3698       | 3776       |
| Shipping weight                       | kg         | 2073       | 2103       | 2355       | 2717       | 2993       | 3076       | 3595       | 3673       |
| <b>With low pressure double pump</b>  |            |            |            |            |            |            |            |            |            |
| Operating weight                      | kg         | 2160       | 2193       | 2453       | 2830       | 3119       | 3241       | 3773       | 3851       |
| Shipping weight                       | kg         | 2103       | 2135       | 2393       | 2761       | 3037       | 3151       | 3670       | 3748       |
| <b>With high pressure single pump</b> |            |            |            |            |            |            |            |            |            |
| Operating weight                      | kg         | 2140       | 2198       | 2454       | 2826       | 3115       | 3174       | 3709       | 3787       |
| Shipping weight                       | kg         | 2082       | 2141       | 2393       | 2757       | 3033       | 3084       | 3606       | 3684       |
| <b>With high pressure double pump</b> |            |            |            |            |            |            |            |            |            |
| Operating weight                      | kg         | 2178       | 2270       | 2530       | 2910       | 3199       | 3258       | 3805       | 3883       |
| Shipping weight                       | kg         | 2121       | 2213       | 2469       | 2841       | 3117       | 3168       | 3702       | 3780       |

**NAH**

|                                       | <b>NAC</b> | <b>200</b> | <b>230</b> | <b>270</b> | <b>300</b> |
|---------------------------------------|------------|------------|------------|------------|------------|
| <b>Without hydraulic module</b>       |            |            |            |            |            |
| Operating weight                      | kg         | 2137       | 2163       | 2835       | 2861       |
| Shipping weight                       | kg         | 2088       | 2114       | 2769       | 2795       |
| <b>With single pump</b>               |            |            |            |            |            |
| Operating weight                      | kg         | 2340       | 2369       | 3045       | 3077       |
| Shipping weight                       | kg         | 2261       | 2291       | 2949       | 2981       |
| <b>With double pump</b>               |            |            |            |            |            |
| Operating weight                      | kg         | 2370       | 2402       | 3083       | 3121       |
| Shipping weight                       | kg         | 2291       | 2324       | 2987       | 3025       |
| <b>With high pressure single pump</b> |            |            |            |            |            |
| Operating weight                      | kg         | 2349       | 2408       | 3083       | 3117       |
| Shipping weight                       | kg         | 2270       | 2329       | 2987       | 3021       |
| <b>With high pressure double pump</b> |            |            |            |            |            |
| Operating weight                      | kg         | 2388       | 2480       | 3159       | 3201       |
| Shipping weight                       | kg         | 2309       | 2401       | 3063       | 3105       |

**GLYCOL CORRECTION FACTOR**

| Minimum Ambient Temperature or Water Outlet Temperature | Ethylene Glycol | Pressure Drop | Water Flow | CAPACITIES |         |
|---|-----------------|---------------|------------|------------|---------|
|   |                 |               |            | Cooling    | Heating |
| + 5°C ► 0°C   | 10%             | 1,05          | 1,02       | 0,99       | 0,994   |
| 0°C ► -5°C  | 20%             | 1,10          | 1,05       | 0,98       | 0,993   |
| - 5°C ► -10°C   | 30%             | 1,15          | 1,08       | 0,97       | 0,99    |
| - 10°C ► -15°C  | 35%             | 1,18          | 1,10       | 0,96       | 0,987   |

Example : 10% glycol  
 Minimum flow : 1,19 m<sup>3</sup>/h x 1,02  
 Pressure drop x 1,07  
 System capacity x 0,99

**MODEL NUMBER DESCRIPTION**

**EXAMPLE : NAC 200D N M1 M**

|            |   |
|------------|---|
| <b>N</b>   | NEOSYS  |
| <b>A</b>   | Air cooled  |
| <b>C</b>   | C = Cooling mode<br>H = Heat pump mode  |
| <b>200</b> | Cooling capacity in kW  |
| <b>D</b>   | Number of circuits :<br>S = 1 circuit<br>D = 2 circuits<br>T = 3 circuits<br>F = 4 circuits |
| <b>N</b>   | Non ducted  |
| <b>M</b>   | R410 A refrigerant  |
| <b>1</b>   | Revision number   |
| <b>M</b>   | 400V/3/50 Hz  |





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Due to Lennox's 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