CLIMAVENETA

TECHNICAL SELECTION

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COOLING

TECHNICAL SELECTION

NX2-G06 /UP /0112

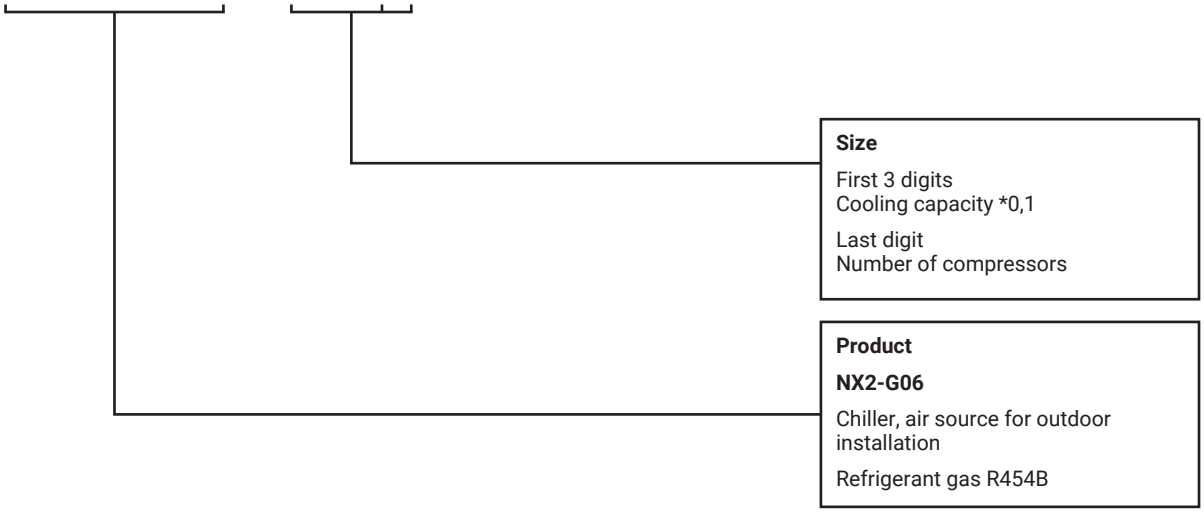
Chiller, air source for outdoor installation

SCROLL

Code		NX2-G06 /UP /0112
Version		-
Size		0112
OPTIONS		Unit with UP accessory selected
Power supply	V/ph/Hz	400/3/50

MITSUBISHI ELECTRIC
Changes for the Better

NX2-G06 / 0112


Size
First 3 digits
Cooling capacity *0,1
Last digit
Number of compressors
Product
NX2-G06
Chiller, air source for outdoor installation
Refrigerant gas R454B

2.1 Unit Description

Outdoor unit for the production of chilled water with hermetic rotary Scroll compressors, ozone-friendly refrigerant R454B, axial-flow fans, micro-channel full-aluminum condensing coils, braze-welded plate heat exchanger and electronic expansion valve. The range is composed by units equipped with two compressors in single circuit configuration.

2.2 Key Features

ErP COMPLIANT 2021

The units comply and exceed the minimum seasonal energy efficiency requirements that will start from 2021, imposed by the eco-sustainable design Directive 2009/125/EC. The seasonal efficiency can be further raised thanks to the optional EC fans from size 0102P.

LOW GWP REFRIGERANT

The new generation refrigerant R454B is the most eco-sustainable alternative to traditional refrigerant R410A, offering a 76% reduction in terms of GWP (Global Warming Potential GWP of R454B = 467, GWP of R410A = 1924 as per IPCC rev. 5th) and zero impact on the ozone layer.

ALUMINIUM MICRO-CHANNEL HEAT EXCHANGERS

The full aluminium micro-channel condenser coils deliver high efficiency while ensuring a reduced refrigerant volume and a lower unit weight. The e-coating protection (optional) grants the highest level of corrosion resistance in any condition, even in the most aggressive environments.

INTEGRATED HYDRONIC MODULE

The built-in hydronic module already contains the main water circuit components; it is available as option with single or twin in-line pump, for achieving low or high head, fixed or variable speed and buffer tank.

EXTREMELY SILENT OPERATION

The best compromise between silence and efficiency, as result of a systematic design oriented to minimize noise levels.

HIGH EFFICIENCY

Very high efficiency at full and partial loads, at the highest market levels, thanks to the adopted technological solutions. These units ensure low operating costs and therefore a quick payback time.

GROUP CONTROLS WITH DYNAMIC MASTER

Load sharing, sequencing, active redundancy, priority of resource activation, alarm management, theese are only some of the LAN functions that the unit is able to manage when connected to a group of chillers. Besides, the system's stability is ensured even in case of alarm or malfunctioning thanks to the Dynamic Master logic.

VARIABLE PRIMARY FLOW

Energy savings due to variable pump speed management based on load demand and the variable flow ensures the units also function in critical working conditions.

3.1 Standard unit composition

Chiller, air source for outdoor installation

Outdoor unit for the production of chilled water with hermetic rotary Scroll compressors, ozone-friendly refrigerant R454B, axial-flow fans, micro-channel full-aluminum condensing coils, braze-welded plate heat exchanger and electronic expansion valve. The range is composed by units equipped with two compressors in single circuit configuration.

The unit is supplied fully refrigerant charged and factory tested. On site installation only requires power and hydraulic connection.

Structure

Structure specifically designed for outdoor installation. Base and frame in hot-galvanised steel sheet of suitable thickness. All parts polyester-powder painted to assure total weather resistance. Painting: RAL 7035 textured finish. The self-supporting frame is built to guarantee maximum accessibility for servicing and maintenance operations.

Refrigerant circuit

Unit designed with 2 compressors in a single refrigerant circuit optimizing the heat exchange's process, especially in part load mode. The units feature an internally designed, patent-pending device, able to optimize the thermodynamic cycle.
In addition to the main components described in the following sections, the refrigerant circuit is fitted as standard with:

- drier filter (with replaceable cartridge from size 0102)
- refrigerant line sight glass with humidity indicator
- High pressure switches
- liquid line shut-off valve (only on sizes with drier filter with replaceable cartridge, from sizes 0102)
- high and low pressure transducers
- electronic expansion valve
- Liquid line solenoid valve
- High and low pressure safety valve
- visualization of the pressure´s level directly from the controller´s interface
- Antifreeze electric heater for heat exchanger
- crankcase heater on each compressor

Compressor

Hermetic scroll compressors complete with an oil sump heater, electronic overheating protection with centralised manual reset and a two-pole electric motor.

Plant side heat exchanger

Braze welded AISI 316 plate heat exchanger. The heat exchanger is lined on the outside with 9 mm thick closed-cell neoprene lagging to prevent condensation, with a thermal conductivity of 0,33 W/mK at 0°C. The heat exchanger is fitted with a differential pressure switch to monitor the correct flow of water when the unit is operating, thus preventing ice form forming inside; if no flow is detected, the frost protection function is activated using a special heater.

Source side heat exchanger

Microchannel coils ideally positioned on an open-angle Longitudinal V-shaped structure to optimize airflow and heat transfer. Made entirely in aluminum, the coils are not subjected to galvanic corrosion.
Fins and manifolds are made of aluminum AA3003, while the channels are made of a new aluminum alloy so defined Long Life Alloy (LLA). LLA alloy has a very fine grain microstructure that guarantees higher mechanical properties and a higher resistance to the inter-granular corrosion.

Features of the optional silenced units

Units with optional "compressor soundproofing insulation" feature:
- Compressor enclosure with soundproofing insulation in polyester fiber mat (thickness of 30 mm)
- If the hydronic is present, the pump enclosure is acoustically insulated: 30 mm thick Fiberform (polyester fibres)

Units with optional "NR kit" (Noise Reducer kit) feature:
- Reduced fan speed (the fan speed is automatically increased in case of particularly tough environmental conditions)
- Compressor enclosure with soundproofing insulation in polyester fiber mat (thickness of 30 mm) and compressor sound jackets
- If the hydronic is present, the pump enclosure is acoustically insulated: 30 mm thick Fiberform (polyester fibres)

Electrical and control panel

Electrical and control panel built to EN60204-1 and EC204-1 standards, complete with:

- Electronic control W3000+
- power circuit with electric bus bar distribution system
- fuses and contactors for compressors and fans
- auxiliary 4-20mA analogue input
- terminals for cumulative alarm block
- remote ON/OFF terminals
- general door lock isolator
- Outdoor air temperature probe
- Pump control relay + 0-10V modulating signal to control an external variable speed pump with the VPF.E control logic (plant-side constant ΔT for plants with primary circuit only and terminals with bypass)
- control circuit transformer
- spring-type control circuit terminal board
- Phases sequence control
- auxiliary 4-20mA analogue input

Fan section source side

Axial electric fans protected to IP54 and with insulation class ´F´, featuring an external rotor and profiled blades. Housed in an aerodynamic hood complete with safety guard. The fan + outlet set satisfies the efficiency requirements provided for by EcoDesign directive 327/11.
Fans diameter: 450 mm from size 0042P to 0092P; 800 mm from size 0102P to 0222P.
4-pole (Ø450 fans) or 6-pole (Ø800 fans) electric motor with built-in thermal protection. Condensation control with adjustment of the fan speed with single fractioning (DVVF with phase-cut device for Ø450 fans, DVVF with autotransformer for Ø800 fans).

EC fans (available as option): Axial electronically commutated fans (EC fans), with external rotor, profiled die-cast aluminium blades, housed in aeodynamic hoods complete with guard grille. 6-poles electric motor with built-in thermal protection. The brushless motor, governed by a special controller, continuously adjust fans' speed to minimize energy consumption, electromagnetic noises and current's absorption even during start-up phase.

Certification and applicable directives

The unit complies with the following directives and relative amendments:

- CE - Declaration of conformity certificate for the European Union
- 2014/35/EC Low Voltage Directive
- 2014/30/EC EMC Directive
- ErP Directive 2009/125/EC
- Machinery Directive 2006/42/EC
- PED Directive 2014/68/EC
- EAC - Product quality certificate for Russian Federation
- ISO 14001 - Company Environmental Management System certification
- ISO 9001 - Company Quality Management System certification

Tests

Tests performed throughout the production process, as indicated in ISO9001.
Performance or noise tests can be performed by highly qualified staff in the presence of customers.
Performance tests comprise the measurement of:
- electrical data
- water flow rates
- working temperatures
- power input
- power output
- pressure drops on the water-side exchanger both at full load (at the conditions of selection and at the most critical conditions for the condenser) and at part load conditions.

During performance testing it is also possible to simulate the main alarm states.
Noise tests are performed to check noise emissions according to ISO9614.

3.2 Versions

- Standard Version

Key efficiency units grant the best cooling capacity/footprint ratio.

3.3 Configurations

/D, unit with partial heat recovery

Unit for the production of chilled water, equipped with an auxiliary heat exchanger (desuperheater) on the compressor discharge for superheat recovery. The recovered heat is approximately the 20% of the total cooling capacity and can be used for domestic hot water production or other secondary uses, such as the integration of an existing boiler.

3.4 Electronic controller

Electronic control W3000+

W3000+ features an easy-to-use interface and a complete LCD display that allows one to consult and intervene by means of a multi-language menu (19 languages are available). The diagnostics includes a complete alarm management, with the “black-box” and the alarm history display for enhanced analysis of the unit operation. The programmable timer manages a weekly schedule organized into time bands to optimize unit performance by minimizing power consumption during periods of inactivity. Up to 10 daily time bands can be associated with different operating set points. As option, KIPlink is available - Keyboard In Your Pocket. KIPlink is the innovative user interface based on WiFi technology that allows one to operate on the unit directly from the smartphone or tablet.
The regulation is based on the patented “Quickmind” water temperature regulation logic uses self-adapting control to maintain flow temperatures and optimize performance even in low water content scenarios. As an alternative, the proportional or proportional-integral regulations are also available.
Optional proprietary devices can perform the adjustment of resources in systems made of several units. Consumption metering and performance measurement are possible as well. The variable primary flow control is always available as per standard (VPF.E function).
Supervision can be easily developed via proprietary devices or the integration in third party systems by means of the most common protocols as ModBus, Echelon, Bacnet-over-IP, Bacnet MS/TP RS485, Konnex, ModBus TCP/IP, SNMP. Compatibility with the remote keyboard (up to 8 units).

KIPlink - Keyboard In your Pocket (option 6196)

KIPlink - Keyboard In Your Pocket - is the innovative user interface based on WiFi technology that allows one to operate on the unit directly from the smartphone or tablet. Using KIPlink, it is possible to turn the unit on and off, adjust the set-point, plot the main operating variables, monitor in detail the status of the refrigerant circuits, the compressors, the fans (if present) and the pumps (if present) and display and reset the possible alarms.

Night mode (option 1430)

The night mode function allows to reduce the sound power of the unit, reducing the speed of the fans and the number of active compressors.

U.L.C. - User limit control (option 4960)

Guaranteed the start-up of the units with the option U.L.C. even when the critical working condition could generate an alarm.
The controller can manage a 3way mixing valve (not provided) by 0-10V signal for ensuring a dynamic control of the water temperature on user heat exchanger according to the operating limits allowed. This ensures the start-up and correct functioning of the unit into the envelope, also even critical whether condition.

LAN Multi Manager (option 1540)

Up to 8 units (chillers or free-cooling chillers, with the same firmware version) can communicate via serial connection.
All the group functions are implemented with master/slave logic, with dynamic master.
Hereunder is a brief description of the main group functions, further details are available in the dedicated user manual.

- Load management
There are two possible load management logics: load sharing and sequencing.
- Load sharing: the load is distributed equally among the active units of the group.
- Sequencing: the units are activated one after the other. When the first unit is saturated (all the available resources are used), the second unit is activated, and so forth unit the load is fully covered.

- Dynamic master
In case of disconnection of the master unit, a new master is automatically elected among the other units, and the group functions remain active. The dynamic master function grants a backup solution to the net, overcoming the single point of failure typical of the static master architecture. Besides, it is possible to set the "master succession priority": in case of the master unit disconnection, the new master is elected among the units set as priority.

- Stand-by unit management
It is possible to set the number of unit that remain in stand-by, the load will be managed (with load sharing or sequencing) among the other units of the group. The stand-by unit rotation is automatic, according to the running hours equalization. A stand-by unit is immediately activated in case of total failure or disconnection of one of the active units of the group, or in case the water temperature exceeds the safety threshold.

- Restart in sequence
After a power black-out, this group function coordinates the compressor activation time of the different units and prevents from dangerous current picks due to simultaneous start-ups. Besides, it is possible to set the activation sequence of the units.

- Resource priority management
To make the most of the available cooling resources, it is possible to set the usage priority of each unit. The load management function will be adjusted accordingly. When available, the free-cooling is always given priority and is fully exploited before activating any compressor. Then the activation of the compressors follows the priority level assigned to the units.

- Auxiliary input
The auxiliary inputs are applied at a group level:
- 4-20 mA: remote set-point adjustments (analog input).
- Double set-point: remote switch between 2 set-points (digital input).
- Demand limit: remote signal to limit the unit's activable resources (digital input).

OPTIONS	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
2280 **EQUIPMENT KIT:**			
2281 UP KIT	The dedicated unit components setting permits a significant energy efficiency increase.	This option boosts the unit's energy efficiency at both full and part load.	ALL
2282 NR KIT	The option includes the fan speed reduction and the compressors' acoustical enclosure	The dedicated fans' speed calibration together with the soundproofing of the most critical components permit a significant noise reduction.	ALL
1440 **USER INTERFACE**			
1441 KIPlink + COMPACT KEYBOARD	In addition to KIPlink, the innovative user interface based on WiFi technology, the unit is equipped with the Compact keyboard with LCD display and buttons.		ALL
6196 KIPlink	The unit is equipped with KIPlink, the innovative user interface based on WiFi technology		ALL
6310 **VISUAL DISPLAY PROTECTION**			
6311 WITH DISPLAY PROTECTION	Display protection sealed panel	Provide complete protection against UV rays, atmospheric agents, sand storms.	ALL
380 **NUMBERED WIRING**			
382 PWR WIRINGS ACC.TO UK REQUEST		Facilitate maintainance interventions to the electrical board connections.	ALL
383 NUMBERED WIRINGS+UK REQUESTS	Electrical board wires are identified by numbered labels. The reference numbers are indicated in the unit's wiring scheme.	Facilitate maintainance interventions to the electrical board connections.	ALL
3410 **AUTOMATIC CIRCUIT BREAKERS**			
3412 AUTOM. CIRCUIT BREAK. ON LOADS	Over-current switch on the major electrical loads.	In case of overcurrent allows resetting of the switch without the replacement of relative fuses.	ALL
2410 **PHASE SEQUENCE RELAY**			
2411 WITH EXTERNAL PHASE SEQUENCE RELAY	Relay for checking mains phase-sequence	Protects loads against faults due to incorrect connection of mains	ALL
2412 PHASE SEQU. RELAY + OVER/UNDER VOLT. MONIT.	Relay for checking mains phase-sequence and voltage	The monitoring relay protects loads against faults due to incorrect connection of mains, and it monitors whether it exceeds or falls below a specified voltage in a three-phase network.	ALL
3600 **COMPRESSOR RUN STATUS SIGNAL**			
3601 COMPRESSOR OPERATION SIGNAL	Auxiliary contacts providing a voltage-free signal.	Allows remote signalling of compressor's activation or remote control of any auxiliary loads.	ALL
6160 **AUXILIARY INPUT**			
6161 AUXILIARY SIGNAL 4-20mA	4-20 mA analog input	Allows to change the operating set-point according to the value of current applied to the analogue input.	ALL

OPTIONS	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
6170 **DEMAND LIMIT**			
6171 INPUT REMOTE DEMAND LIMIT	Digital input (voltage free)	It permits to limit the unit's power absorption for safety reasons or in temporary situation.	ALL
4500 **FAST RESTART (UPS EXCLUDED)**			
4501 FAST RESTART (UPS EXCLUDED)	Unit fast restart management after power failure	The management of the fast restart allows to minimize downtimes in case of power failure, keeping all the necessary unit safeties. This optiont requires an external 203V AC 300VA UPS power supply, by customer.	ALL
1510 **SOFT-STARTER**			
1511 UNIT WITH SOFT-START	Electronic device adopted to manage the inrush current. The device controls 2 phases.	Break down of the inrush current compared to the direct motor start, lower motor windings' mechanical wear, avoidance of mains voltage fluctuations during starting, favourable sizing for the electrical system.	ALL
3300 **COMPRESSOR REPHASING**			
3301 COMPR.POWER FACTOR CORR.	Capacitors on the compressors' power inlet line.	The unit's average cos(phi) increases.	ALL
4180 **REMOTE CONNECTION ARRANGEMENT**			
4181 SERIAL CARD MODBUS	Interface module for ModBUS protocols.	Allows integration with BMS operating with ModBUS protocol.	ALL
4182 SERIAL CARD FOR LONWORKS	Interface module for Echelon systems.	Allows integration with BMS operating with LonWorks protocols	ALL
4184 SERIAL CARD BACNET MS/TP RS485	Interface module for BACnet protocols.	Allows integration with BMS operating with BACnet protocol.	ALL
4185 SERIAL CARD FOR BACNET OVER IP	Interface module for BACnet OVER-IP protocols.	Allows to interconnect BACnet devices over Internet Protocol within wide-area networks.	ALL
4186 SERIAL CARD FOR KONNEX	Protocol for KNX system	Allows integration with BMS operating with KNX protocol	ALL
4187 M-Net W3000 INTERFACE KIT	Interface kit for M-Net protocol.	Interface module to allow the integration of the unit with Mitsubishi Electric proprietary communication protocol M-Net.	ALL
4188 SERIAL CARD MODBUS TCP/IP	Interface module for ModBus TCP/IP protocol	Allows integration with BMS operating with ModBus TCP/IP protocol.	ALL
4189 SERIAL CARD SNMP	Interface module for SNMP protocol	Allows integration with BMS operating with SNMP protocol.	ALL
1470 **MULTIFUNCTION CARD**			
1431 NIGHT MODE	The option includes a related controller expansion board and dedicated terminal block.	Night mode is a system setting to limit maximum noise level of the unit. Noise level is reduced limiting maximum compressor frequency and fan speed.	ALL
1471 4951 + 1431	The option includes a related controller expansion board and dedicated terminal block.	Enables the functions corresponding to the indicated accessory codes.	ALL

OPTIONS	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
1472 4951 + 1431 + 4961	The option includes a related controller expansion board and dedicated terminal block (it is necessary to install a 3 way valve).	Enables the functions corresponding to the indicated accessory codes.	ALL
1473 4951 + 4961	The option includes a related controller expansion board and dedicated terminal block (it is necessary to install a 3 way valve).	Enables the functions corresponding to the indicated accessory codes.	ALL
1474 1431 + 4961	The option includes a related controller expansion board and dedicated terminal block (it is necessary to install a 3 way valve).	Enables the functions corresponding to the indicated accessory codes.	ALL
4951 WITH HYDRAULIC DECOUPLER PROBE	Water temperature probe on hydraulic decoupler.	The pump activation can be set by parameter according to the water temperature on buffer tank measuring by the sensor (in the systems with the primary and secondary circuits separated by a hydraulic decoupler), thus bringing significant pump consumption reduction during unit's stand-by.	ALL
4961 U.L.C.F. - WITH OR WITHOUT FIX SPEED PUMP	Option to be selected with the unit without pump/s or with fix speed pump/s (4703,4706,4707,4711,4712). The option includes a related controller expansion board and dedicated terminal block.	Guaranteed the start-up of the units with the option U.L.C. even when the critical working condition could generate an alarm. The W3000+ controller can manage a 3 way mixing valve (not provided from MEHITS) by 0-10V signal for ensuring a dynamic control of the water temperature on user heat exchanger according to the operating limits allowed. This ensures the start-up and correct functioning of the unit into the envelope, also even critical whether condition.	ALL
1540 **ON BOARD MULTI MANAGER**			
1541 MM PRIORITY MASTER MM_PR	Multi Manager - Priority Master: integrated control of a group of chillers and chillers with free-cooling with up to 8 units with LAN logics and dynamic master. The unit is identified and parameterized as a Priority Master; therefore it is given preference in case of election of a new Master (in case of a failure of the current Master). At least one Priority Master must be present in the group. The maximum number of Priority Master units coincides with the number of connected units (up to 8). If you want to equip the group of chiller with auxiliary functions (e.g. 4-20 mA set point variation, pressure transducer for VPF system), each Priority Master requires auxiliary input signals. Consequently, for each Priority Master it is necessary to select these accessories from the price list and proceed with their wiring onsite. More details can be found in the data book and in the controls technical documentation.	It allows the management of a group of chillers and chillers with free-cooling (up to 8 units) via LAN with master/slave operating logic with dynamic master which always guarantees a back-up function to the network. The system makes other functions available such as load and stand-by unit management, resource use priority, unit start-up in sequence and group fast restart (when Fast Restart option is available). For more details refer to the dedicated section of the data book.	ALL

OPTIONS	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
1542 MM NON PRIORITY MASTER MM_N-PR	Multi Manager - Non Priority Master: integrated control of a group of chillers and chillers with free-cooling with up to 8 units with LAN logics and dynamic master. The unit is identified and parameterized as a Non-Priority Master. Non-Priority Master units can become Masters (in case of a failure of the current Master) if there are no more Priority Master units available. In this case, the functions provided by the auxiliary signals are suspended (e.g. 4-20 mA set point variation, VPF); these signals can only be processed by Priority Master units. More details can be found in the data book and in the controls technical documentation.	It allows the management of a group of chillers and chillers with free-cooling (up to 8 units) via LAN with master/slave operating logic with dynamic master which always guarantees a back-up function to the network. The system makes other functions available such as load and stand-by unit management, resource use priority, unit start-up in sequence and group fast restart (when Fast Restart option is available). For more details refer to the dedicated section of the data book.	ALL
5920 **MANAGEMENT & CONTROL SYSTEMS**			
5922 ClimaPRO ModBUS RS485 - MID	This option includes the following devices on-board the unit panel: - MID certified network analyzer operating on ModBUS over RS-485 - Current transformers - Software release LA09 or later version.	This accessory allows to acquire the electrical data and the power absorbed by the unit and communicate with ClimaPRO via high level communication interface based on ModBUS over EIA RS-485. More specifically, the data collected are: power supply, current, frequency, power factor (cos), electrical power consumption, energy consumption. This specific energy meter model is MID certified and can therefore be used for billing applications. This option also ensures the compatibility between the units and ClimaPRO, thus allowing ClimaPRO to acquire all the main unit's operating variables and status by means of a high level communication interface to the controller installed onboard the unit panel.	ALL
5923 ClimaPRO BacNET over IP	This option includes the following devices on-board the unit panel: - network analyzer operating on BACnet over IP - Current transformers - Software release LA09 or later version.	This accessory allows to acquire the electrical data and the power absorbed by the unit and communicate with ClimaPRO via high level communication interface based on BACnet over IP. More specifically, the data collected are: power supply, current, frequency, power factor (cos), electrical power consumption, energy consumption. This network analyzer is not MID certified and cannot therefore be used for billing applications. This option also ensures the compatibility between the units and ClimaPRO, thus allowing ClimaPRO to acquire all the main unit's operating variables and status by means of a high level communication interface to the controller installed onboard the unit panel.	ALL
5924 ENERGY METER FOR BMS	This option includes the following devices on-board the unit panel: - network analyzer with display operating on ModBUS protocol over RS-485 (without certification MID) - current transformers.	This accesory allows to acquire the electrical data and the power absorbed by the unit and send them via RS-485 bus to the BMS for energy metering.	ALL

OPTIONS	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
5925 ENERGY METER FOR W3000	This option includes all following devices on-board the unit panel: - network analyzer with display, already cabled to unit's controller - current transformers.	This option allows to acquire the electrical data and the power absorbed by the unit. The figures are accessible through the unit's W3000 interface, and be sent to the BMS via several protocols by selecting the dedicated serial card in the option list.	ALL
3430 **REFRIGERANT LEAK DETECTOR**			
3431 REFRIG. LEAK DETECTOR	Refrigerant leak detection system, supplied factory mounted and wired in the electrical board. In case of leak detection it will raise an alarm.	It promptly detects gas leakages	ALL
3433 GAS LEAK CONTACT + COMPR. OFF	Refrigerant leak detection system, supplied factory mountedand wired in the electrical board. In case of leak detection it will raise an alarm and stop the unit.	It promptly detects gas leakages and stops the unit	ALL
5940 **SETP. COMPENSATION OUT. TEMP.**			
5941 WITH SETPOINT COMPENSATION	This option includes an outside air sensor to be installed outside the building and enable the climatic curve function.	An outside air temperature probe, available as option, controls the system water temperature set point based on heating and cooling (reversible units) climatic curves. Delivering water at different temperatures to the terminals based on the outside air temperature achieves high seasonal efficiency ratios and provides considerable savings in running costs.	ALL
3390 **ANTICONDENSATE HEATER EL.BOARD**			
3391 ELECTRIC HEATER ON EL. BOARD	Electrical heater fed directly from the unit, is automatically activated at temperatures internal QE below 30 ° C (off state at T higher than 40 ° C).	It avoids the risk of humidity condensation on the electrical panel.	ALL
990 **CONDENSING COIL**			
876 E-COATING MICROCHANNEL COILS	The heat exchanger is completely treated by electrolysis so as to create a protective layer of epoxy polymer on the surface, with the following characteristics: - over 3120 hours of salt spray protection as per ASTM G85-02 A3 (SWAAT); - polyurethane surface protection against UV rays.	Provides a very high resistance against corrosion, also in very aggressive environments. For further information please refer to the Guidelines “Finned coil heat exchangers and protection against corrosion”, available in the download section of the website www.melcohit.com/EN/Download/Corporate/GUIDELINES or contact our sales department.	ALL
820 **FAN CONTROL**			
808 EC FANS	Electronically commutated fans (EC fans). The brushless motor, governed by a special controller, continuously adjust fans' speed.	Reduced energy consumption and minimized current's absorption during start-up phase with a connected increased efficiency. The noise reduces proportionally to the unit's partialization.	ALL
818 OVERSIZED EC FANS	Fans with oversized EC motor	Extends the operating limits of the unit. Further information in the dedicated databook section.	ALL

OPTIONS	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
821 DVV2F	Fan speed control according to the condensing pressure; the use of this device is mandatory in case the unit operates with low evaporator leaving water temperature combined with low outdoor air temperatures	Extension of the unit operating range (see the section dedicated to the operating limits). The device allows the unit to operate in the most extreme conditions avoiding any risk of low pressure alarm intervention. The enhanced air flow management delivers also benefits in terms of both efficiency and quietness.	ALL
1400 **HP AND LP GAUGES**			
1401 HP AND LP GAUGES	High and low pressure gauges	Allows immediate reading of the pressure values on both low and high pressure circuits	ALL
5040 **COMPRESSOR SUCTION AND DISCHARGE VALVE**			
5042 COMPRESSOR SUCTION AND DISCHARGE VALVE	Shut-off valve on compressor's suction and discharge circuit.	Simplifies maintenance activities	ALL
1960 **PRESSURE RELIEF VALVES**			
1961 DUAL RELIEF VALVES WITH SWITCH	Dual relief valve with switch	Allows to unselect a relief valve in order to service the unit avoiding medium or long inoperative periods	ALL
2590 **SOUNDPROOFING INSULATION**			
2591 COMPRESSOR SOUNDPROOFING INSULATION	Compressor enclosure with soundproofing insulation in polyester fiber mat	Noise emission reduction	ALL
2660 **HEAT-EXCHANGER INSULATION**			
2641 EXTRA INSULATATION ON EXCHANGERS	Increased thermal insulation on the heat exchanger: 20 mm thick closed-cell expanded polyurethane.	Reduces heat losses and prevent from condensate problems.	ALL
4700 **EV - HYDRONIC MODULE**			
4706 EV - 1 PUMP 2P LH (FIX SPEED)	Evaporator hydronic module, compatible with constant flow control. The unit is provided with 1 fixed speed pump, with 2-pole motor. Residual head of 100 kPa approximately. Specifications and characteristic curves are available in the dedicated bulletin section.	The hydronic module includes the pumps and the main water circuit components, thus optimizing hydraulic and electrical installation space, time and costs.	ALL
4707 EV - 1 PUMP 2P HH (FIX SPEED)	Evaporator hydronic module, compatible with constant flow control. The unit is provided with 1 fixed speed pump, with 2-pole motor. Residual head of 200 kPa approximately. Specifications and characteristic curves are available in the dedicated bulletin section.	The hydronic module includes the pumps and the main water circuit components, thus optimizing hydraulic and electrical installation space, time and costs.	ALL

OPTIONS	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
4711 EV - 2 PUMPS 2P LH (FIX SPEED)	Evaporator hydronic module, compatible with constant flow control. The unit is provided with 2 fixed speed pumps, with 2-pole motor. Residual head of 100 kPa approximately. The pumps are controlled in duty/standby, with running hours equalization and changeover on device failure. Specifications and characteristic curves are available in the dedicated bulletin section.	The hydronic module includes the pumps and the main water circuit components, thus optimizing hydraulic and electrical installation space, time and costs.	ALL
4712 EV - 2 PUMPS 2P HH (FIX SPEED)	Evaporator hydronic module, compatible with constant flow control. The unit is provided with 2 fixed speed pumps, with 2-pole motor. Residual head of 200 kPa approximately. The pumps are controlled in duty/standby, with running hours equalization and changeover on device failure. Specifications and characteristic curves are available in the dedicated bulletin section.	The hydronic module includes the pumps and the main water circuit components, thus optimizing hydraulic and electrical installation space, time and costs.	ALL
4713 EV - RELAY 1 PUMP + 0-10V SIG	Evaporator hydronic module, compatible with constant or variable flow control. The unit is provided with 1 relay and a 0-10V signal terminal to control the activation and the speed of 1 external variable speed pump.	The hydronic module controls the external pumps with the unit controller logic.	ALL
4714 EV - RELAY 2 PUMPS + 0-10V SIG	Evaporator hydronic module, compatible with constant or variable flow control. The unit is provided with 2 relays and a 0-10V signal terminal to control the activation and the speed of 2 external variable speed pump. The pumps are controlled in duty/standby, with running hours equalization and changeover on device failure.	The hydronic module controls the external pumps with the unit controller logic.	ALL
4717 EV - 1 PUMP 2P LH (VAR SPEED)	Evaporator hydronic module, compatible with constant or variable flow control. The unit is provided with 1 variable speed pump, with 2-pole motor. Residual head of 100 kPa approximately. Specifications and characteristic curves are available in the dedicated bulletin section.	The hydronic module includes the pumps and the main water circuit components, thus optimizing hydraulic and electrical installation space, time and costs.	ALL
4718 EV - 1 PUMP 2P HH (VAR SPEED)	Evaporator hydronic module, compatible with constant or variable flow control. The unit is provided with 1 variable speed pump, with 2-pole motor. Residual head of 200 kPa approximately. Specifications and characteristic curves are available in the dedicated bulletin section.	The hydronic module includes the pumps and the main water circuit components, thus optimizing hydraulic and electrical installation space, time and costs.	ALL

OPTIONS	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
4722 EV - 2 PUMPS 2P LH (VAR SPEED)	Evaporator hydronic module, compatible with constant or variable flow control. The unit is provided with 2 variable speed pumps, with 2-pole motor. Residual head of 100 kPa approximately. The pumps are controlled in duty/standby, with running hours equalization and changeover on device failure. Specifications and characteristic curves are available in the dedicated bulletin section.	The hydronic module includes the pumps and the main water circuit components, thus optimizing hydraulic and electrical installation space, time and costs.	ALL
4723 EV - 2 PUMPS 2P HH (VAR SPEED)	Evaporator hydronic module, compatible with constant or variable flow control. The unit is provided with 2 variable speed pumps, with 2-pole motor. Residual head of 200 kPa approximately. The pumps are controlled in duty/standby, with running hours equalization and changeover on device failure. Specifications and characteristic curves are available in the dedicated bulletin section.	The hydronic module includes the pumps and the main water circuit components, thus optimizing hydraulic and electrical installation space, time and costs.	ALL
4860 **EV - PRIMARY FLOW CONTROL**			
4861 EV - CONSTANT FLOW	Evaporator water flow control (plant primary circuit): constant flow. Compatible with hydronic modules without regulation devices (no pumps, no contacts), with ON/OFF regulation devices (relays) or with fixed speed pumps (codes: 4701, 4702, 4703, 4704, 4705, 4706, 4707, 4708, 4709, 4711, 4712 - hydronic modules availability depends on unit model).	The unit is set up to operate with a constant water flow in the heat exchanger (plant primary circuit). This is the only option available in case of unit without any water flow regulation devices (no pumps, no contacts), which means with water flow control provided by others. In case of unit with ON/FF regulation devices or fixed speed pumps, the unit controller manages the pump activation to reduce pump consumption.	ALL
4862 EV - CONSTANT FLOW (PARAMETER)	Evaporator water flow control (plant primary circuit): constant flow (parameter set). Compatible with hydronic modules with modulating regulation devices (0-10V signal) or with variable speed pumps (codes: 4713, 4714, 4715, 4716, 4717, 4718, 4719, 4721, 4722, 4723 - hydronic modules availability depends on unit model).	The unit is set up to operate with a constant water flow in the heat exchanger (plant primary circuit). The unit controller manages the pump activation to reduce pump consumption. The pump speed is adjusted via 0-10V signal. The option provides the possibility to set the pump speed with a controller parameter. Once set, the speed pump remains constant until the next parameter adjustment. The parameter set constant flow control is useful during the unit installation and commissioning, to adjust water flow and pressure head according to the real plant characteristics.	ALL

OPTIONS	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
4864 EV – VPF (w/o DP)(SU, MM_PR)	Evaporator water flow control (plant primary circuit): variable flow (delta P control). Only for single unit systems or unit with option 1541 (Multi Manager - Priority Master) if available. Compatible with hydronic modules with modulating regulation devices (0-10V signal) or with variable speed pumps (codes: 4713, 4714, 4715, 4716, 4717, 4718, 4719, 4721, 4722, 4723 - hydronic modules availability depends on unit model). The option includes: differential pressure transducer on the unit's heat exchanger and related controller expansion board, controller expansion board to read the plant side differential pressure transducer (4-20mA signal) and manage the hydraulic by-pass valve opening (0-10V signal). Compulsory equipment, supplied by others: plant side differential pressure transducer, plant side hydraulic by-pass valve.	The unit is set up to operate with a variable water flow in the heat exchanger (plant primary circuit). The unit controller manages the pump activation to reduce pump consumption. The pump speed is adjusted via 0-10V signal. The option provides a pump speed management based on the VPF (Variable Primary Flow) function. It keeps the delta P constant on the plant side (primary circuit), thus bringing significant pump consumption reduction during part load operation. The VPF function is applicable in systems with only the primary circuit. Further information available in the dedicated bulletin section.	ALL
4865 EV – VPF (w DP)(SU, MM_PR)	Evaporator water flow control (plant primary circuit): variable flow (delta P control). Only for single unit systems or unit with option 1541 (Multi Manager - Priority Master) if available. Compatible with hydronic modules with modulating regulation devices (0-10V signal) or with variable speed pumps (codes: 4713, 4714, 4715, 4716, 4717, 4718, 4719, 4721, 4722, 4723 - hydronic modules availability depends on unit model). The option includes: differential pressure transducer on the unit's heat exchanger and related controller expansion board, plant side differential pressure transducer (installation by others), controller expansion board to read the plant side differential pressure transducer (4-20mA signal) and manage the hydraulic by-pass valve opening (0-10V signal). Compulsory equipment, supplied by others: plant side hydraulic by-pass valve.	The unit is set up to operate with a variable water flow in the heat exchanger (plant primary circuit). The unit controller manages the pump activation to reduce pump consumption. The pump speed is adjusted via 0-10V signal. The option provides a pump speed management based on the VPF (Variable Primary Flow) function. It keeps the delta P constant on the plant side (primary circuit), thus bringing significant pump consumption reduction during part load operation. The VPF function is applicable in systems with only the primary circuit. Further information available in the dedicated bulletin section.	ALL

OPTIONS	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
4866 EV – VPF (M3000, CPRO, MM_N-PR)	Evaporator water flow control (plant primary circuit): variable flow (delta P control). Only for multi-unit systems with external controller (Manager3000 or ClimaPRO) or unit with option 1542 (Multi Manager - Non Priority Master) if available. Compatible with hydronic modules with modulating regulation devices (0-10V signal) or with variable speed pumps (codes: 4713, 4714, 4715, 4716, 4717, 4718, 4719, 4721, 4722, 4723 - hydronic modules availability depends on unit model). The option includes: differential pressure transducer on the unit's heat exchanger and related controller expansion board. It shall be the customer responsibility to configure the multi-unit control system (Manager3000, ClimaPRO or Multi Manager Priority Master) with option VPF.	The unit is set up to operate with a variable water flow in the heat exchanger (plant primary circuit). The unit controller manages the pump activation to reduce pump consumption. The pump speed is adjusted via 0-10V signal. The option provides a pump speed management based on the VPF (Variable Primary Flow) function. It keeps the delta P constant on the plant side (primary circuit), thus bringing significant pump consumption reduction during part load operation. The VPF function is applicable in systems with only the primary circuit. Further information available in the dedicated bulletin section.	ALL
4867 EV - VPF.D (SU, MM_PR)	Evaporator water flow control (plant primary circuit): variable flow (delta T control). Only for single unit systems or unit with option 1541 (Multi Manager - Priority Master) if available. Compatible with hydronic modules with modulating regulation devices (0-10V signal) or with variable speed pumps (codes: 4713, 4714, 4715, 4716, 4717, 4718, 4719, 4721, 4722, 4723 - hydronic modules availability depends on unit model). The option includes: 2 plant side NTC temperature sensors (installation by others).	The unit is set up to operate with a variable water flow in the heat exchanger (plant primary circuit). The unit controller manages the pump activation to reduce pump consumption. The pump speed is adjusted via 0-10V signal. The option provides a pump speed management based on the VPF.D (Variable Primary Flow with Decoupler) function. It keeps the delta T constant on the plant side (primary circuit), thus bringing significant pump consumption reduction during part load operation. The VPF.D function is applicable in systems with the primary and secondary circuits separated by a hydraulic decoupler. Further information available in the dedicated bulletin section.	ALL
4868 EV - VPF.D(M3000, CPRO, MM_N-PR)	Evaporator water flow control (plant primary circuit): variable flow (delta T control). Only for multi-unit systems with external controller (Manager3000 or ClimaPRO) or unit with option 1542 (Multi Manager - Non Priority Master) if available. Compatible with hydronic modules with modulating regulation devices (0-10V signal) or with variable speed pumps (codes: 4713, 4714, 4715, 4716, 4717, 4718, 4719, 4721, 4722, 4723 - hydronic modules availability depends on unit model). It shall be the customer responsibility to configure the multi-unit control system (Manager3000, ClimaPRO or Multi Manager - Priority Master) with option VPF.D.	The unit is set up to operate with a variable water flow in the heat exchanger (plant primary circuit). The unit controller manages the pump activation to reduce pump consumption. The pump speed is adjusted via 0-10V signal. The option provides a pump speed management based on the VPF.D (Variable Primary Flow with Decoupler) function. It keeps the delta T constant on the plant side (primary circuit), thus bringing significant pump consumption reduction during part load operation. The VPF.D function is applicable in systems with the primary and secondary circuits separated by a hydraulic decoupler. Further information available in the dedicated bulletin section.	ALL

OPTIONS	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
4869 EV - VPF.E	Evaporator water flow control (plant primary circuit): variable flow (delta T control). Compatible with hydronic modules with modulating regulation devices (0-10V signal) or with variable speed pumps (codes: 4713, 4714, 4715, 4716, 4717, 4718, 4719, 4721, 4722, 4723 - hydronic modules availability depends on unit model).	The unit is set up to operate with a variable water flow in the heat exchanger (plant primary circuit). The unit controller manages the pump activation to reduce pump consumption. The pump speed is adjusted via 0-10V signal. The option provides a pump speed management based on the VPF.E function. It keeps the delta T constant on the plant side (primary circuit), thus bringing significant pump consumption reduction during part load operation. The VPF.E function is applicable in systems with only the primary circuit and with the hydraulic terminals equipped 3 way valve (by-pass). Further information available in the dedicated bulletin section.	ALL
4940 **BUFFER TANK**			
4941 EV - WITH BUFFER TANK	Buffer tank covered by a 20 mm thick of insulation lining in closed-cell reticulated foam, which capacity depends on the unit size (see the dedicated table). In the dedicated section are descripted all the factory-mounted components included in the buffer tank system.	It helps to reach the plant water content required for the correct unit operation (see dedicated section “Hydraulic Data”).	ALL
2430 **PIPING KIT ANTIFREEZE HEATER**			
2431 ANTIFREEZE PIPING	Electrical heaters on pipes .This option is mandatory if the unit is supposed to work with outdoor temperature below 0°C	It protects the unit against ice formation on its hydraulic components.	ALL
2432 ANTIFREEZE PIPING, PUMPS	Electrical heaters on pipes and other hydraulic unit's components. This option is mandatory if the unit is supposed to work with outdoor temperature below 0°C. Only for units provided with on-board pumps.	It protects the unit against ice formation on its hydraulic components.	ALL
2433 ANTIFREEZE PIPING, PUMPS, TANK	Electrical heaters on pipes and other hydraulic unit's components. This option is mandatory if the unit is supposed to work with outdoor temperature below 0°C. Only for units provided with on-board pumps.		ALL
2910 **HYDRAULIC CONNECTIONS**			
2911 FLANGED HYDRAULIC CONNECTIONS	Grooved coupling with flanged counter-pipe user/source side.		ALL
2020 **ANTI-INTRUSION GRILLS**			
2021 ANTI-INTRUSION GRILLS	Anti-intrusions grills	Avoid the intrusion of solid bodies into the unit's structure.	ALL
9970 **PACKING**			
9969 NYLON + WOODEN CRATE PACKING	Unit provided with wooden cage and covered with nylon		ALL
9971 WITHOUT PACKAGING	Unit provided with plastic supports		ALL

OPTIONS	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
9974 MARINE PACKING	Unit provided with barrier bag and wooden cage		ALL
9979 CONTAINER PACKING	Unit provided with container slides and covered with nylon		ALL
9996 CONTAINER SLIDES	Unit provided with container slides		ALL
9999 SUPPORTS AND NYLON	Unit provided with plastic supports and covered with nylon		ALL
9920 **BRACKETS FOR LATERAL LIFTING**			
9921 BRACKETS FOR LATERAL LIFTING	Metal brackets to forklift the unit	This option allows easy lifting and handling of the unit.	ALL
AC01 **ACCESSOR. SUPPLIED SEPARATELY**			
AC01 EVAPORATOR WATER FLOWSWITCH	Flow switch with stainless scoop AISI 316L and IP65 protection suitable for installation in industrial plant pipes. It should be installed in a straight pipe without filters, valves, etc., long at least 5 times its diameter, both upstream and downstream.	Signaling of lack of or excessive reduction of flow, it generates an alarm that is in automatic or manual reset depending on n ° alarms per hour and the maximum time of operation of the pump under conditions of low flow rate.	ALL
AC02 "Y" WATER FILTER			ALL
AC03 LIFTING BARS			ALL
AC04 RUBBER TYPE ANTIVIBR.MOUNTING			ALL

5.1 PERFORMANCE AT DESIGN CONDITIONS

RUNNING CONDITIONS		
HEAT EXCHANGER USER SIDE		
Fluid type		WATER
Glycol	%	0
Fouling factor	m²K/kW	0.018
Fluid inlet temperature (cooling mode)	°C	12.00
Fluid outlet temperature (cooling mode)	°C	6.00
Water flow	l/s	4.051
Pressure drop at the heat exchanger	kPa	30.2
Available unit head	kPa	142
OUTDOOR CONDITION		
Air temperature (cooling mode)	°C	35.0

COOLING (EN 14511)		
Cooling capacity	kW	102.0
Compressor power input	kW	28.13
Fans power input (cooling mode)	kW	4.00
Total power input	kW	32.60
EER	kW/kW	3.130
ESEER EN 14511	kW/kW	4.210

SEER		
SEER Official (Reg. EU 2016/2281)		
Fan coil (12/7)		
Type climate		Average
Temp. Plant side		Fan coil (12/7)
Type flow		Fixed
Type Temperature		Variable
Prated,c	kW	105
T Design		35.00
Qce		14995.65
SEER		4.21
Performance ηs	%	165
SEER Editable (EN 14825)		

The performance shown are obtained from theoretical calculations and tolerances will apply.Rpt.version:1.0.6.0

Fan coil (12/7)		
Type climate		Average
Temp. Plant side		Fan coil (12/7)
Type flow		Fixed
Type Temperature		Variable
Prated,c	kW	105.10
T Design		35.00
Qce		14995.65
SEER		4.21
Performance ηs	%	165

5.2 EFFICIENCIES

ESEER (EN 14511 VALUE)					
Load	%	100	75	50	25
Outdoor air temperature	°C	35.0	30.0	25.0	20.0
Temp. evaporator inlet	°C	12.00	10.74	9.98	10.09
Temp. evaporator outlet	°C	7.00	7.00	7.00	7.00
Evaporator water flow	l/s	5.009	5.010	5.009	5.008
Cooling capacity	kW	105.1	78.80	52.50	26.30
Total power input	kW	32.90	20.60	11.80	5.930
EER	kW/kW	3.190	3.830	4.460	4.430
ESEER EN14511 CALCULATED	kW/kW		4.210		
ESEER	kW/kW		0.000		

5.3 PART LOAD DATA

COOLING PARTIAL LOADS											
Load	%	100.0	90.0	80.0	70.0	60.0	*50.0*	*40.0*	*30.0*	*20.0*	*10.0*
Outdoor air temperature	°C	35.0	35.0	35.0	35.0	35.0	*35.0*	*35.0*	*35.0*	*35.0*	*35.0*
Cooling load	kWh	102	92	82	71	61	*51*	*41*	*31*	*20*	*10*
Fans power input (cooling mode)	kW	4.00	3.65	3.29	2.94	2.59	*2.21*	*1.82*	*1.42*	*1.03*	*0.63*
Total power input	kW	32.50	28.90	25.20	21.60	17.90	*14.80*	*12.10*	*9.500*	*6.860*	*4.230*
Temp. evaporator inlet	°C	12.00	11.40	10.80	10.19	9.59	*9.27*	*9.27*	*9.27*	*9.27*	*9.27*
Temp. evaporator outlet	°C	6.00	6.00	6.00	6.00	6.00	*6.00*	*6.00*	*6.00*	*6.00*	*6.00*
Evaporator water flow	l/s	4.052	4.052	4.051	4.051	4.050	*4.050*	*4.050*	*4.050*	*4.050*	*4.050*
EER	kW/kW	3.140	3.180	3.240	3.310	3.410	*3.450*	*3.360*	*3.220*	*2.970*	*2.410*
Note		Note: italics texts mean integrated values under minimum step									

The performance shown are obtained from theoretical calculations and tolerances will apply.Rpt.version:1.0.6.0

5.4 EXCHANGERS

HEAT EXCHANGER USER SIDE		
Typology		PLATE
Quantity	N°	1
Type of connections		[B1] - Male threaded pipe (EN 10226 - R: external taper thread)
Diameter of connections		2"1/2
Min flow	l/s	3.056
Max flow	l/s	8.889
Heat exchanger water content	l	6.80
Minimum water content admitted in the plant	l	278

5.5 FANS

Fans type		AXIAL
Quantity	N°	2
Total fans power input	kW	4.00
F.L.I.	kW	2x2
F.L.A.	A	2x4

COOLING		
Total fans power input	kW	4.00
Air flow	m³/s	10.98
Available static pressure	Pa	0

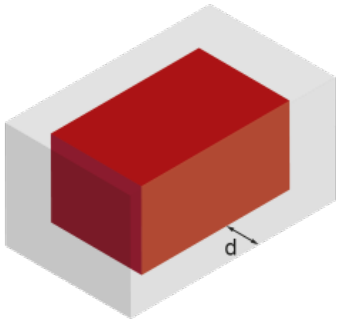
5.6 COMPRESSORS

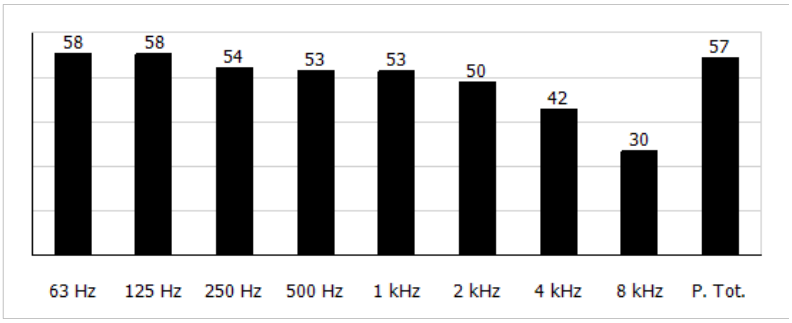
COMPRESSORS		
Compressor type		SCROLL
Compressors nr.	N°	2
No. Circuits	N°	1
Number of capacity steps	N°	2
Min. capacity step	%	50
Regulation		STEPS
Oil charge	kg	10.6
F.L.I. - Max absorbed power	kW	2x22.4
F.L.A. - Max absorbed current	A	2x35.6
L.R.A. - Locked rotor amperes for single compressor	A	2x211

REFRIGERANT		
Refrigerant		R454B
Theoretical refrigerant charge	kg	14.3
GWP100 value (from IPCC AR5)		467
CO2 equivalent	t	6.68

5.7 NOISE DATA

SOUND DATA COLD									
Frequencies	Hz	63	125	250	500	1000	2000	4000	8000
Sound power (spectrum)	dB	90	90	86	85	85	82	74	62
Total sound power level in cooling	dB(A)				89				
Sound pressure level (spectrum)	dB	58	58	54	53	53	50	42	30
Total sound Pressure	dB(A)				57				



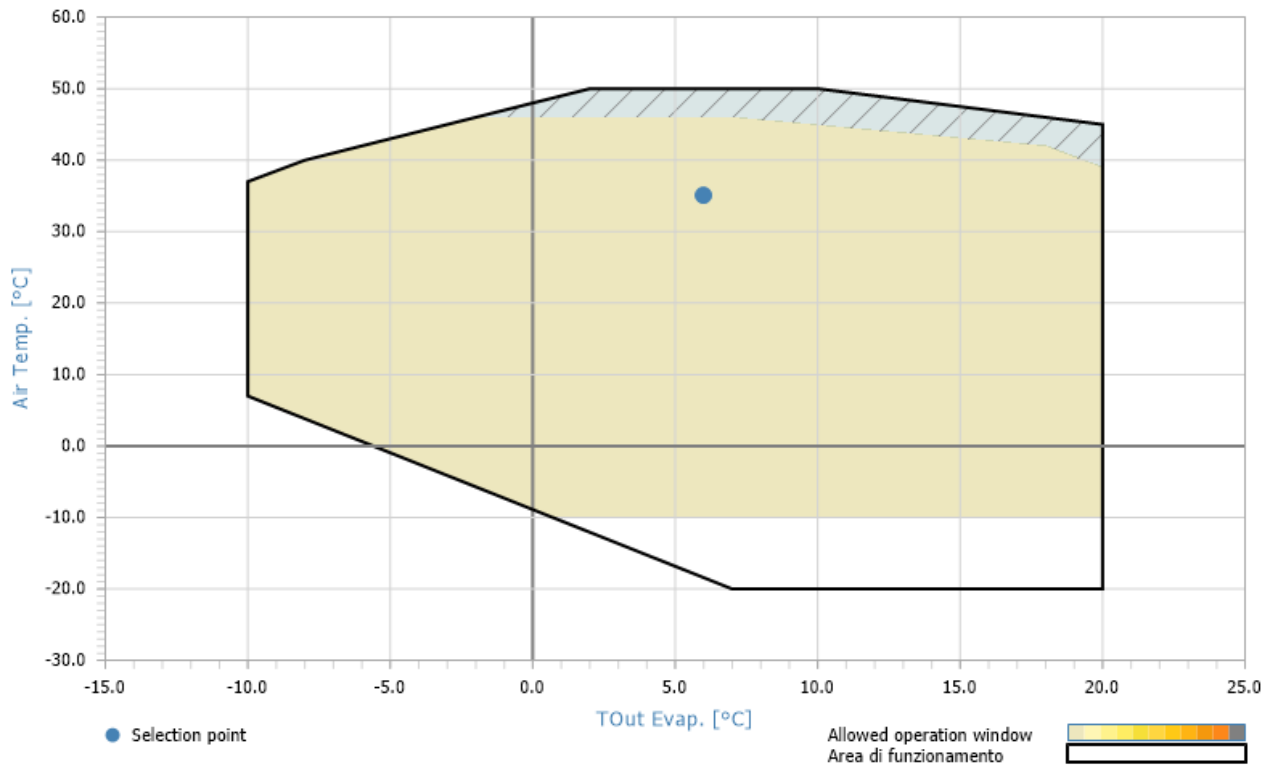


Note		
Distance	m	10
Note		Average sound pressure level at 10 m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level. Sound power on the basis of measurements taken in compliance with ISO 9614.

The performance shown are obtained from theoretical calculations and tolerances will apply.Rpt.version:1.0.6.0

5.8 OPERATING LIMITS

COOLING LIMITS



COOLING LIMITS

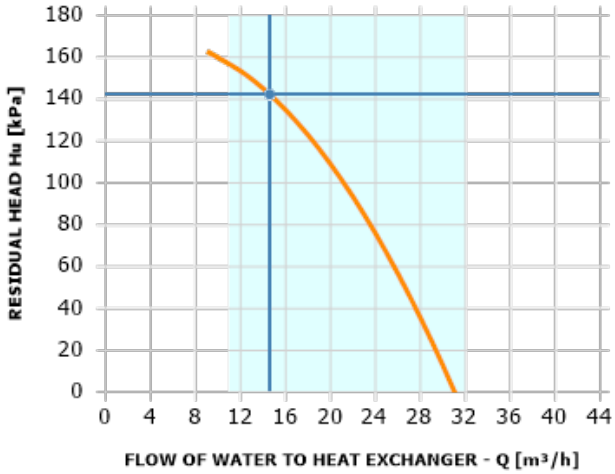
PART_LOAD-Please contact the Sales Department for the performance data.

5.9 ELECTRICAL DATA

Power supply	V/ph/Hz	400/3/50
F.L.I. - Max absorbed power	kW	51.00
F.L.A. - Max absorbed current	A	84
S.A. - Inrush current	A	259.6

5.10 ACCESSORIES

HYDRONIC GROUPS		
HEAT EXCHANGER USER SIDE		
Accessory code		4706
Accessoriy description		EV - 1 PUMP 2P LH (FIX SPEED)
Min flow	l/s	3.056
Max flow	l/s	8.889
COOLING		
Water flow	l/s	4.051
Available unit head	kPa	142
GRAPH OF RESIDUAL PRESSURE HEAD		



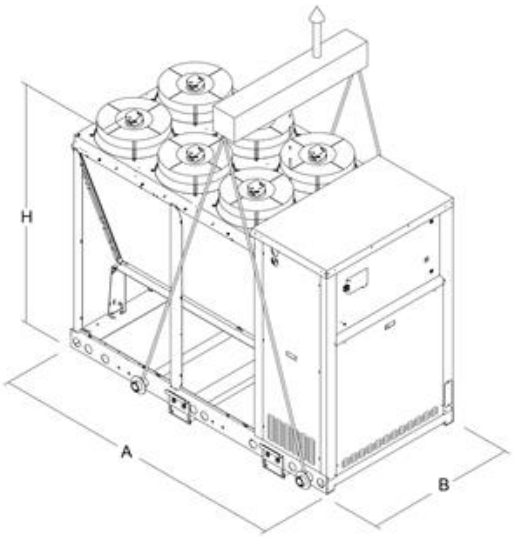
DIMENSION AND ELECTRIC DATA VARIATION		
FLA hydronic group	A	5
FLI hydronic group	kW	2.200
Weight hydronic kit	kg	160
Extra length size	mm	0
Extra width size	mm	0
Extra height size	mm	0
Extra Sound pwr.	dB(A)	0.0
Total water tank	l	0.00

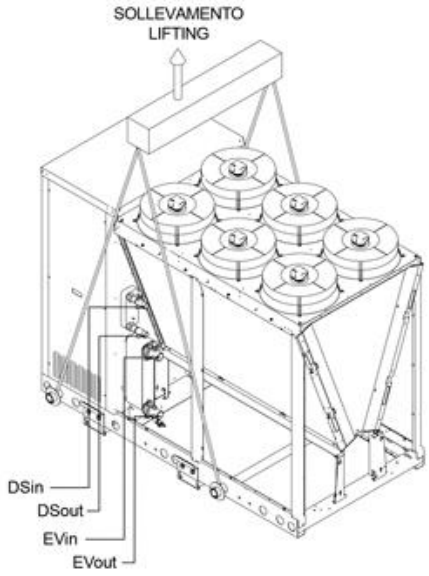
REQUIRED ACCESSORIES	
Accessory	2281 - UP KIT

The performance shown are obtained from theoretical calculations and tolerances will apply.Rpt.version:1.0.6.0

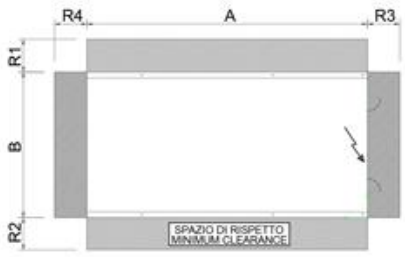
5.11 WEIGHT & DIMENSIONS

A	mm	2825
B	mm	1195
H	mm	1980
Operating weight	kg	930
R1	mm	1000
R2	mm	1000
R3	mm	1000
R4	mm	1000





BASE D'APPOGGIO
SUPPORTING BASEMENT



EVin	Entrata acqua evaporatore Evaporator water inlet
EVout	Uscita acqua evaporatore Evaporator water outlet
DSin	Entrata acqua desurriscaldatore (solo per versione /D) Desuperheater water inlet (only for "/D" version)
DSout	Uscita acqua desurriscaldatore (solo per versione /D) Desuperheater water outlet (only for "/D" version)

TECHNICAL DOCUMENTATION - REGULATION (EU) N. 2016/2281 - Chillers for space cooling

NX2-G06 /UP /0112 -			
Outdoor side heat exchanger of chiller	air or water/brine		Air
Indoor side heat exchanger chiller	water		Water
Type	compressor driven vapour compression or sorption process		Compressor driven vapour compression
Driver of compressor	electric motor or fuel driven, gaseous or liquid fuel, internal or external combustion engine		Electric motor
Rated cooling capacity	Prated,c	[kW]	105.1
Seasonal energy efficiency of the space cooling	ηs,c	[%]	165.0
Declared cooling capacity for part load at given outdoor temperatures Tj			
Declared cooling capacity at given outdoor temperatures Tj = 35°C	Pdc	[kW]	105
Declared cooling capacity at given outdoor temperatures Tj = 30°C	Pdc	[kW]	77.4
Declared cooling capacity at given outdoor temperatures Tj = 25°C	Pdc	[kW]	68.6
Declared cooling capacity at given outdoor temperatures Tj = 20°C	Pdc	[kW]	74.2
Degradation coefficient for chillers	Cdc		0.9
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures Tj			
Declared energy efficiency ratio at given outdoor temperatures Tj = 35°C	EERd	[%]	3.19
Declared energy efficiency ratio at given outdoor temperatures Tj = 30°C	EERd	[%]	4.00
Declared energy efficiency ratio at given outdoor temperatures Tj = 25°C	EERd	[%]	4.89
Declared energy efficiency ratio at given outdoor temperatures Tj = 20°C	EERd	[%]	5.65
Power consumption in modes other than "active mode"			
Off mode	POFF	[kW]	0.000
Thermostat-off mode	PTO	[kW]	0.503
Crankcase heater mode	PCK	[kW]	0.000
Standby mode	PSB	[kW]	0.107
Other items			
Capacity control	fixed/staged/variable		Variable
Sound power level, outdoor	LWA	[dB(A)]	89.0
GWP of the refrigerant		[Kg CO2eq]	467
For air-to-water comfort chillers: air flow rate, outdoor measured		[m³/h]	39528.00
For water/brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger		[m³/h]	-
Standard rating conditions used:	low temperature application/medium temperature application		Low temperature application

Contact details: Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A., via Caduti di Cefalonia 1 - 36061 Bassano del Grappa (VI) - Italy

The performance shown are obtained from theoretical calculations and tolerances will apply.Rpt.version:1.0.6.0