

Data Book

NX_N_0604P_1204P_201211_EN



NX-N 0604P - 1204P

148-319 kW

Reversible unit, air source for outdoor installation



R HFC R-410A

SCROLL

P PLATES



(The photo of the unit is indicative and may vary depending on the model)

✓ REFRIGERANT GAS R410A

✓ INTEGRATED HYDRONIC GROUP

CERTIFICATIONS

Product certifications



Voluntary product certifications



This company participates in the Eurovent Certification Programme. The products are listed in the Directory of certified products. The Eurovent certificate, for the applicable units, refers to products with cooling capacity up to 600 kW, voluntarily extended up to 1500 kW, for air-cooled models and water-cooled models.

System certifications



Climaveneta S.p.A.:

Quality System complying with the requirements of UNI EN ISO9001:2008 regulation

Environmental Management System complying with the requirements of UNI EN ISO14001:2004 regulation

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The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

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All work must be performed, components selected and materials used professionally and in complete accordance with the legislation in force in material in the country concerned, and considering the operating conditions and intended uses of the system, by qualified personnel.

The data contained in this publication may be changed without prior notice.

1. NX-N: LEED RELEVANT PRODUCT

The LEED protocol is the most known protocol of sustainability to define and measure “green buildings” all around the world.

Based on existing and proven technology, it evaluates environmental performance from a whole building perspective over a building’s life cycle, providing a definitive standard for what constitutes a green building in design, construction and operation.

The LEED rating systems are designed for rating new and existing commercial, institutional and residential buildings. They are based on accepted energy and environmental principle and strike a balance between known, established practices and emerging concepts.

Each rating system is organized into 7 environmental categories: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, Innovation in Design and Regional Bonus.



NX-N units are compliant with the performance standard contained in the protocol of sustainability LEED. In detail, NX-N units contribute to the following points:

- prerequisite 2 in ENERGY & ATMOSPHERE topic
NX-N units, upon check of the commercial office, are ASHRAE 90.1 – 2007 compliant.
The “Minimum Efficiency Requirements” detailed in the table 6.8.1A/B of the American standard are guaranteed.

TABLE 6.8.1C Water Chilling Packages–Minimum Efficiency Requirements

Equipment Type	Size Category	Subcategory or Rating Condition	Minimum Efficiency ^a	Test Procedure ^b
Air cooled, with condenser, electrically operated	All capacities	—	2.80 COP 3.05 IPLV	ARI 550/590
Air cooled, without condenser, electrically operated	All capacities	—	3.10 COP 3.45 IPLV	
Water cooled, electrically operated, positive displacement (reciprocating)	All capacities	—	4.20 COP 5.05 IPLV	ARI 550/590
Water cooled, electrically operated, positive displacement (rotary screw and scroll)	<150 tons	—	4.45 COP 5.20 IPLV	ARI 550/590
	≥150 tons and <300 tons	—	4.90 COP 5.60 IPLV	
	≥300 tons	—	5.50 COP 6.15 IPLV	
Water cooled, electrically operated, centrifugal	<150 tons	—	5.00 COP 5.25 IPLV	ARI 550/590
	≥150 tons and <300 tons	—	5.55 COP 5.90 IPLV	
	≥300 tons	—	6.10 COP 6.40 IPLV	
Air-cooled absorption single effect	All capacities	—	0.60 COP	ARI 560
Water-cooled absorption single effect	All capacities	—	0.70 COP	
Absorption double effect, indirect-fired	All capacities	—	1.00 COP 1.05 IPLV	
Absorption double effect, direct-fired	All capacities	—	1.00 COP 1.00 IPLV	

^a The chiller equipment requirements do not apply for chillers used in low-temperature applications where the design leaving fluid temperature is <40°F.

^b Section 12 contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

- prerequisite 3 in ENERGY & ATMOSPHERE topic
 NX-N units use the refrigerant R410A, which is compliant with the GWP limitations set by the protocol. In detail, this refrigerant isn't a (CFC)-based refrigerant as moreover prescribed by the most of the national legislation around the world.

- credit 4 in ENERGY & ATMOSPHERE topic
 NX-N units have been designed to use the minimum possible quantity of refrigerant. The credit 4, "ENHANCED REFRIGERANT MANAGEMENT", permits to gain 2 points if LCGWP index calculated for the adopted air-conditioning units is equal or lower to 13.
 NX-N units respect this limit.

Other points can be gained as indirect consequence of an high efficient air conditioning system choice. In particular:

- credit 1 in ENERGY & ATMOSPHERE topic
 NX-N units, especially the CA and CA-E versions, contribute to "OPTIMIZE ENERGY PERFORMANCE" of the building.
 As known, air-conditioning and ventilation systems are responsible for approximately a third of the total energy consumption in a modern building. The proper size and design of each component involved in comfort creation determine a relevant energy saving, prize by LEED protocol with up to 19 points. The amount of points assigned to the building depend to the percentage of energy saving calculated compared with the baseline building performance rating: 1 point for an improvement in energy performance of 12% and 19 points for energy improvement higher than 48%. The baseline building performance are defined according to Appendix G of ASHRAE standard 90.1 – 2007.

- credit 5 in ENERGY & ATMOSPHERE topic
 this point prize the building design that provides an ongoing accountability of building energy consumption over time. The "MEASUREMENT AND VERIFICATION" credit gives up to 3 points if a measurement and verification plan has been developed and implemented. DEMETRA, the Climaveneta software for the units' energy monitoring, can help in this intent.

- credit 1 in INNOVATION IN DESIGN topic
 5 more points can be gained by design teams and projects that achieve exceptional performance above the requirements set by the LEED Green Building Rating System and/or adopt innovative solution not specifically addressed by the LEED Green Building Rating System.
 All NX-N units features the possibility to be integrated in "Variable Primary Flow" systems: this technique of plant design could be classified as innovative and therefore contribute to achieve some points in this topic.

Climaveneta is a Green Building Council Italy and actively supports the diffusion of LEED practice all around the world.



There are already several buildings LEED certified also tank to Climaveneta HVAC systems. For more information, browse the project reference list at www.climaveneta.com

GLOSSARY

GWP: *Global Warming Potential Index that express the contribution given by a greenhouse effect gas emission into the atmosphere. All the molecules have a potential defined in relation to the CO₂ molecule, which has a potential of 1 and acts as a reference.*

CFC: *ChloroFluoroCarbon*

HCFC: *IdroCloroFluoroCarburi*

LCGWP: *Life Cycle Global Warming Potential Index that define a threshold for the global warming potential estimated for the product life-cycle.*

It is a function of the following variables:

- refrigerant GWP
- refrigerant leakage rate and end-of-life refrigerant loss
- estimated equipment life
- refrigerant charge.

2. DESCRIPTION OF THE UNIT

NX-N /K: OUTDOOR REVERSIBLE UNIT, COMPACT VERSION

Outdoor reversible unit for the production of chilled/hot water with hermetic rotary Scroll compressors, ozone-friendly refrigerant R410A, axial-flow fans, copper tubes aluminum fins air coils, braze-welded plate-type exchanger and thermostatic expansion valve. External panels in pre-clad sheet steel and base in galvanised steel with paint finish. The range is composed by units equipped with four compressors in tandem configuration on two independent refrigerant circuits.

3. MODELS AND VERSIONS

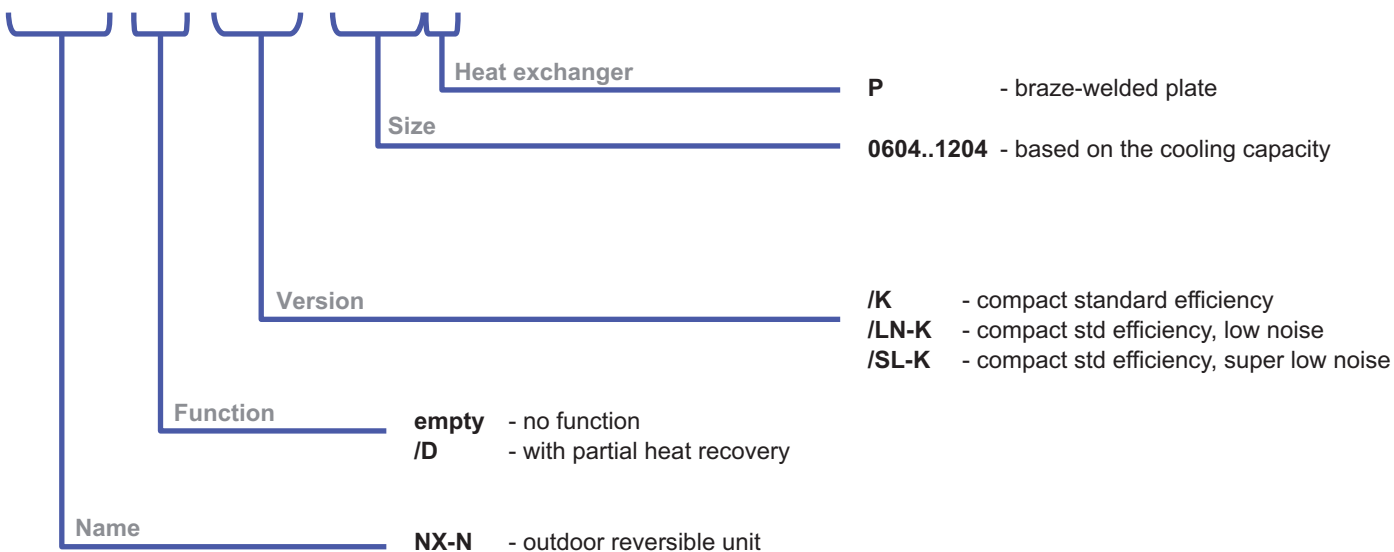
3.1 Compact versions with standard efficiency

- NX-N /K:** outdoor reversible unit with standard efficiency, compact version
- NX-N /LN-K:** outdoor reversible unit with standard efficiency, compact and low noise version
- NX-N /SL-K:** outdoor reversible unit with standard efficiency, compact and Super low noise version
- NX-N /D /K:** outdoor reversible unit with standard efficiency, compact version, including desuperheater for partial recovery of the heat of condensation
- NX-N /D /LN-K:** outdoor reversible unit with standard efficiency, compact and low noise version, including desuperheater for partial recovery of the heat of condensation
- NX-N /D /SL-K:** outdoor reversible unit with standard efficiency, compact and Super low noise version, including desuperheater for partial recovery of the heat of condensation

4. HOW TO SELECT THE NX

	NX-N /K Compact standard efficiency version
Standard version	NX-N /K
Low noise version (LN)	NX-N /LN-K Compared to the standard version - retains the same dimensions - noise reduction of up to 6dB(A)
Super low noise version (SL)	NX-N /SL-K Compared to the low noise version (LN-K) - retains the same dimensions (where possible) - further noise reduction of 4 to 6dB(A) compared to the low noise version (LN-K)

NX-N /D /SL-K 1204P



5. GENERAL CHARACTERISTICS

Refrigerant gas R410A

The use of R410A has resulted in units offering better energy efficiency in full respect for the environment (ODP = 0)

NX-N: LEED RELEVANT product

Maximum Compactness

This new range is available in the new K version, that integrates the maximum compactness with a qualifying unit's efficiency. This allow to achieve a very high flexibility in the design process as well as during the on-site installation operations, offering a premium solution in case of reduced clearances or when retrofitting existing installations.

Compliance with the strictest European standards

The main new feature that distinguishes the new NX units regards the calculation methods used to define the energy efficiency values.

These values are in fact now calculated not only based on the capacity delivered and power consumed by the unit, but also taking into account heat exchanger pressure drop, or the available pressure head if the unit is installed with pumps, as required by European standard EN14511.

In this way, energy efficiency is no longer an index for evaluating the unit alone, but rather extends the assessment by considering the unit within the system, consequently taking into account the energy required to pump the refrigerant or heat carrier fluid used in the system.

Three sound emission levels

The new NX-N appliances in fact also have three different sound emission levels. This means the best unit can be identified based on requirements, according to the system where it will be installed and the application.

Microchannel aluminium coils

The new NX-N range uses microchannel aluminium condenser coils on all units.

This means less refrigerant is needed compared to traditional copper coils, ensuring the lowest possible ratio between refrigerant volume and cooling capacity delivered, making this product range unique in its reference market, at the same time extending product life due to better resistance to corrosion by atmospheric agents.

The reduction in weight achieved by using this technology also means the units can be handled more easily and safely, thus overcoming specific construction restrictions or limits in the positioning and installation of the unit.

Built-in hydronic unit

The built-in hydronic unit incorporates all the main water circuit components.

All sizes are in fact available in the configuration with one or two high pressure pumps (up to 200 kPa), as well as with storage tank.

This solution means the units are ready for installation without having to install any additional circuiting outside of the unit and without increasing the dimensions occupied, thus simplifying both the design and installation of the systems.

Extended operating limits

The NX units can operate in the most extreme environmental conditions.

All sizes and versions can in fact work at full load with outside air temperatures up to +46°C, always ensuring maximum energy performance.

6. FUNCTIONS

Basic model

(Unit without heat recovery)

Model with partial heat recovery (D)

This version features an additional water/coolant heat exchanger on the gas delivery line, fitted in series with the traditional cooling circuit condenser. This allows to recover the de-superheating heat for the production of medium-to-high temperature water (secondary or recovery circuit). Hot water can be produced in the recovery circuit for domestic hot water and the like both in summer and winter. The heating capacity of this circuit is approximately equal to the power input of the compressor.

7. VERSIONI

K – Compact with standard efficiency

Key efficiency, compact version.

LN-K - Compact with standard efficiency, low noise

Key efficiency, compact and low-noise version. This configuration features special soundproofing for the compressor chamber and pumps (if present) and a reduced fan speed. Fan speed is automatically increased, however, in the event of particularly tough environmental conditions.

SL-K - Compact with standard efficiency, super low noise

Key efficiency, compact and super low-noise version. This configuration features special soundproofing for the compressor chamber and pumps (if present), reduced fan speed and an oversized condensing section. Fan speed is automatically increased, however, in the event of particularly tough environmental conditions

8. SPECIFICATIONS

Reversible unit, air source for outdoor installation.

Outdoor reversible unit for the production of chilled/hot water with hermetic rotary Scroll compressors, ozone-friendly refrigerant R410A, axial-flow fans, copper tubes aluminum fins air coils, braze-welded plate-type exchanger and thermostatic expansion valve. External panels in pre-clad sheet steel and base in galvanized steel with paint finish. The range is composed by units equipped with four compressors in tandem configuration on two independent refrigerant circuits.

Structure

Specific structure for outdoor installation, with hot galvanized steel sheet base painted with polyester powder coat, perimeter frame made of aluminum section bars. Fan compartment separate from the compressor compartments. Specific aluminum alloy paneling for outdoor installation, completely weatherproof, easily removable, designed to allow total access to internal components for inspection and maintenance (removal of front and side panels). Ventilation of compressor compartments.

Refrigerant circuit

Main components of the cooling circuit:

- two separated and independent circuits with compressors operating individually in each circuit
- dehydrator filter,
- refrigerant line sight glass with humidity indicator,
- externally equalized thermostatic valve,
- high pressure safety valve,
- high and low pressure safety valve,
- liquid receiver and separator,
- 4-way reverse cycle valve
- high and low pressure transducers
- R410a refrigerant

Compressor

Hermetic rotary scroll compressor complete with sump heater, electronic thermal protector with centralised manual reset, two-pole electric motor.

System heat exchanger

Braze welded AISI 316 steel plate heat exchanger. The heat exchangers are lined on the outside with closed-cell neoprene lagging. When the unit is not operating, these are protected against formation of ice on the inside by an electric heater with thermostat, while when the unit is operating protection is ensured by a differential pressure switch on the water side. The unit can also operate with non-freezing mixes, down to heat exchanger outlet temperatures of -8°C.

Source heat exchanger

Finned coil heat exchanger made from copper tubes and suitably spaced aluminum fins to guarantee maximum heat exchange efficiency.

Power and control electrical panel

Power and control electrical panel, built in compliance with EN60204-1/IEC 204-1 standards, complete with:

- transformer for the control circuit,
- main door interlock disconnect switch,
- fuses and contactors for compressors and fans,
- cumulative alarm terminals (BCA),
- remote ON/OFF terminals
- spring terminal blocks for control circuits,
- electrical panel for outdoor installation, with two doors and seal gaskets,

Unit power supply voltage: 400V~ ±10% - 50 Hz - 3N.

Source fan compartment

Axial-flow fans with IP54 index of protection, external impeller, pressed metal blades, housed in aerodynamic tubes, complete with accident prevention grill. Six-pole electric motor with integrated thermal protector. Fan compartment divided into two zones to allow independent air flow for each circuit. Differentiated ventilation control with fans on inactive circuit shut down. Condenser managed by continuous control of fan rotation speed.

Certification, reference standard

Unit compliant with the following directives and amendments:

- Machinery Directive 2006/42/EC.
- EMC 89/336/EEC + 2004/108/EC.
- Low Voltage Directive 2006/95/EC.
- Pressure Equipment Directive 97/23/EC. Model A1. TÜV Italy
- Eurovent certification according to the program LCP/A/P/R

Tests

Checks performed throughout the entire manufacturing process according to the procedures specified by ISO 9001. Performance or noise emission tests can be conducted by highly qualified technical personnel with the customer present.

Performance test involve measuring:

- electrical data
- water flow-rates
- operating temperature
- power consumption
- capacity delivered
- pressure drop on the water-source heat exchanger at both full load (in rated conditions and at the most critical conditions for the condenser) and at part load.

During performance testing the main alarm conditions can also be simulated. Noise emission tests verify the unit's sound power levels according to ISO 3744.

W3000 BASE / W3000SE COMPACT

The controller can be chosen as:

- W3000 Base: keypad and LED display
- W3000SE Compact: the keypad features an easy-to-use interface and a complete LCD display, allowing to consult and intervene on the unit by means of a multi-level menu, with selectable language setting

The diagnostics includes a complete alarm management, with the "black-box" and alarm logging functions for enhanced analysis of the unit operation.

Compatibility with the remote keyboard managing up to 10 units.

Availability of an internal real time clock for operation scheduling (4-day profiles with 10 hour belts).

Common features: The regulation is based on the exclusive QuickMind algorithm, including self-adaptive control logics, beneficial in low water content systems. As alternatives the proportional- or proportional-integral regulations are also available.

For multiple units' systems, the regulation of the resources, via optional proprietary devices, can be implemented. Energy metering, for both consumption and capacity, can also be developed. Supervision can be easily developed via proprietary devices or the integration in third party systems by means of the most common protocols as ModBus, Bacnet, Bacnet-over-IP, Echelon LonWorks.

The defrost adopts a proprietary self-adaptive logic, which features the monitoring of numerous operational parameters. This allows to reduce the number and duration of the defrost cycles, with a benefit for the overall energy efficiency.



9. ACCESSORIES

ACCESSORIES	DESCRIPTION	BENEFIT
Condensing coils with epoxy-coated fins	Painted air-refrigerant heat exchanger.	Recommended for applications in medium level pollution atmospheres.
Condensing coils with Fin Guard Silver treatment	Air-refrigerant heat exchanger with epoxidic treatment on coils and fins.	Recommended for marine exposure conditions, with an high level of pollution or other aggressive atmospheres.
Soft start	Electronic device adopted to manage the inrush current.	Break down of the inrush current as soon as the electrical motor is switch on, lower motor's mechanical wear, favourable sizing for the electrical system.
Remote phase-sequence control	Relay for controlling the phase-sequence of mains.	Protects loads against faults due to incorrect connection of the electric line.
Compressors' on/off signal	Auxiliary contacts providing a voltage-free signal	Allows remote signalling of compressor's activation or remote control of any auxiliary loads.
ModBUS connectivity	Interface module for ModBUS protocols	Allows integration with BMS operating with ModBUS protocol
BACnet connectivity	Interface module for BACnet protocols	Allows integration with BMS operating with BACnet protocol
Echelon connectivity	Interface module for Echelon systems	Allows integration with BMS operating with LonWorks protocols
HP AND LP GAUGES	High and low pressure gauges.	Allows immediate reading of the pressure values on both low and high pressure circuits.
COMPRESSOR SUCTION VALVE	Shut-off solenoid valve on compressor's suction circuit.	Simplifies maintenance activities
COMPR. DISCHARGE LINE VALVE	Shut-off solenoid valve on compressor discharge circuit	Simplifies maintenance activities.
COND. COIL PROTECTION NET	Coil protecting net	Protects against the intrusion of solid bodies with mediumlarge dimensions.
Automatic circuit breakers	Over-current switch on the major electrical loads.	It protects compressors and/or fans from possible current peaks.
INPUT REMOTE DEMAND LIMIT	Digital input (voltage free)	It permits to limit the unit's power absorption for safety reasons or in temporary situation.
Liquid line solenoid valve	Solenoid valve on the refrigerant circuit inlet	It avoids liquid to migrate toward the compressors when they are off
REMOTE SIGNAL DOUBLE SP	Allows to activate the Energy Saving set-point	Enforce Energy Saving policy
Rubber anti vibration device		
Spring anti vibration device		
Power factor correction	<i>Condensators on the compressors' power inlet line.</i>	The unit's average cos(phi) increases from an average value of 0,87 to a value (average) of 0,92.
BACnet OVER IP connectivity	Interface module for BACnet OVER-IP protocols	Allows to interconnect BACnet devices over Internet Protocol within wide-area networks
Extra insulation for low temperature.	Increased insulation in 20 mm thick closed-cell expanded polyurethane.	Prevents problems related to condensate. Recommended with leaving water temperature lower than - 8°C
DVV	Electrical transformer to manage the fan's speed according to the specific condensing pressure this device is request for the unit to work with low evaporator leaving water temperature set point or operating at low outdoor temperature [See the section "Operating limit" to have the precise operating range of the unit]	Increase the unit global efficiency thanks to a more accurate fans speed management. Improve the quietness in part load operating conditions. Extend the unit operating range allowing it to work safely down to - 10°C outdoor air temperature

ACCESSORIES	DESCRIPTION	BENEFIT
PRESSURE RELIEF VALVES	Dual relief valve with switch	Allows to unselect a relief valve in order to service the unit avoiding medium or long inoperative periods
VISUAL DISPLAY PROTECTION	Display protection panel	Protect the display against weather and U.V. rays
EEV FOR UNITS WITHOUT DVV	Electronic lamination device with step motor. It is designed for the continuous and precise control of refrigerant flow entering in the evaporator. For versions without continuous adjustment of the fan speed, this option comprises the DVV device.	This solution permits extremely short times for reaction to variation in load, optimising power consumption.
EEV FOR UNITS WITH DVV	Stepper motor electronic expansion valve	This solution permits extremely short times for reaction to variation in load, optimising power consumption.
ANTIFREEZE ON PIPES	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	It protects the unit against ice formation on its hydraulic components
ANTIFREEZE ON PIPES + TANK	Electrical heaters on pipes and water tank. 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

10.1 GENERAL TECHNICAL DATA

NX-N / K

NX-N / K		0604P	0704P	0804P	0904P	1004P	1104P	1204P	
Power supply		V/ph/Hz 400/3/50 400/3/50 400/3/50 400/3/50 400/3/50 400/3/50 400/3/50							
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
Cooling capacity	(1)	kW	160	186	211	245	274	298	319
Total power input	(1)	kW	56,9	67,4	75,9	88,8	99,4	106	116
EER	(1)		2,81	2,76	2,78	2,76	2,76	2,80	2,75
ESEER	(1)		3,87	4,01	4,07	3,95	3,99	4,05	4,04
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	159	185	210	244	273	297	318
EER	(1)(2)		2,77	2,71	2,74	2,72	2,71	2,76	2,71
ESEER	(1)(2)		3,70	3,83	3,89	3,77	3,81	3,88	3,87
Cooling energy class			C	C	C	C	C	C	C
HEATING ONLY (GROSS VALUE)									
Heating capacity	(3)	kW	174	202	230	271	300	324	345
Total power input	(3)	kW	56,4	66,4	75,4	89,2	98,3	106	113
COP	(3)		3,08	3,04	3,06	3,04	3,05	3,07	3,05
HEATING ONLY (EN14511 VALUE)									
Heating capacity	(3)(2)	kW	174	203	232	273	301	325	346
COP	(3)(2)		3,05	3,01	3,03	3,01	3,02	3,04	3,03
Cooling energy class			B	B	B	B	B	B	B
COOLING WITH PARTIAL RECOVERY									
Cooling capacity	(4)	kW	166	193	219	254	284	309	331
Total power input	(4)	kW	55,2	65,3	73,5	86,1	96,4	103	112
Desuperheater heating capacity	(4)	kW	43,6	53,0	60,6	68,5	78,0	84,3	92,7
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	m ³ /h	27,6	32,0	36,3	42,2	47,2	51,3	55,0
Pressure drop	(1)	kPa	42,5	43,2	44,9	49,2	49,2	43,7	50,1
HEAT EXCHANGER USER SIDE IN HEATING									
Water flow	(3)	m ³ /h	30,2	35,1	40,0	47,1	52,0	56,3	59,9
Pressure drop	(3)	kPa	50,9	51,9	54,5	61,3	59,8	52,6	59,5
PARTIAL RECOVERY USER SIDE IN									
Water flow	(4)	m ³ /h	7,58	9,22	10,5	11,9	13,6	14,6	16,1
Pressure drop	(4)	kPa	18,1	26,8	34,9	35,4	46,0	42,9	51,9
COMPRESSORS									
N. of compressors		N°	4	4	4	4	4	4	4
Number of capacity		N°	4	4	4	4	4	4	4
No. of circuits		N°	2	2	2	2	2	2	2
Regulation		STEPS	STEPS	STEPS	STEPS	STEPS	STEPS	STEPS	STEPS
Min. capacity step		%	25	25	25	25	25	25	25
Refrigerant			R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge		kg	34,4	55,6	72,6	74,4	74,0	95,0	95,6
Oil charge		kg	14,4	26,8	26,8	26,8	26,8	27,8	28,8
FANS									
Quantity		N°	2	2	2	3	3	3	3
Air flow		m ³ /s	19,5	22,9	22,3	29,2	29,2	32,5	32,5
Fans power		kW	2,00	2,00	2,00	2,00	2,00	2,00	2,00
NOISE LEVEL									
Noise Pressure	(5)	dB(A)	60	60	61	62	63	63	63
Noise Power	(6)	dB(A)	92	92	93	94	95	95	95
SIZE AND WEIGHT									
A	(7)	mm	3110	4110	4110	4110	4110	5110	5110
B	(7)	mm	2220	2220	2220	2220	2220	2220	2220
H	(7)	mm	2150	2150	2150	2150	2150	2150	2150
Operating weight	(7)	kg	1640	1990	2120	2360	2500	2850	2880

Notes:

- 1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C
 - 2 Values in compliance with EN14511-3:2011
 - 3 Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger air (in) 7°C - 87% R.H.
 - 4 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C; Plant (side) heat exchanger recovery water (in/out) 40°C/45°C
 - 5 Average sound pressure level, at 10m distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.
 - 6 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units.
 - 7 Unit in standard configuration/execution, without optional accessories.
- Unavailable

NX-N / LN-K		0604P	0704P	0804P	0904P	1004P	1104P	1204P	
Power supply		V/ph/Hz 400/3/50 400/3/50 400/3/50 400/3/50 400/3/50 400/3/50 400/3/50							
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
Cooling capacity	(1)	kW	153	174	201	234	258	283	303
Total power input	(1)	kW	56,9	68,5	78,3	90,0	101	109	119
EER	(1)		2,68	2,55	2,56	2,60	2,55	2,60	2,54
ESEER	(1)		3,96	4,08	4,12	4,08	4,02	4,06	4,05
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	152	174	200	233	257	282	302
EER	(1)(2)		2,64	2,51	2,53	2,57	2,51	2,57	2,51
ESEER	(1)(2)		3,78	3,90	3,95	3,90	3,86	3,91	3,88
Cooling energy class			D	D	D	D	D	D	D
HEATING ONLY (GROSS VALUE)									
Heating capacity	(3)	kW	165	192	221	255	284	310	329
Total power input	(3)	kW	52,7	63,0	71,9	83,9	92,9	100	107
COP	(3)		3,14	3,05	3,08	3,04	3,05	3,09	3,07
HEATING ONLY (EN14511 VALUE)									
Heating capacity	(3)(2)	kW	166	193	222	256	285	311	331
COP	(3)(2)		3,11	3,02	3,05	3,01	3,03	3,06	3,04
Cooling energy class			B	B	B	B	B	B	B
COOLING WITH PARTIAL RECOVERY									
Cooling capacity	(4)	kW	158	181	208	243	268	293	314
Total power input	(4)	kW	55,1	66,3	75,8	87,1	98,1	105	115
Desuperheater heating capacity	(4)	kW	46,5	56,9	65,6	73,9	84,1	90,6	100
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	m ³ /h	26,3	30,0	34,5	40,3	44,4	48,7	52,2
Pressure drop	(1)	kPa	38,7	38,0	40,6	44,9	43,7	39,3	45,2
HEAT EXCHANGER USER SIDE IN HEATING									
Water flow	(3)	m ³ /h	28,7	33,4	38,5	44,3	49,3	53,9	57,2
Pressure drop	(3)	kPa	46,2	47,1	50,3	54,2	53,7	48,2	54,3
PARTIAL RECOVERY USER SIDE IN									
Water flow	(4)	m ³ /h	8,08	9,89	11,4	12,8	14,6	15,7	17,4
Pressure drop	(4)	kPa	20,6	30,8	41,0	41,3	53,4	49,6	60,4
COMPRESSORS									
N. of compressors		N°	4	4	4	4	4	4	4
Number of capacity		N°	4	4	4	4	4	4	4
No. of circuits		N°	2	2	2	2	2	2	2
Regulation		STEPS	STEPS	STEPS	STEPS	STEPS	STEPS	STEPS	STEPS
Min. capacity step		%	25	25	25	25	25	25	25
Refrigerant			R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge		kg	34,4	55,6	72,6	74,4	74,0	95,0	95,6
Oil charge		kg	14,4	26,8	26,8	26,8	26,8	27,8	28,8
FANS									
Quantity		N°	2	2	2	3	3	3	3
Air flow		m ³ /s	13,6	16,7	16,0	20,4	20,4	23,0	23,0
Fans power		kW	1,20	1,20	1,20	1,20	1,20	1,20	1,20
NOISE LEVEL									
Noise Pressure	(5)	dB(A)	54	54	55	56	57	58	58
Noise Power	(6)	dB(A)	86	86	87	88	89	90	90
SIZE AND WEIGHT									
A	(7)	mm	3110	4110	4110	4110	4110	5110	5110
B	(7)	mm	2220	2220	2220	2220	2220	2220	2220
H	(7)	mm	2150	2150	2150	2150	2150	2150	2150
Operating weight	(7)	kg	1690	2040	2170	2410	2550	2900	2930

Notes:

- 1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C
 - 2 Values in compliance with EN14511-3:2011
 - 3 Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger air (in) 7°C - 87% R.H.
 - 4 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C; Plant (side) heat exchanger recovery water (in/out) 40°C/45°C
 - 5 Average sound pressure level, at 10m distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.
 - 6 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units.
 - 7 Unit in standard configuration/execution, without optional accessories.
- Unavailable

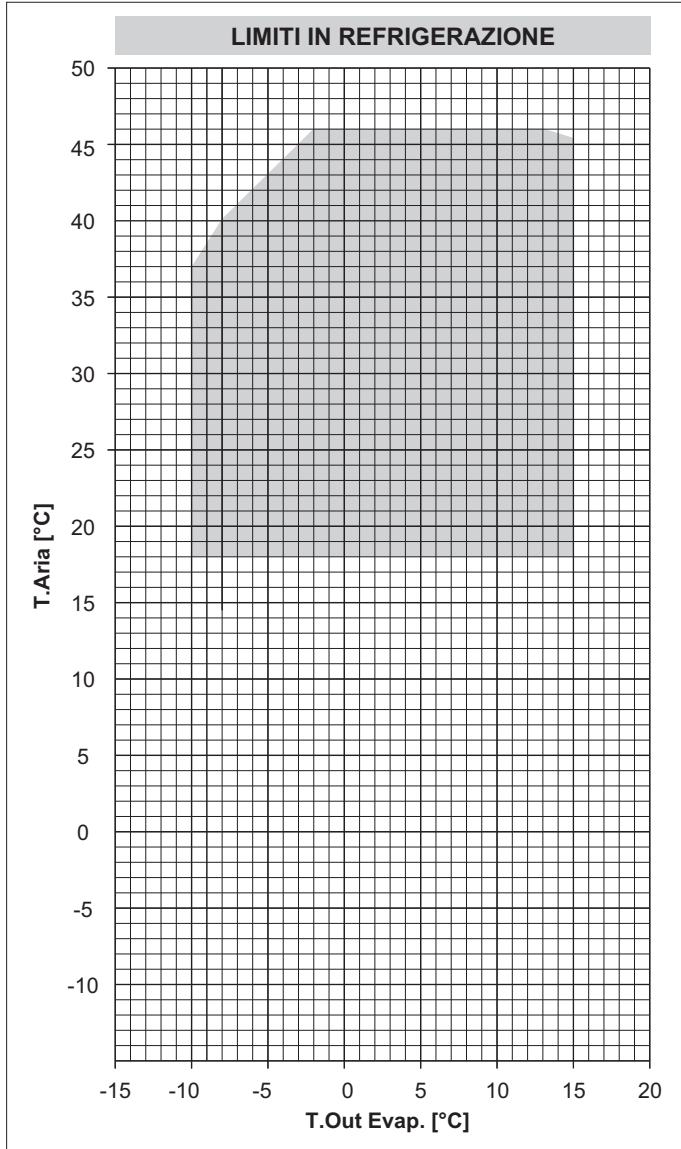
NX-N / SL-K		0604P	0704P	0804P	0904P	1004P	1104P	1204P	
Power supply		V/ph/Hz 400/3/50 400/3/50 400/3/50 400/3/50 400/3/50 400/3/50 400/3/50							
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
Cooling capacity	(1)	kW	148	175	202	232	256	281	303
Total power input	(1)	kW	57,8	68,5	78,9	88,2	100	111	119
EER	(1)		2,56	2,56	2,56	2,63	2,55	2,54	2,54
ESEER	(1)		4,07	4,07	4,11	4,12	4,12	4,09	4,09
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	147	175	201	231	255	280	302
EER	(1)(2)		2,52	2,53	2,52	2,59	2,51	2,51	2,51
ESEER	(1)(2)		3,90	3,89	3,93	3,93	3,95	3,94	3,92
Cooling energy class			D	D	D	D	D	D	D
HEATING ONLY (GROSS VALUE)									
Heating capacity	(3)	kW	160	193	223	257	283	307	330
Total power input	(3)	kW	51,2	63,6	72,5	82,2	91,2	100	108
COP	(3)		3,13	3,03	3,08	3,12	3,10	3,07	3,05
HEATING ONLY (EN14511 VALUE)									
Heating capacity	(3)(2)	kW	161	194	224	258	284	308	332
COP	(3)(2)		3,10	3,01	3,05	3,09	3,07	3,04	3,02
Cooling energy class			B	B	B	B	B	B	B
COOLING WITH PARTIAL RECOVERY									
Cooling capacity	(4)	kW	154	182	209	241	265	292	315
Total power input	(4)	kW	55,9	66,3	76,4	85,3	97,0	107	115
Desuperheater heating capacity	(4)	kW	48,4	56,4	65,6	73,9	84,8	92,2	99,4
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	m ³ /h	25,5	30,2	34,7	39,9	44,0	48,4	52,2
Pressure drop	(1)	kPa	36,4	38,5	41,0	44,0	42,8	38,9	45,3
HEAT EXCHANGER USER SIDE IN HEATING									
Water flow	(3)	m ³ /h	27,8	33,5	38,8	44,6	49,1	53,4	57,4
Pressure drop	(3)	kPa	43,4	47,5	51,2	55,0	53,3	47,3	54,6
PARTIAL RECOVERY USER SIDE IN									
Water flow	(4)	m ³ /h	8,41	9,79	11,4	12,8	14,7	16,0	17,3
Pressure drop	(4)	kPa	22,3	30,2	41,0	41,2	54,2	51,4	59,7
COMPRESSORS									
N. of compressors		N°	4	4	4	4	4	4	4
Number of capacity		N°	4	4	4	4	4	4	4
No. of circuits		N°	2	2	2	2	2	2	2
Regulation			STEPS	STEPS	STEPS	STEPS	STEPS	STEPS	STEPS
Min. capacity step		%	25	25	25	25	25	25	25
Refrigerant			R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge		kg	34,4	55,6	72,6	96,8	96,8	95,0	95,6
Oil charge		kg	14,4	26,8	26,8	26,8	26,8	27,8	28,8
FANS									
Quantity		N°	2	3	3	3	3	4	4
Air flow		m ³ /s	10,7	17,4	16,0	18,1	18,1	21,3	23,5
Fans power		kW	0,90	0,90	0,90	0,90	0,90	0,90	1,00
NOISE LEVEL									
Noise Pressure	(5)	dB(A)	50	51	51	52	53	54	55
Noise Power	(6)	dB(A)	82	83	83	84	85	86	87
SIZE AND WEIGHT									
A	(7)	mm	3110	4110	4110	5110	5110	5110	5110
B	(7)	mm	2220	2220	2220	2220	2220	2220	2220
H	(7)	mm	2150	2150	2150	2150	2150	2150	2150
Operating weight	(7)	kg	1690	2130	2260	2690	2830	3020	3040

Notes:

- 1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C
 - 2 Values in compliance with EN14511-3:2011
 - 3 Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger air (in) 7°C - 87% R.H.
 - 4 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C; Plant (side) heat exchanger recovery water (in/out) 40°C/45°C
 - 5 Average sound pressure level, at 10m distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.
 - 6 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units.
 - 7 Unit in standard configuration/execution, without optional accessories.
- Unavailable

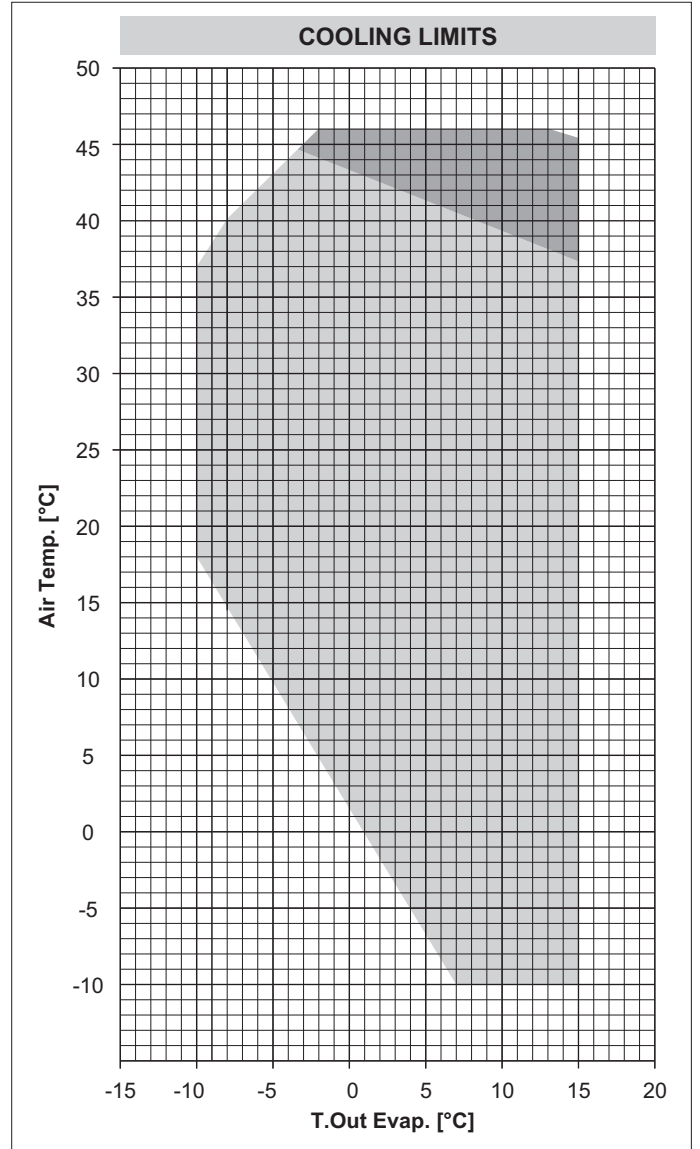
11. SELECTION LIMITS

NX-N / K 0604P÷1204P



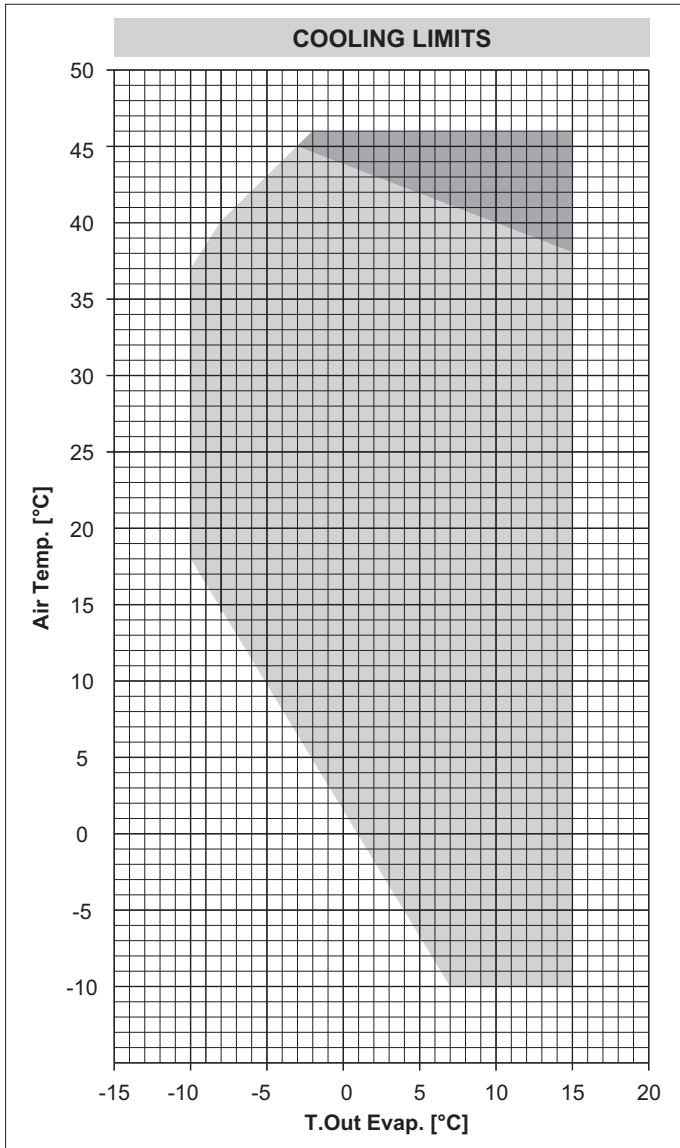
- Selection limits
- Unit in non silenced mode

NX-N / LN-K 0604P÷1204P



- Selection limits
- Unit in non silenced mode

NX-N / SL-K 0604P÷1204P



- Selection limits
- Unit in non silenced mode

12. ETHYLENE GLYCOL MIXTURE

Ethylene glycol and water mixture, used as a heat-conveying fluid, cause a variation in unit performance. For correct data, use the factors indicated in the following table.

	Freezing point (°C)							
	0	-5	-10	-15	-20	-25	-30	-35
	Ethylene glycol percentage by weight							
	0	12%	20%	30%	35%	40%	45%	50%
cPf	1	0,985	0,98	0,974	0,97	0,965	0,964	0,96
cQ	1	1,02	1,04	1,075	1,11	1,14	1,17	1,2
cdp	1	1,07	1,11	1,18	1,22	1,24	1,27	1,3

cPf: cooling power correction factor
 cQ: flow correction factor
 cdp: pressure drop correction factor

For data concerning other kind of anti-freeze solutions (e.g. propylene glycol) please contact our Sale Department.

13. FOULING FACTORS

Performances are based on clean condition of tubes (fouling factor = 1). For different fouling values, performance should be adjusted using the correction factors shown in the following table.

FOULING FACTORS ff (m ² °CW)	EVAPORATOR			CONDENSER/RECOVERY			DESUPERHEATER
	F1	FK1	KE [°C]	F1	FK1	KE [°C]	R3
0	1,000	1,000	0,0	1,000	1,000	0,0	1,00
1,80 x 10 ⁻⁵	1,000	1,000	0,0	1,000	1,000	0,0	1,00
4,40 x 10 ⁻⁵	1,000	1,000	0,0	0,990	1,030	1,0	0,990
8,80 x 10 ⁻⁵	0,960	0,990	0,7	0,980	1,040	1,5	0,980
13,20 x 10 ⁻⁵	0,944	0,985	1,0	0,964	1,050	2,3	0,964
17,20 x 10 ⁻⁵	0,930	0,980	1,5	0,950	1,050	3,0	0,950

ff: fouling factors
 f1 - f2: potential correction factors
 fk1 - fk2: compressor power input correction factors
 r3: capacity correction factors
 KE: minimum condenser outlet temperature increase
 KC: maximum condenser outlet temperature decrease

14. HYDRAULIC DATA

Water flow and pressure drop

Water flow in the heat exchangers is given by: $Q = P \times x_{0,86} / Dt$

Q: water flow (m³/h)

Dt: difference between inlet and outlet water temp. (°C)

P: heat exchanger capacity (kW)

Pressure drop is given by: $Dp = K \times Q^2 / 1000$

Q: water flow (m³/h)

Dp: pressure drop (kPa)

K: unit size ratio

SIZE	PLANT SIDE COLD HEAT EXCHANGER					AUXILIARY SIDE HEAT EXCHANGER			
	K	Q min m³/h	max m³/h	C.A.S. dm³	C.a. min m³	K	Q min m³/h	C.A.S. dm³	Q max m³/h
NX-N /K 0604P	56	17	46,1	8,6	0,4	-	-	-	-
NX-N /K 0704P	42,2	19,8	53,5	10,5	0,465	-	-	-	-
NX-N /K 0804P	34	22,5	60,7	12,3	0,528	-	-	-	-
NX-N /K 0904P	27,6	26,2	62	15,1	0,613	-	-	-	-
NX-N /K 1004P	22,1	29,3	68,8	18,9	0,685	-	-	-	-
NX-N /K 1104P	16,6	31,8	68,8	23	0,745	-	-	-	-
NX-N /K 1204P	16,6	34,1	68,8	23	0,798	-	-	-	-
NX-N /LN-K 0604P	56	17	46,1	8,6	0,4	-	-	-	-
NX-N /LN-K 0704P	42,2	19,8	53,5	10,5	0,465	-	-	-	-
NX-N /LN-K 0804P	34	22,5	60,7	12,3	0,528	-	-	-	-
NX-N /LN-K 0904P	27,6	26,2	62	15,1	0,613	-	-	-	-
NX-N /LN-K 1004P	22,1	29,3	68,8	18,9	0,685	-	-	-	-
NX-N /LN-K 1104P	16,6	31,8	68,8	23	0,745	-	-	-	-
NX-N /LN-K 1204P	16,6	34,1	68,8	23	0,798	-	-	-	-
NX-N /SL-K 0604P	56	17	46,1	8,6	0,4	-	-	-	-
NX-N /SL-K 0704P	42,2	19,8	53,5	10,5	0,465	-	-	-	-
NX-N /SL-K 0804P	34	22,5	60,7	12,3	0,528	-	-	-	-
NX-N /SL-K 0904P	27,6	26,2	62	15,1	0,613	-	-	-	-
NX-N /SL-K 1004P	22,1	29,3	68,8	18,9	0,685	-	-	-	-
NX-N /SL-K 1104P	16,6	31,8	68,8	23	0,745	-	-	-	-
NX-N /SL-K 1204P	16,6	34,1	68,8	23	0,798	-	-	-	-
NX-N /D /K 0604P	56	17	46,1	8,6	0,4	315	-	1,22	9,4
NX-N /D /K 0704P	42,2	19,8	53,5	10,5	0,465	315	-	1,22	11,4
NX-N /D /K 0804P	34	22,5	60,7	12,3	0,528	315	-	1,22	13
NX-N /D /K 0904P	27,6	26,2	62	15,1	0,613	250	-	1,46	14,7
NX-N /D /K 1004P	22,1	29,3	68,8	18,9	0,685	250	-	1,46	16,8
NX-N /D /K 1104P	16,6	31,8	68,8	23	0,745	200	-	1,83	18,1
NX-N /D /K 1204P	16,6	34,1	68,8	23	0,798	200	-	1,83	19,9
NX-N /D /LN-K 0604P	56	17	46,1	8,6	0,4	315	-	1,22	9,4
NX-N /D /LN-K 0704P	42,2	19,8	53,5	10,5	0,465	315	-	1,22	11,4
NX-N /D /LN-K 0804P	34	22,5	60,7	12,3	0,528	315	-	1,22	13
NX-N /D /LN-K 0904P	27,6	26,2	62	15,1	0,613	250	-	1,46	14,7
NX-N /D /LN-K 1004P	22,1	29,3	68,8	18,9	0,685	250	-	1,46	16,8
NX-N /D /LN-K 1104P	16,6	31,8	68,8	23	0,745	200	-	1,83	18,1
NX-N /D /LN-K 1204P	16,6	34,1	68,8	23	0,798	200	-	1,83	19,9
NX-N /D /SL-K 0604P	56	17	46,1	8,6	0,4	315	-	1,22	9,4
NX-N /D /SL-K 0704P	42,2	19,8	53,5	10,5	0,465	315	-	1,22	11,4
NX-N /D /SL-K 0804P	34	22,5	60,7	12,3	0,528	315	-	1,22	13
NX-N /D /SL-K 0904P	27,6	26,2	62	15,1	0,613	250	-	1,46	14,7
NX-N /D /SL-K 1004P	22,1	29,3	68,8	18,9	0,685	250	-	1,46	16,8
NX-N /D /SL-K 1104P	16,6	31,8	68,8	23	0,745	200	-	1,83	18,1
NX-N /D /SL-K 1204P	16,6	34,1	68,8	23	0,798	200	-	1,83	19,9

Q min: minimum water flow admitted to the heat exchanger

Q max: maximum water flow admitted to the heat exchanger

C.a. min: minimum water content admitted in the plant, using traditional control logic

C.A.S.: heat exchanger water content

15. HYDRONIC GROUP (OPTIONAL)

The units can be supplied with a hydronic group. This houses all the main hydraulic components, thereby optimising hydraulic and electric installation space, time and cost.

Available pump configurations:

- Hydronic kit with one IN-LINE 2-pole low-head pump
- Hydronic kit with one IN-LINE 2-pole high-head pump
- Hydronic kit with IN-LINE 2-pole low-head twin pumps
- Hydronic kit with IN-LINE 2-pole high-head twin pumps

Storage tank combinations

NX	VERSION	WATER TANK
		Capacity
		[litre]
0604P	K	400
	LN-K	400
	SL-K	400
0704P	K	500
	LN-K	500
	SL-K	500
0804P	K	500
	LN-K	500
	SL-K	500
0904P	K	500
	LN-K	500
	SL-K	850
1004P	K	500
	LN-K	500
	SL-K	850
1104P	K	850
	LN-K	850
	SL-K	850
1204P	K	850
	LN-K	850
	SL-K	850

Storage tank (upon request)

The storage tank system features:

- 400 - 500 - 850 litre tank for the sizes and versions shown in the table of combinations.
- expansion vessel (EPDM membrane), 16 litre capacity with 2.5 bar pre-charge for 400 litre tanks
- expansion vessel (EPDM membrane), 18 litre capacity with 2.5 bar pre-charge for 500 litre tanks
- expansion vessel (EPDM membrane), 40 litre capacity with 2.5 bar pre-charge for 850 litre tanks
- pressure gauge
- safety valve calibrated to 6 bars
- storage tank with 20 mm lining
- tank frost protection heater upon request

2-pole low head pump

Centrifugal pumps with in-line suction and delivery flanges, in single and twin versions. Pump body in cast iron and impeller in AISI 316L stainless steel or cast-iron, entirely laser technology welded. Mechanical seal with components in ceramics, carbon and EPDM elastomers. Three-phase electric motor protected to IP55, insulation class F, suitable for continuous service.

2-pole high-head pump

All versions of the hydronic unit can be supplied with a high head pump. In these cases, the pump features a two-pole motor even in the silent-running versions.

Twin pump

A second stand-by pump for high or low pressures is available on request. The pumps are automatically exchanged on the basis of a rotation programme and the stand-by pump cuts in automatically if the primary pump fails.

GENERAL CHARACTERISTICS

Water connections

In the units without pumps, standard version, the connections for the water inlet and outlet both in the evaporator and in the desuperheater are inside the unit. As an accessory one can request these connections flush with the unit.

For units with pumps, the connections are always flush with the unit.

Water-side mechanical filter (optional)

Y-filter designed and built to capture the impurities in the hydraulic circuit. It is fitted with a 0.9 mm stainless steel mesh cartridge which can be replaced without removing the valve body from the piping.

Unit electrical panel

The unit electrical panel is fitted with fuses and a circuit breaker contactor.

Special pumps

For pumps with different configurations, please contact our sales department.

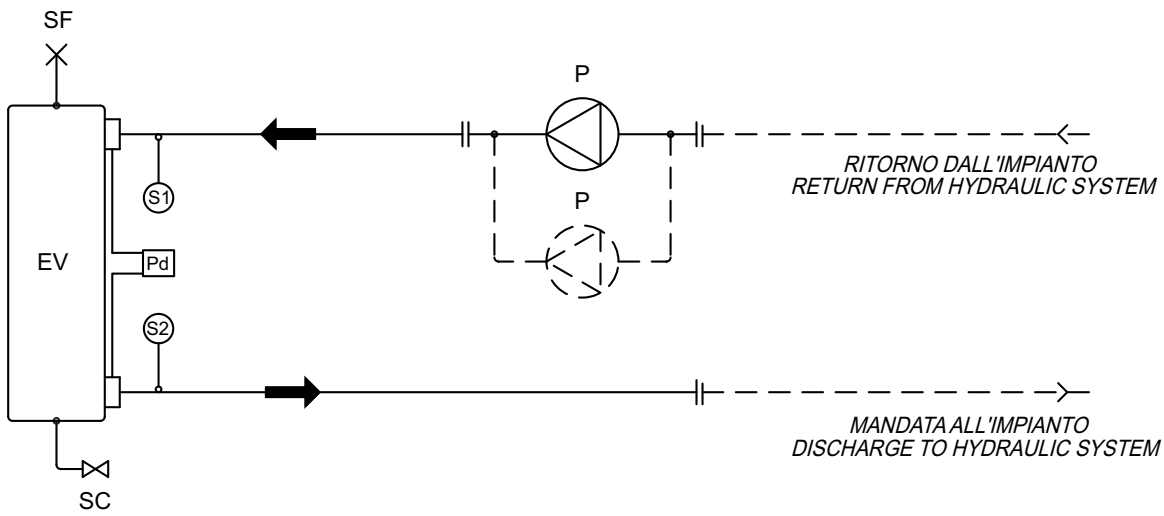
Additional components

The supply does not include the following accessories though these are recommended to ensure correct system operation:

- MA Pressure gauges upline and downline from the unit
- GF Flexible joints on piping
- RI On-off valves
- T Outlet control thermometer

HYDRONIC GROUP (OPTIONAL)

15.1 Hydraulic diagram with water tank



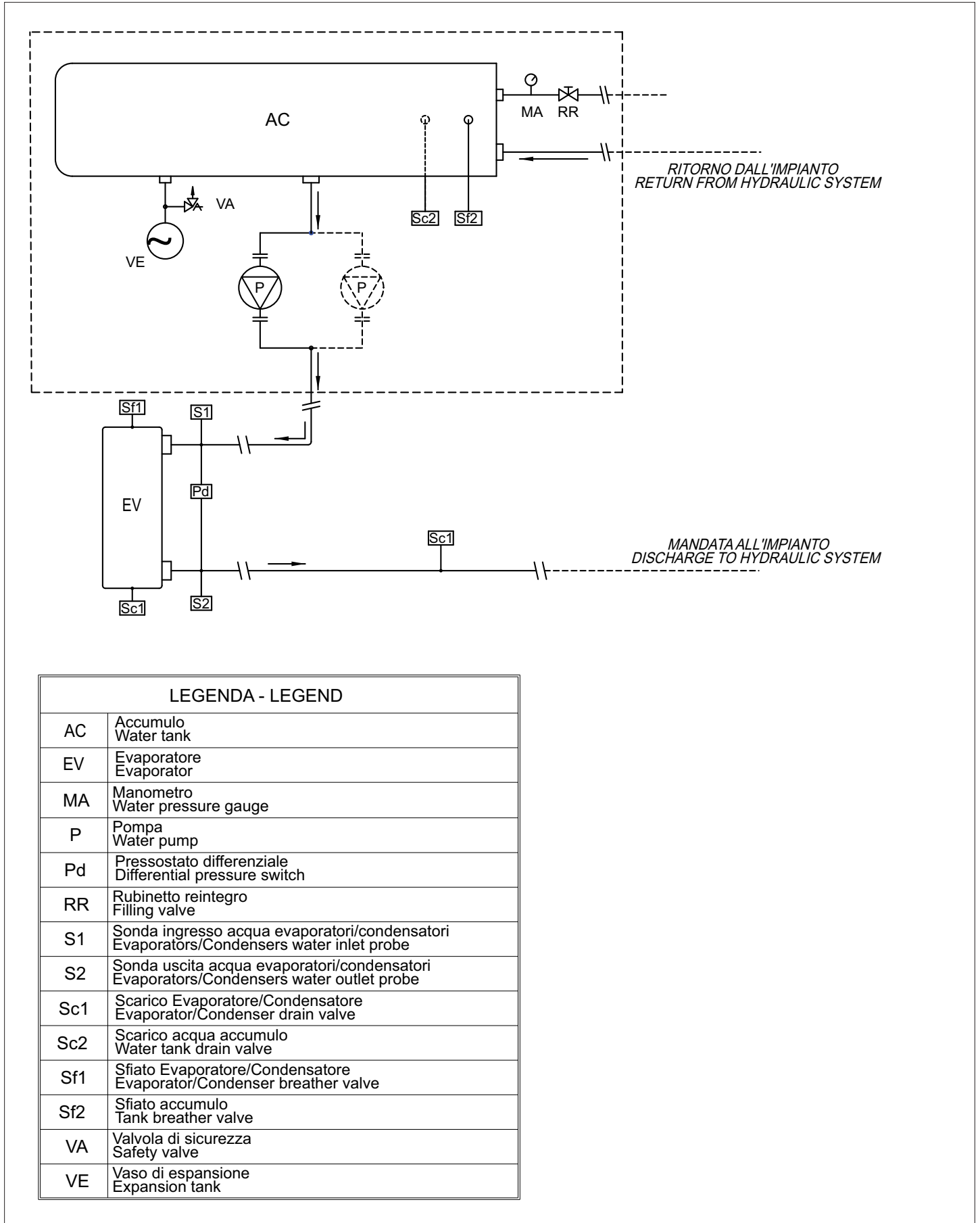
LEGENDA - LEGEND

*COMPONENTI DEL KIT IDRONICO
COMPONENTS OF THE HYDRONIC KIT*

EV	Evaporatore Evaporator
P	Pompa Water pump
Pd	Pressostato differenziale lato acqua Water Differential pressure switch
SC	Valvola di scarico Drain valve
SF	Valvola di sfiato Purge valve
S1	Sonda ingresso acqua scambiatore Exchanger water inlet probe
S2	Sonda uscita acqua scambiatore Exchanger water outlet probe

HYDRONIC GROUP (OPTIONAL)

15.2 Hydraulic diagram with water tank



LEGENDA - LEGEND

AC	Accumulo Water tank
EV	Evaporatore Evaporator
MA	Manometro Water pressure gauge
P	Pompa Water pump
Pd	Pressostato differenziale Differential pressure switch
RR	Rubinetto reintegro Filling valve
S1	Sonda ingresso acqua evaporatori/condensatori Evaporators/Condensers water inlet probe
S2	Sonda uscita acqua evaporatori/condensatori Evaporators/Condensers water outlet probe
Sc1	Scarico Evaporatore/Condensatore Evaporator/Condenser drain valve
Sc2	Scarico acqua accumulato Water tank drain valve
Sf1	Sfiato Evaporatore/Condensatore Evaporator/Condenser breather valve
Sf2	Sfiato accumulato Tank breather valve
VA	Valvola di sicurezza Safety valve
VE	Vaso di espansione Expansion tank

HYDRONIC GROUP (OPTIONAL)

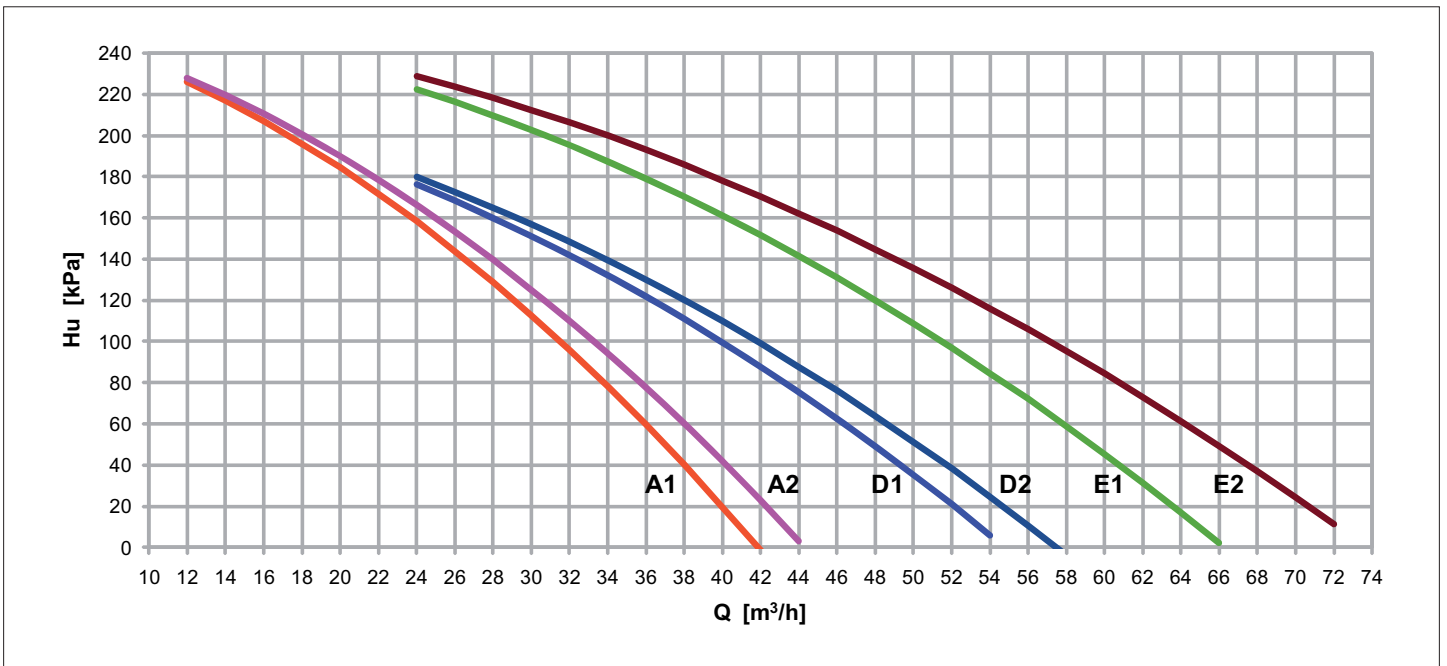
1 PUMP - LOW HEAD PUMP

SIZE	VERSION	Pf (1) [kW]	Q (1) [m ³ /h]	Rif. Pump	Type Pump	N. Poles	F.L.I. [kW]	F.L.A. [A]	Ks -	Dps kPa	Hu kPa	Kfi -
0604P	K	160	27,5	A1	FCE 50-160/22	2	2,2	5,0	65,3	50	132	23,7
0704P	K	186	32,0	A2	FCE 50-160/22	2	2,2	5,0	51,5	53	110	23,7
0804P	K	211	36,3	D1	FCE 65-125/30	2	3	6,0	43,3	57	120	4,9
0904P	K	245	42,2	D2	FCE 65-125/30	2	3	6,0	36,9	66	98	4,9
1004P	K	274	47,1	E1	FCE 65-125/40	2	4	8,1	31,4	70	125	4,9
1104P	K	298	51,3	E2	FCE 65-125/40	2	4	8,1	20,6	54	130	4,9
1204P	K	319	54,9	E2	FCE 65-125/40	2	4	8,1	20,6	62	112	4,9

(1) Values refer to rated operating conditions
 Pf Cooling capacity of unit
 Q Flow of water to evaporator
 F.L.I. Power absorbed by pump
 F.L.A. Current absorbed by pump

Ks Coefficients for calculating pressure drops
 Unit with hydronic unit without network filter and 3 way valve
 Kfi Coefficients filter for calculating pressure drops
 Dps Total pressure drop of hydronic group
 Hu Residual head

WORKING HEAD CURVES



HYDRONIC GROUP (OPTIONAL)

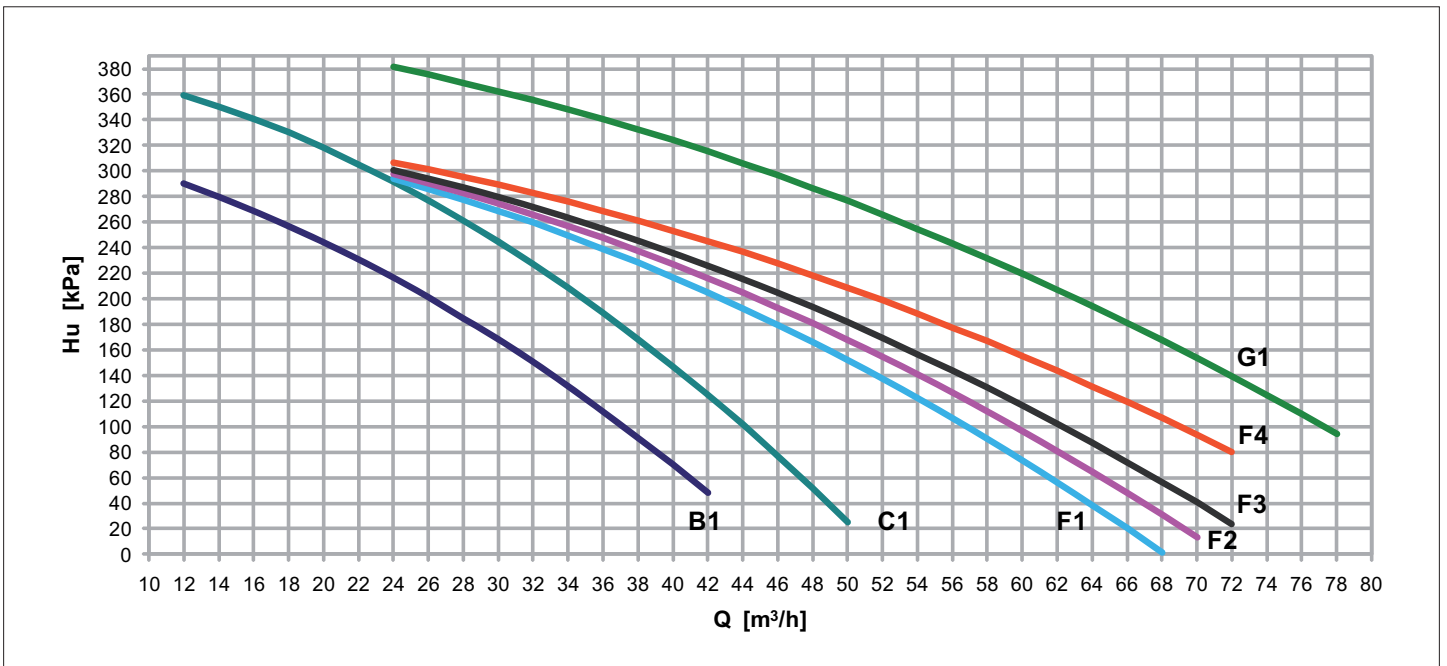
COLD CIRCUIT - 1 PUMP - HIGH HEAD PUMP

SIZE	VERSION	Pf (1) [kW]	Q (1) [m ³ /h]	Rif. Pump	Type Pump	N. Poles	F.L.I. [kW]	F.L.A. [A]	Ks -	Dps kPa	Hu kPa	Kfi -
0604P	K	165	28,3	B1	FCE 50-160/30	2	3	6,0	65,3	50	188	23,7
0704P	K	194	33,4	C1	FCE 50-160/40	2	4	8,1	51,5	53	216	23,7
0804P	K	218	37,5	F1	FCE 65-160/55	2	5,5	10,1	43,3	57	237	4,9
0904P	K	248	42,7	F2	FCE 65-160/55	2	5,5	10,1	36,9	66	216	4,9
1004P	K	289	49,7	F3	FCE 65-160/55	2	5,5	10,1	31,4	70	199	4,9
1104P	K	308	53,0	F4	FCE 65-160/55	2	5,5	10,1	20,6	54	203	4,9
1204P	K	327	56,2	G1	FCE 65-160/75	2	7,5	13,7	20,6	62	250	4,9

(1) Values refer to rated operating conditions
 Pf Cooling capacity of unit
 Q Flow of water to evaporator
 F.L.I. Power absorbed by pump
 F.L.A. Current absorbed by pump

Ks Coefficients for calculating pressure drops
 Unit with hydronic unit without network filter and 3 way valve
 Kfi Coefficients filter for calculating pressure drops
 Dps Total pressure drop of hydronic group
 Hu Residual head

WORKING HEAD CURVES



HYDRONIC GROUP (OPTIONAL)

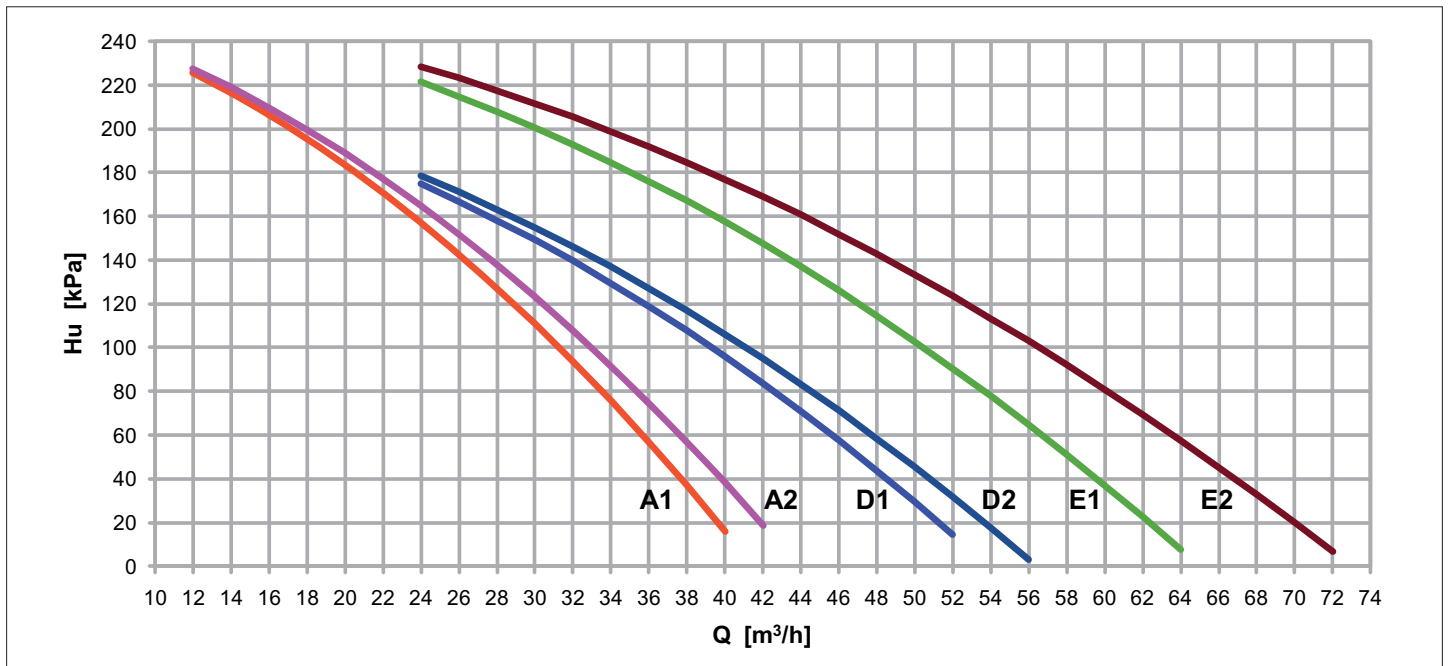
COLD CIRCUIT - 1 PUMP - LOW HEAD PUMP WITH WATER TANK

SIZE	VERSION	Pf (1) [kW]	Q (1) [m ³ /h]	Rif. Pump	Type Pump	N. Poles	F.L.I. [kW]	F.L.A. [A]	Ks -	Dps kPa	Hu kPa	Kfi -
0604P	K	160	27,5	A1	FCE 50-160/22	2	2,2	5,0	67,6	51	130	23,7
0704P	K	186	32,0	A2	FCE 50-160/22	2	2,2	5,0	53,8	55	108	23,7
0804P	K	211	36,3	D1	FCE 65-125/30	2	3	6,0	45,6	60	117	4,9
0904P	K	245	42,2	D2	FCE 65-125/30	2	3	6,0	39,2	70	94	4,9
1004P	K	274	47,1	E1	FCE 65-125/40	2	4	8,1	33,7	75	120	4,9
1104P	K	298	51,3	E2	FCE 65-125/40	2	4	8,1	21,5	56	128	4,9
1204P	K	319	54,9	E2	FCE 65-125/40	2	4	8,1	21,5	65	110	4,9

(1) Values refer to rated operating conditions
 Pf Cooling capacity of unit
 Q Flow of water to evaporator
 F.L.I. Power absorbed by pump
 F.L.A. Current absorbed by pump

Ks Coefficients for calculating pressure drops
 Unit with hydronic unit without network filter and 3 way valve
 Kfi Coefficients filter for calculating pressure drops
 Dps Total pressure drop of hydronic group
 Hu Residual head

WORKING HEAD CURVES



HYDRONIC GROUP (OPTIONAL)

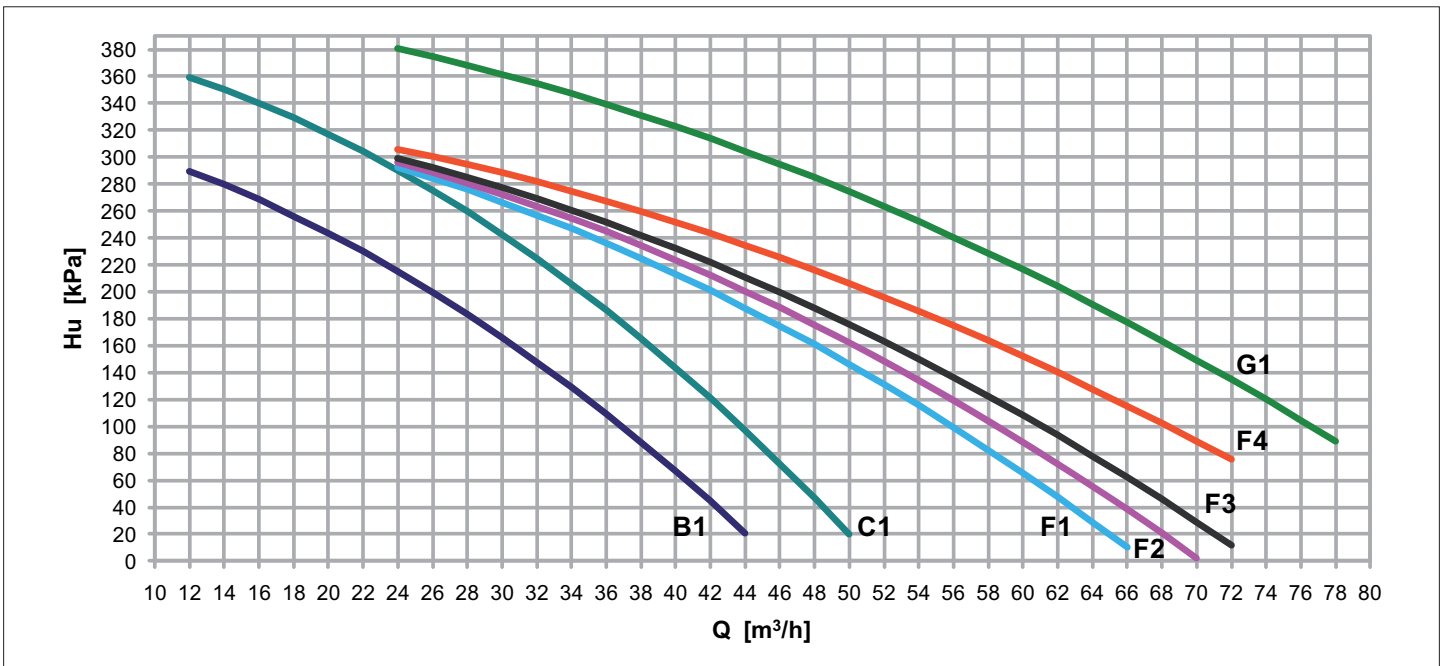
COLD CIRCUIT - 1 PUMP - HIGH HEAD PUMP WITH WATER TANK

SIZE	VERSION	Pf (1) [kW]	Q (1) [m ³ /h]	Rif. Pump	Type Pump	N. Poles	F.L.I. [kW]	F.L.A. [A]	Ks -	Dps kPa	Hu kPa	Kfi -
0604P	K	160	27,5	B1	FCE 50-160/30	2	3	6,0	67,6	51	186	23,7
0704P	K	186	32,0	C1	FCE 50-160/40	2	4	8,1	53,8	55	214	23,7
0804P	K	211	36,3	F1	FCE 65-160/55	2	5,5	10,1	45,6	60	234	4,9
0904P	K	245	42,2	F2	FCE 65-160/55	2	5,5	10,1	39,2	70	212	4,9
1004P	K	274	47,1	F3	FCE 65-160/55	2	5,5	10,1	33,7	75	194	4,9
1104P	K	298	51,3	F4	FCE 65-160/55	2	5,5	10,1	21,5	56	201	4,9
1204P	K	319	54,9	G1	FCE 65-160/75	2	7,5	13,7	21,5	65	247	4,9

(1) Values refer to rated operating conditions
 Pf Cooling capacity of unit
 Q Flow of water to evaporator
 F.L.I. Power absorbed by pump
 F.L.A. Current absorbed by pump

Ks Coefficients for calculating pressure drops
 Unit with hydronic unit without network filter and 3 way valve
 Kfi Coefficients filter for calculating pressure drops
 Dps Total pressure drop of hydronic group
 Hu Residual head

WORKING HEAD CURVES



HYDRONIC GROUP (OPTIONAL)

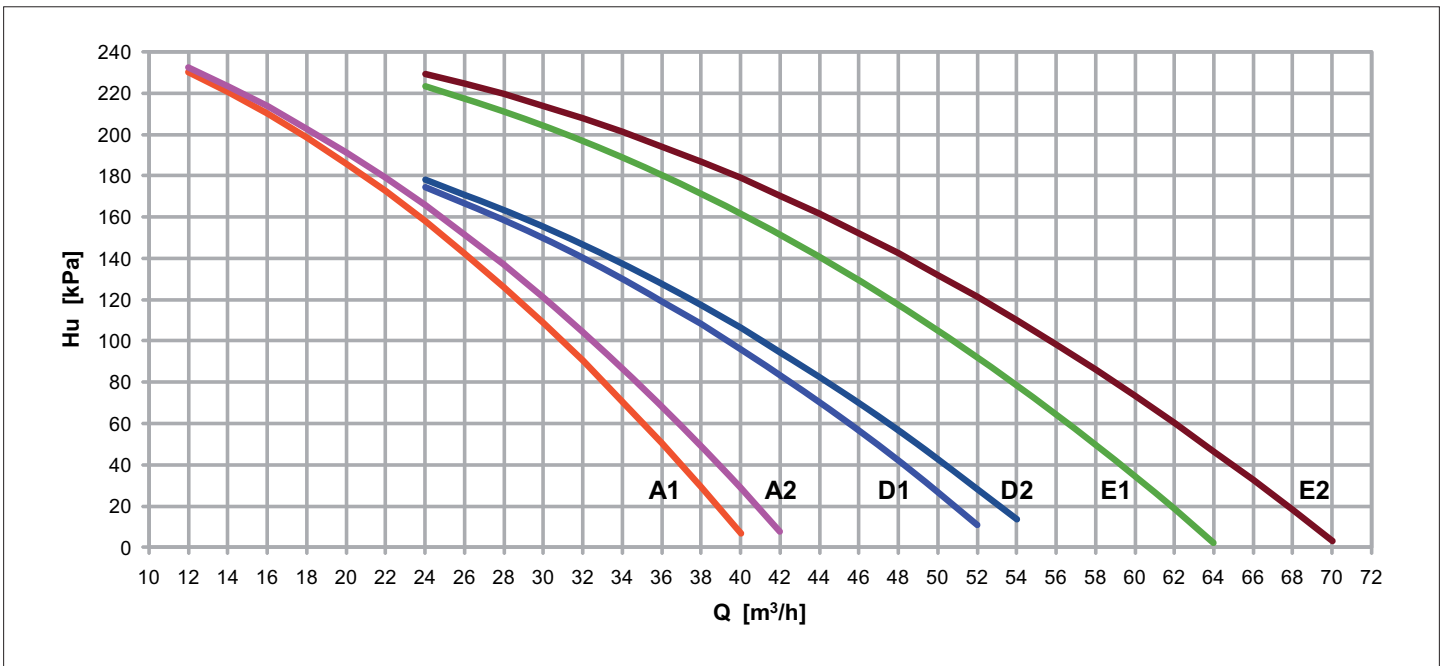
COLD CIRCUIT - 2 PUMPS - LOW HEAD PUMP

SIZE	VERSION	Pf (1) [kW]	Q (1) [m ³ /h]	Rif. Pump	Type Pump	N. Poles	F.L.I. [kW]	F.L.A. [A]	Ks -	Dps kPa	Hu kPa	Kfi -
0604P	K	160	27,5	A1	FCTE 50-160/22	2	2,2	5,0	65,3	50	130	23,7
0704P	K	186	32,0	A2	FCTE 50-160/22	2	2,2	5,0	51,5	53	103	23,7
0804P	K	211	36,3	D1	FCTE 65-125/30	2	3	6,0	43,3	57	119	4,9
0904P	K	245	42,2	D2	FCTE 65-125/30	2	3	6,0	36,9	66	94	4,9
1004P	K	274	47,1	E1	FCTE 65-125/40	2	4	8,1	31,4	70	122	4,9
1104P	K	298	51,3	E2	FCTE 65-125/40	2	4	8,1	20,6	54	125	4,9
1204P	K	319	54,9	E2	FCTE 65-125/40	2	4	8,1	20,6	62	105	4,9

(1) Values refer to rated operating conditions
 Pf Cooling capacity of unit
 Q Flow of water to evaporator
 F.L.I. Power absorbed by pump
 F.L.A. Current absorbed by pump

Ks Coefficients for calculating pressure drops
 Unit with hydronic unit without network filter and 3 way valve
 Kfi Coefficients filter for calculating pressure drops
 Dps Total pressure drop of hydronic group
 Hu Residual head

WORKING HEAD CURVES



HYDRONIC GROUP (OPTIONAL)

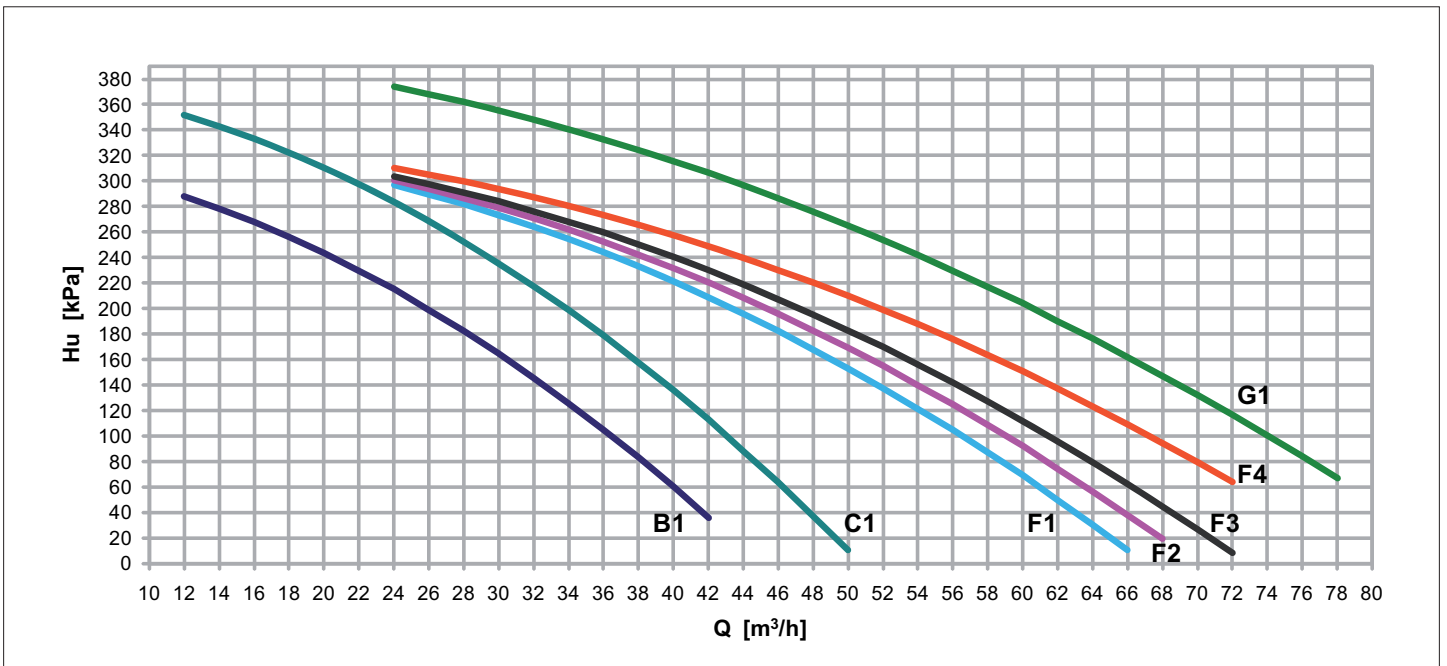
COLD CIRCUIT - 2 PUMPS - HIGH HEAD PUMP

SIZE	VERSION	Pf (1) [kW]	Q (1) [m ³ /h]	Rif. Pump	Type Pump	N. Poles	F.L.I. [kW]	F.L.A. [A]	Ks -	Dps kPa	Hu kPa	Kfi -
0604P	K	160	27,5	B1	FCTE 50-160/30	2	3	6,0	65,3	50	186	23,7
0704P	K	186	32,0	C1	FCTE 50-160/40	2	4	8,1	51,5	53	218	23,7
0804P	K	211	36,3	F1	FCTE 65-160/55	2	5,5	10,1	43,3	57	241	4,9
0904P	K	245	42,2	F2	FCTE 65-160/55	2	5,5	10,1	36,9	66	217	4,9
1004P	K	274	47,1	F3	FCTE 65-160/55	2	5,5	10,1	31,4	70	199	4,9
1104P	K	298	51,3	F4	FCTE 65-160/55	2	5,5	10,1	20,6	54	201	4,9
1204P	K	319	54,9	G1	FCTE 65-160/75	2	7,5	13,7	20,6	62	235	4,9

(1) Values refer to rated operating conditions
 Pf Cooling capacity of unit
 Q Flow of water to evaporator
 F.L.I. Power absorbed by pump
 F.L.A. Current absorbed by pump

Ks Coefficients for calculating pressure drops
 Unit with hydronic unit without network filter and 3 way valve
 Kfi Coefficients filter for calculating pressure drops
 Dps Total pressure drop of hydronic group
 Hu Residual head

WORKING HEAD CURVES



HYDRONIC GROUP (OPTIONAL)

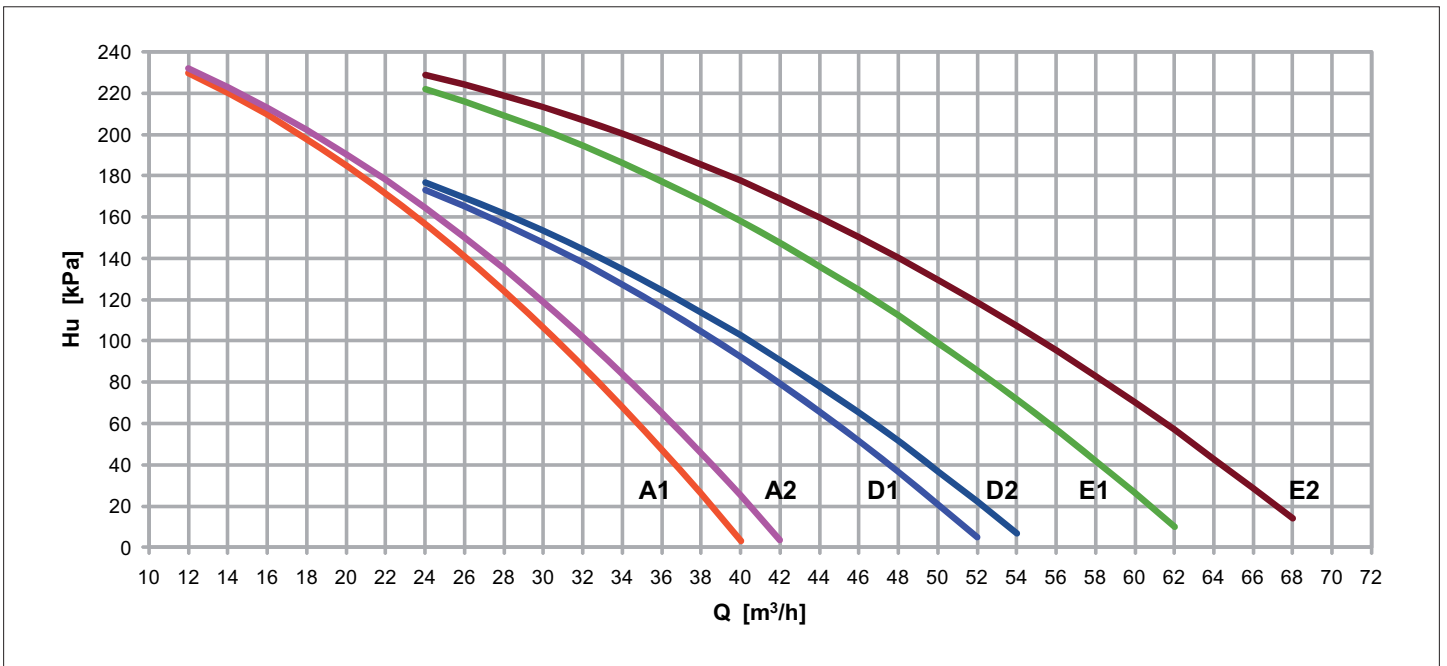
COLD CIRCUIT - 2 PUMPS - LOW HEAD PUMP WITH WATER TANK

SIZE	VERSION	Pf (1) [kW]	Q (1) [m ³ /h]	Rif. Pump	Type Pump	N. Poles	F.L.I. [kW]	F.L.A. [A]	Ks -	Dps kPa	Hu kPa	Kfi -
0604P	K	160	27,5	A1	FCTE 50-160/22	2	2,2	5,0	67,6	51	128	23,7
0704P	K	186	32,0	A2	FCTE 50-160/22	2	2,2	5,0	53,8	55	101	23,7
0804P	K	211	36,3	D1	FCTE 65-125/30	2	3	6,0	45,6	60	116	4,9
0904P	K	245	42,2	D2	FCTE 65-125/30	2	3	6,0	39,2	70	90	4,9
1004P	K	274	47,1	E1	FCTE 65-125/40	2	4	8,1	33,7	75	117	4,9
1104P	K	298	51,3	E2	FCTE 65-125/40	2	4	8,1	21,5	56	123	4,9
1204P	K	319	54,9	E2	FCTE 65-125/40	2	4	8,1	21,5	65	102	4,9

(1) Values refer to rated operating conditions
 Pf Cooling capacity of unit
 Q Flow of water to evaporator
 F.L.I. Power absorbed by pump
 F.L.A. Current absorbed by pump

Ks Coefficients for calculating pressure drops
 Unit with hydronic unit without network filter and 3 way valve
 Kfi Coefficients filter for calculating pressure drops
 Dps Total pressure drop of hydronic group
 Hu Residual head

WORKING HEAD CURVES



HYDRONIC GROUP (OPTIONAL)

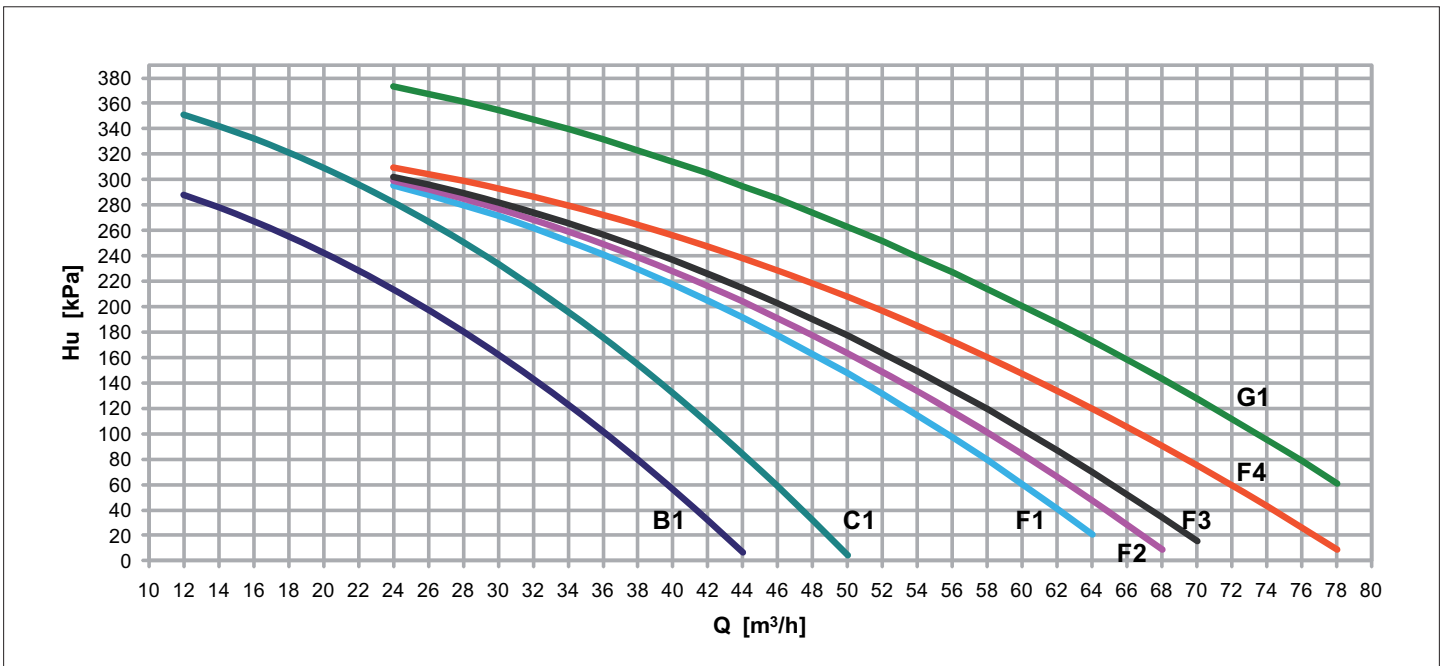
COLD CIRCUIT - 2 PUMPS - HIGH HEAD PUMP WITH WATER TANK

SIZE	VERSION	Pf (1) [kW]	Q (1) [m ³ /h]	Rif. Pump	Type Pump	N. Poles	F.L.I. [kW]	F.L.A. [A]	Ks -	Dps kPa	Hu kPa	Kfi -
0604P	K	160	27,5	B1	FCTE 50-160/30	2	3	6,0	67,6	51	184	23,7
0704P	K	186	32,0	C1	FCTE 50-160/40	2	4	8,1	53,8	55	216	23,7
0804P	K	211	36,3	F1	FCTE 65-160/55	2	5,5	10,1	45,6	60	238	4,9
0904P	K	245	42,2	F2	FCTE 65-160/55	2	5,5	10,1	39,2	70	213	4,9
1004P	K	274	47,1	F3	FCTE 65-160/55	2	5,5	10,1	33,7	75	194	4,9
1104P	K	298	51,3	F4	FCTE 65-160/55	2	5,5	10,1	21,5	56	199	4,9
1204P	K	319	54,9	G1	FCTE 65-160/75	2	7,5	13,7	21,5	65	232	4,9

(1) Values refer to rated operating conditions
 Pf Cooling capacity of unit
 Q Flow of water to evaporator
 F.L.I. Power absorbed by pump
 F.L.A. Current absorbed by pump

Ks Coefficients for calculating pressure drops
 Unit with hydronic unit without network filter and 3 way valve
 Kfi Coefficients filter for calculating pressure drops
 Dps Total pressure drop of hydronic group
 Hu Residual head

WORKING HEAD CURVES



16. ELECTRICAL DATA

16.1 NX-N /K Electrical data

SIZE	Maximum values								
	Compressor				Fans (1)		Total (1) (2)		
	n	F.L.I. [kW]	F.L.A. [A]	L.R.A. [A]	F.L.I. [kW]	F.L.A. [A]	F.L.I. [kW]	F.L.A. [A]	S.A. [A]
0604P	4	4x17.2	4x29.2	4x197	2	4,1	77	133	301
0704P	4	2x17.3+2x23.8	2x30.5+2x39.8	2x160+2x215	2	4,1	90	157	332
0804P	4	4x23.8	4x39.8	4x215	2	4,1	103	176	351
0904P	4	2x23.8+2x30	2x39.8+2x51.2	2x215+2x260	2	4,1	120	207	415
1004P	4	4x30	4x51.2	4x260	2	4,1	132	229	438
1104P	4	2x30+2x35.3	2x51.2+2x57.9	2x260+2x320	2	4,1	143	243	505
1204P	4	4x35.3	4x57.9	4x320	2	4,1	153	256	518

16.2 NX-N /LN-K Electrical data

SIZE	Maximum values								
	Compressor				Fans (1)		Total (1) (2)		
	n	F.L.I. [kW]	F.L.A. [A]	L.R.A. [A]	F.L.I. [kW]	F.L.A. [A]	F.L.I. [kW]	F.L.A. [A]	S.A. [A]
0604P	4	4x17.2	4x29.2	4x197	2	4,1	77	133	301
0704P	4	2x17.3+2x23.8	2x30.5+2x39.8	2x160+2x215	2	4,1	90	157	332
0804P	4	4x23.8	4x39.8	4x215	2	4,1	103	176	351
0904P	4	2x23.8+2x30	2x39.8+2x51.2	2x215+2x260	2	4,1	120	207	415
1004P	4	4x30	4x51.2	4x260	2	4,1	132	229	438
1104P	4	2x30+2x35.3	2x51.2+2x57.9	2x260+2x320	2	4,1	143	243	505
1204P	4	4x35.3	4x57.9	4x320	2	4,1	153	256	518

16.3 NX-N /SL-K Electrical data

SIZE	Maximum values								
	Compressor				Fans (1)		Total (1) (2)		
	n	F.L.I. [kW]	F.L.A. [A]	L.R.A. [A]	F.L.I. [kW]	F.L.A. [A]	F.L.I. [kW]	F.L.A. [A]	S.A. [A]
0604P	4	4x17.2	4x29.2	4x197	1,2	4,1	74	133	301
0704P	4	2x17.3+2x23.8	2x30.5+2x39.8	2x160+2x215	1,2	4,1	89	165	340
0804P	4	4x23.8	4x39.8	4x215	1,2	4,1	102	184	359
0904P	4	2x23.8+2x30	2x39.8+2x51.2	2x215+2x260	1,2	4,1	115	207	415
1004P	4	4x30	4x51.2	4x260	1,2	4,1	127	229	438
1104P	4	2x30+2x35.3	2x51.2+2x57.9	2x260+2x320	1,2	4,1	140	251	513
1204P	4	4x35.3	4x57.9	4x320	1,2	4,1	151	264	527

F.L.I.: Full load power

F.L.A.: Full load current

L.R.A.: Locked rotor amperes for single compressor

S.A.: Inrush current

(1) (2) Safety values to be considered when cabling the unit for power supply and line-protections

(1) Values calculated referring to the version with the maximum number of fans working at the max absorbed current

Power supply: 400/3/50

Voltage tolerance: 10%

Maximum voltage unbalance: 3%

Give the typical operating conditions of units designed for outdoor installation, which can be associated (according to reference document IEC 60721) to the following classes:

- climatic conditions class 4K4H: air temperature range from -20 up to 55°C (*), relative humidity range from 4 up to 100%, with possible precipitations, at air-

pressure from 70 and 106 kPa and a maximum solar radiation of 1120 W/m²

- special climatic conditions negligible
- biological conditions class 4B1 and 4C2: locations in a generic urban area
- mechanically active substances class 4S2: locations in areas with sand or dust representative of urban areas
- mechanical conditions class 4M1: locations protected from significant vibrations or shocks

The required protection level for safe operation, according to reference document IEC 60529, is IP43XW (protection against access, to the most critical unit's parts, of external devices with diameter larger than 1 mm and rain).

The unit can be considered IP44XW protected, i.e. protected against access of external devices (with diameter larger than 1 mm) and water in general.

(*) for the unit's operating limits, see "selection limits" section

17. FULL LOAD SOUND LEVEL

17.1 NX-N /K Full load sound level

SOUND POWER									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound power level dB								
0604P	95	94	91	89	88	83	77	72	92
0704P	95	94	91	89	88	83	77	72	92
0804P	96	95	92	90	89	84	78	73	93
0904P	97	96	93	91	90	85	79	74	94
1004P	98	97	94	92	91	86	80	75	95
1104P	98	97	94	92	91	86	80	75	95
1204P	98	97	94	92	91	86	80	75	95

Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units

Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz] at 10 m								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
0604P	63	62	59	57	56	51	45	40	60
0704P	63	62	59	57	56	51	45	40	60
0804P	64	63	60	58	57	52	46	41	61
0904P	65	64	61	59	58	53	47	42	62
1004P	66	65	62	60	59	54	48	43	63
1104P	66	65	62	60	59	54	48	43	63
1204P	66	65	62	60	59	54	48	43	63

Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.

17.2 NX-N /LN-K Full load sound level

SOUND POWER									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound power level dB								
0604P	88	87	86	84	81	76	69	63	86
0704P	88	87	86	84	81	76	69	63	86
0804P	89	88	87	85	82	77	70	64	87
0904P	90	89	88	86	83	78	71	65	88
1004P	91	90	89	87	84	79	72	66	89
1104P	92	91	90	88	85	80	73	67	90
1204P	92	91	90	88	85	80	73	67	90

Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units

Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz] at 10 m								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
0604P	56	55	54	52	49	44	37	31	54
0704P	56	55	54	52	49	44	37	31	54
0804P	57	56	55	53	50	45	38	32	55
0904P	58	57	56	54	51	46	39	33	56
1004P	59	58	57	55	52	47	40	34	57
1104P	60	59	58	56	53	48	41	35	58
1204P	60	59	58	56	53	48	41	35	58

Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.

17.3 NX-N /SL-K Full load sound level

SOUND POWER									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound power level dB								
0604P	84	83	82	80	77	72	65	59	82
0704P	85	84	83	81	78	73	66	60	83
0804P	85	84	83	81	78	73	66	60	83
0904P	86	85	84	82	79	74	67	61	84
1004P	87	86	85	83	80	75	68	62	85
1104P	88	87	86	84	81	76	69	63	86
1204P	89	88	87	85	82	77	70	64	87

Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units

Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz] at 10 m								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
0604P	52	51	50	48	45	40	33	27	50
0704P	53	52	51	49	46	41	34	28	51
0804P	53	52	51	49	46	41	34	28	51
0904P	54	53	52	50	47	42	35	29	52
1004P	55	54	53	51	48	43	36	30	53
1104P	56	55	54	52	49	44	37	31	54
1204P	57	56	55	53	50	45	38	32	55

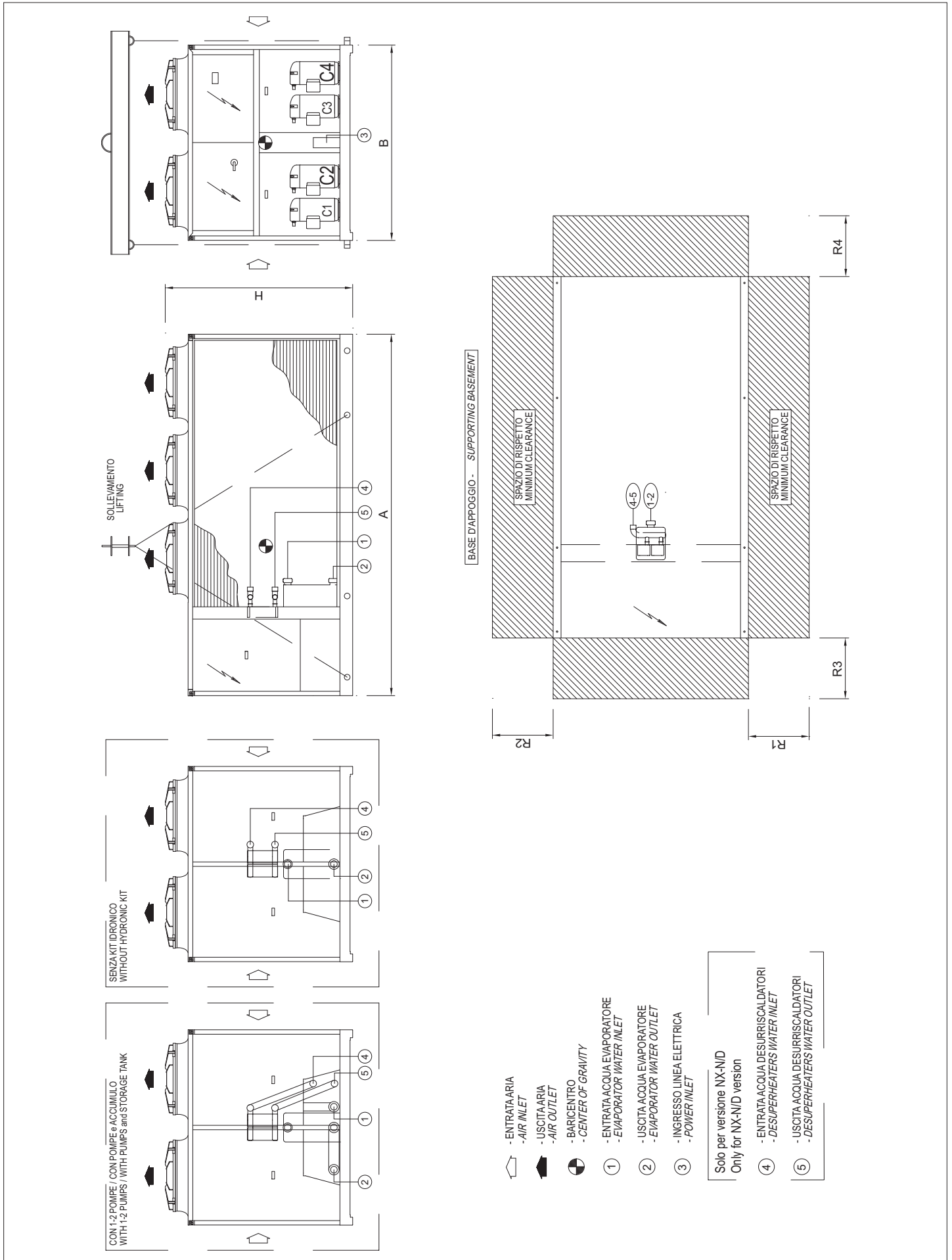
Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.

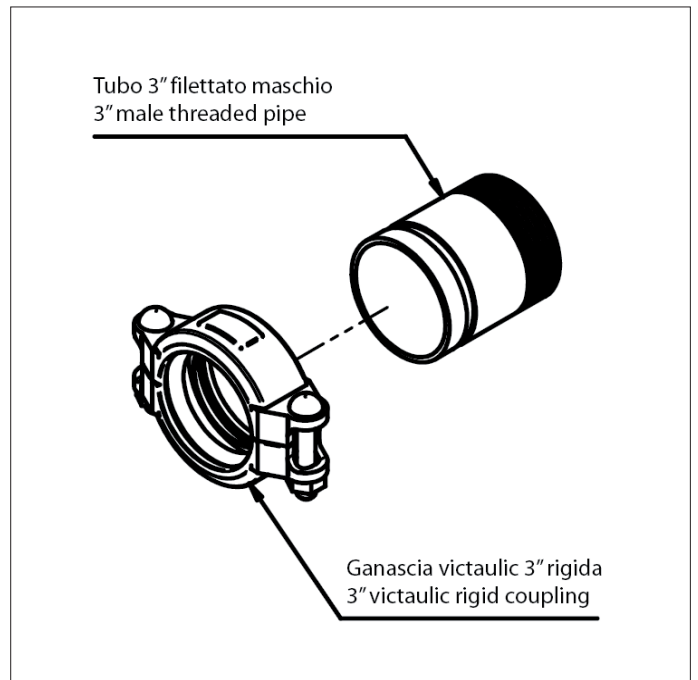
18. DIMENSIONAL DRAWINGS



NX-N

SIZE	DIMENSIONS AND WEIGHTH				CLEARANCE				PLANT SIDE COLD HEAT EXCHANGER		AUXILIARY SIDE HEAT EXCHANGER	
	A	B	H	WEIGHT	R1	R2	R3	R4	IN/OUT		IN/OUT	
	[mm]	[mm]	[mm]	[kg]	[mm]	[mm]	[mm]	[mm]	TYPE	Ø	TYPE	Ø
NX-N /K 0614P	3110	2220	2150	1640	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /K 0714P	4110	2220	2150	1990	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /K 0814P	4110	2220	2150	2120	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /K 0914P	4110	2220	2150	2360	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /K 1014P	4110	2220	2150	2500	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /K 1114P	5110	2220	2150	2850	2000	2000	1100	2000	VICTAULIC	4"	-	-
NX-N /K 1214P	5110	2220	2150	2880	2000	2000	1100	2000	VICTAULIC	4"	-	-
NX-N /LN-K 0614P	3110	2220	2150	1690	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /LN-K 0714P	4110	2220	2150	2040	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /LN-K 0814P	4110	2220	2150	2170	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /LN-K 0914P	4110	2220	2150	2410	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /LN-K 1014P	4110	2220	2150	2550	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /LN-K 1114P	5110	2220	2150	2900	2000	2000	1100	2000	VICTAULIC	4"	-	-
NX-N /LN-K 1214P	5110	2220	2150	2930	2000	2000	1100	2000	VICTAULIC	4"	-	-
NX-N /SL-K 0614P	3110	2220	2150	1690	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /SL-K 0714P	4110	2220	2150	2130	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /SL-K 0814P	4110	2220	2150	2260	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /SL-K 0914P	5110	2220	2150	2690	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /SL-K 1014P	5110	2220	2150	2830	2000	2000	1100	2000	VICTAULIC	3"	-	-
NX-N /SL-K 1114P	5110	2220	2150	3020	2000	2000	1100	2000	VICTAULIC	4"	-	-
NX-N /SL-K 1214P	5110	2220	2150	3040	2000	2000	1100	2000	VICTAULIC	4"	-	-
NX-N /D /K 0614P	3110	2220	2150	1640	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /K 0714P	4110	2220	2150	1990	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /K 0814P	4110	2220	2150	2120	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /K 0914P	4110	2220	2150	2360	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /K 1014P	4110	2220	2150	2500	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /K 1114P	5110	2220	2150	2850	2000	2000	1100	2000	VICTAULIC	4"	VICTAULIC	1" 1/2
NX-N /D /K 1214P	5110	2220	2150	2880	2000	2000	1100	2000	VICTAULIC	4"	VICTAULIC	1" 1/2
NX-N /D /LN-K 0614P	3110	2220	2150	1690	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /LN-K 0714P	4110	2220	2150	2040	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /LN-K 0814P	4110	2220	2150	2170	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /LN-K 0914P	4110	2220	2150	2410	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /LN-K 1014P	4110	2220	2150	2550	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /LN-K 1114P	5110	2220	2150	2900	2000	2000	1100	2000	VICTAULIC	4"	VICTAULIC	1" 1/2
NX-N /D /LN-K 1214P	5110	2220	2150	2930	2000	2000	1100	2000	VICTAULIC	4"	VICTAULIC	1" 1/2
NX-N /D /SL-K 0614P	3110	2220	2150	1690	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /SL-K 0714P	4110	2220	2150	2130	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /SL-K 0814P	4110	2220	2150	2260	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /SL-K 0914P	5110	2220	2150	2690	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /SL-K 1014P	5110	2220	2150	2830	2000	2000	1100	2000	VICTAULIC	3"	VICTAULIC	1" 1/2
NX-N /D /SL-K 1114P	5110	2220	2150	3020	2000	2000	1100	2000	VICTAULIC	4"	VICTAULIC	1" 1/2
NX-N /D /SL-K 1214P	5110	2220	2150	3040	2000	2000	1100	2000	VICTAULIC	4"	VICTAULIC	1" 1/2

VICTAULIC fittings complete with threaded male stubs on the system side of the cooling heat exchanger and auxiliary heat exchanger (see the drawing showing composition of the fittings kit).



LEGEND OF PIPE CONNECTIONS

UNI ISO 228/1

Pipe threads where pressure-tight joints are not made on the threads - Designation, dimensions and tolerances

Used terminology:

G: Pipe threads where pressure-tight joints are not made on the threads

A: Close tolerance class for external pipe threads where pressure-tight joints are not made on the threads

B: Wider tolerance class for external pipe threads where pressure-tight joints are not made on the threads

Internal threads: G letter followed by thread mark (only tolerance class)

External threads: G letter followed by thread mark and by A letter for A class external threads or by B letter for B class external threads.

UNI ISO 7/1

Pipe threads where pressure-tight joints are made on the threads - Designation, dimensions and tolerances

Used terminology:

Rp: Internal cylindrical threads where pressure-tight joints are made on the threads

Rc: Internal conical threads where pressure-tight joints are made on the threads

R: External conical threads where pressure-tight joints are made on the threads

Internal cylindrical threads: R letter followed by p letter

Internal conical threads: R letter followed by c letter

External conical threads: R letter

Designation	Description
UNI ISO 7/1 - Rp 1 1/2	Internal cylindrical threads where pressure-tight joints are made on the threads, defined by standard UNI ISO 7/1 Conventional \varnothing 1 1/2"
UNI ISO 7/1 - Rp 2 1/2	Internal cylindrical threads where pressure-tight joints are made on the threads, defined by standard UNI ISO 7/1 Conventional \varnothing 2 1/2"
UNI ISO 7/1 - Rp 3	Internal cylindrical threads where pressure-tight joints are made on the threads, defined by standard UNI ISO 7/1 Conventional \varnothing 3"
UNI ISO 7/1 - R 3	External conical threads where pressure-tight joints are made on the threads, defined by standard UNI ISO 7/1 Conventional \varnothing 3"
UNI ISO 228/1 - G 4 B	Internal cylindrical threads where pressure-tight joints are not made on the threads, defined by standard UNI ISO 228/1 Tolerance class B for external thread Conventional \varnothing 4"
DN 80 PN 16	Flange Nominal Diameter: 80 mm Nominal Pressure: 16 bar

Notes:

Conventional diameter value [in inches] identifies short thread designation, based upon the relative standard.

All relative values are defined by standards.

As example, here below some values:

	UNI ISO 7/1	UNI ISO 228/1
Conventional \varnothing	1"	1"
Pitch	2.309 mm	2.309 mm
External \varnothing	33.249 mm	33.249 mm
Core \varnothing	30.291 mm	30.291 mm
Thread height	1.479 mm	1.479 mm



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Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.



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