MITSUBISHI ELECTRIC
HYDRONICS & IT COOLING SYSTEMS S.p.A.

Technical Bulletin
FR-G05-Z 1502 - 7223_201809_EN HFC R513A
ELCA_Engine ver.4.0.5.0

COOLING

FR-G05-Z 1502 - 7223

288-1710 kW

Chiller, air source for outdoor installation

R513A
SCREW
SHELL & TUBES
EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com
VPF VARIABLE PRIMARY FLOW
GREEN CERTIFICATION RELEVANT

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

- LOW GWP REFRIGERANT
- HIGH EFFICIENCY
- EXTREMELY SILENT OPERATION
- FLEXIBILITY
- WIDE OPERATING RANGE
- ALUMINIUM MICRO-CHANNEL HEAT EXCHANGERS
- INTEGRATED HYDRONIC GROUP

CERTIFICATIONS

Product certifications

Voluntary product certifications

Check ongoing validity of certificate:
www.eurovent-certification.com
or
www.certiflash.com

System certifications

MITSUBISHI ELECTRIC HYDRONICS & IT COOLING SYSTEMS S.p.A.

Quality System complying with the requirements of UNI EN ISO 9001:2008 regulation
Environmental Management System complying with the requirements of UNI EN ISO 14001:2004 regulation
Occupational Health and Safety Management System complying with the requirements of BS OHSAS 18001:2007

INDEX **FR-G05-Z 1502 - 7223**

The units highlighted in this publication contain R513A [GWP_{100} 631] fluorinated greenhouse gases.

Functions

COOLING — Cooling

Refrigerant

R R513A — R513A

Compressors

SCREW — Screw compressor

Fan

AXIAL — Axial fan

Exchangers

T SHELL & TUBES — Shell & Tubes

Other features right position

A ENERGY CLASS — Energy Class A

Other features

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com — Eurovent

VPF VARIABLE PRIMARY FLOW — VPF

GREEN CERTIFICATION RELEVANT — GREEN Certification relevant

GREEN CERTIFICATION RELEVANT

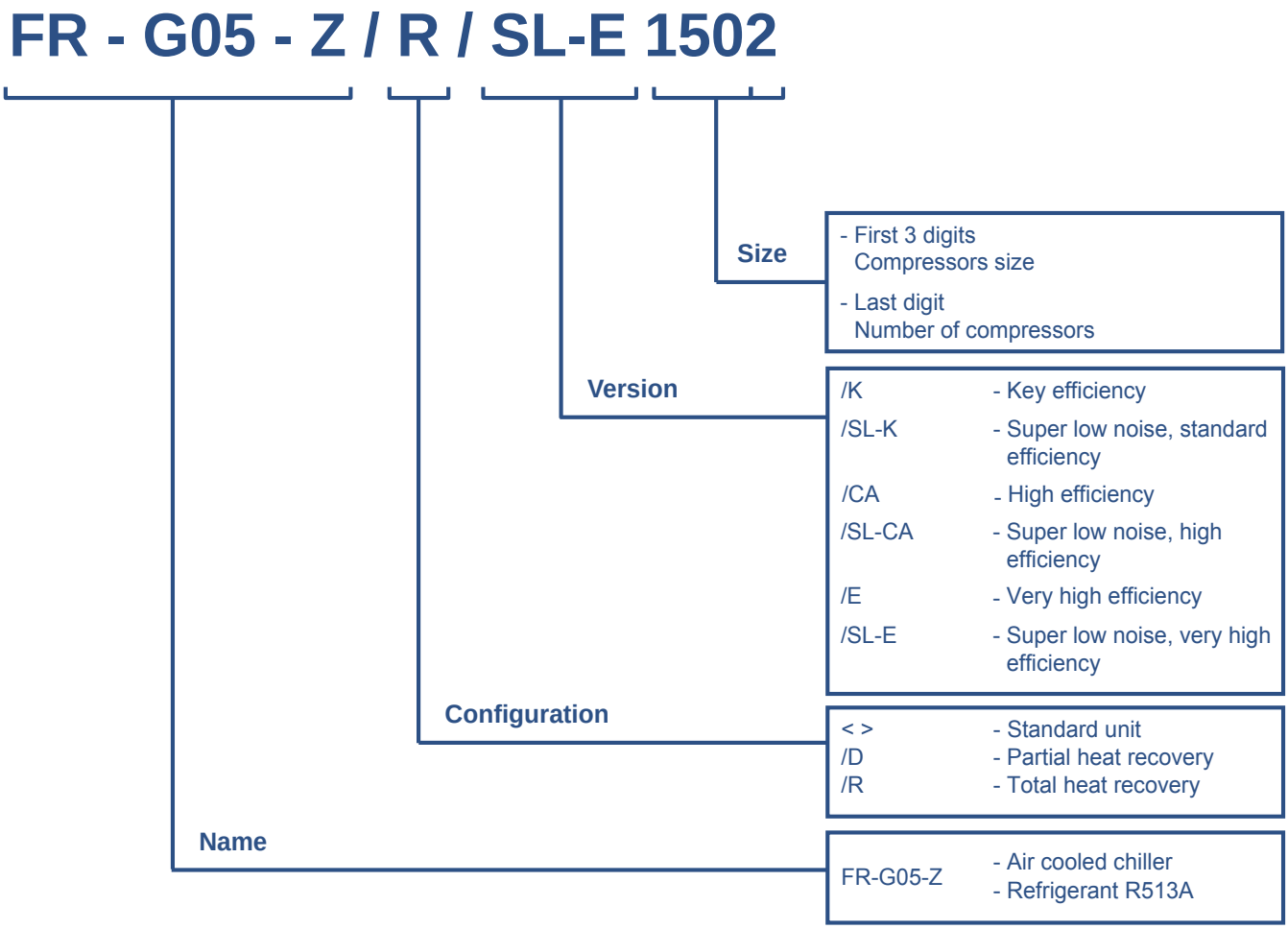
Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A., as a major player in the world HVAC market and a leading manufacturer of energy efficient, sustainable HVAC solutions, recognizes and supports the diffusion of green certification systems, as an effective way to deliver high performance buildings and improve the quality and the sustainability of the built environment.

Since the first certification system was introduced at the beginning of the 1990s, the demand for certified buildings has grown considerably, as well as the number of standards, rating and certification programs. Operating worldwide Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A., has extensive experience with many of them and is active member of Green Building Council Italy.

Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A., commitment to develop responsible and sustainable HVAC solutions, is reflected by a full range of premium efficiency products and systems, designed with special care to improve building energy performance ratings, according to major certification protocols, including LEED, BREAM, GREENSTAR, BCA, NABERS, DNGB, HQE and BEAM.

To find out more about how our products contribute to enhanced green certification rating and energy performance of a building, please refer to:
https://www.melcohit.com/GLOBAL/Company/Green-Certifications/QR%20code/

INCIPIT


FR - G05 - Z / R / SL-E 1502
Size
- First 3 digits
Compressors size
- Last digit
Number of compressors
Version
/K - Key efficiency
/SL-K - Super low noise, standard efficiency
/CA - High efficiency
/SL-CA - Super low noise, high efficiency
/E - Very high efficiency
/SL-E - Super low noise, very high efficiency
Configuration
< > - Standard unit
/D - Partial heat recovery
/R - Total heat recovery
Name
FR-G05-Z
- Air cooled chiller
- Refrigerant R513A

Outdoor unit for the production of chilled water with semi-hermetic screw compressors optimized for R513A, axial-flow fans, micro-channel full-aluminum condensing coils, single-pass shell and tubes evaporator designed by Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A. and electronic expansion valve.
Base and supporting structure and panels are of galvanized epoxy powder coated steel with increased thickness. Eurovent certification.
Flexible and reliable unit; it easily adapts itself to different thermal load conditions thanks to the precise thermoregulation and the accurate sizing of all internal components.
The compressors feature an enhanced lubrication system, an innovative internal geometry and a different control of capacity steps. Innovations that grant a remarkable performance improvement especially at partial loads.

1.3 LOW GWP REFRIGERANT
New generation refrigerant R513A, with reduced greenhouse effect in comparison with traditional HFC refrigerants (Global Warming Potential GWP of R513A = 572, GWP of R134a = 1300 as per IPCC rev. 5th) and zero impact on the ozone layer. Not flammable (ASHRAE 34, ISO 817: class A1).

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

1.5 EXTREMELY SILENT OPERATION
As the result of a systematic design oriented to minimize the noise level, the silenced version units give the best combination of quietness and efficiency on the market.

1.6 FLEXIBILITY
Flexibility in the applications thanks to the many configurations and versions available.

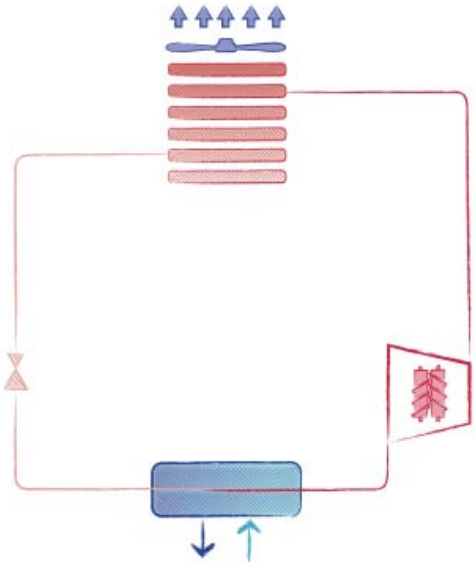
1.7 WIDE OPERATING RANGE
The accurate condensation control (variable fan speed regulation as per standard on every model) and devoted kits allow unit's operation from -10°C (-20°C with accessories) to 50°C (54°C with accessories) of outdoor air temperature and from -8°C to 18°C (20°C with accessories) of evaporator leaving water temperature.

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

1.9 INTEGRATED HYDRONIC GROUP
The built-in hydronic group (optional) includes the main water circuit components. The 2 pumps are in twin configuration and available with 2 or 4-pole motor, fixed or variable speed, high or low head, to satisfy the different installation requirements.

CONFIGURATIONS

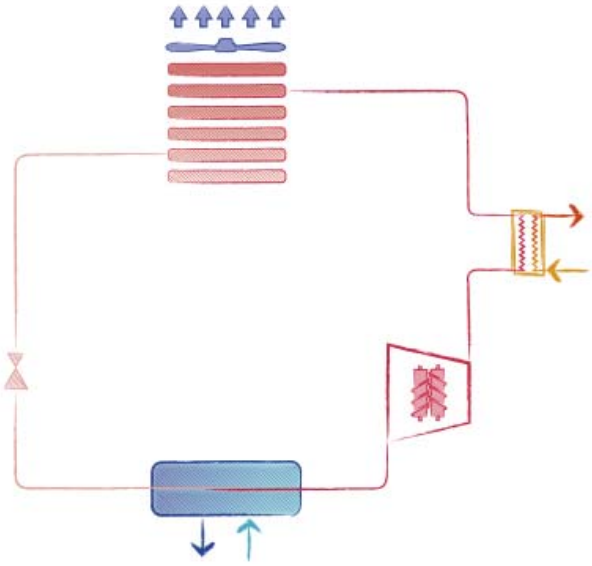
- , standard unit



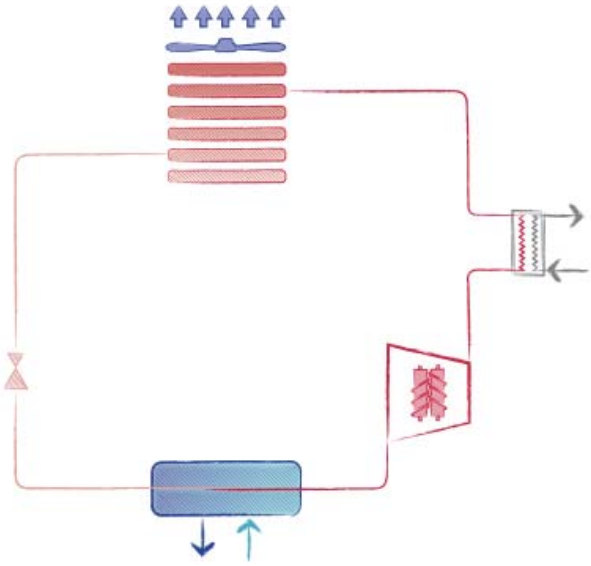
No heat recovery is possible.

/D, unit with partial heat recovery

Heat recovery: ON



Heat recovery: OFF (water flow stopped)



Each refrigerant circuit is fitted with a desupeheater.
The superheating heat recovery is only possible when the temperature of the hot water circuit is lower than the compressor discharge temperature.
The heat recovery and its amount dipends on the unit's operating conditions, in particular the outdoor air temperature and the load percentage.
It is advised to interrupt the water flow to the desuperheater when the conditions for an actual heat recovery are not met.

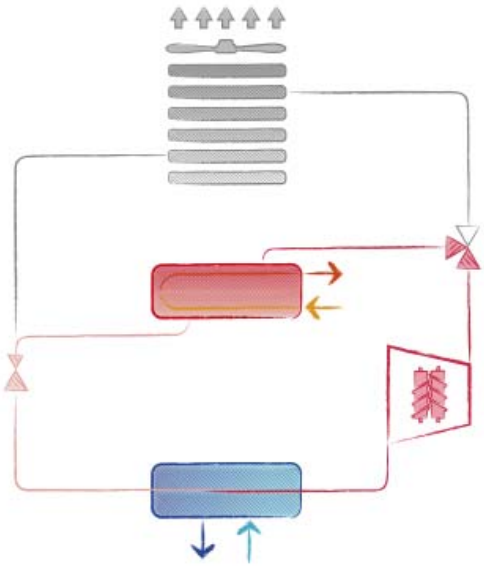
The smart management of the desuperheater pump(s) is possible with the option 3371 D - RELAY 1 PUMP (ON/OFF), further information is available in the bulletin section dedicated to accessories.

Partial heat recovery operating limits:

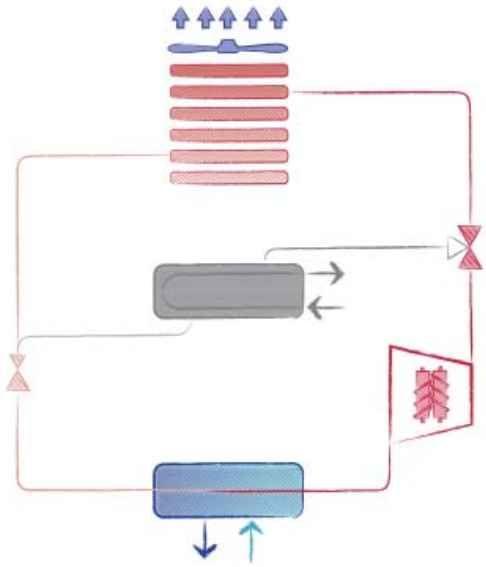
	MIN temperature	MAX temperature
Inlet water	25°C (77°F)	56°C (132,8°F)
Outlet water	30°C (86°F)	60°C (140°F)

/R, unit with total heat recovery

Heat recovery: ON



Heat recovery: OFF



Each refrigerant circuit is fitted with a total heat recovery exchanger.
The heat recovery mode is managed according to the hot water temperature set-point.
When the heat recovery mode is active, the condensation takes place in the devoted refrigerant/water heat exchanger instead of in the finned coils.

The available hydronic modules and primary flow control options for the total heat recovery exchanger are listed in the bulletin section dedicated to accessories.

Total heat recovery operating limits:

	MIN temperature	MAX temperature
Inlet water	18°C (64,4°F)	51°C (123,8°F) With Kit HT*: 56°C (132,8°F)
Outlet water	26°C (78,8°F)	55°C (131°F) With Kit HT*: 60°C (140°F)

* Option Kit HT, code 1955.

UNIT STANDARD COMPOSITION

STRUCTURE UNIT

The family is developed on a V-block modular structure. The electrical panel can be semi-integrated or full-height, depending on the unit's size.

UNIT WITH SEMI-INTEGRATED E.P.		UNIT WITH FULL-HEIGHT E.P.
		

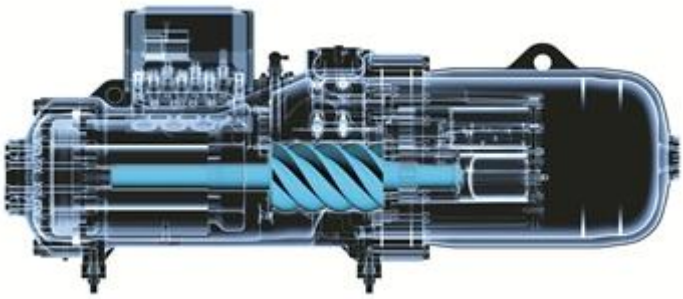
2.2 Chiller, air source for outdoor installation
Outdoor unit for the production of chilled water with semi-hermetic screw compressors optimized for R513A, axial-flow fans, micro-channel full-aluminum condensing coils, single-pass shell and tubes evaporator designed by Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A. and electronic expansion valve.
Base and supporting structure and panels are of galvanized epoxy powder coated steel with increased thickness. Eurovent certification.
Flexible and reliable unit; it easily adapts itself to different thermal load conditions thanks to the precise thermoregulation and the accurate sizing of all internal components.
The compressors feature an enhanced lubrication system, an innovative internal geometry and a different control of capacity steps. Innovations that grant a remarkable performance improvement especially at partial loads.

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

2.4 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.

2.5 Refrigerant circuit
Unit designed with separate and independent refrigerant circuits in order to ensure continuous operation and easy maintenance. In addition to the main components described in the following sections, each refrigerant circuit is fitted as standard with:
- electronic expansion valve
- high and low pressure transducers
- visualization of the pressure´s level directly from the controller´s interface
- safety switching device for limiting the pressure
- high and low pressure safety valve
- liquid line shut-off device (function performed by electronic expansion valve with ultracap)
- non -return valve in compressor´s discharge line integrated in the compressor
- compressor's discharge valve
- liquid line shut-off valve
- refrigerant line sight glass with humidity indicator
- drier filter with replaceable cartridge
- economizers on the following models:
  1902 (K, SL-CA); 1922 (K; SL-K; E; SL-E); 2202 (SL-K); 2722 (all versions); 3152 (all versions); 4822 (all versions); 5412 (all versions); 6022 (K, SL-K); 7213 (K, SL-K); 7223 (K, SL-K)

2.6 Compressor
CSC screw-compressors designed according to Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A. specifications and for its exclusive use.
Semi-hermetic screw compressors with 2 five- and six-lobe rotors: the five-lobe rotor is splined directly onto the motor (nominal speed 2950 rpm) without the use of interposed gears.
The bearings provided along the rotor axis are housed in a separate chamber, isolated from the compression chamber. Made of carbon steel, the bearings are granted for a lifetime of 150.000 hours.
Each compressor is provided with an inlet for refrigerant injection (for the extension of operating limits) and the use of the economizer (for the output capacity and efficiency's increase).
Optimized lubrication guarantees oil´s distribution between mechanical parts, without using an oil pump. The innovative oil management valve greatly enhances the lubrication system by reducing the oil quantity and allowing a remarkable increase of the compressor efficiency at partial load. The built-in oil separator has 3 stages of separation, and a 10 mm stainless steel mesh filter ensures the constant presence of oil inside.
Innovative mechanic design with inner slider, managed according to specific proprietary parameters, for the variation of Vi depending on the different operating conditions. This allows to adjust the cooling capacity of the compressor from 100% to 40% (data referred to the operating conditions: 7°C of leaving water temperature, 35°C of outdoor air temperature) always achieving maximum efficiency, even in case of considerable load partialization.
The two pole motors are fitted as standard with electric devices to limit the absorbed current during compressor start-up, and with empty start-up. Each compressor is fitted with manual-reset motor thermal protection, delivery gas temperature and oil level controls and an electric resistance for the carter´s heating while the compressor is stopped. A check valve fitted on the refrigerant delivery line prevents the rotors from reversing after stopping. On-off cocks on the delivery line of each compressor to isolate the refrigerant charge in the heat exchanger when required.



2.7 Plant side heat exchanger
Dry expansion type shell and tube heat exchanger; it acts as an evaporator with refrigerant flow inside the pipes and water flow on the shell side. Fully developed and manufactured by Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A., the heat exchanger is a single pass type to provide almost perfect countercurrent heat exchange. The water flow on the shell side is fitted with baffles to increase turbulence and therefore the efficiency of exchange. The steel shell has insulation lining made of flexible closed cells elastomeric foam (thermal conductivity 0.033W/mK at 0°C) coupled with 3 mm layer of crosslinked PE foam with a surface film of embossed PE for a total thickness of 9 mm. The tube nest is manufactured using copper tubes with internal grooves to improve heat exchange and each pipe is mechanically expanded onto the tube plates. The heat exchanger is fitted with a differential pressure switch which controls the flow of water when the unit is working, in this way preventing the formation of ice inside; when pumps stop, the antifreeze control is up to an electrical resistance. The heat exchanger is made in compliance with PED standard work pressure requisites. Upon request, the heat exchanger can be supplied AS1210 compliant or with the SafeWork NSW certificate, depending on the size. For some sizes (versions K, SL-K: 5412, 6002, 6022; versions CA, SL-CA: 4822, 5412), the AS1210 heat exchanger has another trademark.

2.8 Source side heat exchanger
Microchannel coils ideally positioned on a "V" block 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.
Channel small section favor refrigerant fluid turbulence, which enhances the heat exchange. Tube geometry maximize the surface touched by the air, thus allowing compact dimension and refrigerant charge reduction.

2.9 Fan section source side
Axial electric fans, protected to IP 54 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.
6-pole electric motor with built-in thermal protection. Variable Speed Device (DVVF) for controlling condensation by adjusting the speed of rotation with voltage steps (auto-transformer), fitted with a ventilation distribution system in case of external air low temperature. In conformity with the adjustment logic, each condenser circuit has a totally independent ventilation system.

2.10 Super Low noise version features
The Super Low noise units (versions SL-K, SL-CA, SL-E) feature:
- Condensing section larger than the corresponding standard version's one (version SL-E excluded)
- Reduced fan speed (the speed is automatically increased in case of particularly tough environmental conditions).
- Compressor enclosure with a special soundproofing insulation (multilayer lining of polyurethane foam and sound-insulating gaiter, total thickness 30 mm)
- Covering of the exposed pipes between the V-blocks with painted metal sheets with a special soundproofing insulation (multilayer lining of polyurethane foam and sound-insulating gaiter, total thickness 30 mm)
- If the hydronic is present, the pump enclosure is acoustically insulated by a 30 mm thick lining of polyester fibres (Fiberform)

2.11 Electrical and control panel

Electrical and control panel built to EN60204-1 and EC204-1 standards, complete with:
- general door lock isolator
- control circuit transformer
- IP44 XW protection
- power circuit with electric bus bar distribution system
- spring-type control circuit terminal board
- forced ventilation of the electrical board
- phases sequence control
- relays for voltage monitoring
- fuses and contactors for compressors and fans
- compressors protection with internal thermal overload
- electronic controller
- remote ON/OFF terminals
- terminals for cumulative alarm block
- Power supply 400V/3ph/50Hz
- Part-winding compressor start-up for sizes from 1502 to 1922 versions K, SL-K; from 1502 to 1902 versions CA, SL-CA; from 1502 to 1922 versions E, SL-E. Star-delta start-up for all other sizes.

2.12 Certification and applicable directives
The unit complies with the following directives and relative amendments:
- EUROVENT Certification program
- CE Declaration of conformity certificate for the European Union
- EAC Product quality certificate for Russian Federation
- M&I Product quality certificate for Australia and New Zealand
- Machine directive 2006/42/EC
- PED Directive 2014/68/EC
- Low Voltage directive 2006/95/EC
- ElectroMagnetic compatibility directive 2004/108/EC
- ErP Directive 2009/125/EC
- ISO 9001 Company´s Quality Management System certification
- ISO 14001 Company´s Environmental Management System certification

2.13 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.

2.14 Electronic control W3000 TE
The W3000TE controller offers advanced functions and algorithms.
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 and the pumps (if present) and display and reset the possible alarms. In addition to or as an alternative, the Touch interface, with a 7” WVGA colour display and a front USB port, or the Large keyboard, with a wide LCD display and led icons, are available. The temperature control is characterized by the continuous capacity modulation, based on PID algorithms with dynamic neutral zone related to the leaving water temperature. The diagnostics comprises a complete alarm management system, with the “black-box” (via PC) and the alarm history display (via user interface or also PC) for enhanced analysis of the unit operation.
Optional proprietary devices can perform the adjustment of the resources in systems made of several units. Consumption metering and performance measurement are possible as well. 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, LonWorks. Compatibility with the remote keyboard (up to 8 units). The programmable timer manages a weekly schedule organized into time bands to optimise unit performance by minimising power consumption during periods of inactivity. Up to 10 daily time bands can be associated with different operating set points. As an option (VPF package), the modulation of capacity is integrated with the modulation of the water flow, by means of inverter and dedicated resources for the hydraulic circuit.

2.15 Versions
/K - Key efficiency
Key efficiency units that grant the best cooling capacity/footprint ratio.

/CA - High efficiency
High efficiency units for the minimum investment payback time. High performing heat exchangers and generous heat exchanger's surfaces.

/E - Very high efficiency
Very high efficiency units for the minimum investment payback time. High performing heat exchangers and generous heat exchanger's surfaces
The oversized condensing section ensures an appropriate heat exchange even in case of extremely high outdoor air temperature.

/SL-K - Super low noise, standard efficiency
Key efficiency units that grant the best cooling capacity/footprint ratio.
This version features a special soundproofing for the compressor compartment and the pumps (if present), a reduced fan speed and an oversized condensing section.
The fan speed is automatically increased in case of particularly tough environmental conditions.

/SL-CA - Super low noise, high efficiency
High efficiency units for the minimum investment payback time. High performing heat exchangers and generous heat exchanger's surfaces.
This version features a special soundproofing for the compressor compartment and the pumps (if present), a reduced fan speed and an oversized condensing section.
The fan speed is automatically increased in case of particularly tough environmental conditions.

/SL-E - Super low noise, very high efficiency
Very high efficiency units for the minimum investment payback time. High performing heat exchangers and generous heat exchanger's surfaces
The oversized condensing section ensures an appropriate heat exchange even in case of extremely high outdoor air temperature.
This version features a special soundproofing for the compressor compartment and the pumps (if present) and a reduced fan speed.
The fan speed is automatically increased in case of particularly tough environmental conditions.

2.16 Configurations
- , standard unit
Standard unit for production of chilled water

/D, unit with partial heat recovery

UNIT STANDARD COMPOSITION

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.

/R, unit with total heat recovery
Unit for the production of chilled water, with a dedicated heat exchanger refrigerant/water for the condensation heat reclaim. The heat reclaim is managed to reach the set-point. This function is used for air treatment in applications with AHU or for domestic hot water production together with an auxiliary boiler.

3.1 ACCESSORIES

ACCESSORIES	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
1560 **POWER SUPPLY CONFIGURATION**			
1561 DOUBLE POWER SUPPLY (ATS)	An ATS (Automatic Transfer Switch) is installed within the electrical board. The device automatically switches the electrical load between a principal power supply (i.e. mains) and an auxuliary power supply (i.e. backup generator). The ATS automatically senses if one of the sources has lost or gained power. When an outage occurs in the principal power supply, the switch autonomously switches over to the secondary line. When the main line becomes available again the supply is restored to this line. It is possible to set the line priority and frequency of checking.	It enhances system's redundancy and reliability. Reduces unit's downtime in case of mains power outage.	ALL
1562 DOUBLE P.SUPPLY (MOTOR. CH.OVER)	A motorized changeover is installed within the electrical board. The device switches the electrical load between a principal power supply (i.e. mains) and an auxuliary power supply (i.e. backup generator). The changeover is with remote control (i.e. signal of generator start up).	It enhances system's redundancy and reliability. Reduces unit's downtime in case of mains power outage.	ALL
1020 **REGULATIONS**			
1015 HEAT EXCHANGERS NSW CERTIFIED	Heat exchangers with SafeWork NSW certificate		ALL
1017 UNIT PED-UDT COMPLIANT	Unit PED-UDT compliant for Polish market		ALL
1019 HEAT EXCHANGERS AS1210 CERTIFIED	Heat exchangers AS1210 compliant (Australia Standard)		ALL
380 **NUMBERED WIRING**			
381 NUMBERED WIRING ON EL. BOARD	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
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
3300 **COMPRESSOR REPHASING**			
3301 COMPR.POWER FACTOR CORR.	Capacitors on the compressors' power inlet line.	The unit's average cos(phi) increases.	ALL
1510 **SOFT-STARTER**			
1511 UNIT WITH SOFT-START	Electronic device adopted to manage the inrush current.	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
1513 UNIT WITH 3-PHASE SOFT-START	Electronic device adopted to manage the inrush current. The device controls the 3 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

ACCESSORIES

ACCESSORIES	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
3410 **AUTOMATIC CIRCUIT BREAKERS**			
3411 AUTOM.CIRC.BREAKERS FOR COMPR.	Over-current switch on the compressors	In case of overcurrent allows resetting of the switch without the replacement of relative fuses.	ALL
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
3600 **ON/OFF COMPRESSOR 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
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
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
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
6162 REMOTE SIGNAL DOUBLE SP	Allows to activate the Energy Saving set-point.	Allows to change the operating set-point according to a remote switch	ALL
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
6180 **REMOTE RECOVERY COMMAND**			
6181 ON/OFF REMOTE RECOVERY SIGNAL	Digital input (voltage free)	Relay to remotely control the operation of the total heat recovery option.	ALL
1440 **USER INTERFACE**			
1442 KIPlink +7 INCH TOUCH SCREEN	In addition to KIPlink, the innovative user interface based on WiFi technology, the unit is equipped with the Touch interface, with a 7” WVGA colour display and a front USB port (WARNING: with outdoor temperature below 0°C the display response time may visibly increase).		ALL
1444 KIPlink + LARGE KEYBOARD	In addition to KIPlink, the innovative user interface based on WiFi technology, the unit is equipped with the Large keyboard with a wide LCD display and led icons.		ALL
6194 LARGE KEYBOARD	The unit is equipped with the Large keyboard with a wide LCD display and led icons.		ALL

ACCESSORIES

ACCESSORIES	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
6195 7 INCH TOUCH SCREEN	The unit is equipped with the Touch interface, with a 7" WVGA colour display and a front USB port (WARNING: with outdoor temperature below 0°C the display response time may visibly increase).	The touch-screen's technology is characterized by an easy-to-access data, and it allows an effective graphical representation of the main figures protecting the access through 3 privilege levels.	ALL
6196 KIPlink	The unit is equipped with KIPlink, the innovative user interface based on WiFi technology		ALL
3420 **LIGHTS ON ELECTRIC BOARD**			
3421 LIGHTS ON ELECTRIC BOARD	Electrical board equipped with lights.	Facilitate electrical board maintainance interventions.	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
5920 **MANAGEMENT & CONTROL SYSTEMS**			
5921 NETWORK ANALYZER FOR DEMETRA	This option includes all following devices on-board the unit panel: - network analyzer 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 an external device for energy metering (DEMETRA - see dedicated manual).	ALL
5922 ClimaPRO ModBUS RS485 - MID	This option includes all following devices on-board the unit panel: - MID certified network analyzer operating on ModBUS over RS-485 - Current transformers - W3000TE controller - 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_{φ}), 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 all following devices on-board the unit panel: - network analyzer operating on BACnet over IP - Current transformers - W3000TE controller - 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_{φ}), 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

ACCESSORIES

ACCESSORIES	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
5924 ENERGY METER FOR BMS	This option includes all 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
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
4502 FAST RESTART (UPS INCLUDED)	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 option includes an electric device capable of keeping the controller power supply uninterrupted during a power failure. For duration of the UPS longer then 30 mininutes, please contact our sales department.	ALL
1570 **POWER SOCKET**			
1571 POWER SOCKET 230V MAX 500VA	230V power socket in the electrical board, CEE 7/3 type (Schuko). The maximum power available is 500VA.	It allows to supply power to small electric/electronic devices (ligths, notebook, tablet, etc.) during maintenance operation.	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
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. The efficiency is increased by apporximately: +1% of EER and +4/5% of ESEER. The noise reduces proportionally to the unit's partialization.	ALL
1950 **HIGH TEMPERATURE DEVICE**			
1955 KIT HT	Kit to increase the unit's operating range.	Full load operation is guaranteed up to over 50°C of outdoor temperature (the limit depends on the unit version, further details are available in the operating limit section). In case of outdoor air temperature higher than 53°C, some additional cooling equipment for the electrical panel could be necessary (please refer to our sales department for assessment and quotation).	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

ACCESSORIES

ACCESSORIES	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
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
1900 **COMPRESSOR SUCTION VALVE**			
1901 COMPRESSOR SUCTION VALVE	Shut-off valve on compressor's suction circuit.	Simplifies maintenance activities	ALL
870 **OPERATION RANGE UNIT**			
871 NEGATIVE FLUID TEMPERATURE	Compressor's liquid injection	It permits the compressor works properly with high compression efficiency with negative evaporator leaving temperature	ALL
2880 **EVAPORATOR WATER DELTA 10°C**			
2881 EVAPORATOR FOR DELTA T>8°C	Evaporator dedicated to work with low primary circuit waterflow.	The heat exchange takes place under efficient conditions and the favorable sizing of primpary pumps allows a considerable pumping energy saving.	ALL
2630 **INSULATION ON EXCHANGERS**			
2631 DOUBLE INSULATION ON EXCHANGERS	Thermal insulation in closed-cell flexible elastomeric foam (FEF) of 16 mm coupled with a 3 mm layer of reticulated foam in PE and an exterior embossed finishing PE film. This option is mandatory if the unit is supposed to work with outdoor temperature below -10°C.	Reduces heat losses and prevent from condensate problems.	ALL
2633 DOUBLE INSULATION ON EXCH+PIPES+PUMPS	Thermal insulation on heat exchangers in closed-cell flexible elastomeric foam (FEF) of 16 mm coupled with a 3 mm layer of reticulated foam in PE and an exterior embossed finishing PE film. Thermal insulation on pumps and pipes in closed-cell reticulated foam in PE of 20 mm. This option is mandatory if the unit is supposed to work with outdoor temperature below -10°C.	Reduces heat losses and prevent from condensate problems.	ALL
1800 **EVAPORATOR WATER FLOW SWITCH**			
1801 EVAPORATOR WATER FLOW SWITCH	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
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.	Provide a very high resistance against corrosion, also in very aggressive environment. 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.climaveneta.com, or contact our sales department.	ALL
879 COPPER/ALUMINIUM COILS	Finned coil heat exchanger made from suitably-spaced copper tubes and aluminum fins designed to ensure maximum heat exchange efficiency.	Provide a good resistance against corrosion. 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.climaveneta.com, or contact our sales department.	ALL

ACCESSORIES

ACCESSORIES	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
881 Cu/Cu EXTERNAL COIL	Finned coil heat exchanger made from suitably-spaced copper tubes and fins designed to ensure maximum heat exchange efficiency.	This type of coil is not subject to galvanic corrosion, being made from just one material. 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.climaveneta.com, or contact our sales department.	ALL
894 Cu PIPES/PREPAINTED ALL. FINS	Finned coil heat exchanger made from copper tubes and aluminum fins with chemical cleaning treatment to remove impurities, and then coated with protective paint with the following characteristics: - fins treated with protective polyester resin paint; - over 1000 hours of salt spray protection as per ASTM B117 (fins without cross and protected edges); - excellent resistance to UV rays.	Provide a good resistance against corrosion. 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.climaveneta.com, or contact our sales department.	ALL
895 FIN GUARD SILVER TREATM	Copper-aluminum heat exchanger coils with polyurethane paint Fin Guard Silver SB. Coil completely coated with a protective layer of polyurethane paint with the following characteristics: - polyurethane paint with metallic emulsion; - over 3000 hours of salt spray protection as per ASTM B117; - excellent resistance to UV rays; - high-pressure spray painting system.	Provide a very high resistance against corrosion, also in very aggressive environment. 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.climaveneta.com, or contact our sales department.	ALL
840 **DEVICE FOR LOW AIR TEMPERATURE**			
813 LOW TEMP. DEVICE DBA	The device allows the partial flood of the condensing coils to reduce the heat exchange surface. It includes the liquid recivers and the valves and devices to manage the flooding.	Unit's operation is guaranteed for extremely low outdoor temperature (the limit depends on the unit version, further details are available in the operating limit section).	ALL
4700 **EV - HYDRONIC MODULE**			
4701 EV - NO PUMPS, NO CONTACTS	Evaporator hydronic module, compatible with constant flow control. The unit is provided without any water flow regulation device.	Constant water flow is to be provided by others.	ALL
4702 EV - RELAY 1 PUMP (ON/OFF)	Evaporator hydronic module, compatible with constant flow control. The unit is provided with 1 relay to control the activation of 1 external pump via single ON/OFF signal.	The hydronic module allows to control the external pumps with the unit controller logic.	ALL
4703 EV - RELAY 2 PUMPS (ON/OFF)	Evaporator hydronic module, compatible with constant flow control. The unit is provided with 2 relays to control the activation of 2 external pumps via double ON/OFF signal. The pumps are controlled in duty/standby, with running hours equalization and changeover on device failure.	The hydronic module allows to control the external pumps with the unit controller logic.	ALL
4708 EV - 2 PUMPS 4P LH (FIX SPEED)	Evaporator hydronic module, compatible with constant flow control. The unit is provided with 2 fixed speed pumps, with 4-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

ACCESSORIES

ACCESSORIES	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
4709 EV - 2 PUMPS 4P HH (FIX SPEED)	Evaporator hydronic module, compatible with constant flow control. The unit is provided with 2 fixed speed pumps, with 4-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
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 allows to control 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 allows to control the external pumps with the unit controller logic.	ALL
4719 EV - 2 PUMPS 4P LH (VAR SPEED)	Evaporator hydronic module, compatible with constant or variable flow control. The unit is provided with 2 variable speed pumps, with 4-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
4721 EV - 2 PUMPS 4P HH (VAR SPEED)	Evaporator hydronic module, compatible with constant or variable flow control. The unit is provided with 2 variable speed pumps, with 4-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

ACCESSORIES

ACCESSORIES	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

ACCESSORIES

ACCESSORIES	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
4864 EV - VPF (plant DP trans excl)	Evaporator water flow control (plant primary circuit): variable flow (delta P control). Only for single unit systems. 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 (plant DP trans incl)	Evaporator water flow control (plant primary circuit): variable flow (delta P control). Only for single unit systems. 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
4866 EV - VPF MULTI-UNIT SYSTEM	Evaporator water flow control (plant primary circuit): variable flow (delta P control). Only for multi-unit systems. 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 or ClimaPRO) 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

ACCESSORIES

ACCESSORIES	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
4867 EV - VPF.D	Evaporator water flow control (plant primary circuit): variable flow (delta T control). Only for single unit systems. 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 MULTI-UNIT SYSTEM	Evaporator water flow control (plant primary circuit): variable flow (delta T control). Only for multi-unit systems. 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 or ClimaPRO) 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
2910 **HYDRAULIC CONNECTIONS**			
2911 FLANGED HYDRAULIC CONNECTIONS	Grooved coupling with flanged counter-pipe user/source side.		ALL
3370 **D - HYDRONIC MODULE**			
3371 D - RELAY 1 PUMP (ON/OFF)	Desuperheater hydronic module. The unit is provided with 1 relay to control the activation of 1 external pump via single ON/OFF signal.	The hydronic module allows to control the external pumps with the unit controller logic. The partial heat recovery pumps are activated only when heat recovery is actually possible: compressors on, hot storage tank temperature lower than set-point and than compressor outlet gas temperature. The option minimizes pump consumption.	ALL
4800 **R - HYDRONIC MODULE**			
4801 R - NO PUMPS, NO CONTACTS	Total heat recovery exchanger hydronic module, compatible with constant flow control. The unit is provided without any water flow regulation device.	Constant water flow is to be provided by others.	ALL
4802 R - RELAY 1 PUMP (ON/OFF)	Total heat recovery exchanger hydronic module, compatible with constant flow control. The unit is provided with 1 relay to control the activation of 1 external pump via single ON/OFF signal.	The hydronic module allows to control the external pumps with the unit controller logic.	ALL

ACCESSORIES

ACCESSORIES	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
4803 R - RELAY 2 PUMPS (ON/OFF)	Total heat recovery exchanger hydronic module, compatible with constant flow control. The unit is provided with 2 relays to control the activation of 2 external pumps via double ON/OFF signal. The pumps are controlled in duty/standby, with running hours equalization and changeover on device failure.	The hydronic module allows to control the external pumps with the unit controller logic.	ALL
4880 **R - PRIMARY FLOW CONTROL**			
4881 R - CONSTANT FLOW	Total heat recovery exchanger 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: 4801, 4802, 4803, 4804, 4805, 4806, 4807, 4808, 4809, 4811, 4812 - 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
2430 **PIPING KIT ANTIFREEZE HEATER**			
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.	It protects the unit against ice formation on its hydraulic components.	ALL
2680 **WATER CONNECTIONS ORIENTATION**			
2685 EVAP. CONNECTION RIGHT HAND SIDE			ALL
2686 EVAP. CONNECTION LEFT HAND SIDE			ALL
2340 **UNIT ENCLOSURE**			
2301 COMPRESS.ACOUSTICAL ENCLOSURE	Enclosure made from hot galvanised metal plate and painted with epoxy powder coat. The acoustic insulation availability depends on unit model, see the dedicated description in "Accessories notes".	It reduces the noise emissions and improves aesthetics.	ALL
2315 NOISE REDUCER	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 (for the precise performance of the unit with the Noise Reducer kit please refer to the selection software ELCA Studio).	ALL
2020 **ANTI-INTRUSION GRILLS**			
2021 ANTI-INTRUSION GRILLS	Anti-intrusions grills	Avoid the intrusion of solid bodies into the unit's structure.	ALL
2100 **ANTIVIBRATION MOUNTING**			
2101 RUBBER TYPE ANTIVIBR.MOUNTING			ALL
2102 SPRING TYPE ANTIVIBR.MOUNTING			ALL
1970 **LONG DISTANCE TRANSPORTATION**			
1971 REINFORCING BARS	Bars used to reinforce the structure	Improve resistance during long transportation	ALL

ACCESSORIES

ACCESSORIES	DESCRIPTIONS	BENEFITS	AVAILABLE FOR MODELS
9970 PACKING			
9966 NYLON PACKING	Unit covered with nylon		ALL
9979 CONTAINER PACKING	Unit provided with container slides and covered with nylon		ALL

Additional information - IMPORTANT -

1561 - Double power supply (ATS)
In some units, the transfer switch requires an enlarged electrical board. This entails a unit length increase. For further information, please contact our sales department.

1562 - Double power supply (motorized changeover)
These accessories entail the substitution of the standard general lock door isolator with a door microswitch that switches the changeover to 0 position (open).
In some units, the transfer switch requires an enlarged electrical board. This entails a unit length increase. For further information, please contact our sales department.

1015 - Heat exchangers NSW certified
1019 - Heat exchangers AS1210 certified
The certification is available for the evaporator only. If the certification is required also for the recovery heat exchanger (versions /D and /R), please contact our sales department.

1511 - Unit with soft-start
The device has an effect on 2 phases.

1511 - Unit with soft-start
1513 - Unit with 3-phase soft-start
The accessory requires the use of automatic circuit breakers on the compressors.
Please select one of the following accessories:
3411 - Automatic circuit breakers for compressors
3412 - Automatic circuit breakers on loads.

3431 - Refrigerant leak detector
3433 - Refrigerant leak detector + compressors off
The accessory requires the compressor enclosure.
The compressor enclosure is present as per standard in all the silenced units (versions: SL-K; SL-CA; SL-E).
For the not-silenced units (versions: K; CA; E), please select one of the following accessories:
2301 - Compressor acoustical enclosure
2315 - Noise Reducer.

4501 - Fast restart (UPS excluded)
In some units, the transfer switch requires an enlarged electrical board. This entails a unit length increase. For further information, please contact our sales department.

4502 - Fast restart (UPS included)
The following tables show the first compressor start-up time and ramp-up time for 100% cooling capacity.
The time frames shown in Table 1 and 2 are defined by the power restoration.

Table 1 - First compressor start-up time

Standard unit (1)	Unit with fast restart (1)
5’ 40’’	25’’

(1) Minimum time from its previous start-up and minimum off-time need to be fulfilled to start the compressor.

Table 2 - Ramp-up time for 100% cooling capacity

Compressor number	Standard unit (2)(3)	Unit with fast restart (2)(3)
1	8’ 40’’	2’ 50’’
2	11’ 50’’	3’ 00’’
3	15’ 00’’	3’ 10’’

(2) Reference conditions: plant (side) cooling exchanger water (in/out) 12°C / 7°C; Source (side) heat exchanger air (in) 35°C.
(3) Minimum time from their previous start-up and minimum off-time need to be fulfilled to start the compressors.

With the fast restart, each compressor can only start after 15’ from its previous start-up and 1’ 30’’ of off-time.
Without the fast restart, each compressor can only start after 15’ from its previous start-up and 5’ 00’’ of off-time.

The fast restart can be activated only 2 times every 24 hours.
It is possible to request the fast restart activation for 4 times every 24 hours (in this case the minimum off-time of each compressor will increase from 1’ 30’’ to 2’ 30’’). For further information, please contact our sales department.

When the maximum number of fast restarts in a single 24 hour period is reached, the fast restart function is disabled and other potential restarts will follow the standard timing. Once the 24 hours have passed, the fast restart function is automatically enabled again.

In some units, the transfer switch requires an enlarged electrical board. This entails a unit length increase. For further information, please contact our sales department.

1955 - Kit HT
The accessory could entail a unit length increase. For further information, please contact our sales department.

808 - EC fans
These fans are suitable to operate up to 46°C of outdoor temperature.
In case of higher temperatures, fans with oversized motors must be used. For the quotation of these components, please contact our sales department.

1801 - Evaporator water flow switch
The accessory is supplied loose.

2301 – Compressor acoustical enclosure
Soundproofing insulation characteristics: 30 mm thick Fiberform (polyester fibres).
Sound power reduction: -2 dB(A).

2315 - Noise Reducer
Soundproofing insulation characteristics: 30 mm thick Fiberform (polyester fibres).
Fan speed reduction.
Sound power reduction: -7 dB(A).

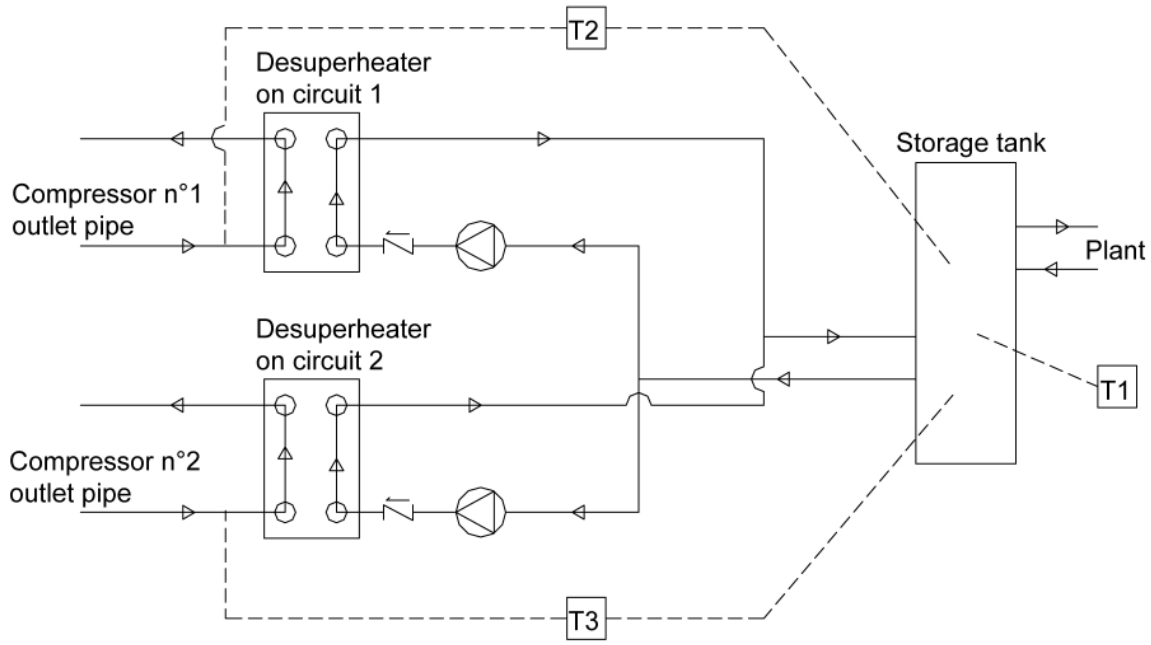
4708 - EV - 2 POMPE 4P BP (FIX SPEED)
4709 - EV - 2 POMPE 4P AP (FIX SPEED)
4711 - EV - 2 POMPE 2P BP (FIX SPEED)
4712 - EV - 2 POMPE 2P AP (FIX SPEED)
4719 - EV - 2 POMPE 4P BP (VAR SPEED)
4721 - EV - 2 POMPE 4P AP (VAR SPEED)
4722 - EV - 2 POMPE 2P BP (VAR SPEED)
4723 - EV - 2 POMPE 2P AP (VAR SPEED)
For units with heat recovery (versions /D /R), the pump group may increase the unit's length by 1250 mm. For further information, please contact our sales department.

4864 - EV - VPF (plant DP trans excl)
4865 - EV - VPF (plant DP trans incl)
4866 - EV - VPF multi-unit system
With these accessories, the minimum leaving water temperature admitted is 5°C.

4867 - EV - VPF.D
4868 - EV - VPF.D multi-unit system
With these accessories, the minimum leaving water temperature admitted is 5°C.

3371 - D - Relay 1 pump (ON/OFF)
The operating diagram of the device is provided below.

Figure 1 - Operating diagram of the "partial heat recovery control" device for a unit with two refrigerant circuits.



Note: the thermostats T1, T2 and T3 are supplied cabled. It is the customer's responsibility to place the temperature probes in the storage.

Chiller Plant Control with Active Optimization System

ClimaPRO System Manager

ClimaPRO System Manager represents the state-of-the-art platform for chiller plant management and control.
ClimaPRO ensures to actively optimize the entire chiller plant by managing and adjusting each component directly involved in the production and the distribution of the heating and the cooling energies, therefore involving chillers and heat pumps, pumping groups as well as the source-side devices like, for example, the cooling towers.

In particular, ClimaPRO measures in real-time all the operating variables from the field, for each individual device and each of the main system branche, by using serial communication lines as well as dedicated analogue signals.

The acquired data are then compared with the design data of each single unit at any different working conditions, thus allowing to implement control strategies based on dynamic algorithms which take into account the real operating conditions.

On the basis of these values, an advanced diagnostic module also allows to assess the level of efficiency for each individual unit, translating data into easy-to-read information in order to simplify and optimize the maintenance activities.

The “Chart Builder” software module allows to display the trends of the main operating variables. The “Reporting” module allows to send reports to selected users, including data and system’s status of the main devices as well as to perform calculation of the energy indexes for each single unit and for the entire chiller plant.

The accessibility to ClimaPRO System Manager is ensured by an integrated web server that makes it visible from any computer equipped with a web browser, either locally or remotely.

4.1 GENERAL TECHNICAL DATA FR-G05-Z /K

[SI System]

FR-G05-Z /K			1502	1702	1902	1922	2202	2602	2652	2702	2722	3152
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	400/3/50	400/3/50	400/3/50
PERFORMANCE												
COOLING ONLY (GROSS VALUE)												
Cooling capacity	(1)	**kW**	**299,6**	**325,8**	**383,2**	**432,0**	**480,6**	**533,4**	**558,7**	**600,7**	**658,3**	**725,4**
Total power input	(1)	kW	104,7	122,0	136,1	149,4	176,5	192,9	202,0	212,1	244,6	260,4
EER	(1)	kW/kW	2,862	2,670	2,816	2,892	2,723	2,765	2,766	2,832	2,691	2,786
ESEER	(1)	kW/kW	4,170	4,160	4,210	4,230	4,170	4,230	4,250	4,220	4,210	4,200
COOLING ONLY (EN14511 VALUE)												
Cooling capacity	(1)(2)	**kW**	**298,9**	**324,9**	**382,1**	**430,5**	**479,3**	**531,7**	**557,1**	**598,8**	**656,3**	**722,9**
EER	(1)(2)	kW/kW	2,830	2,640	2,780	2,850	2,700	2,730	2,740	2,800	2,660	2,750
ESEER	(1)(2)	kW/kW	4,050	4,030	4,060	4,060	4,030	4,070	4,110	4,060	4,060	4,030
Cooling energy class			C	D	C	C	C	C	C	C	D	C
COOLING WITH PARTIAL RECOVERY												
Cooling capacity	(3)	kW	310,9	338,0	397,6	448,2	498,6	553,4	579,6	623,2	682,9	752,6
Total power input	(3)	kW	101,3	118,0	131,7	144,6	170,7	186,6	195,4	205,2	236,6	251,9
Desuperheater heating capacity	(3)	**kW**	**86,71**	**102,1**	**113,0**	**123,2**	**147,3**	**160,3**	**168,5**	**175,8**	**204,8**	**217,2**
COOLING WITH TOTAL HEAT RECOVERY												
Cooling capacity	(4)	kW	309,2	346,6	393,8	433,7	508,6	556,1	589,5	622,3	683,0	757,9
Total power input	(4)	kW	89,09	101,8	115,4	129,2	147,4	163,3	170,6	181,0	200,4	218,1
Recovery heat exchanger capacity	(4)	**kW**	**393,0**	**442,3**	**502,2**	**555,1**	**647,1**	**709,6**	**749,8**	**792,4**	**871,3**	**962,9**
EXCHANGERS												
HEAT EXCHANGER USER SIDE IN REFRIGERATION												
Water flow	(1)	l/s	14,33	15,58	18,32	20,66	22,98	25,51	26,72	28,73	31,48	34,69
Pressure drop	(1)	kPa	23,9	28,3	33,6	42,7	32,3	39,8	34,9	40,3	38,5	46,8
PARTIAL RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(3)	l/s	4,186	4,928	5,455	5,946	7,112	7,737	8,133	8,485	9,886	10,48
Pressure drop	(3)	kPa	33,4	46,3	56,7	33,5	47,9	56,6	42,6	33,6	45,6	38,5
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(4)	l/s	18,97	21,35	24,24	26,80	31,24	34,25	36,19	38,25	42,06	46,48
Pressure drop	(4)	kPa	31,2	29,5	29,7	28,9	31,6	33,5	37,4	36,0	39,0	25,2
REFRIGERANT CIRCUIT												
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	2
Number of capacity steps		N°	0	0	0	0	0	0	0	0	0	0
No. Circuits		N°	2	2	2	2	2	2	2	2	2	2
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	20	20	20	20	20	20	20	20	20	20
Refrigerant			R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	51,0	54,0	63,0	72,0	79,0	87,0	92,0	101	108	120
Oil charge		kg	30,0	30,0	30,0	30,0	44,0	41,0	38,0	38,0	38,0	49,0
Rc (ASHRAE)	(5)	kg/kW	0,17	0,17	0,17	0,17	0,17	0,16	0,17	0,17	0,17	0,17
FANS												
Quantity		N°	4	4	5	6	6	7	7	8	8	9
Air flow		m³/s	21,27	21,27	26,58	31,90	31,90	37,22	37,22	42,53	42,53	47,85
Fans power input		kW	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90
NOISE LEVEL												
Sound Pressure	(6)	dB(A)	67	67	67	68	68	68	68	68	70	69
Sound power level in cooling	(7)(8)	dB(A)	99	99	99	100	100	100	100	100	102	102
SIZE AND WEIGHT												
A	(9)	mm	2750	2750	4000	4000	4000	5250	5250	5250	5250	6500
B	(9)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(9)	kg	3160	3170	3720	3810	4610	5060	5060	5130	5520	6450

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA FR-G05-Z /K

[SI System]

FR-G05-Z /K			3602	3902	4202	4502	4802	4812	4822	5412	6002	6022
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	400/3/50	400/3/50	400/3/50
PERFORMANCE												
COOLING ONLY (GROSS VALUE)												
Cooling capacity	(1)	**kW**	**802,7**	**871,9**	**926,5**	**982,4**	**1021**	**1059**	**1146**	**1176**	**1239**	**1303**
Total power input	(1)	kW	278,6	301,8	322,7	351,1	377,8	362,3	405,4	433,0	443,8	485,7
EER	(1)	kW/kW	2,881	2,889	2,871	2,798	2,702	2,923	2,827	2,716	2,792	2,683
ESEER	(1)	kW/kW	4,180	4,180	4,200	4,180	4,190	4,200	4,230	4,190	4,190	4,220
COOLING ONLY (EN14511 VALUE)												
Cooling capacity	(1)(2)	**kW**	**800,2**	**869,2**	**923,3**	**979,4**	**1018**	**1055**	**1142**	**1172**	**1235**	**1298**
EER	(1)(2)	kW/kW	2,850	2,850	2,830	2,770	2,670	2,880	2,790	2,690	2,760	2,650
ESEER	(1)(2)	kW/kW	4,020	4,020	4,030	4,030	4,020	4,030	4,050	4,040	4,030	4,040
Cooling energy class			C	C	C	C	D	C	C	D	C	D
COOLING WITH PARTIAL RECOVERY												
Cooling capacity	(3)	kW	832,8	904,6	961,2	1019	1059	1099	1189	1220	1286	1351
Total power input	(3)	kW	269,5	292,0	312,2	339,6	365,4	350,6	392,2	418,7	429,3	469,8
Desuperheater heating capacity	(3)	**kW**	**231,7**	**250,7**	**267,7**	**293,0**	**316,9**	**299,7**	**338,1**	**362,7**	**369,0**	**406,4**
COOLING WITH TOTAL HEAT RECOVERY												
Cooling capacity	(4)	kW	842,0	910,9	959,0	1035	1090	1090	1183	1238	1286	1351
Total power input	(4)	kW	237,1	256,2	275,4	293,6	310,9	310,9	338,5	359,1	380,3	408,2
Recovery heat exchanger capacity	(4)	**kW**	**1065**	**1152**	**1218**	**1311**	**1383**	**1383**	**1501**	**1576**	**1643**	**1734**
EXCHANGERS												
HEAT EXCHANGER USER SIDE IN REFRIGERATION												
Water flow	(1)	l/s	38,39	41,70	44,31	46,98	48,82	50,65	54,81	56,25	59,26	62,29
Pressure drop	(1)	kPa	40,9	42,6	48,1	41,8	45,1	48,5	53,3	42,2	46,9	51,8
PARTIAL RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(3)	l/s	11,19	12,10	12,92	14,14	15,30	14,46	16,32	17,51	17,81	19,62
Pressure drop	(3)	kPa	34,1	39,9	45,4	38,4	33,4	29,8	38,0	33,8	34,9	42,4
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(4)	l/s	51,40	55,60	58,79	63,29	66,74	66,74	72,47	76,07	79,33	83,71
Pressure drop	(4)	kPa	30,8	24,0	26,9	26,0	23,1	23,1	27,2	22,5	24,5	27,2
REFRIGERANT CIRCUIT												
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	2
Number of capacity steps		N°	0	0	0	0	0	0	0	0	0	0
No. Circuits		N°	2	2	2	2	2	2	2	2	2	2
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	20	20	20	20	20	20	20	20	20	20
Refrigerant			R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	135	146	155	161	168	174	189	193	208	214
Oil charge		kg	60,0	60,0	60,0	60,0	60,0	60,0	60,0	62,0	64,0	64,0
Rc (ASHRAE)	(5)	kg/kW	0,17	0,17	0,17	0,17	0,17	0,17	0,17	0,17	0,17	0,17
FANS												
Quantity		N°	10	11	12	12	12	14	14	14	16	16
Air flow		m³/s	53,17	58,48	63,80	63,80	63,80	74,43	74,43	74,43	85,07	85,07
Fans power input		kW	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90
NOISE LEVEL												
Sound Pressure	(6)	dB(A)	69	70	70	71	71	71	71	72	73	73
Sound power level in cooling	(7)(8)	dB(A)	102	103	103	104	104	104	104	105	106	106
SIZE AND WEIGHT												
A	(9)	mm	6500	7750	7750	7750	7750	9000	9000	9150	10400	10400
B	(9)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(9)	kg	6940	7440	7560	7790	7820	8250	8370	8660	9200	9310

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA FR-G05-Z /K

[SI System]

FR-G05-Z /K			6303	6903	7203	7213	7223
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE							
COOLING ONLY (GROSS VALUE)							
Cooling capacity	(1)	**kW**	**1401**	**1481**	**1547**	**1654**	**1710**
Total power input	(1)	kW	485,8	535,1	569,7	593,7	619,2
EER	(1)	kW/kW	2,884	2,768	2,715	2,786	2,762
ESEER	(1)	kW/kW	4,190	4,200	4,160	4,200	4,230
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2)	**kW**	**1397**	**1476**	**1543**	**1649**	**1704**
EER	(1)(2)	kW/kW	2,850	2,730	2,690	2,750	2,730
ESEER	(1)(2)	kW/kW	4,030	4,030	4,020	4,040	4,050
Cooling energy class			C	C	D	C	C
COOLING WITH PARTIAL RECOVERY							
Cooling capacity	(3)	kW	1454	1536	1605	1716	1774
Total power input	(3)	kW	470,0	517,6	550,9	574,3	598,9
Desuperheater heating capacity	(3)	**kW**	**403,1**	**447,1**	**478,0**	**496,0**	**518,8**
COOLING WITH TOTAL HEAT RECOVERY							
Cooling capacity	(4)	kW	1453	1563	1659	1723	1768
Total power input	(4)	kW	413,9	448,6	467,1	494,5	506,5
Recovery heat exchanger capacity	(4)	**kW**	**1842**	**1985**	**2098**	**2188**	**2244**
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1)	l/s	67,01	70,81	74,00	79,11	81,79
Pressure drop	(1)	kPa	45,4	50,7	39,0	44,6	51,2
PARTIAL RECOVERY USER SIDE IN REFRIGERATION							
Water flow	(3)	l/s	19,46	21,58	23,07	23,94	25,04
Pressure drop	(3)	kPa	45,6	35,6	33,8	36,4	30,9
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION							
Water flow	(4)	l/s	88,92	95,80	101,3	105,6	108,3
Pressure drop	(4)	kPa	30,7	23,8	26,6	28,9	30,4
REFRIGERANT CIRCUIT							
Compressors nr.		N°	3	3	3	3	3
Number of capacity steps		N°	0	0	0	0	0
No. Circuits		N°	3	3	3	3	3
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	13	13	13	13	13
Refrigerant			R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	236	244	254	273	288
Oil charge		kg	90,0	90,0	90,0	90,0	90,0
Rc (ASHRAE)	(5)	kg/kW	0,17	0,17	0,17	0,17	0,17
FANS							
Quantity		N°	18	18	18	20	20
Air flow		m³/s	95,70	95,70	95,70	106,33	106,33
Fans power input		kW	1,90	1,90	1,90	1,90	1,90
NOISE LEVEL							
Sound Pressure	(6)	dB(A)	73	73	73	73	73
Sound power level in cooling	(7)(8)	dB(A)	106	106	106	106	106
SIZE AND WEIGHT							
A	(9)	mm	11650	11650	11650	12900	12900
B	(9)	mm	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500
Operating weight	(9)	kg	11880	11940	11950	12490	12570

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA FR-G05-Z /SL-K

[SI System]

FR-G05-Z /SL-K			1502	1702	1902	1922	2202	2602	2652	2702	2722	3152
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	400/3/50	400/3/50	400/3/50
PERFORMANCE												
COOLING ONLY (GROSS VALUE)												
Cooling capacity	(1)	**kW**	**288,5**	**333,4**	**381,6**	**418,7**	**476,0**	**518,6**	**556,0**	**578,5**	**663,2**	**716,6**
Total power input	(1)	kW	105,5	117,7	131,2	152,3	168,2	182,0	199,9	216,1	232,1	257,3
EER	(1)	kW/kW	2,735	2,833	2,909	2,749	2,830	2,849	2,781	2,677	2,857	2,785
ESEER	(1)	kW/kW	4,140	4,160	4,190	4,220	4,190	4,250	4,230	4,220	4,180	4,200
COOLING ONLY (EN14511 VALUE)												
Cooling capacity	(1)(2)	**kW**	**287,8**	**332,5**	**380,5**	**417,3**	**474,7**	**517,0**	**554,4**	**576,8**	**661,2**	**714,1**
EER	(1)(2)	kW/kW	2,710	2,800	2,880	2,720	2,800	2,820	2,750	2,650	2,820	2,750
ESEER	(1)(2)	kW/kW	4,020	4,030	4,050	4,050	4,050	4,090	4,090	4,070	4,030	4,030
Cooling energy class			C	C	C	C	C	C	C	D	C	C
COOLING WITH PARTIAL RECOVERY												
Cooling capacity	(3)	kW	299,3	345,9	395,9	434,4	493,8	538,0	576,9	600,2	688,1	743,5
Total power input	(3)	kW	102,0	113,9	126,9	147,3	162,7	176,0	193,3	208,9	224,5	248,8
Desuperheater heating capacity	(3)	**kW**	**89,17**	**98,86**	**109,6**	**128,5**	**141,4**	**152,5**	**168,4**	**182,9**	**194,7**	**217,2**
COOLING WITH TOTAL HEAT RECOVERY												
Cooling capacity	(4)	kW	309,2	348,3	394,0	433,7	496,5	540,8	589,5	622,3	683,0	757,9
Total power input	(4)	kW	89,09	102,4	115,6	129,2	144,3	158,1	170,6	181,0	200,4	218,1
Recovery heat exchanger capacity	(4)	**kW**	**393,0**	**444,6**	**502,7**	**555,1**	**632,2**	**689,4**	**749,8**	**792,4**	**871,3**	**962,9**
EXCHANGERS												
HEAT EXCHANGER USER SIDE IN REFRIGERATION												
Water flow	(1)	l/s	13,80	15,94	18,25	20,02	22,76	24,80	26,59	27,66	31,72	34,27
Pressure drop	(1)	kPa	22,2	29,6	33,3	40,1	31,7	37,6	34,5	37,4	39,1	45,7
PARTIAL RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(3)	l/s	4,304	4,772	5,291	6,201	6,825	7,359	8,130	8,827	9,399	10,48
Pressure drop	(3)	kPa	35,3	43,4	53,3	36,4	44,1	51,2	42,6	36,4	41,2	38,5
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(4)	l/s	18,97	21,46	24,27	26,80	30,52	33,28	36,19	38,25	42,06	46,48
Pressure drop	(4)	kPa	31,2	29,8	38,2	28,9	33,8	35,9	37,4	36,0	39,0	25,2
REFRIGERANT CIRCUIT												
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	2
Number of capacity steps		N°	0	0	0	0	0	0	0	0	0	0
No. Circuits		N°	2	2	2	2	2	2	2	2	2	2
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	20	20	20	20	20	20	20	20	20	20
Refrigerant			R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	51,0	59,0	67,0	72,0	83,0	91,0	97,0	101	116	125
Oil charge		kg	30,0	30,0	30,0	30,0	34,0	38,0	38,0	38,0	38,0	49,0
Rc (ASHRAE)	(5)	kg/kW	0,18	0,18	0,18	0,17	0,18	0,18	0,18	0,18	0,18	0,18
FANS												
Quantity		N°	4	5	6	6	7	8	8	8	10	10
Air flow		m³/s	19,21	24,01	28,81	28,81	33,61	38,41	38,41	38,41	48,02	48,02
Fans power input		kW	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40
NOISE LEVEL												
Sound Pressure	(6)	dB(A)	55	55	56	56	57	57	57	57	57	58
Sound power level in cooling	(7)(8)	dB(A)	87	87	88	88	89	89	89	89	90	91
SIZE AND WEIGHT												
A	(9)	mm	2750	4000	4000	4000	5250	5250	5250	5250	6500	6500
B	(9)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(9)	kg	3420	4160	4230	4230	5200	5560	5580	5620	6610	7080

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA FR-G05-Z /SL-K

[SI System]

FR-G05-Z /SL-K			3602	3902	4202	4502	4802	4812	4822	5412	6002	6022
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	400/3/50	400/3/50	400/3/50
PERFORMANCE												
COOLING ONLY (GROSS VALUE)												
Cooling capacity	(1)	**kW**	**770,8**	**838,7**	**892,9**	**964,9**	**1021**	**1052**	**1137**	**1169**	**1194**	**1289**
Total power input	(1)	kW	283,3	307,1	328,4	349,6	368,2	355,4	396,9	424,6	451,2	478,6
EER	(1)	kW/kW	2,721	2,731	2,719	2,760	2,773	2,960	2,865	2,753	2,646	2,693
ESEER	(1)	kW/kW	4,170	4,190	4,200	4,180	4,200	4,200	4,210	4,180	4,180	4,220
COOLING ONLY (EN14511 VALUE)												
Cooling capacity	(1)(2)	**kW**	**768,6**	**836,2**	**890,0**	**962,1**	**1018**	**1048**	**1133**	**1166**	**1190**	**1285**
EER	(1)(2)	kW/kW	2,690	2,700	2,690	2,730	2,740	2,920	2,820	2,720	2,620	2,660
ESEER	(1)(2)	kW/kW	4,030	4,040	4,030	4,030	4,030	4,030	4,030	4,030	4,020	4,040
Cooling energy class			D	C	D	C	C	B	C	C	D	D
COOLING WITH PARTIAL RECOVERY												
Cooling capacity	(3)	kW	799,7	870,2	926,4	1001	1060	1091	1180	1213	1239	1337
Total power input	(3)	kW	273,9	296,9	317,5	338,0	356,0	343,7	383,8	410,5	436,2	462,8
Desuperheater heating capacity	(3)	**kW**	**240,4**	**260,4**	**278,1**	**295,8**	**311,2**	**297,2**	**334,3**	**359,0**	**382,8**	**404,7**
COOLING WITH TOTAL HEAT RECOVERY												
Cooling capacity	(4)	kW	842,0	910,9	959,0	1035	1090	1090	1183	1238	1286	1351
Total power input	(4)	kW	237,1	256,2	275,4	293,6	310,9	310,9	338,5	359,1	380,3	408,2
Recovery heat exchanger capacity	(4)	**kW**	**1065**	**1152**	**1218**	**1311**	**1383**	**1383**	**1501**	**1576**	**1643**	**1734**
EXCHANGERS												
HEAT EXCHANGER USER SIDE IN REFRIGERATION												
Water flow	(1)	l/s	36,86	40,11	42,70	46,14	48,85	50,30	54,38	55,91	57,11	61,64
Pressure drop	(1)	kPa	37,7	39,4	44,7	40,3	45,2	47,9	52,5	41,7	43,5	50,7
PARTIAL RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(3)	l/s	11,60	12,57	13,43	14,28	15,02	14,35	16,14	17,33	18,48	19,54
Pressure drop	(3)	kPa	36,6	43,0	49,1	39,1	32,2	29,3	37,1	33,1	37,6	42,0
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(4)	l/s	51,40	55,60	58,79	63,29	66,74	66,74	72,47	76,07	79,33	83,71
Pressure drop	(4)	kPa	30,8	24,0	26,9	26,0	23,1	23,1	27,2	22,5	24,5	27,2
REFRIGERANT CIRCUIT												
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	2
Number of capacity steps		N°	0	0	0	0	0	0	0	0	0	0
No. Circuits		N°	2	2	2	2	2	2	2	2	2	2
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	20	20	20	20	20	20	20	20	20	20
Refrigerant			R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	135	146	155	168	178	183	198	204	208	224
Oil charge		kg	60,0	60,0	60,0	60,0	60,0	60,0	60,0	62,0	64,0	64,0
Rc (ASHRAE)	(5)	kg/kW	0,18	0,18	0,18	0,18	0,18	0,18	0,18	0,18	0,18	0,18
FANS												
Quantity		N°	10	11	12	13	14	16	16	16	16	18
Air flow		m³/s	48,02	52,82	57,62	62,42	67,22	76,83	76,83	76,83	76,83	86,43
Fans power input		kW	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40
NOISE LEVEL												
Sound Pressure	(6)	dB(A)	58	59	59	60	60	61	61	61	61	61
Sound power level in cooling	(7)(8)	dB(A)	91	92	92	93	93	94	94	94	94	94
SIZE AND WEIGHT												
A	(9)	mm	6500	7750	7750	9000	9000	10250	10250	10400	10400	11650
B	(9)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(9)	kg	7550	8090	8200	9000	8870	9360	9470	9780	9860	10420

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA FR-G05-Z /SL-K

[SI System]

FR-G05-Z /SL-K			6303	6903	7203	7213	7223
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE							
COOLING ONLY (GROSS VALUE)							
Cooling capacity	(1)	**kW**	**1350**	**1463**	**1530**	**1595**	**1649**
Total power input	(1)	kW	494,5	531,6	563,4	607,6	635,5
EER	(1)	kW/kW	2,730	2,752	2,716	2,625	2,595
ESEER	(1)	kW/kW	4,180	4,200	4,160	4,170	4,180
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2)	**kW**	**1346**	**1458**	**1526**	**1590**	**1644**
EER	(1)(2)	kW/kW	2,700	2,720	2,690	2,600	2,570
ESEER	(1)(2)	kW/kW	4,030	4,030	4,030	4,030	4,020
Cooling energy class			C	C	D	D	D
COOLING WITH PARTIAL RECOVERY							
Cooling capacity	(3)	kW	1401	1518	1587	1655	1711
Total power input	(3)	kW	478,1	513,9	544,7	587,4	614,2
Desuperheater heating capacity	(3)	**kW**	**418,9**	**449,5**	**477,9**	**517,4**	**542,2**
COOLING WITH TOTAL HEAT RECOVERY							
Cooling capacity	(4)	kW	1453	1563	1659	1723	1768
Total power input	(4)	kW	413,9	448,6	467,1	494,5	506,5
Recovery heat exchanger capacity	(4)	**kW**	**1842**	**1985**	**2098**	**2188**	**2244**
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1)	l/s	64,56	69,97	73,16	76,27	78,86
Pressure drop	(1)	kPa	42,1	49,5	38,2	41,5	47,6
PARTIAL RECOVERY USER SIDE IN REFRIGERATION							
Water flow	(3)	l/s	20,22	21,70	23,07	24,98	26,17
Pressure drop	(3)	kPa	49,3	36,0	33,8	39,6	33,7
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION							
Water flow	(4)	l/s	88,92	95,80	101,3	105,6	108,3
Pressure drop	(4)	kPa	30,7	23,8	26,6	28,9	30,4
REFRIGERANT CIRCUIT							
Compressors nr.		N°	3	3	3	3	3
Number of capacity steps		N°	0	0	0	0	0
No. Circuits		N°	3	3	3	3	3
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	13	13	13	13	13
Refrigerant			R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	236	255	267	278	288
Oil charge		kg	90,0	90,0	90,0	90,0	90,0
Rc (ASHRAE)	(5)	kg/kW	0,18	0,18	0,18	0,18	0,18
FANS							
Quantity		N°	18	20	20	20	20
Air flow		m³/s	86,43	96,03	96,03	96,03	96,03
Fans power input		kW	1,40	1,40	1,40	1,40	1,40
NOISE LEVEL							
Sound Pressure	(6)	dB(A)	61	61	61	61	62
Sound power level in cooling	(7)(8)	dB(A)	94	94	94	94	95
SIZE AND WEIGHT							
A	(9)	mm	11650	12900	12900	12900	12900
B	(9)	mm	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500
Operating weight	(9)	kg	12810	13340	13340	13420	13500

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA FR-G05-Z /CA

[SI System]

FR-G05-Z /CA			1502	1702	1902	1922	2202	2602	2652	2702	2722	3152
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	400/3/50	400/3/50	400/3/50
PERFORMANCE												
COOLING ONLY (GROSS VALUE)												
Cooling capacity	(1)	**kW**	**302,4**	**349,6**	**395,0**	**461,7**	**513,2**	**551,4**	**590,7**	**628,7**	**683,7**	**766,2**
Total power input	(1)	kW	99,27	112,9	130,0	149,8	166,3	182,0	191,9	203,9	226,5	251,5
EER	(1)	kW/kW	3,045	3,097	3,038	3,082	3,086	3,030	3,078	3,083	3,019	3,047
ESEER	(1)	kW/kW	4,290	4,310	4,310	4,280	4,310	4,310	4,320	4,310	4,330	4,310
COOLING ONLY (EN14511 VALUE)												
Cooling capacity	(1)(2)	**kW**	**301,6**	**348,6**	**393,8**	**460,5**	**511,7**	**549,9**	**588,9**	**626,6**	**681,5**	**764,0**
EER	(1)(2)	kW/kW	3,010	3,060	3,000	3,050	3,050	3,000	3,040	3,040	2,980	3,010
ESEER	(1)(2)	kW/kW	4,150	4,160	4,150	4,150	4,160	4,170	4,160	4,140	4,160	4,150
Cooling energy class			B	B	B	B	B	B	B	B	B	B
COOLING WITH PARTIAL RECOVERY												
Cooling capacity	(3)	kW	313,7	362,7	409,8	479,1	532,4	572,1	612,9	652,3	709,3	795,0
Total power input	(3)	kW	96,13	109,4	125,9	145,0	161,0	176,1	185,8	197,4	219,2	243,4
Desuperheater heating capacity	(3)	**kW**	**80,13**	**90,64**	**105,9**	**121,8**	**134,9**	**148,9**	**156,0**	**165,0**	**185,2**	**205,8**
COOLING WITH TOTAL HEAT RECOVERY												
Cooling capacity	(4)	kW	311,0	346,6	393,8	459,3	508,6	557,4	589,5	622,3	683,0	769,8
Total power input	(4)	kW	87,80	101,8	115,4	132,4	147,4	159,5	170,6	181,0	200,4	218,8
Recovery heat exchanger capacity	(4)	**kW**	**393,5**	**442,3**	**502,2**	**583,8**	**647,1**	**707,3**	**749,8**	**792,4**	**871,3**	**975,5**
EXCHANGERS												
HEAT EXCHANGER USER SIDE IN REFRIGERATION												
Water flow	(1)	l/s	14,46	16,72	18,89	22,08	24,54	26,37	28,25	30,07	32,70	36,64
Pressure drop	(1)	kPa	24,4	32,6	35,7	29,8	36,8	34,0	39,0	44,2	41,6	37,2
PARTIAL RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(3)	l/s	3,868	4,375	5,112	5,881	6,511	7,186	7,531	7,965	8,940	9,936
Pressure drop	(3)	kPa	28,5	36,5	49,8	45,3	40,1	48,9	36,8	29,6	37,3	34,5
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(4)	l/s	19,00	21,35	24,24	28,18	31,24	34,14	36,19	38,25	42,06	47,09
Pressure drop	(4)	kPa	23,4	29,5	38,1	35,0	31,6	37,8	37,4	36,0	39,0	25,9
REFRIGERANT CIRCUIT												
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	2
Number of capacity steps		N°	0	0	0	0	0	0	0	0	0	0
No. Circuits		N°	2	2	2	2	2	2	2	2	2	2
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	20	20	20	20	20	20	20	20	20	20
Refrigerant			R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	55,0	62,0	67,0	78,0	91,0	93,0	100	106	115	130
Oil charge		kg	24,5	30,0	30,0	37,0	44,0	38,0	38,0	38,0	38,0	49,0
Rc (ASHRAE)	(5)	kg/kW	0,18	0,18	0,17	0,17	0,18	0,17	0,17	0,17	0,17	0,17
FANS												
Quantity		N°	5	6	6	7	8	8	9	10	10	11
Air flow		m³/s	26,58	31,90	31,90	37,22	42,53	42,53	47,85	53,17	53,17	58,48
Fans power input		kW	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90
NOISE LEVEL												
Sound Pressure	(6)	dB(A)	66	66	67	67	68	68	68	68	68	68
Sound power level in cooling	(7)(8)	dB(A)	98	98	99	99	100	100	101	101	101	101
SIZE AND WEIGHT												
A	(9)	mm	4000	4000	4000	5250	5250	5250	6500	6500	6500	7750
B	(9)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(9)	kg	3660	3720	3760	4660	5040	5090	5830	5690	6110	6970

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA FR-G05-Z /CA

[SI System]

FR-G05-Z /CA			3602	3902	4202	4502	4802	4822	5412	5703	6303	6603
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	400/3/50	400/3/50	400/3/50
PERFORMANCE												
COOLING ONLY (GROSS VALUE)												
Cooling capacity	(1)	**kW**	**837,8**	**904,7**	**956,0**	**1031**	**1098**	**1177**	**1236**	**1342**	**1460**	**1521**
Total power input	(1)	kW	270,8	291,1	311,7	333,0	353,4	390,4	406,9	431,5	477,7	504,8
EER	(1)	kW/kW	3,094	3,108	3,067	3,096	3,107	3,015	3,038	3,110	3,056	3,013
ESEER	(1)	kW/kW	4,300	4,320	4,330	4,310	4,340	4,310	4,330	4,270	4,290	4,300
COOLING ONLY (EN14511 VALUE)												
Cooling capacity	(1)(2)	**kW**	**835,0**	**901,7**	**952,5**	**1028**	**1094**	**1173**	**1232**	**1338**	**1456**	**1517**
EER	(1)(2)	kW/kW	3,050	3,070	3,020	3,050	3,060	2,980	3,000	3,070	3,030	2,980
ESEER	(1)(2)	kW/kW	4,130	4,140	4,140	4,140	4,160	4,160	4,160	4,120	4,160	4,160
Cooling energy class			B	B	B	B	B	B	B	B	B	B
COOLING WITH PARTIAL RECOVERY												
Cooling capacity	(3)	kW	869,2	938,6	991,9	1069	1140	1222	1283	1392	1515	1578
Total power input	(3)	kW	262,1	281,7	301,8	322,3	342,1	377,8	393,8	417,7	462,3	488,4
Desuperheater heating capacity	(3)	**kW**	**221,4**	**237,8**	**254,5**	**271,8**	**288,3**	**321,3**	**332,7**	**353,0**	**392,5**	**416,7**
COOLING WITH TOTAL HEAT RECOVERY												
Cooling capacity	(4)	kW	842,0	910,9	959,0	1035	1103	1187	1238	1354	1488	1554
Total power input	(4)	kW	237,1	256,2	275,4	293,6	311,6	338,8	359,1	376,1	414,3	432,3
Recovery heat exchanger capacity	(4)	**kW**	**1065**	**1152**	**1218**	**1311**	**1396**	**1506**	**1576**	**1707**	**1878**	**1960**
EXCHANGERS												
HEAT EXCHANGER USER SIDE IN REFRIGERATION												
Water flow	(1)	l/s	40,06	43,26	45,72	49,29	52,53	56,31	59,13	64,17	69,81	72,73
Pressure drop	(1)	kPa	44,5	45,8	51,2	46,0	50,1	42,3	46,7	41,6	34,7	37,7
PARTIAL RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(3)	l/s	10,69	11,48	12,29	13,12	13,92	15,51	16,06	17,04	18,95	20,11
Pressure drop	(3)	kPa	31,1	35,8	41,1	33,5	27,6	34,3	30,1	33,9	41,9	36,7
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(4)	l/s	51,40	55,60	58,79	63,29	67,38	72,68	76,07	82,40	90,65	94,61
Pressure drop	(4)	kPa	30,8	24,0	26,9	26,0	23,5	27,4	22,5	26,4	31,9	23,2
REFRIGERANT CIRCUIT												
Compressors nr.		N°	2	2	2	2	2	2	2	3	3	3
Number of capacity steps		N°	0	0	0	0	0	0	0	0	0	0
No. Circuits		N°	2	2	2	2	2	2	2	3	3	3
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	20	20	20	20	20	20	20	13	13	13
Refrigerant			R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	141	153	162	174	185	199	209	227	260	258
Oil charge		kg	60,0	60,0	60,0	60,0	60,0	60,0	62,0	90,0	90,0	90,0
Rc (ASHRAE)	(5)	kg/kW	0,17	0,17	0,17	0,17	0,17	0,17	0,17	0,17	0,18	0,17
FANS												
Quantity		N°	12	13	14	15	16	16	18	19	20	20
Air flow		m³/s	63,80	69,12	74,43	79,75	85,07	85,07	95,70	101,01	106,33	106,33
Fans power input		kW	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90
NOISE LEVEL												
Sound Pressure	(6)	dB(A)	69	69	70	70	70	70	71	71	71	71
Sound power level in cooling	(7)(8)	dB(A)	102	102	103	103	103	103	104	104	104	104
SIZE AND WEIGHT												
A	(9)	mm	7750	9000	9000	10400	10400	10400	11650	12900	12900	12900
B	(9)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(9)	kg	7440	7890	8000	8700	8780	9040	10120	12160	12330	12640

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA FR-G05-Z /SL-CA

[SI System]

FR-G05-Z /SL-CA			1502	1702	1902	1922	2202	2602	2652	2702	2722	3152
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	400/3/50	400/3/50	400/3/50
PERFORMANCE												
COOLING ONLY (GROSS VALUE)												
Cooling capacity	(1)	**kW**	**304,2**	**344,9**	**394,3**	**450,1**	**500,7**	**560,7**	**582,8**	**615,6**	**680,7**	**754,1**
Total power input	(1)	kW	98,67	112,2	126,9	149,7	166,1	185,7	189,1	204,4	221,1	246,8
EER	(1)	kW/kW	3,082	3,074	3,107	3,007	3,014	3,019	3,082	3,012	3,079	3,056
ESEER	(1)	kW/kW	4,290	4,310	4,320	4,250	4,300	4,310	4,300	4,290	4,330	4,300
COOLING ONLY (EN14511 VALUE)												
Cooling capacity	(1)(2)	**kW**	**303,4**	**343,9**	**393,1**	**449,0**	**499,3**	**559,1**	**581,0**	**613,9**	**678,5**	**752,0**
EER	(1)(2)	kW/kW	3,050	3,040	3,070	2,980	2,980	2,990	3,040	2,980	3,040	3,020
ESEER	(1)(2)	kW/kW	4,160	4,160	4,160	4,130	4,160	4,150	4,150	4,150	4,160	4,160
Cooling energy class			B	B	B	B	B	B	B	B	B	B
COOLING WITH PARTIAL RECOVERY												
Cooling capacity	(3)	kW	315,6	357,8	409,0	467,0	519,4	581,7	604,7	638,7	706,2	782,4
Total power input	(3)	kW	95,47	108,5	122,8	144,8	160,6	179,7	183,0	197,8	213,9	238,8
Desuperheater heating capacity	(3)	**kW**	**81,83**	**92,62**	**104,5**	**124,9**	**138,2**	**154,5**	**156,3**	**170,0**	**182,3**	**205,3**
COOLING WITH TOTAL HEAT RECOVERY												
Cooling capacity	(4)	kW	311,0	346,6	393,8	459,3	508,6	573,5	589,5	631,1	683,0	769,8
Total power input	(4)	kW	87,80	101,8	115,4	132,4	147,4	164,9	170,6	181,5	200,4	218,8
Recovery heat exchanger capacity	(4)	**kW**	**393,5**	**442,3**	**502,2**	**583,8**	**647,1**	**728,5**	**749,8**	**801,7**	**871,3**	**975,5**
EXCHANGERS												
HEAT EXCHANGER USER SIDE IN REFRIGERATION												
Water flow	(1)	l/s	14,55	16,49	18,85	21,53	23,94	26,81	27,87	29,44	32,55	36,06
Pressure drop	(1)	kPa	24,7	31,7	35,6	28,3	35,1	35,1	38,0	33,7	41,2	36,1
PARTIAL RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(3)	l/s	3,950	4,471	5,044	6,028	6,672	7,460	7,545	8,206	8,801	9,910
Pressure drop	(3)	kPa	29,7	38,1	48,5	47,6	42,1	36,1	36,9	31,4	36,1	34,4
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(4)	l/s	19,00	21,35	24,24	28,18	31,24	35,16	36,19	38,70	42,06	47,09
Pressure drop	(4)	kPa	23,4	29,5	29,7	35,0	31,6	35,3	37,4	36,9	39,0	25,9
REFRIGERANT CIRCUIT												
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	2
Number of capacity steps		N°	0	0	0	0	0	0	0	0	0	0
No. Circuits		N°	2	2	2	2	2	2	2	2	2	2
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	20	20	20	20	20	20	20	20	20	20
Refrigerant			R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	55,0	62,0	71,0	82,0	91,0	101	112	123	136	148
Oil charge		kg	24,5	30,0	30,0	37,0	44,0	41,0	38,0	38,0	38,0	49,0
Rc (ASHRAE)	(5)	kg/kW	0,18	0,18	0,18	0,18	0,18	0,18	0,19	0,20	0,20	0,20
FANS												
Quantity		N°	5	6	7	7	8	9	10	10	12	12
Air flow		m³/s	24,01	28,81	33,61	33,61	38,41	43,21	48,02	48,02	57,62	57,62
Fans power input		kW	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40
NOISE LEVEL												
Sound Pressure	(6)	dB(A)	55	56	56	57	57	57	58	58	59	59
Sound power level in cooling	(7)(8)	dB(A)	87	88	88	89	89	90	91	91	92	92
SIZE AND WEIGHT												
A	(9)	mm	4000	4000	5250	5250	5250	6500	6500	6500	7750	7750
B	(9)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(9)	kg	4130	4190	4680	5140	5520	6140	6390	6520	7150	7610

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA FR-G05-Z /SL-CA

[SI System]

FR-G05-Z /SL-CA			3602	3902	4202	4502	4802	4822	5412	5703	6303
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	400/3/50	400/3/50
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	**kW**	**819,3**	**899,1**	**947,9**	**1020**	**1086**	**1163**	**1219**	**1310**	**1442**
Total power input	(1)	kW	262,5	285,1	305,7	327,1	347,6	384,6	401,4	426,7	479,4
EER	(1)	kW/kW	3,121	3,154	3,101	3,118	3,124	3,024	3,037	3,070	3,008
ESEER	(1)	kW/kW	4,290	4,300	4,330	4,300	4,330	4,310	4,330	4,280	4,280
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	**kW**	**816,7**	**896,1**	**944,5**	**1017**	**1082**	**1160**	**1215**	**1306**	**1439**
EER	(1)(2)	kW/kW	3,080	3,110	3,060	3,080	3,080	2,990	3,000	3,040	2,980
ESEER	(1)(2)	kW/kW	4,120	4,130	4,140	4,140	4,150	4,160	4,160	4,130	4,150
Cooling energy class			B	A	B	B	B	B	B	B	B
COOLING WITH PARTIAL RECOVERY											
Cooling capacity	(3)	kW	850,0	932,8	983,4	1059	1127	1207	1265	1359	1496
Total power input	(3)	kW	254,0	275,8	295,8	316,5	336,4	372,0	388,3	412,7	463,6
Desuperheater heating capacity	(3)	**kW**	**216,8**	**235,7**	**252,9**	**270,8**	**287,8**	**320,8**	**333,3**	**355,9**	**403,0**
COOLING WITH TOTAL HEAT RECOVERY											
Cooling capacity	(4)	kW	842,0	910,9	959,0	1035	1103	1187	1238	1354	1488
Total power input	(4)	kW	237,1	256,2	275,4	293,6	311,6	338,8	359,1	376,1	414,3
Recovery heat exchanger capacity	(4)	**kW**	**1065**	**1152**	**1218**	**1311**	**1396**	**1506**	**1576**	**1707**	**1878**
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	39,18	43,00	45,33	48,80	51,94	55,63	58,31	62,64	68,95
Pressure drop	(1)	kPa	42,6	45,3	50,3	45,1	48,9	41,3	45,4	39,7	33,9
PARTIAL RECOVERY USER SIDE IN REFRIGERATION											
Water flow	(3)	l/s	10,47	11,38	12,21	13,07	13,89	15,48	16,09	17,18	19,45
Pressure drop	(3)	kPa	29,8	35,2	40,6	33,2	27,5	34,2	30,2	34,4	44,1
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION											
Water flow	(4)	l/s	51,40	55,60	58,79	63,29	67,38	72,68	76,07	82,40	90,65
Pressure drop	(4)	kPa	30,8	24,0	26,9	26,0	23,5	27,4	22,5	26,4	31,9
REFRIGERANT CIRCUIT											
Compressors nr.		N°	2	2	2	2	2	2	2	3	3
Number of capacity steps		N°	0	0	0	0	0	0	0	0	0
No. Circuits		N°	2	2	2	2	2	2	2	3	3
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	20	20	20	20	20	20	20	13	13
Refrigerant			R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	162	171	184	197	210	220	237	260	226
Oil charge		kg	60,0	60,0	60,0	60,0	60,0	60,0	62,0	90,0	90,0
Rc (ASHRAE)	(5)	kg/kW	0,20	0,19	0,20	0,20	0,20	0,19	0,20	0,20	0,16
FANS											
Quantity		N°	14	15	16	17	18	18	20	20	20
Air flow		m³/s	67,22	72,02	76,83	81,63	86,43	86,43	96,03	96,03	96,03
Fans power input		kW	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40
NOISE LEVEL											
Sound Pressure	(6)	dB(A)	59	59	60	60	60	60	62	62	62
Sound power level in cooling	(7)(8)	dB(A)	92	92	93	93	93	93	95	95	95
SIZE AND WEIGHT											
A	(9)	mm	9000	10250	10250	11650	11650	11650	12900	12900	12900
B	(9)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(9)	kg	8500	8990	9280	9810	9890	10230	10760	13130	13260

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA FR-G05-Z /E

[SI System]

FR-G05-Z /E			1502	1702	1902	1922	2202	2602	2652	2702	2722	3152
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	400/3/50	400/3/50	400/3/50
PERFORMANCE												
COOLING ONLY (GROSS VALUE)												
Cooling capacity	(1)	**kW**	**316,5**	**362,6**	**413,8**	**451,2**	**530,5**	**575,8**	**612,9**	**649,8**	**703,3**	**785,8**
Total power input	(1)	kW	98,32	112,6	128,0	142,3	162,6	177,5	188,6	199,6	221,8	245,6
EER	(1)	kW/kW	3,220	3,220	3,233	3,171	3,263	3,244	3,250	3,256	3,171	3,200
ESEER	(1)	kW/kW	4,350	4,370	4,360	4,370	4,360	4,360	4,370	4,390	4,360	4,350
COOLING ONLY (EN14511 VALUE)												
Cooling capacity	(1)(2)	**kW**	**315,8**	**361,6**	**412,9**	**450,1**	**529,0**	**574,4**	**611,2**	**647,9**	**701,5**	**783,7**
EER	(1)(2)	kW/kW	3,190	3,180	3,200	3,140	3,220	3,210	3,210	3,220	3,140	3,160
ESEER	(1)(2)	kW/kW	4,230	4,220	4,250	4,240	4,210	4,230	4,220	4,240	4,230	4,210
Cooling energy class			A	A	A	A	A	A	A	A	A	A
COOLING WITH PARTIAL RECOVERY												
Cooling capacity	(3)	kW	328,4	376,2	429,3	468,1	550,4	597,4	635,9	674,1	729,7	815,3
Total power input	(3)	kW	95,27	109,2	124,0	137,8	157,6	172,0	182,7	193,4	214,9	237,9
Desuperheater heating capacity	(3)	**kW**	**77,58**	**86,95**	**100,7**	**113,4**	**128,2**	**141,5**	**149,7**	**157,8**	**177,7**	**197,2**
COOLING WITH TOTAL HEAT RECOVERY												
Cooling capacity	(4)	kW	313,8	352,3	410,1	450,7	522,2	564,4	597,4	631,1	692,1	783,9
Total power input	(4)	kW	89,41	102,2	116,6	130,3	148,2	160,0	171,0	181,5	201,0	219,6
Recovery heat exchanger capacity	(4)	**kW**	**397,8**	**448,3**	**519,8**	**573,2**	**661,5**	**714,8**	**758,2**	**801,7**	**881,0**	**990,4**
EXCHANGERS												
HEAT EXCHANGER USER SIDE IN REFRIGERATION												
Water flow	(1)	l/s	15,14	17,34	19,79	21,58	25,37	27,54	29,31	31,07	33,63	37,58
Pressure drop	(1)	kPa	22,9	30,1	24,0	28,5	35,8	29,5	33,4	37,5	31,4	34,6
PARTIAL RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(3)	l/s	3,745	4,197	4,860	5,476	6,188	6,830	7,224	7,618	8,576	9,519
Pressure drop	(3)	kPa	26,7	33,6	45,0	28,4	36,2	44,1	33,8	27,1	34,3	31,7
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(4)	l/s	19,20	21,64	25,09	27,67	31,93	34,50	36,60	38,70	42,53	47,81
Pressure drop	(4)	kPa	32,0	30,4	40,8	30,8	33,0	38,6	38,2	36,9	39,8	26,7
REFRIGERANT CIRCUIT												
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	2
Number of capacity steps		N°	0	0	0	0	0	0	0	0	0	0
No. Circuits		N°	2	2	2	2	2	2	2	2	2	2
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	20	20	20	20	20	20	20	20	20	20
Refrigerant			R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	56,0	64,0	74,0	82,0	94,0	102	109	116	125	140
Oil charge		kg	30,0	30,0	30,0	30,0	44,0	38,0	38,0	38,0	38,0	49,0
Rc (ASHRAE)	(5)	kg/kW	0,18	0,18	0,18	0,18	0,18	0,18	0,18	0,18	0,18	0,18
FANS												
Quantity		N°	6	8	8	8	10	10	11	12	12	13
Air flow		m³/s	31,90	42,53	42,53	42,53	53,17	53,17	58,48	63,80	63,80	69,12
Fans power input		kW	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90
NOISE LEVEL												
Sound Pressure	(6)	dB(A)	66	67	67	67	67	67	68	68	68	68
Sound power level in cooling	(7)(8)	dB(A)	98	99	99	99	100	100	101	101	101	101
SIZE AND WEIGHT												
A	(9)	mm	4000	5250	5250	5250	6500	6500	7750	7750	7750	9000
B	(9)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(9)	kg	3720	4240	4360	4420	5590	5920	6400	6490	6600	7400

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA FR-G05-Z /E

[SI System]

FR-G05-Z /E			3602	3902	4202	4502	4802	4822	5412
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**	**854,0**	**931,3**	**986,6**	**1054**	**1123**	**1219**	**1277**
Total power input	(1)	kW	266,4	288,3	309,5	330,1	350,9	388,4	407,4
EER	(1)	kW/kW	3,206	3,230	3,188	3,193	3,200	3,139	3,135
ESEER	(1)	kW/kW	4,370	4,420	4,380	4,400	4,400	4,330	4,350
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	**kW**	**851,4**	**927,8**	**983,6**	**1051**	**1119**	**1216**	**1274**
EER	(1)(2)	kW/kW	3,170	3,180	3,150	3,150	3,150	3,110	3,100
ESEER	(1)(2)	kW/kW	4,210	4,210	4,210	4,220	4,210	4,200	4,210
Cooling energy class			A	A	A	A	A	A	A
COOLING WITH PARTIAL RECOVERY									
Cooling capacity	(3)	kW	886,0	966,2	1024	1093	1165	1265	1324
Total power input	(3)	kW	258,0	279,2	299,8	319,7	339,8	376,0	394,5
Desuperheater heating capacity	(3)	**kW**	**214,0**	**231,9**	**249,2**	**265,8**	**282,7**	**316,1**	**329,7**
COOLING WITH TOTAL HEAT RECOVERY									
Cooling capacity	(4)	kW	859,6	923,7	980,0	1046	1116	1224	1279
Total power input	(4)	kW	238,1	256,9	275,7	294,2	312,4	339,8	361,5
Recovery heat exchanger capacity	(4)	**kW**	**1083**	**1165**	**1239**	**1323**	**1410**	**1544**	**1619**
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	40,84	44,54	47,18	50,39	53,70	58,31	61,05
Pressure drop	(1)	kPa	40,9	53,0	42,1	46,1	51,2	34,4	37,7
PARTIAL RECOVERY USER SIDE IN REFRIGERATION									
Water flow	(3)	l/s	10,33	11,19	12,03	12,83	13,64	15,26	15,92
Pressure drop	(3)	kPa	29,1	34,1	39,4	32,0	26,5	33,2	29,6
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION									
Water flow	(4)	l/s	52,30	56,24	59,82	63,87	68,06	74,52	78,16
Pressure drop	(4)	kPa	31,9	24,6	27,8	26,4	24,0	28,8	23,8
REFRIGERANT CIRCUIT									
Compressors nr.		N°	2	2	2	2	2	2	2
Number of capacity steps		N°	0	0	0	0	0	0	0
No. Circuits		N°	2	2	2	2	2	2	2
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	20	20	20	20	20	20	20
Refrigerant			R513A	R513A	R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	152	166	176	187	200	217	228
Oil charge		kg	60,0	60,0	60,0	60,0	60,0	60,0	62,0
Rc (ASHRAE)	(5)	kg/kW	0,18	0,18	0,18	0,18	0,18	0,18	0,18
FANS									
Quantity		N°	14	15	16	17	18	18	20
Air flow		m³/s	74,43	79,75	85,07	90,38	95,70	95,70	106,33
Fans power input		kW	1,90	1,90	1,90	1,90	1,90	1,90	1,90
NOISE LEVEL									
Sound Pressure	(6)	dB(A)	69	69	70	70	70	70	71
Sound power level in cooling	(7)(8)	dB(A)	102	102	103	103	103	103	104
SIZE AND WEIGHT									
A	(9)	mm	9000	10250	10250	11650	11650	11650	12900
B	(9)	mm	2260	2260	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500	2500	2500
Operating weight	(9)	kg	7880	8420	8660	9190	9270	10330	11170

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA FR-G05-Z /SL-E

[SI System]

FR-G05-Z /SL-E			1502	1702	1902	1922	2202	2602	2652	2702	2722	3152
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	400/3/50	400/3/50	400/3/50
PERFORMANCE												
COOLING ONLY (GROSS VALUE)												
Cooling capacity	(1)	**kW**	**312,8**	**359,1**	**409,0**	**447,3**	**524,1**	**568,3**	**605,2**	**641,9**	**696,6**	**776,1**
Total power input	(1)	kW	97,03	110,3	126,2	141,4	160,5	176,0	186,6	197,3	220,9	244,2
EER	(1)	kW/kW	3,225	3,256	3,241	3,163	3,265	3,229	3,243	3,253	3,153	3,178
ESEER	(1)	kW/kW	4,380	4,390	4,360	4,370	4,370	4,450	4,430	4,440	4,430	4,400
COOLING ONLY (EN14511 VALUE)												
Cooling capacity	(1)(2)	**kW**	**312,1**	**358,1**	**408,1**	**446,2**	**522,6**	**566,9**	**603,6**	**640,0**	**694,9**	**774,1**
EER	(1)(2)	kW/kW	3,190	3,220	3,210	3,130	3,230	3,200	3,210	3,210	3,120	3,140
ESEER	(1)(2)	kW/kW	4,260	4,250	4,250	4,240	4,220	4,320	4,290	4,280	4,290	4,260
Cooling energy class			A	A	A	A	A	A	A	A	A	A
COOLING WITH PARTIAL RECOVERY												
Cooling capacity	(3)	kW	324,5	372,6	424,3	464,1	543,7	589,6	627,9	666,0	722,8	805,2
Total power input	(3)	kW	93,93	106,8	122,1	136,9	155,4	170,3	180,6	191,0	213,8	236,3
Desuperheater heating capacity	(3)	**kW**	**79,12**	**88,43**	**102,6**	**116,3**	**130,8**	**144,6**	**152,8**	**161,1**	**182,2**	**201,7**
COOLING WITH TOTAL HEAT RECOVERY												
Cooling capacity	(4)	kW	313,8	352,3	410,1	450,7	522,2	564,4	597,4	631,1	692,1	783,9
Total power input	(4)	kW	89,41	102,2	116,6	130,3	148,2	160,0	171,0	181,5	201,0	219,6
Recovery heat exchanger capacity	(4)	**kW**	**397,8**	**448,3**	**519,8**	**573,2**	**661,5**	**714,8**	**758,2**	**801,7**	**881,0**	**990,4**
EXCHANGERS												
HEAT EXCHANGER USER SIDE IN REFRIGERATION												
Water flow	(1)	l/s	14,96	17,17	19,56	21,39	25,06	27,18	28,94	30,70	33,31	37,11
Pressure drop	(1)	kPa	22,4	29,5	23,4	28,0	34,9	28,7	32,6	36,6	30,8	33,7
PARTIAL RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(3)	l/s	3,819	4,268	4,953	5,612	6,314	6,980	7,378	7,776	8,795	9,737
Pressure drop	(3)	kPa	27,8	34,7	46,7	29,8	37,7	46,1	35,3	28,2	36,1	33,2
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION												
Water flow	(4)	l/s	19,20	21,64	25,09	27,67	31,93	34,50	36,60	38,70	42,53	47,81
Pressure drop	(4)	kPa	32,0	30,4	40,8	30,8	33,0	38,6	38,2	36,9	39,8	26,7
REFRIGERANT CIRCUIT												
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	2
Number of capacity steps		N°	0	0	0	0	0	0	0	0	0	0
No. Circuits		N°	2	2	2	2	2	2	2	2	2	2
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	20	20	20	20	20	20	20	20	20	20
Refrigerant			R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	56,0	64,0	74,0	82,0	94,0	102	109	116	125	140
Oil charge		kg	30,0	30,0	30,0	30,0	44,0	38,0	38,0	38,0	38,0	49,0
Rc (ASHRAE)	(5)	kg/kW	0,18	0,18	0,18	0,19	0,18	0,18	0,18	0,18	0,18	0,18
FANS												
Quantity		N°	6	8	8	8	10	10	11	12	12	13
Air flow		m³/s	28,81	38,41	38,41	38,41	48,02	48,02	52,82	57,62	57,62	62,42
Fans power input		kW	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40
NOISE LEVEL												
Sound Pressure	(6)	dB(A)	56	57	57	57	57	58	58	59	59	59
Sound power level in cooling	(7)(8)	dB(A)	88	89	89	89	90	91	91	92	92	92
SIZE AND WEIGHT												
A	(9)	mm	4000	5250	5250	5250	6500	6500	7750	7750	7750	9000
B	(9)	mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Operating weight	(9)	kg	3960	4460	4620	4680	6120	6460	6940	7040	7140	7990

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA FR-G05-Z /SL-E

[SI System]

FR-G05-Z /SL-E			3602	3902	4202	4502	4802	4822	5412
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**	**841,9**	**918,4**	**973,5**	**1040**	**1108**	**1205**	**1260**
Total power input	(1)	kW	264,3	286,4	307,9	328,4	349,1	389,0	406,2
EER	(1)	kW/kW	3,185	3,207	3,162	3,167	3,174	3,098	3,102
ESEER	(1)	kW/kW	4,410	4,460	4,420	4,410	4,410	4,360	4,370
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	**kW**	**839,4**	**915,0**	**970,6**	**1037**	**1104**	**1202**	**1257**
EER	(1)(2)	kW/kW	3,150	3,160	3,120	3,130	3,130	3,070	3,070
ESEER	(1)(2)	kW/kW	4,250	4,260	4,260	4,240	4,220	4,240	4,230
Cooling energy class			A	A	A	A	A	B	B
COOLING WITH PARTIAL RECOVERY									
Cooling capacity	(3)	kW	873,4	952,9	1010	1079	1149	1250	1308
Total power input	(3)	kW	255,8	277,2	297,9	317,7	337,8	376,2	392,9
Desuperheater heating capacity	(3)	**kW**	**218,5**	**236,9**	**254,8**	**271,9**	**289,1**	**324,7**	**337,6**
COOLING WITH TOTAL HEAT RECOVERY									
Cooling capacity	(4)	kW	859,6	923,7	980,0	1046	1116	1224	1279
Total power input	(4)	kW	238,1	256,9	275,7	294,2	312,4	339,8	361,5
Recovery heat exchanger capacity	(4)	**kW**	**1083**	**1165**	**1239**	**1323**	**1410**	**1544**	**1619**
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	40,26	43,92	46,55	49,72	52,98	57,62	60,28
Pressure drop	(1)	kPa	39,7	51,5	41,0	44,9	49,8	33,6	36,7
PARTIAL RECOVERY USER SIDE IN REFRIGERATION									
Water flow	(3)	l/s	10,55	11,44	12,30	13,12	13,96	15,67	16,29
Pressure drop	(3)	kPa	30,3	35,6	41,2	33,5	27,8	35,0	31,0
HEAT EXCHANGER RECOVERY USER SIDE IN REFRIGERATION									
Water flow	(4)	l/s	52,30	56,24	59,82	63,87	68,06	74,52	78,16
Pressure drop	(4)	kPa	31,9	24,6	27,8	26,4	24,0	28,8	23,8
REFRIGERANT CIRCUIT									
Compressors nr.		N°	2	2	2	2	2	2	2
Number of capacity steps		N°	0	0	0	0	0	0	0
No. Circuits		N°	2	2	2	2	2	2	2
Regulation			STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS
Min. capacity step		%	20	20	20	20	20	20	20
Refrigerant			R513A	R513A	R513A	R513A	R513A	R513A	R513A
Refrigerant charge		kg	152	166	176	187	200	217	228
Oil charge		kg	60,0	60,0	60,0	60,0	60,0	60,0	62,0
Rc (ASHRAE)	(5)	kg/kW	0,18	0,18	0,18	0,18	0,18	0,18	0,18
FANS									
Quantity		N°	14	15	16	17	18	18	20
Air flow		m³/s	67,22	72,02	76,83	81,63	86,43	86,43	96,03
Fans power input		kW	1,40	1,40	1,40	1,40	1,40	1,40	1,40
NOISE LEVEL									
Sound Pressure	(6)	dB(A)	59	59	60	60	60	60	62
Sound power level in cooling	(7)(8)	dB(A)	92	92	93	93	93	93	95
SIZE AND WEIGHT									
A	(9)	mm	9000	10250	10250	11650	11650	11650	12900
B	(9)	mm	2260	2260	2260	2260	2260	2260	2260
H	(9)	mm	2500	2500	2500	2500	2500	2500	2500
Operating weight	(9)	kg	8500	8990	9290	9830	9910	10900	11530

Notes:
1 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
4 Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Plant (side) heat exchanger recovery water (in/out) 40,00°C/45,00°C.
5 Rated in accordance with AHRI Standard 550/590 (2011 with addendum 1).
6 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, outdoors.
9 Unit in standard configuration/execution, without optional accessories.
- Not available
Certified data in EUROVENT

GENERAL TECHNICAL DATA

ENERGY EFFICIENCY

SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)
Process Refrigeration at high temperature

FR-G05-Z /K			1502	1702	1902	1922	2202	2602	2652	2702	2722	3152	3602	3902	4202
Prated,c	(1)	kW	298,9	324,9	382,1	430,5	479,3	531,7	557,1	598,8	656,3	722,9	800,2	869,2	923,3
SEPR	(1) (2)	-	5,08	5,30	5,18	5,09	5,27	5,28	5,27	5,17	5,03	5,14	5,24	5,23	5,21
FR-G05-Z /K			4502	4802	4812	4822	5412	6002	6022	6303	6903	7203	7213	7223	
Prated,c	(1)	kW	979,4	1018	1055	1142	1172	1235	1298	1397	1476	1543	1649	1704	
SEPR	(1) (2)	-	5,24	5,23	5,24	5,15	5,25	5,27	5,15	5,19	5,20	5,26	5,14	5,13	

FR-G05-Z /SL-K			1502	1702	1902	1922	2202	2602	2652	2702	2722	3152	3602	3902	4202
Prated,c	(1)	kW	287,8	332,5	380,5	417,3	474,7	517,0	554,4	576,8	661,2	714,1	768,6	836,2	890,0
SEPR	(1) (2)	-	5,07	5,17	5,29	5,11	5,09	5,11	5,16	5,23	5,11	5,16	5,25	5,26	5,24
FR-G05-Z /SL-K			4502	4802	4812	4822	5412	6002	6022	6303	6903	7203	7213	7223	
Prated,c	(1)	kW	962,1	1018	1048	1133	1166	1190	1285	1346	1458	1526	1590	1644	
SEPR	(1) (2)	-	5,23	5,22	5,21	5,14	5,19	5,27	5,20	5,22	5,21	5,24	5,17	5,15	

FR-G05-Z /CA			1502	1702	1902	1922	2202	2602	2652	2702	2722	3152	3602	3902	4202
Prated,c	(1)	kW	301,6	348,6	393,8	460,5	511,7	549,9	588,9	626,6	681,5	764,0	835,0	901,7	952,5
SEPR	(1) (2)	-	5,27	5,36	5,40	5,40	5,37	5,22	5,26	5,27	5,18	5,26	5,34	5,32	5,31
FR-G05-Z /CA			4502	4802	4822	5412	5703	6303	6603						
Prated,c	(1)	kW	1028	1094	1173	1232	1338	1456	1517						
SEPR	(1) (2)	-	5,32	5,32	5,30	5,33	5,31	5,30	5,30						

FR-G05-Z /SL-CA			1502	1702	1902	1922	2202	2602	2652	2702	2722	3152	3602	3902	4202
Prated,c	(1)	kW	303,4	343,9	393,1	449,0	499,3	559,1	581,0	613,9	678,5	752,0	816,7	896,1	944,5
SEPR	(1) (2)	-	5,35	5,42	5,35	5,41	5,36	5,33	5,25	5,29	5,17	5,24	5,34	5,34	5,31
FR-G05-Z /SL-CA			4502	4802	4822	5412	5703	6303							
Prated,c	(1)	kW	1017	1082	1160	1215	1306	1439							
SEPR	(1) (2)	-	5,31	5,34	5,30	5,33	5,31	5,36							

Notes:

(1) Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
(2) Seasonal process cooling energy index

Certified data in EUROVENT

GENERAL TECHNICAL DATA

FR-G05-Z /E			1502	1702	1902	1922	2202	2602	2652	2702	2722	3152	3602	3902	4202
Prated,c	(1)	kW	315,8	361,6	412,9	450,1	529,0	574,4	611,2	647,9	701,5	783,7	851,4	927,8	983,6
SEPR	(1) (2)	-	5,29	5,40	5,41	5,43	5,39	5,25	5,28	5,29	5,26	5,32	5,35	5,34	5,33
FR-G05-Z /E			**4502**	**4802**	**4822**	**5412**									
Prated,c	(1)	kW	1051	1119	1216	1274									
SEPR	(1) (2)	-	5,36	5,36	5,35	5,37									

FR-G05-Z /SL-E			1502	1702	1902	1922	2202	2602	2652	2702	2722	3152	3602	3902	4202
Prated,c	(1)	kW	312,1	358,1	408,1	446,2	522,6	566,9	603,6	640,0	694,9	774,1	839,4	915,0	970,6
SEPR	(1) (2)	-	5,39	5,50	5,51	5,50	5,50	5,51	5,50	5,50	5,50	5,50	5,50	5,51	5,50
FR-G05-Z /SL-E			**4502**	**4802**	**4822**	**5412**									
Prated,c	(1)	kW	1037	1104	1202	1257									
SEPR	(1) (2)	-	5,50	5,51	5,51	5,51									

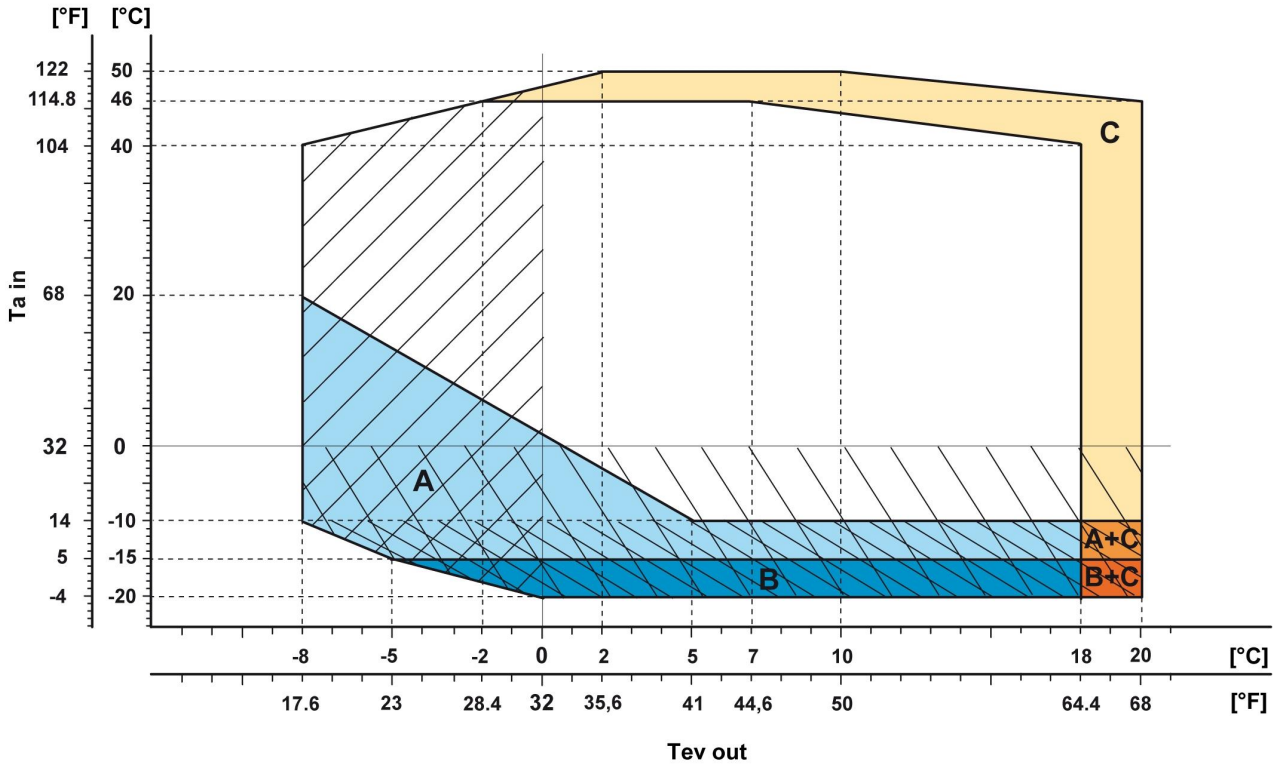
Notes:

(1) Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
(2) Seasonal process cooling energy index

Certified data in EUROVENT

5.1 OPERATING LIMITS

/K 1502 - 7223
/SL-K 1502 - 7223



Ta in Air temperature

Tev out Evaporator leaving water temperature

Standard units

A Required: EC fans (code 808)*

B Required: EC fans (code 808)*
Low temperature device DBA (code 813)

C Required: Kit HT (code 1955)

A+C Required: EC fans (code 808)*
Kit HT (code 1955)

B+C Required: EC fans (code 808)*
Low temperature device DBA (code 813)
Kit HT (code 1955)

Required: Antifreeze piping and pumps (code 2432)
if hydronic kit is present

Required: Double insultaion on heat exchangers (code 2631)
or Double insulation on heat exchangers, pipes and
pumps (code 2633) if hydronic kit is present

Required: Negative fluid temperature (code 871)

The diagram shows the temperature limits of full load operation.
In case of higher outdoor air temperature, automatically partialized its resources to ensure uninterrupted operation.
Operating limits when working partialized (water */7°C - */44,6°F):
/K, /SL-K: 53°C - 131°F
With Kit HT (all versions): 57°C - 134,6°F

In case of outdoor air temperature higher than 53°C - 127,4°F, some additional cooling equipment for the electrical panel could be necessary. Please refer to our sales department for assessment and quotation.

Units with heat recovery: /D, /R
For the units with heat recovery, the maximum outdoor temperature allowed are 1,5°C - 2,7°F lower than the ones of the corresponding model without heat recovery.

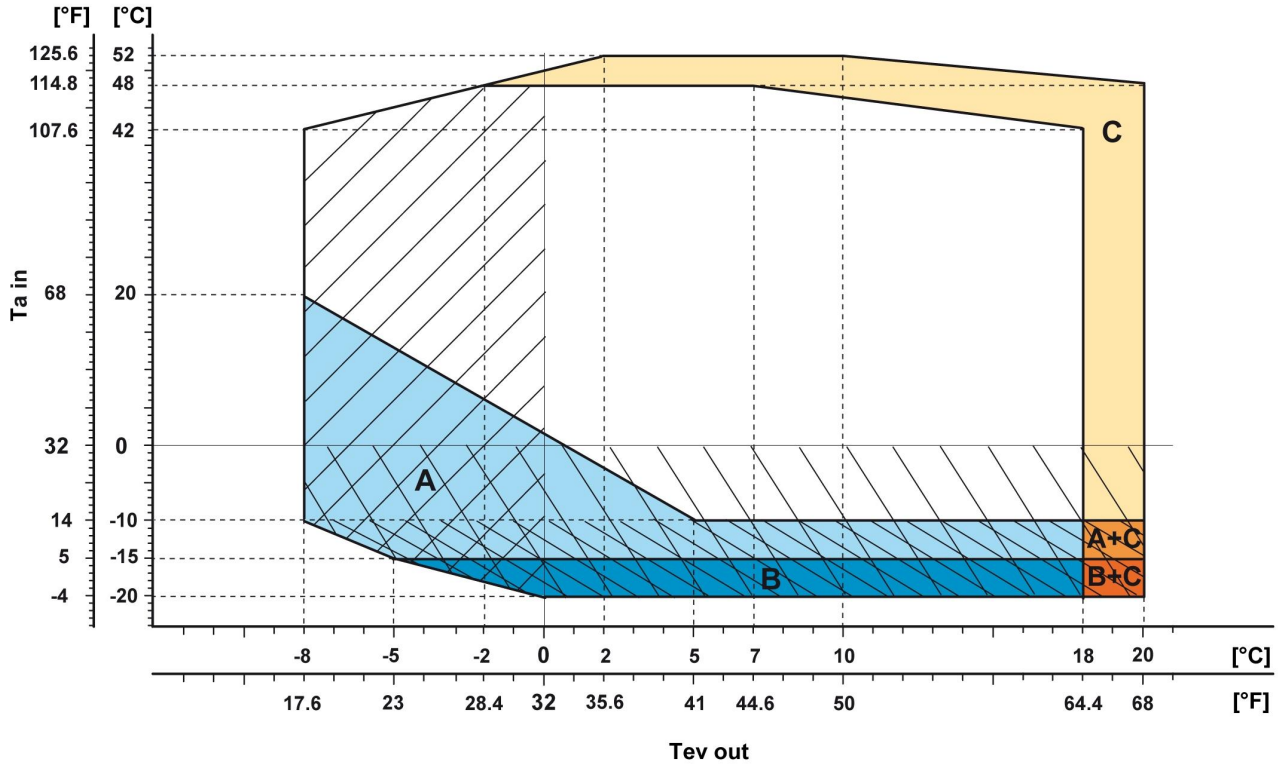
* EC fans are suitable to operate up to 46°C - 114,8°F of outdoor temperature. In case of higher temperatures, fans with oversized motors must be used. For the quotation of these components, please contact our sales department.

For the specific temperature limits of each model please refer to the selection software ElcaStudio.

SIZE		
FR-G05-Z /K /1502	FR-G05-Z /R /K /2202	FR-G05-Z /D /SL-K /2722
FR-G05-Z /K /1702	FR-G05-Z /R /K /2602	FR-G05-Z /D /SL-K /3152
FR-G05-Z /K /1902	FR-G05-Z /R /K /2652	FR-G05-Z /D /SL-K /3602
FR-G05-Z /K /1922	FR-G05-Z /R /K /2702	FR-G05-Z /D /SL-K /3902
FR-G05-Z /K /2202	FR-G05-Z /R /K /2722	FR-G05-Z /D /SL-K /4202
FR-G05-Z /K /2602	FR-G05-Z /R /K /3152	FR-G05-Z /D /SL-K /4502
FR-G05-Z /K /2652	FR-G05-Z /R /K /3602	FR-G05-Z /D /SL-K /4802
FR-G05-Z /K /2702	FR-G05-Z /R /K /3902	FR-G05-Z /D /SL-K /4812
FR-G05-Z /K /2722	FR-G05-Z /R /K /4202	FR-G05-Z /D /SL-K /4822
FR-G05-Z /K /3152	FR-G05-Z /R /K /4502	FR-G05-Z /D /SL-K /5412
FR-G05-Z /K /3602	FR-G05-Z /R /K /4802	FR-G05-Z /D /SL-K /6002
FR-G05-Z /K /3902	FR-G05-Z /R /K /4812	FR-G05-Z /D /SL-K /6022
FR-G05-Z /K /4202	FR-G05-Z /R /K /4822	FR-G05-Z /D /SL-K /6303
FR-G05-Z /K /4502	FR-G05-Z /R /K /5412	FR-G05-Z /D /SL-K /6903
FR-G05-Z /K /4802	FR-G05-Z /R /K /6002	FR-G05-Z /D /SL-K /7203
FR-G05-Z /K /4812	FR-G05-Z /R /K /6022	FR-G05-Z /D /SL-K /7213
FR-G05-Z /K /4822	FR-G05-Z /R /K /6303	FR-G05-Z /D /SL-K /7223
FR-G05-Z /K /5412	FR-G05-Z /R /K /6903	FR-G05-Z /R /SL-K /1502
FR-G05-Z /K /6002	FR-G05-Z /R /K /7203	FR-G05-Z /R /SL-K /1702
FR-G05-Z /K /6022	FR-G05-Z /R /K /7213	FR-G05-Z /R /SL-K /1902
FR-G05-Z /K /6303	FR-G05-Z /R /K /7223	FR-G05-Z /R /SL-K /1922
FR-G05-Z /K /6903	FR-G05-Z /SL-K /1502	FR-G05-Z /R /SL-K /2202
FR-G05-Z /K /7203	FR-G05-Z /SL-K /1702	FR-G05-Z /R /SL-K /2602
FR-G05-Z /K /7213	FR-G05-Z /SL-K /1902	FR-G05-Z /R /SL-K /2652
FR-G05-Z /K /7223	FR-G05-Z /SL-K /1922	FR-G05-Z /R /SL-K /2702
FR-G05-Z /D /K /1502	FR-G05-Z /SL-K /2202	FR-G05-Z /R /SL-K /2722
FR-G05-Z /D /K /1702	FR-G05-Z /SL-K /2602	FR-G05-Z /R /SL-K /3152
FR-G05-Z /D /K /1902	FR-G05-Z /SL-K /2652	FR-G05-Z /R /SL-K /3602
FR-G05-Z /D /K /1922	FR-G05-Z /SL-K /2702	FR-G05-Z /R /SL-K /3902
FR-G05-Z /D /K /2202	FR-G05-Z /SL-K /2722	FR-G05-Z /R /SL-K /4202
FR-G05-Z /D /K /2602	FR-G05-Z /SL-K /3152	FR-G05-Z /R /SL-K /4502
FR-G05-Z /D /K /2652	FR-G05-Z /SL-K /3602	FR-G05-Z /R /SL-K /4802
FR-G05-Z /D /K /2702	FR-G05-Z /SL-K /3902	FR-G05-Z /R /SL-K /4812
FR-G05-Z /D /K /2722	FR-G05-Z /SL-K /4202	FR-G05-Z /R /SL-K /4822
FR-G05-Z /D /K /3152	FR-G05-Z /SL-K /4502	FR-G05-Z /R /SL-K /5412
FR-G05-Z /D /K /3602	FR-G05-Z /SL-K /4802	FR-G05-Z /R /SL-K /6002
FR-G05-Z /D /K /3902	FR-G05-Z /SL-K /4812	FR-G05-Z /R /SL-K /6022
FR-G05-Z /D /K /4202	FR-G05-Z /SL-K /4822	FR-G05-Z /R /SL-K /6303
FR-G05-Z /D /K /4502	FR-G05-Z /SL-K /5412	FR-G05-Z /R /SL-K /6903
FR-G05-Z /D /K /4802	FR-G05-Z /SL-K /6002	FR-G05-Z /R /SL-K /7203
FR-G05-Z /D /K /4812	FR-G05-Z /SL-K /6022	FR-G05-Z /R /SL-K /7213
FR-G05-Z /D /K /4822	FR-G05-Z /SL-K /6303	FR-G05-Z /R /SL-K /7223
FR-G05-Z /D /K /5412	FR-G05-Z /SL-K /6903	
FR-G05-Z /D /K /6002	FR-G05-Z /SL-K /7203	
FR-G05-Z /D /K /6022	FR-G05-Z /SL-K /7213	
FR-G05-Z /D /K /6303	FR-G05-Z /SL-K /7223	
FR-G05-Z /D /K /6903	FR-G05-Z /D /SL-K /1502	
FR-G05-Z /D /K /7203	FR-G05-Z /D /SL-K /1702	
FR-G05-Z /D /K /7213	FR-G05-Z /D /SL-K /1902	
FR-G05-Z /D /K /7223	FR-G05-Z /D /SL-K /1922	
FR-G05-Z /R /K /1502	FR-G05-Z /D /SL-K /2202	
FR-G05-Z /R /K /1702	FR-G05-Z /D /SL-K /2602	
FR-G05-Z /R /K /1902	FR-G05-Z /D /SL-K /2652	
FR-G05-Z /R /K /1922	FR-G05-Z /D /SL-K /2702	

OPERATING LIMITS

/CA 1502 - 6603
/SL-CA 1502 - 6303



Ta in Air temperature

Tev out Evaporator leaving water temperature

	Standard units
A	Required: EC fans (code 808)*
B	Required: EC fans (code 808)* Low temperature device DBA (code 813)
C	Required: Kit HT (code 1955)
A+C	Required: EC fans (code 808)* Kit HT (code 1955)
B+C	Required: EC fans (code 808)* Low temperature device DBA (code 813) Kit HT (code 1955)
	Required: Antifreeze piping and pumps (code 2432) if hydronic kit is present
	Required: Double insultaion on heat exchangers (code 2631) or Double insulation on heat exchangers, pipes and pumps (code 2633) if hydronic kit is present
	Required: Negative fluid temperature (code 871)

The diagram shows the temperature limits of full load operation.
In case of higher outdoor air temperature, automatically partialized its resources to ensure uninterrupted operation.
Operating limits when working partialized (water */7°C - */44,6°F):
/CA , /SL-CA : 55°C - 131°F
With Kit HT (all versions): 57°C - 134,6°F

In case of outdoor air temperature higher than 53°C - 127,4°F, some additional cooling equipment for the electrical panel could be necessary. Please refer to our sales department for assessment and quotation.

Units with heat recovery: /D, /R
For the units with heat recovery, the maximum outdoor temperature allowed are 1,5°C - 2,7°F lower than the ones of the corresponding model without heat recovery.

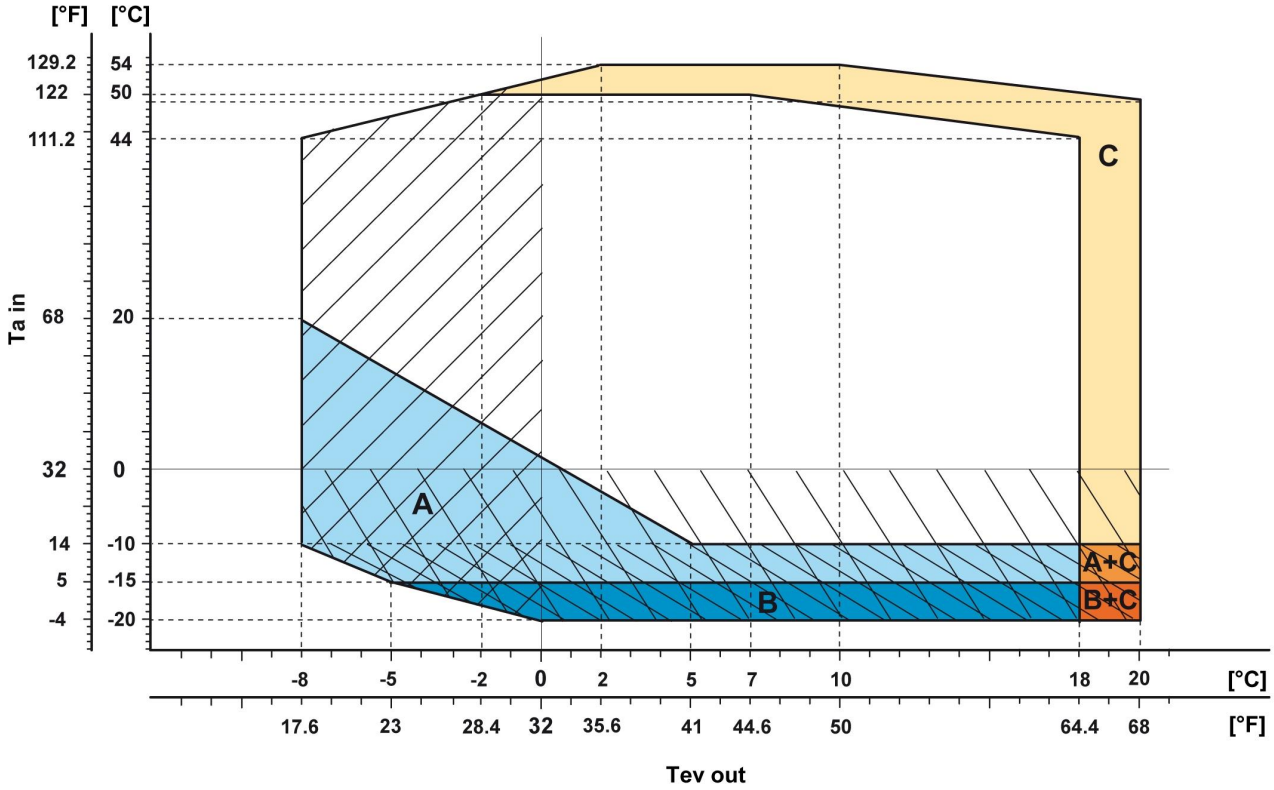
* EC fans are suitable to operate up to 46°C - 114,8°F of outdoor temperature. In case of higher temperatures, fans with oversized motors must be used. For the quotation of these components, please contact our sales department.

For the specific temperature limits of each model please refer to the selection software ElcaStudio.

SIZE		
FR-G05-Z /CA	FR-G05-Z /R /CA /4802	FR-G05-Z /R /SL-CA /3602
FR-G05-Z /CA	FR-G05-Z /R /CA /4822	FR-G05-Z /R /SL-CA /3902
FR-G05-Z /CA	FR-G05-Z /R /CA /5412	FR-G05-Z /R /SL-CA /4202
FR-G05-Z /CA	FR-G05-Z /R /CA /5703	FR-G05-Z /R /SL-CA /4502
FR-G05-Z /CA	FR-G05-Z /R /CA /6303	FR-G05-Z /R /SL-CA /4802
FR-G05-Z /CA	FR-G05-Z /R /CA /6603	FR-G05-Z /R /SL-CA /4822
FR-G05-Z /CA	FR-G05-Z /SL-CA /1502	FR-G05-Z /R /SL-CA /5412
FR-G05-Z /CA	FR-G05-Z /SL-CA /1702	FR-G05-Z /R /SL-CA /5703
FR-G05-Z /CA	FR-G05-Z /SL-CA /1902	FR-G05-Z /R /SL-CA /6303
FR-G05-Z /CA	FR-G05-Z /SL-CA /1922	
FR-G05-Z /CA	FR-G05-Z /SL-CA /2202	
FR-G05-Z /CA	FR-G05-Z /SL-CA /2602	
FR-G05-Z /CA	FR-G05-Z /SL-CA /2652	
FR-G05-Z /CA	FR-G05-Z /SL-CA /2702	
FR-G05-Z /CA	FR-G05-Z /SL-CA /2722	
FR-G05-Z /CA	FR-G05-Z /SL-CA /3152	
FR-G05-Z /CA	FR-G05-Z /SL-CA /3602	
FR-G05-Z /CA	FR-G05-Z /SL-CA /3902	
FR-G05-Z /CA	FR-G05-Z /SL-CA /4202	
FR-G05-Z /CA	FR-G05-Z /SL-CA /4502	
FR-G05-Z /D /CA /1502	FR-G05-Z /SL-CA /4802	
FR-G05-Z /D /CA /1702	FR-G05-Z /SL-CA /4822	
FR-G05-Z /D /CA /1902	FR-G05-Z /SL-CA /5412	
FR-G05-Z /D /CA /1922	FR-G05-Z /SL-CA /5703	
FR-G05-Z /D /CA /2202	FR-G05-Z /SL-CA /6303	
FR-G05-Z /D /CA /2602	FR-G05-Z /D /SL-CA /1502	
FR-G05-Z /D /CA /2652	FR-G05-Z /D /SL-CA /1702	
FR-G05-Z /D /CA /2702	FR-G05-Z /D /SL-CA /1902	
FR-G05-Z /D /CA /2722	FR-G05-Z /D /SL-CA /1922	
FR-G05-Z /D /CA /3152	FR-G05-Z /D /SL-CA /2202	
FR-G05-Z /D /CA /3602	FR-G05-Z /D /SL-CA /2602	
FR-G05-Z /D /CA /3902	FR-G05-Z /D /SL-CA /2652	
FR-G05-Z /D /CA /4202	FR-G05-Z /D /SL-CA /2702	
FR-G05-Z /D /CA /4502	FR-G05-Z /D /SL-CA /2722	
FR-G05-Z /D /CA /4802	FR-G05-Z /D /SL-CA /3152	
FR-G05-Z /D /CA /4822	FR-G05-Z /D /SL-CA /3602	
FR-G05-Z /D /CA /5412	FR-G05-Z /D /SL-CA /3902	
FR-G05-Z /D /CA /5703	FR-G05-Z /D /SL-CA /4202	
FR-G05-Z /D /CA /6303	FR-G05-Z /D /SL-CA /4502	
FR-G05-Z /D /CA /6603	FR-G05-Z /D /SL-CA /4802	
FR-G05-Z /R /CA /1502	FR-G05-Z /D /SL-CA /4822	
FR-G05-Z /R /CA /1702	FR-G05-Z /D /SL-CA /5412	
FR-G05-Z /R /CA /1902	FR-G05-Z /D /SL-CA /5703	
FR-G05-Z /R /CA /1922	FR-G05-Z /D /SL-CA /6303	
FR-G05-Z /R /CA /2202	FR-G05-Z /R /SL-CA /1502	
FR-G05-Z /R /CA /2602	FR-G05-Z /R /SL-CA /1702	
FR-G05-Z /R /CA /2652	FR-G05-Z /R /SL-CA /1902	
FR-G05-Z /R /CA /2702	FR-G05-Z /R /SL-CA /1922	
FR-G05-Z /R /CA /2722	FR-G05-Z /R /SL-CA /2202	
FR-G05-Z /R /CA /3152	FR-G05-Z /R /SL-CA /2602	
FR-G05-Z /R /CA /3602	FR-G05-Z /R /SL-CA /2652	
FR-G05-Z /R /CA /3902	FR-G05-Z /R /SL-CA /2702	
FR-G05-Z /R /CA /4202	FR-G05-Z /R /SL-CA /2722	
FR-G05-Z /R /CA /4502	FR-G05-Z /R /SL-CA /3152	

OPERATING LIMITS

/E 1502 - 5412
/SL-E 1502 - 5412



Ta in Air temperature

Tev out Evaporator leaving water temperature

Standard units

A Required: EC fans (code 808)*

B Required: EC fans (code 808)*
Low temperature device DBA (code 813)

C Required: Kit HT (code 1955)

A+C Required: EC fans (code 808)*
Kit HT (code 1955)

B+C Required: EC fans (code 808)*
Low temperature device DBA (code 813)
Kit HT (code 1955)

Required: Antifreeze piping and pumps (code 2432)
if hydronic kit is present

Required: Double insultaion on heat exchangers (code 2631)
or Double insulation on heat exchangers, pipes and
pumps (code 2633) if hydronic kit is present

Required: Negative fluid temperature (code 871)

The diagram shows the temperature limits of full load operation.
In case of higher outdoor air temperature, automatically partialized its resources to ensure uninterrupted operation.
Operating limits when working partialized (water */7°C - */44,6°F):
/E , /SL-E : 55°C - 131°F
With Kit HT (all versions): 57°C - 134,6°F

In case of outdoor air temperature higher than 53°C - 127,4°F, some additional cooling equipment for the electrical panel could be necessary. Please refer to our sales department for assessment and quotation.

Units with heat recovery: /D, /R
For the units with heat recovery, the maximum outdoor temperature allowed are 1,5°C - 2,7°F lower than the ones of the corresponding model without heat recovery.

* EC fans are suitable to operate up to 46°C - 114,8°F of outdoor temperature. In case of higher temperatures, fans with oversized motors must be used. For the quotation of these components, please contact our sales department.

For the specific temperature limits of each model please refer to the selection software ElcaStudio.

SIZE	
FR-G05-Z /E /1502	FR-G05-Z /SL-E /1922
FR-G05-Z /E /1702	FR-G05-Z /SL-E /2202
FR-G05-Z /E /1902	FR-G05-Z /SL-E /2602
FR-G05-Z /E /1922	FR-G05-Z /SL-E /2652
FR-G05-Z /E /2202	FR-G05-Z /SL-E /2702
FR-G05-Z /E /2602	FR-G05-Z /SL-E /2722
FR-G05-Z /E /2652	FR-G05-Z /SL-E /3152
FR-G05-Z /E /2702	FR-G05-Z /SL-E /3602
FR-G05-Z /E /2722	FR-G05-Z /SL-E /3902
FR-G05-Z /E /3152	FR-G05-Z /SL-E /4202
FR-G05-Z /E /3602	FR-G05-Z /SL-E /4502
FR-G05-Z /E /3902	FR-G05-Z /SL-E /4802
FR-G05-Z /E /4202	FR-G05-Z /SL-E /4822
FR-G05-Z /E /4502	FR-G05-Z /SL-E /5412
FR-G05-Z /E /4802	FR-G05-Z /D /SL-E /1502
FR-G05-Z /E /4822	FR-G05-Z /D /SL-E /1702
FR-G05-Z /E /5412	FR-G05-Z /D /SL-E /1902
FR-G05-Z /D /E /1502	FR-G05-Z /D /SL-E /1922
FR-G05-Z /D /E /1702	FR-G05-Z /D /SL-E /2202
FR-G05-Z /D /E /1902	FR-G05-Z /D /SL-E /2602
FR-G05-Z /D /E /1922	FR-G05-Z /D /SL-E /2652
FR-G05-Z /D /E /2202	FR-G05-Z /D /SL-E /2702
FR-G05-Z /D /E /2602	FR-G05-Z /D /SL-E /2722
FR-G05-Z /D /E /2652	FR-G05-Z /D /SL-E /3152
FR-G05-Z /D /E /2702	FR-G05-Z /D /SL-E /3602
FR-G05-Z /D /E /2722	FR-G05-Z /D /SL-E /3902
FR-G05-Z /D /E /3152	FR-G05-Z /D /SL-E /4202
FR-G05-Z /D /E /3602	FR-G05-Z /D /SL-E /4502
FR-G05-Z /D /E /3902	FR-G05-Z /D /SL-E /4802
FR-G05-Z /D /E /4202	FR-G05-Z /D /SL-E /4822
FR-G05-Z /D /E /4502	FR-G05-Z /D /SL-E /5412
FR-G05-Z /D /E /4802	FR-G05-Z /R /SL-E /1502
FR-G05-Z /D /E /4822	FR-G05-Z /R /SL-E /1702
FR-G05-Z /D /E /5412	FR-G05-Z /R /SL-E /1902
FR-G05-Z /R /E /1502	FR-G05-Z /R /SL-E /1922
FR-G05-Z /R /E /1702	FR-G05-Z /R /SL-E /2202
FR-G05-Z /R /E /1902	FR-G05-Z /R /SL-E /2602
FR-G05-Z /R /E /1922	FR-G05-Z /R /SL-E /2652
FR-G05-Z /R /E /2202	FR-G05-Z /R /SL-E /2702
FR-G05-Z /R /E /2602	FR-G05-Z /R /SL-E /2722
FR-G05-Z /R /E /2652	FR-G05-Z /R /SL-E /3152
FR-G05-Z /R /E /2702	FR-G05-Z /R /SL-E /3602
FR-G05-Z /R /E /2722	FR-G05-Z /R /SL-E /3902
FR-G05-Z /R /E /3152	FR-G05-Z /R /SL-E /4202
FR-G05-Z /R /E /3602	FR-G05-Z /R /SL-E /4502
FR-G05-Z /R /E /3902	FR-G05-Z /R /SL-E /4802
FR-G05-Z /R /E /4202	FR-G05-Z /R /SL-E /4822
FR-G05-Z /R /E /4502	FR-G05-Z /R /SL-E /5412
FR-G05-Z /R /E /4802	
FR-G05-Z /R /E /4822	
FR-G05-Z /R /E /5412	
FR-G05-Z /SL-E /1502	
FR-G05-Z /SL-E /1702	
FR-G05-Z /SL-E /1902	

5.2 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 tabel.

	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.

5.3 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.

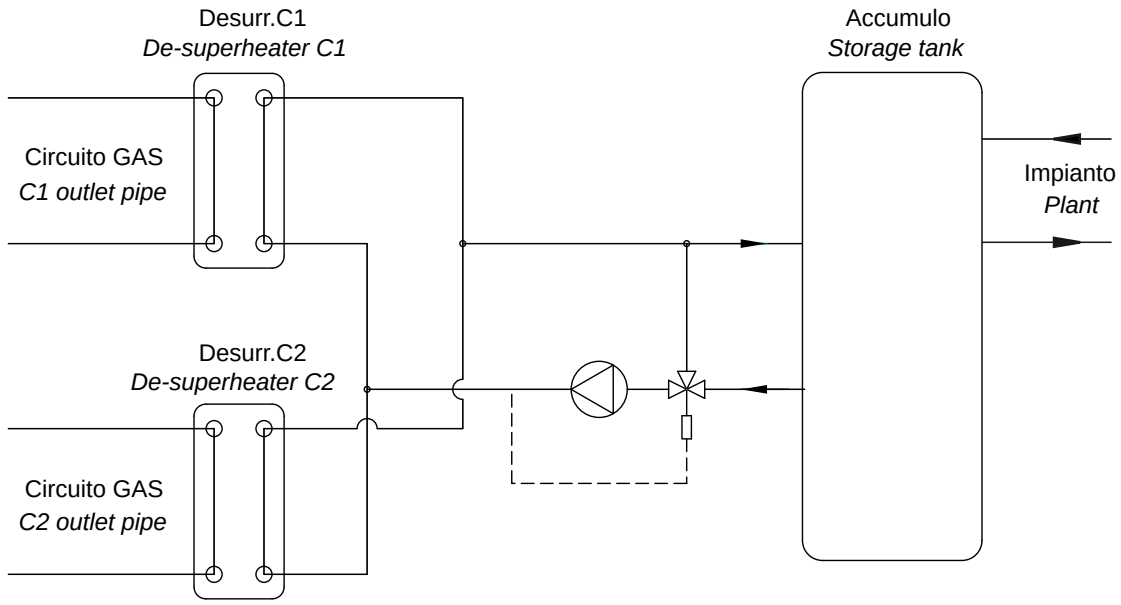
SERIES	FOULING FACTORS	EVAPORATOR			CONDENSER/RECOVERY			DESUPERHEATER
	ff (m² °CW)	F1	FK1	KE [°C]	F2	FK2	KC [°C]	R3
VARIOUS	0	1,000	1,000	0,0	1,000	1,000	0,0	1,000
VARIOUS	$1{,}80 \times 10^{-5}$	1,000	1,000	0,0	1,000	1,000	0,0	1,000
VARIOUS	$4{,}40 \times 10^{-5}$	1,000	1,000	0,0	0,990	1,030	1,0	0,990
VARIOUS	$8{,}80 \times 10^{-5}$	0,960	0,990	0,7	0,980	1,040	1,5	0,980
VARIOUS	$13{,}20 \times 10^{-5}$	0,944	0,985	1,0	0,964	1,050	2,3	0,964
VARIOUS	$17{,}20 \times 10^{-5}$	0,930	0,980	1,5	0,950	1,060	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 evaporator outlet temperature increase
KC: maximum condenser outlet temperature decrease

OPERATION LIMITS OF DE-SUPERHEATERS

If it isn't possible to guarantee the indicated minimum temperatures, it is wise to install a dedicated kit for protection of de-superheater (device subject to RFQ - request feasibility and quotation) (see figure).

De-superheater minimum inlet temperature = 25°C
De-superheater minimum outlet temperature = 30°C



6.1 HYDRAULIC DATA

[SI System]

Water flow and pressure drop

Water flow in the plant (side) exchanger is given by:
Q=P/(4,186 x Dt)
Q: water flow (l/s)
Dt: difference between inlet and outlet water temp. (°C)
P: heat exchanger capacity (kW)

Pressure drop is given by:
Dp= K x (3,6 x Q)^2/1000
Q: water flow (l/s)
Dp: pressure drop (kPa)
K: unit size ratio

SIZE	Power supply V/ph/Hz	HEAT EXCHANGER USER SIDE					HEAT RECOVERY EX. USER SIDE			
		K	Q min l/s	Q max l/s	C.A.S. l	C.a. min l	K	Q min l/s	Q max l/s	C.A.S. l
FR-G05-Z /K /1502	400/3/50	9,00	10,56	26,67	91,0	1000	-	-	-	-
FR-G05-Z /K /1702	400/3/50	9,00	10,56	26,67	91,0	1100	-	-	-	-
FR-G05-Z /K /1902	400/3/50	7,72	13,33	31,94	85,0	1300	-	-	-	-
FR-G05-Z /K /1922	400/3/50	7,72	13,33	31,94	85,0	1500	-	-	-	-
FR-G05-Z /K /2202	400/3/50	4,72	12,50	40,00	140	1700	-	-	-	-
FR-G05-Z /K /2602	400/3/50	4,72	12,50	40,00	140	1900	-	-	-	-
FR-G05-Z /K /2652	400/3/50	3,77	15,83	46,94	124	2000	-	-	-	-
FR-G05-Z /K /2702	400/3/50	3,77	15,83	46,94	124	2100	-	-	-	-
FR-G05-Z /K /2722	400/3/50	3,00	17,50	50,28	230	2300	-	-	-	-
FR-G05-Z /K /3152	400/3/50	3,00	17,50	50,28	230	2500	-	-	-	-
FR-G05-Z /K /3602	400/3/50	2,14	19,17	54,44	220	2800	-	-	-	-
FR-G05-Z /K /3902	400/3/50	1,89	19,17	56,11	210	3100	-	-	-	-
FR-G05-Z /K /4202	400/3/50	1,89	19,17	56,11	210	3200	-	-	-	-
FR-G05-Z /K /4502	400/3/50	1,46	25,00	63,89	275	3400	-	-	-	-
FR-G05-Z /K /4802	400/3/50	1,46	25,00	63,89	275	3600	-	-	-	-
FR-G05-Z /K /4812	400/3/50	1,46	25,00	63,89	275	3700	-	-	-	-
FR-G05-Z /K /4822	400/3/50	1,37	25,00	68,89	261	4000	-	-	-	-
FR-G05-Z /K /5412	400/3/50	1,03	31,11	100,8	310	4100	-	-	-	-
FR-G05-Z /K /6002	400/3/50	1,03	31,11	100,8	310	4300	-	-	-	-
FR-G05-Z /K /6022	400/3/50	1,03	31,11	100,8	310	4600	-	-	-	-
FR-G05-Z /K /6303	400/3/50	0,78	41,67	102,8	575	4900	-	-	-	-
FR-G05-Z /K /6903	400/3/50	0,78	41,67	102,8	575	5200	-	-	-	-
FR-G05-Z /K /7203	400/3/50	0,55	41,67	97,22	550	5400	-	-	-	-
FR-G05-Z /K /7213	400/3/50	0,55	41,67	97,22	550	5800	-	-	-	-
FR-G05-Z /K /7223	400/3/50	0,59	41,67	100,0	500	6000	-	-	-	-
FR-G05-Z /D /K /1502	400/3/50	9,00	10,56	26,67	91,0	1000	147	0,003	4,556	3,20
FR-G05-Z /D /K /1702	400/3/50	9,00	10,56	26,67	91,0	1100	147	0,003	5,361	3,20
FR-G05-Z /D /K /1902	400/3/50	7,72	13,33	31,94	85,0	1300	147	0,003	5,944	3,20
FR-G05-Z /D /K /1922	400/3/50	7,72	13,33	31,94	85,0	1500	73,0	0,003	6,472	4,40
FR-G05-Z /D /K /2202	400/3/50	4,72	12,50	40,00	140	1700	73,0	0,003	7,750	4,40
FR-G05-Z /D /K /2602	400/3/50	4,72	12,50	40,00	140	1900	73,0	0,003	8,417	4,40
FR-G05-Z /D /K /2652	400/3/50	3,77	15,83	46,94	124	2000	49,7	0,003	8,833	5,10
FR-G05-Z /D /K /2702	400/3/50	3,77	15,83	46,94	124	2100	36,0	0,003	9,222	5,80
FR-G05-Z /D /K /2722	400/3/50	3,00	17,50	50,28	230	2300	36,0	0,003	10,78	5,80
FR-G05-Z /D /K /3152	400/3/50	3,00	17,50	50,28	230	2500	27,0	0,003	11,42	7,40
FR-G05-Z /D /K /3602	400/3/50	2,14	19,17	54,44	220	2800	21,0	0,003	12,19	9,00
FR-G05-Z /D /K /3902	400/3/50	1,89	19,17	56,11	210	3100	21,0	0,003	13,19	9,00
FR-G05-Z /D /K /4202	400/3/50	1,89	19,17	56,11	210	3200	21,0	0,003	14,06	9,00
FR-G05-Z /D /K /4502	400/3/50	1,46	25,00	63,89	275	3400	14,8	0,003	15,39	10,5
FR-G05-Z /D /K /4802	400/3/50	1,46	25,00	63,89	275	3600	11,0	0,003	16,64	12,0
FR-G05-Z /D /K /4812	400/3/50	1,46	25,00	63,89	275	3700	11,0	0,003	15,78	12,0

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
C.A.S.: Exchanger water content

HYDRAULIC DATA

[SI System]

SIZE	Power supply V/ph/Hz	HEAT EXCHANGER USER SIDE					HEAT RECOVERY EX. USER SIDE			
		K	Q min l/s	Q max l/s	C.A.S. l	C.a. min l	K	Q min l/s	Q max l/s	C.A.S. l
FR-G05-Z /D /K /4822	400/3/50	1,37	25,00	68,89	261	4000	11,0	0,003	17,81	12,0
FR-G05-Z /D /K /5412	400/3/50	1,03	31,11	100,8	310	4100	8,50	0,003	19,06	30,0
FR-G05-Z /D /K /6002	400/3/50	1,03	31,11	100,8	310	4300	8,50	0,003	19,39	30,0
FR-G05-Z /D /K /6022	400/3/50	1,03	31,11	100,8	310	4600	8,50	0,003	21,36	30,0
FR-G05-Z /D /K /6303	400/3/50	0,78	41,67	102,8	575	4900	9,30	0,003	21,22	13,5
FR-G05-Z /D /K /6903	400/3/50	0,78	41,67	102,8	575	5200	5,90	0,003	23,53	16,5
FR-G05-Z /D /K /7203	400/3/50	0,55	41,67	97,22	550	5400	4,90	0,003	25,11	18,0
FR-G05-Z /D /K /7213	400/3/50	0,55	41,67	97,22	550	5800	4,90	0,003	26,11	18,0
FR-G05-Z /D /K /7223	400/3/50	0,59	41,67	100,0	500	6000	3,80	0,003	27,25	45,0
FR-G05-Z /R /K /1502	400/3/50	9,00	10,56	26,67	91,0	1000	6,70	11,67	26,67	38,2
FR-G05-Z /R /K /1702	400/3/50	9,00	10,56	26,67	91,0	1100	5,00	15,00	34,44	52,0
FR-G05-Z /R /K /1902	400/3/50	7,72	13,33	31,94	85,0	1300	3,90	16,39	37,22	55,4
FR-G05-Z /R /K /1922	400/3/50	7,72	13,33	31,94	85,0	1500	3,10	17,78	40,00	58,8
FR-G05-Z /R /K /2202	400/3/50	4,72	12,50	40,00	140	1700	2,50	20,00	45,56	65,8
FR-G05-Z /R /K /2602	400/3/50	4,72	12,50	40,00	140	1900	2,20	22,22	50,83	72,7
FR-G05-Z /R /K /2652	400/3/50	3,77	15,83	46,94	124	2000	2,20	22,22	50,83	72,7
FR-G05-Z /R /K /2702	400/3/50	3,77	15,83	46,94	124	2100	1,90	24,44	56,11	79,6
FR-G05-Z /R /K /2722	400/3/50	3,00	17,50	50,28	230	2300	1,70	27,22	62,78	90,0
FR-G05-Z /R /K /3152	400/3/50	3,00	17,50	50,28	230	2500	0,90	37,78	86,67	109
FR-G05-Z /R /K /3602	400/3/50	2,14	19,17	54,44	220	2800	0,90	37,78	86,67	109
FR-G05-Z /R /K /3902	400/3/50	1,89	19,17	56,11	210	3100	0,60	42,78	97,22	128
FR-G05-Z /R /K /4202	400/3/50	1,89	19,17	56,11	210	3200	0,60	42,78	97,22	128
FR-G05-Z /R /K /4502	400/3/50	1,46	25,00	63,89	275	3400	0,50	45,28	103,1	136
FR-G05-Z /R /K /4802	400/3/50	1,46	25,00	63,89	275	3600	0,40	47,78	108,9	143
FR-G05-Z /R /K /4812	400/3/50	1,46	25,00	63,89	275	3700	0,40	47,78	108,9	143
FR-G05-Z /R /K /4822	400/3/50	1,37	25,00	68,89	261	4000	0,40	53,89	122,2	159
FR-G05-Z /R /K /5412	400/3/50	1,03	31,11	100,8	310	4100	0,30	57,78	131,7	168
FR-G05-Z /R /K /6002	400/3/50	1,03	31,11	100,8	310	4300	0,30	61,67	141,1	178
FR-G05-Z /R /K /6022	400/3/50	1,03	31,11	100,8	310	4600	0,30	61,67	141,1	178
FR-G05-Z /R /K /6303	400/3/50	0,78	41,67	102,8	575	4900	0,30	64,17	145,8	192
FR-G05-Z /R /K /6903	400/3/50	0,78	41,67	102,8	575	5200	0,20	69,17	157,5	207
FR-G05-Z /R /K /7203	400/3/50	0,55	41,67	97,22	550	5400	0,20	71,67	163,3	215
FR-G05-Z /R /K /7213	400/3/50	0,55	41,67	97,22	550	5800	0,20	77,78	176,7	231
FR-G05-Z /R /K /7223	400/3/50	0,59	41,67	100,0	500	6000	0,20	80,83	183,3	238
FR-G05-Z /SL-K /1502	400/3/50	9,00	10,56	26,67	91,0	1000	-	-	-	-
FR-G05-Z /SL-K /1702	400/3/50	9,00	10,56	26,67	91,0	1100	-	-	-	-
FR-G05-Z /SL-K /1902	400/3/50	7,72	13,33	31,94	85,0	1300	-	-	-	-
FR-G05-Z /SL-K /1922	400/3/50	7,72	13,33	31,94	85,0	1500	-	-	-	-
FR-G05-Z /SL-K /2202	400/3/50	4,72	12,50	40,00	140	1700	-	-	-	-
FR-G05-Z /SL-K /2602	400/3/50	4,72	12,50	40,00	140	1900	-	-	-	-
FR-G05-Z /SL-K /2652	400/3/50	3,77	15,83	46,94	124	2000	-	-	-	-
FR-G05-Z /SL-K /2702	400/3/50	3,77	15,83	46,94	124	2100	-	-	-	-
FR-G05-Z /SL-K /2722	400/3/50	3,00	17,50	50,28	230	2300	-	-	-	-
FR-G05-Z /SL-K /3152	400/3/50	3,00	17,50	50,28	230	2500	-	-	-	-
FR-G05-Z /SL-K /3602	400/3/50	2,14	19,17	54,44	220	2800	-	-	-	-
FR-G05-Z /SL-K /3902	400/3/50	1,89	19,17	56,11	210	3100	-	-	-	-
FR-G05-Z /SL-K /4202	400/3/50	1,89	19,17	56,11	210	3200	-	-	-	-
FR-G05-Z /SL-K /4502	400/3/50	1,46	25,00	63,89	275	3400	-	-	-	-
FR-G05-Z /SL-K /4802	400/3/50	1,46	25,00	63,89	275	3600	-	-	-	-

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
C.A.S.: Exchanger water content

HYDRAULIC DATA

[SI System]

SIZE	Power supply V/ph/Hz	HEAT EXCHANGER USER SIDE					HEAT RECOVERY EX. USER SIDE			
		K	Q min l/s	Q max l/s	C.A.S. l	C.a. min l	K	Q min l/s	Q max l/s	C.A.S. l
FR-G05-Z /SL-K /4812	400/3/50	1,46	25,00	63,89	275	3700	-	-	-	-
FR-G05-Z /SL-K /4822	400/3/50	1,37	25,00	68,89	261	4000	-	-	-	-
FR-G05-Z /SL-K /5412	400/3/50	1,03	31,11	100,8	310	4100	-	-	-	-
FR-G05-Z /SL-K /6002	400/3/50	1,03	31,11	100,8	310	4300	-	-	-	-
FR-G05-Z /SL-K /6022	400/3/50	1,03	31,11	100,8	310	4600	-	-	-	-
FR-G05-Z /SL-K /6303	400/3/50	0,78	41,67	102,8	575	4900	-	-	-	-
FR-G05-Z /SL-K /6903	400/3/50	0,78	41,67	102,8	575	5200	-	-	-	-
FR-G05-Z /SL-K /7203	400/3/50	0,55	41,67	97,22	550	5400	-	-	-	-
FR-G05-Z /SL-K /7213	400/3/50	0,55	41,67	97,22	550	5800	-	-	-	-
FR-G05-Z /SL-K /7223	400/3/50	0,59	41,67	100,0	500	6000	-	-	-	-
FR-G05-Z /D /SL-K /1502	400/3/50	9,00	10,56	26,67	91,0	1000	147	0,003	4,556	3,20
FR-G05-Z /D /SL-K /1702	400/3/50	9,00	10,56	26,67	91,0	1100	147	0,003	5,361	3,20
FR-G05-Z /D /SL-K /1902	400/3/50	7,72	13,33	31,94	85,0	1300	147	0,003	5,944	3,20
FR-G05-Z /D /SL-K /1922	400/3/50	7,72	13,33	31,94	85,0	1500	73,0	0,003	6,472	4,40
FR-G05-Z /D /SL-K /2202	400/3/50	4,72	12,50	40,00	140	1700	73,0	0,003	7,750	4,40
FR-G05-Z /D /SL-K /2602	400/3/50	4,72	12,50	40,00	140	1900	73,0	0,003	8,417	4,40
FR-G05-Z /D /SL-K /2652	400/3/50	3,77	15,83	46,94	124	2000	49,7	0,003	8,833	5,10
FR-G05-Z /D /SL-K /2702	400/3/50	3,77	15,83	46,94	124	2100	36,0	0,003	9,222	5,80
FR-G05-Z /D /SL-K /2722	400/3/50	3,00	17,50	50,28	230	2300	36,0	0,003	10,78	5,80
FR-G05-Z /D /SL-K /3152	400/3/50	3,00	17,50	50,28	230	2500	27,0	0,003	11,42	7,40
FR-G05-Z /D /SL-K /3602	400/3/50	2,14	19,17	54,44	220	2800	21,0	0,003	12,19	9,00
FR-G05-Z /D /SL-K /3902	400/3/50	1,89	19,17	56,11	210	3100	21,0	0,003	13,19	9,00
FR-G05-Z /D /SL-K /4202	400/3/50	1,89	19,17	56,11	210	3200	21,0	0,003	14,06	9,00
FR-G05-Z /D /SL-K /4502	400/3/50	1,46	25,00	63,89	275	3400	14,8	0,003	15,39	10,5
FR-G05-Z /D /SL-K /4802	400/3/50	1,46	25,00	63,89	275	3600	11,0	0,003	16,64	12,0
FR-G05-Z /D /SL-K /4812	400/3/50	1,46	25,00	63,89	275	3700	11,0	0,003	15,78	12,0
FR-G05-Z /D /SL-K /4822	400/3/50	1,37	25,00	68,89	261	4000	11,0	0,003	17,81	12,0
FR-G05-Z /D /SL-K /5412	400/3/50	1,03	31,11	100,8	310	4100	8,50	0,003	19,06	30,0
FR-G05-Z /D /SL-K /6002	400/3/50	1,03	31,11	100,8	310	4300	8,50	0,003	19,39	30,0
FR-G05-Z /D /SL-K /6022	400/3/50	1,03	31,11	100,8	310	4600	8,50	0,003	21,36	30,0
FR-G05-Z /D /SL-K /6303	400/3/50	0,78	41,67	102,8	575	4900	9,30	0,003	21,22	13,5
FR-G05-Z /D /SL-K /6903	400/3/50	0,78	41,67	102,8	575	5200	5,90	0,003	23,53	16,5
FR-G05-Z /D /SL-K /7203	400/3/50	0,55	41,67	97,22	550	5400	4,90	0,003	25,11	18,0
FR-G05-Z /D /SL-K /7213	400/3/50	0,55	41,67	97,22	550	5800	4,90	0,003	26,11	18,0
FR-G05-Z /D /SL-K /7223	400/3/50	0,59	41,67	100,0	500	6000	3,80	0,003	27,25	45,0
FR-G05-Z /R /SL-K /1502	400/3/50	9,00	10,56	26,67	91,0	1000	6,70	11,67	26,67	38,2
FR-G05-Z /R /SL-K /1702	400/3/50	9,00	10,56	26,67	91,0	1100	5,00	15,00	34,44	52,0
FR-G05-Z /R /SL-K /1902	400/3/50	7,72	13,33	31,94	85,0	1300	5,00	15,00	34,44	52,0
FR-G05-Z /R /SL-K /1922	400/3/50	7,72	13,33	31,94	85,0	1500	3,10	17,78	40,00	58,8
FR-G05-Z /R /SL-K /2202	400/3/50	4,72	12,50	40,00	140	1700	2,80	18,89	42,78	62,3
FR-G05-Z /R /SL-K /2602	400/3/50	4,72	12,50	40,00	140	1900	2,50	20,00	45,56	65,8
FR-G05-Z /R /SL-K /2652	400/3/50	3,77	15,83	46,94	124	2000	2,20	22,22	50,83	72,7
FR-G05-Z /R /SL-K /2702	400/3/50	3,77	15,83	46,94	124	2100	1,90	24,44	56,11	79,6
FR-G05-Z /R /SL-K /2722	400/3/50	3,00	17,50	50,28	230	2300	1,70	27,22	62,78	90,0
FR-G05-Z /R /SL-K /3152	400/3/50	3,00	17,50	50,28	230	2500	0,90	37,78	86,67	109
FR-G05-Z /R /SL-K /3602	400/3/50	2,14	19,17	54,44	220	2800	0,90	37,78	86,67	109
FR-G05-Z /R /SL-K /3902	400/3/50	1,89	19,17	56,11	210	3100	0,60	42,78	97,22	128
FR-G05-Z /R /SL-K /4202	400/3/50	1,89	19,17	56,11	210	3200	0,60	42,78	97,22	128
FR-G05-Z /R /SL-K /4502	400/3/50	1,46	25,00	63,89	275	3400	0,50	45,28	103,1	136

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
C.A.S.: Exchanger water content

HYDRAULIC DATA

[SI System]

SIZE	Power supply V/ph/Hz	HEAT EXCHANGER USER SIDE					HEAT RECOVERY EX. USER SIDE			
		K	Q min l/s	Q max l/s	C.A.S. l	C.a. min l	K	Q min l/s	Q max l/s	C.A.S. l
FR-G05-Z /R /SL-K /4802	400/3/50	1,46	25,00	63,89	275	3600	0,40	47,78	108,9	143
FR-G05-Z /R /SL-K /4812	400/3/50	1,46	25,00	63,89	275	3700	0,40	47,78	108,9	143
FR-G05-Z /R /SL-K /4822	400/3/50	1,37	25,00	68,89	261	4000	0,40	53,89	122,2	159
FR-G05-Z /R /SL-K /5412	400/3/50	1,03	31,11	100,8	310	4100	0,30	57,78	131,7	168
FR-G05-Z /R /SL-K /6002	400/3/50	1,03	31,11	100,8	310	4300	0,30	61,67	141,1	178
FR-G05-Z /R /SL-K /6022	400/3/50	1,03	31,11	100,8	310	4600	0,30	61,67	141,1	178
FR-G05-Z /R /SL-K /6303	400/3/50	0,78	41,67	102,8	575	4900	0,30	64,17	145,8	192
FR-G05-Z /R /SL-K /6903	400/3/50	0,78	41,67	102,8	575	5200	0,20	69,17	157,5	207
FR-G05-Z /R /SL-K /7203	400/3/50	0,55	41,67	97,22	550	5400	0,20	71,67	163,3	215
FR-G05-Z /R /SL-K /7213	400/3/50	0,55	41,67	97,22	550	5800	0,20	77,78	176,7	231
FR-G05-Z /R /SL-K /7223	400/3/50	0,59	41,67	100,0	500	6000	0,20	80,83	183,3	238
FR-G05-Z /CA	400/3/50	9,00	10,56	26,67	91,0	1100	-	-	-	-
FR-G05-Z /CA	400/3/50	9,00	10,56	26,67	91,0	1200	-	-	-	-
FR-G05-Z /CA	400/3/50	7,72	13,33	31,94	85,0	1400	-	-	-	-
FR-G05-Z /CA	400/3/50	4,72	12,50	40,00	140	1600	-	-	-	-
FR-G05-Z /CA	400/3/50	4,72	12,50	40,00	140	1800	-	-	-	-
FR-G05-Z /CA	400/3/50	3,77	15,83	46,94	124	1900	-	-	-	-
FR-G05-Z /CA	400/3/50	3,77	15,83	46,94	124	2100	-	-	-	-
FR-G05-Z /CA	400/3/50	3,77	15,83	46,94	124	2200	-	-	-	-
FR-G05-Z /CA	400/3/50	3,00	17,50	50,28	230	2400	-	-	-	-
FR-G05-Z /CA	400/3/50	2,14	19,17	54,44	220	2700	-	-	-	-
FR-G05-Z /CA	400/3/50	2,14	19,17	54,44	220	2900	-	-	-	-
FR-G05-Z /CA	400/3/50	1,89	19,17	56,11	210	3200	-	-	-	-
FR-G05-Z /CA	400/3/50	1,89	19,17	56,11	210	3300	-	-	-	-
FR-G05-Z /CA	400/3/50	1,46	25,00	63,89	275	3600	-	-	-	-
FR-G05-Z /CA	400/3/50	1,40	25,00	66,94	269	3800	-	-	-	-
FR-G05-Z /CA	400/3/50	1,03	31,11	100,8	310	4100	-	-	-	-
FR-G05-Z /CA	400/3/50	1,03	31,11	100,8	310	4300	-	-	-	-
FR-G05-Z /CA	400/3/50	0,78	41,67	102,8	575	4700	-	-	-	-
FR-G05-Z /CA	400/3/50	0,55	41,67	97,22	550	5100	-	-	-	-
FR-G05-Z /CA	400/3/50	0,55	50,00	100,0	500	5300	-	-	-	-
FR-G05-Z /D /CA /1502	400/3/50	9,00	10,56	26,67	91,0	1100	147	0,003	4,222	3,20
FR-G05-Z /D /CA /1702	400/3/50	9,00	10,56	26,67	91,0	1200	147	0,003	4,750	3,20
FR-G05-Z /D /CA /1902	400/3/50	7,72	13,33	31,94	85,0	1400	147	0,003	5,556	3,20
FR-G05-Z /D /CA /1922	400/3/50	4,72	12,50	40,00	140	1600	101	0,003	6,417	3,80
FR-G05-Z /D /CA /2202	400/3/50	4,72	12,50	40,00	140	1800	73,0	0,003	7,083	4,40
FR-G05-Z /D /CA /2602	400/3/50	3,77	15,83	46,94	124	1900	73,0	0,003	7,806	4,40
FR-G05-Z /D /CA /2652	400/3/50	3,77	15,83	46,94	124	2100	50,0	0,003	8,194	5,10
FR-G05-Z /D /CA /2702	400/3/50	3,77	15,83	46,94	124	2200	36,0	0,003	8,694	5,80
FR-G05-Z /D /CA /2722	400/3/50	3,00	17,50	50,28	230	2400	36,0	0,003	9,722	5,80
FR-G05-Z /D /CA /3152	400/3/50	2,14	19,17	54,44	220	2700	27,0	0,003	10,83	7,40
FR-G05-Z /D /CA /3602	400/3/50	2,14	19,17	54,44	220	2900	21,0	0,003	11,64	9,00
FR-G05-Z /D /CA /3902	400/3/50	1,89	19,17	56,11	210	3200	21,0	0,003	12,53	9,00
FR-G05-Z /D /CA /4202	400/3/50	1,89	19,17	56,11	210	3300	21,0	0,003	13,42	9,00
FR-G05-Z /D /CA /4502	400/3/50	1,46	25,00	63,89	275	3600	15,0	0,003	14,28	10,5
FR-G05-Z /D /CA /4802	400/3/50	1,40	25,00	66,94	269	3800	11,0	0,003	15,17	12,0
FR-G05-Z /D /CA /4822	400/3/50	1,03	31,11	100,8	310	4100	11,0	0,003	16,86	12,0
FR-G05-Z /D /CA /5412	400/3/50	1,03	31,11	100,8	310	4300	9,00	0,003	17,47	30,0
FR-G05-Z /D /CA /5703	400/3/50	0,78	41,67	102,8	575	4700	9,00	0,003	18,58	13,5

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
C.A.S.: Exchanger water content

HYDRAULIC DATA

[SI System]

SIZE	Power supply V/ph/Hz	HEAT EXCHANGER USER SIDE					HEAT RECOVERY EX. USER SIDE			
		K	Q min l/s	Q max l/s	C.A.S. l	C.a. min l	K	Q min l/s	Q max l/s	C.A.S. l
FR-G05-Z /D /CA /6303	400/3/50	0,55	41,67	97,22	550	5100	9,00	0,003	20,67	13,5
FR-G05-Z /D /CA /6603	400/3/50	0,55	50,00	100,0	500	5300	7,00	0,003	21,92	15,0
FR-G05-Z /R /CA /1502	400/3/50	9,00	10,56	26,67	91,0	1100	5,00	15,00	34,44	52,0
FR-G05-Z /R /CA /1702	400/3/50	9,00	10,56	26,67	91,0	1200	5,00	15,00	34,44	52,0
FR-G05-Z /R /CA /1902	400/3/50	7,72	13,33	31,94	85,0	1400	5,00	15,00	34,44	52,0
FR-G05-Z /R /CA /1922	400/3/50	4,72	12,50	40,00	140	1600	3,40	17,50	40,00	58,9
FR-G05-Z /R /CA /2202	400/3/50	4,72	12,50	40,00	140	1800	2,50	20,00	45,56	65,8
FR-G05-Z /R /CA /2602	400/3/50	3,77	15,83	46,94	124	1900	2,50	20,00	45,56	65,8
FR-G05-Z /R /CA /2652	400/3/50	3,77	15,83	46,94	124	2100	2,20	22,22	50,83	72,7
FR-G05-Z /R /CA /2702	400/3/50	3,77	15,83	46,94	124	2200	1,90	24,44	56,11	79,6
FR-G05-Z /R /CA /2722	400/3/50	3,00	17,50	50,28	230	2400	1,70	27,22	62,78	90,0
FR-G05-Z /R /CA /3152	400/3/50	2,14	19,17	54,44	220	2700	0,90	37,78	86,67	109
FR-G05-Z /R /CA /3602	400/3/50	2,14	19,17	54,44	220	2900	0,90	37,78	86,67	109
FR-G05-Z /R /CA /3902	400/3/50	1,89	19,17	56,11	210	3200	0,60	42,78	97,22	128
FR-G05-Z /R /CA /4202	400/3/50	1,89	19,17	56,11	210	3300	0,60	42,78	97,22	128
FR-G05-Z /R /CA /4502	400/3/50	1,46	25,00	63,89	275	3600	0,50	45,28	103,1	136
FR-G05-Z /R /CA /4802	400/3/50	1,40	25,00	66,94	269	3800	0,40	47,78	108,9	143
FR-G05-Z /R /CA /4822	400/3/50	1,03	31,11	100,8	310	4100	0,40	53,89	122,2	159
FR-G05-Z /R /CA /5412	400/3/50	1,03	31,11	100,8	310	4300	0,30	57,78	131,7	168
FR-G05-Z /R /CA /5703	400/3/50	0,78	41,67	102,8	575	4700	0,30	64,17	145,8	192
FR-G05-Z /R /CA /6303	400/3/50	0,55	41,67	97,22	550	5100	0,30	64,17	145,8	192
FR-G05-Z /R /CA /6603	400/3/50	0,55	50,00	100,0	500	5300	0,20	66,67	151,7	200
FR-G05-Z /SL-CA /1502	400/3/50	9,00	10,56	26,67	91,0	1100	-	-	-	-
FR-G05-Z /SL-CA /1702	400/3/50	9,00	10,56	26,67	91,0	1200	-	-	-	-
FR-G05-Z /SL-CA /1902	400/3/50	7,72	13,33	31,94	85,0	1400	-	-	-	-
FR-G05-Z /SL-CA /1922	400/3/50	4,72	12,50	40,00	140	1600	-	-	-	-
FR-G05-Z /SL-CA /2202	400/3/50	4,72	12,50	40,00	140	1800	-	-	-	-
FR-G05-Z /SL-CA /2602	400/3/50	3,77	15,83	46,94	124	1900	-	-	-	-
FR-G05-Z /SL-CA /2652	400/3/50	3,77	15,83	46,94	124	2100	-	-	-	-
FR-G05-Z /SL-CA /2702	400/3/50	3,00	17,50	50,28	230	2200	-	-	-	-
FR-G05-Z /SL-CA /2722	400/3/50	3,00	17,50	50,28	230	2400	-	-	-	-
FR-G05-Z /SL-CA /3152	400/3/50	2,14	19,17	54,44	220	2700	-	-	-	-
FR-G05-Z /SL-CA /3602	400/3/50	2,14	19,17	54,44	220	2900	-	-	-	-
FR-G05-Z /SL-CA /3902	400/3/50	1,89	19,17	56,11	210	3200	-	-	-	-
FR-G05-Z /SL-CA /4202	400/3/50	1,89	19,17	56,11	210	3300	-	-	-	-
FR-G05-Z /SL-CA /4502	400/3/50	1,46	25,00	63,89	275	3600	-	-	-	-
FR-G05-Z /SL-CA /4802	400/3/50	1,40	25,00	66,94	269	3800	-	-	-	-
FR-G05-Z /SL-CA /4822	400/3/50	1,03	31,11	100,8	310	4100	-	-	-	-
FR-G05-Z /SL-CA /5412	400/3/50	1,03	31,11	100,8	310	4300	-	-	-	-
FR-G05-Z /SL-CA /5703	400/3/50	0,78	41,67	102,8	575	4700	-	-	-	-
FR-G05-Z /SL-CA /6303	400/3/50	0,55	50,00	97,22	550	5100	-	-	-	-
FR-G05-Z /D /SL-CA /1502	400/3/50	9,00	10,56	26,67	91,0	1100	147	0,003	4,222	3,20
FR-G05-Z /D /SL-CA /1702	400/3/50	9,00	10,56	26,67	91,0	1200	147	0,003	4,750	3,20
FR-G05-Z /D /SL-CA /1902	400/3/50	7,72	13,33	31,94	85,0	1400	147	0,003	5,556	3,20
FR-G05-Z /D /SL-CA /1922	400/3/50	4,72	12,50	40,00	140	1600	101	0,003	6,417	3,80
FR-G05-Z /D /SL-CA /2202	400/3/50	4,72	12,50	40,00	140	1800	73,0	0,003	7,083	4,40
FR-G05-Z /D /SL-CA /2602	400/3/50	3,77	15,83	46,94	124	1900	50,0	0,003	7,806	5,10
FR-G05-Z /D /SL-CA /2652	400/3/50	3,77	15,83	46,94	124	2100	50,0	0,003	8,194	5,10
FR-G05-Z /D /SL-CA /2702	400/3/50	3,00	17,50	50,28	230	2200	36,0	0,003	8,694	5,80

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
C.A.S.: Exchanger water content

HYDRAULIC DATA

[SI System]

SIZE	Power supply V/ph/Hz	HEAT EXCHANGER USER SIDE					HEAT RECOVERY EX. USER SIDE			
		K	Q min l/s	Q max l/s	C.A.S. l	C.a. min l	K	Q min l/s	Q max l/s	C.A.S. l
FR-G05-Z /D /SL-CA /2722	400/3/50	3,00	17,50	50,28	230	2400	36,0	0,003	9,722	5,80
FR-G05-Z /D /SL-CA /3152	400/3/50	2,14	19,17	54,44	220	2700	27,0	0,003	10,83	7,40
FR-G05-Z /D /SL-CA /3602	400/3/50	2,14	19,17	54,44	220	2900	21,0	0,003	11,64	9,00
FR-G05-Z /D /SL-CA /3902	400/3/50	1,89	19,17	56,11	210	3200	21,0	0,003	12,53	9,00
FR-G05-Z /D /SL-CA /4202	400/3/50	1,89	19,17	56,11	210	3300	21,0	0,003	13,42	9,00
FR-G05-Z /D /SL-CA /4502	400/3/50	1,46	25,00	63,89	275	3600	15,0	0,003	14,28	10,5
FR-G05-Z /D /SL-CA /4802	400/3/50	1,40	25,00	66,94	269	3800	11,0	0,003	15,17	12,0
FR-G05-Z /D /SL-CA /4822	400/3/50	1,03	31,11	100,8	310	4100	11,0	0,003	16,86	12,0
FR-G05-Z /D /SL-CA /5412	400/3/50	1,03	31,11	100,8	310	4300	9,00	0,003	17,47	30,0
FR-G05-Z /D /SL-CA /5703	400/3/50	0,78	41,67	102,8	575	4700	9,00	0,003	18,58	13,5
FR-G05-Z /D /SL-CA /6303	400/3/50	0,55	50,00	97,22	550	5100	9,00	0,003	20,67	13,5
FR-G05-Z /R /SL-CA /1502	400/3/50	9,00	10,56	26,67	91,0	1100	5,00	15,00	34,44	52,0
FR-G05-Z /R /SL-CA /1702	400/3/50	9,00	10,56	26,67	91,0	1200	5,00	15,00	34,44	52,0
FR-G05-Z /R /SL-CA /1902	400/3/50	7,72	13,33	31,94	85,0	1400	3,90	16,39	37,22	55,4
FR-G05-Z /R /SL-CA /1922	400/3/50	4,72	12,50	40,00	140	1600	3,40	17,50	40,00	58,9
FR-G05-Z /R /SL-CA /2202	400/3/50	4,72	12,50	40,00	140	1800	2,50	20,00	45,56	65,8
FR-G05-Z /R /SL-CA /2602	400/3/50	3,77	15,83	46,94	124	1900	2,20	22,22	50,83	72,7
FR-G05-Z /R /SL-CA /2652	400/3/50	3,77	15,83	46,94	124	2100	2,20	22,22	50,83	72,7
FR-G05-Z /R /SL-CA /2702	400/3/50	3,00	17,50	50,28	230	2200	1,90	24,44	56,11	79,6
FR-G05-Z /R /SL-CA /2722	400/3/50	3,00	17,50	50,28	230	2400	1,70	27,22	62,78	90,0
FR-G05-Z /R /SL-CA /3152	400/3/50	2,14	19,17	54,44	220	2700	0,90	37,78	86,67	109
FR-G05-Z /R /SL-CA /3602	400/3/50	2,14	19,17	54,44	220	2900	0,90	37,78	86,67	109
FR-G05-Z /R /SL-CA /3902	400/3/50	1,89	19,17	56,11	210	3200	0,60	42,78	97,22	128
FR-G05-Z /R /SL-CA /4202	400/3/50	1,89	19,17	56,11	210	3300	0,60	42,78	97,22	128
FR-G05-Z /R /SL-CA /4502	400/3/50	1,46	25,00	63,89	275	3600	0,50	45,28	103,1	136
FR-G05-Z /R /SL-CA /4802	400/3/50	1,40	25,00	66,94	269	3800	0,40	47,78	108,9	143
FR-G05-Z /R /SL-CA /4822	400/3/50	1,03	31,11	100,8	310	4100	0,40	53,89	122,2	159
FR-G05-Z /R /SL-CA /5412	400/3/50	1,03	31,11	100,8	310	4300	0,30	57,78	131,7	168
FR-G05-Z /R /SL-CA /5703	400/3/50	0,78	41,67	102,8	575	4700	0,30	64,17	145,8	192
FR-G05-Z /R /SL-CA /6303	400/3/50	0,55	50,00	97,22	550	5100	0,30	64,17	145,8	192
FR-G05-Z /E /1502	400/3/50	7,72	13,33	31,94	85,0	1100	-	-	-	-
FR-G05-Z /E /1702	400/3/50	7,72	13,33	31,94	85,0	1300	-	-	-	-
FR-G05-Z /E /1902	400/3/50	4,72	12,50	40,00	140	1400	-	-	-	-
FR-G05-Z /E /1922	400/3/50	4,72	12,50	40,00	140	1600	-	-	-	-
FR-G05-Z /E /2202	400/3/50	4,29	15,83	44,44	133	1900	-	-	-	-
FR-G05-Z /E /2602	400/3/50	3,00	17,50	50,28	230	2000	-	-	-	-
FR-G05-Z /E /2652	400/3/50	3,00	17,50	50,28	230	2100	-	-	-	-
FR-G05-Z /E /2702	400/3/50	3,00	17,50	50,28	230	2300	-	-	-	-
FR-G05-Z /E /2722	400/3/50	2,14	19,17	54,44	220	2500	-	-	-	-
FR-G05-Z /E /3152	400/3/50	1,89	19,17	56,11	210	2800	-	-	-	-
FR-G05-Z /E /3602	400/3/50	1,89	19,17	56,11	210	3000	-	-	-	-
FR-G05-Z /E /3902	400/3/50	2,06	19,17	58,33	209	3300	-	-	-	-
FR-G05-Z /E /4202	400/3/50	1,46	25,00	63,89	275	3500	-	-	-	-
FR-G05-Z /E /4502	400/3/50	1,40	25,00	66,94	269	3700	-	-	-	-
FR-G05-Z /E /4802	400/3/50	1,37	25,00	68,89	261	3900	-	-	-	-
FR-G05-Z /E /4822	400/3/50	0,78	41,67	102,8	575	4300	-	-	-	-
FR-G05-Z /E /5412	400/3/50	0,78	41,67	102,8	575	4500	-	-	-	-
FR-G05-Z /D /E /1502	400/3/50	7,72	13,33	31,94	85,0	1100	147	0,003	4,083	3,20
FR-G05-Z /D /E /1702	400/3/50	7,72	13,33	31,94	85,0	1300	147	0,003	4,583	3,20

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
C.A.S.: Exchanger water content

HYDRAULIC DATA

[SI System]

SIZE	Power supply V/ph/Hz	HEAT EXCHANGER USER SIDE					HEAT RECOVERY EX. USER SIDE			
		K	Q min l/s	Q max l/s	C.A.S. l	C.a. min l	K	Q min l/s	Q max l/s	C.A.S. l
FR-G05-Z /D /E /1902	400/3/50	4,72	12,50	40,00	140	1400	147	0,003	5,278	3,20
FR-G05-Z /D /E /1922	400/3/50	4,72	12,50	40,00	140	1600	73,0	0,003	6,000	4,40
FR-G05-Z /D /E /2202	400/3/50	4,29	15,83	44,44	133	1900	73,0	0,003	6,750	4,40
FR-G05-Z /D /E /2602	400/3/50	3,00	17,50	50,28	230	2000	73,0	0,003	7,417	4,40
FR-G05-Z /D /E /2652	400/3/50	3,00	17,50	50,28	230	2100	50,0	0,003	7,861	5,10
FR-G05-Z /D /E /2702	400/3/50	3,00	17,50	50,28	230	2300	36,0	0,003	8,306	5,80
FR-G05-Z /D /E /2722	400/3/50	2,14	19,17	54,44	220	2500	36,0	0,003	9,333	5,80
FR-G05-Z /D /E /3152	400/3/50	1,89	19,17	56,11	210	2800	27,0	0,003	10,39	7,40
FR-G05-Z /D /E /3602	400/3/50	1,89	19,17	56,11	210	3000	21,0	0,003	11,25	9,00
FR-G05-Z /D /E /3902	400/3/50	2,06	19,17	58,33	209	3300	21,0	0,003	12,19	9,00
FR-G05-Z /D /E /4202	400/3/50	1,46	25,00	63,89	275	3500	21,0	0,003	13,08	9,00
FR-G05-Z /D /E /4502	400/3/50	1,40	25,00	66,94	269	3700	15,0	0,003	13,94	10,5
FR-G05-Z /D /E /4802	400/3/50	1,37	25,00	68,89	261	3900	11,0	0,003	14,83	12,0
FR-G05-Z /D /E /4822	400/3/50	0,78	41,67	102,8	575	4300	11,0	0,003	16,64	12,0
FR-G05-Z /D /E /5412	400/3/50	0,78	41,67	102,8	575	4500	9,00	0,003	17,36	30,0
FR-G05-Z /R /E /1502	400/3/50	7,72	13,33	31,94	85,0	1100	6,70	11,67	26,67	38,2
FR-G05-Z /R /E /1702	400/3/50	7,72	13,33	31,94	85,0	1300	5,00	15,00	34,44	52,0
FR-G05-Z /R /E /1902	400/3/50	4,72	12,50	40,00	140	1400	5,00	15,00	34,44	52,0
FR-G05-Z /R /E /1922	400/3/50	4,72	12,50	40,00	140	1600	3,10	17,78	40,00	58,8
FR-G05-Z /R /E /2202	400/3/50	4,29	15,83	44,44	133	1900	2,50	20,00	45,56	65,8
FR-G05-Z /R /E /2602	400/3/50	3,00	17,50	50,28	230	2000	2,50	20,00	45,56	65,8
FR-G05-Z /R /E /2652	400/3/50	3,00	17,50	50,28	230	2100	2,20	22,22	50,83	72,7
FR-G05-Z /R /E /2702	400/3/50	3,00	17,50	50,28	230	2300	1,90	24,44	56,11	79,6
FR-G05-Z /R /E /2722	400/3/50	2,14	19,17	54,44	220	2500	1,70	27,22	62,78	90,0
FR-G05-Z /R /E /3152	400/3/50	1,89	19,17	56,11	210	2800	0,90	37,78	86,67	109
FR-G05-Z /R /E /3602	400/3/50	1,89	19,17	56,11	210	3000	0,90	37,78	86,67	109
FR-G05-Z /R /E /3902	400/3/50	2,06	19,17	58,33	209	3300	0,60	42,78	97,22	128
FR-G05-Z /R /E /4202	400/3/50	1,46	25,00	63,89	275	3500	0,60	42,78	97,22	128
FR-G05-Z /R /E /4502	400/3/50	1,40	25,00	66,94	269	3700	0,50	45,28	103,1	136
FR-G05-Z /R /E /4802	400/3/50	1,37	25,00	68,89	261	3900	0,40	47,78	108,9	143
FR-G05-Z /R /E /4822	400/3/50	0,78	41,67	102,8	575	4300	0,40	53,89	122,2	159
FR-G05-Z /R /E /5412	400/3/50	0,78	41,67	102,8	575	4500	0,30	57,78	131,7	168
FR-G05-Z /SL-E /1502	400/3/50	7,72	13,06	31,94	85,0	1100	-	-	-	-
FR-G05-Z /SL-E /1702	400/3/50	7,72	13,33	31,94	85,0	1300	-	-	-	-
FR-G05-Z /SL-E /1902	400/3/50	4,72	12,50	40,00	140	1400	-	-	-	-
FR-G05-Z /SL-E /1922	400/3/50	4,72	12,50	40,00	140	1600	-	-	-	-
FR-G05-Z /SL-E /2202	400/3/50	4,29	15,83	44,44	133	1900	-	-	-	-
FR-G05-Z /SL-E /2602	400/3/50	3,00	17,50	50,28	230	2000	-	-	-	-
FR-G05-Z /SL-E /2652	400/3/50	3,00	17,50	50,28	230	2100	-	-	-	-
FR-G05-Z /SL-E /2702	400/3/50	3,00	17,50	50,28	230	2300	-	-	-	-
FR-G05-Z /SL-E /2722	400/3/50	2,14	19,17	54,44	220	2500	-	-	-	-
FR-G05-Z /SL-E /3152	400/3/50	1,89	19,17	56,11	210	2800	-	-	-	-
FR-G05-Z /SL-E /3602	400/3/50	1,89	19,17	56,11	210	3000	-	-	-	-
FR-G05-Z /SL-E /3902	400/3/50	2,06	19,17	58,33	209	3300	-	-	-	-
FR-G05-Z /SL-E /4202	400/3/50	1,46	25,00	63,89	275	3500	-	-	-	-
FR-G05-Z /SL-E /4502	400/3/50	1,40	25,00	66,94	269	3700	-	-	-	-
FR-G05-Z /SL-E /4802	400/3/50	1,37	25,00	68,89	261	3900	-	-	-	-
FR-G05-Z /SL-E /4822	400/3/50	0,78	41,67	102,8	575	4300	-	-	-	-
FR-G05-Z /SL-E /5412	400/3/50	0,78	41,67	102,8	575	4500	-	-	-	-

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
C.A.S.: Exchanger water content

HYDRAULIC DATA

[SI System]

SIZE	Power supply V/ph/Hz	HEAT EXCHANGER USER SIDE					HEAT RECOVERY EX. USER SIDE			
		K	Q min l/s	Q max l/s	C.A.S. l	C.a. min l	K	Q min l/s	Q max l/s	C.A.S. l
FR-G05-Z /D /SL-E /1502	400/3/50	7,72	13,06	31,94	85,0	1100	147	0,003	4,083	3,20
FR-G05-Z /D /SL-E /1702	400/3/50	7,72	13,33	31,94	85,0	1300	147	0,003	4,583	3,20
FR-G05-Z /D /SL-E /1902	400/3/50	4,72	12,50	40,00	140	1400	147	0,003	5,278	3,20
FR-G05-Z /D /SL-E /1922	400/3/50	4,72	12,50	40,00	140	1600	73,0	0,003	6,000	4,40
FR-G05-Z /D /SL-E /2202	400/3/50	4,29	15,83	44,44	133	1900	73,0	0,003	6,750	4,40
FR-G05-Z /D /SL-E /2602	400/3/50	3,00	17,50	50,28	230	2000	73,0	0,003	7,417	4,40
FR-G05-Z /D /SL-E /2652	400/3/50	3,00	17,50	50,28	230	2100	50,0	0,003	7,861	5,10
FR-G05-Z /D /SL-E /2702	400/3/50	3,00	17,50	50,28	230	2300	36,0	0,003	8,306	5,80
FR-G05-Z /D /SL-E /2722	400/3/50	2,14	19,17	54,44	220	2500	36,0	0,003	9,333	5,80
FR-G05-Z /D /SL-E /3152	400/3/50	1,89	19,17	56,11	210	2800	27,0	0,003	10,39	7,40
FR-G05-Z /D /SL-E /3602	400/3/50	1,89	19,17	56,11	210	3000	21,0	0,003	11,25	9,00
FR-G05-Z /D /SL-E /3902	400/3/50	2,06	19,17	58,33	209	3300	21,0	0,003	12,19	9,00
FR-G05-Z /D /SL-E /4202	400/3/50	1,46	25,00	63,89	275	3500	21,0	0,003	13,08	9,00
FR-G05-Z /D /SL-E /4502	400/3/50	1,40	25,00	66,94	269	3700	15,0	0,003	13,94	10,5
FR-G05-Z /D /SL-E /4802	400/3/50	1,37	25,00	68,89	261	3900	11,0	0,003	14,83	12,0
FR-G05-Z /D /SL-E /4822	400/3/50	0,78	41,67	102,8	575	4300	11,0	0,003	16,64	12,0
FR-G05-Z /D /SL-E /5412	400/3/50	0,78	41,67	102,8	575	4500	9,00	0,003	17,36	30,0
FR-G05-Z /R /SL-E /1502	400/3/50	7,72	13,06	31,94	85,0	1100	6,70	11,67	26,67	38,2
FR-G05-Z /R /SL-E /1702	400/3/50	7,72	13,33	31,94	85,0	1300	5,00	15,00	34,44	52,0
FR-G05-Z /R /SL-E /1902	400/3/50	4,72	12,50	40,00	140	1400	5,00	15,00	34,44	52,0
FR-G05-Z /R /SL-E /1922	400/3/50	4,72	12,50	40,00	140	1600	3,10	17,78	40,00	58,8
FR-G05-Z /R /SL-E /2202	400/3/50	4,29	15,83	44,44	133	1900	2,50	20,00	45,56	65,8
FR-G05-Z /R /SL-E /2602	400/3/50	3,00	17,50	50,28	230	2000	2,50	20,00	45,56	65,8
FR-G05-Z /R /SL-E /2652	400/3/50	3,00	17,50	50,28	230	2100	2,20	22,22	50,83	72,7
FR-G05-Z /R /SL-E /2702	400/3/50	3,00	17,50	50,28	230	2300	1,90	24,44	56,11	79,6
FR-G05-Z /R /SL-E /2722	400/3/50	2,14	19,17	54,44	220	2500	1,70	27,22	62,78	90,0
FR-G05-Z /R /SL-E /3152	400/3/50	1,89	19,17	56,11	210	2800	0,90	37,78	86,67	109
FR-G05-Z /R /SL-E /3602	400/3/50	1,89	19,17	56,11	210	3000	0,90	37,78	86,67	109
FR-G05-Z /R /SL-E /3902	400/3/50	2,06	19,17	58,33	209	3300	0,60	42,78	97,22	128
FR-G05-Z /R /SL-E /4202	400/3/50	1,46	25,00	63,89	275	3500	0,60	42,78	97,22	128
FR-G05-Z /R /SL-E /4502	400/3/50	1,40	25,00	66,94	269	3700	0,50	45,28	103,1	136
FR-G05-Z /R /SL-E /4802	400/3/50	1,37	25,00	68,89	261	3900	0,40	47,78	108,9	143
FR-G05-Z /R /SL-E /4822	400/3/50	0,78	41,67	102,8	575	4300	0,40	53,89	122,2	159
FR-G05-Z /R /SL-E /5412	400/3/50	0,78	41,67	102,8	575	4500	0,30	57,78	131,7	168

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
C.A.S.: Exchanger water content

7.1 ELECTRICAL DATA FR-G05-Z /K

[SI System]

SIZE	Power supply V/ph/Hz	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]
1502	400/3/50	2	2x62.7	2x102.3	2x303	2,000	4	133,0	220	381
1702	400/3/50	2	2x71.1	2x116.2	2x350	2,000	4	150,0	248	440
1902	400/3/50	2	1x71.1+1x80.9	1x116.2+1x129.8	1x350+1x423	2,000	4	162,0	265	516
1922	400/3/50	2	2x80.9	2x129.8	2x423	2,000	4	174,0	282	527
2202	400/3/50	2	2x99.9	2x163.4	2x300	2,000	4	212,0	350	427
2602	400/3/50	2	1x99.9+1x127.8	1x163.4+1x209	1x300+1x404	2,000	4	242,0	399	535
2652	400/3/50	2	1x112.3+1x127.8	1x184.7+1x209	1x360+1x404	2,000	4	254,0	420	552
2702	400/3/50	2	2x127.8	2x209	2x404	2,000	4	272,0	448	566
2722	400/3/50	2	2x127.8	2x209	2x404	2,000	4	272,0	448	566
3152	400/3/50	2	1x127.8+1x161.7	1x209+1x258	1x404+1x465	2,000	4	308,0	501	631
3602	400/3/50	2	2x161.7	2x258	2x465	2,000	4	343,0	554	674
3902	400/3/50	2	1x161.7+1x188.1	1x258+1x306	1x465+1x586	2,000	4	372,0	606	799
4202	400/3/50	2	2x188.1	2x306	2x586	2,000	4	400,0	658	830
4502	400/3/50	2	1x188.1+1x213	1x306+1x345	1x586+1x650	2,000	4	425,0	697	894
4802	400/3/50	2	2x213	2x345	2x650	2,000	4	450,0	736	917
4812	400/3/50	2	2x213	2x345	2x650	2,000	4	454,0	743	924
4822	400/3/50	2	2x213	2x345	2x650	2,000	4	454,0	743	924
5412	400/3/50	2	1x213+1x260	1x345+1x423	1x650+1x917	2,000	4	501,0	821	1191
6002	400/3/50	2	2x260	2x423	2x917	2,000	4	552,0	907	1243
6022	400/3/50	2	2x260	2x423	2x917	2,000	4	552,0	907	1243
6303	400/3/50	3	3x188.1	3x306	3x586	2,000	4	600,0	986	1051
6903	400/3/50	3	1x188.1+2x213	1x306+2x345	1x586+2x650	2,000	4	650,0	1064	1138
7203	400/3/50	3	3x213	3x345	3x650	2,000	4	675,0	1103	1160
7213	400/3/50	3	3x213	3x345	3x650	2,000	4	679,0	1111	1168
7223	400/3/50	3	3x213	3x345	3x650	2,000	4	679,0	1111	1168

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) Values calculated referring to the version with the maximum number of fans working at the max absorbed current
(1)(2) Safety values to be considered when cabling the unit for power supply and line-protections

Data valid for standard units without any additional option.

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

ELECTRICAL DATA FR-G05-Z /SL-K

[SI System]

SIZE	Power supply V/ph/Hz	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]
1502	400/3/50	2	2x62.7	2x102.3	2x303	2,000	4	133,0	220	381
1702	400/3/50	2	1x62.7+1x80.9	1x102.3+1x129.8	1x303+1x423	2,000	4	154,0	251	505
1902	400/3/50	2	2x80.9	2x129.8	2x423	2,000	4	174,0	282	527
1922	400/3/50	2	2x80.9	2x129.8	2x423	2,000	4	174,0	282	527
2202	400/3/50	2	1x80.9+1x112.3	1x129.8+1x184.7	1x229+1x360	2,000	4	207,0	341	468
2602	400/3/50	2	2x112.3	2x184.7	2x360	2,000	4	241,0	400	512
2652	400/3/50	2	1x112.3+1x127.8	1x184.7+1x209	1x360+1x404	2,000	4	256,0	424	556
2702	400/3/50	2	2x127.8	2x209	2x404	2,000	4	272,0	448	566
2722	400/3/50	2	2x127.8	2x209	2x404	2,000	4	276,0	456	573
3152	400/3/50	2	1x127.8+1x161.7	1x209+1x258	1x404+1x465	2,000	4	310,0	505	634
3602	400/3/50	2	2x161.7	2x258	2x465	2,000	4	343,0	554	674
3902	400/3/50	2	1x161.7+1x188.1	1x258+1x306	1x465+1x586	2,000	4	372,0	606	799
4202	400/3/50	2	2x188.1	2x306	2x586	2,000	4	400,0	658	830
4502	400/3/50	2	1x188.1+1x213	1x306+1x345	1x586+1x650	2,000	4	427,0	700	898
4802	400/3/50	2	2x213	2x345	2x650	2,000	4	454,0	743	924
4812	400/3/50	2	2x213	2x345	2x650	2,000	4	458,0	751	932
4822	400/3/50	2	2x213	2x345	2x650	2,000	4	458,0	751	932
5412	400/3/50	2	1x213+1x260	1x345+1x423	1x650+1x917	2,000	4	505,0	829	1199
6002	400/3/50	2	2x260	2x423	2x917	2,000	4	552,0	907	1243
6022	400/3/50	2	2x260	2x423	2x917	2,000	4	556,0	914	1250
6303	400/3/50	3	3x188.1	3x306	3x586	2,000	4	600,0	986	1051
6903	400/3/50	3	1x188.1+2x213	1x306+2x345	1x586+2x650	2,000	4	654,0	1072	1145
7203	400/3/50	3	3x213	3x345	3x650	2,000	4	679,0	1111	1168
7213	400/3/50	3	3x213	3x345	3x650	2,000	4	679,0	1111	1168
7223	400/3/50	3	3x213	3x345	3x650	2,000	4	679,0	1111	1168

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) Values calculated referring to the version with the maximum number of fans working at the max absorbed current
(1)(2) Safety values to be considered when cabling the unit for power supply and line-protections

Data valid for standard units without any additional option.

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

ELECTRICAL DATA FR-G05-Z /CA

[SI System]

SIZE	Power supply V/ph/Hz	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]
1502	400/3/50	2	1x49.6+1x72.3	1x82.5+1x118	1x269+1x350	2,000	4	132,0	220	426
1702	400/3/50	2	2x71.1	2x116.2	2x350	2,000	4	154,0	255	447
1902	400/3/50	2	2x80.9	2x129.8	2x423	2,000	4	174,0	282	527
1922	400/3/50	2	1x80.9+1x99.9	1x129.8+1x163.4	1x229+1x300	2,000	4	195,0	320	408
2202	400/3/50	2	2x99.9	2x163.4	2x300	2,000	4	216,0	357	435
2602	400/3/50	2	2x112.3	2x184.7	2x360	2,000	4	241,0	400	512
2652	400/3/50	2	1x112.3+1x127.8	1x184.7+1x209	1x360+1x404	2,000	4	258,0	428	560
2702	400/3/50	2	2x127.8	2x209	2x404	2,000	4	276,0	456	573
2722	400/3/50	2	2x127.8	2x209	2x404	2,000	4	276,0	456	573
3152	400/3/50	2	1x127.8+1x161.7	1x209+1x258	1x404+1x465	2,000	4	312,0	509	638
3602	400/3/50	2	2x161.7	2x258	2x465	2,000	4	347,0	562	682
3902	400/3/50	2	1x161.7+1x188.1	1x258+1x306	1x465+1x586	2,000	4	376,0	613	806
4202	400/3/50	2	2x188.1	2x306	2x586	2,000	4	404,0	665	837
4502	400/3/50	2	1x188.1+1x213	1x306+1x345	1x586+1x650	2,000	4	431,0	708	905
4802	400/3/50	2	2x213	2x345	2x650	2,000	4	458,0	751	932
4822	400/3/50	2	2x213	2x345	2x650	2,000	4	458,0	751	932
5412	400/3/50	2	1x213+1x260	1x345+1x423	1x650+1x917	2,000	4	509,0	836	1206
5703	400/3/50	3	2x161.7+1x188.1	2x258+1x306	2x465+1x586	2,000	4	550,0	894	1000
6303	400/3/50	3	3x188.1	3x306	3x586	2,000	4	604,0	994	1058
6603	400/3/50	3	2x188.1+1x213	2x306+1x345	2x586+1x650	2,000	4	629,0	1033	1122

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) Values calculated referring to the version with the maximum number of fans working at the max absorbed current
(1)(2) Safety values to be considered when cabling the unit for power supply and line-protections

Data valid for standard units without any additional option.

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

ELECTRICAL DATA

FR-G05-Z /SL-CA

[SI System]

SIZE	Power supply V/ph/Hz	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]
1502	400/3/50	2	1x49.6+1x72.3	1x82.5+1x118	1x269+1x350	2,000	4	132,0	220	426
1702	400/3/50	2	2x71.1	2x116.2	2x350	2,000	4	154,0	255	447
1902	400/3/50	2	1x71.1+1x80.9	1x116.2+1x129.8	1x350+1x423	2,000	4	166,0	273	524
1922	400/3/50	2	1x80.9+1x99.9	1x129.8+1x163.4	1x229+1x300	2,000	4	195,0	320	408
2202	400/3/50	2	2x99.9	2x163.4	2x300	2,000	4	216,0	357	435
2602	400/3/50	2	1x99.9+1x127.8	1x163.4+1x209	1x300+1x404	2,000	4	246,0	407	543
2652	400/3/50	2	1x112.3+1x127.8	1x184.7+1x209	1x360+1x404	2,000	4	260,0	432	563
2702	400/3/50	2	2x127.8	2x209	2x404	2,000	4	276,0	456	573
2722	400/3/50	2	2x127.8	2x209	2x404	2,000	4	280,0	464	581
3152	400/3/50	2	1x127.8+1x161.7	1x209+1x258	1x404+1x465	2,000	4	314,0	513	642
3602	400/3/50	2	2x161.7	2x258	2x465	2,000	4	351,0	569	689
3902	400/3/50	2	1x161.7+1x188.1	1x258+1x306	1x465+1x586	2,000	4	380,0	621	814
4202	400/3/50	2	2x188.1	2x306	2x586	2,000	4	408,0	673	845
4502	400/3/50	2	1x188.1+1x213	1x306+1x345	1x586+1x650	2,000	4	435,0	716	913
4802	400/3/50	2	2x213	2x345	2x650	2,000	4	462,0	758	939
4822	400/3/50	2	2x213	2x345	2x650	2,000	4	462,0	758	939
5412	400/3/50	2	1x213+1x260	1x345+1x423	1x650+1x917	2,000	4	513,0	844	1214
5703	400/3/50	3	2x161.7+1x188.1	2x258+1x306	2x465+1x586	2,000	4	552,0	898	1004
6303	400/3/50	3	3x188.1	3x306	3x586	2,000	4	604,0	994	1058

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) Values calculated referring to the version with the maximum number of fans working at the max absorbed current
(1)(2) Safety values to be considered when cabling the unit for power supply and line-protections

Data valid for standard units without any additional option.

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

ELECTRICAL DATA FR-G05-Z /E

[SI System]

SIZE	Power supply V/ph/Hz	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]
1502	400/3/50	2	2x62.7	2x102.3	2x303	2,000	4	137,0	227	388
1702	400/3/50	2	2x71.1	2x116.2	2x350	2,000	4	158,0	263	455
1902	400/3/50	2	2x80.9	2x129.8	2x423	2,000	4	178,0	290	535
1922	400/3/50	2	2x80.9	2x129.8	2x423	2,000	4	178,0	290	535
2202	400/3/50	2	2x99.9	2x163.4	2x300	2,000	4	220,0	365	442
2602	400/3/50	2	2x112.3	2x184.7	2x360	2,000	4	245,0	407	519
2652	400/3/50	2	1x112.3+1x127.8	1x184.7+1x209	1x360+1x404	2,000	4	262,0	436	567
2702	400/3/50	2	2x127.8	2x209	2x404	2,000	4	280,0	464	581
2722	400/3/50	2	2x127.8	2x209	2x404	2,000	4	280,0	464	581
3152	400/3/50	2	1x127.8+1x161.7	1x209+1x258	1x404+1x465	2,000	4	316,0	516	646
3602	400/3/50	2	2x161.7	2x258	2x465	2,000	4	351,0	569	689
3902	400/3/50	2	1x161.7+1x188.1	1x258+1x306	1x465+1x586	2,000	4	380,0	621	814
4202	400/3/50	2	2x188.1	2x306	2x586	2,000	4	408,0	673	845
4502	400/3/50	2	1x188.1+1x213	1x306+1x345	1x586+1x650	2,000	4	435,0	716	913
4802	400/3/50	2	2x213	2x345	2x650	2,000	4	462,0	758	939
4822	400/3/50	2	2x213	2x345	2x650	2,000	4	462,0	758	939
5412	400/3/50	2	1x213+1x260	1x345+1x423	1x650+1x917	2,000	4	513,0	844	1214

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) Values calculated referring to the version with the maximum number of fans working at the max absorbed current
(1)(2) Safety values to be considered when cabling the unit for power supply and line-protections

Data valid for standard units without any additional option.

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

ELECTRICAL DATA FR-G05-Z /SL-E

[SI System]

SIZE	Power supply V/ph/Hz	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]
1502	400/3/50	2	2x62.7	2x102.3	2x303	2,000	4	137,0	227	388
1702	400/3/50	2	2x71.1	2x116.2	2x350	2,000	4	158,0	263	455
1902	400/3/50	2	2x80.9	2x129.8	2x423	2,000	4	178,0	290	535
1922	400/3/50	2	2x80.9	2x129.8	2x423	2,000	4	178,0	290	535
2202	400/3/50	2	2x99.9	2x163.4	2x300	2,000	4	220,0	365	442
2602	400/3/50	2	2x112.3	2x184.7	2x360	2,000	4	245,0	407	519
2652	400/3/50	2	1x112.3+1x127.8	1x184.7+1x209	1x360+1x404	2,000	4	262,0	436	567
2702	400/3/50	2	2x127.8	2x209	2x404	2,000	4	280,0	464	581
2722	400/3/50	2	2x127.8	2x209	2x404	2,000	4	280,0	464	581
3152	400/3/50	2	1x127.8+1x161.7	1x209+1x258	1x404+1x465	2,000	4	316,0	516	646
3602	400/3/50	2	2x161.7	2x258	2x465	2,000	4	351,0	569	689
3902	400/3/50	2	1x161.7+1x188.1	1x258+1x306	1x465+1x586	2,000	4	380,0	621	814
4202	400/3/50	2	2x188.1	2x306	2x586	2,000	4	408,0	673	845
4502	400/3/50	2	1x188.1+1x213	1x306+1x345	1x586+1x650	2,000	4	435,0	716	913
4802	400/3/50	2	2x213	2x345	2x650	2,000	4	462,0	758	939
4822	400/3/50	2	2x213	2x345	2x650	2,000	4	462,0	758	939
5412	400/3/50	2	1x213+1x260	1x345+1x423	1x650+1x917	2,000	4	513,0	844	1214

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) Values calculated referring to the version with the maximum number of fans working at the max absorbed current
(1)(2) Safety values to be considered when cabling the unit for power supply and line-protections

Data valid for standard units without any additional option.

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

ELECTRICAL DATA

MAXIMUM CABLES/BARS SECTION CONNECTED TO MAIN SWITCH AND SHORT TIME CURRENT STANDARD UNITS

Unit size (all versions)	Main switch type (category AC-23A/B)	Cable section	Bar dimensions	Maximum back-up fuse rating	ICW (0,25s) Short time current rms	Further technical data
		∅ [mm²]	□ [mm]	[A]	[kA]	
1502	VC3P 400A	240	2 x 25 x 5	400	25	http://www.technoelectric.it/ing/VCP_tab_dati_ing.html
1702						
1902						
1922						
2202	VC4P 630A	2 x 185	2 x 32 x 6	630		
2602						
2652						
2702						
2722						
3152						
3602	SIRCO 800A	min 2 x 185 max 2 x 300	min 2 x 40 x 5 max 2 x 63 x 5	800		http://socomec.com/files/live/sites/systemsite/files/SCP/pdf_catalogue/GB/cat_Sirco-gb.pdf
3902						
4202	SIRCO 1000A	min 2 x 240 max 4 x 185	min 2 x 50 x 5 max 2 x 63 x 5	1000		
4502						
4802						
4812						
4822						
5412	SIRCO 1250A CD	4 x 185	min 2 x 60 x 5 max 2 x 63 x 5	1250	27	
6002						
6022						
6303						
6603	VC5P 1600A 50KA	-	3 x 50 x 8	1600	50	http://www.technoelectric.it/ing/VCP_tab_dati_ing.html
6903						
7203						
7213						
7223						

Electrical data valid for standard units without any additional option

Voltage tolerance: 10%
Maximum voltage unbalance: 3%

ELECTRICAL DATA

MAXIMUM CABLES/BARS SECTION CONNECTED TO MAIN SWITCH AND SHORT TIME CURRENT UNITS WITH Kit HT (Code 1955)

Unit size (all versions)	Main switch type (category AC-23A/B)	Cable section	Bar dimensions	Maximum back-up fuse rating	ICW (0,25s) Short time current rms	Further technical data
		∅ [mm²]	□ [mm]	[A]	[kA]	
1502	VC3P 400A	240	2 x 25 x 5	400	25	http://www.technoelectric.it/ing/VCP_tab_dati_ing.html
1702						
1902	VC4P 630A	2 x 185	2 x 32 x 6	630		
1922						
2202						
2602						
2652						
2702	SIRCO 800A	min 2 x 185 max 2 x 300	min 2 x 40 x 5 max 2 x 63 x 5	800		https://www.socomec.com/files/live/sites/systemsite/files/SCP/pdf_catalogue/GB/cat_sircosirco-ac_en.pdf
2722						
3152						
3602	SIRCO 1000A	min 2 x 240 max 4 x 185	min 2 x 50 x 5 max 2 x 63 x 5	1000		
3902						
4202						
4502	SIRCO 1250A CD	4 x 185	min 2 x 60 x 5 max 2 x 63 x 5	1250	27	
4802						
4812						
4822						
5703	VC5P 1600A 50KA	-	3 x 50 x 8	1600	50	http://www.technoelectric.it/ing/VCP_tab_dati_ing.html
6303						
6603						
6903						
7203						
7213						
7223						

Electrical data valid for standard units without any additional option

Voltage tolerance: 10%
Maximum voltage unbalance: 3%

8.1 FULL LOAD SOUND LEVEL FR-G05-Z /K

SOUND POWER LEVEL IN COOLING									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound power level dB								
1502	90	97	98	97	95	89	82	72	**99**
1702	90	97	98	97	95	89	82	72	**99**
1902	90	97	98	97	95	89	82	72	**99**
1922	91	98	99	98	96	90	83	73	**100**
2202	91	98	99	98	96	90	83	73	**100**
2602	91	98	99	98	96	90	83	73	**100**
2652	91	98	99	98	96	90	83	73	**100**
2702	91	98	99	98	96	90	83	73	**100**
2722	93	100	101	100	98	92	85	75	**102**
3152	93	100	101	100	98	92	85	75	**102**
3602	93	100	101	100	98	92	85	75	**102**
3902	94	101	102	101	99	93	86	76	**103**
4202	94	101	102	101	99	93	86	76	**103**
4502	95	102	103	102	100	94	87	77	**104**
4802	95	102	103	102	100	94	87	77	**104**
4812	95	102	103	102	100	94	87	77	**104**
4822	95	102	103	102	100	94	87	77	**104**
5412	96	103	104	103	101	95	88	78	**105**
6002	97	104	105	104	102	96	89	78	**106**
6022	97	104	105	104	102	96	89	78	**106**
6303	97	104	105	104	102	96	89	78	**106**
6903	97	104	105	104	102	96	89	78	**106**
7203	97	104	105	104	102	96	89	78	**106**
7213	97	104	105	104	102	96	89	78	**106**
7223	97	104	105	104	102	96	89	78	**106**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

Sound power on the basis of measurements made in compliance with ISO 9614.

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 power level in cooling, outdoors.

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
1502	58	65	66	65	63	57	50	40	**67**
1702	58	65	66	65	63	57	50	40	**67**
1902	58	65	66	65	63	57	50	40	**67**
1922	59	66	67	66	64	58	51	41	**68**
2202	59	66	67	66	64	58	51	41	**68**
2602	59	66	67	66	64	58	51	41	**68**
2652	59	66	67	66	64	58	51	41	**68**
2702	59	66	67	66	64	58	51	41	**68**
2722	61	68	69	68	66	60	53	43	**70**
3152	60	67	68	67	65	59	52	42	**69**
3602	60	67	68	67	65	59	52	42	**69**
3902	61	68	69	68	66	60	53	43	**70**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

FULL LOAD SOUND LEVEL FR-G05-Z /K

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
4202	61	68	69	68	66	60	53	43	**70**
4502	62	69	70	69	67	61	54	44	**71**
4802	62	69	70	69	67	61	54	44	**71**
4812	62	69	70	69	67	61	54	44	**71**
4822	62	69	70	69	67	61	54	44	**71**
5412	63	70	71	70	68	62	55	45	**72**
6002	64	71	72	71	69	63	56	45	**73**
6022	64	71	72	71	69	63	56	45	**73**
6303	64	71	72	71	69	63	56	45	**73**
6903	64	71	72	71	69	63	56	45	**73**
7203	64	71	72	71	69	63	56	45	**73**
7213	64	71	72	71	69	63	56	45	**73**
7223	64	71	72	71	69	63	56	45	**73**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

FULL LOAD SOUND LEVEL

FR-G05-Z /SL-K

SOUND POWER LEVEL IN COOLING									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound power level dB								
1502	79	77	80	84	85	76	64	57	**87**
1702	79	77	80	84	85	76	64	57	**87**
1902	80	78	81	85	86	77	65	58	**88**
1922	80	78	81	85	86	77	65	58	**88**
2202	81	79	82	86	87	78	66	59	**89**
2602	81	79	82	86	87	78	66	59	**89**
2652	81	79	82	86	87	78	66	59	**89**
2702	81	79	82	86	87	78	66	59	**89**
2722	82	81	85	87	88	76	66	58	**90**
3152	84	83	86	88	89	77	67	59	**91**
3602	84	83	86	88	89	77	67	59	**91**
3902	85	84	87	89	90	78	68	60	**92**
4202	85	84	87	89	90	78	68	60	**92**
4502	86	85	88	90	91	79	69	61	**93**
4802	86	85	88	90	91	79	69	61	**93**
4812	86	85	89	92	92	79	69	61	**94**
4822	86	85	89	92	92	79	69	61	**94**
5412	86	85	89	92	92	79	69	61	**94**
6002	86	85	89	92	92	79	69	61	**94**
6022	86	85	89	92	92	79	69	61	**94**
6303	86	85	89	92	92	79	69	61	**94**
6903	86	85	89	92	92	79	69	61	**94**
7203	86	85	89	92	92	79	69	61	**94**
7213	86	85	89	92	92	79	69	61	**94**
7223	88	87	90	93	93	80	70	62	**95**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

Sound power on the basis of measurements made in compliance with ISO 9614.

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 power level in cooling, outdoors.

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
1502	47	45	48	52	53	44	32	25	**55**
1702	47	45	48	52	53	44	32	25	**55**
1902	48	46	49	53	54	45	33	26	**56**
1922	48	46	49	53	54	45	33	26	**56**
2202	49	47	50	54	55	46	34	27	**57**
2602	49	47	50	54	55	46	34	27	**57**
2652	49	47	50	54	55	46	34	27	**57**
2702	49	47	50	54	55	46	34	27	**57**
2722	49	48	52	54	55	43	33	25	**57**
3152	51	50	53	55	56	44	34	26	**58**
3602	51	50	53	55	56	44	34	26	**58**
3902	52	51	54	56	57	45	35	27	**59**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

FULL LOAD SOUND LEVEL FR-G05-Z /SL-K

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
4202	52	51	54	56	57	45	35	27	**59**
4502	53	52	55	57	58	46	36	28	**60**
4802	53	52	55	57	58	46	36	28	**60**
4812	53	52	56	59	59	46	36	28	**61**
4822	53	52	56	59	59	46	36	28	**61**
5412	53	52	56	59	59	46	36	28	**61**
6002	53	52	56	59	59	46	36	28	**61**
6022	53	52	56	59	59	46	36	28	**61**
6303	53	52	56	59	59	46	36	28	**61**
6903	53	52	56	59	59	46	36	28	**61**
7203	53	52	56	59	59	46	36	28	**61**
7213	53	52	56	59	59	46	36	28	**61**
7223	55	54	57	60	60	47	37	29	**62**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

FULL LOAD SOUND LEVEL

FR-G05-Z /CA

SOUND POWER LEVEL IN COOLING									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound power level dB								
1502	89	96	97	96	94	88	81	71	**98**
1702	89	96	97	96	94	88	81	71	**98**
1902	90	97	98	97	95	89	82	72	**99**
1922	90	97	98	97	95	89	82	72	**99**
2202	91	98	99	98	96	90	83	73	**100**
2602	91	98	99	98	96	90	83	73	**100**
2652	92	99	100	99	97	91	84	74	**101**
2702	92	99	100	99	97	91	84	74	**101**
2722	92	99	100	99	97	91	84	74	**101**
3152	92	99	100	99	97	91	84	74	**101**
3602	93	100	101	100	98	92	85	75	**102**
3902	93	100	101	100	98	92	85	75	**102**
4202	94	101	102	101	99	93	86	76	**103**
4502	94	101	102	101	99	93	86	76	**103**
4802	94	101	102	101	99	93	86	76	**103**
4822	94	101	102	101	99	93	86	76	**103**
5412	95	102	103	102	100	94	87	77	**104**
5703	95	102	103	102	100	94	87	77	**104**
6303	95	102	103	102	100	94	87	77	**104**
6603	95	102	103	102	100	94	87	77	**104**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

Sound power on the basis of measurements made in compliance with ISO 9614.

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 power level in cooling, outdoors.

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
1502	57	64	65	64	62	56	49	39	**66**
1702	57	64	65	64	62	56	49	39	**66**
1902	58	65	66	65	63	57	50	40	**67**
1922	58	65	66	65	63	57	50	40	**67**
2202	59	66	67	66	64	58	51	41	**68**
2602	59	66	67	66	64	58	51	41	**68**
2652	59	66	67	66	64	58	51	41	**68**
2702	59	66	67	66	64	58	51	41	**68**
2722	59	66	67	66	64	58	51	41	**68**
3152	59	66	67	66	64	58	51	41	**68**
3602	60	67	68	67	65	59	52	42	**69**
3902	60	67	68	67	65	59	52	42	**69**
4202	61	68	69	68	66	60	53	43	**70**
4502	61	68	69	68	66	60	53	43	**70**
4802	61	68	69	68	66	60	53	43	**70**
4822	61	68	69	68	66	60	53	43	**70**
5412	62	69	70	69	67	61	54	44	**71**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

FULL LOAD SOUND LEVEL

FR-G05-Z /CA

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
5703	62	69	70	69	67	61	54	44	**71**
6303	62	69	70	69	67	61	54	44	**71**
6603	62	69	70	69	67	61	54	44	**71**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

FULL LOAD SOUND LEVEL

FR-G05-Z /SL-CA

SOUND POWER LEVEL IN COOLING									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound power level dB								
1502	79	77	80	84	85	76	64	57	**87**
1702	80	78	81	85	86	77	65	58	**88**
1902	80	78	81	85	86	77	65	58	**88**
1922	81	79	82	86	87	78	66	59	**89**
2202	81	79	82	86	87	78	66	59	**89**
2602	82	81	85	87	88	76	66	58	**90**
2652	84	83	86	88	89	77	67	59	**91**
2702	84	83	86	88	89	77	67	59	**91**
2722	85	84	87	89	90	78	68	60	**92**
3152	85	84	87	89	90	78	68	60	**92**
3602	85	84	87	89	90	78	68	60	**92**
3902	85	84	87	89	90	78	68	60	**92**
4202	86	85	88	90	91	79	69	61	**93**
4502	86	85	88	90	91	79	69	61	**93**
4802	86	85	88	90	91	79	69	61	**93**
4822	86	85	88	90	91	79	69	61	**93**
5412	88	87	90	93	93	80	70	62	**95**
5703	88	87	90	93	93	80	70	62	**95**
6303	88	87	90	93	93	80	70	62	**95**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
Sound power on the basis of measurements made in compliance with ISO 9614.
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 power level in cooling, outdoors.

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
1502	47	45	48	52	53	44	32	25	**55**
1702	48	46	49	53	54	45	33	26	**56**
1902	48	46	49	53	54	45	33	26	**56**
1922	49	47	50	54	55	46	34	27	**57**
2202	49	47	50	54	55	46	34	27	**57**
2602	49	48	52	54	55	43	33	25	**57**
2652	51	50	53	55	56	44	34	26	**58**
2702	51	50	53	55	56	44	34	26	**58**
2722	52	51	54	56	57	45	35	27	**59**
3152	52	51	54	56	57	45	35	27	**59**
3602	52	51	54	56	57	45	35	27	**59**
3902	52	51	54	56	57	45	35	27	**59**
4202	53	52	55	57	58	46	36	28	**60**
4502	53	52	55	57	58	46	36	28	**60**
4802	53	52	55	57	58	46	36	28	**60**
4822	53	52	55	57	58	46	36	28	**60**
5412	55	54	57	60	60	47	37	29	**62**
5703	55	54	57	60	60	47	37	29	**62**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.
Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.

FULL LOAD SOUND LEVEL FR-G05-Z /SL-CA

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
6303	55	54	57	60	60	47	37	29	62

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

FULL LOAD SOUND LEVEL FR-G05-Z /E

SOUND POWER LEVEL IN COOLING									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound power level dB								
1502	89	96	97	96	94	88	81	71	**98**
1702	90	97	98	97	95	89	82	72	**99**
1902	90	97	98	97	95	89	82	72	**99**
1922	90	97	98	97	95	89	82	72	**99**
2202	91	98	99	98	96	90	83	73	**100**
2602	91	98	99	98	96	90	83	73	**100**
2652	92	99	100	99	97	91	84	74	**101**
2702	92	99	100	99	97	91	84	74	**101**
2722	92	99	100	99	97	91	84	74	**101**
3152	92	99	100	99	97	91	84	74	**101**
3602	93	100	101	100	98	92	85	75	**102**
3902	93	100	101	100	98	92	85	75	**102**
4202	94	101	102	101	99	93	86	76	**103**
4502	94	101	102	101	99	93	86	76	**103**
4802	94	101	102	101	99	93	86	76	**103**
4822	94	101	102	101	99	93	86	76	**103**
5412	95	102	103	102	100	94	87	77	**104**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

Sound power on the basis of measurements made in compliance with ISO 9614.

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 power level in cooling, outdoors.

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
1502	57	64	65	64	62	56	49	39	**66**
1702	58	65	66	65	63	57	50	40	**67**
1902	58	65	66	65	63	57	50	40	**67**
1922	58	65	66	65	63	57	50	40	**67**
2202	58	65	66	65	63	57	50	40	**67**
2602	58	65	66	65	63	57	50	40	**67**
2652	59	66	67	66	64	58	51	41	**68**
2702	59	66	67	66	64	58	51	41	**68**
2722	59	66	67	66	64	58	51	41	**68**
3152	59	66	67	66	64	58	51	41	**68**
3602	60	67	68	67	65	59	52	42	**69**
3902	60	67	68	67	65	59	52	42	**69**
4202	61	68	69	68	66	60	53	43	**70**
4502	61	68	69	68	66	60	53	43	**70**
4802	61	68	69	68	66	60	53	43	**70**
4822	61	68	69	68	66	60	53	43	**70**
5412	62	69	70	69	67	61	54	44	**71**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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

FULL LOAD SOUND LEVEL

FR-G05-Z /SL-E

SOUND POWER LEVEL IN COOLING									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound power level dB								
1502	80	78	81	85	86	77	65	58	**88**
1702	81	79	82	86	87	78	66	59	**89**
1902	81	79	82	86	87	78	66	59	**89**
1922	81	79	82	86	87	78	66	59	**89**
2202	82	81	85	87	88	76	66	58	**90**
2602	84	83	86	88	89	77	67	59	**91**
2652	84	83	86	88	89	77	67	59	**91**
2702	85	84	87	89	90	78	68	60	**92**
2722	85	84	87	89	90	78	68	60	**92**
3152	85	84	87	89	90	78	68	60	**92**
3602	85	84	87	89	90	78	68	60	**92**
3902	85	84	87	89	90	78	68	60	**92**
4202	86	85	88	90	91	79	69	61	**93**
4502	86	85	88	90	91	79	69	61	**93**
4802	86	85	88	90	91	79	69	61	**93**
4822	86	85	88	90	91	79	69	61	**93**
5412	88	87	90	93	93	80	70	62	**95**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

Sound power on the basis of measurements made in compliance with ISO 9614.

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

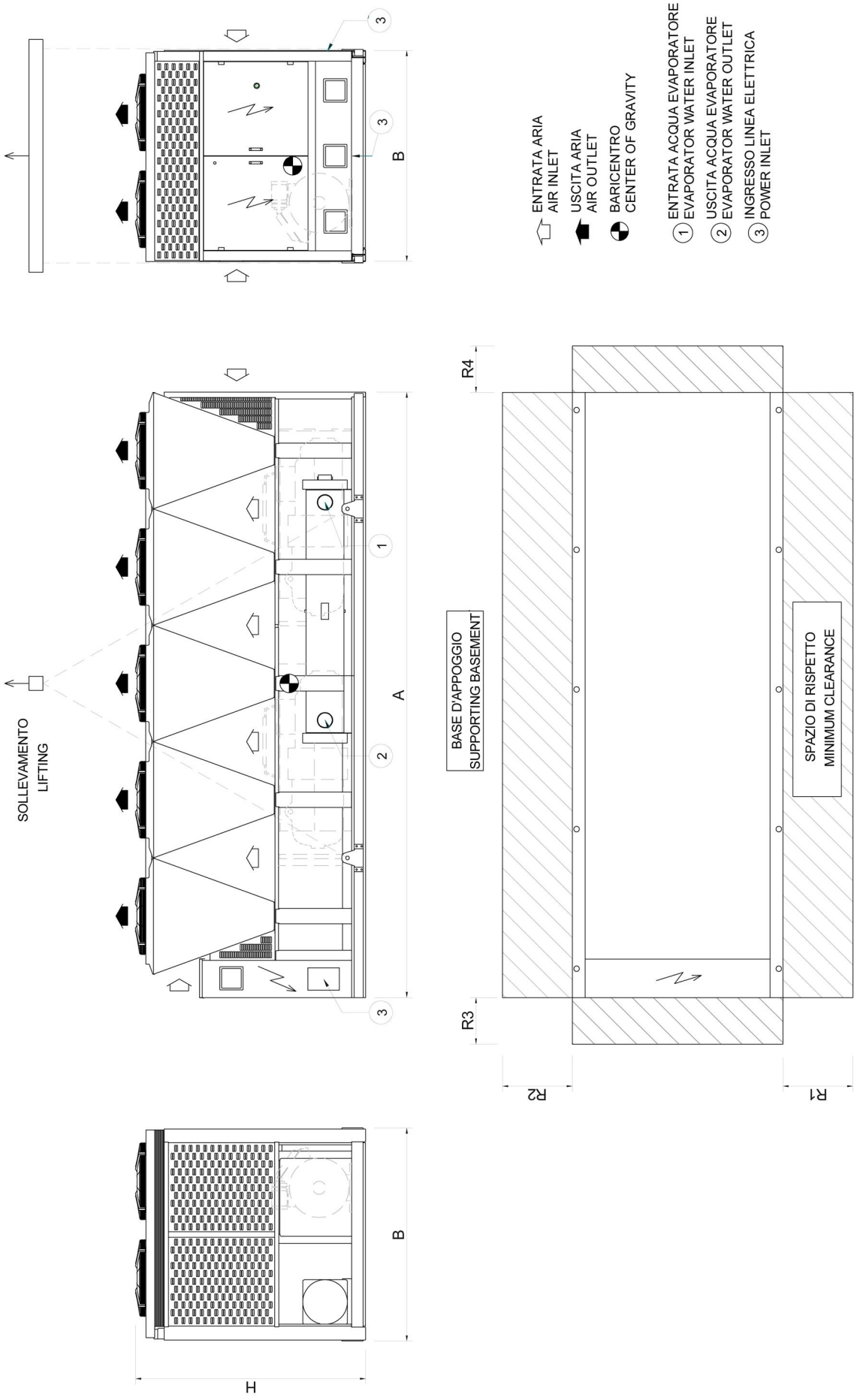
Sound power level in cooling, outdoors.

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz]								Total sound level dB(A)
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB								
1502	48	46	49	53	54	45	33	26	**56**
1702	49	47	50	54	55	46	34	27	**57**
1902	49	47	50	54	55	46	34	27	**57**
1922	49	47	50	54	55	46	34	27	**57**
2202	49	48	52	54	55	43	33	25	**57**
2602	51	50	53	55	56	44	34	26	**58**
2652	51	50	53	55	56	44	34	26	**58**
2702	52	51	54	56	57	45	35	27	**59**
2722	52	51	54	56	57	45	35	27	**59**
3152	52	51	54	56	57	45	35	27	**59**
3602	52	51	54	56	57	45	35	27	**59**
3902	52	51	54	56	57	45	35	27	**59**
4202	53	52	55	57	58	46	36	28	**60**
4502	53	52	55	57	58	46	36	28	**60**
4802	53	52	55	57	58	46	36	28	**60**
4822	53	52	55	57	58	46	36	28	**60**
5412	55	54	57	60	60	47	37	29	**62**

Working conditions

Plant (side) cooling exchanger water (in/out) 12,00°C/7,00°C; Source (side) heat exchanger air (in) 35,0°C.

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



REMARKS:For installation purposes, please refer to the documentation sent after the purchase-contract. This technical data should be considered as indicative. Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A. may modify them at any moment. Data valid for standard units without any additional option.

DIMENSIONAL DRAWINGS

FR-G05-Z 1502 - 7223

[SI System]

SIZE	DIMENSIONS AND WEIGHTS				CLEARANCE				HEAT EXCHANGER USER SIDE		HEAT RECOVERY EX. USER SIDE	
	A	B	H	WEIGHT	R1	R2	R3	R4	IN/OUT		IN/OUT	
	[mm]	[mm]	[mm]	[kg]	[mm]	[mm]	[mm]	[mm]	TYPE	Ø	TYPE	Ø
FR-G05-Z /K /1502	2750	2260	2500	3160	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /K /1702	2750	2260	2500	3170	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /K /1902	4000	2260	2500	3720	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /K /1922	4000	2260	2500	3810	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /K /2202	4000	2260	2500	4610	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /K /2602	5250	2260	2500	5060	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /K /2652	5250	2260	2500	5060	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /K /2702	5250	2260	2500	5130	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /K /2722	5250	2260	2500	5520	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /K /3152	6500	2260	2500	6450	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /K /3602	6500	2260	2500	6940	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /K /3902	7750	2260	2500	7440	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /K /4202	7750	2260	2500	7560	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /K /4502	7750	2260	2500	7790	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /K /4802	7750	2260	2500	7820	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /K /4812	9000	2260	2500	8250	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /K /4822	9000	2260	2500	8370	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /K /5412	9150	2260	2500	8660	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /K /6002	10400	2260	2500	9200	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /K /6022	10400	2260	2500	9310	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /K /6303	11650	2260	2500	11880	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /K /6903	11650	2260	2500	11940	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /K /7203	11650	2260	2500	11950	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /K /7213	12900	2260	2500	12490	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /K /7223	12900	2260	2500	12570	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /D /K /1502	2750	2260	2500	3255	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /K /1702	2750	2260	2500	3265	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /K /1902	4000	2260	2500	3832	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /K /1922	4000	2260	2500	3924	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /K /2202	4000	2260	2500	4748	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /K /2602	5250	2260	2500	5212	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /K /2652	5250	2260	2500	5212	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /K /2702	5250	2260	2500	5284	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /K /2722	5250	2260	2500	5686	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /K /3152	6500	2260	2500	6644	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /K /3602	6500	2260	2500	7148	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /K /3902	7750	2260	2500	7663	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /K /4202	7750	2260	2500	7787	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /K /4502	7750	2260	2500	8024	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /K /4802	7750	2260	2500	8055	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /K /4812	9000	2260	2500	8498	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /K /4822	9000	2260	2500	8621	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /K /5412	9150	2260	2500	8920	2000	2300	1500	1500	H	8"	J	2 1/2"
FR-G05-Z /D /K /6002	10400	2260	2500	9476	2000	2300	1500	1500	H	8"	J	2 1/2"
FR-G05-Z /D /K /6022	10400	2260	2500	9589	2000	2300	1500	1500	H	8"	J	2 1/2"
FR-G05-Z /D /K /6303	11650	2260	2500	12236	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /K /6903	11650	2260	2500	12298	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /K /7203	11650	2260	2500	12309	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /K /7213	12900	2260	2500	12865	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /K /7223	12900	2260	2500	12947	2000	2300	1500	1500	H	8"	I	2 1/2"
FR-G05-Z /R /K /1502	3750	2260	2500	3444	2000	2300	1500	1500	H	5"	I	2 1/2"
FR-G05-Z /R /K /1702	3750	2260	2500	3455	2000	2300	1500	1500	H	5"	I	3"

DIMENSIONAL DRAWINGS

FR-G05-Z 1502 - 7223

[SI System]

SIZE	DIMENSIONS AND WEIGHTS				CLEARANCE				HEAT EXCHANGER USER SIDE		HEAT RECOVERY EX. USER SIDE	
	A	B	H	WEIGHT	R1	R2	R3	R4	IN/OUT		IN/OUT	
	[mm]	[mm]	[mm]	[kg]	[mm]	[mm]	[mm]	[mm]	TYPE	Ø	TYPE	Ø
FR-G05-Z /R /K /1902	4000	2260	2500	4055	2000	2300	1500	1500	H	5"	I	3"
FR-G05-Z /R /K /1922	4000	2260	2500	4153	2000	2300	1500	1500	H	5"	I	3"
FR-G05-Z /R /K /2202	5000	2260	2500	5025	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /K /2602	6250	2260	2500	5515	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /K /2652	6250	2260	2500	5515	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /K /2702	6250	2260	2500	5592	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /K /2722	6250	2260	2500	6017	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /K /3152	6500	2260	2500	7031	2000	2300	1500	1500	H	6"	H	4"
FR-G05-Z /R /K /3602	6500	2260	2500	7565	2000	2300	1500	1500	H	6"	H	4"
FR-G05-Z /R /K /3902	7750	2260	2500	8110	2000	2300	1500	1500	H	6"	H	5"
FR-G05-Z /R /K /4202	7750	2260	2500	8240	2000	2300	1500	1500	H	6"	H	5"
FR-G05-Z /R /K /4502	7750	2260	2500	8491	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /K /4802	7750	2260	2500	8524	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /K /4812	9000	2260	2500	8993	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /K /4822	9000	2260	2500	9123	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /K /5412	9150	2260	2500	9439	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /K /6002	10400	2260	2500	10028	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /K /6022	10400	2260	2500	10148	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /K /6303	11650	2260	2500	12949	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /K /6903	11650	2260	2500	13015	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /K /7203	11650	2260	2500	13026	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /K /7213	12900	2260	2500	13614	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /K /7223	12900	2260	2500	13701	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /SL-K /1502	2750	2260	2500	3420	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /SL-K /1702	4000	2260	2500	4160	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /SL-K /1902	4000	2260	2500	4230	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /SL-K /1922	4000	2260	2500	4230	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /SL-K /2202	5250	2260	2500	5200	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-K /2602	5250	2260	2500	5560	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-K /2652	5250	2260	2500	5580	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-K /2702	5250	2260	2500	5620	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-K /2722	6500	2260	2500	6610	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-K /3152	6500	2260	2500	7080	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-K /3602	6500	2260	2500	7550	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-K /3902	7750	2260	2500	8090	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-K /4202	7750	2260	2500	8200	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-K /4502	9000	2260	2500	9000	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-K /4802	9000	2260	2500	8870	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-K /4812	10250	2260	2500	9360	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-K /4822	10250	2260	2500	9470	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-K /5412	10400	2260	2500	9780	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-K /6002	10400	2260	2500	9860	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-K /6022	11650	2260	2500	10420	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-K /6303	11650	2260	2500	12810	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-K /6903	12900	2260	2500	13340	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-K /7203	12900	2260	2500	13340	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-K /7213	12900	2260	2500	13420	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-K /7223	12900	2260	2500	13500	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /D /SL-K /1502	2750	2260	2500	3523	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /SL-K /1702	4000	2260	2500	4285	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /SL-K /1902	4000	2260	2500	4357	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /SL-K /1922	4000	2260	2500	4357	2000	2300	1500	1500	H	5"	F	2"

DIMENSIONAL DRAWINGS

FR-G05-Z 1502 - 7223

[SI System]

SIZE	DIMENSIONS AND WEIGHTS				CLEARANCE				HEAT EXCHANGER USER SIDE		HEAT RECOVERY EX. USER SIDE	
	A	B	H	WEIGHT	R1	R2	R3	R4	IN/OUT		IN/OUT	
	[mm]	[mm]	[mm]	[kg]	[mm]	[mm]	[mm]	[mm]	TYPE	Ø	TYPE	Ø
FR-G05-Z /D /SL-K /2202	5250	2260	2500	5356	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-K /2602	5250	2260	2500	5727	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-K /2652	5250	2260	2500	5747	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-K /2702	5250	2260	2500	5789	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-K /2722	6500	2260	2500	6808	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-K /3152	6500	2260	2500	7292	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /SL-K /3602	6500	2260	2500	7777	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /SL-K /3902	7750	2260	2500	8333	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /SL-K /4202	7750	2260	2500	8446	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /SL-K /4502	9000	2260	2500	9270	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-K /4802	9000	2260	2500	9136	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-K /4812	10250	2260	2500	9641	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-K /4822	10250	2260	2500	9754	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-K /5412	10400	2260	2500	10073	2000	2300	1500	1500	H	8"	J	2 1/2"
FR-G05-Z /D /SL-K /6002	10400	2260	2500	10156	2000	2300	1500	1500	H	8"	J	2 1/2"
FR-G05-Z /D /SL-K /6022	11650	2260	2500	10733	2000	2300	1500	1500	H	8"	J	2 1/2"
FR-G05-Z /D /SL-K /6303	11650	2260	2500	13194	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-K /6903	12900	2260	2500	13740	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-K /7203	12900	2260	2500	13740	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-K /7213	12900	2260	2500	13823	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-K /7223	12900	2260	2500	13905	2000	2300	1500	1500	H	8"	J	2 1/2"
FR-G05-Z /R /SL-K /1502	3750	2260	2500	3728	2000	2300	1500	1500	H	5"	I	2 1/2"
FR-G05-Z /R /SL-K /1702	4000	2260	2500	4534	2000	2300	1500	1500	H	5"	I	3"
FR-G05-Z /R /SL-K /1902	4000	2260	2500	4611	2000	2300	1500	1500	H	5"	I	3"
FR-G05-Z /R /SL-K /1922	4000	2260	2500	4611	2000	2300	1500	1500	H	5"	I	3"
FR-G05-Z /R /SL-K /2202	6250	2260	2500	5668	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-K /2602	6250	2260	2500	6060	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-K /2652	6250	2260	2500	6082	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-K /2702	6250	2260	2500	6126	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-K /2722	6500	2260	2500	7205	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-K /3152	6500	2260	2500	7717	2000	2300	1500	1500	H	6"	H	4"
FR-G05-Z /R /SL-K /3602	6500	2260	2500	8230	2000	2300	1500	1500	H	6"	H	4"
FR-G05-Z /R /SL-K /3902	7750	2260	2500	8818	2000	2300	1500	1500	H	6"	H	5"
FR-G05-Z /R /SL-K /4202	7750	2260	2500	8938	2000	2300	1500	1500	H	6"	H	5"
FR-G05-Z /R /SL-K /4502	9000	2260	2500	9810	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-K /4802	9000	2260	2500	9668	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-K /4812	10250	2260	2500	10202	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-K /4822	10250	2260	2500	10322	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-K /5412	10400	2260	2500	10660	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-K /6002	10400	2260	2500	10747	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-K /6022	11650	2260	2500	11358	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-K /6303	11650	2260	2500	13963	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-K /6903	12900	2260	2500	14541	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-K /7203	12900	2260	2500	14541	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-K /7213	12900	2260	2500	14628	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-K /7223	12900	2260	2500	14715	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /CA	4000	2260	2500	3660	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /CA	4000	2260	2500	3720	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /CA	4000	2260	2500	3760	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /CA	5250	2260	2500	4660	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /CA	5250	2260	2500	5040	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /CA	5250	2260	2500	5090	2000	2300	1500	1500	H	6"	-	-

DIMENSIONAL DRAWINGS

FR-G05-Z 1502 - 7223

[SI System]

SIZE	DIMENSIONS AND WEIGHTS				CLEARANCE				HEAT EXCHANGER USER SIDE		HEAT RECOVERY EX. USER SIDE	
	A	B	H	WEIGHT	R1	R2	R3	R4	IN/OUT		IN/OUT	
	[mm]	[mm]	[mm]	[kg]	[mm]	[mm]	[mm]	[mm]	TYPE	Ø	TYPE	Ø
FR-G05-Z /CA	6500	2260	2500	5830	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /CA	6500	2260	2500	5690	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /CA	6500	2260	2500	6110	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /CA	7750	2260	2500	6970	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /CA	7750	2260	2500	7440	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /CA	9000	2260	2500	7890	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /CA	9000	2260	2500	8000	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /CA	10400	2260	2500	8700	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /CA	10400	2260	2500	8780	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /CA	10400	2260	2500	9040	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /CA	11650	2260	2500	10120	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /CA	12900	2260	2500	12160	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /CA	12900	2260	2500	12330	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /CA	12900	2260	2500	12640	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /D /CA /1502	4000	2260	2500	3770	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /CA /1702	4000	2260	2500	3832	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /CA /1902	4000	2260	2500	3873	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /CA /1922	5250	2260	2500	4800	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /CA /2202	5250	2260	2500	5191	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /CA /2602	5250	2260	2500	5243	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /CA /2652	6500	2260	2500	6005	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /CA /2702	6500	2260	2500	5861	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /CA /2722	6500	2260	2500	6293	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /CA /3152	7750	2260	2500	7179	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /CA /3602	7750	2260	2500	7663	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /CA /3902	9000	2260	2500	8127	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /CA /4202	9000	2260	2500	8240	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /CA /4502	10400	2260	2500	8961	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /CA /4802	10400	2260	2500	9043	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /CA /4822	10400	2260	2500	9311	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /CA /5412	11650	2260	2500	10424	2000	2300	1500	1500	H	8"	J	2 1/2"
FR-G05-Z /D /CA /5703	12900	2260	2500	12525	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /CA /6303	12900	2260	2500	12700	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /CA /6603	12900	2260	2500	13019	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /R /CA /1502	4000	2260	2500	3989	2000	2300	1500	1500	H	5"	I	3"
FR-G05-Z /R /CA /1702	4000	2260	2500	4055	2000	2300	1500	1500	H	5"	I	3"
FR-G05-Z /R /CA /1902	4000	2260	2500	4098	2000	2300	1500	1500	H	5"	I	3"
FR-G05-Z /R /CA /1922	6250	2260	2500	5079	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /CA /2202	6250	2260	2500	5494	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /CA /2602	6250	2260	2500	5548	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /CA /2652	6500	2260	2500	6355	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /CA /2702	6500	2260	2500	6202	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /CA /2722	6500	2260	2500	6660	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /CA /3152	7750	2260	2500	7597	2000	2300	1500	1500	H	6"	H	4"
FR-G05-Z /R /CA /3602	7750	2260	2500	8110	2000	2300	1500	1500	H	6"	H	4"
FR-G05-Z /R /CA /3902	9000	2260	2500	8600	2000	2300	1500	1500	H	6"	H	5"
FR-G05-Z /R /CA /4202	9000	2260	2500	8720	2000	2300	1500	1500	H	6"	H	5"
FR-G05-Z /R /CA /4502	10400	2260	2500	9483	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /CA /4802	10400	2260	2500	9570	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /CA /4822	10400	2260	2500	9854	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /CA /5412	11650	2260	2500	11031	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /CA /5703	12900	2260	2500	13254	2000	2300	1500	1500	H	8"	H	5"

DIMENSIONAL DRAWINGS

FR-G05-Z 1502 - 7223

[SI System]

SIZE	DIMENSIONS AND WEIGHTS				CLEARANCE				HEAT EXCHANGER USER SIDE		HEAT RECOVERY EX. USER SIDE	
	A	B	H	WEIGHT	R1	R2	R3	R4	IN/OUT		IN/OUT	
	[mm]	[mm]	[mm]	[kg]	[mm]	[mm]	[mm]	[mm]	TYPE	Ø	TYPE	Ø
FR-G05-Z /R /CA /6303	12900	2260	2500	13440	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /CA /6603	12900	2260	2500	13778	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /SL-CA /1502	4000	2260	2500	4130	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /SL-CA /1702	4000	2260	2500	4190	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /SL-CA /1902	5250	2260	2500	4680	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /SL-CA /1922	5250	2260	2500	5140	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-CA /2202	5250	2260	2500	5520	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-CA /2602	6500	2260	2500	6140	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-CA /2652	6500	2260	2500	6390	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-CA /2702	6500	2260	2500	6520	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-CA /2722	7750	2260	2500	7150	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-CA /3152	7750	2260	2500	7610	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-CA /3602	9000	2260	2500	8500	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-CA /3902	10250	2260	2500	8990	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-CA /4202	10250	2260	2500	9280	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-CA /4502	11650	2260	2500	9810	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-CA /4802	11650	2260	2500	9890	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-CA /4822	11650	2260	2500	10230	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-CA /5412	12900	2260	2500	10760	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-CA /5703	12900	2260	2500	13130	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-CA /6303	12900	2260	2500	13260	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /D /SL-CA /1502	4000	2260	2500	4254	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /SL-CA /1702	4000	2260	2500	4316	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /SL-CA /1902	5250	2260	2500	4820	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /SL-CA /1922	5250	2260	2500	5294	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-CA /2202	5250	2260	2500	5686	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-CA /2602	6500	2260	2500	6324	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-CA /2652	6500	2260	2500	6582	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-CA /2702	6500	2260	2500	6716	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-CA /2722	7750	2260	2500	7365	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-CA /3152	7750	2260	2500	7838	2000	2300	1500	1500	H	6"	J	2 1/2"
FR-G05-Z /D /SL-CA /3602	9000	2260	2500	8755	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /SL-CA /3902	10250	2260	2500	9260	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /SL-CA /4202	10250	2260	2500	9558	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /SL-CA /4502	11650	2260	2500	10104	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-CA /4802	11650	2260	2500	10187	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-CA /4822	11650	2260	2500	10537	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-CA /5412	12900	2260	2500	11083	2000	2300	1500	1500	H	8"	J	2 1/2"
FR-G05-Z /D /SL-CA /5703	12900	2260	2500	13524	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-CA /6303	12900	2260	2500	13658	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /R /SL-CA /1502	4000	2260	2500	4502	2000	2300	1500	1500	H	5"	I	3"
FR-G05-Z /R /SL-CA /1702	4000	2260	2500	4567	2000	2300	1500	1500	H	5"	I	3"
FR-G05-Z /R /SL-CA /1902	5250	2260	2500	5101	2000	2300	1500	1500	H	5"	I	3"
FR-G05-Z /R /SL-CA /1922	6250	2260	2500	5603	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-CA /2202	6250	2260	2500	6017	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-CA /2602	6500	2260	2500	6693	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-CA /2652	6500	2260	2500	6965	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-CA /2702	6500	2260	2500	7107	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-CA /2722	7750	2260	2500	7794	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-CA /3152	7750	2260	2500	8295	2000	2300	1500	1500	H	6"	H	4"
FR-G05-Z /R /SL-CA /3602	9000	2260	2500	9265	2000	2300	1500	1500	H	6"	H	4"
FR-G05-Z /R /SL-CA /3902	10250	2260	2500	9799	2000	2300	1500	1500	H	6"	H	5"

DIMENSIONAL DRAWINGS

FR-G05-Z 1502 - 7223

[SI System]

SIZE	DIMENSIONS AND WEIGHTS				CLEARANCE				HEAT EXCHANGER USER SIDE		HEAT RECOVERY EX. USER SIDE	
	A	B	H	WEIGHT	R1	R2	R3	R4	IN/OUT		IN/OUT	
	[mm]	[mm]	[mm]	[kg]	[mm]	[mm]	[mm]	[mm]	TYPE	Ø	TYPE	Ø
FR-G05-Z /R /SL-CA /4202	10250	2260	2500	10115	2000	2300	1500	1500	H	6"	H	5"
FR-G05-Z /R /SL-CA /4502	11650	2260	2500	10693	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-CA /4802	11650	2260	2500	10780	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-CA /4822	11650	2260	2500	11151	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-CA /5412	12900	2260	2500	11728	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-CA /5703	12900	2260	2500	14312	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-CA /6303	12900	2260	2500	14453	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /E /1502	4000	2260	2500	3720	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /E /1702	5250	2260	2500	4240	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /E /1902	5250	2260	2500	4360	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /E /1922	5250	2260	2500	4420	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /E /2202	6500	2260	2500	5590	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /E /2602	6500	2260	2500	5920	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /E /2652	7750	2260	2500	6400	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /E /2702	7750	2260	2500	6490	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /E /2722	7750	2260	2500	6600	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /E /3152	9000	2260	2500	7400	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /E /3602	9000	2260	2500	7880	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /E /3902	10250	2260	2500	8420	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /E /4202	10250	2260	2500	8660	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /E /4502	11650	2260	2500	9190	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /E /4802	11650	2260	2500	9270	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /E /4822	11650	2260	2500	10330	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /E /5412	12900	2260	2500	11170	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /D /E /1502	4000	2260	2500	3832	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /E /1702	5250	2260	2500	4367	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /E /1902	5250	2260	2500	4491	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /E /1922	5250	2260	2500	4553	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /E /2202	6500	2260	2500	5758	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /E /2602	6500	2260	2500	6098	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /E /2652	7750	2260	2500	6592	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /E /2702	7750	2260	2500	6685	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /E /2722	7750	2260	2500	6798	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /E /3152	9000	2260	2500	7622	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /E /3602	9000	2260	2500	8116	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /E /3902	10250	2260	2500	8673	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /E /4202	10250	2260	2500	8920	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /E /4502	11650	2260	2500	9466	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /E /4802	11650	2260	2500	9548	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /E /4822	11650	2260	2500	10640	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /E /5412	12900	2260	2500	11505	1500	2300	1500	1500	H	8"	J	2 1/2"
FR-G05-Z /R /E /1502	4000	2260	2500	4055	2000	2300	1500	1500	H	5"	I	2 1/2"
FR-G05-Z /R /E /1702	5250	2260	2500	4622	2000	2300	1500	1500	H	5"	I	3"
FR-G05-Z /R /E /1902	5250	2260	2500	4752	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /E /1922	5250	2260	2500	4818	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /E /2202	6500	2260	2500	6093	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /E /2602	6500	2260	2500	6453	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /E /2652	7750	2260	2500	6976	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /E /2702	7750	2260	2500	7074	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /E /2722	7750	2260	2500	7194	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /E /3152	9000	2260	2500	8066	2000	2300	1500	1500	H	6"	H	4"
FR-G05-Z /R /E /3602	9000	2260	2500	8589	2000	2300	1500	1500	H	6"	H	4"

DIMENSIONAL DRAWINGS

FR-G05-Z 1502 - 7223

[SI System]

SIZE	DIMENSIONS AND WEIGHTS				CLEARANCE				HEAT EXCHANGER USER SIDE		HEAT RECOVERY EX. USER SIDE	
	A	B	H	WEIGHT	R1	R2	R3	R4	IN/OUT		IN/OUT	
	[mm]	[mm]	[mm]	[kg]	[mm]	[mm]	[mm]	[mm]	TYPE	Ø	TYPE	Ø
FR-G05-Z /R /E /3902	10250	2260	2500	9178	2000	2300	1500	1500	H	6"	H	5"
FR-G05-Z /R /E /4202	10250	2260	2500	9439	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /E /4502	11650	2260	2500	10017	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /E /4802	11650	2260	2500	10104	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /E /4822	11650	2260	2500	11260	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /E /5412	12900	2260	2500	12175	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /SL-E /1502	4000	2260	2500	3960	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /SL-E /1702	5250	2260	2500	4460	2000	2300	1500	1500	H	5"	-	-
FR-G05-Z /SL-E /1902	5250	2260	2500	4620	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-E /1922	5250	2260	2500	4680	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-E /2202	6500	2260	2500	6120	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-E /2602	6500	2260	2500	6460	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-E /2652	7750	2260	2500	6940	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-E /2702	7750	2260	2500	7040	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-E /2722	7750	2260	2500	7140	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-E /3152	9000	2260	2500	7990	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-E /3602	9000	2260	2500	8500	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-E /3902	10250	2260	2500	8990	2000	2300	1500	1500	H	6"	-	-
FR-G05-Z /SL-E /4202	10250	2260	2500	9290	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-E /4502	11650	2260	2500	9830	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-E /4802	11650	2260	2500	9910	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-E /4822	11650	2260	2500	10900	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /SL-E /5412	12900	2260	2500	11530	2000	2300	1500	1500	H	8"	-	-
FR-G05-Z /D /SL-E /1502	4000	2260	2500	4079	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /SL-E /1702	5250	2260	2500	4594	2000	2300	1500	1500	H	5"	F	2"
FR-G05-Z /D /SL-E /1902	5250	2260	2500	4759	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-E /1922	5250	2260	2500	4820	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-E /2202	6500	2260	2500	6304	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-E /2602	6500	2260	2500	6654	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-E /2652	7750	2260	2500	7148	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-E /2702	7750	2260	2500	7251	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-E /2722	7750	2260	2500	7354	2000	2300	1500	1500	H	6"	F	2"
FR-G05-Z /D /SL-E /3152	9000	2260	2500	8230	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /SL-E /3602	9000	2260	2500	8755	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /SL-E /3902	10250	2260	2500	9260	2000	2300	1500	1500	H	6"	F	2 1/2"
FR-G05-Z /D /SL-E /4202	10250	2260	2500	9569	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-E /4502	11650	2260	2500	10125	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-E /4802	11650	2260	2500	10207	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-E /4822	11650	2260	2500	11227	2000	2300	1500	1500	H	8"	F	2 1/2"
FR-G05-Z /D /SL-E /5412	12900	2260	2500	11876	2000	2300	1500	1500	H	8"	J	2 1/2"
FR-G05-Z /R /SL-E /1502	4000	2260	2500	4316	2000	2300	1500	1500	H	5"	I	2 1/2"
FR-G05-Z /R /SL-E /1702	5250	2260	2500	4861	2000	2300	1500	1500	H	5"	I	3"
FR-G05-Z /R /SL-E /1902	5250	2260	2500	5036	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-E /1922	5250	2260	2500	5101	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-E /2202	6500	2260	2500	6671	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-E /2602	6500	2260	2500	7041	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-E /2652	7750	2260	2500	7565	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-E /2702	7750	2260	2500	7674	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-E /2722	7750	2260	2500	7783	2000	2300	1500	1500	H	6"	I	3"
FR-G05-Z /R /SL-E /3152	9000	2260	2500	8709	2000	2300	1500	1500	H	6"	H	4"
FR-G05-Z /R /SL-E /3602	9000	2260	2500	9265	2000	2300	1500	1500	H	6"	H	4"
FR-G05-Z /R /SL-E /3902	10250	2260	2500	9799	2000	2300	1500	1500	H	6"	H	5"

DIMENSIONAL DRAWINGS

FR-G05-Z 1502 - 7223

[SI System]

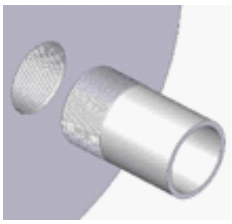
SIZE	DIMENSIONS AND WEIGHTS				CLEARANCE				HEAT EXCHANGER USER SIDE		HEAT RECOVERY EX. USER SIDE	
	A	B	H	WEIGHT	R1	R2	R3	R4	IN/OUT		IN/OUT	
	[mm]	[mm]	[mm]	[kg]	[mm]	[mm]	[mm]	[mm]	TYPE	Ø	TYPE	Ø
FR-G05-Z /R /SL-E /4202	10250	2260	2500	10126	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-E /4502	11650	2260	2500	10715	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-E /4802	11650	2260	2500	10802	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-E /4822	11650	2260	2500	11881	2000	2300	1500	1500	H	8"	H	5"
FR-G05-Z /R /SL-E /5412	12900	2260	2500	12568	2000	2300	1500	1500	H	8"	H	5"

DIMENSIONAL DRAWINGS

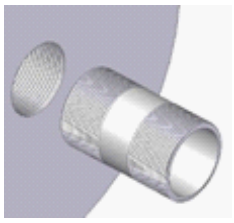
LEGEND OF PIPE CONNECTIONS

TYPE = F
Grooved coupling with male threaded counter-pipe user side

TYPE = H
Grooved coupling with weld end counter-pipe user side



TIPO = I
Female threaded connection with weld end counter-pipe user side



TYPE = J
Female threaded connection with male threaded
counter-pipe user side

UNI ISO 228/13
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 EN 10226-1
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

NOMINAL PIPE SIZE	PIPE OUTSIDE DIAMETER
ø inches	ø mm
¾	26,7
1	33,7
1 ¼	42,4
1 ½	48,3
2	60,3
2 ½	76,1
3	88,9
3 ½	101,6

NOMINAL PIPE SIZE	PIPE OUTSIDE DIAMETER
ø inches	ø mm
4	114,3
4 ½	127,0
5	139,7
6	168,3
8	219,1
10	273,0
12	323,9
14	355,6

DESIGNATION	DESCRIPTION
UNI EN 10226-1 - Rp 1 1/2	Internal cylindrical threads where pressure-tight joints are made on the threads, defined by standard UNI ISO 7/1 Conventional ø 1 1/2”
UNI EN 10226-1 - Rp 2 1/2	Internal cylindrical threads where pressure-tight joints are made on the threads, defined by standard UNI ISO 7/1 Conventional ø 2 1/2”
UNI EN 10226-1 - Rp 3	Internal cylindrical threads where pressure-tight joints are made on the threads, defined by standard UNI ISO 7/1 Conventional ø 3”
UNI EN 10226-1 - R 3	External conical threads where pressure-tight joints are made on the threads, defined by standard UNI ISO 7/1 Conventional ø 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 ø 4”
DN 80 PN 16	Flange Nominal Diameter: 80 mm Nominal Pressure: 16 bar

NOTE:
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 EN 10226-1	UNI ISO 228/1
Conventional ø	1”	1”
Pitch	2.309 mm	2.309 mm
External ø	33.249 mm	33.249 mm
Core ø	30.291 mm	30.291 mm
Thread height	1.479 mm	1.479 mm

10.1 HYDRONIC MODULE
The units can be fitted with the following types hydronic module:

- Only terminals (ON/OFF or modulating)
The hydronic module allows to control the external pumps with the unit controller logic.
- Pumps (fixed or variable speed)
The hydronic module includes the pumps and the main water circuit components, thus optimizing hydraulic and electrical installation space, time and costs.

The complete list of the options available is present in the accessory section of the bulletin.

For the hydronic modules with only terminals, the factory-mounted components are:
- Terminals for external pumps control (only relays or relays + 0-10V signal)
- Differential pressure switch (on heat exchanger)
- Drain valve (on heat exchanger)

For the hydronic modules with pumps, the factory-mounted components are:
- 2 pumps, 2 or 4 poles, low or high head, fixed speed or variable speed (inverter)
- Pump suction and discharge valves
- One-way valve (Clapet type for in-line pumps)
- Purge valve
- Drain plug
- Differential pressure switch (on heat exchanger)
- Drain valve (on heat exchanger)

The pumps are controlled in duty/standby, with running hours equalization and changeover on device failure.
The electrical panel of the unit is protected with fuses and contactors with thermals cut-out.

Suction, volute and discharge of each pump and all the water pipes are covered with an insulation lining in closed-cell reticulated foam in PE of 15 mm.
The hydronic group is protected by a self-ventilated enclosure. In silenced units (/SL versions and units with Noise Reducer (code 2315)), the enclosure is acoustically insulated by a 30 mm thick lining of polyester fibers (Fiberform).
Note: the use of 2 pole pumps in super low noise units (/SL versions) increases the sound power by 1 dB(A).

The choice between in-line and end-suction pumps has been made keeping in consideration the best configuration in terms of dimensions and performances.

10.1 IN-LINE PUMPS
Low or high head pumps
Grundfos single-stage, close-coupled, volute twin-head pump with in-line suction and discharge ports. The pump housing and the impeller are made of cast iron, with optimized design to improve the efficiency. The twin-head pumps are designed with two parallel power heads. Each power head is fitted with a fan-cooled asynchronous motor of identical size. Motor and pump shafts are connected via a rigid two-part coupling. The pumps are of the top-pull-out design, i.e. you can remove the power head (motor, pump head and impeller) for maintenance or service while the pump housing remains in the pipework.
Pump housing and pump head are electrocoated to improve the corrosion resistance. The flanges have tappings for mounting of pressure gauges. The central part of the motor stool is provided with guards for protection against the shaft and coupling.
The shaft seal is in accordance with EN 12756. Pipework connection is via PN 16 DIN flanges (EN 1092-2 and ISO 7005-2).
The pump is fitted with an unbalanced rubber bellows seal with torque transmission across the spring and around the bellows. Due to the bellows, the seal does not wear the shaft, and the axial movement is not prevented by deposits on the shaft.
Primary seal:
- Rotating seal ring material: Silicon carbide (SiC)
- Stationary seat material: Silicon carbide (SiC)
This material pairing is used where higher corrosion resistance is required. The high hardness of this material pairing offers good resistance against abrasive particles.
Secondary seal material: EPDM (ethylene-propylene rubber). EPDM has excellent resistance to hot water.
A circulation of liquid through the duct of the air vent screw ensures lubrication and cooling of the shaft seal.
The twin-head pumps are connected in parallel. A non-return flap valve in the common outlet port is opened by the flow of the pumped liquid and prevents backflow of liquid into the idle pump head. The pump housing is provided with a replaceable bronze neck ring to reduce the amount of liquid running from the discharge side of the impeller to the suction side.
The pumps are fitted with high efficiency motors classified as IE3 in accordance with IEC 60034-30. The fan-cooled motors are totally enclosed, with main dimensions to IEC and DIN standards. Electrical tolerances comply with IEC 60034. Insulation class F (IEC 85). These motors show high efficiency, thus minimizing the energy consumption. The motor can be drived via a variable frequency drive for variable speed operation.

10.2 END-SUCTION PUMPS
Low or high head pumps
Non-self-priming, single-stage, centrifugal volute end-suction pumps with axial inlet port, radial outlet port and horizontal shaft, designed according to ISO 5199 with dimensions and rated performance according to EN 733 (10 bar). Flanges are PN 16 with dimensions according to EN 1092-2.
The pump is close-coupled to a fan-cooled asynchronous motor. Pump housing and impeller are made of cast iron, while the wear ring is made of bronze. The back pull-out design enables removal of the motor, motor stool and impeller without disturbing the pump housing or pipework. Cast-iron parts have an epoxy-based coating made in a cathodic electro-deposition (CED) process.
The pump housing has both a priming and a drain hole closed by plugs.
The impeller is a closed impeller with double-curved blades with smooth surfaces. The impeller is statically balanced according to ISO 1940-1 class G6.3 and hydraulically balanced to compensate for axial thrust. Wear rings used in pump housing and for impeller are made of bronze.
Motor stool and pump cover are made of cast iron. Coupling guards are fitted to the motor stool. The pump cover is provided with a manual air vent screw for venting of the pump housing and the shaft seal chamber. An O-ring forms the seal between cover and pump housing.
The pump is fitted with an unbalanced rubber bellows seal with torque transmission across the spring and around the bellows. Due to the bellows, the seal does not wear the shaft, and the axial movement is not prevented by deposits on the shaft.
Primary seal:
- Rotating seal ring material: Silicon carbide (SiC)
- Stationary seat material: Silicon carbide (SiC)
This material pairing is used where higher corrosion resistance is

required. The high hardness of this material pairing offers good resistance against abrasive particles.
Secondary seal material: EPDM (ethylene-propylene rubber). EPDM has excellent resistance to hot water.
The pumps are fitted with high efficiency motors classified as IE3 in accordance with IEC 60034-30. The fan-cooled motors are totally enclosed, with main dimensions to IEC and DIN standards. Electrical tolerances comply with IEC 60034. Insulation class F (IEC 85). These motors show high efficiency, thus minimizing the energy consumption. The motor can be drived via a variable frequency drive for variable speed operation.

10.3 VARIABLE FREQUENCY DRIVE
For pump speed control
Mitsubishi Electric frequency converters, with IP55 protection rating for rough environment. The drives, one for each pump, are cooled by built-in fans and installed with a dedicated enclosure.
The fast-response speed control combined with the advanced auto-tuning function ensures safe and accurate operation in any condition.
Optimum control of the excitation current maximizes motor efficiency for additional energy savings.
The drive features built-in EMC filter (EN 61800-3, 1st Environment, Category C2) and DC link choke to significantly reduce electromagnetic noise and current harmonic distortion THDi.

10.3 OTHER COMPONENTS
The following components are excluded from the hydronic kit supply, but their use is mandatory for the correct unit and system operation.
These components are available as accessories and supplied loose, it shall be the customer responsability to install them.
- Unit inlet water filter
- Unit outlet flow-switch

It is also recommended the use of the following components:
- Unit inlet and outlet pressure gauges
- Shut-off valves
- Flexible joints on piping

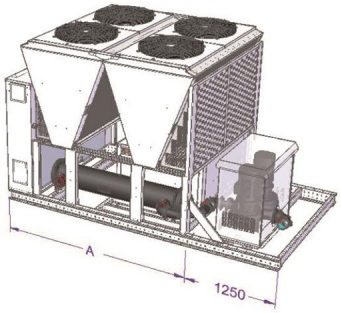
Possible configurations

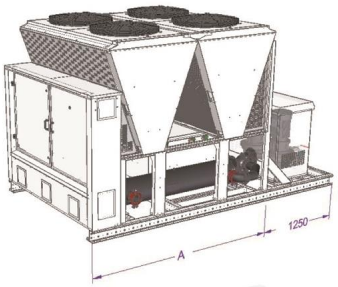
PUMP GROUP	Versions					
	CA	E	K	SL-CA	SL-E	SL-K
HYDRONIC KIT 2 PUMPS 4 POLES LH(4708)	X	X	X	X	X	X
HYDRONIC KIT 2 PUMPS 4 POLES HH(4709)	X	X	X	X	X	X
HYDRONIC KIT 2 PUMPS 2 POLES LH(4711)	X	X	X	X	X	X
HYDRONIC KIT 2 PUMPS 2 POLES HH(4712)	X	X	X	X	X	X

HYDRONIC GROUP

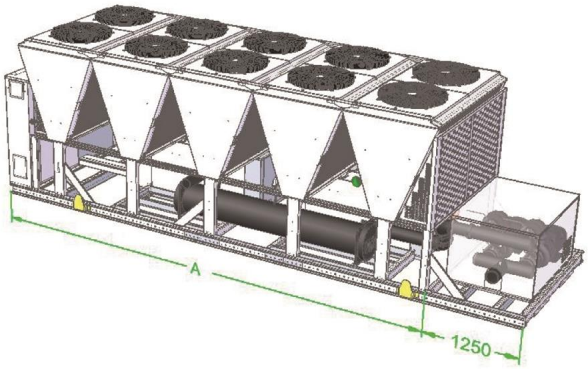
UNITA' CON KIT IDRONICO
UNITS WITH HYDRONIC GROUP

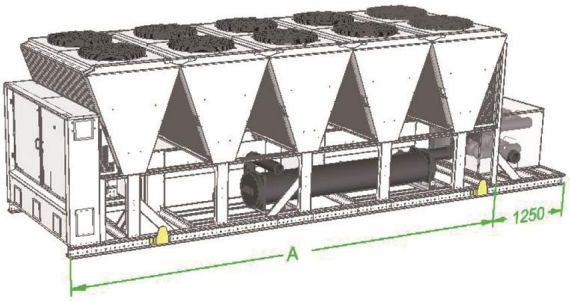
KIT IDRONICO SU PROLUNGAMENTO STRUTTURA - POMPE IN-LINE
HYDRONIC KIT ON FRAME EXTENSION - IN-LINE PUMPS



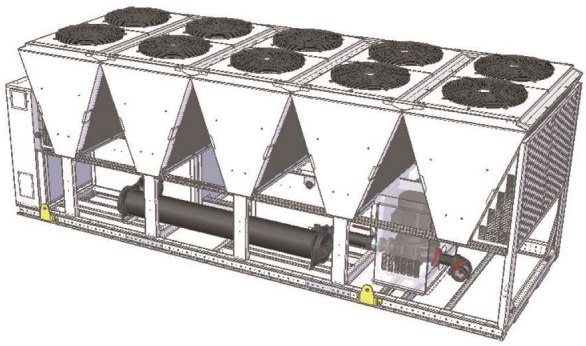


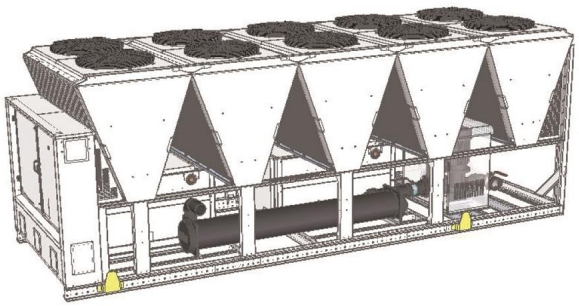
KIT IDRONICO SU PROLUNGAMENTO STRUTTURA - POMPE ORTOGONALI
HYDRONIC KIT ON FRAME EXTENSION - END-SUCTION PUMPS



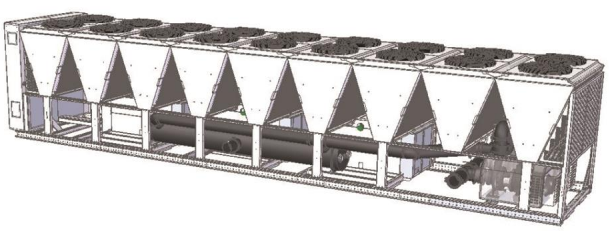


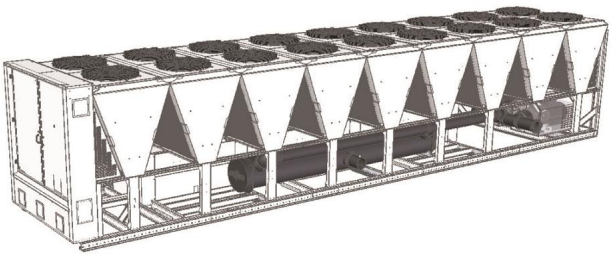
KIT IDRONICO INTERNO - POMPE IN-LINE
INTERNAL HYDRONIC KIT - IN-LINE PUMPS



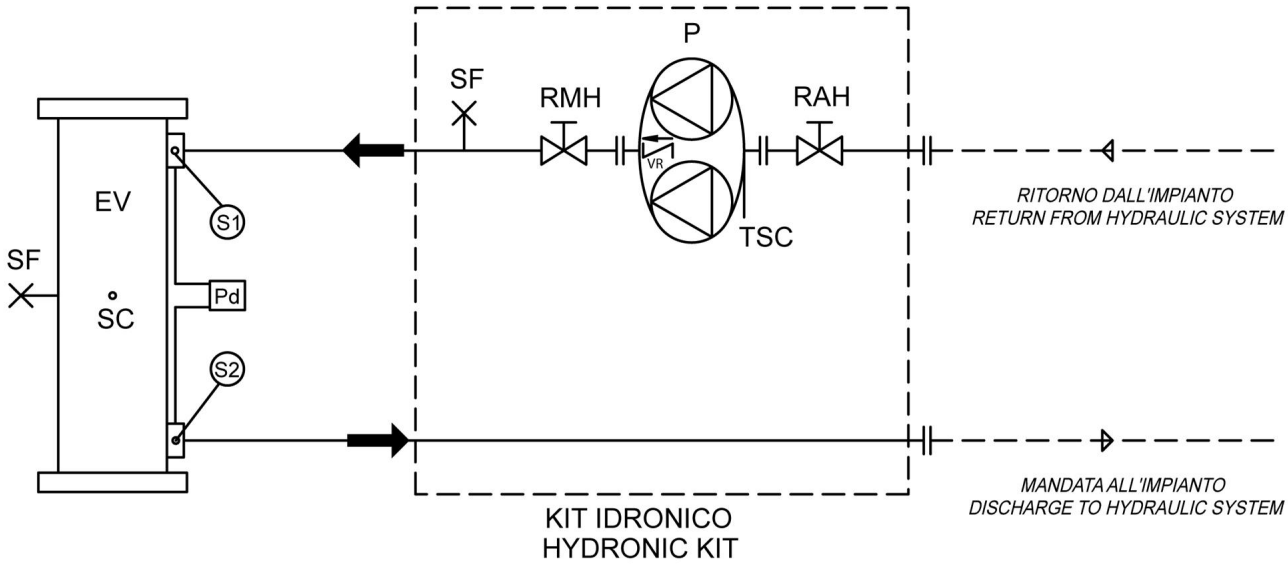


KIT IDRONICO INTERNO - POMPE ORTOGONALI
INTERNAL HYDRONIC KIT - END-SUCTION PUMPS



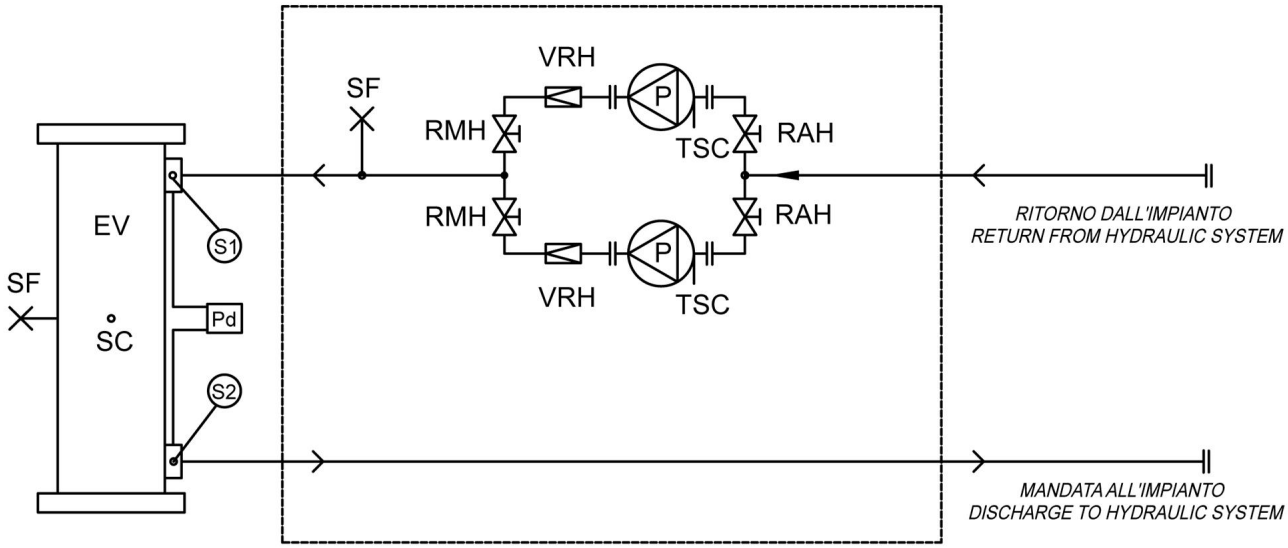


Schema idraulico pompe IN-LINE - configurazione STD
Hydraulic diagram IN-LINE water PUMPS – STD configuration



LEGENDA - LEGEND	
COMPONENTI DEL KIT IDRONICO *COMPONENTS OF THE HYDRONIC KIT*	
EV	Evaporatore (scambiatore a fascio tubiero) Evaporator (tube exchanger)
P	Pompa gemellare Twin rotor pump
Pd	Pressostato differenziale lato acqua Water Differential pressure switch
RAH	Rubinetto aspirazione Pump suction valve
RMH	Rubinetto mandata Pump discharge valve
SC	Valvola di scarico Drain valve
TSC	Tappo di scarico Drain plug
SF	Valvola di sfiato Purge valve
S1	Sonda ingresso acqua scambiatore Exchanger water inlet probe
S2	Sonda uscita acqua scambiatore Exchanger water outlet probe
VR	Valvola di non ritorno (interna alla pompa) One way valve (pump inside)

Schema idraulico pompe ORTOGONALI - configurazione STD
Hydraulic diagram END-SUCTION water PUMPS – STD configuration



KIT IDRONICO
HYDRONIC KIT

LEGENDA - LEGEND	
COMPONENTI DEL KIT IDRONICO *COMPONENTS OF THE HYDRONIC KIT*	
EV	Evaporatore (scambiatore a fascio tubiero) Evaporator (tube exchanger)
P	Pompa Water pump
Pd	Pressostato differenziale lato acqua Water Differential pressure switch
RAH	Rubinetto aspirazione Pump suction valve
RMH	Rubinetto mandata Pump discharge valve
SC	Valvola di scarico Drain valve
TSC	Tappo di scarico Drain plug
SF	Valvola di sfiato Purge valve
S1	Sonda ingresso acqua scambiatore Exchanger water inlet probe
S2	Sonda uscita acqua scambiatore Exchanger water outlet probe
VRH	Valvola di non ritorno One way valve

HYDRONIC GROUP

Hydronic kit positioning

	Version	HYDRONIC KIT 2 PUMPS 4 POLES LH (4708)				HYDRONIC KIT 2 PUMPS 4 POLES HH (4709)				HYDRONIC KIT 2 PUMPS 2 POLES LH (4711)				HYDRONIC KIT 2 PUMPS 2 POLES HH (4712)			
		extra L [mm]	extra W [mm]	extra H [mm]	extra WGT [kg]	extra L [mm]	extra W [mm]	extra H [mm]	extra WGT [kg]	extra L [mm]	extra W [mm]	extra H [mm]	extra WGT [kg]	extra L [mm]	extra W [mm]	extra H [mm]	extra WGT [kg]
1502	CA	/	/	/	443	/	/	/	668	/	/	/	390	/	/	/	452
	E	/	/	/	443	/	/	/	668	/	/	/	390	/	/	/	452
	K	1250	/	/	491	1250	/	/	706	1250	/	/	428	1250	/	/	490
	SL-CA	/	/	/	443	/	/	/	668	/	/	/	390	/	/	/	452
	SL-E	/	/	/	443	/	/	/	668	/	/	/	390	/	/	/	452
	SL-K	1250	/	/	491	1250	/	/	706	1250	/	/	428	1250	/	/	490
1702	CA	/	/	/	578	/	/	/	668	/	/	/	390	/	/	/	452
	E	/	/	/	578	/	/	/	668	/	/	/	390	/	/	/	452
	K	1250	/	/	616	1250	/	/	706	1250	/	/	428	1250	/	/	490
	SL-CA	/	/	/	578	/	/	/	668	/	/	/	390	/	/	/	452
	SL-E	/	/	/	578	/	/	/	668	/	/	/	390	/	/	/	452
	SL-K	/	/	/	578	/	/	/	668	/	/	/	390	/	/	/	452
1902	CA	/	/	/	578	/	/	/	668	/	/	/	466	/	/	/	452
	E	/	/	/	588	/	/	/	678	/	/	/	476	/	/	/	462
	K	/	/	/	587	/	/	/	677	/	/	/	475	/	/	/	475
	SL-CA	/	/	/	578	/	/	/	668	/	/	/	466	/	/	/	452
	SL-E	/	/	/	588	/	/	/	678	/	/	/	476	/	/	/	462
	SL-K	/	/	/	587	/	/	/	677	/	/	/	475	/	/	/	475
1922	CA	1250	/	/	616	1250	/	/	848	1250	/	/	524	1250	/	/	598
	E	/	/	/	588	/	/	/	820	/	/	/	496	/	/	/	570
	K	/	/	/	587	/	/	/	677	/	/	/	475	/	/	/	569
	SL-CA	1250	/	/	616	1250	/	/	848	1250	/	/	524	1250	/	/	598
	SL-E	/	/	/	588	/	/	/	820	/	/	/	496	/	/	/	570
	SL-K	/	/	/	587	/	/	/	677	/	/	/	475	/	/	/	569
2202	CA	1250	/	/	616	1250	/	/	848	1250	/	/	524	1250	/	/	598
	E	1250	/	/	807	1250	/	/	845	/	/	/	431	/	/	/	505
	K	1250	/	/	616	1250	/	/	848	1250	/	/	524	1250	/	/	598
	SL-CA	1250	/	/	616	1250	/	/	848	1250	/	/	524	1250	/	/	598
	SL-E	1250	/	/	807	1250	/	/	845	/	/	/	431	/	/	/	505
	SL-K	1250	/	/	616	1250	/	/	848	1250	/	/	524	1250	/	/	598
2602	CA	1250	/	/	810	1250	/	/	1016	1250	/	/	653	1250	/	/	598
	E	1250	/	/	807	1250	/	/	1013	/	/	/	560	/	/	/	505
	K	1250	/	/	810	1250	/	/	848	1250	/	/	524	1250	/	/	598
	SL-CA	1250	/	/	810	1250	/	/	1016	/	/	/	560	/	/	/	598
	SL-E	1250	/	/	807	1250	/	/	1013	/	/	/	560	/	/	/	505
	SL-K	1250	/	/	810	1250	/	/	848	1250	/	/	524	1250	/	/	598
2652	CA	1250	/	/	810	1250	/	/	1016	/	/	/	489	/	/	/	505
	E	150	/	/	1017	150	/	/	1017	150	/	/	686	150	/	/	850
	K	1250	/	/	810	1250	/	/	848	1250	/	/	649	1250	/	/	598
	SL-CA	1250	/	/	810	1250	/	/	1016	/	/	/	489	/	/	/	505
	SL-E	150	/	/	1017	150	/	/	1017	150	/	/	686	150	/	/	850
	SL-K	1250	/	/	810	1250	/	/	848	1250	/	/	649	1250	/	/	598
2702	CA	1250	/	/	810	1250	/	/	1016	/	/	/	489	/	/	/	586
	E	150	/	/	1017	150	/	/	1217	150	/	/	810	150	/	/	850
	K	1250	/	/	810	1250	/	/	1013	1250	/	/	649	1250	/	/	679
	SL-CA	1250	/	/	810	1250	/	/	1016	/	/	/	489	/	/	/	586
	SL-E	150	/	/	1017	150	/	/	1217	150	/	/	810	150	/	/	850
	SL-K	1250	/	/	810	1250	/	/	1013	1250	/	/	649	1250	/	/	679
2722	CA	1250	/	/	1027	1250	/	/	1016	/	/	/	613	/	/	/	586
	E	150	/	/	1017	150	/	/	1217	150	/	/	810	150	/	/	866
	K	1250	/	/	1024	1250	/	/	1013	1250	/	/	773	1250	/	/	679

HYDRONIC GROUP

Hydronic kit positioning

	Version	HYDRONIC KIT 2 PUMPS 4 POLES LH (4708)				HYDRONIC KIT 2 PUMPS 4 POLES HH (4709)				HYDRONIC KIT 2 PUMPS 2 POLES LH (4711)				HYDRONIC KIT 2 PUMPS 2 POLES HH (4712)			
		extra L [mm]	extra W [mm]	extra H [mm]	extra WGT [kg]	extra L [mm]	extra W [mm]	extra H [mm]	extra WGT [kg]	extra L [mm]	extra W [mm]	extra H [mm]	extra WGT [kg]	extra L [mm]	extra W [mm]	extra H [mm]	extra WGT [kg]
2722	SL-CA	150	/	/	1017	150	/	/	1217	150	/	/	810	150	/	/	586
	SL-E	150	/	/	1017	150	/	/	1217	150	/	/	810	150	/	/	866
	SL-K	1250	/	/	1024	1250	/	/	1013	/	/	/	489	/	/	/	586
3152	CA	150	/	/	1017	150	/	/	1263	150	/	/	790	150	/	/	886
	E	/	/	/	937	/	/	/	1183	/	/	/	714	/	/	/	806
	K	1250	/	/	1024	1250	/	/	1013	1250	/	/	773	1250	/	/	676
	SL-CA	150	/	/	1017	150	/	/	1263	150	/	/	790	150	/	/	886
	SL-E	/	/	/	937	/	/	/	1183	/	/	/	714	/	/	/	806
	SL-K	1250	/	/	1024	1250	/	/	1013	1250	/	/	773	1250	/	/	676
3602	CA	150	/	/	1017	150	/	/	1263	150	/	/	790	150	/	/	886
	E	/	/	/	937	/	/	/	1183	/	/	/	714	/	/	/	806
	K	1250	/	/	1024	1250	/	/	1013	1250	/	/	848	1250	/	/	676
	SL-CA	/	/	/	937	/	/	/	1183	/	/	/	714	/	/	/	886
	SL-E	/	/	/	937	/	/	/	1183	/	/	/	714	/	/	/	806
	SL-K	1250	/	/	1024	1250	/	/	1013	1250	/	/	848	1250	/	/	676
3902	CA	/	/	/	937	/	/	/	1183	/	/	/	714	/	/	/	810
	E	/	/	/	941	/	/	/	1183	/	/	/	714	/	/	/	810
	K	150	/	/	1017	150	/	/	1263	150	/	/	790	150	/	/	886
	SL-CA	/	/	/	937	/	/	/	1183	/	/	/	714	/	/	/	810
	SL-E	/	/	/	941	/	/	/	1183	/	/	/	714	/	/	/	810
	SL-K	150	/	/	1017	150	/	/	1263	150	/	/	790	150	/	/	886
4202	CA	/	/	/	937	/	/	/	1183	/	/	/	778	/	/	/	810
	E	/	/	/	941	/	/	/	1183	/	/	/	778	/	/	/	810
	K	150	/	/	1017	150	/	/	1263	150	/	/	854	150	/	/	886
	SL-CA	/	/	/	937	/	/	/	1183	/	/	/	778	/	/	/	810
	SL-E	/	/	/	941	/	/	/	1183	/	/	/	778	/	/	/	810
	SL-K	150	/	/	1017	150	/	/	1263	150	/	/	854	150	/	/	886
4502	CA	/	/	/	937	/	/	/	1183	/	/	/	778	/	/	/	810
	E	/	/	/	941	/	/	/	1183	/	/	/	778	/	/	/	842
	K	150	/	/	1017	150	/	/	1263	150	/	/	854	150	/	/	886
	SL-CA	/	/	/	937	/	/	/	1183	/	/	/	778	/	/	/	810
	SL-E	/	/	/	941	/	/	/	1183	/	/	/	778	/	/	/	842
	SL-K	/	/	/	937	/	/	/	1183	/	/	/	778	/	/	/	806
4802	CA	/	/	/	985	/	/	/	1333	/	/	/	778	/	/	/	856
	E	/	/	/	941	/	/	/	1333	/	/	/	778	/	/	/	842
	K	150	/	/	1017	150	/	/	1413	150	/	/	854	150	/	/	886
	SL-CA	/	/	/	985	/	/	/	1333	/	/	/	778	/	/	/	856
	SL-E	/	/	/	941	/	/	/	1333	/	/	/	778	/	/	/	842
	SL-K	/	/	/	937	/	/	/	1333	/	/	/	778	/	/	/	806
4812	K	/	/	/	984	/	/	/	1333	/	/	/	778	/	/	/	856
	SL-K	/	/	/	984	/	/	/	1333	/	/	/	778	/	/	/	856
4822	CA	/	/	/	1222	/	/	/	1333	/	/	/	810	/	/	/	923
	E	/	/	/	1222	/	/	/	1333	/	/	/	810	/	/	/	904
	K	/	/	/	984	/	/	/	1333	/	/	/	810	/	/	/	856
	SL-CA	/	/	/	1222	/	/	/	1333	/	/	/	810	/	/	/	923
	SL-E	/	/	/	1222	/	/	/	1333	/	/	/	810	/	/	/	904
	SL-K	/	/	/	984	/	/	/	1333	/	/	/	810	/	/	/	856
5412	CA	/	/	/	1222	/	/	/	1333	/	/	/	880	/	/	/	923
	E	/	/	/	1222	/	/	/	1333	/	/	/	880	/	/	/	904
	K	/	/	/	1222	/	/	/	1333	/	/	/	880	/	/	/	904
	SL-CA	/	/	/	1222	/	/	/	1333	/	/	/	880	/	/	/	923

HYDRONIC GROUP

Hydronic kit positioning

	Version	HYDRONIC KIT 2 PUMPS 4 POLES LH (4708)				HYDRONIC KIT 2 PUMPS 4 POLES HH (4709)				HYDRONIC KIT 2 PUMPS 2 POLES LH (4711)				HYDRONIC KIT 2 PUMPS 2 POLES HH (4712)			
		extra L [mm]	extra W [mm]	extra H [mm]	extra WGT [kg]	extra L [mm]	extra W [mm]	extra H [mm]	extra WGT [kg]	extra L [mm]	extra W [mm]	extra H [mm]	extra WGT [kg]	extra L [mm]	extra W [mm]	extra H [mm]	extra WGT [kg]
5412	SL-E	/	/	/	1222	/	/	/	1333	/	/	/	880	/	/	/	904
	SL-K	/	/	/	1222	/	/	/	1333	/	/	/	880	/	/	/	904
5703	CA	/	/	/	1222	/	/	/	1619	/	/	/	880	/	/	/	923
	SL-CA	/	/	/	1222	/	/	/	1619	/	/	/	880	/	/	/	923
6002	K	/	/	/	1222	/	/	/	1333	/	/	/	880	/	/	/	904
	SL-K	/	/	/	1222	/	/	/	1333	/	/	/	880	/	/	/	904
6022	K	/	/	/	1222	/	/	/	1466	/	/	/	880	/	/	/	904
	SL-K	/	/	/	1222	/	/	/	1466	/	/	/	880	/	/	/	904
6303	CA	/	/	/	1222	/	/	/	1619	/	/	/	880	/	/	/	1096
	K	/	/	/	1222	/	/	/	1466	/	/	/	880	/	/	/	1096
	SL-CA	/	/	/	1222	/	/	/	1619	/	/	/	880	/	/	/	1096
	SL-K	/	/	/	1222	/	/	/	1466	/	/	/	880	/	/	/	1096
6603	CA	/	/	/	1222	/	/	/	1619	/	/	/	880	/	/	/	1096
6903	K	/	/	/	1222	/	/	/	1466	n.a.	n.a.	n.a.	n.a.	/	/	/	1096
	SL-K	/	/	/	1222	/	/	/	1466	n.a.	n.a.	n.a.	n.a.	/	/	/	1096
7203	K	/	/	/	1553	/	/	/	1679	n.a.	n.a.	n.a.	n.a.	/	/	/	1096
	SL-K	/	/	/	1553	/	/	/	1679	n.a.	n.a.	n.a.	n.a.	/	/	/	1096
7213	K	/	/	/	1553	/	/	/	1847	n.a.	n.a.	n.a.	n.a.	/	/	/	1096
	SL-K	/	/	/	1553	/	/	/	1847	n.a.	n.a.	n.a.	n.a.	/	/	/	1096
7223	K	/	/	/	1553	/	/	/	1847	n.a.	n.a.	n.a.	n.a.	/	/	/	1096
	SL-K	/	/	/	1553	/	/	/	1847	n.a.	n.a.	n.a.	n.a.	/	/	/	1096

extra L	Unit's extra length
extra W	Unit's extra operating width (NOT to be considered for transport)
extra H	Unit's extra height
extra H	Unit's extra weight (pumps and piping)
HYDRONIC KIT 2 PUMPS 4 POLES LH	HYDRONIC KIT 2 PUMPS 4 POLES LH
HYDRONIC KIT 2 PUMPS 4 POLES HH	HYDRONIC KIT 2 PUMPS 4 POLES HH
HYDRONIC KIT 2 PUMPS 2 POLES LH	HYDRONIC KIT 2 PUMPS 2 POLES LH
HYDRONIC KIT 2 PUMPS 2 POLES HH	HYDRONIC KIT 2 PUMPS 2 POLES HH
-	Not available

HYDRONIC GROUP

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 2 POLES HH

SIZE		CH		PUMP					CH
		Pfgross	Qfgross	Rif.	Model	N.	F.L.A.	F.L.I.	HU
		[kW] (1)	[l/s] (1)			Pole	[A]	[kW]	[kPa]
1502	CA	302,4	14,46	A1	TPD 80-250/2 IE3	2	14	7,500	223
	E	316,5	15,14						222
	K	299,6	14,33						224
	SL-CA	304,2	14,55						222
	SL-E	312,8	14,96						223
	SL-K	288,5	13,80						228
1702	CA	349,6	16,72	A2					204
	E	362,6	17,34						204
	K	325,8	15,58						214
	SL-CA	344,9	16,49						206
	SL-E	359,1	17,17						205
	SL-K	333,4	15,94						211
1902	CA	395,0	18,89	A3					189
	E	413,8	19,79						195
	K	383,2	18,32						194
	SL-CA	394,3	18,85						189
	SL-E	409,0	19,56						197
	SL-K	381,6	18,25						195
1922	CA	461,7	22,08	B1	TPD 80-330/2 IE3	2	21	11,00	230
	E	451,2	21,58						235
	K	432,0	20,66						226
	SL-CA	450,1	21,53						235
	SL-E	447,3	21,39						236
	SL-K	418,7	20,02						232
2202	CA	513,2	24,54	B2					207
	E	530,5	25,37						202
	K	480,6	22,98						222
	SL-CA	500,7	23,94						213
	SL-E	524,1	25,06						205
	SL-K	476,0	22,76						224
2602	CA	551,4	26,37	B3					204
	E	575,8	27,54						200
	K	533,4	25,51						204
	SL-CA	560,7	26,81						200
	SL-E	568,3	27,18						203
	SL-K	518,6	24,80						211
2652	CA	590,7	28,25	F1					185
	E	612,9	29,31		NB 65-160/157 IE3	2	20	11,00	219
	K	558,7	26,72		TPD 80-330/2 IE3	2	21	11,00	201
	SL-CA	582,8	27,87						189
	SL-E	605,2	28,94		NB 65-160/157 IE3	2	20	11,00	222
	SL-K	556,0	26,59		TPD 80-330/2 IE3	2	21	11,00	202
2702	CA	628,7	30,07	K1	TPD 100-310/2 IE3	2	28	15,00	237
	E	649,8	31,07		NB 65-160/157 IE3	2	20	11,00	203
	K	600,7	28,73		TPD 100-310/2 IE3	2	28	15,00	245
	SL-CA	615,6	29,44						249
	SL-E	641,9	30,70		NB 65-160/157 IE3	2	20	11,00	206
	SL-K	578,5	27,66		TPD 100-310/2 IE3	2	28	15,00	252
2722	CA	683,7	32,70	M1					229
	E	703,3	33,63		NB 80-160/161 IE3	2	35	18,50	254
	K	658,3	31,48		TPD 100-310/2 IE3	2	28	15,00	237

HYDRONIC GROUP

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 2 POLES HH

SIZE		CH		PUMP					CH
		Pfgross	Qfgross	Rif.	Model	N.	F.L.A.	F.L.I.	HU
		[kW] (1)	[l/s] (1)			Pole	[A]	[kW]	[kPa]
2722	SL-CA	680,7	32,55	P1	NB 65-160/157 IE3	2	20	11,00	188
	SL-E	696,6	33,31		NB 80-160/161 IE3	2	35	18,50	256
	SL-K	663,2	31,72		TPD 100-310/2 IE3	2	28	15,00	236
3152	CA	766,2	36,64	T1	NB 80-160/161 IE3	2	35	18,50	238
	E	785,8	37,58						237
	K	725,4	34,69		TPD 100-310/2 IE3	2	28	15,00	216
	SL-CA	754,1	36,06		NB 80-160/161 IE3	2	35	18,50	241
	SL-E	776,1	37,11						240
	SL-K	716,6	34,27		TPD 100-310/2 IE3	2	28	15,00	219
3602	CA	837,8	40,06	X1	NB 80-160/161 IE3	2	35	18,50	228
	E	854,0	40,84						229
	K	802,7	38,39		TPD 100-310/2 IE3	2	28	15,00	210
	SL-CA	819,3	39,18		NB 80-160/161 IE3	2	35	18,50	233
	SL-E	841,9	40,26						232
	SL-K	770,8	36,86		TPD 100-310/2 IE3	2	28	15,00	220
3902	CA	904,7	43,26	Y1	NB 80-160/161 IE3	2	35	18,50	214
	E	931,3	44,54						202
	K	871,9	41,70						224
	SL-CA	899,1	43,00						216
	SL-E	918,4	43,92						206
	SL-K	838,7	40,11						233
4202	CA	956,0	45,72	Y2					199
	E	986,6	47,18						202
	K	926,5	44,31						208
	SL-CA	947,9	45,33						202
	SL-E	973,5	46,55						206
	SL-K	892,9	42,70						218
4502	CA	1031	49,29	]1					188
	E	1054	50,39		NB 80-160/167 IE3	2	40	22,00	215
	K	982,4	46,98		NB 80-160/161 IE3	2	35	18,50	203
	SL-CA	1020	48,80						192
	SL-E	1040	49,72		NB 80-160/167 IE3	2	40	22,00	219
	SL-K	964,9	46,14		NB 80-160/161 IE3	2	35	18,50	208
4802	CA	1098	52,53	a1	NB 80-160/167 IE3	2	40	22,00	200
	E	1123	53,70						193
	K	1021	48,82		NB 80-160/161 IE3	2	35	18,50	191
	SL-CA	1086	51,94		NB 80-160/167 IE3	2	40	22,00	205
	SL-E	1108	52,98						198
	SL-K	1021	48,85		NB 80-160/161 IE3	2	35	18,50	191
4812	K	1059	50,65	b1	NB 80-160/167 IE3	2	40	22,00	211
	SL-K	1052	50,30						213
4822	CA	1177	56,31	f1	NB 100-160/167 IE3	2	37	22,00	213
	E	1219	58,31						214
	K	1146	54,81		NB 80-160/167 IE3	2	40	22,00	186
	SL-CA	1163	55,63		NB 100-160/167 IE3	2	37	22,00	217
	SL-E	1205	57,62						218
	SL-K	1137	54,38		NB 80-160/167 IE3	2	40	22,00	189
5412	CA	1236	59,13	g1	NB 100-160/167 IE3	2	37	22,00	199
	E	1277	61,05						201
	K	1176	56,25						214
	SL-CA	1219	58,31						203

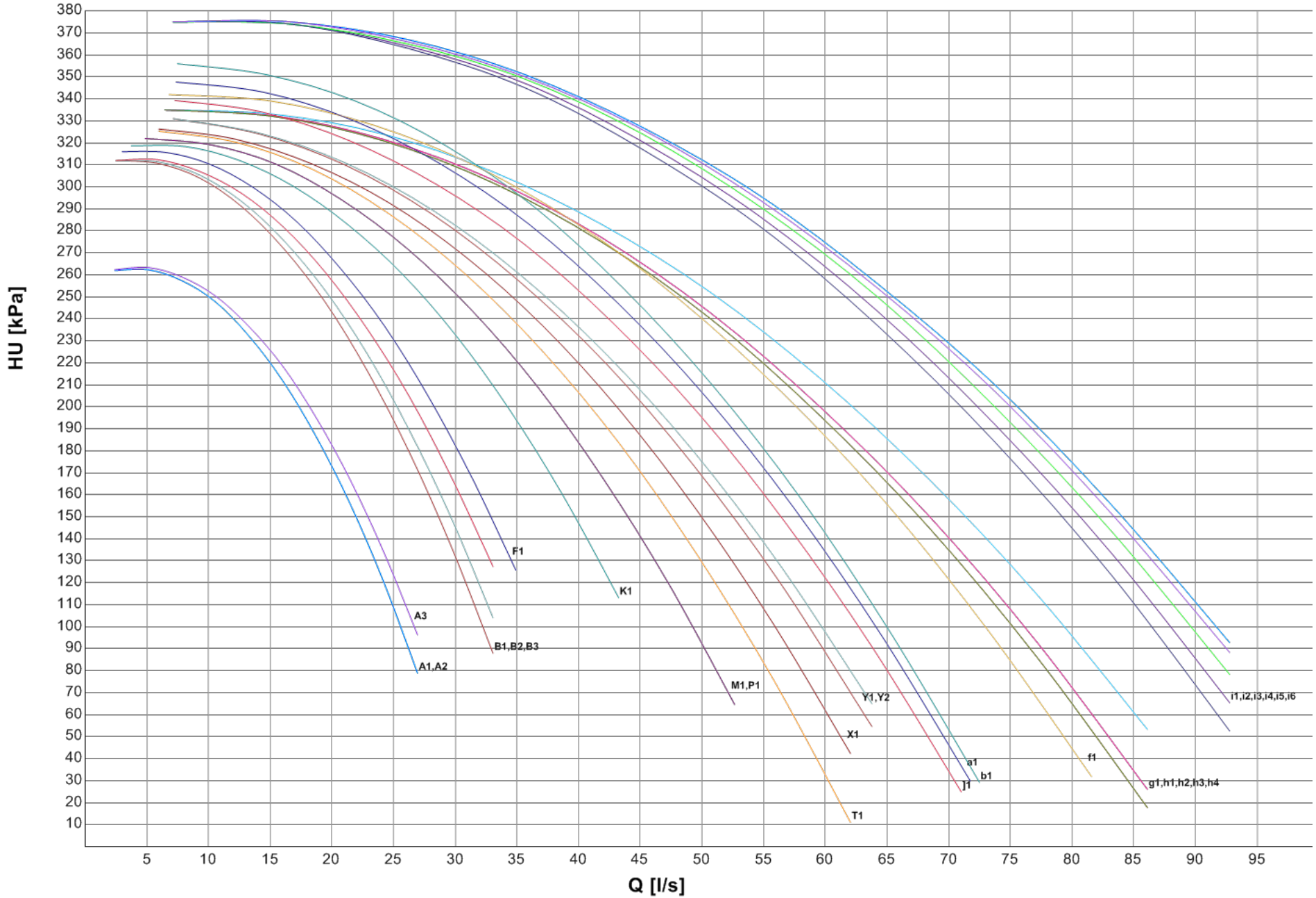
HYDRONIC GROUP

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 2 POLES HH

SIZE		CH		PUMP					CH
		Pfgross	Qfgross	Rif.	Model	N.	F.L.A.	F.L.I.	HU
		[kW] (1)	[l/s] (1)			Pole	[A]	[kW]	[kPa]
5412	SL-E	1260	60,28	h1	NB 100-160/167 IE3	2	37	22,00	205
	SL-K	1169	55,91						215
5703	CA	1342	64,17	h2					190
	SL-CA	1310	62,64						198
6002	K	1239	59,26	h3					198
	SL-K	1194	57,11						209
6022	K	1303	62,29	h4					181
	SL-K	1289	61,64						185
6303	CA	1460	69,81	i1	NB 100-160/176 IE3	2	51	30,00	222
	K	1401	67,01						223
	SL-CA	1442	68,95						226
	SL-K	1350	64,56						235
6603	CA	1521	72,73	i2					206
6903	K	1481	70,81	i3					201
	SL-K	1463	69,97						206
7203	K	1547	74,00	i4					208
	SL-K	1530	73,16						213
7213	K	1654	79,11	i5					180
	SL-K	1595	76,27						196
7223	K	1710	81,79	i6					161
	SL-K	1649	78,86						178

(1) Values refer to nominal conditions
CH Cooling mode
Pf Cooling capacity unit (Cooling mode)
Pt Heating capacity unit (Heating mode)
Q Plant (side) exchanger water flow
F.L.I. Pump power input
F.L.A. Pump running current
HU Pump residual pressure head (Units with hydronic group without mains filter)

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 2 POLES HH



HYDRONIC GROUP

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 2 POLES LH

SIZE		CH		PUMP					CH
		Pfgross	Qfgross	Rif.	Model	N.	F.L.A.	F.L.I.	HU
		[kW] (1)	[l/s] (1)			Pole	[A]	[kW]	[kPa]
1502	CA	302,4	14,46	A1	TPD 80-210/2 IE3	2	8	4,000	134
	E	316,5	15,14						131
	K	299,6	14,33						135
	SL-CA	304,2	14,55						133
	SL-E	312,8	14,96						133
	SL-K	288,5	13,80						140
1702	CA	349,6	16,72	A2					110
	E	362,6	17,34						108
	K	325,8	15,58						123
	SL-CA	344,9	16,49						113
	SL-E	359,1	17,17						110
	SL-K	333,4	15,94						119
1902	CA	395,0	18,89	B1	TPD 100-200/2 IE3	2	11	5,500	128
	E	413,8	19,79						134
	K	383,2	18,32						133
	SL-CA	394,3	18,85						129
	SL-E	409,0	19,56						136
	SL-K	381,6	18,25						134
1922	CA	461,7	22,08	F1	TPD 100-240/2 IE3	2	14	7,500	158
	E	451,2	21,58						162
	K	432,0	20,66		TPD 100-200/2 IE3	2	11	5,500	110
	SL-CA	450,1	21,53		TPD 100-240/2 IE3	2	14	7,500	163
	SL-E	447,3	21,39						164
	SL-K	418,7	20,02		TPD 100-200/2 IE3	2	11	5,500	117
2202	CA	513,2	24,54	G1	TPD 100-240/2 IE3	2	14	7,500	136
	E	530,5	25,37						132
	K	480,6	22,98						150
	SL-CA	500,7	23,94						142
	SL-E	524,1	25,06						135
	SL-K	476,0	22,76						152
2602	CA	551,4	26,37	K1	TPD 100-250/2 IE3	2	21	11,00	192
	E	575,8	27,54						193
	K	533,4	25,51		TPD 100-240/2 IE3	2	14	7,500	134
	SL-CA	560,7	26,81		TPD 100-250/2 IE3	2	21	11,00	190
	SL-E	568,3	27,18						195
	SL-K	518,6	24,80		TPD 100-240/2 IE3	2	14	7,500	141
2652	CA	590,7	28,25	L1	NB 65-125/137 IE3	2	14	7,500	139
	E	612,9	29,31						139
	K	558,7	26,72						150
	SL-CA	582,8	27,87						142
	SL-E	605,2	28,94						142
	SL-K	556,0	26,59						151
2702	CA	628,7	30,07	P1					125
	E	649,8	31,07		NB 65-125/144 IE3	2	20	11,00	162
	K	600,7	28,73		NB 65-125/137 IE3	2	14	7,500	135
	SL-CA	615,6	29,44						138
	SL-E	641,9	30,70		NB 65-125/144 IE3	2	20	11,00	165
	SL-K	578,5	27,66		NB 65-125/137 IE3	2	14	7,500	143
2722	CA	683,7	32,70	Q1	NB 65-125/144 IE3	2	20	11,00	149
	E	703,3	33,63						153
	K	658,3	31,48						159

HYDRONIC GROUP

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 2 POLES LH

SIZE		CH		PUMP					CH
		Pfgross	Qfgross	Rif.	Model	N.	F.L.A.	F.L.I.	HU
		[kW] (1)	[l/s] (1)			Pole	[A]	[kW]	[kPa]
2722	SL-CA	680,7	32,55	R1	NB 65-125/144 IE3	2	20	11,00	150
	SL-E	696,6	33,31						156
	SL-K	663,2	31,72						157
3152	CA	766,2	36,64	V1	NB 80-160/147-127	2	21	11,00	130
	E	785,8	37,58						129
	K	725,4	34,69		NB 65-125/144 IE3	2	20	11,00	131
	SL-CA	754,1	36,06		NB 80-160/147-127	2	21	11,00	134
	SL-E	776,1	37,11						132
	SL-K	716,6	34,27		NB 65-125/144 IE3	2	20	11,00	135
3602	CA	837,8	40,06	W1	NB 80-160/147-127	2	21	11,00	118
	E	854,0	40,84						118
	K	802,7	38,39						128
	SL-CA	819,3	39,18						124
	SL-E	841,9	40,26						122
	SL-K	770,8	36,86						137
3902	CA	904,7	43,26	W2					103
	E	931,3	44,54						89,4
	K	871,9	41,70						113
	SL-CA	899,1	43,00						104
	SL-E	918,4	43,92						93,8
	SL-K	838,7	40,11						123
4202	CA	956,0	45,72	X1	NB 80-160/151 IE3	2	26	15,00	143
	E	986,6	47,18						145
	K	926,5	44,31						152
	SL-CA	947,9	45,33						145
	SL-E	973,5	46,55						149
	SL-K	892,9	42,70						162
4502	CA	1031	49,29	X2					132
	E	1054	50,39						126
	K	982,4	46,98						146
	SL-CA	1020	48,80						135
	SL-E	1040	49,72						131
	SL-K	964,9	46,14						152
4802	CA	1098	52,53	X3					112
	E	1123	53,70						105
	K	1021	48,82						135
	SL-CA	1086	51,94						116
	SL-E	1108	52,98						110
	SL-K	1021	48,85						134
4812	K	1059	50,65	X4					123
	SL-K	1052	50,30						125
4822	CA	1177	56,31	Y1	NB 80-160/161 IE3	2	35	18,50	158
	E	1219	58,31						154
	K	1146	54,81						154
	SL-CA	1163	55,63						162
	SL-E	1205	57,62						159
	SL-K	1137	54,38						157
5412	CA	1236	59,13	Z1	NB 100-160/160-154 IE3	2	33	18,50	157
	E	1277	61,05						160
	K	1176	56,25						172
	SL-CA	1219	58,31						162

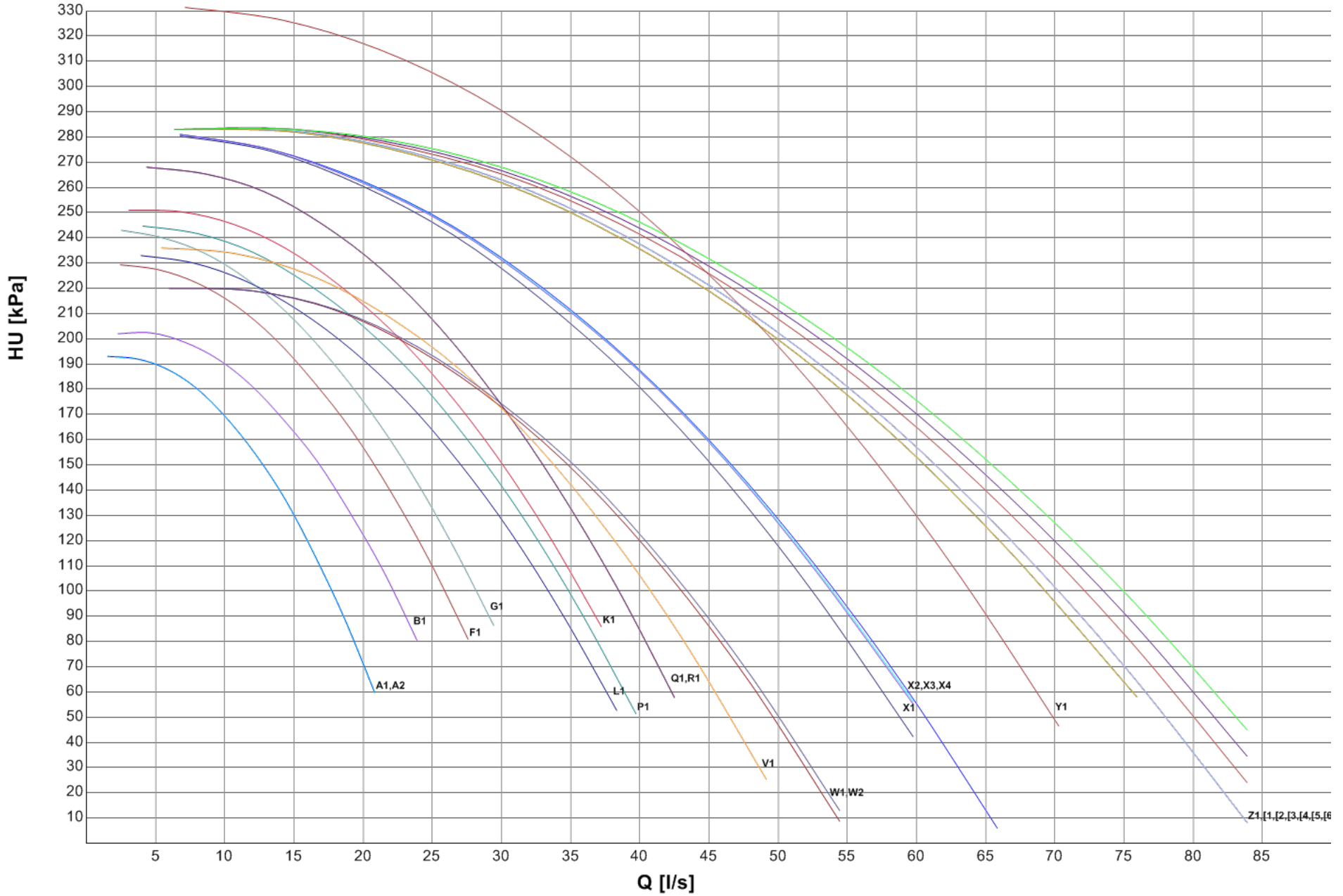
HYDRONIC GROUP

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 2 POLES LH

SIZE		CH		PUMP					CH
		Pfgross	Qfgross	Rif.	Model	N.	F.L.A.	F.L.I.	HU
		[kW] (1)	[l/s] (1)			Pole	[A]	[kW]	[kPa]
5412	SL-E	1260	60,28	[1	NB 100-160/160-154 IE3	2	33	18,50	164
	SL-K	1169	55,91						173
5703	CA	1342	64,17	[2					144
	SL-CA	1310	62,64						152
6002	K	1239	59,26	[3					157
	SL-K	1194	57,11						167
6022	K	1303	62,29	[4					141
	SL-K	1289	61,64						144
6303	CA	1460	69,81	[5					128
	K	1401	67,01						129
	SL-CA	1442	68,95						133
	SL-K	1350	64,56						142
6603	CA	1521	72,73	[6					112

(1) Values refer to nominal conditions
CH Cooling mode
Pf Cooling capacity unit (Cooling mode)
Pt Heating capacity unit (Heating mode)
Q Plant (side) exchanger water flow
F.L.I. Pump power input
F.L.A. Pump running current
HU Pump residual pressure head (Units with hydronic group without mains filter)

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 2 POLES LH



HYDRONIC GROUP

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 4 POLES HH

SIZE		CH		PUMP					CH
		Pfgross	Qfgross	Rif.	Model	N.	F.L.A.	F.L.I.	HU
		[kW] (1)	[l/s] (1)			Pole	[A]	[kW]	[kPa]
1502	CA	302,4	14,46	A1	TPD 80-270/4 IE3	4	15	7,500	214
	E	316,5	15,14						212
	K	299,6	14,33						215
	SL-CA	304,2	14,55						213
	SL-E	312,8	14,96						214
	SL-K	288,5	13,80						218
1702	CA	349,6	16,72	A2					195
	E	362,6	17,34						195
	K	325,8	15,58						205
	SL-CA	344,9	16,49						197
	SL-E	359,1	17,17						196
	SL-K	333,4	15,94						202
1902	CA	395,0	18,89	A3					181
	E	413,8	19,79						187
	K	383,2	18,32						186
	SL-CA	394,3	18,85						181
	SL-E	409,0	19,56						189
	SL-K	381,6	18,25						187
1922	CA	461,7	22,08	E1	TPD 80-340/4 IE3	4	21	11,00	241
	E	451,2	21,58		TPD 80-270/4 IE3	4	15	7,500	171
	K	432,0	20,66						163
	SL-CA	450,1	21,53		TPD 80-340/4 IE3	4	21	11,00	246
	SL-E	447,3	21,39		TPD 80-270/4 IE3	4	15	7,500	173
	SL-K	418,7	20,02						170
2202	CA	513,2	24,54	F1	TPD 80-340/4 IE3	4	21	11,00	217
	E	530,5	25,37						212
	K	480,6	22,98						232
	SL-CA	500,7	23,94						223
	SL-E	524,1	25,06						215
	SL-K	476,0	22,76						234
2602	CA	551,4	26,37	J1	TPD 100-330/4	4	29	15,00	237
	E	575,8	27,54						238
	K	533,4	25,51		TPD 80-340/4 IE3	4	21	11,00	215
	SL-CA	560,7	26,81		TPD 100-330/4	4	29	15,00	235
	SL-E	568,3	27,18						240
	SL-K	518,6	24,80		TPD 80-340/4 IE3	4	21	11,00	222
2652	CA	590,7	28,25	P1	TPD 100-330/4	4	29	15,00	227
	E	612,9	29,31		NB 80-315_305 IE3	4	29	15,00	257
	K	558,7	26,72		TPD 80-340/4 IE3	4	21	11,00	211
	SL-CA	582,8	27,87		TPD 100-330/4	4	29	15,00	229
	SL-E	605,2	28,94		NB 80-315_305 IE3	4	29	15,00	259
	SL-K	556,0	26,59		TPD 80-340/4 IE3	4	21	11,00	212
2702	CA	628,7	30,07	U1	TPD 100-330/4	4	29	15,00	216
	E	649,8	31,07		NB 80-315_305 IE3	4	29	15,00	245
	K	600,7	28,73		TPD 100-330/4	4	29	15,00	224
	SL-CA	615,6	29,44						229
	SL-E	641,9	30,70		NB 80-315_305 IE3	4	29	15,00	248
	SL-K	578,5	27,66		TPD 100-330/4	4	29	15,00	230
2722	CA	683,7	32,70	W1					210
	E	703,3	33,63		NB 80-315_305 IE3	4	29	15,00	240
	K	658,3	31,48		TPD 100-330/4	4	29	15,00	217

HYDRONIC GROUP

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 4 POLES HH

SIZE		CH		PUMP					CH
		Pfgross	Qfgross	Rif.	Model	N.	F.L.A.	F.L.I.	HU
		[kW] (1)	[l/s] (1)			Pole	[A]	[kW]	[kPa]
2722	SL-CA	680,7	32,55	Y1	NB 80-315_305 IE3	4	29	15,00	235
	SL-E	696,6	33,31						242
	SL-K	663,2	31,72		TPD 100-330/4	4	29	15,00	216
3152	CA	766,2	36,64	]1	NB 100-315/295 IE3	4	37	18,50	235
	E	785,8	37,58						235
	K	725,4	34,69		TPD 100-330/4	4	29	15,00	197
	SL-CA	754,1	36,06		NB 100-315/295 IE3	4	37	18,50	238
	SL-E	776,1	37,11						237
	SL-K	716,6	34,27		TPD 100-330/4	4	29	15,00	200
3602	CA	837,8	40,06	a1	NB 100-315/295 IE3	4	37	18,50	226
	E	854,0	40,84						227
	K	802,7	38,39		TPD 100-330/4	4	29	15,00	188
	SL-CA	819,3	39,18		NB 100-315/295 IE3	4	37	18,50	230
	SL-E	841,9	40,26						230
	SL-K	770,8	36,86		TPD 100-330/4	4	29	15,00	198
3902	CA	904,7	43,26	b1	NB 100-315/295 IE3	4	37	18,50	215
	E	931,3	44,54						204
	K	871,9	41,70						223
	SL-CA	899,1	43,00						217
	SL-E	918,4	43,92						207
	SL-K	838,7	40,11						231
4202	CA	956,0	45,72	b2					202
	E	986,6	47,18						206
	K	926,5	44,31						210
	SL-CA	947,9	45,33						204
	SL-E	973,5	46,55						209
	SL-K	892,9	42,70						218
4502	CA	1031	49,29	b3					195
	E	1054	50,39						190
	K	982,4	46,98						207
	SL-CA	1020	48,80						197
	SL-E	1040	49,72						194
	SL-K	964,9	46,14						212
4802	CA	1098	52,53	c1	NB 125-315/290	4	43	22,00	202
	E	1123	53,70						195
	K	1021	48,82						216
	SL-CA	1086	51,94						205
	SL-E	1108	52,98						198
	SL-K	1021	48,85						216
4812	K	1059	50,65	c2					208
	SL-K	1052	50,30						210
4822	CA	1177	56,31	c3					200
	E	1219	58,31						198
	K	1146	54,81						193
	SL-CA	1163	55,63						203
	SL-E	1205	57,62						201
	SL-K	1137	54,38						195
5412	CA	1236	59,13	c4					187
	E	1277	61,05						186
	K	1176	56,25						200
	SL-CA	1219	58,31						191

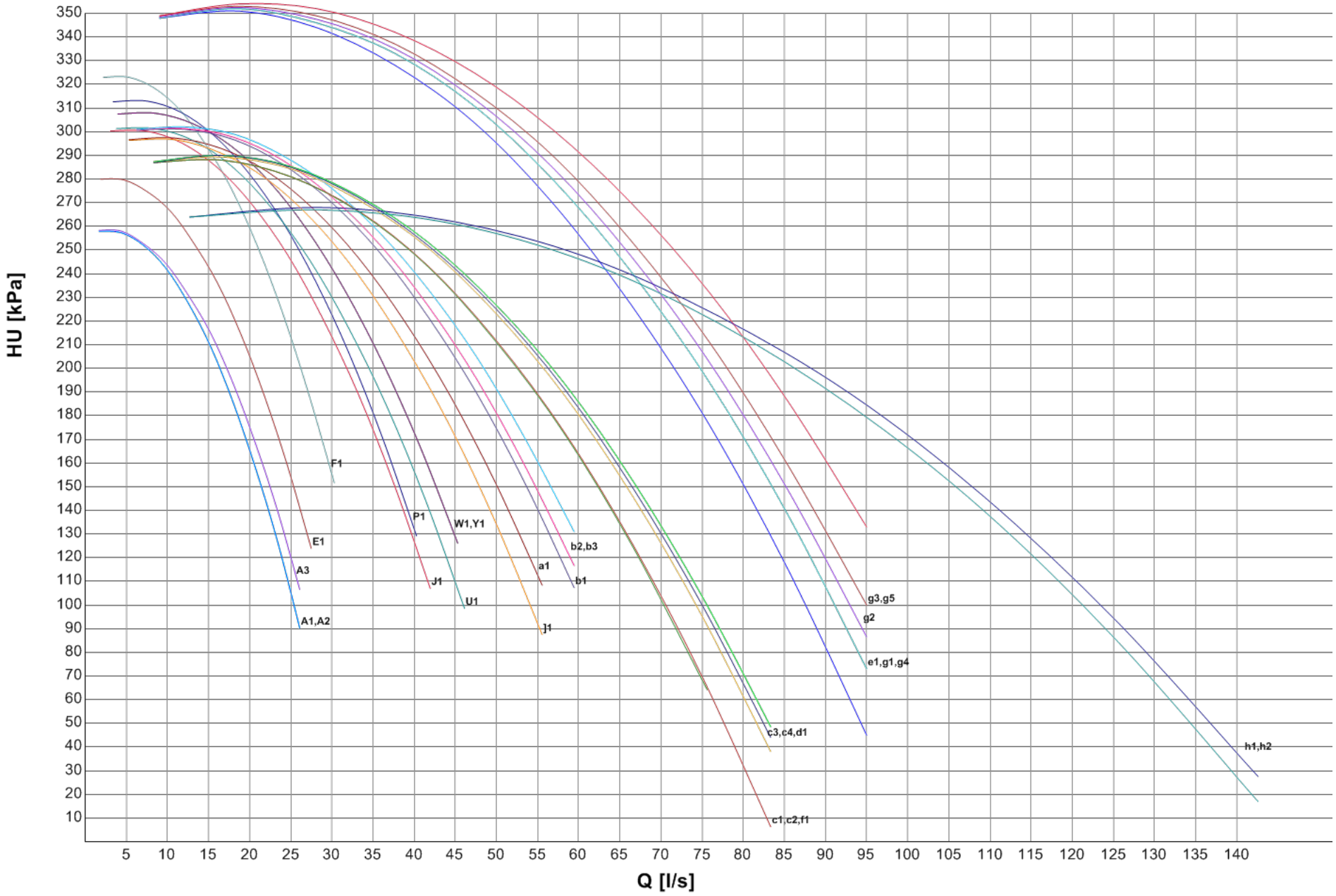
HYDRONIC GROUP

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 4 POLES HH

SIZE		CH		PUMP					CH
		Pfgross	Qfgross	Rif.	Model	N.	F.L.A.	F.L.I.	HU
		[kW] (1)	[l/s] (1)			Pole	[A]	[kW]	[kPa]
5412	SL-E	1260	60,28	d1	NB 125-315/290	4	43	22,00	189
	SL-K	1169	55,91						202
5703	CA	1342	64,17	e1	NB 125-315/317	4	58	30,00	251
	SL-CA	1310	62,64						257
6002	K	1239	59,26	f1	NB 125-315/290	4	43	22,00	187
	SL-K	1194	57,11						197
6022	K	1303	62,29	g1	NB 125-315/317	4	58	30,00	247
	SL-K	1289	61,64						250
6303	CA	1460	69,81	g2					239
	K	1401	67,01						238
	SL-CA	1442	68,95						243
	SL-K	1350	64,56						249
6603	CA	1521	72,73	g3					226
6903	K	1481	70,81	g4					220
	SL-K	1463	69,97						224
7203	K	1547	74,00	g5					240
	SL-K	1530	73,16						243
7213	K	1654	79,11	h1	NB 150-315.2/294 IE3	4	69	37,00	219
	SL-K	1595	76,27						224
7223	K	1710	81,79	h2					210
	SL-K	1649	78,86						216

(1) Values refer to nominal conditions
CH Cooling mode
Pf Cooling capacity unit (Cooling mode)
Pt Heating capacity unit (Heating mode)
Q Plant (side) exchanger water flow
F.L.I. Pump power input
F.L.A. Pump running current
HU Pump residual pressure head (Units with hydronic group without mains filter)

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 4 POLES HH



HYDRONIC GROUP

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 4 POLES LH

SIZE		CH		PUMP					CH
		Pfgross	Qfgross	Rif.	Model	N.	F.L.A.	F.L.I.	HU
		[kW] (1)	[l/s] (1)			Pole	[A]	[kW]	[kPa]
1502	CA	302,4	14,46	A1	TPD 80-170/4 IE3	2	9	4,000	112
	E	316,5	15,14						110
	K	299,6	14,33						113
	SL-CA	304,2	14,55						111
	SL-E	312,8	14,96						111
	SL-K	288,5	13,80						117
1702	CA	349,6	16,72	B1	TPD 100-170/4 IE3	4	11	5,500	121
	E	362,6	17,34						122
	K	325,8	15,58						128
	SL-CA	344,9	16,49						123
	SL-E	359,1	17,17						123
	SL-K	333,4	15,94						126
1902	CA	395,0	18,89	B2					113
	E	413,8	19,79						122
	K	383,2	18,32						116
	SL-CA	394,3	18,85						113
	SL-E	409,0	19,56						123
	SL-K	381,6	18,25						117
1922	CA	461,7	22,08	B3					109
	E	451,2	21,58						112
	K	432,0	20,66						101
	SL-CA	450,1	21,53						112
	SL-E	447,3	21,39						113
	SL-K	418,7	20,02						105
2202	CA	513,2	24,54	F1					92,5
	E	530,5	25,37		TPD 100-200/4 IE3	4	15	7,500	116
	K	480,6	22,98		TPD 100-170/4 IE3	4	11	5,500	103
	SL-CA	500,7	23,94						96,6
	SL-E	524,1	25,06		TPD 100-200/4 IE3	4	15	7,500	118
	SL-K	476,0	22,76		TPD 100-170/4 IE3	4	11	5,500	104
2602	CA	551,4	26,37	G1	TPD 100-200/4 IE3	4	15	7,500	122
	E	575,8	27,54						123
	K	533,4	25,51						119
	SL-CA	560,7	26,81						120
	SL-E	568,3	27,18						125
	SL-K	518,6	24,80						123
2652	CA	590,7	28,25	K1					111
	E	612,9	29,31		NB 100-250/245	4	21	11,00	158
	K	558,7	26,72		TPD 100-200/4 IE3	4	15	7,500	120
	SL-CA	582,8	27,87						113
	SL-E	605,2	28,94		NB 100-250/245	4	21	11,00	159
	SL-K	556,0	26,59		TPD 100-200/4 IE3	4	15	7,500	121
2702	CA	628,7	30,07	O1					99,0
	E	649,8	31,07		NB 100-250/245	4	21	11,00	150
	K	600,7	28,73		TPD 100-200/4 IE3	4	15	7,500	108
	SL-CA	615,6	29,44						112
	SL-E	641,9	30,70		NB 100-250/245	4	21	11,00	152
	SL-K	578,5	27,66		TPD 100-200/4 IE3	4	15	7,500	115
2722	CA	683,7	32,70	R1	TPD 125-190/4	4	21	11,00	129
	E	703,3	33,63		NB 100-250/245	4	21	11,00	151
	K	658,3	31,48		TPD 125-190/4	4	21	11,00	135

HYDRONIC GROUP

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 4 POLES LH

SIZE		CH		PUMP					CH
		Pfgross	Qfgross	Rif.	Model	N.	F.L.A.	F.L.I.	HU
		[kW] (1)	[l/s] (1)			Pole	[A]	[kW]	[kPa]
2722	SL-CA	680,7	32,55	T1	NB 100-250/245	4	21	11,00	144
	SL-E	696,6	33,31						152
	SL-K	663,2	31,72		TPD 125-190/4	4	21	11,00	134
3152	CA	766,2	36,64	X1	NB 100-250/245	4	21	11,00	138
	E	785,8	37,58						138
	K	725,4	34,69		TPD 125-190/4	4	21	11,00	120
	SL-CA	754,1	36,06		NB 100-250/245	4	21	11,00	140
	SL-E	776,1	37,11						140
	SL-K	716,6	34,27		TPD 125-190/4	4	21	11,00	122
3602	CA	837,8	40,06	\1	NB 100-250/245	4	21	11,00	129
	E	854,0	40,84						131
	K	802,7	38,39		TPD 125-190/4	4	21	11,00	116
	SL-CA	819,3	39,18		NB 100-250/245	4	21	11,00	134
	SL-E	841,9	40,26						134
	SL-K	770,8	36,86		TPD 125-190/4	4	21	11,00	123
3902	CA	904,7	43,26	]1	NB 100-250/245	4	21	11,00	119
	E	931,3	44,54						109
	K	871,9	41,70						127
	SL-CA	899,1	43,00						121
	SL-E	918,4	43,92						112
	SL-K	838,7	40,11						134
4202	CA	956,0	45,72	]2					107
	E	986,6	47,18						111
	K	926,5	44,31						114
	SL-CA	947,9	45,33						109
	SL-E	973,5	46,55						115
	SL-K	892,9	42,70						122
4502	CA	1031	49,29	a1					101
	E	1054	50,39		NB 100-250_274 IE3	4	29	15,00	150
	K	982,4	46,98		NB 100-250/245	4	21	11,00	112
	SL-CA	1020	48,80						103
	SL-E	1040	49,72		NB 100-250_274 IE3	4	29	15,00	154
	SL-K	964,9	46,14		NB 100-250/245	4	21	11,00	117
4802	CA	1098	52,53	e1	NB 100-250_274 IE3	4	29	15,00	139
	E	1123	53,70						133
	K	1021	48,82		NB 100-250/245	4	21	11,00	103
	SL-CA	1086	51,94		NB 100-250_274 IE3	4	29	15,00	142
	SL-E	1108	52,98						137
	SL-K	1021	48,85		NB 100-250/245	4	21	11,00	103
4812	K	1059	50,65	f1	NB 100-250_274 IE3	4	29	15,00	147
	SL-K	1052	50,30						149
4822	CA	1177	56,31	j1	NB 125-250/249 IE3	4	37	18,50	134
	E	1219	58,31						139
	K	1146	54,81		NB 100-250_274 IE3	4	29	15,00	127
	SL-CA	1163	55,63		NB 125-250/249 IE3	4	37	18,50	136
	SL-E	1205	57,62						141
	SL-K	1137	54,38		NB 100-250_274 IE3	4	29	15,00	129
5412	CA	1236	59,13	k1	NB 125-250/249 IE3	4	37	18,50	126
	E	1277	61,05						131
	K	1176	56,25						135
	SL-CA	1219	58,31						128

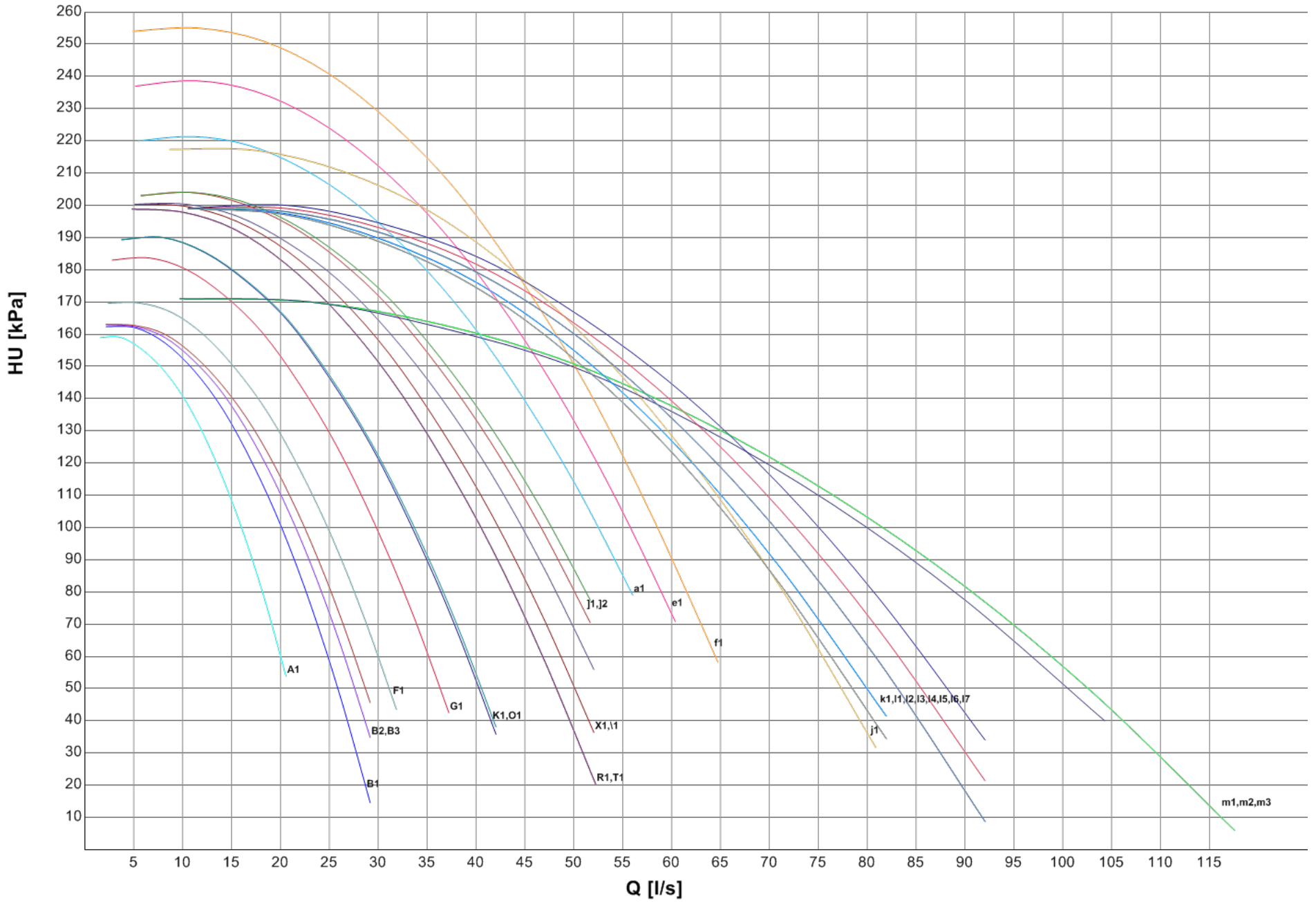
HYDRONIC GROUP

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 4 POLES LH

SIZE		CH		PUMP					CH
		Pfgross	Qfgross	Rif.	Model	N.	F.L.A.	F.L.I.	HU
		[kW] (1)	[l/s] (1)			Pole	[A]	[kW]	[kPa]
5412	SL-E	1260	60,28	I1	NB 125-250/249 IE3	4	37	18,50	133
	SL-K	1169	55,91						136
5703	CA	1342	64,17	I2					121
	SL-CA	1310	62,64						126
6002	K	1239	59,26	I3					125
	SL-K	1194	57,11						132
6022	K	1303	62,29	I4					115
	SL-K	1289	61,64						117
6303	CA	1460	69,81	I5					117
	K	1401	67,01						112
	SL-CA	1442	68,95						120
	SL-K	1350	64,56						120
6603	CA	1521	72,73	I6					108
6903	K	1481	70,81	I7					99,1
	SL-K	1463	69,97						102
7203	K	1547	74,00	m1	NB 150-250_242 IE3	4	43	22,00	115
	SL-K	1530	73,16						117
7213	K	1654	79,11	m2					105
	SL-K	1595	76,27						111
7223	K	1710	81,79	m3					96,3
	SL-K	1649	78,86						103

(1) Values refer to nominal conditions
CH Cooling mode
Pf Cooling capacity unit (Cooling mode)
Pt Heating capacity unit (Heating mode)
Q Plant (side) exchanger water flow
F.L.I. Pump power input
F.L.A. Pump running current
HU Pump residual pressure head (Units with hydronic group without mains filter)

HEAT EXCHANGER USER SIDE - HYDRONIC KIT 2 PUMPS 4 POLES LH



VARIABLE FLOW CONTROL

Pump energy consumption significantly impacts plant running costs, but it can be considerably reduced thanks to the use of variable speed pumps (inverter driven pumps), capable of adjusting the water flow rate according to the actual plant thermal load.
Mitsubishi Electric Hydronics & Cooling Systems has developed the VPF control series (Variable Primary Flow), that provides different water flow regulation logics specifically devoted to various hydraulic plant solutions: only a primary circuit, primary and secondary circuits, single unit or multi-unit systems.
The VPF systems adjust the pump speeds on the basis of the plant's thermal load and optimize the unit's thermoregulation algorithm for variable flow operation, in a dynamic and simultaneous way. This ensures the highest energy savings, stable operation, and complete reliability.

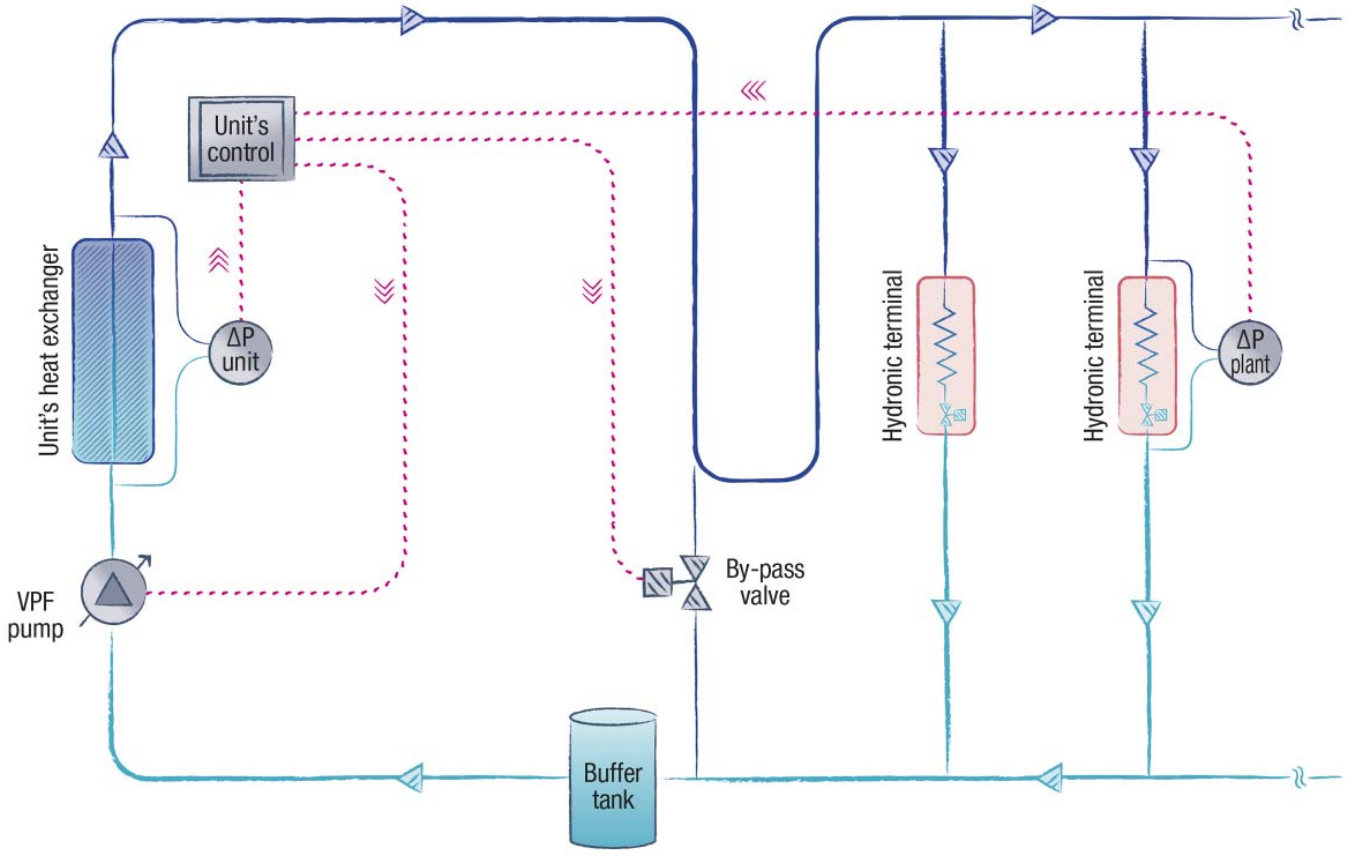
VPF SYSTEM (delta P control)
For plants with only a primary circuit

VPF - Plant and unit requirements

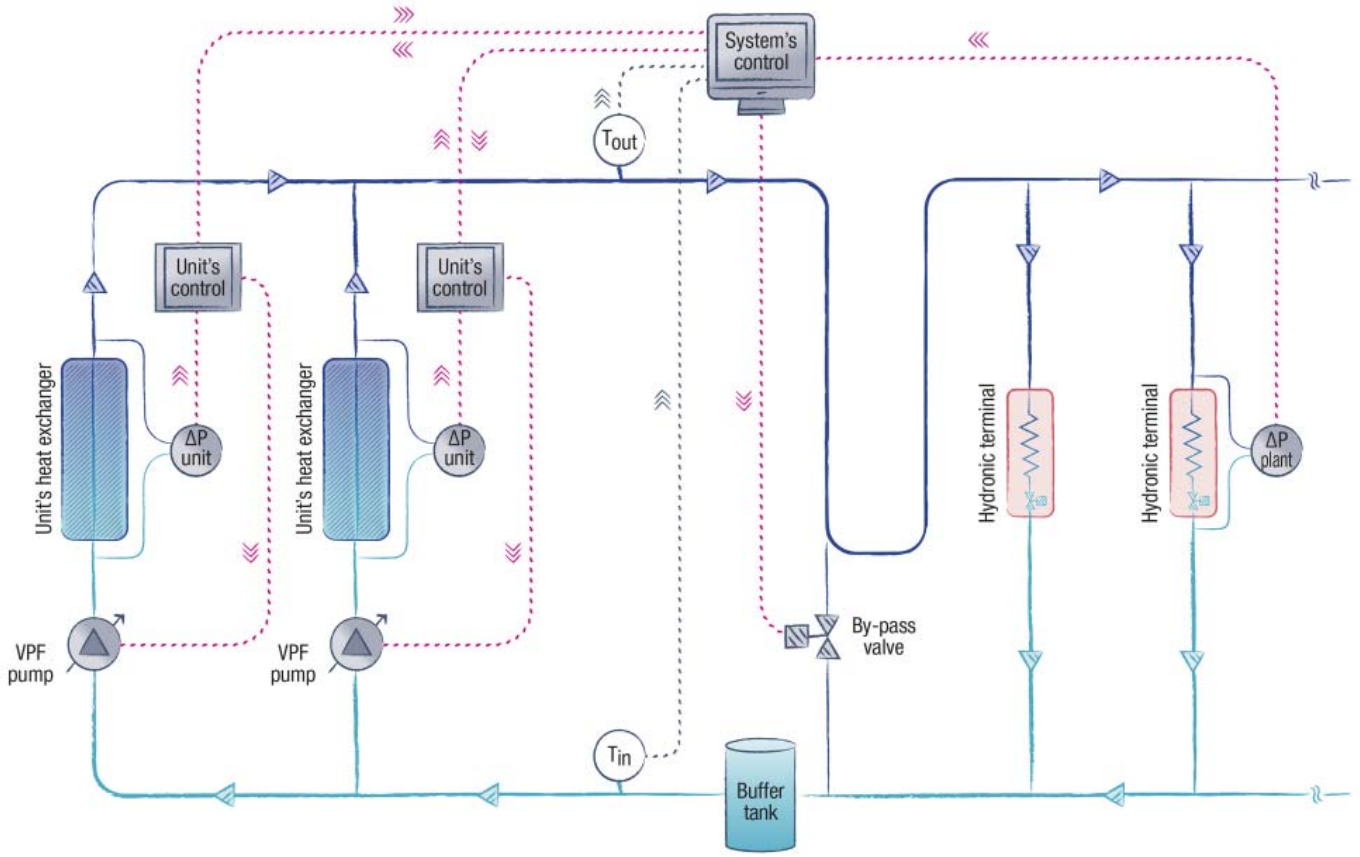
The VPF logic provides the variable flow control for the plant's primary circuit.

- Type of plant: primary circuit only, that feeds hydronic terminals fitted with a 2-way regulating valve
- Hydronic module: modulating regulation devices (0-10V signal) or variable speed pumps
- Unit thermoregulation: control of the leaving water temperature
- Monitored parameter: delta P on relevant users' hydronic terminal

Plant diagram for single unit system



Plant diagram for multi-unit system



VPF - Operating logic

Water flow regulation
The VPF system monitors the differential pressure on the plant side (ΔP) and adjusts the pump speed in order to keep it within a defined range (ΔPmin ↔ ΔPmax).

- If ΔPmin ≤ ΔP ≤ ΔPmax
  The plant water flow is appropriate to the thermal load, the pump speed is kept constant.

- If ΔP > ΔPmax
  The plant water flow exceeds what is necessary to properly cover the thermal load, the pump speed is reduced to save pump energy.

- If ΔP < ΔPmin
  The plant water flow is too low to ensure the proper feed to the hydronic terminals, the pump speed is increased.

With the VPF system, the water flow can be reduced to 50% of the unit nominal water flow, with regards to the selection conditions, provided that the minimum water flow required by the unit's heat exchanger is respected (the control of the heat exchanger's minimum water flow is described below).
The pump speed regulation is performed with little progressive adjustments while continuously monitoring the values of both the delta P on the plant side and the water temperature on the heat exchanger. The absence of abrupt water flow changes prevents fluctuation due to possible conflicts with the unit's thermoregulation function (compressor regulation).

Control of the unit's minimum water flow
Under no circumstances can the primary circuit water flow be reduced below the minimum water flow required by the unit's heat exchanger. The monitoring of the unit's water flow is performed through a factory installed differential pressure transducer on the unit's heat exchanger. If the differential pressure on the plant side requests a users' water flow lower than the unit's minimum water flow, the VPF system commands the gradual opening of the hydraulic by-pass valve (safety function). This ensures that the minimum water flow required by the unit's heat exchanger is always provided. As soon as the hydronic terminals request an increase of the water flow (ΔP < ΔPmin), the VPF closes the by-pass valve.

Multi-unit systems
The VPF control logic is also the same for multi-unit systems.
The plant side differential pressure transducer reading and the by-pass valve opening are managed by the multi-unit control system (Manager3000 or ClimaPRO).
Each unit autonomously adjusts its pump speed on the basis of the information provided by the multi-unit control system.
When the plant load requests the activation of a stand-by unit, the multi-unit control system calculates the starting speed of its pump in order to avoid excessive water flow variation of the running units.

VPF - Devices and installation

Device	Accessory name		
	VPF (plant DP trans excl)	VPF (plant DP trans incl)	VPF MULTI-UNIT SYSTEM
Differential pressure transducer on the unit's heat exchanger and related controller expansion board	Factory installed	Factory installed	Factory installed
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)	Factory installed	Factory installed	Factory installed on the multi-unit control system (2)
Plant side differential pressure transducer	Not included (the supply is the customer's responsibility) (1)	Factory supplied, installation is the client's responsibility (1)(2)	Factory supplied with the multi-unit control system, installation is the client's responsibility (1)(3)
Plant side hydraulic by-pass valve	Not included (the supply is the customer's responsibility) (4)	Not included (the supply is the customer's responsibility) (4)	Not included (the supply is the customer's responsibility) (4)

(1) It is recommended to install the differential pressure transducer on the most hydraulically critical hydronic terminal, to ensure it has a proper water flow in any load condition.
(2) Technical features of the differential pressure transducer supplied:
Model: Huba Control 692.9 120071C1
Pressure range: 0 ... + 1 bar
Output: 4-20mA
Electrical connection: DIN EN 175301-803-A (IP 65)
Pressure connection adapters: male threaded G 1/8"
(3) It is the customer's responsibility to configure the multi-unit control system (Manager3000 or ClimaPRO) with option VPF.
(4) See attached table for information on the hydraulic by-pass design.

The following table provides the indications for a correct hydraulic by-pass design.

Heat exchanger minimum flow (m^3/h) (1)	Minimum by-pass diameter	Minimum by-pass valve diameter	Suggested valve model	Kvs	Suggested actuator model
From 19 to 30	DN50 (2")	DN50 (2")	VVG41.50	40	SKB60
Up to 37	DN65 (2" ½)	DN65 (2" ½)	VVF31.65	49	SKB60
Up to 60	DN80 (3")	DN80 (3")	VVF31.80	78	SKB60
Up to 95	DN100 (4")	DN100 (4")	VVF31.90	124	SKC60
Up to 150	DN125 (5")	DN125 (5")	VVF31.91	200	SKC60
Up to 230	DN150 (6")	DN150 (6")	VVF31.92	300	SKC60

(1) In case of a multi-unit system, the unit with the highest minimum water flow should be the reference.

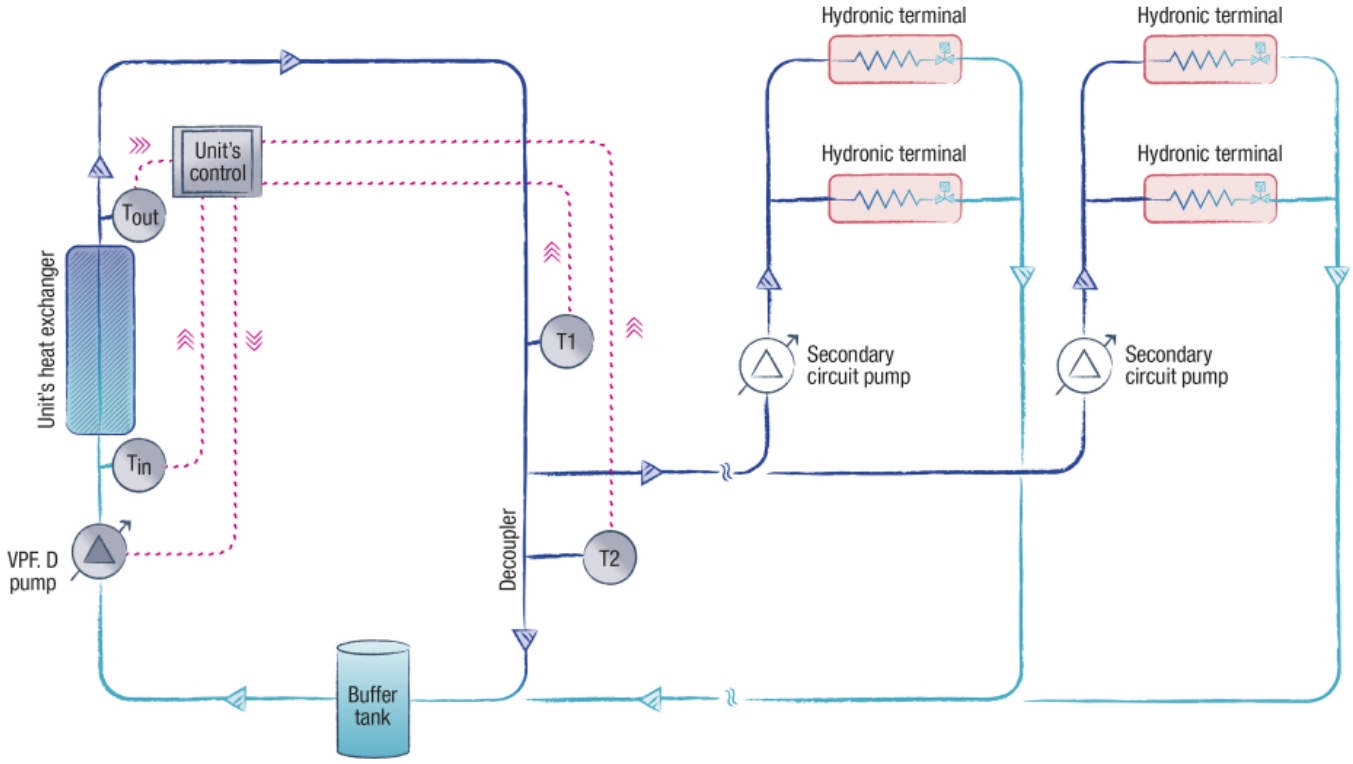
VPF.D SYSTEM (delta T control)
For plants with primary and secondary circuits separated by a hydraulic decoupler.

VPF.D - Plant and unit requirements

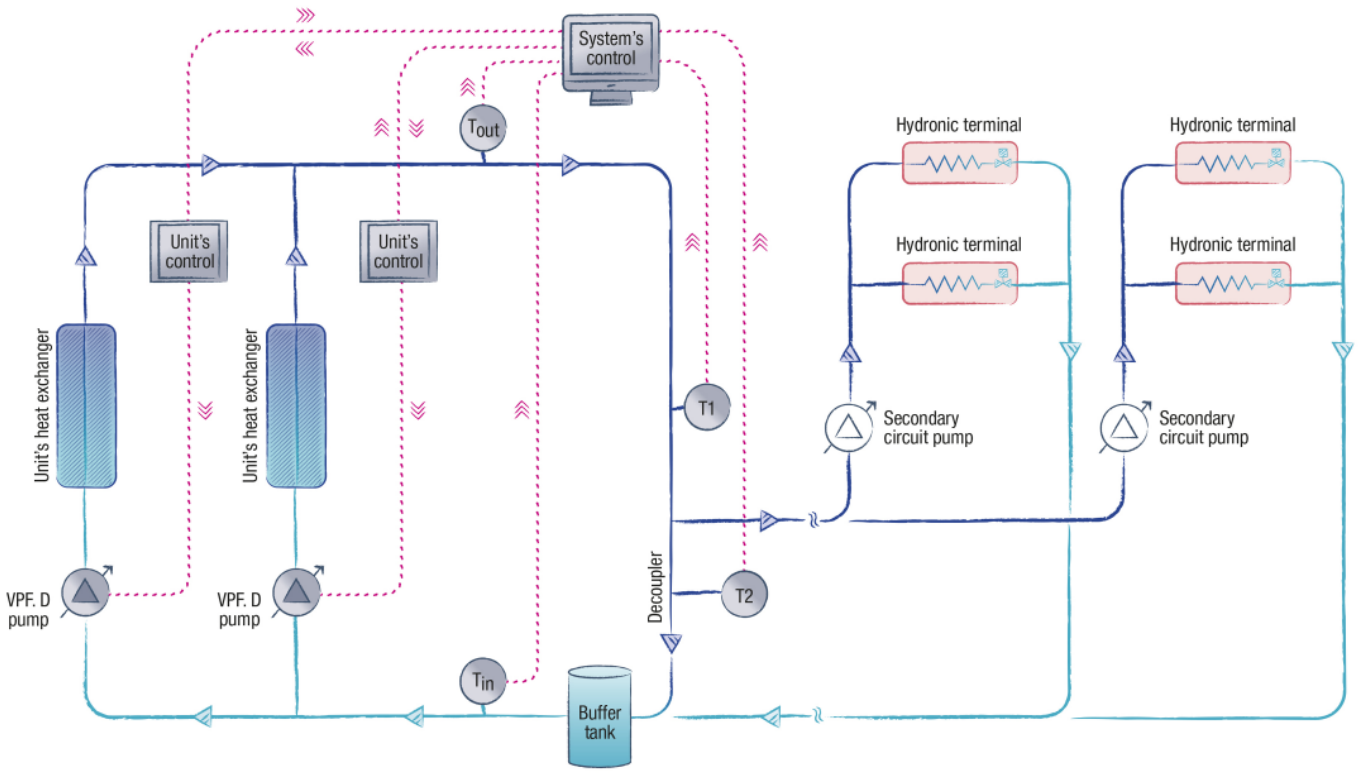
The VPF.D logic provides the variable flow control for the plant's primary circuit.

- Type of plant: primary and secondary circuits separated by a hydraulic decoupler
- Hydronic module: modulating regulation devices (0-10V signal) or variable speed pumps
- Unit thermoregulation: control of the leaving water temperature
- Monitored parameter: delta T on primary circuit

Plant diagram for single unit system



Plant diagram for multi-unit system



VPF.D - Operating logic

Water flow regulation
The VPF.D system monitors the temperature difference of the primary circuit (ΔT) (that corresponds to the temperature difference of the unit's heat exchanger in the case of a single unit system), and adjusts the primary circuit's pump speed in order to keep it within a defined range (ΔTmin ↔ ΔTmax). The secondary circuit water flow is completely independent and is to be managed by the client.

- If ΔTmin ≤ ΔT ≤ ΔTmax
  The plant water flow is appropriate to the thermal load, the pump speed is kept constant.

- If ΔT < ΔTmax
  The plant water flow exceeds what is necessary to properly cover the thermal load, the pump speed is reduced to save pump energy.

- If ΔT > ΔTmin
  The plant water flow is too low to ensure the proper feed to the users, the pump speed is increased.

To prevent the returning water of the secondary circuit from recirculating through the decoupler and mixing with the delivery water, which would cause serious plant regulation problems, the VPF.D provides a safety function based on the temperatures, which are detected by two probes on the plant side: T1 on the unit delivery line and T2 on the hydraulic decoupler. If during the water flow regulation of the circuits, the flow direction in the decoupler reverses (detected temperatures T1 < T2), the system forces a quick increase of the primary water flow until the correct direction of the flow in the decoupler is restored (detected temperatures T1 = T2).

With the VPF.D system, the water flow can be reduced to 50% of the unit nominal water flow, with regards to the selection conditions, provided that the minimum water flow required by the unit's heat exchanger is respected (the control of the heat exchanger's minimum water flow is described below).
The pump speed regulation is performed with little progressive adjustments while continuously monitoring the values of both the temperature difference on the primary circuit and the temperatures of the probes T1 and T2. The absence of abrupt water flow changes prevents fluctuation due to possible conflicts with the unit's thermoregulation function (compressor regulation).

Control of the unit's minimum water flow
Under no circumstances can the primary circuit water flow be reduced below the minimum water flow required by the unit's heat exchanger. The unit's minimum water flow is ensured by setting the minimum pump speed (service menu parameter).

Multi-unit systems
The VPF.D control logic is also the same for multi-unit systems.
The reading of the temperature difference on the primary circuit and the reading of the temperature probes T1 and T2 is managed by the multi-unit control system (Manager3000 or ClimaPRO).
Each unit autonomously adjusts its pump speed on the basis of the information provided by the multi-unit control system.
When the plant load requests the activation of a stand-by unit, the multi-unit control system calculates the starting speed of its pump in order to avoid excessive water flow variation of the running units.

VPF.D - Devices and installation

Device	Accessory name	
	VPF.D	VPF.D MULTI-UNIT SYSTEM
2 plant side NTC temperature sensors and related controller expansion board	Factory supplied (probes supplied without wells), installation is the client's responsibility (1)	Factory supplied with the multi-unit control system (probes supplied without wells), installation is the client's responsibility (1)(2)

(1) It is recommended to install the temperature probes as shown in the enclosed plant diagrams (T1 on the unit delivery line, T2 on the hydraulic decoupler)
(2) It is the customer's responsibility to configure the multi-unit control system (Manager3000 or ClimaPRO) with option VPF.D.

The following table provides the indications for a correct hydraulic decoupler design.

Heat exchanger minimum flow (m^3/h) (1)	Minimum hydraulic decoupler diameter
From 25 to 40	DN65 (2" ½)
Up to 60	DN80 (3“)
Up to 100	DN100 (4“)
Up to 150	DN125 (5“)
Up to 225	DN150 (6”)
Up to 375	DN200 (8”)

(2) In case of a multi-unit system, the unit with the highest minimum water flow should be the reference.

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