



CHILLERS- Technical manual - installation - maintenance

NS



Aermec adhere to the EUROVENT Certification program up to 600 kW.
The products concerned appear in the EUROVENT Certified product guide.



Dear Customer,

Thank you for choosing AERMEC. It is the fruit of many years of experience and special design studies and has been made of the highest grade materials and with cutting edge technology.

In addition, all our products bear the EC mark indicating that they meet the requirements of the European Machine Directive regarding safety. The standard of quality is permanently being monitored and AERMEC products are therefore a synonym for Safety, Quality and Reliability.

The data may undergo modifications considered necessary for the improvement of the product, at any time and without the obligation for any notice thereof.

Thank you again.
AERMEC S.p.A

AERMEC S.p.A. reserves the right at all times to make any modification for the improvement of its product and is not obliged to add these modification to machines of previous manufacture that have already been delivered or are being built.

CONTENTS

1.	General warnings.....	8	8.4.	High efficiency version in silenced version except for the sizes 5402 and 5702.....	29
1.1.	Conserving the documentation.....	8	8.5.	High efficiency version except for the sizes 5402 and 5702.....	30
1.2.	Safety precautions and installation	8	8.6.	High efficiency version in silenced version except for the sizes 5402 and 5702.....	30
2.	Product identification	8	8.7.	For Δt different from the rated value.....	31
3.	Description and choice of the unit	8	8.8.	Fouling factors	31
3.1.	Models available	8	9.	Glycol.....	32
3.2.	Available versions.....	8	9.1.	How to read the glycol curves	32
3.3.	Description and choice of the unit	9	10.	Total pressure drops	33
4.	Components description.....	10	10.1.	Minimum water content recommended	33
4.1.	Chiller circuit.....	10	11.	Desuperheater.....	37
4.2.	Frame and fans.....	10	11.1.	Pressure drops	37
4.3.	Hydraulic components	11	12.	Total recovery	38
4.4.	Safety and control components	11	12.1.	Pressure drops	38
4.5.	Electrical components.....	11	12.2.	Pressure drops total recovery.....	38
4.6.	Electronic regulation	12	13.	Pumps	39
5.	Accessories	13	13.1.	Selection of pumps	39
5.1.	Electric regulation accessories	13	14.	Sound data	40
5.2.	Electrical accessories.....	13	14.1.	Sound levels at full load standard NS «°».....	40
5.3.	General accessories	13	14.2.	Sound levels at full load standard ns in silenced version «L»	40
6.	Technical data	15	14.3.	Sound levels at full load standard NS high efficiency «A»	41
6.1.	Technical data ns 1251 ... 1802	15	14.4.	Sound levels at full load standard ns high efficiency in silenced version «E»	41
6.2.	Technical data ns 2002 ... 3402	18	14.5.	Sound levels at full load standard ns e with the kit .. accessory AK, (L/E).....	42
6.3.	Technical data ns 3602 ... 5702	21	15.	Safety and check parameter setting	42
6.4.	Technical data ns 6003 ... 7203	24	16.	Safety components calibration	43
7.	Operating limits.....	27	17.	Selection and place of installation	45
7.1.	Operating limits graph versions «° and l».....	27	18.	Positioning	45
7.2.	Operating limits graph versions «a and e» for 5402-5702	27			
7.3.	Design data	27			
7.4.	Operating limits graph versions «a and e»	27			
8.	Correction factors	28			
8.1.	Standard version.....	28			
8.2.	Standard version in silenced form	28			
8.3.	High efficiency Version except for the sizes 5402 and 5702	29			

18.1.	Minimum technical spaces (mm).....	45	19.14.	Carpentry by 10120 (mm) NS 6303 -6603 °°(°/L°°00...PA...PK).....	76
19.	Dimensional tables carpentry by 3780 (mm).....	46	19.15.	Carpentry by 13510 (mm) NS 6903 -7203 °°(°/L°°00...PA...PK).....	78
19.1.	Carpentry by 3780 (mm) NS 1251 - 1401 - 1601 - 1801 °°(°/L°°00...PA...PK) NS 1251 - 1401 - 1601 °°(A/E°°00...PA...PK) NS 1402 - 1602 - 1802 °°(°/L°°00...PA...PK) NS 1402 - 1602 °°(A/E°°00...PA...PK)	46	20.	Hydraulic circuit.....	81
19.2.	Carpentry by 4770 (mm) NS 2101 - 2401 °°(°/L°°00...PA...PK) NS 1801 °°(A/E°°00...PA...PK) NS 2002 - 2202 - 2352 - 2502 °°(°/L°°00...PA...PK) NS 1802 °°(A/E°°00...PA...PK)	50	20.1.	External hydraulic circuit recommended.....	81
19.3.	Carpentry by 5750 8 fans (mm) NS 2652 - 2802 °°(A/E°°00...PA...PK).....	54	20.2.	System load	81
19.4.	Carpentry by 5750 10 fans (mm) NS 2101 - 2401 - 2002 - 2202 - 2352 - 2502 - 2652 - 2802 °°(A/E°°00...PA...PK)	55	20.3.	Emptying the system	81
19.5.	Carpentry by 7160 (mm) standard electrical box NS 3002 - 3202 °°(°/L°°00...PA...PK) NS 3002 - 3202 °°(A/E°°00...PA...PK)	58	21.	Electrical wirings	82
19.6.	Carpentry by 7160 (mm) electrical box two circuits NS 3402 - 3602 °°(°/L°°00...PA...PK).....	60	21.1.	Recommended section of electric cables.....	82
19.7.	Carpentry by 8150 (mm) NS 3902 - 4202 °°(°/L°°00...PA...PK) NS 3402 °°(A/E°°00...PA...PK)	62	21.2.	Connection to the power supply	82
19.8.	Carpentry by 8150 (mm) NS 4502 - 4802 °°(°/L°°00...PA...PK) NS 3602 °°(A/E°°00...PA...PK)	64	21.3.	Electrical power connection	82
19.9.	Carpentry by 10120 (mm) NS 3902 - 4202 °°(A/E°°00...PA...PK)	66	21.4.	Auxiliary connections at the user/installer expense.....	83
19.10.	Carpentry by 11100 (mm) NS 5702 °°(°/L°°00...PA...PK) NS 4502-4802 °°(A/E°°00...PA...PK) ns 5002-5202-5402-5702 °°(a/e°°00...pa...pk)	68	21.5.	Electric data versions «°/l»	84
19.11.	Carpentry by 10120 (mm) NS 5002 °°(°/L°°00...PA...PK)	70	21.6.	Electric data versions «a/e».....	85
19.12.	Carpentry by 10120 (mm) NS 5202 °°(°/L°°00...PA...PK)	72	22.	Control and first start-up	86
19.13.	Carpentry by 10120 (mm) NS 5402 °°(°/L°°00...PA...PK)	74	22.1.	Preparation for commissioning	86
			22.2.	First commissioning of the machine	86
			22.3.	Season changeover.....	86
			23.	Functioning characteristics	87
			23.1.	Cooling set point	87
			23.2.	Compressor start delay.....	87
			23.3.	Circulation pump	87
			23.4.	Anti-freeze alarm	87
			23.5.	Water flow rate alarm	87
			24.	Regular maintenance.....	87
			25.	Extraordinary maintenance	87



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NS

SERIAL NUMBER	
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CONFORMITY DECLARATION

We, the undersigned, declare on our own exclusive responsibility that the object in question, so defined:

NAME

NS

TYPE

AIR - WATER CHILLER

MODEL

And to which this declaration refers, complies with the following standardised regulations:

CEI EN 60335-2-40

Safety regulation regarding electric heat pumps, air conditioners and dehumidifiers

CEI EN 61000-6-1

Electromagnetic immunity and emission in residential environment

CEI EN 61000-6-3

CEI EN 61000-6-2

Electromagnetic immunity and emission in industrial environment

CEI EN 61000-6-4

EN378

Refrigerating system and heat pumps - Safety and environmental requirements

UNI EN 12735

Round welding-free copper pipes for air conditioning and cooling

UNI EN 14276

Pressure equipment for refrigerating systems and heat pumps

thus meeting the essential requisites of the following directives:

- LV Directive: 2006/95/EC

- Electromagnetic Compatibility Directive 2004/108/EC

- Machine Directive 2006/42/EC

- PED Directive relating to pressure equipment 97/23/EC

In compliance with Directive 97/23/EC, the product meets the Total Quality Warranty procedure (module H) with certificate no. 06/270-QT3664 Rev.5 issued by the notified body no. 1131 CEC via Pisacane 46 Legnano (MI) - Italy

The person authorized to compile the technical file is: Massimiliano Sfragara - 37040 Bevilacqua (VR) Italy-Via Roma, 996

Bevilacqua

15/01/2010

Marketing Director
Signature

Standards and directives to be followed in the design and manufacture of the unit:

Safety system:

Machine Directive

2006/42/EC

Low voltage directive

LVD 2006/95/EC

Electromagnetic compatibility directive

EMC 2004/108/EC

Pressure containers directive

PED 97/23/CE EN 378,
UNI EN 14276

Electrical part:

EN 60204-1

Protection rating

IP24

Acoustic part:

SOUND POWER

(EN ISO 9614-2)

SOUND PRESSURE

(EN ISO 3744)

Certifications:

Eurovent

Aermec adhere to the

EUROVENT Certification

program up to 600 kW.

The products concerned

appear in the EUROVENT

Certified product guide.

Refrigerant GAS:

This unit contains fluorinated greenhouse gases covered by the Kyoto Protocol. Maintenance and disposal operations must be only carried out by qualified staff.

R134a GWP=1900

1. GENERAL WARNINGS

NS AERMEC is built according to recognised technical standards and safety regulations. They have been designed for air conditioning and must be used for this purpose in accordance with their performance characteristics. The company shall not be contractually or non-contractually liable for any damage to people, animals or objects, for failures caused by errors during installation, adjustment and maintenance or incorrect use. All the uses not expressly indicated in this manual are not allowed.

1.1. CONSERVING THE DOCUMENTATION

Deliver the following instructions plus all the complementary documentation to the system user, who shall be responsible for keeping the instructions so that they are always available when needed. Read carefully this chapter; all the procedures must be carried out by qualified personnel according to the regulations in force in the different countries (M.D. 329/2004).

It must be installed so as to enable maintenance and/or repair operations. The warranty of the device does not in any case cover costs owing to ladder trucks, lifts or other lifting systems that may be required in order to carry out the interventions under guarantee. Do not modify or tamper the with chiller as this may cause dangerous situations and the manufacturer shall not be liable for any damages. The warranty shall not be valid if the indications mentioned above are not observed.

1.2. SAFETY PRECAUTIONS AND INSTALLATION

- the chiller must be installed by an authorised and qualified technician, in compliance with the national legislation in force in the country of destination (MD 329/2004).
- AERMEC shall not be held responsible for any damage whatsoever resulting from the non-compliance with these instructions.**
- Before starting any kind of work, it is necessary TO READ CAREFULLY THE INSTRUCTIONS, AND TO PERFORM THE SAFETY CHECKS TO AVOID ANY RISKS. All the personnel in charge must know the operations and the risks that may arise when all the unit installation operations begin.

2. PRODUCT IDENTIFICATION

NS are identified by the following:

- PACKAGING LABEL
that includes the product identification data
- TECHNICAL CARD
Placed on the right strut side (see fig.1)

NOTE

If the identification plate, or any other means to identify the product, is tampered with, removed or missing, installation and maintenance operations are hampered

3. DESCRIPTION AND CHOICE OF THE UNIT

Air-cooled liquid chillers with axial fans FOR OUTDOOR INSTALLATION. are equipped with one or several cooling circuits. The evaporators are the pipe bundle type with dry expansion. The entire series can have up to three two-screw compressors. All the units are tested and delivered complete with refrigerant load and oil, (it will be necessary only to make hydraulic and electrical connections on site, by the installer).

3.1. MODELS AVAILABLE

"COOLING ONLY"

- **version ° and L**
maximum outside air temperature allowed 42 °C
Processed water temperature 15 °C
- **version A and E**
maximum outside air temperature allowed 48 °C (46° for sizes 5402-5702)
Processed water temperature 15 °C

3.2. AVAILABLE VERSIONS

NS series chillers are available in 32 sizes. By combining the numerous options available, it is possible to configure each model in the NS series in such a way as to meet the most varied system requirements. The following configurator shows the methods by which the commercial code of 15 fields that make it up representing the options available is compiled.

TECHNICAL LABEL

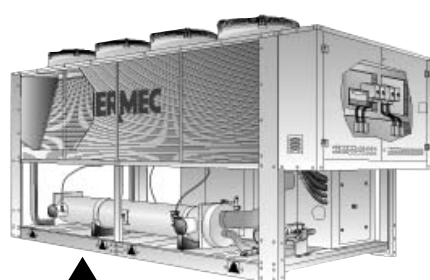
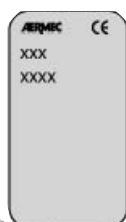


fig. 1

3.3. DESCRIPTION AND CHOICE OF THE UNIT

1.2	3,4,5,6	7	8	9	10	11	12	13	14,15
NS	1251	Y	°	°	A	°	°	°	00

Field
1, 2 **Code**
NS

3, 4, 5, 6 **Size** 1251, 1401, 1601, 1801, 2101, 2401, 1402, 1602, 1802, 2002, 2202
2352, 2502, 2652, 2802, 3002, 3202, 3402, 3602, 3902, 4202, 4502,
4802, 5002, 5202, 5402, 5702, 6003, 6303, 6603, 6903, 7203

7 **Compressor**
° Standard thermostatic valve - Produced water up to 4 °C
Y Standard thermostatic valve - Produced water up to - 6 °C
X ⁽¹⁾ Electronic thermostatic valve - Produced water up to - 6 °C

8 **Model**
° Cooling only
C Condensing system

9 **Heat recovery**
° Without heat recovery
D Desuperheater (plate heat exchanger)
T Total heat recovery (plate heat exchanger)

10 **Version**
° Standard
L Standard in silenced version
A High efficiency
E High efficiency, low noise operation

11 **coils**
° Made of aluminium
R Made of copper
S Tinned copper
V In painted aluminium

12 **Fans**
° Standard
M Enlarged
J Inverter

13 **Power supply**
° Standard 400-3-50 Hz with fuses
2 230V-3-50 Hz with fuses *
4 230V-3-50Hz with thermomagnetic switches
 * (not available with sizes 1251÷2401, 2352÷7203)
5 500V-3-50 Hz with fuses *
8 400V-3-50Hz with thermomagnetic switches
9 500V-3-50Hz with thermomagnetic switches
 ** (not available with sizes 1801÷2401, 3402÷7203)

14 - 15 **Pumps**
00 Without pumps
PA Pump A
PB Pump A with reserve pump
PC Pump B
PD Pump B with reserve pump
PE Pump C
PF Pump C with reserve pump
PG Pump D
PH Pump D with reserve pump
PJ Pump E
PK Pump E with reserve pump

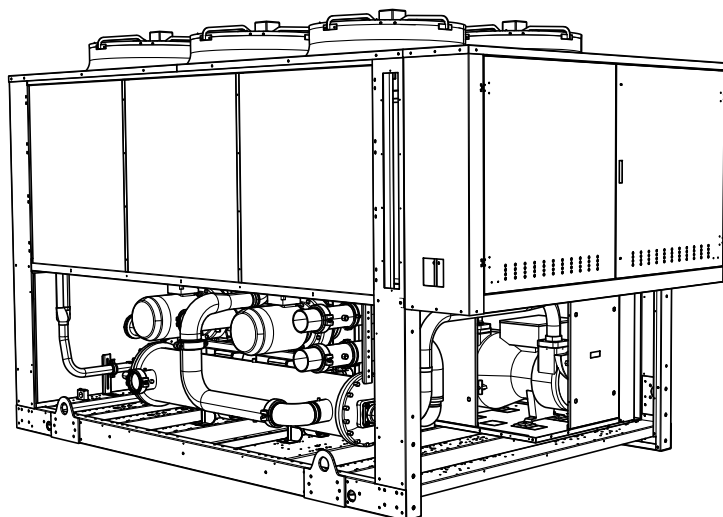


⁽¹⁾ The models NS5002-5202-5402-5702 have always and only electronic thermostatic valve «X», there is no mechanical valve version. «Y»

The available models can be:

1. Single module - single circuit
1251, 1401, 1601, 1801,
2101, 2401
2. Single module - two circuits
1402, 1602, 1802, 2002,
2202, 2352, 2502, 2652,
2802,
3. Double module - two
circuits
3002, 3202, 3402, 3602,
3902, 4202, 4502, 4802,
5002, 5202, 5402, 5702
4. Triple module - three circuits
6003, 6303, 6603, 6903,
7203

WARNING THE HIGH EFFICIENCY
TRIPLE MODULES «A-E» ARE SENT
SEPARATELY



4. COMPONENTS DESCRIPTION

4.1. CHILLER CIRCUIT

Compressor/s

Semi hermetic high-efficiency screw compressors, with a cooling capacity regulation by means of continuous modulation from 40 to 100% (from 25 to 100% with electronic valve) and fitted with:

- Thermal motor protection
- Oil discharge temperature check
- Electric heater for the heating of the oil casing with the compressor at a standstill
- Reset button.

Water side heat exchanger

Pipe bundle exchanger of the direct expansion type, suitably scaled to get high level performances.

Steel housing with closed cell foam elastomer anticondensation mattress.

The pipe bundle is made with copper tubes, with a special profile that allows high heat exchange together with efficient drainage. If so requested, the exchanger can be fitted with an anti-freeze electrical heating element, (ACCESSORY ONLY TO BE FITTED IN THE FACTORY), that keeps the exchanger from outside temperatures up to -10°C, for the purpose of avoiding the formation of ice in standby mode.

With the unit working, protection is assured by the outlet water temperature probe.

Filter drier

Of the mechanical type with cartridges, made of ceramics and hygroscopic material able to trap impurities and any traces of humidity in the chiller circuit.

Sight glass

For checking the refrigerating gas load and any humidity in the refrigerating circuit.

Thermostatic valve

In standard version, NS fits the thermostatic

mechanical valve, with external equaliser on the evaporator outlet, modulates the gas flow to the evaporator according to the thermal load, in such a way as to ensure the proper degree of overheating of the intake gas.

- Electronic thermostatic valve

As a configuration option, it is possible to have the electronic thermostatic valve for the standard models NS5002-5202-5402-5702.

Taps

Present in the liquid and discharge lines, and allow to intercept the refrigerant in case of extraordinary maintenance.

Solenoid valve

The valve closes when the compressor turns off, preventing the flow of refrigerant gas towards the evaporator.

Desuperheater (plate heat, optional) (1 per parallel circuit)

Of the plate type (AISI 316), externally insulated with closed cell material to reduce thermal dispersion.

Total recover (plate heat, optional)

Of the plate type (AISI 316), externally insulated with closed cell material to reduce thermal dispersion.

4.2. FRAME AND FANS

Fan unit

Helical form with protection class IP54, statically and dynamically balanced. The electric fans are protected electrically with thermomagnetic switches and mechanically with metal anti-intrusion grilles, in accordance with the standard CEI EN 60335-2-40.

Load-bearing structure

Made of hot-galvanised steel sheet of a suitable thickness, varnished with polyester powders able to resist atmospheric agents

over time.

Acoustic protection cover ⁽²⁾

Standard on all the NS versions, it consists of a compartment in very thick steel sheet and insulated entirely with soundproofing material. It permits the acoustic power emitted by the unit to be reduced and furthermore protects the compressors from the atmospheric agents.

4.3. HYDRAULIC COMPONENTS

Circulation pump No. 1/2 for optional circuit configurator

Depending on the characteristics of the pump chosen, it offers a useful head to overcome the pressure drops in the system. Whenever the reserve pump is present, this is managed by the electronic board.

Expansion tank 2 per circuit (2x25 l) (only in the versions with pump)

membrane type with nitrogen preloading.

4.4. SAFETY AND CONTROL COMPONENTS

Differential pressure switch IP54 1 per circuit

Located between the inlet and outlet of the evaporator, it has the task of checking that there is water circulation; otherwise, the unit blocks.

Low pressure transducer

Allows displaying, on the microprocessor card display, the value of the compressor's suction pressure (one per circuit) on the low-pressure side of the refrigerant circuit

High pressure transducer

Allows displaying, on the microprocessor card display, the value of the compressor's delivery pressure (one per circuit) On the high pressure side of the refrigerant circuit

Double high pressure switch (manual + tool)

Factory-calibrated, it is placed on the high pressure side of the cooling circuit, it shuts down compressor operation in the case of abnormal operating pressure.

Refrigeration circuit safety valves (HP, LP)

Calibrated at 22 bar HP - 16.5 LP, they cut in relieving the overpressure in the case of

abnormal operating pressures.

- **Fuses or thermomagnetic switches for compressors protection to be specified when ordered**
- **Fan protection thermomagnetic switch**
- **Secondary thermomagnetic switch protection**

4.5. ELECTRICAL COMPONENTS

Electrical panel

Contains the power section and the management of the controls and safety devices.

Door-block disconnecting switch

It is possible to access the electrical panel by disconnecting the voltage, then using the opening lever of the panel itself. This lever can be blocked with one or more padlocks during maintenance, in order to prevent the machine being powered up accidentally.

Control keypad

Provides full control functions.

NB

For a detailed description refer to the user manual.

Remote control panel (PVR3)

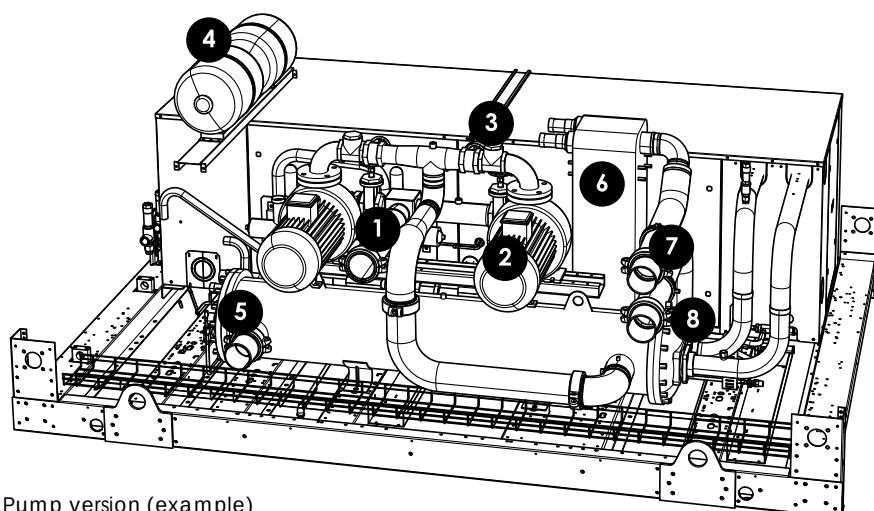
This allows the chiller command operations to be given from a distance.



(2) IT IS POSSIBLE TO HAVE A FURTHER NOISE REDUCTION, WITH DCPX AND AK ACCESSORIES.
For further information refer to the chapter ACCESSORIES.



All the electric cables are wired for immediate recognition of the electrical components



Pump version (example)

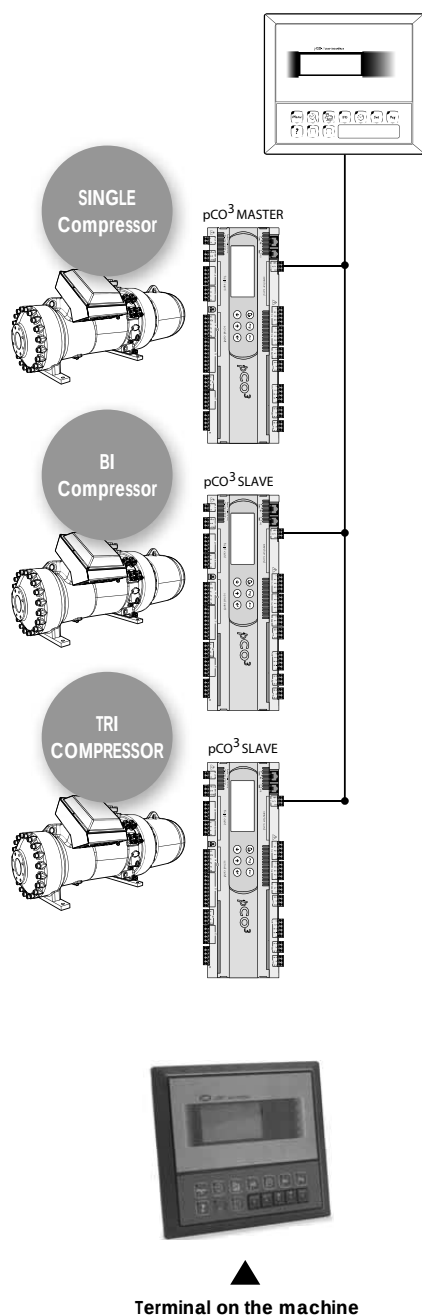


HYDRAULIC CIRCUIT KEY:

1. Evaporator input
2. Pump unit
3. Shut-off valves
4. Expansion tanks 2x25 litres
5. Water outlet with attachment
6. Total recovery
7. Inlet total recovery
8. Output total recovery

In any versions with or without pumps, desuperheater and total recovery, the water connections are VICTAULIC with supplied joint to weld

N.B.: the drawing is only an example and reflects only the version with pumps and total recovery.



4.6. ELECTRONIC REGULATION

Electronic regulation on the NS chillers consists of control cards for each compressor connected to each other in a network and a control panel with display, see figure. In the case of models with more than one compressor, the card that controls compressor 1 is the "MASTER" card, while the others are "SLAVE". On each card, transducers, loads and alarms are connected to the compressor that commands while the general machine ones are connected only on the master card. The program and parameter pre-set are stored permanently in the controller's FLASH memory, to ensure that they are kept in memory even when the system is not powered (without the need for an auxiliary battery).

The connection to the serial supervision assistance line in accordance with the **RS485** standard, is performed through the serial card **ACCESSORY RS485P1** and the communication protocol.

- The terminal, which is always controlled by microprocessor, is equipped with a display, a keypad and a set of LEDs, and is used for programming control parameters (Set Points, differential band, alarm threshold) and for fundamental user operations (ON/OFF, display controlled values). The terminal does not need to be connected to the pCO for normal controller operation, and is necessary only when initially programming the basic parameters.

Microprocessor

- Remote on/off with external contact without power
- Multi-lingual menu
- Phase sequence control
- Independent control of individual compressors
- Ammetric transformer
- Cumulative failure block signalling
- Alarm log function
- Daily/weekly programming
- Inlet/outlet water temperature display
- Alarm display
- Full proportional regulation of the output water temperature
- Programmable timer function
- Function with double setting point connected to an external contact

- Fan regulation
- Interfaceability with the Modbus protocol (accessory)
- Pump/s control
- Compressor rotation control
- Analogue input from 4 to 20 mA
- Outside air temperature sensor
- Function "Always Woking" In the case of critical conditions (e.g. ambient temperature that is too high) the machine does not stop but is able to regulate itself and provide the maximum power that can be generated in those conditions.
- Self adapting operating differential "Switching Histeresys" to ensure the correct compressor functioning at all times even in plants with a low water content or insufficient flow rates. This system reduces the compressor wear
- The AFFP "Anti Freezing Fan Protection" system that turns on the fans periodically when the external temperatures are very low
- The PDC "Pull Down Control" system to prevent the activation of the power steps when the water temperature is approaching the set point quickly. It optimises the operation of the machine both when running normally or when there are load variations, thereby assuring top machine efficiency in all situations.

For further information, refer to the user manual.

5. ACCESSORIES

5.1. ELECTRIC REGULATION ACCESSORIES

- **AER485P1:** Through this accessory, it is possible to connect the unit with BMS supervision systems with electrical standard RS 485 and MOFDBUS type protocol
NOTE: disclosure must be provided for compressor No. 1 .
- **AERWEB30:** the AERWEB device allows remote control of a chiller via a serial link from a standard PC. Using additional modules, the device allows to control the chiller via the telephone network, using the AER-MODEM accessory; or via the GSM network, using the AERMODEM GSM accessory. AERWEB can pilot up to 9 chillers, but each of these must be equipped with the **AER485** or **AER485P1** accessory.
- **MULTICHILLER:** Control system to switch the individual chillers on and off, and command them, in a system in which several units are installed in parallel, always ensuring a constant delivery to the evaporators.
- **PRV3:** This allows the chiller command operations to be given from a distance.

5.2. ELECTRICAL ACCESSORIES

- **RIFNS:** current phase advancer. Parallel connection with the motor makes the reduction of input current possible. It can only be installed when the machine is being made and must therefore be specified when the order is placed.
- **DCPX: STANDARD** for the VERSIONS:

1. **SILENCED «A-E»**
2. **WITH DESUPERHEATER «D»**

This accessory allows proper operation with outdoor temperatures below 20 ° C and up to - 10 ° C. It is made up of an electronic regulation card that varies the fan rpm on the basis of the condensation pressure, once the high pressure transducer is read for the purposes of keeping it sufficiently high FOR the proper functioning of the unit.

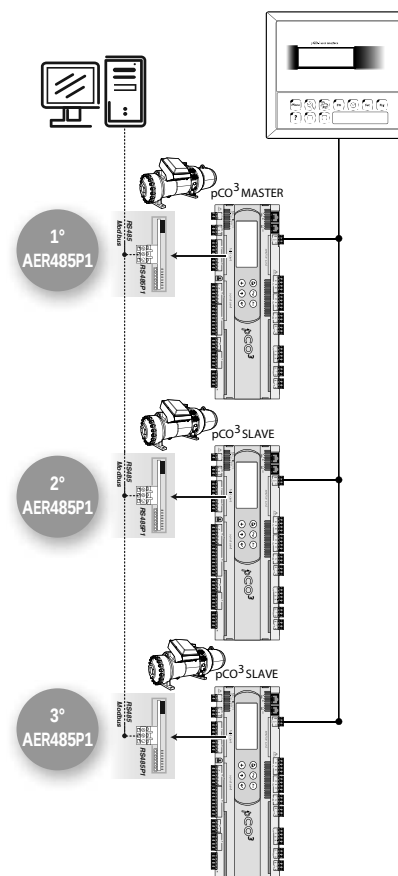
- **KRS:** Electric resistor exchangers for outside temperatures down to -10 ° C

5.3. GENERAL ACCESSORIES

- **GP: (TO INSTALL IN FACTORY)** Protects the external coil from shocks and prevents accidental access to the area where the compressors and the refrigeration circuit are placed.
- **AK: (TO INSTALL IN FACTORY)** This accessory allows additional reduction of the noise by means of:
- Hood of the compressor optimised by high density lead free materials which allow further reduction of vibrations.
- **AVX (Antivibration spring)** to reduce the transmission of vibrations to the support structure of the unit, consider the installation of shock absorbers at each point of support (see compatibility table).



CARD
AER485P1



Compatibility of accessories									
Mod. NS	1251	1401	1601	1801	2101	2401	1402	1602	
AER485P1	•	•	•	•	•	•	• (x2)	• (x2)	
MULTICHILLER	•	•	•	•	•	•	•	•	
AK-ACUSTIC KIT ⁽¹⁾⁽⁴⁾	•	•	•	•	•	•	•	•	
PRV3	•	•	•	•	•	•	•	•	
AERWEB30	•	•	•	•	•	•	•	•	
KRS ⁽¹⁾	KRS10	KRS10	KRS10	KRS10	KRS11	KRS11	KRS10	KRS10	
KRSDES	KRS10DES	KRS10DES	KRS10DES	KRS10DES	KRS11DES	KRS11DES	KRS18DES	KRS18DES	
KRSREC	KRS10REC	KRS10REC	KRS10REC	KRS10REC	KRS11REC	KRS11REC	KRS10REC	KRS10REC	
KRS ⁽¹⁾	KRS10	KRS10	KRS10	KRS10	KRS11	KRS11	KRS11	KRS11	
KRSDES	KRS10DES	KRS10DES	KRS11DES	KRS10DES	KRS11DES	KRS11DES	KRS19DES	KRS19DES	
KRSREC	KRS10REC	KRS10REC	KRS11REC	KRS10REC	KRS11REC	KRS11REC	KRS11REC	KRS11REC	
Mod. NS	1802	2002	2202	2352	2502	2652	2802	3002	
AER485P1	• (x2)	• (x2)	• (x2)	• (x2)	• (x2)	• (x2)	• (x2)	• (x2)	
MULTICHILLER	•	•	•	•	•	•	•	•	
AK-ACUSTIC KIT ⁽¹⁾⁽⁴⁾	•	•	•	•	•	•	•	•	
PRV3	•	•	•	•	•	•	•	•	
AERWEB30	•	•	•	•	•	•	•	•	
KRS ⁽¹⁾	KRS10	KRS10	KRS10	KRS10	KRS10	KRS11	KRS11	KRS12	
KRSDES	KRS18DES	KRS18DES	KRS18DES	KRS18DES	KRS18DES	KRS19DES	KRS19DES	KRS12DES	
KRSREC	KRS10REC	KRS10REC	KRS10REC	KRS10REC	KRS10REC	KRS11REC	KRS11REC	KRS12REC	
KRS ⁽¹⁾	KRS10	KRS10	KRS11	KRS11	KRS11	KRS11	KRS11	KRS13	
KRSDES	KRS18DES	KRS18DES	KRS19DES	KRS19DES	KRS19DES	KRS19DES	KRS19DES	KRS13DES	
KRSREC	KRS10REC	KRS10REC	KRS11REC	KRS11REC	KRS11REC	KRS11REC	KRS11REC	KRS13REC	
Mod. NS	3202	3402	3602	3902	4202	4502	4802	5002	
AER485P1	•	•	•	•	•	•	• (x2)	• (x2)	
MULTICHILLER	•	•	•	•	•	•	•	•	
AK-ACUSTIC KIT ⁽¹⁾⁽⁴⁾	•	•	•	•	•	•	•	•	
PRV3	•	•	•	•	•	•	•	•	
AERWEB30	•	•	•	•	•	•	•	•	
KRS ⁽¹⁾	KRS12	KRS12	KRS12	KRS13	KRS13	KRS14	KRS14	KRS14	
KRSDES	KRS12DES	KRS12DES	KRS12DES	KRS13DES	KRS13DES	KRS14DES	KRS14DES	KRS14DES	
KRSREC	KRS12REC	KRS12REC	KRS12REC	KRS13REC	KRS13REC	KRS14REC	KRS14REC	KRS14REC	
KRS ⁽¹⁾	KRS14	KRS13	KRS12	KRS13	KRS13	KRS14	KRS14	KRS14	
KRSDES	KRS14DES	KRS13DES	KRS12DES	KRS13DES	KRS13DES	KRS14DES	KRS14DES	KRS14DES	
KRSREC	KRS14REC	KRS13REC	KRS12REC	KRS13REC	KRS13REC	KRS14REC	KRS14REC	KRS14REC	

Mod. NS		5202	5402	5702	6003	6303	6603	6903	7203
AER485P1		•(x2)	•(x2)	•(x2)	•(x3)	•(x3)	•(x3)	•(x3)	•(x3)
MULTICILLER		•	•	•	•	•	•	•	•
AK-A-CUSTIC KIT ⁽¹⁾⁽⁴⁾		•	•	•	•	•	•	•	•
PRV3		•	•	•	•	•	•	•	•
AERWEB30		•	•	•	•	•	•	•	•
KRS ⁽¹⁾	° - L	KRS14	KRS14	KRS14	KRS15	KRS16	KRS16	KRS17	KRS17
KRSDES		KRS14DES	KRS14DES	KRS14DES	KRS15DES	KRS16DES	KRS16DES	KRS17DES	KRS17DES
KRSREC		KRS14REC	KRS14REC	KRS14REC	KRS15REC	KRS16REC	KRS16REC	KRS17REC	KRS17REC
KRS ⁽¹⁾	A - E	KRS14	KRS14	KRS14	KRS15	KRS16	KRS16	KRS17	KRS17
KRSDES		KRS14DES	KRS14DES	KRS14DES	KRS15DES	KRS16DES	KRS16DES	KRS17DES	KRS17DES
KRSREC		KRS14REC	KRS14REC	KRS14REC	KRS15REC	KRS16REC	KRS16REC	KRS17REC	KRS17REC

Mod. NS °/L ⁽¹⁾	1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202	2352	2502	2652	2802	3002
GP 300M (2)	•	•	•	•												
GP 400M (2)					•	•										
GP 300B (2)							•	•	•							
GP 400B (2)										•	•	•	•			
GP 500B (2)														•	•	
GP 300M+300M (2)																•

Mod. NS °/L ⁽¹⁾	3202	3402	3602	3902	4202	4502	4802	5002	5202	5402	5702	6003	6303	6603	6903	7203
GP 300M+300M	•	•														
GP 300M+400M			•	•	•											
GP 400M+400M						•	•									
GP 400M+500M								•								
GP 500M+500M									•	•	•					
GP 300M+300M+400M												•				
GP 300M+400M+400M													•	•		
GP 400M+400M+400M															•	•

Mod. NS A/E ⁽¹⁾	1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202	2352	2502	2652	2802	3002
GP 300M	•	•	•													
GP 400M				•												
GP 500M					•	•										
GP 300B							•	•								
GP 400B									•							
GP 500B										•	•	•	•	•	•	
GP 300M+300M																•

Mod. NS A/E ⁽¹⁾	3202	3402	3602	3902	4202	4502	4802	5002	5202	5402	5702	6003	6303	6603	6903	7203
GP 300M+300M	•															
GP 300M+400M		•														
GP 400M+400M			•													
GP 400M+500M				•	•											
GP 500M+500M						•	•	•	•	•	•					
GP 400M+400M+500M												•				
GP 400M+500M+500M													•	•		
GP 500M+500M+500M															•	•

Mod. NS °/L	1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202	2352	2502	2652	2802	3002
AVX	502	502	502	501	506	506	502	502	503	504	505	505	505	511	511	509
DCPX ⁽³⁾	65	65	65	65	69	69	69	68	68	68	68	68	68	68	68	68
RIFNS ⁽²⁾	1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202	2352	2502	2602	2802	3002

Mod. NS °/L	3202	3402	3602	3902	4202	4502	4802	5002	5202	5402	5702	6003	6303	6603	6903	7203
AVX	509	509	507	508	508	516	516	532	533	533	534	517	515	515	523	523
DCPX ⁽³⁾	68	68	68	72	72	73	73	73	73	73	73	68+76	72+76	72+76	73+76	73+76
RIFNS ⁽²⁾	3202	3402	3602	3902	4202	4502	4802	5002	5202	5402	5702	6003	6303	6603	6903	7203

Mod. NS °/L	1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202	2352	2502	2652	2802	3002
DCPX enlarged fans	69	69	69	69	69	69	68	68	68	68	68	68	68	68	68	73
Mod. NS °/L	3202	3402	3602	3902	4202	4502	4802	5002	5202	5402	5702	6003	6303	6603	6903	7203
DCPX enlarged fans	73	73	73	73	73	73	73	73	73	74	75	73+76	73+76	73+76	73+76	73+76

Mod. NS A/E	1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202	2352	2502	2652	2802	3002
AVX	502	502	502	506	510	510	503	503	504	511	511	511	511	511	511	509
DCPX ⁽³⁾	65	65	65	69	69	69	68	68	68	68	68	68	68	68	68	68
RIFNS ⁽²⁾	1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202	2352	2502	2602	2802	3002
Mod. NS A/E	3202	3402	3602	3902	4202	4502	4802	5002	5202	5402	5702	6003	6303	6603	6903	7203
AVX	509	513	516	519	519	521	521	535	535	535	535	526	528	528	531	531
DCPX ⁽³⁾	68	72	73	73	73	73	73	73	73	73	73	73+76	73+76	73+76	73+76	73+76
RIFNS ⁽²⁾	3202	3402	3602	3902	4202	4502	4802	5002	5202	5402	5702	6003	6303	6603	6903	7203

Mod. NS A/E	1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202	2352	2502	2652	2802	3002
DCPX enlarged fans	69	69	69	69	70	70	68	68	68	73	73	73	73	73	73	73
Mod. NS A/E	3202	3402	3602	3902	4202	4502	4802	5002	5202	5402	5702	6003	6303	6603	6903	7203
DCPX enlarged fans	73	73	73	74	74	75	75	75	75	75	75	73+77	74+77	74+77	75+77	75+77

- (1) Accessories can only be fitted in the factory
(2) Accessories available only with supply power 400V-3-50Hz

- (3) Standard accessory in silenced VERSIONS and with DESUPERHEATER
(4) Accessories available only in SILENCED versions

The number between brackets, e.g. (x2), indicates the quantity of the required accessories

6. TECHNICAL DATA

6.1. TECHNICAL DATA NS 1251 ... 1802

NS	Vers.	U.M.	1251	1401	1601	1801	2101	2401	1402	1602	1802
Cooling capacity:	°	kW	259	294	336	385	443	493	282	317	358
	L		238	265	308	361	412	454	259	287	325
	A		276	314	347	420	466	533	304	345	397
	E		252	291	330	391	432	497	273	314	364
Total input power	°	kW	91	108	117	145	166	180	102	121	138
	L		97	113	124	150	170	185	106	125	142
	A		88	97	104	134	150	165	97	109	127
	E		90	101	109	140	155	172	101	115	130
Evaporator water flow rate	°	l/h	44550	50570	57790	66220	7620	8480	4850	54520	61580
	L		40940	45580	52980	62090	70860	78090	44550	49360	5590
	A		47470	54010	59680	72240	80150	91680	52290	59340	68280
	E		43340	50050	56760	67250	74300	85480	46960	54010	62610
Evaporator pressure drops	°	kPa	42	44	45	58	37	43	39	47	53
	L		35	36	38	51	32	36	33	39	44
	A		45	39	25	45	38	47	30	39	35
	E		38	33	23	39	33	41	24	32	29

ENERGY INDICES

EER	°	W/W	2,85	2,72	2,87	2,66	2,67	2,75	2,77	2,62	2,59
	L		2,45	2,34	2,48	2,41	2,42	2,45	2,44	2,29	2,28
	A		3,14	3,24	3,34	3,13	3,11	3,23	3,13	3,17	3,13
	E		2,80	2,88	3,03	2,79	2,79	2,89	2,70	2,73	2,80
ESEER	°	W/W	3,81	3,75	3,70	3,73	3,78	3,76	3,88	3,72	3,69
	L		3,70	3,64	3,59	3,62	3,67	3,65	3,76	3,61	3,58
	A		4,22	4,24	4,30	4,24	4,20	4,28	4,20	4,22	4,20
	E		4,09	4,11	4,17	4,11	4,07	4,15	4,07	4,09	4,07

ELECTRICAL DATA

400V-3-50Hz											
Total input current	°	A	159	187	197	238	280	301	177	207	218
	L		162	192	206	244	284	307	180	212	221
	A		154	172	181	222	256	279	171	190	215
	E		152	170	182	225	255	283	170	194	214
Maximum current	°/L	A	236	236	236	331	348	388	269	309	345
	A/E		236	236	236	338	355	395	269	309	352
Peak current	°/L	A	381	425	425	486	614	678	245	283	325
	A/E		381	425	425	493	621	685	245	283	332

Charge

Oil		kg	19	19	19	35	35	35	15 + 15	15 + 15	15 + 15
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COMPRESSOR (TWIN-SCREW)

Compressor (Unit Capacity)											
No. of compressors/circuits	ALL	no./no.	1/1	1/1	1/1	1/1	1/1	1/1	2/2	2/2	2/2
Capacity control		Standard thermostatic valve									
		%	40-100								
Capacity control		Electronic thermostatic valve									
		%	25-100								

FANS (AXIAL)

Quantity	°/L	n°	6	6	6	6	8	8	6	6	6
	A/E		6	6	6	8	10	10	6	6	8
Total power input (1.4)	°/L	kW	8,4	8,4	8,4	8,4	11,2	11,2	8,4	8,4	8,4
	A/E		8,4	8,4	8,4	11,2	14	14	8,4	8,4	11,2
Total input current (3)	°/L	A	18	18	18	18	24	24	18	18	18
	A/E		18	18	18	24	30	30	18	18	24
Air flow rate	°	m³/h	116000	116000	110000	110000	150000	145000	116000	116000	110000
	L		82000	82000	82000	82000	110000	104000	82000	82000	82000
	A		110000	106000	106000	136000	180000	174000	106000	106000	144000
	E		70000	74000	81500	94000	113000	118000	74000	77000	96000

NOMINAL REFERENCE CONDITIONS

Inlet water temperature	12°C
Outlet water temperature	7°C
Outside air temperature d.b.	35°C
Δt	5°C

NS	Vers.	U.M.	1251	1401	1601	1801	2101	2401	1402	1602	1802
ENLARGED FANS (AXIAL)											
Quantity	°/L	n°	6	6	6	6	8	8	6	6	6
	A/E		6	6	6	8	10	10	6	6	8
Total input power	°	kW	12	12	12	12	16	16	12	12	12
	L		7,8	7,8	7,8	7,8	10,4	10,4	7,8	7,8	7,8
	A		12	12	12	16	20	20	12	12	16
	E		7,8	7,8	7,8	10,4	13	13	7,8	7,8	10,4
Total input current	°	A	24	24	24	24	32	32	24	24	24
	L		15,6	15,6	15,6	15,6	20,8	20,8	15,6	15,6	15,6
	A		24	24	24	32	40	40	24	24	32
	E		15,6	15,6	15,6	20,8	26	26	15,6	15,6	20,8
Air flow rate	°	m³/h	116000	116000	110000	110000	150000	145000	116000	116000	110000
	L		82000	82000	82000	82000	110000	104000	82000	82000	82000
	A		110000	106000	106000	136000	180000	174000	106000	106000	144000
	E		70000	74000	81500	94000	113000	118000	74000	77000	96000

FANS INVERTER (AXIAL)											
Quantity	°/L	n°	6	6	6	6	8	8	6	6	6
	A/E		6	6	6	8	10	10	6	6	8
Total input power	°	kW	12	12	12	12	16	16	12	12	12
	L		7,8	7,8	7,8	7,8	10,4	10,4	7,8	7,8	7,8
	A		12	12	12	16	20	20	12	12	16
	E		7,8	7,8	7,8	10,4	13	13	7,8	7,8	10,4
Total input current	°	A	24	24	24	24	32	32	24	24	24
	L		15,6	15,6	15,6	15,6	20,8	20,8	15,6	15,6	15,6
	A		24	24	24	32	40	40	24	24	32
	E		15,6	15,6	15,6	20,8	26	26	15,6	15,6	20,8
Air flow rate	°	m³/h	116000	116000	110000	110000	150000	145000	116000	116000	110000
	L		82000	82000	82000	82000	110000	104000	82000	82000	82000
	A		110000	106000	106000	136000	180000	174000	106000	106000	144000
	E		70000	74000	81500	94000	113000	118000	74000	77000	96000

EVAPORATOR (TUBE CORE)											
Water contents	°/L	dm³	80	77	74	74	106	165	77	77	77
	A/E	dm³	80	74	106	113	165	165	106	106	108
Water connections (VICTAULIC)	°/L	ø	4"				4"	5"	4"		
	A/E						5"				
Electric resistor (Efficiency/std/opt.)			NO								
Water filter (dim/std/opt.)											
Quantity		N°	1								

DESUPERHEATERS (PLATE HEAT) OPTIONAL											
Recovered efficiency	°	kW	65	73.5	84	96	111	123	70.5	79	89.5
	L		59.5	66.5	77	90	103	113.5	65	72	81
	A		70	78.5	88.2	105	116.5	133.5	76	86.5	98
	E		63	73	82.5	98	108	124	68	78.5	91
Quantity	all	no.	1						2		
Water flow rate	°	l/h	11180	12642	14448	16512	19092	21156	12126	13588	15394
	L		10234	11438	13244	15480	17716	19522	11180	12384	13932
	A		61060	69316	76196	93396	103544	117648	67596	76540	88064
	E		61060	69316	76196	93396	103544	117648	67596	76540	88064
Pressure drop of the exchanger	all	kPa	4								
Water connections (VICTAULIC)		diam	2"								
Desuperheater weight	All	kg	30	30	30	40	50	60	40	40	40

HEAT RECOVERY (PLATE HEAT) OPTIONAL											
Recovered efficiency	°	kW	355	403	443	543	602	684	393	445	512
	L										
	A										
	E										
Quantity	all	n°	1								
Water flow rate		l/h	61060	69316	76196	93396	103544	117648	67596	76540	88064
Pressure drop of the exchanger		kPa	44	57	69	51	62	65	54	69	45
Water connections (VICTAULIC)		Ø	4"								

PUMP/S No. 1 - 2 x circuit OPTIONAL		PUMPS					
Input power		kW	4	5,5	7,5	9,2	11
Input current		A	5,5	7,5	10	12,5	15
Weight		kg	109	117	121	140	148
Water connections (VICTAULIC)		ø	According to the fitted evaporator				

NOMINAL REFERENCE CONDITIONS

DESUPERHEATER

Outlet water temperature 45°C
 Δt 5°C

TO THE TOTAL RECOVERY

Outlet water temperature 45°C
 Δt 5°C

NS	Vers.	U.M.	1251	1401	1601	1801	2101	2401	1402	1602	1802
EXPANSION TANK											
Capacity	-	dm³	25								
Calibration pressure		Bar	1.5								
Quantity		n°	2								
SOUND DATA											
Sound power	°	dB(A)	94	95	97	97	98	98	96	97	97
	L		86	87	89	89	90	90	88	89	89
Sound pressure	°		61,8	62,8	64,8	64,8	65,6	65,6	63,8	64,8	64,8
	L		53,8	54,8	56,8	56,8	57,6	57,6	55,8	56,8	56,8
Sound power	A		94	95	97	97	98	98	96	97	97
	E		86	87	89	89	90	90	88	89	89
Sound pressure	A		61,8	62,8	64,8	64,6	65,5	65,5	63,8	64,8	64,6
	E		53,8	54,8	56,8	56,6	57,5	57,5	55,8	56,8	56,6
DIMENSIONS°/L											
Height	ALL	mm	2450	2450	2450	2450	2450	2450	2450	2450	2450
Width			2200	2200	2200	2200	2200	2200	2200	2200	2200
Depth			3780	3780	3780	3780	4770	4770	3780	3780	3780
Weight when empty		Kg	2910	3060	3150	3650	4230	4570	3250	3270	3460
Weight when empty with desuperheater			2940	3090	3180	3690	4280	4630	3290	3310	3500
Weight when empty with total heat recovery			3130	3280	3370	3914	4516	4889	3470	3490	3724
Weight during operation			2990	3137	3224	3724	4336	4735	3327	3347	3537
DIMENSIONS A/E											
Height	ALL	mm	2450	2450	2450	2450	2450	2450	2450	2450	2450
Width			2200	2200	2200	2200	2200	2200	2200	2200	2200
Depth			3780	3780	3780	4770	5750	5750	3780	3780	4770
Weight when empty		Kg	3050	3230	3250	4330	4920	5150	3420	3560	3900
Weight when empty with desuperheater			3080	3260	3280	4370	4970	5210	3460	3500	3940
Weight when empty with total heat recovery			3270	3450	3470	4594	5206	5469	3640	3780	4164
Weight during operation			3130	3304	3356	4443	5085	5315	3526	3666	4008

Sound power

Aermec determines the sound power value on the basis of measurements taken in accordance with standard 9614-2, in compliance with the Eurovent certification.

Sound pressure

Sound pressure in an unrestricted range on a reflective plane (directional fact. Q=2), 10m away from the unit external surface, complying with ISO 3744.

6.2. TECHNICAL DATA NS 2002 ... 3402

NS	Vers.	U.M.	2002	2202	2352	2502	2652	2802	3002	3202	3402
Cooling capacity:	°	kW	404	450	486	503	541	578	629	671	721
	L		372	420	443	459	495	530	573	616	669
	A		450	495	519	543	577	612	661	695	767
	E		410	453	478	503	539	574	622	660	721
Total input power	°	kW	154	171	177	187	202	216	225	235	262
	L		160	181	185	198	211	230	237	248	274
	A		144	157	166	173	182	197	201	208	238
	E		150	161	171	181	192	207	210	218	249
Evaporator water flow rate	°	l/h	69490	77400	83590	86520	93050	99420	108190	115410	124010
	L		63980	72240	76200	78950	85140	91160	98560	105950	115070
	A		77400	85140	89270	93400	99240	105260	113690	119540	131920
	E		70520	77920	82220	86520	92710	98730	106980	113520	124010
Evaporator pressure drops	°	kpa	36	40	48	50	47	53	44	38	50
	L		31	35	40	42	39	45	37	32	43
	A		44	39	42	46	48	55	32	25	35
	E		37	33	36	39	42	48	28	23	31

ENERGY INDICES											
EER	°	W/W	2,62	2,63	2,74	2,70	2,68	2,67	2,79	2,86	2,75
	L		2,32	2,33	2,39	2,32	2,34	2,30	2,41	2,48	2,44
	A		3,13	3,15	3,13	3,14	3,17	3,11	3,29	3,34	3,22
	E		2,73	2,81	2,80	2,78	2,81	2,77	2,96	3,03	2,90
ESEER	°	W/W	3,59	3,56	3,82	3,81	3,73	3,78	3,68	3,68	3,68
	L		3,48	3,45	3,71	3,70	3,62	3,67	3,57	3,57	3,57
	A		4,23	4,24	4,23	4,25	4,25	4,21	4,28	4,30	4,26
	E		4,10	4,11	4,10	4,12	4,12	4,08	4,15	4,17	4,13

ELECTRICAL DATA											
Total input current	°	A	261	295	306	322	347	371	384	394	435
	L		266	301	310	333	354	381	398	411	450
	A		248	274	288	301	320	339	353	362	403
	E		247	277	290	303	320	344	352	364	407
Maximum current	°/L	A	372	392	425	458	458	458	472	472	567
	A/E		372	392	425	458	458	458	472	472	567
Peak current	°/L	A	403	420	480	507	551	553	567	567	628
	A/E		410	427	487	514	558	560	567	567	635

Charge											
Oil		kg	15 + 22	22 + 22	22 + 19	19 + 19	19 + 19	19 + 19	19 + 19	19 + 19	19 + 35

COMPRESSOR (TWIN-SCREW)											
No. of compressors/circuits	ALL	no./no.	2/2								
Capacity control		%	Standard thermostatic valve								
			40-100								
Capacity control		%	Electronic thermostatic valve								
			25-100								

FANS (AXIAL)											
Quantity	°/L	n°	8	8	8	8	8	8	12	12	12
	A/E		10	10	10	10	10	10	12	12	14
Total input power	°/L	kW	11,2	11,2	11,2	11,2	11,2	11,2	16,8	16,8	16,8
	A/E		14	14	14	14	14	14	16,8	16,8	19,6
Total input current	°/L	A	24	24	24	24	24	24	36	36	36
	A/E		30	30	30	30	30	30	36	36	42
Air flow rate	°	m³/h	145000	145000	145000	145000	152000	152000	226000	220000	220000
	L		104000	104000	104000	104000	108000	108000	164000	164000	164000
	A		187500	180000	176500	173000	173000	173000	212000	212000	242000
	E		124500	120000	123000	126000	130000	136000	155500	163000	175500

NOMINAL REFERENCE CONDITIONS

Inlet water temperature	12°C
Outlet water temperature	7°C
Outside air temperature d.b.	35°C
Δt	5°C

NS	Vers.	U.M.	2002	2202	2352	2502	2652	2802	3002	3202	3402
ENLARGED FANS (AXIAL)											
Quantity	°/L	n°	8	8	8	8	8	8	12	12	12
	A/E		10	10	10	10	10	10	12	12	14
Input power	°	kW	16	16	16	16	16	16	24	24	24
	L		10,4	10,4	10,4	10,4	10,4	10,4	15,6	15,6	15,6
	A		20	20	20	20	20	20	24	24	28
	E		13	13	13	13	13	13	15,6	15,6	18,2
	°		32	32	32	32	32	32	48	48	48
Input current	L	A	20,8	20,8	20,8	20,8	20,8	20,8	31,2	31,2	31,2
	A		40	40	40	40	40	40	48	48	56
	E		26	26	26	26	26	26	31,2	31,2	36,4
	°		145000	145000	145000	145000	152000	152000	226000	220000	220000
Air flow rate	L	m³/h	104000	104000	104000	104000	108000	108000	164000	164000	164000
	A		187500	180000	176500	173000	173000	173000	212000	212000	242000
	E		124500	120000	123000	126000	130000	136000	155500	163000	175500
	°		145000	145000	145000	145000	152000	152000	226000	220000	220000

FANS INVERTER (AXIAL)											
Quantity	°/L	n°	8	8	8	8	8	8	12	12	12
	A/E		10	10	10	10	10	10	12	12	14
Input power	°	kW	16	16	16	16	16	16	24	24	24
	L		10,4	10,4	10,4	10,4	10,4	10,4	15,6	15,6	15,6
	A		20	20	20	20	20	20	24	24	28
	E		13	13	13	13	13	13	15,6	15,6	18,2
	°		32	32	32	32	32	32	48	48	48
Input current	L	A	20,8	20,8	20,8	20,8	20,8	20,8	31,2	31,2	31,2
	A		40	40	40	40	40	40	48	48	56
	E		26	26	26	26	26	26	31,2	31,2	36,4
	°		145000	145000	145000	145000	152000	152000	226000	220000	220000
Air flow rate	L	m³/h	104000	104000	104000	104000	108000	108000	164000	164000	164000
	A		187500	180000	176500	173000	173000	173000	212000	212000	242000
	E		124500	120000	123000	126000	130000	136000	155500	163000	175500
	°		145000	145000	145000	145000	152000	152000	226000	220000	220000

EVAPORATOR (TUBE CORE)											
Water contents	°/L	dm³	108	108	108	108	103	103	77+74	74+74	74+74
	A/E	dm³	108	103	103	103	98	98	74+106	106+106	106+113
Water connections (VICTAULIC)	°/L	ø	4"								
Electric resistor (Efficiency/std/opt.)	A/E	ø	NO								
Water filter (dim/std/opt.)											
Quantity		n°	1						2		

DESUPERHEATERS (PLATE HEAT) OPTIONAL											
Recovered efficiency	°	kW	101	112	121	126	135	144	157.5	168	180
	L		93	105	111	115	123	132	143.5	154	167
	A		111	123.8	129.8	135.7	146.2	156.7	166.5	176.5	193
	E		102.5	113	119.5	126	135	143.5	155.5	165	180
Quantity	all	n°	2	2	2	2	2	2	2	2	2
Water flow rate	°	l/h	17372	19264	20812	21672	23220	24768	27090	28896	30960
	L		15996	18060	19092	19780	21156	22704	24682	26488	28724
	A		19092	21294	22326	23340	25146	26952	28638	30358	33196
	E		17630	19436	20554	21672	23220	24682	26746	28380	30960
Pressure drop of the exchanger	all	kPa	4	4	4	4	4	4	4	4	4
Water connections (VICTAULIC)		ø	2"								
Desuperheater weight	All	kg	40	50	50	50	60	60	60	70	70

HEAT RECOVERY (PLATE HEAT) OPTIONAL											
Recovered efficiency	°	kW	580	638	671	702	745	795	845	886	985
	L	kW	580	638	671	702	745	795	845	886	985
	A	kW	580	638	671	702	745	795	845	886	985
	E	kW	580	638	671	702	745	795	845	886	985
Quantity	All	n°	1						2		
Water flow rate	All	l/h	99760	109736	115412	120744	128140	136740	145340	152392	169420
Pressure drop of the exchanger	All	kPa	58	70	63	68	62	71	60	66	60
Water connections (VICTAULIC)		ø	4"								
Weight	All	kg	286	286	319	319	385	385	440	440	484

PUMP/S No. 1 - 2 x circuit OPTIONAL			PUMPS				
			PA	PC	PE	PG	PJ
Input power		kW	4	5,5	7,5	9,2	11
Input current		A	5,5	7,5	10	12,5	15
Weight		kg	109	117	121	140	148
Water connections (VICTAULIC)		diam	According to the fitted evaporator				

NOMINAL REFERENCE CONDITIONS

DESUPERHEATER

Outlet water temperature

Δt

45°C

5°C

TO THE TOTAL RECOVERY

Outlet water temperature

Δt

45°C

5°C

NS	Vers.	U.M.	2002	2202	2352	2502	2652	2802	3002	3202	3402
EXPANSION TANK											
Capacity		dm ³	25								
Calibration pressure		Bar	1.5								
Quantity		n°	2					4			

SOUND DATA											
Sound power	°	dB(A)	98	98	97	98	98	98	99	99	99
	L		90	90	90	90	90	91	90	91	91
Sound pressure	°		65,6	65,6	64,6	65,6	65,5	65,5	66,4	66,4	66,4
	L		57,6	57,6	57,6	57,6	57,5	58,5	57,4	58,4	58,4
Sound power	A		98	98	97	98	98	98	99	99	99
	E		90	90	90	90	90	91	90	91	91
Sound pressure	A		65,5	65,5	64,5	65,5	65,5	65,5	66,4	66,4	66,3
	E		57,5	57,5	57,5	57,5	57,5	58,5	57,4	58,4	58,3

DIMENSIONS°/L											
Height	All	mm	2450	2450	2450	2450	2450	2450	2450	2450	2450
Width	°/L		2200	2200	2200	2200	2200	2200	2200	2200	2200
Depth			4770	4770	4770	4770	5750	5750	7160	7160	7160
Weight when empty		4270	4740	4800	4900	5320	5330	6180	6270	6770	
Weight when empty with desuper-heater		4310	4790	5190	5360	5380	5390	6240	6340	6840	
Weight when empty with total heat recovery		4556	5026	5119	5219	5705	5715	6620	6710	7254	
Weight during operation		4378	4848	4908	5008	5423	5433	6331	6418	6918	

DIMENSIONS A/E											
Height	All	mm	2450	2450	2450	2450	2450	2450	2450	2450	2450
Width	A/E		2200	2200	2200	2200	2200	2200	2200	2200	2200
Depth			5750	5750	5750	5750	5750	5750	7160	7160	8150
Weight when empty		4700	5270	5390	5500	5510	5520	6450	6520	7540	
Weight when empty with desuperheater		4740	5320	5440	5550	5570	5580	6510	6590	7610	
Weight when empty with total heat recovery		4986	5556	5709	5819	5895	5905	6890	6960	8024	
Weight during operation		4808	5373	5493	5603	5608	5618	6630	6732	7759	

Sound power

Aermec determines the sound power value on the basis of measurements taken in accordance with standard 9614-2, in compliance with the Eurovent certification.

Sound pressure

Sound pressure in an unrestricted range on a reflective plane (directional fact. Q=2), 10m away from the unit external surface, complying with ISO 3744.

6.3. TECHNICAL DATA NS 3602 ... 5702

NS	Vers.	U.M.	3602	3902	4202	4502	4802	5002	5202	5402	5702
Cooling capacity:	°	kW	771	828	879	936	987	1063	1140	1185	1230
	L		722	773	815	866	907	984	1060	1105	1150
	A		839	885	953	999	1066	1155	1244	1287	1330
	E		782	822	888	928	994	1088	1160	1198	1236
Total input power	°	kW	290	311	324	345	359	390	420	432	444
	L		300	320	335	355	370	405	440	454	467
	A		268	284	298	314	329	360	390	408	426
	E		280	295	312	327	344	376	407	426	444
Evaporator water flow rate	°	l/h	132610	142420	151190	160990	169760	182838	196082	203822	211562
	L		124180	132960	140180	148950	156000	169250	182322	190062	197802
	A		144310	152220	163920	171830	183350	198662	213970	221366	228763
	E		134500	141380	152740	159620	170970	187138	199522	206058	212594
Evaporator pressure drops	°	kPa	58	46	50	40	43	40	36	39	42
	L		51	40	43	34	36	34	31	34	37
	A		45	41	46	43	47	42	37	39	42
	E		39	35	40	37	41	37	32	34	36

ENERGY INDICES											
EER	°	W/W	2,66	2,66	2,71	2,71	2,75	2,73	2,71	2,74	2,77
	L		2,41	2,42	2,43	2,44	2,45	2,43	2,41	2,44	2,46
	A		3,13	3,12	3,20	3,18	3,24	3,21	3,19	3,15	3,12
	E		2,79	2,79	2,85	2,84	2,89	2,89	2,85	2,82	2,78
ESEER	°	W/W	3,68	3,73	3,73	3,73	3,67	3,71	3,71	3,69	3,69
	L		3,57	3,62	3,62	3,62	3,56	3,60	3,60	3,58	3,58
	A		4,19	4,18	4,24	4,17	4,17	4,25	4,26	4,20	4,15
	E		4,06	4,05	4,11	4,04	4,04	4,12	4,13	4,07	4,03

ELECTRICAL DATA											
Total input current	°	A	477	519	540	582	603	648	693	715	736
	L		488	527	551	591	613	670	726	750	774
	A		444	478	501	535	558	614	655	685	715
	E		450	480	508	538	566	626	670	700	735
Maximum current	°/L	A	662	679	719	736	776	866	924	968	1012
	A/E		676	693	733	750	790	880	938	975	1012
Peak current	°/L	A	654	778	825	900	900	1051	1109	1228	1227
	A/E		661	792	839	914	914	1065	1123	1235	1227

Charge											
Oil		kg	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35

COMPRESSOR (TWIN-SCREW)											
No. of compressors/circuits	ALL	no./no.	2/2								
Capacity control			Standard thermostatic valve								
		%	40-100								
Capacity control			Electronic thermostatic valve								
		%	25-100								

FANS (AXIAL)											
Quantity	°/L	n°	12	14	14	16	16	16	16	18	20
	A/E		16	18	18	20	20	20	20	20	20
Input power	°/L	kW	16.8	19.6	19.6	22.4	22.4	22.4	22.4	25.2	28
	A/E		22.4	25.2	25.2	28	28	28	28	28	28
Input current	°/L	A	36	42	42	48	48	48	48	54	60
	A/E		48	54	54	60	60	60	60	60	60
Air flow rate	°	m³/h	220000	260000	255000	295000	290000	297000	304000	324000	360000
	L		164000	192000	186000	214000	208000	212000	216000	240000	267000
	A		272000	316000	310000	354000	348000	346000	346000	346000	346000
	E		188000	207000	212000	231000	236000	254000	272000	283500	295000

NOMINAL REFERENCE CONDITIONS

Inlet water temperature	12°C
Outlet water temperature	7°C
Outside air temperature d.b.	35°C
Δt	5°C

NS	Vers.	U.M.	3602	3902	4202	4502	4802	5002	5202	5402	5702
ENLARGED FANS (AXIAL)											
Quantity	°/L	n°	12	14	14	16	16	16	16	18	20
	A/E		16	18	18	20	20	20	20	20	20
Total input power	°	kW	24	28	28	32	32	32	32	36	40
	L		15.6	18.2	18.2	20.8	20.8	20.8	20.8	23.4	26
	A		32	36	36	40	40	40	40	40	40
	E		20.8	23.4	23.4	26	26	26	26	26	26
	°		48	56	56	64	64	64	64	72	80
Total input current	L	A	31.2	36.4	36.4	41.6	41.6	41.6	41.6	46.8	52
	A		64	72	72	80	80	80	80	80	80
	E		41.6	46.8	46.8	52	52	52	52	52	52
	°		220000	260000	255000	295000	290000	297000	304000	324000	360000
	L		164000	192000	186000	214000	208000	212000	216000	240000	267000
Air flow rate	A	m³/h	272000	316000	310000	354000	348000	346000	346000	346000	346000
	E		188000	207000	212000	231000	236000	254000	272000	283500	295000

FANS INVERTER (AXIAL)											
Quantity	°/L	n°	12	14	14	16	16	16	16	18	20
	A/E		16	18	18	20	20	20	20	20	20
Input power	°	kW	24	28	28	32	32	32	32	36	40
	L		15.6	18.2	18.2	20.8	20.8	20.8	20.8	23.4	26
	A		32	36	36	40	40	40	40	40	40
	E		20.8	23.4	23.4	26	26	26	26	26	26
	°		48	56	56	64	64	64	64	72	80
Input current	L	A	31.2	36.4	36.4	41.6	41.6	41.6	41.6	46.8	52
	A		64	72	72	80	80	80	80	80	80
	E		41.6	46.8	46.8	52	52	52	52	52	52
	°		220000	260000	255000	295000	290000	297000	304000	324000	360000
	L		164000	192000	186000	214000	208000	212000	216000	240000	267000
Air flow rate	A	m³/h	272000	316000	310000	354000	348000	346000	346000	346000	346000
	E		188000	207000	212000	231000	236000	254000	272000	283500	295000

EVAPORATOR (TUBE CORE)											
Water contents	°/L	dm³	74+74	74+106	74+165	106+165	165+165	165+200	200+200	200+200	200+200
	A/E		113+113	113+165	113+165	165+165	165+165	165+188	188+188	188+188	188+188
Water connections (VICTAULIC)	°/L	ø	4"+4"	4"+4"	4"+5"	4"+5"	5"+5"	5"/6"	6"/6"	6"/6"	6"/6"
	A/E		4"+4"	4"+5"	4"+5"	5"+5"	5"+5"	5"/6"	6"/6"	6"/6"	6"/6"
Electric resistor (Efficiency/std/opt.)			NO								
Water filter (dim/std/opt.)			NO								
Quantity		n°	2								

DESUPERHEATERS (PLATE HEAT) OPTIONAL											
Recovered efficiency	°	kW	192	207	219	234	246	264	276	288	303
	L		180	193	203.5	216.5	227	244	257	270	283
	A		223.2	221.2	238.2	249.8	266.5	281.2	298	314.7	326.2
	E		195.5	205.5	222	232	248.5	263	278	293	303
	all		2	2	2	2	2	2	2	2	2
Water flow rate	°	l/h	33024	35604	37668	40248	42312	45408	47472	49536	52116
	L		30960	33196	35002	37238	39044	41968	44204	46440	48676
	A		38390	38046	40970	42966	45838	48366	51256	54128	56106
	E		33626	35346	38184	39904	42742	45236	47816	50396	52116
	°		4	4	4	4	4	5	6	6	7
Pressure drop of the exchanger	L	kPa	4	4	4	4	4	5	5	6	6
	A		4	4	4	4	4	5	7	8	8
	E		4	4	4	4	4	5	6	7	7
	°		2"								
Water connections (VICTAULIC)		ø	2"								
Desuperheater weight	All	kg	80	100	90	110	120	120	120	120	120

HEAT RECOVERY (PLATE HEAT) OPTIONAL											
Recovered efficiency	°	kW	1084	1144	1226	1285	1367	1428	1527	1626	1686
	L		1084	1144	1226	1285	1367	1428	1527	1626	1686
	A		1084	1144	1226	1285	1367	1428	1527	1626	1686
	E		1084	1144	1226	1285	1367	1428	1527	1626	1686
	All		2	2	2	2	2	2	2	2	2
Water flow rate	All	l/h	186448	196768	210872	221020	235124	245616	262644	279672	289992
Pressure drop of the exchanger	All	kPa	51	56	58	63	65	65	62	70	76
Water connections (VICTAULIC)		ø	4"								
Weight	All	kg	528	550	583	605	638	669	680	680	680

PUMP/S No. 1 - 2 x circuit OPTIONAL		PUMPS				
			PA	PC	PE	PG
Input power	kW	4	5,5	7,5	9,2	11
Input current	A	5,5	7,5	10	12,5	15
Weight	kg	109	117	121	140	148
Water connections (VICTAULIC)	diam	According to the fitted evaporator				

NOMINAL REFERENCE CONDITIONS

DESUPERHEATER

Outlet water temperature

Δt

45°C

5°C

TO THE TOTAL RECOVERY

Outlet water temperature

Δt

45°C

5°C

NS	Vers.	U.M.	3602	3902	4202	4502	4802	5002	5202	5402	5702
EXPANSION TANK											
Capacity	-	dm³	25								
Calibration pressure		Bar	1.5								
Quantity		n°	4								

SAFETY VALVE											
Calibration		bar	6	6	6	6	6	6	6	6	6
Quantity		no.	2 + 2	2 + 2	2 + 2	2 + 2	2 + 2	2 + 3	3 + 3	3 + 3	3 + 3

SOUND DATA											
Sound power	°	dB(A)	99	100	100	100	100	101	101	101	101
	L		92	92	92	92	92	93	93	93	93
Sound pressure	°	dB(A)	66,4	67,3	67,3	67,2	67,2	68,1	68,0	68,0	68,0
	L		59,4	59,3	59,3	59,2	59,2	60,1	60,0	60,0	60,0
Sound power	A	dB(A)	99	100	100	100	100	101	101	101	101
	E		92	92	92	92	92	93	93	93	93
Sound pressure	A	dB(A)	66,2	67,1	67,1	67,0	67,0	68,0	68,0	68,0	68,0
	E		59,2	59,1	59,1	59,0	59,0	60,0	60,0	60,0	60,0

DIMENSIONS°/L											
Height	ALL	mm	2450	2450	2450	2450	2450	2450	2450	2450	2450
Width			2200	2200	2200	2200	2200	2200	2200	2200	2200
Depth			7160	8150	8150	9140	9140	10120	11100	11100	11100
Weight when empty		Kg	7280	7830	8180	8750	9090	9360	10100	10200	10350
Weight when empty with desuper-heater			7360	7930	8270	8860	9210				
Weight when empty with total heat recovery			7808	8380	8763	9355	9728	10029	10780	10880	11030
Weight during operation			7428	8010	8419	9021	9420	9725	10500	10600	10750

DIMENSIONS A/E											
Height		mm	2450	2450	2450	2450	2450	2450	2450	2450	2450
Width			2200	2200	2200	2200	2200	2200	2200	2200	2200
Depth			9140	10120	10120	11100	11100	11100	11100	11100	11100
Weight when empty		Kg	8610	9180	9410	9820	10200	10450	10750	10800	10850
Weight when empty with desuper-heater			8690	9280	9500	9930	10320	10570	10870	10920	10970
Weight when empty with total heat recovery			9138	9730	9993	10425	10838	11119	11430	11480	11530
Weight during operation			8836	9458	9688	10150	10530	10803	11126	11176	11226

Sound power

Aermec determines the sound power value on the basis of measurements taken in accordance with standard 9614-2, in compliance with the Eurovent certification.

Sound pressure

Sound pressure in an unrestricted range on a reflective plane (directional fact. Q=2), 10m away from the unit external surface, complying with ISO 3744.

6.4. TECHNICAL DATA NS 6003 ... 7203

NS	Vers.	U.M.	6003	6303	6603	6903	7203
Cooling capacity:	°	kW	1264	1321	1372	1430	1480
	L		1176	1227	1268	1319	1361
	A		1372	1419	1486	1532	1600
	E		1278	1319	1384	1425	1490
Total input power	°	kW	469	490	504	525	539
	L		485	505	520	540	555
	A		432	448	463	479	494
	E		452	467	484	499	516
Evaporator water flow rate	°	l/h	217410	227210	235980	245960	254560
	L		202270	211040	218100	226870	234090
	A		235980	244070	255589	263500	275200
	E		219820	226870	238050	245100	256280
Evaporator pressure drops	°	kPa	53	46	48	41	43
	L		46	40	41	35	36
	A		45	43	46	44	47
	E		39	37	40	38	41

ENERGY INDICES							
EER	°	W/W	2,69	2,69	2,72	2,72	2,75
	L		2,43	2,43	2,44	2,44	2,45
	A		3,18	3,17	3,21	3,20	3,24
	E		2,83	2,82	2,86	2,86	2,89
ESEER	°	W/W	3,76	3,78	3,76	3,81	3,76
	L		3,65	3,67	3,65	3,70	3,65
	A		4,28	4,25	4,28	4,29	4,28
	E		4,15	4,12	4,15	4,16	4,15

ELECTRICAL DATA							
Total input current	°	A	778	820	841	883	904
	L		795	834	858	898	921
	A		723	757	780	814	837
	E		733	763	791	821	849
Maximum current	°/L	A	1050	1067	1107	1124	1164
	A/E		1071	1088	1128	1145	1185
Peak current	°/L	A	1013	1072	1064	1122	1122
	A/E		1034	1093	1085	1143	1143

Charge							
Oil		Kg	35 + 35 + 35	35 + 35 + 35	35 + 35 + 35	35 + 35 + 35	35 + 35 + 35
COMPRESSOR (TWIN-SCREW)							
No. of compressors/circuits	ALL	no./no.	3/3	3/3	3/3	3/3	3/3
Capacity control			Standard thermostatic valve				
		%	40-100				
Capacity control			Electronic thermostatic valve				
		%	25-100				

FANS (AXIAL)							
Quantity	°/L	n°	20	22	22	24	24
	A/E		26	28	28	30	30
Input power	°/L	kW	28	30,8	30,8	33,6	33,6
	A/E		36,4	39,2	39,2	42	42
Input current	°/L	A	60	66	66	72	72
	A/E		78	78	78	90	90
Air flow rate	°	m³/h	365000	405000	400000	440000	435000
	L		268000	296000	290000	318000	312000
	A		446000	490000	484000	528000	522000
	E		306000	325000	330000	349000	354000

NOMINAL REFERENCE CONDITIONS

Inlet water temperature	12°C
Outlet water temperature	7°C
Outside air temperature d.b.	35°C
Δt	5°C

NS	Vers.	U.M.	6003	6303	6603	6903	7203
----	-------	------	------	------	------	------	------

ENLARGED FANS (AXIAL)							
Quantity	°/L	n°	20	22	22	24	24
	A/E		26	28	28	30	30
Input power	°	kW	40	44	44	48	48
	L		26	28,6	28,6	31,2	31,2
	A		52	56	56	60	60
	E		33,8	36,4	36,4	39	39
	°		80	88	88	96	96
Input current	L	A	52	57,2	57,2	62,4	62,4
	A		104	112	112	120	120
	E		67,6	72,8	72,8	78	78
	°		365000	405000	400000	440000	435000
Air flow rate	L	m³/h	268000	296000	290000	318000	312000
	A		446000	490000	484000	528000	522000
	E		306000	325000	330000	349000	354000
	°		365000	405000	400000	440000	435000

FANS INVERTER (AXIAL)							
Quantity	°/L	n°	20	22	22	24	24
	A/E		26	28	28	30	30
Input power	°	kW	40	44	44	48	48
	L		26	28,6	28,6	31,2	31,2
	A		52	56	56	60	60
	E		33,8	36,4	36,4	39	39
	°		80	88	88	96	96
Input current	L	A	52	57,2	57,2	62,4	62,4
	A		104	112	112	120	120
	E		67,6	72,8	72,8	78	78
	°		365000	405000	400000	440000	435000
Air flow rate	L	m³/h	268000	296000	290000	318000	312000
	A		446000	490000	484000	528000	522000
	E		306000	325000	330000	349000	354000
	°		365000	405000	400000	440000	435000

EVAPORATOR (TUBE CORE)							
Water contents	°/L	dm³	74+74 +165	74+106+ 165	74+165+165	106+165 +165	165+165 +165
	A/E		113+113+ 165	113+165+165	113+165+165	165+165+165	165+165+165
Water connections (VICTAULIC)	°/L	ø	4"+4"+5"	4"+4"+5"	4"+5"+5"	4"+5"+5"	5"+5"+5"
	A/E		4"+4"+5"	4"+5"+5"	4"+5"+5"	5"+5"+5"	5"+5"+5"
Electric resistor (Efficiency/std/opt.)		ø	NO				
Water filter (dim/std/opt.)							
Quantity		n°	3	3	3	3	3

DESUPERHEATERS (PLATE HEAT) OPTIONAL							
Recovered efficiency	°	kW	315	330	342	357	369
	L		294	307	317	330	340.5
	A		343	354.7	371.5	383	400
	E		319.5	330	346	356	372.5
Quantity	all	n°	3	3	3	3	3
Water flow rate	°	l/h	54180	56760	58824	61404	63468
	L		50568	52804	54524	56760	58566
	A		58996	61008	63898	65876	68800
	E		54954	56760	59512	61232	64070
Pressure drop of the exchanger	all	kPa	4	4	4	4	4
Water connections (VICTAULIC)		ø	2"				
Desuperheater weight	All	kg	80 + 60	90+60	90+60	110+60	120+60

HEAT RECOVERY (PLATE HEAT) OPTIONAL							
Recovered efficiency	°	kW	1768	1827	1910	1969	2051
	L		1768	1827	1910	1969	2051
	A		1768	1827	1910	1969	2051
	E		1768	1827	1910	1969	2051
Quantity	All	n°	3	3	3	3	3
Water flow rate	All	l/h	304096	314244	328520	338668	352772
Pressure drop of the exchanger	All	kPa	55	59	60	63	65
Water connections (VICTAULIC)		ø	4"				
Weight	All	kg	847	869	902	924	957

PUMP/S No. 1 - 2 x circuit OPTIONAL			PUMPS				
Input power		kW	4	5,5	7,5	9,2	11
Input current		A	5,5	7,5	10	12,5	15
Weight		kg	109	117	121	140	148
Water connections (VICTAULIC)			According to the fitted evaporator				

NOMINAL REFERENCE CONDITIONS

DESUPERHEATER

Outlet water temperature 45°C
 Δt 5°C

TO THE TOTAL RECOVERY

Outlet water temperature 45°C
 Δt 5°C

NS	Vers.	U.M.	6003	6303	6603	6903	7203
EXPANSION TANK							
Capacity	-	dm³	25				
Calibration pressure		Bar	1.5				
Quantity		n°	6				
SOUND DATA							
Sound power	°	dB(A)	101	101	101	102	102
	L		93	93	93	93	94
Sound pressure	°		67,9	67,8	67,8	68,7	68,7
	L		59,9	59,8	59,8	59,7	60,7
Sound power	A		101	101	101	102	102
	E		93	93	93	93	94
Sound pressure	A		67,6	67,5	67,5	68,4	68,4
	E		59,6	59,5	59,5	59,4	60,4
DIMENSIONS °/L							
Height	All	mm	2450	2450	2450	2450	2450
Width	°/L		2200	2200	2200	2200	2200
Depth			11530	12520	12520	13510	13510
Weight when empty		Kg	11390	12210	12250	13230	13570
Weight when empty with desuper-heater			11520	12360	12410	13400	13750
Weight when empty with total heat recovery			12237	13079	13152	14154	14527
Weight during operation			11703	12555	12654	13666	14065
DIMENSIONS A/E							
Height	All	mm	2450	2450	2450	2450	2450
Width	A-E		2200	2200	2200	2200	2200
Depth			14490	15470	15470	16450	16450
Weight when empty		Kg	13760	14330	14560	14970	15350
Weight when empty with desuper-heater			13900	14480	14710	15140	15530
Weight when empty with total heat recovery			14607	15199	15462	15894	16307
Weight during operation			14151	14773	15003	15465	15845

Sound power

Aermec determines the sound power value on the basis of measurements taken in accordance with standard 9614-2, in compliance with the Eurovent certification.

Sound pressure

Sound pressure in an unrestricted range on a reflective plane (directional fact. Q=2), 10m away from the unit external surface, complying with ISO 3744.

7. OPERATING LIMITS

The devices in their standard configurations are not suitable for installation in salty environments.

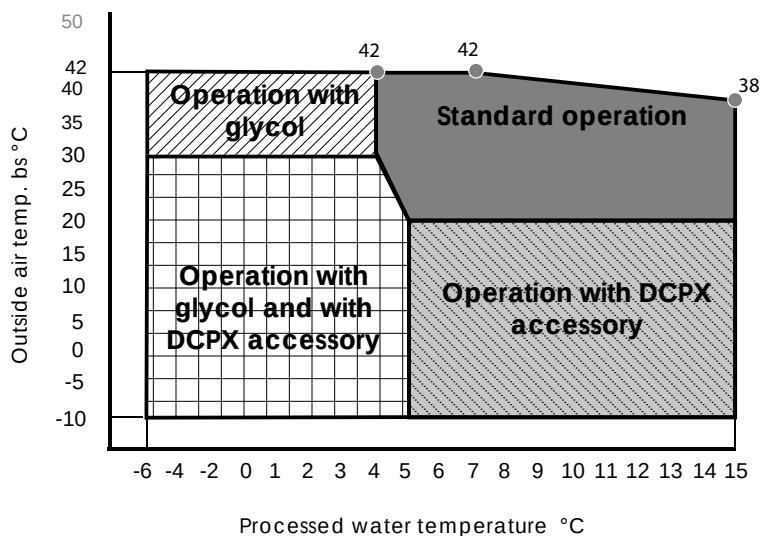
For the operating limits, refer to diagram, valid for $\Delta t = 5^\circ\text{C}$.

NOTE

Contact our technical sales department if the unit needs to be operated outside the operating limits

Wind breaks should be implemented if the unit is installed in particularly windy areas, to prevent a malfunction of the DCPX

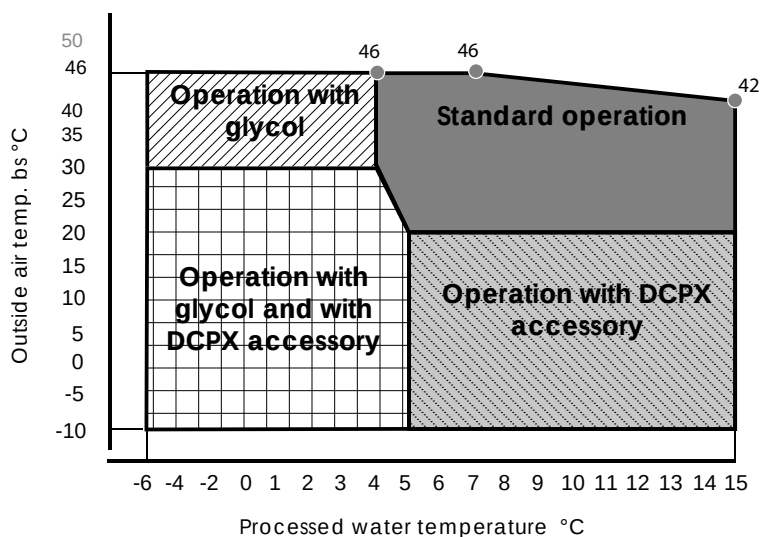
7.1. OPERATING LIMITS GRAPH VERSIONS «° and L»



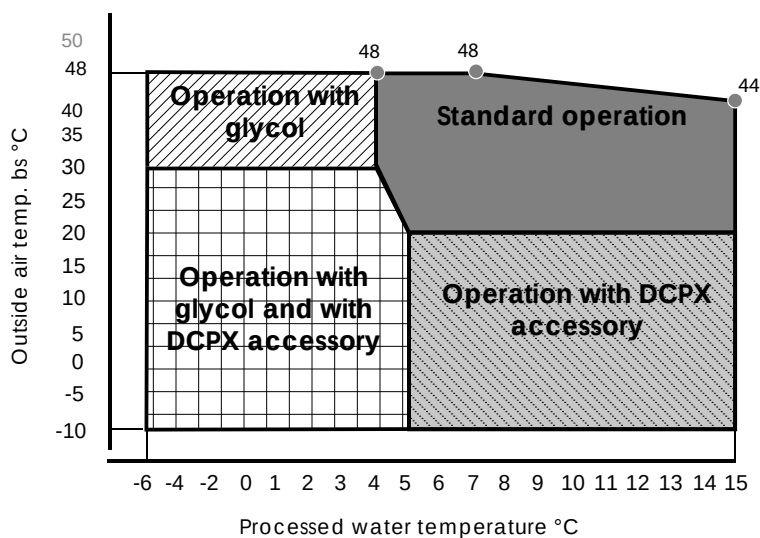
7.3. DESIGN DATA

COOLING		Side High pressure	Side Low pressure
Maximum pressure allowable	bar	22	16,5
Maximum temperature allowable	°C	120	55
Minimum temperature allowable	°C	-10	-10

7.2. OPERATING LIMITS GRAPH VERSIONS «A and E» for 5402-5702

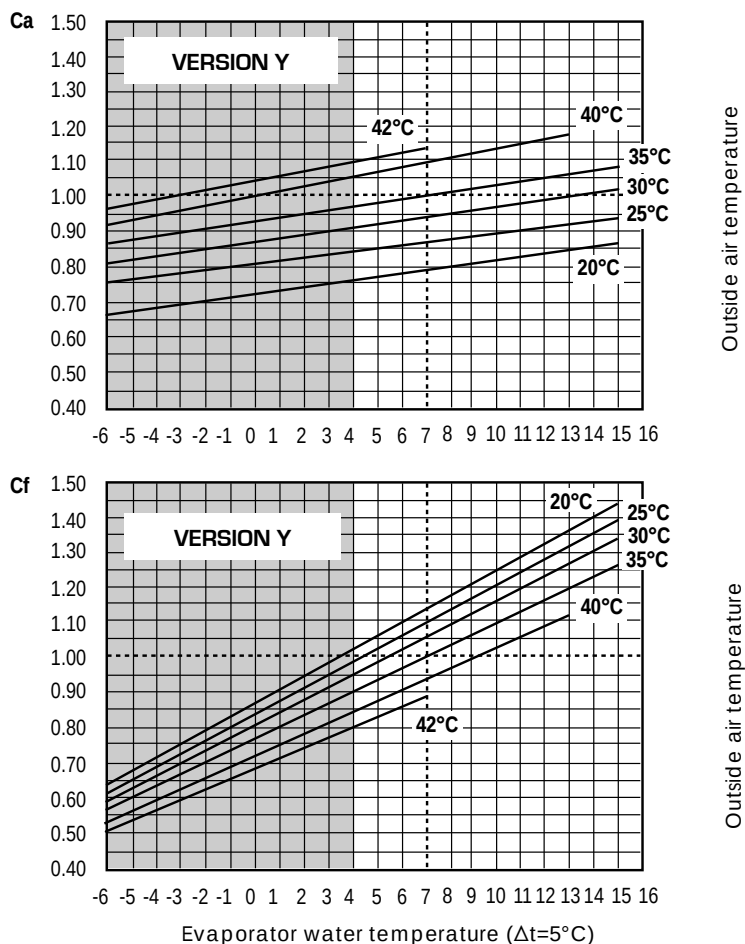


7.4. OPERATING LIMITS GRAPH VERSIONS «A and E»



8. CORRECTION FACTORS

8.1. STANDARD VERSION



8.2. STANDARD VERSION IN SILENCED FORM

The cooling capacity yielded and the input electrical capacity in conditions other than rated conditions are obtained by multiplying the rated values (P_c , P_a) by the respective correction coefficients (C_f , C_a). The following diagrams allow you to obtain the correction coefficients to be used for the various versions of the devices, in cold mode; next each curve the external air temperature to which it refers is shown.

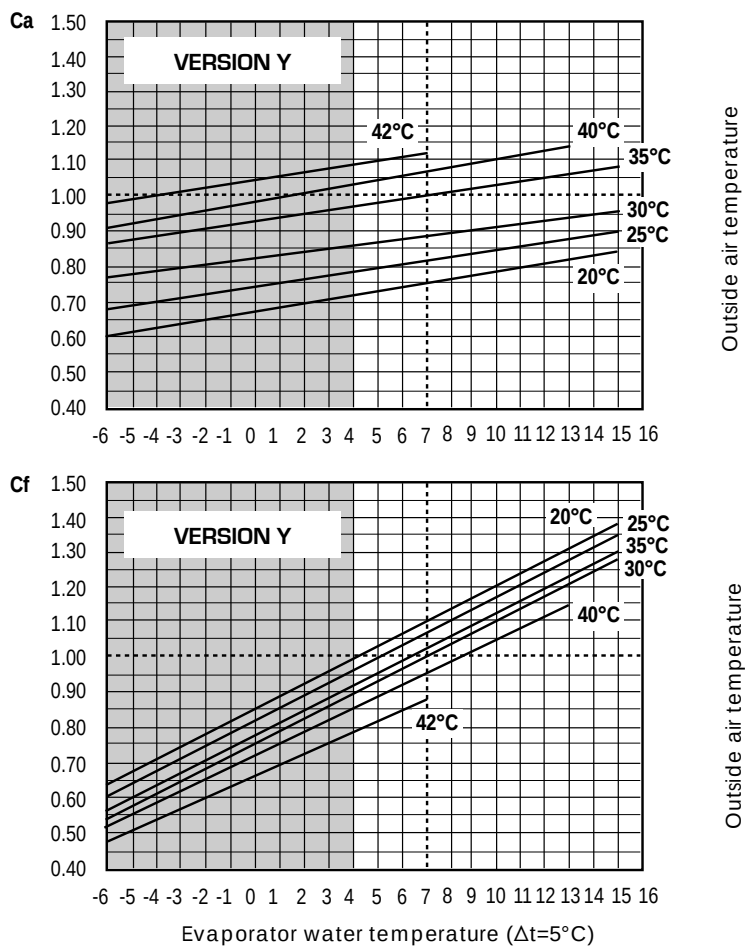
KEY

C_f : correction coefficient of the cooling capacity.

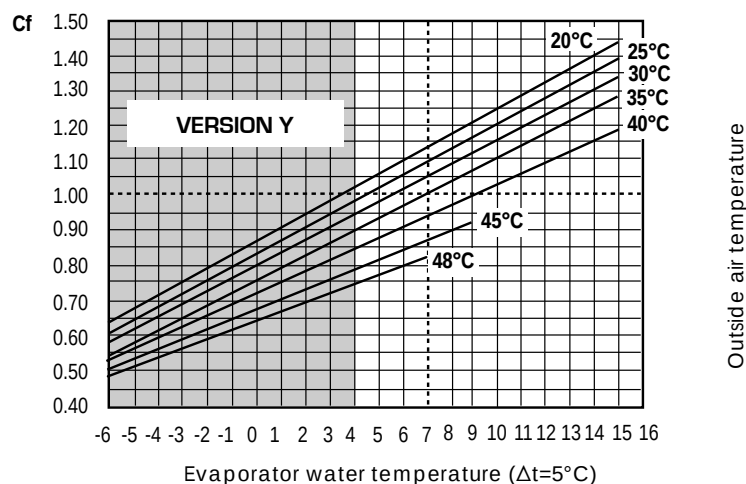
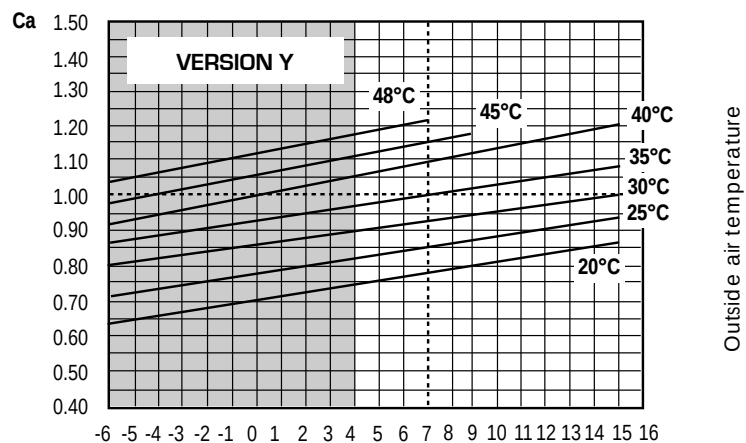
C_a : correction coefficient of the input power.

FOR Δt DIFFERENT FROM 5°C

Tab. 8.1.1. is used for the correction factors of the cooling capacity and input power of the water consumption. To take into account the exchanger soiling, apply the relative fouling factors, Tab. 8.2.1.



8.3. HIGH EFFICIENCY VERSION EXCEPT FOR THE SIZES 5402 AND 5702



8.4. HIGH EFFICIENCY VERSION IN SILENCED VERSION EXCEPT FOR THE SIZES 5402 AND 5702

The cooling capacity yielded and the input electrical capacity in conditions other than rated conditions are obtained by multiplying the rated values (P_c , P_a) by the respective correction coefficients (C_f , C_a). The following diagrams allow you to obtain the correction coefficients to be used for the various versions of the devices, in cold mode; next each curve the external air temperature to which it refers is shown.

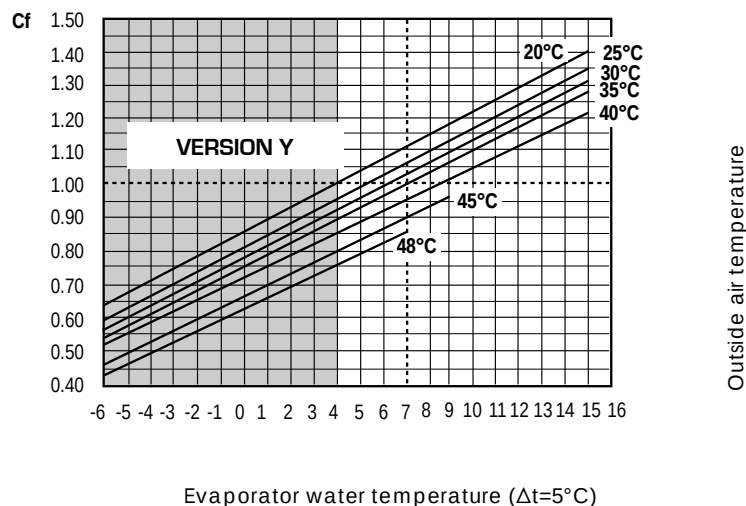
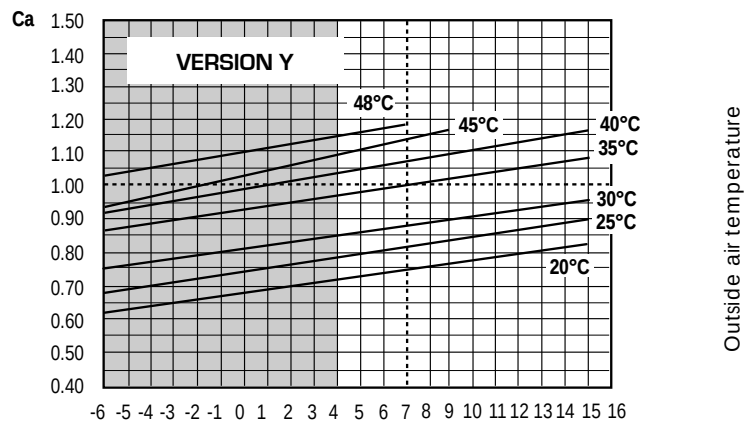
KEY

Cf: correction coefficient of the cooling capacity.

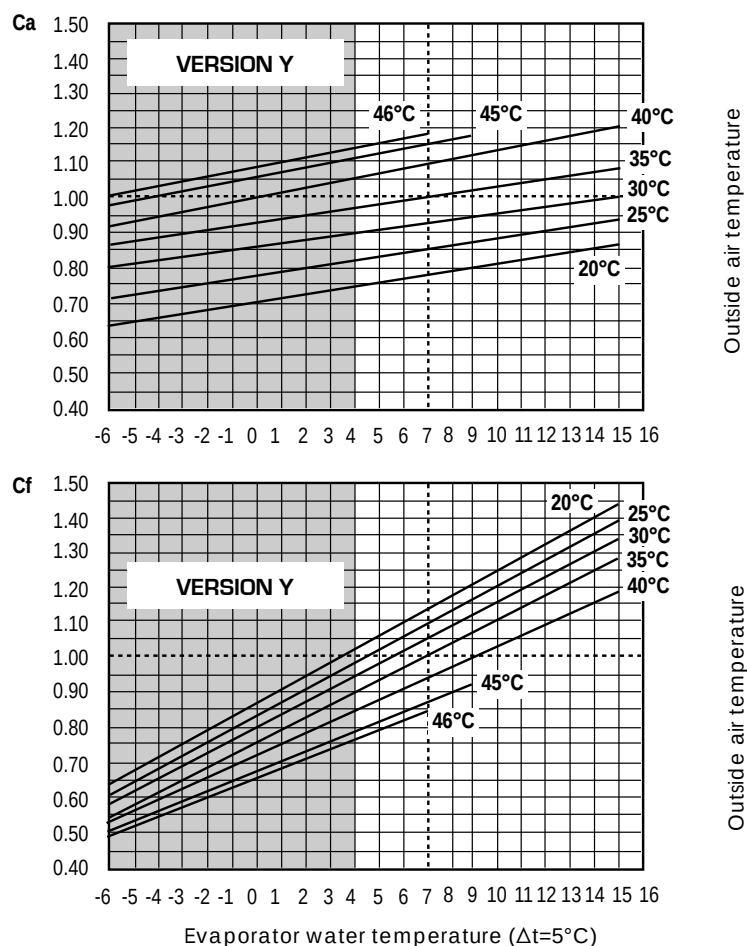
Ca: correction coefficient of the input power.

FOR Δt DIFFERENT FROM 5°C

Tab. 8.1.1. is used for the correction factors of the cooling capacity and input power of the water consumption. To take into account the exchanger soiling, apply the relative fouling factors, Tab. 8.2.1.



8.5. HIGH EFFICIENCY VERSION EXCEPT FOR THE SIZES 5402 AND 5702



8.6. HIGH EFFICIENCY VERSION IN SILENCED VERSION EXCEPT FOR THE SIZES 5402 AND 5702

The cooling capacity yielded and the input electrical capacity in conditions other than rated conditions are obtained by multiplying the rated values (P_c , P_a) by the respective correction coefficients (C_f , C_a).

The following diagrams allow you to obtain the correction coefficients to be used for the various versions of the devices, in cold mode; next each curve the external air temperature to which it refers is shown.

KEY

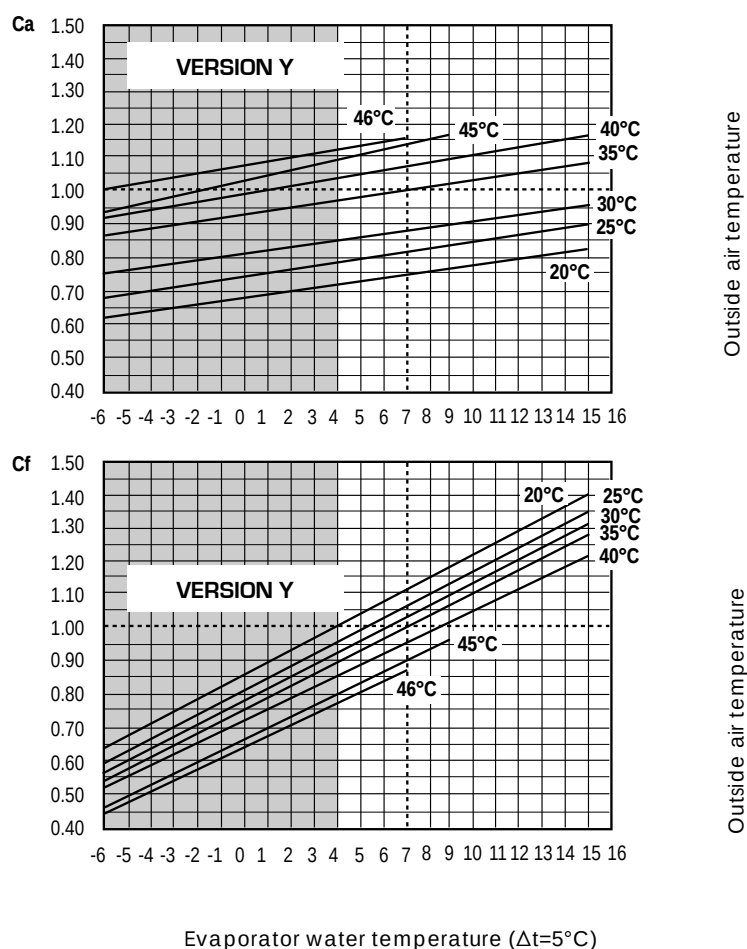
Cf: correction coefficient of the cooling capacity.

Ca: correction coefficient of the input power.

FOR Δt DIFFERENT FROM 5°C

Tab. 8.8.1. is used for the correction factors of the cooling capacity and input power of the water consumption.

To take into account the exchanger soiling, apply the relative fouling factors, Tab. 8.8.2.



8.7. FOR ΔT DIFFERENT FROM THE RATED VALUE

The performances given by the technical data refer to Δt 5°C.

Use table to obtain the corrective factors of the cooling capacity and input power different than Δt 5°C.

8.8. FOULING FACTORS

The performance levels indicated in the technical data refer to conditions with clean tubes, with a fouling factor = 1. For other fouling factor values, multiply the data of performance table by the coefficients given.

8.8.1. Δt different from the rated value

	3	5	8	10
Cooling capacity correction factors	0,99	1	1,02	1,03
Input capacity correction factors	0,99	1	1,01	1,02

8.8.2. Fouling factors [$k \cdot m^2$]/[w]

	0,00005	0,0001	0,0002
Cooling capacity correction factors	1	0,98	0,94
Input capacity correction factors	1	0,98	0,95

9. GLYCOL

- The cooling capacity and input power correction factors make allowance for the presence of glycol and the different evaporation temperature.
- The pressure drop correction factor already takes account of the different flow rate deriving from the application of the water flow rate correction factor.
- The correction factor of the water flow rate is calculated so as to maintain the same Δt that would be used in the absence of glycol.

NOTE

To make it easier to read the following graph, an example is given.

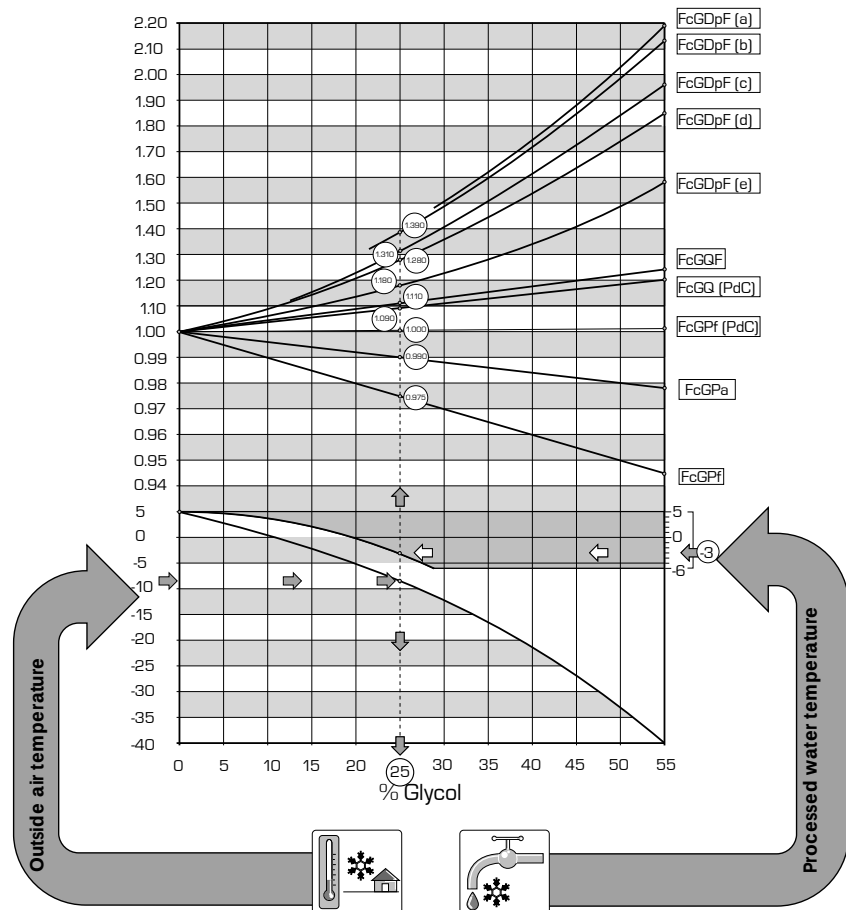
By using the diagram below it is possible to establish the percentage of glycol necessary; this percentage can be calculated taking into account one of the following factors:

On the basis of the fluid considered (water or air), it will be necessary to enter the graph from the right or left side, from the intersection of the outside air temperature or processed water temperature straight lines and the relative curves, a point is obtained through which the vertical line that will identify both the percentage of glycol and the relative correction coefficients will have to pass.

9.1. HOW TO READ THE GLYCOL CURVES

The curves shown in the figure summarise a notable quantity of data, each of which is represented by a specific curve. In order to use these curves correctly, it is necessary to make some initial considerations:

- If you want to calculate the percentage of glycol on the basis of the outside air temperature, you must enter from the left-hand axis and, once you have intersected the curve, trace a vertical line which, in turn, will intercept all the other curves; the points obtained from the upper curves represent the coefficients for the correction of the cooling capacity and input power, for the flow rates and the pressure drops (remember that these coefficients must anyway be multiplied by the rated value of the sizes examined); the lower axis advises the percentage of glycol necessary on the basis of the outside air temperature considered.



KEY:

FcGPf	Correction factor of the cooling capacity
FcGPa	Correction factor of the input power
FcGDpF (a)	Correction factor of the pressure drops (evaporator) (average temp. = -3.5°C)
FcGDpF (b)	Correction factor of the pressure drops (average temp. = 0.5°C)
FcGDpF (c)	Correction factor of the pressure drops (average temp. = 5.5°C)
FcGDpF (d)	Correction factor of the pressure drops (average temp. = 9.5°C)
FcGDpF (e)	Correction factor of the pressure drops (average temp. = 47.5°C)
FcGQF	Correction factor of the outputs (evaporator) (average temp. = 9.5°C)
FcGQC	Correction factor of the outputs (condenser) (average temp. = 47.5°C)

NB:

Although the graph reaches outside air temperatures of -40°C, it is necessary to maintain the machine's operating limits as reference.

- If you want to calculate the percentage of glycol on the basis of the temperature of the processed water, you must enter from the right-hand axis and, once you have intersected the curve, trace a vertical line which, in turn, will intercept all the other curves; the points obtained from the upper curves represent the coefficients for the cooling capacity and input power, for the flow rates and the pressure drops (remember that these coefficients must anyway be multiplied by the rated value of the sizes examined); the lower axis advises the percentage of glycol necessary to produce water at the required temperature.
- Remember that the initial sizes "OUTSIDE AIR TEMPERATURE" and "PROCESSED WATER TEMPERATURE", are not directly linked to each other, so it is not possible to enter the curve of one of these sizes, and obtain the corresponding point on the other curve.

10. TOTAL PRESSURE DROPS

The pressure drops include:

- EVAPORATORS
- HYDRAULIC CIRCUITS

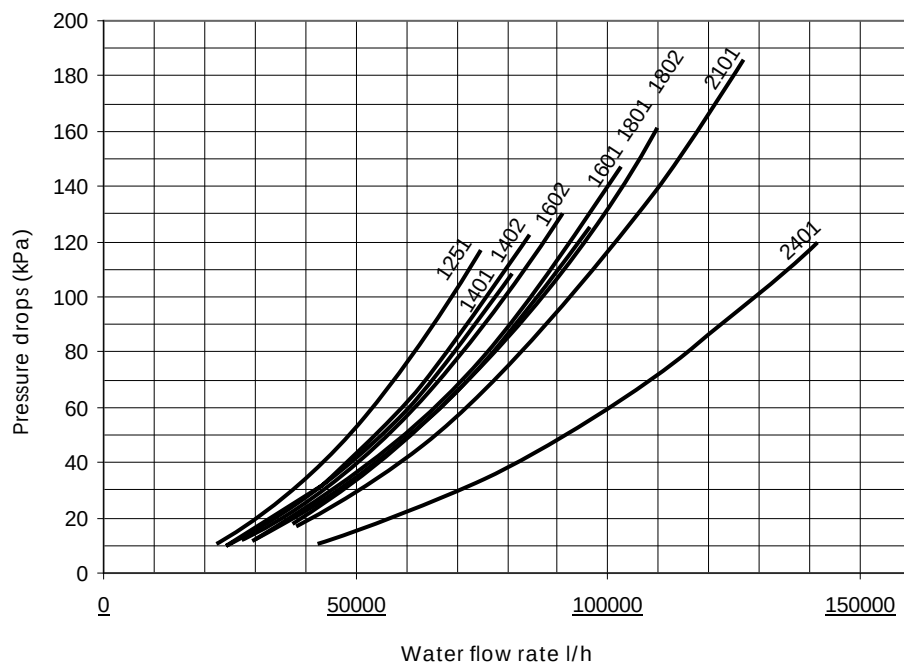
The diagram pressure drops are related to an average water temperature of 10 °C. The following table shows the correction to apply to the pressure drops when the average water temperature varies

Depending on the size, NS can have from 1 to 3 evaporators with tube core.

NOTE:

The water outlet probe (SUW) with its trap is free, near the electrical box, remember to insert it in the collector of the outlet hydraulic parallel, using a sleeve of ½ inch.

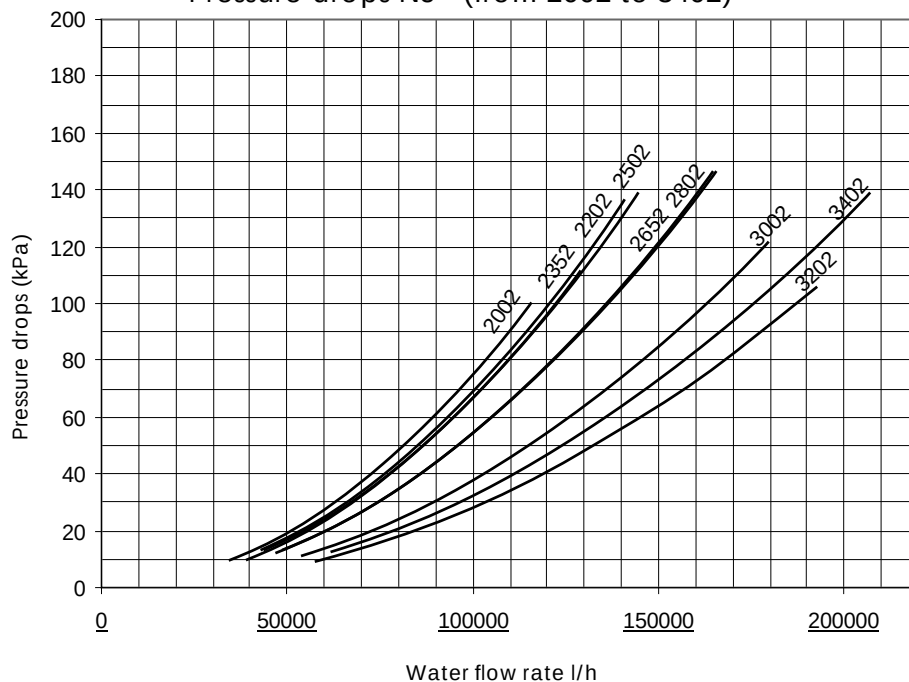
Pressure drops NS ° (from 1251 to 2401)



10.1. MINIMUM WATER CONTENT RECOMMENDED

NS	N° Compressor	(1) m³	(2) m³
1251	1	1,9	3,9
1401	1	2,2	4,4
1601	1	2,4	4,9
1801	1	2,9	5,9
2101	1	3,3	6,5
2401	1	3,7	7,5
1402	2	2,1	4,3
1602	2	2,4	4,8
1802	2	2,8	5,6
2002	2	3,2	6,3
2202	2	3,5	6,9
2352	2	3,6	7,3
2502	2	3,8	7,6
2652	2	4,0	8,1
2802	2	4,3	8,6
3002	2	4,6	9,3
3202	2	4,9	9,7
3402	2	5,4	10,7
3602	2	5,9	11,7
3902	2	6,2	12,4
4202	2	6,7	13,3
4502	2	7,0	14,0
4802	2	7,5	14,9
5002	2	7,8	15,6
5202	2	8,3	16,6
5402	2	8,8	17,6
5702	2	9,1	18,3
6003	3	9,6	19,2
6303	3	9,9	19,9
6603	3	10,4	20,8
6903	3	10,7	21,4
7203	3	11,2	22,4

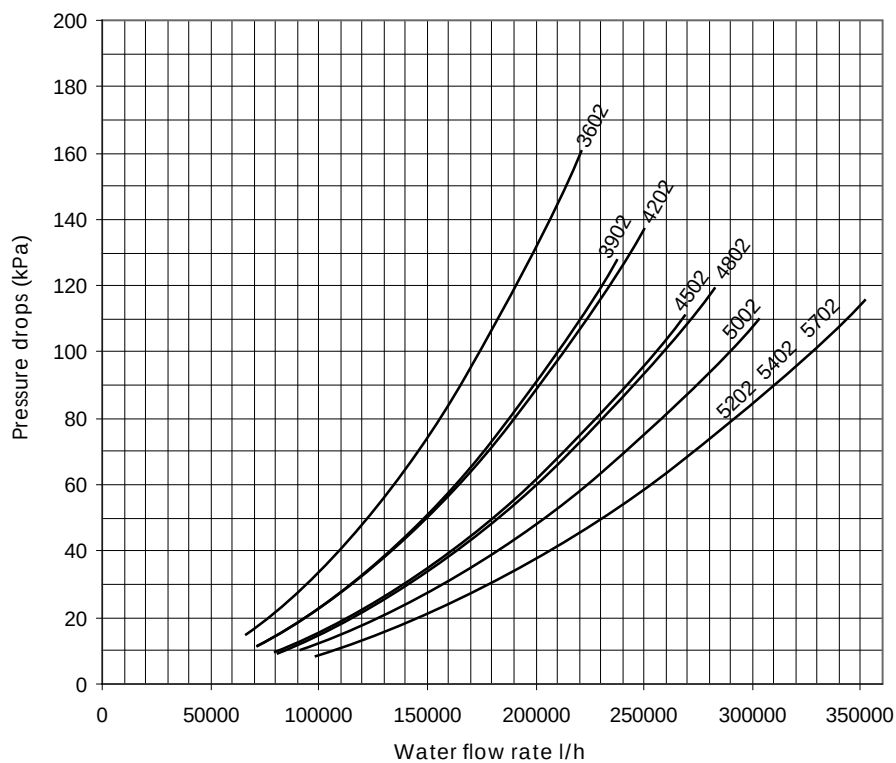
Pressure drops NS ° (from 2002 to 3402)



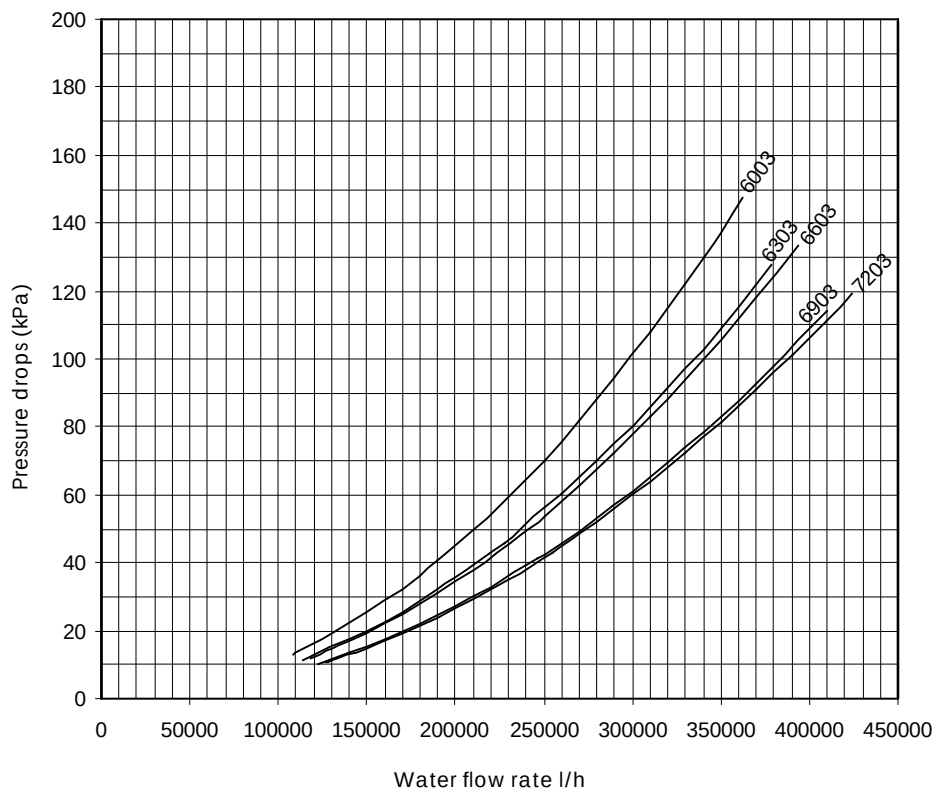
Average water temperature °C	5	10	15	20	30	40	50
Multiplicational coefficient	1,02	1	0,985	0,97	0,95	0,93	0,91

(1)	Minimum water content
(2)	Minimum water content in the case of process applications or operation with low outside temperatures and low load.
	Adjusting the outlet water temperature
	project Δt less than 5°C.

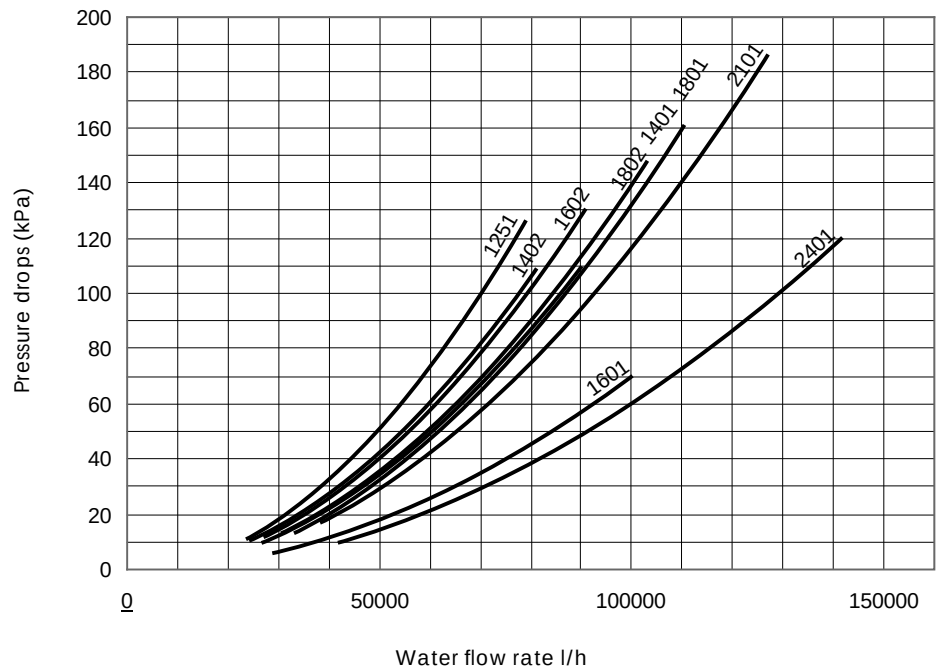
Pressure drops NS ° (from 3602 to 5702)



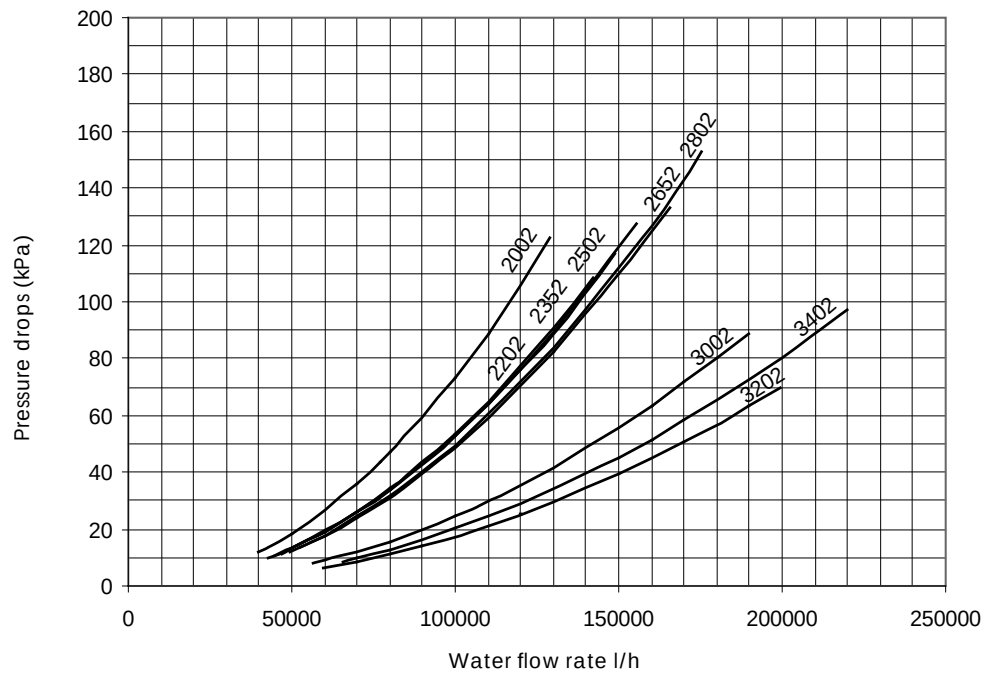
Pressure drops NS ° (from 6003 to 7203)



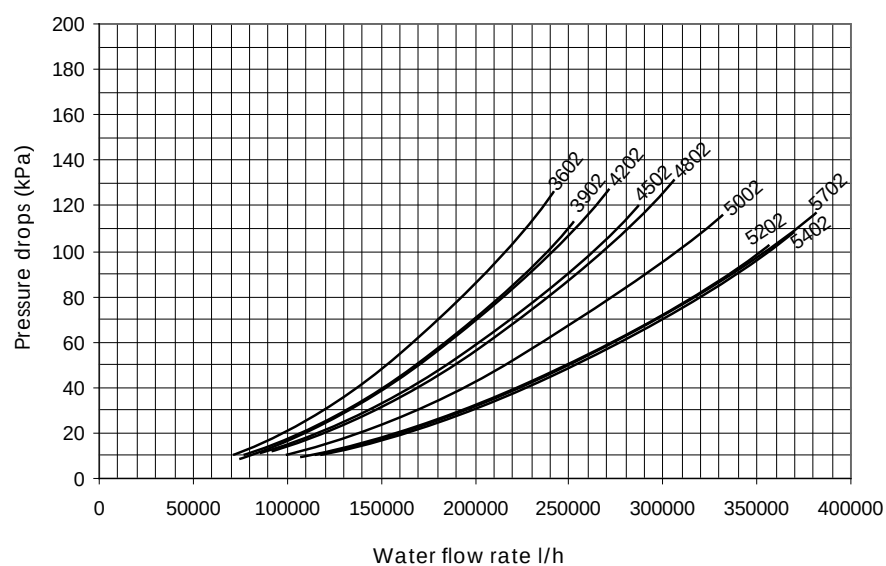
Pressure drops NS A (from 1251 to 2401)



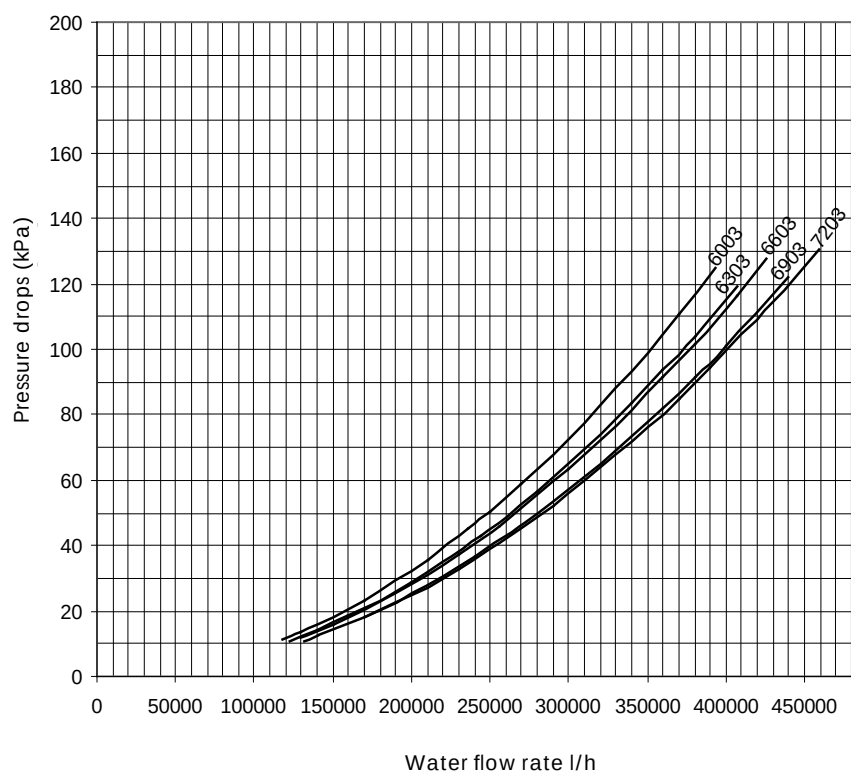
Pressure drops NS A (from 2002 to 3402)



Pressure drops NS A (from 3602 to 5702)



Pressure drops NS A (from 6003 to 7203)



11. DESUPERHEATER

The heating capacity that can be obtained from the desuperheater is obtained by multiplying the nominal value (Pd) shown in table 11.1.1 by a suitable coefficient (Cd).

The diagrams will give you the correction coefficients to be used for the chillers in the various versions; next to each curve you can see the outside air temperature to which it refers.

11.1. PRESSURE DROPS

The NS models with the desuperheater can have, depending on the sizes, up to three desuperheater (arranged parallel to each other

NOTE

THE INSTALLER IS RESPONSIBLE FOR THE HYDRAULIC PARALLEL.

NOTE:

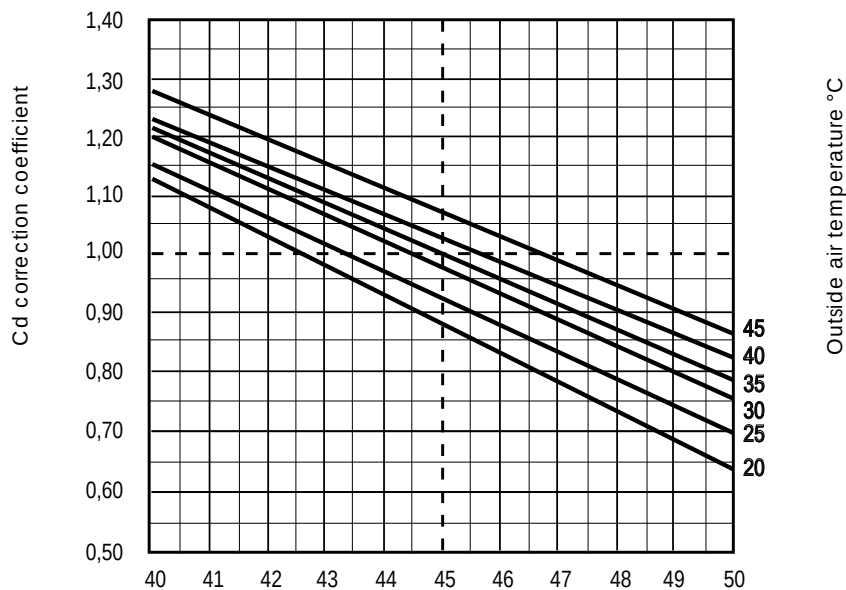
the characteristics of the desuperheaters and the pressure drop curves are shown below.

For processed water temperatures different from 50°C, the result obtained is multiplied by the correction factor that can be obtained from Table 11.1.1.

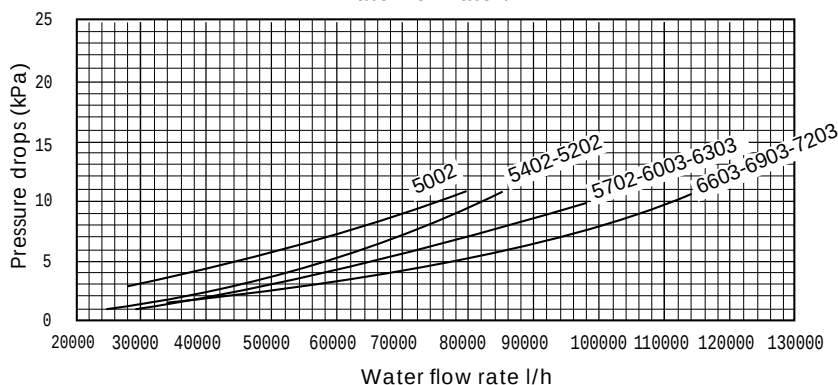
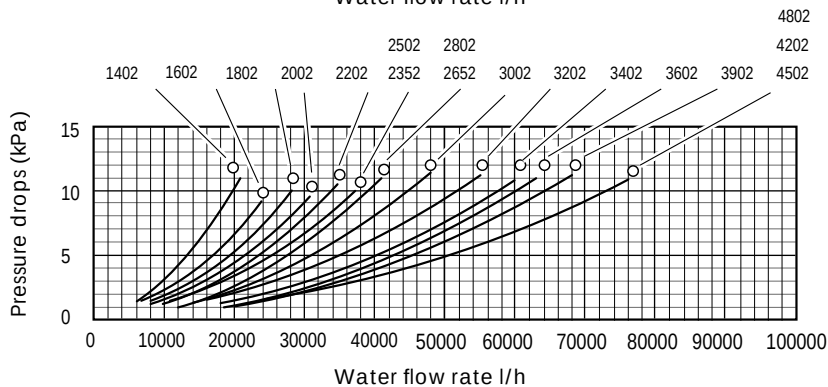
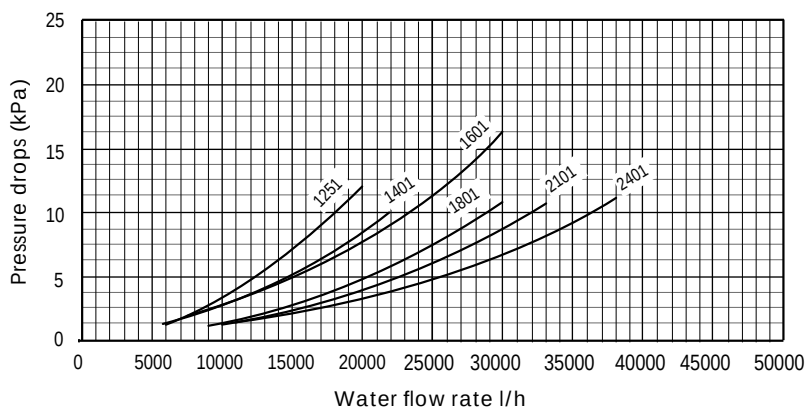
The nominal value refers to:

air temperature 35°C
water at the desuperheater 45°C
 Δt 5°C

DESUPERHEATER CORRECTION COEFFICIENTS



Processed water temperature at the desuperheater (Δt 5°C)



11.1.1. Corrective factors for water temperatures different than the nominal water temperature

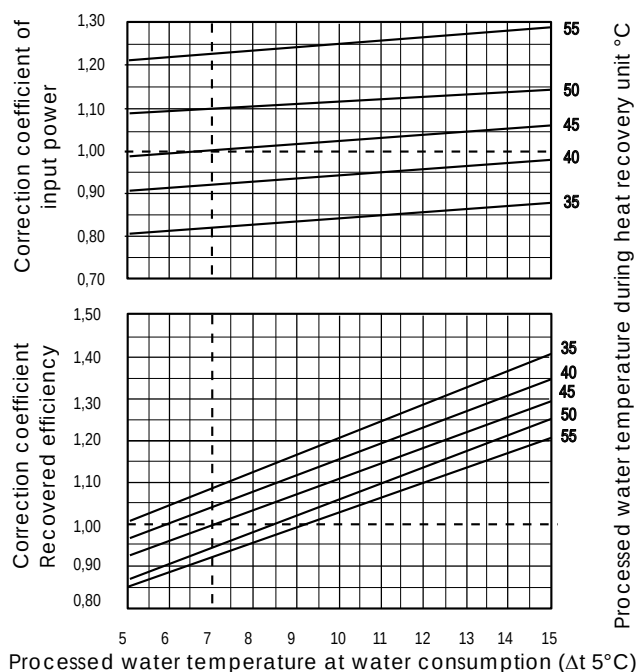
Average water temperature °C	30	40	45	50
Multiplication coefficient	1.03	1.01	1	0.99

12. TOTAL RECOVERY

In the case of operation with total heat recovery, the performances of the machine do not depend on the temperature of the outside air but on that of the hot water produced:

the electrical input power and the recovery heating capacity are obtained by multiplying the values (Pa, Pr) shown at the end of the page by the respective correction coefficients (Ca, Cr), that can be seen in the following diagrams. According to the temperature of the hot water produced referred to is shown assuming a difference of 5°C between the inlet to and outlet from the total heat recovery unit.

CORRECTION COEFFICIENTS OF TOTAL RECOVERY



12.1. PRESSURE DROPS

The NS models with total heat recovery may have up to three recovery units, 1 per cooling circuit, depending on the size.

NOTE

THE INSTALLER IS RESPONSIBLE FOR THE HYDRAULIC PARALLEL.

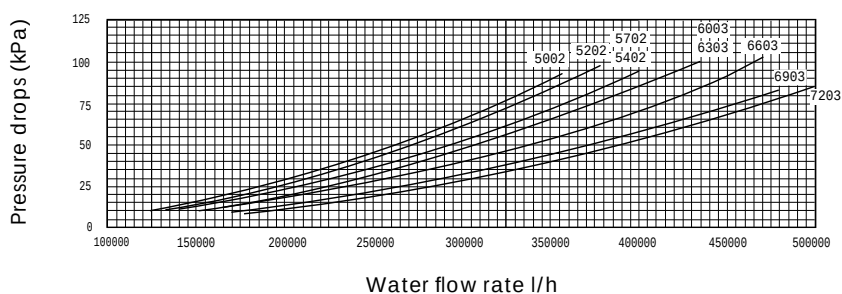
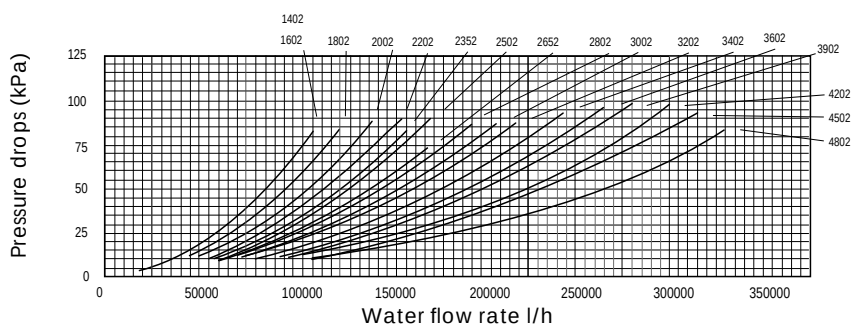
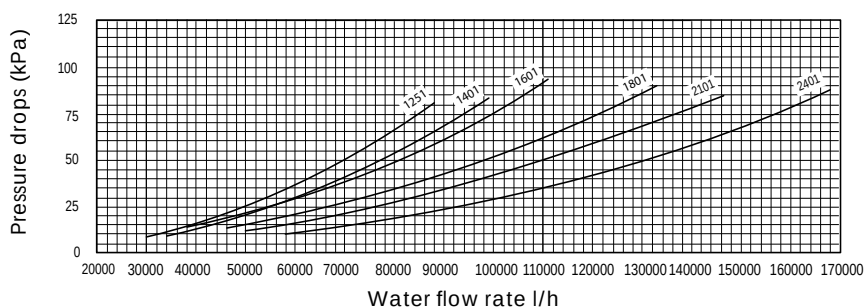
NOTE:

12.2. PRESSURE DROPS TOTAL RECOVERY

For the water produced temperature values different from the rated, 45 °C, the result obtained is multiplied by the correction factor that can be obtained from TAB. 12.1.1.

The nominal value refers to:

Air temperature 35 °C
Water during total recovery 45 °C
Δt 5°C



12.2.1. Corrective factors for water temperatures different than the nominal water temperature

Water temperature °C	35	40	45	50	55
Multiplicational coefficient	1.12	1.06	1	0.92	0.86

13. PUMPS

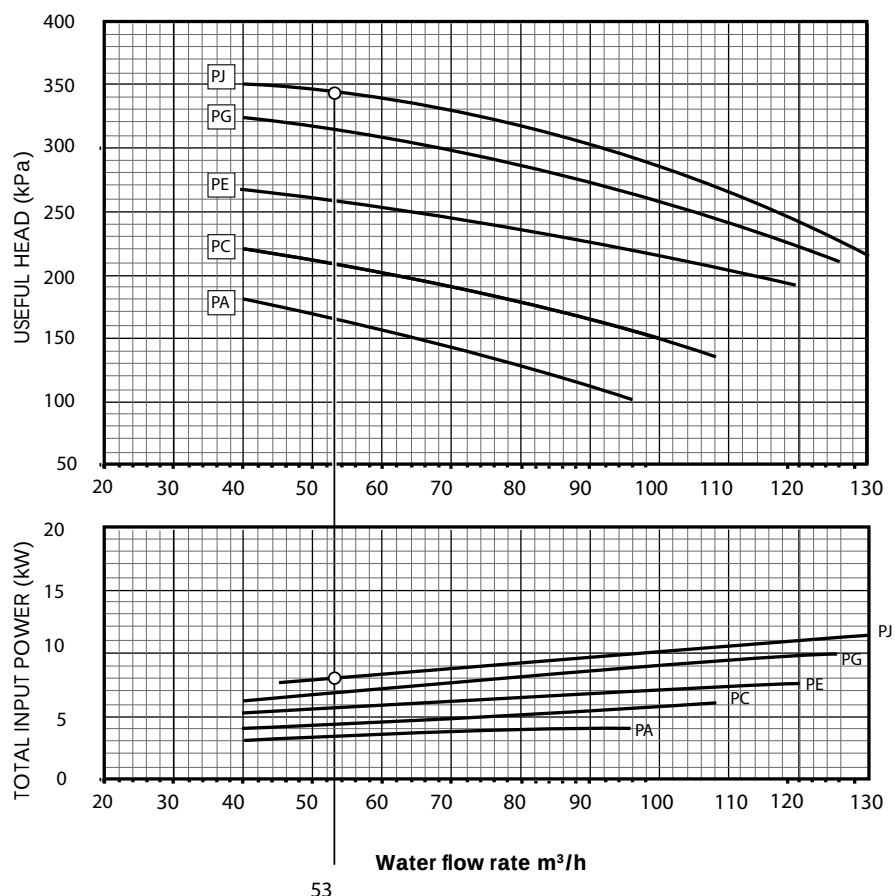
13.1. SELECTION OF PUMPS

NB:

For each NS model the selection of the pump is unique, which means that for all the circuits that make up the selected model the pump will always be the same.

In the presence of a second reserve pump, the switching is done manually by acting on the pump switch located inside the electrical panel.

Premise: the item's latest figure of the selected model indicates the number of hydraulic machinery and composes the machinery. For the models 3002 to 4802, as said above the pump will be selected by dividing the total water flow rate indicated in the table of technical data for 2 (last digit symbol of trade). The same procedure should be applied with the models 5002 to 7203. As above mentioned the total flow is divided into three (last digit of the symbol). For all the remaining models, the water flow rate remains the same as indicated in the technical data table.



Pumping unit field



00	Without pump
PA	with pump A
PB	With pump A and reserve pump
PC	with pump C
PD	With pump C and reserve pump
PE	with pump E
PF	With pump E and reserve pump
PG	with pump G
PH	With pump G and reserve pump
PJ	with pump J
PK	With pump J and reserve pump

NOTE

Switching with the reserve pumps is foreseen by a switch inside the electrical box.

14. SOUND DATA

14.1. SOUND LEVELS AT FULL LOAD STANDARD NS «°»

Sound power

Aermec determines the sound power value on the basis of measurements taken in accordance with standard 9614-2, in compliance with the Eurovent certification.

Sound pressure

Sound pressure in free field, on a reflecting plane (directional factor Q=2), in accordance with standard ISO 3744.

The nominal value refers to:

Evaporator water temperature 12/7 °C

Condenser air temperature 35°C

Δt 5°C

NS	Total sound levels			Octave band[Hz]						
	Pow. dB(A)	Pressure		125	250	500	1000	2000	4000	8000
		dB(A) 10m	dB(A) 1m	Sound power by central band frequency [dB]						
NS1251°	94	61,8	74,3	91.2	88.4	89.6	89.9	87.3	81.8	73.5
NS1401°	95	62,8	75,3	94.1	90.9	91.9	91.3	87.4	80.4	72.0
NS1601°	97	64,8	77,3	95.3	92.3	93.5	92.9	90.0	84.6	75.7
NS1801°	97	64,8	77,3	95.9	93.2	94.3	92.4	89.4	85.1	76.5
NS2101°	98	65,6	77,8	97.0	93.9	95.0	93.7	90.8	86.1	77.6
NS2401°	98	65,6	77,8	99.0	94.9	95.2	93.4	90.4	86.3	78.7
NS1402°	96	63,8	76,3	97.4	92.0	91.6	92.0	89.2	85.4	80.5
NS1602°	97	64,8	77,3	98.0	94.7	92.7	92.5	89.9	86.0	82.1
NS1802°	97	64,8	77,3	98.3	94.5	92.3	92.2	90.7	85.4	78.3
NS2002°	98	65,6	77,8	98.4	94.2	93.1	93.4	92.0	86.0	80.9
NS2202°	98	65,6	77,8	101.5	96.6	94.6	93.9	91.1	85.7	79.0
NS2352°	97	64,6	76,8	100.7	94.7	93.7	93.3	90.4	86.9	81.6
NS2502°	98	65,6	77,8	96.4	91.8	91.6	94.5	92.0	84.8	79.3
NS2652°	98	65,5	77,4	98.0	92.7	94.0	95.0	92.4	86.2	81.6
NS2802°	98	65,5	77,4	99.8	95.1	95.7	94.6	91.7	86.2	79.3
NS3002°	99	66,4	77,8	97.8	94.7	95.8	95.2	91.9	86.0	77.2
NS3202°	99	66,4	77,8	98.3	95.3	96.5	95.9	93.0	87.6	78.7
NS3402°	99	66,4	77,8	98.6	95.8	97.0	95.7	92.7	87.8	79.1
NS3602°	99	66,4	77,8	98.9	96.2	97.3	95.4	92.5	88.1	79.5
NS3902°	100	67,3	78,5	99.5	96.6	97.7	96.1	93.2	88.6	80.1
NS4202°	100	67,3	78,5	100.0	96.9	98.0	96.7	93.9	89.1	80.6
NS4502°	100	67,2	78,2	101.1	97.5	98.1	96.6	93.6	89.2	81.2
NS4802°	100	67,2	78,2	102.0	97.9	98.2	96.4	93.4	89.3	81.7
NS5002°	101	68,1	78,9	100.3	97.4	98.6	97.5	94.6	89.5	80.8
NS5202°	101	68,0	78,6	100.5	97.7	98.8	97.4	94.4	89.7	81.0
NS5402°	101	68,0	78,6	100.7	98.0	99.1	97.2	94.2	89.8	81.3
NS5702°	101	68,0	78,6	101.1	98.2	99.3	97.7	94.7	90.2	81.7
NS6003°	101	67,9	78,5	102.0	98.6	99.4	97.5	94.6	90.3	82.1
NS6303°	101	67,8	78,2	101.1	98.2	99.3	97.7	94.7	90.2	81.7
NS6603°	101	67,8	78,2	103.0	99.2	99.7	97.9	94.9	90.7	82.8
NS6903°	102	68,7	79,0	103.2	99.4	99.9	98.3	95.3	91.0	83.1
NS7203°	102	68,7	79,0	103.8	99.7	100.0	98.2	95.2	91.1	83.5

14.2. SOUND LEVELS AT FULL LOAD STANDARD NS IN SILENCED VERSION «L»

NS	Total sound levels			Octave band[Hz]						
	Pow. dB(A)	Pressure		125	250	500	1000	2000	4000	8000
		dB(A) 10m	dB(A) 1m	Sound power by central band frequency [dB]						
NS1251L	86	53,8	66,3	80.6	83.4	84.7	82.6	75.2	66.8	58.5
NS1401L	87	54,8	67,3	83.5	85.7	85.9	83.1	73.2	65.9	57.3
NS1601L	89	56,8	69,3	85.3	86.4	87.0	85.4	79.8	71.3	59.1
NS1801L	89	56,8	69,3	85.6	87.1	87.5	85.3	79.4	71.8	60.1
NS2101L	90	57,6	69,8	86.6	87.6	88.0	86.0	80.8	73.1	61.2
NS2401L	90	57,6	69,8	84.8	88.4	88.5	86.2	79.6	73.7	62.0
NS1402L	88	55,8	68,3	86.5	88.5	87.0	83.6	73.6	69.7	61.4
NS1602L	89	56,8	69,3	88.0	89.6	86.3	85.6	78.7	72.0	64.0
NS1802L	89	56,8	69,3	87.6	90.5	88.0	82.5	79.0	70.3	62.6
NS2002L	90	57,6	69,8	89.7	90.4	88.2	85.8	78.7	72.0	67.3
NS2202L	90	57,6	69,8	92.0	91.2	89.7	85.2	78.6	71.6	62.7
NS2352L	90	57,6	69,8	92.6	92.0	88.9	85.1	78.9	72.0	68.2
NS2502L	90	57,6	69,8	84.9	88.2	85.6	87.6	80.2	70.5	60.9
NS2652L	90	57,5	69,4	92.3	90.1	89.2	86.8	80.9	71.3	62.2
NS2802L	91	58,5	70,4	92.3	91.7	89.9	86.3	79.6	71.8	64.5
NS3002L	90	57,4	68,8	87.5	89.0	89.5	87.4	80.6	72.4	61.3
NS3202L	91	58,4	69,8	88.3	89.4	90.0	88.4	82.8	74.3	62.1
NS3402L	91	58,4	69,8	88.4	89.7	90.2	88.3	82.6	74.6	62.6
NS3602L	92	59,4	70,8	88.6	90.1	90.5	88.3	82.4	74.8	63.1
NS3902L	92	59,3	70,5	89.1	90.3	90.7	88.7	83.1	75.5	63.7
NS4202L	92	59,3	70,5	89.6	90.6	91.0	89.0	83.8	76.1	64.2
NS4502E	92	59,2	70,2	88.8	91.0	91.2	89.1	83.2	76.4	64.6
NS4802L	92	59,2	70,2	87.8	91.4	91.5	89.2	82.6	76.7	65.0
NS5002L	93	60,1	70,9	90.1	91.4	91.9	90.1	84.4	76.3	64.2
NS5202L	93	60,0	70,6	90.2	91.6	92.1	90.1	84.3	76.4	64.5
NS5402L	93	60,0	70,6	90.3	91.8	92.2	90.0	84.2	76.6	64.8
NS5702L	93	60,0	70,6	90.7	92.0	92.4	90.3	84.7	77.1	65.2
NS6003L	93	59,9	70,5	90.1	92.3	92.6	90.4	84.2	77.3	65.6
NS6303L	93	59,8	70,2	90.7	92.0	92.4	90.3	84.7	77.1	65.2
NS6603L	93	59,8	70,2	89.8	92.8	92.9	90.7	84.3	77.9	66.2
NS6903L	93	59,7	70,0	90.2	92.9	93.1	90.9	84.8	78.3	66.5
NS7203L	94	60,7	71,0	89.6	93.2	93.3	91.0	84.4	78.5	66.8

14.3. SOUND LEVELS AT FULL LOAD STANDARD NS HIGH EFFICIENCY «A»

Sound power

Aermec determines the sound power value on the basis of measurements taken in accordance with standard 9614-2, in compliance with the Eurovent certification.

Sound pressure

Sound pressure in free field, on a reflecting plane (directional factor Q=2), in accordance with standard ISO 3744.

The nominal value refers to:

Evaporator water temperature12/7 °C

Condenser air temperature 35°C

Δt 5°C

NS	Total sound levels			Octave band[Hz]						
	Pow. dB(A)	Pressure		125	250	500	1000	2000	4000	8000
		dB(A) 10m	dB(A) 1m	Sound power by central band frequency [dB]						
NS1251A	94	61,8	74,3	91.2	88.4	89.6	89.9	87.3	81.8	73.5
NS1401A	95	62,8	75,3	94.1	90.9	91.9	91.3	87.4	80.4	72.0
NS1601A	97	64,8	77,3	95.3	92.3	93.5	92.9	90.0	84.6	75.7
NS1801A	97	64,6	76,8	95.9	93.2	94.3	92.4	89.4	85.1	76.5
NS2101A	98	65,5	77,4	97.0	93.9	95.0	93.7	90.8	86.1	77.6
NS2401A	98	65,5	77,4	99.0	94.9	95.2	93.4	90.4	86.3	78.7
NS1402A	96	63,8	76,3	97.4	92.0	91.6	92.0	89.2	85.4	80.5
NS1602A	97	64,8	77,3	98.0	94.7	92.7	92.5	89.9	86.0	82.1
NS1802A	97	64,6	76,8	98.3	94.5	92.3	92.2	90.7	85.4	78.3
NS2002A	98	65,5	77,4	98.4	94.2	93.1	93.4	92.0	86.0	80.9
NS2202A	98	65,5	77,4	101.5	96.6	94.6	93.9	91.1	85.7	79.0
NS2352A	97	64,5	76,4	100.7	94.7	93.7	93.3	90.4	86.9	81.6
NS2502A	98	65,5	77,4	96.4	91.8	91.6	94.5	92.0	84.8	79.3
NS2652A	98	65,5	77,4	98.0	92.7	94.0	95.0	92.4	86.2	81.6
NS2802A	98	65,5	77,4	99.8	95.1	95.7	94.6	91.7	86.2	79.3
NS3002A	99	66,4	77,8	97.8	94.7	95.8	95.2	91.9	86.0	77.2
NS3202A	99	66,4	77,8	98.3	95.3	96.5	95.9	93.0	87.6	78.7
NS3402A	99	66,3	77,5	98.6	95.8	97.0	95.7	92.7	87.8	79.1
NS3602A	99	66,2	77,2	98.9	96.2	97.3	95.4	92.5	88.1	79.5
NS3902A	100	67,1	77,9	99.5	96.6	97.7	96.1	93.2	88.6	80.1
NS4202A	100	67,1	77,9	100.0	96.9	98.0	96.7	93.9	89.1	80.6
NS4502A	100	67,0	77,6	101.1	97.5	98.1	96.6	93.6	89.2	81.2
NS4802A	100	67,0	77,6	102.0	97.9	98.2	96.4	93.4	89.3	81.7
NS5002A	101	68,0	78,6	100.3	97.4	98.6	97.5	94.6	89.5	80.8
NS5202A	101	68,0	78,6	100.5	97.7	98.8	97.4	94.4	89.7	81.0
NS5402A	101	68,0	78,6	100.7	98.0	99.1	97.2	94.2	89.8	81.3
NS5702A	101	68,0	78,6	101.1	98.2	99.3	97.7	94.7	90.2	81.7
NS6003A	101	67,6	77,7	102.0	98.6	99.4	97.5	94.6	90.3	82.1
NS6303A	101	67,5	77,5	101.1	98.2	99.3	97.7	94.7	90.2	81.7
NS6603A	101	67,5	77,5	103.0	99.2	99.7	97.9	94.9	90.7	82.8
NS6903A	102	68,4	78,3	103.2	99.4	99.9	98.3	95.3	91.0	83.1
NS7203A	102	68,4	78,3	103.8	99.7	100.0	98.2	95.2	91.1	83.5

14.4. SOUND LEVELS AT FULL LOAD STANDARD NS HIGH EFFICIENCY IN SILENCED VERSION «E»

NS	Total sound levels			Octave band[Hz]						
	Pow. dB(A)	Pressure		125	250	500	1000	2000	4000	8000
		dB(A) 10m	dB(A) 1m	Sound power by central band frequency [dB]						
NS1251E	86	53,8	66,3	80.6	83.4	84.7	82.6	75.2	66.8	58.5
NS1401E	87	54,8	67,3	83.5	85.7	85.9	83.1	73.2	65.9	57.3
NS1601E	89	56,8	69,3	85.3	86.4	87.0	85.4	79.8	71.3	59.1
NS1801E	89	56,6	68,8	85.6	87.1	87.5	85.3	79.4	71.8	60.1
NS2101E	90	57,5	69,4	86.6	87.6	88.0	86.0	80.8	73.1	61.2
NS2401E	90	57,5	69,4	84.8	88.4	88.5	86.2	79.6	73.7	62.0
NS1402E	88	55,8	68,3	86.5	88.5	87.0	83.6	73.6	69.7	61.4
NS1602E	89	56,8	69,3	88.0	89.6	86.3	85.6	78.7	72.0	64.0
NS1802E	89	56,6	68,8	87.6	90.5	88.0	82.5	79.0	70.3	62.6
NS2002E	90	57,5	69,4	89.7	90.4	88.2	85.8	78.7	72.0	67.3
NS2202E	90	57,5	69,4	92.0	91.2	89.7	85.2	78.6	71.6	62.7
NS2352E	90	57,5	69,4	92.6	92.0	88.9	85.1	78.9	72.0	68.2
NS2502E	90	57,5	69,4	84.9	88.2	85.6	87.6	80.2	70.5	60.9
NS2652E	90	57,5	69,4	92.3	90.1	89.2	86.8	80.9	71.3	62.2
NS2802E	91	58,5	70,4	92.3	91.7	89.9	86.3	79.6	71.8	64.5
NS3002E	90	57,4	68,8	87.5	89.0	89.5	87.4	80.6	72.4	61.3
NS3202E	91	58,4	69,8	88.3	89.4	90.0	88.4	82.8	74.3	62.1
NS3402E	91	58,3	69,5	88.4	89.7	90.2	88.3	82.6	74.6	62.6
NS3602E	92	59,2	70,2	88.6	90.1	90.5	88.3	82.4	74.8	63.1
NS3902E	92	59,1	69,9	89.1	90.3	90.7	88.7	83.1	75.5	63.7
NS4202E	92	59,1	69,9	89.6	90.6	91.0	89.0	83.8	76.1	64.2
NS4502E	92	59,0	69,6	88.8	91.0	91.2	89.1	83.2	76.4	64.6
NS4802E	92	59,0	69,6	87.8	91.4	91.5	89.2	82.6	76.7	65.0
NS5002E	93	60,0	70,6	90.1	91.4	91.9	90.1	84.4	76.3	64.2
NS5202E	93	60,0	70,6	90.2	91.6	92.1	90.1	84.3	76.4	64.5
NS5402E	93	60,0	70,6	90.3	91.8	92.2	90.0	84.2	76.6	64.8
NS5702E	93	60,0	70,6	90.7	92.0	92.4	90.3	84.7	77.1	65.2
NS6003E	93	59,6	69,7	90.1	92.3	92.6	90.4	84.2	77.3	65.6
NS6303E	93	59,5	69,5	90.7	92.0	92.4	90.3	84.7	77.1	65.2
NS6603E	93	59,5	69,5	89.8	92.8	92.9	90.7	84.3	77.9	66.2
NS6903E	93	59,4	69,3	90.2	92.9	93.1	90.9	84.8	78.3	66.5
NS7203E	94	60,4	70,3	89.6	93.2	93.3	91.0	84.4	78.5	66.8

14.5. SOUND LEVELS AT FULL LOAD STANDARD NS E WITH THE KIT ACCESSORY AK, (L/E)

(can only be installed when the machine is being built and must therefore be specified in the order) there is a further noise reduction, see next data table.

NB

For further information to the KIT, refer to the chapter ACCESSORIES

The nominal value refers to:

Evaporator water temperature12/7 °C

Condenser air temperature 35°C

Δt 5°C

NS	Total sound levels			Octave band[Hz]						
	Pow. dB(A)	Pressure		125	250	500	1000	2000	4000	8000
		dB(A) 10m	dB(A) 1m	Sound power by central band frequency [dB]						
1251	84	51,8	64,3	80.8	80.5	79.6	81.2	75.8	66.6	53.7
1401	83	50,8	63,3	80.8	80.5	79.1	80.2	74.8	65.6	53.7
1601	84	51,8	64,3	80.8	80.5	80.6	81.7	74.3	64.6	53.7
1801	85	52,6	64,8	88.4	83.7	82.7	79.6	74.2	72.1	59.6
2101	86	53,5	65,4	87.5	86.4	82.6	82.3	76.0	69.4	57.7
2401	86	53,5	65,4	87.5	87.4	82.1	82.3	76.0	70.4	58.7
1402	83	50,8	63,3	83.3	81.9	80.7	77.5	74.5	66.5	54.6
1602	84	51,8	64,3	83.2	80.9	83.3	80.0	73.5	66.5	54.6
1802	84	51,6	63,8	82.3	79.9	81.8	81.7	71.5	64.0	53.6
2002	85	52,5	64,4	82.9	81.3	82.0	82.6	73.9	65.3	52.5
2202	85	52,5	64,4	82.5	80.7	80.7	82.6	75.9	64.6	52.3
2352	85	52,5	64,4	82.5	80.7	80.7	82.6	75.9	64.6	52.3
2502	85	52,5	64,4	82.5	80.7	80.7	82.6	75.9	64.6	52.3
2652	85	52,5	64,4	82.5	80.7	80.7	82.6	75.9	64.6	52.3
2802	86	53,5	65,4	82.5	81.7	82.2	83.6	76.4	65.6	53.3
3002	86	53,4	64,8	82.5	81.7	82.2	83.6	76.4	65.6	53.3
3202	86	53,4	64,8	82.5	81.7	82.2	83.6	76.4	65.6	53.3
3402	87	54,3	65,5	88.3	86.3	84.6	83.5	78.1	69.6	56.8
3602	87	54,2	65,2	92.1	88.0	84.9	81.5	75.8	71.6	59.3
3902	87	54,1	64,9	91.1	88.3	84.6	82.6	75.7	70.0	57.3
4202	88	55,1	65,9	89.2	88.1	84.3	84.7	78.1	70.4	57.3
4502	88	55,0	65,6	89.2	88.1	84.3	84.7	78.1	70.4	57.3
4802	88	55,0	65,6	89.2	88.1	84.3	84.7	78.1	70.4	57.3
5002	89	56,0	66,6	90.6	87.7	85.5	85.5	79.8	71.3	58.7
5202	89	56,0	66,6	92.5	88.8	85.7	84.7	78.4	71.3	58.6
5402	88	55,0	65,6	94.2	88.5	86.5	83.4	78.0	74.4	62.4
5702	89	56,0	66,6	93.0	89.7	86.0	85.2	78.7	72.0	60.5
6003	89	55,6	65,7	93.0	89.7	86.0	85.2	78.7	72.5	59.5
6303	89	55,5	65,5	91.0	88.4	85.6	85.8	79.1	73.2	60.5
6603	90	56,5	66,5	93.0	91.2	86.6	86.4	79.5	72.0	60.5
6903	91	57,4	67,3	93.1	91.8	87.3	87.9	80.3	71.9	60.5
7203	92	58,4	68,3	93.6	93.8	87.8	88.4	82.3	73.9	60.5

15. SAFETY AND CHECK PARAMETER SETTING

CHECK PARAMETERS			
Cold Setting	Water inlet temperature in cooling mode	MIN.	4°C
		MAX.	15°C
		DEFAULT	7.0°C
Antifreeze intervention	Antifreeze alarm intervention temperature on EV side (water output temperature).	MIN.	-9°C
		MAX.	4°C
		DEFAULT	3°C
Total differential	Proportional temperature band within which the compressors are activated and deactivated	MIN.	3°C
		MAX.	10°C
		DEFAULT	5°C
Autostart	Auto		

16. SAFETY COMPONENTS CALIBRATION

FAN THERMOMAGNETIC SWITCHES		1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202
Fans	n°	6	6	6	6	8	8	6	6	6	8	8
MTV1	A	20	20	20	20	26	26	10	10	10	13	13
MTV2	A	\	\	\	\	\	\	10	10	10	13	13
MTV3	A	\	\	\	\	\	\	\	\	\	\	\

		2352	2502	2652	2802	3002	3202	3402	3602	3902	4202	4502
Fans	n°	8	8	10	10	12	12	12	12	14	14	16
MTV1	A	13	13	16.5	16.5	20	20	20	20	20	20	26.5
MTV2	A	13	13	16.5	16.5	20	20	20	20	26.5	26.5	26.5
MTV3	A	\	\	\	\	\	\	\	\	\	\	\

		4802	5002	5202	5402	5702	6003	6303	6603	6903	7203
Fans	n°	16	18	18	18	20	20	22	22	24	24
MTV1	A	26.5	20	20	20	20	20	20	20	26.5	26.5
MTV2	A	26.5	20	20	20	20	20	26.5	26.5	26.5	26.5
MTV3	A	\	\	\	\	\	26.5	26.5	26.5	26.5	26.5

Compressor THERMOMAGNETIC SWITCHES 400V		1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202
Compressors	n°	1	1	1	1	1	1	2	2	2	2	2
MTC1	A	196	214	214	310	320	360	124	144	162	162	182
MTC2	A	\	\	\	\	\	\	124	144	162	182	182
MTC3	A	\	\	\	\	\	\	\	\	\	\	\

		2352	2502	2652	2802	3002	3202	3402	3602	3902	4202	4502
Compressors	n°	2	2	2	2	2	2	2	2	2	2	2
MTC1	A	182	196	196	214	214	214	214	310	310	320	320
MTC2	A	196	196	214	214	214	214	310	310	320	320	360
MTC3	A	\	\	\	\	\	\	\	\	\	\	\

		4802	5002	5202	5402	5702	6003	6303	6603	6903	7203
Compressors	n°	2	2	3	3	3	3	3	3	3	3
MTC1	A	360	360	450	450	550	310	310	310	320	360
MTC2	A	360	450	450	550	550	310	320	360	360	360
MTC3	A	\	\	\	\	\	360	360	360	420	360

COMPRESSORS THERMAL RELAY		1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202
RT1	A	125	136	178	197	203	228	78	91	103	103	115
RT2	A	\	\	\	\	\	\	78	91	103	115	115
RT3	A	\	\	\	\	\	\	\	\	\	\	\

		2352	2502	2652	2802	3002	3202	3402	3602	3902	4202	4502
RT1	A	115	125	125	136	178	178	178	197	197	203	203
RT2	A	125	125	136	136	178	178	197	197	203	203	228
RT3	A	\	\	\	\	\	\	\	\	\	\	\

		4802	5002	5202	5402	5702	6003	6303	6603	6903	7203
RT1	A	228	228	260	260	330	197	197	197	203	228
RT2	A	228	260	260	330	330	197	203	228	228	228
RT3	A	\	\	\	\	\	228	228	228	228	228

COMPRESSORS FUSES		1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202
F1	A	250	250	315	315	400	400	160	160	200	200	200
F2	A	\	\	\	\	\	\	160	160	200	200	200
F3	A	\	\	\	\	\	\	\	\	\	\	\

		2352	2502	2652	2802	3002	3202	3402	3602	3902	4202	4502
F1	A	200	250	250	250	250	250	250	315	315	315	400
F2	A	250	250	250	250	250	250	315	315	400	400	400
F3	A	\	\	\	\	\	\	\	\	\	\	\

		4802	5002	5202	5402	5702	6003	6303	6603	6903	7203
F1	A	400	400	500	500	630	315	315	315	400	400
F2	A	400	500	500	630	630	315	400	400	400	400
F3	A	\	315	315	315	400	400	400	400	400	400

MAIN SWITCH		1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202
IG	A	250	315	315	400	630	630	315	400	400	630	630

		2352	2502	2652	2802	3002	3202	3402	3602	3902	4202	4502
IG	A	630	630	630	630	630	630	800	800	800	800	1000

		4802	5002	5202	5402	5702	6003	6303	6603	6903	7203
IG	A	1000	1000	1250	1250	1600	1600	1600	1600	1600	1600

TRANSDUCERS AND PRESSURE SWITCHES		1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202
High pressure double pressure switch (HP)	bar	18/19	18/19	18/19	18/19	18/19	18/19	18/19	18/19	18/19	18/19	18/19
High pressure transducer (TAP)	bar	17,7	17,7	17,7	17,7	17,7	17,7	17,7	17,7	17,7	17,7	17,7
Low pressure transducer (TBP)	bar	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6

		2352	2502	2652	2802	3002	3202	3402	3602	3902	4202	4502
High pressure double pressure switch (HP)	bar	18/19	18/19	18/19	18/19	18/19	18/19	18/19	18/19	18/19	18/19	18/19
High pressure transducer (TAP)	bar	17,7	17,7	17,7	17,7	17,7	17,7	17,7	17,7	17,7	17,7	17,7
Low pressure transducer (TBP)	bar	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6

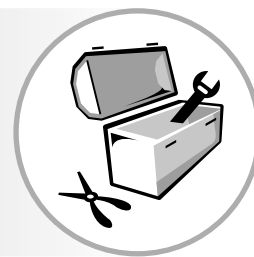
		4802	5002	5202	5402	5702	6003	6303	6603	6903	7203
High pressure double pressure switch (HP)	bar	18/19	18/19	18/19	18/19	18/19	18/19	18/19	18/19	18/19	18/19
High pressure transducer (TAP)	bar	17,7	17,7	17,7	17,7	17,7	17,7	17,7	17,7	17,7	17,7
Low pressure transducer (TBP)	bar	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6

COOLING CIRCUIT SAFETY		1251	1401	1601	1801	2101	2401	1402	1602	1802	2002	2202
Low-pressure valve	bar	16,5	16,5	16,5	16,5	16,5	16,5	16,5	16,5	16,5	16,5	16,5
High-pressure valve	bar	22	22	22	22	22	22	22	22	22	22	22

		2352	2502	2652	2802	3002	3202	3402	3602	3902	4202	4502
Low-pressure valve	bar	16,5	16,5	16,5	16,5	16,5	16,5	16,5	16,5	16,5	16,5	16,5
High-pressure valve	bar	22	22	22	22	22	22	22	22	22	22	22

		4802	5002	5202	5402	5702	6003	6303	6603	6903	7203
Low-pressure valve	bar	16,5	16,5	16,5	16,5	16,5	16,5	16,5	16,5	16,5	16,5
High-pressure valve	bar	22	22	22	22	22	22	22	22	22	22

FOR THE INSTALLER



17. SELECTION AND PLACE OF INSTALLATION

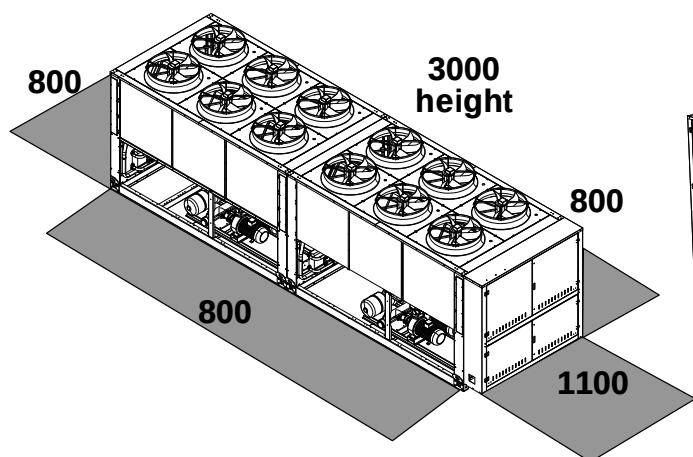
Before installing the unit, decide with the customer the position in which it will be placed, pay attention to the following points:

- the support surface must be able to withstand the weight of the unit;
- the safety distance between the units and other equipment or structures must be strictly respected so that the air in fans inlet and outlet circulates freely.
- The unit must be installed by an authorised technician in compliance with the national laws in the country of destination respecting the minimum technical spaces to allow maintenance.

18. POSITIONING

The machine is delivered from the factory wrapped in estincoil. Before moving the unit, check the lifting capacity of the machines used. Once the packaging has been removed, the unit must be handled by qualified personnel with the suitable equipment. To handle the machine: see figure

18.1. MINIMUM TECHNICAL SPACES (mm)



The unit must be installed by an authorised and qualified technician, in compliance with the national legislation in force in the country of destination (MD 329/2004).

We shall not be held responsible for any damage whatsoever resulting from the non-compliance with these instructions.

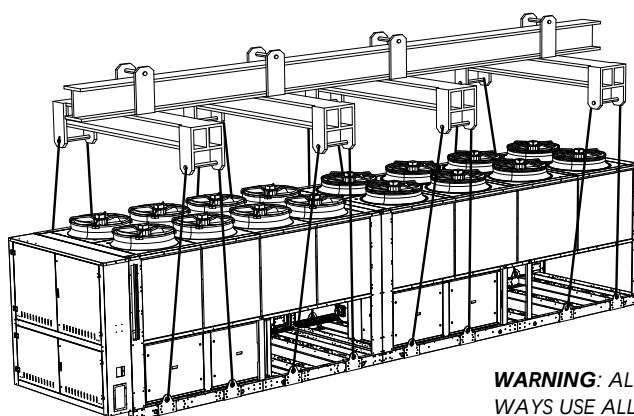


Before starting any kind of work, it is necessary TO READ CAREFULLY THE INSTRUCTIONS, AND TO PERFORM THE SAFETY CHECKS TO REDUCE ANY RISK TO A MINIMUM. All the personnel in charge must know the operations and possible risks that may arise when all the unit installation operations begin.

- hook up the lifting belts to the provided eyebolts (as indicated in figure).
- WARNING: ALWAYS USE ALL THE PROVIDED EYEBOLTS**
- In order to avoid damaging the unit with the cables, insert protection elements between them and the machine. It is absolutely forbidden to stand beneath the unit.
- Take into account that when the chiller is working, vibrations may be generated; it is therefore advisable to install anti-vibration supports (AVX accessories), fitting them to the holes in the base according to the assembly

diagram.

- It is compulsory to provide the necessary technical spaces, to allow REGULAR AND EXTRAORDINARY MAINTENANCE INTERVENTIONS
- Fasten the unit by checking carefully that its on the same level; check that easy access to the hydraulic and electric part is allowed.



WARNING: ALWAYS USE ALL THE PROVIDED EYEBOLTS

19. DIMENSIONAL TABLES CARPENTRY BY 3780 (mm)



WARNING:
ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

19.1. CARPENTRY BY 3780 (mm)

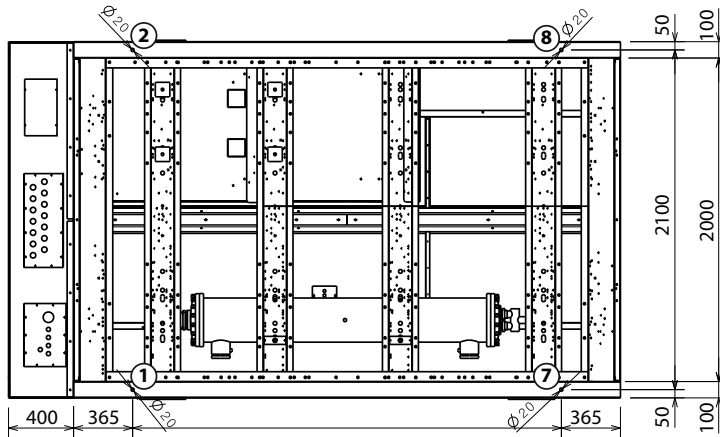
NS 1251 - 1401 - 1601 - 1801 °°(°/L°°00...PA...PK)

NS 1251 - 1401 - 1601 °°(A/E°°00...PA...PK)

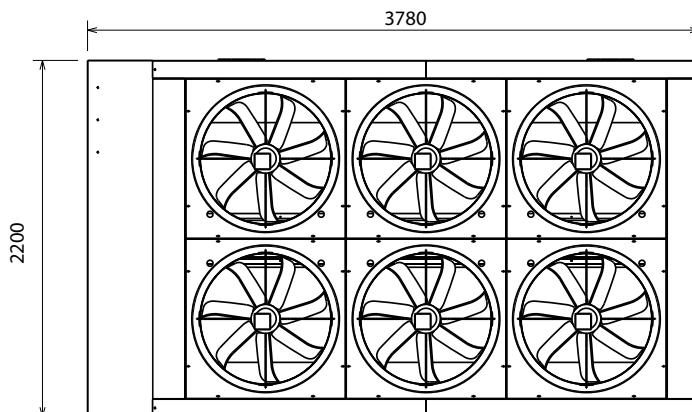
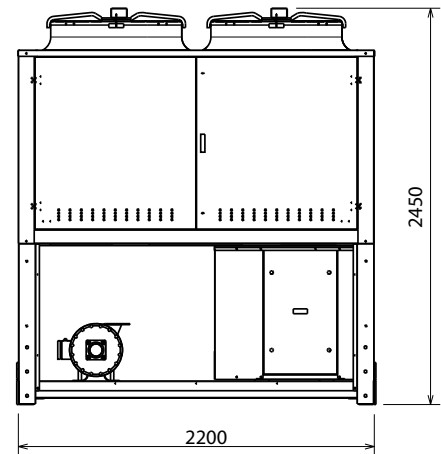
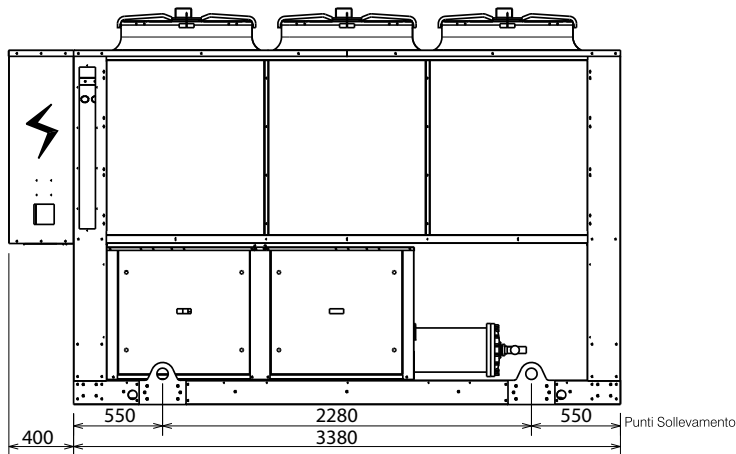
NS 1402 - 1602 - 1802 °°(°/L°°00...PA...PK)

NS 1402 - 1602 °°(A/E°°00...PA...PK)

POSITION OF VIBRATION DAMPERS



POSITION FOR LIFTING

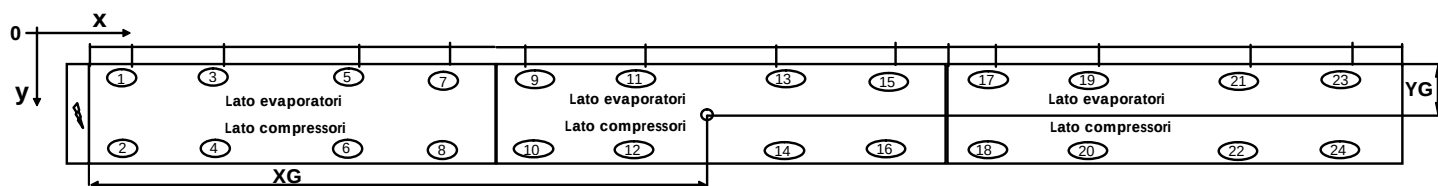


NS °/L	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 7	Support 8	Kit AVX
				kg	x	y					
1251	°	°/L	00	2910	1460	1223	26	33	18	23	502
1401	°	°/L	00	3060	1524	1219	25	31	20	24	502
1601	°	°/L	00	3150	1537	1209	25	31	20	24	502
1801	°	°/L	00	3650	1503	1260	24	33	18	25	501
1402	°	°/L	00	3250	1616	1246	23	30	20	27	502
1602	°	°/L	00	3270	1616	1246	23	30	20	27	502
1802	°	°/L	00	3460	1615	1236	23	30	21	26	503
1251	D	°/L	00	2940	1460	1223	26	33	18	23	502
1401	D	°/L	00	3090	1524	1219	25	31	20	24	502
1601	D	°/L	00	3180	1537	1209	25	31	20	24	502
1801	D	°/L	00	3690	1503	1260	24	33	18	25	501
1402	D	°/L	00	3290	1616	1246	23	30	20	27	502
1602	D	°/L	00	3310	1616	1246	23	30	20	27	502
1802	D	°/L	00	3500	1615	1236	23	30	21	26	503
1251	T	°/L	00	3160	1450	1217	26.4	32.7	18.3	22.6	502
1401	T	°/L	00	3310	1549	1214	24.8	60.5	20.0	24.7	503
1601	T	°/L	00	3370	1567	1207	24.7	30	20.5	24.8	503
1801	T	°/L	00	4000	1540	1246	24.1	31.5	19.2	25.2	501
1402	T	°/L	00	3500	1625	1239	22.9	29.6	20.8	26.7	503
1602	T	°/L	00	3530	1626	1236	23	29.5	20.8	26.7	503
1802	T	°/L	00	3900	1629	1215	23.4	28.9	21.4	26.3	501

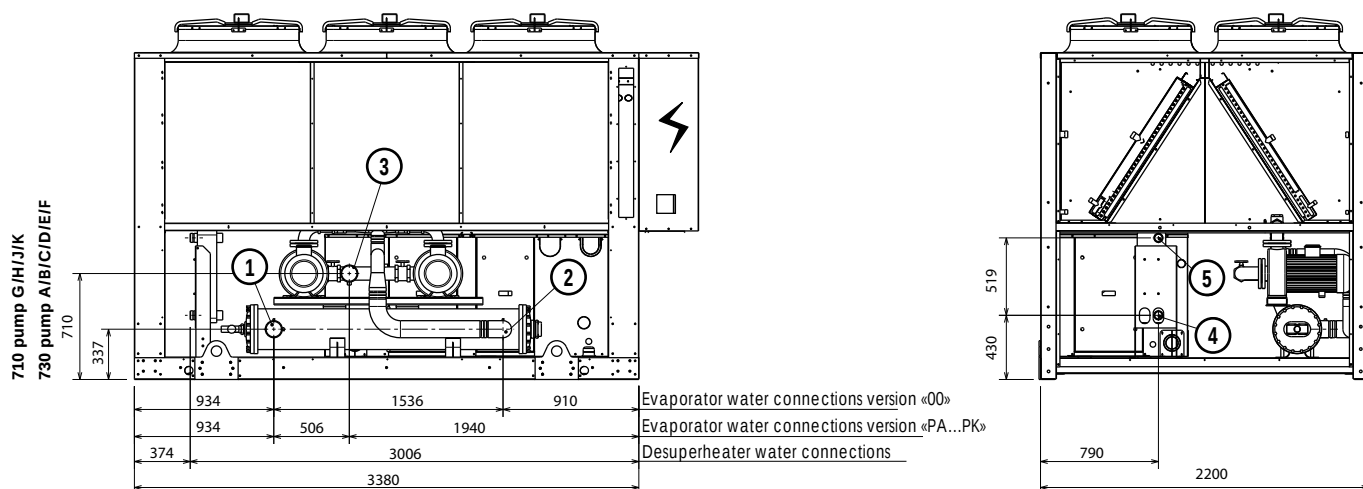
NS A/E	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 7	Support 8	Kit AVX
				kg	x	y					
1251	°	A/E	00	3050	1470	1217	26	32	19	23	502
1401	°	A/E	00	3230	1524	1219	25	31	20	24	502
1601	°	A/E	00	3250	1537	1202	25	31	20	24	502
1402	°	A/E	00	3420	1620	1232	23	29	21	27	503
1602	°	A/E	00	3560	1621	1231	23	29	21	27	503
1251	D	A/E	00	3050	1470	1217	26	32	19	23	502
1401	D	A/E	00	3230	1524	1219	25	31	20	24	502
1601	D	A/E	00	3250	1537	1202	25	31	20	24	502
1402	D	A/E	00	3420	1620	1232	23	29	21	27	503
1602	D	A/E	00	3560	1621	1231	23	29	21	27	503
1251	T	A/E	00	3300	1460	1212	26.3	32.3	18.6	22.8	503
1401	T	A/E	00	3310	1549	1214	24.8	30.5	20	24.7	503
1601	T	A/E	00	3510	1562	1201	24.9	29.9	20.5	24.7	503
1402	T	A/E	00	3710	1629	1230	23.1	29.2	21	26.7	501
1602	T	A/E	00	3680	1629	1228	23.1	29.2	21.1	26.6	501

1) the weight of the pumps to be added to the version without hydronic kit

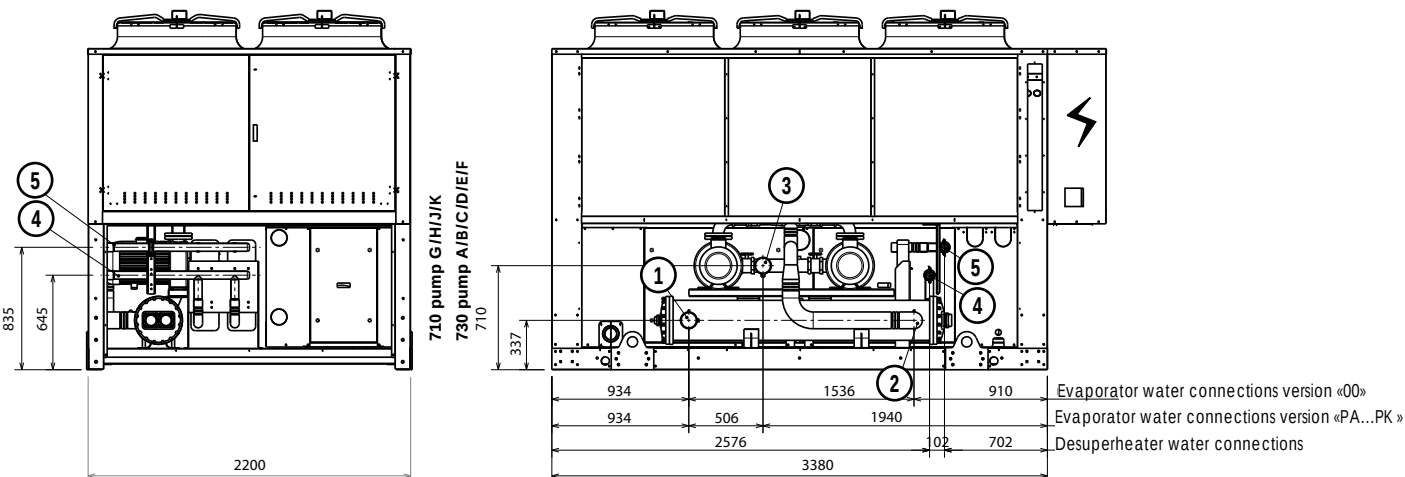
- PA 69 kg
- PB 138 kg
- PC 75 kg
- PD 150 kg
- PE 91 kg
- PF 182 kg
- PG 100 kg
- PH 200 kg
- PJ 108 kg
- PK 216 kg



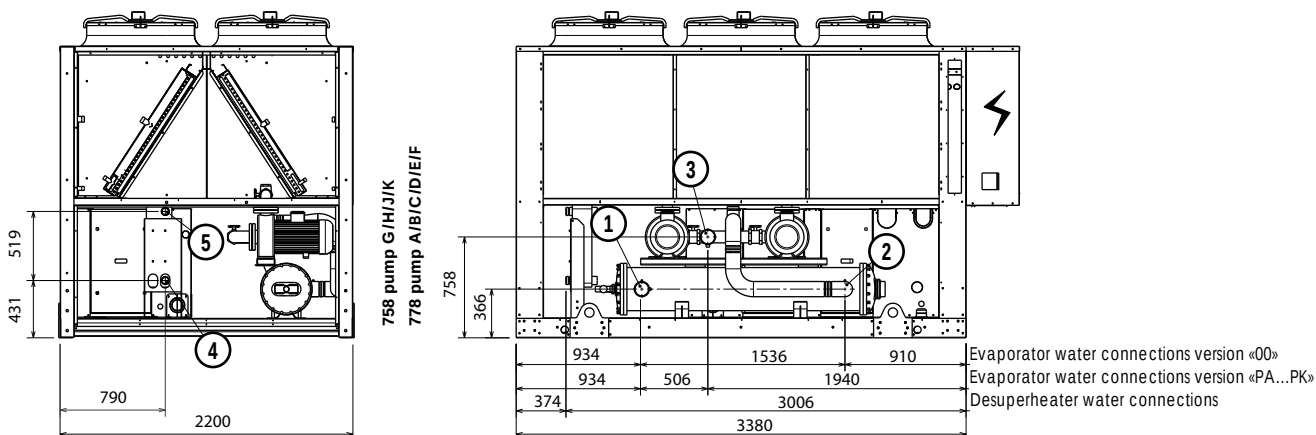
19.1.1. WATER CONNECTIONS:
NS 1251 - 1401 (°/L/A/E)
NS 1601 - 1801(°/L)



19.1.2. WATER CONNECTIONS:
ns 1402 - 1602 - 1802 (°/L)



19.1.3. WATER CONNECTIONS:
ns 1601 (A/E)



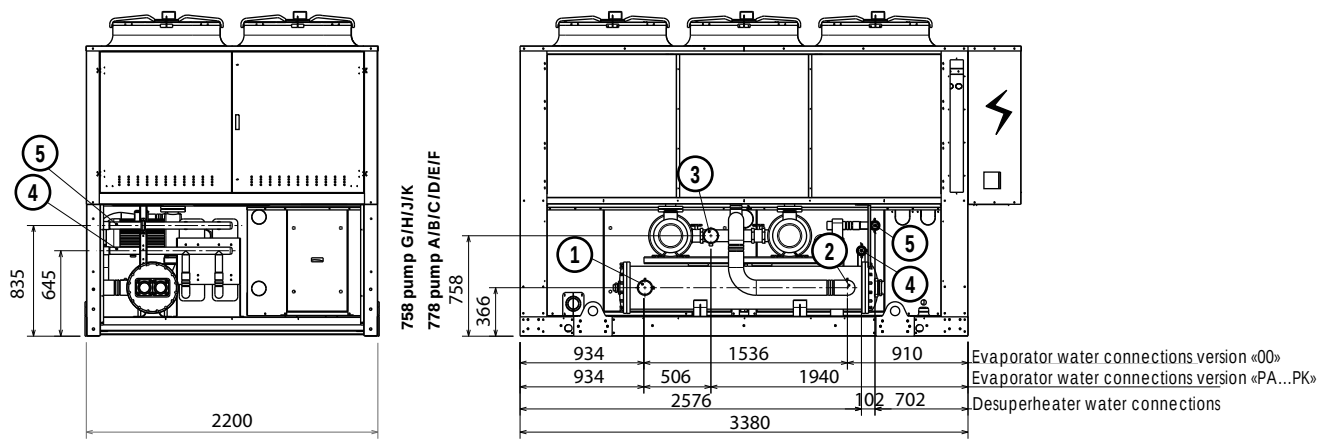
KEY

1. OUT Evaporator $\varnothing$ 4"
2. IN Evaporator $\varnothing$ 4"
3. IN Pumps $\varnothing$ 4"
4. IN Desuperheater $\varnothing$ 2"

5. OUT Desuperheater $\varnothing$ 2"

All connections are VICTAULIC supplied
together with joints to weld

19.1.4. WATER CONNECTIONS: ns 1402 - 1602 (A/E)



KEY

1. OUT Evaporator ø 4"
2. IN Evaporator ø 4"
3. IN Pumps ø 4"
4. IN Desuperheater ø 2"

5. OUT Desuperheater ø 2"

All connections are VICTAULIC supplied
together with joints to weld



19.2. CARPENTRY BY 4770 (mm)

NS 2101 - 2401 °°(°/L°°00...PA...PK)

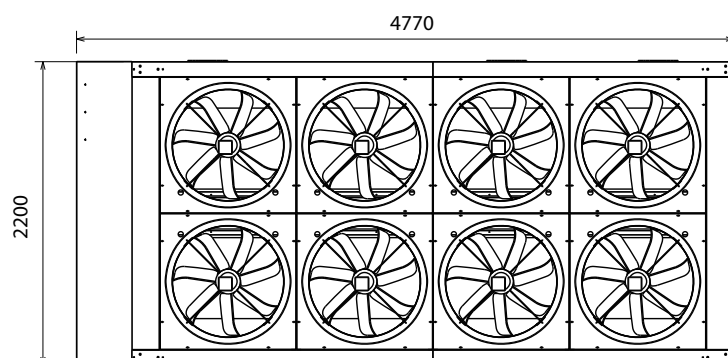
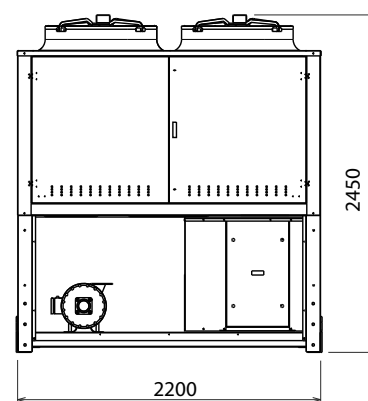
NS 1801 °°(A/E°°00...PA...PK)

NS 2002 - 2202 - 2352 - 2502 °°(°/L°°00...PA...PK)

NS 1802 °°(A/E°°00...PA...PK)

Technical drawing of a building floor plan showing a rectangular layout with dimensions and numbered points 1 through 8. The drawing includes structural details like columns and beams, and dimensions for various sections. Key dimensions include 400, 365, 1460, 720, 1460, 365 for the horizontal axis and 50, 2100, 2000, 50 for the vertical axis. Circled numbers 1-8 indicate specific locations within the plan.

Technical drawing of a four-bay industrial building cross-section. The drawing shows a symmetrical structure with four bays. The total width is 4370 units. The bay widths are 1100, 1100, 2170, and 550 units. The total height is 400 units. The drawing includes details of the roof structure, walls, and floor. A lightning bolt symbol is present on the left side.

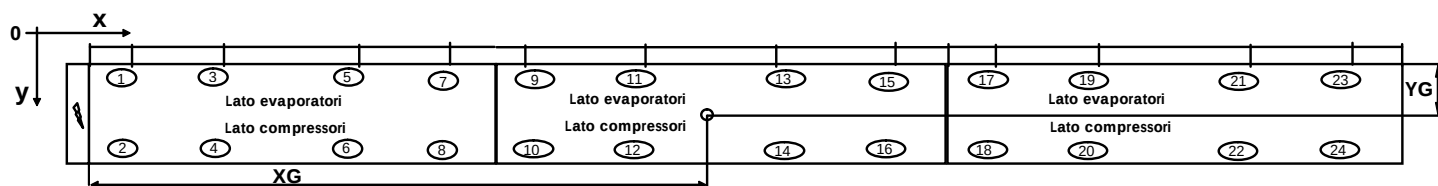


NS °/L	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Kit AVX
				kg	x	y	%	%	%	%	%	%	%	%	
2101	°	°/L	00	4230	1809	1247	10	13	26	35	/	/	7	9	506
2401	°	°/L	00	4570	1862	1224	10	13	28	34	/	/	7	8	506
2002	°	°/L	00	4270	2097	1254	7	10	25	33	/	/	11	14	504
2202	°	°/L	00	4770	2015	1274	8	12	23	31	/	/	11	15	505
2352	°	°/L	00	4800	2130	1287	7.5	10.5	23.2	32.7	/	/	10.8	15.2	505
2502	°	°/L	00	4900	2128	1288	7.5	10.6	23.2	32.8	/	/	10.8	15.2	505
2101	D	°/L	00	4280	1809	1247	10	13	26	35	/	/	7	9	506
2401	D	°/L	00	4630	1862	1224	10	13	28	34	/	/	7	8	506
2002	D	°/L	00	4310	2097	1254	7	10	25	33	/	/	11	14	504
2202	D	°/L	00	4790	2015	1274	8	12	23	31	/	/	11	15	505
2352	D	°/L	00	5190	2595	1255	11	14	12	16	11	15	9	12	511
2502	D	°/L	00	5360	2585	1238	10	14	13	16	12	15	9	11	511
2101	T	°/L	00	4590	1826	1239	9.5	12.3	27.7	35.7	/	/	6.4	8.4	506
2401	T	°/L	00	5080	1845	1215	9.1	11.2	29.2	36	/	/	6.5	8	506
2002	T	°/L	00	4720	2138	1234	6.6	8.4	26.6	34.0	/	/	10.7	13.7	505
2202	T	°/L	00	5200	2099	1213	8.4	10.4	25.1	30.9	/	/	11.3	13.9	505
2352	T	°/L	00	5870	2578	1227	10.2	12.8	13.3	16.8	12.2	15.4	8.5	10.8	511
2502	T	°/L	00	6000	2577	1224	10.2	12.8	13.4	16.9	12.2	15.4	8.5	10.6	511

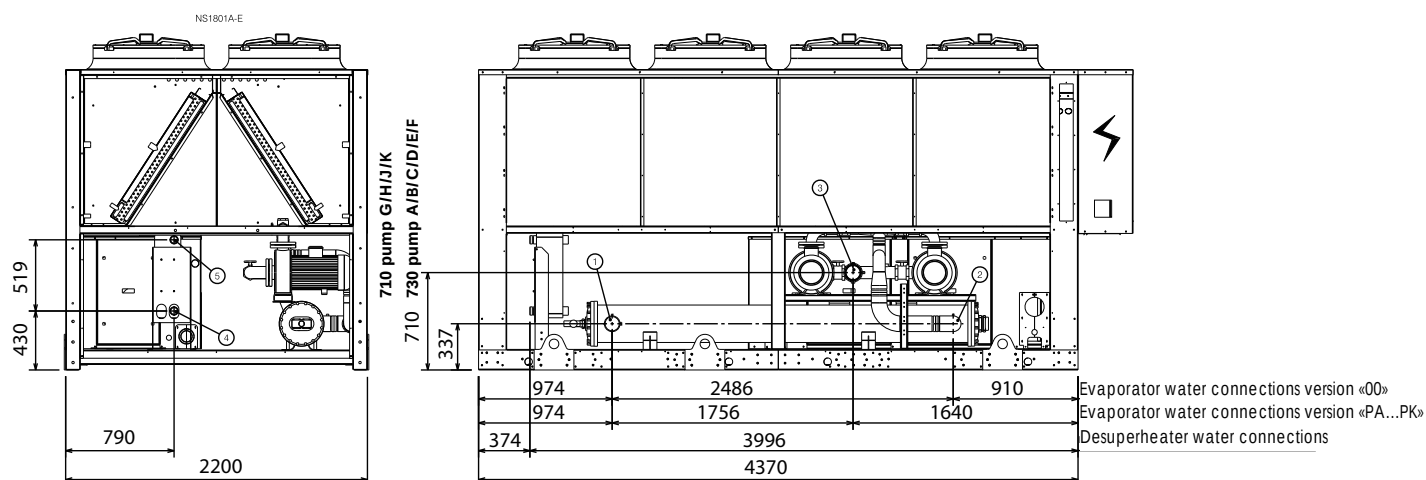
(1) the weight of the pumps to be added to the version without hydronic kit

- PA 69 kg
- PB 138 kg
- PC 75 kg
- PD 150 kg
- PE 91 kg
- PF 182 kg
- PG 100 kg
- PH 200 kg
- PJ 108 kg
- PK 216 kg

NS A/E	Heat recovery	Version	Hydronic kit ⁽²⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Kit AVX
				kg	x	y	%	%	%	%	%	%	%	%	
1801	°	A/E	00	4330	1830	1235	10	13	27	34	/	/	7	9	506
1802	°	A/E	00	3900	2082	1218	9	11	25	31	/	/	11	13	504
1801	D	A/E	00	4370	1830	1235	10	13	27	34	/	/	7	9	506
1802	D	A/E	00	3940	2082	1218	9	11	25	31	/	/	11	13	504
1801	T	A/E	00	4680	1844	1229	9.5	12.1	27.8	35.2	/	/	6.8	8.6	506
1802	T	A/E	00	4340	2093	1202	7.8	9.4	26.7	32.2	/	/	10.8	13.1	504



19.2.1. WATER CONNECTIONS NS 1801 °°(A/E°°00...PA...PK)

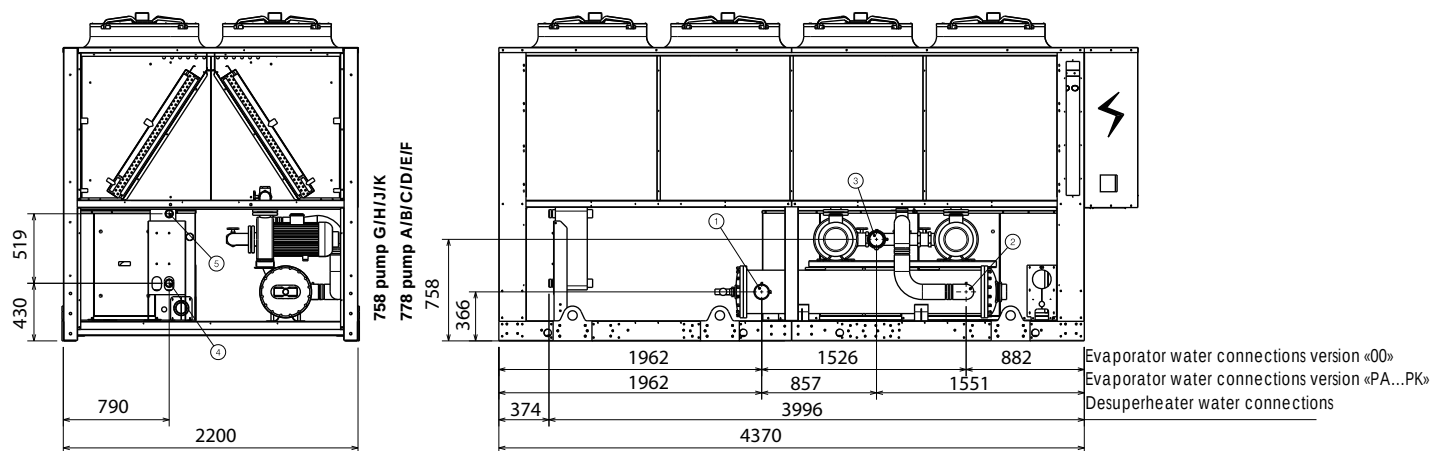


KEY

1. OUT Evaporator 4"
2. IN Evaporator 4"
3. IN Pumps 4"
4. IN Desuperheater 2"
5. OUT Desuperheater 2"

All connections are VICTAULIC supplied together with joints to weld

19.2.2. WATER CONNECTIONS NS 2101 °°(°/L°°00...PA...PK)

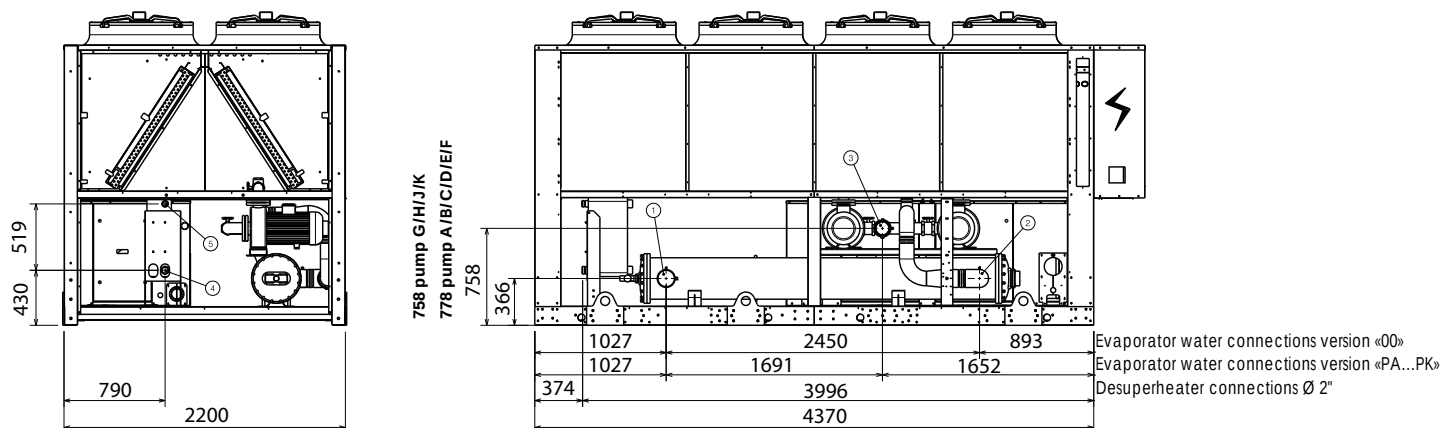


KEY

1. OUT Evaporator 4"
2. IN Evaporator 4"
3. IN Pumps 4"
4. IN Desuperheater 2"
5. OUT Desuperheater 2"

All connections are VICTAULIC supplied together with joints to weld

19.2.3. WATER CONNECTIONS NS 2401 °°(°/L°°00...PA...PK)

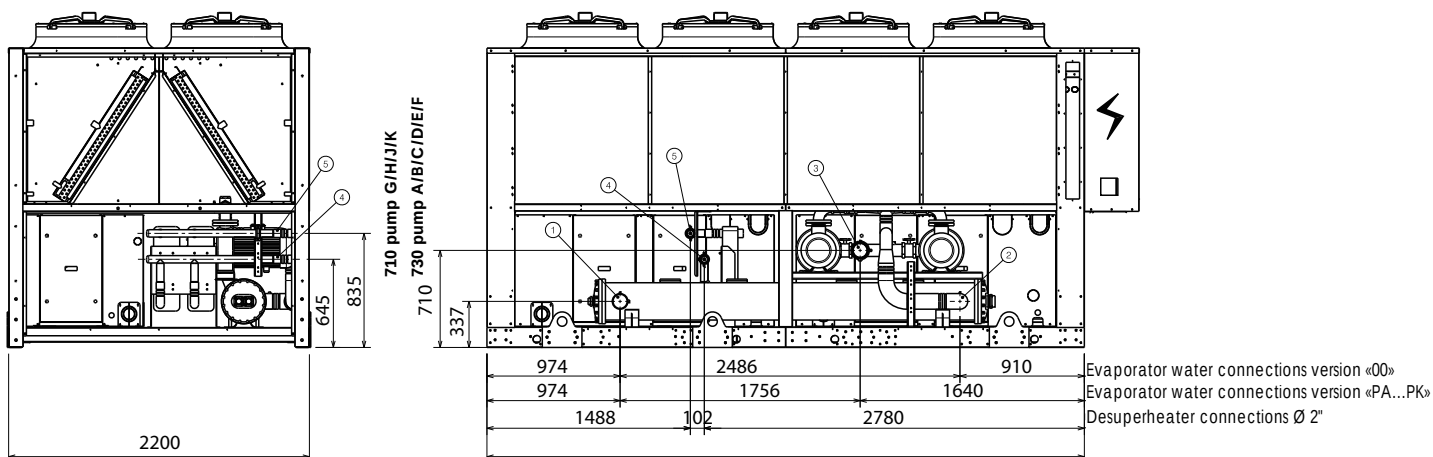


KEY

1. OUT Evaporator 5"
2. IN Evaporator 5"
3. IN Pumps 5"
4. IN Desuperheater 2"
5. OUT Desuperheater 2"

All connections are VICTAULIC supplied together with joints to weld

19.2.4. WATER CONNECTIONS NS 2202 - 2352 - 2502 °°(°/L°°00...PA...PK)



KEY

1. OUT Evaporator 4"
2. IN Evaporator 4"
3. IN Pumps 4"
4. IN Desuperheater 2"
5. OUT Desuperheater 2"

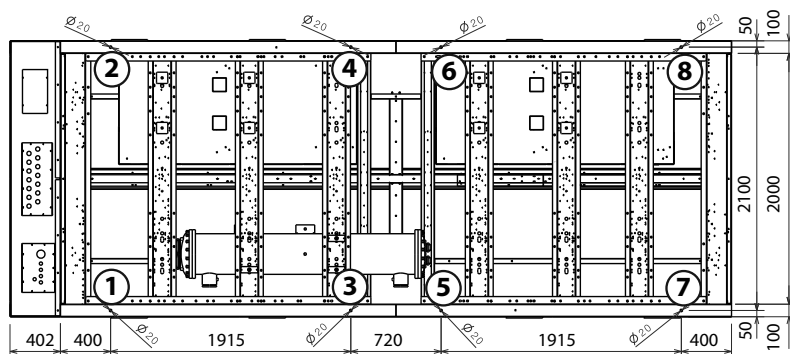
All connections are VICTAULIC supplied together with joints to weld



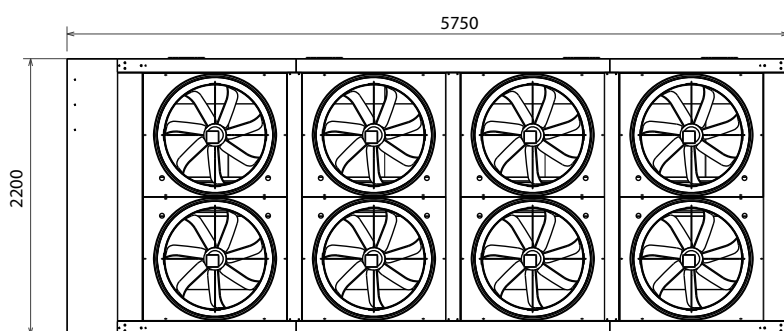
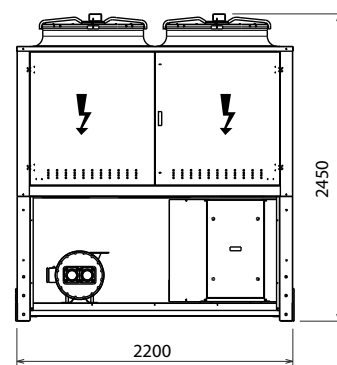
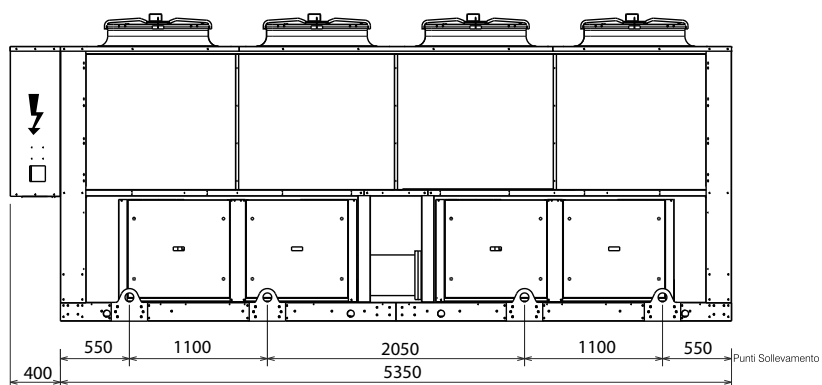
WARNING:
ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

19.3. CARPENTRY BY 5750 8 FANS (mm) NS 2652 - 2802 °°(°/L°00...PA...PK)

POSITION OF VIBRATION DAMPERS



POSITION FOR LIFTING

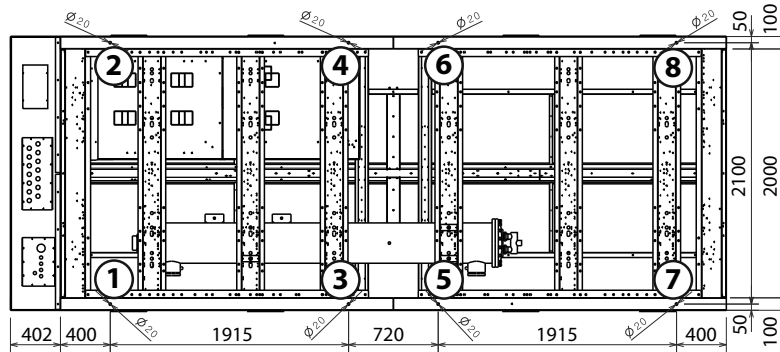




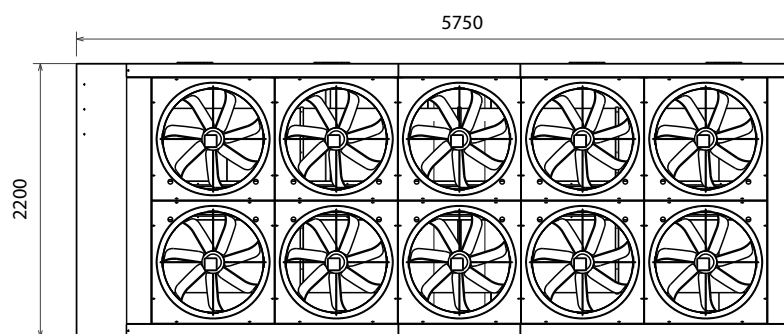
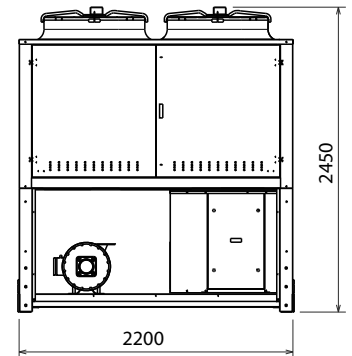
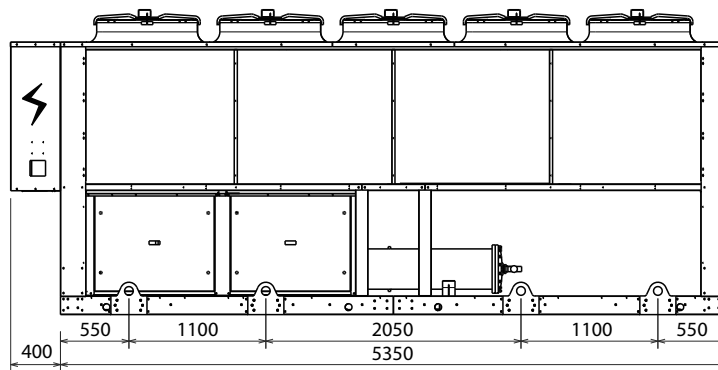
WARNING:
ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

19.4. CARPENTRY BY 5750 10 FANS (mm)
NS 2101 - 2401 - 2002 - 2202 - 2352 - 2502 - 2652 - 2802
°°(A/E°°00...PA...PK)

POSITION OF VIBRATION DAMPERS



POSITION FOR LIFTING

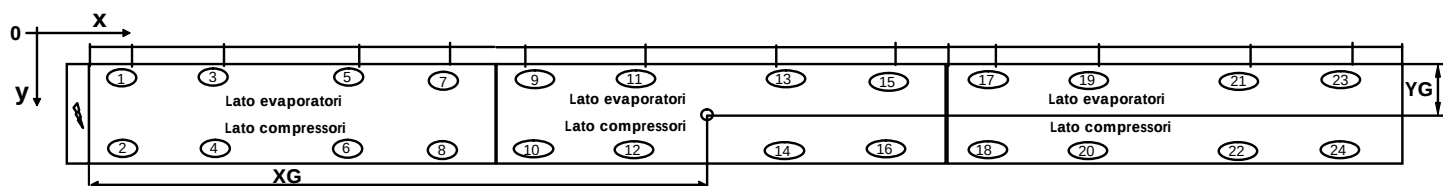


19.4.1. DISTRIBUTION OF PERCENTAGE WEIGHTS ON SUPPORTING POINTS FOR THE INSTALLATION OF THE AVX KIT (ACCESSORY)

NS	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Kit AVX
				kg	x	y									
2652	°	°/L	00	5320	2585	1238	10	14	13	16	12	15	9	11	511
2802	°	°/L	00	5330	2585	1238	10	14	13	16	12	15	9	11	511
2652	D	°/L	00	5380	2585	1238	10	14	13	16	12	15	9	11	511
2802	D	°/L	00	5390	2585	1238	10	14	13	16	12	15	9	11	511
2652	T	°/L	00	5820	2571	1229	10.2	12.9	13.3	16.9	12.1	15.3	8.5	10.8	511
2802	T	°/L	00	5820	2571	1229	10.2	12.9	13.3	16.9	12.1	15.3	8.5	10.8	511
2101	°	A/E	00	4920	2222	1212	12	15	24	29	2	2	7	9	510
2401	°	A/E	00	5150	2235	1210	12	14	24	29	2	2	8	9	510
2002	°	A/E	00	4700	2642	1230	10	13	12	16	12	15	10	12	511
2202	°	A/E	00	5270	2593	1236	10	13	13	16	12	15	9	12	511
2352	°	A/E	00	5390	2592	1234	10	13	13	16	12	15	9	12	511
2502	°	A/E	00	5500	2591	1233	10	13	13	16	12	15	9	12	511
2652	°	A/E	00	5510	2591	1233	10	13	13	16	12	15	9	12	511
2802	°	A/E	00	5520	2591	1233	10	13	13	16	12	15	9	12	511
2101	D	A/E	00	4970	2222	1212	12	15	24	29	2	2	7	9	510
2401	D	A/E	00	5210	2235	1210	12	14	24	29	2	2	8	9	510
2002	D	A/E	00	4740	2642	1230	10	13	12	16	12	15	10	12	511
2202	D	A/E	00	5320	2593	1236	10	13	13	16	12	15	9	12	511
2352	D	A/E	00	5440	2592	1234	10	13	13	16	12	15	9	12	511
2502	D	A/E	00	5550	2591	1233	10	13	13	16	12	15	9	12	511
2652	D	A/E	00	5570	2591	1233	10	13	13	16	12	15	9	12	511
2802	D	A/E	00	5580	2591	1233	10	13	13	16	12	15	9	12	511
2101	T	A/E	00	5280	2208	1214	11.4	14	25.2	31	1.4	1.7	6.9	8.4	510
2401	T	A/E	00	5660	2215	1203	11.3	13.6	25.5	30.8	1.7	2.1	6.8	8.2	510
2002	T	A/E	00	5150	2588	1217	10	12.4	14.7	18.3	10.9	13.5	9	11.2	511
2202	T	A/E	00	5500	2547	1210	10.7	13.1	14.5	17.7	10.8	13.3	8.9	11	511
2352	T	A/E	00	5870	2578	1227	10.2	12.8	13.3	16.8	12.2	14.5	8.5	10.8	511
2502	T	A/E	00	6000	2577	1224	10.2	12.8	13.4	16.9	12.2	15.4	8.5	10.6	511
2652	T	A/E	00	6010	2579	1225	10.1	12.7	13.4	16.8	12.3	15.4	8.5	10.8	511
2802	T	A/E	00	6020	2577	1226	10.1	12.8	13.4	16.9	12.2	15.4	8.5	10.7	511

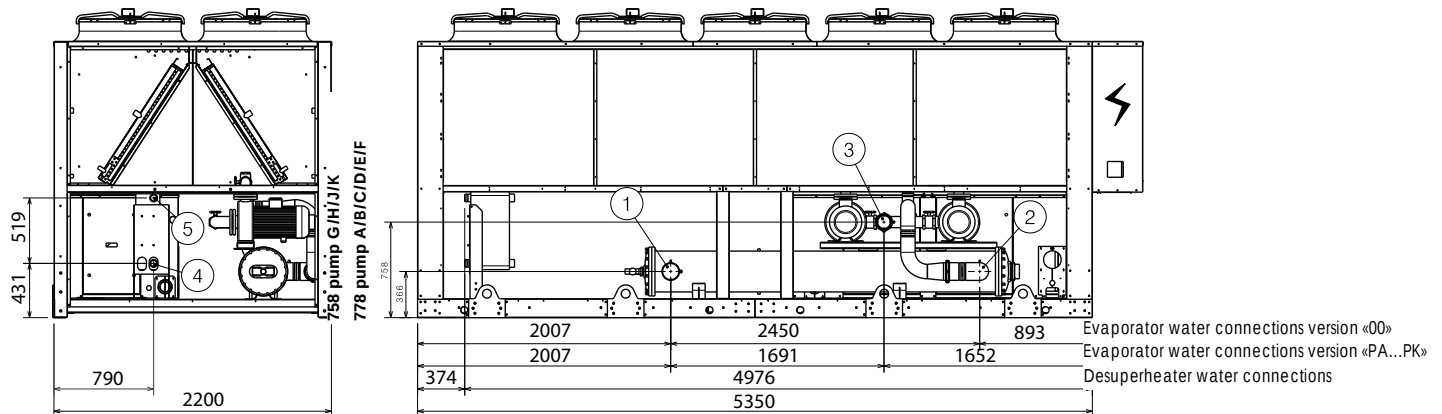
(1) the weight of the pumps to be added to the version without hydronic kit

- PA 69 kg
- PB 138 kg
- PC 75 kg
- PD 150 kg
- PE 91 kg
- PF 182 kg
- PG 100 kg
- PH 200 kg
- PJ 108 kg
- PK 216 kg



19.4.2. WATER CONNECTIONS

NS 2101 - 2401 °°(A/E°°00...PA...PK)



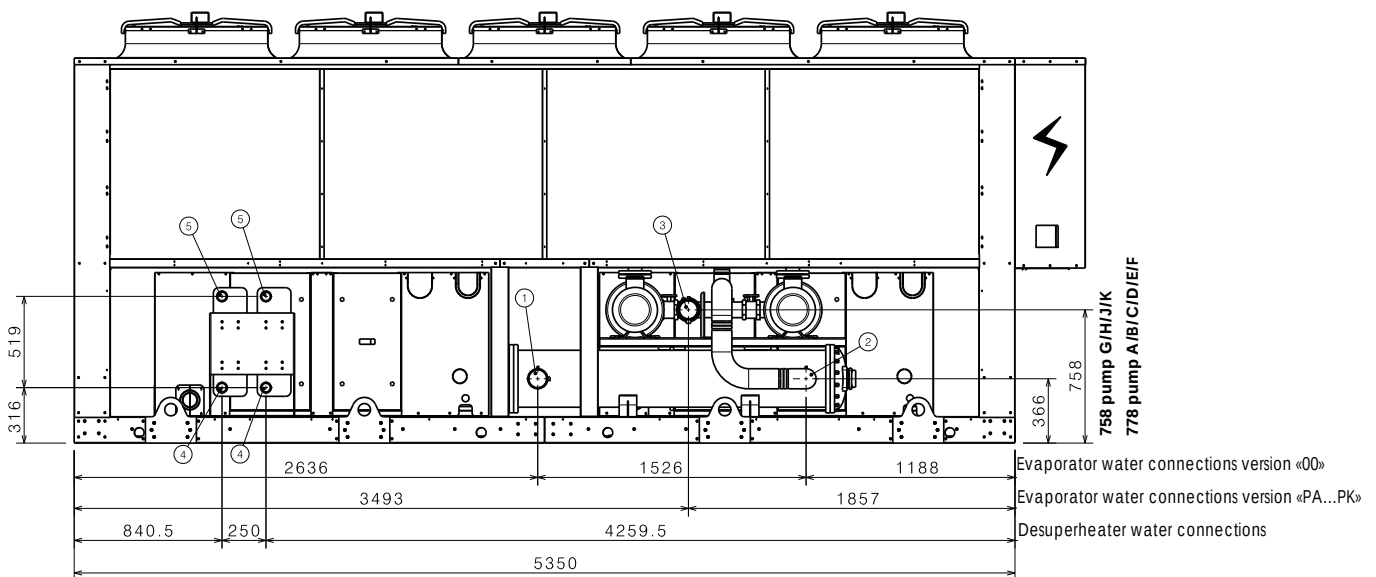
KEY

1. OUT Evaporator 5"
2. IN Evaporator 5"
3. IN Pumps 5"
4. IN Desuperheater 2"
5. OUT Desuperheater 2"

All connections are VICTAULIC supplied together with joints to weld

19.4.3. WATER CONNECTIONS

NS 2002 - 2202 - 2352 - 2502 - 2652 - 2802 °°(A/E°°00...PA...PK)



KEY

1. OUT Evaporator 4"
2. IN Evaporator 4"
3. IN Pumps 4"
4. IN Desuperheater 2"
5. OUT Desuperheater 2"

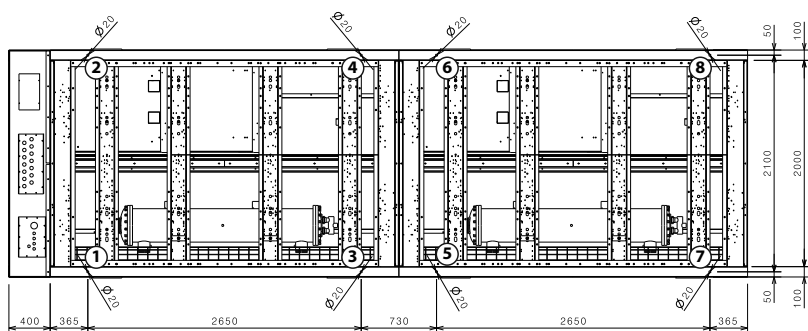
All connections are VICTAULIC supplied together with joints to weld



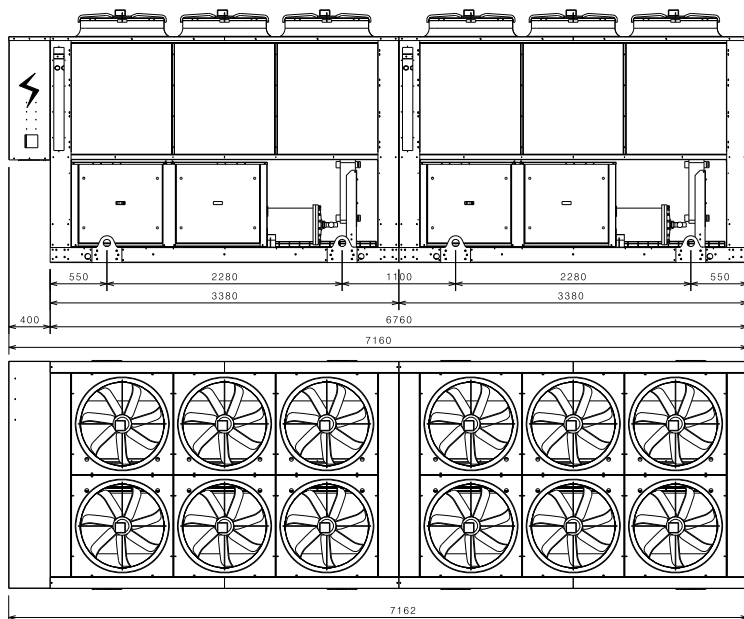
WARNING:
ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

19.5. CARPENTRY BY 7160 (mm) standard electrical box
NS 3002 - 3202 °°(°/L°°00...PA...PK)
NS 3002 - 3202 °°(A/E°°00...PA...PK)

POSITION OF VIBRATION DAMPERS



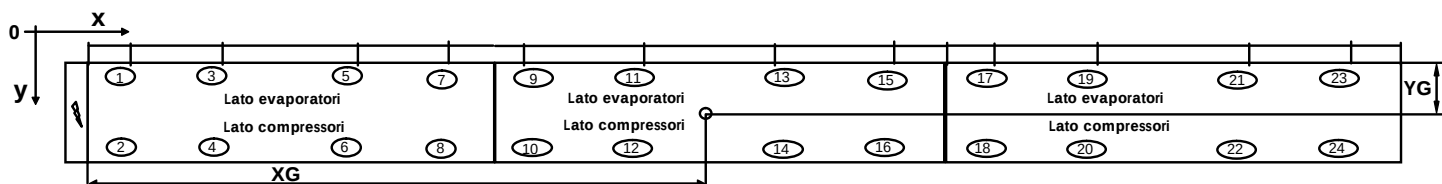
STRUT POSITION FOR LIFTING



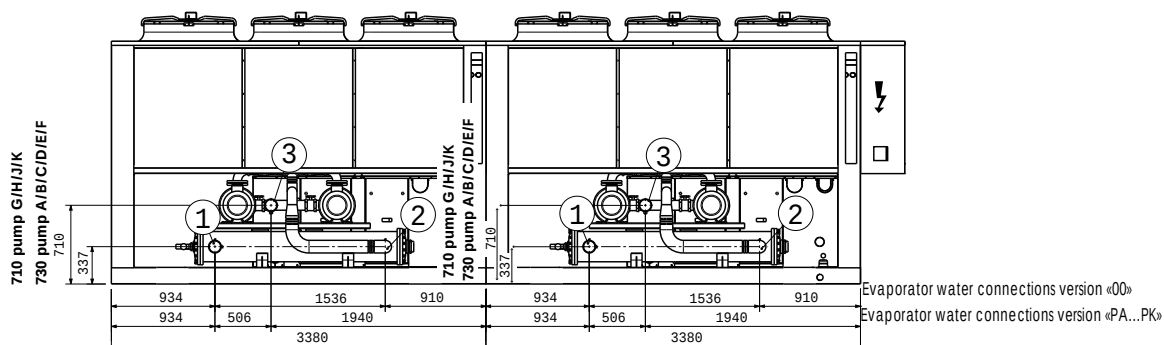
(1) the weight of the pumps
to be added to the version
without hydronic kit

- PA 69 kg
- PB 138 kg
- PC 75 kg
- PD 150 kg
- PE 91 kg
- PF 182 kg
- PG 100 kg
- PH 200 kg
- PJ 108 kg
- PK 216 kg

NS	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1		Support 2		Support 3		Support 4		Support 5		Support 6		Support 7		Support 8		Kit AVX
				kg	x	y	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
3002	°	°/L	00	6180	3207	1170	12	14	11	12	15	16	9	10	509								
3202	°	°/L	00	6270	3180	1165	13	14	11	12	15	16	9	10	509								
3002	D	°/L	00	6240	3207	1170	12	14	11	12	15	16	9	10	509								
3202	D	°/L	00	6340	3180	1165	13	14	11	12	15	16	9	10	509								
3002	T	°/L	00	6700	3208	1206	11.6	14.1	10.3	12.6	14.2	17.3	9	10.9	509								
3202	T	°/L	00	6800	3208	1206	11.8	14.3	10.7	13	13.8	16.7	8.9	10.8	509								
3002	°	A/E	00	6450	3206	1231	12	15	10	13	14	17	9	10	509								
3202	°	A/E	00	6520	3200	1229	12	15	10	13	14	17	9	10	509								
3002	D	A/E	00	6510	3206	1231	12	15	10	13	14	17	9	10	509								
3202	D	A/E	00	6590	3200	1229	12	15	10	13	14	17	9	10	509								
3002	T	A/E	00	6970	3235	1203	11.7	14.1	10.7	12.9	13.8	16.6	9.2	11	509								
3202	T	A/E	00	7050	3227	1021	11.7	14.1	10.8	13	13.8	16.5	9.1	11	507								



19.5.2. WATER CONNECTIONS NS 3002 °°(°/L°°00...PA...PK)

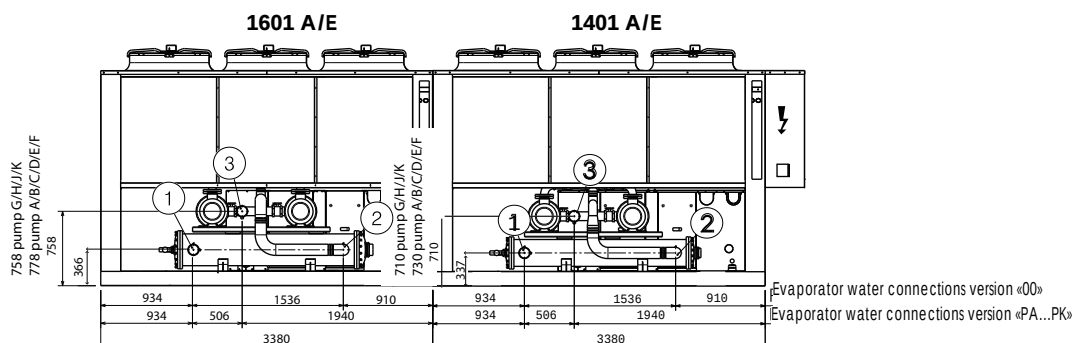


LEGENDA

1. OUT Evaporator $\varnothing$ 4"
2. IN Evaporator $\varnothing$ 4"
3. IN Pumps $\varnothing$ 4"

All connections are VICTAULIC supplied together with joints to weld

19.5.3. WATER CONNECTIONS NS 3002 °°(A/E°°00...PA...PK)

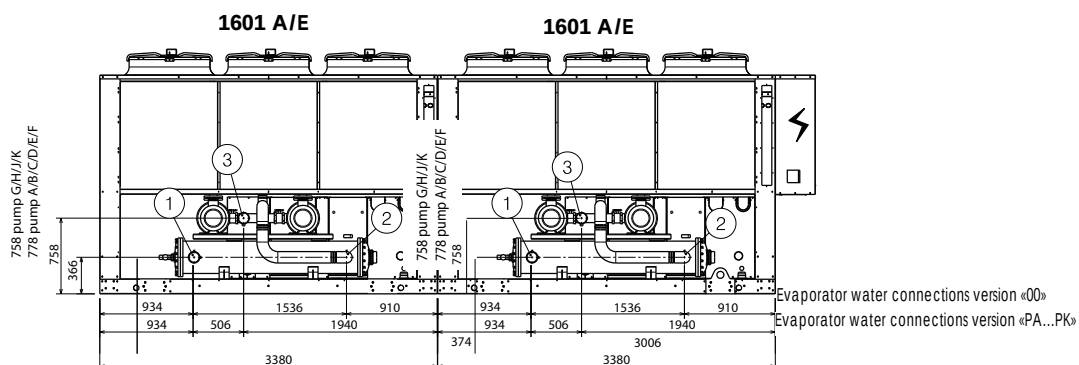


LEGENDA

1. OUT Evaporator $\varnothing$ 4"
2. IN Evaporator $\varnothing$ 4"
3. IN Pumps $\varnothing$ 4"

All connections are VICTAULIC supplied together with joints to weld

19.5.1. WATER CONNECTIONS NS 3202 °°(A/E°°00...PA...PK)



LEGENDA

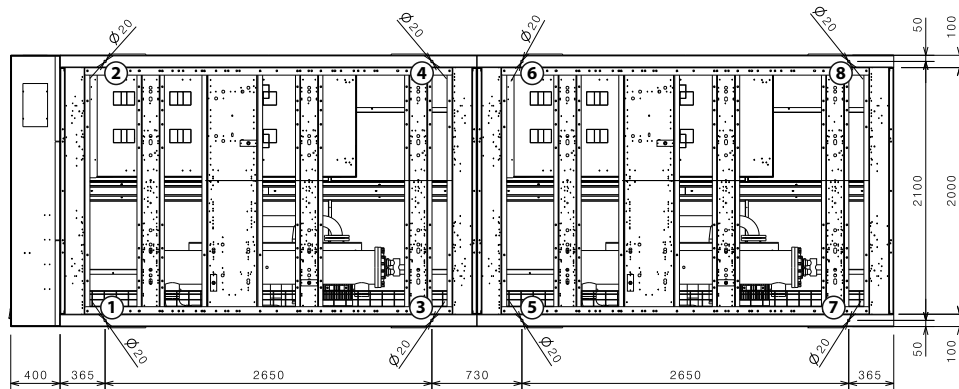
1. OUT Evaporator $\varnothing$ 4"
2. IN Evaporator $\varnothing$ 4"
3. IN Pumps $\varnothing$ 4"

All connections are VICTAULIC supplied together with joints to weld

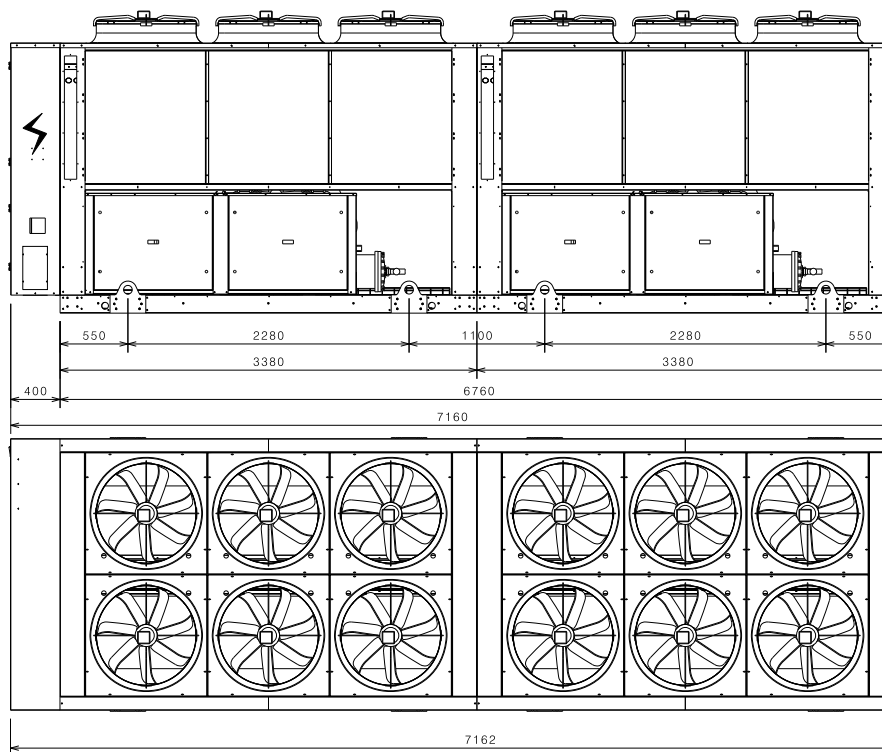


WARNING:
ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

19.6. CARPENTRY BY 7160 (mm) electrical box two circuits NS 3402 - 3602 °°(°/L°°00...PA...PK)



POSITION OF VIBRATION DAMPERS

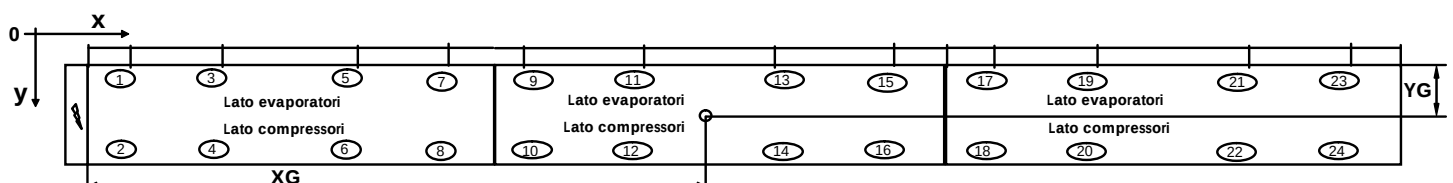


STRUT POSITION FOR LIFTING

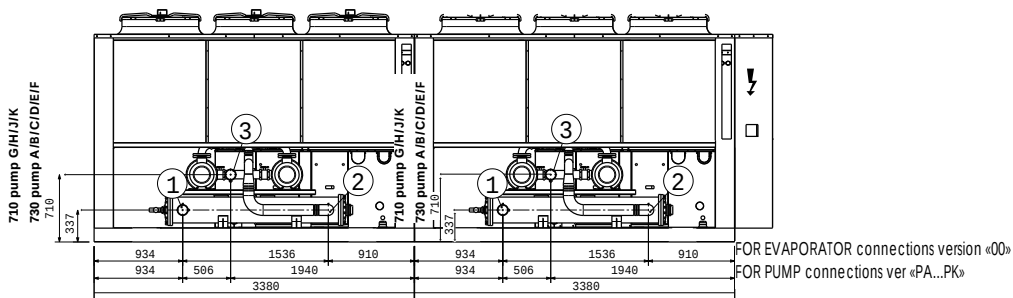
(1) the weight of the pumps to be added to the version without hydronic kit

NS	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Kit AVX
				kg	x	y	%	%	%	%	%	%	%	%	
3402	°	°/L	00	6770	3296	1197	11	14	7	10	17	20	9	11	509
3602	°	°/L	00	7280	3159	1205	12	15	10	12	15	18	8	10	507
3402	D	°/L	00	6840	3296	1197	11	14	7	10	17	20	9	11	509
3602	D	°/L	00	7360	3159	1205	12	15	10	12	15	18	8	10	507
3402	T	°/L	00	6770	3336	1231	10.6	13.5	7.9	10	16.5	21	9	11.5	509
3602	T	°/L	00	7980	3159	1247	11.4	14.9	10	13.1	13.7	17.9	8.2	10.8	507

- PA 69 kg
- PB 138 kg
- PC 75 kg
- PD 150 kg
- PE 91 kg
- PF 182 kg
- PG 100 kg
- PH 200 kg
- PJ 108 kg
- PK 216 kg



19.6.1. POSITION WATER CONNECTIONS
NS 3402 -3602°°(°/L°°00...PA...PK)

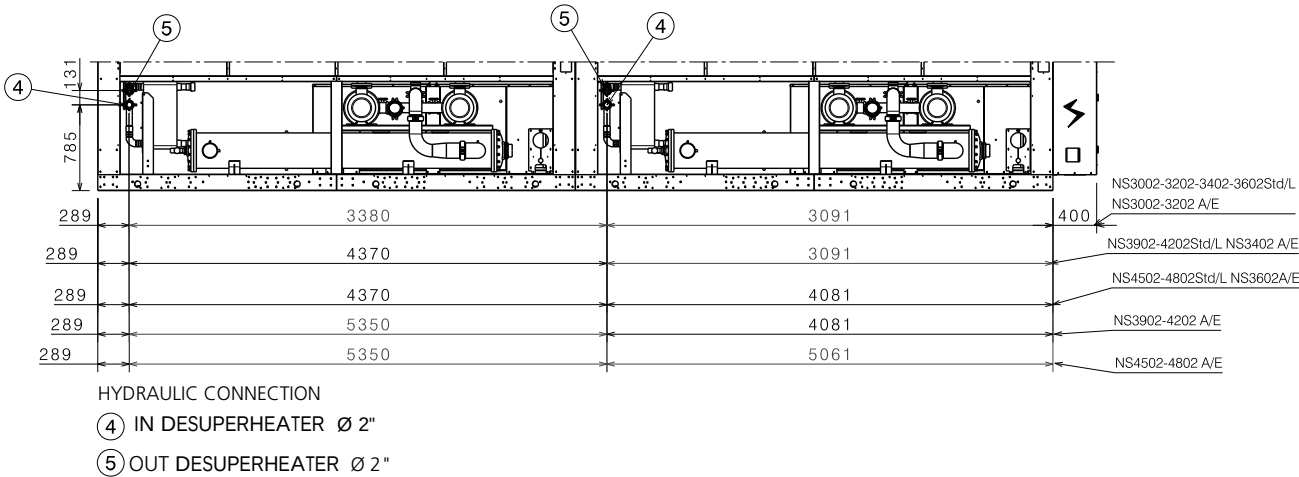


KEY

1. OUT Evaporator 4"
2. IN Evaporator 4"
3. IN Pumps 4"

All connections are VICTAULIC supplied together with joints to weld

POSITION AND HYDRAULIC CONNECTION
DESUPERHEATER BIMODULE

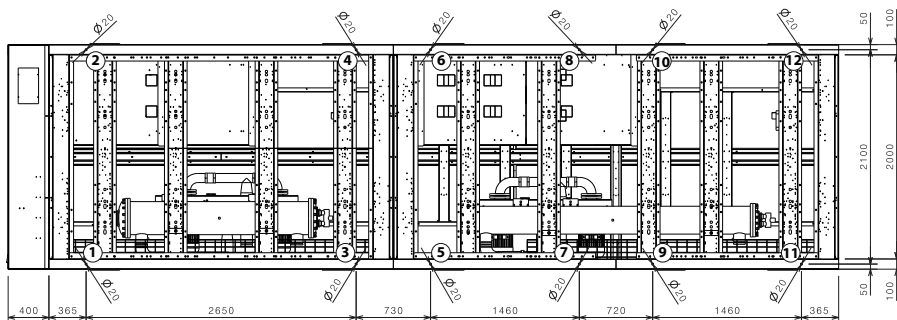




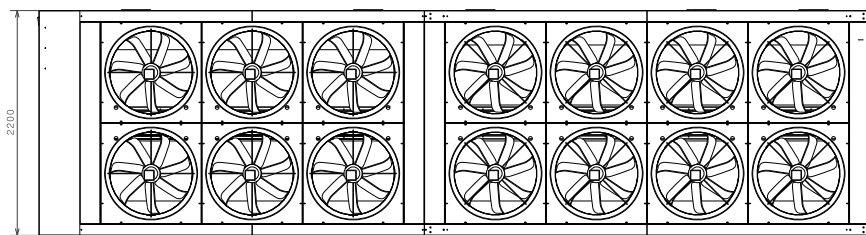
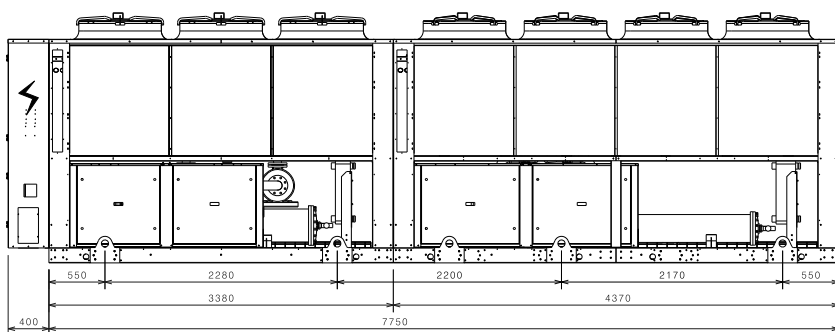
WARNING:
ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

19.7. CARPENTRY BY 8150 (mm)
NS 3902 - 4202 °°(°/L°°00...PA...PK)
NS 3402 °°(A/E°°00...PA...PK)

POSITION
OF VIBRATION DAMPERS



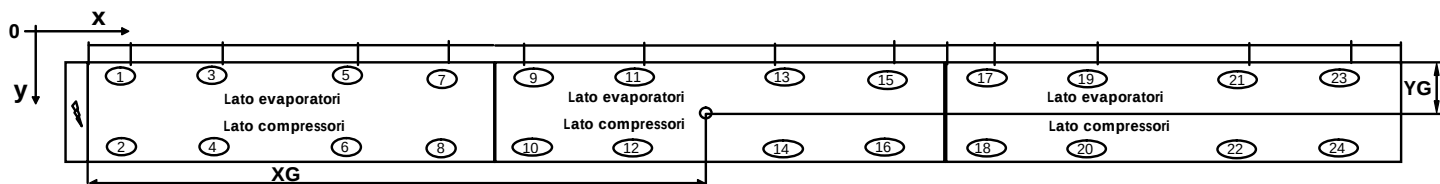
STRUT POSITION FOR LIFTING



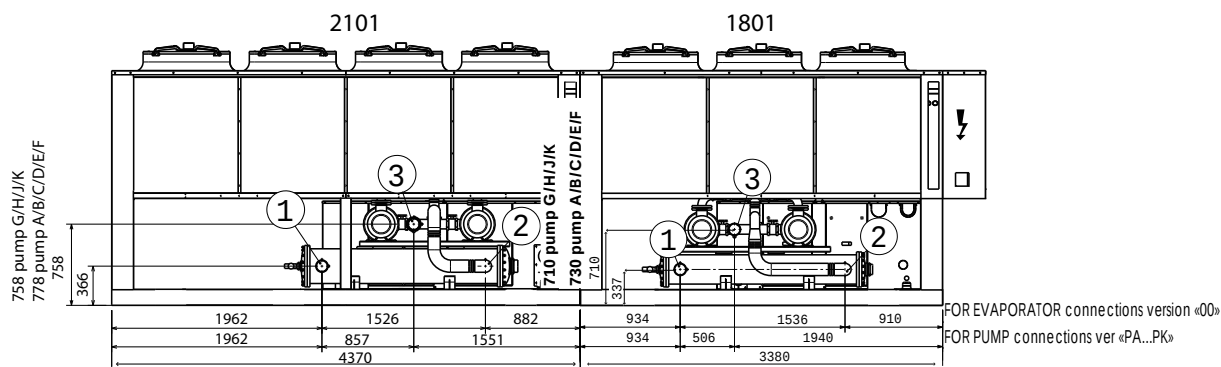
NS	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Support 9	Support 10	Support 11	Support 12	Kit AVX
				kg	x	y	%	%	%	%	%	%	%	%	%	%	%	%	%
3902	°	°/L	00	7830	3497	1250	10	13	15	19	/	/	14	19	/	/	5	6	508
4202	°	°/L	00	8180	3576	1236	10	12	14	18	/	/	15	20	/	/	5	6	508
3902	D	°/L	00	7930	3497	1250	10	13	15	19	/	/	14	19	/	/	4	6	508
4202	D	°/L	00	8270	3576	1236	10	12	14	18	/	/	15	20	/	/	5	6	508
3902	T	°/L	00	8540	3520	1239	9.7	12.5	15.7	20.3	/	/	14.6	17.5	/	/	4.2	5.5	508
4202	T	°/L	00	8570	3519	1238	9.7	12.5	15.7	20.3	/	/	14.6	17.5	/	/	4.2	5.5	508
3402	°	A/E	00	7540	3651	1217	9	11	14	17	2	2	19	15	/	/	5	6	513
3402	D	A/E	00	7610	3651	1217	9	11	14	17	2	2	19	15	/	/	5	6	513
3402	T	A/E	00	8410	3693	1202	9	10.8	14.8	17.9	/	/	16.8	20	/	/	4.9	5.8	508

(1) the weight of the pumps to be added to the version without hydronic kit

- PA 69 kg
- PB 138 kg
- PC 75 kg
- PD 150 kg
- PE 91 kg
- PF 182 kg
- PG 100 kg
- PH 200 kg
- PJ 108 kg
- PK 216 kg



19.7.1. POSITION WATER CONNECTIONS NS 3902 -4202°°(°/L°°00...PA...PK)

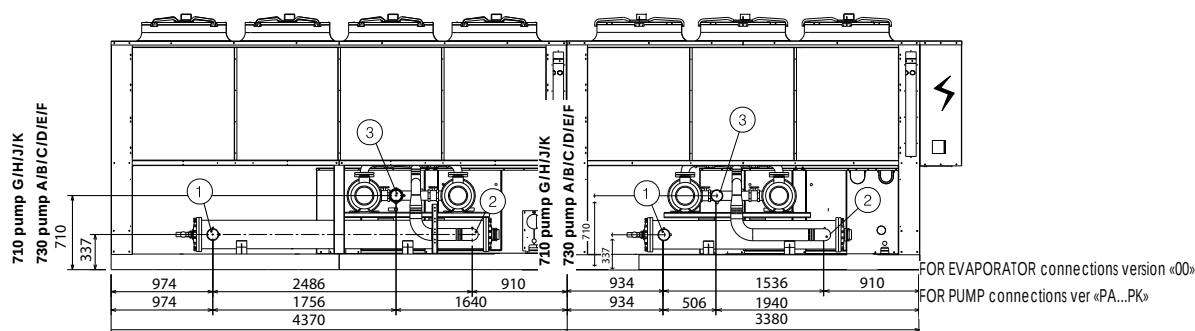


KEY

1. OUT Evaporator 4"
2. IN Evaporator 4"
3. IN Pumps 4"

All connections are VICTAULIC supplied together with joints to weld

19.7.2. POSITION WATER CONNECTIONS NS 3402°°(A/E°°00...PA...PK)

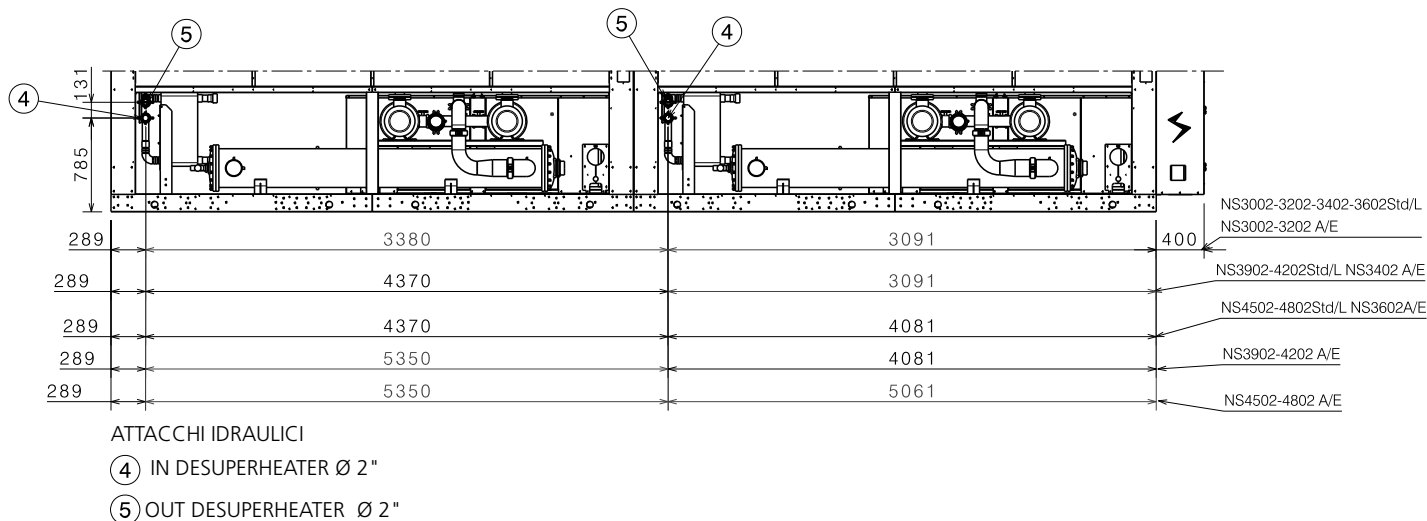


KEY

1. OUT Evaporator 4"
2. IN Evaporator 4"
3. IN Pumps 4"

All connections are VICTAULIC supplied together with joints to weld

POSITION AND HYDRAULIC CONNECTIONS DESUPERHEATER BIMODULE

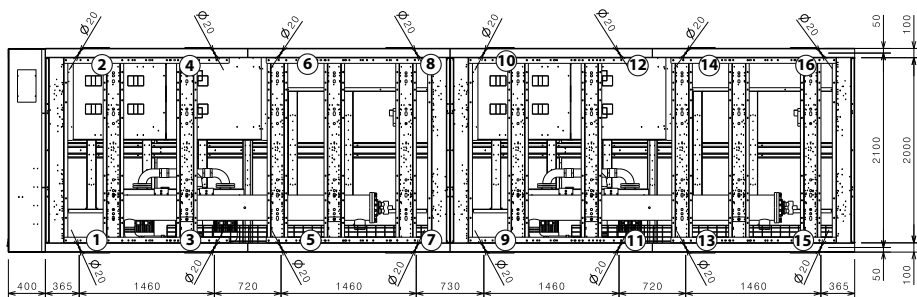


**WARNING:**

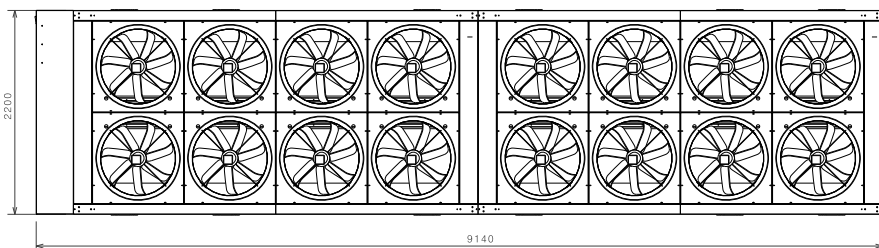
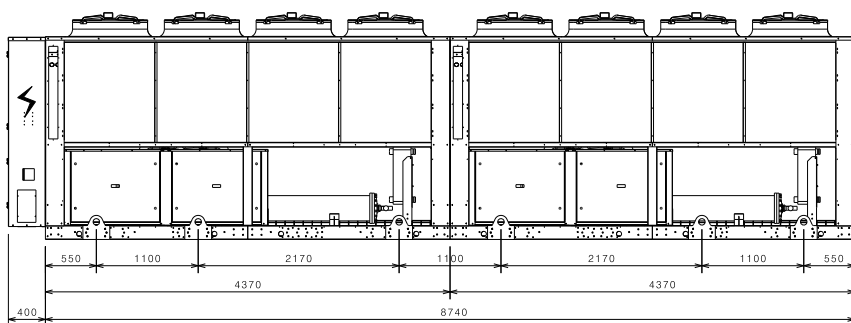
ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

19.8. CARPENTRY BY 9140 (mm)
NS 4502 - 4802 °°(°/L°°00...PA...PK)
NS 3602 °°(A/E°°00...PA...PK)

POSITION OF VIBRATION DAMPERS



POSITION FOR LIFTING



NS	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Support 9	Support 10	Support 11	Support 12	Support 13	Support 14	Support 15	Support 16	Kit AVX
				kg	x	y																	
4502	°	°/L	00	8750	4092	1228	5	7	13	16	/	/	4	4	4	5	15	18	/	/	4	5	516
4802	°	°/L	00	9090	4015	1217	5	6	14	17	/	/	4	5	4	5	17	17	/	/	4	4	516
4502	D	°/L	00	8860	4092	1228	5	7	13	16	/	/	4	4	4	5	15	18	/	/	4	5	516
4802	D	°/L	00	9210	4015	1217	5	6	14	17	/	/	4	5	4	5	17	17	/	/	4	5	516
4502	T	°/L	00	9620	4136	1219	4.9	6	13.3	16.6	/	/	4.6	3.7	3.5	4.3	15.5	19.3	/	/	3.7	4.6	516
4802	T	°/L	00	10110	4034	1208	4.8	5.9	14.5	17.7	/	/	4.1	5.0	3.2	3.9	14.9	18.2	/	/	3.5	4.3	516
3602	°	A/E	00	8610	4057	1228	6	7	13	16	/	/	4	4	5	6	13	17	/	/	4	5	516
3602	D	A/E	00	8690	4057	1228	6	7	13	16	/	/	4	4	5	6	13	17	/	/	4	5	516
3602	T	A/E	00	9230	1069	1221	5.2	6.5	13.4	16.7	/	/	3.7	4.7	4.2	5.3	13.8	17.2	/	/	4.1	5.2	516

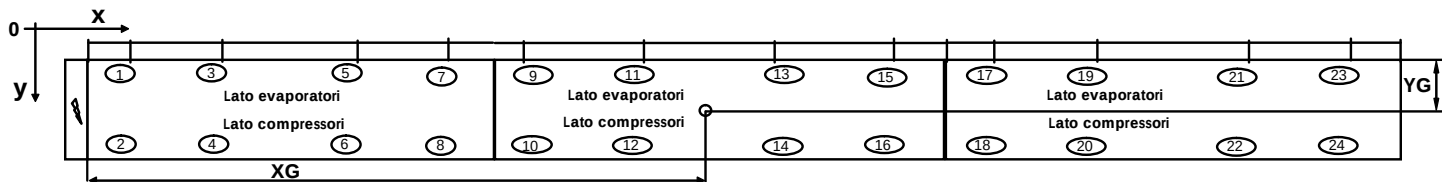
(1) the weight of the
pumps to be added
to the version without
hydronic kit

- PA 69 Kg
- PB 138 Kg
- PC 75 Kg

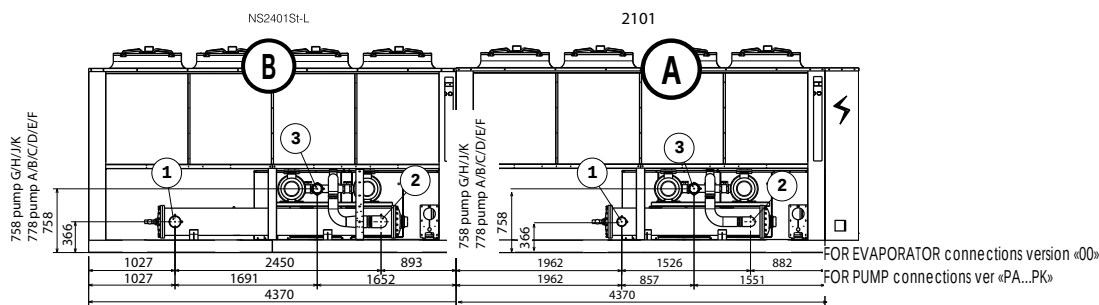
- PD 150 Kg
- PE 91 Kg
- PF 182 Kg

- PG 100 Kg
- PH 200 Kg
- PJ 108 Kg

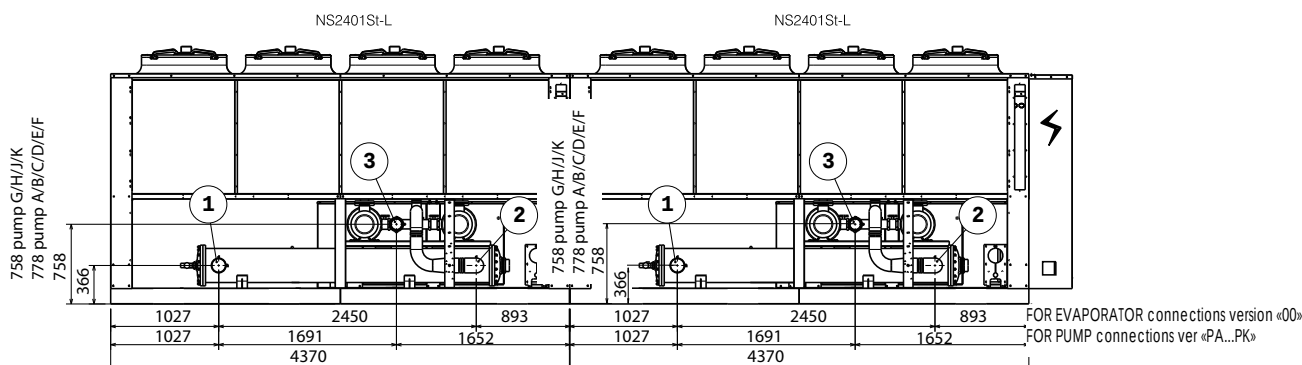
- PK 216 Kg



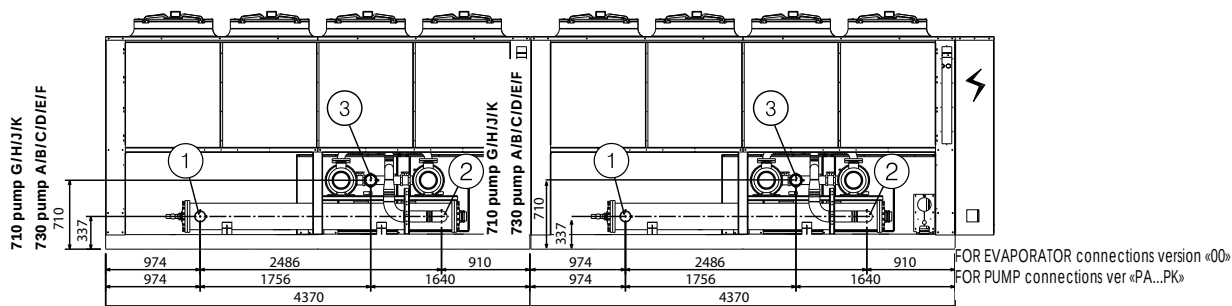
19.8.1. POSITION WATER CONNECTIONS NS 4502°(°/L°00...PA...PK)



19.8.2. POSITION WATER CONNECTIONS NS 4802°(°/L°00...PA...PK)



19.8.3. POSITION WATER CONNECTIONS NS 3602°(A/E°00...PA...PK)

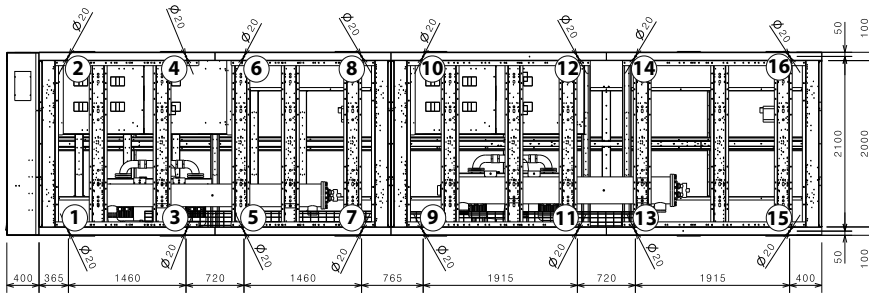




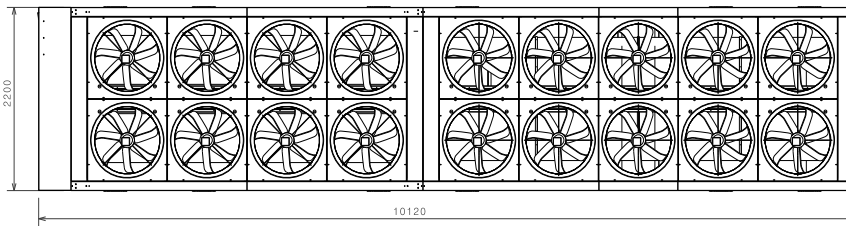
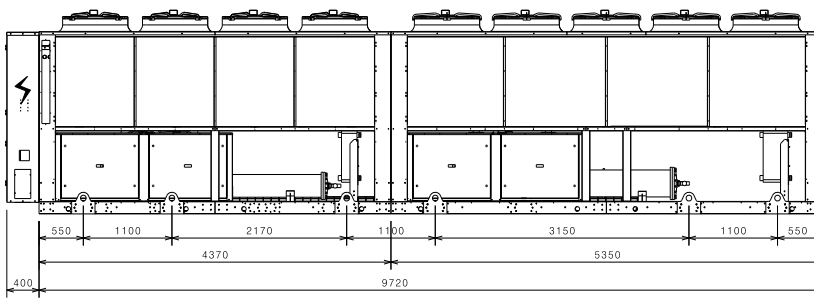
WARNING:
ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

19.9. CARPENTRY BY 10120 (mm) NS 3902 - -4202 °°(A/E°°00...PA...PK)

POSITION OF VIBRATION DAMPERS



POSITION FOR LIFTING



NS	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Support 9	Support 10	Support 11	Support 12	Support 13	Support 14	Support 15	Support 16	Kit AVX
				kg	x	y	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
3902	°	A/E	00	9180	4370	1216	5.4	6.7	12.2	15	/	/	2.5	3.1	6.8	8.4	10.7	13.2	3.2	3.9	4.0	4.9	519
4202	°	A/E	00	9410	4500	1215	5.3	6.6	11.8	14.6	/	/	2.4	3.0	6.7	8.2	10.8	13.4	3.6	4.4	4.1	5	519
3902	D	A/E	00	9280	4370	1216	5.4	6.7	12.2	15	/	/	2.5	3.1	6.8	8.4	10.7	13.2	3.2	3.9	4.0	4.9	519
4202	D	A/E	00	9500	4500	1215	5.3	6.6	11.8	14.6	/	/	2.4	3.0	6.7	8.2	10.8	13.4	3.6	4.4	4.1	5	519
3902	T	A/E	00	9960	4370	1216	6.2	7.5	12	14.5	0.9	1.1	2.3	2.8	10.6	12.8	9.1	11	1.2	1.4	3	3.6	520
4202	T	A/E	00	10190	4726	1205	6.2	7.5	12	14.5	0.9	1.1	2.3	2.8	10.6	12.8	9.1	11	1.2	1.4	3	3.6	520

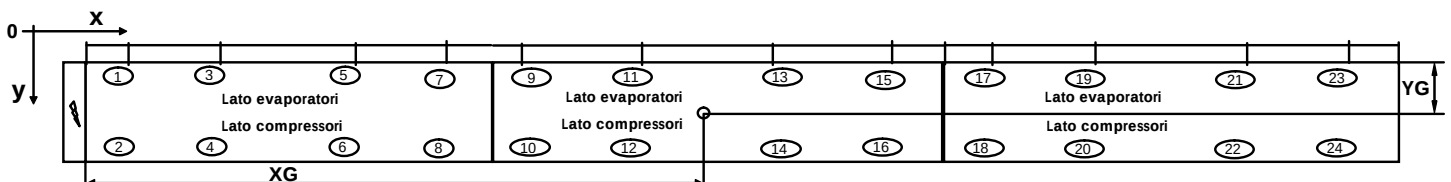
(1) the weight of the
pumps to be added
to the version without
hydronic kit

- PA 69 Kg
- PB 138 Kg
- PC 75 Kg

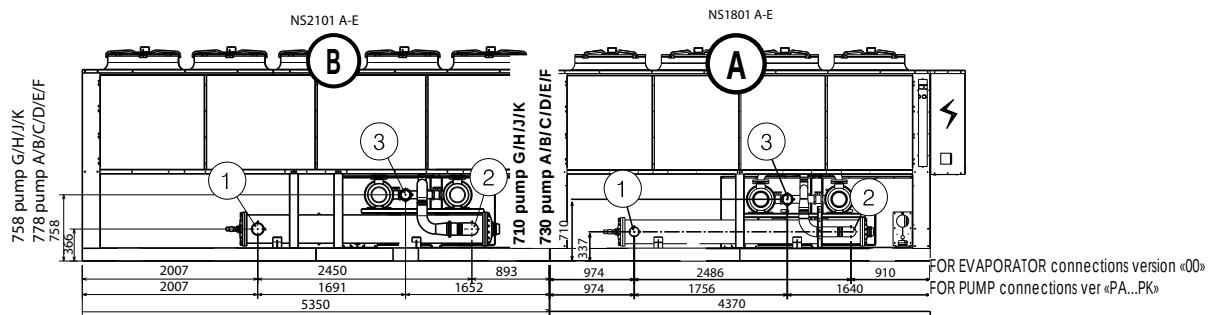
- PD 150 Kg
- PE 91 Kg
- PF 182 Kg

- PG 100 Kg
- PH 200 Kg
- PJ 108 Kg

- PK 216 Kg



19.9.1. POSITION WATER CONNECTIONS NS 3902-4202°°(A/E°°00...PA...PK)



LEGENDA

MODULE B

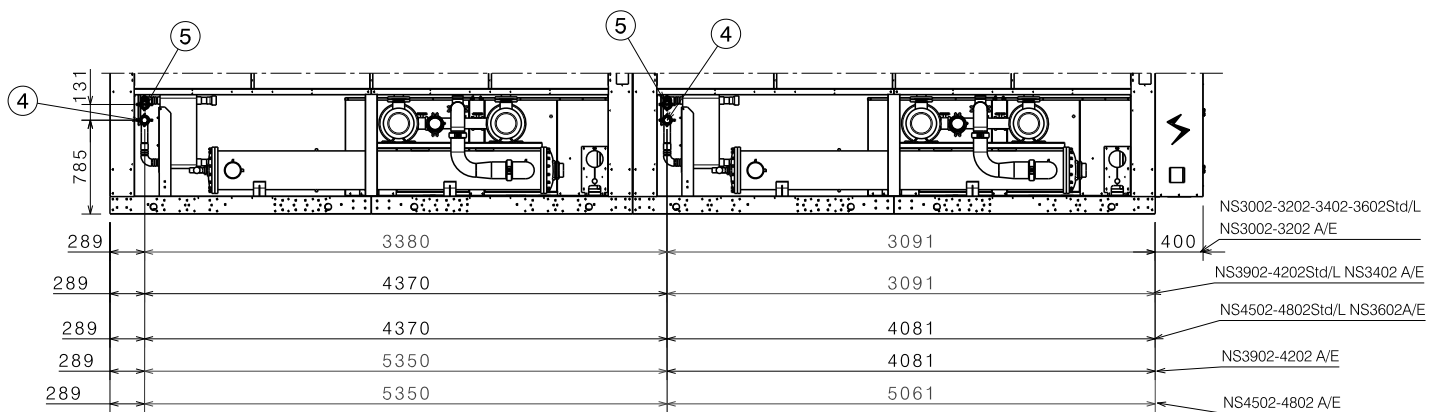
1. OUT Evaporator ø 5"
2. IN Evaporator ø 5"
3. IN PUMP ø 5"

MODULE A

1. OUT Evaporator ø 4"
2. IN Evaporator ø 4"
3. IN PUMP ø 4"

All connections are VICTAULIC supplied together with joints to weld

POSITION AND HYDRAULIC CONNECTIONS DESUPERHEATER BIMODULE



HYDRAULIC CONNECTIONS

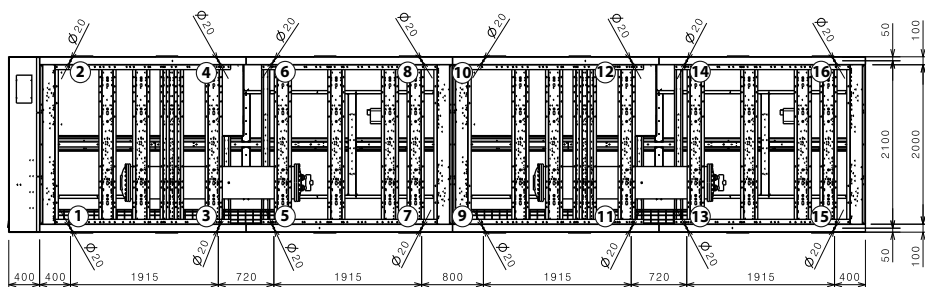
- ④ IN DESUPERHEATER Ø 2"
- ⑤ OUT DESUPERHEATER Ø 2"



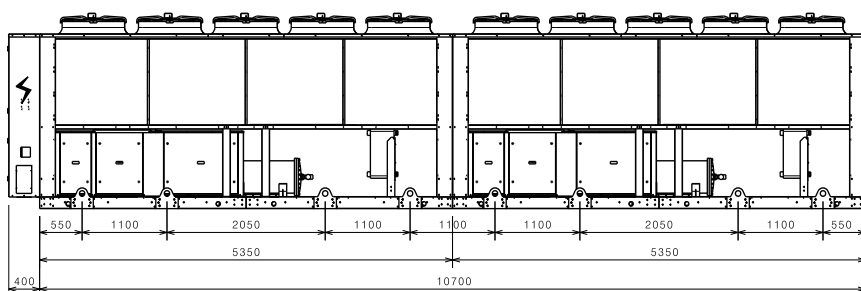
WARNING:
ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

19.10. CARPENTRY BY 11100 (mm)
NS 5702 °°(°/L°°00...PA...PK)
NS 4502-4802 °°(A/E°°00...PA...PK)
NS 5002-5202-5402-5702 °°(A/E°°00...PA...PK)

POSITION OF VIBRATION DAMPERS



POSITION FOR LIFTING

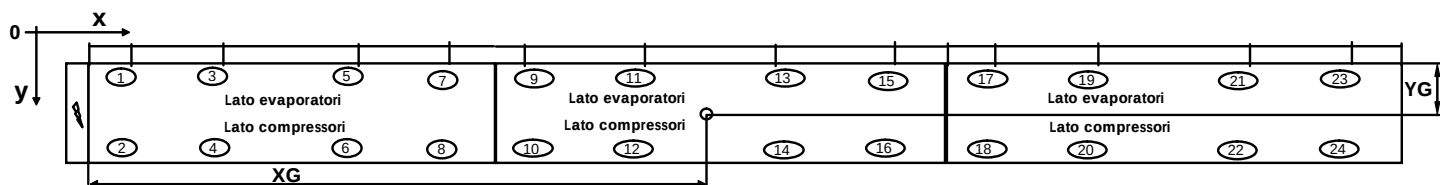


(1) the weight of the
pumps to be added
to the version without
hydronic kit

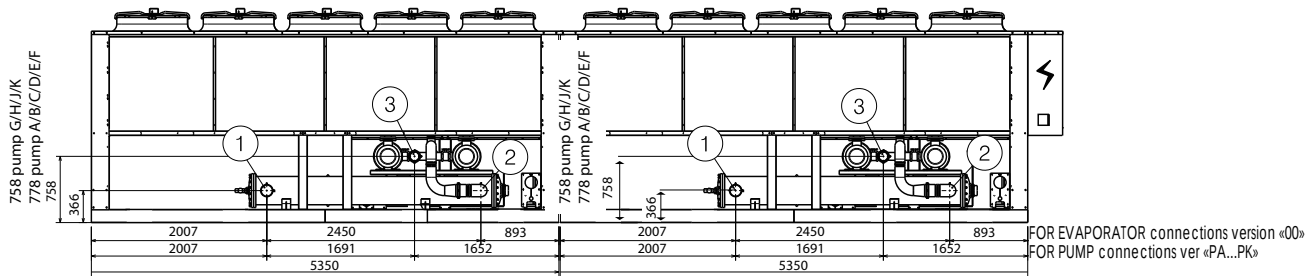
- PA 69 Kg
- PB 138 Kg
- PC 75 Kg

- PD 150 Kg
- PE 91 Kg
- PF 182 Kg
- PG 100 Kg
- PH 200 Kg
- PJ 108 Kg
- PK 216 Kg

NS	Heat recovery	Version	Hydronic kit ^(a)	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Support 9	Support 10	Support 11	Support 12	Support 13	Support 14	Support 15	Support 16	Kit AVX
				kg	x	y																	
5702	°	°/L	00	10350	4873	1188	5.9	6.9	13.1	15.4	0.9	1.1	2.2	2.6	7.1	8.3	12.2	14.3	0.9	1.0	3.7	4.4	535
5702	D	°/L	00	10470	4873	1188	5.9	6.9	13.1	15.4	0.9	1.1	2.2	2.6	7.1	8.3	12.2	14.3	0.9	1.0	3.7	4.4	535
5702	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4502	°	A/E	00	9820	5040	1214	5.8	7.2	10.5	13	2.1	2.6	2.3	2.9	6.9	8.7	10.4	13	2.5	3.2	3.9	4.8	521
4502	D	A/E	00	9930	5040	1214	5.8	7.2	10.5	13	2.1	2.6	2.3	2.9	6.9	8.7	10.4	13	2.5	3.2	3.9	4.8	521
4502	T	A/E	00	10630	4992	1211	5.4	6.6	10.9	13.3	3.2	3.9	2.2	2.7	6.3	7.8	10.3	12.6	3.1	3.8	3.5	4.4	521
4802	°	A/E	00	10200	4949	1211	5.8	7.1	10.9	13.4	2.6	3.2	2.4	2.9	6.8	8.3	10.2	12.4	2.4	3	3.8	4.7	521
4802	D	A/E	00	10320	4949	1211	5.8	7.1	10.9	13.4	2.6	3.2	2.4	2.9	6.8	8.3	10.2	12.4	2.4	3	3.8	4.7	521
4802	T	A/E	00	10980	4949	1211	5.4	6.6	10.9	13.3	3.2	3.9	2.2	2.7	6.3	7.8	10.3	12.6	3.1	3.8	3.5	4.4	521
5002	°	A/E	00	10450	4987	1186	5.8	6.8	11.9	13.9	1.4	1.7	2.4	2.8	7.1	8.3	12.4	14.5	1.2	1.4	3.9	4.5	535
5002	D	A/E	00																				
5002	T	A/E	00																				
5202	°	A/E	00	10750	4902	1178	5.8	6.7	12.9	14.9	1.3	1.5	2.4	2.7	7	8	12.1	14	1.2	1.3	3.8	4.4	535
5202	D	A/E	00																				
5202	T	A/E	00																				
5402	°	A/E	00	10800	4904	1180	5.8	6.7	12.9	14.9	1.3	1.5	2.4	2.7	7	8	12.1	14	1.2	1.3	3.8	4.4	535
5402	D	A/E	00																				
5402	T	A/E	00																				



19.10.1. POSITION WATER CONNECTIONS NS4502-4802°°(A/E°°00...PA...PK)

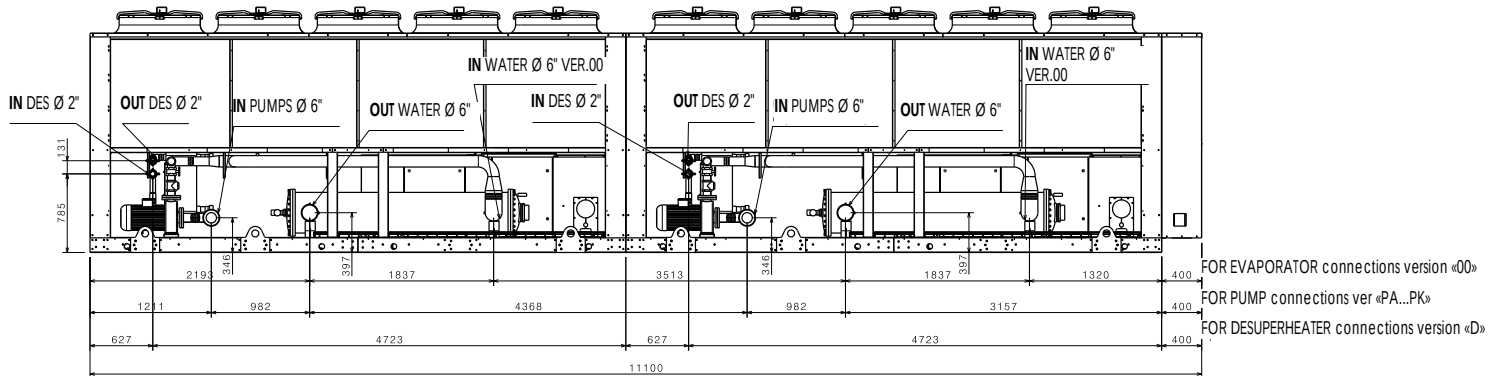


KEY

1. OUT Evaporator Ø 5"
2. IN Evaporator Ø 5"
3. IN PUMP Ø 5"

All connections are VICTAULIC supplied together with joints to weld

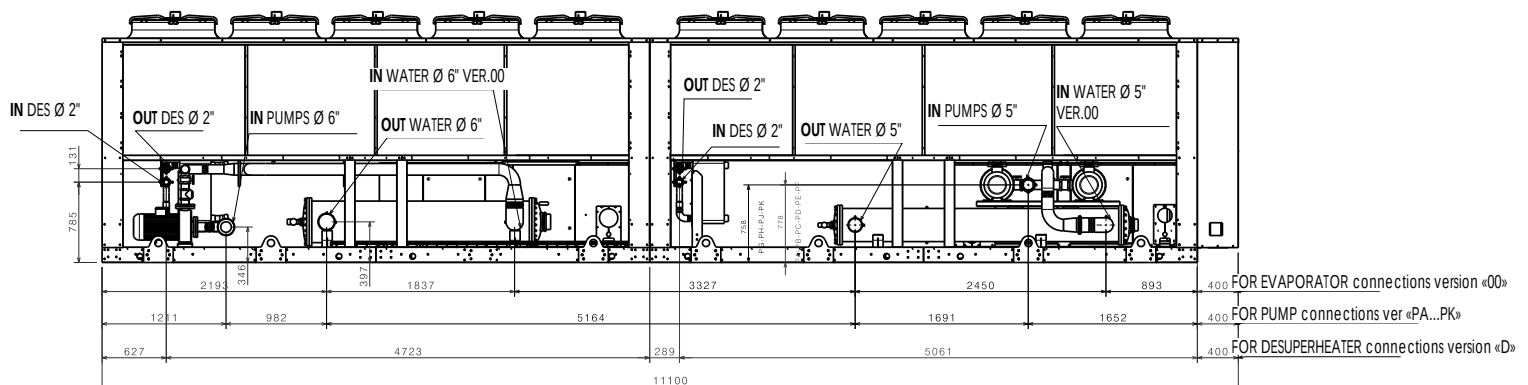
19.10.2. POSITION WATER CONNECTIONS NS5702°°(°/L°°00...PA...PK) NS 5202-5402-5702°°(A/E°°00...PA...PK)



KEY

All connections are VICTAULIC supplied together with joints to weld

19.10.3. POSITION WATER CONNECTIONS NS 5002 (A/E°°00...PA...PK)



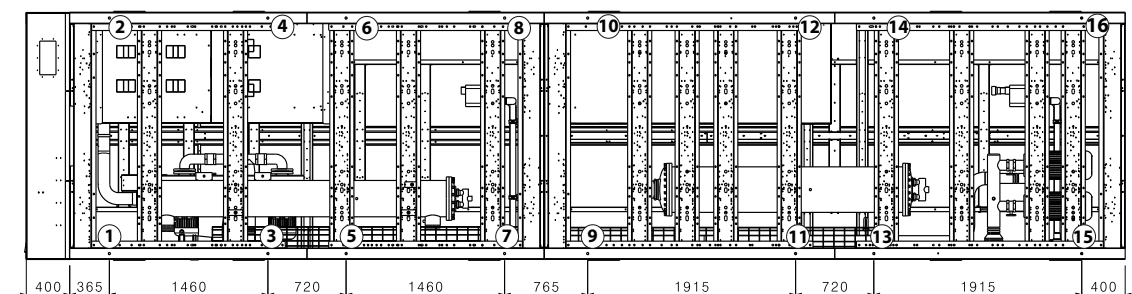
KEY

All connections are VICTAULIC supplied together with joints to weld



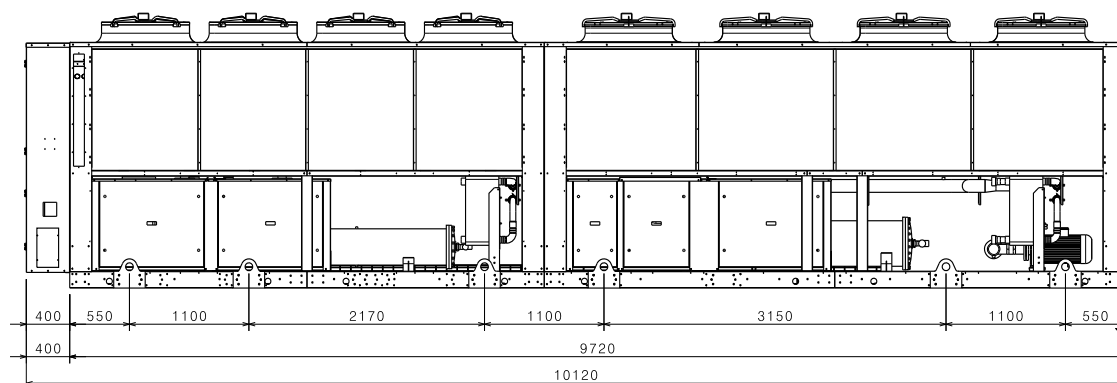
WARNING:
ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

19.11. CARPENTRY BY 10120 (mm) NS 5002 °°/L°°00...PA...PK)



POSITION OF
VIBRATION
DAMPERS

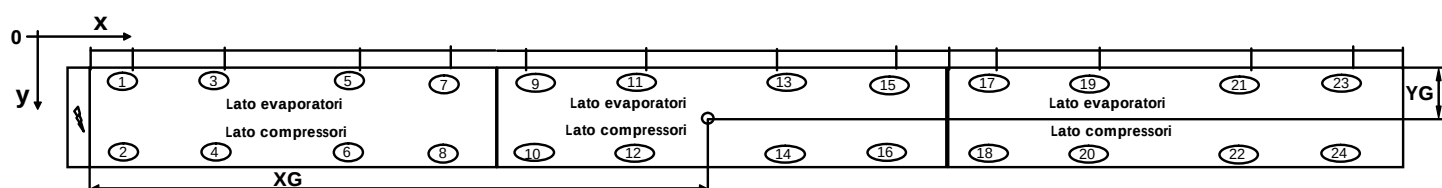
STRUT POSITION FOR LIFTING



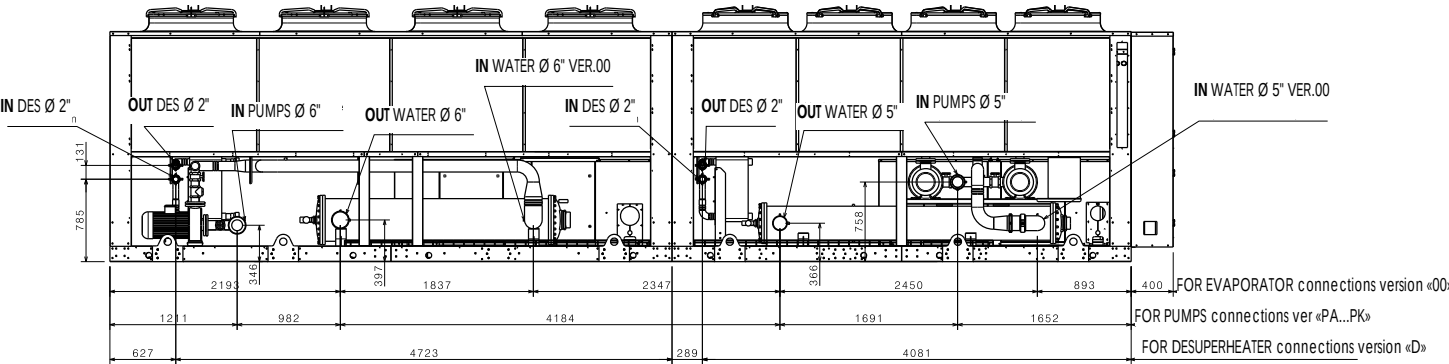
NS	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Support 9	Support 10	Support 11	Support 12	Support 13	Support 14	Support 15	Support 16	Kit AVX
				kg	x	y	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
5002	°	°/L	00	9360	4674	1212	4.8	5.9	11.7	14.3	/	/	2.3	2.8	6.3	7.7	9.9	12.1	5.4	6.7	4.5	5.5	535
5002	D	°/L	00	9480	4674	1212	4.8	5.9	11.7	14.3	/	/	2.3	2.8	6.3	7.7	9.9	12.1	5.4	6.7	4.5	5.5	535
5002	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1) the weight of the
pumps to be added
to the version without
hydronic kit

- PA 69 Kg
- PB 138 Kg
- PC 75 Kg
- PD 150 Kg
- PE 91 Kg
- PF 182 Kg
- PG 100 Kg
- PH 200 Kg
- PJ 108 Kg
- PK 216 Kg



19.11.1. POSITION WATER CONNECTIONS
NS5002°°(°/L°°00...PA...PK)



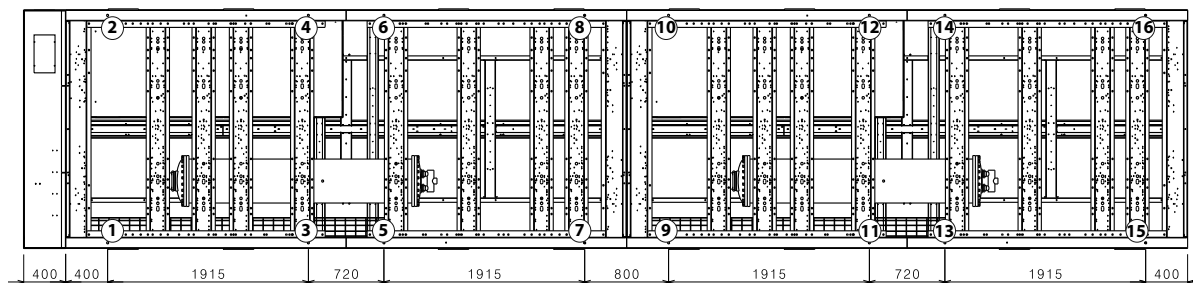
KEY
 All connections are VICTAULIC supplied
 together with joints to weld



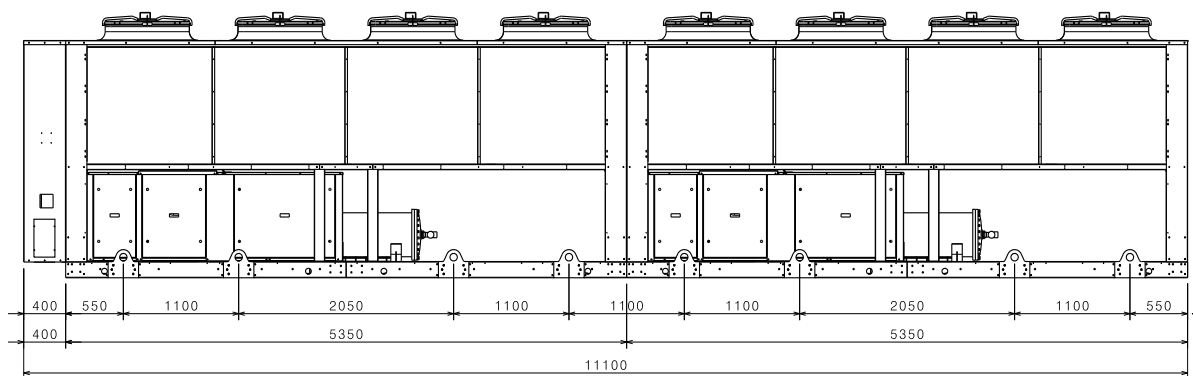
WARNING:
ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

19.12. CARPENTRY BY 11100 (mm) NS 5202 °°(°/L °°00...PA...PK)

POSITION OF VIBRATION DAMPERS



POSITION FOR LIFTING



NS	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Support 9	Support 10	Support 11	Support 12	Support 13	Support 14	Support 15	Support 16	Kit AVX
				kg	x	y	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
5202	°	°/L	00	10100	4877	1186	5.8	6.7	13.3	15.5	1.0	1.2	2.2	2.5	7.0	8.2	12.3	14.4	1.0	1.2	3.6	4.2	535
5202	D	°/L	00	10220	4877	1186	5.8	6.7	13.3	15.5	1.0	1.2	2.2	2.5	7.0	8.2	12.3	14.4	1.0	1.2	3.6	4.2	535
5202	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1) the weight of the pumps to be added to the version without hydronic kit

- PA 69 Kg

- PB 138 Kg

- PC 75 Kg

- PD 150 Kg

- PE 91 Kg

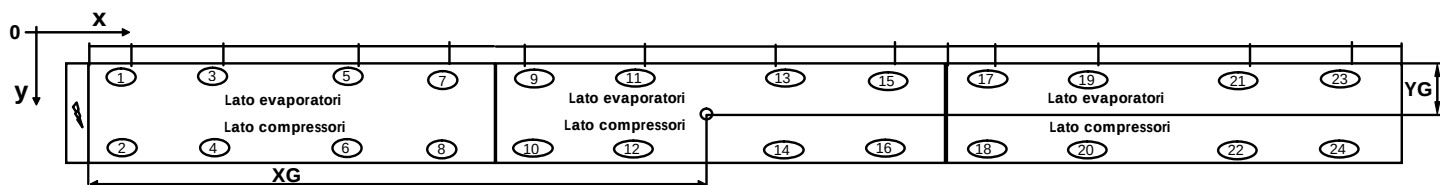
- PF 182 Kg

- PG 100 Kg

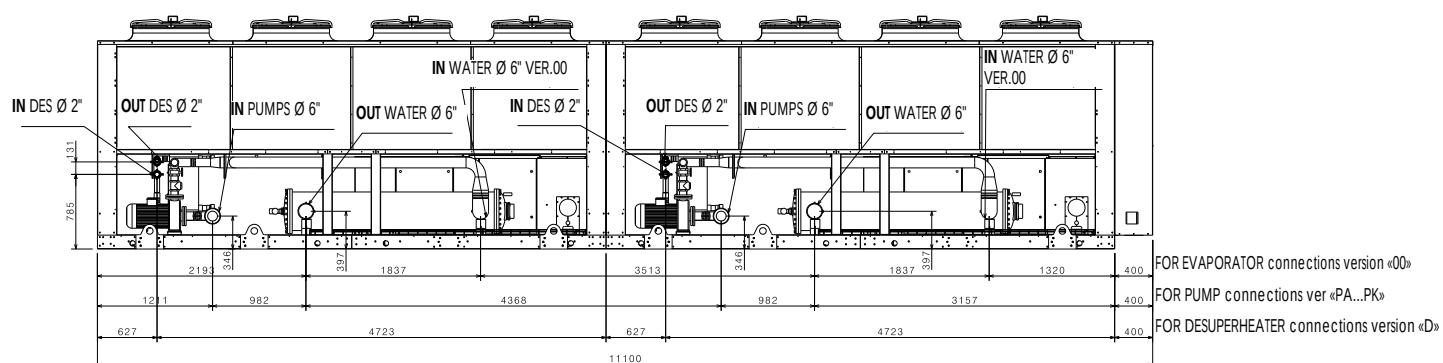
- PH 200 Kg

- PJ 108 Kg

- PK 216 Kg



19.12.1. POSITION WATER CONNECTIONS NS5202°°(°/L°°00...PA...PK)



KEY

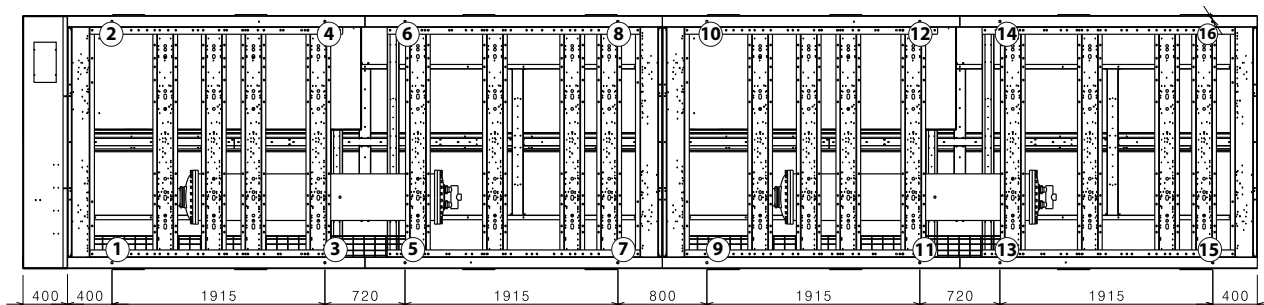
All connections are VICTAULIC supplied together with joints to weld



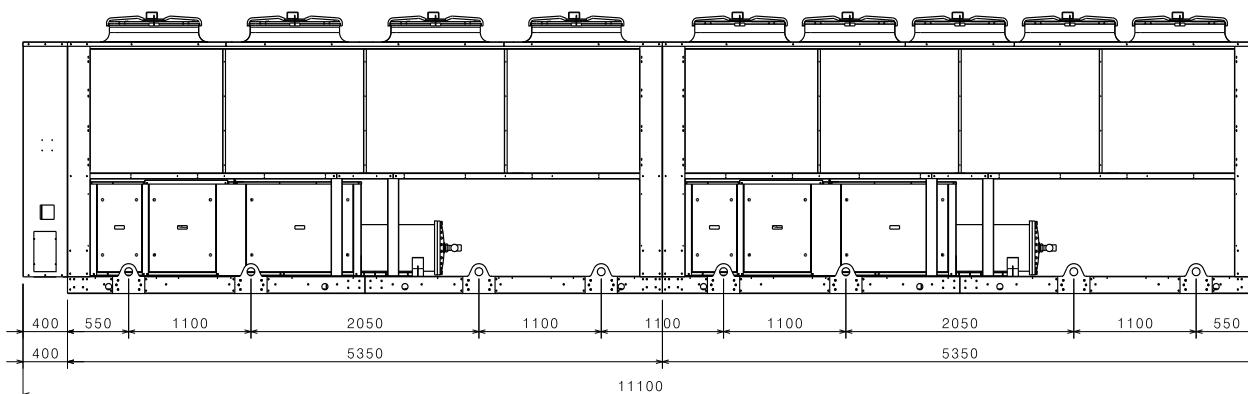
WARNING:
ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

19.13. CARPENTRY BY 10120 (mm) NS 5402 °°(°/L°°00...PA...PK)

POSITION OF VIBRATION DAMPERS



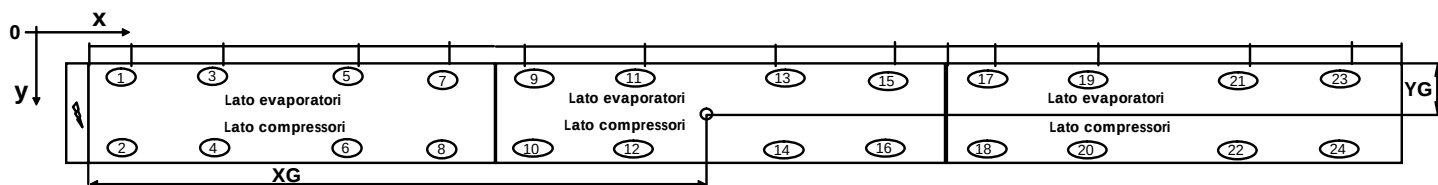
STRUT POSITION FOR LIFTING



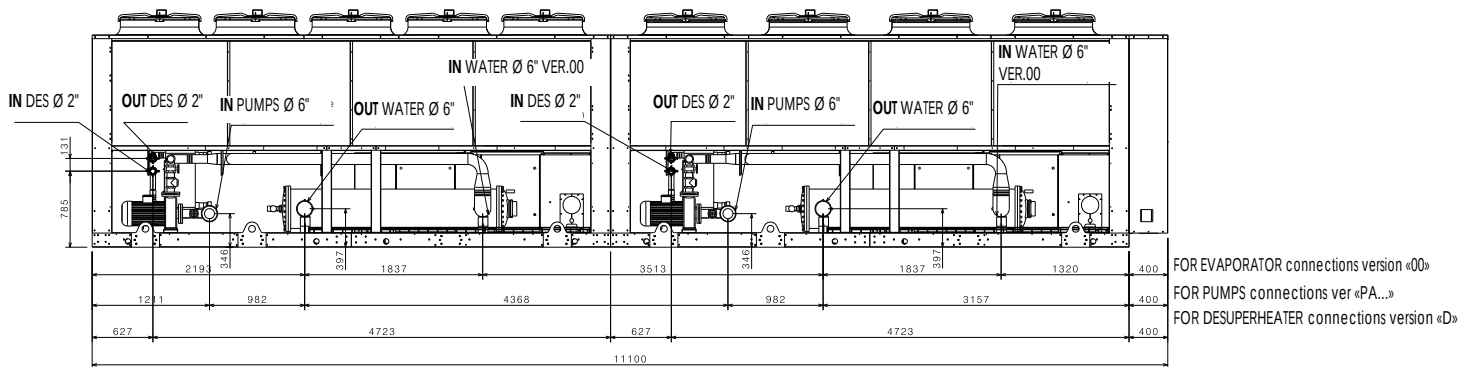
NS	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Support 9	Support 10	Support 11	Support 12	Support 13	Support 14	Support 15	Support 16	Kit AVX
				kg	x	y	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
5402	°	°/L	00	10200	4901	1187	5.7	6.7	13.1	15.3	1.0	1.2	2.1	2.5	7.2	8.4	12.3	14.4	0.9	1.1	3.8	4.4	535
5402	D	°/L	00	10320	4901	1187	5.7	6.7	13.1	15.3	1.0	1.2	2.1	2.5	7.2	8.4	12.3	14.4	0.9	1.1	3.8	4.4	535
5402	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(1) the weight of the
pumps to be added
to the version without
hydronic kit

- PA 69 Kg
- PB 138 Kg
- PC 75 Kg
- PD 150 Kg
- PE 91 Kg
- PF 182 Kg
- PG 100 Kg
- PH 200 Kg
- PJ 108 Kg
- PK 216 Kg

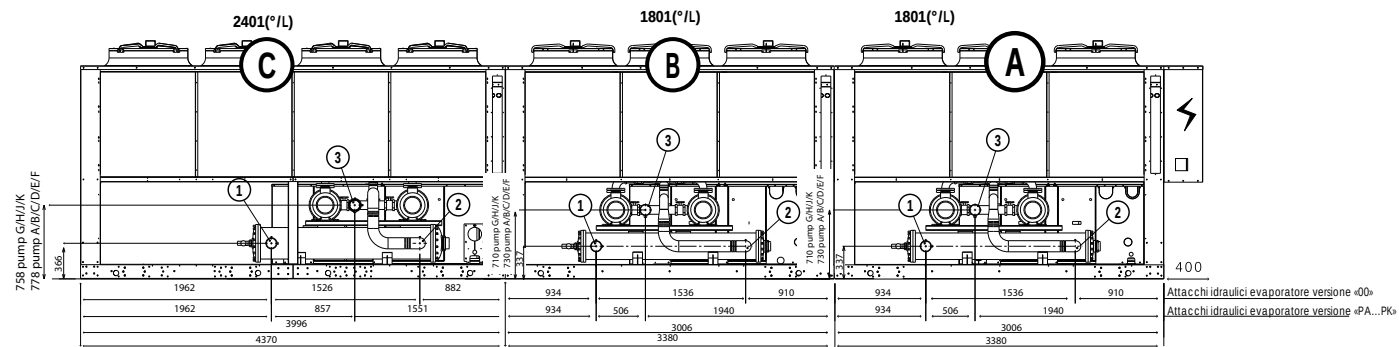


19.13.1. POSITION WATER CONNECTIONS
NS5402°(°/L°00...PA...PK)



KEY
All connections are VICTAULIC supplied together with joints to weld

NS 6003 [00-L]



LEGENDA

MODULO C

- 1. OUT Evaporator 5"
- 2. IN Evaporator 5"
- 3. IN Pompe 5"

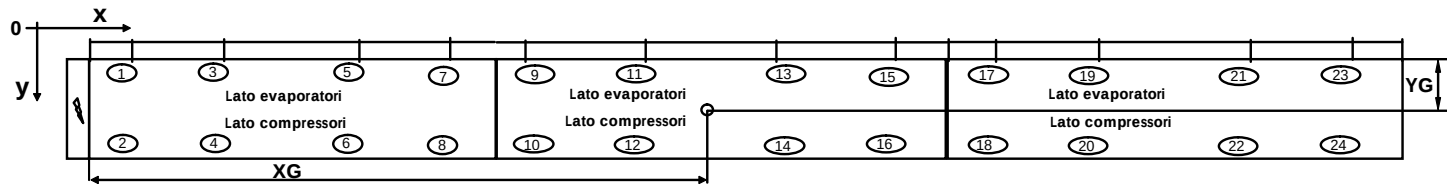
MODULO B

- 1. OUT Evaporator 4"
- 2. IN Evaporator 4"
- 3. IN Pump 4"

MODULO A

- 1. OUT Evaporator 4"
- 2. IN Evaporator 4"
- 3. IN Pump 4"

KEY
All connections are VICTAULIC supplied together with joints to weld



NS	Heat recovery	Version	Hydronic kit ⁽²⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Support 9	Support 10	Support 11	Support 12	Support 13	Support 14	Support 15	Support 16
				kg	x	y	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
6003	°	°/L	00	11390	5305	1259	6.4%	8.6%					8.3%	11.1%	5.5%	7.4%					9.4%	12.5%
6003	D	°/L	00	11520	5305	1259	6.4%	8.6%					8.3%	11.1%	5.5%	7.4%					9.4%	12.5%
6003	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

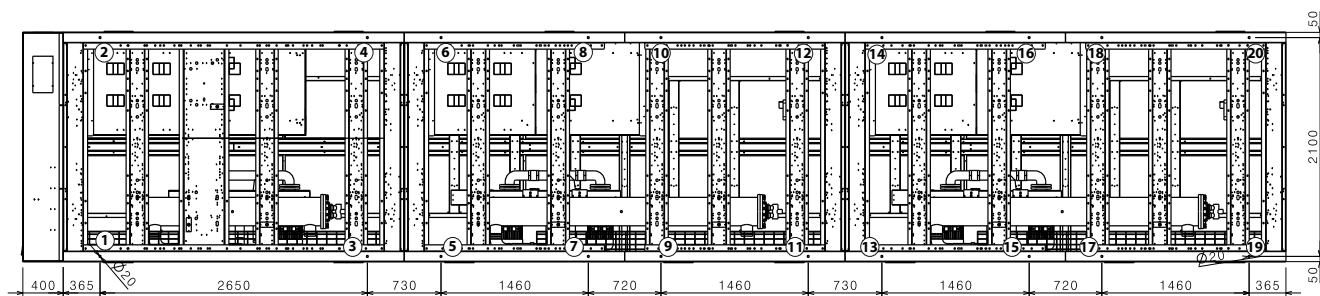
NS	Heat recovery	Version	Hydronic kit ⁽²⁾	Weight and centre of gravity when empty (kg)			Support 17	Support 18	Support 19	Support 20	Support 21	Support 22	Support 23	Support 24	Kit AVX
				kg	x	y	%	%	%	%	%	%	%	%	
6003	°	°/L	00	11390	5305	1259			10.5%	14.0%			2.7%	3.6%	517
6003	D	°/L	00	11520	5305	1259			10.5%	14.0%			2.7%	3.6%	517
6003	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	-



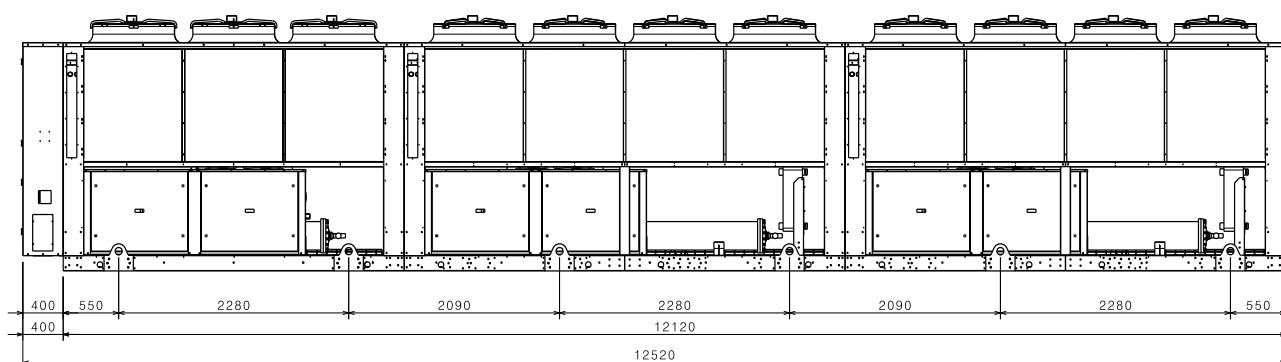
WARNING:
ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

19.14. CARPENTRY BY 12520 (mm) NS 6303 -6603 °°(°/L°°00...PA...PK)

POSITION OF VIBRATION DAMPERS

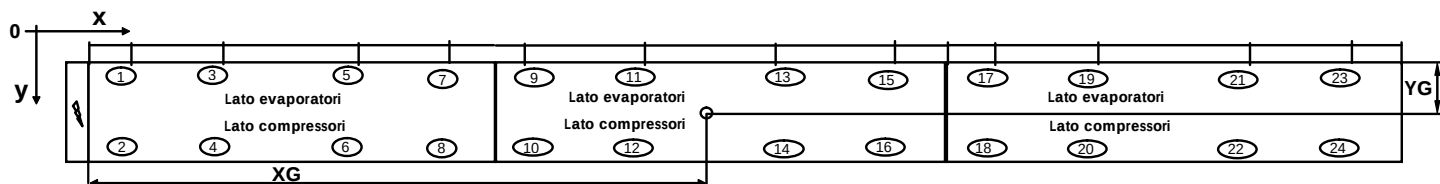


POSITION FOR LIFTING

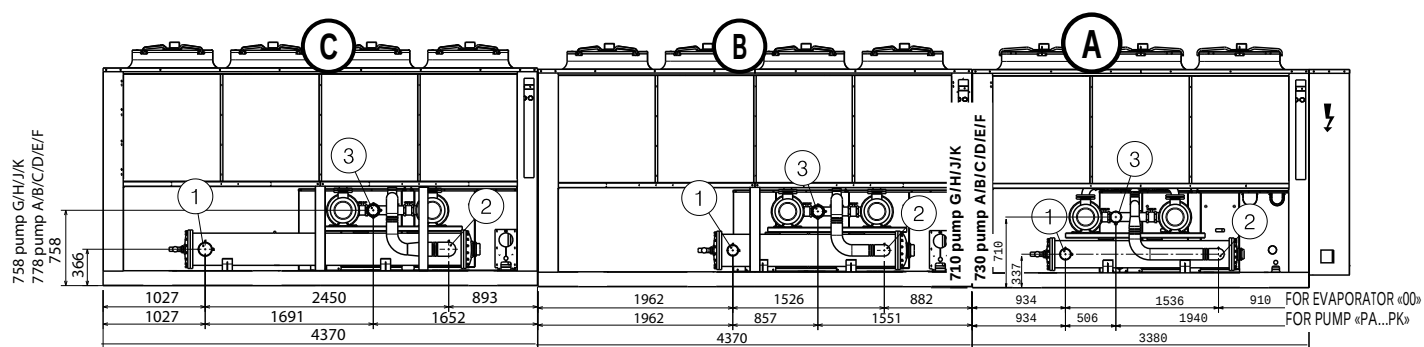


NS	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Support 9	Support 10	Support 11	Support 12	Support 13	Support 14	Support 15	Support 16
				kg	x	y	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
6303	°	°/L	00	12210	5900	1245	6.1%	7.9%					9.7%	12.6%			9.4%	12.2%			3.3%	4.3%
6303	D	°/L	00	12360	5900	1245	6.1%	7.9%					9.7%	12.6%			9.4%	12.2%			3.3%	4.3%
6303	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6603	°	°/L	00	12250	5887	1237	5.9%	7.6%					9.6%	12.3%			10.1%	13.0%			3.4%	4.4%
6603	D	°/L	00	12410	5887	1237	5.9%	7.6%					9.6%	12.3%			10.1%	13.0%			3.4%	4.4%
6603	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

NS	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 17	Support 18	Support 19	Support 20	Support 21	Support 22	Support 23	Support 24	Kit AVX
				kg	x	y	%	%	%	%	%	%	%	%	
6303	°	°/L	00	12210	5900	1245	6.1%	7.9%					9.7%	12.6%	515
6303	D	°/L	00	12360	5900	1245	6.1%	7.9%					9.7%	12.6%	515
6303	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	-
6603	°	°/L	00	12250	5887	1237	5.9%	7.6%					9.6%	12.3%	515
6603	D	°/L	00	12410	5887	1237	5.9%	7.6%					9.6%	12.3%	515
6603	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	-



19.14.1. POSITION WATER CONNECTIONS NS6303°°(°/L°°00...PA...PK)



KEY

MODULE C

1. OUT Evaporator 5"
2. IN Evaporator 5"
3. IN Pumps 5"

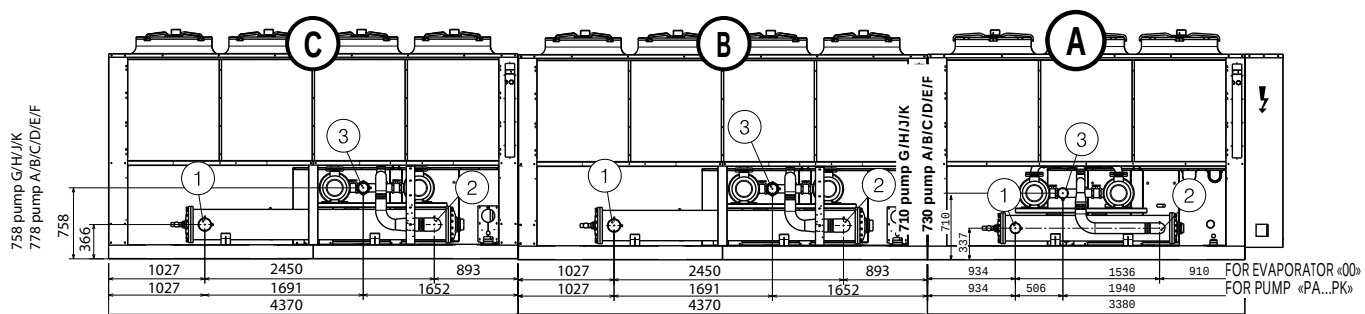
MODULE B

1. OUT Evaporator 4"
2. IN Evaporator 4"
3. IN Pumps 4"

MODULE A

1. OUT Evaporator 4"
2. IN Evaporator 4"
3. IN Pumps 4"

19.14.2. POSITION WATER CONNECTIONS NS6603°°(°/L°°00...PA...PK)



KEY

MODULE C

1. OUT Evaporator 5"
2. IN Evaporator 5"
3. IN Pumps 5"

MODULE B

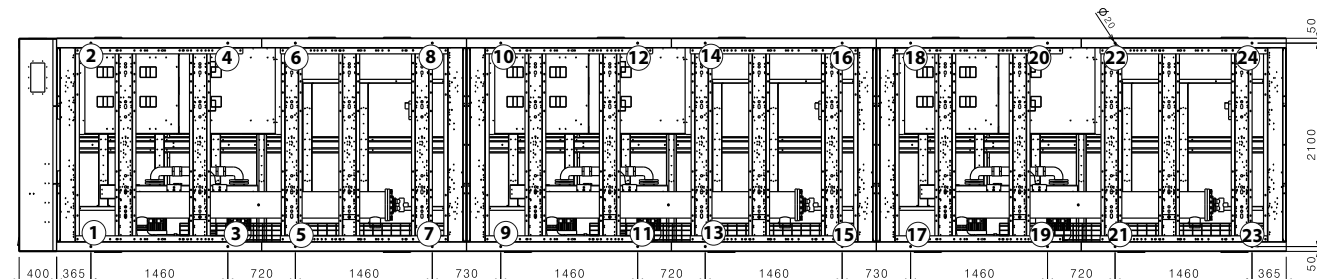
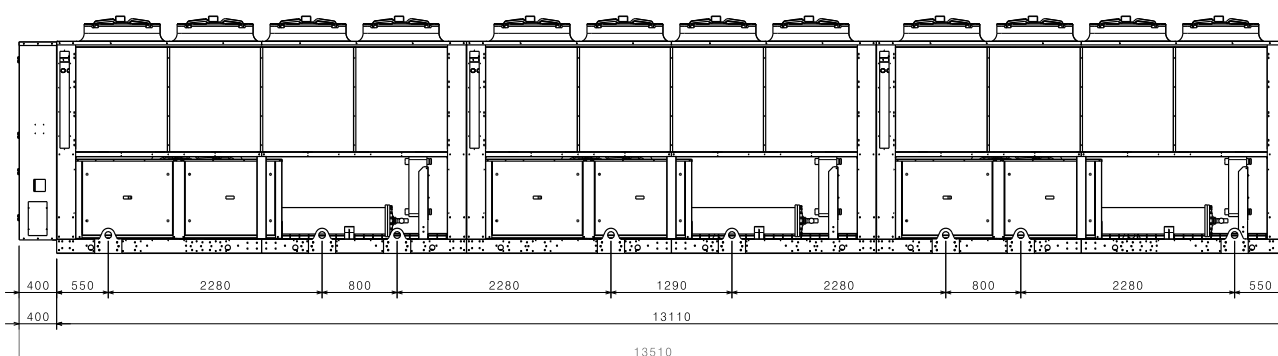
1. OUT Evaporator 5"
2. IN Evaporator 5"
3. IN Pumps 5"

MODULE A

1. OUT Evaporator 4"
2. IN Evaporator 4"
3. IN Pumps 4"

**WARNING:**

ALWAYS USE ALL THE
PROVIDED EYEBOLTS
FOR THE LIFTING OF
THE UNIT

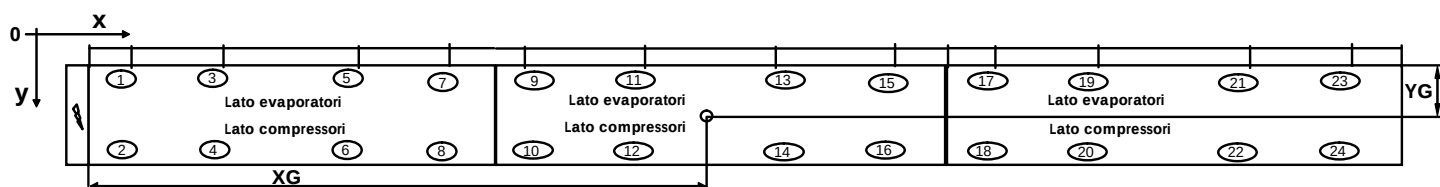
19.15. CARPENTRY BY 13510 (mm)
NS 6903 -7203 °°(°/L°°00...PA...PK)**POSITION OF VIBRATION DAMPERS****STRUT POSITION FOR LIFTING**

NS	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 1	Support 2	Support 3	Support 4	Support 5	Support 6	Support 7	Support 8	Support 9	Support 10	Support 11	Support 12	Support 13	Support 14	Support 15	Support 16
				kg	x	y	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
6903	°	°/L	00	13230	6345	1226	5.1%	6.5%			8.5%	10.8%	1.9%	2.4%			10.3%	13.1%	1.9%	2.4%		
6903	D	°/L	00	13400	6345	1226	5.1%	6.5%			8.5%	10.8%	1.9%	2.4%			10.3%	13.1%	1.9%	2.4%		
6903	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7203	°	°/L	00	13570	6243	1226	5.2%	6.6%			9.2%	11.5%	1.7%	2.2%			10.2%	12.8%	1.9%	2.4%		
7203	D	°/L	00	13750	6243	1226																
7203	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

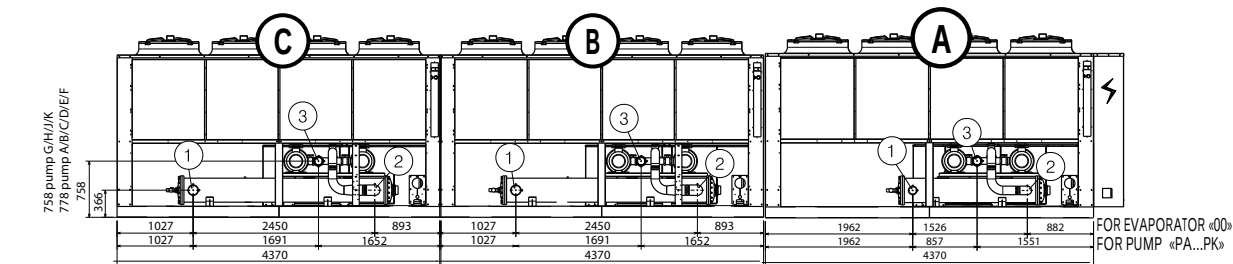
NS	Heat recovery	Version	Hydronic kit ⁽¹⁾	Weight and centre of gravity when empty (kg)			Support 17	Support 18	Support 19	Support 20	Support 21	Support 22	Support 23	Support 24	Kit AVX
				kg	x	y	%	%	%	%	%	%	%	%	
6903	°	°/L	00	13230	6345	1226	4.8%	6.1%	9.1%	11.6%			2.5%	3.2%	523
6903	D	°/L	00	13400	6345	1226	4.8%	6.1%	9.1%	11.6%			2.5%	3.2%	523
6903	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	523
7203	°	°/L	00	13570	6243	1226	4.7%	5.9%	8.9%	11.2%			2.5%	3.1%	531
7203	D	°/L	00	13750	6243	1226	4.7%	5.9%	8.9%	11.2%			2.5%	3.1%	531
7203	T	°/L	00	-	-	-	-	-	-	-	-	-	-	-	531

(1) il peso delle pompe da aggiungere alla versione senza kit idronico

- PA 69 Kg
- PB 138 Kg
- PC 75 Kg
- PD 150 Kg
- PE 91 Kg
- PF 182 Kg
- PG 100 Kg
- PH 200 Kg
- PJ 108 Kg
- PK 216 Kg



19.15.1. POSITION WATER CONNECTIONS
NS6903°°(°/L°°00...PA...PK)



- KEY**

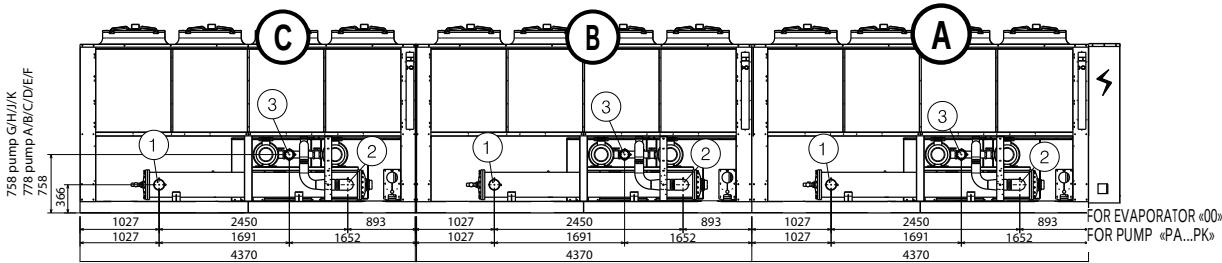
MODULE C

 - 1. OUT Evaporator 5"
 - 2. IN Evaporator 5"
 - 3. IN Pumps 5"
- MODULE B**

 - 1. OUT Evaporator 5"
 - 2. IN Evaporator 5"
 - 3. IN Pumps 5"
- MODULE A**

 - 1. OUT Evaporator 4"
 - 2. IN Evaporator 4"
 - 3. IN Pumps 4"

19.15.2. POSITION WATER CONNECTIONS
NS7203°°(°/L°°00...PA...PK)



- LEGENDA**

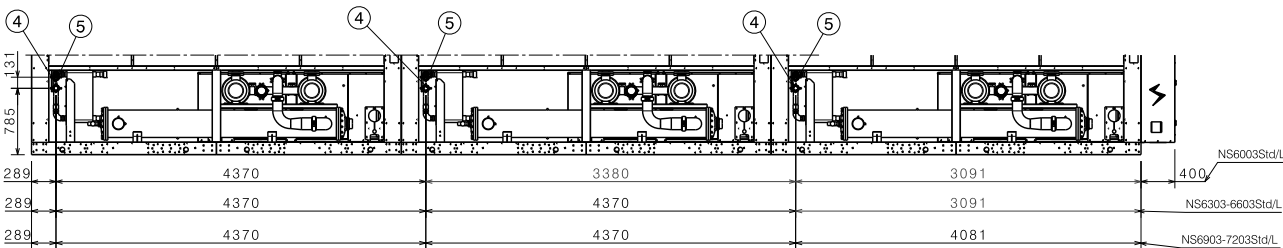
MODULE C

 - 1. OUT Evaporator 5"
 - 2. IN Evaporator 5"
 - 3. IN Pumps 5"
- MODULE B**

 - 1. OUT Evaporator 5"
 - 2. IN Evaporator 5"
 - 3. IN Pumps 5"
- MODULE A**

 - 1. OUT Evaporator 5"
 - 2. IN Evaporator 5"
 - 3. IN Pumps 5"

POSITION AND HYDRAULIC CONNECTION DESUPERHEATER TRIMODULE



- HYDRAULIC CONNECTIONS**
- ④ IN DESUPERHEATER Ø 2"
 - ⑤ OUT DESUPERHEATER Ø 2"

**WARNING:**

The high efficiency unit **6003 - 6303 - 6303 - 6903 - 7203 A - E**

For space reasons they are sent separately for the position of the vibration dampers and the water connections refer to their composition.

At the site, you must:

1. Placement of the two units with possible alignment that should be done by acting on the cylinder of the AVX in 1/2 mm order
2. Connect electronically the electrical panel of the first unit with the right place of the last unit
3. Hydraulically connect the units.

Double and triple module models, the water outlet probe (WOP), with its trap, is free, next to the electrical box, remember to insert it in the collector of the outlet hydraulic parallel, providing a first sleeve 1/2 inch.

4.

NB THE INSTALLER IS RESPONSIBLE FOR THE HYDRAULIC PARALLEL.

for further information on the installation, refer to the specific chapter (HYDRAULIC CIRCUITS - ELECTRICAL WIRINGS...)

NS 6003 A/E
formato da:

NS 1801 A/E
NS 1801 A/E
NS 2401 A/E

NS 7203 A/E
formato da:

NS 2401 A/E
NS 2401 A/E
NS 2401 A/E

NS 6303 A/E
formato da:

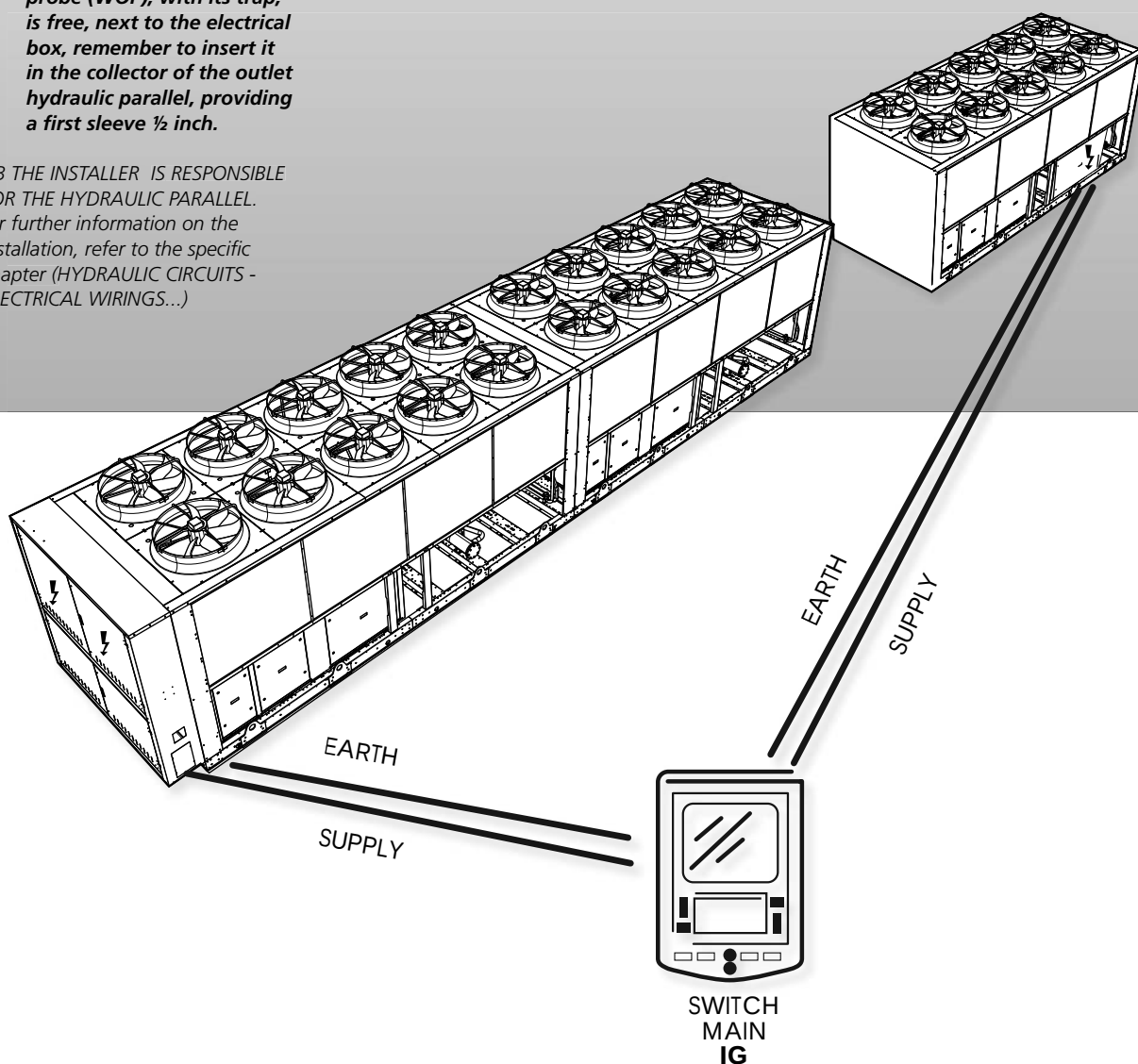
NS 1801 A/E
NS 2101 A/E
NS 2401 A/E

NS 6603 A/E
formato da:

NS 1801 A/E
NS 2401 A/E
NS 2401 A/E

NS 6903 A/E
formato da:

NS 2101 A/E
NS 2401 A/E
NS 2401 A/E



20. HYDRAULIC CIRCUIT

The NS consists of ONE - TWO - THREE CIRCUITS according to the size, together with:

STANDARD VERSION «00»

- **Evaporator 1 x Compressor (the size from 1402 to 2802 have 1 evaporator and 2 compressors)**
supplied with socket and Victaulic joints
- **Differential pressure switch**
- **Water inlet probe SIW**
- **Water outlet probe SUW**

NB

In the double and triple module, the water outlet probe (WOP) with its trap, is free, next to the electrical box, remember to insert it in the collector of the outlet hydraulic parallel, using a sleeve of ½ inch.

VERSION with DESUPERHEATER «D»

- **Evaporator 1 x circuit**
supplied with socket and Victaulic joints
- **Differential pressure switch**
- **Water inlet probe SIW**
- **Water outlet probe SUW**
- **Desuperheater with PLATE HEAT 1 x circuit**

VERSION with PUMP «PA...PK»

- **Evaporator 1 x circuit**
supplied with socket and Victaulic joints
- **Differential pressure switch**
- **Water inlet probe SIW**
- **Water outlet probe SUW**
- **Desuperheater with PLATE HEAT 1 x circuit**
- **Pump/s**
- **Expansion tanks 2 x 25 litres**

20.1. EXTERNAL HYDRAULIC CIRCUIT RECOMMENDED

The selection and installation of components outside the NS should be carried out by the installer, who should work according to the technical code of practice and in compliance with the legislation in force in the country of destination (MD 329/2004).

Before connecting the pipes make sure that they do not contain stones, sand, rust, slag or any foreign bodies that may damage the system. It is necessary to make a by-pass to the unit to be able to carry out the cleaning of the pipes without having to disconnect the machine. The connection pipes must be properly supported so as not to burden the unit with their weight.

On the water circuit, it is advisable to install the following instruments, if not foreseen in the version you have:

1. Two pressure gauges of suitable size (input and output section).
2. Two anti-vibration couplings (input and output section).
3. Two shut-off valves (normal input section, output section calibrating valve).
4. Two thermometers (input and output section).
5. Expansion tanks
6. Pump

7. Accumulation tank
8. Flow switch
9. Safety valve
10. Charging unit
11. Discharge tap

It is necessary, that the water flow rate to the chiller unit complies with the values reported in the performance tables.

The systems loaded with anti-freeze or specific regulations, need the water backflow system.

Special supply/recovery water, is carried out with appropriate treatment systems.

20.2. SYSTEM LOAD

- Before starting the load, check that the system drain tap is closed.
- Open all the drain valves of the system and of the related terminals.
- Open the shut-off devices of the system.
- Start the filling by slowly opening the water system load cock placed outside the machine.
- When water begins to flow from the terminal vent valves, close them and continue loading up to read on the gauge the value of 1.5 bar.

The system is loaded at a pressure between 1 and 2 bar.

It is advisable to repeat this operation once the machine has worked for some hours and to periodically check the system pressure, restoring it if it drops below 1 bar. Check the hydraulic seal of the joints.

20.3. EMPTYING THE SYSTEM

When emptying the system:

1. If a prolonged stay is planned, winter
 2. If a failure occurs or the need to operate in the system.
- Before you start emptying, place the switch of the unit on "off" and take off voltage.
 - Discharge the differential pressure switch
 - Check that the water system load/restore tap is closed
 - Open the drain tap outside the machine and all the vent valves of the system and the corresponding terminals.
 - Open the drain tap under the tube core heat exchanger, see figure
 - We recommend blowing compressed air heat exchanger to remove any water stocks.

If the system uses glycol, this liquid should not be drained to the environment because it is a pollutant. It must be collected and, if possible, reused.

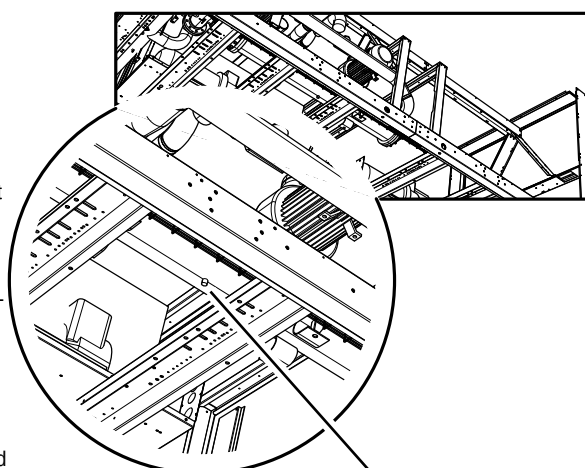


WARNING:

If the unit will remain at standstill for a long period during the winter, we recommend the discharge of the system (see below discharge operation) or the addition of water with glycol.

Warning:

Glycol by law can not be drained into the environment because it is a pollutant



**Drain tap
placed under the heat exchanger**

21. ELECTRICAL WIRINGS

The default NS chillers are completely wired and only need the connection to the power supply net, downstream to a group switch, according to the regulations in force in the country where the machine is installed. It is also suggested to check:

- the mains supply characteristics, to ensure it is suitable for the levels indicated in the electrical data table, also taking into consideration any other equipment that may be operating at the same time.
- The unit is only powered after the last (hydraulic and electric) installations.
- Follow the connections instructions of the phase conductors, and earth.
- The power line will have a special protection upstream against short circuits and earth losses that sections the system according to other users.
- The voltage should be within a tolerance of $\pm 10\%$ of the rated supply voltage of the machine (for three-phase units displacement max 3% between the phases). If these parameters are not respected, contact the energy supplier. For electrical wirings use isolated double cables according to the standards in force in the different countries.
- It is necessary to use a omnipolar thermomagnetic switch, in compliance with the CEI-EN standards (contact opening of at least 3 mm), with adequate switch capability and differential protection based on the followed electrical data table, installed as close as possible to the machine.
- It is necessary to carry out an efficient earth connection. The manufacturer can not be held responsible for any damage caused by the failure and ineffective earthing of the machine.
- For units with three-phase power check the correct connection of the phases.

WARNING:

It is forbidden to use water pipes for the earthing of the machine.

21.1. RECOMMENDED SECTION OF ELECTRIC CABLES



All electrical operations must be carried out BY QUALIFIED PERSONNEL, IN ACCORDANCE WITH THE CORRESPONDING REGULATIONS, trained and informed about the risks related to such operations.



The characteristics of electric lines and related components must be established by PERSONNEL AUTHORISED TO DESIGN ELECTRIC INSTALLATIONS, following international regulations and the national regulations of the country in which the unit is installed, in compliance with the legislative regulations in force at the moment of installation.



For installation requirements, the wiring layout supplied with the unit must be compulsory referred to. The wiring layout together with the manuals must be kept in good conditions and readily ACCESSIBLE FOR FUTURE OPERATIONS ON THE UNIT.



It is compulsory to check the machine sealing before connecting the electrical wiring. The machine should only be powered once the hydraulic and electric operations are completed.

The cable sections indicated in the table are advised for a maximum length of 50 m.

For higher lengths or different types of cable installation, it will be the DESIGNERS responsibility to carefully measure the line main switch, the supply power line and the earthing protection connection, and the working connection cables:

- the length
- the type of cable
- Absorption of the unit and its physical position, and room temperature.

WARNING:

Check that all power cables are correctly secured to the terminals when switched on for the first time and after 30 days of use. Afterwards, check the connection of the power cables every six months.

Slack terminals could cause the cables and components to overheat.

21.2. CONNECTION TO THE POWER SUPPLY

- Check there is no voltage on the electric line you want to use.

21.2.1. To access the electric box:

- Turn $\frac{1}{4}$ the screws of the electrical panel in counter-clockwise direction
- Turn the handle of the door-block disconnecting switch to OFF (see figure). In this way, the electrical panel can be accessed

21.3. ELECTRICAL POWER CONNECTION

For functional connection of the unit take the supply power cable to the

electrical panel inside the unit in the previous page and connect it to the disconnecting switch terminals observing the phase, and the earth.

NOTE

Models from 5002 to 7203 A / E have two electrical boxes, a front side compressor unit and a heat exchanger finned coil. At the site, we connect the supply power and earth connection. (fig.. Also in the models from 5702 to 7203 A - E, that are sent separately, at the moment of installation, it is necessary to put the two units in network by connecting the two PC03 MASTER SLAVE 1 on the electrical box of the double module with that of SLAVE 2 in the electrical box of the single module (see figure) using exclusively a shielded AWG20/22 cable made of a twisted pair and a shielding for communication standard RS485. The cards are connected in parallel referring to terminal clamp J11. Respect the network polarity: RX/TX+ of one card must be connected to RX/TX+ of the other card and the same thing for the RX/TX-.

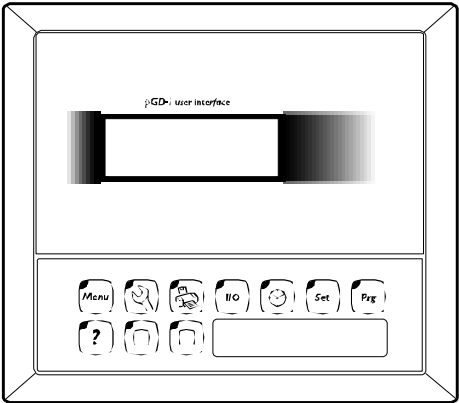
21.4. AUXILIARY CONNECTIONS AT THE USER/INSTALLER EXPENSE

For installation requirements, refer to the wiring diagram supplied with the unit. The wiring diagram together with the manuals must be kept in good conditions and readily ACCESSIBLE FOR FUTURE OPERATIONS ON THE UNIT.



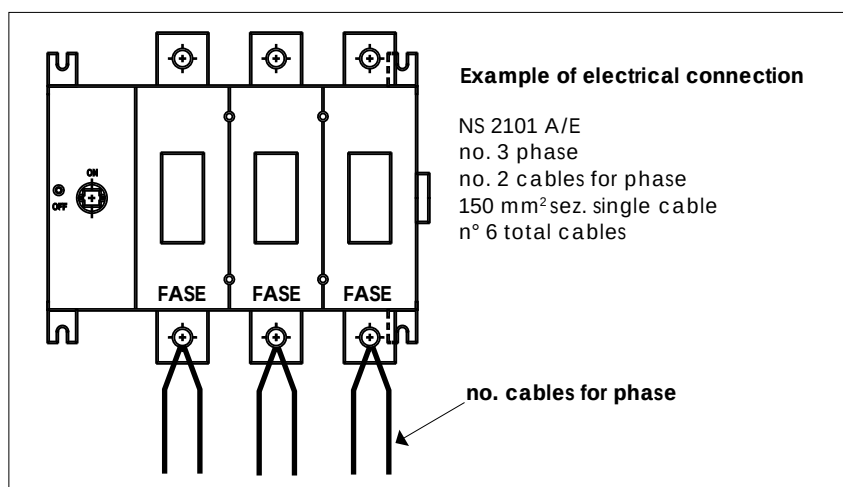
▲
Fig. 2

Legenda fig. 2	
L1	Linea 1
L2	Linea 2
L3	Linea 3
PE	Terra



21.5. ELECTRIC DATA VERSIONS «°/L»

NS	VERSION	no. power required	Formed by:	SECT. A				SEC. B mm²	Earth mm²	IL A
				no. cable for phase	sect. single cable mm²	total no. cables	no. phase			
1251	(°) - L	1		1	150	3	3	1.5	70	250
1401	(°) - L	1		1	185	3	3	1.5	95	315
1601	(°) - L	1		1	240	3	3	1.5	120	315
1801	(°) - L	1		1	240	3	3	1.5	120	400
2101	(°) - L	1		2	150	6	3	1.5	150	630
2401	(°) - L	1		2	185	6	3	1.5	185	630
1402	(°) - L	1		1	185	3	3	1.5	95	315
1602	(°) - L	1		1	240	3	3	1.5	120	315
1802	(°) - L	1		1	240	3	3	1.5	120	400
2002	(°) - L	1		2	150	6	3	1.5	150	400
2202	(°) - L	1		2	150	6	3	1.5	150	400
2352	(°) - L	1		2	185	6	3	1.5	185	630
2502	(°) - L	1		2	185	6	3	1.5	185	630
2652	(°) - L	1		2	185	6	3	1.5	185	630
2802	(°) - L	1		2	240	6	3	1.5	240	630
3002	(°) - L	1		3	150	9	3	1.5	2x120	630
3202	(°) - L	1		3	185	9	3	1.5	2x150	630
3402	(°) - L	1		3	185	9	3	1.5	2x150	800
3602	(°) - L	1		3	240	9	3	1.5	2x185	800
3902	(°) - L	1		3	240	9	3	1.5	2x185	800
4202	(°) - L	1		4	185	12	3	1.5	2x185	800
4502	(°) - L	1		4	240	12	3	1.5	2x240	1000
4802	(°) - L	1		4	240	12	3	1.5	2x300	1000
5002	(°) - L	1		4	240	12	3	1.5	2x240	1000
5202	(°) - L	1		5	240	15	3	1.5	3x240	1205
5402	(°) - L	1		6	240	18	3	1.5	3x240	1250
5702	(°) - L	1		7	240	21	3	1.5	4x240	1600
6003	(°) - L	2	3602	3	240	9	3	1.5	2x185	800
			2401	2	185	6	3	1.5	185	630
6303	(°) - L	2	3902	3	240	9	3	1.5	2x185	800
			2401	2	185	6	3	1.5	185	630
6603	(°) - L	2	4202	4	185	12	3	1.5	3x185	800
			2401	2	185	6	3	1.5	185	630
6903	(°) - L	2	4502	4	240	12	3	1.5	240	1000
			2401	2	185	6	3	1.5	185	630
7203	(°) - L	2	4802	4	240	12	3	1.5	2x240	1000
			2401	2	185	6	3	1.5	185	630



KEY

SECT.A

SECT.B

EARTH

THE

Power supply

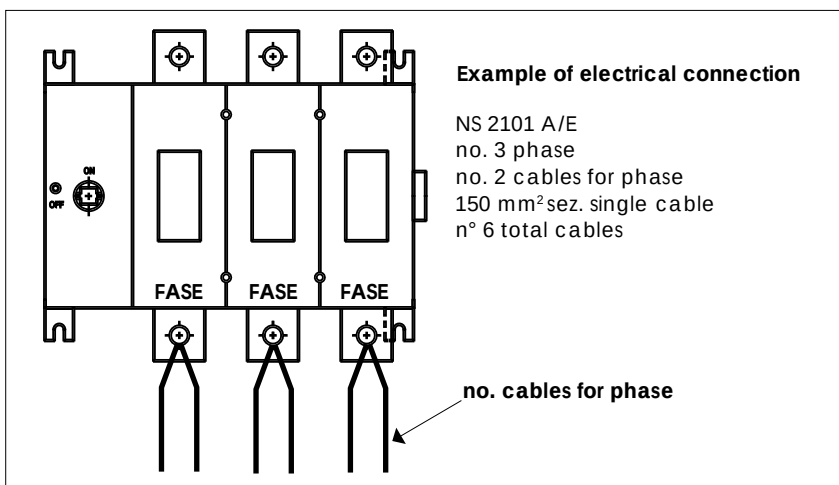
Remote panel

Earth to bring to the machine

Main switch

21.6. ELECTRIC DATA VERSIONS «A/E»

NS	VERSION	no. power required	Formed by:	SECT. A				SEC. B mm ²	Earth mm ²	IL A
				no. cable for phase	sect. single cable mm ²	total no. cables	no. phase			
1251	A/E	1		1	150	3	3	1.5	70	250
1401	A/E	1		1	185	3	3	1.5	95	315
1601	A/E	1		1	240	3	3	1.5	120	315
1801	A/E	1		1	240	3	3	1.5	120	400
2101	A/E	1		2	150	6	3	1.5	150	630
2401	A/E	1		2	185	6	3	1.5	185	630
1402	A/E	1		1	185	3	3	1.5	95	315
1602	A/E	1		1	240	3	3	1.5	120	315
1802	A/E	1		1	240	3	3	1.5	120	400
2002	A/E	1		2	150	6	3	1.5	150	400
2202	A/E	1		2	150	6	3	1.5	150	400
2352	A/E	1		2	185	6	3	1.5	185	630
2502	A/E	1		2	185	6	3	1.5	185	630
2652	A/E	1		2	185	6	3	1.5	185	630
2802	A/E	1		2	240	6	3	1.5	240	630
3002	A/E	1		3	150	9	3	1.5	2x120	630
3202	A/E	1		3	185	9	3	1.5	2x150	630
3402	A/E	1		3	185	9	3	1.5	2x150	800
3602	A/E	1		3	240	9	3	1.5	2x185	800
3902	A/E	1		3	240	9	3	1.5	2x185	800
4202	A/E	1		4	185	12	3	1.5	2x185	800
4502	A/E	1		4	240	12	3	1.5	2x240	1000
4802	A/E	1		4	240	12	3	1.5	2x300	1000
5002	A/E	1		4	240	12	3	1.5	2x240	1000
5202	A/E	1		5	240	15	3	1.5	3x240	1205
5402	A/E	1		6	240	18	3	1.5	3x240	1250
5702	A/E	1		7	240	21	3	1.5	4x240	1600
6003	A/E	2	3602	3	240	9	3	1.5	2x185	800
			2401	2	185	6	3	1.5	185	630
6303	A/E	2	3902	3	240	9	3	1.5	2x185	800
			2401	2	185	6	3	1.5	185	630
6603	A/E	2	4202	4	185	12	3	1.5	3x185	800
			2401	2	185	6	3	1.5	185	630
6903	A/E	2	4502	4	240	12	3	1.5	240	1000
			2401	2	185	6	3	1.5	185	630
7203	A/E	2	4802	4	240	12	3	1.5	2x240	1000
			2401	2	185	6	3	1.5	185	630



KEY
SECT.A
SECT.B
EARTH
THE

Power supply
Remote panel
Earth to bring to the machine
Main switch

WARNING

The first start-up has to be carried out with the standard settings, only at last test vary the values of the operation Set Point.

Before starting, power the unit for at least 12-24 hours by positioning the protection thermomagnetic switch and the door-block disconnecting switch on ON fig.1

Make sure that the control panel is turned off until it allows the oil heater system the compressor casing.



Led acceso

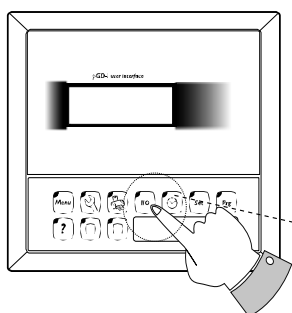
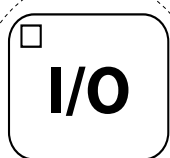
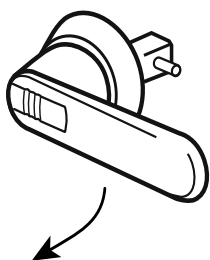


Fig. 4

Fig. 3



22. CONTROL AND FIRST START-UP

22.1. PREPARATION FOR COMMISSIONING

Bear in mind that a free start-up service is offered by the Aermec Technical Service for the unit of this series, at the request of Aermec customers or legitimate owners and in ITALY only.

The start-up must be previously agreed on the basis of the system implementation times. Before the intervention of the AERMEC After Sales Service, all the operations (electrical and hydraulic hook ups, loading and breather from the system) must be completed.

Before starting the unit make sure that:

- All the safety conditions have been respected
- The unit has been properly fixed to the support base
- The minimum technical spaces have been observed;
- Water connections have been performed respecting the input and output
- The hydraulic system has been loaded and vented.
- The hydraulic circuit taps are open
- The electrical connections have been properly carried out;
- The voltage is within a tolerance of 10% of the unit nominal voltage
- The earthing has been carried out correctly
- Tightening of all electrical and hydraulic connections have been well carried out.

22.2. FIRST COMMISSIONING OF THE MACHINE

Before activating the unit:

- Close the electric panel lid.
- Position the door-block disconnecting switch of the machine on ON, turning the handle down. (fig.3)
- Press the key ON to start the machine (fig.4); when the access LED appears the unit is ready for the operation.

22.3. SEASON CHANGEOVER

- For each seasonal change check that the operation conditions return to the limit.
- Check that the absorption current of the compressor is less than the maximum indicated in the technical data table.
- Check in the models with three-phase supply power that the noise level of the compressor is not abnormal, in this case invert a phase.
- Make sure that the voltage value are within the prefixed limits and that the displacements between the three phases (three-phase supply power) do not get above 3%.

22.3.1. Season change of the panel on the machine

To activate season change, just press the key indicated in (fig. 5). Switch off the unit in stand-by must be activated in remote and local mode.

For further information refer to the USER MANUAL.

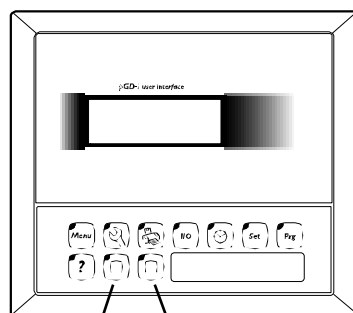


Fig. 5

23. FUNCTIONING CHARACTERISTICS

23.1. COOLING SET POINT

(Default defined) = 7°C, $\Delta t = 5^\circ\text{C}$.

23.2. COMPRESSOR START DELAY

To prevent the compressor start too close to each other, two functions have been arranged.

- Minimum time from last turnoff 60 seconds.
- Minimum time from last start 300 seconds.

23.3. CIRCULATION PUMP

The electronic board provides an output to manage the circulation pump. After the first 10 seconds of the pump operation, when the water flow rate is running, activate the function of water flow rate alarm (flow switch).

23.4. ANTI-FREEZE ALARM

The anti-freeze alarm is active as if the machine is turned-off or if the machine is in standby mode. In order to prevent breakage of the plate exchanger due to frozen water, the compressor is locked (if the machine is under 4°C) and the resistance starts up (if standby below 5°C), if the temperature detected by the probe in the exchanger output the chiller is below +4 °C.

WARNING

THE ANTI-FREEZE SET TEMPERATURE CAN BE VARIED ONLY BY AN AUTHORISED SERVICE CENTRE AND ONLY AFTER VERIFYING THAT IN THE WATER CIRCUIT IS AN ANTIFREEZE SOLUTION.

The intervention of this alarm sets the compressor block and not of the pump, which remains active, and the resistance starts-up if installed.

For the restoration of the normal functions of the temperature of the water output have to come back over +4 °C, the reset

is manual.

WARNING:

AT ANY INTERVENTIONS OF THIS ALARM IT IS RECOMMENDED TO IMMEDIATELY CONTACT THE NEAREST TECHNICAL SERVICE ASSISTANCE

23.5. WATER FLOW RATE ALARM

The pCo³ provides the management of a water flow rate alarm commanded from a flow switch standardly installed on the machine. This safety type can occur after the first 10 seconds of operation of the pump if the water flow rate is not sufficient. This alarm sets the block of the compressor and the pump.

24. REGULAR MAINTENANCE

Any cleaning operation is forbidden before disconnecting the unit from the power supply. Check for voltage before operating. Periodic maintenance is essential to maintain the unit in perfect working order under the functional as well as the energetic aspect. Therefore it is essential to provide yearly controls for the:

24.5.1. Hydraulic circuit

CONTROL:

- Water circuit filling
- Water filter cleaning
- Control of differential pressure switch/ flow switch
- Air in the circuit (leaks)
- That the water flow rate to the evaporator is always constant
- The hydraulic piping thermal insulation state
- Where provided the percentage of glycol

24.5.2. Electric circuit

CONTROL:

- Efficiency of safety devices
- Electrical power supply
- Electrical power consumption
- Connections tightened
- Function of the compressor housing resistance

24.5.3. Chiller circuit

CONTROL:

- Compressor conditions
- Working pressure
- Loss test for the control of the sealing of the refrigerant circuit
- Function of high and low pressure switches
- Perform the necessary checks on the filter-drier to verify their efficiency.

24.5.4. Mechanical controls

CONTROL:

- The screws, compressors and the electric box of the unit external panning are properly tightened. If they are poorly tightened, they produce abnormal noise and vibrations
- The structure conditions. If necessary, treat oxidised parts with paints suitable for eliminating or reducing oxidation.

25. EXTRAORDINARY MAINTENANCE

The NS are loaded with R134a gas and tested in the factory. In normal conditions, no Technical Assistance Service operation is needed for the refrigerant gas check. Along time, however, small leaks from the joints may be generated. Due to these leaks, the refrigerant comes



WARNING

Inspection, maintenance and possible repair operations must be carried out only by an authorised technician according to the law.



A deficient check/maintenance operation may result in damage to things and people.



For machines installed near the sea the maintenance intervals must be halved.

It is advisable to keep a machine booklet (not supplied, but provided by the user), in order to keep trace of the operations carried out on the unit. In this way, it will be easier to organise the operations properly and facilitate failure prevention and troubleshooting in the machine. In the booklet, write down date, type of operation carried out (routine maintenance, inspection or repair), description of the operation, measures taken...



It is forbidden to CHARGE the cooling circuits with a refrigerant different from the one indicated. If a different refrigerant gas is used, the compressor may result seriously damaged.



DISPOSAL

Provided that the disposal of the unit is carried out according to the rules in force in different countries.



out and the circuit is drained, causing the unit malfunction. In these cases, the refrigerant leakage points are found and repaired, and the cooling circuit is recharged, operating in compliance with Law 28 December 1993 no. 549.

25.5.1. Loading procedure

The loading procedure is as follows:

- Empty and dehydrated the entire refrigeration circuit using a vacuum pump connected to the low grip as to the high grip of high pressure till the vacuum gauge reading up to about 10 Pa. Wait some minutes and check that this value does not goes back again over 50 Pa.
- Connect the refrigerant gas bomb or a load cylinder to the grip on the low-pressure line.
- Charge the amount of refrigerant gas indicated on the characteristics plate of the machine.
- After any operation control that the liquid indicator indicates a dry circuit (dry-green) In case of partial loss the circuit has to be emptied completely

before reloading it.

- The refrigerant R134a has to be loaded only in liquid phase.
- Different operating conditions from the normal can result in different values.
- Leak testing or leaking research must be carried out only by using refrigerant gas R134a by checking with a suitable leak detection.
- It is prohibited to use in the refrigeration circuit, oxygen or acetylene or other flammable or poisonous gas because they can cause explosions or intoxication.



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