



## REVERSIBLE HEAT PUMP - Technical Manual

### WATER/WATER HEAT PUMP

- INDOOR UNIT
- HIGH EFFICIENCIES
- PRODUCTION OF HOT WATER UP TO 60°
- USED FOR GEOTHERMAL APPLICATIONS
- REVERSIBLE GAS SIDE

# WRL-H 025/160



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participate in the EUROVENT  
program: LCP/W/P/C.  
the products are present on the site  
[www.eurovent-certification.com](http://www.eurovent-certification.com)





Dear Customer,

Thank you for choosing an AERMEC product. This product is the result of many years of experience and in-depth engineering research, and it is built using top quality materials and advanced technologies.

In addition, the CE mark guarantees that our appliances fully comply with the requirements of the European Machinery Directive in terms of safety. We constantly monitor the quality level of our products, and as a result they are synonymous with Safety, Quality, and Reliability.

*Product data may be subject to modifications deemed necessary for improving the product without the obligation to give prior notice.*

Thank you again.  
AERMEC S.p.A

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# WRL-H

SERIAL NUMBER

**DECLARATION OF CONFORMITY**

We, the undersigned, hereby declare under our own responsibility that the assembly in question, defined as follows:

**NAME** WRL-H  
**TYPE** WATER-COOLED REVERSIBLE HEAT PUMPS  
**MODEL**

To which this declaration refers, complies with the following harmonised standards:

IEC EN 60335-2-40	Safety standard regarding electrical heat pumps, air conditioners and dehumidifiers
IEC EN 61000-6-1 IEC EN 61000-6-3	Immunity and electromagnetic emissions for residential environments
IEC EN 61000-6-2 IEC EN 61000-6-4	Immunity and electromagnetic emissions for industrial environments
EN378	Refrigerating system and heat pumps - Safety and environmental requirements
UNI EN 12735 UNI EN 14276	Seamless, round copper tubes for air conditioning and refrigeration Pressure equipment for cooling systems and heat pumps

**Thereby, compliant with the essential requirements of the following directives:**

- LVD Directive: 2006/95/CE
- Electromagnetic Compatibility Directive 2004/108/CE
- Machinery Directive 2006/42/CE
- PED Directive regarding pressurised devices 97/23/CE

The product, in agreement with Directive 97/23/CE, satisfies the Total quality Guarantee procedure (form H) with certificate no. 06/270-QT3664 Rev. 5 issued by the notified body n.1131 CEC via Pisacane 46 Legnano (MI) - Italy

The person authorised to constitute the technical file is: / The person authorised to compile the technical file is: /  
La personne autorisée à constituer le dossier technique est: / Die Person berechtigt, die technischen Unterlagen zusammenzustellen:

Alberto Foroni  
Via Ca' Magre, 45 - 37063 Isola della Scala (VR)

Bevilacqua

15/04/2010

Marketing Manager  
Signature



Standards and Directives respected when designing and constructing the unit:

**Safety:**

**Machinery Directive**  
2006/42/CE

**Low Voltage Directive**  
LVD 2006/95/CE

**Electromagnetic Compatibility Directive**

EMC 2004/108/CE

**Pressure Equipment Directive**  
PED 97/23/CE EN 378,  
UNI EN 14276

**Electric part:**  
EN 60204-1

**Acoustic part:**  
SOUND POWER  
(EN ISO 9614-2)  
SOUND PRESSURE  
(EN ISO 3744)

**Certifications:**  
Eurovent

**Refrigerant GAS:**

This unit contains fluoride gases with greenhouse effect covered by the Kyoto Protocol. Maintenance and disposal must only be performed by qualified staff.

**1. GENERAL WARNINGS**

The WRL-H AERMEC heat pumps are constructed according to the recognised technical standards and safety regulations. They are designed for summer and winter conditioning and the production of domestic hot water. Any contractual or extracontractual liability of the Company is excluded for injury/damage to persons, animals or objects owing to installation, regulation and maintenance errors or improper use. All uses not expressly indicated in this manual are prohibited.

**1.1. PRESERVATION OF THE DOCUMENTATION**

The instructions along with all the related documentation must be given to the user of the system, who assumes the responsibility to conserve the instructions so that they are always at hand in case of need. Read this sheet carefully; the execution of all works must be performed by qualified staff, according to Standards in force on this subject in different countries. (Ministerial Decree 329/2004).

**1.2. INSTALLATION**

The unit must be installed in such a way that maintenance and/or repairs can be carried out.

**1.3. WARRANTY**

The appliance warranty does not cover the costs for ladder trucks, scaffolding, or other elevation systems that may become necessary for carrying out servicing under warranty. Do not modify or tamper with the heat pump as dangerous situations can be created and the manufacturer will not be liable for any damage caused. The validity of the warranty shall be void in the event of failure to comply with the above-mentioned indications.

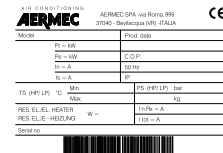
**1.4. WARNINGS REGARDING SAFETY AND INSTALLATION STANDARDS**

- The cooler must be installed by a qualified and suitably trained technician, in compliance with the national legislation in force in the country of destination (Ministerial Decree 329/2004). **AERMEC will not assume any responsibility for damage due to failure to follow these instructions.**
- Before beginning any operation, **READ THESE INSTRUCTIONS CAREFULLY AND CARRY OUT THE SAFETY CHECKS TO AVOID ALL RISKS.** All the staff involved must have thorough knowledge of the operations and any dangers that may arise at the moment in which the installation operations are carried out.

**2. PRODUCT IDENTIFICATION**

The WRL-H heat pumps can be identified by:

- **PACKING LABEL** which shows the product identification data
- **TECHNICAL PLATE** (see position chap. 2.1.).



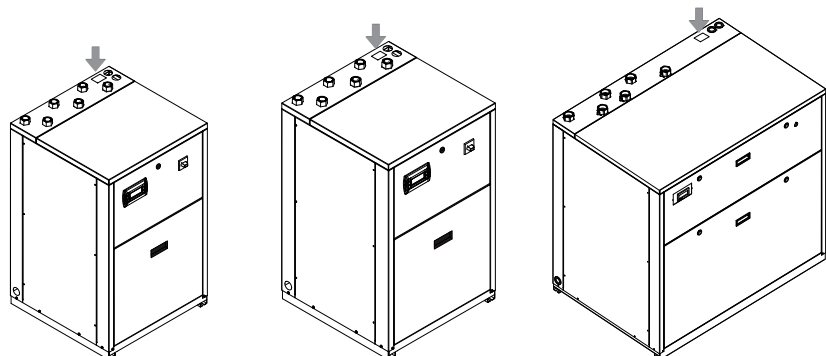
example of technical plate

**2.1. TECHNICAL PLATE POSITION**



**ATTENTION**

Tampering, removal, lack of the identification plate or other does not allow the safe identification of the product and will make any installation or maintenance operation to be performed difficult.



### 3. PRESENTATION

AERMEC presents the new **WRL-H, UNITS, GAS SIDE REVERSIBLE HEAT PUMPS, OPTIMISED FOR GEOTHERMIC SYSTEMS** that are water-cooled and operate with R410A refrigerant.

They are **INDOOR UNITS** with hermetic scroll compressors that perfectly meet the requirements of the residential market:

#### High performance

These units have been designed optimising functioning in heat pump mode, allowing to reach high efficiencies.

#### Easy installation

The electric and hydraulic connections

are all positioned in the upper part of the unit facilitating the installation and maintenance operations. This also allows to reduce the technical spaces and their positioning in as smaller space possible.

#### Silent

The WRL-H units are distinguished for its working silence.

Careful soundproofing of the unit with suitable sound-absorbent material confer all units with noise limits such to consent the use of the WRL-H heat pumps also in homes and not necessarily in dedicated technical rooms.

#### Dynamic set point

The electronic regulation, via the aid of an external air temperature probe (ACCESSORY) and according to the

external conditions, automatically modifies the set point of the system water temperature, thereby improving the energy efficiency of the system. optimised for:

#### 1. GEOTHERMIC SYSTEMS

Production of water for heating systems for systems with FAN COILS, RADIANT PANELS OR LOW TEMPERATURE RADIATORS, up to 60°C.

#### 2. PRIORITY PRODUCTION OF DOMESTIC HOT WATER (DHW).

Production of DHW with priority logic is guaranteed in summer and winter mode.

### 4. SYSTEM EXAMPLES



The WRL heat pump can manage up to a maximum of 3 ZONES

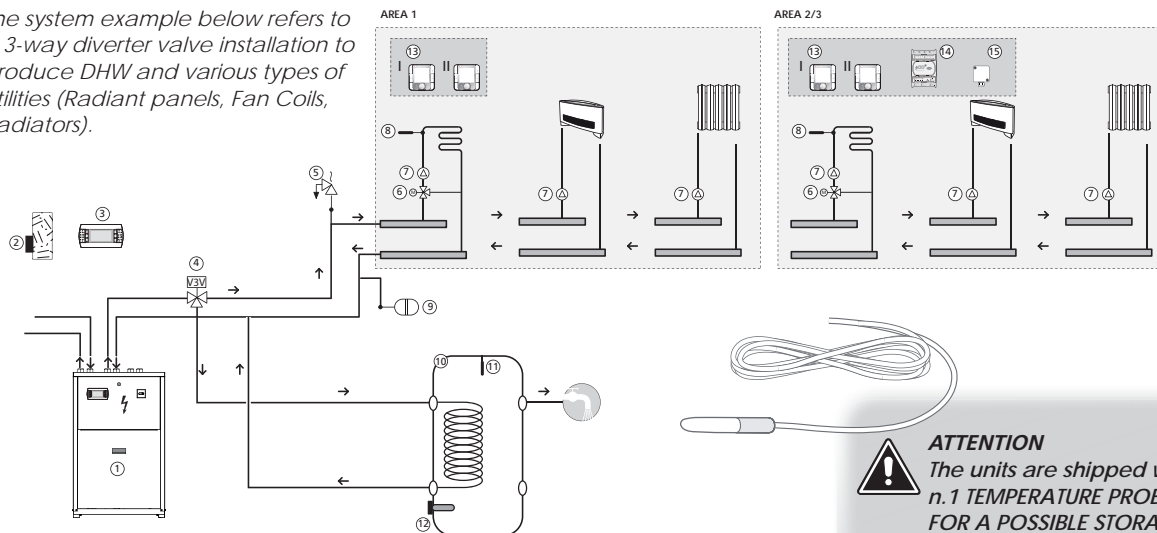
**ZONE N° 1:** Managed as per standard thanks to last generation electronic regulation. It is recommended to mount the "SSM" electronic marking probe (accessory) to control the flow temperature. (The unit is shipped with n.1 temperature probe for a possible DHW storage tank.)

**ZONE 2 and ZONE 3** are managed using the VMFCRP + SSM accessories for each zone.

E.G. The heat pump is connected directly to the utility circuit (SYSTEM) and produces domestic hot water (DHW) via the management of a 3-way diverter valve, connected to a storage tank.

**The DHW production has priority over that of the system.**

The system example below refers to a 3-way diverter valve installation to produce DHW and various types of utilities (Radiant panels, Fan Coils, Radiators).



KEY:

1. WRL-H
2. External air temperature probe (ACCESSORY)
3. Remote control panel
4. Three-way valve
5. Safety valve
6. Mixing valve Zone 1
7. Pump (**ATTENTION: The pumps are not managed in areas 2 and 3**)
8. Water temperature probe
9. Additional expansion vessel (if necessary)
10. Domestic hot water storage tank "DHW" (not supplied)
11. Storage tank probe
12. Integrative electric resistance (not supplied)
13. STA - STH "Zone control panel" (accessory)
14. VMFCRP (accessory, **necessary to control Zones 2 and 3**)
15. SSM (accessory, **necessary to control Zones 2 and 3**)



**ATTENTION**  
The units are shipped with n.1 TEMPERATURE PROBE FOR A POSSIBLE STORAGE TANK.

#### Examples of hydraulic layouts

#### NOTE:

**VMFCRP can control:**

1. n° 2 STA/STH or n° 2 pumps (digital contacts).
2. n° 1 mixing valve (analogue contact) – SSM probes kit necessary.

## 5. CONFIGURATOR

1,2,3	4,5,6	7	8	9	10	11	12	13	14	15
WRL	050	X	H	°	°	B	P	°	°	°

FIELD CODE

1, 2, 3 **WRL**

4, 5, 6 **SIZES** 025 - 030 - 040 - 050 - 070 - 080 - 100 - 140 - 160

7 **FIELD OF USE**

X Electronic thermostatic valve with water produced up to 8 °C (AS PER STANDARD FOR ALL MODELS)

8 **MODEL:**

H Heat Pump

9 **VERSION:**

° Standard

A With system storage tank

10 **HEAT RECOVERY**

° Without heat recovery

T Total heat recovery

11 **STANDARD VERSION GEOTHERMY SIDE PUMPS KIT « ° / A »**

° Without pump

**GEOTHERMY APPLICATIONS**

B 3-SPEED PUMP ON-OFF (AVAILABLE TO WRL 080 MODEL)

SINGLE SPEED THREE-PHASE STANDARD PUMP (WRL 100-140-160 MODELS)

U SINGLE SPEED THREE-PHASE larger pump (WRL 100-140-160 MODELS)

F Pump wit phase cut set-up, (AVAILABLE TO WRL 080 MODEL)

I Inverter pump, (AVAILABLE TO WRL 080 MODEL)

**APPLICATIONS WITH WATER SHEET**

V 2-way modulating valve

12 **USER SIDE PUMPS KIT**

**STANDARD VERSION « ° »**

° Without pump

P 3-SPEED PUMP ON-OFF (AVAILABLE TO WRL 080 MODEL)

SINGLE SPEED THREE-PHASE standard pump (WRL 100-140-160 MODELS)

N SINGLE SPEED THREE-PHASE larger pump (WRL 100-140-160 MODELS)

**VERSION «A»**

° Without Pump

P 3 SPEED ON-OFF pump (AVAILABLE UP TO WRL 080 MODEL) SINGLE SPEED three-phase standard pump (WRL 100-140-160 MODELS)

J LARGER 3-SPEED PUMP ON-OFF (AVAILABLE TO WRL 040 MODEL)

N SINGLE SPEED THREE-PHASE larger pump (WRL 100-140-160 MODELS)

13 **RECOVERY PUMP KIT**

° Without pump

Q Pump

14 **SOFT-START KIT**

° Without soft start

S With soft-start

15 **POWER SUPPLY**

° 400V-3N-50 Hz

M 230V-1-50Hz (Only for sizes 025, 030, 040)

4 230V-3-50Hz (Only for sizes 050, 070, 080, 100, 140, 160)

**Configuration example:**

**WRL025XH°°°°°°°°** (Electronic thermostatic valve as per standard).



## 6. DESCRIPTION OF COMPONENTS

### 6.1. STRUCTURE

#### Base and support structure

Made up from hot galvanised sheet steel elements with suitable thickness. All parts painted with polyester powder paints (RAL 9002), resistant to atmospheric agents. Realised in a way to allow total accessibility to the components internal components. All panels are covered with sound-absorbent material with suitable thickness.

### 6.2. COOLING CIRCUIT

#### Compressor

High efficiency scroll hermetic compressors (mounted on anti-vibration supports), activated by a 2-pole electric motor with internal heat protection.

#### Evaporator

Plate type (AISI 316). It is insulated externally with closed cell material to reduce thermal dispersions.

#### Condenser

Plate type (AISI 316). It is insulated externally with closed cell material to reduce thermal dispersions.

#### Dehydrator filter,

Hermetic-mechanical with cartridges made of ceramic and hygroscopic material, able to withhold impurities and any traces of humidity present in the cooling circuit. Biflow type up to model 080.

#### Indicator for liquid passage with humidity presence signal,

Used to check the refrigerant gas load and the eventual presence of humidity in the cooling circuit.

#### Electronic thermostatic valve (STANDARD FOR ALL MODELS).

The valve modulates the flow of gas to the evaporator, according to the heat load, in order to ensure a correct heating level of the intake gas.

#### One-way valves (FOR MODELS 100-140-160).

Allows the passage of the refrigerant in just one direction.

#### 4-way cycle reverse valve

Inverts the flow of refrigerant gas.

### 6.3. MAIN OPERATIONS

The WRL-H heat pumps are supplied as per standard with:

- **Water filter;** Equipped with steel filtering mesh; prevents the heat exchangers from clogging.

- **Differential pressure switch;** It checks that there is water circulation inside the heat exchangers. Adversary, it blocks the unit
- **Safety valve (6 bar).** Equipped with a piped discharger and intervenes by discharging the over pressure in case of anomalous pressures.
- **Expansion tank (for version with storage tank/storage tank+pumps)** With nitrogen pre-load membrane.
- **Air vent**
- **Drain cock**
- **Cut-off cock**

Below find the description of the hydraulic components, present in the various other versions. **WRLH\*TBPQ.**

### 6.4. WATER FEATURES

PH	6-8
Electric conductivity	less than 200 mV/cm (25°C)
Chloride ions	less than 50 ppm
Sulphuric acid ions	less than 50 ppm
Total iron	less than 0.3 ppm
Alkalinity M	less than 50 ppm
Total hardness	less than 50 ppm
Sulphur ions	none
ammonia ions	none
Silicone ions	less than 30 ppm

### 6.5. COMPONENTS THAT CAN BE CONFIGURED

The components that can be selected by the configurator are:

- **3-speed ON/OFF pump (up to 080 model) or standard three-phase one-speed pump for 100-140-160 models.**
- **Larger single speed three phase pump (100-140-160 models).**
- **Pump with phase cut set-up (up to 080 model).**
- **Inverter pump (up to 080 model).**
- **Storage tank; "100 litres WRL 025-080", "150 litres WRL 100-160".**  
The following is available for well/sheet water applications:
- **2-way modulating valve (0-10 V signal). Maximum differential pressure 4bar/40kPa.**



**ATTENTION:**  
*In case of power failure the valve remains locked in the working position. In order to avoid unnecessary water consumption, it is recommended to install, upstream of the water mains supply, a shut-off device*

### 6.6. DHW SIDE HYDRAULIC COMPONENTS

- **Water filter;** Equipped with steel filtering mesh; prevents the heat exchangers from clogging.
- **TOTAL RECOVERY (OPTIONAL)** Plates type (AISI 316), it is insulated externally with closed cell material to reduce heat loss.



*In the event of installation (pump/external total recovery) for correct functioning of the machine it is mandatory that it is managed by the regulation of the same.*

### 6.7. SAFETY AND CONTROL

#### Low pressure transducers

Placed on the low pressure side of the cooling circuit, it signals the work pressure to the control board, generating a pre-warning in case of anomalous pressures.

#### High pressure transducer

Placed on high pressure side of cooling circuit, signals the work pressure to control board, generating a pre-warning in case abnormal pressure occurs.

#### High pressure pressure switch

With fixed calibration, placed on high pressure side of cooling circuit, inhibits functioning of compressor if abnormal work pressure occurs.

#### Watertemperature probe (DHW);

The unit is delivered supplied with n° 1 temperature probe for any DHW tank.

### 6.8. ELECTRIC CONTROL BOARD AND REGULATION

Electric power and control board, manufactured in compliance with the EN 60204-1/IEC 204-1 Standards, complete with:

- door lock main isolating switch,
- magnet circuit breaker switches and contactors for compressors,
- phase sequence control,
- clamps for signalling the remote alarm,
- clamps for signalling compressor switch-on status,
- clamps for differential pressure switch alarm signal,
- clamps for external air temperature probe (ACCESSORY),
- soft-start (OPTIONAL),
- control circuit numbered cables,
- clamps for 3-way valve,
- 0-10V clamps for modulating valve control.

#### "Chiller" water set-point compensation due to external temp.

Adaptation of the unit set point depending on the external temperature, allowing greater comfort and energy saving. *The*

*system return Set Point is established in accordance with the external air temperature. Function guaranteed if the external air probe is present (ACCESSORY).*

#### Electronic controller µPC

The device is the new controller for management of the water-cooled reversible units; the new PGD1 8-digit display is clearly legible, while the icons provide immediate visibility of machine operation.

Some accesses are protected by password and only available to the after-sales technical service.

The electronics also integrates a series of protection algorithms with the purpose of preventing any damage to the main components of the system.

#### FUNCTIONALITY LIST:

1. Parameterisation of the compressor switch-on/off times prevent switch on/off activation at short intervals.
2. In order to prevent breakage of the plate heat exchanger due to freezing water, 3 antifreezes, "geothermic, system and zones" are envisioned which are contained within. The microprocessor also envisions compressor block, whenever the temperature detected by the heat exchanger output probe is lower than the anti-freeze set.
3. Water flow rate alarm activated by the differential pressure switches installed in series.
4. Condensation control is managed via speed modulation of the pumps with phase cut systems or inverters, a 2-way modulating valve and ON/OFF pumps.
5. Production of DHW through a 3-way diverter valve or the total recovery version.

#### Additional functions:

- Control of an external integration resource dedicated to DHW.
- System control with heat pump and boiler.
- Anti-Legionella cycle.
- Time periods for the daily / weekly programming.

#### Heat regulation

⚠ Temperature regulation is based *on the return water from the system*. The configured set points refer to the temperature of the return water. If, for example, the set point is set at +30°C, a flow temperature of +35°C results.

#### System side circulation pump

The circuit board envisions an output for the management of the circulation pump, always on in COOLING and HEATING mode, switched off with a delay of 1 minute from unit switch off (stand-by).

#### Source side pump

The circuit board envisions an output for the source side pump control (see pumps available at configurator). The source side pump is switched on before start up of the compressor and switched off about 30

seconds after the compressor is switched off.

#### Anti-freeze alarm

⚠ *The anti-freeze function is only active if the unit is ON or in stand-by.*

In order to prevent breakage of the plate heat exchanger due to freezing of the water it contains, the micro processor envisions the compressor blocking if the temperature detected by the heat exchanger output probe results less than +4°C.

**THIS ANTI-FREEZE SET TEMPERATURE CAN ONLY BE VARIED BY AN AUTHORISED AFTER-SALES CENTRE AND ONLY AFTER HAVING CHECKED THAT THERE IS ANTI-FREEZE SOLUTION IN THE WATER SYSTEM.**

The intervention of this alarm determines compressor and block but not of the pump, which remains active.

#### Domestic hot water anti-freeze

The DHW anti-freeze function is only active if it has an integration resource dedicated to the storage of domestic hot water.

The integration resource is activated if the temperature of the water detected by the sanitary probe is less than +4°C and is switched off at +7°C.

#### Wizard

To facilitate commissioning the unit, a start-up procedure has been created. This procedure is used upon the first start-up.

#### Supervision system

- MODBUS

⚠ **For other requirements, contact the head office.**



#### PGD1 GRAPHIC TERMINAL

- backlit
- LCD
- Icons to identify the type of operation.


## 7. ACCESSORIES

- **AER485P1**: RS-485 interface for supervising systems with MODBUS protocol.
- **VT**: Anti-vibration mounts, group of 4/6 anti-vibration mounts to assemble under the unit's sheet steel base.
- **STA**: Room temperature probe, 230Vac recess kit containing the room probe with display and regulation knob, able to control an ON-OFF valve or a zone pump
- **STH**: Room/humidity temperature probe. 230Vac recess kit containing the room and humidity probe with display and regulation knob. The STH probe can control an ON-OFF valve or a zone pump and the dehumidifier.
- **SSM**: Probe to be used together with the mixer valve in applications with radiant panels. Accessory to be requested along with VMFCRP zone accessory.
- **S...I**: System storage tanks; available in sizes 200, 300, 400 and 500 litres (S200I, S300I, S400I and S500I).
- **PGD1**: Simplified remote panel. Allows to perform the basic controls of the unit with alarm signals. Can be controlled from a max of 500 m with 2 PAIRS of TWISTED cable + SHIELD with shielded pairs and TCONN6J000.
- **KSAE**: External air probe. Temperature probe with plastic container.
- **VMFCRP**: Zones Management;
- The WRL heat pump, can manage up to a maximum of n° 3 zones with the following methods:
  - Zone n° 1: Managed as per standard thanks to last generation electronic regulation. It is recommended to mount the "SSM" electronic marking probe (accessory) to control the flow temperature.
  - **The unit is shipped with n.1 temperature probe for a possible DHW storage tank.**
  - Management of the Zone 2 and Zone 3 is possible using the VMFCRP + SSM accessories for each zone.

### 7.1. ACCESSORIES COMPATIBILITY TABLE

WRL-H	025	030	040	050	070	080	100	140	160
AER485P1	•	•	•	•	•	•	•	•	•
VT vers. H	9	9	9	9	9	9	15	15	15
VT vers. HA	9	9	9	9	9	9	15A	15A	15A
STA	•	•	•	•	•	•	•	•	•
STH	•	•	•	•	•	•	•	•	•
SSM	•	•	•	•	•	•	•	•	•
S...I (200-300-400-500)	•	•	•	•	•	•	•	•	•
PGD1	•	•	•	•	•	•	•	•	•
KSAE	•	•	•	•	•	•	•	•	•
VMFCRP	•	•	•	•	•	•	•	•	•

## HEATING

WRL-H	VERSION	POWER SUPPLY	U.M.	025H	030H	040H	050H	070H	080H	100H	140H	160H
 <b>HEATING MODE 10/* - 30/35 °C "RADIANT PANELS"</b>												
Heating capacity	°	230V-1	kW	8.13	10.16	13.02	-	-	-	-	-	-
		400V-3N		8.06	10.16	12.95	17.09	22.52	25.98	34.23	45.12	51.94
Total input power	°	230V-1	kW	1.53	1.91	2.43	-	-	-	-	-	-
		400V-3N		1.52	1.79	2.39	3.06	4.14	4.83	6.17	8.32	9.81
Total input current	°	230V-1	A	8.19	10.15	12.80	-	-	-	-	-	-
		400V-3N		3.76	3.78	5.49	6.62	8.79	10.03	12.62	17.00	19.67
Condenser water flow rate	°	230V-1	l/h	1393	1741	2229	-	-	-	-	-	-
		400V-3N		1381	1740	2216	2926	3851	4438	5852	7699	8851
System side pressure drops	°	230V-1	kPa	21	23	31	-	-	-	-	-	-
		400V-3N		21	23	31	30	37	43	38	50	59
Evaporator water consumption	°	230V-1	l/h	1691	2093	2701	-	-	-	-	-	-
		400V-3N		1683	2043	2713	3551	4849	5558	7099	9679	11097
Geothermic side pressure drops	°	230V-1	kPa	31	36	46	-	-	-	-	-	-
		400V-3N		32	33	47	43	57	65	50	72	85
C.O.P.	°	230V-1	-	5.31	5.31	5.36	-	-	-	-	-	-
		400V-3N		5.30	5.67	5.41	5.59	5.44	5.37	5.55	5.42	5.29


THE DATA DECLARED CONSIDER THE PUMP CORRECTION AS ENVISIONED BY THE UNI EN 145111 - 2008 STANDARD.



**Attention:**

The data declared concern the standard version [°]; for different versions, consult the "MAGELLANO" selection program.

## COOLING

WRL-H	VERSION	POWER SUPPLY	U.M.	025H	030H	040H	050H	070H	080H	100H	140H	160H
 <b>COOLING MODE 23/18 - 30/35 °C "RADIANT PANELS"</b>												
Cooling capacity	°	230V-1	kW	8.24	10.24	13.24	-	-	-	-	-	-
		400V-3N		8.24	10.05	13.39	17.44	23.84	27.19	34.84	47.51	54.20
Total input power	°	230V-1	kW	1.59	1.93	2.47	-	-	-	-	-	-
		400V-3N		1.54	1.83	2.38	3.20	4.35	5.12	6.43	8.76	10.32
Total input current	°	230V-1	A	8.15	11.09	13.95	-	-	-	-	-	-
		400V-3N		4.16	3.89	6.11	7.71	9.42	10.72	14.31	17.65	20.32
Evaporator water flow rate	°	230V-1	l/h	1423	1768	2289	-	-	-	-	-	-
		400V-3N		1423	1735	2316	3015	4127	4712	6027	8240	9414
System side pressure drops	°	230V-1	kPa	22	25	33	-	-	-	-	-	-
		400V-3N		22	25	33	31	41	47	36	52	61
Condenser water consumption	°	230V-1	l/h	1691	2093	2701	-	-	-	-	-	-
		400V-3N		1683	2043	2713	3551	4849	5558	7099	9679	11097
Condenser side pressure drops	°	230V-1	kPa	33	33	46	-	-	-	-	-	-
		400V-3N		33	31	46	44	59	67	56	79	93
EER	°	230V-1	-	5.18	5.30	5.37	-	-	-	-	-	-
		400V-3N		5.35	5.48	5.63	5.45	5.48	5.31	5.42	5.42	5.25

THE DATA DECLARED CONSIDER THE PUMP CORRECTION AS ENVISIONED BY THE UNI EN 145111 - 2008 STANDARD.



**Attention:**

The data declared concern the standard version [°]; for different versions, consult the "MAGELLANO" selection program.

WRL-H	VERSION	POWER SUPPLY	U.M.	025H	030H	040H	050H	070H	080H	100H	140H	160H
<b>HEATING MODE 0/-3 - 30/35 °C "FROST"</b>												
Heating capacity	°	230V-1	kW	6.28	8.44	10.17	-	-	-	-	-	-
		400V-3N		6.23	7.90	10.11	13.26	17.29	20.51	26.52	34.58	41.16
Total input power	°	230V-1	kW	1.56	1.95	2.36	-	-	-	-	-	-
		400V-3N		1.56	1.82	2.31	3.00	3.92	4.67	6.00	7.80	9.35
Total input current	°	230V-1	A	8.33	10.35	12.46	-	-	-	-	-	-
		400V-3N		3.85	3.85	5.31	6.49	8.32	9.69	12.28	15.94	18.74
Condenser water flow rate	°	230V-1	l/h	1079	1451	1750	-	-	-	-	-	-
		400V-3N		1072	1359	1739	2280	2974	3527	4561	5948	7079
System side pressure drops	°	230V-1	kPa	13	16	19	-	-	-	-	-	-
		400V-3N		13	13	19	18	22	27	23	30	38
Evaporator water consumption	°	230V-1	l/h	1502	2063	2484	-	-	-	-	-	-
		400V-3N		1489	1934	2481	3265	4254	5038	6529	8523	10122
Geothermic side pressure drops	°	230V-1	kPa	31	39	45	-	-	-	-	-	-
		400V-3N		30	34	44	45	50	63	50	63	81
C.O.P.	°	230V-1	-	4.04	4.32	4.30	-	-	-	-	-	-
		400V-3N		4.01	4.33	4.37	4.42	4.41	4.39	4.42	4.43	4.40


THE DATA DECLARED DO NOT CONSIDER PUMP CORRECTION.



**Attention:**

The data given have been calculated with 25% glycol.

## HEATING

WRL-H	VERSION	POWER SUPPLY	U.M.	025H	030H	040H	050H	070H	080H	100H	140H	160H
 <b>HEATING MODE 10/* - 40/45 °C "FAN COILS"</b>												
Heating capacity	°	230V-1	kW	7.90	9.98	12.64	-	-	-	-	-	-
		400V-3N		7.90	9.51	12.42	16.43	20.91	24.12	32.90	41.90	48.20
Total input power	°	230V-1	kW	1.97	2.48	3.15	-	-	-	-	-	-
		400V-3N		1.97	2.31	2.94	3.91	5.05	5.90	7.86	10.12	11.91
Total input current	°	230V-1	A	10.55	13.15	16.60	-	-	-	-	-	-
		400V-3N		4.88	4.88	6.75	8.45	10.71	12.24	16.09	20.68	23.89
Condenser water flow rate	°	230V-1	l/h	1354	1711	2164	-	-	-	-	-	-
		400V-3N		1354	1631	2127	2813	3578	4125	5627	4158	8224
System side pressure drops	°	230V-1	kPa	20	22	29	-	-	-	-	-	-
		400V-3N		20	20	28	28	32	37	35	43	51
Evaporator water consumption	°	230V-1	l/h	1371	1685	2186	-	-	-	-	-	-
		400V-3N		1353	1708	2183	2886	3770	4326	5771	7525	8636
Geothermic side pressure drops	°	230V-1	kPa	21	23	30	-	-	-	-	-	-
		400V-3N		21	23	30	28	34	40	33	43	51
C.O.P.	°	230V-1	-	4.01	4.02	4.01	-	-	-	-	-	-
		400V-3N		4.01	4.12	4.22	4.20	4.14	4.09	4.19	4.14	4.05


THE DATA DECLARED CONSIDER THE PUMP CORRECTION AS ENVISIONED BY THE UNI EN 145111 - 2008 STANDARD.



**Attention:**

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## COOLING

WRL-H	VERSION	POWER SUPPLY	U.M.	025H	030H	040H	050H	070H	080H	100H	140H	160H
 <b>COOLING MODE 12/7 - 30/35 "FAN COILS"</b>												
Cooling capacity	°	230V-1	kW	6.30	7.90	10.29	-	-	-	-	-	-
		400V-3N		6.30	8.12	10.40	13.75	17.70	20.20	27.47	35.30	40.30
Total input power	°	230V-1	kW	1.67	1.90	2.42	-	-	-	-	-	-
		400V-3N		1.57	1.81	2.29	3.03	4.22	4.95	6.08	8.45	9.91
Total input current	°	230V-1	A	8.57	10.91	13.69	-	-	-	-	-	-
		400V-3N		4.24	3.84	5.89	7.30	9.13	10.38	13.51	17.03	19.52
Evaporator water flow rate	°	230V-1	l/h	1085	1362	1776	-	-	-	-	-	-
		400V-3N		1085	1400	1794	2372	3055	3488	4742	6099	6968
System side pressure drops	°	230V-1	kPa	13	15	20	-	-	-	-	-	-
		400V-3N		13	16	20	19	22	26	22	29	33
Condenser water consumption	°	230V-1	l/h	1371	1685	2186	-	-	-	-	-	-
		400V-3N		1353	1708	2183	2886	3770	4326	5771	7525	8636
Condenser side pressure drop	°	230V-1	kPa	22	22	30	-	-	-	-	-	-
		400V-3N		22	23	29	29	36	41	37	48	56
EER	°	230V-1	-	3.76	4.16	4.25	-	-	-	-	-	-
		400V-3N		4.01	4.48	4.53	4.53	4.19	4.08	4.52	4.18	4.07

THE DATA DECLARED CONSIDER THE PUMP CORRECTION AS ENVISIONED BY THE UNI EN 145111 - 2008 STANDARD.



**Attention:**

The data declared concern the standard version [°]; for different versions, consult the "MAGELLANO" selection program.

WRL-H	VERSION	PUMPS	POWER SUPPLY	U.M.	025H	030H	040H	050H	070H	080H	100H	140H	160H
<b>COOLING MODE 10/5 - 40/45 °C "FAN COILS"</b>													
Heating capacity	°	-	230V-1	kW	7.60	9.68	12.16	-	-	-	-	-	-
			400V-3N		7.58	9.17	11.93	15.81	20.04	23.17	31.62	40.08	46.20
Total input power	°	-	230V-1	kW	1.98	2.49	3.15	-	-	-	-	-	-
			400V-3N		1.98	2.32	2.92	3.88	4.99	5.83	7.77	9.94	11.67
Total input current	°	-	230V-1	A	10.60	13.20	16.60	-	-	-	-	-	-
			400V-3N		4.90	4.90	6.70	8.40	10.60	12.10	15.90	20.30	23.4
Condenser water flow rate	°	-	230V-1	l/h	1'310	1'660	2'090	-	-	-	-	-	-
			400V-3N		1'300	1'580	2'050	2'720	3'450	3'990	5'440	6'890	7'950
System side pressure drops	°	-	230V-1	kPa	19	19	27	-	-	-	-	-	-
			400V-3N		19	17	26	26	30	35	33	40	48
System side useful static pressure	°	P	230V-1	kPa	62	60	48	-	-	-	-	-	-
			400V-3N		61	62	49	75	67	58	135	157	147
Evaporator water consumption	°	-	230V-1	l/h	970	1'240	1'550	-	-	-	-	-	-
			400V-3N		960	1'180	1'550	2'050	2'590	2'980	4'100	5'190	5'940
Geo side pressuredrops	°	-	230V-1	kPa	11	12	15	-	-	-	-	-	-
			400V-3N		11	11	15	14	16	19	17	20	24
GEO side useful static pressure	°	B	230V-1	kPa	72	69	64	-	-	-	-	-	-
			400V-3N		71	70	64	91	86	81	166	180	175
		U	400V-3N		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	258	265	260
		I	230V-1		72	68	64	-	-	-	-	-	-
C.O.P.	°	-	230V-1	-	3.84	3.89	3.86	-	-	-	-	-	-
			400V-3N		3.83	3.95	4.09	4.07	4.01	3.97	4.07	4.03	3.96

**ELECTRICAL DATA: USER SIDE PUMPS KIT**

Input power	-	P	-	kW	0.174	0.177	0.182	0.307	0.328	0.342	0.66	0.90	0.97
	-	N	-		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	1.01	1.38	1.49
Absorbed current	-	P	-	A	0.84	0.86	0.88	1.48	1.59	1.65	1.20	1.63	1.74
	-	N	-		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	1.90	2.77	2.98
Pump useful static pressure	-	P	-	kPa	80	79	76	102	97	93	167	197	194
	-	N	-		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	256	282	279

**ELECTRICAL DATA: GEOTHERMIC SIDE CIRCULATION PUMPS**

Input power	-	B	-	kW	0.170	0.172	0.177	0.283	0.302	0.315	0.59	0.79	0.84
	-	U	-		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	0.88	1.21	1.29
	-	I	-		0.170	0.172	0.177	0.219	0.234	0.244	n.d.	n.d.	n.d.
Absorbed current	-	B	-	A	0.82	0.83	0.85	1.37	1.46	1.52	1.07	1.43	1.52
	-	U	-		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	1.66	2.43	2.58
	-	I	-		0.82	0.83	0.85	1.06	1.13	1.18	n.d.	n.d.	n.d.
Pump useful static pressure	-	B	-	kPa	82	81	79	105	102	100	182	201	199
	-	U	-		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	275	285	284
	-	I	-		82	81	79	118	119	119	n.d.	n.d.	n.d.

**"SCROLL" COMPRESSORS**

N° compressors/N° circuits	-	-	-	n°/n°	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1	2 / 1
Flow rate control	-	-	-	%	0 - 100	0 - 100	0 - 100	0 - 100	0 - 100	0 - 100	0-50-100	0-50-100	0-50-100

**"PLATE" EXCHANGERS**

Heat exchanges	-	-	-	N°	2	2	2	2	2	2	2	2	2
Hydraulic connections	-	-	-	Ø	F / 1"1/4	F / 1"1/4	F / 1"1/4	F / 1"1/4	F / 1"1/4	F / 1"1/4	F / 1"1/4	F / 1"1/4	F / 1"1/4

THE DATA DECLARED DO NOT CONSIDER PUMP CORRECTION.

## COOLING

WRL-H	VERSION	PUMPS	POWER SUPPLY	U.M.	025H	030H	040H	050H	070H	080H	100H	140H	160H
<b>COOLING MODE 12/7 - 30/35 °C "FAN COILS"</b>													
Cooling capacity	°	-	230V-1	kW	6.31	7.92	10.32	-	-	-	-	-	-
			400V-3N		6.31	8.14	10.43	13.79	17.76	20.28	27.57	35.46	40.51
Total input power	°	-	230V-1	kW	1.66	1.88	2.39	-	-	-	-	-	-
			400V-3N		1.56	1.79	2.26	2.99	4.16	4.87	5.98	8.29	9.70
Total input current	°	-	230V-1	A	8,50	10,80	13,50	-	-	-	-	-	-
			400V-3N		4,20	3,80	5,80	7,20	9,00	10,20	13,30	16,70	19,10
Evaporator water flow rate	°	-	230V-1	l/h	1.090	1.360	1.780	-	-	-	-	-	-
			400V-3N		1.090	1.400	1.800	2.370	3.055	3.490	4.740	6.100	6.970
System side pressure drops	°	-	230V-1	kPa	13	15	20	-	-	-	-	-	-
			400V-3N		13	16	20	19	22	26	22	29	33
System useful static pressure	°	P	230V-1	kPa	69	65	58	-	-	-	-	-	-
			400V-3N		69	63	57	85	77	71	154	170	164
			N		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	245	255	249
Condenser water consumption	°	-	230V-1	l/h	1'370	1'690	2'190	-	-	-	-	-	-
			400V-3N		1'360	1'700	2'180	2'890	3'770	4'325	5'770	7'525	8'635
Condenser side pressure drops	°	-	230V-1	kPa	22	22	30	-	-	-	-	-	-
			400V-3N		22	23	29	29	36	41	37	48	56
Useful static pressure	°	B	230V-1	kPa	58	56	45	-	-	-	-	-	-
			400V-3N		58	55	46	72	59	50	127	148	137
			U		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	216	233	222
EER	-	-	230V-1	-	3.81	4.21	4.32	-	-	-	-	-	-
			400V-3N		4.05	4.55	4.62	4.61	4.27	4.16	4.61	4.28	4.18
E.S.E.E.R.	-	-	230V-1	-	4.36	4.85	4.95	-	-	-	-	-	-
			400V-3N		4.66	5.24	5.22	5.20	4.69	4.56	6.07	5.56	5.27

### ELECTRICAL DATA: UTILITY SIDE PUMPS

Input power	-	P	-	kW	0.171	0.175	0.180	0.295	0.317	0.329	0.62	0.85	0.91
	-	N	-		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	0.95	1.31	1.39
Absorbed current	-	P	-	A	0.83	0.85	0.87	1.42	1.53	1.59	1.14	1.54	1.64
	-	N	-		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	1.78	2.62	2.79
Pump useful static pressure	-	P	-	kPa	82	80	77	104	100	97	176	199	197
	-	N	-		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	267	284	282

### ELECTRICAL DATA: GEOTHERMIC SIDE PUMPS

Input power	-	B	-	kW	0.174	0.179	0.184	0.312	0.337	0.350	0.67	0.94	1.01
	-	U	-		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	1.04	1.45	1.55
	-	I	-		0.174	0.179	0.184	0.242	0.261	0.271	n.d.	n.d.	n.d.
Absorbed current	-	B	-	A	0.84	0.86	0.89	1.51	1.63	1.69	1.23	1.70	1.82
	-	U	-		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	1.95	2.90	3.11
	-	I	-		0.84	0.86	0.89	1.17	1.26	1.31	n.d.	n.d.	n.d.
Pump useful static pressure	-	B	-	kPa	80	78	75	101	95	90	163	195	192
	-	U	-		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	251	281	277
	-	I	-		80	78	75	119	120	119	n.d.	n.d.	n.d.

### "SCROLL" COMPRESSORS

N° of compressors / N° of circuits			n°/n°	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1	2 / 1
Capacity control			%	0 - 100	0 - 100	0 - 100	0 - 100	0 - 100	0 - 100	0 - 100	0-50-100	0-50-100	0-50-100

### "PLATE" EXCHANGERS

Heat exchanges	-	-	N°	2	2	2	2	2	2	2	2	2	2
Hydraulic connections			Ø	F / 1"1/4	F / 1"1/4	F / 1"1/4	F / 1"1/4	F / 1"1/4	F / 1"1/4	F / 1"1/4	F / 1"1/4	F / 1"1/4	F / 1"1/4

THE DATA DECLARED DO NOT CONSIDER PUMP CORRECTION.



WRL-H	VERSION	POWER SUPP.	U.M.	025H	030H	040H	050H	070H	080H	100H	140H	160H
<b>PROTECTION RATING OF THE MACHINE</b>												
IP	-	-	-	24	24	24	24	24	24	24	24	24
<b>ELECTRICAL DATA</b>												
Maximum current [FLA]	°	230V-1	A	19,0	22,0	26,0	-	-	-	-	-	-
		400V-3N		8,5	9,0	11,0	13,0	20,0	23,0	23,0	37,0	43,0
		230V-3		-	-	-	19	23	30	38	46	60
	P	230V-1	A	20,0	23,0	27,0	-	-	-	-	-	-
		400V-3N		10,5	10,0	12,0	16,0	23,0	26,0	24,0	40,0	46,0
		230V-3		-	-	-	22	26	33	42	51	66
Peak current Without soft-start [LRA]	°	230V-1	A	63,0	84,0	99,0	-	-	-	-	-	-
		400V-3N		34,0	37,0	50,0	66,0	75,0	75,0	88,0	91,0	94,0
		230V-3		-	-	-	125	155	175	142	175	201
	P	230V-1	A	65,0	86,0	101,0	-	-	-	-	-	-
		400V-3N		36,0	39,0	52,0	70,0	79,0	79,0	90,0	95,0	98,0
		230V-3		-	-	-	128	158	178	146	180	207
Peak current with soft-start [LRA]	°	230V-1	A	45,0	45,0	45,0	-	-	-	-	-	-
		400V-3N		24,4	26,5	35,6	46,8	54,1	54,1	67,1	70,1	73,1
	P	230V-1	A	45,0	45,0	45,0	-	-	-	-	-	-
		400V-3N		26,4	28,5	48,1	57,1	57,1	57,1	68,1	73,1	76,1
<b>WATER CONTENT</b>												
Evaporator	-	-	dm <sup>3</sup>	0.73	0.92	1.23	2.00	2.57	2.95	3.99	5.23	6.18
Condenser	-	-		0.73	0.92	1.23	2.00	2.57	2.95	3.99	5.23	6.18
<b>MINIMUM SYSTEM WATER CONTENT</b>												
Minimum content (standard)	-	-	l/kW	7	7	7	7	7	7	7	7	7
Minimum content <sup>[1]</sup>	-	-	l/kW	14	14	14	14	14	14	14	14	14
<b>EXPANSION VESSEL (as per standard in versions with pump/storage tank)</b>												
Quantity	P	-	n°	1	1	1	1	1	1	1	1	1
Capacity		-	l	2	2	2	2	2	2	8	8	8
Quantity	A	-	n°	1	1	1	1	1	1	1	1	1
Capacity		-	l	8	8	8	8	8	8	8	8	8
<b>STORAGE TANK (only for versions with storage tank/pumps storage tank)</b>												
Quantity	-	-	n°	1	1	1	1	1	1	1	1	1
Tank capacity	-	-	l	100	100	100	100	100	100	150	150	150
<b>SAFETY VALVE (as per standard in all versions)</b>												
Quantity	-	-	n°	1	1	1	1	1	1	1	1	1
Calibration	-	-	bar	6	6	6	6	6	6	6	6	6
<b>LOAD (ATTENTION: the declared data can be amended at any time by Aermec, if deemed necessary).</b>												
Refrigerant (2 exchangers)	-	-	Kg	1,1	1,2	1,7	2,0	2,2	2,3	3,2	3,8	4,3
Refrigerant (3 exchangers)	-	-		1,1	1,3	1,8	2,1	2,3	2,4	3,3	4,0	4,5
Oil	-	-	l	1.1	1.2	1.7	1.7	1.7	1.7	2 x 1.7	2 x 1.7	2 x 1.7
<b>SOUND DATA</b>												
Sound power <sup>[2]</sup>	-	LW	dB(A)	55,5	57,0	57,5	59,0	60,0	60,5	62,0	63,0	63,5
Sound pressure [1m] <sup>[3]</sup>	-	LP	dB(A)	41,1	42,6	43,1	44,2	45,2	45,7	46,7	47,7	48,2
Sound pressure [10 m] <sup>[4]</sup>	-	LP	dB(A)	24,3	25,8	26,3	27,7	28,7	29,2	30,6	31,6	32,1
<b>DIMENSIONS</b>												
Height	°	-	mm	976	976	976	1.126	1.126	1.126	1.126	1.126	1.126
Width	°	-	mm	607	607	607	607	607	607	1.157	1.157	1.157
Depth	°	-	mm	628	628	628	798	798	798	798	798	798
<b>DIMENSIONS</b>												
Height	A	-	mm	1.126	1.126	1.126	1.126	1.126	1.126	1.126	1.126	1.126
Width	A	-	mm	1.157	1.157	1.157	1.157	1.157	1.157	1.757	1.757	1.757
Depth	A	-	mm	798	798	798	798	798	798	798	798	798
<b>WEIGHTS</b>												
Weight	°	-	kg	120	125	130	150	170	180	260	270	280
	A	-	kg	190	200	210	230	250	260	340	350	360

<sup>[1]</sup> Minimum content of water in case of process applications, or operating with low load.

<sup>[2]</sup> 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.

<sup>[3]</sup> Sound pressure in an unrestricted range on a reflective plane (directional fact. Q=2), 1m away from the unit external surface, complying with ISO 3744.

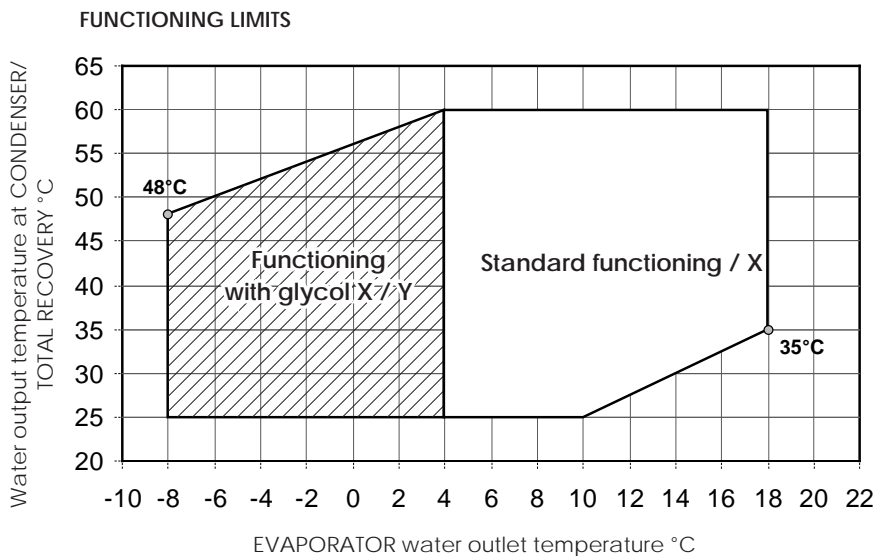
<sup>[4]</sup> Sound pressure in an unrestricted range on a reflective plane (directional fact. Q=2), 10m away from the unit external surface, complying with ISO 3744.

## 8. OPERATING LIMITS

The operating limits diagram is relative to a  $\Delta t$  on the evaporator and the condenser of 5°C.

Condenser outlet *inlet difference* ( $\Delta t_c$ ):  
*min: 5° C.*  
*max: 22° C.*

Evaporator outlet *inlet difference* ( $\Delta t_e$ ):  
*min: 3° C.*  
*max: 10° C.*



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## 8.1. DESIGN DATA

REFRIGERANT SIDE		High pressure side	Low pressure side
Acceptable maximum pressure	bar	42	25
Acceptable maximum temperature	°C	120	50
Acceptable minimum temperature	°C	-25	-25

9. PERFORMANCE AND ABSORPTION THAT DIFFER FROM THE NOMINAL - STANDARD VERSIONS.

9.1. WRL025XH\*\*\*\*\*M HEATING MODE

EVAPORATOR WATER OUTLET TEMPERATURE °C	Condenser water outlet temperature °C																							
	25			30			35			40			45			50			55			60		
	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.
	[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]					
-8	5.59	1.23	4.53	5.47	1.41	3.87	5.39	1.60	3.38	5.34	1.80	2.97	5.30	2.03	2.61	-	-	-	-	-	-	-	-	-
-6	5.99	1.22	4.91	5.86	1.40	4.18	5.77	1.59	3.64	5.71	1.79	3.19	5.65	2.03	2.79	5.58	2.31	2.42	-	-	-	-	-	-
-4	6.40	1.21	5.29	6.25	1.39	4.50	6.15	1.58	3.90	6.07	1.78	3.41	6.00	2.02	2.97	5.92	2.30	2.57	-	-	-	-	-	-
-3	6.60	1.20	5.48	6.45	1.38	4.66	6.34	1.57	4.04	6.26	1.78	3.52	6.18	2.01	3.07	6.09	2.30	2.65	-	-	-	-	-	-
-2	6.80	1.20	5.68	6.64	1.38	4.82	6.53	1.57	4.17	6.44	1.77	3.63	6.36	2.01	3.16	6.26	2.29	2.73	6.14	2.63	2.33	-	-	-
0	7.20	1.19	6.07	7.03	1.37	5.14	6.91	1.56	4.44	6.81	1.76	3.86	6.71	2.00	3.35	6.60	2.29	2.89	6.47	2.63	2.46	-	-	-
2	7.60	1.18	6.47	7.42	1.36	5.47	7.29	1.54	4.72	7.17	1.75	4.09	7.07	1.99	3.55	6.95	2.28	3.05	6.80	2.62	2.59	-	-	-
4	8.01	1.16	6.87	7.82	1.35	5.80	7.67	1.53	5.00	7.54	1.74	4.33	7.42	1.98	3.74	7.29	2.27	3.21	7.13	2.62	2.73	6.92	3.03	2.28
5	8.21	1.16	7.08	8.01	1.34	5.97	7.86	1.53	5.14	7.72	1.74	4.45	7.60	1.98	3.84	7.46	2.27	3.29	7.30	2.61	2.79	7.08	3.03	2.34
6	8.41	1.15	7.28	8.21	1.34	6.14	8.05	1.52	5.28	7.91	1.73	4.56	7.78	1.97	3.94	7.64	2.26	3.38	7.46	2.61	2.86	7.24	3.03	2.39
7	8.61	1.15	7.49	8.40	1.33	6.31	8.23	1.52	5.42	8.09	1.73	4.68	7.96	1.97	4.04	7.81	2.26	3.46	7.63	2.60	2.93	7.40	3.02	2.45
8	8.81	1.14	7.70	8.60	1.33	6.48	8.42	1.51	5.56	8.28	1.72	4.80	8.14	1.96	4.14	7.98	2.25	3.54	7.80	2.60	3.00	7.57	3.02	2.50
10	-	-	-	8.99	1.32	6.83	8.80	1.50	5.86	8.64	1.71	5.05	8.49	1.95	4.35	8.33	2.24	3.71	8.13	2.59	3.14	7.89	3.01	2.62
12	-	-	-	9.37	1.31	7.18	9.18	1.49	6.15	9.01	1.70	5.30	8.85	1.94	4.55	8.67	2.23	3.88	8.47	2.58	3.28	8.21	3.00	2.73
14	-	-	-	9.76	1.30	7.54	9.56	1.48	6.45	9.38	1.69	5.55	9.21	1.93	4.76	9.02	2.22	4.06	8.80	2.57	3.42	8.54	2.99	2.85
16	-	-	-	-	-	-	9.94	1.47	6.75	9.75	1.68	5.80	9.56	1.92	4.98	9.37	2.21	4.24	9.14	2.56	3.57	8.86	2.98	2.97
18	-	-	-	-	-	-	-	-	-	10.12	1.67	6.06	9.92	1.91	5.20	9.71	2.20	4.42	9.48	2.55	3.72	9.19	2.97	3.09

9.2. WRL025XH\*\*\*\*\*M COOLING MODE

EVAPORATOR WATER OUTLET TEMPERATURE °C	Condenser water outlet temperature °C																							
	25			30			35			40			45			50			55			60		
	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Ph	Pe	E.E.R.
	[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]		
-8	4.10	1.40	2.94	3.86	1.58	2.45	3.64	1.78	2.04	3.42	2.02	1.69	3.19	2.29	1.39	-	-	-	-	-	-	-	-	-
-6	4.50	1.37	3.27	4.24	1.56	2.72	3.99	1.77	2.26	3.75	2.01	1.87	3.49	2.28	1.53	3.22	2.59	1.24	-	-	-	-	-	-
-4	4.90	1.36	3.62	4.62	1.54	3.00	4.35	1.75	2.48	4.08	1.99	2.04	3.80	2.27	1.67	3.50	2.58	1.35	-	-	-	-	-	-
-3	5.10	1.35	3.79	4.81	1.53	3.14	4.53	1.74	2.60	4.24	1.99	2.13	3.95	2.26	1.74	3.64	2.58	1.41	-	-	-	-	-	-
-2	5.30	1.34	3.96	5.00	1.52	3.28	4.70	1.74	2.71	4.41	1.98	2.23	4.10	2.26	1.82	3.78	2.57	1.47	-	-	-	-	-	-
0	5.70	1.32	4.31	5.37	1.51	3.57	5.06	1.72	2.94	4.74	1.97	2.41	4.41	2.25	1.96	4.06	2.57	1.58	3.68	2.92	1.26	-	-	-
2	6.09	1.31	4.65	5.75	1.49	3.85	5.41	1.71	3.17	5.07	1.95	2.60	4.72	2.23	2.11	4.35	2.55	1.70	3.94	2.91	1.35	-	-	-
4	6.49	1.30	5.00	6.13	1.48	4.14	5.77	1.69	3.41	5.41	1.94	2.79	5.03	2.22	2.27	4.64	2.54	1.83	4.21	2.90	1.45	3.73	3.30	1.13
6	6.88	1.29	5.35	6.50	1.47	4.44	6.13	1.68	3.65	5.75	1.92	2.99	5.35	2.20	2.43	4.93	2.52	1.95	4.48	2.89	1.55	3.98	3.29	1.21
7	7.08	1.28	5.53	6.69	1.46	4.59	6.31	1.66	3.81	5.91	1.91	3.09	5.51	2.19	2.51	5.08	2.51	2.02	4.61	2.88	1.60	4.10	3.28	1.25
8	7.27	1.27	5.71	6.88	1.45	4.74	6.48	1.66	3.90	6.08	1.90	3.20	5.67	2.18	2.59	5.23	2.50	2.09	4.75	2.87	1.66	4.23	3.27	1.29
10	7.66	1.26	6.06	7.25	1.44	5.04	6.84	1.64	4.16	6.42	1.88	3.41	5.99	2.16	2.77	5.52	2.48	2.23	5.03	2.84	1.77	4.48	3.25	1.38
12	-	-	-	7.62	1.42	5.36	7.20	1.62	4.43	6.76	1.86	3.63	6.31	2.14	2.95	5.83	2.46	2.37	5.31	2.82	1.89	4.74	3.22	1.47
14	-	-	-	8.00	1.41	5.68	7.56	1.60	4.71	7.11	1.84	3.86	6.63	2.11	3.14	6.13	2.43	2.53	5.60	2.78	2.01	5.01	3.19	1.57
16	-	-	-	-	-	-	7.92	1.58	5.00	7.45	1.81	4.11	6.96	2.08	3.34	6.45	2.39	2.69	5.89	2.75	2.14	5.28	3.15	1.68
18	-	-	-	-	-	-	8.28	1.56	5.31	7.80	1.78	4.37	7.29	2.05	3.56	6.76	2.35	2.87	6.18	2.71	2.29	5.56	3.11	1.79

**KEY**  
**Ph** Heating capacity  
**Pc** Cooling capacity  
**Pe** Input power

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AT THE EVAPORATOR	3	5	8	10
Cooling capacity	0,990	1	1,020	1,030
Input power	0,990	1	1,010	1,020
Heating capacity	0,991	1	1,013	1,022
Input power	1,014	1	0,978	0,963

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AL CONDENSER	5	10	15	22
Cooling capacity	1	1,010	1,020	1,030
Input power	1	0,990	0,980	0,970
Heating capacity	the variations can be ignored			

 Operating range with "Y" valve.

FOULING FACTOR [K*M²]/[W]			
	0,00001	0,00002	0,00005
Cooling capacity	1	0,99	0,98
Input power	1	1	1
Heating capacity	1	1	0,99
Input power	1	1	1,02

9.3. WRL030XH<sup>000000</sup>M HEATING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]					
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	7.73	1.63	4.75	7.66	1.81	4.22	7.61	2.05	3.71	7.54	2.34	3.23	7.41	2.67	2.78	-	-	-	-	-	-	-	-	-
	-6	8.12	1.60	5.09	8.04	1.78	4.51	7.98	2.02	3.95	7.90	2.31	3.43	7.77	2.64	2.95	7.56	3.01	2.51	-	-	-	-	-	-
	-4	8.52	1.57	5.43	8.42	1.76	4.79	8.34	1.99	4.19	8.26	2.28	3.63	8.13	2.61	3.12	7.92	2.99	2.65	-	-	-	-	-	-
	-3	8.71	1.55	5.60	8.60	1.74	4.94	8.52	1.98	4.39	8.44	2.26	3.73	8.31	2.60	3.20	8.10	2.97	2.73	-	-	-	-	-	-
	-2	8.91	1.54	5.78	8.79	1.73	5.08	8.70	1.97	4.43	8.61	2.25	3.83	8.48	2.58	3.29	8.28	2.96	2.80	7.97	3.38	2.36	-	-	-
	0	9.30	1.52	6.13	9.16	1.70	5.38	9.06	1.94	4.67	8.96	2.22	4.03	8.83	2.56	3.46	8.63	2.93	2.94	8.34	3.35	2.49	-	-	-
	2	9.70	1.49	6.49	9.54	1.68	5.67	9.42	1.92	4.92	9.31	2.20	4.23	9.18	2.53	3.63	8.98	2.91	3.09	8.69	3.33	2.61	-	-	-
	4	10.10	1.47	6.86	9.92	1.66	5.98	9.78	1.89	5.16	9.66	2.18	4.44	9.52	2.51	3.80	9.33	2.88	3.24	9.05	3.30	2.74	8.64	3.77	2.29
	5	10.31	1.46	7.04	10.11	1.65	6.13	9.96	1.88	5.29	9.83	2.17	4.54	9.68	2.50	3.87	9.50	2.87	3.31	9.22	3.29	2.80	8.82	3.76	2.35
	6	10.51	1.45	7.23	10.30	1.64	6.28	10.14	1.87	5.42	10.01	2.16	4.64	9.87	2.49	3.97	9.67	2.86	3.38	9.40	3.28	2.86	9.00	3.75	2.40
	7	10.72	1.45	7.42	10.49	1.63	6.44	10.33	1.86	5.54	10.00	2.15	4.66	10.04	2.47	4.06	9.84	2.85	3.45	9.57	3.27	2.93	9.18	3.74	2.46
	8	10.93	1.44	7.61	10.69	1.62	6.60	10.51	1.85	5.67	10.36	2.14	4.85	10.21	2.46	4.14	10.02	2.84	3.53	9.75	3.26	2.99	9.36	3.73	2.51
	10	-	-	-	11.08	1.60	6.91	10.89	1.84	5.93	10.72	2.12	5.07	10.56	2.45	4.32	10.36	2.82	3.67	10.10	3.24	3.11	9.72	3.70	2.62
12	-	-	-	11.49	1.59	7.23	11.27	1.82	6.19	11.09	2.10	5.28	10.92	2.43	4.50	10.71	2.80	3.82	10.45	3.22	3.24	10.08	3.69	2.73	
14	-	-	-	11.91	1.58	7.56	11.66	1.81	6.46	11.46	2.08	5.50	11.28	2.41	4.67	11.07	2.79	3.97	10.80	3.21	3.37	10.44	3.67	2.85	
16	-	-	-	-	-	-	12.06	1.79	6.73	11.84	2.07	5.72	11.64	2.40	4.86	11.43	2.77	4.12	11.16	3.19	3.50	10.81	3.65	2.96	
18	-	-	-	-	-	-	-	-	-	12.24	2.06	5.94	12.02	2.38	5.04	11.80	2.76	4.28	11.53	3.18	3.63	11.18	3.64	3.07	

9.4. WRL030XH<sup>000000</sup>M COOLING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Ph	Pe	E.E.R.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]		
EVAPORATOR WATER INPUT TEMPERATURE °C	-8	5.29	1.55	3.42	4.97	1.75	2.83	4.66	1.99	2.34	4.36	2.25	1.93	4.05	2.55	1.59	-	-	-	-	-	-	-	-	-
	-6	5.80	1.53	3.79	5.44	1.74	3.13	5.10	1.97	2.58	4.76	2.24	2.12	4.41	2.55	1.73	4.05	2.90	1.40	-	-	-	-	-	-
	-4	6.31	1.52	4.16	5.91	1.72	3.43	5.54	1.96	2.82	5.16	2.23	2.31	4.78	2.54	1.88	4.37	2.89	1.51	-	-	-	-	-	-
	-3	6.56	1.51	4.35	6.15	1.72	3.59	5.76	1.95	2.95	5.36	2.23	2.41	4.96	2.54	1.95	4.54	2.89	1.57	-	-	-	-	-	-
	-2	6.81	1.50	4.54	6.39	1.71	3.74	5.98	1.95	3.07	5.57	2.22	2.51	5.15	2.54	2.03	4.70	2.89	1.63	-	-	-	-	-	-
	0	7.31	1.49	4.92	6.86	1.69	4.05	6.42	1.93	3.32	5.97	2.21	2.70	5.52	2.53	2.18	5.04	2.89	1.75	4.52	3.29	1.37	-	-	-
	2	7.80	1.47	5.29	7.32	1.68	4.36	6.86	1.92	3.57	6.38	2.20	2.90	5.90	2.52	2.34	5.38	2.88	1.87	4.83	3.29	1.47	-	-	-
	4	8.29	1.46	5.66	7.79	1.67	4.67	7.29	1.91	3.82	6.79	2.19	3.11	6.27	2.51	2.50	5.73	2.88	1.99	5.14	3.29	1.56	4.49	3.76	1.19
	6	8.77	1.45	6.03	8.25	1.66	4.97	7.73	1.90	4.07	7.20	2.18	3.31	6.66	2.50	2.66	6.08	2.87	2.12	5.45	3.29	1.66	4.77	3.76	1.27
	7	9.01	1.45	6.20	8.48	1.65	5.12	7.92	1.88	4.21	7.93	2.17	3.65	6.85	2.50	2.74	6.25	2.87	2.18	5.61	3.29	1.71	4.91	3.76	1.31
	8	9.24	1.45	6.38	8.70	1.65	5.27	8.16	1.89	4.32	7.61	2.17	3.51	7.04	2.49	2.82	6.43	2.86	2.24	5.77	3.29	1.76	5.06	3.77	1.34
	10	9.71	1.45	6.71	9.16	1.65	5.56	8.60	1.88	4.56	8.02	2.16	3.71	7.42	2.49	2.99	6.78	2.86	2.37	6.10	3.28	1.86	5.35	3.77	1.42
	12	-	-	-	9.60	1.64	5.84	9.02	1.88	4.80	8.43	2.16	3.91	7.81	2.48	3.15	7.14	2.86	2.50	6.43	3.28	1.96	5.65	3.77	1.50
14	-	-	-	10.04	1.65	6.10	9.45	1.88	5.03	8.83	2.16	4.10	8.19	2.48	3.30	7.50	2.85	2.63	6.76	3.28	2.06	5.96	3.77	1.58	
16	-	-	-	-	-	-	9.86	1.88	5.24	9.23	2.16	4.28	8.57	2.48	3.46	7.86	2.85	2.76	7.10	3.28	2.16	6.27	3.78	1.66	
18	-	-	-	-	-	-	10.28	1.89	5.44	9.63	2.16	4.46	8.95	2.48	3.61	8.23	2.86	2.88	7.44	3.29	2.26	6.58	3.78	1.74	

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AT THE EVAPORATOR	3	5	8	10
Cooling capacity	0,990	1	1,020	1,030
Input power	0,990	1	1,010	1,020
Heating capacity	0,991	1	1,013	1,022
Input power	1,014	1	0,978	0,963

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AL CONDENSER	5	10	15	22
Cooling capacity	1	1,010	1,020	1,030
Input power	1	0,990	0,980	0,970
Heating capacity	the variations can be ignored			

 Operating range with "Y" valve.

FOULING FACTOR [K*M <sup>2</sup> ]/[W]			
	0,00001	0,00002	0,00005
Cooling capacity	1	0,99	0,98
Input power	1	1	1
Heating capacity	1	1	0,99
Input power	1	1	1,02

- KEY**  
**Ph** Heating capacity  
**Pc** Cooling capacity  
**Pe** Input power

9.5. WRL040XH\*\*\*\*\*M HEATING MODE

EVAPORATOR WATER OUTLET TEMPERATURE °C		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]					
-8	9.13	1.82	5.03	8.95	2.09	4.28	8.82	2.36	3.73	8.73	2.66	3.28	8.65	3.01	2.88	-	-	-	-	-	-	-	-	-	-
-6	9.76	1.82	5.38	9.55	2.09	4.56	9.40	2.37	3.96	9.29	2.68	3.47	9.19	3.03	3.03	9.07	3.46	2.62	-	-	-	-	-	-	-
-4	10.38	1.82	5.72	10.16	2.10	4.84	9.98	2.38	4.19	9.85	2.69	3.66	9.72	3.05	3.18	9.59	3.49	2.75	-	-	-	-	-	-	-
-3	10.70	1.82	5.89	10.46	2.10	4.98	10.27	2.39	4.40	10.13	2.70	3.75	9.99	3.06	3.26	9.85	3.50	2.81	-	-	-	-	-	-	-
-2	11.01	1.82	6.06	10.76	2.10	5.11	10.56	2.39	4.41	10.41	2.71	3.84	10.26	3.08	3.34	10.11	3.52	2.87	9.93	4.06	2.44	-	-	-	-
0	11.63	1.82	6.39	11.36	2.11	5.38	11.15	2.40	4.64	10.97	2.72	4.02	10.80	3.10	3.49	10.63	3.55	3.00	10.43	4.10	2.54	-	-	-	-
2	12.25	1.82	6.72	11.96	2.12	5.65	11.73	2.41	4.86	11.53	2.74	4.21	11.35	3.12	3.64	11.16	3.58	3.12	10.94	4.14	2.64	-	-	-	-
4	12.87	1.83	7.05	12.56	2.12	5.91	12.31	2.43	5.07	12.09	2.76	4.39	11.89	3.14	3.79	11.68	3.60	3.24	11.44	4.17	2.74	11.15	4.87	2.29	-
5	13.19	1.83	7.21	12.86	2.13	6.05	12.60	2.43	5.18	12.37	2.76	4.48	12.16	3.15	3.86	11.94	3.62	3.30	11.70	4.19	2.79	11.40	4.89	2.33	-
6	13.50	1.83	7.37	13.16	2.13	6.18	12.89	2.44	5.29	12.65	2.77	4.57	12.43	3.16	3.93	12.21	3.63	3.36	11.95	4.20	2.84	11.65	4.91	2.37	-
7	13.81	1.83	7.52	13.46	2.14	6.31	13.18	2.44	5.40	12.93	2.78	4.66	12.70	3.17	4.01	12.47	3.64	3.42	12.21	4.22	2.89	11.89	4.92	2.41	-
8	14.11	1.84	7.68	13.76	2.14	6.43	13.47	2.45	5.51	13.21	2.78	4.75	12.98	3.18	4.08	12.73	3.65	3.49	12.46	4.23	2.94	12.14	4.94	2.46	-
10	-	-	-	14.36	2.15	6.69	14.05	2.46	5.72	13.78	2.80	4.92	13.52	3.20	4.23	13.26	3.68	3.61	12.97	4.26	3.04	12.64	4.98	2.54	-
12	-	-	-	14.96	2.16	6.94	14.63	2.47	5.93	14.34	2.81	5.10	14.07	3.21	4.38	13.79	3.70	3.73	13.49	4.29	3.14	13.13	5.01	2.62	-
14	-	-	-	15.56	2.16	7.19	15.21	2.48	6.14	14.90	2.83	5.28	14.61	3.23	4.52	14.32	3.72	3.85	14.00	4.31	3.25	13.63	5.04	2.70	-
16	-	-	-	-	-	-	15.79	2.49	6.35	15.47	2.84	5.45	15.16	3.25	4.67	14.85	3.74	3.97	14.52	4.34	3.35	14.14	5.07	2.79	-
18	-	-	-	-	-	-	-	-	-	16.03	2.85	5.63	15.71	3.26	4.82	15.39	3.75	4.10	15.04	4.36	3.45	14.64	5.10	2.87	-

9.6. WRL040XH\*\*\*\*\*M COOLING MODE

EVAPORATOR WATER OUTLET TEMPERATURE °C		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Ph	Pe	E.E.R.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]		
-8	6.89	1.98	3.48	6.46	2.23	2.89	6.05	2.53	2.40	5.66	2.86	1.98	5.27	3.24	1.63	-	-	-	-	-	-	-	-	-	-
-6	7.55	1.96	3.85	7.07	2.21	3.20	6.62	2.51	2.64	6.18	2.85	2.17	5.74	3.24	1.77	5.28	3.67	1.44	-	-	-	-	-	-	-
-4	8.21	1.94	4.23	7.69	2.19	3.51	7.19	2.49	2.89	6.71	2.84	2.37	6.21	3.23	1.92	5.70	3.67	1.55	-	-	-	-	-	-	-
-3	8.54	1.93	4.42	8.00	2.18	3.66	7.48	2.48	3.01	6.97	2.83	2.46	6.45	3.22	2.00	5.91	3.67	1.61	-	-	-	-	-	-	-
-2	8.86	1.92	4.61	8.30	2.17	3.82	7.77	2.47	3.14	7.23	2.82	2.56	6.69	3.22	2.08	6.12	3.66	1.67	-	-	-	-	-	-	-
0	9.50	1.90	4.99	8.91	2.16	4.13	8.34	2.46	3.39	7.76	2.81	2.77	7.17	3.21	2.24	6.56	3.66	1.79	5.89	4.16	1.42	-	-	-	-
2	10.14	1.89	5.37	9.52	2.14	4.45	8.90	2.44	3.65	8.29	2.79	2.97	7.66	3.19	2.40	7.00	3.65	1.92	6.28	4.16	1.51	-	-	-	-
4	10.77	1.87	5.75	10.12	2.12	4.76	9.47	2.43	3.90	8.82	2.78	3.17	8.15	3.18	2.56	7.44	3.64	2.04	6.68	4.16	1.61	5.85	4.73	1.24	-
6	11.39	1.86	6.11	10.71	2.11	5.07	10.03	2.41	4.16	9.35	2.77	3.38	8.64	3.17	2.72	7.89	3.63	2.17	7.08	4.15	1.71	6.21	4.73	1.31	-
7	11.70	1.86	6.29	11.00	2.11	5.22	10.32	2.39	4.32	9.61	2.76	3.48	8.88	3.17	2.81	8.12	3.63	2.24	7.29	4.15	1.76	6.39	4.73	1.35	-
8	12.00	1.86	6.47	11.30	2.10	5.37	10.59	2.40	4.41	9.88	2.75	3.59	9.13	3.16	2.89	8.34	3.63	2.30	7.50	4.15	1.81	6.57	4.73	1.39	-
10	12.61	1.85	6.80	11.88	2.10	5.67	11.15	2.39	4.66	10.40	2.75	3.79	9.62	3.15	3.05	8.80	3.62	2.43	7.91	4.15	1.91	6.95	4.73	1.47	-
12	-	-	-	12.45	2.09	5.95	11.69	2.39	4.90	10.92	2.74	3.99	10.12	3.15	3.21	9.26	3.62	2.56	8.34	4.15	2.01	7.33	4.74	1.55	-
14	-	-	-	13.01	2.10	6.21	12.24	2.39	5.13	11.44	2.74	4.18	10.61	3.15	3.37	9.72	3.62	2.69	8.76	4.15	2.11	7.72	4.74	1.63	-
16	-	-	-	-	-	-	12.77	2.39	5.34	11.96	2.74	4.37	11.10	3.15	3.53	10.18	3.62	2.82	9.20	4.15	2.22	8.12	4.75	1.71	-
18	-	-	-	-	-	-	13.30	2.40	5.54	12.46	2.74	4.54	11.59	3.15	3.68	10.65	3.62	2.94	9.63	4.15	2.32	8.52	4.75	1.79	-

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AT THE EVAPORATOR	3	5	8	10
Cooling capacity	0,990	1	1,020	1,030
Input power	0,990	1	1,010	1,020
Heating capacity	0,991	1	1,013	1,022
Input power	1,014	1	0,978	0,963

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AL CONDENSER	5	10	15	22
Cooling capacity	1	1,010	1,020	1,030
Input power	1	0,990	0,980	0,970
Heating capacity	the variations can be ignored			

Operating range with "Y" valve.

FOULING FACTOR [K*M²]/[W]			
	0,00001	0,00002	0,00005
Cooling capacity	1	0,99	0,98
Input power	1	1	1
Heating capacity	1	1	0,99
Input power	1	1	1,02

- KEY**  
**Ph** Heating capacity  
**Pc** Cooling capacity  
**Pe** Input power

9.7. WRL025XH<sup>000000</sup> HEATING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]		
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	5.61	1.24	4.51	5.46	1.42	3.84	5.35	1.60	3.34	5.28	1.81	2.92	5.21	2.05	2.55	-	-	-	-	-	-	-	-	-
	-6	6.00	1.23	4.88	5.84	1.41	4.16	5.73	1.59	3.60	5.65	1.80	3.14	5.58	2.04	2.73	5.49	2.33	2.36	-	-	-	-	-	-
	-4	6.39	1.21	5.26	6.22	1.39	4.47	6.11	1.58	3.87	6.02	1.79	3.37	5.94	2.03	2.93	5.85	2.32	2.51	-	-	-	-	-	-
	-3	6.58	1.21	5.45	6.41	1.39	4.63	6.30	1.57	4.01	6.20	1.78	3.49	6.12	2.02	3.02	6.02	2.32	2.60	-	-	-	-	-	-
	-2	6.77	1.20	5.64	6.60	1.38	4.79	6.48	1.57	4.14	6.39	1.77	3.60	6.30	2.02	3.12	6.20	2.32	2.68	6.07	2.68	2.27	-	-	-
	0	7.15	1.19	6.03	6.98	1.37	5.11	6.86	1.55	4.42	6.76	1.76	3.83	6.66	2.01	3.32	6.56	2.31	2.84	6.42	2.67	2.41	-	-	-
	2	7.52	1.17	6.41	7.36	1.35	5.44	7.23	1.54	4.69	7.13	1.75	4.07	7.03	2.00	3.52	6.92	2.30	3.01	6.77	2.66	2.55	-	-	-
	4	7.89	1.16	6.81	7.73	1.34	5.77	7.60	1.53	4.98	7.50	1.74	4.31	7.40	1.99	3.72	7.28	2.28	3.19	7.13	2.65	2.69	6.92	3.09	2.24
	5	8.08	1.15	7.00	7.92	1.33	5.93	7.79	1.52	5.12	7.68	1.73	4.44	7.58	1.98	3.83	7.46	2.28	3.27	7.31	2.64	2.76	7.10	3.09	2.30
	6	8.26	1.15	7.20	8.10	1.33	6.10	7.98	1.52	5.26	7.87	1.73	4.56	7.77	1.97	3.93	7.64	2.27	3.36	7.49	2.64	2.84	7.28	3.08	2.36
	7	8.45	1.14	7.40	8.29	1.32	6.27	8.16	1.51	5.41	7.87	1.72	4.58	7.95	1.97	4.04	7.83	2.27	3.45	7.67	2.63	2.91	7.46	3.08	2.42
	8	8.63	1.14	7.59	8.47	1.32	6.44	8.35	1.50	5.55	8.24	1.71	4.81	8.14	1.96	4.15	8.01	2.26	3.55	7.85	2.62	2.99	7.64	3.07	2.49
	10	-	-	-	8.84	1.30	6.78	8.72	1.49	5.85	8.62	1.70	5.06	8.51	1.95	4.37	8.39	2.25	3.73	8.22	2.61	3.15	8.00	3.06	2.62
	12	-	-	-	9.21	1.29	7.12	9.09	1.48	6.15	8.99	1.69	5.33	8.89	1.93	4.59	8.76	2.23	3.92	8.60	2.60	3.31	8.37	3.04	2.75
	14	-	-	-	9.58	1.28	7.47	9.47	1.47	6.45	9.37	1.68	5.59	9.27	1.92	4.82	9.14	2.22	4.12	8.98	2.58	3.48	8.75	3.03	2.89
16	-	-	-	-	-	-	9.84	1.46	6.76	9.75	1.66	5.87	9.65	1.91	5.06	9.53	2.20	4.33	9.36	2.57	3.65	9.14	3.01	3.04	
18	-	-	-	-	-	-	-	-	-	10.13	1.65	6.14	10.03	1.89	5.31	9.92	2.19	4.54	9.75	2.55	3.83	9.53	2.99	3.19	

9.8. WRL025XH<sup>000000</sup> COOLING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Ph	Pe	E.E.R.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]		
EVAPORATOR WATER INPUT TEMPERATURE °C	-8	4.10	1.30	3.14	3.86	1.47	2.62	3.64	1.67	2.18	3.42	1.89	1.81	3.19	2.14	1.49	-	-	-	-	-	-	-	-	-
	-6	4.50	1.29	3.50	4.24	1.46	2.91	3.99	1.65	2.41	3.75	1.88	1.99	3.49	2.13	1.64	3.22	2.42	1.33	-	-	-	-	-	-
	-4	4.90	1.27	3.86	4.62	1.44	3.21	4.35	1.64	2.65	4.08	1.87	2.18	3.80	2.12	1.79	3.50	2.42	1.45	-	-	-	-	-	-
	-3	5.10	1.26	4.05	4.81	1.43	3.36	4.53	1.63	2.77	4.24	1.86	2.28	3.95	2.12	1.86	3.64	2.41	1.51	-	-	-	-	-	-
	-2	5.30	1.25	4.23	5.00	1.43	3.51	4.70	1.62	2.90	4.41	1.85	2.38	4.10	2.11	1.94	3.78	2.41	1.57	-	-	-	-	-	-
	0	5.70	1.24	4.60	5.37	1.41	3.81	5.06	1.61	3.14	4.74	1.84	2.58	4.41	2.10	2.10	4.06	2.40	1.69	3.68	2.73	1.35	-	-	-
	2	6.09	1.23	4.97	5.75	1.40	4.12	5.41	1.60	3.39	5.07	1.83	2.78	4.72	2.09	2.26	4.35	2.39	1.82	3.94	2.72	1.45	-	-	-
	4	6.49	1.21	5.34	6.13	1.38	4.43	5.77	1.58	3.65	5.41	1.81	2.98	5.03	2.08	2.42	4.64	2.38	1.95	4.21	2.71	1.55	3.73	3.09	1.21
	6	6.88	1.20	5.71	6.50	1.37	4.74	6.13	1.57	3.90	5.75	1.80	3.19	5.35	2.06	2.59	4.93	2.36	2.09	4.48	2.70	1.66	3.98	3.08	1.29
	7	7.08	1.20	5.89	6.69	1.37	4.89	6.31	1.56	4.05	6.31	1.79	3.52	5.51	2.06	2.68	5.08	2.36	2.15	4.61	2.70	1.71	4.10	3.08	1.33
	8	7.27	1.20	6.08	6.88	1.36	5.05	6.48	1.56	4.16	6.08	1.79	3.41	5.67	2.05	2.76	5.23	2.35	2.22	4.75	2.69	1.76	4.23	3.07	1.38
	10	7.66	1.19	6.44	7.25	1.35	5.36	6.84	1.55	4.42	6.42	1.77	3.62	5.99	2.04	2.94	5.52	2.34	2.36	5.03	2.68	1.88	4.48	3.06	1.46
	12	-	-	-	7.62	1.35	5.67	7.20	1.54	4.68	6.76	1.76	3.84	6.31	2.02	3.12	5.83	2.33	2.51	5.31	2.67	1.99	4.74	3.05	1.55
	14	-	-	-	8.00	1.34	5.97	7.56	1.53	4.94	7.11	1.75	4.06	6.63	2.01	3.30	6.13	2.31	2.65	5.60	2.65	2.11	5.01	3.04	1.65
	16	-	-	-	-	-	-	7.92	1.52	5.20	7.45	1.74	4.28	6.96	2.00	3.48	6.45	2.30	2.80	5.89	2.64	2.23	5.28	3.02	1.75
18	-	-	-	-	-	-	8.27	1.51	5.48	7.80	1.73	4.50	7.29	1.99	3.67	6.76	2.29	2.96	6.18	2.63	2.35	5.56	3.01	1.85	

- KEY**  
**Ph** Heating capacity  
**Pc** Cooling capacity  
**Pe** Input power

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AT THE EVAPORATOR	3	5	8	10
Cooling capacity	0,990	1	1,020	1,030
Input power	0,990	1	1,010	1,020
Heating capacity	0,991	1	1,013	1,022
Input power	1,014	1	0,978	0,963

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AL CONDENSER	5	10	15	22
Cooling capacity	1	1,010	1,020	1,030
Input power	1	0,990	0,980	0,970
Heating capacity	the variations can be ignored			

 Operating range with "Y" valve.

FOULING FACTOR [K*M <sup>2</sup> ]/[W]			
	0,00001	0,00002	0,00005
Cooling capacity	1	0,99	0,98
Input power	1	1	1
Heating capacity	1	1	0,99
Input power	1	1	1,02

9.9. WRL030XH<sup>\*\*\*\*\*</sup> HEATING MODE

EVAPORATOR WATER OUTLET TEMPERATURE °C	Condenser water outlet temperature °C																							
	25			30			35			40			45			50			55			60		
	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.
	[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]					
-8	7.30	1.46	5.01	7.08	1.66	4.26	6.87	1.88	3.66	6.68	2.12	3.16	6.52	2.40	2.72	-	-	-	-	-	-	-	-	-
-6	7.75	1.44	5.39	7.53	1.65	4.57	7.32	1.86	3.93	7.11	2.11	3.38	6.93	2.39	2.90	6.78	2.73	2.48	-	-	-	-	-	-
-4	8.21	1.42	5.77	7.98	1.63	4.89	7.76	1.85	4.20	7.54	2.09	3.60	7.34	2.38	3.09	7.17	2.72	2.63	-	-	-	-	-	-
-3	8.43	1.41	5.97	8.21	1.62	5.06	7.98	1.84	4.40	7.75	2.09	3.72	7.54	2.37	3.18	7.36	2.72	2.71	-	-	-	-	-	-
-2	8.66	1.41	6.16	8.43	1.62	5.22	8.20	1.83	4.47	7.97	2.08	3.83	7.75	2.37	3.27	7.55	2.71	2.78	7.38	3.14	2.35	-	-	-
0	9.12	1.39	6.56	8.88	1.60	5.55	8.64	1.82	4.75	8.40	2.07	4.07	8.16	2.35	3.47	7.93	2.70	2.93	7.73	3.13	2.47	-	-	-
2	9.57	1.37	6.97	9.33	1.58	5.89	9.08	1.81	5.03	8.82	2.05	4.30	8.56	2.34	3.66	8.31	2.69	3.09	8.07	3.12	2.59	-	-	-
4	10.02	1.36	7.38	9.79	1.57	6.23	9.52	1.79	5.32	9.25	2.04	4.54	8.97	2.33	3.85	8.69	2.68	3.25	8.42	3.10	2.71	8.18	3.62	2.26
5	10.25	1.35	7.58	10.01	1.56	6.40	9.74	1.78	5.46	9.46	2.03	4.66	9.17	2.32	3.95	8.88	2.67	3.33	8.60	3.10	2.78	8.33	3.62	2.30
6	10.48	1.35	7.79	10.24	1.56	6.58	9.97	1.78	5.61	9.67	2.02	4.78	9.37	2.31	4.05	9.07	2.66	3.41	8.77	3.09	2.84	8.49	3.61	2.35
7	10.71	1.34	8.00	10.46	1.55	6.75	10.19	1.77	5.76	9.89	2.02	4.91	9.58	2.31	4.15	9.26	2.66	3.49	8.94	3.08	2.90	8.64	3.60	2.40
8	10.93	1.33	8.21	10.69	1.54	6.93	10.41	1.76	5.91	10.10	2.01	5.03	9.78	2.30	4.26	9.45	2.65	3.57	9.12	3.08	2.96	8.80	3.60	2.45
10	-	-	-	11.14	1.53	7.29	10.85	1.75	6.21	10.53	1.99	5.28	10.18	2.28	4.46	9.83	2.63	3.73	9.46	3.06	3.09	9.11	3.58	2.54
12	-	-	-	11.59	1.52	7.65	11.29	1.73	6.51	10.95	1.98	5.54	10.59	2.27	4.67	10.20	2.62	3.90	9.81	3.04	3.22	9.41	3.56	2.64
14	-	-	-	12.04	1.50	8.02	11.73	1.72	6.82	11.38	1.96	5.80	10.99	2.25	4.88	10.58	2.60	4.07	10.16	3.02	3.36	9.72	3.55	2.74
16	-	-	-	-	-	-	12.17	1.70	7.14	11.80	1.95	6.06	11.40	2.23	5.10	10.96	2.58	4.25	10.50	3.01	3.49	10.03	3.53	2.84
18	-	-	-	-	-	-	-	-	-	12.23	1.93	6.33	11.80	2.22	5.33	11.34	2.56	4.43	10.85	2.99	3.63	10.34	3.50	2.95

9.10. WRL030XH<sup>\*\*\*\*\*</sup> COOLING MODE

EVAPORATOR WATER OUTLET TEMPERATURE °C	Condenser water outlet temperature °C																							
	25			30			35			40			45			50			55			60		
	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Ph	Pe	E.E.R.
	[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]		
-8	5.15	1.42	3.61	4.95	1.64	3.02	4.76	1.89	2.51	4.54	2.18	2.08	4.29	2.50	1.72	-	-	-	-	-	-	-	-	-
-6	5.71	1.41	4.05	5.48	1.62	3.38	5.25	1.88	2.79	4.99	2.17	2.30	4.68	2.49	1.88	4.31	2.83	1.52	-	-	-	-	-	-
-4	6.25	1.39	4.49	6.00	1.61	3.73	5.73	1.87	3.07	5.43	2.16	2.51	5.07	2.48	2.04	4.63	2.82	1.64	-	-	-	-	-	-
-3	6.51	1.39	4.70	6.25	1.60	3.90	5.97	1.86	3.21	5.64	2.16	2.62	5.26	2.48	2.12	4.79	2.82	1.70	-	-	-	-	-	-
-2	6.77	1.38	4.91	6.50	1.59	4.08	6.20	1.85	3.35	5.86	2.15	2.73	5.45	2.47	2.20	4.95	2.82	1.76	-	-	-	-	-	-
0	7.27	1.36	5.32	6.98	1.58	4.42	6.65	1.84	3.62	6.27	2.14	2.94	5.82	2.46	2.36	5.27	2.81	1.88	4.61	3.17	1.45	-	-	-
2	7.74	1.35	5.73	7.44	1.56	4.75	7.09	1.82	3.89	6.68	2.12	3.15	6.19	2.45	2.52	5.59	2.80	1.99	4.87	3.17	1.54	-	-	-
4	8.19	1.34	6.11	7.88	1.55	5.08	7.52	1.81	4.15	7.08	2.11	3.36	6.55	2.44	2.68	5.91	2.80	2.11	5.14	3.17	1.62	4.21	3.54	1.19
6	8.62	1.33	6.47	8.30	1.54	5.39	7.93	1.80	4.40	7.47	2.10	3.56	6.91	2.43	2.84	6.23	2.79	2.23	5.40	3.16	1.71	4.41	3.54	1.25
7	8.82	1.33	6.64	8.51	1.54	5.53	8.14	1.79	4.55	7.66	2.09	3.66	7.09	2.43	2.92	6.39	2.78	2.29	5.54	3.16	1.75	4.52	3.54	1.28
8	9.02	1.33	6.80	8.71	1.53	5.68	8.32	1.79	4.65	7.85	2.09	3.76	7.26	2.42	3.00	6.54	2.78	2.35	5.67	3.16	1.80	4.63	3.54	1.31
10	9.40	1.32	7.10	9.10	1.53	5.95	8.71	1.78	4.88	8.22	2.08	3.95	7.61	2.41	3.15	6.86	2.77	2.47	5.95	3.15	1.89	4.85	3.54	1.37
12	-	-	-	9.46	1.53	6.20	9.07	1.78	5.10	8.58	2.08	4.13	7.95	2.41	3.30	7.17	2.77	2.59	6.22	3.15	1.97	5.08	3.54	1.43
14	-	-	-	9.81	1.53	6.41	9.43	1.78	5.30	8.92	2.07	4.30	8.28	2.41	3.44	7.48	2.77	2.70	6.50	3.15	2.06	5.32	3.55	1.50
16	-	-	-	-	-	-	9.76	1.78	5.48	9.26	2.08	4.46	8.61	2.41	3.58	7.79	2.77	2.81	6.78	3.15	2.15	5.56	3.55	1.57
18	-	-	-	-	-	-	10.09	1.79	5.63	9.59	2.08	4.60	8.93	2.41	3.70	8.09	2.77	2.92	7.06	3.16	2.24	5.81	3.56	1.63

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AT THE EVAPORATOR	3	5	8	10
Cooling capacity	0,990	1	1,020	1,030
Input power	0,990	1	1,010	1,020
Heating capacity	0,991	1	1,013	1,022
Input power	1,014	1	0,978	0,963

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AL CONDENSER	5	10	15	22
Cooling capacity	1	1,010	1,020	1,030
Input power	1	0,990	0,980	0,970
Heating capacity	the variations can be ignored			

 Operating range with "Y" valve.

FOULING FACTOR [K*M <sup>2</sup> ]/[W]			
	0,00001	0,00002	0,00005
Cooling capacity	1	0,99	0,98
Input power	1	1	1
Heating capacity	1	1	0,99
Input power	1	1	1,02

- KEY**  
**Ph** Heating capacity  
**Pc** Cooling capacity  
**Pe** Input power



9.11. WRL040XH<sup>000000</sup> HEATING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]					
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	9.16	1.87	4.89	8.96	2.11	4.25	8.76	2.36	3.71	8.56	2.64	3.24	8.36	2.97	2.81	-	-	-	-	-	-	-	-	-
	-6	9.74	1.86	5.25	9.54	2.09	4.56	9.34	2.35	3.97	9.13	2.64	3.47	8.92	2.96	3.01	8.71	3.34	2.61	-	-	-	-	-	-
	-4	10.32	1.84	5.61	10.13	2.08	4.86	9.92	2.34	4.24	9.71	2.63	3.69	9.48	2.95	3.21	9.25	3.33	2.78	-	-	-	-	-	-
	-3	10.61	1.83	5.79	10.42	2.08	5.02	10.21	2.34	4.41	9.99	2.62	3.81	9.76	2.95	3.31	9.52	3.33	2.86	-	-	-	-	-	-
	-2	10.90	1.83	5.97	10.71	2.07	5.17	10.50	2.33	4.50	10.27	2.62	3.92	10.04	2.95	3.41	9.79	3.33	2.94	9.53	3.77	2.53	-	-	-
	0	11.49	1.81	6.35	11.29	2.06	5.49	11.07	2.32	4.77	10.84	2.61	4.15	10.59	2.94	3.60	10.32	3.32	3.11	10.03	3.76	2.67	-	-	-
	2	12.08	1.79	6.73	11.88	2.05	5.81	11.65	2.31	5.04	11.40	2.60	4.38	11.13	2.93	3.80	10.84	3.31	3.28	10.53	3.75	2.81	-	-	-
	4	12.67	1.78	7.13	12.46	2.03	6.13	12.23	2.30	5.32	11.97	2.59	4.61	11.68	2.92	3.99	11.37	3.30	3.44	11.03	3.74	2.95	10.67	4.25	2.51
	5	12.97	1.77	7.33	12.76	2.03	6.30	12.52	2.29	5.45	12.25	2.59	4.73	11.93	2.92	4.09	11.63	3.30	3.52	11.28	3.74	3.02	10.90	4.25	2.57
	6	13.27	1.76	7.53	13.05	2.02	6.47	12.81	2.29	5.59	12.53	2.58	4.85	12.22	2.92	4.19	11.88	3.30	3.61	11.52	3.73	3.09	11.13	4.24	2.62
	7	13.57	1.75	7.74	13.35	2.01	6.64	13.10	2.28	5.73	12.81	2.58	4.97	12.49	2.91	4.29	12.14	3.29	3.69	11.76	3.73	3.15	11.36	4.24	2.68
	8	13.87	1.74	7.96	13.65	2.00	6.81	13.39	2.28	5.88	13.09	2.58	5.08	12.77	2.91	4.39	12.40	3.29	3.77	12.01	3.73	3.22	11.58	4.23	2.74
	10	-	-	-	14.25	1.99	7.16	13.97	2.27	6.17	13.66	2.57	5.32	13.31	2.90	4.59	12.92	3.28	3.94	12.50	3.72	3.36	12.03	4.23	2.85
12	-	-	-	14.85	1.97	7.52	14.57	2.25	6.46	14.23	2.56	5.57	13.86	2.89	4.79	13.44	3.27	4.11	12.98	3.71	3.50	12.48	4.22	2.96	
14	-	-	-	15.47	1.96	7.90	15.16	2.24	6.77	14.81	2.55	5.82	14.41	2.88	5.00	13.96	3.26	4.28	13.47	3.70	3.64	12.93	4.21	3.07	
16	-	-	-	-	-	-	15.77	2.23	7.08	15.39	2.53	6.07	14.96	2.87	5.21	14.48	3.26	4.45	13.95	3.69	3.78	13.38	4.20	3.19	
18	-	-	-	-	-	-	-	-	-	15.98	2.52	6.34	15.52	2.86	5.42	15.01	3.25	4.62	14.44	3.68	3.92	13.82	4.19	3.30	

9.12. WRL040XH<sup>000000</sup> COOLING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Ph	Pe	E.E.R.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]		
EVAPORATOR WATER INPUT TEMPERATURE °C	-8	6.85	1.91	3.59	6.44	2.16	2.98	6.05	2.42	2.50	5.66	2.71	2.09	5.28	3.03	1.74	-	-	-	-	-	-	-	-	-
	-6	7.54	1.89	3.99	7.08	2.14	3.31	6.64	2.40	2.76	6.21	2.69	2.31	5.77	3.01	1.91	5.31	3.37	1.57	-	-	-	-	-	-
	-4	8.21	1.86	4.40	7.71	2.11	3.65	7.23	2.38	3.04	6.75	2.67	2.53	6.26	3.00	2.09	5.75	3.36	1.71	-	-	-	-	-	-
	-3	8.55	1.85	4.61	8.03	2.10	3.82	7.53	2.37	3.18	7.02	2.66	2.64	6.51	2.99	2.18	5.97	3.35	1.78	-	-	-	-	-	-
	-2	8.88	1.84	4.82	8.35	2.09	3.99	7.82	2.36	3.32	7.30	2.65	2.75	6.76	2.98	2.27	6.20	3.35	1.85	-	-	-	-	-	-
	0	9.55	1.82	5.24	8.97	2.07	4.34	8.41	2.33	3.60	7.84	2.63	2.98	7.26	2.96	2.45	6.65	3.33	2.00	6.00	3.76	1.60	-	-	-
	2	10.21	1.80	5.66	9.60	2.05	4.69	9.00	2.31	3.89	8.39	2.61	3.21	7.77	2.94	2.64	7.11	3.32	2.14	6.41	3.75	1.71	-	-	-
	4	10.85	1.79	6.08	10.21	2.03	5.03	9.58	2.30	4.17	8.94	2.59	3.45	8.27	2.93	2.82	7.58	3.31	2.29	6.83	3.74	1.82	6.02	4.24	1.42
	6	11.49	1.77	6.48	10.82	2.02	5.37	10.16	2.28	4.45	9.48	2.58	3.68	8.78	2.92	3.01	8.04	3.30	2.44	7.25	3.74	1.94	6.40	4.24	1.51
	7	11.80	1.77	6.67	11.12	2.01	5.53	10.43	2.26	4.62	9.75	2.57	3.79	9.03	2.91	3.10	8.28	3.30	2.51	7.47	3.74	2.00	6.60	4.24	1.56
	8	12.12	1.77	6.86	11.42	2.01	5.69	10.73	2.27	4.72	10.02	2.57	3.90	9.29	2.91	3.19	8.51	3.29	2.58	7.68	3.74	2.06	6.79	4.24	1.60
	10	12.73	1.76	7.21	12.01	2.00	6.00	11.29	2.26	4.99	10.56	2.56	4.12	9.79	2.90	3.37	8.98	3.29	2.73	8.12	3.74	2.17	7.18	4.25	1.69
	12	-	-	-	12.59	2.00	6.29	11.85	2.26	5.23	11.09	2.56	4.33	10.29	2.90	3.55	9.45	3.29	2.87	8.55	3.74	2.28	7.58	4.26	1.78
14	-	-	-	13.16	2.01	6.54	12.40	2.27	5.46	11.61	2.57	4.52	10.79	2.91	3.71	9.92	3.30	3.00	8.99	3.76	2.39	7.98	4.28	1.87	
16	-	-	-	-	-	-	12.94	2.29	5.66	12.13	2.58	4.70	11.28	2.92	3.86	10.39	3.32	3.13	9.43	3.77	2.50	8.39	4.30	1.95	
18	-	-	-	-	-	-	13.46	2.31	5.83	12.64	2.60	4.85	11.77	2.95	4.00	10.85	3.34	3.25	9.86	3.80	2.60	8.79	4.33	2.03	

**KEY**  
**Ph** Heating capacity  
**Pc** Cooling capacity  
**Pe** Input power

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AT THE EVAPORATOR	3	5	8	10
Cooling capacity	0,990	1	1,020	1,030
Input power	0,990	1	1,010	1,020
Heating capacity	0,991	1	1,013	1,022
Input power	1,014	1	0,978	0,963

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AL CONDENSER	5	10	15	22
Cooling capacity	1	1,010	1,020	1,030
Input power	1	0,990	0,980	0,970
Heating capacity	the variations can be ignored			

 Operating range with "Y" valve.

FOULING FACTOR [K*M <sup>2</sup> ]/[W]			
	0,00001	0,00002	0,00005
Cooling capacity	1	0,99	0,98
Input power	1	1	1
Heating capacity	1	1	0,99
Input power	1	1	1,02

### 9.13. WRL050XH<sup>\*\*\*\*\*</sup> HEATING MODE

EVAPORATOR WATER OUTLET TEMPERATURE °C		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]					
-8	12.22	2.40	5.09	11.79	2.71	4.35	11.48	3.05	3.76	11.27	3.44	3.28	11.15	3.89	2.87	-	-	-	-	-	-	-	-	-	
-6	12.99	2.39	5.45	12.56	2.69	4.66	12.25	3.04	4.03	12.02	3.44	3.50	11.87	3.89	3.05	11.77	4.42	2.66	-	-	-	-	-	-	
-4	13.76	2.37	5.81	13.33	2.68	4.97	13.01	3.03	4.29	12.77	3.43	3.72	12.59	3.89	3.23	12.45	4.43	2.81	-	-	-	-	-	-	
-3	14.14	2.36	6.00	13.72	2.67	5.13	13.39	3.03	4.46	13.15	3.43	3.83	12.95	3.89	3.33	12.79	4.43	2.89	-	-	-	-	-	-	
-2	14.52	2.35	6.18	14.10	2.67	5.29	13.77	3.02	4.56	13.52	3.43	3.94	13.31	3.89	3.42	13.13	4.43	2.96	12.96	5.06	2.56	-	-	-	
0	15.28	2.33	6.55	14.87	2.65	5.60	14.53	3.01	4.82	14.26	3.42	4.17	14.03	3.89	3.60	13.81	4.44	3.11	13.58	5.07	2.68	-	-	-	
2	16.04	2.32	6.92	15.63	2.64	5.92	15.29	3.00	5.09	15.00	3.41	4.39	14.74	3.89	3.79	14.48	4.44	3.26	14.21	5.07	2.80	-	-	-	
4	16.80	2.30	7.30	16.40	2.63	6.24	16.05	2.99	5.37	15.75	3.41	4.62	15.45	3.88	3.98	15.15	4.44	3.42	14.83	5.08	2.92	14.46	5.82	2.49	
5	17.18	2.30	7.48	16.78	2.62	6.40	16.43	2.99	5.50	16.12	3.40	4.74	15.81	3.88	4.07	15.49	4.43	3.49	15.14	5.08	2.98	14.74	5.82	2.53	
6	17.56	2.29	7.67	17.16	2.62	6.56	16.81	2.98	5.64	16.49	3.40	4.85	16.17	3.88	4.17	15.83	4.43	3.57	15.45	5.08	3.04	15.02	5.82	2.58	
7	17.94	2.28	7.86	17.55	2.61	6.72	17.19	2.98	5.78	16.86	3.39	4.97	16.53	3.87	4.27	16.17	4.43	3.65	15.77	5.07	3.11	15.30	5.82	2.63	
8	18.33	2.28	8.05	17.93	2.60	6.88	17.58	2.97	5.92	17.23	3.39	5.09	16.88	3.87	4.36	16.51	4.43	3.73	16.08	5.07	3.17	15.58	5.82	2.68	
10	-	-	-	18.70	2.59	7.21	18.34	2.96	6.19	17.98	3.38	5.32	17.60	3.86	4.56	17.19	4.42	3.89	16.71	5.07	3.30	16.15	5.82	2.78	
12	-	-	-	19.48	2.58	7.54	19.11	2.95	6.48	18.73	3.37	5.56	18.33	3.85	4.76	17.87	4.41	4.05	17.34	5.06	3.43	16.72	5.81	2.88	
14	-	-	-	20.26	2.57	7.87	19.88	2.94	6.76	19.49	3.36	5.80	19.05	3.84	4.96	18.56	4.40	4.22	17.98	5.05	3.56	17.29	5.80	2.98	
16	-	-	-	-	-	-	20.66	2.93	7.05	20.25	3.35	6.05	19.79	3.83	5.17	19.25	4.39	4.38	18.62	5.04	3.69	17.87	5.79	3.09	
18	-	-	-	-	-	-	-	-	-	21.02	3.34	6.30	20.52	3.82	5.38	19.95	4.38	4.56	19.26	5.03	3.83	18.46	5.78	3.19	

### 9.14. WRL050XH<sup>\*\*\*\*\*</sup> COOLING MODE

EVAPORATOR WATER OUTLET TEMPERATURE °C		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Ph	Pe	E.E.R.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]		
-8	9.35	2.50	3.74	8.76	2.85	3.07	8.27	3.21	2.58	7.81	3.59	2.18	7.35	4.03	1.82	-	-	-	-	-	-	-	-	-	
-6	10.21	2.47	4.13	9.57	2.83	3.39	9.01	3.18	2.83	8.50	3.57	2.38	7.97	4.01	1.99	7.36	4.53	1.62	-	-	-	-	-	-	
-4	11.05	2.44	4.53	10.37	2.80	3.71	9.77	3.15	3.10	9.19	3.54	2.59	8.60	3.99	2.15	7.92	4.52	1.75	-	-	-	-	-	-	
-3	11.48	2.43	4.73	10.77	2.78	3.87	10.14	3.14	3.23	9.54	3.53	2.70	8.91	3.98	2.24	8.21	4.51	1.82	-	-	-	-	-	-	
-2	11.89	2.41	4.93	11.16	2.77	4.04	10.51	3.13	3.36	9.89	3.52	2.81	9.23	3.97	2.33	8.49	4.51	1.88	-	-	-	-	-	-	
0	12.72	2.39	5.33	11.96	2.74	4.37	11.26	3.10	3.63	10.59	3.49	3.03	9.87	3.95	2.50	9.07	4.49	2.02	8.12	5.15	1.58	-	-	-	
2	13.54	2.36	5.73	12.74	2.71	4.69	12.00	3.07	3.91	11.28	3.47	3.25	10.52	3.93	2.68	9.66	4.48	2.16	8.65	5.15	1.68	-	-	-	
4	14.34	2.35	6.12	13.51	2.69	5.02	12.74	3.05	4.17	11.97	3.45	3.47	11.16	3.91	2.85	10.25	4.47	2.29	9.18	5.14	1.78	7.90	5.96	1.32	
6	15.13	2.33	6.49	14.27	2.68	5.33	13.46	3.04	4.44	12.66	3.43	3.69	11.80	3.90	3.03	10.84	4.46	2.43	9.72	5.14	1.89	8.37	5.97	1.40	
7	15.52	2.33	6.66	14.64	2.67	5.48	13.79	2.99	4.61	13.00	3.43	3.79	12.12	3.90	3.11	11.14	4.46	2.50	9.99	5.15	1.94	8.62	5.98	1.44	
8	15.90	2.33	6.83	15.01	2.67	5.63	14.18	3.03	4.69	13.34	3.43	3.89	12.44	3.89	3.20	11.43	4.46	2.56	10.26	5.15	1.99	8.86	5.99	1.48	
10	16.64	2.33	7.15	15.74	2.67	5.90	14.88	3.02	4.92	14.01	3.42	4.09	13.08	3.89	3.36	12.03	4.46	2.69	10.80	5.16	2.09	9.35	6.01	1.56	
12	-	-	-	16.45	2.67	6.15	15.57	3.03	5.14	14.67	3.43	4.28	13.71	3.90	3.51	12.62	4.48	2.82	11.35	5.18	2.19	9.85	6.03	1.63	
14	-	-	-	17.14	2.69	6.36	16.24	3.05	5.33	15.32	3.45	4.45	14.33	3.92	3.65	13.20	4.50	2.93	11.89	5.20	2.29	10.34	6.07	1.71	
16	-	-	-	-	-	-	16.90	3.07	5.50	15.96	3.47	4.59	14.94	3.95	3.78	13.78	4.53	3.04	12.43	5.24	2.37	10.84	6.11	1.77	
18	-	-	-	-	-	-	17.53	3.11	5.63	16.58	3.51	4.72	15.53	3.99	3.89	14.35	4.57	3.14	12.97	5.29	2.45	11.34	6.17	1.84	

**KEY**  
**Ph** Heating capacity  
**Pc** Cooling capacity  
**Pe** Input power

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AT THE EVAPORATOR	3	5	8	10
Cooling capacity	0,990	1	1,020	1,030
Input power	0,990	1	1,010	1,020
Heating capacity	0,991	1	1,013	1,022
Input power	1,014	1	0,978	0,963

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AL CONDENSER	5	10	15	22
Cooling capacity	1	1,010	1,020	1,030
Input power	1	0,990	0,980	0,970
Heating capacity	the variations can be ignored			

 Operating range with "Y" valve.

FOULING FACTOR [K*M <sup>2</sup> ]/[W]			
	0,00001	0,00002	0,00005
Cooling capacity	1	0,99	0,98
Input power	1	1	1
Heating capacity	1	1	0,99
Input power	1	1	1,02

9.15. WRL070XH<sup>000000</sup> HEATING MODE

		Condenser water outlet temperature °C																										
		25			30			35			40			45			50			55			60					
		Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.			
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]					
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	15.22	3.27	4.66	15.23	3.55	4.29	14.93	3.93	3.80	14.47	4.41	3.28	13.99	4.98	2.81	-	-	-	-	-	-	-	-	-	-	-	-
	-6	16.31	3.29	4.96	16.27	3.56	4.57	15.93	3.94	4.04	15.43	4.42	3.49	14.90	4.98	2.99	14.48	5.60	2.58	-	-	-	-	-	-	-	-	-
	-4	17.41	3.31	5.26	17.33	3.57	4.85	16.95	3.95	4.29	16.40	4.43	3.70	15.82	4.98	3.17	15.34	5.60	2.74	-	-	-	-	-	-	-	-	-
	-3	17.96	3.32	5.42	17.87	3.58	4.99	17.47	3.96	4.47	16.89	4.43	3.81	16.28	4.98	3.27	15.78	5.61	2.82	-	-	-	-	-	-	-	-	-
	-2	18.52	3.32	5.57	18.41	3.59	5.13	17.98	3.96	4.54	17.38	4.43	3.92	16.75	4.99	3.36	16.22	5.61	2.89	15.94	6.28	2.54	-	-	-	-	-	-
	0	19.64	3.34	5.89	19.49	3.60	5.42	19.02	3.97	4.79	18.37	4.44	4.14	17.69	4.99	3.55	17.10	5.61	3.05	16.76	6.28	2.67	-	-	-	-	-	-
	2	20.76	3.35	6.20	20.57	3.60	5.71	20.06	3.97	5.05	19.37	4.44	4.36	18.63	4.99	3.73	18.00	5.61	3.21	17.59	6.28	2.80	-	-	-	-	-	-
	4	21.89	3.35	6.53	21.67	3.61	6.01	21.11	3.98	5.31	20.37	4.44	4.59	19.59	4.99	3.92	18.89	5.61	3.37	18.43	6.28	2.94	18.34	6.98	2.63			
	5	22.46	3.36	6.69	22.21	3.61	6.16	21.64	3.98	5.44	20.87	4.44	4.70	20.04	4.99	4.02	19.34	5.61	3.45	18.85	6.28	3.00	18.73	6.98	2.68			
	6	23.02	3.36	6.86	22.76	3.61	6.31	22.16	3.98	5.57	21.38	4.44	4.81	20.54	4.99	4.12	19.79	5.61	3.53	19.27	6.28	3.07	19.11	6.98	2.74			
	7	23.59	3.36	7.02	23.30	3.61	6.46	22.69	3.97	5.71	21.88	4.44	4.93	21.02	4.99	4.21	20.24	5.61	3.61	19.69	6.28	3.14	19.50	6.99	2.79			
8	24.15	3.36	7.19	23.85	3.61	6.61	23.21	3.97	5.84	22.38	4.44	5.04	21.49	4.99	4.31	20.69	5.61	3.69	20.11	6.28	3.20	19.89	6.99	2.85				
10	-	-	-	24.94	3.60	6.92	24.26	3.97	6.11	23.38	4.43	5.27	22.44	4.98	4.50	21.58	5.60	3.85	20.94	6.27	3.34	20.66	6.99	2.96				
12	-	-	-	26.03	3.60	7.23	25.30	3.96	6.39	24.38	4.43	5.51	23.39	4.98	4.70	22.47	5.60	4.01	21.77	6.27	3.47	21.43	6.99	3.07				
14	-	-	-	27.10	3.59	7.56	26.34	3.95	6.67	25.37	4.42	5.74	24.33	4.97	4.90	23.36	5.59	4.18	22.60	6.27	3.60	22.19	6.99	3.18				
16	-	-	-	-	-	-	27.36	3.94	6.95	26.35	4.40	5.98	25.25	4.96	5.09	24.23	5.58	4.34	23.41	6.26	3.74	22.94	6.98	3.28				
18	-	-	-	-	-	-	-	-	-	27.31	4.39	6.22	26.17	4.94	5.29	25.09	5.57	4.50	24.21	6.26	3.87	23.68	6.98	3.39				

9.16. WRL070XH<sup>000000</sup> COOLING MODE

		Condenser water outlet temperature °C																										
		25			30			35			40			45			50			55			60					
		Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Ph	Pe	E.E.R.			
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]					
EVAPORATOR WATER INPUT TEMPERATURE °C	-8	10.28	3.32	3.09	9.77	3.65	2.68	9.21	4.02	2.29	8.63	4.43	1.95	8.04	4.89	1.64	-	-	-	-	-	-	-	-	-	-	-	-
	-6	11.59	3.32	3.49	10.99	3.66	3.01	10.35	4.04	2.56	9.68	4.47	2.17	9.00	4.95	1.82	8.34	5.48	1.52	-	-	-	-	-	-	-	-	-
	-4	12.89	3.32	3.88	12.21	3.66	3.33	11.49	4.06	2.83	10.74	4.50	2.39	9.97	5.00	2.00	9.22	5.55	1.66	-	-	-	-	-	-	-	-	-
	-3	13.53	3.32	4.07	12.82	3.67	3.49	12.06	4.07	2.97	11.27	4.52	2.49	10.46	5.02	2.08	9.66	5.59	1.73	-	-	-	-	-	-	-	-	-
	-2	14.18	3.32	4.26	13.43	3.67	3.66	12.63	4.08	3.10	11.80	4.53	2.60	10.95	5.05	2.17	10.11	5.62	1.80	-	-	-	-	-	-	-	-	-
	0	15.46	3.33	4.64	14.64	3.69	3.97	13.77	4.10	3.36	12.86	4.56	2.82	11.93	5.09	2.35	11.01	5.67	1.94	10.11	6.33	1.60	-	-	-	-	-	-
	2	16.73	3.34	5.01	15.85	3.70	4.29	14.91	4.11	3.62	13.93	4.59	3.04	12.93	5.13	2.52	11.92	5.73	2.08	10.94	6.40	1.71	-	-	-	-	-	-
	4	18.00	3.35	5.37	17.06	3.71	4.60	16.05	4.13	3.89	15.00	4.61	3.25	13.92	5.16	2.70	12.85	5.77	2.23	11.79	6.45	1.83	10.76	7.21	1.49			
	6	19.26	3.37	5.72	18.26	3.72	4.90	17.19	4.15	4.15	16.07	4.63	3.47	14.93	5.19	2.88	13.78	5.81	2.37	12.65	6.50	1.94	11.55	7.27	1.59			
	7	19.88	3.37	5.89	18.85	3.73	5.05	17.76	4.16	4.27	16.61	4.64	3.58	15.44	5.20	2.97	14.25	5.82	2.45	13.08	6.53	2.00	11.94	7.30	1.64			
	8	20.50	3.38	6.06	19.45	3.74	5.20	18.33	4.16	4.40	17.15	4.65	3.69	15.94	5.21	3.06	14.73	5.84	2.52	13.52	6.55	2.07	12.34	7.33	1.68			
10	21.74	3.40	6.40	20.64	3.75	5.50	19.46	4.17	4.66	18.23	4.66	3.91	16.96	5.23	3.25	15.68	5.86	2.67	14.41	6.58	2.19	13.16	7.37	1.79				
12	-	-	-	21.82	3.77	5.80	20.60	4.18	4.92	19.31	4.67	4.13	17.99	5.24	3.43	16.65	5.88	2.83	15.31	6.60	2.32	14.00	7.40	1.89				
14	-	-	-	23.00	3.78	6.09	21.73	4.19	5.19	20.39	4.68	4.36	19.02	5.24	3.63	17.62	5.89	2.99	16.23	6.61	2.45	14.85	7.43	2.00				
16	-	-	-	-	-	-	22.86	4.20	5.45	21.48	4.68	4.59	20.05	5.24	3.83	18.61	5.89	3.16	17.15	6.62	2.59	15.72	7.44	2.11				
18	-	-	-	-	-	-	23.99	4.20	5.72	22.57	4.67	4.83	21.10	5.23	4.03	19.60	5.88	3.33	18.10	6.61	2.74	16.61	7.43	2.23				

**KEY**  
**Ph** Heating capacity  
**Pc** Cooling capacity  
**Pe** Input power

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AT THE EVAPORATOR	3	5	8	10
Cooling capacity	0,990	1	1,020	1,030
Input power	0,990	1	1,010	1,020
Heating capacity	0,991	1	1,013	1,022
Input power	1,014	1	0,978	0,963

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AL CONDENSER	5	10	15	22
Cooling capacity	1	1,010	1,020	1,030
Input power	1	0,990	0,980	0,970
Heating capacity	the variations can be ignored			

 Operating range with "Y" valve.

FOULING FACTOR [K*M <sup>2</sup> ]/[W]			
	0,00001	0,00002	0,00005
Cooling capacity	1	0,99	0,98
Input power	1	1	1
Heating capacity	1	1	0,99
Input power	1	1	1,02

### 9.17. WRL080XH<sup>\*\*\*\*\*</sup> HEATING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]					
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	18.28	4.04	4.52	18.34	4.32	4.25	17.99	4.71	3.82	17.35	5.22	3.32	16.53	5.87	2.82	-	-	-	-	-	-	-	-	-
	-6	19.44	4.05	4.80	19.46	4.33	4.50	19.09	4.71	4.05	18.44	5.23	3.53	17.63	5.87	3.00	16.76	6.66	2.52	-	-	-	-	-	-
	-4	20.60	4.06	5.07	20.57	4.33	4.75	20.17	4.72	4.28	19.51	5.23	3.73	18.70	5.87	3.19	17.85	6.66	2.68	-	-	-	-	-	-
	-3	21.18	4.06	5.22	21.13	4.33	4.88	20.71	4.72	4.47	20.04	5.23	3.83	19.22	5.87	3.28	18.38	6.65	2.76	-	-	-	-	-	-
	-2	21.76	4.06	5.36	21.68	4.33	5.01	21.25	4.72	4.51	20.56	5.22	3.94	19.74	5.87	3.37	18.90	6.65	2.84	18.15	7.58	2.39	-	-	-
	0	22.93	4.06	5.65	22.79	4.33	5.27	22.31	4.71	4.74	21.60	5.22	4.14	20.76	5.86	3.54	19.92	6.64	3.00	19.19	7.57	2.53	-	-	-
	2	24.11	4.06	5.94	23.91	4.32	5.53	23.38	4.71	4.97	22.62	5.21	4.34	21.77	5.85	3.72	20.92	6.63	3.16	20.21	7.56	2.67	-	-	-
	4	25.31	4.05	6.24	25.04	4.32	5.80	24.44	4.70	5.20	23.65	5.20	4.55	22.77	5.84	3.90	21.91	6.61	3.31	21.19	7.54	2.81	20.73	8.63	2.40
	5	25.92	4.05	6.40	25.61	4.32	5.93	24.98	4.69	5.32	24.16	5.19	4.65	23.17	5.83	3.97	22.40	6.61	3.39	21.68	7.54	2.88	21.23	8.62	2.46
	6	26.54	4.05	6.55	26.18	4.31	6.07	25.52	4.69	5.44	24.68	5.19	4.76	23.76	5.82	4.08	22.88	6.60	3.47	22.16	7.53	2.94	21.71	8.61	2.52
	7	27.17	4.05	6.71	26.76	4.31	6.21	26.07	4.68	5.57	25.19	5.18	4.86	24.26	5.81	4.17	23.37	6.59	3.55	22.64	7.52	3.01	22.20	8.60	2.58
	8	27.80	4.05	6.87	27.35	4.30	6.35	26.62	4.68	5.69	25.71	5.18	4.97	24.75	5.81	4.26	23.85	6.58	3.62	23.12	7.51	3.08	22.67	8.59	2.64
	10	-	-	-	28.54	4.30	6.64	27.73	4.67	5.94	26.76	5.16	5.18	25.75	5.79	4.45	24.81	6.56	3.78	24.07	7.49	3.21	23.62	8.57	2.76
12	-	-	-	29.77	4.29	6.94	28.87	4.66	6.20	27.83	5.15	5.40	26.76	5.78	4.63	25.78	6.55	3.94	25.01	7.47	3.35	24.55	8.55	2.87	
14	-	-	-	31.04	4.29	7.24	30.04	4.65	6.46	28.92	5.14	5.62	27.79	5.77	4.82	26.76	6.53	4.10	25.96	7.45	3.48	25.48	8.53	2.99	
16	-	-	-	-	-	-	31.25	4.65	6.72	30.04	5.13	5.85	28.84	5.75	5.01	27.76	6.52	4.26	26.91	7.43	3.62	26.41	8.51	3.10	
18	-	-	-	-	-	-	-	-	-	31.20	5.13	6.08	29.91	5.75	5.21	28.77	6.51	4.42	27.87	7.42	3.76	27.34	8.49	3.22	

### 9.18. WRL080XH<sup>\*\*\*\*\*</sup> COOLING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Ph	Pe	E.E.R.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]		
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	11.74	3.89	3.02	11.15	4.27	2.61	10.52	4.70	2.24	9.85	5.19	1.90	9.18	5.73	1.60	-	-	-	-	-	-	-	-	-
	-6	13.23	3.89	3.40	12.55	4.28	2.93	11.82	4.73	2.50	11.05	5.23	2.11	10.28	5.79	1.78	9.52	6.42	1.48	-	-	-	-	-	-
	-4	14.72	3.89	3.79	13.95	4.29	3.25	13.12	4.75	2.76	12.26	5.27	2.33	11.39	5.85	1.95	10.53	6.50	1.62	-	-	-	-	-	-
	-3	15.45	3.89	3.97	14.64	4.30	3.41	13.77	4.76	2.89	12.87	5.29	2.43	11.95	5.88	2.03	11.03	6.54	1.69	-	-	-	-	-	-
	-2	16.19	3.89	4.16	15.34	4.30	3.57	14.42	4.77	3.02	13.47	5.31	2.54	12.50	5.91	2.12	11.54	6.58	1.76	-	-	-	-	-	-
	0	17.65	3.90	4.53	16.72	4.32	3.88	15.73	4.79	3.28	14.69	5.34	2.75	13.63	5.96	2.29	12.57	6.64	1.89	11.55	7.41	1.56	-	-	-
	2	19.11	3.91	4.89	18.10	4.33	4.18	17.03	4.82	3.54	15.91	5.37	2.96	14.76	6.00	2.46	13.62	6.70	2.03	12.49	7.49	1.67	-	-	-
	4	20.55	3.92	5.24	19.48	4.34	4.48	18.33	4.84	3.79	17.13	5.40	3.17	15.90	6.04	2.63	14.67	6.76	2.17	13.46	7.55	1.78	12.29	8.44	1.46
	6	21.99	3.94	5.58	20.85	4.36	4.78	19.63	4.85	4.04	18.35	5.42	3.38	17.05	6.07	2.81	15.74	6.80	2.31	14.44	7.61	1.90	13.18	8.51	1.55
	7	22.70	3.95	5.75	21.53	4.37	4.93	20.28	4.87	4.16	18.97	5.43	3.49	20.28	6.08	3.33	16.27	6.82	2.39	14.94	7.64	1.96	13.64	8.55	1.60
	8	23.41	3.96	5.92	22.21	4.38	5.07	20.93	4.87	4.30	19.58	5.44	3.60	18.20	6.10	2.99	16.82	6.84	2.46	15.44	7.66	2.01	14.10	8.58	1.64
	10	24.83	3.98	6.24	23.57	4.39	5.37	22.22	4.88	4.55	20.81	5.46	3.81	19.37	6.12	3.17	17.91	6.86	2.61	16.45	7.70	2.14	15.03	8.63	1.74
	12	-	-	-	24.92	4.41	5.65	23.52	4.90	4.80	22.05	5.47	4.03	20.54	6.13	3.35	19.01	6.88	2.76	17.48	7.73	2.26	15.98	8.67	1.84
14	-	-	-	26.27	4.42	5.94	24.81	4.91	5.06	23.29	5.48	4.25	21.72	6.14	3.54	20.12	6.89	2.92	18.53	7.74	2.39	16.96	8.69	1.95	
16	-	-	-	-	-	-	26.11	4.91	5.31	24.53	5.48	4.48	22.90	6.14	3.73	21.25	6.89	3.08	19.59	7.75	2.53	17.95	8.70	2.06	
18	-	-	-	-	-	-	27.40	4.91	5.57	25.77	5.47	4.71	24.09	6.13	3.93	22.38	6.88	3.25	20.67	7.74	2.67	18.97	8.70	2.18	

**KEY**  
**Ph** Heating capacity  
**Pc** Cooling capacity  
**Pe** Input power

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AT THE EVAPORATOR	3	5	8	10
Cooling capacity	0,990	1	1,020	1,030
Input power	0,990	1	1,010	1,020
Heating capacity	0,991	1	1,013	1,022
Input power	1,014	1	0,978	0,963

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AL CONDENSER	5	10	15	22
Cooling capacity	1	1,010	1,020	1,030
Input power	1	0,990	0,980	0,970
Heating capacity	the variations can be ignored			

 Operating range with "Y" valve.

FOULING FACTOR [K*M <sup>2</sup> ]/[W]			
	0,00001	0,00002	0,00005
Cooling capacity	1	0,99	0,98
Input power	1	1	1
Heating capacity	1	1	0,99
Input power	1	1	1,02

9.19. WRL100°H°°°°°°°° HEATING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]		
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	24.45	4.81	5.08	23.58	5.42	4.35	22.96	6.11	3.76	22.54	6.89	3.27	22.29	7.79	2.86	-	-	-	-	-	-	-	-	-
	-6	25.99	4.78	5.44	25.13	5.40	4.66	24.49	6.09	4.02	24.05	6.88	3.50	23.74	7.79	3.05	23.54	8.86	2.66	-	-	-	-	-	-
	-4	27.52	4.74	5.80	26.67	5.37	4.97	26.02	6.07	4.29	25.54	6.87	3.72	25.18	7.80	3.23	24.90	8.87	2.81	-	-	-	-	-	-
	-3	28.28	4.72	5.99	27.44	5.36	5.12	26.79	6.06	4.47	26.29	6.87	3.83	25.90	7.80	3.32	25.58	8.87	2.88	-	-	-	-	-	-
	-2	29.04	4.71	6.17	28.20	5.34	5.28	27.55	6.05	4.55	27.04	6.86	3.94	26.62	7.80	3.41	26.26	8.88	2.96	25.91	8.88	2.92	-	-	-
	0	30.56	4.67	6.54	29.74	5.32	5.59	29.07	6.03	4.82	28.52	6.85	4.16	28.05	7.79	3.60	27.61	8.88	3.11	27.16	10.15	2.68	-	-	-
	2	32.08	4.64	6.91	31.27	5.29	5.91	30.59	6.01	5.09	30.01	6.84	4.39	29.48	7.79	3.79	28.96	8.88	3.26	28.41	10.16	2.80	-	-	-
	4	33.60	4.61	7.29	32.80	5.26	6.23	32.11	5.99	5.36	31.49	6.82	4.62	30.91	7.78	3.97	30.31	8.88	3.41	29.66	10.16	2.92	28.91	11.65	2.48
	5	34.36	4.60	7.47	33.56	5.25	6.39	32.87	5.98	5.49	32.23	6.81	4.73	31.62	7.77	4.07	30.98	8.88	3.49	30.28	10.16	2.98	29.47	11.65	2.53
	6	35.13	4.58	7.66	34.33	5.24	6.55	33.63	5.97	5.63	32.98	6.80	4.85	32.33	7.76	4.16	31.66	8.88	3.57	30.91	10.16	3.04	30.04	11.66	2.58
	7	35.89	4.57	7.85	35.10	5.23	6.71	34.39	5.96	5.77	33.72	6.80	4.96	33.05	7.76	4.26	32.34	8.87	3.65	31.53	10.16	3.10	30.60	11.66	2.63
8	36.65	4.56	8.04	35.87	5.22	6.88	35.15	5.95	5.91	34.47	6.79	5.08	33.77	7.75	4.36	33.01	8.86	3.72	32.16	10.16	3.17	31.16	11.66	2.67	
10	-	-	-	37.41	5.19	7.20	36.68	5.93	6.19	35.96	6.77	5.31	35.21	7.73	4.55	34.37	8.85	3.88	33.42	10.15	3.29	32.30	11.65	2.77	
12	-	-	-	38.96	5.17	7.53	38.22	5.91	6.47	37.46	6.75	5.55	36.65	7.71	4.75	35.74	8.83	4.05	34.68	10.13	3.42	33.44	11.64	2.87	
14	-	-	-	40.52	5.15	7.86	39.77	5.89	6.75	38.98	6.73	5.79	38.10	7.69	4.95	37.11	8.81	4.21	35.95	10.12	3.55	34.58	11.62	2.98	
16	-	-	-	-	-	-	41.33	5.87	7.04	40.50	6.70	6.04	39.57	7.67	5.16	38.50	8.79	4.38	37.23	10.09	3.69	35.74	11.60	3.08	
18	-	-	-	-	-	-	-	-	-	42.04	6.68	6.29	41.05	7.65	5.37	39.89	8.77	4.55	38.53	10.07	3.83	36.91	11.57	3.19	

9.20. WRL100°H°°°°°°°° COOLING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Ph	Pe	E.E.R.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]		
EVAPORATOR WATER INPUT TEMPERATURE °C	-8	18.69	5.00	3.74	17.51	5.71	3.07	16.52	6.42	2.57	15.62	7.18	2.17	14.69	8.06	1.82	-	-	-	-	-	-	-	-	-
	-6	20.40	4.94	4.13	19.12	5.65	3.38	18.02	6.36	2.83	16.99	7.14	2.38	15.93	8.02	1.99	14.72	9.07	1.62	-	-	-	-	-	-
	-4	22.10	4.88	4.53	20.73	5.59	3.71	19.52	6.31	3.09	18.38	7.09	2.59	17.19	7.98	2.15	15.84	9.04	1.75	-	-	-	-	-	-
	-3	22.94	4.85	4.73	21.53	5.56	3.87	20.27	6.28	3.23	19.07	7.06	2.70	17.82	7.96	2.24	16.41	9.03	1.82	-	-	-	-	-	-
	-2	23.78	4.83	4.93	22.32	5.53	4.03	21.02	6.25	3.36	19.77	7.04	2.81	18.46	7.94	2.33	16.98	9.01	1.88	-	-	-	-	-	-
	0	25.44	4.77	5.33	23.90	5.48	4.36	22.51	6.20	3.63	21.16	6.98	3.03	19.74	7.90	2.50	18.14	8.99	2.02	16.24	10.30	1.58	-	-	-
	2	27.07	4.73	5.73	25.47	5.43	4.69	24.00	6.15	3.90	22.55	6.94	3.25	21.03	7.86	2.68	19.31	8.96	2.16	17.29	10.29	1.68	-	-	-
	4	28.67	4.69	6.11	27.01	5.38	5.02	25.46	6.10	4.17	23.94	6.90	3.47	22.31	7.83	2.85	20.49	8.94	2.29	18.35	10.29	1.78	15.79	11.93	1.32
	6	30.25	4.66	6.48	28.52	5.35	5.33	26.92	6.07	4.43	25.31	6.87	3.68	23.60	7.80	3.02	21.67	8.92	2.43	19.43	10.29	1.89	16.74	11.95	1.40
	7	31.02	4.66	6.66	29.27	5.34	5.48	27.57	5.98	4.61	25.99	6.86	3.79	24.24	7.79	3.11	22.27	8.92	2.50	19.97	10.29	1.94	17.23	11.96	1.44
	8	31.78	4.65	6.83	30.01	5.34	5.63	28.35	6.05	4.69	26.67	6.85	3.89	24.88	7.79	3.19	22.86	8.92	2.56	20.51	10.30	1.99	17.71	11.97	1.48
10	33.28	4.66	7.15	31.47	5.33	5.90	29.75	6.05	4.92	28.01	6.85	4.09	26.15	7.79	3.36	24.05	8.93	2.69	21.60	10.32	2.09	18.69	12.01	1.56	
12	-	-	-	32.89	5.35	6.15	31.13	6.06	5.14	29.34	6.86	4.28	27.41	7.81	3.51	25.23	8.95	2.82	22.69	10.36	2.19	19.69	12.06	1.63	
14	-	-	-	34.27	5.39	6.36	32.47	6.09	5.33	30.63	6.89	4.45	28.64	7.84	3.65	26.40	9.00	2.93	23.78	10.41	2.28	20.68	12.13	1.70	
16	-	-	-	-	-	-	33.78	6.15	5.50	31.90	6.95	4.59	29.86	7.90	3.78	27.55	9.06	3.04	24.86	10.48	2.37	21.68	12.22	1.77	
18	-	-	-	-	-	-	35.05	6.23	5.63	33.14	7.02	4.72	31.06	7.98	3.89	28.69	9.15	3.14	25.93	10.58	2.45	22.68	12.33	1.84	

**KEY**  
**Ph** Heating capacity  
**Pc** Cooling capacity  
**Pe** Input power

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AT THE EVAPORATOR	3	5	8	10
Cooling capacity	0,990	1	1,020	1,030
Input power	0,990	1	1,010	1,020
Heating capacity	0,991	1	1,013	1,022
Input power	1,014	1	0,978	0,963

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AL CONDENSER	5	10	15	22
Cooling capacity	1	1,010	1,020	1,030
Input power	1	0,990	0,980	0,970
Heating capacity	the variations can be ignored			

 Operating range with "Y" valve.

FOULING FACTOR [K*M²]/[W]			
	0,00001	0,00002	0,00005
Cooling capacity	1	0,99	0,98
Input power	1	1	1
Heating capacity	1	1	0,99
Input power	1	1	1,02

### 9.21. WRL140°H<sup>\*\*\*\*\*</sup> HEATING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]					
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	30.45	6.51	4.67	30.46	7.06	4.31	29.86	7.83	3.81	28.94	8.79	3.29	27.98	9.91	2.82	-	-	-	-	-	-	-	-	-
	-6	32.62	6.55	4.98	32.55	7.09	4.59	31.87	7.85	4.06	30.86	8.81	3.50	29.79	9.92	3.00	28.96	11.16	2.59	-	-	-	-	-	-
	-4	34.82	6.59	5.28	34.67	7.12	4.87	33.90	7.87	4.31	32.80	8.82	3.72	31.63	9.93	3.19	30.69	11.16	2.75	-	-	-	-	-	-
	-3	35.92	6.60	5.44	35.74	7.13	5.01	34.93	7.88	4.49	33.78	8.83	3.83	32.56	9.93	3.28	31.56	11.17	2.83	-	-	-	-	-	-
	-2	37.04	6.62	5.60	36.81	7.14	5.15	35.96	7.89	4.56	34.76	8.83	3.94	33.50	9.93	3.37	32.44	11.17	2.90	31.87	11.17	2.85	-	-	-
	0	39.27	6.64	5.91	38.97	7.16	5.44	38.04	7.90	4.81	36.75	8.84	4.16	35.38	9.94	3.56	34.21	11.17	3.06	33.52	12.50	2.68	-	-	-
	2	41.52	6.67	6.23	41.15	7.18	5.73	40.13	7.91	5.07	38.74	8.84	4.38	37.27	9.94	3.75	35.99	11.17	3.22	35.19	12.50	2.81	-	-	-
	4	43.78	6.68	6.55	43.33	7.19	6.03	42.23	7.92	5.33	40.75	8.85	4.61	39.17	9.94	3.94	37.78	11.17	3.38	36.86	12.50	2.95	36.68	13.91	2.64
	5	44.91	6.68	6.72	44.42	7.19	6.18	43.28	7.92	5.46	41.75	8.85	4.72	40.08	9.94	4.03	38.68	11.17	3.46	37.70	12.50	3.01	37.45	13.91	2.69
	6	46.04	6.69	6.88	45.52	7.19	6.33	44.33	7.92	5.60	42.75	8.85	4.83	41.08	9.94	4.13	39.58	11.17	3.54	38.54	12.50	3.08	38.23	13.91	2.75
	7	47.18	6.69	7.05	46.61	7.19	6.48	45.38	7.92	5.73	43.76	8.84	4.95	42.03	9.94	4.23	40.48	11.17	3.62	39.37	12.50	3.15	39.00	13.91	2.80
	8	48.31	6.69	7.22	47.70	7.19	6.64	46.43	7.92	5.87	44.76	8.84	5.06	42.98	9.94	4.33	41.37	11.17	3.71	40.21	12.50	3.22	39.78	13.92	2.86
10	-	-	-	49.88	7.18	6.95	48.52	7.91	6.14	46.76	8.83	5.29	44.88	9.93	4.52	43.16	11.16	3.87	41.88	12.50	3.35	41.32	13.92	2.97	
12	-	-	-	52.05	7.17	7.26	50.61	7.89	6.41	48.76	8.82	5.53	46.78	9.91	4.72	44.95	11.15	4.03	43.55	12.49	3.49	42.86	13.92	3.08	
14	-	-	-	54.20	7.14	7.59	52.68	7.87	6.69	50.73	8.80	5.77	48.65	9.90	4.92	46.71	11.14	4.19	45.19	12.49	3.62	44.37	13.91	3.19	
16	-	-	-	-	-	-	54.73	7.84	6.98	52.69	8.77	6.01	50.51	9.88	5.11	48.46	11.12	4.36	46.82	12.48	3.75	45.87	13.91	3.30	
18	-	-	-	-	-	-	-	-	-	54.62	8.74	6.25	52.34	9.85	5.31	50.18	11.10	4.52	48.42	12.46	3.89	47.35	13.90	3.41	

### 9.22. WRL140°H<sup>\*\*\*\*\*</sup> COOLING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Ph	Pe	E.E.R.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]		
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	20.53	6.62	3.10	19.50	7.27	2.68	18.39	8.00	2.30	17.22	8.83	1.95	16.05	9.75	1.65	-	-	-	-	-	-	-	-	-
	-6	23.14	6.62	3.50	21.95	7.28	3.01	20.67	8.04	2.57	19.33	8.90	2.17	17.98	9.86	1.82	16.65	10.93	1.52	-	-	-	-	-	-
	-4	25.73	6.62	3.89	24.39	7.30	3.34	22.94	8.08	2.84	21.44	8.97	2.39	19.91	9.96	2.00	18.41	11.07	1.66	-	-	-	-	-	-
	-3	27.02	6.62	4.08	25.60	7.31	3.50	24.08	8.10	2.97	22.50	9.00	2.50	20.89	10.01	2.09	19.29	11.13	1.73	-	-	-	-	-	-
	-2	28.31	6.62	4.27	26.82	7.32	3.66	25.22	8.12	3.10	23.56	9.03	2.61	21.86	10.05	2.17	20.18	11.19	1.80	-	-	-	-	-	-
	0	30.87	6.64	4.65	29.24	7.35	3.98	27.50	8.16	3.37	25.68	9.09	2.82	23.83	10.14	2.35	21.99	11.31	1.94	20.19	12.61	1.60	-	-	-
	2	33.41	6.66	5.02	31.65	7.37	4.29	29.77	8.20	3.63	27.81	9.14	3.04	25.81	10.21	2.53	23.81	11.41	2.09	21.85	12.74	1.71	-	-	-
	4	35.94	6.68	5.38	34.06	7.40	4.60	32.05	8.23	3.89	29.95	9.19	3.26	27.80	10.28	2.70	25.65	11.50	2.23	23.53	12.86	1.83	21.49	14.36	1.50
	6	38.45	6.71	5.73	36.45	7.42	4.91	34.32	8.26	4.15	32.09	9.23	3.48	29.81	10.33	2.88	27.52	11.58	2.38	25.25	12.96	1.95	23.05	14.49	1.59
	7	39.70	6.72	5.91	37.64	7.44	5.06	35.46	8.29	4.28	33.16	9.25	3.59	30.82	10.36	2.98	28.46	11.61	2.45	26.12	13.00	2.01	23.85	14.55	1.64
	8	40.94	6.74	6.08	38.84	7.45	5.21	36.59	8.29	4.41	34.24	9.27	3.70	31.83	10.38	3.07	29.40	11.64	2.53	26.99	13.04	2.07	24.65	14.60	1.69
	10	43.42	6.77	6.41	41.21	7.48	5.51	38.86	8.32	4.67	36.39	9.29	3.92	33.86	10.41	3.25	31.31	11.68	2.68	28.77	13.11	2.19	26.28	14.69	1.79
12	-	-	-	43.58	7.50	5.81	41.12	8.34	4.93	38.55	9.31	4.14	35.91	10.44	3.44	33.23	11.71	2.84	30.57	13.15	2.32	27.95	14.76	1.89	
14	-	-	-	45.93	7.53	6.10	43.39	8.35	5.20	40.72	9.32	4.37	37.97	10.45	3.63	35.18	11.73	3.00	32.40	13.18	2.46	29.65	14.80	2.00	
16	-	-	-	-	-	-	45.65	8.36	5.46	42.89	9.32	4.60	40.04	10.44	3.83	37.15	11.73	3.17	34.25	13.19	2.60	31.39	14.82	2.12	
18	-	-	-	-	-	-	47.90	8.37	5.73	45.06	9.32	4.84	42.12	10.43	4.04	39.14	11.71	3.34	36.13	13.17	2.74	33.16	14.81	2.24	

**KEY**  
**Ph** Heating capacity  
**Pc** Cooling capacity  
**Pe** Input power

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AT THE EVAPORATOR	3	5	8	10
Cooling capacity	0,990	1	1,020	1,030
Input power	0,990	1	1,010	1,020
Heating capacity	0,991	1	1,013	1,022
Input power	1,014	1	0,978	0,963

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AL CONDENSER	5	10	15	22
Cooling capacity	1	1,010	1,020	1,030
Input power	1	0,990	0,980	0,970
Heating capacity	the variations can be ignored			

Operating range with "Y" valve.

FOULING FACTOR [K*M <sup>2</sup> ]/[W]			
	0,00001	0,00002	0,00005
Cooling capacity	1	0,99	0,98
Input power	1	1	1
Heating capacity	1	1	0,99
Input power	1	1	1,02

9.23. WRL160°H<sup>\*\*\*\*\*</sup> HEATING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.	Ph	Pe	C.O.P.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]					
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	36.07	8.09	4.46	36.82	8.64	4.26	36.80	9.42	3.90	35.68	10.45	3.41	33.15	11.74	2.82	-	-	-	-	-	-	-	-	-
	-6	38.45	8.11	4.74	38.89	8.66	4.49	38.72	9.44	4.10	37.65	10.46	3.60	35.35	11.75	3.01	31.52	13.32	2.37	-	-	-	-	-	-
	-4	40.87	8.12	5.03	40.96	8.67	4.72	40.63	9.44	4.30	39.56	10.46	3.78	37.46	11.75	3.19	34.00	13.32	2.55	-	-	-	-	-	-
	-3	42.10	8.13	5.18	42.00	8.67	4.84	41.57	9.44	4.49	40.50	10.46	3.87	38.48	11.75	3.28	35.19	13.32	2.64	-	-	-	-	-	-
	-2	43.34	8.13	5.33	43.04	8.67	4.97	42.51	9.44	4.50	41.43	10.46	3.96	39.49	11.74	3.36	36.37	13.31	2.73	31.76	13.28	2.39	-	-	-
	0	45.87	8.13	5.64	45.16	8.67	5.21	44.40	9.43	4.71	43.27	10.45	4.14	41.46	11.73	3.54	38.65	13.29	2.91	34.53	15.16	2.28	-	-	-
	2	48.48	8.12	5.97	47.33	8.66	5.47	46.31	9.42	4.92	45.10	10.43	4.32	43.38	11.71	3.71	40.85	13.27	3.08	37.19	15.13	2.46	-	-	-
	4	51.18	8.12	6.31	49.56	8.64	5.73	48.24	9.40	5.13	46.92	10.41	4.51	45.27	11.68	3.88	42.99	13.24	3.25	39.76	15.10	2.63	35.27	17.28	2.04
	5	52.56	8.11	6.48	50.70	8.64	5.87	49.22	9.39	5.24	47.83	10.40	4.60	46.20	11.67	3.96	44.03	13.22	3.33	41.01	15.08	2.72	36.81	17.26	2.13
	6	53.98	8.11	6.66	51.86	8.63	6.01	50.22	9.38	5.35	48.75	10.39	4.69	47.14	11.65	4.04	45.07	13.21	3.41	42.24	15.06	2.80	38.32	17.24	2.22
	7	55.43	8.10	6.84	53.04	8.62	6.15	51.23	9.37	5.46	49.67	10.37	4.79	48.07	11.64	4.13	46.10	13.19	3.49	43.45	15.05	2.89	39.81	17.22	2.31
	8	56.91	8.10	7.03	54.25	8.62	6.30	52.25	9.36	5.58	50.61	10.36	4.88	49.00	11.63	4.21	47.12	13.17	3.58	44.65	15.03	2.97	41.28	17.20	2.40
	10	-	-	-	56.74	8.60	6.60	54.36	9.35	5.82	52.50	10.34	5.08	50.87	11.60	4.39	49.14	13.14	3.74	47.01	14.99	3.14	44.15	17.16	2.57
12	-	-	-	59.35	8.59	6.91	56.54	9.33	6.06	54.45	10.31	5.28	52.76	11.57	4.56	51.16	13.11	3.90	49.32	14.95	3.30	46.95	17.11	2.74	
14	-	-	-	62.08	8.58	7.23	58.83	9.31	6.32	56.47	10.29	5.49	54.69	11.54	4.74	53.18	13.08	4.07	51.62	14.91	3.46	49.70	17.07	2.91	
16	-	-	-	-	-	-	61.23	9.30	6.58	58.57	10.28	5.70	56.67	11.52	4.92	55.21	13.05	4.23	53.89	14.88	3.62	52.39	17.03	3.08	
18	-	-	-	-	-	-	-	-	-	60.77	10.27	5.92	58.71	11.50	5.10	57.28	13.02	4.40	56.17	14.85	3.78	55.06	17.00	3.24	

9.24. WRL160°H<sup>\*\*\*\*\*</sup> COOLING MODE

		Condenser water outlet temperature °C																							
		25			30			35			40			45			50			55			60		
		Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Pc	Pe	E.E.R.	Ph	Pe	E.E.R.
		[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]			[kW]		
EVAPORATOR WATER INPUT TEMPERATURE °C	-8	23.45	7.75	3.03	22.28	8.51	2.62	21.01	9.36	2.24	19.68	10.33	1.91	18.34	11.41	1.61	-	-	-	-	-	-	-	-	-
	-6	26.43	7.74	3.41	25.08	8.52	2.94	23.61	9.41	2.51	22.08	10.41	2.12	20.54	11.54	1.78	19.02	12.78	1.49	-	-	-	-	-	-
	-4	29.39	7.74	3.80	27.86	8.54	3.26	26.21	9.46	2.77	24.49	10.49	2.33	22.75	11.65	1.95	21.03	12.95	1.62	-	-	-	-	-	-
	-3	30.87	7.75	3.98	29.25	8.56	3.42	27.51	9.48	2.90	25.70	10.53	2.44	23.86	11.71	2.04	22.04	13.02	1.69	-	-	-	-	-	-
	-2	32.34	7.75	4.17	30.64	8.57	3.58	28.81	9.51	3.03	26.91	10.57	2.55	24.98	11.76	2.12	23.06	13.10	1.76	-	-	-	-	-	-
	0	35.26	7.77	4.54	33.40	8.60	3.89	31.41	9.55	3.29	29.34	10.64	2.76	27.22	11.86	2.29	25.12	13.23	1.90	23.06	14.75	1.56	-	-	-
	2	38.17	7.79	4.90	36.16	8.62	4.19	34.01	9.59	3.55	31.77	10.70	2.97	29.48	11.95	2.47	27.20	13.35	2.04	24.96	14.91	1.67	-	-	-
	4	41.05	7.81	5.25	38.91	8.65	4.50	36.61	9.63	3.80	34.21	10.75	3.18	31.76	12.03	2.64	29.30	13.46	2.18	26.89	15.05	1.79	24.55	16.81	1.46
	6	43.92	7.85	5.60	41.64	8.69	4.79	39.21	9.67	4.05	36.66	10.80	3.39	34.06	12.09	2.82	31.43	13.54	2.32	28.85	15.16	1.90	26.33	16.96	1.55
	7	45.35	7.86	5.77	43.00	8.70	4.94	40.51	9.70	4.18	37.89	10.82	3.50	35.21	12.12	2.90	32.51	13.58	2.39	29.84	15.22	1.96	27.24	17.03	1.60
	8	46.77	7.88	5.93	44.37	8.72	5.09	41.80	9.70	4.31	39.12	10.84	3.61	36.36	12.14	2.99	33.59	13.62	2.47	30.84	15.26	2.02	28.16	17.09	1.65
	10	49.60	7.92	6.26	47.08	8.75	5.38	44.39	9.73	4.56	41.58	10.87	3.82	38.69	12.18	3.18	35.77	13.67	2.62	32.86	15.34	2.14	30.02	17.19	1.75
	12	-	-	-	49.78	8.78	5.67	46.98	9.75	4.82	44.04	10.89	4.04	41.02	12.21	3.36	37.97	13.71	2.77	34.92	15.39	2.27	31.93	17.27	1.85
14	-	-	-	52.47	8.81	5.96	49.56	9.77	5.07	46.52	10.91	4.27	43.38	12.22	3.55	40.19	13.73	2.93	37.01	15.42	2.40	33.87	17.31	1.96	
16	-	-	-	-	-	-	52.15	9.78	5.33	48.99	10.91	4.49	45.74	12.22	3.74	42.44	13.72	3.09	39.13	15.43	2.54	35.86	17.34	2.07	
18	-	-	-	-	-	-	54.73	9.79	5.59	51.48	10.90	4.72	48.12	12.20	3.94	44.71	13.71	3.26	41.28	15.41	2.68	37.88	17.33	2.19	

**KEY**  
**Ph** Heating capacity  
**Pc** Cooling capacity  
**Pe** Input power

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AT THE EVAPORATOR	3	5	8	10
Cooling capacity	0,990	1	1,020	1,030
Input power	0,990	1	1,010	1,020
Heating capacity	0,991	1	1,013	1,022
Input power	1,014	1	0,978	0,963

ΔT DIFFERENT FROM NOMINAL (ΔT 5)				
AL CONDENSER	5	10	15	22
Cooling capacity	1	1,010	1,020	1,030
Input power	1	0,990	0,980	0,970
Heating capacity	the variations can be ignored			

 Operating range with "Y" valve.

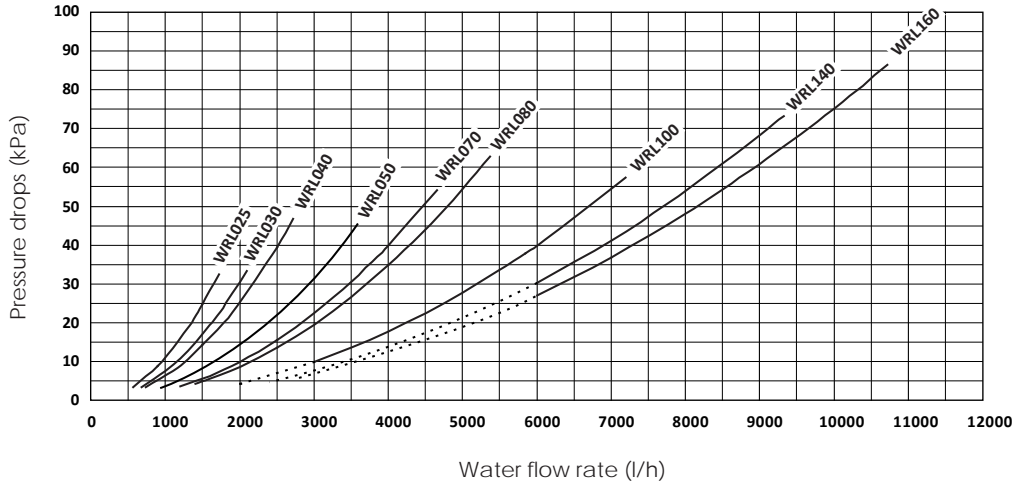
FOULING FACTOR [K*M <sup>2</sup> ]/[W]			
	0,00001	0,00002	0,00005
Cooling capacity	1	0,99	0,98
Input power	1	1	1
Heating capacity	1	1	0,99
Input power	1	1	1,02



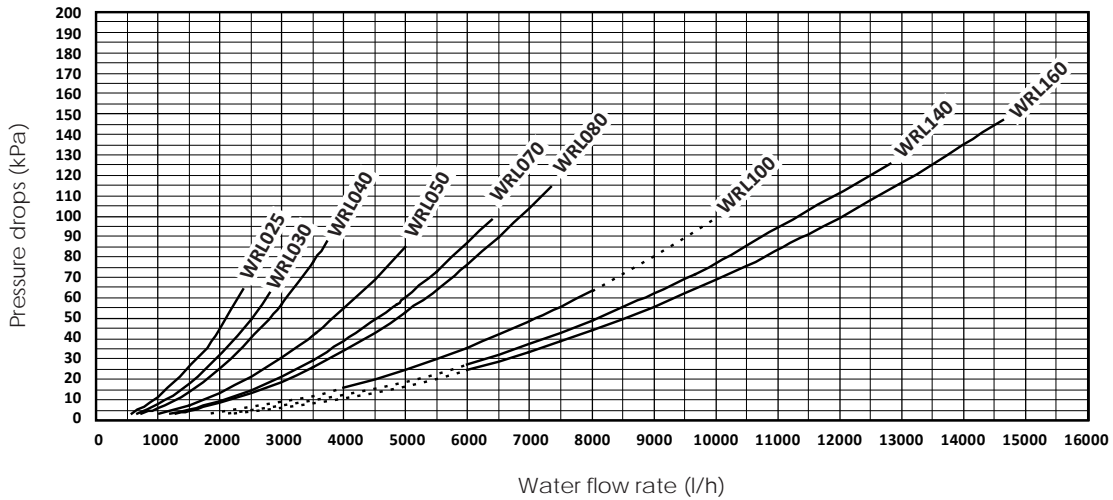
# 10. PRESSURE DROPS

## FUNCTIONING IN HEATING MODE

### CONDENSER



### EVAPORATOR



The tables state the correction to apply to the pressure drops on variation of the average temperature.



The minimum flow rates have been calculated with reference to the features of the water flow rate control device (differential pressure switch).



--- = "field of application not accepted with standard pump". CONTACT THE HEAD OFFICE.

#### Condenser

Average water temperature °C	23	28	<b>33</b>	38	43	48	53	58
Multiplicative coefficient	1,02	1,01	<b>1,00</b>	0,99	0,98	0,97	0,96	0,95

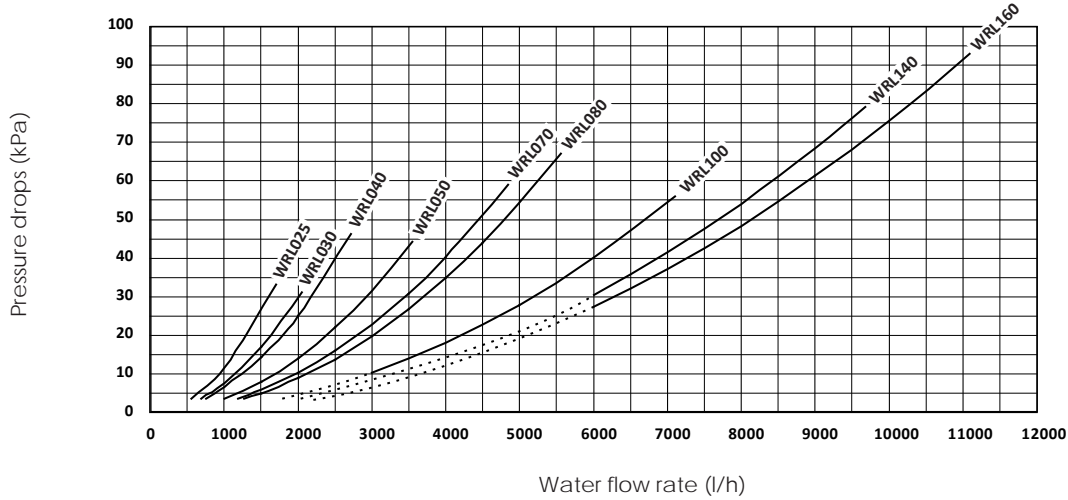
#### Evaporator

Average water temperature °C	5	<b>10</b>	15	20	25	30	35
Multiplicative coefficient	1,02	<b>1,00</b>	0,98	0,97	0,96	0,95	0,94

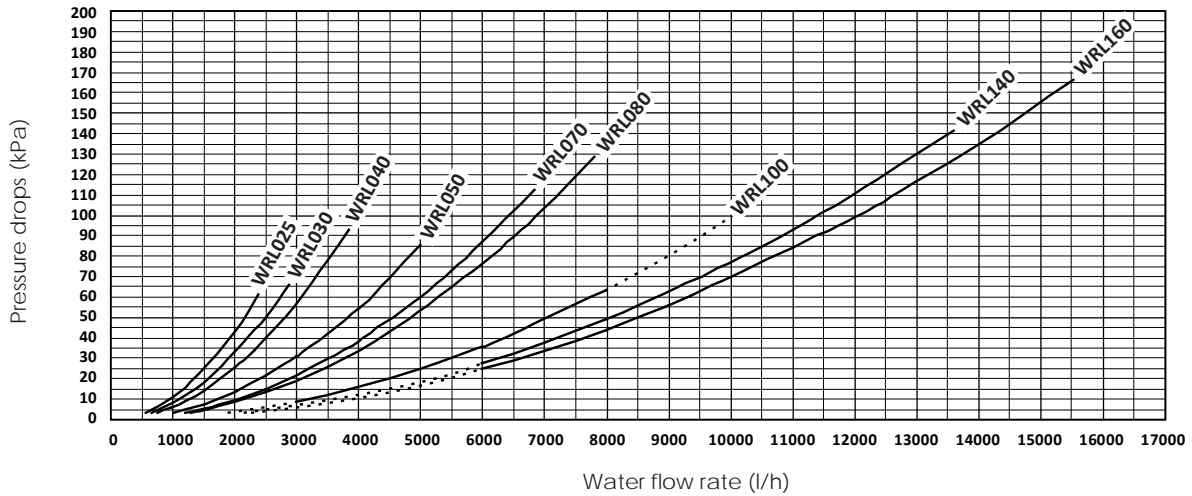


## COOLING MODE FUNCTIONING

### CONDENSER/TOTAL RECOVERY



### EVAPORATOR



The tables state the correction to apply to the pressure drops on variation of the average temperature.



The minimum flow rates have been calculated with reference to the features of the water flow rate control device (differential pressure switch).



--- = "field of application not accepted with standard pump". CONTACT THE HEAD OFFICE.

#### Condenser

Average water temperature °C	23	28	<b>33</b>	38	43	48	53	58
Multiplicative coefficient	1,02	1,01	<b>1,00</b>	0,99	0,98	0,97	0,96	0,95

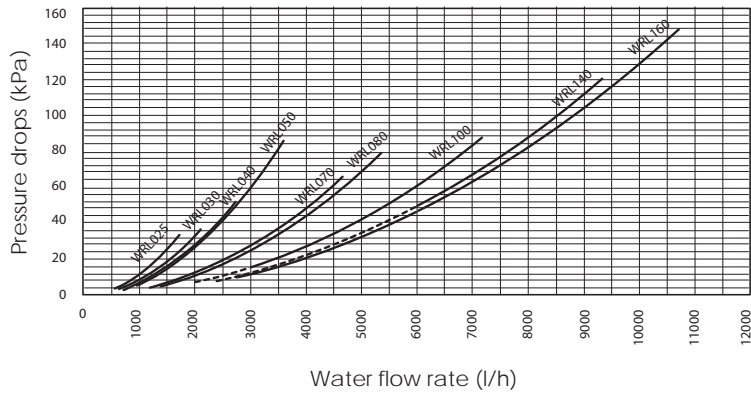
#### Evaporator

Average water temperature °C	5	<b>10</b>	15	20	25	30	35
Multiplicative coefficient	1,02	<b>1,00</b>	0,98	0,97	0,96	0,95	0,94

# VERSION WITH STORAGE TANK "A"

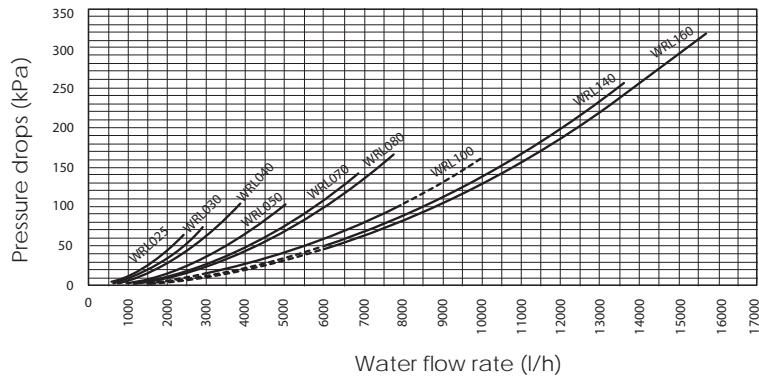
## FUNCTIONING IN HEATING MODE

### CONDENSER



## COOLING MODE FUNCTIONING

### EVAPORATOR



The tables state the correction to apply to the pressure drops on variation of the average temperature.



The minimum flow rates have been calculated with reference to the features of the water flow rate control device (differential pressure switch).



--- = "field of application not accepted with standard pump". CONTACT THE HEAD OFFICE.

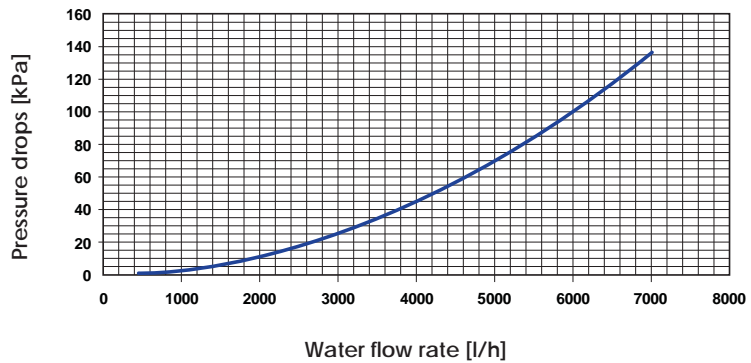
## PRESSURE DROP 2-WAY MODULATING VALVE



**ATTENTION:**  
In case of power failure the valve remains locked in the working position. In order to avoid unnecessary water consumption, it is recommended to install, upstream of the water mains supply, a shut-off device.



**ATTENTION:**  
Max. differential pressure 4 bar



PRESSURE DROP 2-WAY MODULATING VALVE

Water flow rate	l/h	500	1000	2000	3000	4000	5000	6000	7000
Pressure drop	Kpa	0,7	3	11	25	44	69	100	136

10.1. WRL025°H°T°°°°M

		TOTAL RECOVERY OUTPUT WATER TEMPERATURE °C															
		25		30		35		40		45		50		55		60	
		Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	5.49	1.41	5.43	1.59	5.42	1.80	5.43	2.03	5.48	2.30	-	-	-	-	-	-
	-6	5.87	1.39	5.80	1.57	5.76	1.78	5.75	2.02	5.77	2.29	-	-	-	-	-	-
	-4	6.26	1.37	6.16	1.55	6.10	1.76	6.07	2.00	6.07	2.28	6.08	2.59	-	-	-	-
	-2	6.64	1.36	6.52	1.54	6.44	1.75	6.39	1.99	6.36	2.27	6.35	2.58	-	-	-	-
	0	7.02	1.34	6.88	1.52	6.78	1.73	6.71	1.98	6.66	2.26	6.63	2.57	6.60	2.93	-	-
	2	7.40	1.33	7.24	1.51	7.12	1.72	7.03	1.96	6.96	2.24	6.90	2.56	6.86	2.92	-	-
	4	7.78	1.31	7.60	1.49	7.46	1.70	7.35	1.95	7.25	2.23	7.18	2.55	7.11	2.91	-	-
	6	8.17	1.30	7.97	1.48	7.80	1.69	7.67	1.93	7.55	2.21	7.45	2.53	7.36	2.89	7.27	3.29
	7	8.36	1.30	8.15	1.47	7.97	1.68	7.83	1.92	7.70	2.20	7.59	2.52	7.49	2.88	7.38	3.28
	8	8.55	1.29	8.33	1.47	8.14	1.67	7.99	1.91	7.85	2.19	7.73	2.51	7.61	2.87	7.50	3.27
	10	8.92	1.28	8.69	1.45	8.48	1.66	8.31	1.89	8.15	2.17	8.01	2.49	7.87	2.85	7.73	3.25
	12	-	-	9.05	1.44	8.82	1.64	8.63	1.87	8.45	2.15	8.28	2.46	8.12	2.82	7.96	3.22
	14	-	-	9.40	1.43	9.16	1.62	8.94	1.85	8.75	2.12	8.56	2.43	8.38	2.79	8.20	3.19
	16	-	-	-	-	9.50	1.60	9.26	1.83	9.05	2.09	8.84	2.40	8.63	2.75	8.43	3.15
	18	-	-	-	-	9.84	1.58	9.58	1.80	9.34	2.06	9.12	2.36	8.89	2.71	8.66	3.11

10.2. WRL030°H°T°°°°M

		TOTAL RECOVERY OUTPUT WATER TEMPERATURE °C															
		25		30		35		40		45		50		55		60	
		Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	6.84	1.62	6.72	1.82	6.65	2.05	6.61	2.32	6.61	2.62	-	-	-	-	-	-
	-6	7.34	1.59	7.18	1.80	7.07	2.03	7.00	2.30	6.97	2.61	-	-	-	-	-	-
	-4	7.82	1.57	7.64	1.78	7.50	2.02	7.40	2.29	7.32	2.60	7.27	2.96	-	-	-	-
	-2	8.31	1.55	8.10	1.76	7.92	2.00	7.79	2.28	7.69	2.59	7.60	2.95	-	-	-	-
	0	8.79	1.53	8.55	1.74	8.35	1.98	8.19	2.26	8.05	2.58	7.93	2.94	7.82	3.34	-	-
	2	9.27	1.52	9.00	1.72	8.78	1.96	8.58	2.24	8.42	2.56	8.27	2.93	8.12	3.33	-	-
	4	9.75	1.50	9.46	1.71	9.20	1.95	8.98	2.23	8.79	2.55	8.61	2.91	8.43	3.32	-	-
	6	10.23	1.49	9.91	1.69	9.63	1.93	9.38	2.21	9.16	2.53	8.95	2.89	8.75	3.30	8.54	3.76
	7	10.46	1.48	10.13	1.68	9.84	1.92	9.58	2.20	9.35	2.52	9.12	2.88	8.90	3.29	8.68	3.75
	8	10.70	1.48	10.36	1.67	10.05	1.91	9.78	2.19	9.53	2.50	9.30	2.87	9.06	3.28	8.83	3.74
	10	11.16	1.47	10.80	1.66	10.48	1.89	10.18	2.16	9.91	2.48	9.65	2.84	9.39	3.25	9.13	3.71
	12	-	-	11.25	1.64	10.90	1.87	10.59	2.14	10.29	2.45	10.00	2.81	9.72	3.22	9.43	3.68
	14	-	-	11.69	1.63	11.32	1.85	10.99	2.11	10.67	2.42	10.36	2.78	10.05	3.19	9.74	3.64
	16	-	-	-	-	11.75	1.83	11.39	2.09	11.05	2.39	10.72	2.74	10.39	3.14	10.05	3.60
	18	-	-	-	-	12.17	1.80	11.79	2.05	11.44	2.35	11.09	2.70	10.73	3.10	10.37	3.55

Data declared according to UNI EN 14511 2008

KEY

Ph Heating capacity  
Pe Input power

TOTAL RECOVERY				
Δt	3	5	10	15
Cooling capacity	-	1	1.01	1.02
Input power	-	1	0.99	0.98
Heating capacity	-	Changes are minimal		

10.3. WRL040°H°T°°°°M

		TOTAL RECOVERY OUTPUT WATER TEMPERATURE °C															
		25		30		35		40		45		50		55		60	
		Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	8.87	2.02	8.68	2.27	8.57	2.55	8.52	2.88	8.51	3.25	-	-	-	-	-	-
	-6	9.51	2.00	9.28	2.25	9.13	2.54	9.03	2.87	8.97	3.25	-	-	-	-	-	-
	-4	10.15	1.98	9.88	2.23	9.68	2.52	9.54	2.86	9.44	3.24	9.36	3.68	-	-	-	-
	-2	10.78	1.96	10.47	2.21	10.24	2.50	10.05	2.84	9.90	3.23	9.78	3.67	-	-	-	-
	0	11.41	1.95	11.07	2.19	10.79	2.48	10.56	2.83	10.37	3.22	10.21	3.67	10.04	4.16	-	-
	2	12.03	1.93	11.65	2.17	11.34	2.47	11.08	2.81	10.85	3.21	10.64	3.66	10.43	4.16	-	-
	4	12.65	1.92	12.24	2.16	11.89	2.45	11.59	2.80	11.33	3.20	11.08	3.65	10.83	4.16	-	-
	6	13.26	1.91	12.82	2.14	12.44	2.44	12.11	2.78	11.81	3.19	11.52	3.64	11.23	4.16	10.93	4.73
	7	13.56	1.90	13.11	2.14	12.72	2.43	12.37	2.78	12.05	3.18	11.74	3.64	11.43	4.15	11.11	4.73
	8	13.86	1.90	13.40	2.14	12.99	2.43	12.63	2.77	12.29	3.18	11.96	3.63	11.64	4.15	11.29	4.73
	10	14.46	1.90	13.97	2.13	13.54	2.42	13.14	2.76	12.77	3.17	12.42	3.63	12.05	4.15	11.67	4.73
	12	-	-	14.54	2.13	14.08	2.42	13.66	2.76	13.26	3.16	12.87	3.62	12.48	4.15	12.06	4.73
	14	-	-	15.10	2.14	14.62	2.42	14.17	2.76	13.75	3.16	13.33	3.62	12.90	4.15	12.45	4.74
	16	-	-	-	-	15.16	2.42	14.69	2.76	14.24	3.16	13.79	3.62	13.34	4.15	12.86	4.74
	18	-	-	-	-	15.69	2.44	15.20	2.77	14.73	3.17	14.26	3.63	13.78	4.16	13.27	4.75

10.4. WRL025°H°T°°°°°

		TOTAL RECOVERY OUTPUT WATER TEMPERATURE °C															
		25		30		35		40		45		50		55		60	
		Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	5.40	1.33	5.34	1.50	5.31	1.69	5.32	1.91	5.34	2.16	-	-	-	-	-	-
	-6	5.78	1.31	5.70	1.48	5.66	1.68	5.63	1.90	5.63	2.15	-	-	-	-	-	-
	-4	6.17	1.29	6.07	1.46	6.00	1.66	5.95	1.89	5.93	2.14	5.92	2.43	-	-	-	-
	-2	6.56	1.28	6.43	1.45	6.34	1.65	6.27	1.87	6.23	2.13	6.19	2.42	-	-	-	-
	0	6.94	1.26	6.80	1.43	6.68	1.63	6.60	1.86	6.53	2.12	6.47	2.42	6.42	2.75	-	-
	2	7.32	1.25	7.16	1.42	7.03	1.62	6.92	1.85	6.83	2.11	6.75	2.41	6.67	2.74	-	-
	4	7.71	1.24	7.53	1.40	7.37	1.60	7.24	1.83	7.13	2.09	7.03	2.39	6.93	2.73	-	-
	6	8.09	1.23	7.89	1.39	7.72	1.59	7.57	1.82	7.43	2.08	7.31	2.38	7.19	2.72	7.07	3.10
	7	8.28	1.22	8.07	1.39	7.89	1.58	7.67	1.81	7.59	2.07	7.45	2.37	7.32	2.71	7.19	3.09
	8	8.47	1.22	8.25	1.38	8.06	1.58	7.89	1.80	7.74	2.07	7.59	2.37	7.45	2.71	7.31	3.09
	10	8.85	1.22	8.61	1.37	8.41	1.57	8.22	1.79	8.05	2.05	7.88	2.36	7.72	2.70	7.56	3.08
	12	-	-	8.98	1.37	8.75	1.56	8.55	1.78	8.36	2.04	8.17	2.34	7.99	2.68	7.81	3.07
	14	-	-	9.34	1.36	9.10	1.55	8.88	1.77	8.67	2.03	8.46	2.33	8.26	2.67	8.06	3.05
	16	-	-	-	-	9.44	1.54	9.21	1.76	8.98	2.02	8.76	2.32	8.54	2.66	8.31	3.04
	18	-	-	-	-	9.79	1.54	9.53	1.76	9.29	2.01	9.05	2.30	8.82	2.64	8.57	3.03

Data declared according to UNI EN 14511 2008

KEY

Ph Heating capacity  
Pe Input power

TOTAL RECOVERY				
Δt	3	5	10	15
Cooling capacity	-	1	1.01	1.02
Input power	-	1	0.99	0.98
Heating capacity	-	Changes are minimal		

10.5. WRLO30°H°T°°°°°

		TOTAL RECOVERY OUTPUT WATER TEMPERATURE °C															
		25		30		35		40		45		50		55		60	
		Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	6.56	1.45	6.58	1.66	6.64	1.91	6.72	2.20	6.78	2.51	-	-	-	-	-	-
	-6	7.11	1.43	7.10	1.65	7.12	1.90	7.15	2.19	7.17	2.51	-	-	-	-	-	-
	-4	7.63	1.42	7.60	1.63	7.59	1.89	7.58	2.18	7.54	2.50	7.45	2.84	-	-	-	-
	-2	8.13	1.40	8.08	1.61	8.04	1.87	7.99	2.17	7.91	2.49	7.76	2.83	-	-	-	-
	0	8.61	1.39	8.54	1.60	8.48	1.86	8.40	2.15	8.27	2.48	8.08	2.83	7.78	3.19	-	-
	2	9.07	1.37	8.98	1.58	8.90	1.84	8.79	2.14	8.63	2.47	8.39	2.82	8.03	3.18	-	-
	4	9.51	1.36	9.41	1.57	9.31	1.83	9.18	2.13	8.98	2.46	8.70	2.81	8.29	3.18	-	-
	6	9.93	1.35	9.83	1.56	9.71	1.82	9.55	2.12	9.33	2.45	9.00	2.80	8.56	3.17	7.95	3.55
	7	10.13	1.35	10.03	1.56	9.90	1.81	9.74	2.11	9.50	2.44	9.16	2.80	8.69	3.17	8.06	3.55
	8	10.33	1.35	10.22	1.55	10.10	1.81	9.92	2.10	9.67	2.44	9.31	2.79	8.82	3.17	8.17	3.55
	10	10.71	1.35	10.60	1.55	10.47	1.80	10.28	2.10	10.01	2.43	9.62	2.79	9.09	3.16	8.39	3.55
	12	-	-	10.97	1.55	10.83	1.80	10.63	2.09	10.34	2.42	9.93	2.78	9.36	3.16	8.62	3.55
	14	-	-	11.32	1.55	11.18	1.80	10.98	2.09	10.67	2.42	10.23	2.78	9.64	3.16	8.86	3.55
	16	-	-	-	-	11.52	1.81	11.31	2.09	11.00	2.42	10.54	2.78	9.92	3.16	9.10	3.56
	18	-	-	-	-	11.85	1.82	11.64	2.10	11.32	2.43	10.85	2.79	10.20	3.17	9.36	3.57

10.6. WRLO40°H°T°°°°°

		TOTAL RECOVERY OUTPUT WATER TEMPERATURE °C															
		25		30		35		40		45		50		55		60	
		Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	8.76	1.95	8.60	2.20	8.48	2.45	8.39	2.73	8.32	3.04	-	-	-	-	-	-
	-6	9.42	1.93	9.21	2.17	9.05	2.43	8.91	2.71	8.80	3.03	-	-	-	-	-	-
	-4	10.08	1.91	9.83	2.15	9.61	2.41	9.43	2.70	9.27	3.01	9.13	3.37	-	-	-	-
	-2	10.72	1.89	10.43	2.13	10.18	2.39	9.96	2.67	9.76	3.00	9.56	3.36	-	-	-	-
	0	11.37	1.86	11.04	2.10	10.75	2.36	10.48	2.65	10.24	2.98	10.00	3.35	9.77	3.76	-	-
	2	12.01	1.85	11.64	2.08	11.31	2.34	11.01	2.63	10.73	2.96	10.45	3.33	10.17	3.76	-	-
	4	12.64	1.83	12.24	2.06	11.88	2.32	11.54	2.62	11.22	2.95	10.90	3.32	10.59	3.75	-	-
	6	13.26	1.82	12.84	2.05	12.44	2.31	12.07	2.60	11.71	2.93	11.36	3.31	11.01	3.75	10.64	4.24
	7	13.57	1.81	13.13	2.05	12.72	2.30	12.34	2.59	11.96	2.93	11.59	3.31	11.22	3.74	10.83	4.24
	8	13.88	1.81	13.43	2.04	13.00	2.30	12.60	2.59	12.21	2.92	11.82	3.31	11.43	3.74	11.03	4.24
	10	14.49	1.81	14.01	2.04	13.56	2.29	13.13	2.58	12.71	2.92	12.29	3.30	11.87	3.74	11.43	4.25
	12	-	-	14.60	2.04	14.12	2.29	13.66	2.58	13.21	2.92	12.77	3.31	12.31	3.75	11.84	4.26
	14	-	-	15.18	2.06	14.68	2.30	14.19	2.59	13.72	2.93	13.24	3.31	12.76	3.76	12.26	4.28
	16	-	-	-	-	15.23	2.32	14.72	2.61	14.23	2.94	13.73	3.33	13.22	3.78	12.69	4.30
	18	-	-	-	-	15.78	2.35	15.25	2.64	14.74	2.97	14.21	3.36	13.68	3.81	13.12	4.33

Data declared according to UNI EN 14511 2008

KEY

- Ph Heating capacity
- Pe Input power

TOTAL RECOVERY				
Δt	3	5	10	15
Cooling capacity	-	1	1.01	1.02
Input power	-	1	0.99	0.98
Heating capacity	-	Changes are minimal		

10.7. WRL050°H°T°°°°°

		TOTAL RECOVERY OUTPUT WATER TEMPERATURE °C															
		25		30		35		40		45		50		55		60	
		Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	11.85	2.56	11.61	2.90	11.47	3.25	11.40	3.62	11.37	4.05	-	-	-	-	-	-
	-6	12.68	2.53	12.39	2.87	12.20	3.22	12.07	3.60	11.98	4.03	-	-	-	-	-	-
	-4	13.50	2.50	13.16	2.84	12.92	3.20	12.74	3.58	12.59	4.02	12.44	4.54	-	-	-	-
	-2	14.31	2.47	13.93	2.81	13.64	3.17	13.41	3.55	13.20	4.00	13.00	4.53	-	-	-	-
	0	15.11	2.44	14.69	2.79	14.36	3.14	14.08	3.53	13.82	3.98	13.56	4.51	13.27	5.16	-	-
	2	15.90	2.42	15.45	2.76	15.07	3.11	14.75	3.50	14.45	3.96	14.14	4.50	13.79	5.16	-	-
	4	16.69	2.40	16.20	2.74	15.78	3.09	15.42	3.48	15.07	3.94	14.72	4.49	14.32	5.16	-	-
	6	17.46	2.39	16.94	2.72	16.49	3.07	16.09	3.46	15.70	3.93	15.30	4.48	14.86	5.16	14.34	5.98
	7	17.84	2.39	17.31	2.72	16.85	3.07	16.43	3.46	16.02	3.92	15.60	4.48	15.13	5.16	14.59	5.99
	8	18.22	2.39	17.68	2.71	17.20	3.06	16.76	3.45	16.34	3.92	15.89	4.48	15.41	5.16	14.84	5.99
	10	18.98	2.39	18.40	2.71	17.90	3.06	17.43	3.45	16.97	3.92	16.49	4.48	15.96	5.17	15.35	6.01
	12	-	-	19.12	2.73	18.60	3.07	18.10	3.46	17.61	3.93	17.09	4.49	16.53	5.19	15.88	6.04
	14	-	-	19.84	2.75	19.29	3.09	18.77	3.48	18.25	3.95	17.70	4.52	17.10	5.22	16.41	6.07
	16	-	-	-	-	19.97	3.12	19.43	3.51	18.88	3.98	18.31	4.55	17.68	5.25	16.95	6.12
	18	-	-	-	-	20.65	3.17	20.09	3.55	19.52	4.02	18.92	4.60	18.26	5.30	17.51	6.17

10.8. WRL070°H°T°°°°°

		TOTAL RECOVERY OUTPUT WATER TEMPERATURE °C															
		25		30		35		40		45		50		55		60	
		Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	13.61	3.41	13.42	3.72	13.22	4.08	13.05	4.48	12.93	4.92	-	-	-	-	-	-
	-6	14.91	3.41	14.65	3.73	14.39	4.10	14.14	4.52	13.95	4.98	-	-	-	-	-	-
	-4	16.21	3.41	15.88	3.74	15.55	4.12	15.24	4.55	14.97	5.04	14.77	5.58	-	-	-	-
	-2	17.50	3.41	17.11	3.75	16.71	4.14	16.33	4.58	15.99	5.09	15.72	5.65	-	-	-	-
	0	18.79	3.41	18.33	3.76	17.87	4.16	17.42	4.61	17.02	5.13	16.68	5.71	16.43	6.35	-	-
	2	20.07	3.42	19.55	3.77	19.03	4.17	18.52	4.64	18.05	5.17	17.65	5.76	17.33	6.43	-	-
	4	21.35	3.43	20.77	3.78	20.18	4.19	19.61	4.66	19.08	5.20	18.62	5.80	18.24	6.48	-	-
	6	22.62	3.45	21.98	3.80	21.34	4.20	20.71	4.68	20.12	5.22	19.59	5.84	19.15	6.53	18.81	7.29
	7	23.26	3.46	22.59	3.80	21.91	4.21	21.25	4.69	20.63	5.23	20.08	5.85	19.60	6.55	19.24	7.32
	8	23.89	3.47	23.19	3.81	22.49	4.22	21.80	4.70	21.15	5.24	20.56	5.87	20.06	6.57	19.67	7.34
	10	25.15	3.49	24.40	3.83	23.64	4.23	22.89	4.71	22.19	5.26	21.54	5.89	20.98	6.60	20.53	7.39
	12	-	-	25.59	3.85	24.78	4.25	23.98	4.72	23.22	5.27	22.52	5.90	21.91	6.62	21.40	7.42
	14	-	-	26.79	3.87	25.92	4.26	25.07	4.73	24.26	5.28	23.51	5.91	22.84	6.63	22.27	7.44
	16	-	-	-	-	27.06	4.27	26.16	4.74	25.30	5.28	24.49	5.91	23.77	6.64	23.15	7.45
	18	-	-	-	-	28.19	4.29	27.25	4.74	26.33	5.28	25.48	5.91	24.71	6.63	24.04	7.45

Data declared according to UNI EN 14511 2008

KEY  
Ph Heating capacity  
Pe Input power

TOTAL RECOVERY				
Δt	3	5	10	15
Cooling capacity	-	1	1.01	1.02
Input power	-	1	0.99	0.98
Heating capacity	-	Changes are minimal		

10.9. WRL080°H<sup>T</sup>°°°°°

		TOTAL RECOVERY OUTPUT WATER TEMPERATURE °C															
		25		30		35		40		45		50		55		60	
		Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	15.81	4.00	16.39	4.37	16.24	4.79	15.22	5.26	13.17	5.78	-	-	-	-	-	-
	-6	16.86	4.00	17.39	4.38	17.31	4.81	16.49	5.30	14.77	5.85	-	-	-	-	-	-
	-4	18.05	4.00	18.47	4.39	18.43	4.84	17.76	5.35	16.32	5.92	13.96	6.55	-	-	-	-
	-2	19.36	4.00	19.65	4.40	19.59	4.86	19.03	5.38	17.83	5.97	15.84	6.63	-	-	-	-
	0	20.79	4.01	20.90	4.41	20.78	4.88	20.29	5.42	19.29	6.02	17.62	6.69	15.14	7.44	-	-
	2	22.35	4.02	22.22	4.42	22.00	4.90	21.54	5.44	20.69	6.06	19.31	6.75	17.23	7.52	-	-
	4	24.02	4.03	23.62	4.44	23.25	4.92	22.78	5.47	22.03	6.10	20.88	6.81	19.17	7.59	-	-
	6	25.79	4.05	25.08	4.45	24.52	4.93	23.98	5.49	23.31	6.13	22.35	6.85	20.95	7.65	18.97	8.53
	7	26.72	4.06	25.83	4.46	25.17	4.94	24.58	5.50	23.09	6.14	23.04	6.87	21.79	7.67	20.01	8.56
	8	27.67	4.07	26.60	4.47	25.81	4.95	25.17	5.51	24.51	6.15	23.70	6.88	22.58	7.69	21.00	8.59
	10	29.66	4.10	28.18	4.49	27.11	4.97	26.32	5.53	25.64	6.17	24.93	6.91	24.04	7.73	22.82	8.64
	12	-	-	29.80	4.52	28.42	4.98	27.43	5.54	26.68	6.19	26.04	6.93	25.34	7.76	24.43	8.68
	14	-	-	31.48	4.54	29.73	5.00	28.50	5.55	27.65	6.20	27.01	6.94	26.46	7.77	25.82	8.71
	16	-	-	-	-	31.03	5.02	29.52	5.56	28.52	6.20	27.86	6.94	27.40	7.78	26.99	8.72
	18	-	-	-	-	32.33	5.03	30.50	5.57	29.29	6.20	28.56	6.94	28.16	7.77	27.94	8.72

10.10. WRL100°H<sup>T</sup>°°°°°

		TOTAL RECOVERY OUTPUT WATER TEMPERATURE °C															
		25		30		35		40		45		50		55		60	
		Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	23.70	5.14	23.22	5.83	22.94	6.52	22.80	7.26	22.74	8.11	-	-	-	-	-	-
	-6	25.35	5.08	24.77	5.77	24.39	6.47	24.13	7.22	23.95	8.08	-	-	-	-	-	-
	-4	26.99	5.02	26.32	5.71	25.83	6.41	25.47	7.17	25.17	8.05	24.88	9.09	-	-	-	-
	-2	28.61	4.96	27.85	5.65	27.27	6.35	26.81	7.12	26.40	8.01	25.99	9.07	-	-	-	-
	0	30.21	4.91	29.37	5.59	28.71	6.29	28.15	7.07	27.64	7.97	27.12	9.04	26.55	10.34	-	-
	2	31.80	4.86	30.89	5.54	30.14	6.24	29.49	7.02	28.89	7.93	28.27	9.01	27.58	10.33	-	-
	4	33.36	4.82	32.39	5.49	31.56	6.20	30.83	6.98	30.14	7.89	29.43	8.99	28.64	10.33	-	-
	6	34.91	4.80	33.87	5.46	32.98	6.16	32.17	6.94	31.40	7.87	30.60	8.98	29.71	10.33	28.69	11.97
	7	35.68	4.79	34.61	5.45	33.68	6.15	32.84	6.93	32.03	7.86	31.19	8.97	30.26	10.33	29.18	11.98
	8	36.44	4.79	35.34	5.45	34.39	6.14	33.51	6.92	32.67	7.85	31.78	8.97	30.81	10.34	29.68	12.00
	10	37.94	4.81	36.80	5.45	35.79	6.14	34.85	6.92	33.94	7.85	32.98	8.98	31.92	10.36	30.71	12.04
	12	-	-	38.24	5.47	37.18	6.15	36.19	6.94	35.21	7.87	34.18	9.00	33.05	10.39	31.75	12.09
	14	-	-	39.66	5.52	38.56	6.20	37.52	6.97	36.48	7.91	35.39	9.05	34.19	10.44	32.81	12.15
	16	-	-	-	-	39.93	6.26	38.85	7.04	37.76	7.97	36.61	9.11	35.35	10.52	33.90	12.24
	18	-	-	-	-	41.28	6.36	40.16	7.13	39.04	8.06	37.84	9.20	36.52	10.62	35.01	12.35

Data declared according to UNI EN 14511 2008

KEY

- Ph Heating capacity
- Pe Input power

TOTAL RECOVERY				
Δt	3	5	10	15
Cooling capacity	-	1	1.01	1.02
Input power	-	1	0.99	0.98
Heating capacity	-	Changes are minimal		

10.11. WRL140°H°T°°°°°

		TOTAL RECOVERY OUTPUT WATER TEMPERATURE °C															
		25		30		35		40		45		50		55		60	
		Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	27.15	6.85	26.77	7.47	26.39	8.17	26.05	8.95	25.81	9.83	-	-	-	-	-	-
	-6	29.75	6.85	29.23	7.48	28.71	8.21	28.23	9.04	27.84	9.96	-	-	-	-	-	-
	-4	32.35	6.84	31.69	7.50	31.03	8.26	30.41	9.11	29.87	10.07	29.47	11.14	-	-	-	-
	-2	34.93	6.85	34.14	7.52	33.35	8.29	32.59	9.18	31.92	10.17	31.38	11.28	-	-	-	-
	0	37.50	6.86	36.59	7.54	35.66	8.33	34.77	9.23	33.97	10.25	33.29	11.40	32.80	12.67	-	-
	2	40.06	6.87	39.02	7.56	37.97	8.36	36.96	9.28	36.02	10.33	35.22	11.50	34.59	12.81	-	-
	4	42.61	6.90	41.45	7.58	40.28	8.39	39.14	9.32	38.08	10.39	37.15	11.59	36.40	12.93	-	-
	6	45.15	6.93	43.87	7.61	42.58	8.42	41.32	9.36	40.15	10.44	39.09	11.66	38.21	13.03	37.55	14.55
	7	46.42	6.95	45.08	7.62	43.73	8.43	42.42	9.38	41.18	10.46	40.06	11.69	39.12	13.07	38.40	14.61
	8	47.68	6.97	46.29	7.64	44.88	8.45	43.51	9.39	42.21	10.48	41.04	11.72	40.04	13.11	39.25	14.66
	10	50.19	7.02	48.69	7.68	47.17	8.48	45.69	9.42	44.28	10.51	42.99	11.76	41.87	13.17	40.97	14.74
	12	-	-	51.08	7.72	49.46	8.50	47.86	9.44	46.35	10.54	44.95	11.79	43.72	13.21	42.71	14.81
	14	-	-	53.46	7.77	51.74	8.54	50.04	9.46	48.42	10.55	46.91	11.81	45.58	13.24	44.45	14.85
	16	-	-	-	-	54.01	8.57	52.21	9.48	50.49	10.56	48.88	11.82	47.44	13.25	46.21	14.87
	18	-	-	-	-	56.27	8.61	54.38	9.50	52.55	10.56	50.85	11.81	49.31	13.24	47.98	14.86

10.12. WRL160°H°T°°°°°

		TOTAL RECOVERY OUTPUT WATER TEMPERATURE °C															
		25		30		35		40		45		50		55		60	
		Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]		[kW]	
EVAPORATOR WATER OUTLET TEMPERATURE °C	-8	31.56	8.06	32.71	8.76	32.42	9.57	30.37	10.49	26.28	11.51	-	-	-	-	-	-
	-6	33.65	8.05	34.70	8.78	34.56	9.63	32.91	10.59	29.47	11.66	-	-	-	-	-	-
	-4	36.02	8.04	36.87	8.80	36.78	9.68	35.45	10.68	32.58	11.80	27.87	13.04	-	-	-	-
	-2	38.64	8.04	39.21	8.82	39.09	9.72	37.99	10.75	35.59	11.91	31.62	13.20	-	-	-	-
	0	41.50	8.05	41.71	8.84	41.47	9.76	40.51	10.81	38.51	12.01	35.17	13.35	30.22	14.83	-	-
	2	44.60	8.07	44.35	8.86	43.92	9.79	43.00	10.87	41.30	12.09	38.53	13.47	34.38	14.99	-	-
	4	47.93	8.10	47.14	8.89	46.41	9.83	45.46	10.92	43.98	12.16	41.68	13.57	38.25	15.13	-	-
	6	51.48	8.14	50.05	8.92	48.95	9.86	47.87	10.96	46.52	12.22	44.60	13.65	41.82	15.25	37.87	17.02
	7	53.33	8.16	51.55	8.94	50.23	9.87	49.06	10.97	47.74	12.24	45.98	13.68	43.48	15.30	39.94	17.08
	8	55.23	8.19	53.09	8.96	51.52	9.89	50.23	10.99	48.92	12.27	47.30	13.71	45.06	15.34	41.92	17.14
	10	59.19	8.25	56.23	9.00	54.11	9.92	52.52	11.02	51.17	12.30	49.76	13.76	47.98	15.41	45.55	17.24
	12	-	-	59.48	9.06	56.72	9.96	54.74	11.05	53.26	12.33	51.97	13.80	50.57	15.46	48.76	17.32
	14	-	-	62.82	9.12	59.33	10.00	56.88	11.08	55.18	12.35	53.92	13.82	52.80	15.49	51.54	17.36
	16	-	-	-	-	61.94	10.05	58.93	11.11	56.91	12.36	55.60	13.83	54.69	15.50	53.88	17.39
	18	-	-	-	-	64.53	10.11	60.87	11.14	58.46	12.37	57.00	13.83	56.20	15.50	55.76	17.39

Data declared according to UNI EN 14511 2008

KEY

Ph Heating capacity  
Pe Input power

TOTAL RECOVERY				
Δt	3	5	10	15
Cooling capacity	-	1	1.01	1.02
Input power	-	1	0.99	0.98
Heating capacity	-	Changes are minimal		

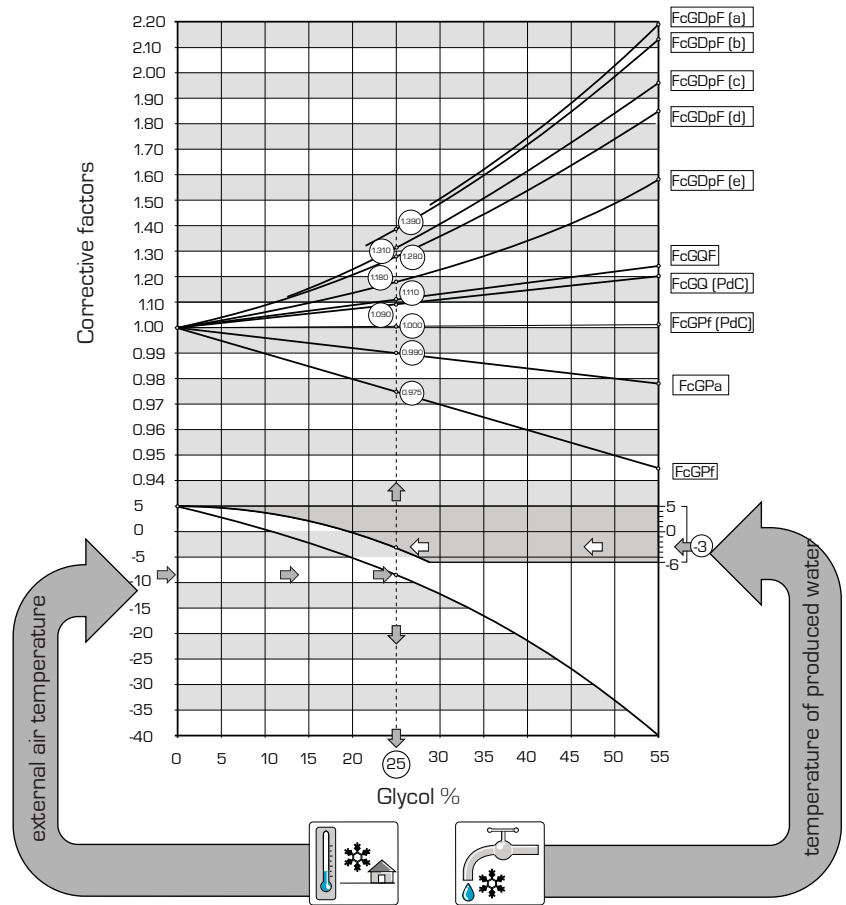


## 11. ETHYLENE GLYCOL SOLUTIONS

- The corrective factors of cooling capacity and input power take into account the presence of glycol and the difference in evaporation temperatures.
- The pressure drop correction factor considers the different flow rate resulting from the application of the water flow rate correction factor.
- The water flow rate correction factor is calculated to keep the same  $\Delta t$  that would be present with the absence of glycol.

### NOTE

On the following page an example is given to help graph reading. to determine the percentage of glycol required, see diagram below; this percentage calculation can take into consideration one of the following factors: Depending on which fluid is considered (water or air), the graph is interpreted by the right or left side at the crossing point on the curves with the external temperature line or the water produced line. A point from which the vertical line will pass is obtained and this will distinguish both glycol percentage and relative correction coefficients.



### 10.13. HOW TO INTERPRET GLYCOL CURVES

The curves shown in the diagram summarise a significant number of data, each of which is represented by a specific curve. In order to use these curves correctly it is first necessary to make some initial reflections.

- If you wish to calculate the percentage of glycol on the basis of the external air temperature, enter from the left axis and on reaching the curve draw 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, the flow rates and the pressure drops (remember that these coefficients must be multiplied by the nominal value of the size in question); while the glycol percentage value recommended to produce desired water temperature is on the lower axis.
- If you wish to calculate the percentage of glycol on the basis of the temperature of the water produced, enter from the right axis and on reaching the curve draw a vertical line, which in turn will

### KEY:

- Pc Corrective factors for cooling capacity
- Pe Corrective factors of the input power
- Ph Corrective factor for heating capacity
- $\Delta P$  (1) Corrective factor for pressure drops with an average fluid temp. = -3.5 °C
- $\Delta P$  (2) Corrective factor for pressure drops with an average fluid temp. = 0.5 °C
- $\Delta P$  (3) Corrective factor for pressure drops with an average fluid temp. = 5.5 °C
- $\Delta P$  (4) Corrective factor for pressure drops with an average fluid temp. = 9.5 °C
- $\Delta P$  (5) Corrective factor for pressure drops with an average fluid temp. = 47.5 °C
- Qw (1) Corrective factor for pressure drops (evap) with an average fluid temp. = 9.5 °C
- Qw (2) Corrective factor of flow rates (condenser) with an average fluid temp. = 47.5 °C

### NOTE

Although the graph shows a max external air temperature of -40°C, the unit operational limits must be complied with.

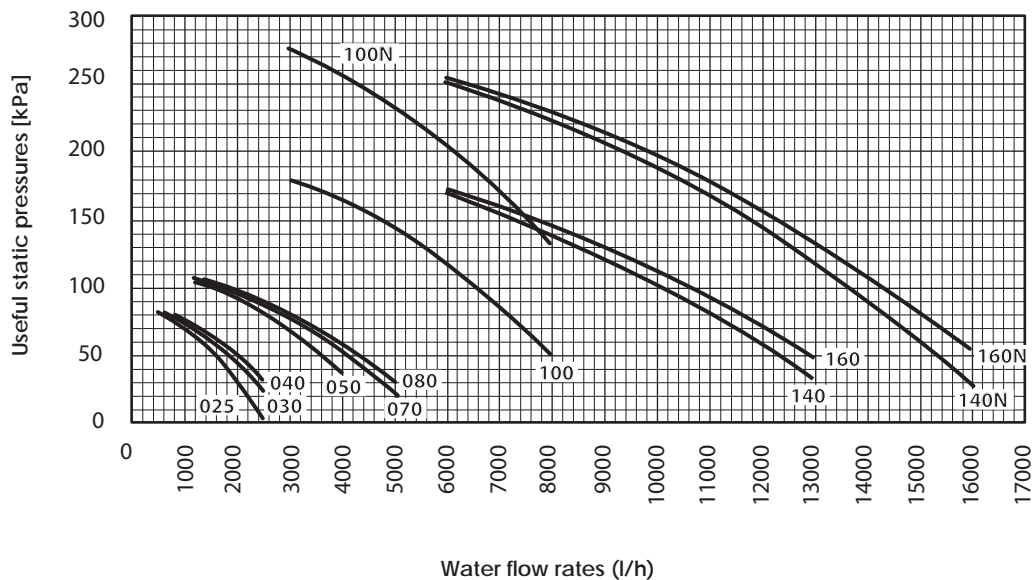
intercept all the other curves; the points obtained from the upper curves represent the coefficients for the correction of the cooling capacity and input power, the flow rates and the pressure drops (remember that these coefficients must be multiplied by the nominal value of the size in question); while the lower axis recommends the glycol percentage value necessary to produce water at the desired temperature.

Initial rates for "EXTERNAL AIR TEMPERATURE" and "TEMPERATURE OF PRODUCED WATER", are not directly related, therefore it is not possible to refer to the curve of one of these rates to obtain corresponding point on the curve of the other rate.

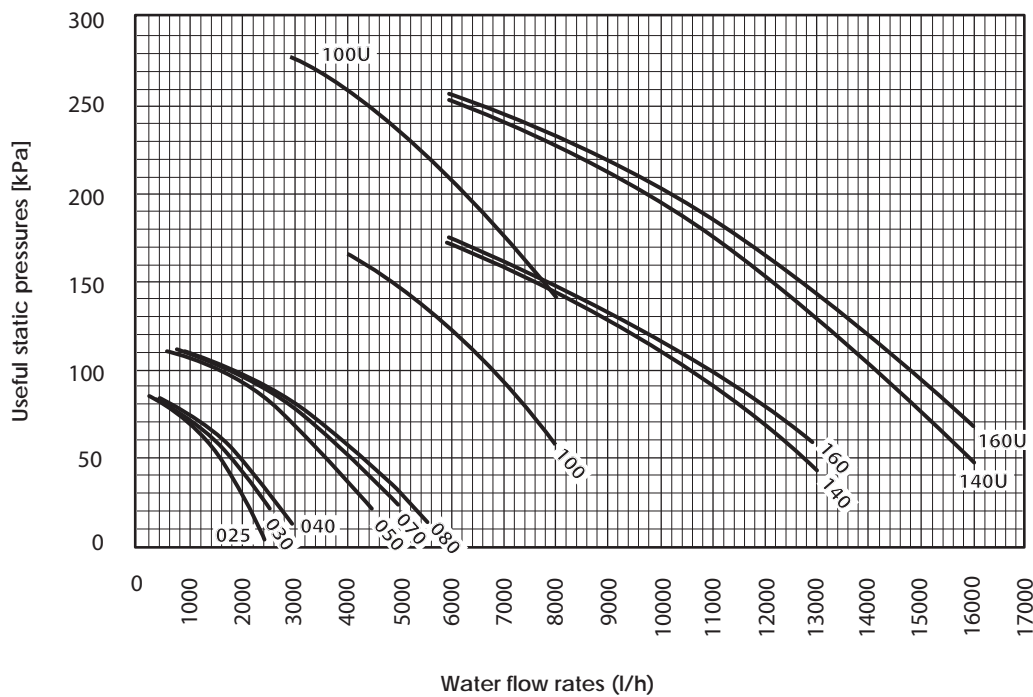
## 12. USEFUL STATIC PRESSURES

### FUNCTIONING IN HEATING MODE

#### CONDENSER USEFUL STATIC PRESSURES



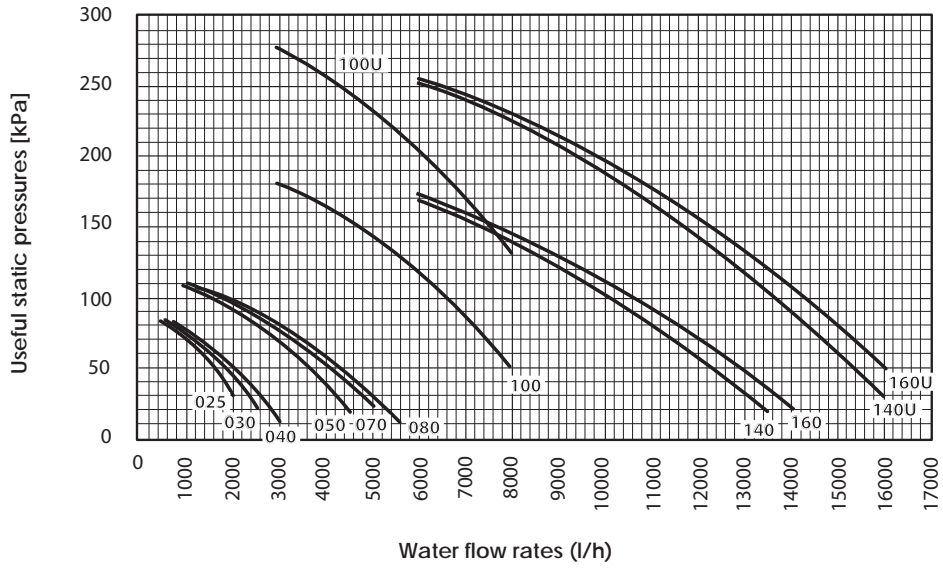
#### EVAPORATOR USEFUL STATIC PRESSURES



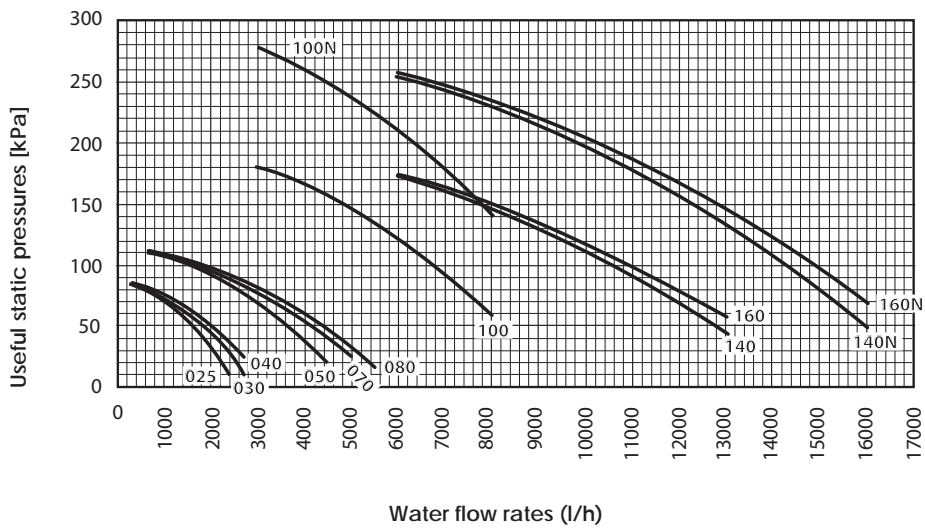
If work points are selected outside of the static pressure curves range, contact the head office.

# COOLING MODE FUNCTIONING

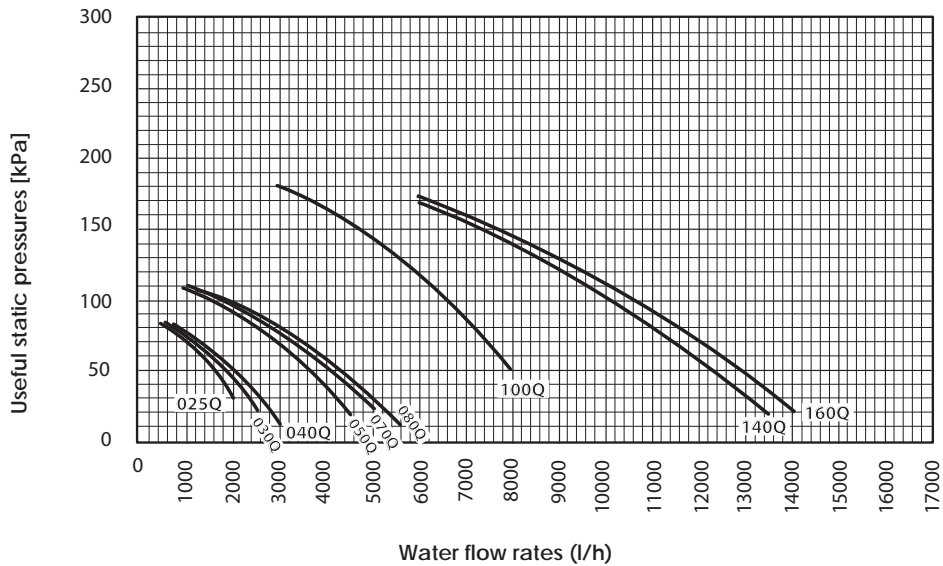
## CONDENSER USEFUL STATIC PRESSURES



## EVAPORATOR USEFUL STATIC PRESSURES



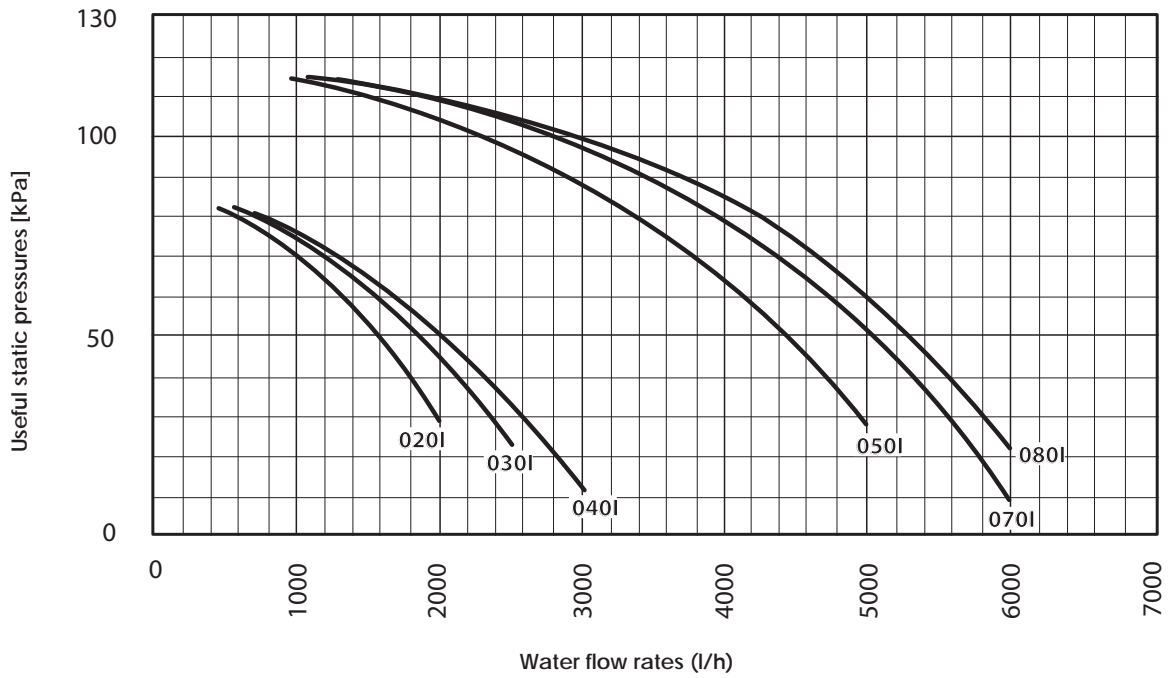
## TOTAL RECOVERY USEFUL STATIC PRESSURES



VERSION WITH INVERTER PUMP "I"

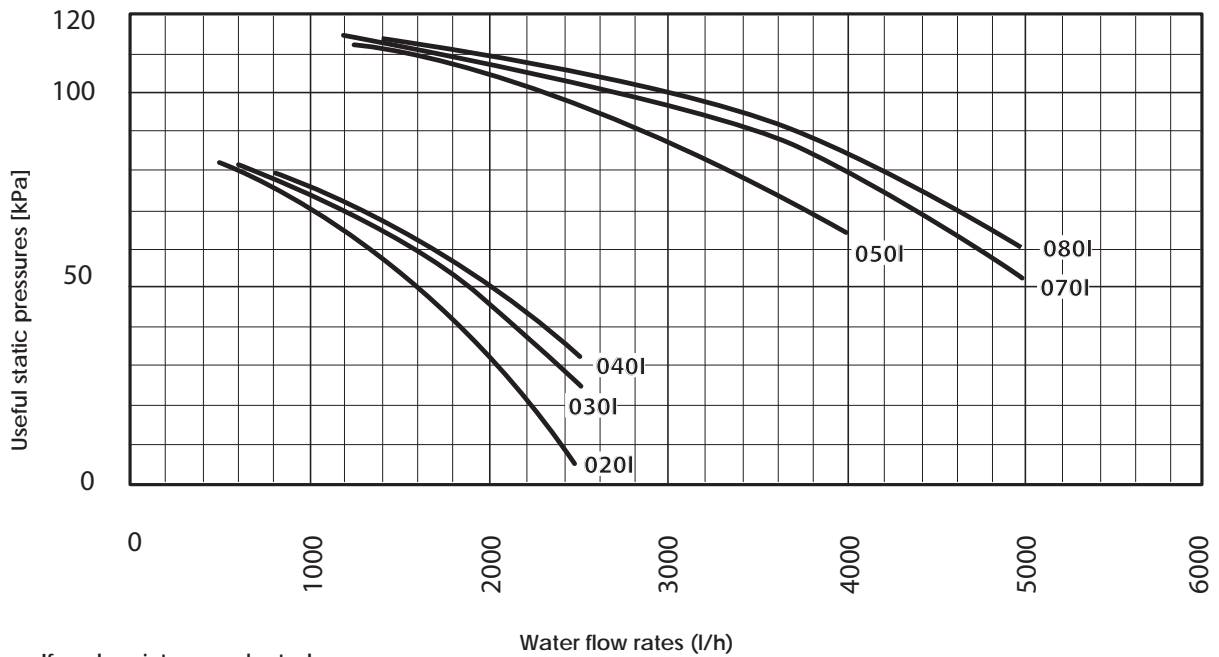
COOLING MODE FUNCTIONING

CONDENSER USEFUL STATIC PRESSURES WITH INVERTER PUMP



FUNCTIONING IN HEATING MODE

EVAPORATOR USEFUL STATIC PRESSURES WITH INVERTER PUMP

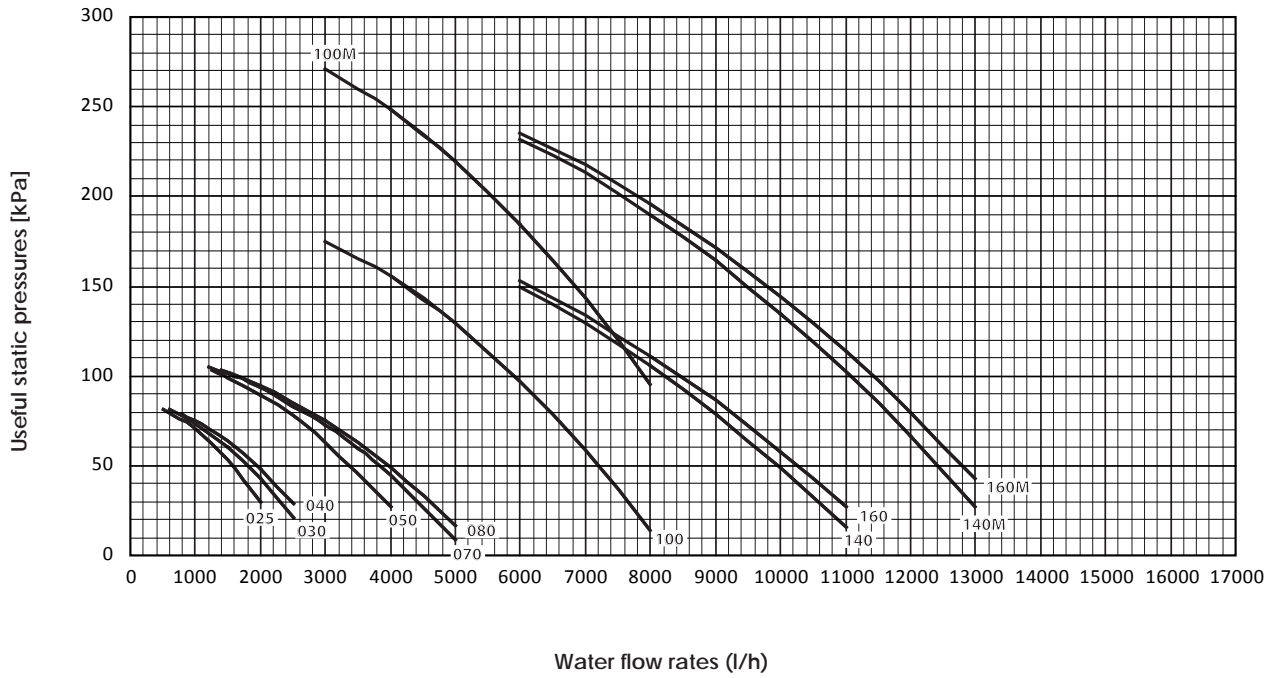


If work points are selected outside of the static pressure curves range, contact the head office.

## VERSION WITH STORAGE TANK "A"

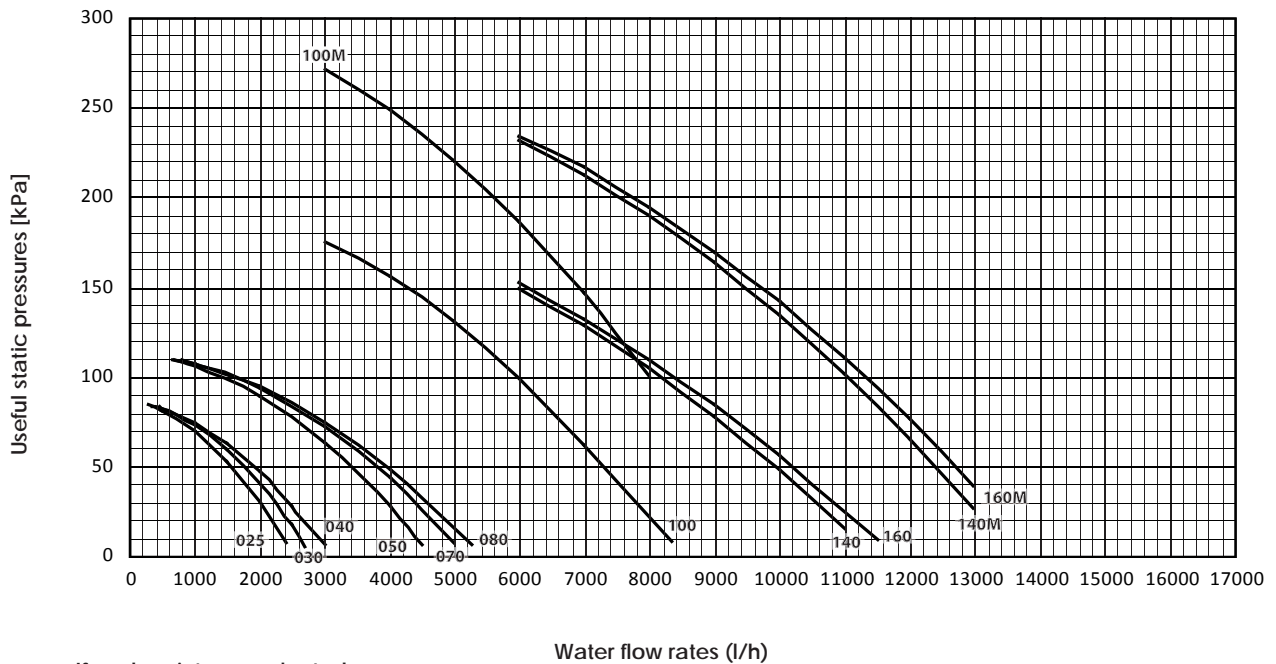
### FUNCTIONING IN HEATING MODE

#### STORAGE TANK USEFUL STATIC PRESSURES WITH INVERTER PUMP



### COOLING MODE FUNCTIONING

#### EVAPORATOR USEFUL STATIC PRESSURES WITH INVERTER PUMP



If work points are selected outside of the static pressure curves range, contact the head office.

### 13. EXPANSION VESSEL CALIBRATION

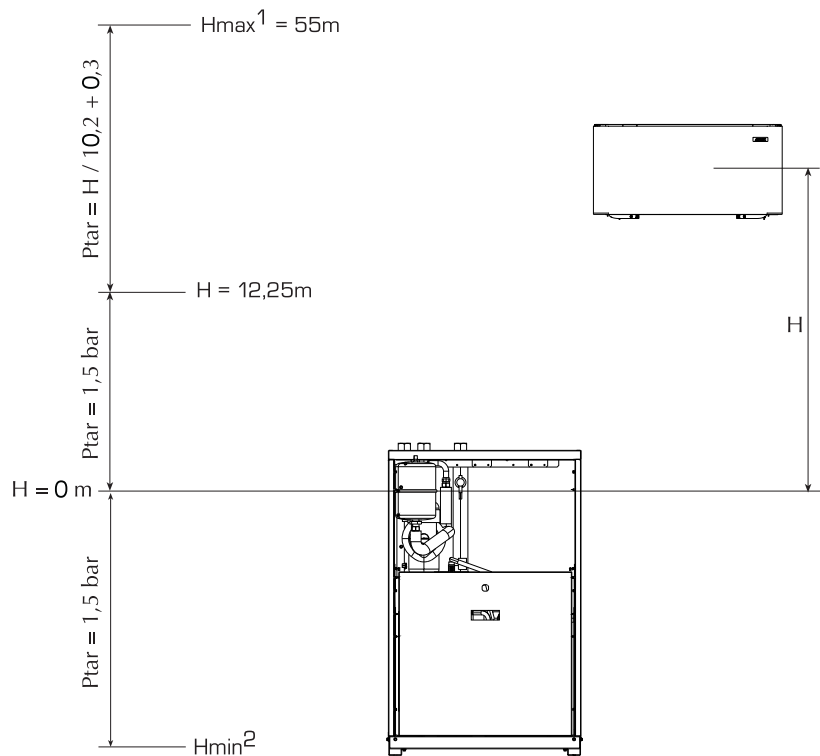
The standard pressure pre-load value of the expansion vessel is 1.5 bar, maximum value is 6 bar.

The calibration of the vessel must be regulated in accordance with the maximum level difference (H) of the user (see diagram) using the following formula:

$$p \text{ (calibration) [bar]} = H \text{ [m]} / 10.2 + 0.3.$$

For example: if level difference H is equal to 20 m, the calibration value of the vessel will be 2.3 bar.

If the calibration value obtained from the formula is less than 1.5 bar (i.e. for  $H < 12.25$ ), use the standard calibration.



**KEY**

- (1) Check that highest installation is not higher than 55 metres.
- (2) Ensure that lowest installation can withstand global pressure in that position.

Reference operational conditions:

- (1) Cooling: Max water temp. = 40 °C, min water temp. = 4 °C.
- (2) Heating (heat pump): Max water temp. = 60 °C, Min water temp. = 4 °C.

### 14. SOUND DATA

WRL-H	Total sound levels			Octave band [Hz]						
	Power dB(A) [2] LW	Pressure 1m dB(A) [3] LP	Pressure 10m dB(A) [4] LP	125	250	500	1000	2000	4000	8000
				Sound power for centre of band [dB] frequency						
025H	55,5	41,1	24,3	66,5	58,1	51,5	46,3	44,9	36,7	33,2
030H	57,0	42,6	25,8	67,9	59,7	53,1	47,6	46,1	38,1	34,5
040H	57,5	43,1	26,3	68,2	60,2	53,7	48,2	46,6	38,9	35,1
050H	59,0	44,2	27,7	69,6	61,6	55,3	49,9	48,8	41,3	37,3
070H	60,0	45,2	28,7	70,6	62,8	56,2	50,9	49,8	42,7	38,6
080H	60,5	45,7	29,2	70,9	63,0	56,3	51,1	50,0	42,9	38,9
100H	62,0	46,7	30,6	72,8	65,0	58,2	52,6	51,6	44,3	39,5
140H	63,0	47,7	31,6	73,6	65,8	59,2	53,9	52,8	45,7	41,6
160H	63,5	48,2	32,1	73,9	66,0	59,3	54,1	53,0	45,9	41,9

The sound data is calculated in the nominal heating conditions.

**CONDENSER**

Water inlet temperature..... 40 °C  
 Water outlet temperature ..... 45 °C

[2] 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.

[3] Sound pressure in an unrestricted range on a reflective plane (directional fact. Q=2), 1m away from the unit external surface, complying with ISO 3744.

[4] 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.

## 15. CALIBRATION OF CONTROL AND SAFETY PARAMETERS

CONTROL PARAMETERS			
Cooling Set	Inlet water temperature in cooling functioning mode.	MIN	6°C
		MAX	20°C
		DEFAULT	7°C
Heating Set	Inlet water temperature in heating functioning mode.	MIN	20°C
		MAX	55°C
		DEFAULT	40°C
Anti-freeze intervention	Intervention temperature of the anti-freeze alarm on the EV side (water outlet temperature).	MIN	-99°C
		MAX	99°C
		DEFAULT	4°C
Total differential	Proportional temperature band within which the compressors are activated and deactivated.	MIN	-99°C
		MAX	99°C
		DEFAULT	3°C

400V COMPRESSORS MAGNET									
WRL Compressors	025	030	040	050	070	080	100	140	160
MTCP CP1 (A)	5.5	6	6.4	8.7	10.4	11.7	8.7	10.4	11.7
MTCP CP2 (A)	-	-	-	-	-	-	8.7	10.4	11.7

THREEPHASE GENERAL SWITCH									
WRL	025	030	040	050	070	080	100	140	160
IG (A)	20	20	20	20	20	20	45	45	45

230V COMPRESSORS MAGNET			
Compressori WRL	025	030	040
MTCP CP1 (A)	16	19	17
MTCP CP2 (A)	-	-	-

MONOPHASE GENERAL SWITCH			
WRL	025	030	040
IG (A)	23	23	23

PRESSURE SWITCH AND TRANSDUCER									
WRL	025	030	040	050	070	080	100	140	160
High pressure switch (AP) bar rel	42	42	42	42	42	42	42	42	42
High pressure transducer (TAP) bar rel	39	39	39	39	39	39	39	39	39
Low pressure transducer (TBP) bar rel	2	2	2	2	2	2	2	2	2

## 16. SELECTION AND PLACE OF INSTALLATION

The WRL-H heat pump is set-up for an *INTERNAL* application.

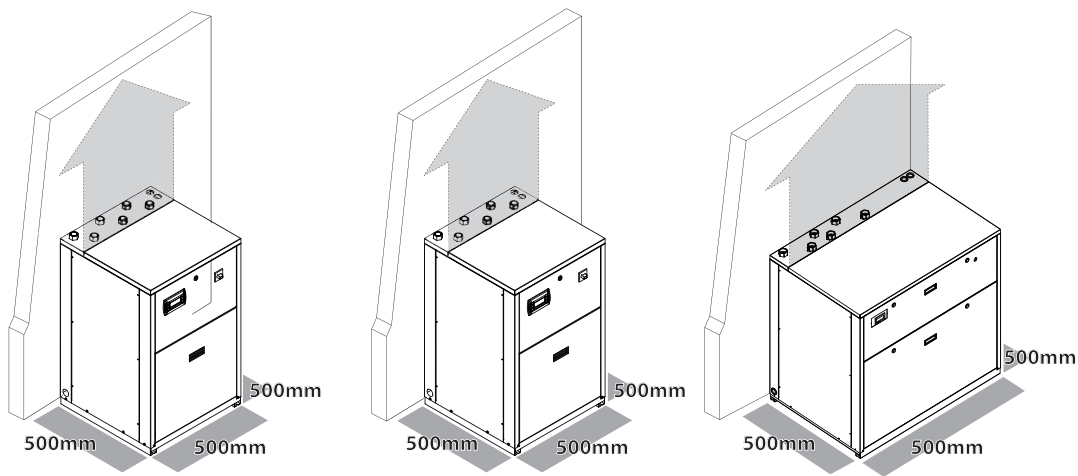
It is shipped pre-tested and only requires the electrical and hydraulic connections. Before beginning the installation process, decide with the client where the unit is to be installed, whilst paying attention to the following:

- The support surface must be capable of supporting the unit weight.
- The safety distances between the units and other appliances or structures must be scrupulously respected.
- The unit must be installed by a qualified technician in compliance

with national laws in the country of destination.

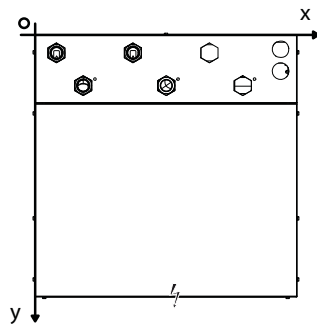
- It is mandatory to foresee to the necessary technical space in order to allow ROUTINE AND EXTRAORDINARY MAINTENANCE interventions.
- Remember that during operation, the chiller can cause vibrations; therefore "VT" anti-vibration mounts (ACCESSORIES) are recommended, fixed on the base according to the assembly layout.
- Fix the unit checking that it is level.

### ► MINIMUM TECHNICAL SPACES



**WARNING**  
It is obligatory to comply with the indicated minimum measurements; the height and the back must be sized according to the type of system and place of installation.

### 16.1. ► BARYCENTRES



**WARNING:**  
DRAWING PURELY INDICATIVE

WRL-H	BARYCENTRE 2 EXCHANGERS	
	Sizes	y (mm)
025	400	280
030	400	280
040	400	280
050	520	210
070	520	210
080	520	210
100	380	620
140	380	620
160	380	620

WRL-H	BARYCENTRE 3 EXCHANGERS	
	Sizes	y (mm)
025	390	280
030	390	280
040	390	280
050	500	210
070	500	210
080	500	210
100	380	610
140	380	610
160	380	610



## 17. ANTI-LEGIONELLA FUNCTION

The **ANTI-LEGIONELLA** function is designed to eliminate legionella germs that can reside in the DHW tanks. *This function is only available if the electric resistance or an integration system inside the sanitary storage tank is enabled.*

Once this procedure is activated, the

*DHW reaches a maximum of 65°C for at least 5 minutes and a maximum of 120 minutes, every Sunday at 3.00 a.m. (EDITABLE PARAMETERS).*

Remember that the specific parameters are found beneath the SANITARY WATER menu (assistance).

### ⚠ ATTENTION:

*Changing parameters that are identified by this symbol could cause unit malfunctioning. THESE SETTINGS CAN ONLY BE EDITED BY AUTHORISED PERSONNEL.*



A weekly programme can be activated from the user panel and if the set-point is increased it prevents legionella-related

problems from arising through the domestic water integration outlet.

ON the user panel:

- press the PRG key and the menu will appear;
- select the SANITARY icon;
- press ENTER;
- select the ANTI-LEGIONELLA D18 icon.

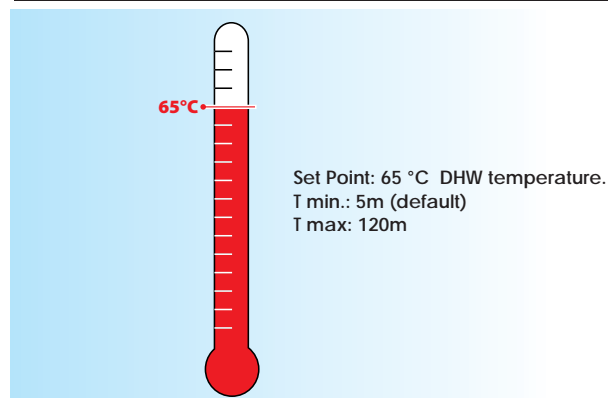
Anti-legionella treatment								
Mask Index	Display description	Description	Default	UOM	min.	Max	RW	
D18	Anti-legionella							
	03:00	Start function time	3.00 a.m.	h	0	23		RW
	Mo, Tu... Sun	The day when the cycle is to begin	Sun					RW
	Enabling: YES	Enabling the function			0	1		RW



### DHW menu (assistance) - To set anti-legionella cycle

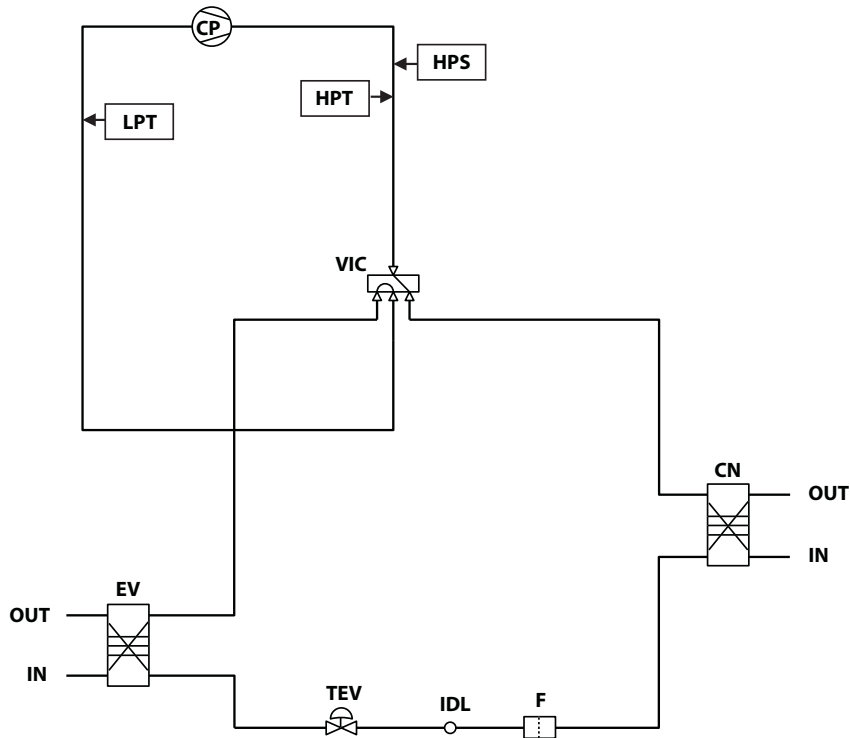
Unit display	Index	Display/Parameter
	A	<b>Domestic hot water:</b> this menu allows the parameters linked to DHW production management to be set at after-sales service level.
	B	<b>End set-point:</b> this parameter indicates the temperature to be used to perform the anti-legionella cycle; remember this temperature is maintained for a minimum time set in the subsequent parameter.
	C	<b>Minimum time:</b> this parameter indicates the minimum time for which the DHW temperature must exceed the end set point for the anti-legionella cycle to be considered complete.
	D	<b>Maximum time:</b> this parameter indicates the maximum duration of the anti-legionella cycle and the "anti-legionella cycle not completed" alarm will be triggered once this time elapses (alarm code AL45).

**N.B. This function is also active with the unit in STAND-BY.**



## 18. MAIN COOLING LAYOUT

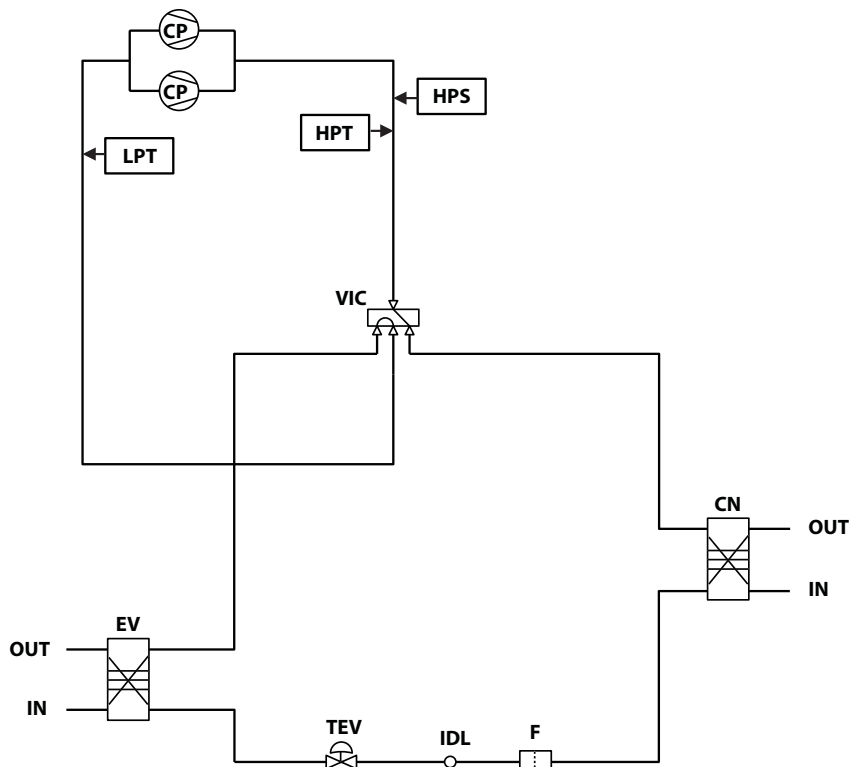
### 18.1. WRL-H STANDARD 025 / 080



#### KEY

CN	Condenser
CP	Compressor
EV	Evaporator
F	Dehydrator filter
HPS	High pressure switch
HPT	High pressure transducer
IDL	Indicator for liquid passage
LPT	Low pressure transducer
TEV	Electronic thermostatic valve
VIC	Cycle reversing valve

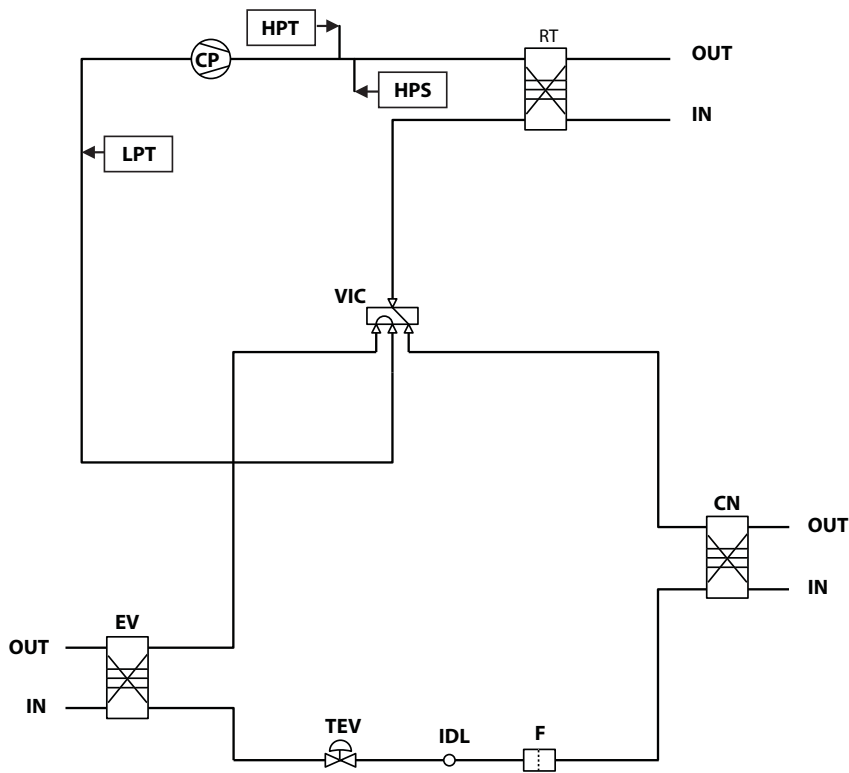
### 18.2. WRL-H STANDARD 100 / 160



#### KEY

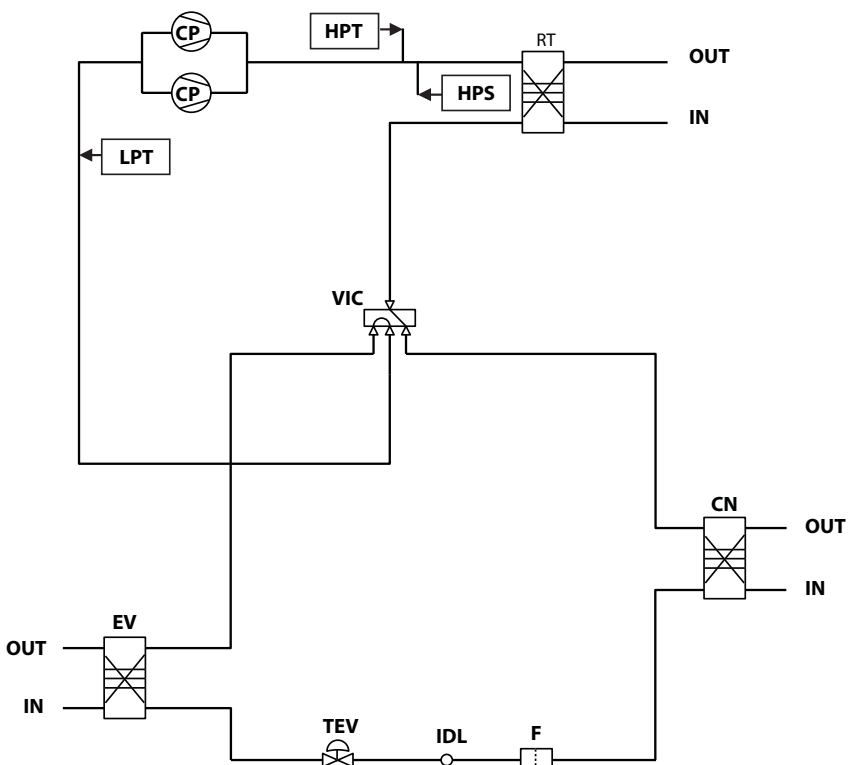
CN	Condenser
CP	Compressor
EV	Evaporator
F	Dehydrator filter
HPS	High pressure switch
HPT	High pressure transducer
IDL	Indicator for liquid passage
LPT	Low pressure transducer
TEV	Electronic thermostatic valve
VIC	Cycle reversing valve

18.3. WRL-HT 025 / 080



KEY	
CN	Condenser
CP	Compressor
EV	Evaporator
F	Dehydrator filter
HPS	High pressure switch
HPT	High pressure transducer
IDL	Indicator for liquid passage
LPT	Low pressure transducer
RT	Total recovery (optional version)
TEV	Electronic thermostatic valve
VIC	Cycle reversing valve

18.4. WRL-HT 100 / 160



KEY	
CN	Condenser
CP	Compressor
EV	Evaporator
F	Dehydrator filter
HPS	High pressure switch
HPT	High pressure transducer
IDL	Indicator for liquid passage
LPT	Low pressure transducer
RT	Total recovery (optional version)
TEV	Electronic thermostatic valve
VIC	Cycle reversing valve



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