AERMEC
air conditioning

R407C

scroll

axial

heat

HEAT PUMPS - Installation and maintenance technical manual

SRA

EN

AERMEC
COMPANY QUALITY SYSTEM
ICIM
ISO 9001:2000 - Cert. n° 0128/5
CISQ IQNet
AERMEC S.P.A.

CE

ISRAEHPAUY. 0710. 5890956_00

Dear Customer,
ThSRA 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.

ThSRA you again.
AERMEC S.p.A

INDEX:

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SRA

SERIAL NUMBER	

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

NAME **SRA**

TYPE **HEAT PUMP**

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 systems and heat pumps - Safety and environmental requirements
EN12735	Seamless, round copper tubes for air conditioning and refrigeration
UNI EN 14276	Pressure equipment for cooling systems and heat pumps

Therefore complying with the essential requirements of the following directives:

- LVD Directive: 2006/95/CE
- Electromagnetic Compatibility Directive 2004/108/CE
- Machinery Directive 2006/42/CE

The product, in agreement with the 97/23/CE Directive, satisfies the Total Quality Guarantee procedure (Form A).

La persona autorizzata a costituire il fascicolo tecnico è: / 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)

01/01/2010

Marketing Manager
Signature

Standards and Directives respected on 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 60335 - 2 - 40

Protection rating
IP24

Acoustic part:
ISO DIS 9614/2 (intensimetric method)

Performance data:
UNI EN 14511

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

SRA AERMEC is built in compliance with the acknowledged technical standards and safety regulations. They have been designed for heating with the production of domestic hot water (DHW).
They must be intended for this use compatibly with their performance features. 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).
The appliance must be installed in such a way as to enable maintenance and/ or repairs to be carried out.
The appliance warranty does not cover the costs for ladders, scaffolding, or other elevation systems that may become necessary for carrying out servicing under warranty.
Do not modify or tamper with the chiller 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.

1.2. WARNINGS REGARDING SAFETY AND INSTALLATION STANDARDS

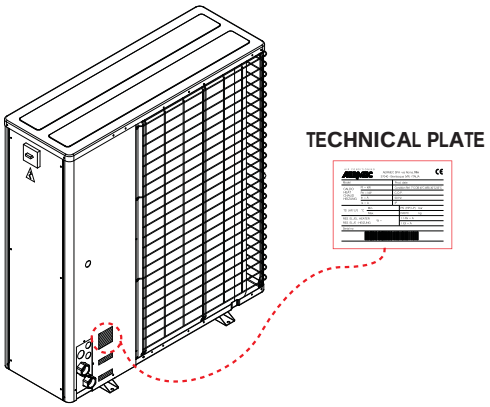
- The cooler must be installed by a qualified and suitably trained technician, in compliance with the national legislation in force in the country of destination (Ministerial Decree 329/2004).
  AERMEC will not assume any responsibility for damage due to failure to follow these instructions.
- Before beginning any operation, READ THESE INSTRUCTIONS CAREFULLY AND CARRY OUT THE SAFETY CHECKS TO REDUCE ALL RISK OF DANGER TO A MINIMUM. 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.

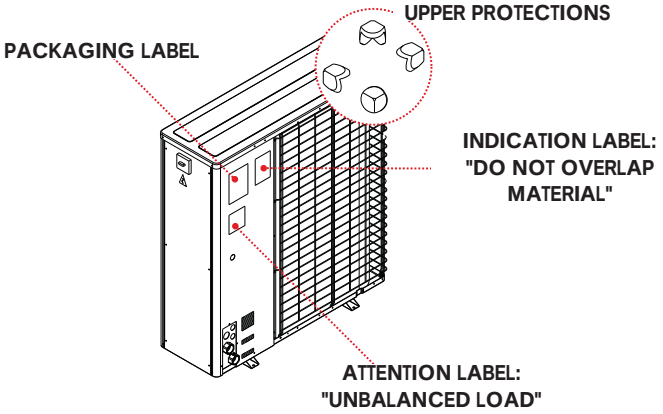
2. PRODUCT IDENTIFICATION

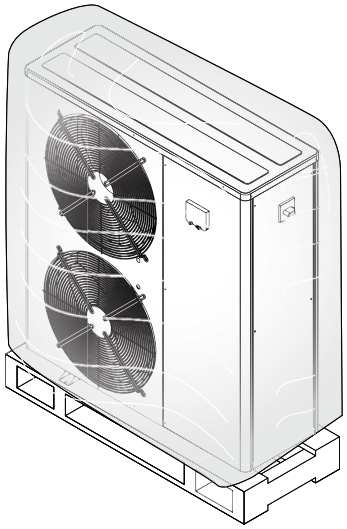
The SRA heat pump can be identified by means of:

- ***Technical plate*** Positioned on the panel fixed low in the hydraulic connections zone.
- ***Packaging label*** which shows the product identification data

NOTE
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. CONFIGURATOR

3.1. SET-UPS AVAILABLE

With the help of the configurator it is possible to set-up and therefore order the heat pump that best satisfies the requirements requested by the user or who for whoever acts on his behalf.

1,2,3	4,5	6	7	8	9
SRA	10	°	°	°	M

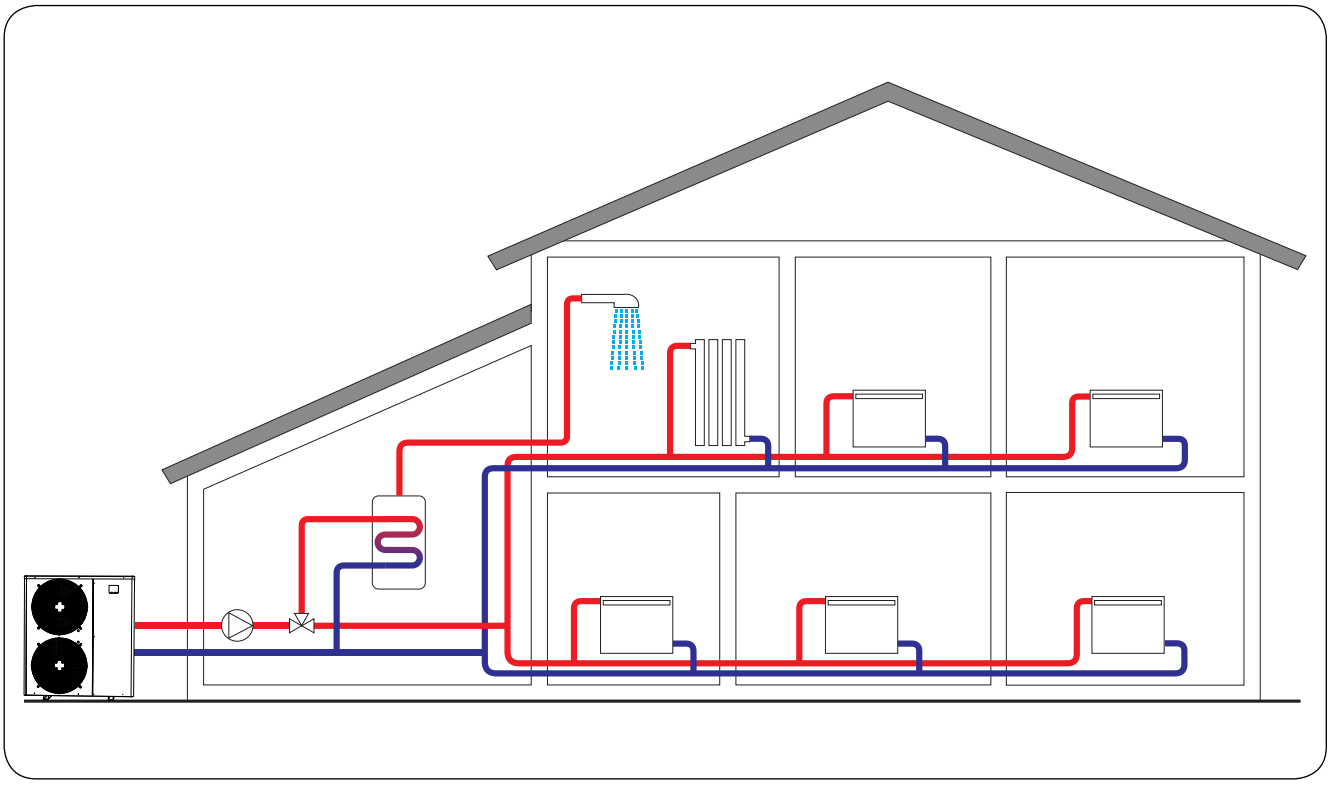
Field	Code	Description
1, 2 ,3	SRA	
4, 5	Sizes	10 - 14 - 19
6	Version	
	°	Standard
	P	Pump
	N	Larger pump
7	Soft-start kit (as per standard in single-phase versions)	
	°	Without soft-start
	S	With soft-start kit (factory assembled)
8	Integrative electric resistance	
	°	Standard (without integrative resistance)
	R	Integrative electric resistance
9	Power supply	
	M	1~230V 50Hz (for sizes 10 and 14 only)
	T	3N~400V 50Hz

configuration example: SRA10°°°M

4. DESCRIPTION AND CHOICE OF UNIT

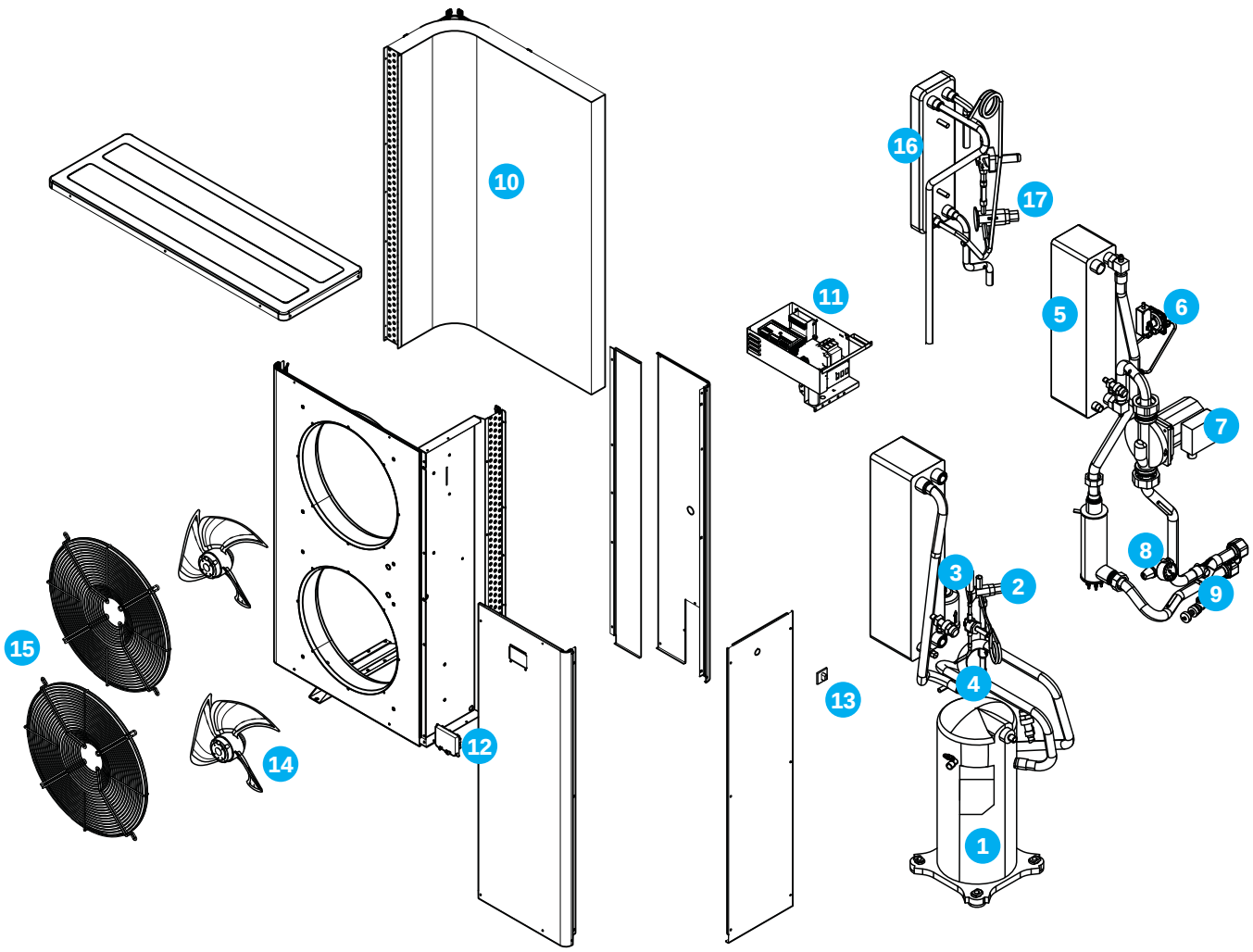
The SRA heat pump can obtain high efficiency when functioning in heat pump mode; with production of DHW up to 50°C. The AERMEC units are powered exclusively by electricity, there is no combustion, naked flame or gas in the air, where you live. Moreover, there is no requirement for chimneys for flue gas exhaust and maintenance is reduced with respect to traditional heating systems, due to the use of sealed refrigerant circuits and lower work temperatures.
Particular attention has been placed in the acoustic materials.
The Aermec heat pumps are immediately ready for installation. Just connect the machine to the water and electric system for it to work.

4.1. E.G. SYSTEM LAYOUT



WARNING:
Layout purely indicative.

5. DESCRIPTION OF COMPONENTS



REFRIGERANT CIRCUIT	
1	Scroll compressor
2	Thermostatic valve
3	Dehydrator filter
4	Cycle reversing valve
5	Plate exchanger

HYDRAULIC CIRCUIT	
6	Differential pressure switch
7	Circulation pump
8	Safety valve (calibrated at 6 bar)
9	Water filter
10	Exchanger coil

ELECTRIC COMPONENTS	
11	Electric box
12	MODU_CONTROL display
13	Door-lock isolating switch

FRAME AND FANS	
14	Fans
15	Fans protection grid

REFRIGERANT CIRCUIT - ECONOMIZER	
16	Economizer
17	Economizer thermostatic valve

5.1. COOLING CIRCUIT

Compressor
High efficient hermetic scroll on anti-vibration mounts, activated by a 2-pole electric motor with internal heat protection.
The compressor is also supplied, as per standard, with an electric resistance, powered automatically when the unit stops as long as the unit is live.

Water side exchanger + Anti-freeze resistance
Braze welded steel plate type (AISI 316) insulated externally with closed cell material to reduce heat dispersion, it is largely dimensioned to obtain high efficiency.

Air-side heat exchanger
Made with copper pipes and aluminium louvered fins blocked by mechanical expansion of the pipes.

Dehydrator filter
Mechanical dehydrator filter realised in ceramics and hygroscopic material, able to withhold impurities and any traces of humidity present in the cooling circuit.

Thermostatic valves
Mechanical valve, with external equaliser positioned at evaporator outlet, modulates the flow of gas to the evaporator, depending on the heat load, in order to ensure a correct heating level of the intake gas.

Economizer
Plate type (AISI 316). This allows to further undercool the refrigerant liquid exiting the condenser and makes a certain steam capacity available to be injected in an intermediate point of the compression process, thus reducing the flow temperature and electrical absorption.

Solenoid valves
One solenoid valve excludes the economizer, the second enables the injection of the liquid.

Cycle reversing valve
Inverts the refrigerant flow activating the defrosting cycle.

Non-return valves
Allows one-way flow of the refrigerant.

Liquid indicator
Used to check the refrigerant gas load and any presence of humidity in the cooling circuit.
Liquid storage
Used to contain the refrigerant gas in the liquid state, present in the refrigerant circuit.

5.2. HYDRAULIC CIRCUIT

Circulation pump (circulator)
Versions:
P - Standard pump
N - Increased pump

Differential pressure switch
It has the task of controlling that there is water circulation, if this is not the case it blocks the unit.

Water filter
This allows to block any impurities present in the hydraulic circuit. It contains a filtering mesh with holes that do not exceed one millimetre. It is useful to guarantee correct functioning.

Safety valve
Calibrated at 6 Bar and with piped discharger that discharges the overpressure in the event of anomalies.

Air vent valve
Manual type sees to discharge of eventual air pockets.

Drain cock
Allows to drain the water.

Integrative electric resistance (can be selected using configurator)
Can be configured depending on requirements, supplies additional energy in the case of heat pump performance, for unfavourable environmental conditions where the effective requirement requested cannot be satisfied.

5.3. FRAME AND FAN

Support frame
Made in hot galvanised sheet steel with suitable thickness and painted with polyester powders able to resist atmospheric agents through time.

Base resistance (as per standard for all models)
Situated in the base, it prevents the formation of ice caused by the fall of condensate. It is however recommended to envision a drain trap.

Ventilation Unit
Helical type, balanced statically and dynamically. Electric fans are electronically protected electrically by magnet-circuit breakers and mechanically by anti-intrusion metal grids, according to IEC EN 60335-2-40 Standard.

Fans resistance (accessory)
Positioned inside the flow nozzle of the fan, the resistance starts to function when the machine is in stand-by, thus preventing the activation of the fans with the risk of the presence of ice.

5.4. CONTROL AND SAFETY COMPONENTS

Low pressure transducers
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 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, positioned on the high pressure side of the refrigerant circuit.

5.5. MODU_CONTROL ELECTRONIC REGULATION

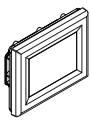
MODU_CONTROL
Temperature control of the output water with proportional-integral algorithm: maintains average output temperature at value set.

- Self-adapting differential switch: guarantees minimum functioning times of the compressor in systems with low water content;
- Intelligent defrosting due to pressure reduction: allows to determine when the coil is effectively defrosted, thus avoiding useless defrosting
- Hot gas injection defrosting: In this way the machine consumes less energy, increases heating capacity, keeps efficiency high and prevents temperature drops at the terminals (very important in plants with low water content);
- Emergency defrosting by cycle reversing: to overcome more serious conditions;
- Set-point compensation with external temperature (with external air probe accessory): reduces energy consumption;
- Condensation control based on the pressure instead of the temperature, for absolute stability);
- Reverse condensation control for functioning in heat pump mode also in the summer;
- Pre-alarms with automatic reset: in the case of alarm, a certain number of re-starts are allowed before the definitive block;
- Alarm on the ΔT: to identify wiring errors (reverse rotation) or blocked cycle reversing valve;
- Compressor functioning hours count;
- Compressor peak count;
- Historical alarms;

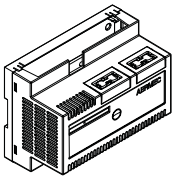
- Autostart after voltage drop;
- Local or remote control;

Display of the start of the unit:
a.voltage presence
b. compressor ON/OFF
c. functioning mode
d. alarm active
Probes, transducers and parameters display
a. water outlet
b. water inlet
c. coil temperature (heat pumps)
d. Pressing gas temperature
e. External air temperature
f. Pressure delivery (heat pumps)
g. Pressure absorption (heat pumps)
h. Temperature error (sum of the proportional and integral error)
i. Stand-by times for start-up/switch-off of the compressor
Alarms management:
a. Low pressure
b. High pressure (primary alarm: pressure switch directly blocks supply to compressor)
c. High discharge temperature
d. Anti-freeze
e. Water differential flow meter/pressure gauge
f. Alarm on the ΔT
- Alarms with automatic reset with limited number of re-starts before blocking
- ON/OFF external contact
- Change season from external contact

For further information please refer to user manual.



CONTROL PANEL



MODUCONTROL

6. ACCESSORIES		SRA 10M	SRA 10T	SRA 14M	SRA 14T	SRA 19T
ANTI-VIBRATION MOUNTS						
VT 15	Group of anti-vibration mounts, used to attenuate the vibrations produced by the unit during its functioning.	•	•	•	•	•
REMOTE PANEL						
PR3	Remote control panel	•	•	•	•	•
DOMESTIC HOT WATER STORAGE TSRA "DHW"						
S300S	300 litre domestic hot water storage tSRA (DHW) Coil exchange surfaces 3.8 (m^2)	•	•	•	•	
S400S	400 litre domestic hot water storage tSRA (DHW) Coil exchange surfaces 4.5 (m^2)	•	•	•	•	•
S500S	500 litre domestic hot water storage tSRA (DHW) Coil exchange surfaces 5.5 (m^2)	•	•	•	•	•
SYSTEM STORAGE TSRAS						
S200I	200 litre system storage tSRA	•	•	•	•	•
S300I	300 litre system storage tSRA	•	•	•	•	•
S400I	400 litre system storage tSRA	•	•	•	•	•
S500I	500 litre system storage tSRA	•	•	•	•	•
FANS RESISTANCE						
	Positioned inside the flow nozzle of the fan, the resistance starts to function when the machine is in stand-by, thus preventing the activation of the fans with the risk of the presence of ice.	•	•	•	•	•
DOMESTIC HOT WATER						
DHW	Accessory for the management of DHW, if management of the electric resistances is requested in order to periodically carry out the anti-legionella cycle. It is available in its different configurations on the basis of the resistance electric current.					
DHW3KM	To control 3kW single-phase electric resistances					
DHW3KTN	To control 3kW three-phase electric resistances					
DHW6KTN	To control 6kW three-phase electric resistances					
DHW8KTN	To control 8kW three-phase electric resistances					
DHW STORAGE TSRA ELECTRIC RESISTANCES (DHW)						
RXS3M	SINGLE PHASE resistance FOR domestic hot water storage tSRA (DHW) 3 kW					
RXS3T	THREE-PHASE resistance FOR domestic hot water storage tSRA (DHW) 3 kW					
RXS6T	THREE-PHASE resistance FOR domestic hot water storage tSRA (DHW) 6 kW					
RXS8T	THREE-PHASE resistance FOR domestic hot water storage tSRA (DHW) 8 kW					

6.1. ELECTRIC RESISTANCES COUPLING WITH DOMESTIC HOT WATER STORAGE TSRAS (DHW)					
Compatibility between domestic hot water tSRA (DHW) and domestic hot water storage tSRA electric resistances (RXS).		400V - 3 - 50Hz			230V - 50Hz
		RXS3T	RXS6T	RXS8T	RXS3M
S300S	300 litre domestic hot water storage tSRA (DHW)	•	•	-	•
S400S	400 litre domestic hot water storage tSRA (DHW)	-	•	•	•
S500S	500 litre domestic hot water storage tSRA (DHW)	-	•	•	•

NOTE:

For the accessories indicated, consult the relative documentation for the assembly instructions and technical data.

7. SRA TECHNICAL DATA	VERSION	POWER SUPPLY	U.M.	SRA10M	SRA10T	SRA14M	SRA14T	SRA19T
Heating capacity	°	230V-1	kW	10,03	-	14,00	-	-
		400V-3		-	10,10	-	14,10	17,40
	P	230V-1	kW	9,90	-	13,80	-	-
		400V-3		-	10,08	-	13,90	17,20
Total input power	°	230V-1	kW	2,52	-	3,69	-	-
		400V-3		-	2,29	-	3,57	4,50
	P	230V-1	kW	2,61	-	3,74	-	-
		400V-3		-	2,41	-	3,62	4,52
Water flow rate condenser	°	230V-1	l/h	1700	-	2390	-	-
		400V-3		-	1720	-	2410	2980
	P	230V-1	l/h	1700	-	2390	-	-
		400V-3		-	1720	-	2410	2980
Total pressure drop	°	-	kPa	18	19	36	36	39
System useful static pressure	P			62	61	52	51	43
System useful static pressure	N			91	90	82	81	75
ENERGETIC INDEX								
COP	°	230V-1	-	3,98	-	3,79	-	-
		400V-3	-	-	4,41	-	3,95	3,87
	P	230V-1	-	3,79	-	3,69	-	-
		400V-3	-	-	4,18	-	3,84	3,80
HEAT PUMP ELECTRIC DATA								
Total input current	°	230V-1	A	13.1	-	21.0	-	-
		400V-3		-	4.6	-	6.1	8.8
	P	230V-1	A	14.1	-	22.0	-	-
		400V-3		-	3.6	-	7.1	9.8
	N	230V-1	A	14.5	-	22.6	-	-
		400V-3		-	4.0	-	7.7	10.4
Maximum current "FLA"	°	230V-1	A	22.4	-	31.4	-	-
		400V-3		-	7.4	-	11.4	15.4
	P	230V-1	A	23.3	-	32.3	-	-
		400V-3		-	8.3	-	12.3	16.4
Peak current with soft start "LRA"	-	230V-1	A	45	-	45	-	-
		400V-3		-	30	-	46	73
Peak current without soft start "LRA"	-	230V-1	A	100	-	162	-	-
		400V-3		-	42	-	66	104
ELECTRIC RESISTANCES ELECTRIC DATA								
Max. input power	-	-	kW	8.2	8.2	11.5	11.5	15.5
Max. input current			A	13.0	13.0	18.3	18.3	24.3
"AXIAL" FANS								
Number	-	-	n°	2	2	2	2	2
Fan unit input current	-	-	A	1.43	1.43	1.43	1.43	1.43
Fan unit input power	-	-	kw	0.33	0.33	0.33	0.33	0.33
Air flow rate	-	-	m3/h	7.200	7.200	6.800	6.800	6.800
COMPRESSORS								
Type	-	-	-	SCROLL				
N° compressors/N° circuits			n°/n°	1/1	1/1	1/1	1/1	1/1
Part load			%	0 - 100	0 - 100	0 - 100	0 - 100	0 - 100
Oil charge			Kg	1.45	1.45	1.89	1.89	1.89

DATA DECLARED ACCORDING TO EN14511

- Inlet water temperature.....30 °C
- Outlet water temperature..... 35 °C
- Δt..... 5 °C
- External air temperature.....7 °C d.b. / 6° C w.b.

Sound pressure measured at 10 m.

Distance in free field with directionality factor Q=2, according to ISO 3744

Sound power

Aermec determines the sound power value on the basis of the measurements made in compliance with the ISO 9614-2 Standard

SRA TECHNICAL DATA	VERSION	POWER SUPPLY	U.M.	SRA 10M	SRA 10T	SRA 14M	SRA 14T	SRA 19T
COMPRESSORS RESISTANCE								
Electric heater compressor	-	-	n° / W	1x70	1x70	1x70	1x70	1x70
REFRIGERANT								
Type	-	-	-	R407C				
Gas charge	-	-	Kg	4.0	4.0	4.5	4.5	5.0
CONDENSER								
Type	-	-		PLATES				
Number	-	-	n°	1	1	1	1	1
Water content	-	-	dcm	1.805	1.805	1.805	1.805	2.470
Hydraulic connections	-	-	Ø	F / 1"¼	F / 1"¼	F / 1"¼	F / 1"¼	F / 1"¼
SOUND DATA								
Sound power	-	-	dB(A)	69	69	70	70	71
Sound Pressure	-	-	dB(A)	37	37	38	38	39
DIMENSIONS								
Height	-	-	mm	1.252				
Width	-	-	mm	1.124				
Depth without feet	-	-	mm	384				
Depth with feet	-	-	mm	428				
Empty weight	-	-	kg	153	153	172	172	182

DATA DECLARED ACCORDING TO EN14511

- Inlet water temperature.....30 °C
- Outlet water temperature.....35 °C
- Δt..... 5 °C
- External air temperature.....7 °C d.b. / 6° C w.b.

Sound pressure measured at 10 m.

Distance in free field with directionality factor Q=2, according to ISO 3744

Sound power

Aermec determines the sound power value on the basis of the measurements made in compliance with the ISO 9614-2 Standard

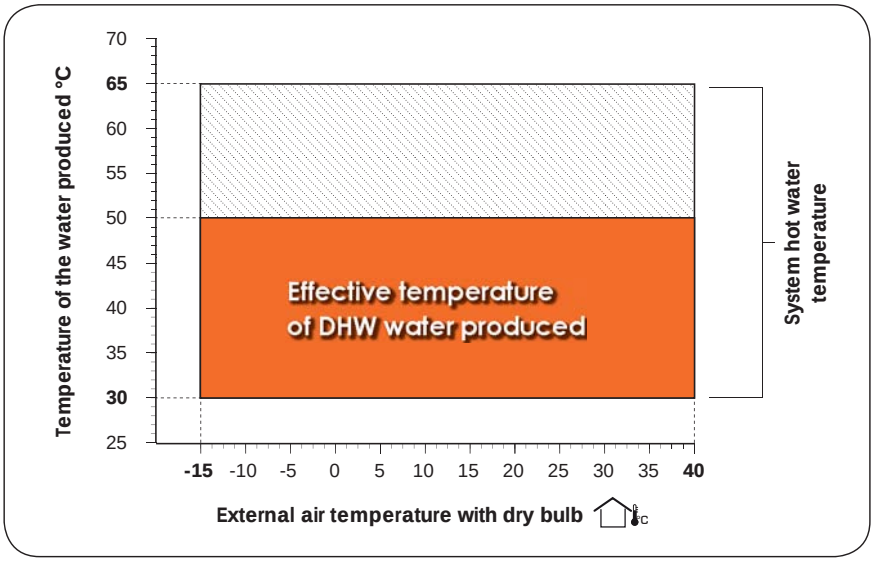
8. OPERATIONAL LIMITS

The units, in standard configuration, are not suitable for installation in salty environments . The maximum and minimum limits for water flow rate to the heat exchanger are indicated by the pressure drop diagram curves. For functioning limits, please refer to the below diagrams, valid for Δt = 5 °C.

If the machine is to be operated out the limits indicated in the diagram, please contact AERMEC technical-sales dept.

Priority production of domestic hot water;
The unit guarantees the production of DHW **to 50 °C**, as long as the correct coupling with **the DHW storage tSRA (ACCESSORY)**, and is guaranteed both in the summer and winter with the following limits:

- **WINTER -15 °C.**
- **SUMMER 40 °C.**



8.1. PROJECT DATA DIR 97/23/CE

PROJECT DATA DIR 97/23/CE	UNIT OF MEASUREMENT	HIGH PRESSURE SIDE	LOW PRESSURE SIDE
Acceptable maximum pressure	**bar**	30	22
Acceptable maximum temperature	**°C**	130	52

9. YIELDS AND ABSORPTION DIFFERENT TO NOMINAL WHEN HOT

9.1.1. SRA 10°M 230V ~ 50Hz

EXTERNAL AIR TEMPERATURE (°C) D.B.	TEMPERATURE OF THE WATER PRODUCED (°C)															
	30		35		40		45		50		55		60		65	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	5,45	2,13	5,49	2,28	5,51	2,48	5,53	2,73	5,54	3,01	5,55	3,31	5,57	3,61	5,58	3,90
-14	5,55	2,14	5,59	2,29	5,61	2,49	5,63	2,74	5,64	3,02	5,66	3,32	5,67	3,62	5,68	3,91
-13	5,67	2,16	5,70	2,30	5,73	2,51	5,75	2,76	5,76	3,04	5,77	3,33	5,78	3,64	5,80	3,93
-12	5,79	2,17	5,83	2,32	5,85	2,52	5,87	2,77	5,88	3,05	5,89	3,35	5,91	3,65	5,92	3,94
-11	5,93	2,19	5,96	2,33	5,99	2,54	6,01	2,78	6,02	3,06	6,03	3,36	6,04	3,66	6,06	3,95
-10	6,07	2,20	6,11	2,35	6,13	2,55	6,15	2,80	6,16	3,08	6,17	3,37	6,19	3,68	6,20	3,97
-9	6,22	2,22	6,26	2,36	6,29	2,56	6,30	2,81	6,32	3,09	6,33	3,39	6,34	3,69	6,35	3,98
-8	6,38	2,23	6,42	2,37	6,44	2,58	6,46	2,82	6,47	3,10	6,48	3,40	6,50	3,70	6,51	4,00
-7	6,54	2,24	6,58	2,38	6,61	2,59	6,62	2,83	6,64	3,11	6,65	3,41	6,66	3,71	6,68	4,01
-6	6,71	2,25	6,75	2,39	6,77	2,60	6,79	2,85	6,80	3,13	6,81	3,42	6,83	3,73	6,84	4,02
-5	6,88	2,26	6,92	2,40	6,94	2,61	6,96	2,85	6,97	3,13	6,98	3,43	7,00	3,74	7,01	4,03
-4	7,05	2,27	7,09	2,41	7,11	2,61	7,13	2,86	7,14	3,14	7,15	3,44	7,17	3,75	7,18	4,04
-3	7,22	2,28	7,26	2,42	7,28	2,62	7,30	2,87	7,31	3,15	7,33	3,45	7,34	3,76	7,35	4,05
-2	7,39	2,28	7,43	2,42	7,45	2,63	7,47	2,88	7,48	3,16	7,50	3,46	7,51	3,76	7,52	4,06
-1	7,55	2,28	7,59	2,43	7,62	2,63	7,64	2,88	7,65	3,16	7,66	3,46	7,68	3,77	7,69	4,07
0	7,72	2,28	7,76	2,43	7,78	2,63	7,80	2,88	7,82	3,16	7,83	3,46	7,84	3,77	7,86	4,07
1	7,88	2,28	7,91	2,43	7,94	2,63	7,96	2,88	7,98	3,16	7,99	3,47	8,00	3,77	8,02	4,08
2	8,03	2,28	8,06	2,44	8,09	2,63	8,12	2,87	8,13	3,15	8,15	3,46	8,16	3,77	8,19	4,09
3	8,17	2,27	8,35	2,44	8,40	2,64	8,43	2,89	8,45	3,18	8,46	3,49	8,48	3,81	8,50	4,12
4	8,31	2,26	8,80	2,46	8,85	2,67	8,88	2,93	8,90	3,22	8,91	3,53	8,93	3,85	8,95	4,16
5	8,43	2,25	9,29	2,48	9,34	2,70	9,38	2,96	9,40	3,26	9,41	3,57	9,42	3,89	9,43	4,20
6	8,55	2,24	9,74	2,50	9,79	2,73	9,83	3,00	9,84	3,30	9,85	3,61	9,85	3,93	9,86	4,23
7	8,65	2,22	**10,03**	**2,52**	10,10	2,76	10,13	3,03	10,14	3,33	10,14	3,64	10,13	3,96	10,13	4,25
8	8,74	2,20	10,21	2,58	10,52	2,80	10,62	3,06	10,71	3,35	10,80	3,66	10,90	3,98	11,01	4,28
9	8,81	2,17	10,37	2,62	10,68	2,83	10,77	3,09	10,86	3,38	10,96	3,69	11,05	4,00	11,16	4,30
10	8,87	2,14	10,52	2,66	10,83	2,87	10,92	3,12	11,02	3,41	11,11	3,71	11,21	4,02	11,32	4,31
11	8,91	2,11	10,66	2,69	10,97	2,90	11,07	3,15	11,16	3,43	11,26	3,73	11,36	4,03	11,47	4,33
12	8,93	2,07	10,81	2,73	11,12	2,93	11,21	3,17	11,30	3,45	11,40	3,75	11,50	4,05	11,61	4,34
13	8,94	2,03	10,95	2,76	11,26	2,95	11,35	3,20	11,44	3,47	11,54	3,77	11,64	4,06	11,75	4,35
14	8,92	1,99	11,08	2,79	11,39	2,98	11,49	3,22	11,58	3,49	11,68	3,78	11,78	4,08	11,89	4,36
15	8,88	1,94	11,22	2,81	11,53	3,00	11,62	3,24	11,71	3,51	11,81	3,80	11,91	4,09	12,03	4,38
16	8,81	1,88	11,35	2,84	11,66	3,02	11,75	3,26	11,85	3,52	11,94	3,81	12,04	4,10	12,16	4,39
17	8,72	1,82	11,48	2,86	11,79	3,04	11,88	3,27	11,98	3,54	12,07	3,82	12,18	4,11	12,29	4,40
18	8,61	1,76	11,61	2,88	11,92	3,06	12,01	3,29	12,10	3,55	12,20	3,83	12,30	4,12	12,42	4,40
19	8,46	1,69	11,74	2,90	12,05	3,08	12,14	3,30	12,23	3,56	12,33	3,85	12,43	4,13	12,55	4,41
20	8,29	1,61	11,87	2,92	12,17	3,10	12,27	3,32	12,36	3,58	12,46	3,86	12,56	4,14	12,68	4,42

DATA DECLARED ACCORDING TO UNI EN 14511

KEY:

	Nominal conditions
Ph	Heating capacity
Pe	Input power

- Temperature of produced water.....35° C
- Δt.....5° C
- External air temperature .....7 °C d.b. / 6° C w.b.

WARNING:
- Temperature of produced water 65°C
- Δt ..... 10°C

9.1.2. SRA 10PM 230V ~ 50Hz

EXTERNAL AIR TEMPERATURE (°C) D.B.	TEMPERATURE OF THE WATER PRODUCED (°C)															
	30		35		40		45		50		55		60		65	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	5,38	2,20	5,42	2,36	5,44	2,57	5,46	2,83	5,47	3,12	5,48	3,43	5,49	3,74	5,51	4,04
-14	5,48	2,22	5,52	2,37	5,54	2,58	5,56	2,84	5,57	3,13	5,58	3,44	5,59	3,75	5,61	4,05
-13	5,59	2,23	5,63	2,39	5,65	2,60	5,67	2,86	5,68	3,15	5,69	3,45	5,71	3,77	5,72	4,07
-12	5,72	2,25	5,75	2,40	5,78	2,61	5,80	2,87	5,81	3,16	5,82	3,47	5,83	3,78	5,85	4,08
-11	5,85	2,27	5,89	2,42	5,91	2,63	5,93	2,88	5,94	3,17	5,95	3,48	5,96	3,79	5,98	4,10
-10	5,99	2,28	6,03	2,43	6,05	2,64	6,07	2,90	6,08	3,19	6,09	3,50	6,11	3,81	6,12	4,11
-9	6,14	2,29	6,18	2,44	6,20	2,65	6,22	2,91	6,23	3,20	6,24	3,51	6,26	3,82	6,27	4,12
-8	6,30	2,31	6,33	2,46	6,36	2,67	6,38	2,92	6,39	3,21	6,40	3,52	6,41	3,83	6,43	4,14
-7	6,46	2,32	6,49	2,47	6,52	2,68	6,54	2,94	6,55	3,23	6,56	3,53	6,57	3,85	6,59	4,15
-6	6,62	2,33	6,66	2,48	6,69	2,69	6,70	2,95	6,72	3,24	6,73	3,55	6,74	3,86	6,75	4,17
-5	6,79	2,34	6,83	2,49	6,85	2,70	6,87	2,96	6,88	3,25	6,89	3,56	6,91	3,87	6,92	4,18
-4	6,96	2,35	6,99	2,50	7,02	2,71	7,04	2,97	7,05	3,26	7,06	3,57	7,07	3,88	7,09	4,19
-3	7,13	2,36	7,16	2,51	7,19	2,71	7,21	2,97	7,22	3,26	7,23	3,57	7,24	3,89	7,26	4,20
-2	7,29	2,36	7,33	2,51	7,36	2,72	7,37	2,98	7,39	3,27	7,40	3,58	7,41	3,90	7,43	4,21
-1	7,46	2,36	7,49	2,51	7,52	2,72	7,54	2,98	7,55	3,27	7,56	3,59	7,58	3,90	7,59	4,21
0	7,62	2,37	7,66	2,51	7,68	2,72	7,70	2,98	7,72	3,28	7,73	3,59	7,74	3,91	7,76	4,22
1	7,77	2,36	7,81	2,51	7,84	2,72	7,86	2,98	7,87	3,28	7,88	3,59	7,90	3,91	7,91	4,22
2	7,92	2,36	7,95	2,52	7,99	2,72	8,01	2,97	8,03	3,27	8,04	3,58	8,06	3,91	8,09	4,23
3	8,07	2,35	8,25	2,53	8,29	2,74	8,32	3,00	8,34	3,30	8,35	3,62	8,37	3,95	8,39	4,27
4	8,20	2,34	8,68	2,54	8,73	2,76	8,76	3,03	8,78	3,33	8,80	3,66	8,81	3,99	8,83	4,31
5	8,32	2,33	9,17	2,57	9,22	2,79	9,26	3,07	9,28	3,37	9,29	3,70	9,30	4,03	9,31	4,35
6	8,44	2,32	9,61	2,59	9,67	2,83	9,70	3,10	9,72	3,41	9,72	3,74	9,73	4,07	9,73	4,38
7	8,54	2,30	**9,90**	**2,61**	9,97	2,86	10,00	3,14	10,01	3,45	10,01	3,77	10,00	4,10	9,99	4,41
8	8,63	2,27	10,08	2,67	10,38	2,90	10,48	3,17	10,57	3,47	10,66	3,80	10,76	4,12	10,86	4,43
9	8,70	2,25	10,23	2,71	10,54	2,93	10,63	3,20	10,72	3,50	10,81	3,82	10,91	4,14	11,02	4,45
10	8,76	2,22	10,38	2,75	10,69	2,97	10,78	3,23	10,87	3,53	10,96	3,84	11,06	4,16	11,17	4,47
11	8,80	2,18	10,53	2,79	10,83	3,00	10,93	3,26	11,02	3,55	11,11	3,86	11,21	4,18	11,32	4,48
12	8,82	2,15	10,67	2,82	10,97	3,03	11,07	3,29	11,16	3,58	11,25	3,88	11,35	4,19	11,46	4,49
13	8,82	2,10	10,81	2,86	11,11	3,06	11,20	3,31	11,30	3,60	11,39	3,90	11,49	4,21	11,60	4,51
14	8,80	2,06	10,94	2,89	11,24	3,09	11,34	3,33	11,43	3,62	11,52	3,92	11,62	4,22	11,74	4,52
15	8,76	2,01	11,07	2,91	11,38	3,11	11,47	3,35	11,56	3,63	11,66	3,93	11,76	4,24	11,87	4,53
16	8,70	1,95	11,20	2,94	11,51	3,13	11,60	3,37	11,69	3,65	11,79	3,95	11,89	4,25	12,00	4,54
17	8,61	1,89	11,33	2,96	11,64	3,15	11,73	3,39	11,82	3,66	11,92	3,96	12,02	4,26	12,13	4,55
18	8,49	1,82	11,46	2,99	11,76	3,17	11,86	3,41	11,95	3,68	12,04	3,97	12,15	4,27	12,26	4,56
19	8,35	1,75	11,59	3,01	11,89	3,19	11,98	3,42	12,07	3,69	12,17	3,98	12,27	4,28	12,39	4,57
20	8,18	1,67	11,71	3,03	12,01	3,21	12,11	3,44	12,20	3,70	12,29	3,99	12,40	4,29	12,52	4,58

DATA DECLARED ACCORDING TO UNI EN 14511

KEY:

	Nominal conditions
Ph	Heating capacity
Pe	Input power

- Temperature of produced water.....35° C
- Δt.....5° C
- External air temperature .....7 °C d.b. / 6° C w.b.

WARNING:
- Temperature of produced water 65°C
- Δt ..... 10°C

9.1.3. SRA 14°M 230V ~ 50Hz

EXTERNAL AIR TEMPERATURE (°C) D.B.	TEMPERATURE OF THE WATER PRODUCED (°C)															
	30		35		40		45		50		55		60		65	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	7.61	3.12	7.66	3.33	7.70	3.63	7.72	4.00	7.74	4.41	7.75	4.84	7.77	5.28	7.79	5.71
-14	7.75	3.14	7.80	3.35	7.84	3.65	7.86	4.02	7.88	4.43	7.89	4.86	7.91	5.30	7.93	5.73
-13	7.91	3.16	7.96	3.37	8.00	3.67	8.02	4.04	8.04	4.45	8.05	4.88	8.07	5.32	8.09	5.75
-12	8.09	3.18	8.14	3.40	8.17	3.69	8.20	4.06	8.21	4.47	8.23	4.90	8.24	5.34	8.27	5.77
-11	8.27	3.20	8.32	3.42	8.36	3.71	8.38	4.08	8.40	4.49	8.42	4.92	8.43	5.36	8.46	5.79
-10	8.47	3.22	8.53	3.44	8.56	3.73	8.59	4.10	8.60	4.51	8.62	4.94	8.63	5.38	8.66	5.81
-9	8.69	3.24	8.74	3.46	8.77	3.75	8.80	4.12	8.82	4.52	8.83	4.96	8.85	5.40	8.87	5.83
-8	8.91	3.26	8.96	3.47	8.99	3.77	9.02	4.13	9.04	4.54	9.05	4.98	9.07	5.42	9.09	5.85
-7	9.13	3.28	9.18	3.49	9.22	3.79	9.25	4.15	9.26	4.56	9.28	5.00	9.29	5.44	9.32	5.87
-6	9.37	3.30	9.42	3.51	9.45	3.80	9.48	4.17	9.50	4.58	9.51	5.01	9.53	5.46	9.55	5.89
-5	9.60	3.31	9.65	3.52	9.69	3.82	9.72	4.18	9.73	4.59	9.75	5.03	9.76	5.47	9.79	5.91
-4	9.84	3.32	9.89	3.53	9.93	3.83	9.95	4.19	9.97	4.60	9.99	5.04	10.00	5.49	10.03	5.92
-3	10.08	3.33	10.13	3.54	10.17	3.84	10.19	4.20	10.21	4.61	10.23	5.05	10.24	5.50	10.27	5.93
-2	10.31	3.34	10.37	3.55	10.40	3.85	10.43	4.21	10.45	4.62	10.46	5.06	10.48	5.51	10.50	5.95
-1	10.54	3.34	10.60	3.55	10.64	3.85	10.66	4.22	10.68	4.63	10.70	5.07	10.71	5.52	10.74	5.96
0	10.77	3.34	10.83	3.55	10.86	3.85	10.89	4.22	10.91	4.63	10.93	5.07	10.94	5.52	10.97	5.96
1	10.99	3.34	11.05	3.55	11.09	3.85	11.11	4.22	11.13	4.63	11.15	5.08	11.17	5.53	11.19	5.97
2	11.17	3.39	11.25	3.57	11.30	3.85	11.33	4.20	11.35	4.62	11.37	5.06	11.39	5.53	11.43	5.98
3	11.57	3.37	11.66	3.57	11.72	3.87	11.76	4.24	11.79	4.66	11.81	5.11	11.83	5.58	11.87	6.03
4	12.18	3.38	12.28	3.60	12.35	3.90	12.39	4.28	12.42	4.71	12.44	5.17	12.46	5.64	12.49	6.09
5	12.86	3.40	12.97	3.63	13.04	3.95	13.09	4.34	13.12	4.77	13.13	5.23	13.15	5.70	13.17	6.15
6	13.48	3.42	13.60	3.67	13.67	4.00	13.72	4.39	13.74	4.83	13.75	5.29	13.75	5.75	13.76	6.20
7	13.91	3.45	**14.00**	**3.69**	14.10	4.04	14.14	4.44	14.15	4.87	14.15	5.33	14.14	5.79	14.13	6.23
8	14.16	3.54	14.25	3.78	14.31	4.10	14.35	4.48	14.37	4.91	14.37	5.37	14.38	5.82	14.39	6.26
9	14.37	3.61	14.47	3.84	14.53	4.15	14.57	4.53	14.59	4.95	14.59	5.40	14.60	5.85	14.61	6.29
10	14.59	3.67	14.68	3.89	14.74	4.20	14.78	4.57	14.80	4.99	14.80	5.43	14.81	5.88	14.82	6.31
11	14.79	3.73	14.89	3.94	14.95	4.24	14.98	4.61	15.00	5.02	15.01	5.46	15.02	5.91	15.03	6.33
12	14.99	3.79	15.09	3.99	15.15	4.29	15.18	4.65	15.20	5.06	15.21	5.49	15.22	5.93	15.23	6.35
13	15.19	3.84	15.28	4.04	15.34	4.33	15.38	4.68	15.40	5.08	15.41	5.51	15.41	5.95	15.43	6.37
14	15.38	3.89	15.47	4.08	15.53	4.36	15.57	4.71	15.59	5.11	15.60	5.54	15.61	5.97	15.62	6.39
15	15.57	3.94	15.66	4.12	15.72	4.40	15.75	4.74	15.77	5.14	15.78	5.56	15.79	5.99	15.81	6.41
16	15.76	3.98	15.84	4.16	15.90	4.43	15.94	4.77	15.96	5.16	15.97	5.58	15.98	6.01	16.00	6.42
17	15.94	4.02	16.03	4.19	16.08	4.46	16.12	4.79	16.14	5.18	16.15	5.60	16.16	6.02	16.18	6.44
18	16.12	4.06	16.21	4.22	16.26	4.48	16.30	4.82	16.32	5.20	16.33	5.61	16.34	6.04	16.36	6.45
19	16.30	4.09	16.39	4.25	16.44	4.51	16.48	4.84	16.50	5.22	16.51	5.63	16.52	6.05	16.54	6.46
20	16.48	4.12	16.57	4.28	16.62	4.53	16.65	4.86	16.67	5.24	16.69	5.65	16.70	6.07	16.72	6.48

DATA DECLARED ACCORDING TO UNI EN 14511

KEY:

	Nominal conditions
Ph	Heating capacity
Pe	Input power

- Temperature of produced water.....35° C
- Δt.....5° C
- External air temperature .....7 °C d.b. / 6° C w.b.

WARNING:
- Temperature of produced water 65°C
- Δt ..... 10°C

9.1.4. SRA 14PM 230V ~ 50Hz

EXTERNAL AIR TEMPERATURE (°C) D.B.	TEMPERATURE OF THE WATER PRODUCED (°C)															
	30		35		40		45		50		55		60		65	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	7.50	3.16	7.55	3.38	7.59	3.68	7.61	4.05	7.63	4.47	7.64	4.91	7.66	5.36	7.68	5.79
-14	7.64	3.18	7.69	3.40	7.73	3.70	7.75	4.07	7.77	4.49	7.78	4.93	7.80	5.38	7.82	5.81
-13	7.80	3.20	7.85	3.42	7.88	3.72	7.91	4.09	7.92	4.51	7.94	4.95	7.95	5.40	7.98	5.83
-12	7.97	3.22	8.02	3.44	8.05	3.74	8.08	4.11	8.10	4.53	8.11	4.97	8.13	5.42	8.15	5.85
-11	8.16	3.25	8.21	3.46	8.24	3.76	8.26	4.13	8.28	4.55	8.30	4.99	8.31	5.44	8.34	5.87
-10	8.35	3.27	8.40	3.48	8.44	3.78	8.46	4.15	8.48	4.57	8.49	5.01	8.51	5.46	8.53	5.89
-9	8.56	3.29	8.61	3.50	8.65	3.80	8.67	4.17	8.69	4.59	8.70	5.03	8.72	5.48	8.74	5.91
-8	8.78	3.31	8.83	3.52	8.86	3.82	8.89	4.19	8.91	4.60	8.92	5.05	8.94	5.50	8.96	5.93
-7	9.00	3.32	9.05	3.54	9.09	3.84	9.11	4.21	9.13	4.62	9.15	5.06	9.16	5.51	9.18	5.95
-6	9.23	3.34	9.28	3.55	9.32	3.85	9.34	4.22	9.36	4.64	9.38	5.08	9.39	5.53	9.41	5.97
-5	9.46	3.36	9.52	3.57	9.55	3.87	9.58	4.24	9.59	4.65	9.61	5.10	9.63	5.55	9.65	5.99
-4	9.70	3.37	9.75	3.58	9.79	3.88	9.81	4.25	9.83	4.67	9.84	5.11	9.86	5.56	9.88	6.00
-3	9.93	3.38	9.98	3.59	10.02	3.89	10.05	4.26	10.06	4.68	10.08	5.12	10.10	5.57	10.12	6.02
-2	10.16	3.38	10.22	3.60	10.25	3.90	10.28	4.27	10.30	4.68	10.31	5.13	10.33	5.58	10.35	6.03
-1	10.39	3.39	10.45	3.60	10.48	3.90	10.51	4.27	10.53	4.69	10.54	5.14	10.56	5.59	10.58	6.04
0	10.62	3.39	10.67	3.60	10.71	3.90	10.74	4.28	10.75	4.69	10.77	5.14	10.79	5.60	10.81	6.04
1	10.84	3.39	10.89	3.60	10.93	3.90	10.95	4.27	10.97	4.69	10.99	5.14	11.01	5.60	11.03	6.05
2	11.01	3.43	11.09	3.62	11.14	3.90	11.17	4.26	11.19	4.68	11.21	5.13	11.23	5.60	11.27	6.06
3	11.40	3.42	11.49	3.62	11.55	3.92	11.59	4.29	11.62	4.72	11.64	5.18	11.67	5.65	11.70	6.12
4	12.00	3.42	12.10	3.64	12.17	3.96	12.22	4.34	12.25	4.78	12.27	5.24	12.29	5.71	12.31	6.17
5	12.68	3.44	12.78	3.68	12.86	4.00	12.90	4.40	12.93	4.84	12.95	5.30	12.96	5.78	12.98	6.23
6	13.29	3.47	13.40	3.72	13.48	4.05	13.52	4.45	13.54	4.89	13.55	5.36	13.56	5.83	13.56	6.28
7	13.71	3.49	**13.80**	**3.74**	13.89	4.09	13.94	4.50	13.95	4.94	13.95	5.41	13.94	5.87	13.93	6.31
8	13.95	3.59	14.05	3.83	14.11	4.15	14.14	4.54	14.16	4.98	14.17	5.44	14.17	5.90	14.18	6.35
9	14.17	3.66	14.26	3.89	14.32	4.20	14.36	4.59	14.38	5.02	14.38	5.47	14.39	5.93	14.40	6.37
10	14.38	3.72	14.47	3.94	14.53	4.25	14.57	4.63	14.59	5.06	14.59	5.51	14.60	5.96	14.61	6.40
11	14.58	3.78	14.67	4.00	14.73	4.30	14.77	4.67	14.79	5.09	14.80	5.54	14.80	5.99	14.81	6.42
12	14.78	3.84	14.87	4.05	14.93	4.34	14.97	4.71	14.98	5.12	14.99	5.56	15.00	6.01	15.01	6.44
13	14.97	3.89	15.06	4.09	15.12	4.38	15.16	4.74	15.18	5.15	15.19	5.59	15.19	6.03	15.21	6.46
14	15.16	3.94	15.25	4.14	15.31	4.42	15.34	4.78	15.36	5.18	15.37	5.61	15.38	6.05	15.40	6.48
15	15.35	3.99	15.44	4.18	15.49	4.46	15.53	4.81	15.55	5.21	15.56	5.63	15.57	6.07	15.58	6.49
16	15.53	4.03	15.62	4.21	15.68	4.49	15.71	4.83	15.73	5.23	15.74	5.65	15.75	6.09	15.77	6.51
17	15.71	4.07	15.80	4.25	15.85	4.52	15.89	4.86	15.91	5.25	15.92	5.67	15.93	6.10	15.95	6.52
18	15.89	4.11	15.98	4.28	16.03	4.54	16.07	4.88	16.08	5.27	16.10	5.69	16.11	6.12	16.13	6.54
19	16.07	4.14	16.15	4.31	16.21	4.57	16.24	4.90	16.26	5.29	16.27	5.71	16.29	6.14	16.31	6.55
20	16.25	4.18	16.33	4.34	16.38	4.59	16.42	4.92	16.44	5.31	16.45	5.72	16.46	6.15	16.48	6.57

DATA DECLARED ACCORDING TO UNI EN 14511

KEY:

	Nominal conditions
Ph	Heating capacity
Pe	Input power

- Temperature of produced water.....35° C
- Δt.....5V
- External air temperature .....7 °C d.b. / 6° C w.b.

WARNING:
- Temperature of produced water 65°C
- Δt ..... 10°C

9.1.5. SRA 10°T 3N~400V 50Hz

EXTERNAL AIR TEMPERATURE (°C) D.B.	TEMPERATURE OF THE WATER PRODUCED (°C)															
	30		35		40		45		50		55		60		65	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	5,49	1,93	5,53	2,07	5,55	2,25	5,57	2,48	5,58	2,74	5,59	3,01	5,61	3,28	5,62	3,54
-14	5,59	1,95	5,63	2,08	5,65	2,27	5,67	2,49	5,68	2,75	5,70	3,02	5,71	3,29	5,72	3,56
-13	5,71	1,96	5,74	2,09	5,77	2,28	5,79	2,51	5,80	2,76	5,81	3,03	5,82	3,30	5,84	3,57
-12	5,83	1,97	5,87	2,11	5,90	2,29	5,91	2,52	5,93	2,77	5,94	3,04	5,95	3,32	5,96	3,58
-11	5,97	1,99	6,01	2,12	6,03	2,30	6,05	2,53	6,06	2,78	6,07	3,05	6,08	3,33	6,10	3,59
-10	6,11	2,00	6,15	2,13	6,18	2,32	6,19	2,54	6,21	2,80	6,22	3,07	6,23	3,34	6,25	3,61
-9	6,27	2,01	6,30	2,14	6,33	2,33	6,35	2,55	6,36	2,81	6,37	3,08	6,38	3,35	6,40	3,62
-8	6,42	2,02	6,46	2,16	6,49	2,34	6,51	2,57	6,52	2,82	6,53	3,09	6,54	3,36	6,56	3,63
-7	6,59	2,04	6,63	2,17	6,65	2,35	6,67	2,58	6,68	2,83	6,69	3,10	6,71	3,38	6,72	3,64
-6	6,76	2,05	6,79	2,18	6,82	2,36	6,84	2,59	6,85	2,84	6,86	3,11	6,87	3,39	6,89	3,65
-5	6,93	2,05	6,96	2,18	6,99	2,37	7,01	2,59	7,02	2,85	7,03	3,12	7,04	3,40	7,06	3,66
-4	7,10	2,06	7,14	2,19	7,16	2,38	7,18	2,60	7,19	2,86	7,20	3,13	7,22	3,41	7,23	3,67
-3	7,27	2,07	7,31	2,20	7,33	2,38	7,35	2,61	7,37	2,86	7,38	3,14	7,39	3,41	7,41	3,68
-2	7,44	2,07	7,48	2,20	7,51	2,39	7,52	2,61	7,54	2,87	7,55	3,14	7,56	3,42	7,58	3,69
-1	7,61	2,07	7,65	2,21	7,67	2,39	7,69	2,62	7,71	2,87	7,72	3,15	7,73	3,42	7,75	3,70
0	7,77	2,08	7,81	2,21	7,84	2,39	7,86	2,62	7,87	2,87	7,88	3,15	7,90	3,43	7,91	3,70
1	7,93	2,07	7,97	2,20	8,00	2,39	8,02	2,62	8,03	2,87	8,04	3,15	8,06	3,43	8,07	3,70
2	8,08	2,07	8,11	2,21	8,15	2,39	8,17	2,61	8,19	2,87	8,20	3,14	8,22	3,43	8,25	3,71
3	8,23	2,06	8,41	2,22	8,46	2,40	8,49	2,63	8,50	2,89	8,52	3,17	8,54	3,46	8,56	3,74
4	8,37	2,06	8,86	2,23	8,91	2,42	8,94	2,66	8,96	2,92	8,98	3,21	8,99	3,50	9,01	3,78
5	8,49	2,05	9,36	2,25	9,41	2,45	9,44	2,69	9,46	2,96	9,48	3,25	9,49	3,54	9,50	3,82
6	8,61	2,03	9,81	2,28	9,86	2,48	9,90	2,72	9,91	3,00	9,92	3,28	9,92	3,57	9,93	3,85
7	8,71	2,02	**10,10**	**2,29**	10,17	2,51	10,20	2,75	10,21	3,03	10,21	3,31	10,20	3,60	10,20	3,87
8	8,80	2,00	10,28	2,34	10,59	2,54	10,69	2,78	10,78	3,05	10,88	3,33	10,97	3,61	11,08	3,89
9	8,88	1,97	10,44	2,38	10,75	2,57	10,85	2,81	10,94	3,07	11,03	3,35	11,13	3,63	11,24	3,90
10	8,93	1,95	10,59	2,42	10,90	2,61	11,00	2,84	11,09	3,10	11,19	3,37	11,29	3,65	11,40	3,92
11	8,97	1,92	10,74	2,45	11,05	2,63	11,15	2,86	11,24	3,12	11,33	3,39	11,43	3,67	11,55	3,93
12	9,00	1,88	10,88	2,48	11,19	2,66	11,29	2,88	11,38	3,14	11,48	3,41	11,58	3,68	11,69	3,94
13	9,00	1,85	11,02	2,51	11,33	2,68	11,43	2,91	11,52	3,16	11,62	3,42	11,72	3,69	11,84	3,96
14	8,98	1,80	11,16	2,53	11,47	2,71	11,57	2,92	11,66	3,17	11,76	3,44	11,86	3,71	11,97	3,97
15	8,94	1,76	11,30	2,56	11,61	2,73	11,70	2,94	11,80	3,19	11,89	3,45	12,00	3,72	12,11	3,98
16	8,87	1,71	11,43	2,58	11,74	2,75	11,84	2,96	11,93	3,20	12,02	3,46	12,13	3,73	12,25	3,99
17	8,78	1,66	11,56	2,60	11,87	2,77	11,97	2,97	12,06	3,22	12,16	3,47	12,26	3,74	12,38	3,99
18	8,67	1,60	11,69	2,62	12,00	2,78	12,10	2,99	12,19	3,23	12,29	3,48	12,39	3,75	12,51	4,00
19	8,52	1,53	11,82	2,64	12,13	2,80	12,22	3,00	12,32	3,24	12,41	3,49	12,52	3,76	12,64	4,01
20	8,35	1,47	11,95	2,66	12,26	2,81	12,35	3,02	12,45	3,25	12,54	3,50	12,65	3,77	12,77	4,02

DATA DECLARED ACCORDING TO UNI EN 14511

KEY:

Nominal conditions
Ph Heating capacity
Pe Input power

- Temperature of produced water.....35V
- Δt.....5V
- External air temperature .....7 °C d.b. / 6° C w.b.

WARNING:
- Temperature of produced water 65°C
- Δt ..... 10°C

9.1.6. SRA 10PT 3N~400V 50Hz

EXTERNAL AIR TEMPERATURE (°C) D.B.	TEMPERATURE OF THE WATER PRODUCED (°C)															
	30		35		40		45		50		55		60		65	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	5,48	2,03	5,52	2,18	5,54	2,37	5,56	2,61	5,57	2,88	5,58	3,16	5,59	3,45	5,61	3,73
-14	5,58	2,05	5,62	2,19	5,64	2,39	5,66	2,62	5,67	2,89	5,68	3,18	5,70	3,46	5,71	3,74
-13	5,70	2,06	5,73	2,20	5,76	2,40	5,78	2,64	5,79	2,90	5,80	3,19	5,81	3,48	5,83	3,76
-12	5,82	2,08	5,86	2,22	5,88	2,41	5,90	2,65	5,91	2,92	5,92	3,20	5,94	3,49	5,95	3,77
-11	5,96	2,09	5,99	2,23	6,02	2,43	6,04	2,66	6,05	2,93	6,06	3,21	6,07	3,50	6,09	3,78
-10	6,10	2,11	6,14	2,24	6,16	2,44	6,18	2,68	6,19	2,94	6,21	3,23	6,22	3,52	6,23	3,80
-9	6,25	2,12	6,29	2,26	6,32	2,45	6,33	2,69	6,35	2,96	6,36	3,24	6,37	3,53	6,39	3,81
-8	6,41	2,13	6,45	2,27	6,48	2,46	6,49	2,70	6,51	2,97	6,52	3,25	6,53	3,54	6,54	3,82
-7	6,58	2,14	6,61	2,28	6,64	2,47	6,66	2,71	6,67	2,98	6,68	3,26	6,69	3,55	6,71	3,83
-6	6,74	2,15	6,78	2,29	6,81	2,48	6,82	2,72	6,84	2,99	6,85	3,27	6,86	3,56	6,88	3,85
-5	6,91	2,16	6,95	2,30	6,98	2,49	6,99	2,73	7,01	3,00	7,02	3,28	7,03	3,57	7,05	3,86
-4	7,08	2,17	7,12	2,31	7,15	2,50	7,17	2,74	7,18	3,01	7,19	3,29	7,20	3,58	7,22	3,87
-3	7,25	2,18	7,29	2,31	7,32	2,51	7,34	2,74	7,35	3,01	7,36	3,30	7,37	3,59	7,39	3,88
-2	7,42	2,18	7,46	2,32	7,49	2,51	7,51	2,75	7,52	3,02	7,53	3,31	7,55	3,60	7,56	3,88
-1	7,59	2,18	7,63	2,32	7,66	2,51	7,68	2,75	7,69	3,02	7,70	3,31	7,71	3,60	7,73	3,89
0	7,76	2,18	7,79	2,32	7,82	2,52	7,84	2,75	7,86	3,02	7,87	3,31	7,88	3,61	7,90	3,89
1	7,91	2,18	7,95	2,32	7,98	2,52	8,00	2,75	8,02	3,03	8,03	3,31	8,04	3,61	8,06	3,90
2	8,07	2,18	8,10	2,33	8,13	2,51	8,16	2,75	8,17	3,02	8,19	3,31	8,20	3,61	8,23	3,91
3	8,21	2,17	8,40	2,33	8,44	2,53	8,47	2,77	8,49	3,04	8,50	3,34	8,52	3,64	8,55	3,94
4	8,35	2,16	8,84	2,35	8,89	2,55	8,92	2,80	8,94	3,08	8,96	3,38	8,97	3,68	8,99	3,98
5	8,48	2,15	9,34	2,37	9,39	2,58	9,43	2,83	9,45	3,12	9,46	3,42	9,47	3,72	9,48	4,02
6	8,59	2,14	9,79	2,39	9,84	2,61	9,88	2,87	9,89	3,15	9,90	3,45	9,90	3,76	9,91	4,05
7	8,69	2,12	**10,08**	**2,41**	10,15	2,64	10,18	2,90	10,19	3,18	10,19	3,48	10,18	3,78	10,18	4,07
8	8,78	2,10	10,26	2,47	10,57	2,67	10,67	2,93	10,76	3,21	10,85	3,50	10,95	3,80	11,06	4,09
9	8,86	2,08	10,42	2,51	10,73	2,71	10,83	2,96	10,92	3,23	11,01	3,53	11,11	3,82	11,22	4,11
10	8,92	2,05	10,57	2,54	10,88	2,74	10,98	2,98	11,07	3,26	11,16	3,55	11,26	3,84	11,37	4,12
11	8,96	2,02	10,72	2,58	11,03	2,77	11,13	3,01	11,22	3,28	11,31	3,57	11,41	3,86	11,52	4,14
12	8,98	1,98	10,86	2,61	11,17	2,80	11,27	3,03	11,36	3,30	11,46	3,59	11,56	3,87	11,67	4,15
13	8,98	1,94	11,00	2,64	11,31	2,83	11,41	3,06	11,50	3,32	11,60	3,60	11,70	3,89	11,81	4,16
14	8,96	1,90	11,14	2,67	11,45	2,85	11,55	3,08	11,64	3,34	11,73	3,62	11,84	3,90	11,95	4,17
15	8,92	1,85	11,27	2,69	11,58	2,87	11,68	3,10	11,77	3,35	11,87	3,63	11,97	3,91	12,09	4,18
16	8,86	1,80	11,41	2,72	11,72	2,89	11,81	3,11	11,91	3,37	12,00	3,64	12,10	3,92	12,22	4,19
17	8,77	1,74	11,54	2,74	11,85	2,91	11,94	3,13	12,04	3,38	12,13	3,66	12,24	3,93	12,35	4,20
18	8,65	1,68	11,67	2,76	11,98	2,93	12,07	3,15	12,17	3,40	12,26	3,67	12,37	3,94	12,48	4,21
19	8,51	1,61	11,80	2,78	12,11	2,95	12,20	3,16	12,29	3,41	12,39	3,68	12,50	3,95	12,61	4,22
20	8,33	1,54	11,93	2,80	12,23	2,96	12,33	3,17	12,42	3,42	12,52	3,69	12,62	3,96	12,74	4,23

DATA DECLARED ACCORDING TO UNI EN 14511

KEY:

	Nominal conditions
Ph	Heating capacity
Pe	Input power

- Temperature of produced water.....35°C
- Δt.....5°C
- External air temperature .....7 °C d.b. / 6° C w.b.

WARNING:
- Temperature of produced water 65°C
- Δt ..... 10°C

9.1.7. SRA 14°T 3N~400V 50Hz

EXTERNAL AIR TEMPERATURE (°C) D.B.	TEMPERATURE OF THE WATER PRODUCED (°C)															
	30		35		40		45		50		55		60		65	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	7.66	3.01	7.72	3.22	7.75	3.51	7.78	3.87	7.79	4.27	7.81	4.69	7.83	5.11	7.85	5.52
-14	7.81	3.04	7.86	3.24	7.89	3.53	7.92	3.89	7.94	4.28	7.95	4.70	7.97	5.13	7.99	5.54
-13	7.97	3.06	8.02	3.26	8.05	3.55	8.08	3.91	8.10	4.30	8.11	4.72	8.13	5.15	8.15	5.56
-12	8.14	3.08	8.19	3.28	8.23	3.57	8.25	3.93	8.27	4.32	8.29	4.74	8.30	5.17	8.33	5.58
-11	8.33	3.10	8.38	3.30	8.42	3.59	8.44	3.94	8.46	4.34	8.48	4.76	8.49	5.19	8.52	5.60
-10	8.54	3.12	8.59	3.32	8.62	3.61	8.65	3.96	8.66	4.36	8.68	4.78	8.70	5.21	8.72	5.62
-9	8.75	3.14	8.80	3.34	8.84	3.63	8.86	3.98	8.88	4.38	8.89	4.80	8.91	5.23	8.93	5.64
-8	8.97	3.16	9.02	3.36	9.06	3.65	9.08	4.00	9.10	4.40	9.12	4.82	9.13	5.25	9.15	5.66
-7	9.20	3.17	9.25	3.38	9.29	3.66	9.31	4.02	9.33	4.41	9.34	4.83	9.36	5.26	9.38	5.68
-6	9.43	3.19	9.48	3.39	9.52	3.68	9.55	4.03	9.56	4.43	9.58	4.85	9.60	5.28	9.62	5.70
-5	9.67	3.20	9.72	3.41	9.76	3.69	9.78	4.04	9.80	4.44	9.82	4.86	9.83	5.29	9.86	5.71
-4	9.91	3.21	9.96	3.42	10.00	3.70	10.02	4.06	10.04	4.45	10.06	4.88	10.08	5.31	10.10	5.73
-3	10.15	3.22	10.20	3.43	10.24	3.71	10.26	4.07	10.28	4.46	10.30	4.89	10.32	5.32	10.34	5.74
-2	10.39	3.23	10.44	3.43	10.48	3.72	10.50	4.07	10.52	4.47	10.54	4.90	10.56	5.33	10.58	5.75
-1	10.62	3.23	10.67	3.44	10.71	3.73	10.74	4.08	10.76	4.48	10.77	4.90	10.79	5.34	10.81	5.76
0	10.85	3.24	10.90	3.44	10.94	3.73	10.97	4.08	10.99	4.48	11.00	4.91	11.02	5.34	11.05	5.77
1	11.07	3.23	11.13	3.44	11.17	3.73	11.19	4.08	11.21	4.48	11.23	4.91	11.25	5.35	11.27	5.77
2	11.25	3.28	11.33	3.45	11.38	3.72	11.41	4.07	11.43	4.47	11.45	4.90	11.48	5.35	11.52	5.79
3	11.65	3.26	11.74	3.46	11.81	3.74	11.85	4.10	11.87	4.51	11.89	4.95	11.92	5.40	11.95	5.84
4	12.26	3.27	12.37	3.48	12.44	3.78	12.48	4.14	12.51	4.56	12.53	5.00	12.55	5.45	12.58	5.89
5	12.95	3.29	13.06	3.51	13.14	3.82	13.18	4.20	13.21	4.62	13.23	5.06	13.24	5.51	13.26	5.95
6	13.58	3.31	13.69	3.55	13.77	3.87	13.81	4.25	13.84	4.67	13.85	5.12	13.85	5.57	13.86	6.00
7	14.00	3.33	**14.10**	**3.57**	14.20	3.91	14.24	4.29	14.25	4.72	14.25	5.16	14.24	5.60	14.24	6.03
8	14.26	3.43	14.35	3.65	14.42	3.96	14.45	4.34	14.47	4.75	14.48	5.19	14.48	5.63	14.49	6.06
9	14.48	3.49	14.57	3.71	14.64	4.01	14.67	4.38	14.69	4.79	14.70	5.23	14.70	5.66	14.71	6.08
10	14.69	3.55	14.79	3.77	14.85	4.06	14.88	4.42	14.90	4.83	14.91	5.26	14.92	5.69	14.93	6.11
11	14.90	3.61	14.99	3.82	15.05	4.11	15.09	4.46	15.11	4.86	15.12	5.28	15.12	5.71	15.14	6.13
12	15.10	3.67	15.19	3.86	15.25	4.15	15.29	4.50	15.31	4.89	15.32	5.31	15.33	5.74	15.34	6.15
13	15.30	3.72	15.39	3.91	15.45	4.19	15.49	4.53	15.51	4.92	15.52	5.34	15.52	5.76	15.54	6.17
14	15.49	3.76	15.58	3.95	15.64	4.22	15.68	4.56	15.70	4.95	15.71	5.36	15.72	5.78	15.73	6.18
15	15.68	3.81	15.77	3.99	15.83	4.25	15.87	4.59	15.89	4.97	15.90	5.38	15.91	5.79	15.92	6.20
16	15.87	3.85	15.96	4.02	16.02	4.28	16.05	4.61	16.07	4.99	16.08	5.40	16.09	5.81	16.11	6.21
17	16.05	3.89	16.14	4.06	16.20	4.31	16.23	4.64	16.25	5.01	16.26	5.42	16.28	5.83	16.30	6.23
18	16.24	3.92	16.32	4.09	16.38	4.34	16.41	4.66	16.43	5.03	16.45	5.43	16.46	5.84	16.48	6.24
19	16.42	3.96	16.50	4.11	16.56	4.36	16.59	4.68	16.61	5.05	16.63	5.45	16.64	5.86	16.66	6.25
20	16.60	3.99	16.68	4.14	16.74	4.39	16.77	4.70	16.79	5.07	16.81	5.46	16.82	5.87	16.84	6.27

DATA DECLARED ACCORDING TO UNI EN 14511

KEY:

Nominal conditions
Ph Heating capacity
Pe Input power

- Temperature of produced water.....35°C
- Δt.....5°C
- External air temperature .....7 °C d.b. / 6° C w.b.

WARNING:
- Temperature of produced water 65°C
- Δt ..... 10°C

9.1.8. SRA 14PT 3N~400V 50Hz

EXTERNAL AIR TEMPERATURE (°C) D.B.	TEMPERATURE OF THE WATER PRODUCED (°C)															
	30		35		40		45		50		55		60		65	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	7.56	3.06	7.61	3.27	7.64	3.56	7.66	3.92	7.68	4.32	7.70	4.75	7.71	5.18	7.74	5.60
-14	7.70	3.08	7.75	3.29	7.78	3.58	7.81	3.94	7.82	4.34	7.84	4.77	7.85	5.20	7.88	5.62
-13	7.85	3.10	7.90	3.31	7.94	3.60	7.96	3.96	7.98	4.36	8.00	4.79	8.01	5.22	8.04	5.64
-12	8.03	3.12	8.08	3.33	8.11	3.62	8.14	3.98	8.15	4.38	8.17	4.81	8.19	5.24	8.21	5.66
-11	8.21	3.14	8.27	3.35	8.30	3.64	8.32	4.00	8.34	4.40	8.36	4.83	8.37	5.26	8.40	5.68
-10	8.41	3.16	8.46	3.37	8.50	3.66	8.52	4.02	8.54	4.42	8.56	4.85	8.57	5.28	8.60	5.70
-9	8.62	3.18	8.67	3.39	8.71	3.68	8.73	4.04	8.75	4.44	8.77	4.87	8.78	5.30	8.81	5.72
-8	8.84	3.20	8.89	3.41	8.93	3.70	8.95	4.06	8.97	4.46	8.99	4.88	9.00	5.32	9.02	5.74
-7	9.07	3.22	9.12	3.42	9.15	3.72	9.18	4.07	9.20	4.47	9.21	4.90	9.23	5.34	9.25	5.76
-6	9.30	3.23	9.35	3.44	9.39	3.73	9.41	4.09	9.43	4.49	9.44	4.92	9.46	5.35	9.48	5.78
-5	9.53	3.25	9.58	3.45	9.62	3.74	9.65	4.10	9.66	4.50	9.68	4.93	9.70	5.37	9.72	5.79
-4	9.77	3.26	9.82	3.47	9.86	3.76	9.88	4.11	9.90	4.52	9.92	4.95	9.93	5.38	9.95	5.81
-3	10.00	3.27	10.06	3.47	10.09	3.77	10.12	4.12	10.14	4.53	10.15	4.96	10.17	5.40	10.19	5.82
-2	10.24	3.28	10.29	3.48	10.33	3.77	10.35	4.13	10.37	4.53	10.39	4.97	10.41	5.41	10.43	5.83
-1	10.47	3.28	10.52	3.49	10.56	3.78	10.59	4.14	10.61	4.54	10.62	4.97	10.64	5.41	10.66	5.84
0	10.70	3.28	10.75	3.49	10.79	3.78	10.81	4.14	10.83	4.54	10.85	4.98	10.87	5.42	10.89	5.85
1	10.91	3.28	10.97	3.49	11.01	3.78	11.03	4.14	11.05	4.54	11.07	4.98	11.09	5.42	11.11	5.86
2	11.09	3.32	11.17	3.50	11.22	3.78	11.25	4.12	11.27	4.53	11.29	4.97	11.31	5.42	11.35	5.87
3	11.49	3.31	11.58	3.51	11.64	3.79	11.68	4.16	11.70	4.57	11.73	5.02	11.75	5.47	11.78	5.92
4	12.09	3.31	12.19	3.53	12.26	3.83	12.31	4.20	12.33	4.62	12.35	5.07	12.37	5.53	12.40	5.98
5	12.77	3.33	12.88	3.56	12.95	3.87	13.00	4.25	13.02	4.68	13.04	5.13	13.05	5.59	13.07	6.03
6	13.38	3.36	13.50	3.60	13.57	3.92	13.62	4.31	13.64	4.74	13.65	5.19	13.66	5.64	13.66	6.08
7	13.81	3.38	**13.9**	**3.62**	14.00	3.96	14.04	4.35	14.05	4.78	14.05	5.23	14.04	5.68	14.03	6.11
8	14.05	3.47	14.15	3.70	14.21	4.02	14.25	4.40	14.26	4.82	14.27	5.26	14.27	5.71	14.28	6.14
9	14.27	3.54	14.37	3.76	14.43	4.07	14.46	4.44	14.48	4.86	14.49	5.30	14.49	5.74	14.50	6.17
10	14.48	3.60	14.58	3.82	14.64	4.12	14.67	4.48	14.69	4.89	14.70	5.33	14.70	5.77	14.71	6.19
11	14.69	3.66	14.78	3.87	14.84	4.16	14.88	4.52	14.89	4.93	14.90	5.36	14.91	5.79	14.92	6.21
12	14.89	3.72	14.98	3.92	15.04	4.20	15.07	4.56	15.09	4.96	15.10	5.39	15.11	5.82	15.12	6.23
13	15.08	3.77	15.17	3.96	15.23	4.24	15.27	4.59	15.29	4.99	15.30	5.41	15.30	5.84	15.32	6.25
14	15.27	3.82	15.36	4.00	15.42	4.28	15.46	4.62	15.47	5.01	15.48	5.43	15.49	5.86	15.51	6.27
15	15.46	3.86	15.55	4.04	15.61	4.31	15.64	4.65	15.66	5.04	15.67	5.45	15.68	5.88	15.70	6.28
16	15.64	3.90	15.73	4.08	15.79	4.34	15.82	4.68	15.84	5.06	15.85	5.47	15.86	5.89	15.88	6.30
17	15.82	3.94	15.91	4.11	15.97	4.37	16.00	4.70	16.02	5.08	16.03	5.49	16.05	5.91	16.06	6.31
18	16.00	3.98	16.09	4.14	16.15	4.40	16.18	4.73	16.20	5.10	16.21	5.51	16.23	5.92	16.25	6.33
19	16.18	4.01	16.27	4.17	16.32	4.42	16.36	4.75	16.38	5.12	16.39	5.52	16.40	5.94	16.42	6.34
20	16.36	4.04	16.45	4.20	16.50	4.45	16.53	4.77	16.55	5.14	16.57	5.54	16.58	5.95	16.60	6.35

DATA DECLARED ACCORDING TO UNI EN 14511

KEY:

	Nominal conditions
Ph	Heating capacity
Pe	Input power

- Temperature of produced water.....35°C
- Δt.....5°C
- External air temperature .....7 °C d.b. / 6° C w.b.

WARNING:
- Temperature of produced water 65°C
- Δt ..... 10°C

9.1.9. SRA 19°T 3N~400V 50Hz

EXTERNAL AIR TEMPERATURE (°C) D.B.	TEMPERATURE OF THE WATER PRODUCED (°C)															
	30		35		40		45		50		55		60		65	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	9.46	3.80	9.52	4.06	9.56	4.43	9.59	4.88	9.62	5.38	9.64	5.91	9.66	6.44	9.69	6.96
-14	9.63	3.83	9.70	4.09	9.74	4.45	9.77	4.90	9.79	5.40	9.81	5.93	9.83	6.47	9.86	6.99
-13	9.83	3.85	9.89	4.11	9.94	4.48	9.97	4.92	9.99	5.42	10.01	5.95	10.03	6.49	10.06	7.01
-12	10.05	3.88	10.11	4.14	10.16	4.50	10.19	4.95	10.21	5.45	10.23	5.98	10.25	6.52	10.28	7.04
-11	10.28	3.91	10.35	4.17	10.39	4.53	10.42	4.97	10.44	5.47	10.46	6.00	10.48	6.54	10.51	7.06
-10	10.53	3.93	10.60	4.19	10.64	4.55	10.67	5.00	10.69	5.50	10.71	6.03	10.73	6.56	10.76	7.09
-9	10.80	3.96	10.86	4.21	10.90	4.58	10.93	5.02	10.96	5.52	10.97	6.05	10.99	6.59	11.02	7.11
-8	11.07	3.98	11.13	4.24	11.18	4.60	11.21	5.04	11.23	5.54	11.25	6.07	11.27	6.61	11.30	7.14
-7	11.35	4.00	11.42	4.26	11.46	4.62	11.49	5.06	11.51	5.56	11.53	6.09	11.55	6.63	11.58	7.16
-6	11.64	4.02	11.70	4.28	11.75	4.64	11.78	5.08	11.80	5.58	11.82	6.11	11.84	6.65	11.87	7.18
-5	11.93	4.04	12.00	4.29	12.04	4.65	12.07	5.10	12.10	5.60	12.12	6.13	12.14	6.67	12.16	7.20
-4	12.23	4.05	12.29	4.31	12.34	4.67	12.37	5.11	12.39	5.61	12.41	6.15	12.43	6.69	12.46	7.22
-3	12.52	4.06	12.59	4.32	12.64	4.68	12.67	5.12	12.69	5.63	12.71	6.16	12.73	6.71	12.76	7.24
-2	12.82	4.07	12.88	4.33	12.93	4.69	12.96	5.13	12.98	5.64	13.00	6.17	13.03	6.72	13.05	7.25
-1	13.11	4.08	13.17	4.33	13.22	4.70	13.25	5.14	13.28	5.64	13.30	6.18	13.32	6.73	13.35	7.26
0	13.39	4.08	13.46	4.33	13.50	4.70	13.54	5.14	13.56	5.65	13.58	6.19	13.60	6.74	13.63	7.27
1	13.66	4.08	13.73	4.33	13.78	4.70	13.81	5.14	13.84	5.65	13.86	6.19	13.88	6.74	13.91	7.28
2	13.88	4.13	13.98	4.35	14.04	4.69	14.08	5.13	14.11	5.63	14.13	6.18	14.16	6.74	14.21	7.30
3	14.38	4.11	14.49	4.36	14.57	4.72	14.62	5.17	14.65	5.68	14.68	6.24	14.71	6.80	14.75	7.36
4	15.14	4.12	15.26	4.38	15.35	4.76	15.40	5.22	15.44	5.75	15.46	6.31	15.49	6.88	15.53	7.43
5	15.98	4.14	16.12	4.43	16.21	4.82	16.27	5.29	16.30	5.82	16.32	6.38	16.34	6.95	16.37	7.50
6	16.75	4.17	16.90	4.47	16.99	4.87	17.05	5.35	17.08	5.89	17.09	6.45	17.09	7.01	17.10	7.56
7	17.28	4.20	**17.40**	**4.50**	17.52	4.92	17.57	5.41	17.59	5.94	17.59	6.51	17.58	7.06	17.57	7.60
8	17.59	4.32	17.71	4.60	17.79	4.99	17.83	5.46	17.86	5.99	17.87	6.54	17.87	7.10	17.88	7.64
9	17.87	4.40	17.98	4.68	18.06	5.06	18.11	5.52	18.13	6.04	18.14	6.59	18.14	7.14	18.15	7.67
10	18.13	4.48	18.25	4.75	18.32	5.12	18.37	5.57	18.39	6.08	18.40	6.63	18.41	7.17	18.42	7.70
11	18.39	4.55	18.50	4.81	18.58	5.18	18.62	5.62	18.64	6.13	18.66	6.66	18.66	7.20	18.68	7.72
12	18.63	4.62	18.75	4.87	18.82	5.23	18.87	5.67	18.89	6.16	18.90	6.69	18.91	7.23	18.93	7.75
13	18.88	4.69	18.99	4.93	19.07	5.28	19.11	5.71	19.13	6.20	19.15	6.73	19.16	7.26	19.17	7.77
14	19.12	4.75	19.23	4.98	19.30	5.32	19.35	5.75	19.37	6.23	19.38	6.75	19.40	7.28	19.41	7.79
15	19.35	4.80	19.46	5.03	19.54	5.36	19.58	5.78	19.60	6.26	19.62	6.78	19.63	7.30	19.65	7.81
16	19.58	4.85	19.69	5.07	19.76	5.40	19.81	5.82	19.83	6.29	19.85	6.80	19.86	7.33	19.88	7.83
17	19.81	4.90	19.92	5.11	19.99	5.44	20.03	5.85	20.06	6.32	20.07	6.83	20.09	7.35	20.11	7.85
18	20.03	4.95	20.14	5.15	20.21	5.47	20.26	5.87	20.28	6.34	20.30	6.85	20.31	7.36	20.34	7.87
19	20.26	4.99	20.37	5.19	20.44	5.50	20.48	5.90	20.50	6.37	20.52	6.87	20.53	7.38	20.56	7.88
20	20.48	5.03	20.59	5.22	20.66	5.53	20.70	5.93	20.72	6.39	20.74	6.89	20.76	7.40	20.78	7.90

DATA DECLARED ACCORDING TO UNI EN 14511

KEY:

	Nominal conditions
Ph	Heating capacity
Pe	Input power

- Temperature of produced water.....35°C
- Δt.....5°C
- External air temperature .....7 °C d.b. / 6° C w.b.

WARNING:
- Temperature of produced water 65°C
- Δt ..... 10°C

9.1.10. SRA 19PT 3N~400V 50Hz

EXTERNAL AIR TEMPERATURE (°C) D.B.	TEMPERATURE OF THE WATER PRODUCED (°C)															
	30		35		40		45		50		55		60		65	
	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe	Ph	Pe
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
-15	9.35	3.82	9.41	4.08	9.45	4.45	9.48	4.90	9.51	5.40	9.52	5.93	9.55	6.47	9.57	7.00
-14	9.52	3.84	9.59	4.11	9.63	4.47	9.66	4.92	9.68	5.42	9.70	5.96	9.72	6.50	9.75	7.02
-13	9.72	3.87	9.78	4.13	9.82	4.50	9.85	4.95	9.88	5.45	9.89	5.98	9.91	6.52	9.94	7.04
-12	9.93	3.90	10.00	4.16	10.04	4.52	10.07	4.97	10.09	5.47	10.11	6.00	10.13	6.54	10.16	7.07
-11	10.16	3.92	10.23	4.18	10.27	4.55	10.30	4.99	10.32	5.50	10.34	6.03	10.36	6.57	10.39	7.09
-10	10.41	3.95	10.47	4.21	10.52	4.57	10.55	5.02	10.57	5.52	10.59	6.05	10.61	6.59	10.64	7.12
-9	10.67	3.97	10.73	4.23	10.78	4.60	10.81	5.04	10.83	5.54	10.85	6.08	10.87	6.62	10.90	7.14
-8	10.94	4.00	11.00	4.26	11.05	4.62	11.08	5.06	11.10	5.56	11.12	6.10	11.14	6.64	11.17	7.17
-7	11.22	4.02	11.28	4.28	11.33	4.64	11.36	5.08	11.38	5.59	11.40	6.12	11.42	6.66	11.45	7.19
-6	11.51	4.04	11.57	4.30	11.61	4.66	11.65	5.10	11.67	5.61	11.69	6.14	11.71	6.68	11.73	7.21
-5	11.80	4.05	11.86	4.31	11.90	4.68	11.94	5.12	11.96	5.62	11.98	6.16	12.00	6.70	12.02	7.23
-4	12.09	4.07	12.15	4.33	12.20	4.69	12.23	5.14	12.25	5.64	12.27	6.18	12.29	6.72	12.32	7.25
-3	12.38	4.08	12.44	4.34	12.49	4.70	12.52	5.15	12.54	5.65	12.56	6.19	12.58	6.74	12.61	7.27
-2	12.67	4.09	12.73	4.35	12.78	4.71	12.81	5.16	12.84	5.66	12.85	6.20	12.88	6.75	12.90	7.28
-1	12.95	4.10	13.02	4.35	13.07	4.72	13.10	5.16	13.12	5.67	13.14	6.21	13.16	6.76	13.19	7.30
0	13.23	4.10	13.30	4.35	13.35	4.72	13.38	5.17	13.40	5.67	13.42	6.21	13.45	6.77	13.47	7.31
1	13.51	4.09	13.57	4.35	13.62	4.72	13.65	5.17	13.68	5.67	13.70	6.22	13.72	6.77	13.75	7.31
2	13.72	4.15	13.82	4.37	13.88	4.71	13.92	5.15	13.94	5.66	13.97	6.20	14.00	6.77	14.05	7.33
3	14.21	4.13	14.33	4.38	14.40	4.74	14.45	5.19	14.48	5.71	14.51	6.26	14.54	6.83	14.58	7.39
4	14.96	4.14	15.09	4.40	15.17	4.78	15.23	5.25	15.26	5.77	15.29	6.33	15.31	6.91	15.35	7.46
5	15.80	4.16	15.93	4.45	16.03	4.84	16.08	5.31	16.12	5.84	16.14	6.41	16.15	6.98	16.18	7.53
6	16.56	4.19	16.70	4.49	16.80	4.89	16.85	5.38	16.88	5.91	16.89	6.48	16.90	7.05	16.90	7.59
7	17.08	4.22	**17.20**	**4.52**	17.32	4.95	17.37	5.43	17.39	5.97	17.39	6.53	17.38	7.10	17.36	7.63
8	17.39	4.34	17.51	4.62	17.59	5.02	17.63	5.49	17.65	6.02	17.66	6.57	17.66	7.13	17.67	7.67
9	17.66	4.42	17.78	4.70	17.85	5.08	17.90	5.55	17.92	6.07	17.93	6.62	17.93	7.17	17.94	7.70
10	17.92	4.50	18.04	4.77	18.11	5.14	18.16	5.60	18.18	6.11	18.19	6.66	18.19	7.20	18.21	7.73
11	18.17	4.57	18.29	4.83	18.36	5.20	18.41	5.65	18.43	6.15	18.44	6.69	18.45	7.24	18.46	7.76
12	18.42	4.64	18.53	4.89	18.61	5.25	18.65	5.69	18.68	6.19	18.69	6.72	18.70	7.26	18.71	7.78
13	18.66	4.71	18.77	4.95	18.85	5.30	18.89	5.73	18.91	6.23	18.93	6.76	18.94	7.29	18.95	7.81
14	18.90	4.77	19.01	5.00	19.08	5.34	19.13	5.77	19.15	6.26	19.16	6.78	19.17	7.31	19.19	7.83
15	19.13	4.82	19.24	5.05	19.31	5.39	19.35	5.81	19.38	6.29	19.39	6.81	19.40	7.34	19.42	7.85
16	19.36	4.87	19.47	5.09	19.54	5.42	19.58	5.84	19.60	6.32	19.62	6.83	19.63	7.36	19.65	7.87
17	19.58	4.92	19.69	5.13	19.76	5.46	19.80	5.87	19.83	6.35	19.84	6.86	19.86	7.38	19.88	7.88
18	19.80	4.97	19.91	5.17	19.98	5.49	20.02	5.90	20.05	6.37	20.06	6.88	20.08	7.40	20.10	7.90
19	20.03	5.01	20.13	5.21	20.20	5.52	20.24	5.93	20.27	6.39	20.28	6.90	20.30	7.41	20.32	7.92
20	20.25	5.05	20.35	5.24	20.42	5.55	20.46	5.95	20.48	6.42	20.50	6.92	20.52	7.43	20.54	7.93

DATA DECLARED ACCORDING TO UNI EN 14511

KEY:

	Nominal conditions
Ph	Heating capacity
Pe	Input power

- Temperature of produced water.....35°C
- Δt.....5°C
- External air temperature .....7 °C d.b. / 6° C w.b.

WARNING:
- Temperature of produced water 65°C
- Δt ..... 10°C

10. ETHYLENE GLYCOL SOLUTIONS

- The correction factors of cooling power and input power take into account the presence of glycol and diverse 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 Δt that would be present with the absence of glycol.

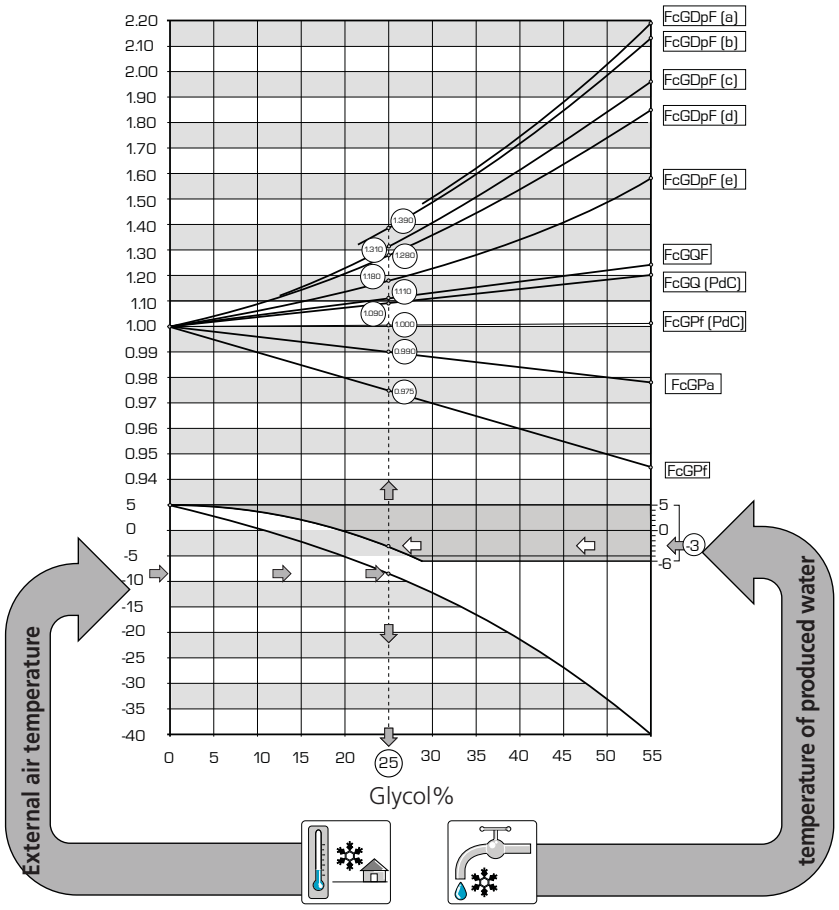
NOTE
On the following page an example is given to help graph reading.
To determine the percentage of glycol required, see diagram below; this percentage calculation can take into consideration one of the following factors: Depending on which fluid is considered (water or air), the graph is interpreted 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.

10.1. 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 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.



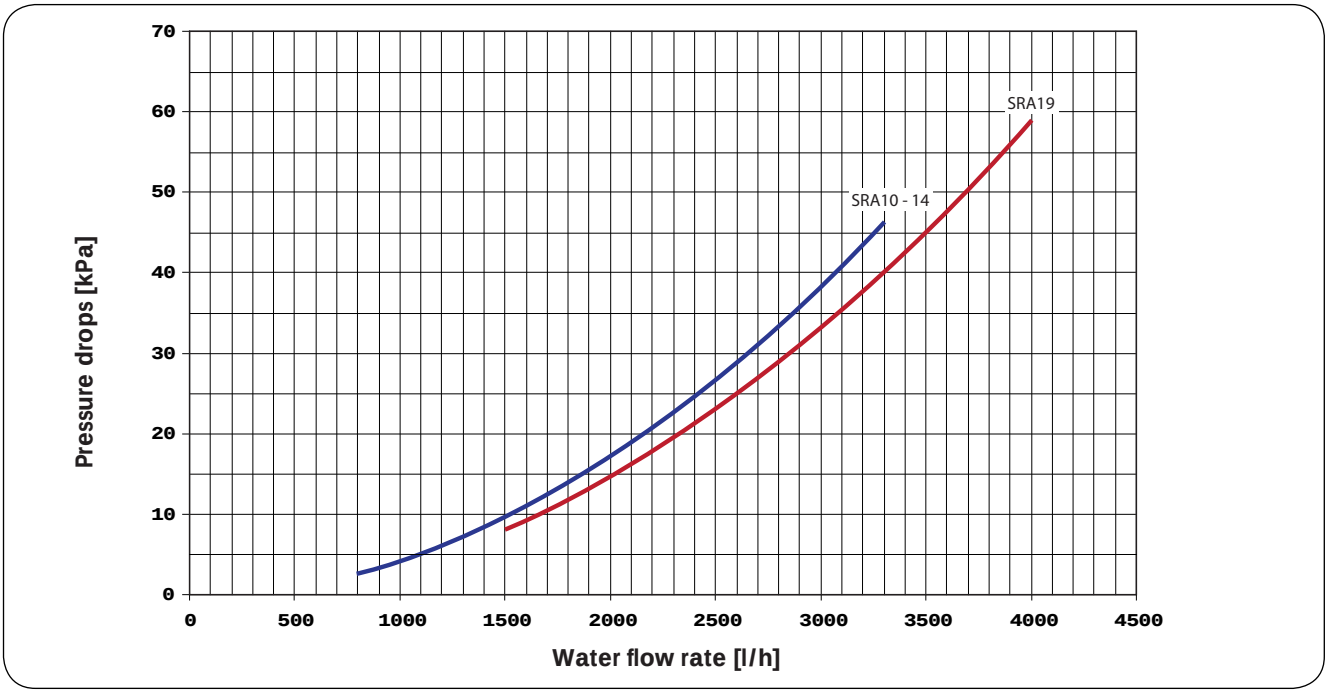
KEY:

FcGPf	Corrective factors for cooling capacity
FcGPa	Corrective factors of the input power
FcGDpF (a)	Correction factors for pressure drop (evaporator) (av. temp. = -3.5 °C)
FcGDpF (b)	Correction factors for pressure drops (av. temp. = 0.5 °C)
FcGDpF (c)	Correction factors for pressure drops (av. temp. = 5.5 °C)
FcGDpF (d)	Correction factors for pressure drops (av. temp. = 9.5V)
FcGDpF (e)	Correction factors for pressure drops (av. temp. = 47.5 V)
FcGQF	Correction factor of flow rates (evap.) (av. temp. = 9.5 °C)
FcGQC	Correction factors of flow rates (condenser) (av. temp. = 47.5 °C)

NOTE
Although graph arrives at external air temperatures of -40°C, unit operational limits must be considered.

11. PRESSURE DROPS

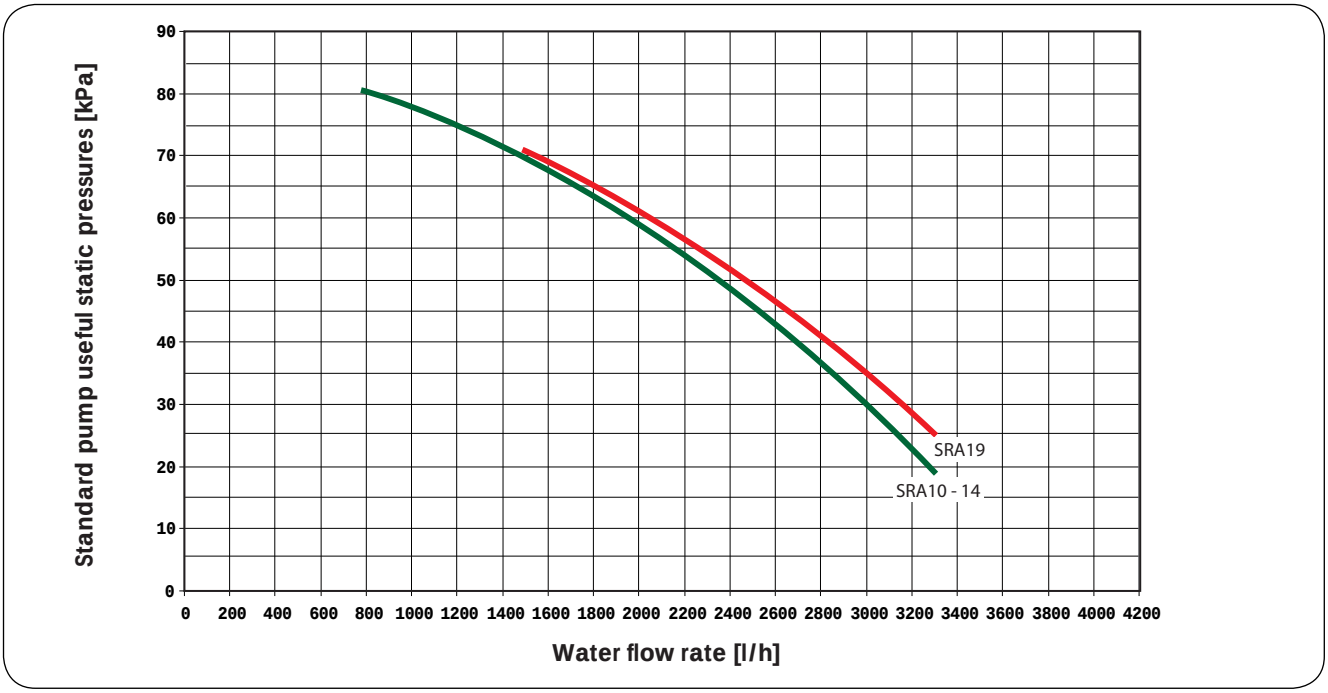
11.1. TOTAL PRESSURE DROP



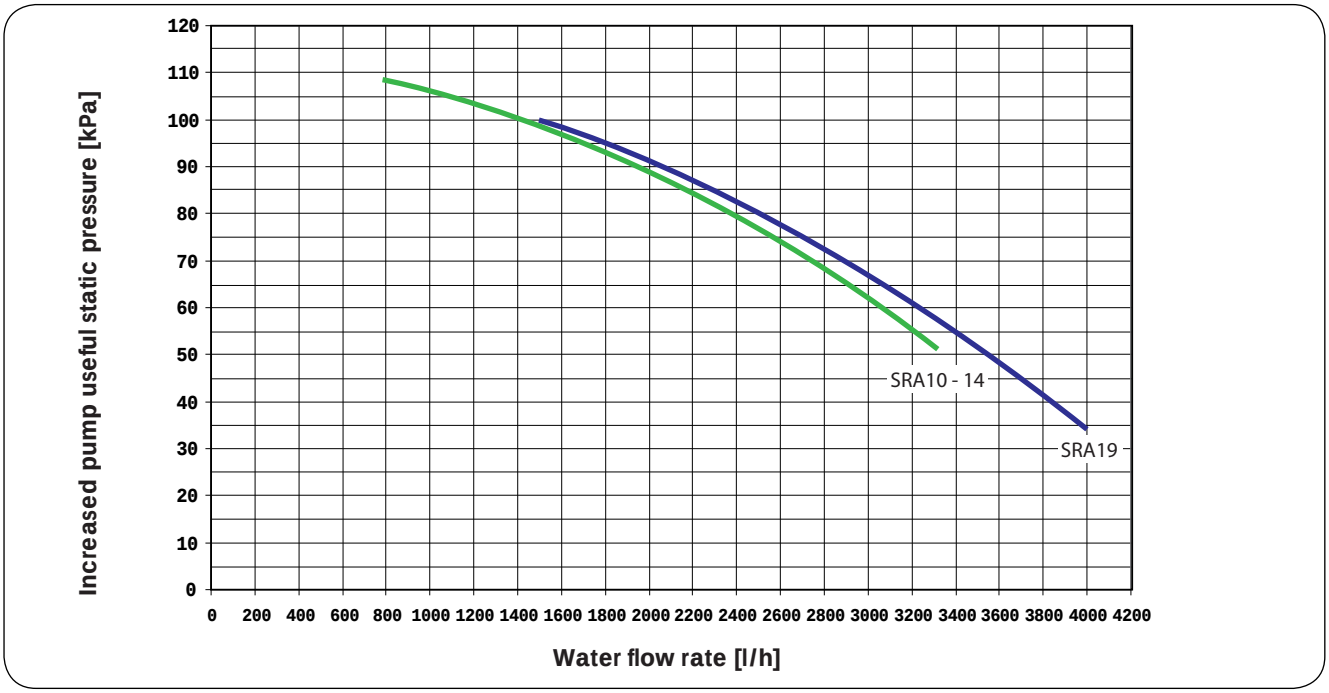
FUNCTIONING IN HEATING MODE
The diagram pressure drops include the evaporator, the water filter and are relative to an average temperature of the water of 33°C.
The table below states the correction to apply to the pressure drops on variation of the average water temperature.

Average water temperature °C	20	30	**33**	40	43	50
Multiplicative coefficients	1.028	1.006	**1**	0.985	0.979	0.964

12. SRA USEFUL STATIC PRESSURES [P]



13. SRA USEFUL STATIC PRESSURES [N]



VERSIONS STATIC PRESSURES [P-N].

The static pressures stated are net of the pressure drops of the heat exchangers, filter, pipes and storage tSRA.
They must therefore be considered USEFUL TO THE SYSTEM.

WARNING:
In the presence of glycol CONTACT THE HEAD OFFICES DIRECTLY for the correct static pressure at the system.

14. SOUND DATA

Sound power
Aermec determines the value of the sound power on the basis of measurements taken in agreement with the 9614 Standard.

Sound Pressure
Sound pressure measured in free field conditions with reflective surface (directivity factor Q=2) at 10mt distance from external surface of unit, in compliance with ISO 3744 regulations.

SRA	Total sound levels			Octave band [Hz]						
	Pow. dB(A)	Pres.		125	250	500	1000	2000	4000	8000
		dB(A) 10 m	dB(A) 1 m	Sound potential for centre of band [dB] frequency						
10	69	37	51	76.60	69.20	64.80	64.60	58.90	53.70	46.10
14	70	38	52	77.80	70.30	66.00	65.40	59.70	54.70	47.10
19	71	39	53	79.00	71.40	67.20	66.20	60.50	55.70	48.10

KEY
Working conditions:
Inlet water.....30°C
Water produced.....35°C
Environment Air.....7°C d.b. / 6°C w.b.

15. CALIBRATION OF SAFETY AND CONTROL DEVICES

CALIBRATION OF SAFETY AND CONTROL DEVICES	U.M.	SRA 10M	SRA 10T	SRA 14T	SRA 14M	SRA 19T
Compressor magnet circuit breaker	A	21	7	10	30	14
High pressure switch	bar	30	30	30	30	30
Low pressure switch	bar	0.5	0.5	0.5	0.5	0.5

FOR THE INSTALLER

16. SELECTION AND PLACE OF INSTALLATION

Before beginning installation consent with client and pay attention to the following recommendations:

- The support surface must be capable of supporting the unit weight.
- The safety differences between the unit and other appliances or structures must be scrupulously respected so that the inlet and outlet air from the fans is free to circulate.
- The unit must be installed by an enabled technician in compliance with the national legislation in force in the country of destination, respecting the minimum technical spaces in order to allow maintenance.

The unit 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.

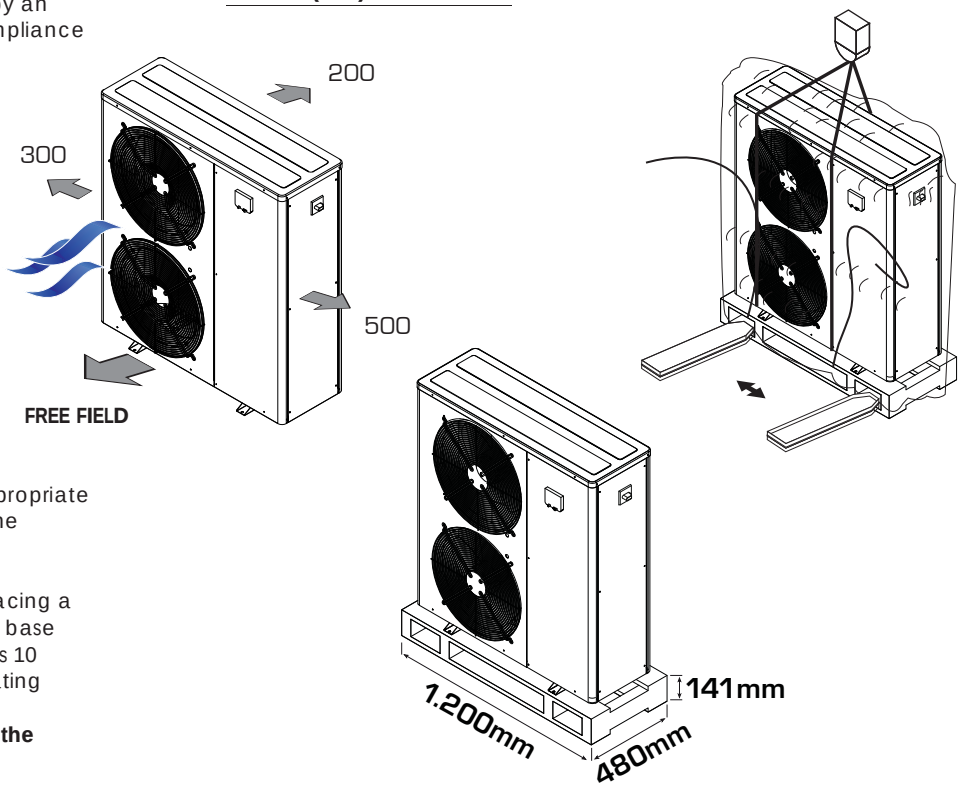
Before beginning any operation, READ THESE INSTRUCTIONS CAREFULLY AND CARRY OUT THE SAFETY CHECKS TO REDUCE ALL RISK OF DANGER TO A MINIMUM. All the personnel involved must have thorough knowledge of the operations and any dangers that may arise at the moment in which the installation operations are carried out.

17. POSITIONING

Before handling the unit, verify the lifting capacity of the machines used, respecting the indications given on the packaging.
To handle the machine on horizontal surfaces, use fork lift trucks or similar in the most appropriate manner, paying attention to the distribution of the unit weight.
Position the unit in the place indicated by the customer, placing a rubber covering between the base and the support (min. thickness 10 mm.) or alternatively anti-vibrating feet(ACCESSORIES).
For further information, refer to the dimensional tables.

Fix the unit checking that it is level.
Make sure that the hydraulic and electric part can be easily reached.
In case of installation in places where gusts of wind are frequent, fix the unit suitably using tie-rods.

17.1. MINIMUM TECHNICAL SPACES (MM) AND LIFTING



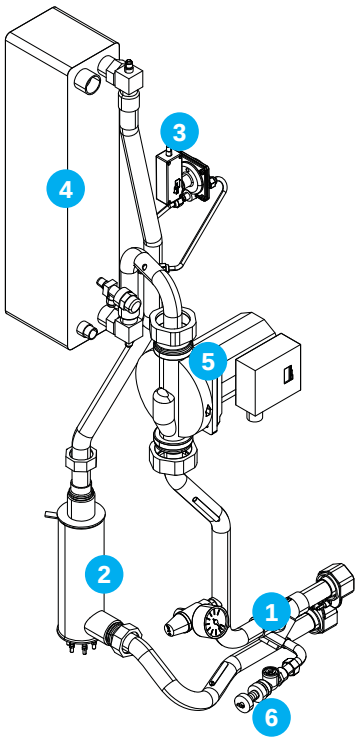
LIFTING REGULATIONS:

- All panels must be tightly fixed before moving the unit.
- Before lifting, check the specific weight on the "CE" technical plate;
- Use all, and only, the lifting points indicated;
- Use ropes in compliance with Standards and of equal length;
- Use spacer beam in compliance with Standards (not included)
- Handle the unit with care and without sudden movements;

It is mandatory to envision the necessary technical spaces, in order to allow the interventions OF ROUTINE AND EXTRAORDINARY MAINTENANCE

- Fix the unit checking that it is level. Make sure that the hydraulic and electric part can be easily reached.

HYDRAULIC CIRCUIT EXAMPLE VERSION COMPLETE WITH PUMP AND INTEGRATIVE RESISTANCE
the diagrams shown here are an example.



KEY:
1 Water filter
2 Integrative electric resistance (version from configurator)
3 Differential pressure switch
4 Plate heat exchanger
5 Pump
6 Discharge valve

18. HYDRAULIC CIRCUIT

"Standard" version SRA hydraulic circuit:
- **Differential pressure switch**
- **Water filter**
- **Air vent valve**
- Plate heat exchanger
- **Safety valve**
- **Water IN/OUT temperature probes**

SRA hydraulic circuit complete with pump and integrative electric resistance:
- **Pump**
- **Differential pressure switch**
- **Water filter**
- **Air vent valve**
- Plate heat exchanger
- **Safety valve**
- **Integrative electric resistance (version from configurator)**
- **Water IN/OUT temperature probes**

18.1. HYDRAULIC CIRCUIT RECOMMENDED

The choice and the installation of components external to the SRA is up to the installer, who must operate according to the rules of good technical design and in compliance with the regulations in force in the country of destination.
Before connecting the pipes make sure that they do not contain stones, sand, rust, sludge or foreign bodies that could damage the system. It is good practice to realise a unit by-pass to be able to wash the pipes without having to disconnect the appliance. The connection piping must be adequately supported so that its weight is not borne by the appliance.
It is recommended to install the following tools, whenever not envisioned in the version in your possession:
1. Two manometers with suitable scale (in inlet and outlet).
2. Two anti-vibration joints (in inlet and in outlet).
3. Two cut-off valves (in normal input, in calibration valve output).
4. Two thermometers (in inlet and in outlet).
5. Pump
6. Expansion vessel
7. Water tSRA
8. Loading unit

It is necessary that the water flow rate is in compliance with the values given in the performance tables.

It is recommended to dimension the expansion vessel on the basis of the water content present in the system.

It is recommended to envision a condensate drain trap in a way to prevent the formation of ice under the unit.

The systems loaded with anti-freeze or particular legal dispositions, make the use of water disconnectors mandatory. Supply/reintegration water details, must be conditioned with appropriate treatment systems.

18.2. LOADING THE SYSTEM

- Before starting loading, check that the system drain cock is closed.
- Open all system vent valves and relative terminals.
- Open the system cut-off devices.
- Start filling by slowly opening the system water loading cock outside the appliance.
- When water starts to escape from the terminal vent valves, close them and continue loading until the value of 1.5 bar is read on the manometer.

The system must be loaded at a pressure between 1 and 2 bar.
It is recommended to repeat this operation after the appliance has functioned for a few hours and to periodically check the system pressure, reintegrating it if it drops below 1 bar.
Check the hydraulic sealing of the joints.

18.3. EMPTYING THE SYSTEM

- Before beginning emptying, place the master switch at "OFF"
- Check that loading/water system reintegration cock is closed
- Open the drain cock outside the appliance and all system vent valves and relative terminals.

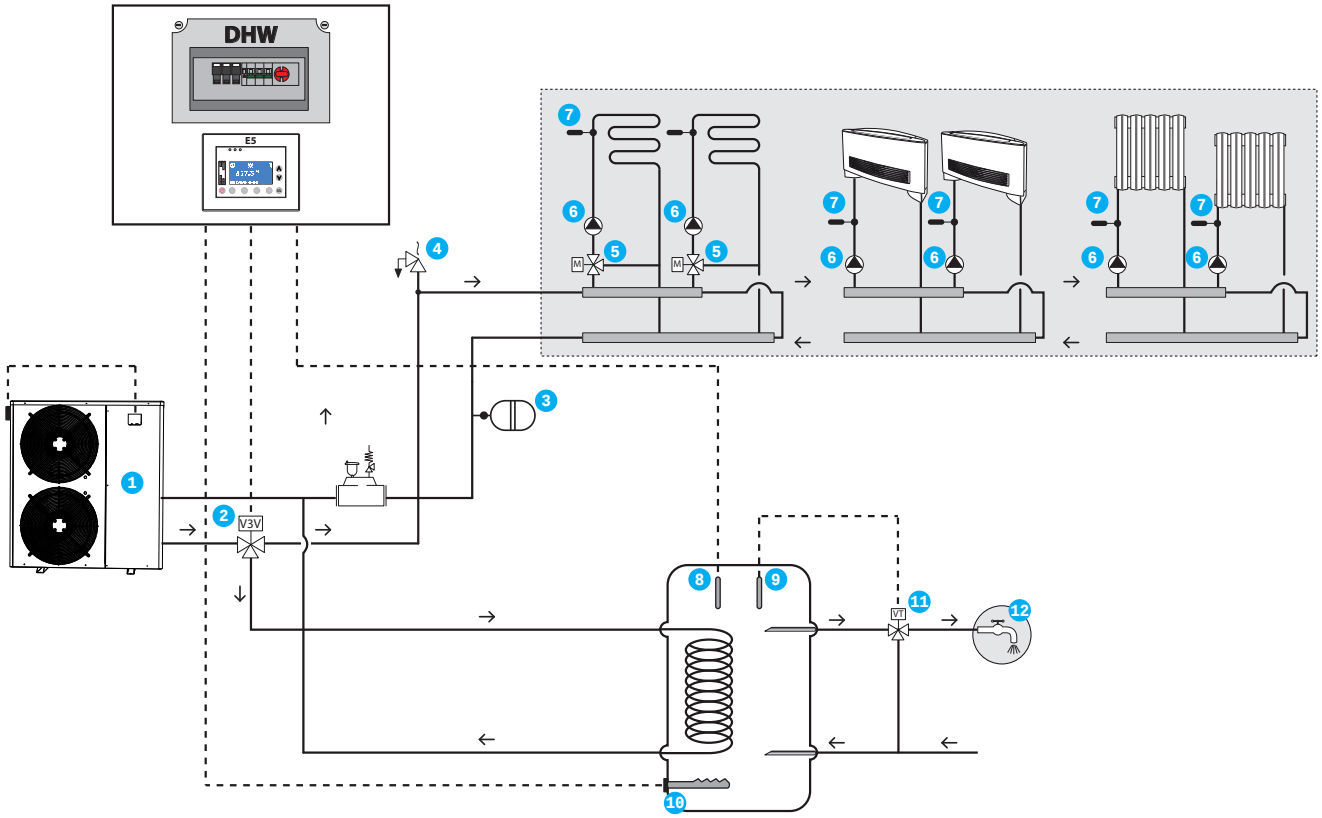
If anti-freeze is used by the unit, it must not be dumped as it is harmful to the environment. It should be collected and if possible reused.

18.4. 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

19. SYSTEM EXAMPLE



KEY:

1.	SRA Unit	**7.**	Zone flow probe ●
2.	3-way diverter valve	**8.**	Sanitary storage probe ●
3.	Expansion vessel	**9.**	Probe for DHW mixing valve management ●
4.	Safety valve	**10.**	DHW integrative resistance ●
5.	Zone mixing valve ●	**11.**	DHW mixing valve ●
6.	Zone pump ●	**12.**	Utilities

[●] COMPONENT NOT MANAGED

CAUTION:
Remember that the diagrams shown here are an example.

20. ELECTRIC CONNECTIONS

The SRA heat pumps are completely wired at the factory and only require connection to the electrical mains, downstream from a unit switch, according to
that envisioned by the Standards in force on this subject in the country of installation.
It is also advised to check that:

- The electrical mains features are suitable for the absorption values indicated in the electrical data table, TAB. also taking into consideration any other machines operating at the same time.
- The unit is only powered when installation has been completed (hydraulic and electric).
- Respect the connection indications of the phase and earth wires.
- The power supply line must have a relevant protection mounted upstream against short circuits and dispersions to earth, which isolates the system with respect to other utilities.
- The voltage must be within a tolerance of ±10% of the nominal power supply voltage of the machine (for unbalanced three-phase unit max 3% between the phases). Whenever these parameters are not respected, contact the electric energy public body. For electric connections, use the cables with double isolation according to the Standards in force on this subject in the different countries.
- The use of an omnipolar magnet circuit breaker switch is mandatory, in compliance with the IEC-EN Standards (contact opening at least 3 mm), with suitable cut-off power and differential protection on the basis of the electric data table shown below, installed as near as possible to the appliance.
- It is mandatory to make an effective earth connection. The manufacturer cannot be considered responsible for any damage caused by the lack of or ineffective appliance earth connection.
- For units with three-phase power supply, check the correct connection of the phases.

WARNING:
It is prohibited to use the water pipes to earth the appliance.

All the electrical operations must be carried out by STAFF IN POSSESSION OF THE NECESSARY QUALIFICATIONS BY LAW suitably trained and informed on the risks related to these operations.

The characteristics of the electrical lines and of the related components must be determined by STAFF QUALIFIED TO DESIGN ELECTRICAL SYSTEMS, in compliance with the international and national regulations of the place of installation of the unit and in compliance with the regulations in force at the moment of installation.

For the installation requirements refer only to the electrical diagram supplied with the appliance. The electrical diagram along with the manuals must be kept in good condition and ALWAYS AVAILABLE FOR ANY FUTURE SERVICING ON THE UNIT.

IT IS mandatory to verify that the machine is watertight before making the electrical connections and it must only be powered up after the hydraulic and electrical works have been completed.

20.1. RECOMMENDED ELECTRIC CABLE SECTION

The cable section shown in the table are recommended for maximum lengths of 50m.
For longer lengths or different cable laying, it is up to the PLANNER to calculate the appropriate line switch, the power supply line as well as the connection to the earth wire and connection cables depending on:

- the length
- the type of cable
- the absorption of the unit and the physical location, and the ambient temperature.

ATTENTION:
Check the tightening of all power wire clamps on commissioning and after 30 days from start-up. Successively check the tightness of all power clamps every 6 months.
The loosened terminals can determine overheating of cables and components.

20.2. ELECTRIC POWER CONNECTION TO THE POWER SUPPLY NETWORK

1. Before connecting the unit electrically to the power supply network, make sure that the isolating switch is open.
2. Open the front panel
3. Use the holes positioned at the bottom of the framework for the main electric power supply cable and for the cables of the other external connections under the installer's responsibility.
4. It is prohibited to enter positions not specifically envisioned in this manual with electric cables.
5. Avoid direct contact with non-isolated copper piping and with the compressor.
6. Identify the clamps for the electric connection, only refer to the wiring diagram supplied with the unit.
7. For the functional connection of the unit, take the power supply cable to the electric control board inside the unit and connect to the U-N and PE clamps respecting (U) phase, (N) neutral, (PE) earth in the case of single-phase power supply (230V~50Hz),
8. U-V-W as phases, N as neutral and PE as earth in the case of three-phase power supply (400V-3N~50Hz).
9. Re-position the inspection panels
10. Make sure that all protections removed for the electric connection have been restored before electrically restoring the unit.
11. Position the system master switch (external to the appliance) at "ON".

20.3. RECOMMENDED ELECTRIC CABLE SECTION

The cable sections stated in the table are recommended for a maximum length of 20m and placed in a cable trough.

For longer lengths or different cable laying, it is up to the PLANNER to calculate the appropriate length of the cables as well as the connection to the earth wire and linking to connected cables:

- the length
- the type of cable
- the absorption of the unit and the physical location, and the ambient temperature.

NOTA:
Check the tightening of all power wire clamps on commissioning and after 30 days from start-up. Subsequently, check the tightening of all the power clamps every six months. Loose terminals can cause overheating of the cables and components.

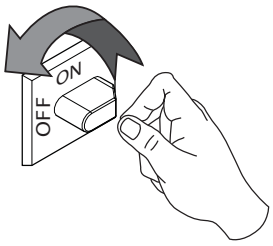
20.3.1. Recommended cable lengths for max. length of 20m

SRA	POWER SUPPLY		POWER CABLE n° cables x (mm^2)	
			Resistances on board the machine	Without resistances on board the machine
			Machine cable	
10T	Three-phase	400V/3N/50Hz	5G6	5G1,5
14T	Three-phase	400V/3N/50Hz	5G6	5G1,5
19T	Three-phase	400V/3N/50Hz	5G10	5G2,5

			Resistance cable	Machine cable
14M	Single-phase	230V/50Hz	3G10	3G6
10M	Single-phase	230V/50Hz	3G10	3G4

Notes:
The recommended cable is **FG7(OR) 0.6/1kV**. This type of cable is used **FOR THE POWER.**

WARNING:	In the three-phase versions, when a power cable is installed for unit without resistances and they are added successively, the cables must be replaced.



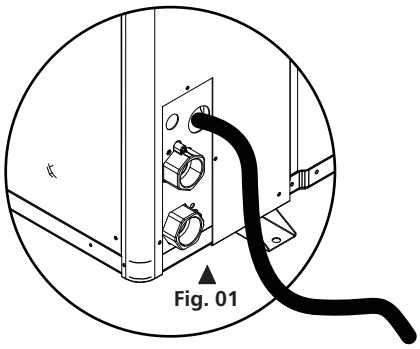


Fig. 01

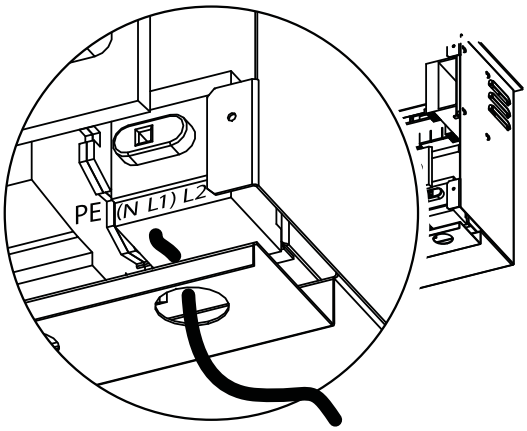


Fig. 02

20.4. ELECTRIC CONTROL BOARD

The electric control board is situated inside the machine.
To access the electric control board and make the electric connections, remove the upper and frontal panel.
The front panel must be removed and the isolating switch blocked at OFF.

20.5. ELECTRIC POWER CONNECTION

For the functional connection of the unit take the power supply cable at the electric control board inside the unit fig.1 and connect to the isolator clamps respecting the phase, the neutral and the earth both in the case of single-phase (230V~50Hz), and three-phase power supply (400V-3N~50Hz). fig.02

20.6. AUXILIARY CONNECTIONS UNDER THE RESPONSIBILITY OF THE USER/ INSTALLER

All clamps to which reference is made in the following explanations are part of the **X0** terminal board situated inside the electric control board and connected to the MODU-CONTROL, see figure.
There are two types of connections, see wiring diagram at the bottom of the page:

20.6.1. On/Off Control (IA)

To prepare an ON/OFF remote switch-over device
connect the device contact to clamps 4 and 5 of the **X0** terminal board.

20.6.2. Remote Alarm (AE)

If it should be necessary to view the machine block, in a remote point, due to functioning anomaly, it is possible via clamps 6 and 7 of the **X0** terminal board.
Connect an acoustic or visual alarm signal device.

20.6.3. Remote Panel (TRA)

To prepare a summer/winter switch-over device, connect the device contact to clamps 8 and 9 of the **X0** terminal board.

20.6.4. Contact for thermostating domestic hot water DHW (TWS)

To prepare a stand-alone thermostating device, connect to clamps 10 and 11 of the **X0** terminal board.

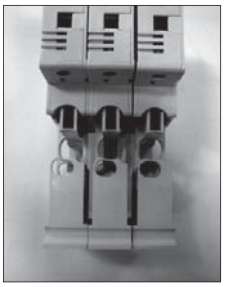
20.6.5. Connection PR3 (ACCESSORY)

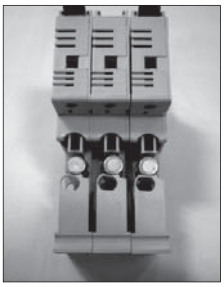
If you should have the PR3 accessory, always connect it to the terminal board as shown below. Remember that the maximum distance accepted is 150 mt.
REMEMBER THAT THE PR3 AS WELL AS BEING CONNECTED MUST BE ENABLED. (pag.40)

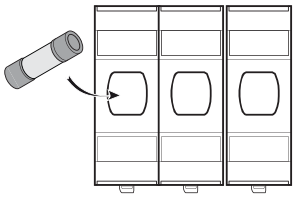
21. ELECTRIC RESISTANCES

21.1. SELECTING ELECTRIC RESISTANCES

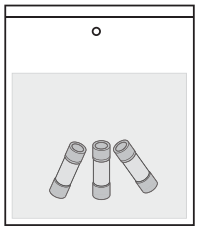
For the configuration of the desired integrative electric resistance, insert fuses in the clamps positioned inside the electric box of the SRA as indicated in TAB. 20.1.1







The fuses are situated inside the electric box, inside the relevant bag.



ELECTRIC RESISTANCES									
POSITION	UNIT OF MEASURE-MENT	MODEL			CONNECTIONS				
		SRA 10:	SRA 14:	SRA 19:					
1	kW	2.40	3.40	4.60	•			N	PE
2	kW	2.80	3.90	5.30		•		N	PE
3	kW	3.00	4.20	5.60			•	N	PE
4	kW	5.20	7.30	9.90	•	•		N	PE
5	kW	5.40	7.60	10.20	•		•	N	PE
6	kW	5.80	8.10	10.90		•	•	N	PE
7	kW	8.20	11.50	15.50	•	•	•	N	PE

Tab. 20.1.1

NOTE
[•] = *Closed state*

WARNING
Commissioning must be performed with standard settings. Only when the inspection has been completed can the functioning Set Point values by changed. Before start-up,power the unit for at least 12-24 hours, positioning the magnet circuit breaker switch and the door lock isolating switch at ON fig. 03 and then switch-off from control panel fig.04 in order to allow heating of the oil in the compressor sump.

22. CONTROL AND COMMISSIONING

22.1. PREPARATION FOR COMMISSIONING

Before starting the unit make sure that:
- All safety conditions have been respected;
- The unit is correctly fixed to the support surface;
- The minimum technical spaces have been respected;
- The hydraulic connections have been made respecting the inlet and outlet;
- The hydraulic plant has been loaded and bled;
- The hydraulic circuit cocks are open;
- The electric connections have been made correctly;
- The voltage is within the tolerance of 10% of the unit nominal value;
- The earth connection has been made correctly;
- All electric and hydraulic connections have been tightened well.

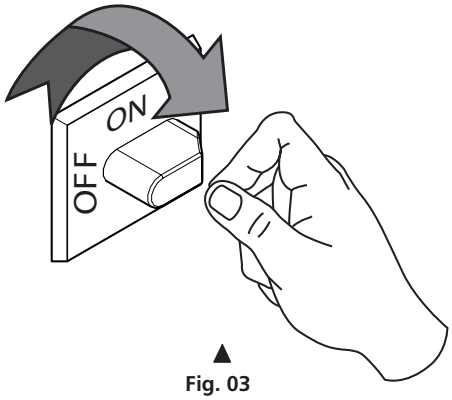


Fig. 03

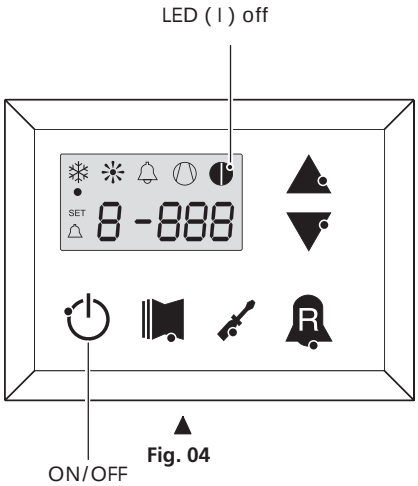


Fig. 04

23. FUNCTIONING FEATURES

23.1. SET POINT IN HEATING MODE

(factory set) = 45°C, Δt = 5°C.
If the unit power supply is restored after a temporary interruption, the set mode will be kept in the memory.

23.2. COMPRESSOR START-UP DELAY

Two functions have been prepared to prevent compressor start-ups that are too close.

- Minimum time from last switch-off 180 seconds.
- Minimum time from last switch-on 300 seconds.

23.3. CIRCULATION PUMP

The circuit board envisions an output for pump management, which starts on commissioning and remains on for at least 150 seconds and controls the state of the probes.
After the first 40 seconds that the pump functions, when the water flow rate is in normal working conditions, the water flow rate alarm functions are activated (differential pressure switch).
When the machine enters stand-by, the pump remains on for 30 sec and controls the pressure switch of the unit at the different external temperatures, the MODUCONTROL by reading the pressure via the pressure probe, controls the rotation speed of the fans, thus allowing to increase and/or decrease heat exchange, keeping the condensation or evaporation pressures more or less constant. The fan functions independently with respect to the compressor.

23.4. ANTI-FREEZE ALARM

The anti-freeze alarm is never active if the machine is off or in stand-by mode. In order to prevent breakage of the plate heat exchanger due to freezing of the water it contains, the MODUCONTROL blocks the compressor and ignition of the resistance (ACCESSORY) if the temperature detected by the probe positioned at the outlet of the heat exchanger and in inlet to the chiller is below +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 block and not pump block, which remains active along with the switch-on of the resistance if installed.
To restore normal functions the temperature of the outlet water must rise above +4°C.
Rearm is manual.
WHENEVER THIS ALARM INTERVENES, WE ADVISE YOU CALL THE NEAREST AFTER-SALES SERVICE IMMEDIATELY.

23.5. WATER FLOW RATE ALARM

The MODUCONTROL manages a water flow rate alarm controlled by the differential pressure switch installed in series on the machine.
This type of safety device intervenes after the first 40 seconds of pump functioning, if the water flow rate is not sufficient.
The intervention of this alarm determines compressor and pump block.

WARNING:
Inspection, maintenance and eventual repair work must be carried out only by a legally qualified technician.

Lack of control/maintenance can cause damage to persons or things.

For appliances installed near to the sea, the maintenance intervals must be halved.

24. MAINTENANCE

All cleaning is prohibited until the unit has been disconnected from the electric power supply mains.
Make sure there is no voltage present before operating. Periodic maintenance is fundamental to keep the unit perfectly efficient under a functional and energetic point of view. It is therefore essential to carry out periodic yearly controls for the:

24.5.1. Hydraulic circuit

- Refill of water circuit
- Clean the water filter.
- Control of flow switch/pressure switch
- Bleed the air from the circuit.
- Verify that the water flow rate to the evaporator is constant.
- Verify the thermal insulation of the hydraulic piping.
- Check the percentage of glycol where necessary

24.5.2. Electric circuit checks

- Safety efficiency
- Electric supply pressure
- Electrical Input
- Connection tightness
- Verify the operation of the guard compressor resistance

24.5.3. Cooling circuit checks

- State of compressor
- Efficiency of the plate heat exchanger resistance if envisioned
- Work pressure
- Leak test for watertightness control of the cooling circuit
- Functioning of high and low pressure pressure switches
- Carry out the appropriate checks on the filter dryer to check efficiency

24.5.4. Mechanical checks

- Check the tightening of the screws the compressors and the electrical box, as well as the exterior panelling of the unit. Insufficient fastening can lead to undesired noise and anomalous vibrations
- Check the condition of the structure. If there are any oxidised parts, treat with paint suitable to eliminate or reduce oxidation.

24.1. EXTRAORDINARY MAINTENANCE

The SRAs are filled with R407C gas and are inspected at the factory. Under normal conditions they do not require Technical Assistance related to control of refrigerant gas. Through time gas leakage may be generated from the joints, causing refrigerant to escape and discharge the circuit, causing appliance malfunctioning. In these cases the leakage points are to be discovered, repaired and the Gas circuit is to be replenished, respecting the December 28 1993 n°549 law.

24.1.1. Load procedure

The load procedure is the following:

- Empty and dry the entire cooling circuit using a vacuum pump connected to the low and high pressure socket until 10 Pa is read on the vacuum meter. Wait a few minutes and check that this value does not rise above 50 Pa.
- Connect the refrigerant gas cylinder or a load cylinder to the socket on the low pressure line.
- Load the amount of refrigerant gas indicated on the appliance features plate.
- After a few hours of functioning, check that the liquid indicator indicates the dry circuit (dry-green). In the case of partial loss, the circuit must be emptied completely before being re-loaded.
- The R407C refrigerant must only be loaded in the liquid state.
- Functioning conditions that are different to the nominal conditions can give rise to values that are greatly different.
- The sealing test or the search for leaks must only be performed using R407C refrigerant gas, checking using a suitable leak detector.
- In the cooling circuit it is prohibited to use oxygen or acetylene or other inflammable or poisonous gases because they are a cause of explosions or intoxication.

We recommend to envision a machine book (not supplied, but the user's responsibility), which allows to keep track of the interventions performed on the unit. In this way it will be easy to suitably organise the interventions making research and the prevention of any machine breakdowns easier.
Use the date to record date, type of intervention made (routine maintenance, inspection or repairs), description of the intervention, measures actuated…

IT IS forbidden to RELOAD the circuit with a refrigerant gas different to the one indicated. Using a different refrigerant gas can cause serious damage to the compressor.

DISPOSAL
Envisions that disposal of the unit is carried out in conformity with the Standards in force in the different countries

WARNING:
• In the case of winter shutdown of the unit, follow one of the manoeuvres given below to prevent freezing:
- empty the water side circuit
- load the water side circuit with a suitable concentration of glycol.

WARNING:
• A power cut in the winter period and in the absence of glycol in the winter period, can cause serious damage to the unit.

25. LIST OF CONTROLS FOR THE GUIDED PROCEDURE

Some parameters in the moducontrol board must be set appropriately on the basis of the type of system in which the unit is installed.

These modifications, performed by the installer, are summarised and organised in the following guided procedures, with which to correctly set the unit circuit board parameters.

How to modify a parameter in the user menu:

To enter the **USER menu** press the key shown in (Fig.A). Once the key has been pressed the password must be inserted for access to the various menus. To access the user menu the password is **000** (which is the default displayed); to modify the value of the password use the arrow keys. Once the correct password has been inserted, press the key shown in (Fig.A). The display shows the index of the **USER** parameter and a string of three characters that identify it. The string remains displayed for one second, after which it is replaced by the value relative to the parameter itself. To pass to the next parameter, use the arrow keys (Fig.B). To modify a parameter, just select it, press the key shown in (Fig.A), modify the value using the arrow keys shown in (Fig.B). To confirm the modification press the key shown in (Fig.A) again.

PASSWORD = 000

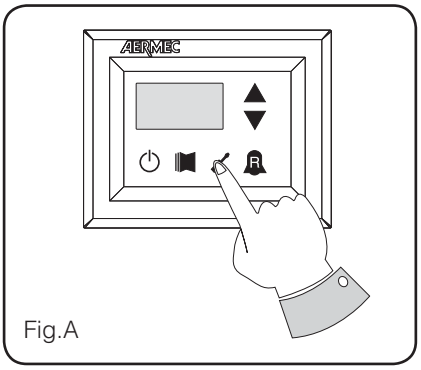


Fig.A

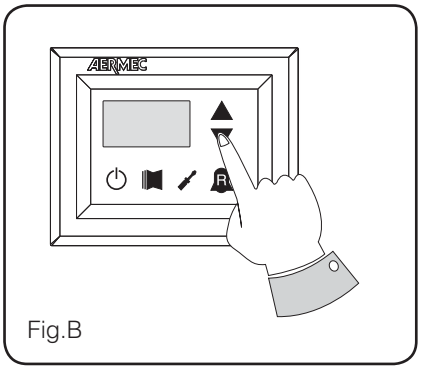


Fig.B

How to modify a parameter in the installer menu:

To enter the INSTALLER menu, press the key shown in (Fig.A). Once the key has been pressed the password must be inserted for access to the various menus. To access the user menu the **password is 030**. To modify the value of the password use the arrow keys. Once the correct password has been inserted, press the key shown in (Fig.A). The display shows the index of the INSTALLER parameter and a string of three characters that identify it. The string remains displayed for one second, after which it is replaced by the value relative to the parameter itself. To pass to the next parameter, use the arrow keys (Fig.B). To modify a parameter, just select it, press the key shown in (Fig.A), modify the value using the arrow keys shown in (Fig.B). To confirm the modification press the key shown in (Fig.A) again.

PASSWORD = 030

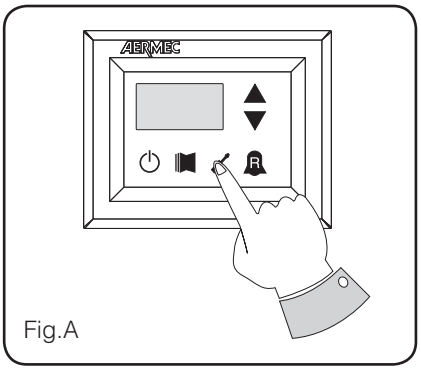


Fig.A

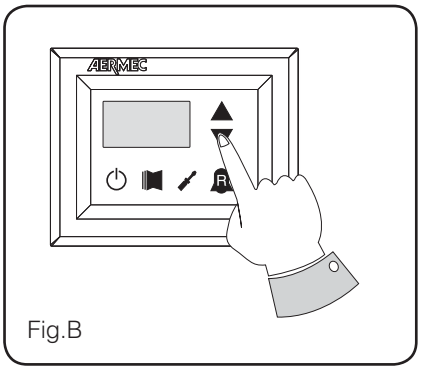


Fig.B

(1) What type of system terminals are used in the heating circuit?

Reply	Operations to be performed
Is the unit a cooling only model	Go to question 2
Radiant panels (floor, etc....)	Set the parameter StC (index 3 USER menu) with the value of 35 °C
Fan coils or Low temperature radiators	Set the parameter StC (index 3 USER menu) with the value of 45 °C (default value)
Other applications	Set the parameter StC (index 3 USER menu) with the value of 55 °C

(2) Is the remote panel accessory installed (PR3) ?

Reply	Operations to be performed
Not installed	Go to question 3
Installed	Set the **PAN parameter (index 9 INSTALLER menu)** with the appropriate value selecting from: **Value (1):** • Season control piloted from the circuit board • ON/OFF control enabled from PR3 **Value (2):** • Season control enabled from PR3 • ON/OFF control from panel on machine **Value (3)**: • Season control enabled from PR3 • ON/OFF control enabled from PR3

(3) Is the production of DHW envisioned?

Reply	**Operations to be performed**
Not envisioned	Go to question 5
Envisioned	Set the ASA parameter (index A INSTALLER MENU) with the value **(1)**

(4) Is a 3-way diverter valve envisioned in the DHW production circuit?

Reply	Operations to be performed
Not envisioned	Go to question 5
Envisioned	Set the **AAS parameter (index C INSTALLER menu)** with the appropriate value (in seconds). This parameter indicates the stand-by time for inversion of the 3-way diverter valve on the DHW production system

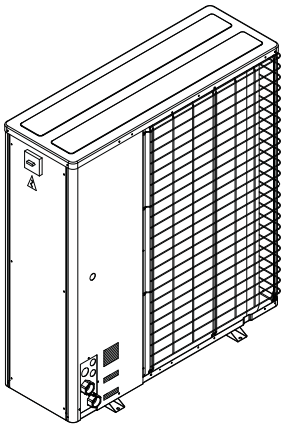
(5) Is a room thermostat installed?

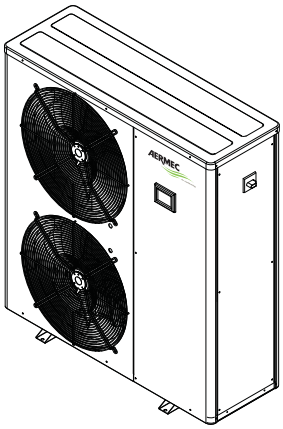
Reply	Operations to be performed
Not installed	No operation
Installed	This parameter enables a digital clamp ID (indicated on the circuit board with the code TRA) to which a room thermostat must be connected, used to disable the compressors and the integrative resistances. Set the **trA parameter (index D INSTALLER menu)** , with the appropriate value, selecting from: **Value (1 or 2):** Clamp ENABLED **Value (0 or 3):** Clamp DISABLED Remember that the OPEN state on the clamp represents: • the compressors and resistances block function if the parameter is set at 1 • the compressors, pumps and resistances block function if the parameter is set at 2 • represents the pump alarm (as in the previous software version), if the parameter is set at the value 3

For further information regarding operations that can be performed on the user and installer parameters, refer to the unit user manual.

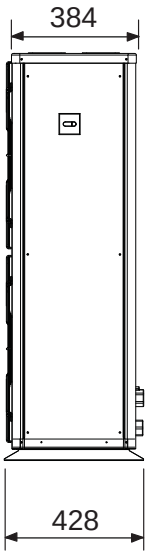
26. DIMENSIONS AND HYDRAULIC CONNECTIONS

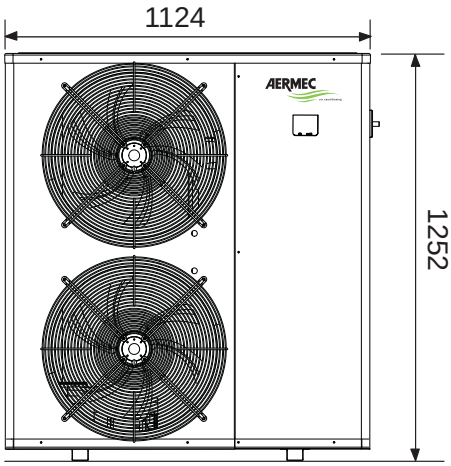
26.1. SRA 10-14-19

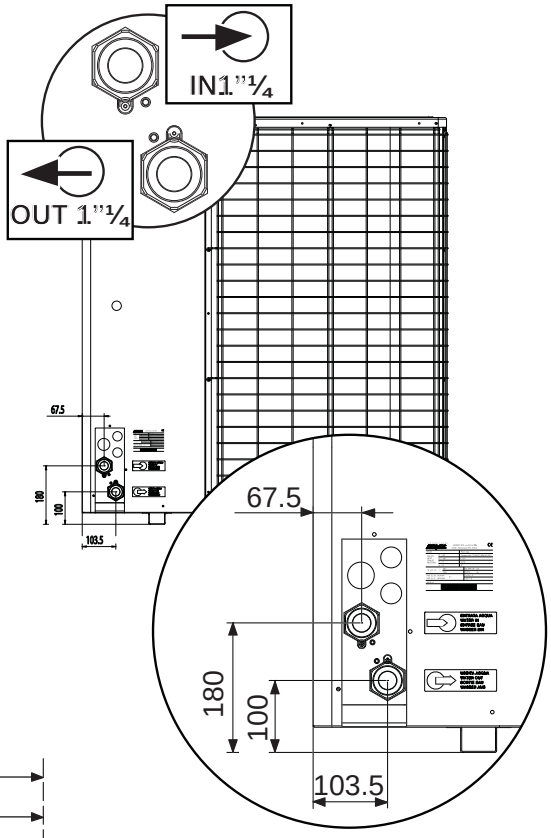


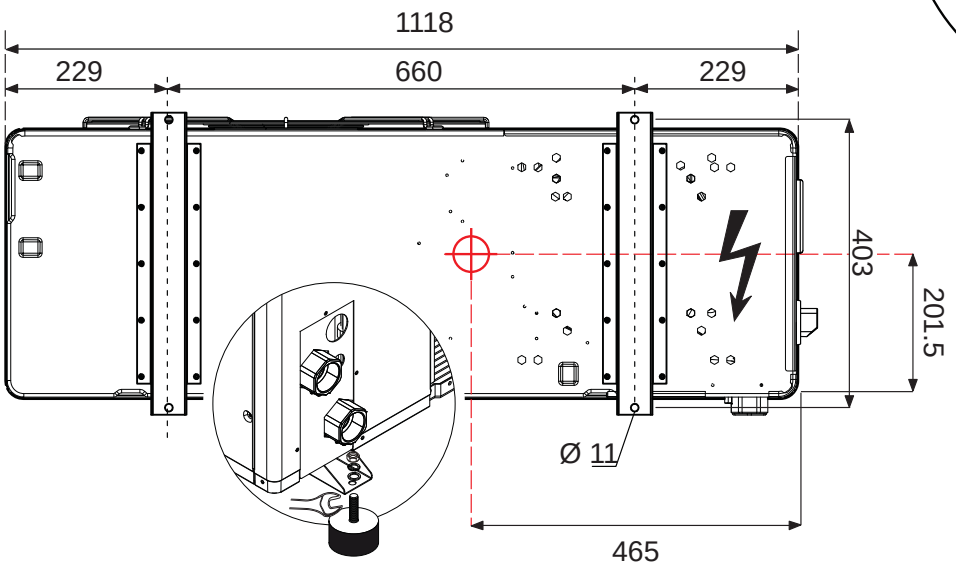


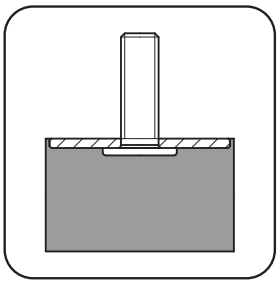
SRA	VERS.	WEIGHT (Kg)	KIT VT
10	°	153	15
10	P	157	15
10	N	160	15
14	°	172	15
14	P	176	15
14	N	179	15
19	°	182	15
19	P	186	15
19	N	189	15





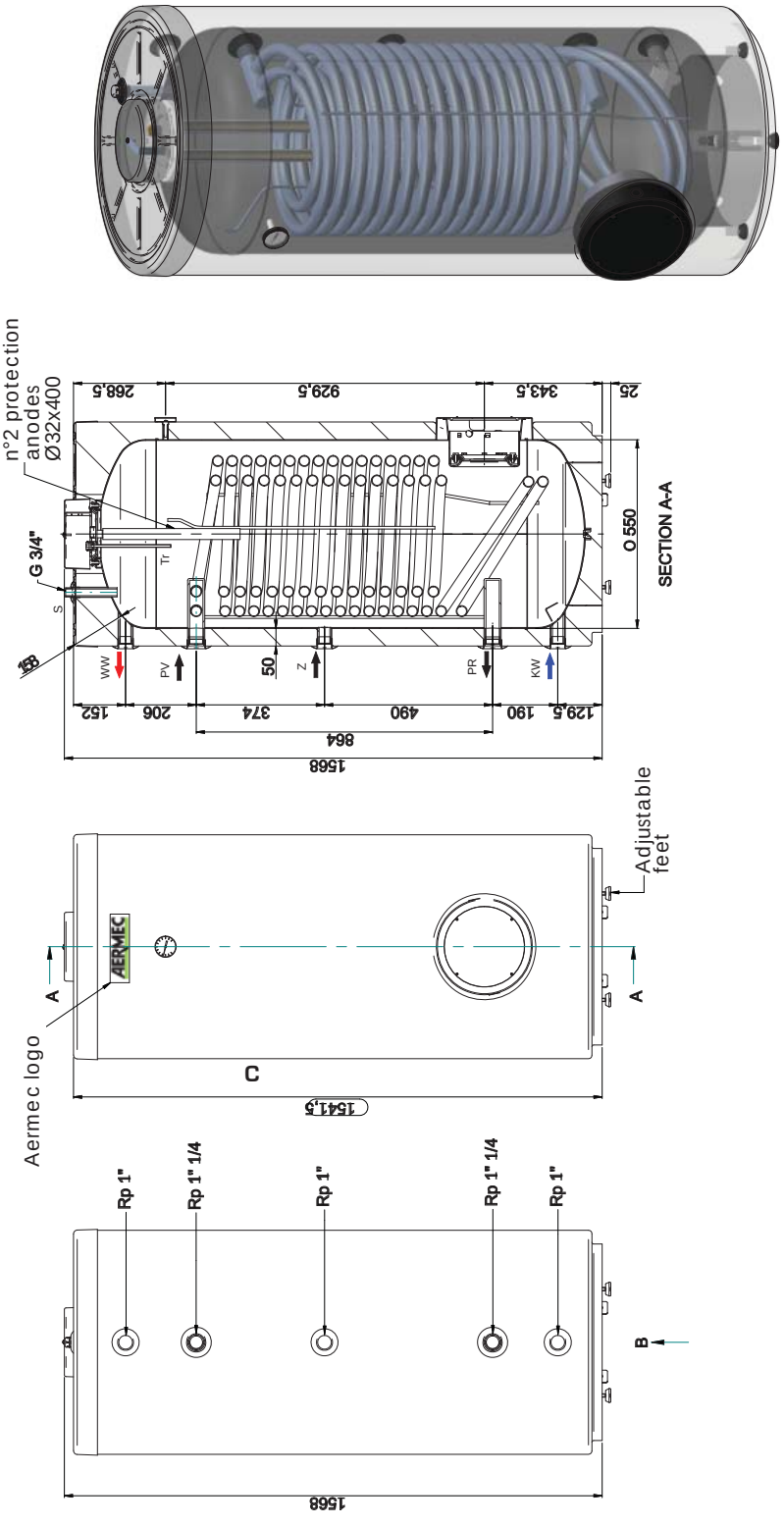






27. DHW STORAGE TSRAS

S300S

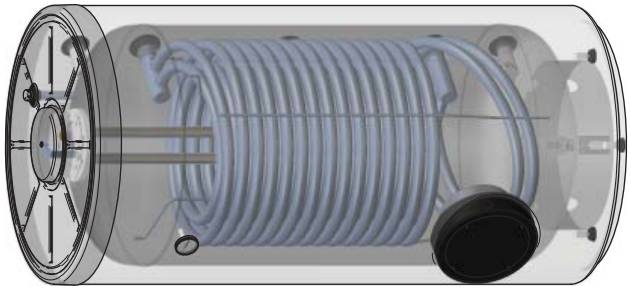


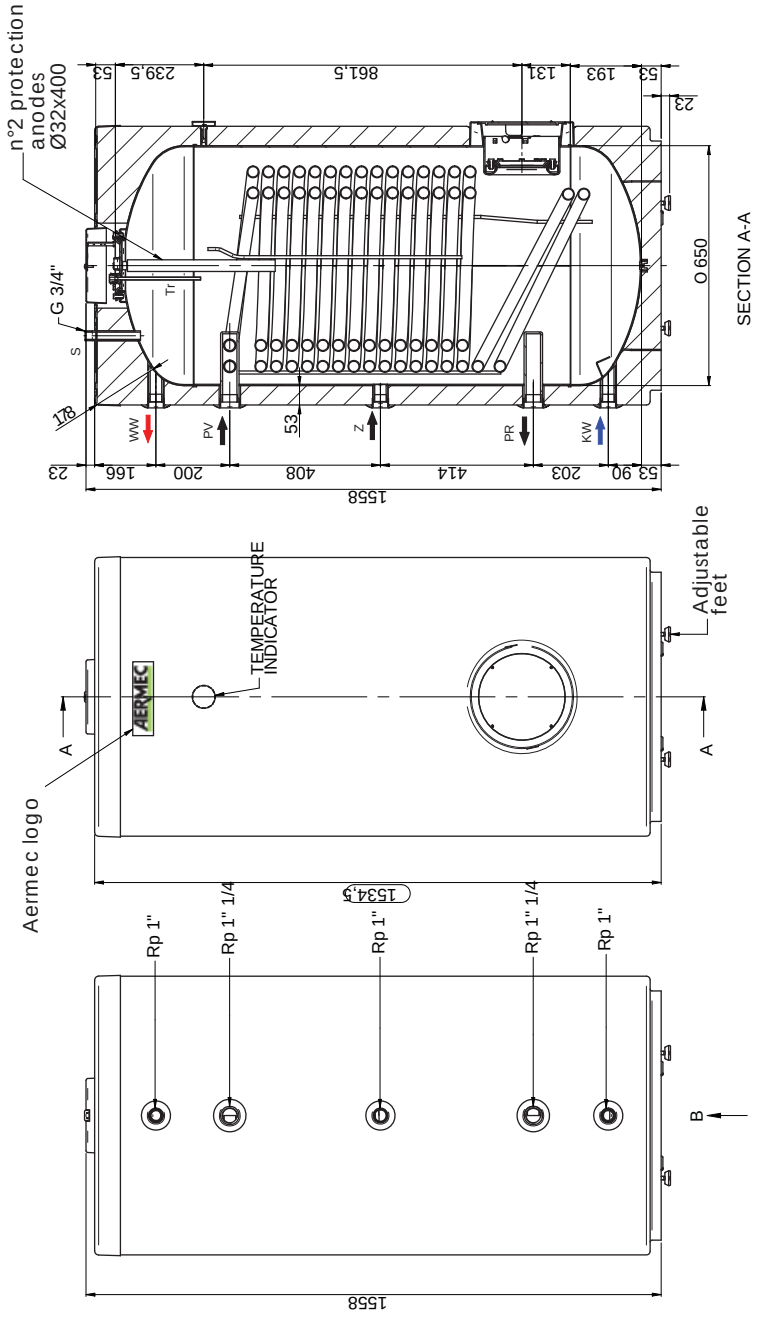
KEY	
KW	Domestic cold water inlet - Rp 1"
WW	Domestic hot water outlet - Rp 1"
PV	Heat exchanger water inlet - Rp 1"1/4
PR	Heat exchanger water outlet - Rp 1"1/4
Z	Recirculation - Rp 1"
Tr	Probe-holder sheath
S	Vent stack - G 3/4

• **TECHNICAL DATA**

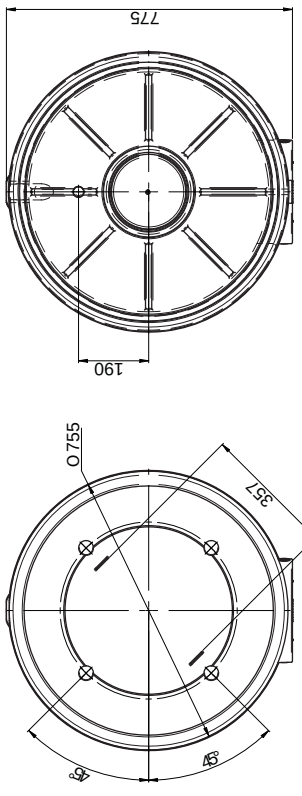
MODEL		**300**
Nominal capacity	l	300
Exchange surfaces	m^2	3.8
TSRA max.pressure	bar	10
Exchanger max. pressure	bar	16
Storage tSRA max. T	°C	95
Primary volumetric capacity	m^3/h	NA
Exchanged power (*)	kW	NA
Continuous flow rate (*)	l/h	NA
Packaged tSRA dimensions	mm	710 x 710 x 1755
Total volume	m^3	0.88

(*) *ΔT 35°C, primary temperature 65°C*





KEY	
KW	Domestic cold water inlet - Rp 1"
WW	Domestic hot water outlet - Rp 1"
PV	Heat exchanger water inlet - Rp 1"1/4
PR	Heat exchanger water outlet - Rp 1"1/4
Z	Recirculation - Rp 1"
Tr	Probe-holder sheath
SF	Vent stack - G 3/4"

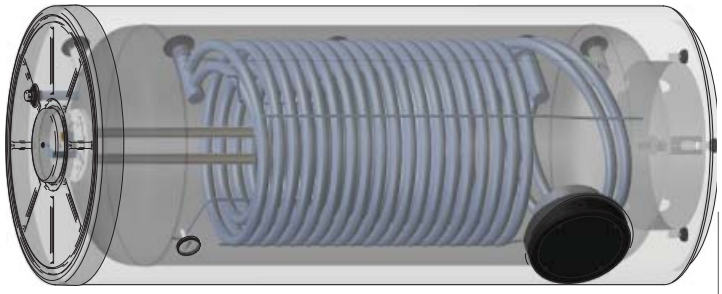


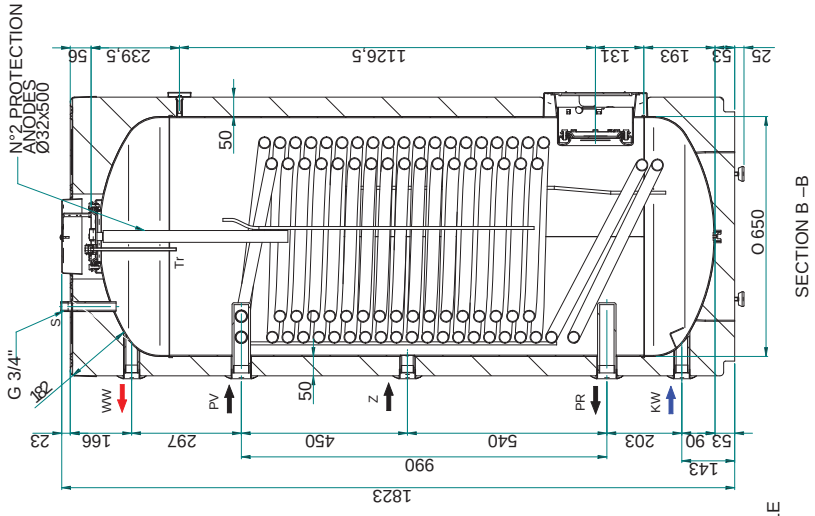
• **TECHNICAL DATA**

MODEL		**400**
Nominal capacity	l	400
Exchange surfaces	m^2	4.50
TSRA max.pressure	bar	10
Exchanger max. pressure	bar	16
Storage tSRA max. T	°C	95
Primary volumetric capacity	m^3/h	NA
Exchanged power (*)	kW	NA
Continuous flow rate (*)	l/h	NA
Packaged tSRA dimensions	mm	790 x 790 x 1700
Total volume	m^3	1.03

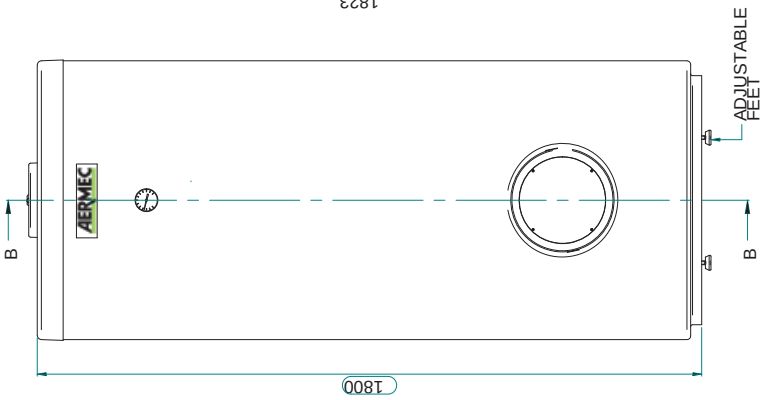
(*) *ΔT 35°C, primary temperature 65°C*

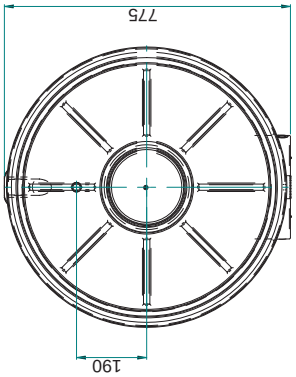
S500S

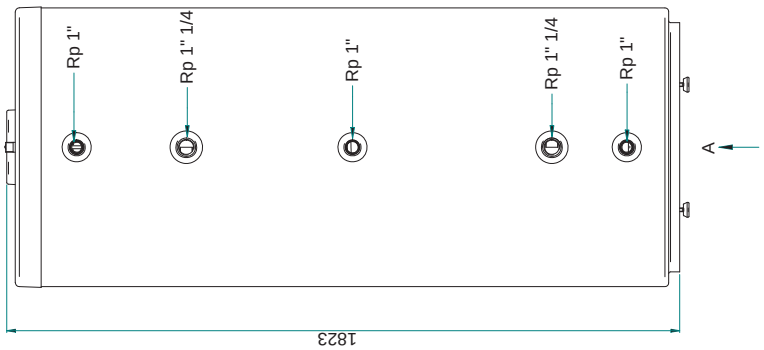


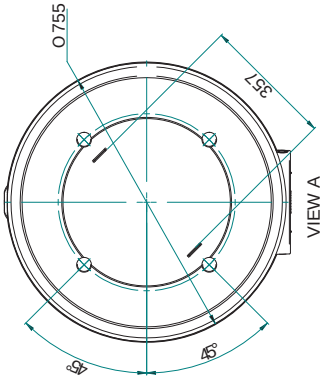


KEY	
KW	Domestic cold water inlet - Rp 1"
WW	Domestic hot water outlet - Rp 1"
PV	Heat exchanger water inlet - Rp 1"1/4
PR	Heat exchanger water outlet - Rp 1"1/4
Z	Recirculation - Rp 1"
Tr	Probe-holder sheath
S	Vent stack - G 3/4"









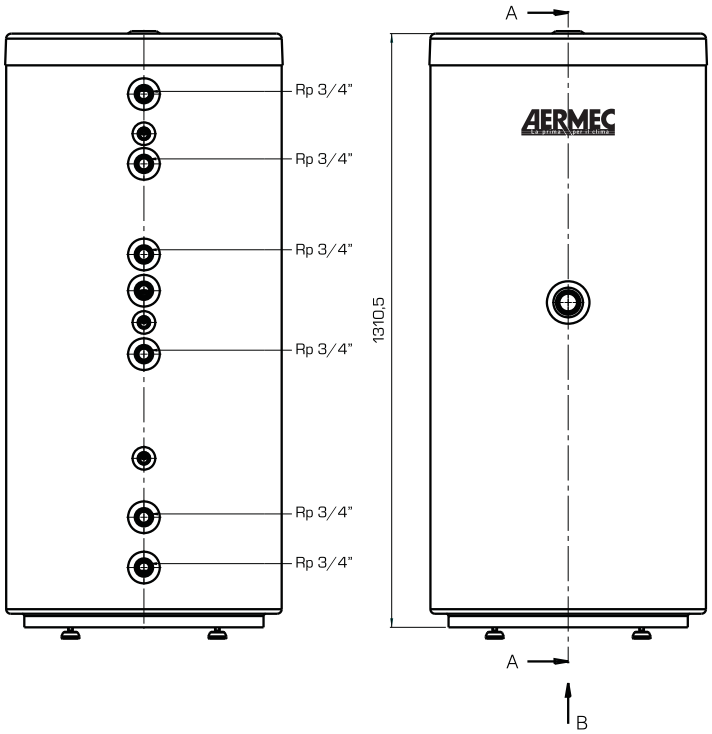
• **TECHNICAL DATA**

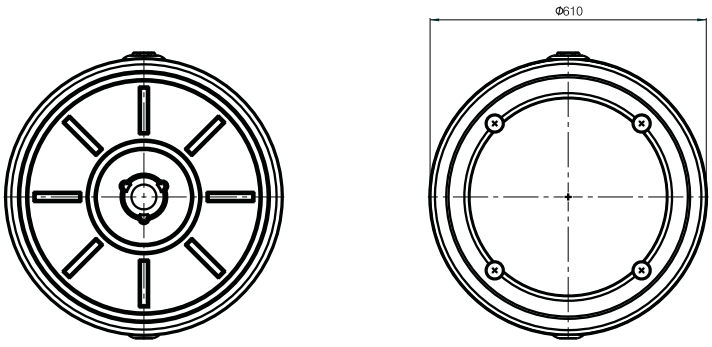
MODEL		**500**
Nominal capacity	l	500
Exchange surfaces	m^2	5.50
TSRA max.pressure	bar	10
Exchanger max. pressure	bar	16
Storage tSRA max. T	°C	110
Primary volumetric capacity	m^3/h	NA
Exchanged power (*)	kW	NA
Continuous flow rate (*)	l/h	NA
Packaged tSRA dimensions	mm	790 x 790 x 1970
Total volume	m^3	1.23

(*) *ΔT 35°C, primary temperature 65°C*

28. SYSTEM STORAGE TSRAS

S200I



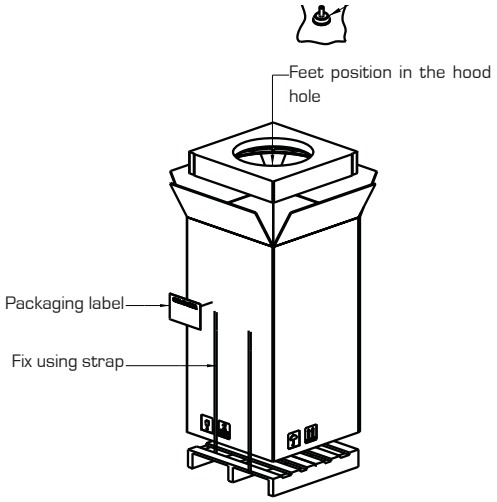


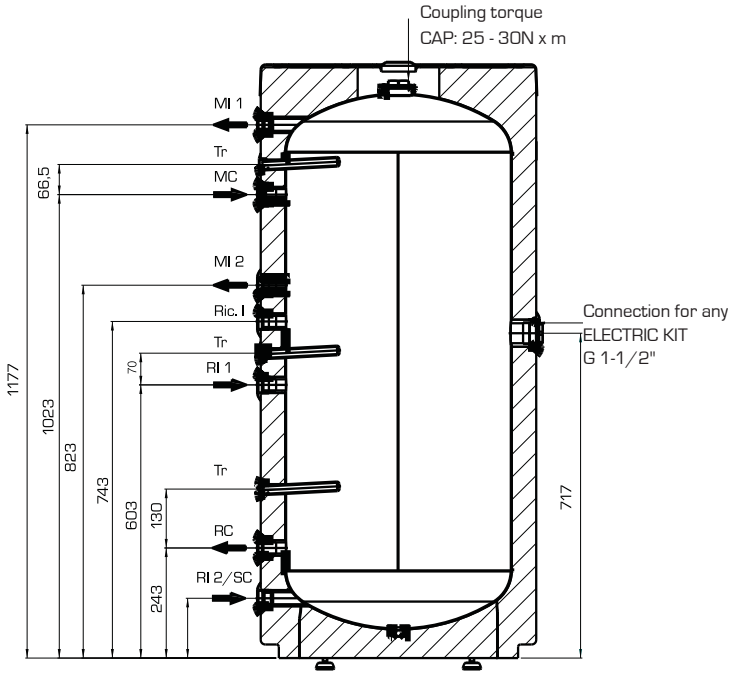
VIEW B

KEY:
MI 1: 1 - Rp 3/4" system return
MI 2: 2 - Rp 3/4" system return
RI 1: 1 - Rp 3/4" system return
RI 2/SC: 2/discharge - Rp 3/4" system return
MC:boiler flow - Rp 3/4"
RC: boiler return - Rp 3/4"
Rec. I: System recirculation - Rp 3/4
Tr: Probe-support sheath - 16

TECHNICAL FEATURES
- Nominal capacity 200 l
- TSRA maximum working pressure 3 bar
- Maximum working temperature 90°C
- Insulation: Direct polyurethane foaming without CFC and HCFC, thickness 50 mm
- External covering in PVC RAL 9016

INSPECTION
- Check tSRA sealing: Fill tSRA with air at 6 bar and then introduce into water to highlight any leaks (100%)
- Check sealing of finished product: Fill tSRA with air at 6 bar and then introduce into water to highlight any leaks in the mounted component (100%)

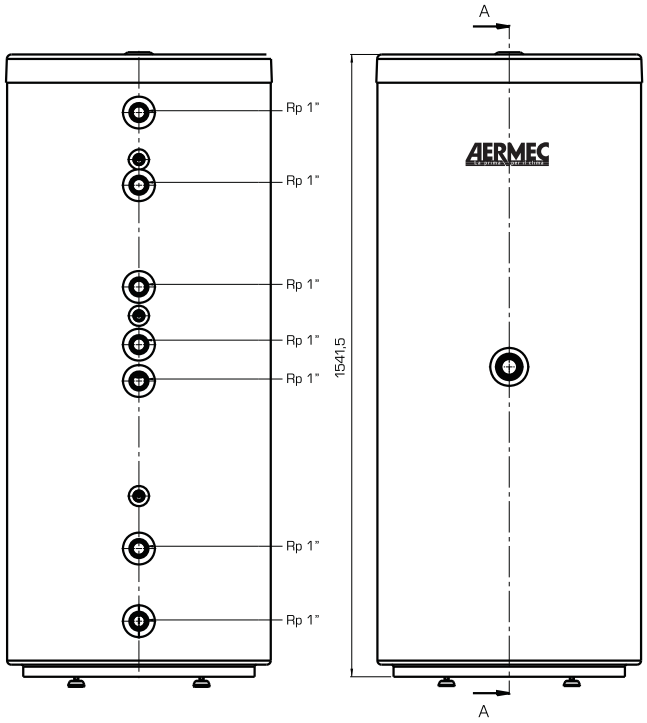




SECTION A-A

- Packaged storage tSRA dimensions: 670x670x1530 mm
- Estimated net weight: 50.5 kg
- Estimated gross weight: 62.5 kg
- Tare: 12 kg

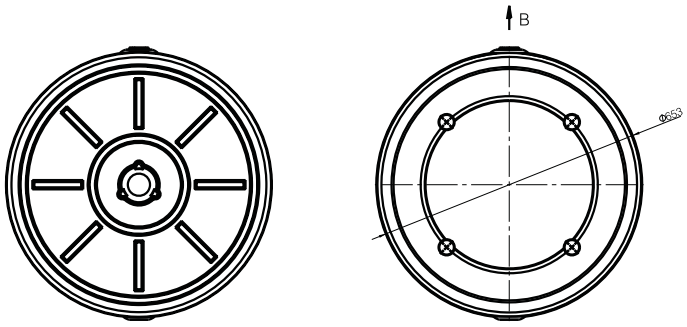
S300I

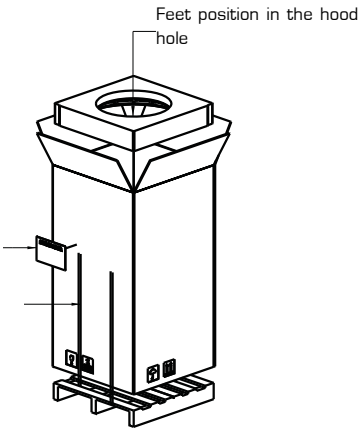


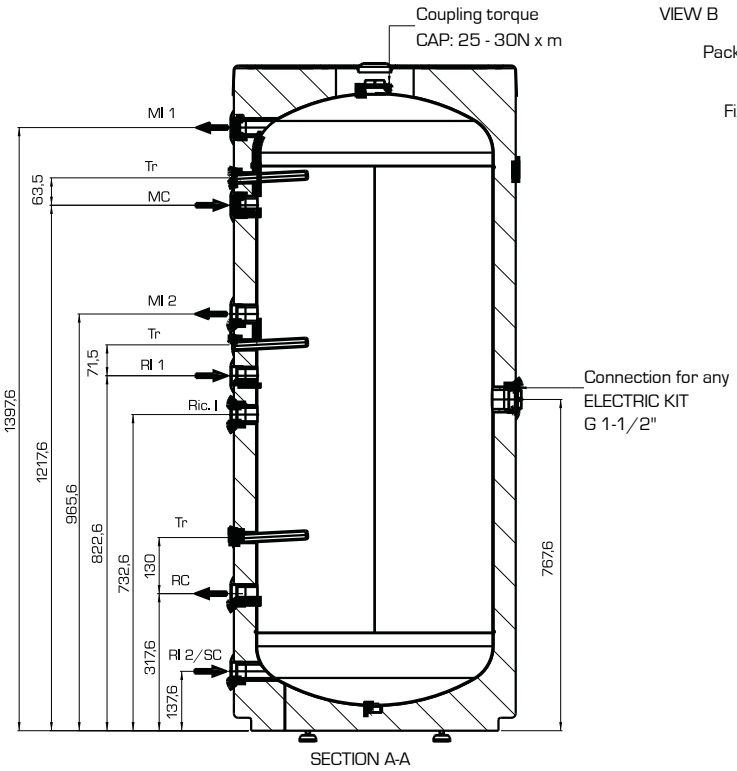
KEY:
MI 1: system flow 1 - Rp 1"
MI 2: system flow 2 - Rp 1"
RI 1: system return 1 - Rp 1"
RI 2/SC: 2/discharge - Rp 1" system return
MC:boiler flow - Rp 1"
RC: boiler return - Rp 1"
Rec. I: System recirculation - Rp 1"
Tr: Probe-support sheath - 16

TECHNICAL FEATURES
- Nominal capacity 300 l
- TSRA maximum working pressure 3 bar
- Maximum working temperature 90°C
- Insulation: Direct polyurethane foaming without CFC and HCFC,
- External covering in PVC RAL 9016, thickness 0.35 mm

INSPECTION
- Check tSRA sealing: Fill tSRA with air at 6 bar and then introduce into water to highlight any leaks (100%)
- Check sealing of finished product: Fill tSRA with air at 6 bar and then introduce into water to highlight any leaks in the mounted component (100%)

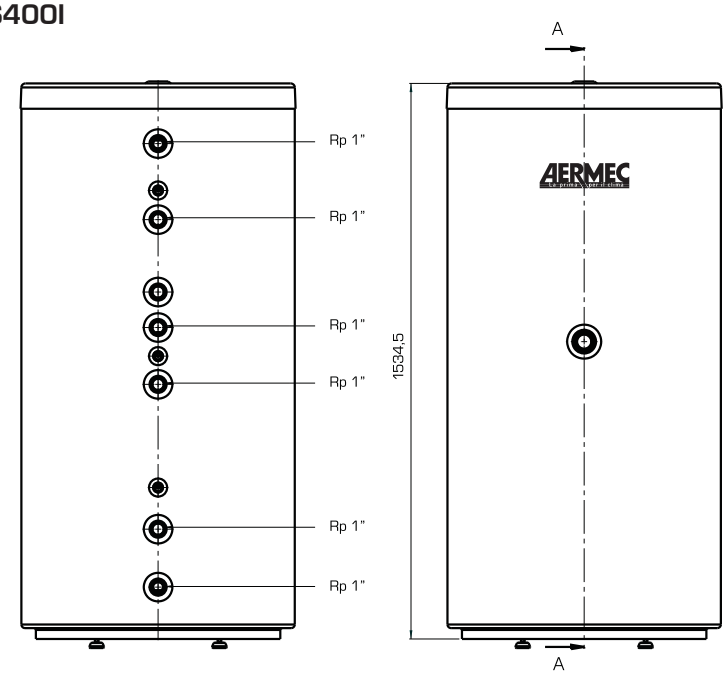






- Packaged storage tSRA dimensions: 710x710x1755 mm
  Total volume 0.88 m^3
- Estimated net weight: 74.5 kg
- Estimated gross weight: 87.5 kg
- Tare: 13 kg

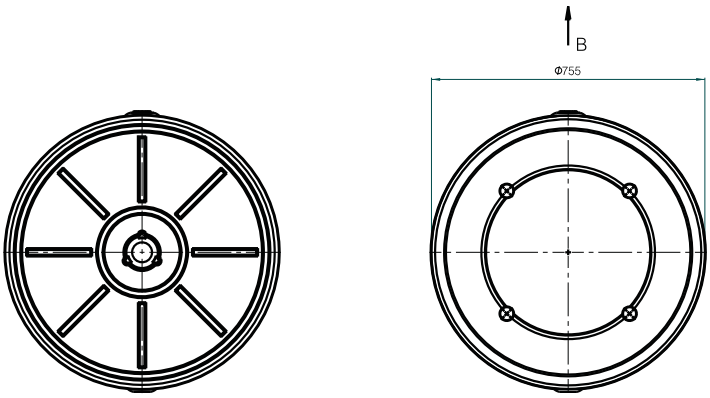
S400I

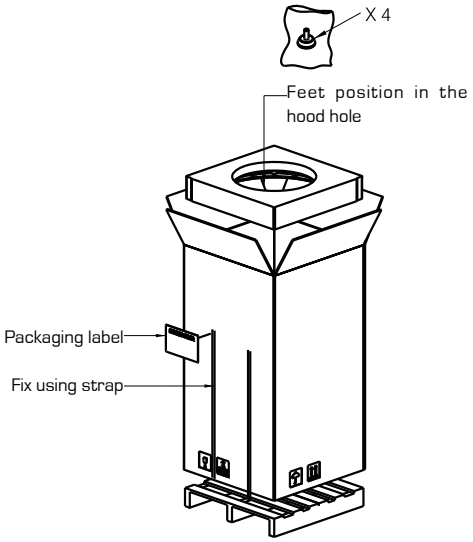


KEY:
MI 1: system flow 1 - Rp 1"
MI 2: system flow 2 - Rp 1"
RI 1: system return 1 - Rp 1"
RI 2/SC: 2/discharge - Rp 1" system return
MC:boiler flow - Rp 1"
RC: boiler return - Rp 1"
Rec. I: System recirculation - Rp 1"
Tr: Probe-support sheath - 16

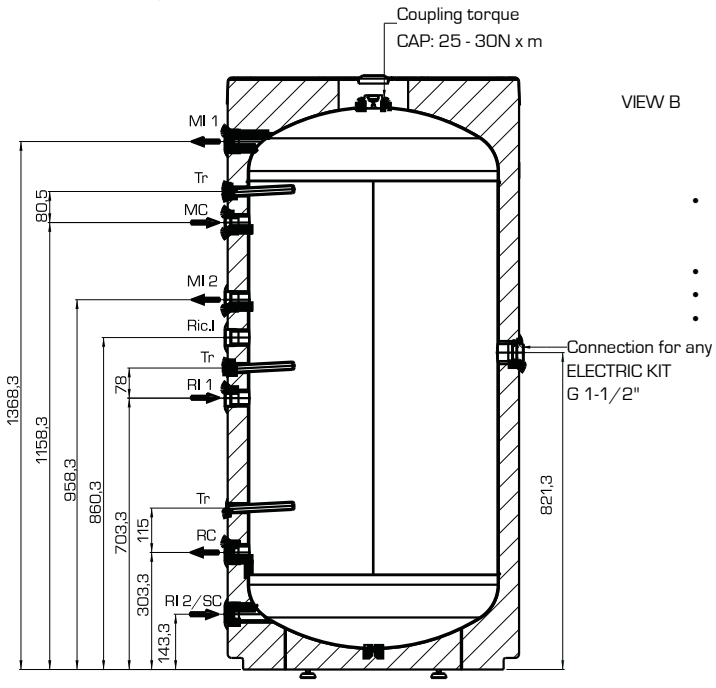
TECHNICAL FEATURES
- Nominal capacity 400 l
- TSRA maximum working pressure 3 bar
- Maximum working temperature 90°C
- Insulation: Direct polyurethane foaming without CFC and HCFC,
- External covering in PVC RAL 9006, thickness 0.35 mm

INSPECTION
- Check tSRA sealing: Fill tSRA with air at 6 bar and then introduce into water to highlight any leaks (100%)
- Check sealing of finished product: Fill tSRA with air at 6 bar and then introduce into water to highlight any leaks in the mounted component (100%)





PACKAGING LAYOUT

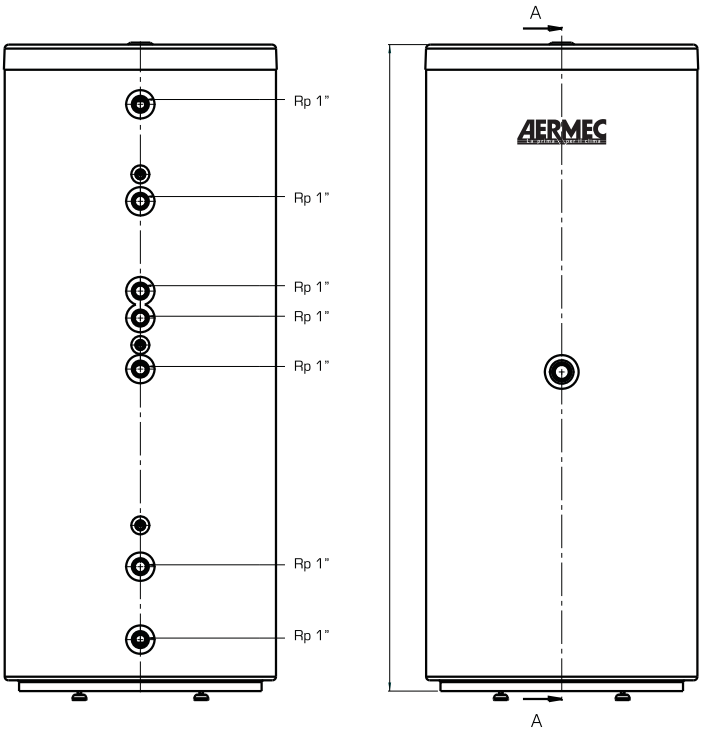


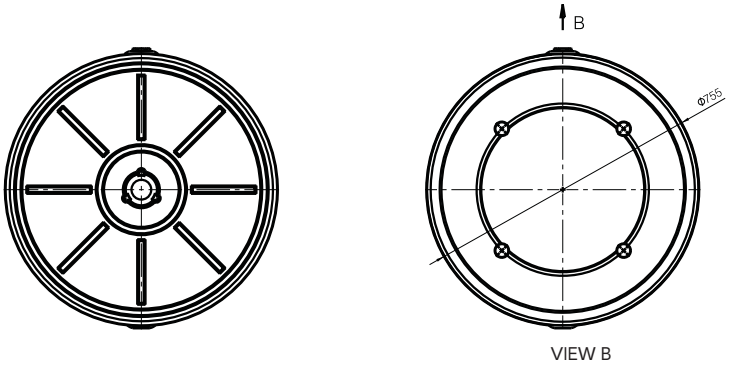
VIEW B

SECTION A-A

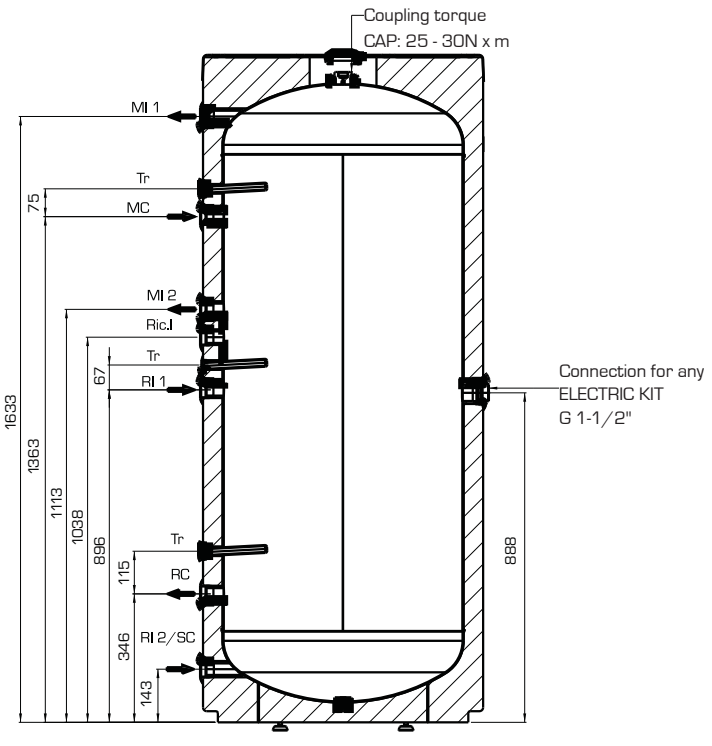
- Packaged storage tSRA dimensions: 790x790x1700 mm
  Total volume 1.03 m^3
- Estimated net weight: 96.5 kg
- Estimated gross weight: 111.5 kg
- Tare: 15 kg

S500I





VIEW B

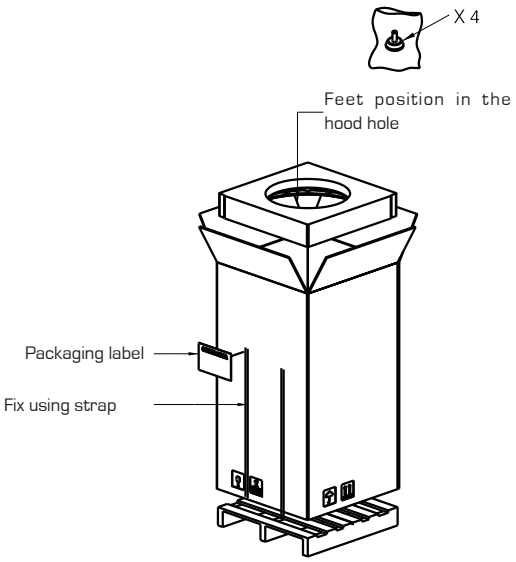


SECTION A-A

KEY:
MI 1: system flow 1 - Rp 1"
MI 2: system flow 2 - Rp 1"
RI 1: system return 1 - Rp 1"
RI 2/SC: 2/discharge - Rp 1" system return
MC:boiler flow - Rp 1"
RC: boiler return - Rp 1"
Rec. I: System recirculation - Rp 1"
Tr: Probe-support sheath - 16

TECHNICAL FEATURES
- Nominal capacity 500 l
- TSRA maximum working pressure 3 bar
- Maximum working temperature 90°C
- Insulation: Direct polyurethane foaming without CFC and HCFC,
- External covering in PVC RAL 9016, thickness 0.35 mm

INSPECTION
- Check tSRA sealing: Fill tSRA with air at 6 bar and then introduce into water to highlight any leaks (100%)
- Check sealing of finished product: Fill tSRA with air at 6 bar and then introduce into water to highlight any leaks in the mounted component (100%)



PACKAGING LAYOUT

- Packaged storage tSRA dimensions: 790x790x1970 mm
  Total volume 1.23 m^3
- Estimated net weight: 112.5 kg
- Estimated gross weight: 128.5 kg
- Tare: 16 kg

NOTES

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