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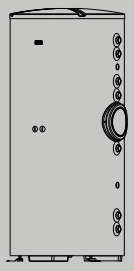
05/2022

Riello RBS 2S

DHW double-coil cylinders

Double-coil solar cylinder
Production of domestic hot water
ErP Ready - Energy class B



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Energy For Life

A Carrier Company

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Riello RBS 2S

PRODUCT DESCRIPTION

Double coil steel solar cylinders, with internal glazing treatment (according to DIN 4753) which ensures maximum hygiene and facilitates the cleaning of limestone deposits. The accurate study of tank and elliptic section coil geometries allows to obtain the best performance in terms of heat exchange, recovery times and stratification. The high efficiency insulation (ErP Ready - Class B) is obtained through foaming, for models up to 550, and with segmented cupels for models 800 and 1000. For the latter, insulation is supplied disassembled.
All hydraulic connections and the inspection flange are aligned and carefully lined with insulating material. The external finish is in embossed ABS.
The inspection flange is placed between the two coils to facilitate cleaning and allow the insertion of the heating element kit (optional).
For models up to 550, a cylinder RBS 2S Ready-i and a cylinder RBS 2S with the same capacity can be installed in parallel, using the parallel installation kit.
The system will therefore consist of:
- 1 RBS 2S Ready;
- 1 RBS 2S;
- 1 parallel installation kit.

The cylinders are preset for the attachment of transport handles (optional) specifically shaped to allow easy access through an 800 mm wide door.

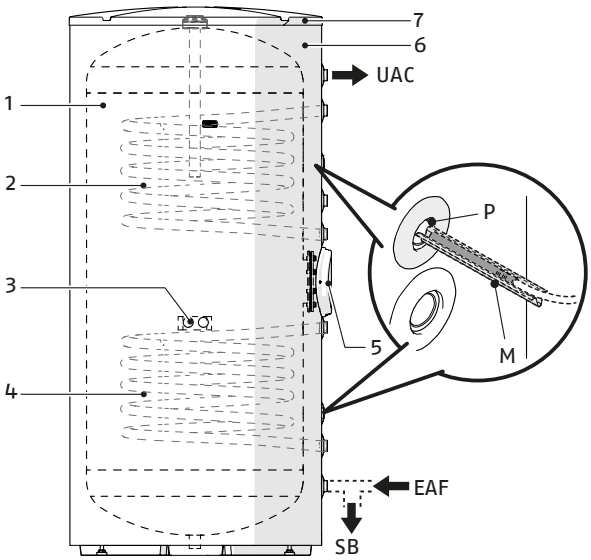
TECHNICAL DATA

DESCRIPTION		RBS 2S					
		200	300	430	550	800	1000
Cylinder type		Vertical, Glazed					
Exchanger layout		Vertical with elliptical section					
Cylinder capacity	l	208	301	442	551	731	883
Non-solar usable volume (Vbu)*	l	68	117	182	175	251	312
Solar usable volume (Vsol)**	l	140	184	260	376	480	570
Diameter of cylinder with insulation	mm	604	604	755	755	1000	1000
Diameter of cylinder with no insulation	mm	-	-	-	-	790	790
Height with insulation	mm	1338	1838	1644	1988	1846	2171
Height without insulation	mm	-	-	-	-	1745	2070
Insulation thickness	mm	50	50	50	50	100	100
Total net weight	kg	86	108	131	171	222	245
Quantity/diameter/length of magnesium anode	mm	1/33/450	1/33/450	1/33/520	1/33/520	1/40/600	1/40/600
Inside flange diameter	mm	130	130	130	130	130	130
Diameter/length of sensor-holder pockets	mm	18/180	18/180	18/180	18/180	16/180	16/180
Upper coil water content	l	3.4	4.5	6.0	6.0	9.1	9.1
Upper coil exchange surface	m2	0.7	0.8	1.0	1.0	1.6	1.6
Lower coil water content	l	3.4	5.1	7.5	9.0	11.8	12.3
Lower coil exchange surface	m2	0.7	1.0	1.4	1.8	2.3	2.7
Maximum cylinder operating pressure	bar	10				7	
Maximum coil operating pressure	bar	10				7	
Maximum operating temperature	°C	99					
Dissipation according to EN 12897:2006 ΔT=45 °C (ambient temperature 20°C and storage at 65°C)	W	62	69	60	68	94	101
Heat loss according to UNI 11300	W/K	1.38	1.53	1.33	1.51	2.09	2.24
Energy class		B	B	B	B	B	B

DESCRIPTION		RBS 2S					
		200	300	430	550	800	1000
							PERFORMANCE REFERRED TO THE COIL INTEGRATION
							Upper coil continuous output (DHW 10-45°C) (reference volume Vbu)
Coil delivery temperature							
80°C ΔT 20°C	kW	16.1	23	31.4	31.4	50	50
	l/h	400	572	774	774	1240	1240
70°C ΔT 20°C	kW	10.3	17	20.7	20.7	38	38
	l/h	247	425	505	505	930	930
60°C ΔT 20°C	kW	6.5	11	15.5	15.5	25	25
	l/h	160	277	416	375	375	620
50°C ΔT 20°C	kW	2.4	5	7	7	15	15
	l/h	57	130	170	170	380	380
							Set-up time required to heat the cylinder to 60°C, referred to the integration coil sensor, at various upper coil inlet temperatures with a coil inlet/outlet delta (Δ) of 20°C (reference volume Vbu)
Upper coil delivery temperature							
80°C ΔT 20°C	min	25	27	24	24	26	28
70°C ΔT 20°C	min	33	34	32	32	34	40
60°C ΔT 20°C	min	66	65	65	65	65	67
							Thermal output coefficient NL according to DIN 4708. The NL index, referred to the integration exchanger, indicates a number of apartments having 3.5 people that can be fully supplied, with a 140 litres and two other drawing points
Upper coil delivery temperature							
80°C	l	1.12	1.64	2.20	2.23	3.63	3.79
70°C	l	0.86	1.34	1.66	1.69	2.88	3.19
60°C	l	0.65	1.04	1.37	1.42	2.17	2.47
							PERFORMANCE REFERRED TO THE COIL INTEGRATION
							Quantity of domestic hot water obtained in 10', with cylinder preheated to 60°C (*), with primary circuit at the indicated delivery temperature, considering an increase of the domestic water temperature of 30°C between inlet and outlet (according to EN 12897)
Upper coil delivery temperature							
80°C	l	166	260	330	345	595	673
70°C	l	138	255	323	340	513	666
60°C	l	131	250	308	336	473	626
							PERFORMANCE REFERRED TO SOLAR COIL
							Amount of domestic water obtained in 10', with cylinder pre-heated to the indicated temperature (**), considering an increase in the temperature of domestic of water of 30°C between inlet and outlet (according to EN 12897)
Storage bottom temperature							
70°C	l	374	438	659	863	1190	1530
60°C	l	284	375	531	675	877	1110
50°C	l	205	310	390	485	762	790

(*) Integration coil sensor point reference, Vbu reference volume.
(**) Solar coil sensor point reference.

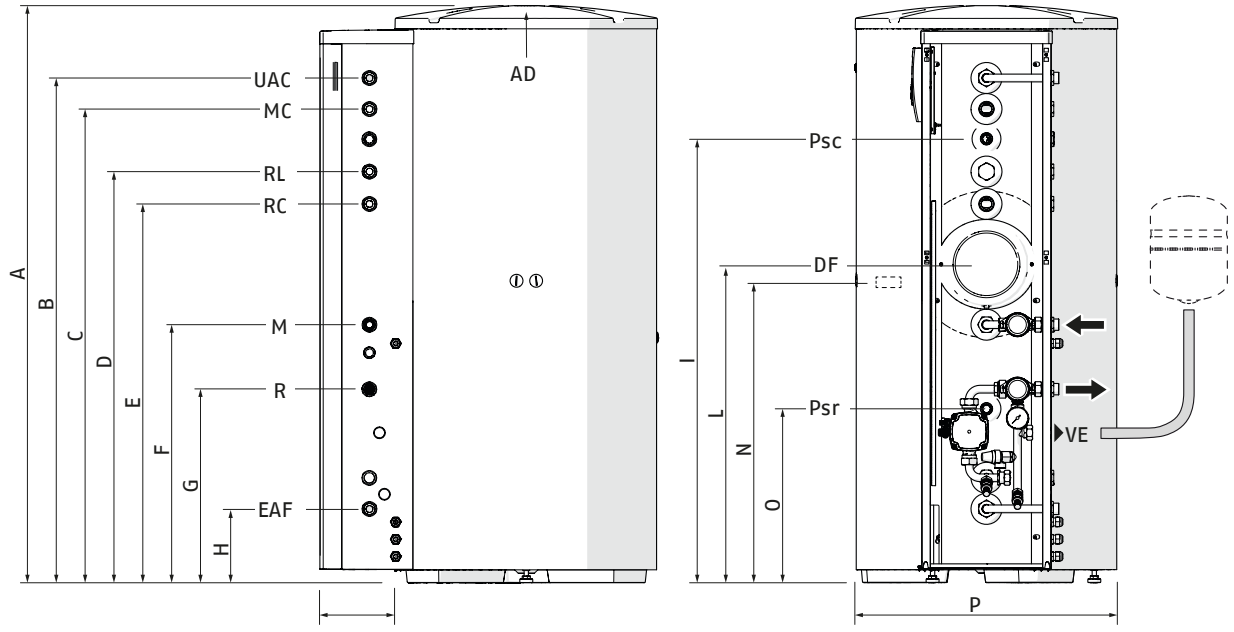
STRUCTURE



1. Upper coil
2. Prearranged for lifting handles
3. (accessory) and/or grounding point of the device
4. Lower coil
5. Cylinder inspection flange
6. Insulation
7. Cover

P Pocket
M Spring
UAC Domestic hot water outlet
CWI Domestic cold water inlet
SB Cylinder drain

HYDRAULIC CONNECTIONS

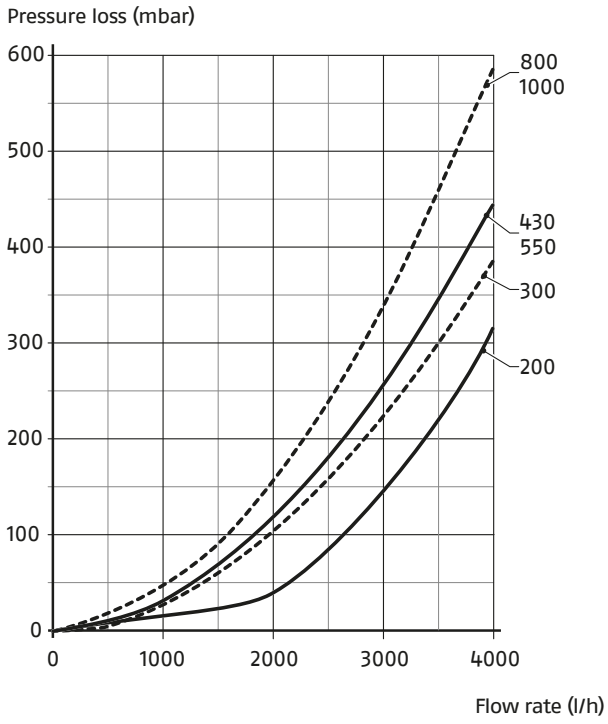


DESCRIPTION			RBS 2S					
			200	300	430	550	800	1000
UAC	Domestic hot water outlet	Ø	1" M				1" M	
BD	Boiler delivery line	Ø	1" M				1" M	
BR	Boiler return line	Ø	1" M				1" M	
M	Solar delivery line	Ø	1" M				1" M	
R	Solar return line	Ø	1" M				1" M	
DR	DHW recirculation	Ø	1" M				1" M	
EAF (HD)	Domestic cold water inlet	Ø	1" M				1" M	
Psc	Diameter/length of boiler sensor pocket	mm	18/180				16/180	
Psr	Diameter/length of solar regulation sensor pocket	mm	18/180				16/180	
AD	Quantity/diameter/length of magnesium anode	mm	1/33/450	1/33/450	1/33/520	1/33/520	1/40/600	1/40/600
FD	Inside flange diameter	mm	130	130	130	130	130	130
A		mm	171	171	208	207	75	75
B		mm	243	253	329	348	289	289
C		mm	403	393	427	443	428	421
D		mm	598	693	684	788	799	834
E		mm	738	903	824	1088	969	1006
F		mm	878	1113	964	1328	1144	1337
G		mm	953	1233	1064	1428	1234	1426
H		mm	1029	1323	1174	1538	1321	1506
I		mm	1098	1438	1289	1653	1444	1637
L		mm	1170	1670	1440	1784	1707	2032
M		mm	1338	1838	1644	1988	1846	2171
N		mm	Ø 604	Ø 604	Ø 755	Ø 755	Ø 1000	Ø 1000
O	M8 threaded inserts for grounding point/fixing of accessory handles	mm	700	700	700	700	600	600
P		mm	-	-	-	-	555	-
Q		mm	-	-	-	-	-	1237

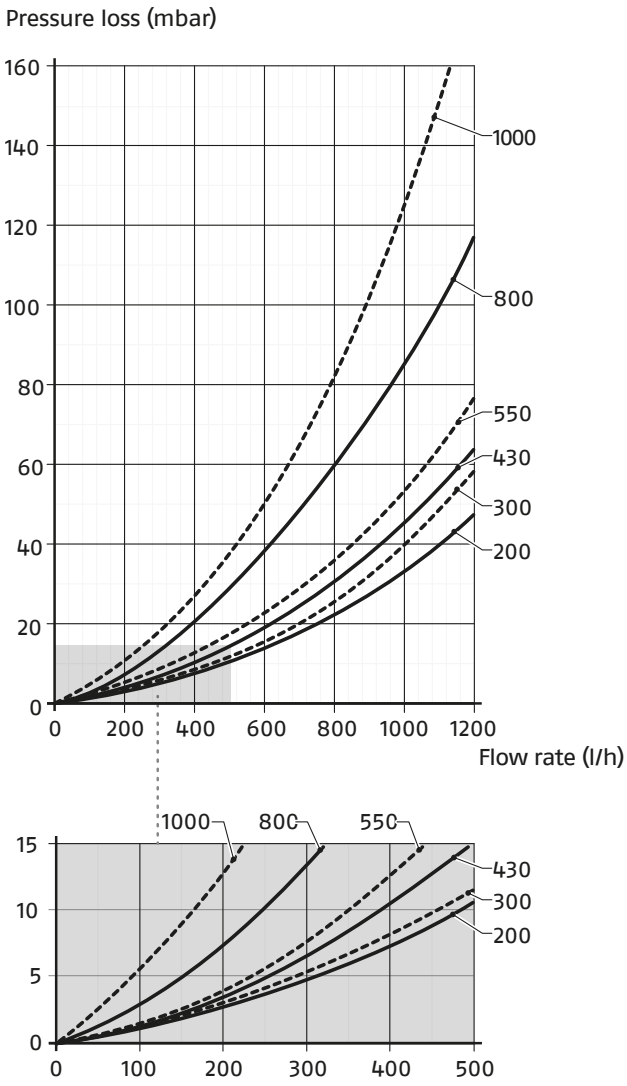
It is recommended to install shut-off valves at domestic water inlet and outlet.
When filling/loading the cylinder, check that the seals are properly sealing.
When a sensor is installed, any electric junction between sensor cable and extensions for the connection to the electric panel must
be soldered and protected with a sheath or a suitable electric insulation.

PRESSURE LOSSES

UPPER COIL



LOWER COIL



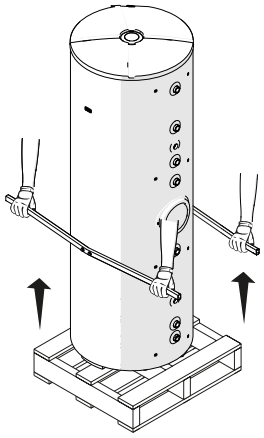
Values referred to a mix of water and 30% glycol.

ACCESSORIES

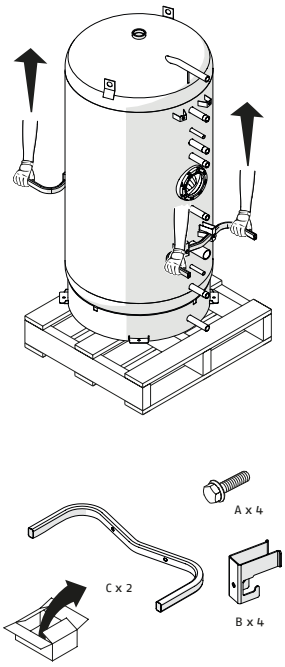
MOVING HANDLES

The kit consists of 2 very close handles and nuts to facilitate transport. During the handling phases, keep the cylinder in a vertical position, avoiding tilting it. The configuration of the handles is such as to ensure the passage through doors with a useful width of 800 mm.

MODELS 200-550



MODELS 800-1000

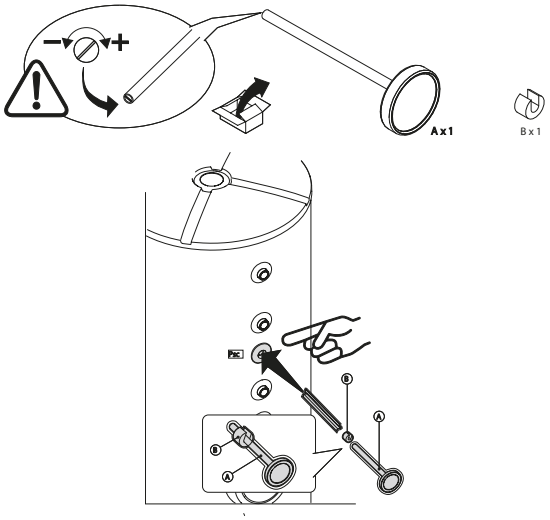


ELECTRONIC ANODE KIT WITH PLUG

The kit consists of an electronic anode equipped with power supply unit with operating LED. The kit is characterized by a plug for connection to the electric grid

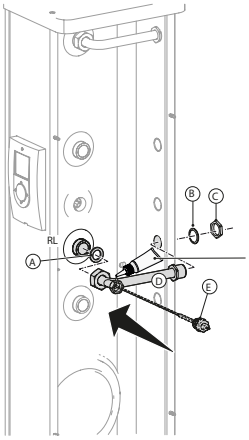
THERMOMETER

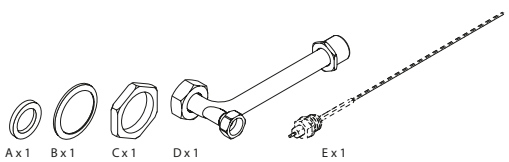
The kit consists of 1 bimetallic 0-120°C thermometer with brass bulb and gasket for thermometer



CURVE KIT FOR ELECTRONIC ANODE

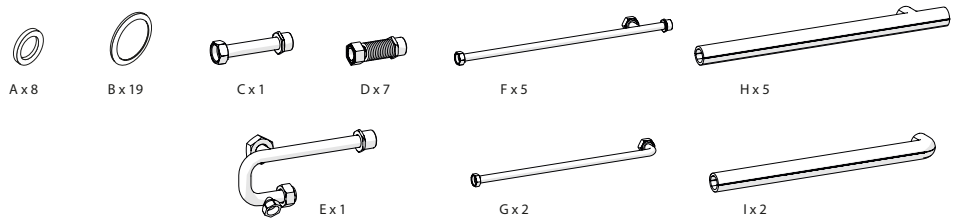
The kit consists of cylinder outlet pipe prearranged with electronic anode, washer nuts and 1" silicone seals

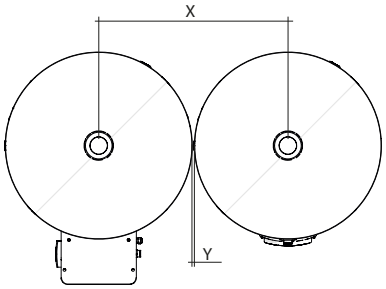


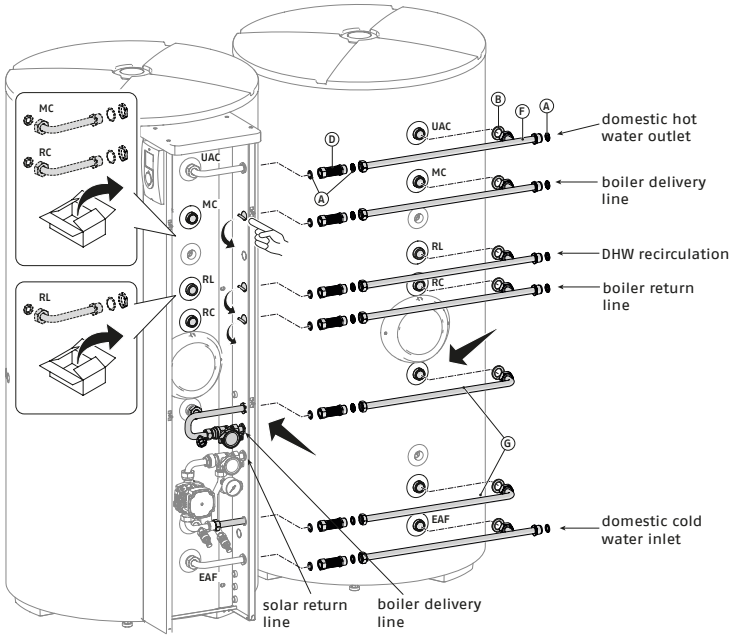


CYLINDER CONNECTION KIT

The kit is made up of pipes for the connection of cylinders in parallel of the same size.







Models	Cylinder centre distance (X)	Cylinder distance (Y)
RBS 200 2S Ready-i - RBS 200 2S	615 mm	10 mm
RBS 300 2S Ready-i - RBS 300 2S	615 mm	10 mm
RBS 430 2S Ready-i - RBS 430 2S	765 mm	10 mm
RBS 550 2S Ready-i - RBS 550 2S	765 mm	10 mm

HEATING ELEMENT KIT

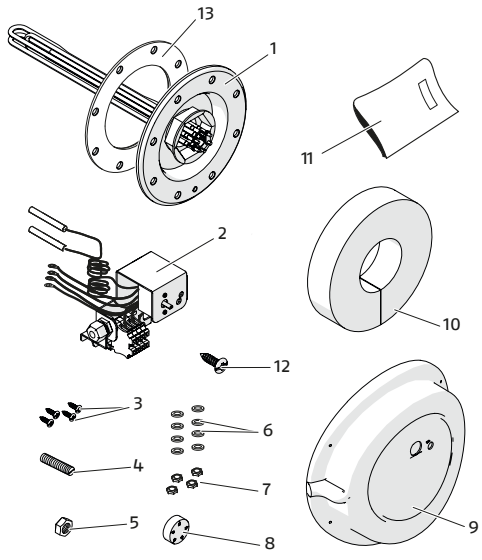
The heating element kit consists of flange G 1"1/2 with sleeve, heating element 1F, heating element thermostat knob, flange insulator, flange cover and screws. All these components are supplied in an assembly kit and is partially assembled.

Power	L (mm)	Power supply	"ST"	"SeT"	It may be combined with a cylinder of (litres)
1500 W (*)	320	1 x 230 V	95 °C	30 - 70 °C	all the heating elements can be combined on all models, thus from 200 to 1000 (check the correct code on the catalogue list)
2200 W (*)	320	1 x 230 V	95 °C	30 - 70 °C	
3000 W (*)	320	1 x 230 V	95 °C	30 - 70 °C	
3800 W (**)	400	3 x 230 V	98 °C	9 - 75 °C	

ST: Safety Thermostat
SeT: Setting Thermostat
(*) Single-phase
(**) Three-phase

	HEATING ELEMENT		CYLINDERS 200	250	300	430	550	750-800	1000	U.M.
Set-up time (Inlet DHW 10°C) Time that the heating element requires to reach the temperature set by the thermostat	1500 W	70°C	260	330	390	560	720	1040	1300	min
		60°C	200	250	300	430	550	790	990	min
		50°C	140	170	200	290	370	530	660	min
	2200 W	70°C	180	230	270	390	490	710	890	min
		60°C	140	170	210	290	370	540	680	min
		50°C	90	120	140	200	250	360	330	min
	3000 W	70°C	130	170	200	280	360	520	650	min
		60°C	100	130	150	220	270	400	500	min
		50°C	70	90	100	150	180	270	330	min
	3800 W	75°C	120	150	170	250	320	450	570	min
		70°C	110	130	160	230	290	410	520	min
		60°C	80	100	102	170	220	320	390	min
		50°C	60	70	80	120	150	210	260	min

	HEATING ELEMENT		CYLINDERS 200	250	300	430	550	750-800	1000	U.M.
Amount of domestic water obtained in 10' with cylinder pre-heated to different temperature values (temperature set on the thermostat), considering a temperature increase of DHW of 30°C, between inlet and outlet (according to EN 12897).	1500 W	70°C	206	257	309	443	566	830	1030	l
		60°C	158	197	237	340	343	740	790	l
		50°C	110	137	165	236	302	440	550	l
	2200 W	70°C	206	257	309	443	566	830	1030	l
		60°C	158	197	237	340	343	370	790	l
		50°C	110	137	165	236	302	440	550	l
	3000 W	70°C	206	257	309	443	566	830	1030	l
		60°C	158	197	237	340	343	640	790	l
		50°C	110	137	165	236	302	440	550	l
	3800 W	75°C	230	287	345	632	920	920	1150	l
		70°C	206	257	309	443	566	830	1030	l
		60°C	158	197	237	340	343	640	790	l
		50°C	110	137	165	236	302	440	550	l

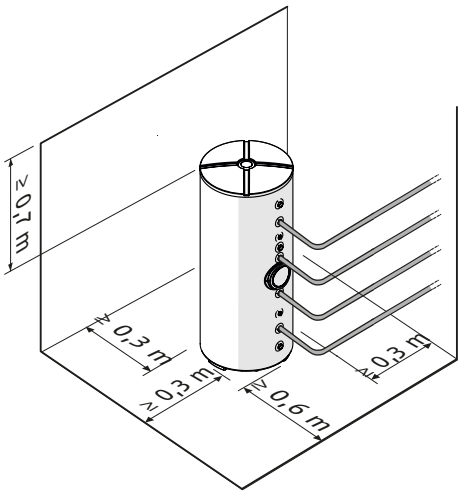


1. Heating element (quantity 1)
2. Thermostat (quantity 1)
3. Cover fastening screws (quantity 4)
4. Threaded pin (quantity 1)
5. Thermostat fastening M8 nut (quantity 1)
6. Eyelet interposition washers (quantity 4)
7. Eyelet fixing nuts (quantity depending on the model)
8. Knob (quantity 1)
9. Cover (quantity 1)
10. Insulator (quantity depending on the model)
11. Instruction booklet (quantity 1)
12. Ground eyelet fixing screw (quantity 1, only for three-phase model)
13. Flange seal (quantity 1)

INSTALLATION ON OLD SYSTEMS OR SYSTEMS REQUIRING REFURBISHMENT

When the solar cylinders of the RBS 2S range are installed on old systems or systems to be upgraded, check that:

- The installation is carried out with safety and control devices in compliance with specific standards
- The system is washed, cleaned of sludge, scale, de-aerated and the hydraulic seals have been checked
- a treatment system is provided when the supply/refill water has particular features (the values shown in the table can be considered as reference values).

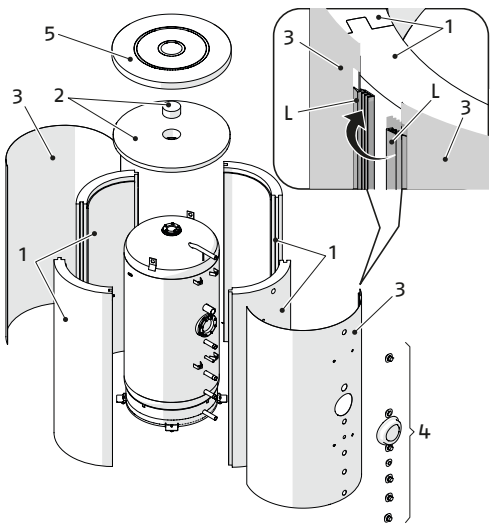


REFERENCE VALUES	
PH	6-8
Electrical conductivity	less than 200 mV/cm (25°C)
Chlorine ions	less than 50 ppm
Sulphuric acid ions	less than 50 ppm
Total iron	less than 0.3 ppm
Alkalinity M	less than 50 ppm
Total hardness	less than 35°F
Sulphur ions	none
Ammonia ions	none
Silicon ions	less than 30 ppm

INSULATION AND COVERING ASSEMBLY (MODELS 800 - 1000)

The insulation and the covering components must be installed inside the installation room to facilitate the passage through any doors and/or access to the room. To do this:

- Assemble the insulation cupels (1) around the body of the cylinder checking that the joints on the edges are positioned correctly. The edges are not required to be completely closed
- Position the front protective plate (3) correctly on the connections
- Apply washers on the connections and protection for the inspection flange (4)
- Position the rear protective plate by closing the interlocking flaps (L) without closing them completely (leave a tooth open)
- Apply the upper insulation (2) and the upper cover (5) (use a spatula if the insertion of the cover on the protection plate is difficult)
- Completely close the interlocking flaps (L) left previously with an open tooth.



RIELLO RBS 2S

CONSTRUCTION DESCRIPTION FOR CONCISE SPECIFICATIONS

Quick storage vertical glazed steel cylinder with double coil heat exchanger, with glazing by roto-coating and high thermal insulation, with cables, sensors and a new hydraulic unit already pre-assembled. Capacity of 200, 300, 430, 550, 800 (730) and 1000 (880) litres, which can be integrated in solar systems for the production of domestic hot water with RIELLO solar collectors.

CONSTRUCTION DESCRIPTION FOR SPECIFICATIONS

The double coil cylinder, ideal for solar systems, consisting of:
- Vertical steel structure, internally glazed according to the Graslining Bayer process in accordance with DIN 4753
- Elliptical cross-section heat exchangers optimised for increased turbulence and heat transfer with 0.7 m^2 upper coil for 200-litre model, 0.8 m^2 for 300-litre model, and 1.0 m^2 for 430 and 550-litre model, 1.6 m^2 for model with 800 (730) and 1000 (880) litres and with a lower coil with a surface suitable to maximise heat exchange and optimise the efficiency of the solar system of 0.7 m^2 for 200-litre model, 1 m^2 for 300-litre model and 1.4 m^2 for 430-litre model, 1.8 m^2 for 550-litre model, 2.3 m^2 for 800 (730)-litre model and 2.7 m^2 for 1000 (880)-litre model
- Insulation made of closed-cell polyurethane foam with a minimum thickness of 50 mm, CFC-free for models up to 550 litres and mixed felt + expanded polystyrene, self-supporting, easily installation with 4 interlocking segments without the need for straps (total 100 mm) for models with 800 (730) and 1000 (880) litres, can cancel the internal convective effect, reduce heat loss and facilitate installation on site
- Insulation supplied disassembled for models with 800 (730) and 1000 (880) litres to ensure passage through doors with a useful width of 800 mm
- Energy class B. Dissipation values: 62 W for 200-litre model, 69 W for 300-litre model, 60 W for 430-litre model, 68 W for 550-litre model, 94 W for 800-litre (730) model and 101 W for 1000-litre (880) model
- ABS RAL 9006 embossed coating
- Storage inspection and cleaning flange positioned to the side and between two coils to facilitate its cleaning, recessed and carefully insulated to minimize heat losses
- Sensor-holder pockets
- Magnesium anode for corrosion protection
- Cylinder water content of 200 litres/300 litres/430 litres/550 litres/730 litres/880 litres
- Maximum operating pressure of cylinder and coil 10 bar (up to 550 litres) and 7 bar (up to 1000 litres)
- Compliant with DIN 4753-3 and UNI EN 12897.

ACCESSORIES

Electronic anode equipped with plug
Curve kit for electronic anode
Moving handle kit
Thermometer kit
Kit for cascade connection of 2 cylinders
Single-phase 1500W heating element kit
Single-phase 2200W heating element kit
Single-phase 3000W heating element kit
Three-phase 3800W heating element kit

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