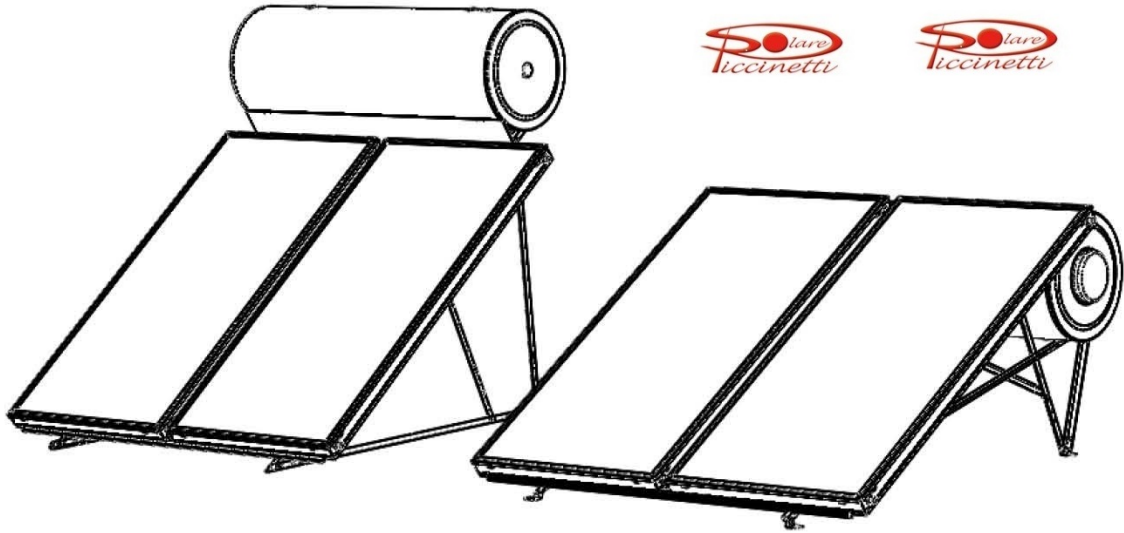




# Installation manual - Owner instructions - Warranty



– A series

— BASSO PROFILO





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In a separate document you may find guidelines of:

- Installation of the structure
- Installation of the collector/tank etc
- Hydraulic connections

## Safety Information

	<p>Safety precautions: Before commencing mounting work on roofs, it must be ensured in all cases that the non-personal fall protection and fall-arrest systems required by DIN 18338 (Roof Covering and Roof Sealing Works) and DIN 18451 (Scaffolding Works) are in place. See also Builders' Protection Ordinance [Bauarbeiterschutverordnung], Federal Law Gazette 340/ 1994, paragraphs 7-10! Other country-specific regulations must be observed!</p>		<p>Safety harnesses should be fixed above the users whenever possible. Safety harnesses should only be fastened to sufficiently load-bearing structures or fixing points!</p>
	<p>If non-personal fall protection or fall-arrest systems cannot be installed for technical reasons, all personnel must be secured by means of suitable safety harnesses!</p>		<p>Never use damaged ladders (e.g., wooden ladders with split runners or rungs, or bent or buckled metal ladders). Never try to repair broken runners, rungs or steps on wooden ladders!</p>
	<p>Only use safety harnesses (safety belts, lanyards and straps, shock absorbers, fall arresters) that were tested and certified by authorized testing bodies.</p>		<p>Ensure that ladders are put up safely. Observe the correct leaning angle (68° - 75°). Prevent ladders from sliding, falling over or sinking into the ground (e.g. using wider feet, feet suited to the ground or hooking devices).</p>
	<p>If non-personal fall protection or fall-arrest systems are not provided, working without the use of suitable safety harnesses may lead to falls from heights and therefore cause serious or lethal injuries!</p>		<p>Only lean ladders against secure points. Secure ladders in traffic areas by suitable cordoning.</p>
	<p>Ladders not properly secured against sinking in, sliding or falling over may lead to dangerous falls!</p>		<p>Contact with live electric overhead cables can be lethal.</p>
	<p>Whenever you are near live overhead electric cables where contact is possible, only work if:</p> <ul style="list-style-type: none"> <li>- it is ensured that they are voltage-free and this is secured for the duration of work.</li> <li>- the live parts are secured by covering them or cordoning them off.</li> <li>- the prescribed safety distances are maintained.</li> </ul> <p>Voltage radius:</p> <p>1 m .....voltages up to 1000V  3 m .....voltages from 1000V to 11000V  4 m .....voltages from 11000V to 22000V  5 m .....voltages from 22000V to 38000V  &gt; 5 m in case of unknown voltages</p>		<p>Wear protective goggles when drilling and handling collectors!</p>
			<p>Wear safety shoes when carrying out installation work!</p>
			<p>Wear cut-proof safety gloves when mounting collectors!</p>
	<p>The manufacturer hereby guarantees to take back products identified with an eco-label and to recycle the materials used. Only the heat transfer medium specified may be used!</p>		<p>Wear a helmet when carrying out installation work!</p>

## 1. General

Thank you for choosing our product. With this high quality, high efficiency product you have made the perfect choice. Please read the manual carefully before proceed to the installation and commissioning of the product, as it contains important information for the proper installation and safety.

After completing the commissioning, the present manual must be kept by the end user in good condition, as it is most important document of the product. We would like to comment that the proper function can ensured only if:

- You have annual maintenance realized by qualified technicians
- Followed the present instructions
- The stated operational recommendations are complied with.

### 1.1 Expert persons

It means that all operations such as installation, commissioning and maintenance is realized by qualified technicians.

### 1.2 Storage and transport

The system components must not be stored outdoors without proper protection. It is recommended to be stored indoor, taking under consideration that there are fragile parts, such as the solar glass on the panel.

The solar tank must be transported with it's packaging, to ensure no damages. The tanks are sensitive to vibrations due to internal enamel protection. The solar collectors must be protected during transport against glass braking.

### 1.3 General installation instructions

Installation can be realized only by qualified technicians. The supplied materials must be used for the installation, Before start the installation pay attention to local regulations and applicable standards.



## 2. Installation guidelines

### 2.1. System alignment

For the proper installation of the system you have to choose a suitable location without any shadow all over the year.

The optimum efficiency is achieved if the system is installed pointing south for the north hemisphere or north for the south hemisphere.

The minimum inclination is 15 degrees and maximum 40 degrees. Deviations to the mentioned limits are not allowed.

### 2.2. Structural engineering aspects

The system may only be installed on a roof or a sub structure with sufficient load bearing capacity. The static load bearing capacity must be checked for compliance with local and regional stipulations at the site before proceed to the installation. If necessary a structural engineer might be advised. In particular must be checked the quality of the wooden or steel substructures if can resist long lasting screw connections.

### 2.3. Information regarding inclined roofs

The installation of the system on the roof is an intervention in an existing roof. The customer should take extra measures to avoid water penetration as a result of wind and snow loads. When selecting the installation area note that the maximum permitted loads must not be exceeded as a result as a result of snow and wind loads. Ensure that the system itself will not work as snow catcher. To avoid extra wind loads ensure that the collectors are not installed at the edge of the roof (eg min distance of 1m from the edge).

### 2.4. Information regarding flat roofs

The installation of the system on the roof is an intervention in an existing roof. The customer should take extra measures to avoid water penetration as a result of wind and snow loads. When selecting the installation area note that the maximum permitted loads must not be exceeded as a result as a result of snow and wind loads. If there is insulation on the roof, this must be checked by the installer and take all the necessary measures to avoid damages to the insulation and water penetration.

### 2.5. Lightning protection

According to EN62305 parts 1-4 the system must not be connected to the building's lightning protection. A safety gap of at least 1m from any adjacent conductive object is to be maintained. Authorized and qualified electrician must be consulted.



### 3. Operational recommendations

#### 3.1. Frost protection

In frost-endangered areas the system must be protected from frost. The system is closed loop system, so the right quantity of glycol is ensuring the frost protection.

**ATTENTION:** The hot and cold lines are not protected against freezing. When installing the system, the pipes must be well insulated.

#### 3.3 Connections and piping

The system can reach temperatures higher than 95 C which can lead to serious injuries. As result it is recommended to use thermostatic mixing valve in order to limit the maximum temperature of the hot water to 60 C.

Only use pipes and fittings which can resist in such high temperature.

Model		A168-A169		A208-A228-A230		A308	
Mixture %	Min temperature	Closed loop capacity (l) including collectors (for the 200 it is considered the models A230)					
		10.00		15.00		21.80	
		Glycol	Water	Glycol	Water	Glycol	Water
35	-17	3.50	6.50	5.50	9.50	7.50	14.30
40	-22	4.00	6.00	6.00	9.00	9.00	12.80
45	-27	4.50	5.50	7.00	8.00	10.00	11.80

#### 3.2. Commissioning of the system

This a natural circulation system with 2 circuits. The solar circuit is completely separate from the process water circuit.

In order to protect the materials from excessive thermal load, the filling and commissioning of the system should be carried out as soon as possible after installation, but after 4 weeks at the latest. If this is not possible, the gaskets should be replaced before commissioning to prevent leaks.

For safety reasons filling process should only be carried out during periods when there is no direct sunlight and with the solar panels covered over (cover the panels with a non – transparent material eg carton-board). This prevents heating of the solar system during installation.

The use of an antifreeze-water mixture in the solar circuit is necessary, particularly in areas where frost is prevalent.

**Caution: Guarantee claims are only valid if the system has been used in conjunction with the supplier's original frost protection agents and if the system has been properly installed, commissioned, and maintained.**

For commissioning, you must make sure that the supply lines for the cold and hot water supply and the solar circuit must be connected in accordance with the hydraulic diagram.

**As first step you should always fill the storage tank with water!!!**

The following sequence must be observed when filling the solar circuit:

- Mix the glycol with water before filling. Filling must be realized very slowly.
- The solar circuit must be completely full
- If the solar circuit cannot accommodate the stipulated volume, check the system for possible faults.

The pipes should be well insulated using UV protected components only.

The domestic water must be protected against high pressure. If the pressure from the main exceeds the 4 bar, then is recommended to use pressure reducer device.

The storage tank is equipped with ¾" female threads. For the sealing, use the right components which can resist the temperature conditions. The safety valve provided must always be connected and ensure that works properly.

The collectors to the tank must be always connected with the components which are provided.

#### 3.4. Periods without consumption

If the system is not used over a period of approx 2 weeks, it is recommended to cover the collectors with non-transparent material.

To avoid the growth of legionella bacteria it is recommend it to heat up the tank above 60C, once every week.

#### 3.5. Maintenance and shutting down the system

Maintenance operations can be realized only by qualified technicians. The system must be regularly checked and documented according to the checklist contained in the present manual. 6 months after the installation it is recommended to be checked some points such us valves, screws, mg anode etc.

During shutting down the collectors must be covered by a non-transparent material. Ensure that the electrical element is not switched on. If required to remove the electrical element or the mg anode, make sure that there is no hot water in the tank.

**ATTENTION:** Open carefully screwed parts, as the tank is operating under pressure.

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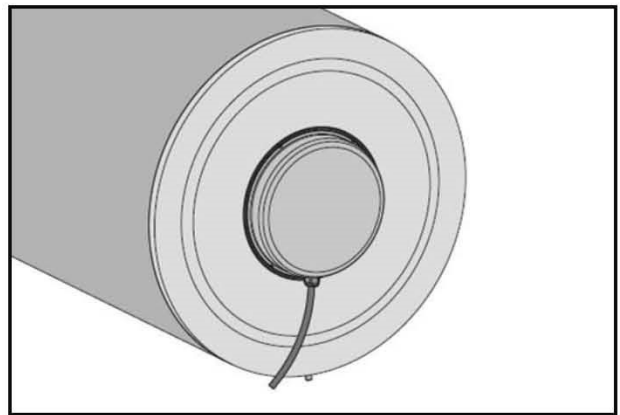
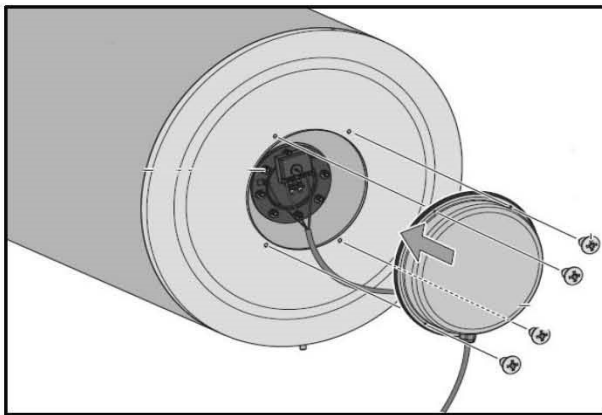
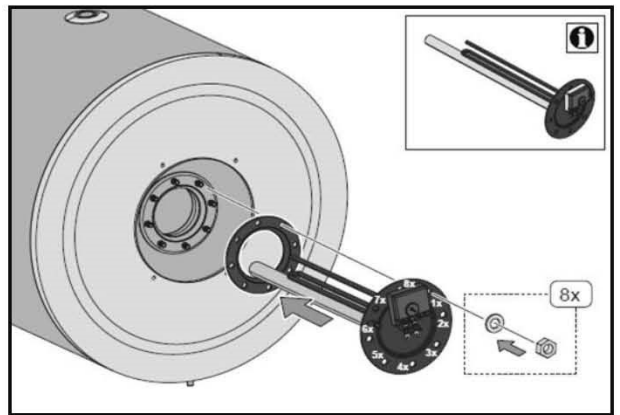
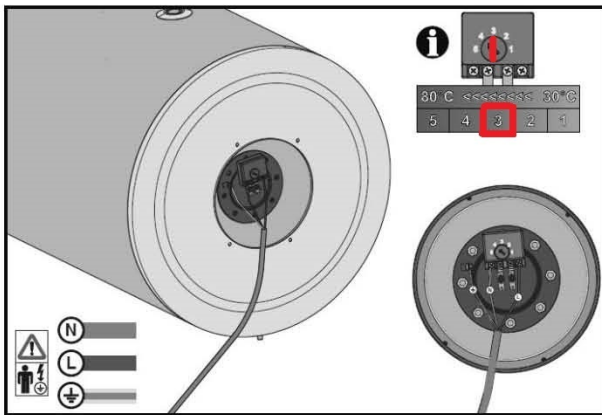
### 3.6. Temperature regulated electric heater and magnesium anode

The electrical element is available optionally and can be installed only by a qualified technician.

The system is equipped with 2 magnesium anodes and require regular replacement.

### 3.7. Safety instructions of the electrical element

For installing or replacing the electrical element make sure that the collector is covered by a non transparent material. The electrical element must be switched off. The electrical element can be switched on, only if the tank is full of water.



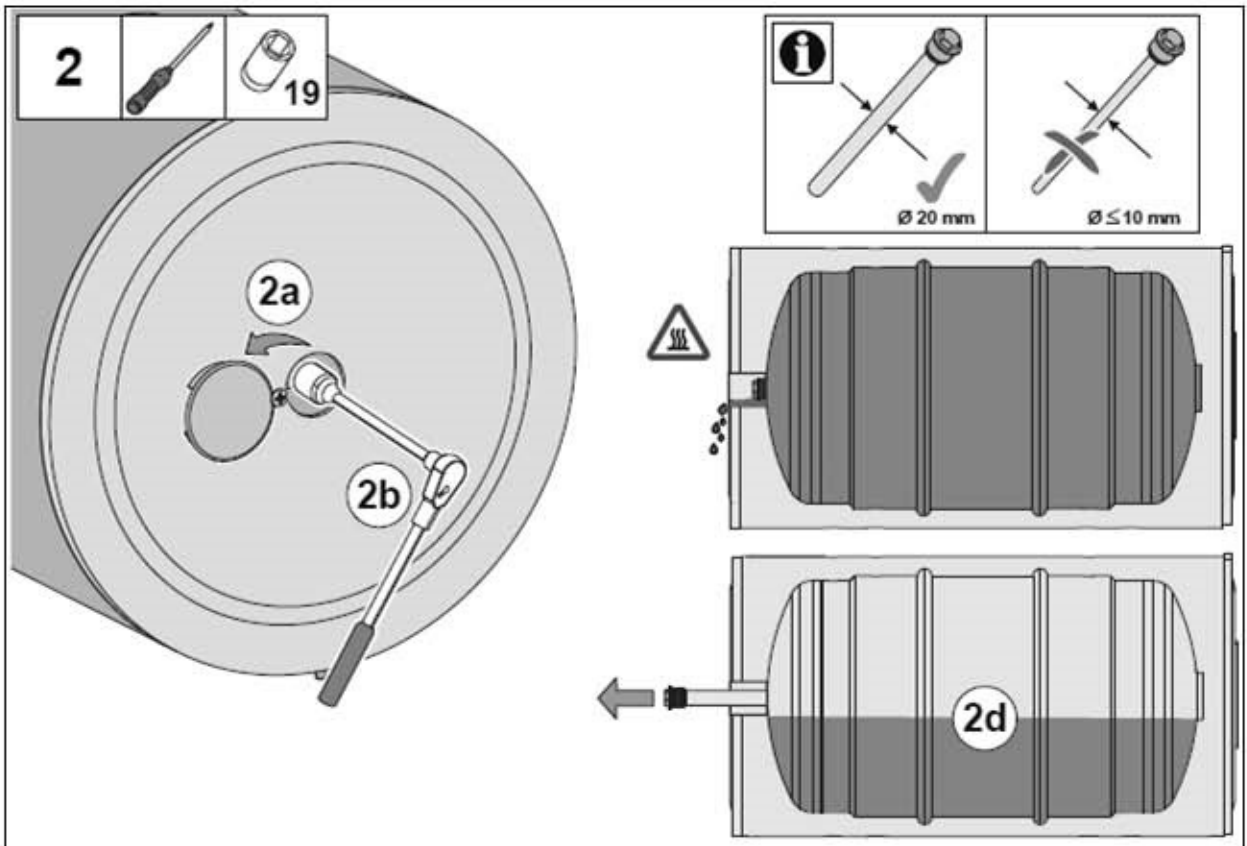
Temperature increase from 20C to 60C	SV160			SV200			SV300		
	Storage tank volume (lt)	152			198			282	
Power (kW)	1000	2000	4000	1000	2000	4000	1000	2000	4000
Time (h)	7.1	3.5	1.8	9.2	4.6	2.3	13.1	6.6	3.3

**3.8. Instructions for replacing the magnesium anodes**

If the system is close to water softener the magnesium anode will be destroyed faster and has to be replaced faster. In this case you have to check the magnesium anodes every 6 months and replace it if necessary.

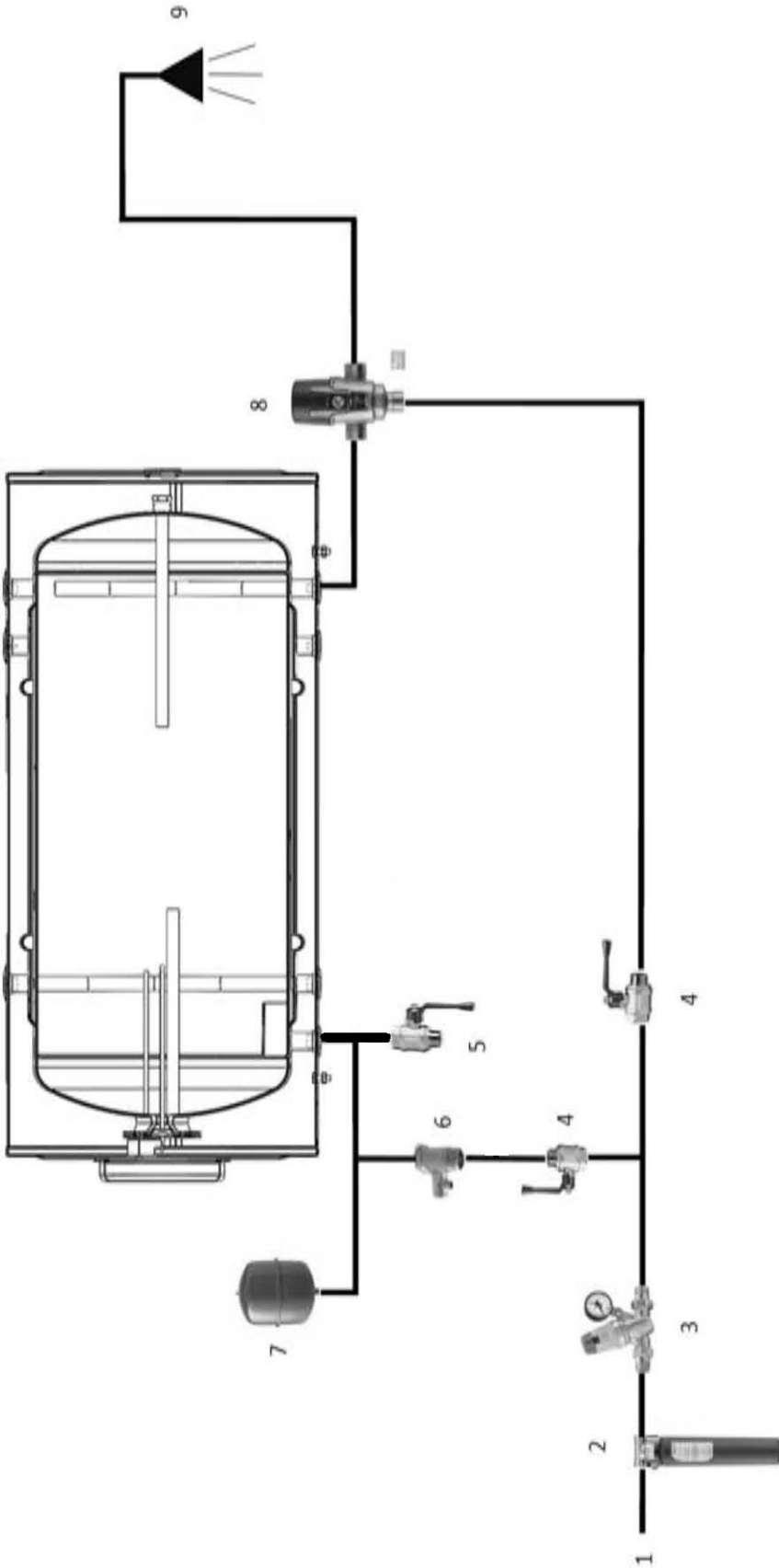
If the conductivity of the water is less than  $100 \mu\text{S}/\text{cm}$  the anode is losing its corrosion protection effect. In this case it is recommended to use electronic protection.

To guarantee storage tank corrosion protection the magnesium anode must be replaced every year. In areas with exceed water hardness the anode must be replaced every 6 months.



- Water quality specifications	
- Ph value	7-9
- water hardness (°dH)	6-15
- chloride (mg/L)	< 300
- Free chlorine (mg/L)	< 0,5
- Sulfate (mg/L)	< 300
- Conductibility ( $\mu\text{S}/\text{cm}$ 25 ° C)	750

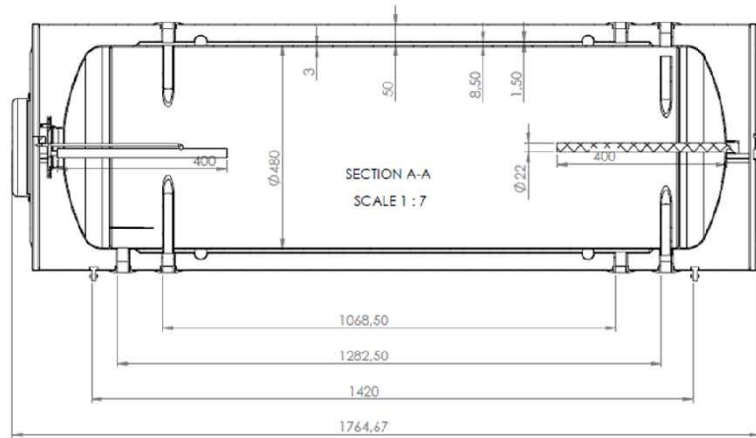
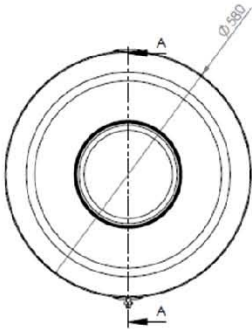
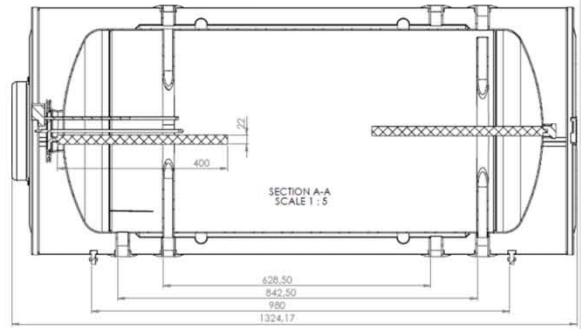
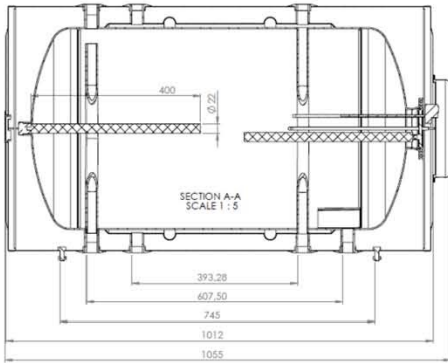
### 3.9. Hydraulic connection



1. Main water supply
2. Filter
3. Pressure reducer
4. Ball valve
5. Draw off
6. Safety valve
7. Cold water expansion vessel
8. Thermostatic mixing valve
9. Hot water consumption



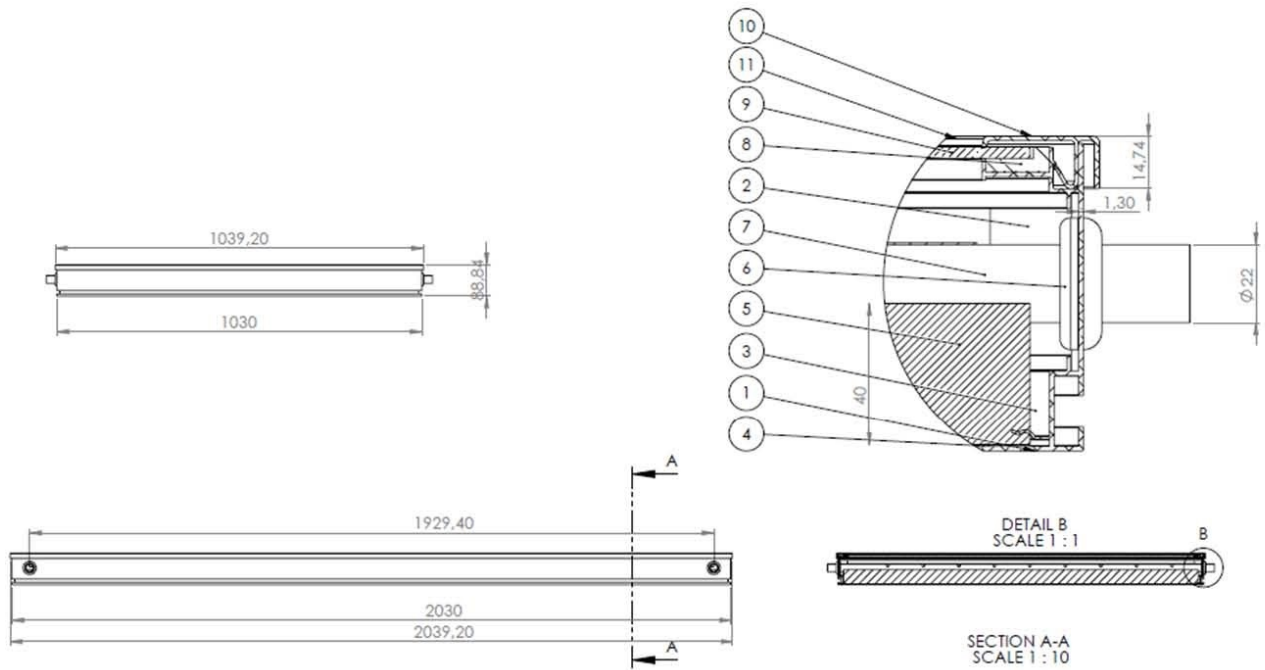
#### 4. Technical specifications



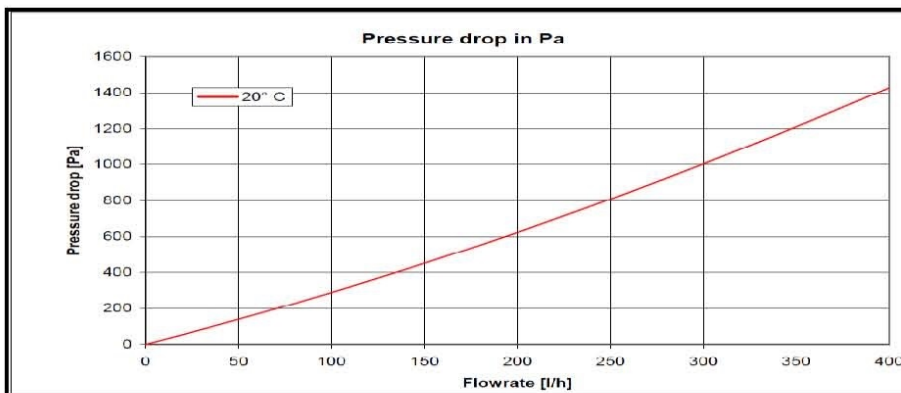
#### – Technical specifications

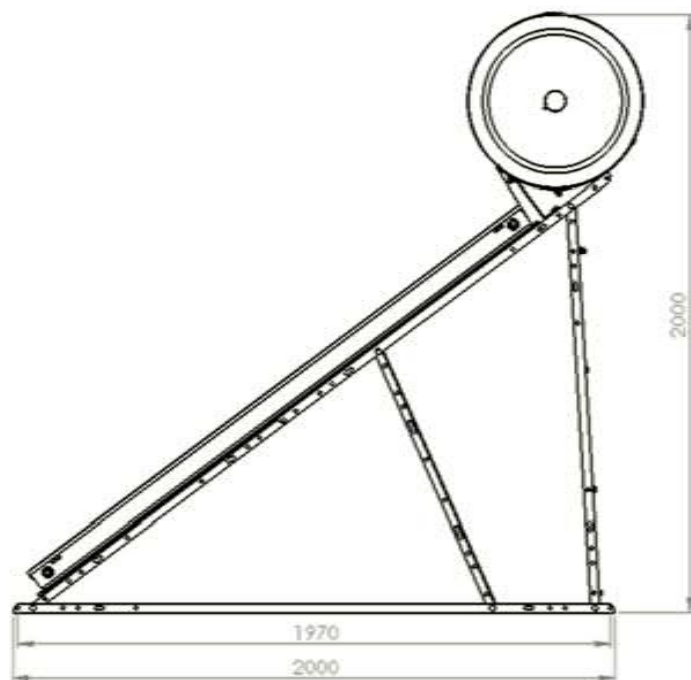
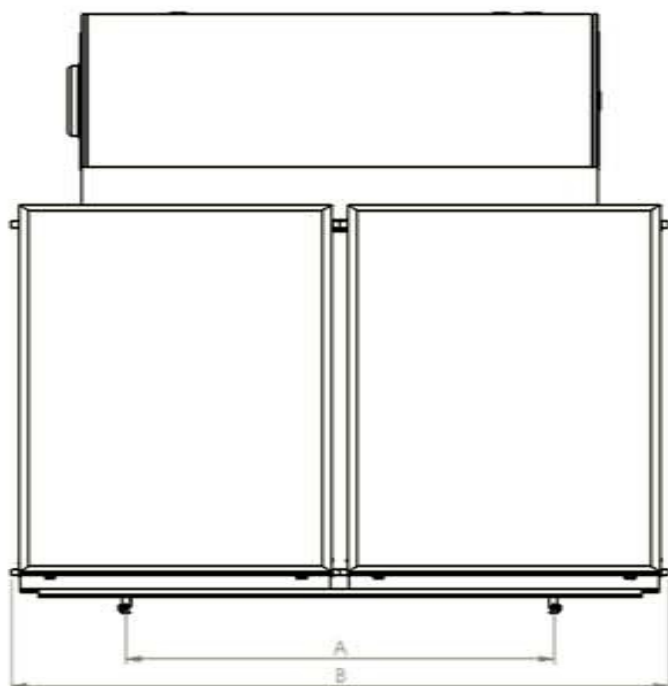
	SV160	SV200	SV300
Tank model	SV160	SV200	SV300
Tank net volume (l)	152	198	282
Tank weight (kg)	67	85	107
Max. pressure primary circuit	3	3	3
Max. pressure secondary circuit	6	6	6
Anti-corrosion protection	2 X magnesium anodes – enamel		
Primary circuit volume (l)	8.5	12.0	18.8
Connections	¾"	¾"	¾"
Heating rod capacity (kW)	1.50 – 4.00		

#### 4. Technical specifications

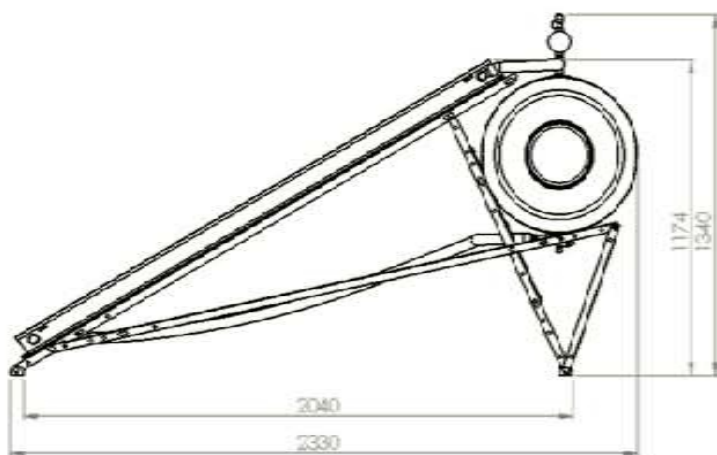
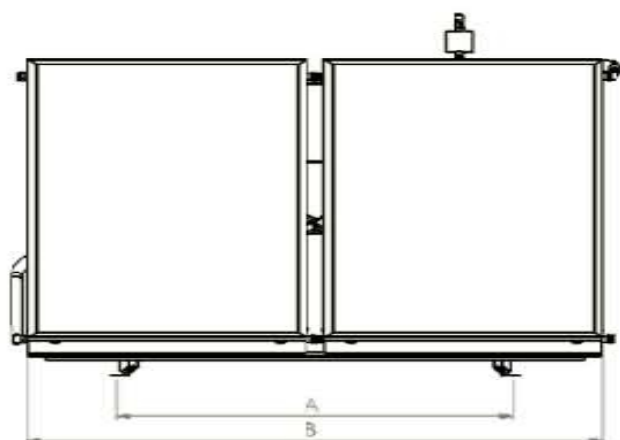


Model	ARIS2004 / ARIS2004H	ARIS2504 / ARIS2504H
Dimensions (mm)	1040X2040X89	1240X2040X89
Gross area (m <sup>2</sup> )	2.12	2.53
Aperture area (m <sup>2</sup> )	1.92	2.31
Absorber area (m <sup>2</sup> )	1.91	2.30
Weight (kg)	42	50
Frame	Extruded aluminum 1,35mm thickness	
Back plate	Al-Zn sheet 0,5mm thickness	
Absorber	Al high selective ALANOD Mirotherm – 0,5mm thickness	
Absorption (%)	95	
Emission (%)	5	
Manifolds (Ø mm)	22	
Risers (Ø mm – Nr.)	Ø8 – 9pcs / Ø8 – 18pcs	Ø8 – 11pcs / Ø8 – 18pcs
Connections	Blank (compression joint)	
Transparent cover	3,2mm solar glass 91,8% transmittance	
Insulation	Mineral wool 40mm thickness – 40 kg/m <sup>3</sup> density	

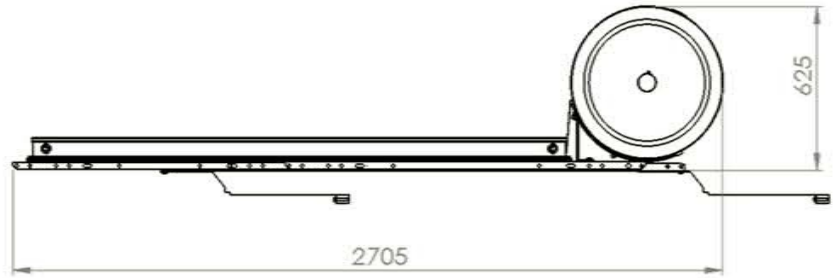
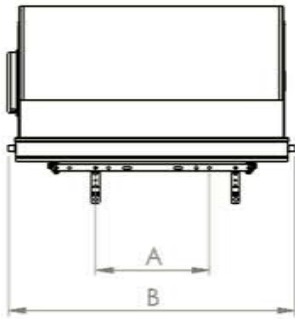




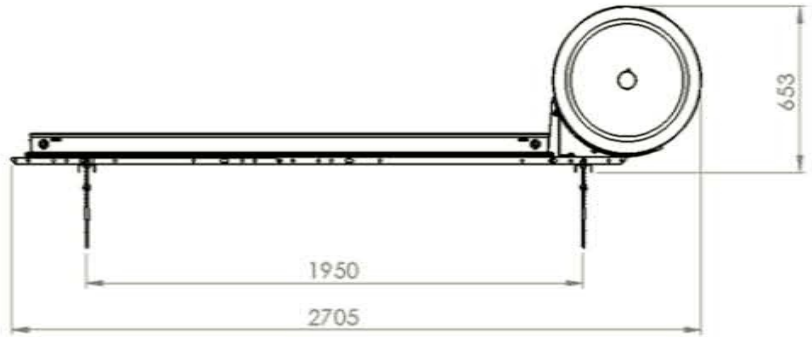
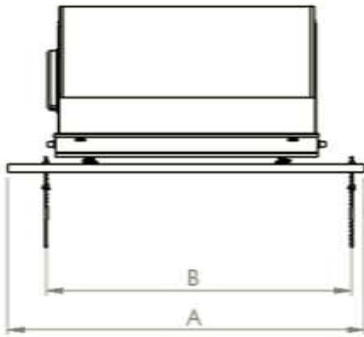
	A168	A169	A208	A228	A230	A308
A (mm)	745	745	980	980	980	1420
B (mm)	1090	1290	1090	1290	2230	2230



	EVO168	EVO169	EVO208	EVO228	EVO230	EVO308
A (mm)	1060	1060	1060	1060	1060	1474
B (mm)	1090	1290	1090	1290	2230	2230



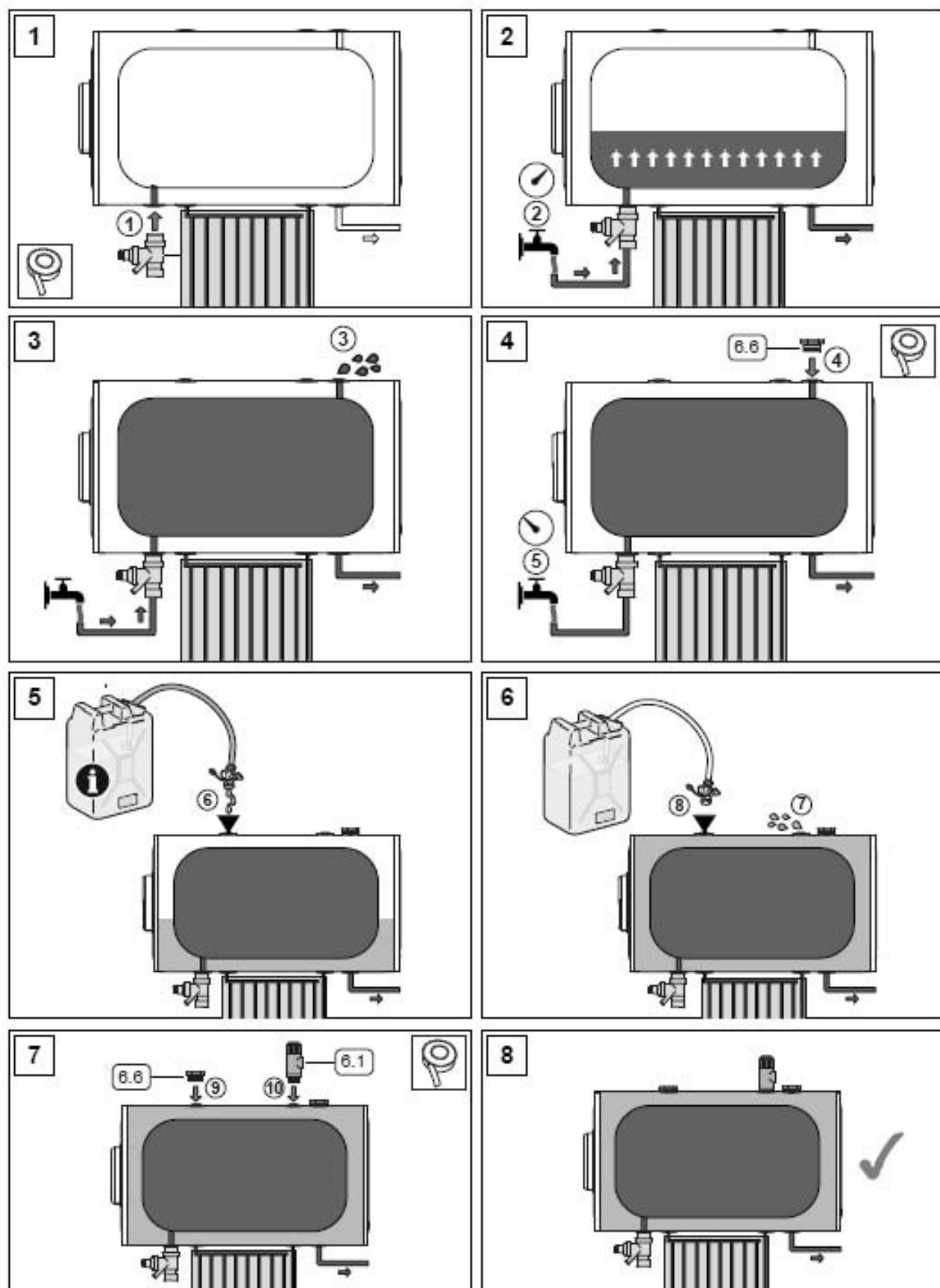
	<b>A168</b>	<b>A169</b>	<b>A208</b>	<b>A228</b>	<b>A230</b>	<b>A308</b>
A (mm)	435-635	435-635	560-760	560-760	560-760	775-975
B (mm)	1090	1290	1090	1290	2230	2230



	<b>A168</b>	<b>A169</b>	<b>A208</b>	<b>A228</b>	<b>A230</b>	<b>A308</b>
A (mm)			1400			2100
B (mm)			965-1287			1440-2040



## 5. Filling in the system



6. Product identification,

ENG



Model	Collector model	Tank model
A168	ARIS2004	SV160
A208	ARIS2004	SV200
A308	ARIS2004 X 2	SV300

Tank technical label

Polaro Paccinetti	
Type Typo Typ	SV160
Inhalt Content Capacità Volume Capacidad	152l
Eingangsspannung Input voltage Tensione in ingresso Tension d'entree Voltage de entrada	
	230V - 50Hz
Leistungsaufnahme Power input Input di alimentazione Pulsancia horaria Potencia de entrada	
	4.0 KW
Max. Betriebsdruck Max operation pressure Pressione massima Presión de servicio Presión máxima de operación	
	10 bar
Produktion jahr Production year Anno di produzione Año de producción Año de la producción	
	0117
CE IPX4	

Polaro Paccinetti	
Type Typo Typ	SV200
Inhalt Content Capacità Volume Capacidad	198l
Eingangsspannung Input voltage Tensione in ingresso Tension d'entree Voltage de entrada	
	230V - 50Hz
Leistungsaufnahme Power input Input di alimentazione Pulsancia horaria Potencia de entrada	
	4.0 KW
Max. Betriebsdruck Max operation pressure Pressione massima Presión de servicio Presión máxima de operación	
	10 bar
Produktion jahr Production year Anno di produzione Año de producción Año de la producción	
	0117
CE IPX4	

Polaro Paccinetti	
Type Typo Typ	SV300
Inhalt Content Capacità Volume Capacidad	282l
Eingangsspannung Input voltage Tensione in ingresso Tension d'entree Voltage de entrada	
	230V - 50Hz
Leistungsaufnahme Power input Input di alimentazione Pulsancia horaria Potencia de entrada	
	4.0 KW
Max. Betriebsdruck Max operation pressure Pressione massima Presión de servicio Presión máxima de operación	
	10 bar
Produktion jahr Production year Anno di produzione Año de producción Año de la producción	
	0117
CE IPX4	

Collector technical label

Polaro Paccinetti	
Gross area	2.12 m <sup>2</sup>
Aperture area	1.91 m <sup>2</sup>
Dimensions	2040x1240x88 mm
Net weight	42kg
Fluid content	1,37 l
Max. Working pressure	10 bar
Stagnation temp.	193 C
<b>ARIS2004</b>	

Polaro Paccinetti	
Gross area	2.52 m <sup>2</sup>
Aperture area	2.29 m <sup>2</sup>
Dimensions	2040x1240x88 mm
Net weight	48kg
Fluid content	2,65 l
Max. Working pressure	10 bar
Stagnation temp.	193 C
<b>ARIS2504</b>	

## 7. Check list

ENG

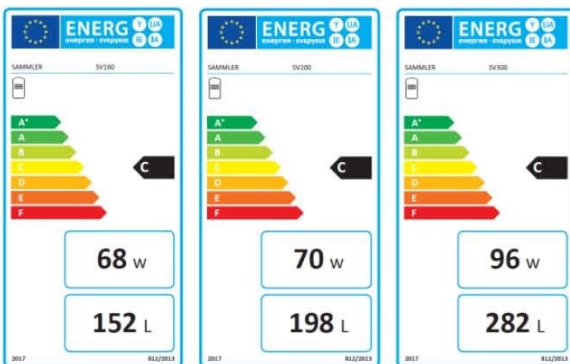
	Action	YES	NO
1	Is the system facing south (for North hemisphere) or north (for South hemisphere)?		
2	Have you checked that the system is not under shadow?		
3	Is the collector installed with an inclination of 15-40 degrees?		
4	Is the system installed at least 1m from the walls or the end of the roof?		
5	Did you use the current manual?		
6	If the main pressure is higher than 4 bar, have you used pressure reducer?		
7	Have you checked the tightness of all bolts and nuts?		
8	All connection pipes must be well insulated and protected against UV radiation. Have you proceed to the correct insulation process?		
9	Do you make sure there are no leakages?		
10	Have you checked for leakage at the magnesium anode opposite to the flange?		
11	If water temperature exceed 60C, have you installed mixing valve?		
12	Do you use original glycol?		
13	Have you checked the correct function of the safety devices?		
14	Did authorized electrician realized the electrical connections?		
15	Have you started up the system according to the manual?		



## 8. Product certifications



### Solar Keymark



### ErP directive

All SAMMLER products are marked under ErP directive, concerning the tank heat losses and the net capacity.



### CE directive

All SAMMLER products are marked CE ensuring the safety of the product.



## 9. System efficiency



$Q_d$ : Energy required,  
 $Q_L$ : Energy provided by the system  
 $f_{sol}$ :  $Q_L/Q_d$  (System efficiency)

		$Q_d$	$Q_L$	$f_{sol}$	$Q_d$	$Q_L$	$f_{sol}$	$Q_d$	$Q_L$	$f_{sol}$
Model	<b>A168</b>									
Water consumption		110 l/day			140 l/day			170 l/day		
Stockholm	46.8°	6150	2976	48.4	7821	3386	43.3	9492	3664	38.6
Wurzburg	59.6°	5897	3037	51.5	7506	3543	47.2	9114	3892	42.7
Davos	49.5°	6654	4358	65.5	8483	4954	58.4	10281	5315	51.7
Athens	38.0°	4573	3731	81.6	5834	4451	76.3	7064	5015	71.0

		$Q_d$	$Q_L$	$f_{sol}$	$Q_d$	$Q_L$	$f_{sol}$	$Q_d$	$Q_L$	$f_{sol}$
Model	<b>A169</b>									
Water consumption		110 l/day			140 l/day			170 l/day		
Stockholm	46.8°	6150	3229	52.5	7821	3762	48.1	9492	4167	43.9
Wurzburg	59.6°	5897	3279	55.6	7506	3880	51.7	9114	4366	47.9
Davos	49.5°	6654	4791	72.0	8483	5573	65.7	10281	6127	59.6
Athens	38.0°	4573	3937	86.1	5834	4761	81.6	7064	5446	77.1

		$Q_d$	$Q_L$	$f_{sol}$	$Q_d$	$Q_L$	$f_{sol}$	$Q_d$	$Q_L$	$f_{sol}$
Model	<b>A208</b>									
Water consumption		140 l/day			170 l/day			200 l/day		
Stockholm	46.8°	7821	3316	42.4	9492	3626	38.2	11164	3851	34.5
Wurzburg	59.6°	7506	3468	46.2	9114	3855	42.3	10691	4105	38.4
Davos	49.5°	8483	4793	56.5	10281	5223	50.8	12110	5522	45.6
Athens	38.0°	5834	4381	75.1	7064	4980	70.5	8326	5503	66.1

		$Q_d$	$Q_L$	$f_{sol}$	$Q_d$	$Q_L$	$f_{sol}$	$Q_d$	$Q_L$	$f_{sol}$
Model	<b>A228</b>									
Water consumption		140 l/day			170 l/day			200 l/day		
Stockholm	46.8°	7821	3684	47.1	9492	4091	43.1	11164	4387	39.3
Wurzburg	59.6°	7506	3805	50.7	9114	4293	47.1	10691	4650	43.5
Davos	49.5°	8483	5438	64.1	10281	5983	58.2	12110	6382	52.7
Athens	38.0°	5834	4702	80.6	7064	5383	76.2	8326	5986	71.9

		$Q_d$	$Q_L$	$f_{sol}$	$Q_d$	$Q_L$	$f_{sol}$	$Q_d$	$Q_L$	$f_{sol}$
Model	<b>A230</b>									
Water consumption		140 l/day			170 l/day			200 l/day		
Stockholm	46.8°	7821	4528	57.9	9492	5192	54.7	11164	5749	51.5
Wurzburg	59.6°	7506	4541	60.5	9114	5268	57.8	10691	5869	54.9
Davos	49.5°	8483	6804	80.2	10281	7793	75.8	12110	8622	71.2
Athens	38.0°	5834	5321	91.2	7064	6245	88.4	8326	7093	85.2

		$Q_d$	$Q_L$	$f_{sol}$	$Q_d$	$Q_L$	$f_{sol}$	$Q_d$	$Q_L$	$f_{sol}$
Model	<b>A308</b>									
Water consumption		250 l/day			300 l/day			400 l/day		
Stockholm	46.8°	13939	6760	48.5	16746	7335	43.8	22327	7882	35.3
Wurzburg	59.6°	13371	6940	51.9	16052	7641	47.6	21413	8330	38.9
Davos	49.5°	15137	9915	65.5	18165	10645	58.6	24220	11238	46.4
Athens	38.0°	10406	8481	81.5	12488	9529	76.3	16651	12073	72.5



**PRODUCT FICHE**

Hot water storage tanks

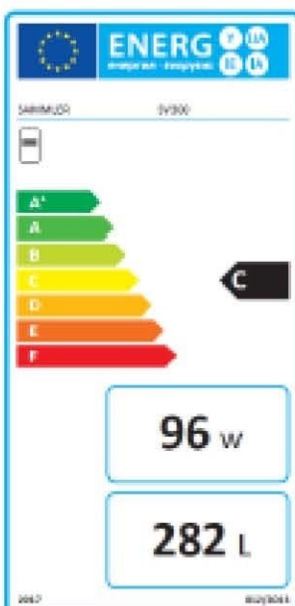
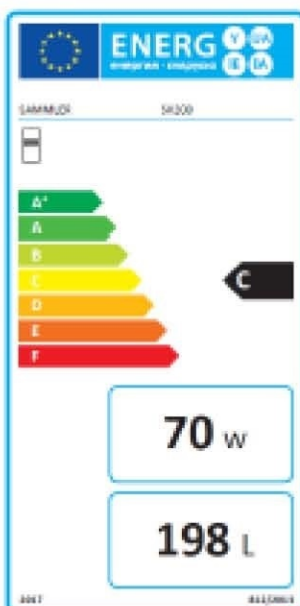
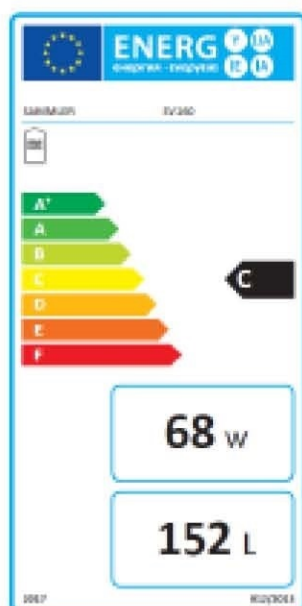
Reference: Directive 2010/30/EE, CDR812/2013, ANNEX V, POINT 2

Date: 28/08/2016

Supplier: SAMMLER B. Michalopoulos AEBE,

Solar thermosyphon tank

TYPE	ENERGY EFFICIENCY CLASS	STANDING LOSSES (W)	TANK VOLUME (L)
SV160	C	68	152
SV200	C	70	198
SV300	C	96	282



PRODUCT FICHE

Solar devices

Reference: Directive 2010/30/EE, CDR812/2013, ANNEX V, POINT 2

Date: 28/08/2016

(Supplier: SAMMLER B. Michalopoulos AEBE)

Flat selective Solar collector

Brand: SAMMLER  
Model: ARIS

Type	Επιφάνεια/Collector aperture area* ( $A_{col}$ ) $m^2$	Zero losses collector efficiency* ( $\eta_0$ )	First order heat losses coefficient* ( $\alpha_1$ ) $W/(K.m^2)$	Second order heat losses coefficient* ( $\alpha_2$ ) $W/(K^2.m^2)$	Incidence angle modifier* (IAM)
ARIS2004	1,91	0,785	4,44	0,007	0,91
ARIS2504	2,29	0,785	4,44	0,007	0,91

\* reference: EN12975-2



EN ISO9001 certified company



Certified by ICAP as low credit risk company

## 9. System efficiency



### PRODUCT FICHE

Solar devices

Reference: Directive 2010/30/EE, CDR812/2013, ANNEX V, POINT 2

Date: 28/08/2016

Supplier: SAMMLER B. Michalopoulos AEBE

#### Solar water heater

Brand: SAMMLER

Model: A168

Description	Symbol	Value				Unit
Collector reference area	$A_{sol}$	2.11				m <sup>2</sup>
Zero losses collector efficiency	$\eta_0$	0.702				-
First order heat losses coefficient	$\alpha_1$	3.93				W/(m <sup>2</sup> K)
Second order heat losses coefficient	$\alpha_2$	0,007				W/(m <sup>2</sup> K <sup>2</sup> )
Incidence angle modifier	IAM	0,91				-
Storage nominal volume	V	152				L
	Load profile	M	L	XL	XXL	
Annual non-solar heat contribution	$Q_{nonsol}$	1027	2013	3484	4621	kWh
Pump power consumption	solpump	-				W
Standby power consumption	Solstandby	-				W
Annual auxiliary electricity consumption	$Q_{aux}$	-				kWh
Annual non-solar heat contribution - Colder	$Q_{nonsol}$	1162	2210	3714	4863	kWh
Warmer	$Q_{nonsol}$	755	1583	2964	4064	kWh



## 9. System efficiency



### PRODUCT FICHE

Solar devices

Reference: Directive 2010/30/EE, CDR812/2013, ANNEX V, POINT 2

Date: 28/08/2016

Supplier: SAMMLER B. Michalopoulos AEBE

#### Solar water heater

Brand: SAMMLER

Model: A208

/Description	Symbol	Value				Unit
Collector reference area	$A_{sol}$	2.11				$m^2$
Zero losses collector efficiency	$\eta_0$	0.702				-
First order heat losses coefficient	$\alpha_1$	3.93				$W/(m^2K)$
Second order heat losses coefficient	$\alpha_2$	0,007				$W/(m^2K^2)$
Incidence angle modifier	IAM	0,91				-
'Storage nominal volume	V	198				L
	Load profile	M	L	XL	XXL	
Annual non-solar heat contribution	$Q_{nonsol}$	1015	1994	3461	4596	kWh
Pump power consumption	solpump	-				W
Standby power consumption	Solstandby	-				W
Annual auxiliary electricity consumption	$Q_{aux}$	-				kWh
Annual non-solar heat contribution - <b>Colder</b>	$Q_{nonsol}$	1152	2194	3694	4842	kWh
- <b>Warmer</b>	$Q_{nonsol}$	742	1563	2940	4039	kWh

## 9. System efficiency



### PRODUCT FICHE

Solar devices

Reference: Directive 2010/30/EE, CDR812/2013, ANNEX V, POINT 2

Date: 28/08/2016

Supplier: SAMMLER B. Michalopoulos AEBE

Solar water heater

Brand: SAMMLER

Model: A308

Description	Symbol	Value				Unit
Collector reference area	$A_{sol}$	4.22				$m^2$
Zero losses collector efficiency	$\eta_0$	0.702				-
First order heat losses coefficient	$\alpha_1$	3.93				$W/(m^2K)$
Second order heat losses coefficient	$\alpha_2$	0,007				$W/(m^2K^2)$
Incidence angle modifier	IAM	0,91				-
Storage nominal volume	V	282				L
	Load profile	M	L	XL	XXL	
Annual non-solar heat contribution	$Q_{nonsol}$	1023	1618	2797	3803	kWh
Pump power consumption	solpump	-				W
Standby power consumption	Solstandby	-				W
Annual auxiliary electricity consumption	$Q_{aux}$	-				kWh
Annual non-solar heat contribution - <b>Colder</b>	$Q_{nonsol}$	1174	1924	3199	4245	kWh
- <b>Warmer</b>	$Q_{nonsol}$	784	1071	2024	2927	kWh

## 10. Warranty

### GENERAL

The present document is the official document which describes the terms and conditions of product warranty. It is the only valid document of the company SAMMLER B. Michalopoulos AEBE, except if any other written agreement exists and carries out the stamp and the signature of SAMMLER.

### RECEIVING THE PRODUCT

The receiver of the product should check the product and its condition. If any defect is noticed must be declared to SAMMLER within 3 days.

### WARRANTY DURATION

SAMMLER is responsible for the warranty of its products:

- For 10 years for the A series complete solar water heaters.
- For 5 years for individual solar tanks
- For 10 years for individual solar collectors
- For 2 years for the electrical element, thermostat and safety devices.

The warranty period starts from the installation date.

### WARRANTY VALIDITY

- The solar tank is protected against corrosion and electrolysis by 2 magnesium anodes. The anodes must be checked and replaced annually. The anodes must be the original ones supplied by SAMMLER. Always ensure the authentication of the anodes.
- The solar water heater is protected against freezing, overheating and corrosion of the primary circuit by special solar thermal fluid. The level of the fluid must be checked periodically. If the level is low the fluid ,must be replaced and filled in with new ones. The thermal fluid must be the original supplied by SAMMLER.
- The solar water heater must be maintenance only by authorized personnel. For the area of Athens – Greece the maintenance is realized exclusively from SAMMLER. For other areas, contact to your local dealer.
- Any maintenance process must be recorded to the "Maintenance Card".
- When the pressure exceed 4 bar must be installed a pressure reduce device.
- If it is used a water softener, the magnesium anode must be checked every 6 months. If the anode is sacrificed very fast, then the reducer must be removed.
- All repairs must be realized only in SAMMLER's premises in order to follow the quality and production processes.

**The transport cost must be covered by the owner.**

### WARRANTY EXCLUSIONS

The warranty is not valid for the following reasons:

- Damages caused by the buyer.
- Damages caused during transport
- Damages caused on electrical element or thermostat.
- Breakage of the solar glass
- Damages caused by natural disaster.
- Damages caused by improper installation or if not following the present manual.
- Damages caused by the use of not original spare parts.

### PRODUCT CHARACTERESTICS

All SAMMLER products are carrying out all the obligatory certifications (CE, ErP) and have been tested for the efficiency and durability by the Swiss laboratory SPF. Also the products are certified by the German certification body DIN Certco in accordance to EN12975 and EN12976.

A product will be considered as defected if doesn't fulfill the above mentioned standards.

A product will not be considered as defected if noticed any variation in the color of the selective coating or any deformation on the external of the tank caused by the PU foam.

### USER'S OBLIGATIONS

The user should keep the present document in good condition. This document is the only proof for the warranty validity.

Any action on the system must be recorded in the present document.

The user is responsible to use only original spare parts from SAMMER.

## 10. Εγγύηση

### ΓΕΝΙΚΑ

Το παρών έντυπο αποτελεί το επίσημο έγγραφο της εταιρείας το οποίο καθορίζει τους όρους και τις προϋποθέσεις της εγγύησης του προϊόντος της εταιρείας SAMMLER B. Μιχαλόπουλος ΑΕΒΕ (SAMMLER). Οποιοδήποτε άλλη συμφωνία η οποία δεν φέρει την έγγραφη επιβεβαίωση της SAMMLER δεν υπερισχύει του παρόντος.

### ΠΑΡΑΛΑΒΗ ΠΡΟΪΟΝΤΟΣ

Ο παραλήπτης του προϊόντος οφείλει να ελέγξει κατά την παραλαβή του και σε περίπτωση ελαττωματικού προϊόντος ή ελλιπούς παραλαβής να ενημερώσει την SAMMLER εντός 3 ημερών.

### ΔΙΑΡΚΕΙΑ ΕΓΓΥΗΣΗΣ

Η SAMMLER εγγυάται για την σωστή λειτουργία των προϊόντων της:

- Σειρά A για 10 χρόνια
  - Αγορά μεμονωμένων δεξαμενών για 5 χρόνια
  - Αγορά μεμονωμένων συλλεκτών για 10 χρόνια
  - Ηλεκτρική αντίσταση και θερμοστάτης για 2 χρόνια
- Η διάρκεια της εγγύησης ξεκινάει από την ημερομηνία εγκατάστασης του προϊόντος.

### ΙΣΧΥ ΕΓΓΥΗΣΗΣ

- Ο ηλιακός θερμοσίφωνας προστατεύεται από την ηλεκτρόλυση, με την ράβδο μαγνησίου. Για να ισχύει η εγγύηση, η ράβδος θα πρέπει να ελέγχεται και να αντικαθίσταται κάθε 1 (ένα) χρόνο, με την γνήσια ράβδο που προτείνει η εταιρεία (ράβδος υψηλής περιεκτικότητας σε μαγνήσιο).
- Κατά την αντικατάσταση της ράβδου μαγνησίου θα πρέπει να ελέγχεται η αυθεντικότητα της ράβδου μαγνησίου.
- Ο ηλιακός θερμοσίφωνας προστατεύεται από τον πάγο, την υπερθέρμανση αλλά και την οξείδωση του κλειστού κυκλώματος με την χρήση ειδικού θερμικού φορέα ο οποίος πρέπει να ελέγχεται περιοδικά. Εάν η στάθμη του πέσει θα πρέπει να αντικατασταθεί και να συμπληρωθεί με νέο γνήσιο φορέα όπως ορίζει η SAMMLER..
- Ο ηλιακός θερμοσίφωνας θα πρέπει να ελέγχεται από εξουσιοδοτημένο συνεργείο της εταιρείας ή από τον εξουσιοδοτημένο αντιπρόσωπο της εταιρείας (εντός του νομού Αττικής υπεύθυνο για οποιαδήποτε επέμβαση στον ηλιακό θερμοσίφωνα είναι το τμήμα SERVICE του εργοστασίου).
- Κάθε ενέργεια που πραγματοποιείται στον ηλιακό θα πρέπει να καταγράφεται στην « Καρτέλα SERVICE ηλιακού θερμοσίφωνα».
- Όταν η πίεση του δικτύου ξεπερνάει τα 4 bar θα πρέπει να χρησιμοποιείται μειωτής πίεσης.
- Εάν χρησιμοποιείται αποσκληρηντής νερού, θα πρέπει να ελέγχεται η ράβδος μαγνησίου σε τακτά χρονικά διαστήματα. Εάν παρατηρηθεί γρήγορη φθορά της ράβδου θα πρέπει να απομακρυνθεί ο αποσκληρηντής από τον ηλιακό θερμοσίφωνα.
- Όλες οι επισκευές του ηλιακού θερμοσίφωνα γίνονται στο εργοστάσιο, προκειμένου να ακολουθηθούν οι εγκεκριμένες διαδικασίες, όπως ορίζει το σύστημα διασφάλισης ποιότητας της εταιρείας. **Το κόστος μεταφοράς του προϊόντος επιβαρύνει τον αγοραστή.**
- Για κάθε εργασία που πραγματοποιείται ο **αγοραστής επιβαρύνεται με το κόστος μετάβασης και εργασίας.**

### Η ΕΓΓΥΗΣΗ ΔΕΝ ΙΣΧΥΕΙ

Η εγγύηση δεν ισχύει στις παρακάτω περιπτώσεις:

- Για βλάβες που προκλήθηκαν από τον αγοραστή.
- Για βλάβες και ζημιές που προκλήθηκαν κατά την μεταφορά.
- Για βλάβες που προκλήθηκαν στον θερμοστάτη και την αντίσταση.
- Για την θραύση των κρυστάλλων.
- Για βλάβες που προκλήθηκαν λόγω θεομηνιών.
- Για βλάβες που προκλήθηκαν λόγω μη τήρησης των οδηγιών εγκατάστασης.
- Για βλάβες που προκλήθηκαν λόγω μη χρήσης γνήσιων ανταλλακτικών της εταιρείας (ράβδος μαγνησίου, θερμικό φορέα κλπ).
- Για βλάβες που προκλήθηκαν λόγω της υδραυλικής εγκατάστασης (αυξημένη πίεση κλπ).

### ΧΑΡΑΚΤΗΡΙΣΤΙΚΑ

Τα προϊόντα της SAMMLER έχουν πιστοποιηθεί από τον Γερμανικό φορέα DIN CERTCO και δοκιμαστεί με βάση τα πρότυπα EN12975 και EN12976. Το προϊόν θεωρείται ελαττωματικό στην περίπτωση που δεν καλύπτει τα όρια που ορίζονται από τα παραπάνω πρότυπα. Δεν θεωρείται το προϊόν ελαττωματικό για διαφορά στο χρώμα της επιλεκτικής επιφάνειας, για παραμόρφωση της δεξαμενής λόγω της μόνωσης πολυουρεθάνης υψηλής πυκνότητας και για οποιοδήποτε άλλο λόγο ο οποίος δεν επηρεάζει την απόδοση και αξιοπιστία του προϊόντος.

### ΥΠΟΧΡΕΩΣΕΙΣ ΑΓΟΡΑΣΤΗ

Ο αγοραστής οφείλει να τηρεί σε καλή κατάσταση το παρών έντυπο. Αποτελεί το μοναδικό στοιχείο ταυτοποίησης του προϊόντος και απόδειξης για την ισχύ της εγγύησης.

Κάθε εργασία η οποία πραγματοποιείται στο προϊόν θα πρέπει να καταγράφεται στην Καρτέλα SERVICE παρακάτω και να φέρει την υπογραφή του τεχνίτη που έκανε την εργασία.

Πρέπει να χρησιμοποιούνται μόνο γνήσια ανταλλακτικά και αναλώσιμα από την SAMMLER.

## MAINTENANCE CARD

Installation date:	
Certified installer's name:	
Model:	
Tank serial number:	
Collector(s) serial number:	

Sales partner stamp

To validate the warranty, after complete the installation, send the present document by electronically to :



	DATE	MAINTENANCE DESCRIPTION	NAME	SIGNATURE
1° SERVICE				
2° SERVICE				
3° SERVICE				
4° SERVICE				
5° SERVICE				
6° SERVICE				
7° SERVICE				
8° SERVICE				
9° SERVICE				
10° SERVICE				