SOLAREKS
ELECTRIC
WATER HEATER

We want every product which we manufacture
to be the best quality...I put my name on it
SOLAREKS ALPER UYSAL

SI UNIT CATALOGUE

MONOPHASE
ELECTRIC BOILER

SOLAREKS - ELECTRIC WATER HEATER

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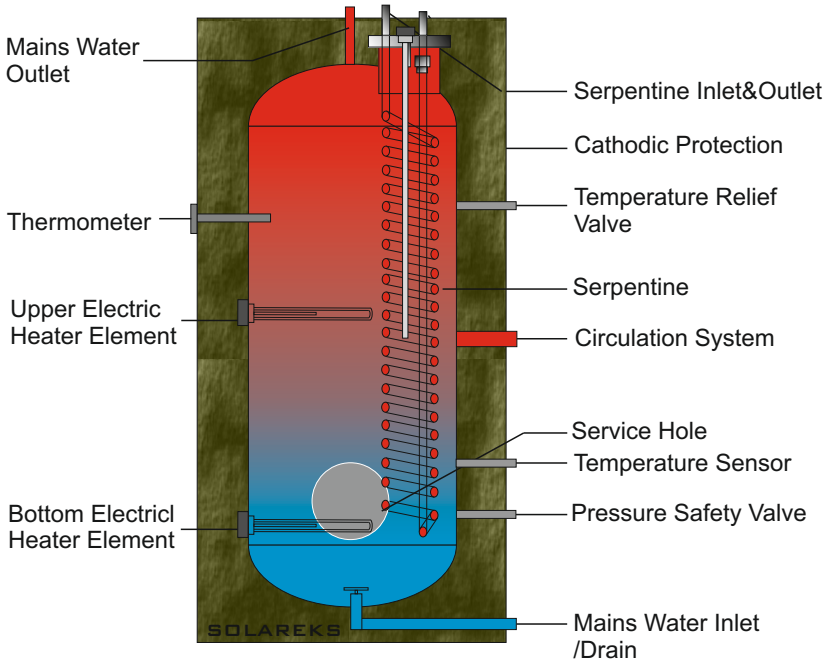
Solareks monophase electric boilers can heat the water simultaneously or separately with two types of energy. Product can be connected to central heating system easily. In summer season when the central heating of the building is turned off water can be heated by electricity or solar energy. In winter time water can be heated by solid/fuel/gas central heating system, heat pump, waste energy. During winter season electricity consumption of the building will be decreased. Products are produced in range 100 L to 500 L capacities.



Technical Details

1- **Professional Design - Electric and solid/fuel/gaseous energy in one product**

Wall hung residential electric boiler can work simultaneously or separately with two types of energy:

A- Electric energy (Single-phase electric power)
B- Energy of solid/fuel/gas central heating system

Product is designed professionally to be used with various - 120/208/240/277 Volt 50-60 Hz - values of the electricity and every type of central heating system. Jacket type heat exchanger is used to have a perfect secondary circulation in fluid flow and higher heat transfer values. Product can be connected vertically and horizontally (Optional).

2- **Corrosion Protection and Hygiene**

Boilers' Inner tank is produced by two kinds of steel:

A- Black carbon steel, tank is hot dip galvanized after welding process
B- High quality stainless steel for a longer useful life. 304 L and 316 L quality stainless steel

Additional corrosion protection is obtained by magnesium anods. (Cathodic Protection)

3- **Insulation**

Polyurethane: 50 mm

4- **Analog Thermostat Controls Electric Heating Element**

Boiler is equipped with analog thermostat. User can adjust the water temperature between 30 °C and 90 °C.

5- **Aesthetic Design**

The outer coverage of the boiler is made of painted in white colour or brushed stainless steel which has an aesthetic view.

6- **Long Useful Life**

Electric boiler is produced by hot dip galvanized steel or high quality stainless steel to have a long useful life. Product inner tank is protected against corrosion by high quality magnesium anode.

7- **Installation**

EWH can be connected to ground by welding or bolts. Wall hanging equipment lets to do secure installation.

8- **Material in a High Quality and Production**

High quality black steel (for hot dip galvanized boilers only), stainless steel and raw material is used for production. Products are shipped after conducting pressure, electrical and packing controls.

9- **Safety**

Boiler is equipped with an analog thermostat and additional analog safety thermostat. If analog thermostat is broken down safety thermostat will switch off the electrical heaters at 90 °C. Non-return valve is used not to let the electric heaters work without water. Pressure safety valve is used to protect the tank against high pressures. Heat exchanger is protected against high pressures by safety valve.

10- **Packing**

Products are covered with air bubble film.
For the areas which has hard road conditions products are packed in woodboxes.

11- **Warranty**

Stainless Steel Tank Model: 5 years
Hot Dip Galvanized Steel Tank Model: 2 years
Electrical Equipment: 2 years

Note: Electric heating elements are not guarantied when used water consists lime.

Technical Details

Capacity	**100 L**	**160 L**	**200 L**	**250 L**	**300 L**	**400 L**	**450 L**	**500 L**
Corrosion Protection	Hot dip galvanized steel or stainless steel + Cathodic Protection							
Outer Coverage	Hot dip galvanized steel painted into white colour or stainless steel							
Insulation	Rigid polyurethane							
Dimensions (mm)	1100 x Ø 490	1225 x Ø 570	1450 x Ø 570	1300 x Ø 650	1600 x Ø 635	1600 x Ø 725	1700 x Ø 725	1890 x Ø 725
Thermostat Heater (kW)	2 x 2 kW	2 x 2 kW	2 x 2 kW	3 x 2 kW	3 x 2 kW	4 x 2 kW	4 x 2 kW	4 x 2 kW
Heating Capacity (10°C - 50°C)-minute	70	112	140	116	140	140	157	174
Weight (G/Ss)* (kg)	58/52	74/68	86/81	97/92	108/96	138/130	150/142	161/150
Working Pressure	6 bar							
Test Pressure	12 bar							

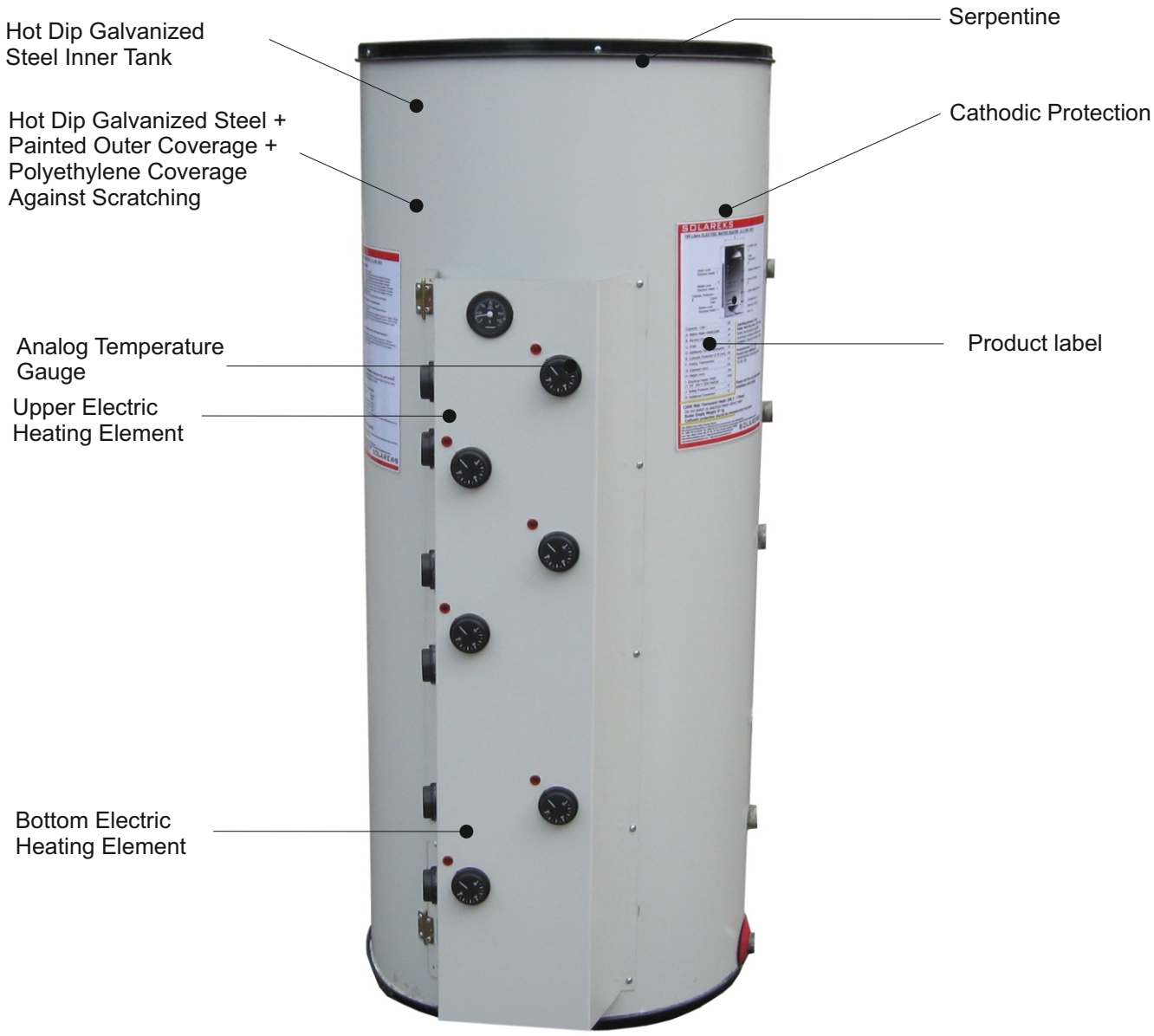
Serpentine Continous Working Capacity

Heat Transfer Fluid Temperat. ↘		**100 L**	**160 L**	**200 L**	**250 L**	**300 L**	**400 L**	**450 L**	**500 L**
Heating Capacity (l/h) considering heating from 10°C up to 50°C	80°C	160 L/h	280 L/h	295 L/h	350 L/h	420 L/h	540 L/h	605 L/h	660 L/h
	70°C	128 L/h	220 L/h	230 L/h	280 L/h	330 L/h	425 L/h	480 L/h	540 L/h
	60°C	100 L/h	165 L/h	175 L/h	210 L/h	245 L/h	320 L/h	355 L/h	390 L/h

* G/Ss: Hot Dip Galvanized Steel Electric Boiler Weight / B- Stainless Steel Electric Boiler Weight
** The time for heating water from 10 °C to 50 °C, minute

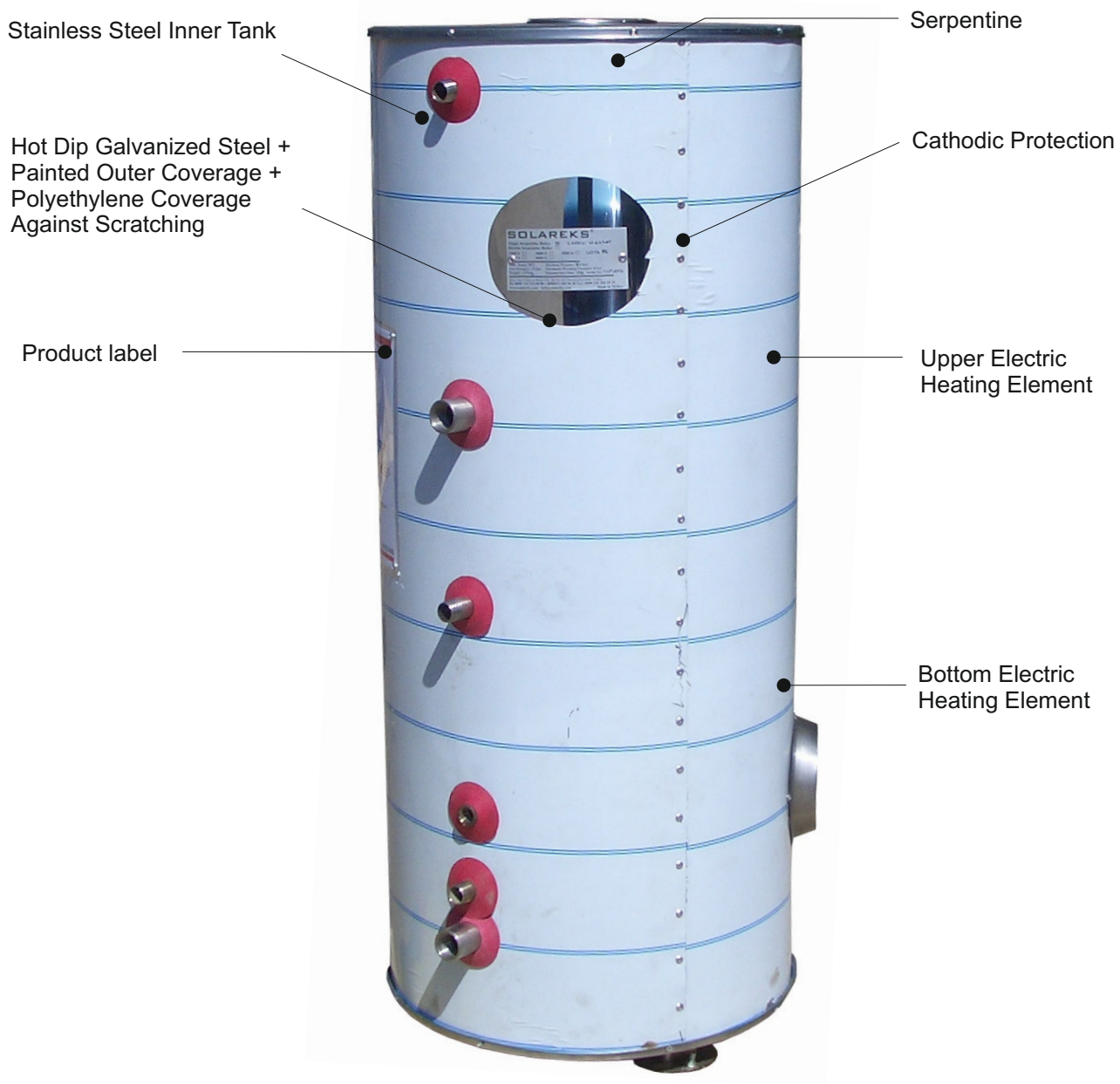
A- Hot Dip Galvanized Steel Electric Boiler - Material Specifications

	Material	ASTM (USA)	EN (Europe)	UNS (USA)	BS (Great Britain)	JIS (Japan)	NF (France)	DIN (German)	GOST (Russia)
Inner Tank	Hot Dip Galvanized Steel	A283M -93a	S235JRG2	-	BS 4360 - 86	Ss330 (SS34)	E24-2E	Rst 37 -2	-
Electrical Heater	Stainless Steel	304 L	1.4306 - X12 CrNi 19-11	S30403	304S11	SUS 304 L	Z 3 CN 18-10	X12 CrNi 19-11	03Ch18N11
Cathodic Protection	Magnesium	**ASTM -** B843AZ63(H-1)							
Insulation	Polyurethane								
Outer Coverage	Painted Hot Dip Galvanized Steel	A283M -93a	S235JRG2	-	BS 4360 - 86	Ss330 (SS34)	E24-2E	Rst 37 -2	-
Mounting Parts	Hot Dip Galvanized Steel	A283M -93a	S235JRG2	-	BS 4360 - 86	Ss330 (SS34)	E24-2E	Rst 37 -2	-
Serpentine	Stainless Steel	316 L	1.4432 X5 CrNiMo 17-12-3	S31603	316S13	SUS 316 L	Z 3 CND 17-12-03	2353	03Ch17 N14M3



B- Stainless Steel Electric Boiler - Material Specifications

Inner Tank	Stainless Steel	304 L	1.4306 - X12 CrNi 19-11	S30403	304S11	SUS 304 L	Z 3 CN 18-10	2352	03Ch18N11
Electrical Heater	Stainless Steel	316 L	1.4432 - X5 CrNiMo 17-12-3	S31603	316S13	SUS 316 L	Z 3 CND 17-12-03	2353	03Ch17N14M3
Cathodic Protection	Magnesium	**ASTM -** B843AZ63(H-1)							
Insulation	Polyurethane								
Outer Coverage	Painted Galvanized Steel	A283M -93a	S235JRG2	-	BS 4360 - 86	Ss330 (SS34)	E24-2E	-	-
Mounting Parts	Stainless Steel	304 L	1.4306 - X12 CrNi 19- 11	S30403	304S11	SUS 304 L	Z 3 CN 18-10	2352	03Ch18N11
Serpentine	Stainless Steel	316 L	1.4432 X5 CrNiMo 17-12-3	S31603	316S13	SUS 316 L	Z 3 CND 17-12-03	2353	03Ch17 N14M3



Electrical Specifications

Electro boilers are shipping with all needed equipment. Below are the main elements:

- Electric Heating Element: Due to usage of 304L/316L quality stainless steel in production products have a long useful life in hard working conditions, heaters are designed for low energy output per square meter. Electric heaters can be operated seperately. When one of the heaters is broken the others can be operated.

- Safety Thermostat: Safety thermostat is used as an additional safety when the analog thermostat is out of order. It switches of the heating elements when the water temperature is 90 °C. It is used to prevent boiler producing steam and to prevent users from scalding.

Safety Specifications

- Adjustable Safety Valve: Protects boiler against high water pressure. It can be adjusted between 3 - 12 bars.

- Non-Return Valve: Prevents electrical heaters against dry fire.

- Boiler is equipped with an analog thermostat and additional analog safety thermostat, If analog thermostat is broken down safety thermostat will switch off the electrical heaters at 90 °C.

- Temperature Relief Valve: Protects users against high temperature&scalding.

- Thermostatic Mixing Valve: Mixes hot water and cold water to deliver tempered water at a controlled temperature (additional).

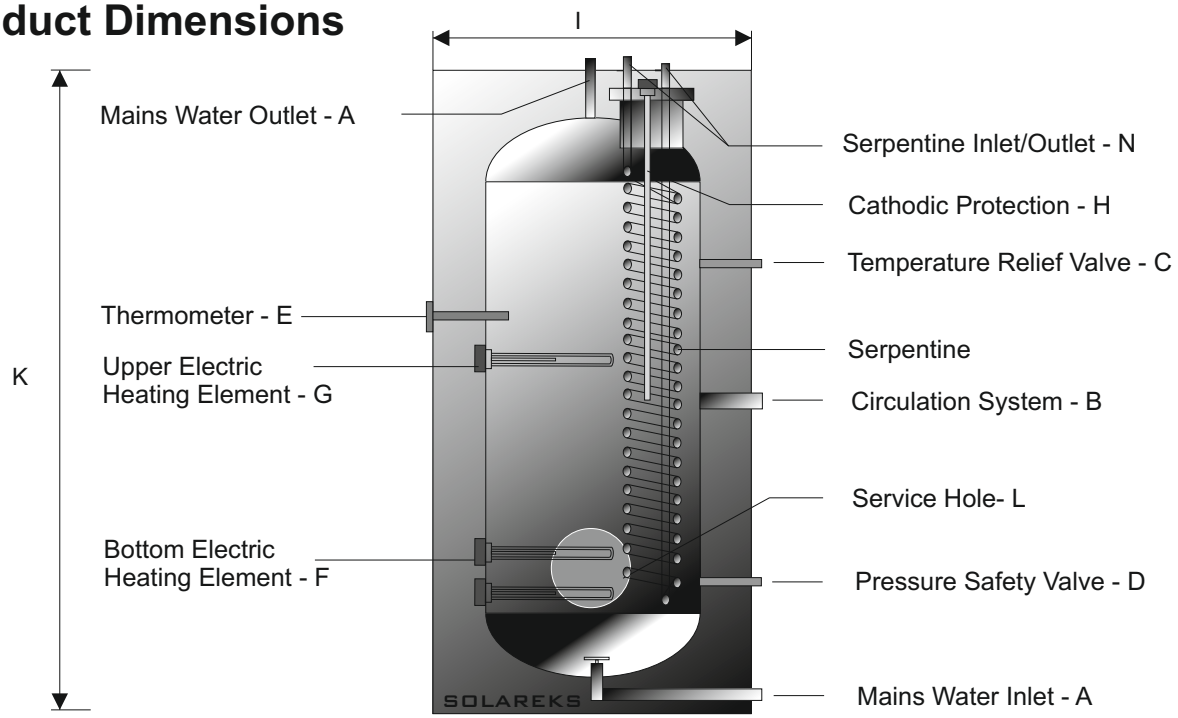
- Mounting Equipments: Special hanging apparats are used against boiler falling over (addititonal).

- Drain Pan: It is a secondary tank where the boiler is installed inside it. Containment tank volume is % 110 of EWH.
It is used to collect the water which can occur because of possible leakages.

Photo of vertically packed products

Photo of horizontally packed products

Product Dimensions



Capacity	100 L	160 L	200 L	250 L	300 L	400 L	450 L	500 L
A- Mains Water Inlet/Outlet	¾"	¾"	¾"	¾"	1"	1"	1"	1"
B- Circulation System	¾"	¾"	¾"	¾"	1"	1"	1"	1"
C- Temperature Relief Valve	½"	½"	½"	½"	½"	½"	½"	½"
D- Pressure Safety Valve	½"	½"	½"	½"	½"	½"	½"	½"
E- Thermometer	½"	½"	½"	½"	½"	½"	½"	½"
F-Bottom Electric Heating Element - 1 phase	1 x 2 кВт	1 x 2 kW	1 x 2 kW	2 x 2 kW	2 x 2 kW	2 x 2 kW	2 x 2 kW	2 x 2 kW
G-Upper Electric Heating Element - 1 phase	1 x 2 кВт	1 x 2 kW	1 x 2 kW	1 x 2 kW	1 x 2 kW	2 x 2 kW	2 x 2 kW	2 x 2 kW
H- Cathodic Protection - Ø 26 (mm)	250	250	500	500	500	500	500	500
I- Diameter (mm)	490	570	570	650	650	780	780	780
K- Height (mm)	1100	1225	1450	1400	1600	1600	1700	1890
L- Service Hole (Optional)	4"	4"	4"	4"	4"	4"	4"	4"
M- Weight (kg)*	58/52	74/68	86/81	97/92	108/96	138/130	150/142	161/150
N- Serpentine Inlet/Outlet	½"	½"	½"	½"	½"	½"	½"	½"

*Weight of Hot Dip Galvanized Steel Electric Boiler /Weight of Stainless Steel Electric Boiler

Optional Accessories

Optional Feature	Code	Explanation
Temperature Relief Valve	SEV	Protects users against high scalding.
Mixing Valve	KV	Mixes hot water with cold water to deliver tempered water at a controlled temperature.
Additional Anod	KK	Cathodic protection element which should be changed every two years
Additional Heating Element	T	-
Flange Connections	F	Flanged inlet and outlet connections (Please specify size).
Additional Option	XX	Customized features, please consult factory.

HEATING TIMES for DIFFERENT CAPACITIES OF HEATING ELEMENTS

Electrical Heater Capacities

Capacity	2 x 2 kW **4 kW**	3 x 2 kW **6 kW**	4 x 2 kW **8 kW**	5 x 2 kW **10 kW**	6 x 2 kW **12 kW**	7 x 2 kW **14 kW**
100 L	70	46				
160 L	112	74	56			
200 L	140	93	70	56		
250 L	175	116	87	70		
300 L		140	105	85	70	60
400 L		186	140	112	93	80
450 L			157	125	105	90
500 L			174	140	116	100

Heating Time *(minute)

* Considering heating from 10°C up to 50°C

SOLAREKS STANDARD SPECIFICATIONS

Products are shipped at the specifications which are written below, if needed options will be noted down.

		A- Hot dip galvanized steel electric boiler			B- Stainless Steel electric boiler			
	Material	**ASTM (USA)**	**EN (Europe)**	**GOST (Russia)**	**Material**	**ASTM (USA)**	**EN (Europe)**	**GOST (Russia)**
Inner Tank	Hot Dip Galvanized Steel	A283M -93a	S235JRG2	-	Stainless Steel	304 L	1.4306 - X12 CrNi 19-11	03Ch18N11
Electrical Heater	Stainless Steel	304 L	1.4306 - X12 CrNi 19-11	-	Stainless Steel	316 L	1.4432 - X5 CrNiMo 17-12-3	03Ch17N14M3
Cathodic Protection	Magnesium	**ASTM -** B843AZ63(H-1)			Magnesium	**ASTM -** B843AZ63(H-1)		
Insulation	Polyurethane				Polyurethane			
Outer Coverage	Painted Galvanized Steel	A283M -93a	S235JRG2	-	Galvanized and Painted Steel	304 L	1.4306 - X12 CrNi 19- 11	03Ch18N11
Mounting Parts	Galvanized Steel	A283M -93a	S235JRG2	-	Stainless Steel	304 L	1.4306 - X12 CrNi 19- 11	03Ch18N11
Serpentine	Stainless Steel	316 L	1.4432 X5 CrNiMo 17-12-3	03Ch17-N14M3	Stainless Steel	316 L	1.4432 - X5 CrNiMo 17-12-3	03Ch17N14M3

Standard Accessories

Adjustable Pressure Safety Valve
Non-Return Valve

Electrical Heater Capacities

Capacity	Heater Capacity	Total Heater Capacity	Heating Time* (minute)
100 L	2 x 2 kW	4 kW	70
160 L	2 x 2 kW	4 kW	112
200 L	2 x 2 kW	4 kW	140
250 L	3 x 2 kW	6 kW	116
300 L	3 x 2 kW	6 kW	140
400 L	4 x 2 kW	8 kW	140
450 L	4 x 2 kW	8 kW	157
500 L	4 x 2 kW	8 kW	174

* Considering heating from 10°C up to 50°C

Material Options

	Optional Feature	**Code**	**Explanation**
Inner Tank	Stainless Steel	316 L	More durable in acidic water conditions than 304 L Stainless steel.
Electrical Heater	Stainless Steel	316 Ti	Is more durable than 316 L quality stainless steel.
Outer Coverage	Stainless Steel	430	Corrosion durability is less than 304 Stainless Steel, has cost advantage.

Outer Coverage: Hot dip galvanized steel painted into white colour

Outer Coverage: Brushed Stainless Steel

OPTIONAL FEATURES

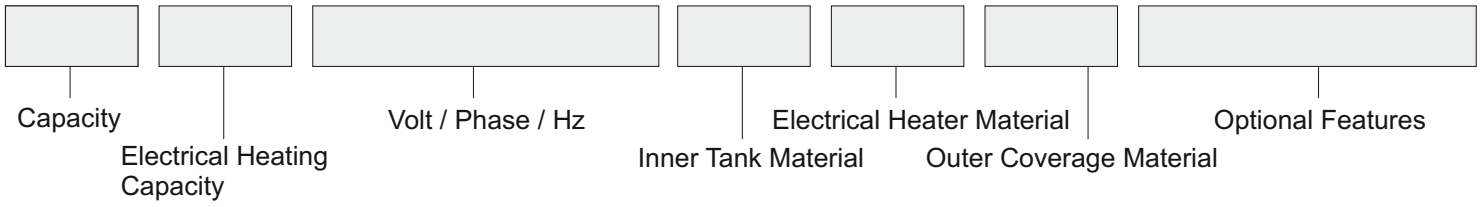
Explanation	Optional Code
Glaswool insulation	C
Flange connection	F
Standard Wood Packing	SA
Hygienic Debarked Wood Box, according to International Standards	ISPM15
Hot dip galvanized steel painted into white colour	BS
Additional Heating Element	T
Hot Dip Galvanized Steel Inner Tank	GD
Mixing Valve	KV
Rigid polyurethane insulation	RP
Temperature Relief Valve	SEV
Rockwool insulation	TY
Low Water Cutout Device	SS
Additional Anod	KK
316 L Quality Stainless Steel Inner Tank	316 L
304 L Quality Stainless Steel Inner Tank	304 L
304 L Stainless Steel Electrical Heater	R304 L
316 L Stainless Steel Electrical Heater	R316 L
316 Ti Quality Stainless Steel Electrical Heater	R316 Ti
430 Quality Stainless Steel Outer Coverage	430
Additional Option	XX

Electrical Heater (Volt - Phase - Hz)	Code
120 - 1 - 60	120 - 1 - 60
208 - 1 - 60	208 - 1 - 60
240 - 1 - 60	240 - 1 - 60
277 - 1 - 60	277 - 1 - 60

Standard Product Model Numbers

A- Hot dip galvanized steel product	Model Number	B- Stainless steel model	Model Number
100 L	MEBG100	100 L	MEBS100
160 L	MEBG160	160 L	MEBS160
200 L	MEBG200	200 L	MEBS200
250 L	MEBG250	250 L	MEBS250
300 L	MEBG300	300 L	MEBS300
400 L	MEBG400	400 L	MEBS400
450 L	MEBG450	450 L	MEBS450
500 L	MEBG500	500 L	MEBS500

HOW to ORDER OUR PRODUCT



Example: 100 / 3 x 2 kW / 208 - 1 - 60 / 304 L / 316 L / 304 / T x 1 - SEV - KK

A 100 liters electric boiler with three piece of 2 kW electrical heater is ordered. Inner tank material is 304 L quality stainless steel, electric heating element material is 316 L quality stainless steel, outer coverage is 304 quality stainless steel. 1 piece of electric heating element, temperature relief valve, additional anod is ordered as optional.

Note: If features of the EWHs are not written it will be considered as Solareks standard production, as written in catalogue. If different electric heater capacity will be ordered the values in page 7 can be used to determine the heating capacities.

SI-METRIC Conversions

1 Liter = 0,264 US Gallon

1 Liter = 0,22 Great Britain Gallon

1 Watthour = 3,41214 BTU

°F = (°C x 1,8) + 32

1 Bar x 14,5 = psi

1 kg = 2,2 Lbs

1 m^3 = 264,2 Gallon

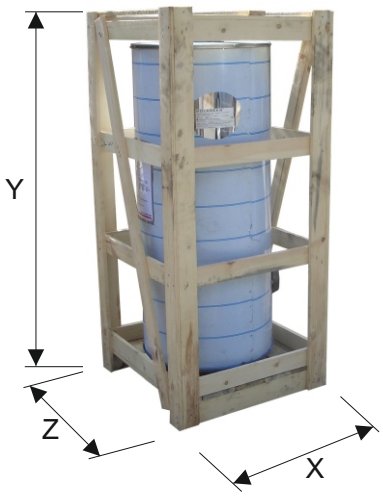
1 m = 39,37 Inch

1 m = 3,28084 Foot

PACKING&SHIPPING DETAILS

Packing Method

Capacity	Packing
100 - 500 L	Air Bubled Film or Wood Box



Packed Product Dimensions

Capacity	Volume (m^3)	Weight (kg)*	X x Y x Z (mm)
100 L	0,66	77/46	660 x 1190 x 660
160 L	0,94	109/66	710 x 1490 x 710
200 L	1,06	130/84	760 x 1490 x 760
250 L	1,16	146/93	810 x 1550 x 810
300 L	1,40	165/102	810 x 1750 x 810
400 L	1,78	190/118	940 x 1690 x 940
450 L	2,00	205/125	940 x 1790 x 940
500 L	2,12	221/139	940 x 2020 x 940

*Weight of Hot Dip Galvanized Steel electric boiler/Weight of Stainless Steel electric boiler

Note: All products are designed according to Euro truck, 20 Feet, 40 Feet, 40 Feet high cube. Partial transportation is possible. Electric boilers are more suitable for air cargo.

Container&Truck Dimensions

	Height x Width x Length	Volume (m^3)
20” Container	2335 x 2290 x 5890 mm	33,3
40” Container	2335 x 2260 x 12015 mm	66,9
40” High Cube Container	2580 x 2260 x 12015 mm	76
Truck (Euro Norm)	2500 x 2450 x 13400 mm	73

SOLAREKS Contact Details

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