INSTALLATION AND USER'S MANUAL
WARRANTY TERMS

WATER HEATERS

FOR CENTRAL UTILITY WATER

ENSOL/1

100 ☐	**150** ☐
220 ☐	**250** ☐
300 ☐	**400** ☐

500 ☐

Contents:

Before installation and use of water heater please read the following Installation and User's Manual and Warranty Terms.

1. Construction and use

Water heaters ENSOL/1 with one heat exchanger as pressure accumulating tank are destined for heating and storage of warm utility water.

Water heaters ENSOL/1 100 - 300 are adopted for installation in rooms with doors wide from 70 cm.

Tank is enameled inside which protects against corrosion and ensures clean, health water. Magnesium anode gives additional anticorrosion protection. Working based on electrochemical potentials between steel and magnesium, anode generates protection current for tank.

Thermal insulation is made from polistyrene foam. External housing is made from skay.

Water heaters are adopted for installation of heating elements with 1½" cork.

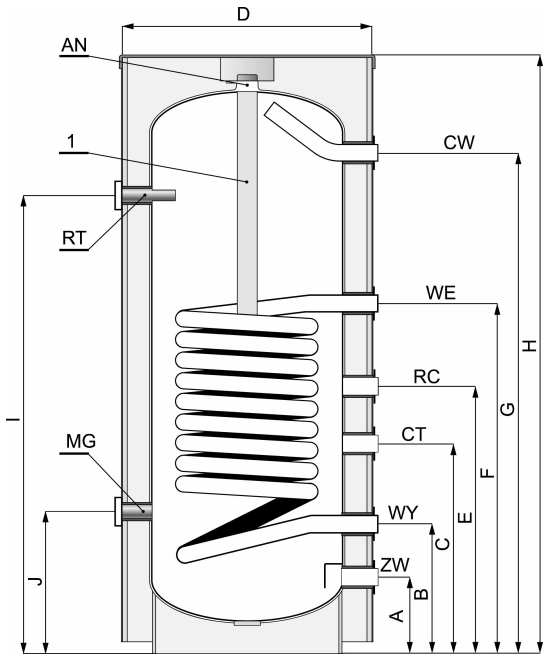


Fig.1 **ENSOL/1 100 i 150**

Tab.1 **Dimensions of exchangers**

Type		**ENSOL/1 100**	**ENSOL/1 150**
Capacity	[dm³]	100	150
Height	**H** [mm]	1110	1460
Max. height when tilted	**H*** [mm]	1245	1565
Diameter	**D** [mm]	560	560
Cold tap water	**A** [mm]	200	200
	ZW	¾"	¾"
Hot tap water	**G** [mm]	850	1200
	CW	¾"	¾"
Heating water supply	**F** [mm]	760	760
	WE	1"	1"
Heating water return	**B** [mm]	300	300
	WY	1"	1"
Circulation	**E** [mm]	580	580
	RC	¾"	¾"
Temperature sensor	**C** [mm]	460	460
	CT	½"	½"
Heater coupling	**J** [mm]	260	260
	MG	1½"	1½"
Themometer fixing	**I** [mm]	790	1120
	RT	½"	½"
Magnesium anode	**ø x L**	25 x 300	30 x 270
	AN	2"	2"

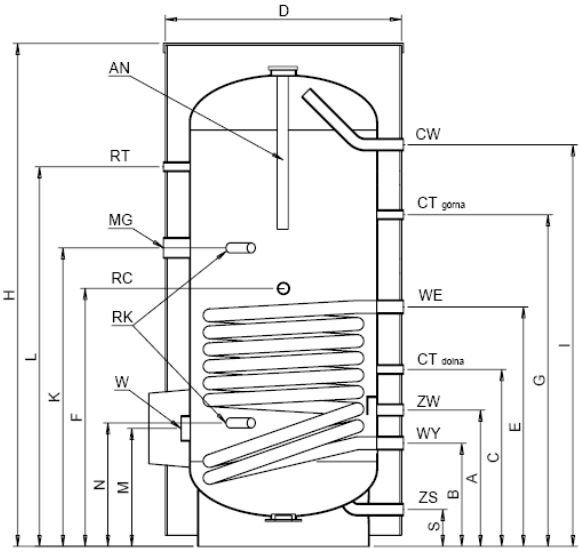


Fig.2 **ENSOL/1 220**

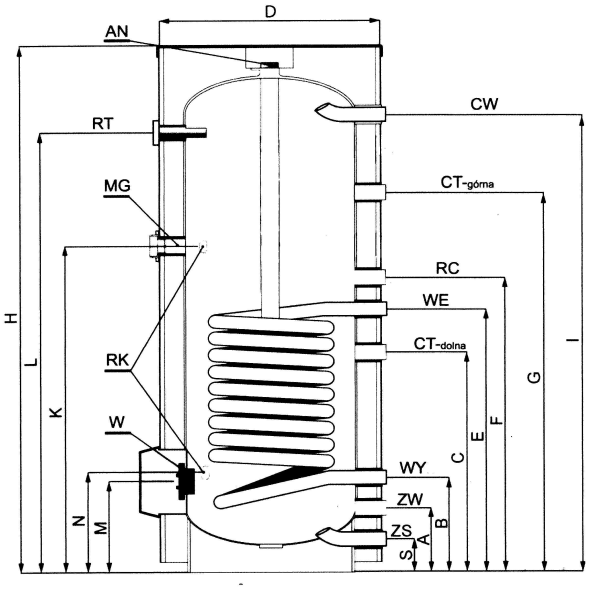


Fig.3 **ENSOL/1 250 - 500**

Tab.2 **Dimensions of exchangers**

Type		**ENSOL/1 220**	**ENSOL/1 250**	**ENSOL/1 300**	**ENSOL/1 400**	**ENSOL/1 500**
Capacity		212	252	309	400	500
Height	**H** [mm]	1400	1600	1900	1880	2180
Max. height when tilted	**H*** [mm]	1545	1730	2010	2130	2430
Diameter	**D** [mm]	650	650	650	840	840
Cold tap water	**A** [mm]	360	250	250	360	360
	ZW	¾"	¾"	¾"	1 ¼"	1 ¼"
Hot tap water	**I** [mm]	1080	1270	1570	1500	1735
	CW	¾"	¾"	¾"	1 ¼"	1 ¼"
Heating water supply	**E** mm]	650	730	820	1000	1085
	WE	1"	1"	1"	1"	1"
Heating water return	**B** mm]	280	360	360	450	450
	WY	1"	1"	1"	1"	1"
Cirkulation	**F** [mm]	690	895	1030	1000	1000
	RC	¾"	¾"	¾"	¾"	¾"
Temperature sensor sleeve	**C** [mm]	470	510	510	630	635
	G [mm]	890	1000	1140	-	-
	CT	½"	½"	½"	½"	½"
Heater coupling	**K** [mm]	800	895	1030	1140	1245
	MG	1½"	1½"	1½"	1½"	1½"
Thermometer coupling	**L** [mm]	1020	1210	1510	1480	1705
	RT	½"	½"	½"	½"	½"
Temperature sensor sleeve closed	**N** [mm]	325	325	325	455	455
	K [mm]	810	905	1040	1140	1245
	RK	½"	½"	½"	½"	½"
Magnesium anode	**ø x L**	40 x 240	40 x 240	40 x 330	40 x 390	40 x 430
	AN	2"	2"	2"	2"	2"
Clearing hatch	**W**	2"	2"	2"	100/145/ 175	100/145/ 175
	M [mm]	310	310	310	430	430
Drain	**S** [mm]	100	100	100	130	130
	ZS	¾"	¾"	¾"	¾"	¾"

Tab. 3 **Technical parameters of exchangers**

Type		**ENSOL/1 100**	**ENSOL/1 150**
Tank capacity	dm^3	100	143
Exchanger surface	m^2	0,9	0,9
Coil capacity	dm^3	5,0	5,0
Hot tap water capacity 80/10/45^{0}C 70/10/45^{0}C 60/10/45^{0}C	l/h	 540 442 332	 540 442 332
Heating power 80/10/45^{0}C 70/10/45^{0}C 60/10/45^{0}C	kW	 22,0 18,0 13,5	 22,0 18,0 13,5
Hot tap water capacity 80/10/60^{0}C 70/10/60^{0}C	l/h	 294 185	 294 185
Heating power 80/10/60^{0}C 70/10/60^{0}C	kW	 17,1 10,8	 17,1 10,8
Daily readiness loss	kWh/ 24h	2,0	2,8
Heating water flow in the coil	m^3/h	1,5	1,5
Pressure loss	mbar	30	30
Tank operation parameters	Maximum pressure and operating temperature pr = 0,6 MPa tr = 80℃		
Heating medium parameters	Maximum pressure and operating temperature pr = 0,6 MPa tr = 100℃		
Type of tank	steel tank coated inside with vitreous enamel		
Type of outer casing	skay type coat		
Thermal insulation	70 mm PS		
Heter weight In the casing	kg	46	55

* 80℃, 70℃, 60℃ - temp.of heating water on coil pipe inlet
10℃ - temp.of cold utility water on inlet
45℃, 60℃ - temp.of warm utility water

Tab. 4 **Technical parameters of exchangers**

Type		**ENSOL/1 220**	**ENSOL/1 250**	**ENSOL/1 300**	**ENSOL/1 400**	**ENSOL/1 500**
Tank capacity	dm^3	212	252	309	400	500
Exchanger surface	m^2	1,1	1,1	1,4	1,6	1,9
Coil capacity	dm^3	6,4	6,4	8,0	9,5	10,7
Hot tap water capacity 80/10/45^{0}C 70/10/45^{0}C 60/10/45^{0}C	l/h	 629 526 378	 629 526 378	 826 727 506	 948 826 600	 1143 980 700
Heating power 80/10/45^{0}C 70/10/45^{0}C 60/10/45^{0}C	kW	 25,6 21,4 15,4	 25,6 21,4 15,4	 33,6 29,6 20,6	 38,6 33,6 24,4	 46,5 39,9 28,5
Hot tap water capacity 80/10/60^{0}C 70/10/60^{0}C	l/h	 354 227	 354 227	 450 279	 523 330	 621 392
Heating power 80/10/60^{0}C 70/10/60^{0}C	kW	 20,6 13,2	 20,6 13,2	 26,2 16,2	 30,4 19,2	 36,1 22,8
Daily readiness loss	kWh/ 24h	3,0	3,2	3,4	4,0	4,5
Heating water flow in the coil	m^3/h	1,8	1,8	2,2	2,6	3,0
Pressure loss	mbar	40	40	70	110	130
Tank operation parameters	Maximum pressure and operating temperature pr = 0,6 MPa tr = 80℃					
Heating medium parameters	Maximum pressure and operating temperature pr = 0,6 MPa tr = 100℃					
Type of tank	steel tank coated inside with vitreous enamel					
Type of outer casing	skay type coat					
Thermal insulation	70 mm PS				100 mm PS	
Heter weight In the casing	kg	65	80	100	140	175

* 80℃, 70℃, 60℃ - temp.of heating water on coil pipe inlet
10℃ - temp.of cold utility water on inlet
45℃, 60℃ - temp.of warm utility water

2. Safety and conditions of use.

Water heaters can be used only with safety valve installed on cold water inlet. This valve protects against over-pressure in water-supply system or over-pressure in tank as a result of water heating.
Even during normal working at the moment water can come from safety valve. It is proper situation. **It is forbidden** to close hole in safety valve in such moments.
All types of water heaters should work with thermometer with temperature range 0 ÷ 120℃. Besides water heaters with capaci ty more than 300 l should work with manometer with pressure range 0÷1 MPa.

ATTENTION!

1. **It must be** installed a safety valve on cold water inlet. It should be mounted in such way that arrowhead on valve is compatible with water flow.
2. **It is forbidden** to install any cutting valve between water heater and safety valve.
3. Use of water heater without proper working safety valve is forbidden as it can make breakdown and it is a threat of people health and life.

3. Installation

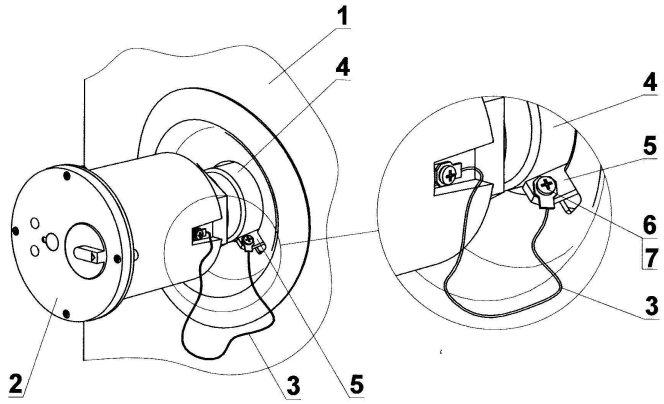
Installation and every repairs must be done by well-qualified people.

3.1 Connection to water-supply system, central heating system and solar collector.

The water heater should be connected vertically to the water supply, with pressure not exceeding 0.6 MPa and not less than 0.1 Mpa. However, if the pressure in the water supply network often exceeds 0.4 MPa, a pressure reducing valve or an expansion vessel is recommended to be fitted before the heater to reduce the inconvenient water outflow from the safety valve.
If the pressure in the water supply exceeds 0.6 MPa, the installation of a pressure reducing valve is a necessity to avoid a continuous flow of water through the safety valve.
The heat exchanger can be powered by the low-temperature water heating boiler operating in an open heating system or by the low-temperature water heating boiler operating in a closed heating system with the expansion vessel.

3.2 EJK heating set installation

EJK heating set was designed specifically for enamelled water heaters. Heating elements are insulated and do not "steal" protection current which is generated by the magnesium anode. Only heating sets with this feature are allowed to be used during warranty period of the tank. It is one of warranty conditions for the tank.
EJK heating sets are available for one phase current 230 V with power 1,5 or 2,0 kW and for 3 phase current 400 V with power 3,0; 4,5 or 6,0 kW. Assembly must be done according to Manual for EJK heating sets.
It is especially important that free end of yellow-green protection cable connect with earthed blade located on MG connection on tank by screw M4, please see fig.4.



1 – tank's housing
2 – EJK heating element
3 – earthed cable
4 – flange MG 1 ½"
5 – earthed blade
6 – screw M4
7 – springy seal

Fig. 4 **Heating set earth.**

ATTENTION!
Heating element and tank must be connected protection cable which goes from EJK housing.

ATTENTION!
Do not plug in to power without assurance that tank is filled in with water.

4. Operation and service.

1. Periodically , at least once per month and before every activation please check proper working of safety valve.
2. Temporary leakage from safety valve during heating water is normal phenomenon and it means proper working of safety valve.

ATTENTION!
Permanent leakage from safety valve show that safety valve is out of order or there is too high pressure in water-supply system.
It is forbidden to close safety valve.

3. In case of break in use during winter time and possibility of water freezing it is necessary to fill water out by unscrewing safety valve.
4. During water heater's use magnesium anode uses up. Periodically, at least once a year it is necessary to control it condition , not later than after 18 months exchange it for new one.
   Anode is located in upper bottom of tank. To check it condition or exchange for new please:
   - cut off cold water supply, for a moment open warm water tap and then close outlet of warm water,
   - take off upper cover of tank,
   - take out insulation element covered cork with magnesium anode,
   - unscrew cork with magnesium anode,

- assembly of magnesium anode must be done in inversely order paying attention on tightness of connections.

ATTENTION!
Magnesium anode is important anticorrosion protection of enameled tank. Exchange for new one and regular control it is condition og guarantee keeping.
Exchange, used magnesium anode please save with purchase documents just in case of breakdown.

5. Periodically, depending on water hardness please remove accumulating sediment in tank.

5. Warranty terms.

1. The warranty for the enamelled water heater is 60 months.
2. The warranty for other parts of the water heater is 24 months.
3. The period of warranty is valid from the date of sale of the product to the user. The date must be specified in a Warranty Card and confirmed by a proof of purchase (invoice) written and stamped by the seller.
4. The guarantor ensures a faultless operation of the water heater, provided that it is installed and used in accordance with this manual.
5. In the guarantee period, the user is entitled to free repairs of heater damage arising through the fault of the manufacturer. Such damages will be eliminated in 14 days from the date of submission.
6. The user loses the right to guarantee repairs in case of:
   - improper use of the device,
   - repairs and alterations of the device by unauthorised persons,
   - improper assembly and operation of the device not according this manual,
   - use of the heater without the safety valve or with non-functional safety valve
   - lack of the magnesium or titanium anode and lack of documentation of its replacement.
7. The guarantor may refuse to repair if:
   - there is no assembly access to the device,
   - it is necessary to disassemble other devices, partition walls, etc. to replace the heater,

- the container is permanently connected to the water supply system using non-separable connections.

8. In case of unreasonable call of the service, costs of its arrival are covered by the customer.
9. In case of malfunctioning of the heater, call manufacturer's service at **tel. 32/ 415 01 81 from 6^{oo} to 14^{oo},** or by e-mail at : **sekretariat@ensol.pl** or the point of purchase.
   DO NOT DISASSEMBLE THE DEVICE.
10. A method of repair of the heater is determined by the manufacturer.
11. The basis for the guarantee repairs under the guarantee is a properly filled out, complete warranty card without any amendments.
12. In matters not regulated by the above conditions shall be governed by the Civil Code
13. It is recommended to keep the Guarantee Card throughout the whole period of operation of the heater.

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Declaration of conformity for 2013

1. Manufacturer:	Energetyka Solarna ensol Sp. z o.o. 47-400 Racibórz, ul. Piaskowa 11, Poland
2. Product name:	Water heater ENSOL/1 100, ENSOL/1 120, ENSOL/1 150, ENSOL/1 220, ENSOL/1 250, ENSOL/1 300, ENSOL/1 400, ENSOL/1 500
3. Product classification:	27.52.14
4. Scope of the product:	Heating of domestic water
5. Reference documents:	technical documentation of the product, directive 97/23/WE art.3 section 3

I declare with full responsibility that the products listed in point 2 are in full agreement with reference documents specified in point 5.

Racibórz 14.01.2013

.....

(place and date of issue)

WICEPREZES ZARZĄDU

mgr inż. Adrian Pason

.....

(name, surname and signature of authorized person)

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GUARANTEE CARD

No.	Application's date	Repair description	Repair date	Service signature	Comments

Repair's date	Repair's date	Repair's date	Repair's date	Repair's date
Repair scale	Repair scale	Repair scale	Repair scale	Repair scale
Service's stamp	Service's stamp	Service's stamp	Service's stamp	Service's stamp
User's address and name	User's address and name	User's address and name	User's address and name	User's address and name
User's signature	User's signature	User's signature	User's signature	User's signature

GUARANTEE CARD

Comments:

GUARANTEE TICKET 1	GUARANTEE TICKET 2	GUARANTEE TICKET 3	GUARANTEE TICKET 4	GUARANTEE TICKET 5
ensol	ensol	ensol	ensol	ensol
Water heater type:	Water heater type:	Water heater type:	Water heater type:	Water heater type:
Factory number	Factory number	Factory number	Factory number	Factory number
Date of sale:	Date of sale:	Date of sale:	Date of sale:	Date of sale:
Stamp and signature of seller	Stamp and signature of seller	Stamp and signature of seller	Stamp and signature of seller	Stamp and signature of seller

Edition 01/13 ENSOL/1

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