

# Indirekt beheizter Warmwasserspeicher

Für die solarthermische Nutzung und Wärmepumpen Unterstützung

**EN** Indirectly fired hot water heater

For solar-thermal use and heat pump support

**FR** Préparateur d'eau chaude à chauffage indirect

Pour utilisation thermo-solaire et support d'une pompe à chaleur

**PL** Zasobnik wody ciepłej z podgrzewaniem pośrednim

Do użytkowania z wykorzystaniem energii słonecznej i wsparciem pomp ciepła

**PT** Termoacumulador de aquecimento indireto

Para utilização com energia solar térmica com apoio de uma bomba de calor

**ES** Acumulador de agua caliente calentado indirectamente

Para el uso térmico solar y el apoyo de bombas de calor

## 300 - 1000 l

**DE** Installations- und  
Wartungsanleitung

**GB** Installation and Maintenance  
Instructions

**FR** Manuel d'installation et  
d'entretien

**PL** Instrukcja montażu i  
konserwacji

**PT** Instruções de instalação e  
manutenção

**ES** Manual de instalación y  
mantenimiento



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**1 Safety**

**Installation, Alteration**

The heater must only be installed or altered by an approved specialist company.  
The heater must only be used for heating potable water.

**Operation**

These operating and maintenance instructions must be observed for flawless operation.

**CAUTION**

**Do not close the safety valve!**  
Water seeps from the safety valve during the heat-up phase.

**Thermal Disinfection**

**CAUTION**

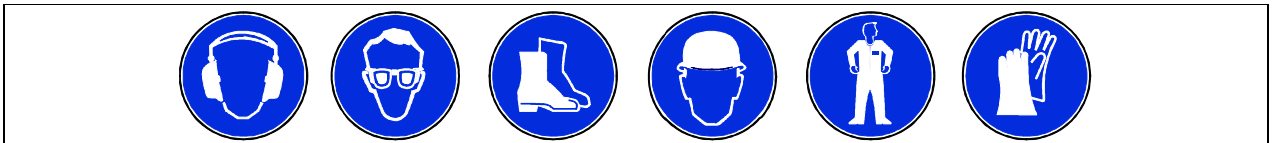
**Risk of scalding!**  
Brief operation at temperatures > 60 °C must always be monitored.

**Maintenance**

We recommend taking out a maintenance agreement with an approved specialist company. The heater should be serviced at least every two years; preferably every year.

**1.1 Personal protective equipment**

When working at the system, wear the stipulated personal equipment such as hearing and eye protection, safety boots, helmet, protective clothing, protective gloves.



See the national regulation of your country for personal protective equipment required.

## Description of the device

### 2 Description of the device

#### 2.1 Intended use

This heater is suitable for combined use with solar panels and a heat pump. This heater must only be used for heating potable water. It is not intended for any other use. There shall be no claim for liability for any damage resulting from improper use.

#### 2.2 Corrosion Protection

This hot water heater is equipped with enameling suitable for potable water in accordance with DIN 4753 Part 3. This coating does not react with standard installation materials and process waters. A magnesium anode has been integrated for additional protection.

#### 2.3 Construction and Fitting Dimensions

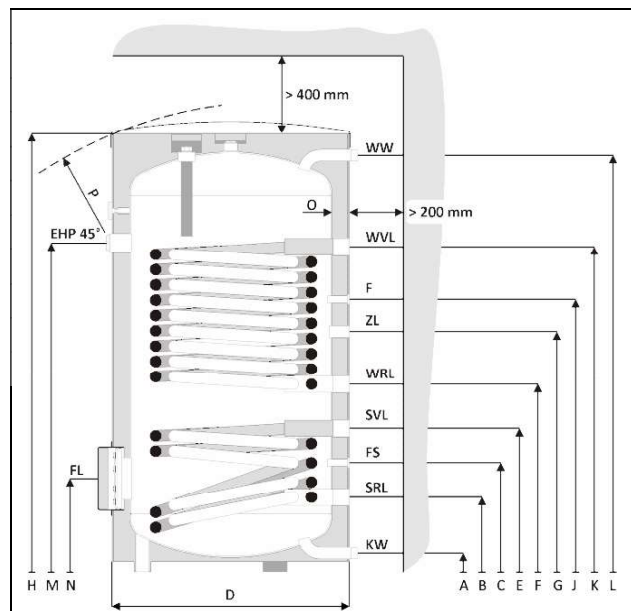
Diagram of this heater series.



**Note!**

Heater connections. Compare with the installation note attached to the device in the factory.

KW	Cold water
WW	Hot water
ZL	Circulation (optional)
F	Probe pin
FS	Solar probe pin
WVL	Supply heating coil
WRL	Return heating coil
SVL	Supply solar coil
SRL	Return solar coil
EHP	E-heating cartridge (optional)
FL	Flange / inspection port



## 2.4 Technical data

		Type	300-2	400-2	500-2	750-2	1000-2
Nominal volume		<b>l</b>	287	363	445	722	945
Diameter	D	<b>mm</b>	700	700	700	990*	1090*
Height	H	<b>mm</b>	1294	1591	1921	2050	2083
Diagonal height	P	<b>mm</b>	1441	1713	2023	1972**	2010**
Weight		<b>kg</b>	139	189	222	263	335
Connection size		<b>R</b>	1" AG	1" AG	1" AG	1¼" AG	1¼" AG
Cold water KW	A	<b>mm</b>	55	55	55	99	103
Hot water WW	L	<b>mm</b>	1229	1526	1856	1887	1905
Connection size		<b>R</b>	1¼" IG	1¼" IG	1¼" IG	1¼" AG	1¼" AG
Solar supply SVL	E	<b>mm</b>	715	909	965	646	701
Solar return SRL	B	<b>mm</b>	220	220	220	287	298
Connection size		<b>R</b>	1¼" IG	1¼" IG	1¼" IG	1¼" AG	1¼" AG
Heating supply WVH	K	<b>mm</b>	1048	1354	1604	1426	1481
Heating return WRL	F	<b>mm</b>	790	1006	1114	796	851
Connection size		<b>R</b>	¾" IG	¾" IG	¾" IG	¾" AG	¾" AG
Circulation ZL	G	<b>mm</b>	625	1111	1264	1116	1171
Probe tube		<b>mm</b>	Ø12	Ø12	Ø12	Ø12	Ø12
Solar FS	C	<b>mm</b>	323	385	423	510-960***	510-960***
Heating F	J	<b>mm</b>	805	965	1200	1060-1510***	1060-1510***
Connection size under 45°		<b>R</b>	1½" IG	1½" IG	1½" IG	1½" IG	1½" IG
E-cartridge EHP	M	<b>mm</b>	475	540	626	1490	1545
Blind flange	N	<b>mm</b>	275	275	275	378	387
FL	DN/TK	<b>mm</b>	110/150	110/150	110/150	180/225	180/225
Lower heating surface		<b>m²</b>	1,10	1,40	1,60	2,2	3,1
Lower continuous output	tCW = 10°C	<b>kW</b>	33	40	46	60	82
	tHW = 45°C	<b>l/h</b>	797	972	1116	1465	2004
Solar WT content		<b>l</b>	9,1	11,3	13,6	15,6	21,5
Upper heating surface		<b>m²</b>	2,40	3,20	4,30	5,2	6,1
Upper continuous output	tCW = 10°C	<b>kW</b>	46	64	88	110	132
	tHW = 45°C	<b>l/h</b>	1093	1556	2148	2687	3226
Heating WT content		<b>l</b>	20,4	27,2	36,3	39,6	42,7
Lower performance indicator	tCW = 10°C tHe = 60°C tHW = 45°C	<b>NL</b>	6,6	9,1	11,2	16,5	24,9
Upper performance indicator			8,0	15,0	25,0	34,0	43,0
Standing volume	Potable water	<b>l</b>	178	230	285	453	602
Insulation strength	O	<b>mm</b>	50	50	50	120*	120*
24-h standing losses		<b>kWh</b>	2,6	2,9	3,2	3,7*	4,8*
Perm. excess operating pressure	Heating water	<b>bar</b>	10	10	10	10	10
	Potable water	<b>bar</b>	10	10	10	10	10
Perm. operating temperature	Heating water	<b>°C</b>	110	110	110	110	110
	Potable water	<b>°C</b>	95	95	95	95	95

IG = Internal thread / AG = External thread

\* Subject to change! This thermal insulation is mounted subsequently and can vary. For more information please read separate instruction manual.

\*\* Without thermal insulation.

\*\*\* Vertical external sensor.

## 3 Installation

### 3.1 Regulations

The following standards, regulations and guidelines must be observed for installation and operation:

- DIN EN 806 / DIN EN 1717 / DIN 1988 / DIN 4708 / EN 12975
- DVGW (German Technical and Scientific Association for Gas and Water) work sheet W 551 / work sheet W 553
- EnEG (German Energy Conservation Act) / EnEV (German regulation on energy-saving thermal insulation and systems engineering in buildings)
- Local regulations
- VDE (German Association for Electrical, Electronic & Information Technologies) regulations

### 3.2 Transport

The heater must never be transported to the installation site in a horizontal position. Observe the instructions on the packaging! Do not remove the heater from the packaging until it is at the installation site. Take great care when moving the heater during transport and always place it down gently.

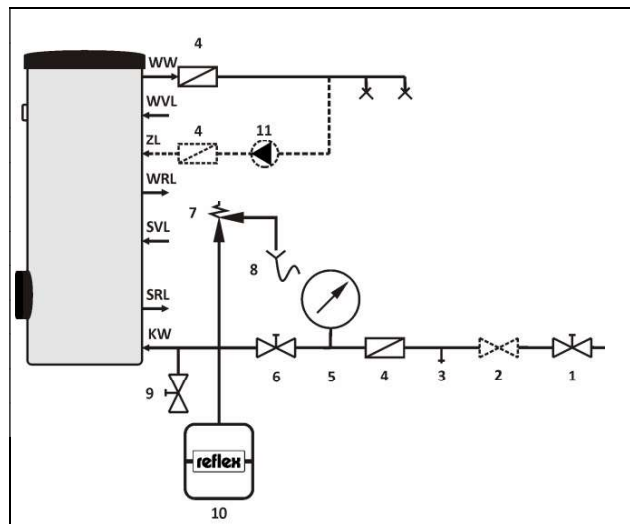
### 3.3 Installation Site

Install the heater in a frost-proof room. Install the heater on a level and stable floor. If the room is damp, raise the heater on a platform. If the heater is to be installed below the rooftop, you may want to install a water collection tank with the same capacity as the heater.

### 3.4 Connection Diagram

#### Fittings required

1	Cutoff valve
2	Pressure reducing valve (if the network pressure is over 10 bar and the house connection does not already feature a pressure reducing valve)
3	Test valve
4	Non-return flap
5	Pressure gauge connection with pressure gauge
6	Cutoff valve
7	Safety valve (max. 10 bar discharge, vent every three months)
8	Discharge funnel
9	Drainage valve
10	Sanitary expansion vessel
11	Circulation pump



For the connection description, refer to see chapter 2.3 "Construction and Fitting Dimensions" on page 4 .

### 3.5 Assembly

Internal circulation should be avoided. The pipe routings in all heater circuits should be designed such that internal circulation is avoided. It is recommended that a nonreturn valve or non-return flap with backflow preventer is integrated into all heater circuits.

#### 3.5.1 Heating Water Connection

Connect the heating coil in the counter current operation. Do not invert the supply and return connections. Keep the charging line as short as possible and insulate it well. Arrange the drain valve in the charging line.

### 3.5.2 Water Connection

1. The connection to the cold water pipe must be carried out in accordance with DIN 1988 using suitable individual fittings or a complete safety group.  
**CAUTION** - Risk of damage through contact corrosion on the heater connections! With a copper connection for potable water, use brass or red brass connection fittings. Do not remove the plastic cartridges in the connections and ensure they are not damaged through solder work. There shall be no claim for liability for corrosion damage on the heater connections.
2. Use a safety valve that has been type-examination tested. This must be installed such that it prevents the permitted operating pressure from being exceeded. The safety valve discharge pipe should end above the drainage location in a frost-proof area where it is clearly visible. The discharge pipe must at least correspond to the outlet profile of the safety valve.  
**CAUTION** - Damage due to excess pressure! If a non-return valve is used, the safety valve must be fitted between the non-return valve and the cold water connection. Do not close the discharge opening of the safety valve.

### 3.5.3 Circulation

When connecting a circulation pipe, fit a circulation pump permitted for potable water and a suitable non-return valve. If the connection is not going to be used, it must be sealed against leaks and insulated.

### 3.5.4 Potable Water Expansion Vessel

Fit the expansion vessel on the cold water pipe between the heater and the safety group. Each time water is drawn, potable water must flow through the expansion vessel.

The table below serves as a guide for measuring an expansion vessel. The different cubic capacities of the individual vessel brands can result in different sizes. The specifications refer to a heater temperature of 60 °C or 70 °C

Safety Valve Response Pressure		6 bar		8 bar		10 bar	
Heater temperature		60 °C	70 °C	60 °C	70 °C	60 °C	70 °C
Heater type	Brand	Type		Type		Type	
200	reflex	DD 18	DD 25	DD 8	DD 12	DD 8	DD 12
300	reflex	DD 25	DD 33	DD 12	DD 18	DD 12	DD 18
400	reflex	DD 33	DT5 60	DD 18	DD 25	DD 18	DD 18
500	reflex	DT5 60	DT5 60	DD 25	DD 33	DD 18	DD 25
750	reflex	DT5 60	DT5 80	DD 33	DT5 60	DD 25	DD 33
800	reflex	DT5 60	DT5 80	DD 33	DT5 60	DD 33	DT5 60
1000	reflex	DT5 80	DT5 100	DT5 60	DT5 60	DD 33	DT5 60

## 4 Commissioning

### 4.1 System Manufacturer Information

- The responsible fitter shall explain to the user how the hot water heater functions and how to operate it.
- He shall explain how important regular servicing is, and that the lifespan and functionality are dependent on this.
- If there is a risk of frost or it is being decommissioned, the heater must be drained.
- Water seeps from the safety valve during the heat-up phase; this is completely normal.  
**Do not close the safety valve!**
- The user receives all of the accompanying documentation.

### 4.2 Putting Into Operation

#### 4.2.1 General Information

Commissioning must be carried out by the device manufacturer or an assigned expert. The heater must be commissioned in accordance with the corresponding installation instructions.

#### 4.2.2 Filling the Heater

Before filling for the first time, the piping network must be rinsed out while the heater is connected. With the hot water tap open, the heater must be filled until water escapes. Check the screw connections are all properly sealed and tighten if necessary.

### 4.3 Decommissioning

The heater must be decommissioned according to the heating device operating instructions. The heater should be drained if there is a risk of frost damage and when decommissioning.



## 5 Maintenance

### 5.1 Sacrificial Anode

The magnesium sacrificial anode offers minimum protection for possible cracks in the enameling in accordance with DIN 4753. An initial inspection should be carried out after two years of operation at the latest.

#### **CAUTION**

##### **Corrosion damage!**

A worn anode can lead to early corrosion damage. Depending on the local water qualities, the sacrificial anode should be checked at least every two years, preferably every year, and replaced immediately if necessary.

The potable water must have a minimum conductivity of 100  $\mu\text{S}/\text{cm}$ . Anode protection cannot be guaranteed otherwise.

If the anode is more than 2/3 warped, it must be replaced immediately. The heater must be depressurized for this. When replacing the anode, pay attention to the electrical connections.

### 5.2 Draining

Before cleaning or carrying out repair work, disconnect the heater from the water network and drain it. If necessary, also drain the heating coil.

### 5.3 Cleaning & Decalcification

The calcification rate of the hot water heater depends on the utilization time, operating temperature and the water hardness.

#### **CAUTION**

##### **Water damage!**

A faulty or corroded seal can lead to water damage. Check the seal of the cleaning flange and replace it if necessary.

Heating surfaces that are calcified reduce the thermal output and the potable water content of the heater. The energy required and heat-up times are increased. The heater should therefore be decalcified at regular intervals; with water that has a low calcium content, deposited scum should be washed off regularly.

### 5.4 Recommissioning

After cleaning or repair work, rinse the heater out thoroughly. Bleed the individual hydraulic systems.

## 6 Faults

#### **Clogged connections**

- Fault: With copper pipe installations, adverse relationships through electro-chemical processes between sacrificial anode and the pipe material can cause connections to clog.
- Remedy: Electric isolation of the copper pipe installation and the heater using isolating screw connections.

#### **Odor impairment and darkened coloring of the heated water**

- Fault: During operation, strong and unpleasant odors are given off by the water pipes. This is usually due to a build-up of hydrogen sulfide caused by sulfate-reducing bacteria. These are found in water that is very low in oxygen and feed on the oxygen produced by the anode. This process poses no health risk.
- Remedy: Clean the vessel, replace the sacrificial anode and operate at  $> 60\text{ }^{\circ}\text{C}$ . If no change is detected, replace the magnesium sacrificial anode with an external current anode.

The user shall bear the costs of this alteration.

## Notes

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## **7 Appendix**

### **7.1 Reflex Customer Service**

Central customer service

Switchboard: Telephone number: +49 (0)2382 7069 - 0

Customer Service extension: +49 (0)2382 7069 - 9505

Fax: +49 (0)2382 7069 - 9588

E-mail: [service@reflex.de](mailto:service@reflex.de)

Technical hotline

For questions about our products

Telephone number: +49 (0)2382 7069-9546

Monday to Friday, 8:00 a.m. – 4:30 p.m.

### **7.2 Warranty**

The respective statutory warranty regulations apply.



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