

Installation and Operating Instructions

Ergo-Pro Single line solar station

Technical Specifications

Max. operating pressure: 6 bar
 Max. operating temperature (return): 120°C

Medium: Water with a maximum propylene glycol content of 50%
 Nominal diameter: DN 20
 Connections: Flat sealing, swivel nut G1, 1¼"

Materials

Sealings: EPDM
 Casing/fittings: CuZn39Pb3 (2.0401)
 Insulation: EPP foam
 Thermal conductivity: 0.038W/mK

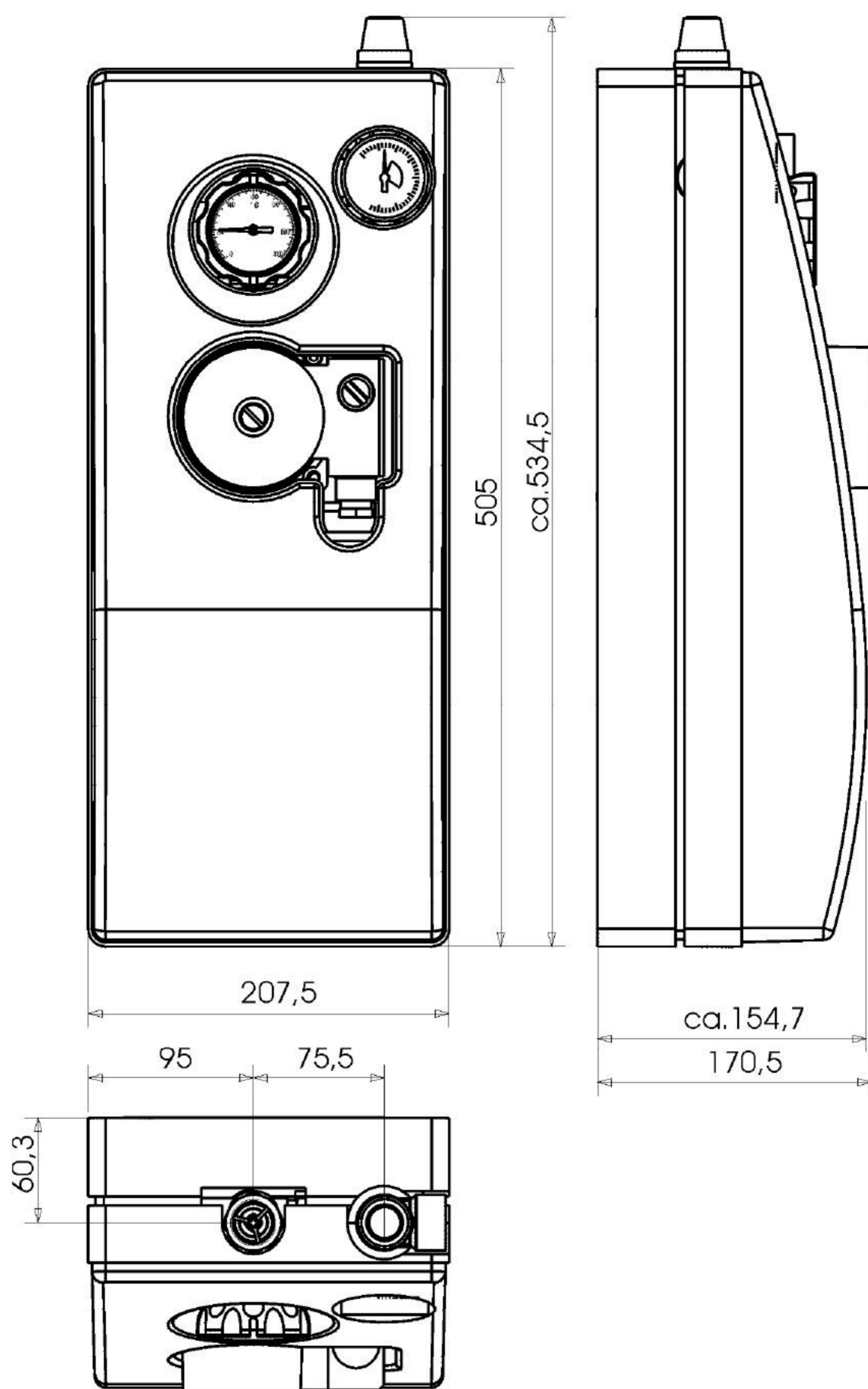


Fig. 2

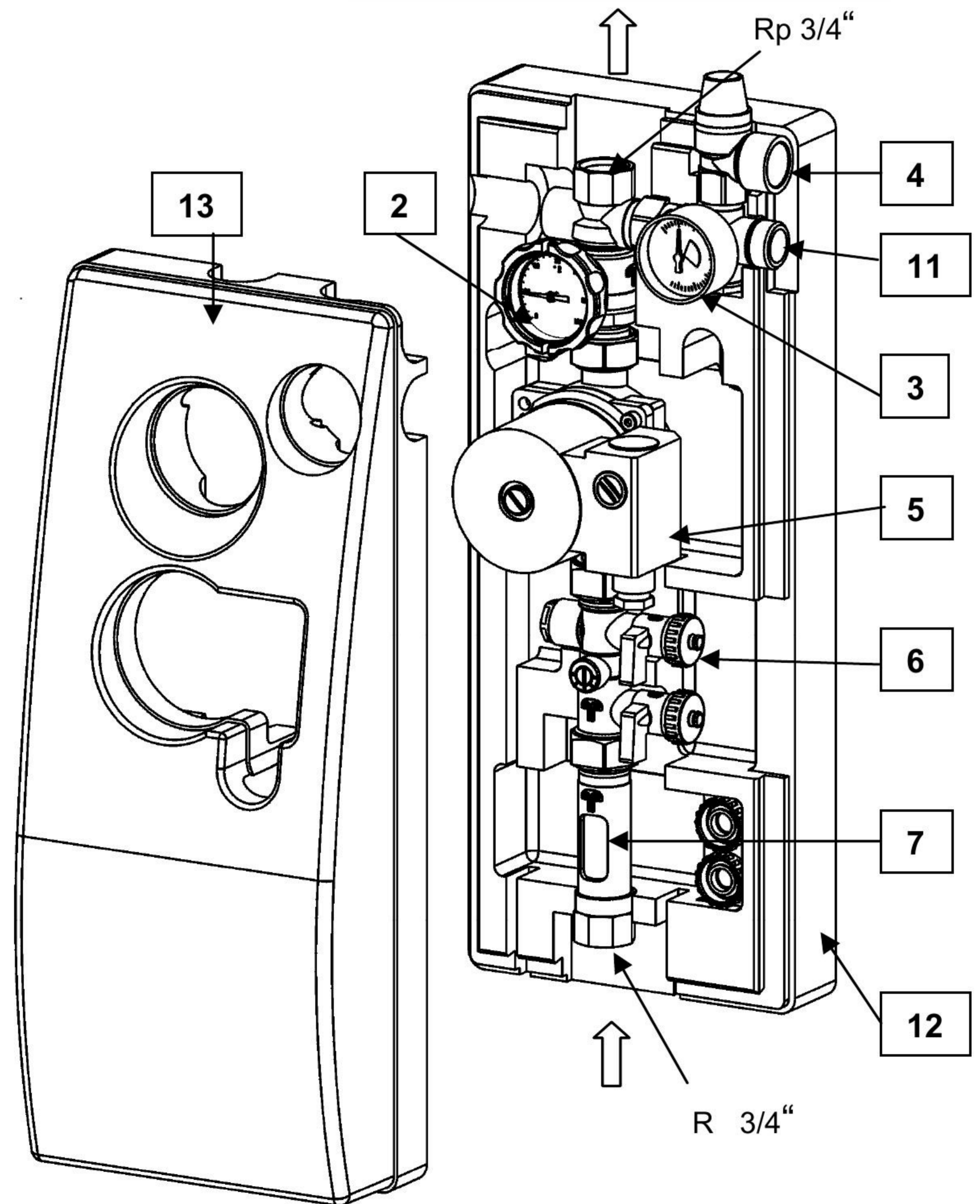


Fig. 1

Scope of supply

Pos.	Description
2	Return ball valve with integrated gravity brake (40mbar), assembly dimension 123,5mm
3	Pressure gauge
4	Solar safety valve, 6bar, TÜV-certified
5	Circulation pump WILO ST 15/ 6
6	Fill/drain fitting
7	Flow indicator 1-13 l/min
11	Membrane expansion vessel connection flat sealing G ¾", male thread
12	Insulation half shell, back
13	Insulation half shell, front

For maintenance tasks (e.g. replacing the pump) close the return ball valve and the shut-off in the drain fitting (Figure 1, pos.2 and pos. 6)

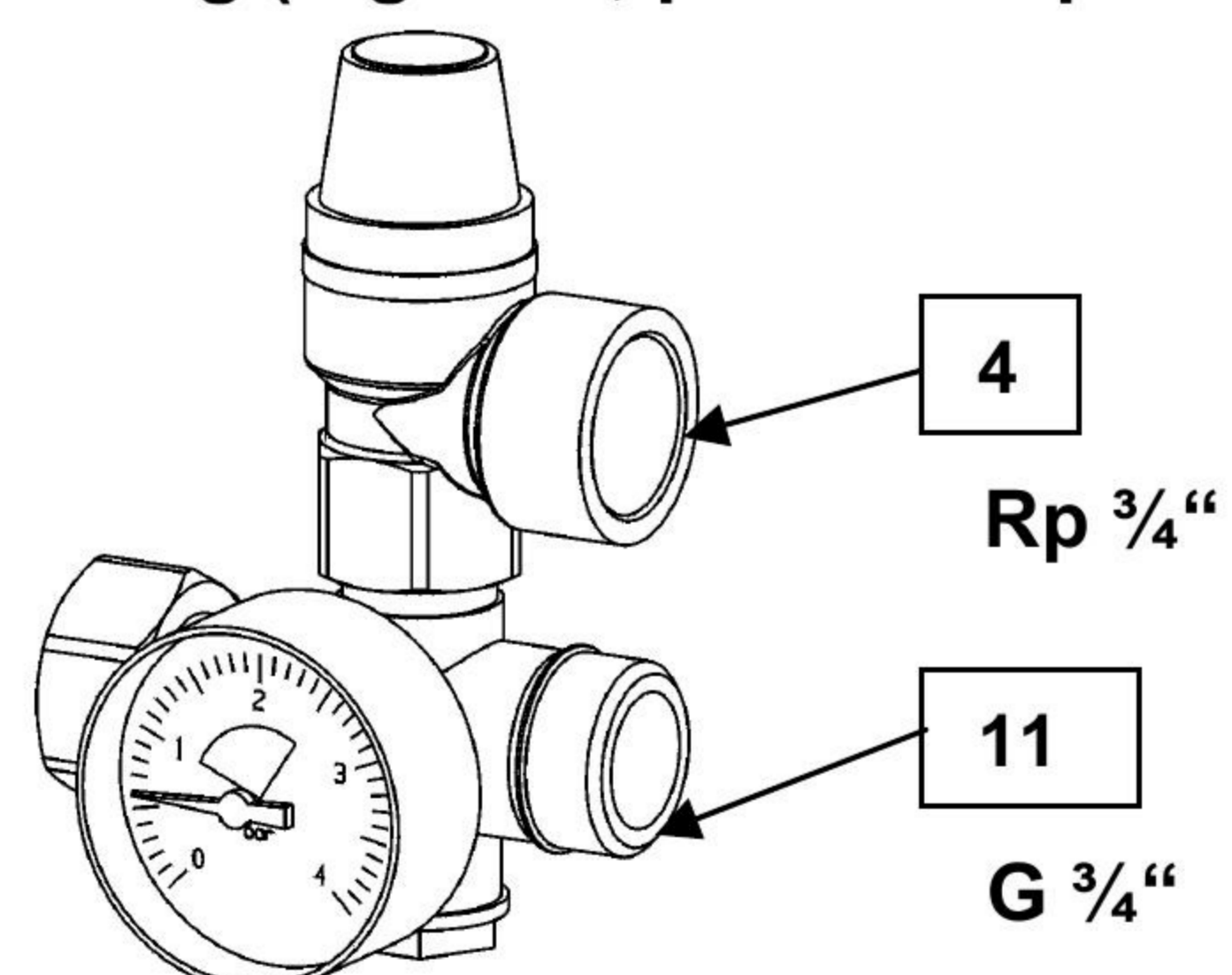


Fig. 3

Function of the Gravity Brake (Pos. 2)

Opening pressure of the gravity brake: 40 mbar

The gravity brake is integrated in the return ball valve. It is operated by turning the handle of the ball valve.

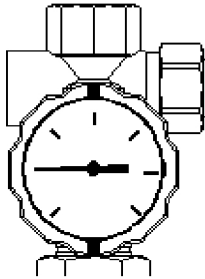


Fig. 4a: Ball valve open

To prevent gravity circulation, the valve disc should not be vented. The gravity brake is in operating position (closed). The slots in the handle are in a vertical position (Figure 4a).

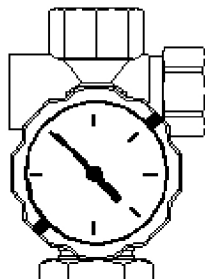


Fig. 4b: Gravity brake open

To fill and completely empty the solar system, open the gravity brake by turning the handle to the right. The slots in the handle are positioned at an angle of 45° (Figure 4b).

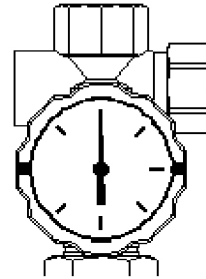


Fig. 4c: Ball valve closed

Turn the handle to the right by a total of 90°. The slots in the handle are in a horizontal position. The ball valve is closed (Figure 4c).

Fill/Drain Fitting (Pos. 6)

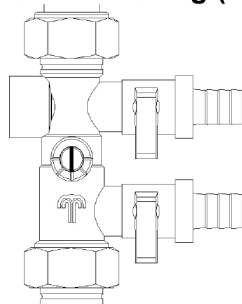


Fig 5a

Use the fill and drain valves on the fill/drain fitting to fill and drain the solar system (Figure 5a).

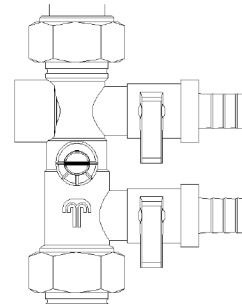


Fig 5b

To drain the system, the slot in the spindle must be in a horizontal position (Figure 5b).

Flow Indicator (Pos.7)

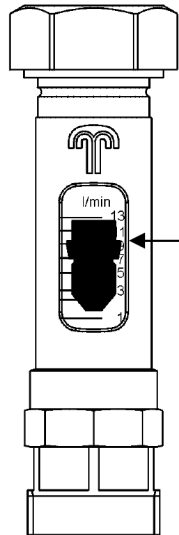


Fig. 6

The adjustment of the flow rate of the thermal carrier medium takes place by controlling the speed levels (I, II, III) of the circulation pump and the throttle in the fill/drain fitting (Figure 5).

The flow indicator shows the set flow rate (Figure 6).

The indicator range is between 1 and 13l/min.

Read volume flow values at this edge of the rotameter

Wallmounting

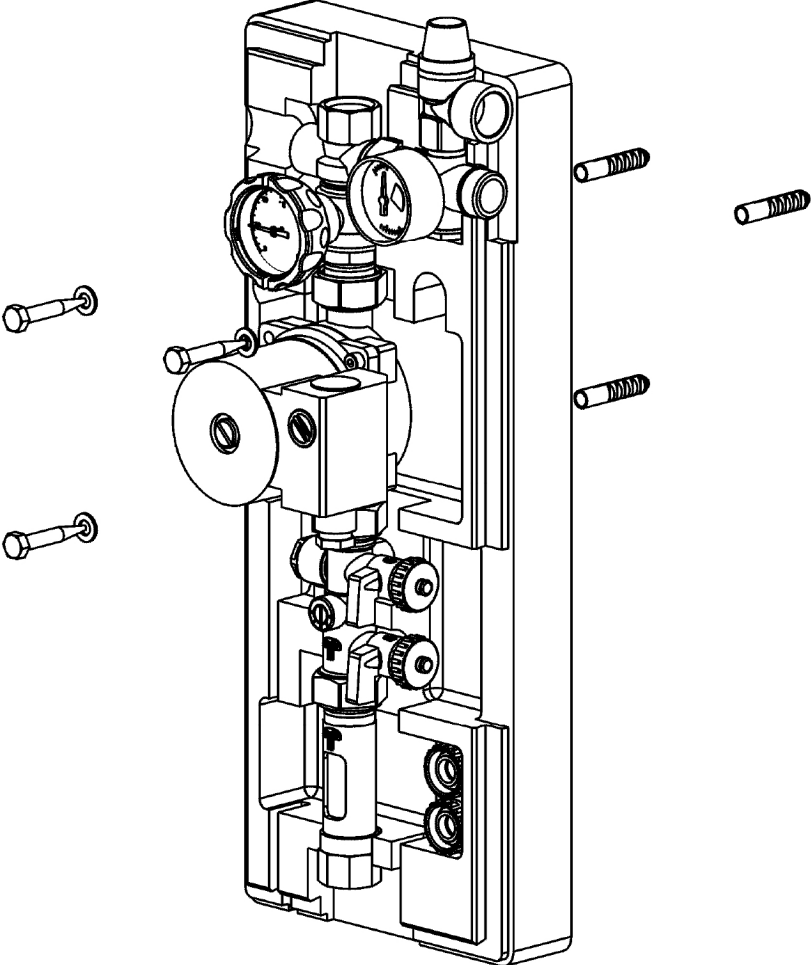


Fig 7

Extract from the Installation and Maintenance Instructions of the pump

EC declaration of conformity

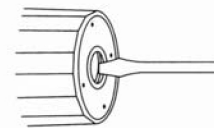
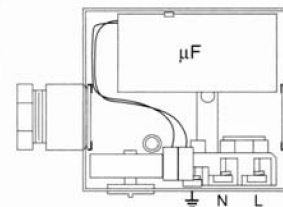
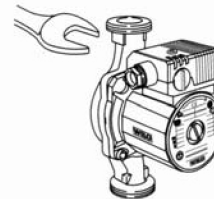
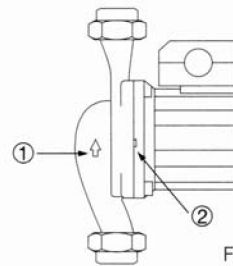
We hereby declare that this unit complies with the following relevant provisions:

EG machinery directive
89/392/EWG in this version,
91/368/EWG, 93/44/EWG,
93/68/EWG

Resistance to electromagnetism
89/336/EWG in this version
92/31/EWG, 93/68/EWG

Applied harmonized standards in particular:

EN 809, EN 50 081-1, EN 50 082-1,
EN 50 081-2, EN 50 082-2.



Safety precautions for the operator

1. General

Installation and service by qualified personnel only

1.1 Fields of application

Type: ST: for solar thermal systems

1.2 Connection and output data

Minimum input pressure at the air intake*

at temperatures + 50°C: 0,05 bar

at temperatures + 95°C: 0,3 bar

at temperatures +110°C: 1,0 bar

Permissible temperature range: -10°C up to + 110°C

Maximum permissible ambient temperature: +40°C

*These values are valid up to 300m above sea level.

For higher elevations add: 0,01 bar/100m .

The minimum inlet pressure must be maintained in order to avoid cavitations' noise.

Permissible fluids:

Water and water/glycol mixtures up to a ratio of 1:1. Glycol mixtures require a reassessment of pump hydraulic data in line with the increased viscosity and depending on mixing ratios. Only approved marks of additives with corrosion inhibitors must be used in strict compliance with manufacturers' instructions.

2. Safety Rules

2.1 Safety Rules For The Operator

Local regulations for the prevention of accidents must be observed. Danger from electrical energy must be excluded (conforming to local or general regulations such as IEC, VDE, etc.)

2.2 Safety Rules for Inspections and Installation Work

It is the operator's responsibility to ensure that inspections and installation work are carried out by authorized and qualified personnel only, having themselves made fully conversant with these instructions. Work must principally be carried out only with the plant switched off and at complete standstill.

2.3 Abnormal Operating Conditions

Operational safety of the plant is only ensured if used in accordance with these instructions. The limits stated there must not be exceeded under any circumstances.

3. Description of Product and Accessories

The pump ST/STL is a solar thermal pump with special hydraulic (pump housing coated) for using in solar thermal systems. Motor overload protection is not required. The motor operates non-overloading. Speed setting: All pumps are equipped with a rotary switch in the terminal box to enable manual 3-speed control (1 = min) (2-3 = max). At minimum speed the maximum speed is reduced to approx. 40...50%. The power input is reduced to approximately 50%.

4. Sitting/Installation

4.1 Installation

- Direction of fluid flow must correspond with the arrow on the pump housing (Fig. 2, pos. 1).
- If using pump housings with integrated exhaust cavity it must be observed that the connection for the vent or the vent pipe is vertical (12h position).
- When connecting the pump to the conduit of pipes, the pump can be secured against twisting using a spanner on the key surfaces which have been created for this purpose (Fig. 3)

4.2 Electrical wiring

- Cable leads to be routed in such a way to avoid any contact with pipe work and/or pump or stator housings.
- Check that the mains current and voltage comply with the data on the rating plate.
- Effect all wiring according to Wiring diagram (Fig. 4).
- Pump/installation must be earthed in compliance with regulations.

5. Commissioning

5.1 System filling and venting

The pump is normally vented automatically after a short operational period. Short-term dry-running will not harm the pump. Direct venting of the pump, if necessary, is done according to the following procedure:

- Switch off the pump,
- close discharge isolating valve,
- carefully slacken and remove the vent plug (Fig. 5).



Beware of possibly released hot liquid or vapour, depending on fluid temperature and system pressure.

Danger of scalding exists!

- Carefully move pump shaft several times by means of screwdriver, - protect electrical parts from leaking water
- Switch-on the pump
- After 15...30 sec close vent plug again,
- open isolating valve again.

ATTENTION!



It is possible that the pump shaft jams with the vent plug open, depending on system pressure. The pump can become extremely hot, depending on the operational state of the pump or the pipe system (fluid temperature).

Danger of scalding exists when touching the pump!