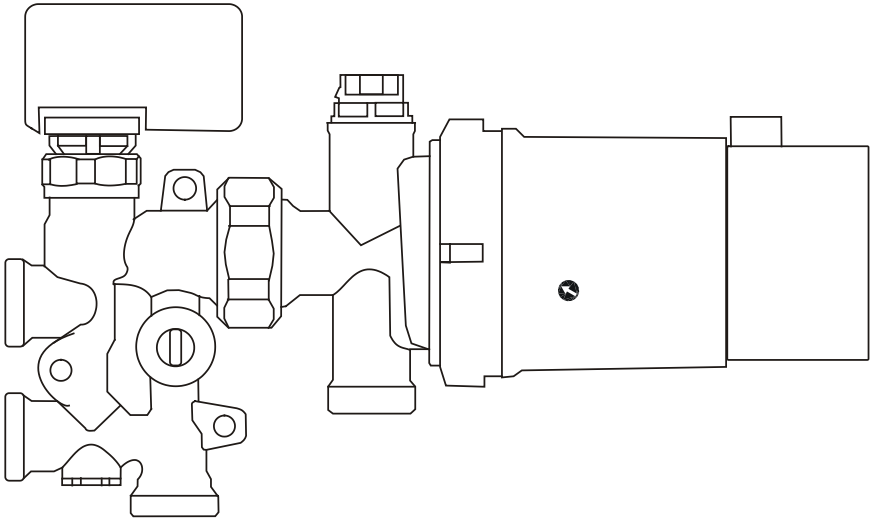
Eco-Minishunt

Installation and operation manual

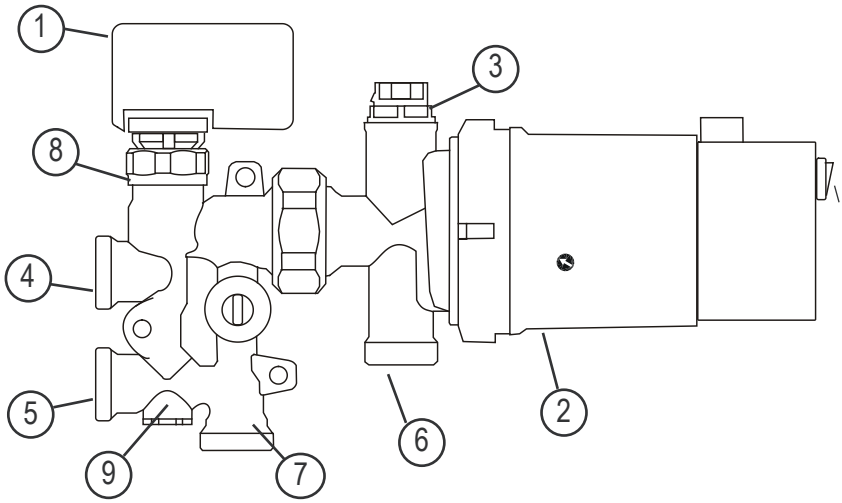


Single room (40 sqm) under-floor heating system.

12 Watt hi-efficiency pump.

Huntingdon Pump Co. Ltd.

Design Eco-Minishunt



1. Version RS = Remote room sensor thermostat (8-28°C, 2 m) or
   Version EA = Thermoelectric drive for room thermostat- Not Included.
2. Xylem Ecocirc circulating pump E1-VAR Eco-Minishunt Drive 12Watt
3. Venting device
4. Supply radiator-/boiler circuit
5. Return radiator-/boiler circuit
6. Supply floor heating circuit
7. Return floor heating circuit
8. Adjustable mixing valve
9. Adjustable bypass for the radiator-/boiler circuit
   (recommended to be closed)

Table of contents

Technical Data

Max. system pressure	1 Mpa (10 bar)
Max. system temperature	110°C (boiler circuit), 55°C (floor heating)
Max. differential pressure	100 kPa (1 bar) in the radiator-/boiler circuit
Electrical connection	1 x 100-230 V / 50/60 Hz
Power consumption	12 Watt (circulating pump)

Application

The unit is designed to supply floor heating areas up to approx. 40 sqm (from pipe 16x2mm onwards) in one- or two-pipe-systems. The connection of up to 2 floor heating circuits is possible.

- Two versions are available:

  Eco-Minishunt RS: Mixing set with room temperature control by thermostat (10-26°C + frost protection) with remote sensor (1m).

  Eco-Minishunt EA: For temperature by thermoelectric drive connection to a room thermostat. (room thermostat not included)

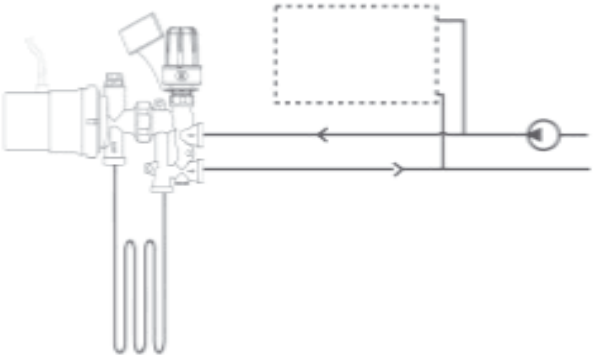
- The Eco-Minishunt is provided with a temperature protection system that restricts the supply temperature in the floor heating circuit to max. 55°C.

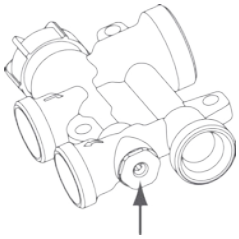
Mounting instructions

- Eco-Minishunt will be connected directly to the existing radiator-/boiler circuit.
- When two circuits are connected to the Eco-Minishunt, the shortest circuit must be balanced by using an adjustable return screw connection.
- The Eco-Minishunt has to be mounted in a horizontal position (see page 2). Left or right connection to the radiator-/boiler circuit is possible (see page 9).
- The unit has to be installed on a higher level than the floor heating installation.

- Ensure that the pre-pressure to the Eco-Minishnt from the radiator-/vessel circuit is minimum 10 kPa (1 m).
- Before running the unit please check, that the floor heating system is filled, completely vented, and proved against leakage.
- Since the circulation pump might create under certain circumstances some flow noise, the unit should be placed away from noise sensitive areas (i.e. sleeping rooms).
- The water temperature in the supply radiator-/boiler circuit should be at least 10 K higher than in the floor heating supply.
- The maximum length of each pipe must not be longer than 100 m for floor heating design with spread of 10 K when using pipes 12 mm i.d. (i.e. pipe 16x2). Smaller diameter pipe results in a shorter pipe length.
- **Eco-Minishunt RS:** Assemble the thermostatic head and mount the sensor in an appropriate position in the room and about 1,7 m above the floor. Use a vacant pipe if possible.
- **Eco-Minishunt TD:** Wiring of the electrical actuator and the room thermostat

Hydraulic connection of two-pipe systems





Bypass valve closed.
Allen key 2,5mm.

Filling of the system

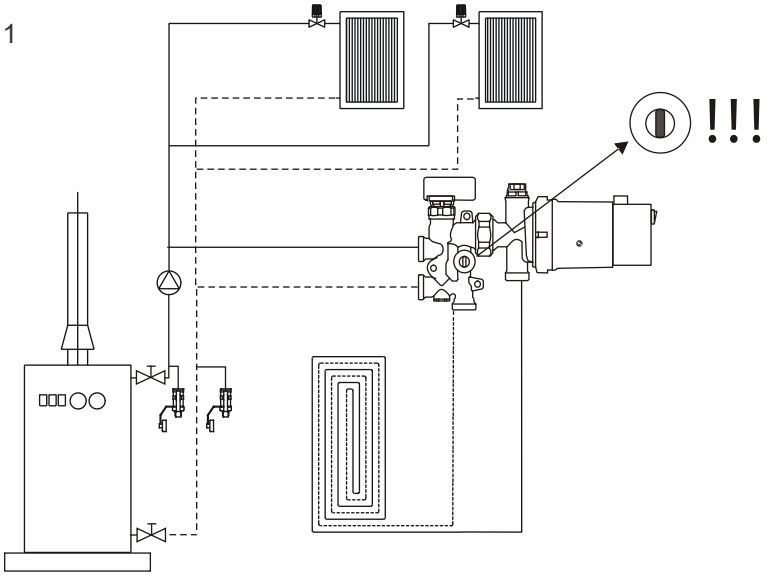
It is mandatory to flush the floor heating loops before putting the system in operation, because malfunction or damage to the pump may result.

We recommend using two fill valves on the primary side of the Eco-Minishunt as shown in picture 2. Alternatively, the system can be filled using fill valves installed elsewhere in the system. In any case, it is necessary to positively flush the system since the air in the system will not be purged completely.

Filling the system via the integrated manual air vent (see picture 7) is not possible! Please observe the position of the ball valve in the bypass. If this is in the vertical position, the floor heating loops are hydraulically uncoupled from the boiler loop. This position is ideal for normal operation (see picture 1) since the pump in the heating loop does not influence the floor heating loop. With the valve in this position, however, the floor heating system cannot be filled from the primary side.

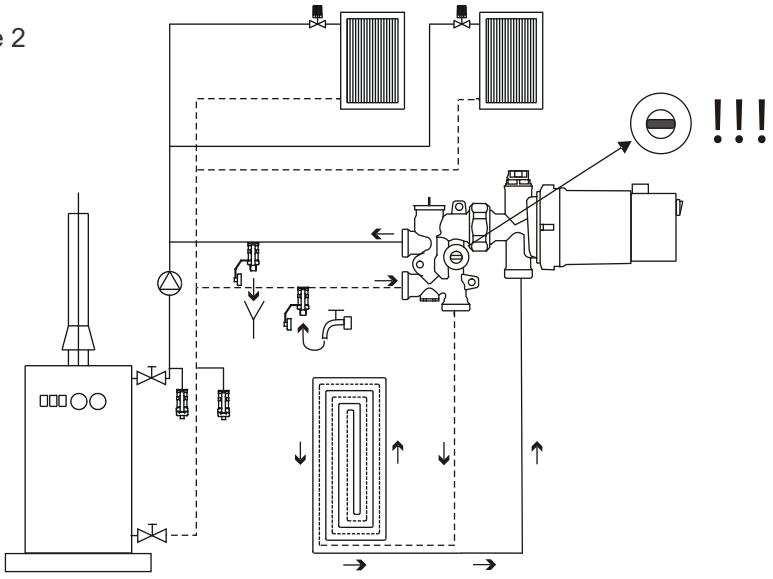
To fill the floor heating loops from the heating loop side, this ball valve must be closed (horizontal) – see pictures 2 through 6. After filling, the valve must be opened again (vertical position). Please observe that when filling from the primary side radiator valves on that side should be closed in order to have maximum pump pressure available for purging the floor heating loops.

Picture 1



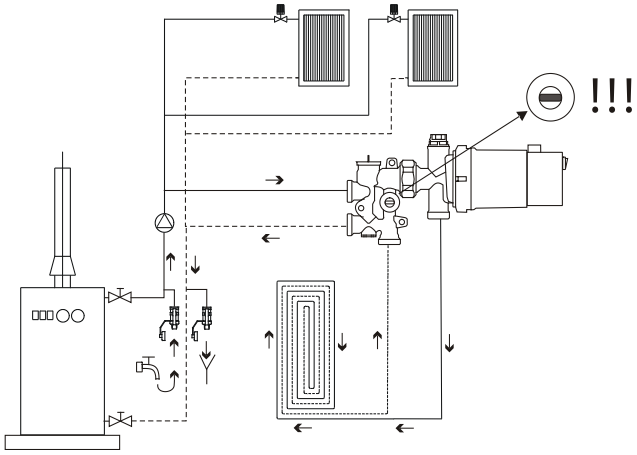
Normal operation. Ball valve position open (vertical)

Picture 2



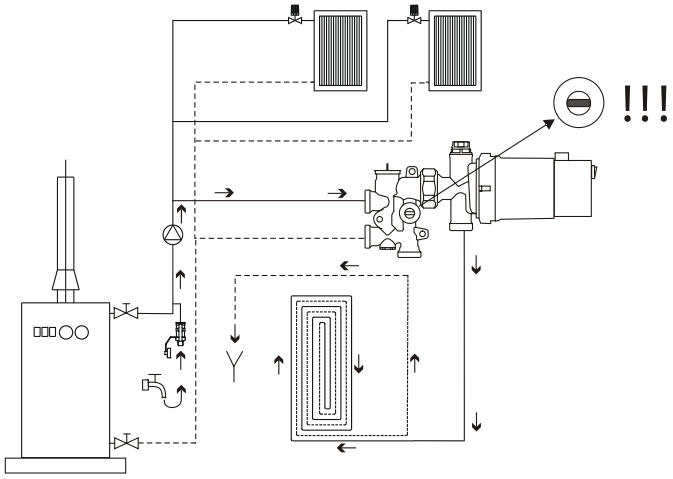
Recommended filling of the system. Two fill valves on the primary side of the unit allow for an easy filling and purging of air in the floor heating loops. The ball valve position must be closed (horizontal).

Picture 3



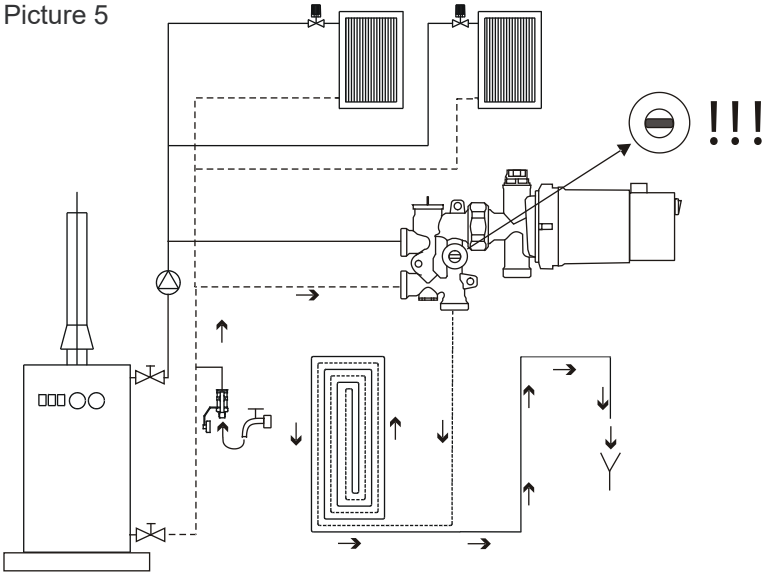
Good filling option. Two existing fill valves on the primary side allow for good filling and air purging. The ball valve position must be closed (horizontal).

Picture 4



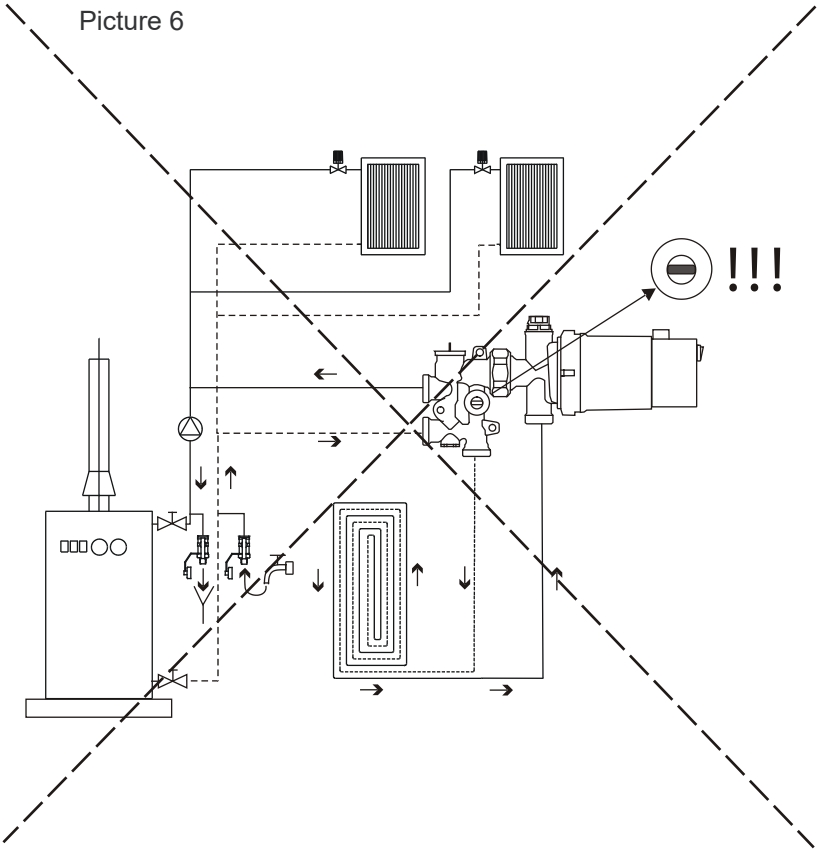
Possible filling option, albeit a little complicated. One fill valve on the primary flow side allows for filling and air purging. The integrated ball valve must be closed (horizontal). **Caution**: The floor heating return at the BM mini must be closed during the fill operation. Filling a wall heating loop is impossible in this way.

Picture 5



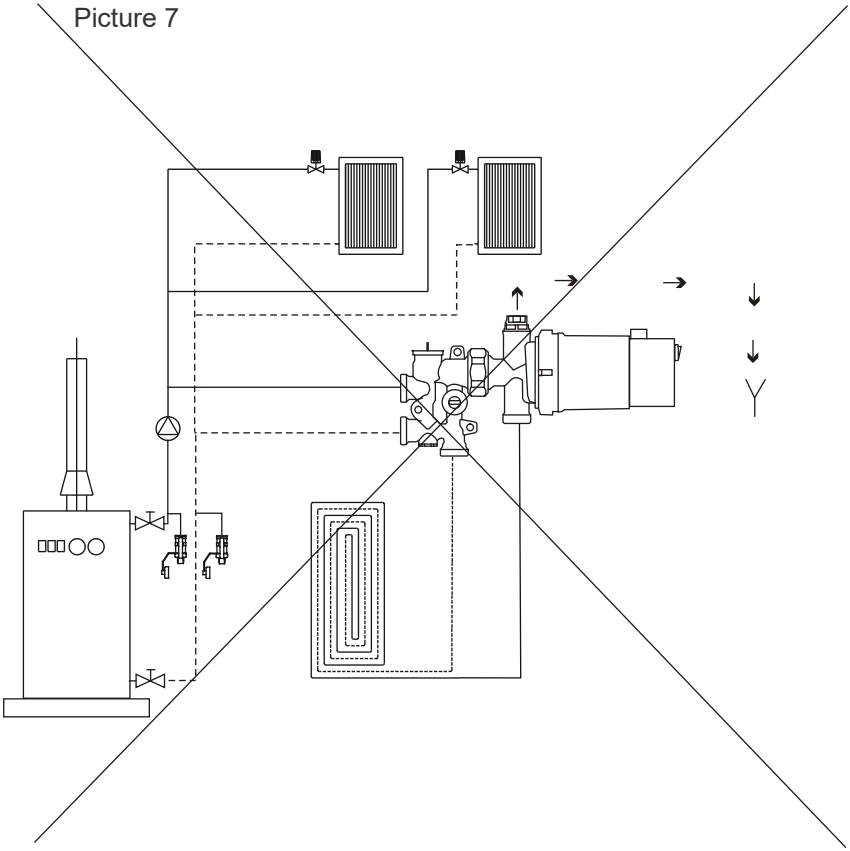
Possible filling option, albeit a little complicated. One fill valve on the primary return side allows for filling and air purging. The integrated ball valve must be closed (horizontal). **Caution**: The floor heating flow at the Eco-Minishunt Must be closed during the fill operation. Filling a wall heating loop in this way is impossible.

Picture 6



The direction of flow shown is only possible if there is no check valve installed at the primary heating circulator. If a check valve is present, filling in accordance with picture 3 is recommended.

Picture 7



Filling the system in this way is impossible since no forced flushing can be assured.

Starting of operation without given values

1. Remove protection cap / or thermostatic head / or electric drive from the Eco-minshunt (see page 14, picture 1).

2. Increase the supply temperature from the radiator-/boiler circuit to the designed value (normally 55-60°C).

3. To perform the adjustment check, the room temperature has to be at least 20°C. If it is not, the system has to be run until the temperature increases.

4. Check the floor heating supply temperature. It should be about 35-40°C. If it is too high, the flow from the primary supply has to be adjusted (reduced), see page 14 picture 3.

The Eco-Minishunt will be delivered from factory with fully opened mixing valve. We recommend an adjustment in small steps (½ turn). After each adjustment the floor heating supply temperature should be checked after an appropriate waiting period.
NOTE !
For primary temperatures at 82 Deg C, Approximate setting, fully close mixing valve and open 1½ turns.

Starting of operation with given values (pre-setting)

E.g. **Given values:**

Heat requirement of underfloor heating system	2000 W
Supply temperature of radiator-/boiler system	70°C.
Return temperature of underfloor heating system	40°C
Difference pressure of the radiator-/boiler circuit	10 kPa
Specific heat capacity of water	1,163 $^{W}/_{(Kg \times K)}$

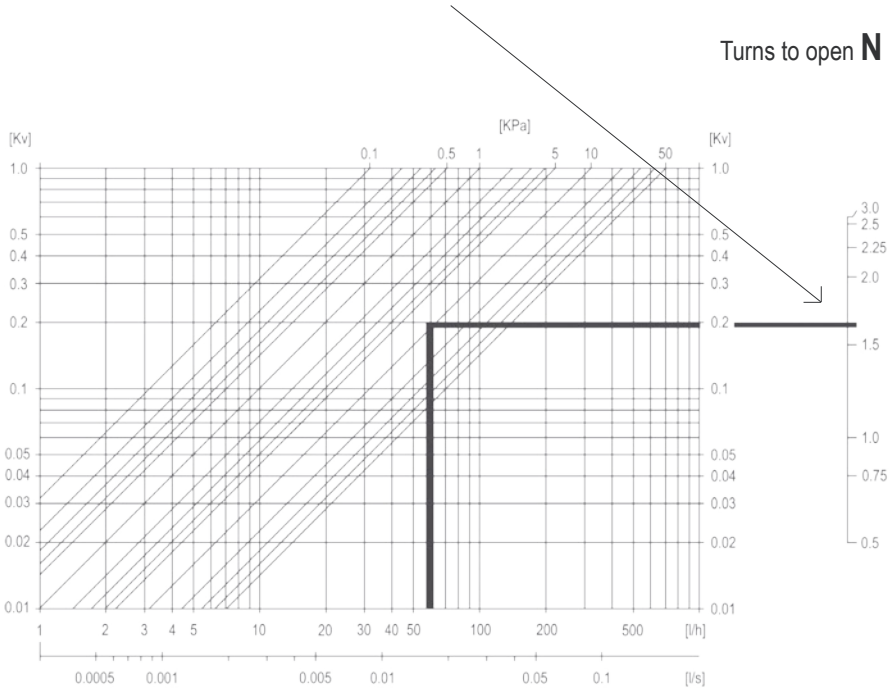
Wanted values:

Flow from the radiator-/boiler circuit =

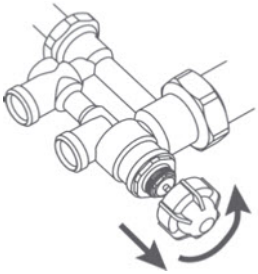
m = Q/(c x dT) = □000 W / (1,163 $^{W}/_{(kg \times K)}$ x 30 K) = 58 l/h

Pre-setting:

If the difference pressure from the radiator-/boiler circuit at the inlet and outlet of the Eco-Minishunt is 10kPa and the flow requirement the unit is about 60l, the mixing valve pre-setting has been opened by 1.6 turns

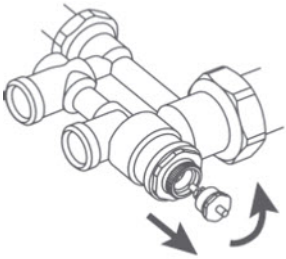


1.



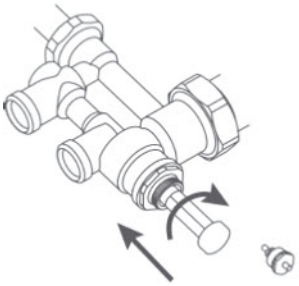
Remove protection cap

2.



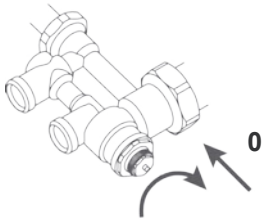
Remove valve insert

3.



Use enclosed tool to adjust the pre-setting of the mixing valve

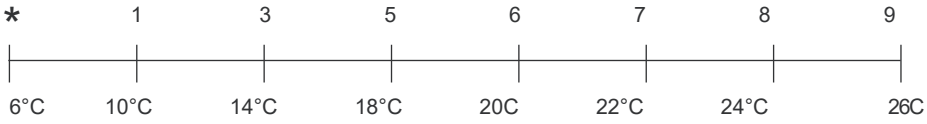
4.



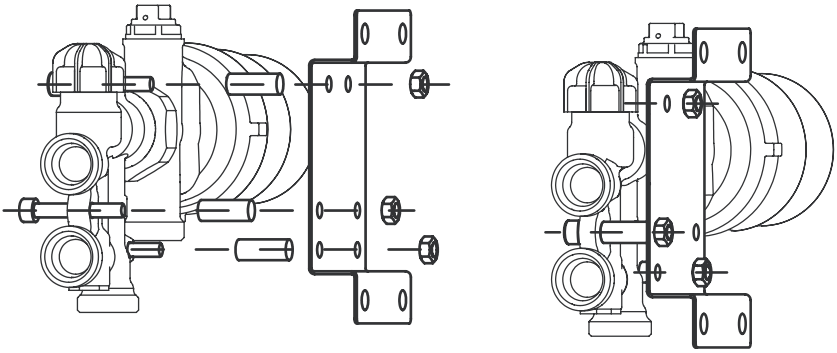
Screw valve insert in again

Room Temperature Setting

(approx. values for Eco-Minishunt RS only)

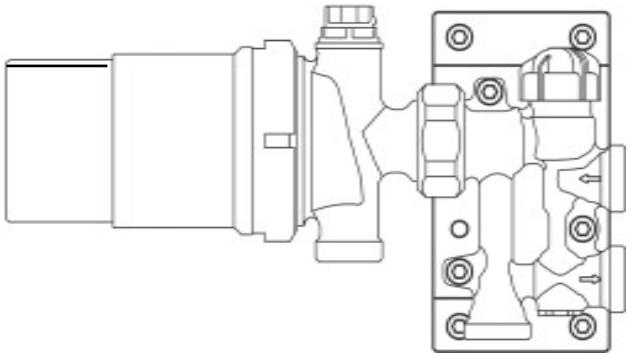


Assembling of wall bracket



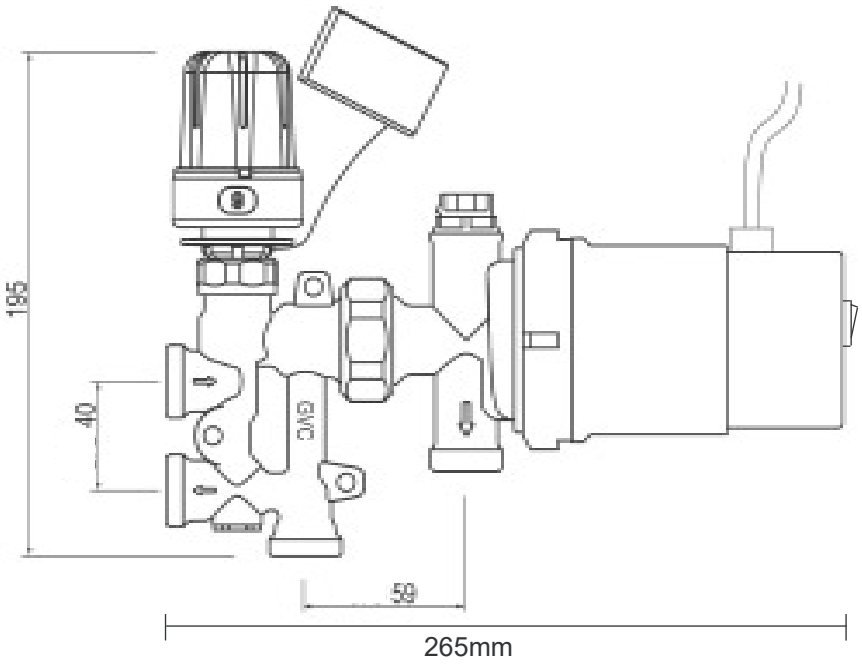
The unit can be mounted to the wall bracket with radiator-/boiler connections to the left of to the right side. The screws for the mounting of the Eco-Minishunt to the wall bracket are enclosed.

Installation only with pump horizontal . Mixing valve and venting device have to be uppermost.



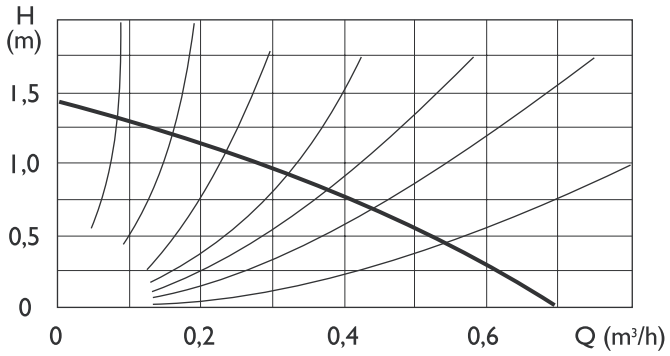
For a silencing of the sound the enclosed rubber bumpers have to be used between mounting bracket and wall, or - if mounted in a cabinet - between mounting bracket and fixation rails.

Dimensional drawing

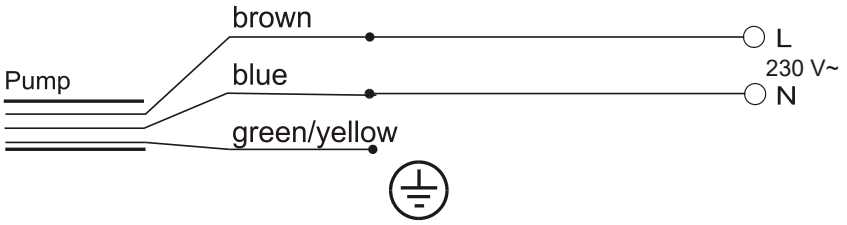


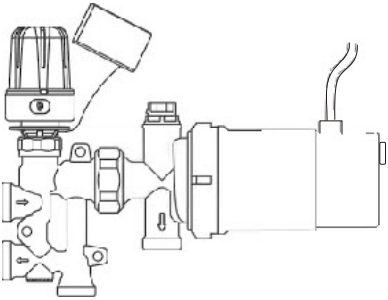
Depth 90 mm

Pump curve

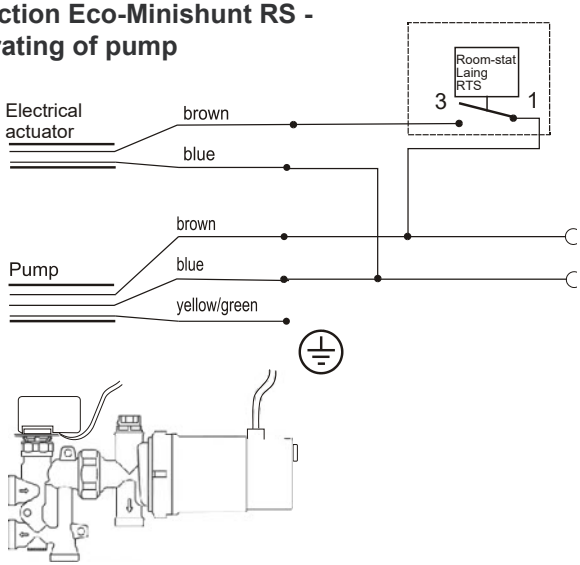


Electrical connection Eco-Minishunt RS

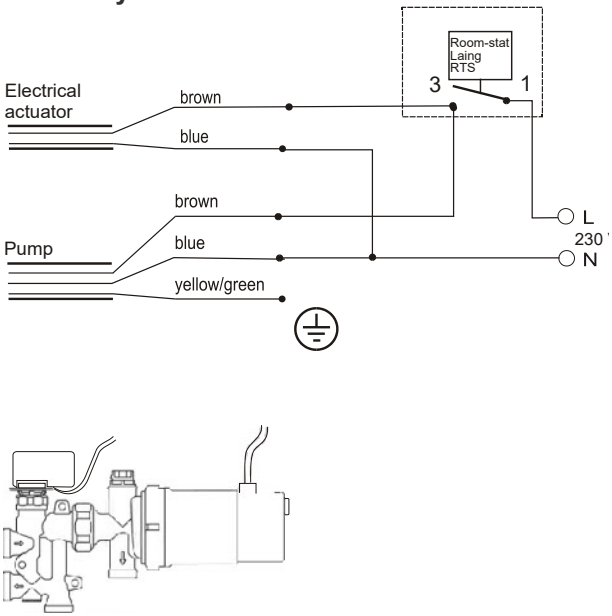




Electrical connection Eco-Minishunt RS - continuous operating of pump

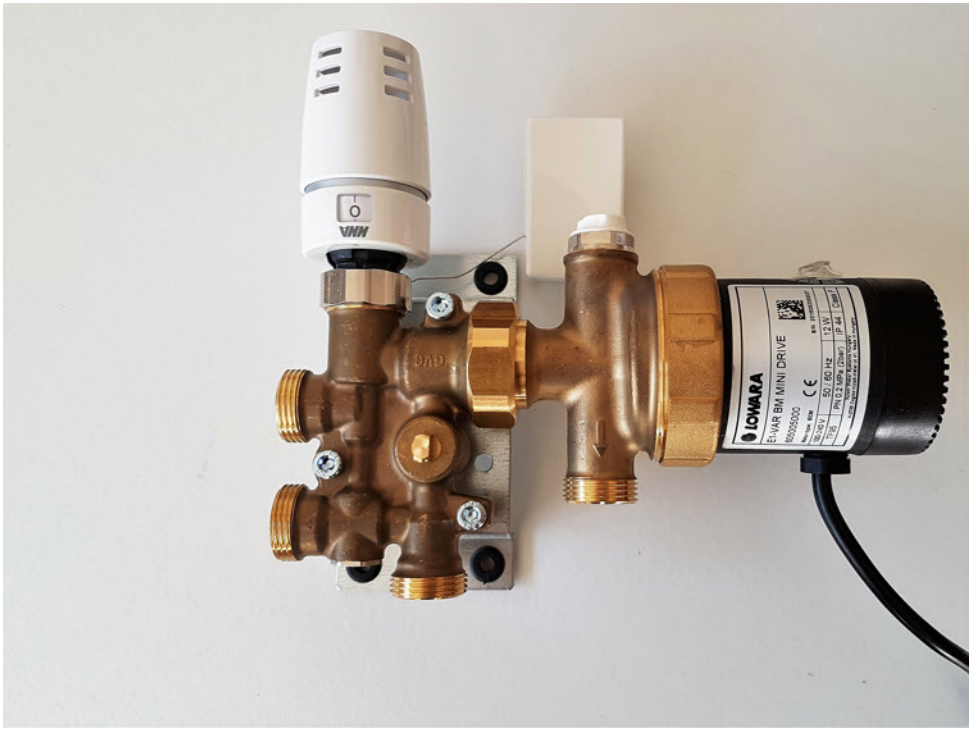


Electrical connection Eco-Minishunt TD - pump also switched off by room thermostat



NOTES

Eco-Minshunt RS - (room stat)



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