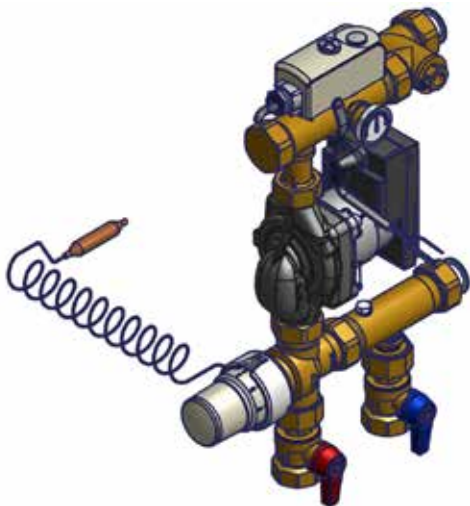


Energy Systems

Roth fixed-value control set with high-efficiency pump Assembly Instructions



German quality since 1947



Contents

General information

Intended use	3
Benefits	3
Layout/Components	3

Installation/Electrical connection

Safety instructions	4
Installation	4
Manifold cabinet size depending on mounting and number of heating circuits	4
Electrical connection	5

Function

Temperature limiter	6
Function	6
Temperature setting	6

Start-up	7
-----------------	---

Technical data

Technical data/Materials	7
Pump diagram	8
Dimensions	8

Troubleshooting	9
------------------------	---

General information

Intended use

Before installation, the fitter or operator must read and understand these instructions.

The Roth fixed-value control set is used to stabilise the inlet temperature in low-temperature heating systems (floor heating/wall heating) and to circulate the cooling water in

such systems. The cooling water temperature must be externally controlled. The inlet temperature is continuously adjustable between 20 °C and 50 °C (mechanically limited).

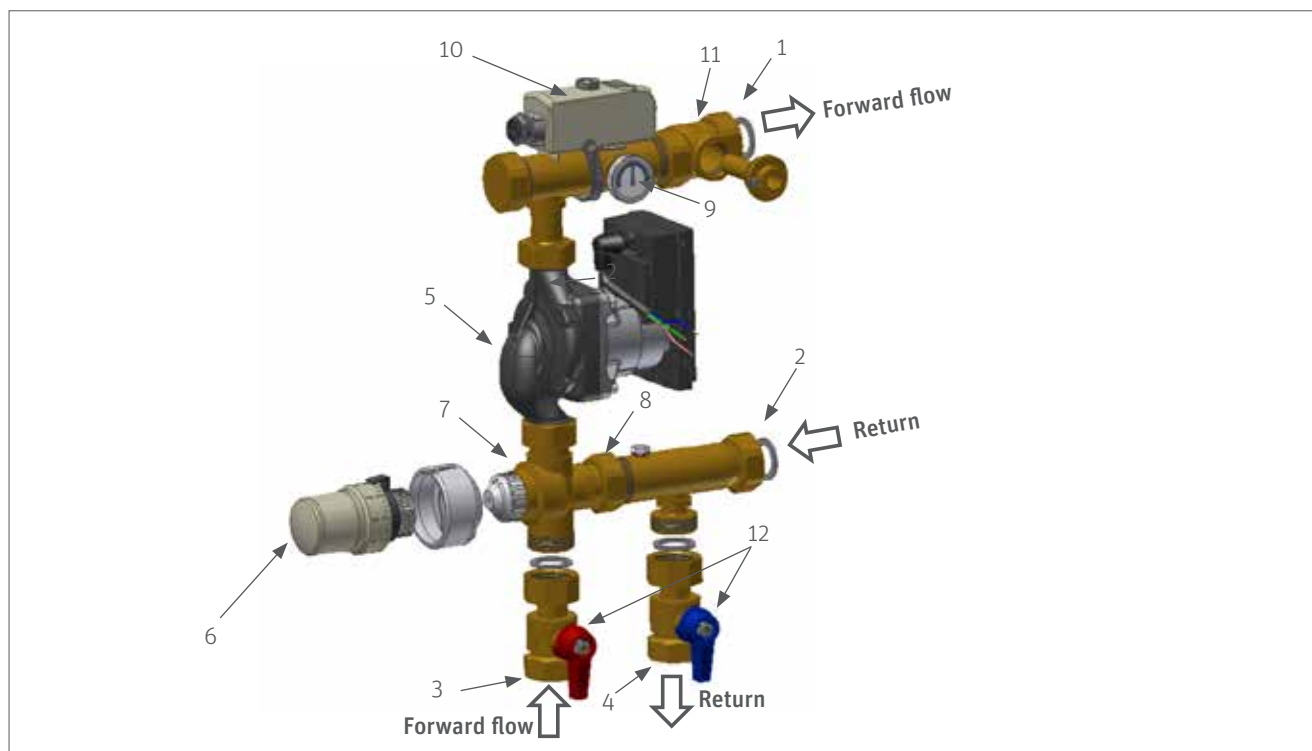
The control station is designed for use in dry rooms in a residential or industrial environment. No other use is authorised.

Benefits

- > Ready for installation for all Roth manifolds with a flowmeter and Roth Universal manifolds
- > Compact design
- > Adjustable inlet temperature within a range of 20 °C to 50 °C
- > Fitted thermometer displays the current inlet temperature

- > Fitted temperature limiter in the forward flow, already wired to the pump
- > Ball valves included
- > Flat sealing connections throughout
- > Can be installed on the left or right of the manifold, as preferred
- > Suitable up to approx. 14 kW

Layout/Components



- | | |
|---|--|
| 1 Panel heating/cooling forward flow pipe (1" union nut) | 7 3-way mixing valve |
| 2 Panel heating/cooling return pipe (1" union nut) | 8 Check valve |
| 3 Primary forward flow pipe (1" external thread) | 9 Forward flow thermometer |
| 4 Primary return pipe (1" external thread) | 10 Temperature limiter |
| 5 Circulation pump | 11 Eccentric screw fitting with immersion sleeve for capillary tube temperature sensor |
| 6 Thermostatic head incl. the capillary tube temperature sensor | 12 Ball valve set 1" forward flow/return |

Installation

■ Safety instructions



Always unplug the system at the mains and disconnect the power supply before starting work!



The control station is not splashproof or impervious to dripping water and must therefore only be installed in a dry location!



The appliance may only be connected and put into operation by qualified personnel and in accordance with the local regulations which apply!

■ Installation

The control station is designed to be installed directly onto the Roth manifold. It can be installed on either the left or the right of the manifold. This can be achieved by simply turning round the eccentric screw fitting and repositioning the thermometer at the forward flow pipe.

It must be ensured that the forward flow and return pipes are connected correctly. During the installation procedure it must further be ensured that the pump and temperature limiter cables and the sensor capillary tube are not damaged, stretched or buckled. The installation is generally performed in the boiler room or in the Roth manifold cabinet.

■ Manifold cabinet size depending on mounting and number of heating circuits

Roth manifold cabinet width*	with vertical heat meter		with horizontal heat meter + adapter pipe for horizontal heat meter
	Maximum number of heating circuits (manifold size)		
550/560 mm	–	–	–
700 mm	3	2	–
750 mm	4	3	–
900 mm	7	6	4
950 mm	8	7	5
1.100 mm	11	11	8
1.150 mm	12	12	9
1.300 mm	12	12	12

*Important: flush-mounted cabinets must be pulled out to a minimum depth of 120 mm!

Electrical connection

■ Electrical connection

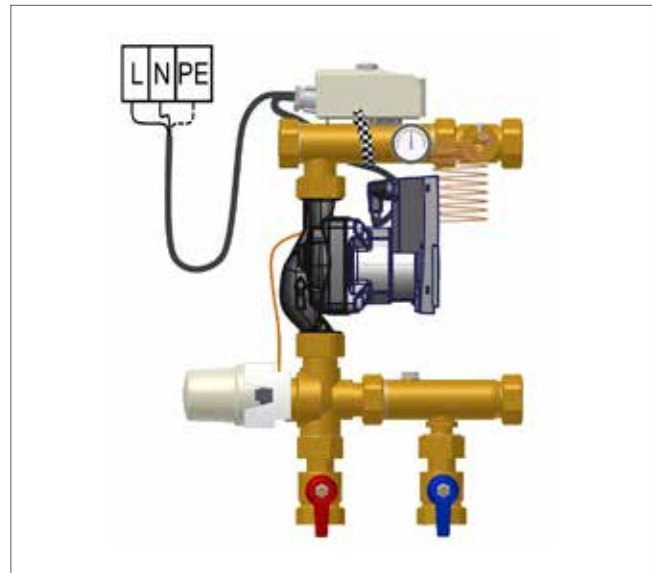
The pump and temperature limiter are supplied wired ex-works. Only the power supply must be established on-site:



Brown = L (phase 230 V)
 Blue = N (neutral)
 Green/yellow = PE (protective conductor)



The fixed-value control set with its high-efficiency pump should only be operated with the Roth connection module, which is available separately and which includes a pump control card, or at the pump connection of the Roth wireless control where the intention is to ensure the pump is controlled in line with requirements.



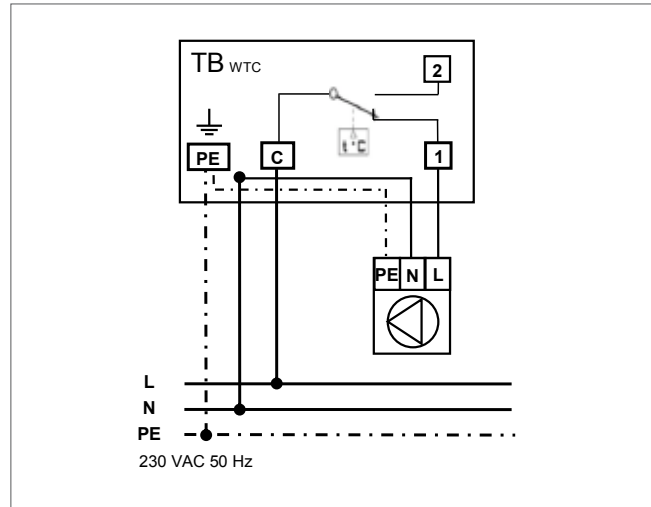
Function

■ Temperature limiter (TL)

In the event of a fault, the temperature limiter (TL) switches off the circulation pump, thereby preventing the floor heating from overheating. In order to prevent this from being triggered unintentionally, the temperature setting at the TL should be a few degrees higher than the desired inlet temperature. In order to prevent an overly sensitive reaction by the TL, the TL should be fitted at the forward flow pipe of the manifold.

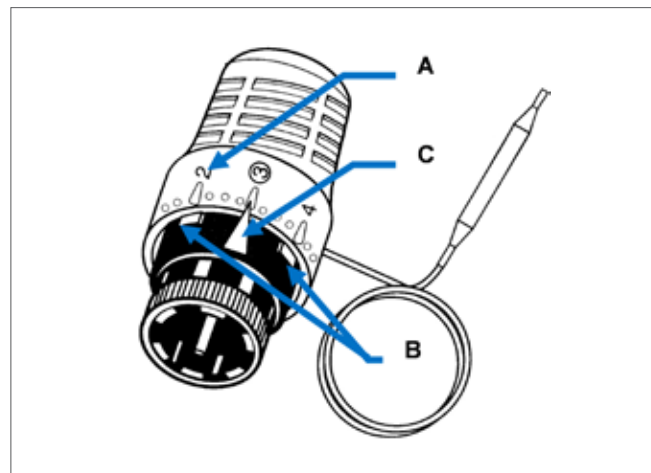
The TL setting ex-works is a standard value of approx. 55 °C.

Fig.: Internal wiring of the temperature limiter and circulation pump



■ Function and temperature setting

The floor inlet temperature is recorded by the thermostatic head via the capillary tube temperature sensor. Depending on the temperature setting, the thermostatic head opens the 3-way valve to the boiler-side primary forward flow. The injected water is mixed with the return water from the heating circuits and the required temperature is therefore achieved.



■ Temperature setting

The inlet temperature can be adjusted continuously in accordance with the following table:

Numbers (Fig. A)	1	2	3	4	5	(6)	(7)
Set temperature	20 °C	28 °C	37 °C	45 °C	53 °C	62 °C	70 °C

In order to prevent damage to the floor structure as a result of overheating, the inlet temperature is mechanically limited to 50 °C at the thermostatic head.

If necessary, the maximum temperature must be adapted to the specific floor structure or the local conditions. If this is necessary, adjust the set value and check it by means of the thermometer

while the heating is on. If the set value is correct, position one of the catches (Fig. B) in front of the marking arrow (Fig. C) and one of the catches behind it. Also adjust the TL if required. Please refer to the separate TL instructions.

Commissioning

■ Commissioning

1. Preparation

Shut off the Roth fixed-value control set to the boiler side, switch off the pump and close all heating circuits at the manifold.

2. Filling the manifold and the control station

First fill the manifold and control station with heating water. To do this, ensure that the heating circuits are closed, then connect the filling hose to the KFE cock at the return branch (Fig. 1_B) and the discharge hose to the KFE cock at the forward flow branch (Fig. 1_A).

Open both KFE cocks and fill the manifold and control station until water emerges at the KFE cock at the forward flow branch. Close both KFE cocks.

3. Filling and rinsing the heating circuits

To fill and rinse the heating circuits, connect the filling hose to the KFE cock at the forward flow branch (Fig. 2_A) and the discharge hose to the KFE cock at the return branch (Fig. 2_B).

Open the heating circuit to be rinsed. Next, open the KFE cocks and flush the heating circuit in the direction of flow until air and any impurities have been completely removed from the circuit. The check valve (C) in the mixer bypass prevents a short circuit during the rinsing process.

Repeat the procedure for all heating circuits.

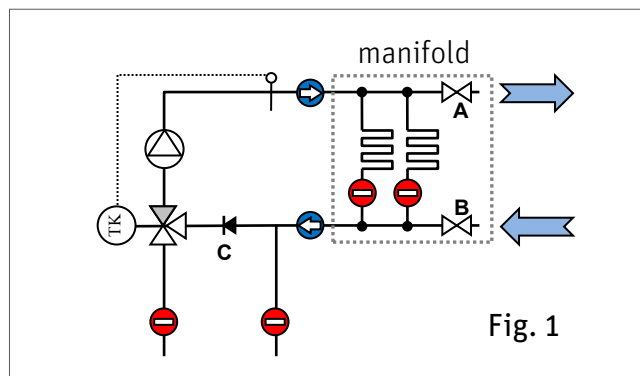


Fig. 1

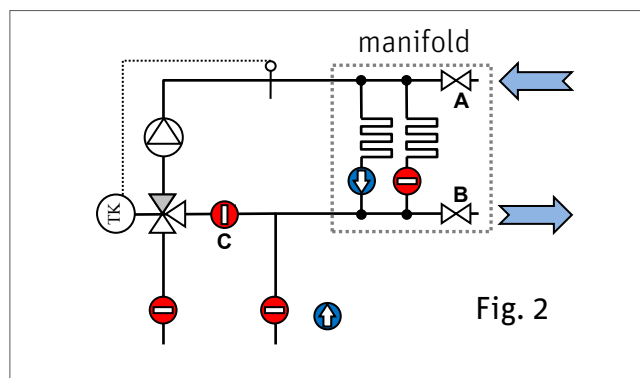


Fig. 2

Always unplug the system at the mains and disconnect the power supply before starting work!

The control station is not splashproof or impervious to dripping water and must therefore only be installed in a dry location!

The appliance may only be connected and put into operation by qualified personnel and in accordance with the local regulations which apply!

■ Technical data/Materials

Permissible ambient temperature range	0 - 40 °C ¹⁾
Permissible operating flow temperature range	0 - 80 °C ¹⁾
Maximum operating pressure	6 bar
Inlet temperature setting range	20 - 70 °C
Rated heat output	approx. 14 kW
Operating voltage	230 V - 50 Hz
Temperature limiter	Pre-set to 55 °C
Fittings	Brass Ms 58
Pipe parts	Brass Ms 63
Plastics	Impact- and temperature-resistant
Flat packings	AFM 34 or EPDM
O-rings	EPDM

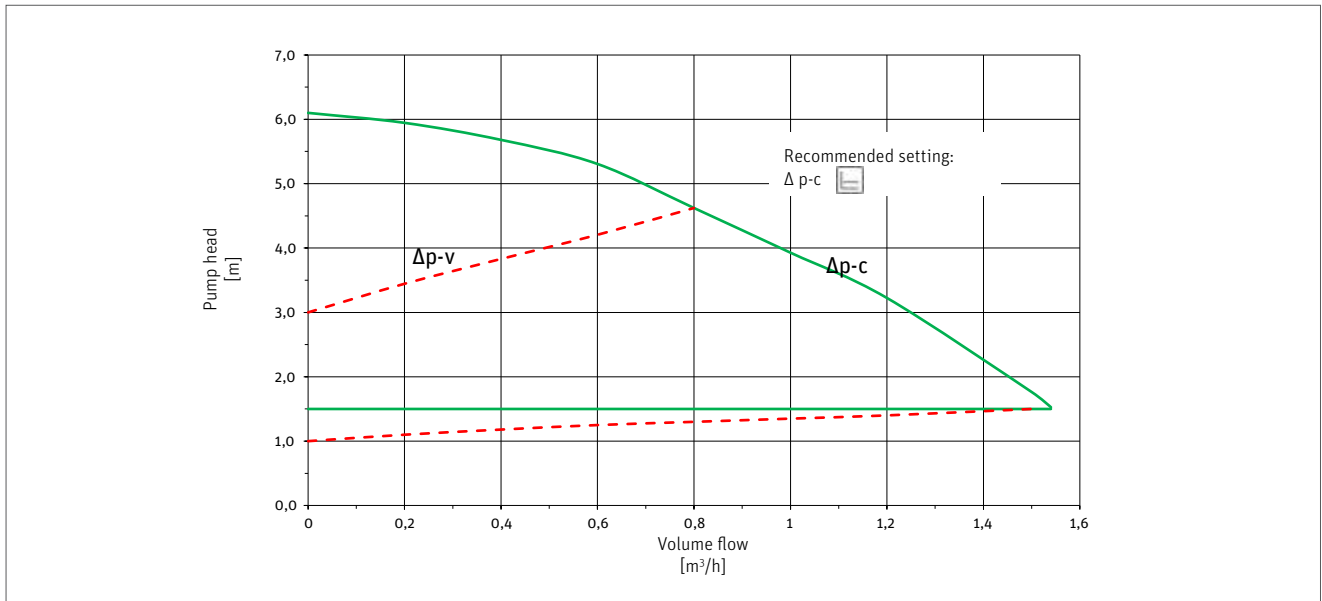
¹⁾ Please also refer to the details provided in the pump description and instructions.

Technical data

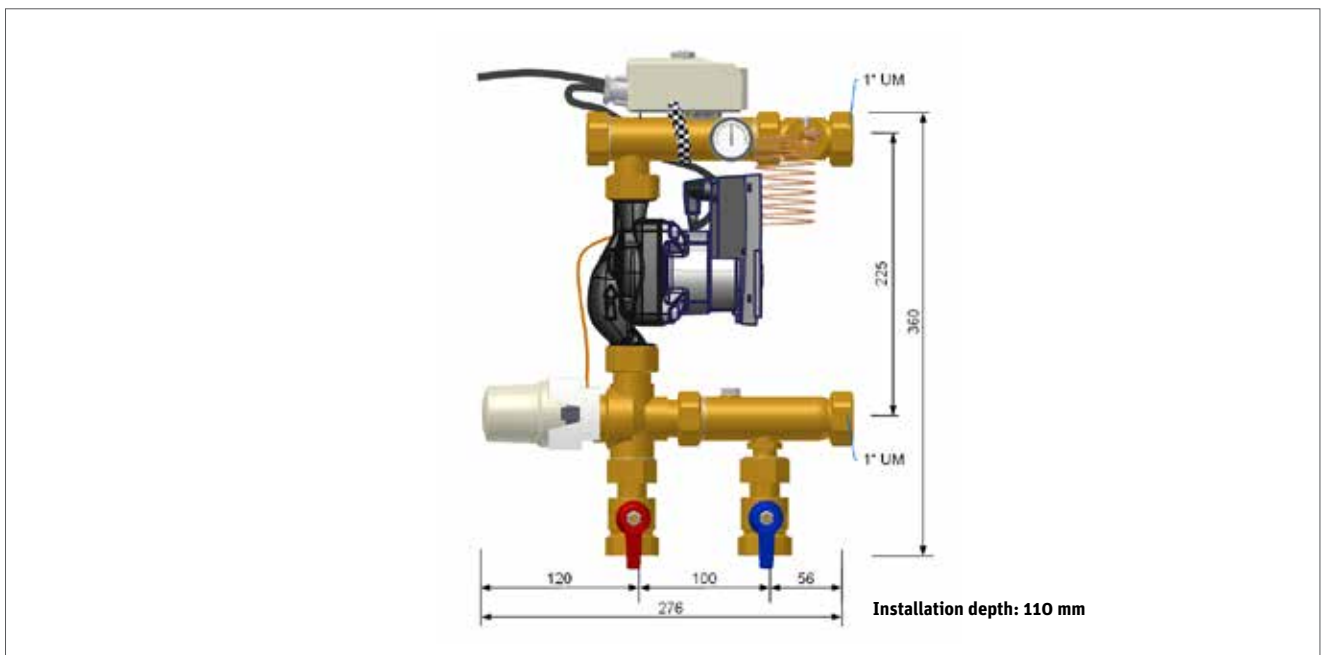
Pump diagram

Characteristic curve with allowance for control station pressure loss for the Wilo Yonos PARA RS15/6 RKA high-efficiency pump.

Satisfies energy efficiency class A and compliant with the ERP Directive for 2013 and 2015.



Dimensions



Troubleshooting

X.	Problem	
X.X	Possible cause	Solution
1. The heating circuit fails to heat up; pump not operating.		
1.1	<p>The temperature limiter (TL) switches off the control station pump.</p> <p>Cause: The TL setting is too low.</p>	<p>Adjust the TL setting to approx. 10 K higher than the inlet temperature.</p> <p>⚠ Do not exceed the maximum permissible inlet temperature!</p> <p>⚠ The differential gap of the TL is approx. 5 K.</p> <p>ℹ The control station can start up again more quickly if the TL is removed for a short time in order to allow the unit to cool down to the switch-on temperature.</p>
1.2	<p>The TL switches off the control station pump.</p> <p>Cause: The pump remains switched on, even though the heating circuits are closed. The water inside the control station heats up due to the waste heat of the pump. When the maximum temperature is reached, the TL switches off the pump!</p>	<p>Remove the TL from the control station and fit it at the forward flow branch of the manifold, as well as at the return branch if required.</p> <p>Use an electrical control distributor with pump logic (relay). The pump logic ensures that the pump only operates when at least one heating circuit is open.</p>
1.3	<p>The pump is connected to a room thermostat or an electrical control distributor.</p> <p>If all the actuators close, the pump switches off. In the event of a prolonged downtime period, the panel heating system forward flow cools down. As a result, the controller causes the 3-way mixer valve to open. Hot water is injected from the primary circuit. The control station therefore heats up. When the TL maximum temperature is reached, the contact opens. The pump does not switch back on.</p>	<p>Remove the TL from the compact control station and fit it at the forward flow branch of the manifold, as well as at the return branch if required.</p> <p>→ see temperature limiter.</p>
2. Inlet temperature cannot be adjusted to the desired value or is subject to major fluctuations.		
2.1	<p>The control station forward flow and return pipes have been connected the wrong way round.</p>	<p>Check that all control station connections are correct.</p> <p>→ Fig. 2 and 3</p>
2.2	<p>The pump head / pump stage setting is too low.</p>	<p>Increase the speed or pump head / pump stage.</p>
2.3	<p>The heating load is too high for the control station, i.e. the heat consumption exceeds the rated output of the control station. This state may occur temporarily, e.g. when heating a "cold" floor for the first time.</p>	<p>Check the maximum heat requirement and compare it with the rated output. It may be necessary to distribute the heating circuits to a second control station with a corresponding manifold.</p> <p>If the problem has been caused as a result of the floor heating system heating up for the first time, normal function may be achieved after the initial heating up period (2 – 3 days). This particularly applies in the case of operation within the upper rated output range.</p>
2.4	<p>The thermostatic head is defective.</p>	<p>Replace the thermostatic head.</p>
2.5	<p>The mixer valve has become jammed.</p>	<p>Remove the thermostat head, check the mixer valve, and get it working again as applicable.</p>



ROTH UK Ltd

1a Berkeley Business Park
Wainwright Road
Worcester WR4 9FA
Phone +44 (0) 1905 453424
E-Mail enquiries@roth-uk.com
technical@roth-uk.com
orders@roth-uk.com
accounts@roth-uk.com
roth-uk.com