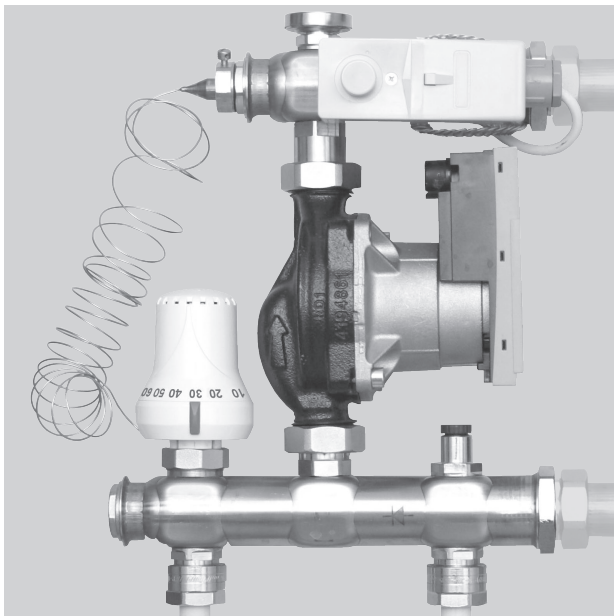
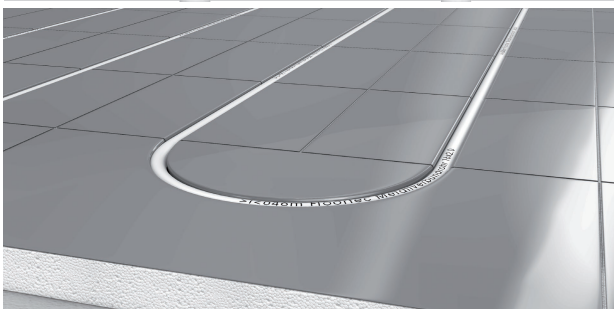
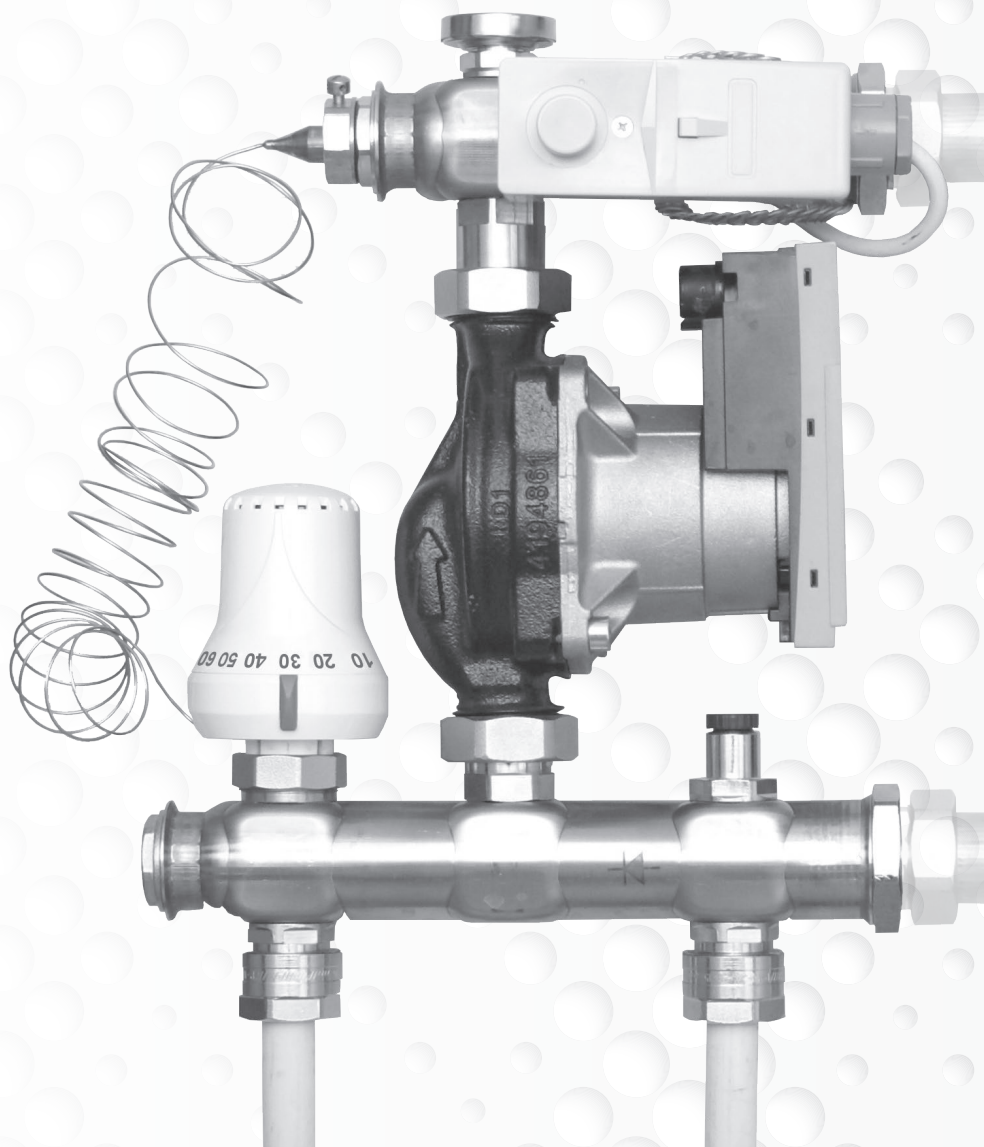


**SURFACE
HEATING SYSTEMS**
2016 TECHNOLOGY
FLOOR LEVEL CONTROL UNIT



A PERFECT SYSTEM





FLOOR LEVEL CONTROL UNIT

Article no.: FBRMANIRSFWTLOA0

HOW TO USE A FLOOR LEVEL CONTROL UNIT

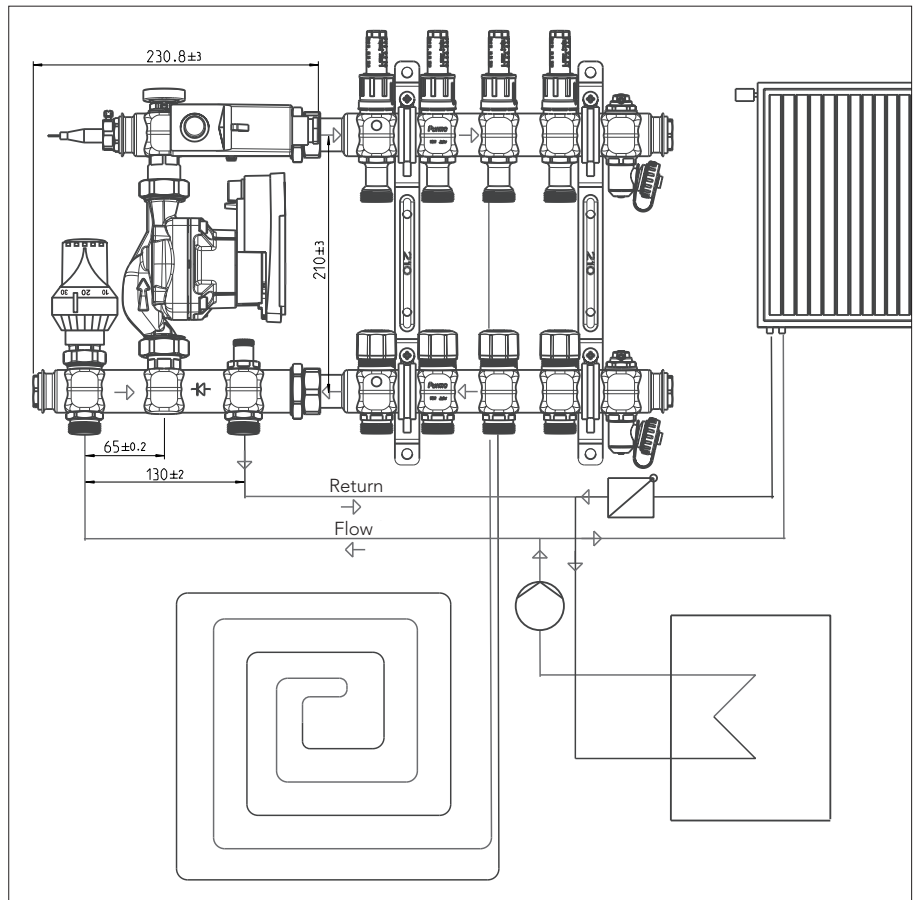
The floor level control unit is used for constant control of the feed temperature of low-temperature surface heating, which is connected with a high-temperature heating system.

The control unit has been designed for direct connection with FLOORTEC stainless steel manifolds with 1" coupling nuts and can also be used together with other manifolds.

As an operating medium, you can use any non-corrosive heating water according to VDI 2035 or ÖNORM H 5195 or a glycol-water-mix with up to 50 % glycol. The floor level control unit can be used at medium temperatures from +10 to +90 °C and working pressures of up to 6 bar.

SCOPE OF DELIVERY

- Thermostatic feed valve integrated into the stainless steel bar with a 3/4" Eurocone connecting nipple.
- Thermostatic head with immersion sensor (feed temperature can be chosen between 20° and 50°C).
- Return control valve integrated into the stainless steel bar with a 3/4" Eurocone connecting nipple.
- High-efficiency circulation pump
- Electrical maximum temperature limiter (cut-off temperature to be selected between 20° and 60°C)
- Backflow preventer integrated into stainless steel bar
- Integrated feed thermometer



Depth: 108,6 mm

OPERATION

The floor level control unit enables you to set the desired surface heating feed temperature by default at the thermostatic head (temperature control independent of weather). The thermostatic head opens the TRV slowly in the primary feed line, if the surface heating system nominal temperature falls below the lower limit (to be selected between 20 °C and 50 °C), admitting warmer feed water from the high-temperature heating circuit into the surface heating circuits (admixture).

Water temperature of the high-temperature heating circuit must be 15K higher than the desired surface heating feed temperature. In the circulation pump and in the feed water distribution bar, the cold return water from the surface heating circuits mixes with the high temperature feed water. The mixing temperature can be read and checked on the thermometer. The heated mixed water flows into the surface heating circuits.

An immersion sensor is installed behind the circulation pump, which shuts the TRV in the stainless steel bar as soon as the surface heating nominal temperature is achieved.

The circulation pump pumps the heated mixed water through the heating circuits until temperature falls due to heat dissipation into the adjoining rooms, and admixture starts again. In order to avoid any excessive feed temperature (e.g. in the event of a defective thermostatic head), the surface heating feed is equipped with a maximum temperature limiter. The limiter interrupts power supply of the circulation pump if the individually set maximum temperature is exceeded (which can be set between 20°C and 60°C). This maximum temperature value must be set by the plumber according to DIN EN 1264-4 before the heating system is put into service (observe manufacturer's operating instructions, 10K recommended).

TIPS

The floor level control unit contains a circulation pump which makes a running noise when in operation.

Quiet operation can be achieved if the performance level is set according to the amount of water actually required (only constant operation, cf. pump characteristic curve) and if structure-borne noise of the running pump cannot be transmitted to adjoining components; site of installation must be chosen with care.

The hydraulic function can be checked more easily if FLOORTEC stainless steel manifolds with flow meters are used.

FLOOR LEVEL CONTROL UNIT

INSTALLATION

- Mount subassembly with circulation pump and stainless steel bar directly to the heating circuit manifold using cap screws and gaskets:
- Fasten upper stainless steel bar with immersion sleeve, thermometer and maximum temperature limiter to feed heating circuit manifold.
- Fasten lower stainless steel bar with integrated control valve and TRV core to return heating circuit manifold.
- Connect feed of primary circuit with Eurocone connecting nipple under the TRV and connect return line of the primary circuit to the Eurocone connecting nipple under the control valve.
- Install the immersion sensor in the immersion sleeve and manually fasten the thermostatic head on the TRV. In doing so, do not bend the capillary tube.
- Set the maximum temperature limiter to the desired maximum value and install it on the surface heating feed.
- Electrically wire circulation pump and maximum temperature limiter.

Please note:

Electric installation of circulation pump and maximum temperature limiter must be performed by a trained electrician. Country-specific safety instructions must be observed upon installation. Moreover, the manufacturer's mounting and operation instructions must be observed when installing and operating the circulation pump and the maximum temperature limiter. Disconnect all components from power supply before opening.

- Check mechanical strength of all screwing components of the control unit before filling them.
- Filling and rinsing of the surface heating circuits must be done individually via the integrated filling and drain cock of the feed manifold bar. A backflow preventer integrated into the lower stainless steel bar of the floor level control unit prevents wrong currents via the circulation pump in the direction of the return manifold bar. Differential pressures > 1 bar are not be admitted upon filling.

Please note:

Rinse only in flow direction using an appropriate filter, so that no foreign matter or impurities can block the installed control components of the surface heating equipment.

- Bleed the equipment completely at maximum operation temperature, with the circulation pump switched off. Open manual bleeding valve pre-installed on heating circuit manifold. Collect leaking water. Rinse air pockets towards bleeder by switching on and off the pump at highest performance level. Close manual bleeding valve when bleeding is complete.
- Repeat bleeding after the first operation month; refill heating water if necessary.
- After filling the surface heating system or after replacing the circulation pump, tightness of the pump fastening must be checked at a medium temperature of 50°C and retightened to 75 Nm maximum, if required.

Please note:

New gaskets must be installed if circulation pump is changed.

HYDRAULIC BALANCING

- Shut the TRV in the high temperature feed line.
- Switch on circulation pump and set performance level according to the design.
- Set all control valves and the flow meter of the heating circuit manifold according to hydraulic values as determined by design. Observe assembly instructions of heating circuit manifold.
- Heating circuit manifolds with flow meters: finally, revise all hydraulic values and arrest flow meters.

Tip:

The installation's configuration may require additional components between the floor level control unit and the high-temperature primary circuit, e.g. a hydraulic shunt or a backflow preventer. They can prevent a mutual negative impact of the circulation pumps and wrong currents or flow noise. Observe the boilermaker's technical documentation.

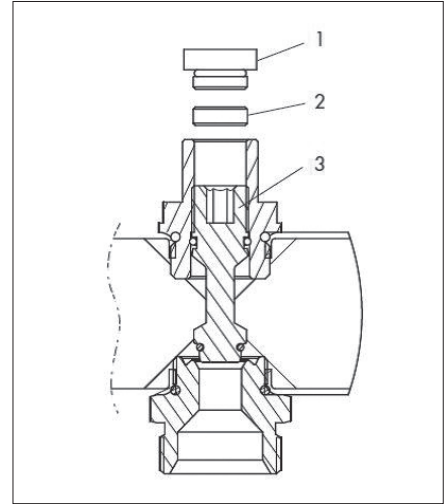
- Set the desired nominal feed temperature for the surface heating at the thermostatic head.
- Depending on the circulation pump's performance in the high temperature circuit, the integrated control valve may need to be throttled (see pressure loss diagram), in order to increase pressure loss of the floor level control unit in the primary circuit.

HYDRAULIC BALANCING

OPERATION OF CONTROL VALVE:

- Remove plug (1) with 5-mm Allen wrench
- Turn setting disk (2) anti-clockwise with 6-mm Allen wrench up to top.
- Turn valve spindle (3) with 6-mm Allen wrench clockwise, shutting it completely.
- Open valve spindle (3) anti-clockwise with 5-mm Allen wrench according to number of spindle rotations determined (differential pressure loss and mass flow show this result in the pressure loss diagram).

- Turn setting disk (2) with 6-mm Allen wrench clockwise until disk touches valve spindle.
- Thus the value is definitely set - even if valve spindle is closed and opened again.
- Shut plug (1) with 5-mm Allen wrench.



TECHNICAL DATA

PROFILE TUBE

Material: : stainless steel

(Short name X5CrNi18-10, material number 1.4301 according to DIN EN 10088)

Dimension: 35 x 1.5 mm

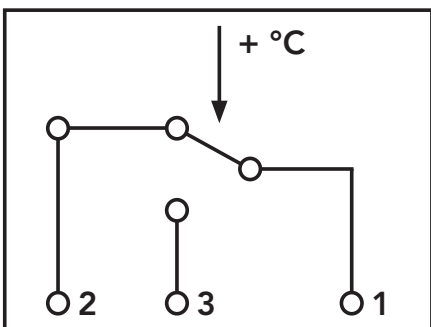
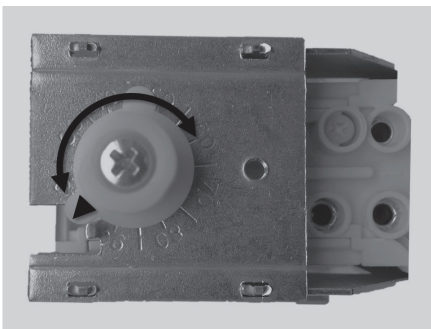
(DN 32 according to DIN EN ISO 6708),

MAXIMUM TEMPERATURE LIMITER

Type: housing contact thermostat with concealed temperature setting

Working range: 20 °C – 60 °C

(Figure showing 45 °C setting)



Switching difference: 8 K ± 3 K

Sensor element: bi-metal

Housing protection class: IP 20

Contact load:

K1-2 16 (2.5) A / AC 250 V

K1-3 2.5 A / AC 250 V

Circuit diagram: contact 2 is opened if temperature is rising.

CIRCULATION PUMP

Type: high-performance pump with flow-compensated differential pressure control

Control types: variable and constant differential pressure

Motor: wet rotor motor with permanent magnet rotor

EE index: < 0.20

Connecting cable: 2 m Protection class:

IPX4D Isolation class: F

Operating voltage: AC 230 V, 50 / 60 Hz

Power consumption: 3 to 45 W

Speed: 800 to 4250 RPM

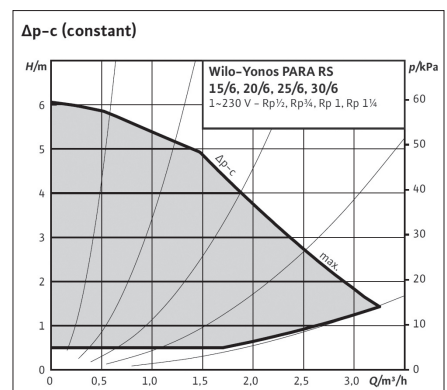
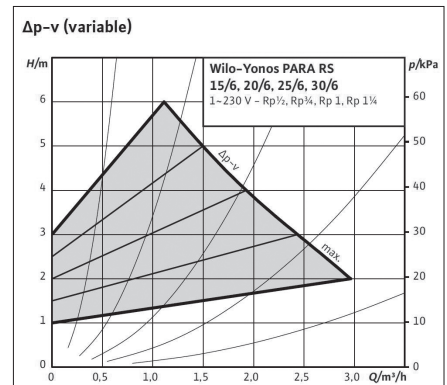
Maximum discharge head: 6.2 m

(for 0 l/h)

Max. flow rate: 3300 l/h

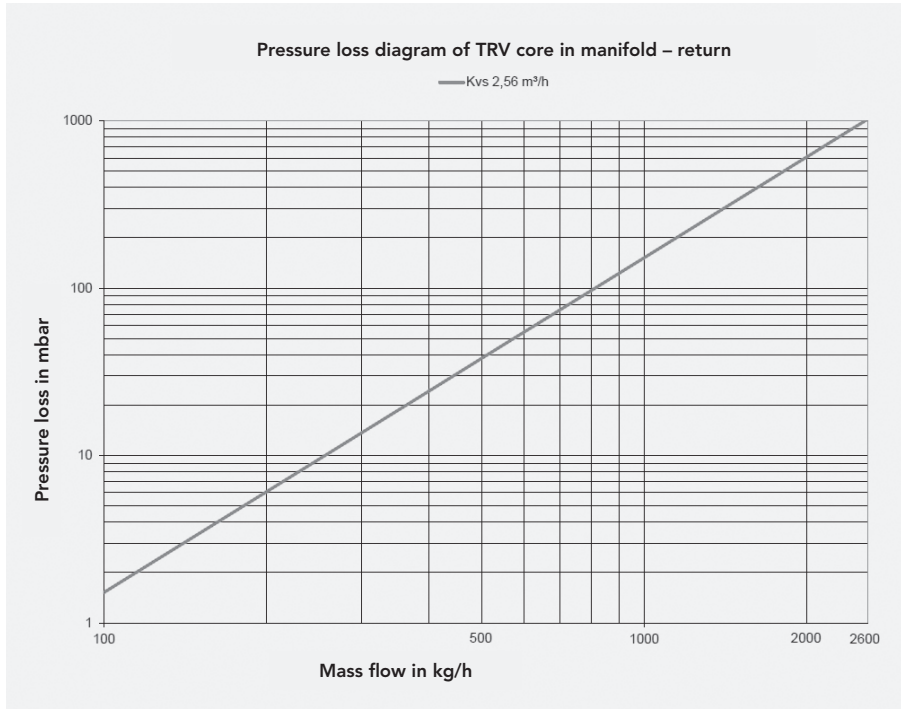
Please note:

Observe manufacturer's operating instructions upon installation and operation of circulation pump.



Curve family

THERMOSTAT VALVE CORE

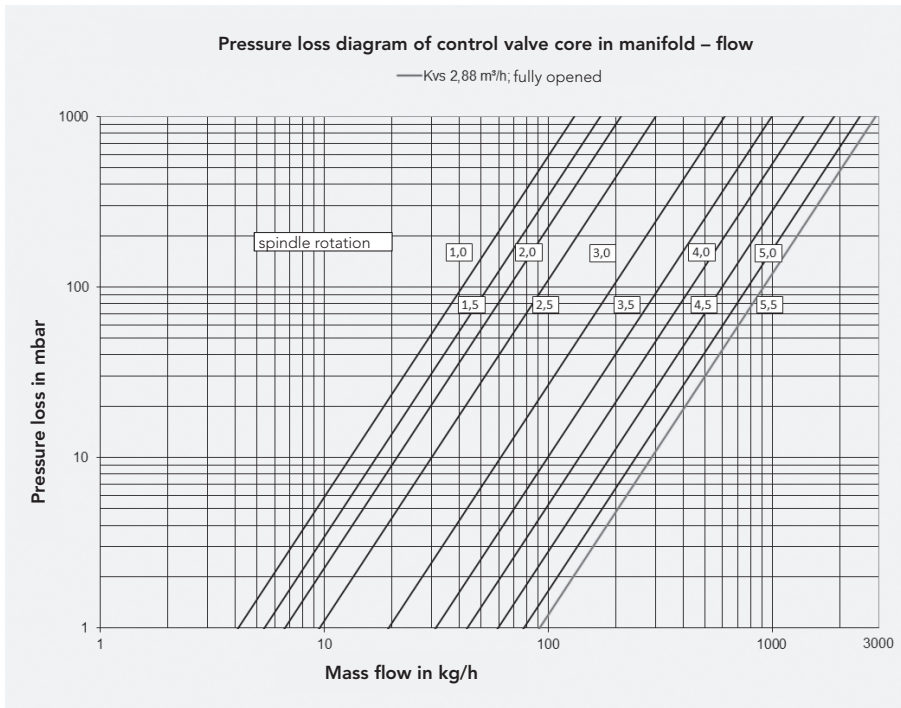


Kvs: 2.56 m³/h

Connecting thread: M 30 x 1.5

Closed component: 11.8 mm

CONTROL VALVE CORE



Kvs: 2.88 m³/h

can be set in advance

THERMOSTATIC HEAD TROUBLESHOOTING

Sensor element: Liquid immersion sensor with 2-m capillary tube

Setting numbers: 1 (20 °C) to 7 (50 °C)
Nominal value range: 20 °C – 50 °C

Connecting thread: M 30 x 1.5

The desired feed temperature is not achieved in the surface heating circuits:

- Thermostatic head setting is too low - increase value
- Performance level of circulation pump is too low - check design and characteristic curve and increase value, if required.
- Feed temperature in primary circuit is too low - increase feed temperature in primary circuit (to 15K min. above surface heating feed temperature).
- Return limiter (return valve) has not been regulated or is shut - open and regulate.
- Surface heating circuits are flowed through differently - balance hydraulically according to design.
- Electrothermal actuators on thermostat valves of heating circuit manifold are closed - open manually or set room control unit acc. to heating requirement.

Noise or wrong currents in floor level control unit or primary circuit:

- Mutual negative impact of circulation pumps - provide additional components between the floor level control unit and the high-temperature primary circuit, e.g. a hydraulic shunt or a back-flow preventer.
- Air in the installation or in the pump head - bleed floor-level control unit, heating circuit manifold and pump head

Our conditions and terms of sale and delivery apply.

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