

Floor Control Set

for constant control
of the supply temperature



To be precise.



Floor Control Set

Description

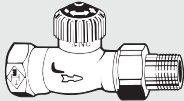
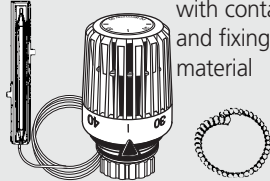
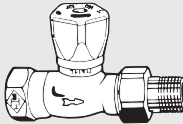
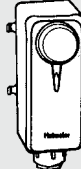


Floor Control Set for constant control of the supply temperature of floor heating systems with a lower temperature range, in combination with a heating circuit with a higher temperature level (e. g. 80°/60°C) (e. g. 176°F/140°F).

The set consists of a thermostatic valve body, a thermostatic head with a contact sensor, a Mikrotherm manual valve as a bypass valve and an electrical pipe contact safety switch as a temperature monitor.

All components are tuned to each other and are available in 4 different sets for floor areas of different sizes.

Assembly

Thermostatic Valve body	Thermostatic Head	Mikrotherm manual valve	Elect. pipe contact safety switch (temperature monitor)
	 with contact sensor and fixing material	 (bypass)	 with fixing material

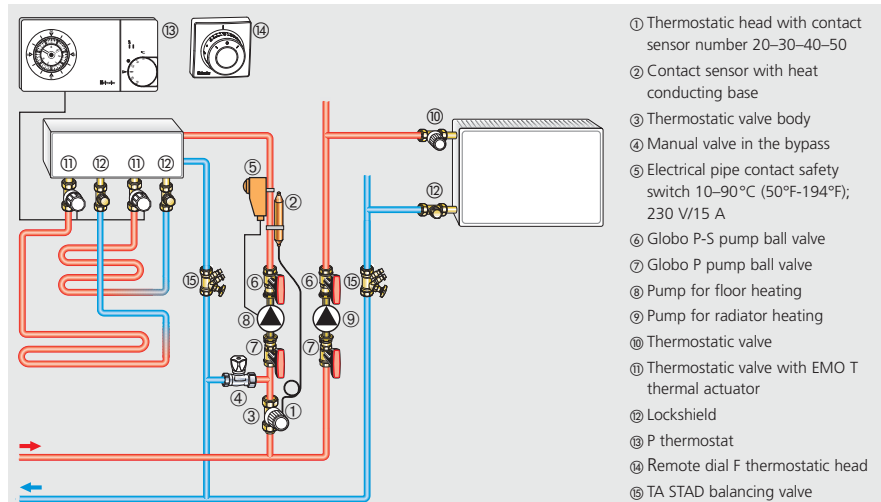
Application

The Floor Control Set with return addition is used for the constant control of the supply temperature for floor heating systems. In addition, with the Floor Control Set, the return addition makes it possible to operate floor heating systems in combination with a heating circuit with a higher temperature level at low temperature.

In combined floor-radiator heating systems, the floor heating system only supplies part of the room heating requirements. Here, the main function of the system is to heat cold floor surfaces, e. g. with tiles. The system can also be used to maintain a constant surface temperature e. g. in swimming pools.

In individual cases, the system can be used to meet the overall room heating requirements. The individual room temperature is controlled by thermostatic valves with remote dials, or by thermal or motorized actuators with the appropriate room thermostats.

Sample application



Note

The contents of the heat transfer medium should comply with VDI guideline 2035 on damage and scale deposit formation in warm water heating systems.

For industrial and long-distance energy systems, see the applicable codes VdTÜV and 1466/AGFW 5/15.

A heat transfer medium containing mineral oils, or any type of lubricant containing mineral oil can have extremely negative effects on the source apparatus and usually leads to the disintegration of EPDM seals.

When using nitrite-free frost and corrosion resistance solutions with an ethylene glycol base, pay close attention to the details outlined in the manufacturers' documentation, particularly details concerning concentration and specific additives.

Function

By mixing the heating water from the boiler and the bypass, ④ the supply temperature in the floor heating circuit is kept constant within a proportional band width required by heating technology.

The supply temperature changes are transferred to the contact sensor by a heat conducting base ②. The pipe contact safety switch ⑤ shuts down the circulating pump ⑧ as soon as a deviation from the set permitted value occurs.

Depending on the situation in the system, a check should be carried out as to whether additional reverse flow restrictors, gravity brakes or water insulation loops should be installed.

Heating adjustment

The floor heating system should be adjusted with a high boiler temperature. Fully open the bypass valve and set the thermostatic valve to the required supply temperature for the floor heating system. If this temperature is not reached on the contact sensor, the bypass valve

should be gradually opened until the required temperature is reached.

If the supply to the floor heating system does not reach the required temperature:

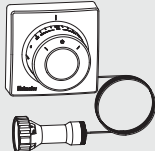
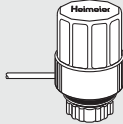
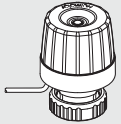
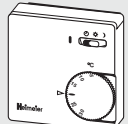
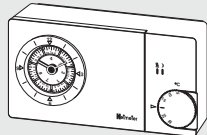
- The operating temperature of the heat generating device is too low in relation to the heating plan

- The bypass valve has been opened too far
- The set temperature on the pipe contact controller is lower than the setting on the thermostatic valve (pump off)
- Any shut-off devices which may be in the system are closed

Article numbers

Set	Floor surface	Individual parts	Setting area	NW	Art. no.	Art. no. compl. set
1	to 45 m ²	Thermostatic valve body Mikrotherm manual valve Thermostatic head with contact sensor Electrical pipe contact safety switch	20–50°C 10–90°C (230 V, 15 A)	DT 10 (3/8") DM 15 (1/2")	2242-01.000 0122-02.500 6402-00.500 1991-00.000	9690-01.000
2	to 85 m ²	Thermostatic valve body Mikrotherm manual valve Thermostatic head with contact sensor Electrical pipe contact safety switch	20–50°C 10–90°C (230 V, 15 A)	DT 15 (1/2") DM 20 (3/4")	2242-02.000 0122-03.500 6402-00.500 1991-00.000	9690-02.000
3	to 120 m ²	Thermostatic valve body Mikrotherm manual valve Thermostatic head with contact sensor Electrical pipe contact safety switch	20–50°C 10–90°C (230 V, 15 A)	DT 20 (3/4") DM 25 (1")	2242-03.000 0122-04.500 6402-00.500 1991-00.000	9690-03.000
4	to 160 m ²	Thermostatic valve body Mikrotherm manual valve Thermostatic head with contact sensor Electrical pipe contact safety switch	20–50°C 10–90°C (230 V, 15 A)	DT 25 (1") DM 32 (1 1/4")	2202-04.000 0122-05.500 6402-00.500 1991-00.000	9690-04.000

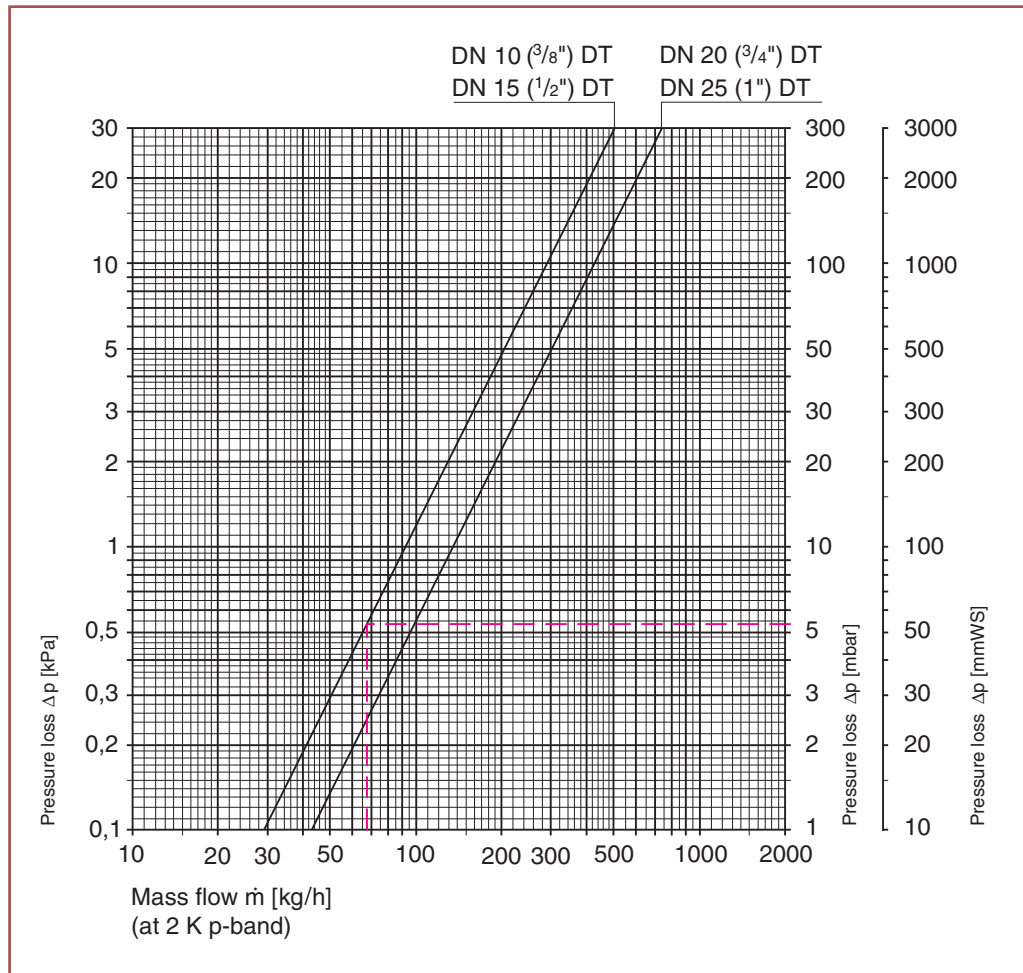
Individual room control

F thermostatic head	EMO T / EMOTec	Room thermostat	P thermostat
Remote dial	Thermal actuators	With thermal recirculation	Electronic room thermostat with analog 7-day automatic switch
	 		
Technical data Brochure "Thermostatic heads"	Technical data Brochure "EMO T" Technical data Brochure "EMOTec"	Technical data Brochure "Room thermostat"	Technical data Brochure "P thermostat"

Floor Control Set

Technical data

Diagram



Thermostatic head with valve body	k_{vs} value [m ³ /h]	Permitted operating temperature TB [°C]	Permitted operating pressure PB [bar]	Permitted differential pressure when the valve is still closed Δp [bar]
NW 10 (3/8") DT (straight)	1.8	120 (248°F)	10	0.80
NW 15 (1/2") DT (straight)	2.5			
NW 20 (3/4") DT (straight)	4.5	120 (248°F)	10	0.25
NW 25 (1") DT (straight)	5.7			

Formula:

$$C_v = \frac{k_v}{0,86}$$

$$k_v = C_v \cdot 0,86$$

Sample calculation

- Target: Size of the Floor Control Set
Thermostatic valve pressure loss Δp_v
- Given: Floor area to be heated: $A = 35 \text{ m}^2$
heat flow including floor loss: $\dot{Q} = 2650 \text{ W}$
Temperature spread floor heating system: $\Delta t = 8 \text{ K (44/36}^\circ\text{C)}$
Supply temperature heat generating device: $t_v = 70^\circ\text{C}$
- Solution: Control set size 1, since $A < 45 \text{ m}^2$
Thermostatic valve NW 10 (see "Article numbers")
Mass flow thermostatic valve:
$$\dot{m}_v = \frac{\dot{Q}}{c \cdot \Delta t} = \frac{2650}{1.163 \cdot (70-36)} = 67 \text{ kg/h}$$

Pressure loss from diagram $\Delta p_v = 5.4 \text{ mbar}$



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