Climate
Control

IMI Heimeier

# Floor Control Set

## Floor Heating Controller

For constant control of the supply temperature

Breakthrough
engineering for
a better world

# Floor Control Set

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. 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.

## Technical description

**Application:**
Floor heating systems

**Function:**
Supply temperature control
Temperature monitor
Shut-off

**Dimensions:**
Thermostatic valve body: DN 10-25
Mikrotherm: DN 15-32

**Pressure class:**
PN 10

**Temperature:**
Max. working temperature: 120°C
Min. working temperature: -10°C

**Setting range:**
Thermostatic head with contact sensor: 20-50°C.
Electrical pipe contact safety switch: 20-90°C.

**Materials:**
Thermostatic valve body:
Valve body: corrosion resistant Gunmetal
O-rings: EPDM rubber
Valve disc: EPDM rubber
Return spring: Stainless steel
Valve insert: Brass
The complete thermostatic insert can be replaced using the fitting tool without draining the system (DN 10, DN 15).
Spindle: Niro-steel spindle with double O-ring sealing. The outer O-ring can be replaced under pressure.

Mikrotherm manual valve:
Valve body: Corrosion resistant gunmetal.
O-rings: EPDM rubber.
Valve insert: Brass.
Handwheel (DN 10-20):
PP (Polypropylen), tight-packed with protection film, white RAL 9016.
Handwheel (DN 25-32): PA6.6 GF 30, Brass, white RAL 9016.

Thermstatic head:
ABS, PA6.6GF30, brass, steel, Liquid-filled thermostat.

**Surface treatment:**
Valve body and fittings are nickel-plated.

**Marking:**
Thermostatic valve body: THE, country code, flow direction arrow, DN and KEYMARK-Designation. Blue protection cap. Blue stuffing box (DN 10, DN 15).
Mikrotherm manual valve: THE, country code, flow direction arrow, DN.
II+ -Designation (DN 10 - DN 20).
Thermostatic head: Heimeier, setting numbers.
Electrical pipe contact safety switch: Heimeier

**Pipe connection:**
The female-threaded version is designed for connection to threaded pipe, or in conjunction with compression fittings, to copper precision steel or multi-layer pipe (only DN 15).

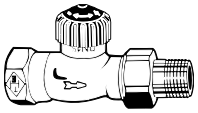
**Connection to thermostatic head and actuator:**
IMI Heimeier M30x1,5

**Electrical pipe contact safety switch:**
NC 1-2: 16(2,5)A/250 VAC
NO 1-3: 2,5A/250 VAC
Enclosure class: IP20

For more detailed information on components see each technical leaflet:
- With particularly low resistance (Thermostatic radiator valves)
- Mikrotherm (Manual radiator valves)
- Thermostatic head K with contact or immersion sensor (Thermostatic heads)

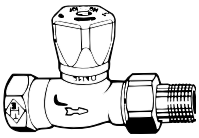
## Construction

**Thermostatic valve body**

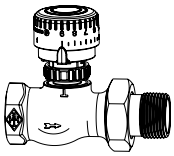


**Mikrotherm manual valve**

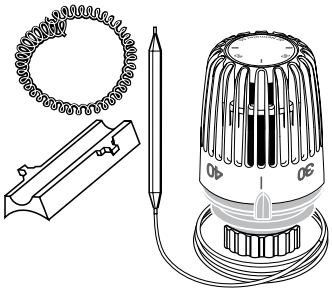
DN 10-20



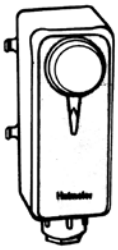
DN 25-32



**Thermostatic head**



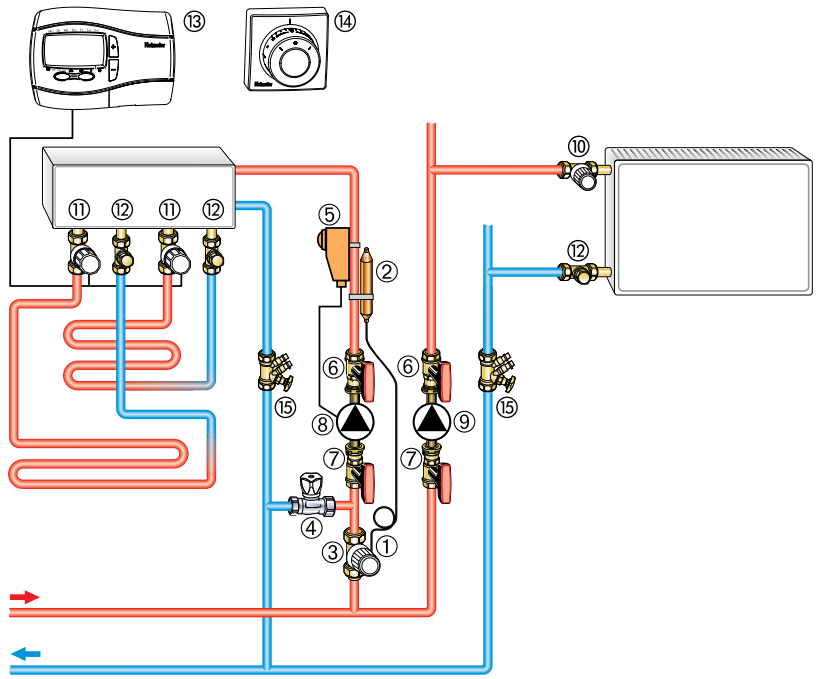
**Elect. pipe contact safety switch**
(temperature monitor)



## 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**




1. Thermostatic head with contact sensor number 20–30–40–50
2. Contact sensor with heat conducting base
3. Thermostatic valve body
4. Manual valve in the bypass
5. Electrical pipe contact safety switch 20–90°C (68°F-194°F)
6. Globo P-S pump ball valve
7. Globo P pump ball valve
8. Pump for floor heating
9. Pump for radiator heating
10. Thermostatic valve
11. Thermostatic valve with EMO T thermal actuator
12. Lockshield
13. Thermostat P
14. Remote dial thermostatic head F
15. STAD balancing valve

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 FW 510.
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.

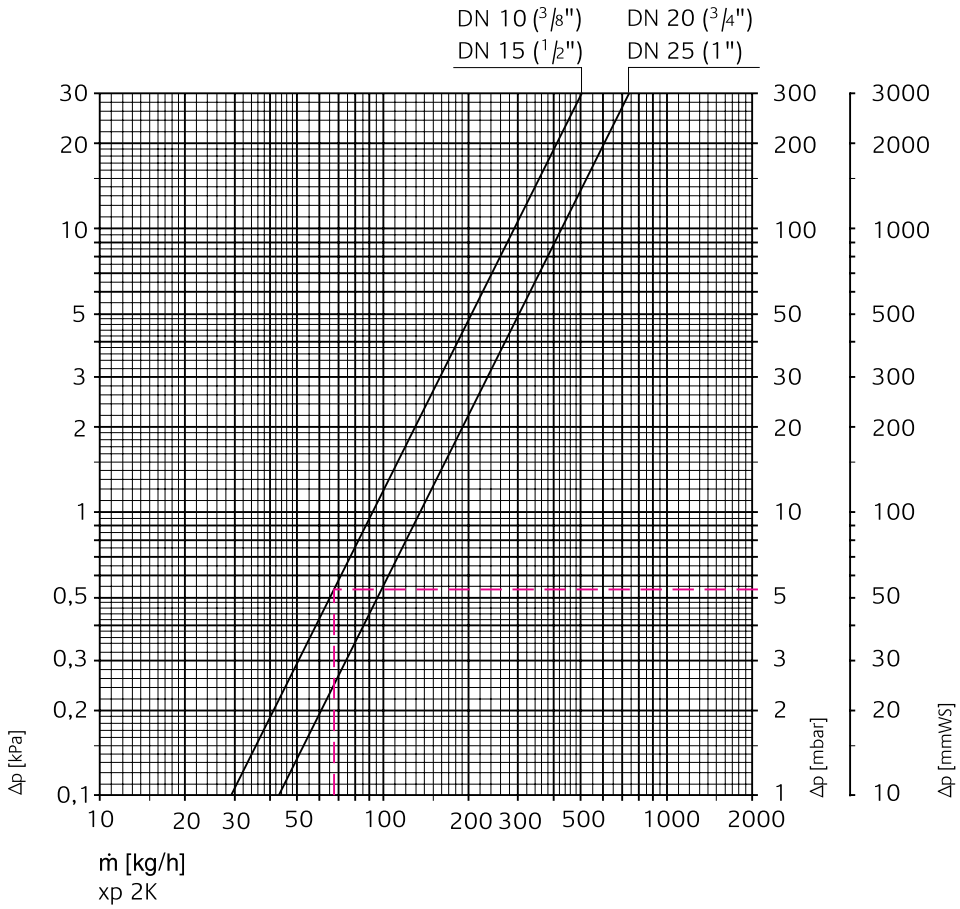
## Function

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

## Technical data




| Thermostatic head with valve body | | Kv-value (with P-band 2K) | Kvs | Permitted differential pressure when the valve is still closed Δp [bar] |
|---|---|---|---|---|
| DN 10 | (3/8") straight | 0,92 | 1,8 | 0,80 |
| DN 15 | (1/2") straight | 0,92 | 2,5 | 0,80 |
| DN 20 | (3/4") straight | 1,35 | 4,5 | 0,25 |
| DN 25 | (1") straight | 1,35 | 5,7 | 0,25 |

**Sample calculation**
Target:
Size of the Floor Control Set
Thermostatic valve pressure loss $\Delta p_v$

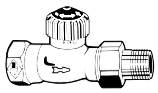
Given:
Floor area to be heated: A = 35 m²
Heat flow including floor loss: Q = 2650 W
Temperature spread floor heating system: Δt = 8 K (44/36°C)
Supply temperature heat generating device: tv = 70°C

Solution:
Control set size 1, since A < 45 m²
Thermostatic valve DN 10 (see "Article numbers")
Mass flow thermostatic valve: $m_v = Q / (c \cdot \Delta t) = 2650 / (1{,}163 \cdot (70–36)) = 67$ kg/h
Pressure loss from diagram $\Delta p_v = 5{,}4$ mbar

$$Cv = \frac{Kv}{0{,}86}$$

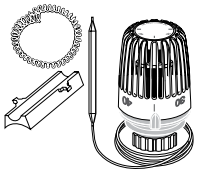
$$Kv = Cv \cdot 0{,}86$$

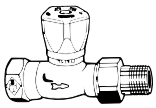
## Articles



**Set 1 - Floor surface: to 45 m²**

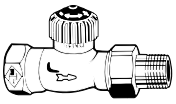
| Parts | Setting range | DN | Part No | EAN | Article No |
|---|---|---|---|---|---|
| Thermostatic valve body | | 10 (3/8") | 2242-01.000 | | |
| Mikrotherm manual valve | | 15 (1/2") | 0122-02.500 | | |
| Thermostatic head with contact sensor | 20-50°C | | 6402-00.500 | | |
| Electrical pipe contact safety switch | 20-90°C<br>NC 1-2: 16(2,5)A/250V AC;<br>NO 1-3: 2,5A/250V AC | | 1991-00.000 | | |
| **Complete set** | | | | 4024052295012 | **9690-01.000** |





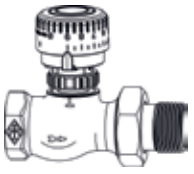
**Set 2 - Floor surface: to 85 m²**

| Parts | Setting range | DN | Part No | EAN | Article No |
|---|---|---|---|---|---|
| Thermostatic valve body | | 15 (1/2") | 2242-02.000 | | |
| Mikrotherm manual valve | | 20 (3/4") | 0122-03.500 | | |
| Thermostatic head with contact sensor | 20-50°C | | 6402-00.500 | | |
| Electrical pipe contact safety switch | 20-90°C<br>NC 1-2: 16(2,5)A/250V AC;<br>NO 1-3: 2,5A/250V AC | | 1991-00.000 | | |
| **Complete set** | | | | 4024052295111 | **9690-02.000** |



**Set 3 - Floor surface: to 120 m²**

| Parts | Setting range | DN | Part No | EAN | Article No |
|---|---|---|---|---|---|
| Thermostatic valve body | | 20 (3/4") | 2242-03.000 | | |
| Mikrotherm manual valve | | 25 (1") | 0122-04.500 | | |
| Thermostatic head with contact sensor | 20-50°C | | 6402-00.500 | | |
| Electrical pipe contact safety switch | 20-90°C<br>NC 1-2: 16(2,5)A/250V AC;<br>NO 1-3: 2,5A/250V AC | | 1991-00.000 | | |
| **Complete set** | | | | 4024052295210 | **9690-03.000** |





**Set 4 - Floor surface: to 160 m²**

| Parts | Setting range | DN | Part No | EAN | Article No |
|---|---|---|---|---|---|
| Thermostatic valve body | | 25 (1") | 2202-04.000 | | |
| Mikrotherm manual valve | | 32 (1 1/4") | 0122-05.500 | | |
| Thermostatic head with contact sensor | 20-50°C | | 6402-00.500 | | |
| Electrical pipe contact safety switch | 20-90°C<br>NC 1-2: 16(2,5)A/250V AC;<br>NO 1-3: 2,5A/250V AC | | 1991-00.000 | | |
| **Complete set** | | | | 4024052295319 | **9690-04.000** |