

Climate  
Control

IMI Heimeier

## Multilux 4-F-Set



### **Thermostatic valves with radiator connection systems**

For radiator two point bottom connection R1/2 or G3/4 with an additional connection for floor heating

## Multilux 4-F-Set

For connection radiators with a bottom connection and floor heating is used to control the room temperature and for limitation of the return temperature. Centre-to centre distance of connection is 50 mm. Installation in angle type. Both thermostatic inserts include the V-exact II precision presetting with 8 stepless presetting values.



### Key features

#### Combination of thermostatic valve and return temperature limiter

For bath or designer radiators and additional underfloor heating

#### Shut-off barriers to radiators and underfloor heating

for maintenance without interrupting operation

#### Elegant covers

White RAL 9016

#### V-exact II presetting for hydronic balancing

For radiators and floor heating circuit

### Technical description

#### Applications area:

Two-pipe heating systems  
Floor heating systems

#### Functions:

Individual room temperature control.  
Maximum limitation of the floor heating return temperature.  
Presetting (V-exact II) at thermostatic valve and return temperature limiter.  
Shut-off.

#### Dimensions:

DN 15

#### Pressure class:

PN 10

#### Setting range:

Thermostatic head DX:  
6 °C to 28 °C  
Return temperature limiter RTL:  
0 °C to 50 °C

#### Temperature:

Max. working temperature: 90°C  
Min. working temperature: 2°C

#### Ensure that the system supply temperature is suitable for setting up the floor heating system.

#### See also Information!

#### Materials:

Valve body: Corrosion resistant Gunmetal.  
O-rings: EPDM rubber  
Valve disc: EPDM rubber  
Return spring: Stainless steel  
Valve insert: Brass, PPS (polyphenylsulphide) and SPS (syndiotactic polystyrene)  
The complete thermostatic insert can be replaced using the fitting tool without draining the system.  
Spindle: Niro-steel spindle with double O-ring sealing. The outer O-ring can be replaced under pressure.  
Cover: ABS

#### Surface treatment:

Valve body gunmetal, fittings are nickel-plated.

#### Marking:

THE, RTL and II+ Designation. Flow direction arrows. White protection caps.  
H = Supply heating system  
HR = Return heating system  
F = Supply floor heating  
FR = Return floor heating

#### Radiator connection:

Adapters for R1/2 and G3/4, for radiator connections. Tolerance compensation ±1,0 mm with special union nuts and flexible flat seal system for installation free of tension.

#### Pipe connection:

G3/4 male thread for compression fittings for plastic, copper, precision steel or multi-layer pipe.

#### Connection to thermostatic head and RTL head:

M30x1.5, RTL with additional adaptor

## Construction

### Front



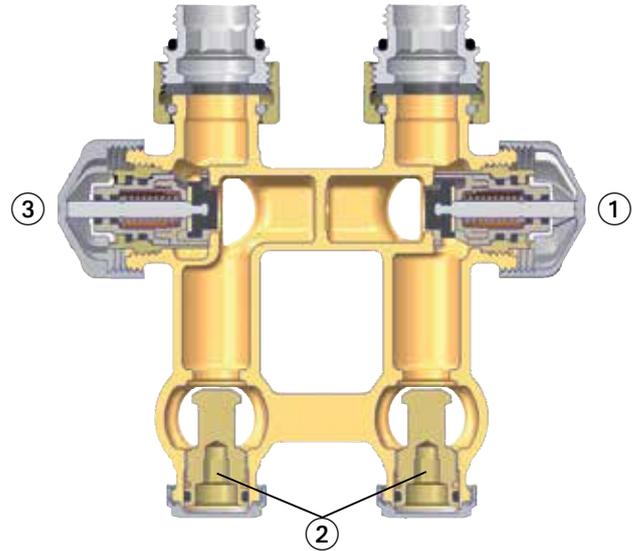
- F** = Supply floor heating
- FR** = Return floor heating
- RTL** = Return temperature limiter
- H** = Supply heating system
- HR** = Return heating system

### Back



- F** = Floor heating
- H** = Heating system

### Multilux 4-F cut

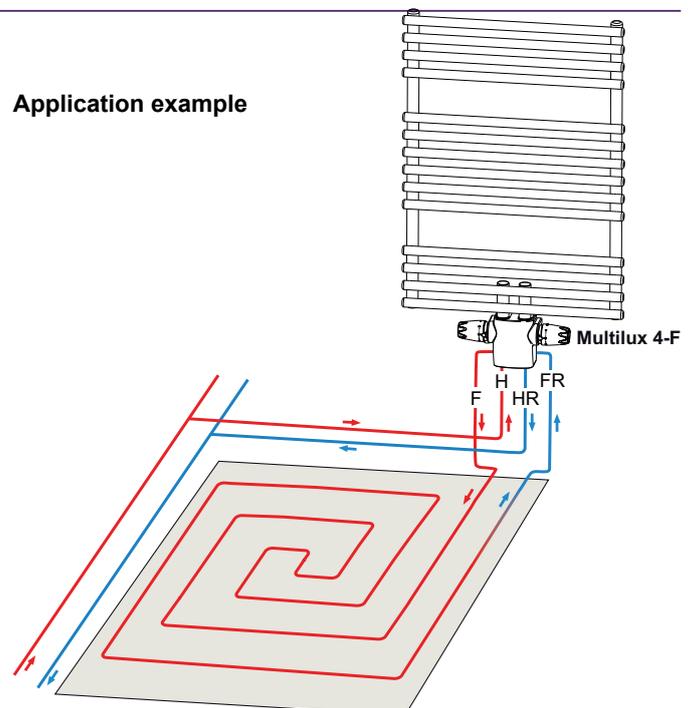


1. Thermostatic insert with V-exact II presetting for return temperature limit
2. Shut-off
3. Thermostatic insert with V-exact II presetting for thermostatic head

## Application

For connection radiators with a bottom connection and floor heating is used to control the room temperature and for limitation of the return temperature. Centre-to-centre distance of connection is 50 mm. Assembly in angle form. Both thermostatic inserts feature the V-exact II stepless precision presetting. These enable precise hydronic balancing with the aim of providing all heat consumers with hot water according to their heat requirements. Multilux 4-F also enables individual shut-off. Painting or maintenance work can thus be carried out without switching off other radiators.

### Application example



## Information

### Planning

- **Ensure that the system supply temperature is suitable for setting up the floor heating system.**
- **The return temperature limiter RTL is to be connected to the return pipe at the end of the floor heating circuit. Heed direction of flow (see Example of use).**
- Depending on piping pressure loss, Multilux 4-F is suitable for heating areas up to approx. 20 m<sup>2</sup>.
- The length of 12 mm internal diameter pipe in any heating circuit should not exceed 100 m.
- To ensure low-noise system operation, differential pressure over the valve should not exceed 0.2 bar.
- The floor heating pipe is to be laid spirally in the flooring screed (see Example of use).
- The set value of the RTL should not be below ambient temperature - otherwise it will not open.

### Thermal fluid

To stop any damage and scale in hot water heating systems, the composition of the thermal fluid is to conform to VDI Directive 2035. For industrial and longdistance energy systems, see applicable codes VdTÜV and 1466/AGFW FW 510.

Mineral oil in the thermal fluid and/or all kinds of lubricants containing mineral oil lead to considerable swelling and, in most cases, to the failure of EPDM seals.

When using nitrite-free antifreeze and anti-corrosive based on ethylene glycol, technical advice – especially on additive concentration – is to be taken from the anti-freeze/anti-corrosive manufacturer's documentation.

Flush the system before changing thermostatic valves in heavy polluted existing systems.

### Functional heating

Carry out functional heating of heating screed conforming to standards in keeping with EN 1264-4.

#### Earliest start for functional heating:

- Cement screed: 21 days after laying
- Anhydrite screed 7 days after laying

Begin 20°C - 25°C flow temperature and maintain for 3 days. Then set maximum design temperature and maintain for 4 days. Flow temperature can be regulated by controlling the heat generator. Turn the protective cap anticlockwise to open valve.

Refer to the screed manufacturer's information!

#### Do not exceed maximum floor temperature at the heating pipes:

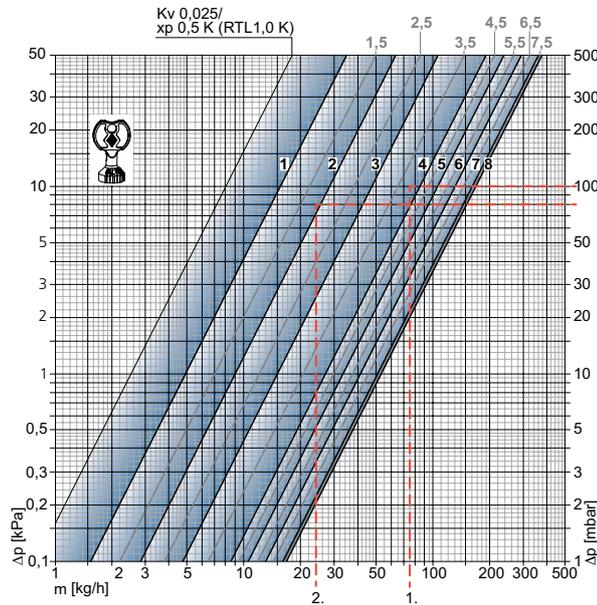
- Cement and anhydrite screed: 55°C
- Poured asphalt screed: 45°C
- according to screed manufacturer's technical advice!

## Diagram

This diagram applies to:

- Multilux 4-F **Thermostatic valve**, control deviation 2 K
- Multilux 4-F **Return temperature limiter RTL**, control deviation 4K

The design is performed **separately** for the thermostatic valve and the return temperature.



### Valve body with thermostatic head or return temperature limiter with head

		Presetting thermostatic valve or return temperature limiter RTL							
		1	2	3	4	5	6	7	8
<b>Thermostatic valve</b>	Kv-value	0,049	0,090	0,150	0,265	0,330	0,405	0,513	0,522
P-band [xp] 2.0K									
<b>Return temperature limiter RTL</b>	Kv-value	0,049	0,090	0,150	0,265	0,330	0,405	0,513	0,522
P-band [xp] 4.0K									
Thermostatic valve or return temperature limiter RTL	Kvs	0,049	0,102	0,185	0,313	0,332	0,515	0,554	0,572

$Kv/Kvs = m^3/h$  at a pressure drop of 1 bar.

### Sample calculation

#### Multilux 4-F thermostatic valve, radiator circuit

Target:  
Setting range

Given:  
Heat flow  $Q = 1308 \text{ W}$   
Temperature spread  $\Delta t = 15 \text{ K (55/40 } ^\circ\text{C)}$   
Pressure loss, thermostatic valve  $\Delta p_V = 100 \text{ mbar}$

Solution:  
Mass flow  $m = Q / (c \cdot \Delta t) = 1308 / (1,163 \cdot 15) = 75 \text{ kg/h}$   
Setting range from Diagram: 4

#### Multilux 4-F Return temperature limiter RTL, floor heating

Target:  
Setting range

Given:  
Heat flow  $Q = 560 \text{ W}$   
Temperature spread  $\Delta t = 20 \text{ K (55/35 } ^\circ\text{C)}$   
Available pressure loss  $\Delta p = 100 \text{ mbar}$   
Calculated pressure loss, Floor heating  $\Delta p_{FB} = 20 \text{ mbar}$   
Throttle pressure loss  $\Delta p_V = 100 \text{ mbar} - 20 \text{ mbar} = 80 \text{ mbar}$

Solution:  
Mass flow  $m = Q / (c \cdot \Delta t) = 560 / (1,163 \cdot 20) = 24 \text{ kg/h}$   
Setting range from Diagram: 2

**Kv-complete-values (Thermostatic valve 2 K / Return temperature limiter RTL 4 K)**

Thermostatic valve presetting	1	2	3	4	5	6	7	8	Kvs
Return temperature limiter RTL presetting	<b>Total Kv</b>								
1	0,098	0,131	0,199	0,314	0,379	0,454	0,562	0,571	0,621
2	0,131	0,164	0,232	0,347	0,412	0,487	0,595	0,604	0,654
3	0,199	0,232	0,300	0,415	0,480	0,555	0,663	0,672	0,722
4	0,314	0,347	0,415	0,530	0,595	0,670	0,778	0,787	0,837
5	0,379	0,412	0,480	0,595	0,660	0,735	0,843	0,852	0,902
6	0,454	0,487	0,555	0,670	0,735	0,810	0,918	0,927	0,977
7	0,562	0,595	0,663	0,778	0,843	0,918	1,026	1,035	1,085
8	0,571	0,604	0,672	0,787	0,852	0,927	1,035	1,044	1,094
<b>Kvs</b>	0,621	0,654	0,722	0,837	0,902	0,977	1,085	1,094	1,144

Kv/Kvs = m<sup>3</sup>/h at a pressure drop of 1 bar.

## Articles



### Multilux 4-F-Set

The Multilux 4-F-Set - Set consists of:

- Multilux 4-F thermostatic valve part,
- Radiator connections R1/2,
- Radiator connection G3/4,
- White cover, RAL 9016,
- Thermostatic head DX, white RAL 9016, for room temperature control
- Thermostatic head DX-RTL including thermal bridge for return temperature control of underfloor heating circuit.

	EAN	Article No
<b>White RAL 9016</b>	4024052965915	9690-57.800

## Accessories



### Setting key

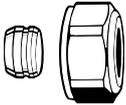
for Multilux 4-F and V-exact II.

**EAN**

**Article No**

4024052035823

3670-01.142



### Compression fitting

for copper or precision steel pipe according to DIN EN 1057/10305-1/2. Connection external thread G3/4 according to DIN EN 16313 (Eurocone). Metal-to-metal joint. Nickel-plated brass. With a pipe wall thickness of 0.8-1 mm insert supporting sleeves. Heed pipe manufacturer's technical advice.

**Ø Pipe**

**EAN**

**Article No**

12

4024052214211

3831-12.351

14

4024052214310

3831-14.351

15

4024052214617

3831-15.351

16

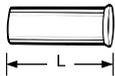
4024052214914

3831-16.351

18

4024052215218

3831-18.351



### Supporting sleeves

for copper or precision steel pipe with a wall thickness of 1 mm.

**Ø Pipe**

**L**

**EAN**

**Article No**

12

25,0

4024052127016

1300-12.170

15

26,0

4024052127917

1300-15.170

16

26,3

4024052128419

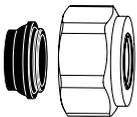
1300-16.170

18

26,8

4024052128815

1300-18.170



### Compression fitting

for copper or precision steel pipe according to DIN EN 1057/10305-1/2 and stainless steel pipe. Connection external thread G3/4 according to DIN EN 16313 (Eurocone). Soft sealed, max. 95°C.

Nickel-plated brass.

**Ø Pipe**

**EAN**

**Article No**

15

4024052515851

1313-15.351

18

4024052516056

1313-18.351



### Compression fitting

for Alu/PEX multi-layer pipe according to DIN 16836. Connection external thread G3/4 according to DIN EN 16313 (Eurocone).

Nickel-plated brass.

**Ø Pipe**

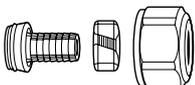
**EAN**

**Article No**

16x2

4024052137312

1331-16.351



### Compression fitting

for plastic pipe according to DIN 4726, ISO 10508. PE-X: DIN 16892/16893, EN ISO 15875; PB: DIN 16968/16969. Connection external thread G3/4 according to DIN EN 16313 (Eurocone). Nickel-plated brass.

**Ø Pipe**

**EAN**

**Article No**

12x1,1

4024052136018

1315-12.351

14x2

4024052134618

1311-14.351

16x1,5

4024052136117

1315-16.351

16x2

4024052134816

1311-16.351

17x2

4024052134915

1311-17.351

18x2

4024052135110

1311-18.351

20x2

4024052135318

1311-20.351



### Thermostatic insert

V-exact II with precision presetting. For thermostatic valve bodies with II+ designation.

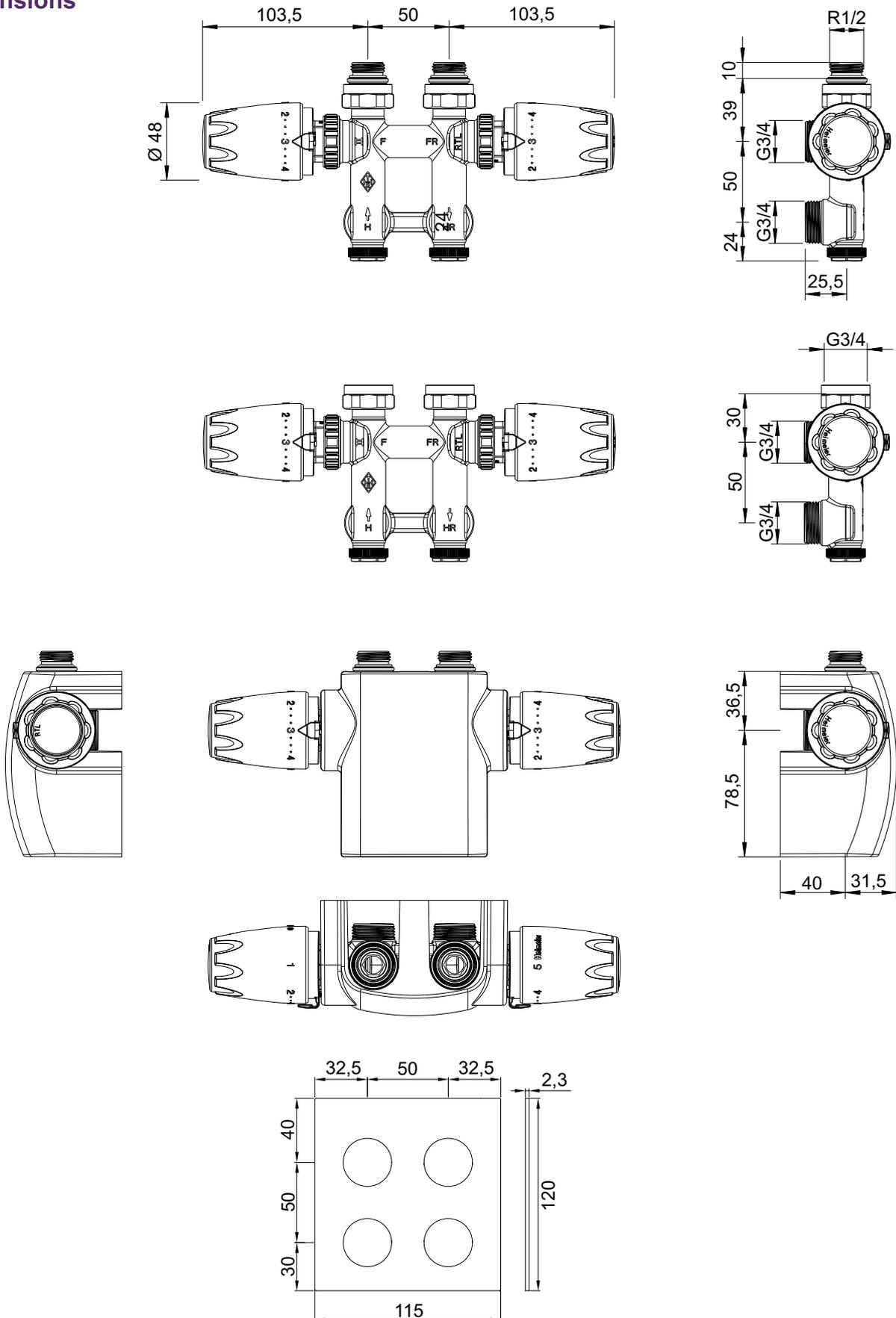
**EAN**

**Article No**

4024052951611

3700-24.300

## Dimensions



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