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

Engineering GREAT Solutions

IMI Hydronic Engineering

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:
2-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
For all Multibox models, 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)
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

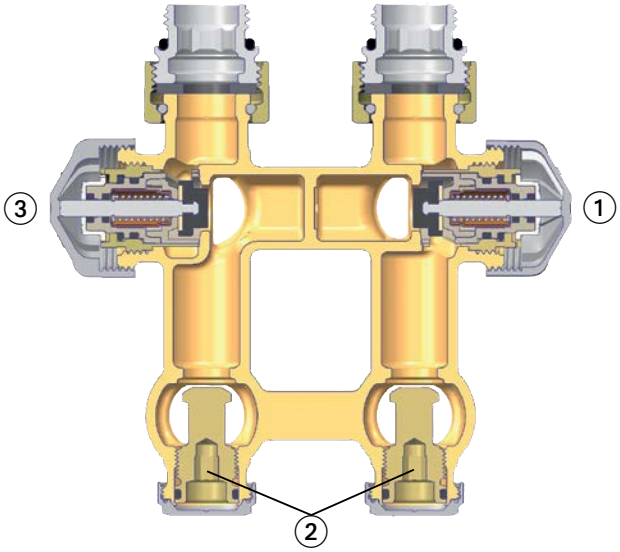
Front

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



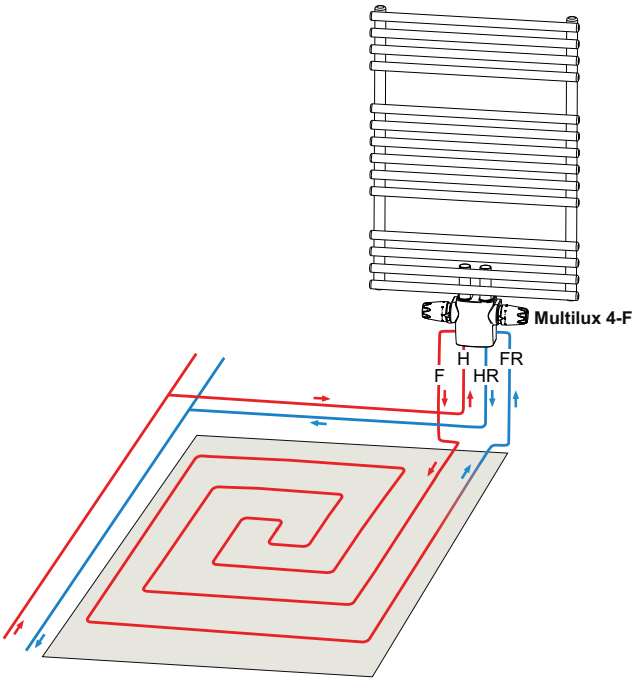
1. Thermostatic insert with V-exact II presetting for return temperature limit
2. Shut-off
3. Thermostatic insert with V-exact II presetting for thermostatic head

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 m2.
- The length of 12 mm internal diameter pipe in any heating circuit should not exeed 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!

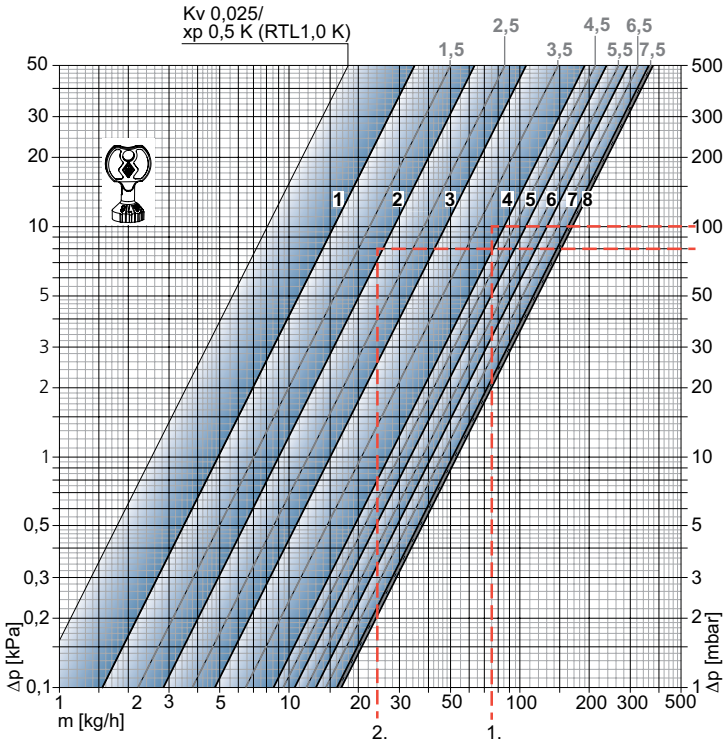
Do not exceed maximum floor temperature at the heating pipes:

– 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
Thermostatic valve P-band [xp] 2,0 K	Kv-Wert	0,049	0,090	0,150	0,265	0,330	0,405	0,513	0,522
Return temperature limiter RTL P-band [xp] 4,0 K	Kv-Wert	0,049	0,090	0,150	0,265	0,330	0,405	0,513	0,522
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 W
Temperature spread Δt = 15 K (55/40 °C)
Pressure loss, thermostatic valve ΔpV = 100 mbar
Solution:
Mass flow m = Q / (c · Δt) = 1308 / (1,163 · 15) = 75 kg/h
Setting range from Diagram: 4

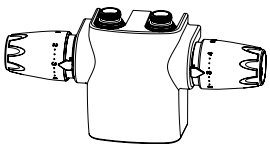
Multilux 4-F Return temperature limiter RTL, floor heating
Target:
Setting range
Given:
Heat flow Q = 560 W
Temperature spread Δt = 20 K (55/35 °C)
Available pressure loss Δp = 100 mbar
Calculated pressure loss, Floor heating ΔpFB = 20 mbar
Throttle pressure loss ΔpV = 100 mbar - 20 mbar= 80 mbar
Solution:
Mass flow m = Q / (c · Δt) = 560 / (1,163 · 20) = 24 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	Total Kv								
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
Kvs	0,621	0,654	0,722	0,837	0,902	0,977	1,085	1,094	1,144

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

Articles



Multilux 4-F-Set

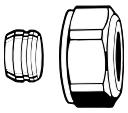
The Multilux 4-F-Set - Set consists of:
- Multilux 4-F thermostatic valve part,
- Radiator connections R 1/2,
- Radiator connection G 3/4,
- White cover, RAL 9016,
- Thermostatic head DX, white RAL 9016, for room temperature control
- Thermostatic head DX-RTL including thermal bridge for return temperature control of underfloor heating circuit.

	EAN	Article No
White RAL 9016	4024052965915	9690-57.000

Accessories

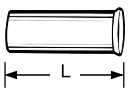
Setting key
for Multilux 4-F and V-exact II.

	EAN	Article No
	4024052532216	4360-00.142



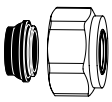
Compression fitting
for copper or precision steel pipe according to DIN EN 1057/10305-1/2.
Connection male thread G3/4 according to DIN EN 16313 (Eurocone).
Metal-to-metal joint.
Brass nickel-plated.
With a pipe wall thickness of 0.8-1 mm insert supporting sleeves. Heed pipe manufacturer's technical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

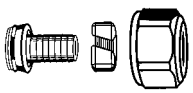


Compression fitting
for copper or precision steel pipe according to DIN EN 1057/10305-1/2 and stainless steel pipe.
Connection male thread G3/4 according to DIN EN 16313 (Eurocone).
Soft sealed, max. 95°C.
Nickel-plated brass.

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 male 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 male 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