IMI HEIMEIER

Duolux 50

Thermostatic valves with radiator connection systems

Valve set for two-pipe heating systems

Engineering GREAT Solutions

IMI Hydronic Engineering

Duolux 50

Duolux 50 has been specially developed for rational and easy-installation radiator attachment. With this connecting system each radiator is directly attached with its own supply and return flow pipe to a central single-storey heating manifold. Centre-to-centre distance of connections 50 mm.

Technical description

Applications area:
2-pipe heating systems

Function:
Control
Presetting
Shut-off

Dimensions:
DN 15

Pressure class:
PN 10

Temperature:
Max. working temperature: 120°C, with protection cap or actuator 100°C.
Min. working temperature: -10°C.

Materials:
Manifold:
Valve body: Corrosion resistant Gunmetal.
O-rings: EPDM rubber
Valve disc: EPDM rubber
Spindle: Brass

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.
Spindle: Niro-steel spindle with double O-ring sealing.

Other:
See “Articles” and “Accessories”.

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

Marking:
THE, II+ Designation and flow direction arrow.
Black protection cap.

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

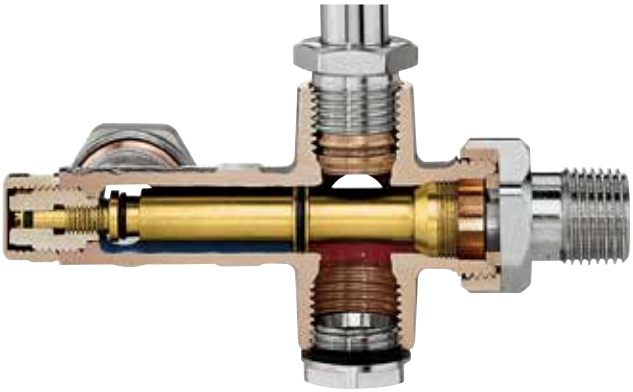
Connection to thermostatic head and actuator:
HEIMEIER M30x1,5

Construction

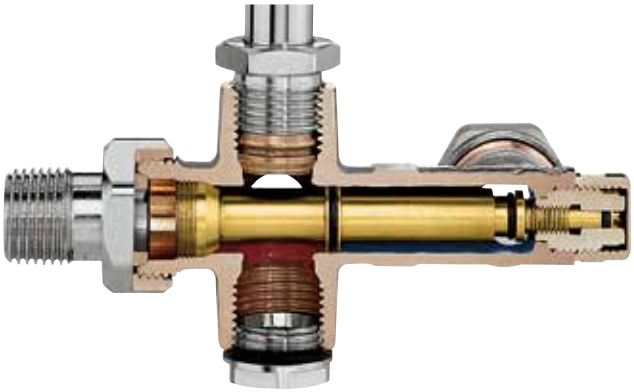
Duolux 50
Two-pipe manifold straight type with axial thermostatic valve body

Two-pipe manifold of the angle type

Connection at radiator on the left



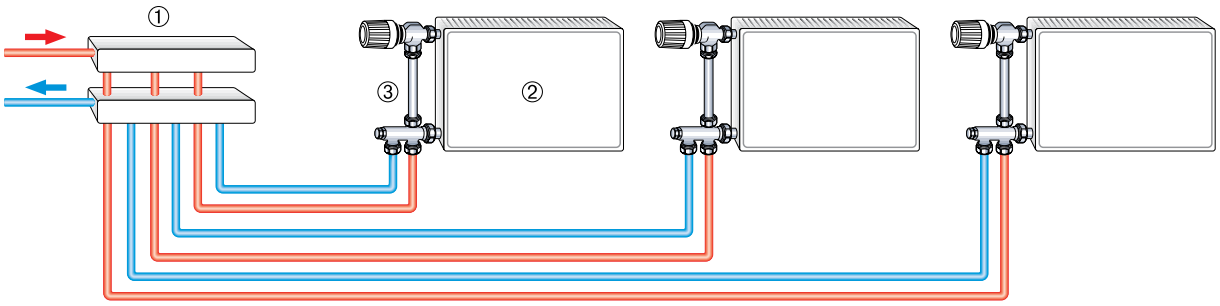
Connection at radiator on the right



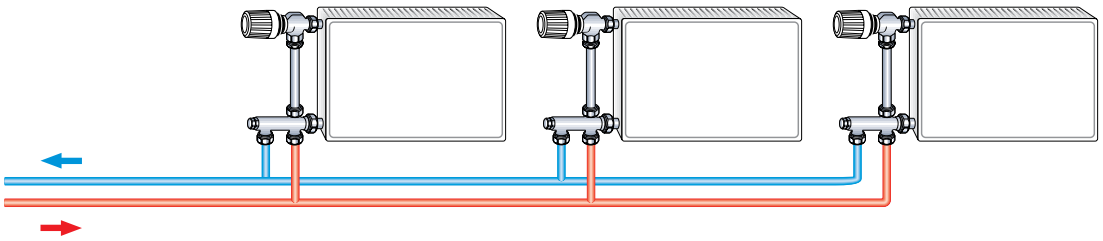
Application

Duolux 50 has been specially developed for rational and easy-installation radiator attachment. With this connecting system – also termed “spaghetti system” – each radiator is directly attached with its own supply and return flow pipe to a central single-storey heating manifold.
If the single-storey manifold does not have controllable connection fittings, then the regulating disk in the Duolux 50 two-pipe manifold enables the radiators to be hydraulically balanced one to another. At the same time, this pre-setting assumes the return flow shut-off function. As a result, the radiator can be detached without draining the system.
The Duolux 50 manifold of the angle type can be fitted both to the right and left of the radiator. For installation on the right of the radiator, the sealing plug is to be unscrewed - using a SW 22 spanner - from its original position. It is then to be screwed in on the opposite side (see also “Construction”).

Sample application
Two-pipe connecting system
Parallel arrangement of all radiators



“Classic” two-pipe system
Laying the supply and return flow pipes e.g. in the plinth

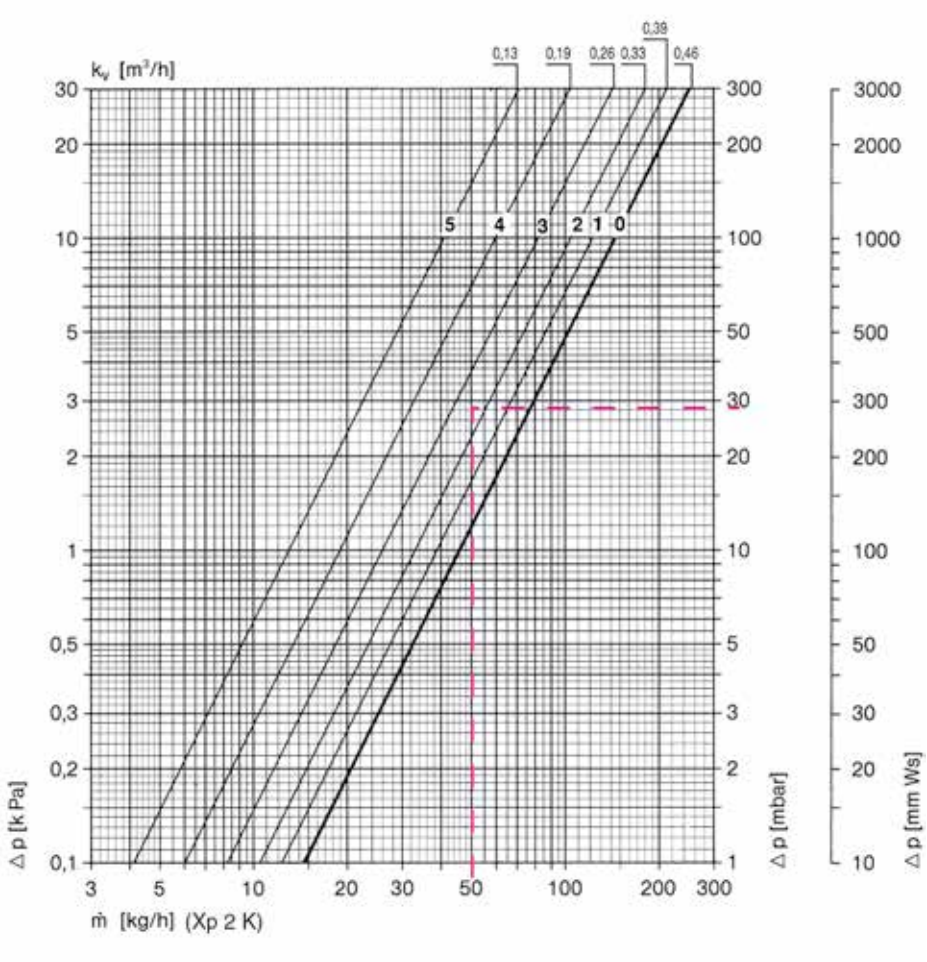


1. Single-storey heating manifold
2. Radiator
3. Duolux 50

Notes
– To avoid damage and the formation of scale deposit in the hot-water heating system, the composition of the heat transfer medium should be in accordance with the VDI guideline 2035. 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 and usually lead 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 concerning concentration and specific additives.
– Flush the system before changing thermostatic valves in heavy polluted existing systems.
– The thermostatic valve bodies can be used with all HEIMEIER thermostatic heads and HEIMEIER or TA thermal actuators or motorized . The optimal tuning of the components guarantees maximum safety. When using actuators from other manufacturers, make sure that the pressure power is appropriate for thermostatic valve bodies with soft sealing valve discs.

Technical data

Diagram - Duolux 50 Two-pipe manifold with valve body and thermostatic head



Two-pipe manifold with valve body and thermostatic head

	Kv value (at presetting 0) P-band [K]					Kvs	Kvs	Kvs without thermostatic valve	Permited differential pressure at which the valve can still be closed Δp [bar]	
	1,0	**1,5**	**2,0**	**2,5**	**3,0**	Straight Axial	Double angle		Th.-head	EMO T EMOtec EMO 3 TA-Slider 160
DN 15 (1/2")	0,25	0,36	0,46	0,53	0,59	0,93	0,86	1,29	1,0	3,5

Sample calculation

To find:
Presetting figure Duolux 50

Given:
Heat flux Q = 870 W
Temperature spread Δt = 15 K (70/55°C)
Pipe dimension O = 12 x 2 mm
Pipe length l = 15 m
Pressure loss unfav. radiator Δp_{HK1} = 53.5 mbar

Solution:
Mass flow m = Q / (c · Δt) = 870 / (1,163 · 15) = 50 kg/h
Pressure drop connecting line R = 1.7 mbar/m
Pressure loss connecting line Δp_R = R · l = 1.7 · 15 = 25.5 mbar
Pressure loss Duolux 50 $\Delta p = \Delta p_{HK1} - \Delta p_R$ = 53.5 - 25.5 = 28.0 mbar
Setting figure from diagram 2.5 revolutions

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

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

Operation

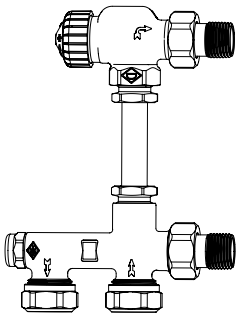
Presetting
Unscrew sealing cover (SW 19).
With Allen key (3 mm) check 0 position - i.e. regulating disk must be fully opened, turning anti-clockwise.
Necessary presetting is made according to diagram by turning clockwise.
Screw on sealing cover and tighten.

Shut-off
Unscrew sealing cover (SW 19).
Using Allen key (3 mm), shutoff return flow by fully turning clockwise.
Screw on sealing cover.
Exchange thermostatic head for protective cap, close valve and after detaching radiator secure valve body with G3/4 sealing cap.

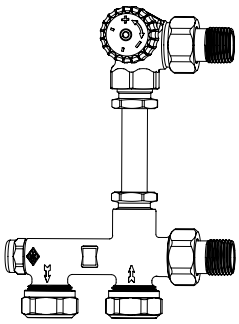
Important: Before return flow shut-off, turn anti-clockwise to establish (number of revolutions) whether presetting has been undertaken. This is to ensure that once the radiator is in place the original presetting can be reset.

Valve overview

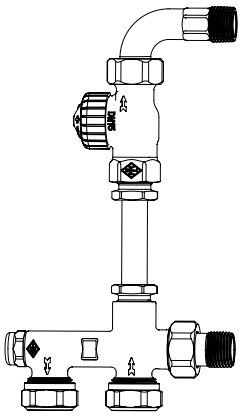
Two-pipe manifold – straight type



Two-pipe manifold, straight type.
Axial valve.
Riser and compression fittings.

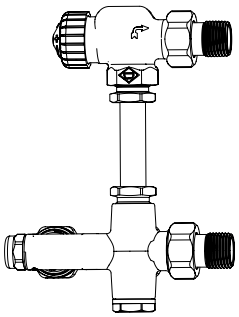


Two-pipe manifold, straight type.
Angle valve.
Riser and compression fittings.

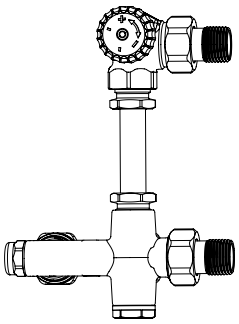


Two-pipe manifold, straight type.
Straight valve with bend fitting.
Riser and compression fittings.

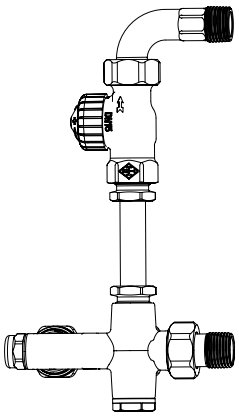
Two-pipe manifold – angle type



Two-pipe manifold, angle type.
Axial valve.
Riser and compression fittings.

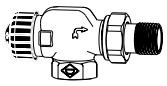


Two-pipe manifold, angle type.
Double angle valve.
Riser and compression fittings.



Two-pipe manifold, angle type.
Straight valve with bend fitting.
Riser and compression fittings.

Articles

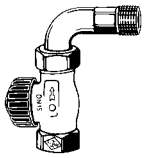


Axial thermostatic valve body
With black protection cap.
Nickel-plated gunmetal.

	EAN	Article No
DN 15 (1/2")	4024052178810	2225-02.000

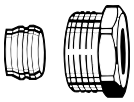
Double angle thermostatic valve body
With black protection cap.
Nickel-plated gunmetal.

		EAN	Article No
DN 15 (1/2")	Connection to radiator – left	4024052182411	2311-02.000
DN 15 (1/2")	Connection to radiator – right	4024052182213	2310-02.000



Straight thermostatic valve body with bended nipple
With black protection cap.
Nickel-plated gunmetal.

	EAN	Article No
DN 15 (1/2")	4024052176915	2206-02.000

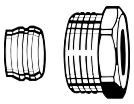


Compression fitting
for precision steel pipes.
Female thread connection Rp1/2.
Metal-to-metal joint.
Brass nickel-plated.

EAN	Article No
4024052175017	2201-15.351

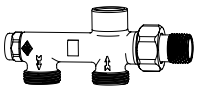
Precision steel pipe
For supply pipe.
Chrome-plated.
Ø 15 mm. 1100 mm long.

EAN	Article No
4024052214518	3831-15.169



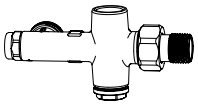
Compression fitting
for precision steel pipes.
Female thread connection Rp1/2.
Metal-to-metal joint.
Brass nickel-plated.

EAN	Article No
4024052175017	2201-15.351



Two-pipe manifold, straight type
with shut-off and presetting.
Gunmetal, nickel-plated.

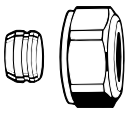
EAN	Article No
DN 15 (1/2")	3810-50.000



Two-pipe manifold, angle type
with shut-off and presetting.
Gunmetal, nickel-plated.

EAN	Article No
DN 15 (1/2")	3811-50.000

Accessories

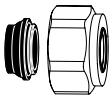


Compression fitting
for copper or precision steel pipe according to DIN EN 1057/10305-1/2.
Connection male thread G3/4 according to DIN EN 16313 (Eurocone).
Metal-to-metal joint.
Brass nickel-plated.
With a pipe wall thickness of 0.8-1 mm insert supporting sleeves. Heed pipe manufacturer's technical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

Ø Pipe	EAN	Article No
12	4024052214211	3831-12.351
15	4024052214617	3831-15.351
16	4024052214914	3831-16.351
18	4024052215218	3831-18.351

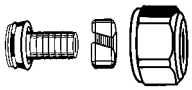
Supporting sleeves
for copper or precision steel pipe with a wall thickness of 1 mm.

L	Ø Pipe	EAN	Article No
25,0	12	4024052127016	1300-12.170
26,0	15	4024052127917	1300-15.170
26,3	16	4024052128419	1300-16.170
26,8	18	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

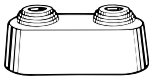


Compression fitting
for plastic pipe according to DIN 4726, ISO 10508.
PE-X: DIN 16892/16893, EN ISO 15875;
PB: DIN 16968/16969.
Connection male thread G3/4 according to DIN EN 16313 (Eurocone).
Nickel plated brass.

Ø Pipe	EAN	Article No
14x2	4024052134618	1311-14.351
16x2	4024052134816	1311-16.351
17x2	4024052134915	1311-17.351
18x2	4024052135110	1311-18.351
20x2	4024052135318	1311-20.351

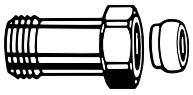
Compression fitting
for Alu/PEX multi-layer pipe according to DIN 16836.
Connection male thread G3/4 according to DIN EN 16313 (Eurocone).
Nickel-plated brass.

Ø Pipe	Article No
16x2	1331-16.351



Double rosette
Dividable in the middle, made of plastic, white, for various pipe diameters.
Centre distance 50 mm.
Overall height max. 31 mm.

EAN	Article No
4024052120710	0520-00.093

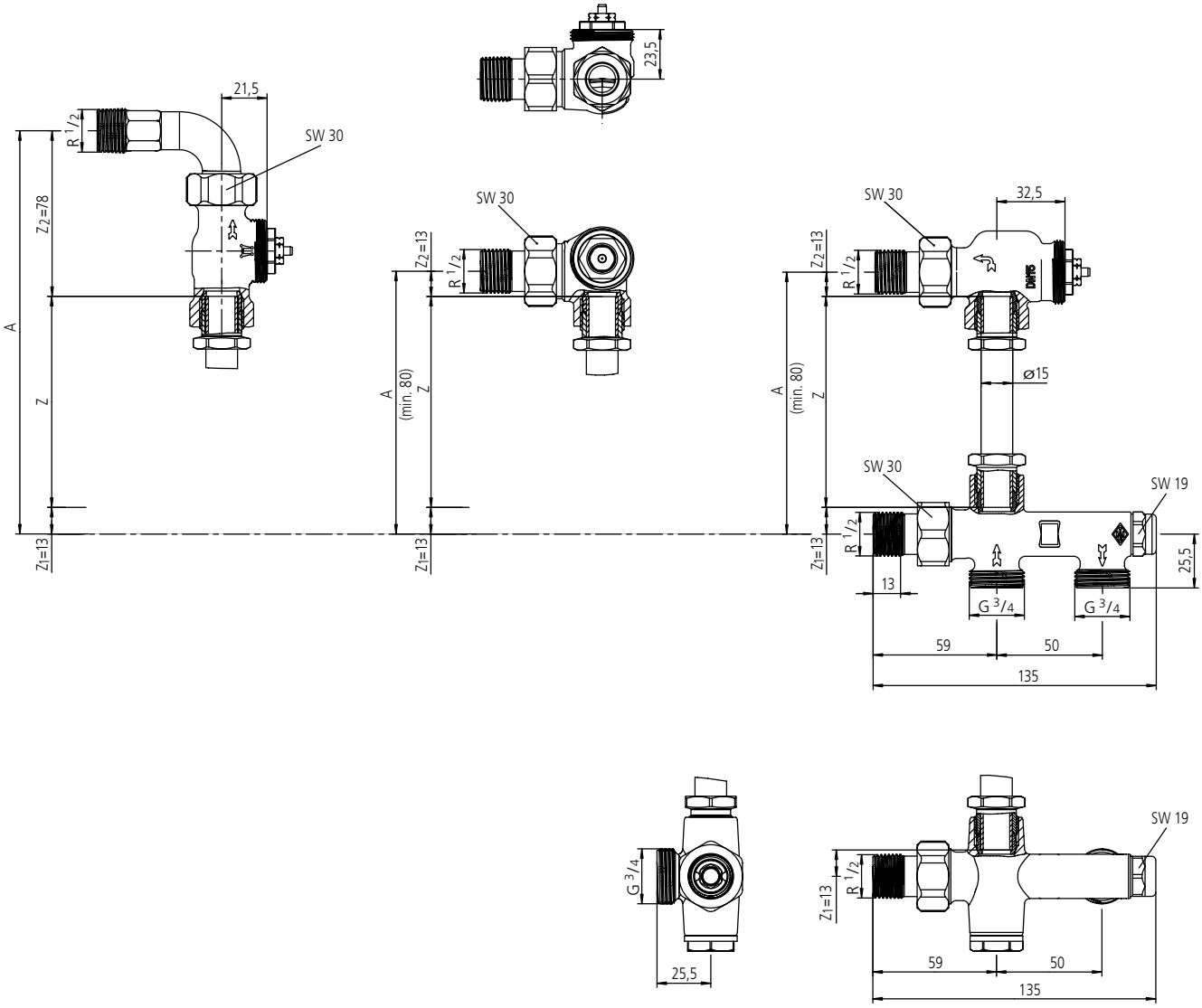


Length adjustment fitting
For clamping plastic, copper, precision steel or multi-layer pipes.
For valves with male thread connection G3/4.
Brass nickel-plated.

	L	EAN	Article No
G3/4 x G3/4	25	4024052298310	9713-02.354
G3/4 x G3/4	50	4024052298419	9714-02.354

Dimensions

Duolux 50
Angle and straight type



Required lengths for precision steel pipe Z:
$Z = A - (Z_1 + Z_2)$

SW = Spanner opening

1 mm = 0,0394 inch

1310-18.483 Duolux 50 ed.3 05.2019