

With particularly low resistance



Thermostatic Radiator Valves

Without presetting

With particularly low resistance

The thermostatic valve bodies with particularly low resistance are used e. g. in two-pipe low temperature heating systems with a small temperature spread and conventional single pipe heating systems.

Key features

- > **Double O-ring seal**
for durable and maintenance free operation
- > **Thermostatic insert replaceable under pressure**
with DN 10 and DN 15
- > **Valve body in gunmetal**
corrosion-resistant and safe



Technical description

Applications area:

Heating and cooling systems.

Function:

Control
Shut-off

Dimensions:

DN 10-32

Pressure class:

PN 10

Temperature:

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

Materials:

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.

Surface treatment:

Valve body and fittings are nickel-plated.

Marking:

THE, country code, flow direction arrow, DN and KEYMARK-Designation.

II+ Designation for DN 10 axial and double angle.

Blue protection cap:

Stuffing box, blue: DN 10, DN 15 angle and straight, DN 15 straight with flat sealing, straight with bended nipple and DN 15 axial.

Stuffing box without colour identification: DN 20 angle and straight.

Black protection cap:

Stuffing box, black: DN 10 axial, double angle, DN 20 straight with flat sealing.

Stuffing box without colour identification: DN 25, DN 32 angle and straight.



Standards:

The thermostatic valve bodies meet the following requirements:

– KEYMARK certified and tested according to DIN EN 215.

For KEYMARK certified thermostatic heads and thermostatic valve bodies, see also datasheet 'Thermostatic Heads'.

Pipe connection:

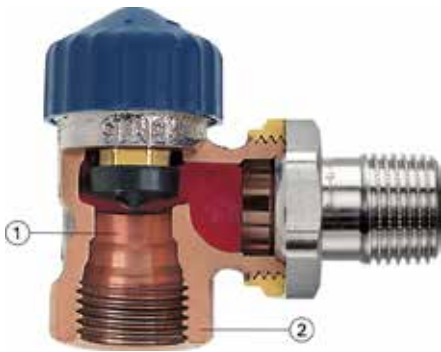
The female-threaded version is designed for connection to threaded pipe, or in conjunction with compression fittings, to copper precision steel or multi-layer pipe (only DN 15).

The male-threaded version, in conjunction with the appropriate compression fittings, permits connection to plastic pipe.

Connection to thermostatic head and actuator:

HEIMEIER M30x1.5

Construction



1. Valve seat dimension designed for large massflows
2. Valve body made of corrosion-resistant nickel-plated gunmetal

Application

The thermostatic valve bodies with particularly low resistance are used e. g. in two-pipe low temperature heating systems with a small temperature spread and conventional single pipe heating systems.

Corresponding to the standards EnEV and DIN V 4701-10, the valve bodies can be designed with a control difference from 1 K to 2 K thus enabling a broad flow spectrum.

A hydraulic balance, which is an additional requirement for two-pipe heating systems, can be reached with the appropriate lockshields, e. g. Regulux.

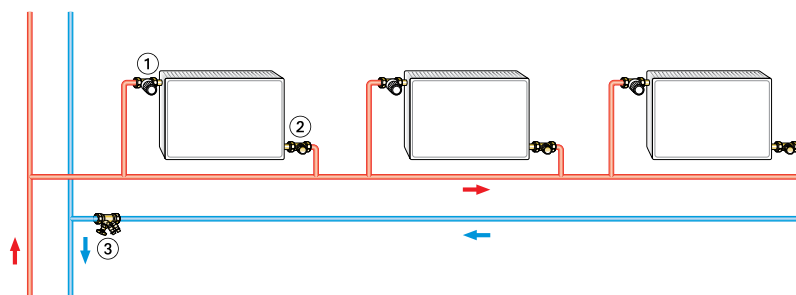
Noise behaviour

To ensure low-noise performance, the following conditions must be met:

- On the basis of experience, the differential pressure over the thermostatic valves should not exceed about 20 kPa = 200 mbar = 0.2 bar. If in designing the system, higher transient differentials might be experienced in the part-load flow range, differential pressure control equipment such as a STAP Differential Pressure Controller or Hydrolux bypass valves can be used.
- Mass-flow must be correctly adjusted.
- The system must be completely deaerated.

Sample application

Single pipe heating system



1. Thermostatic valve body with particularly low resistance
2. Lockshield
3. STAD balancing valve

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 or motorized actuators. 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 DN 10 (3/8") to DN 20 (3/4"), valve body with thermostatic head

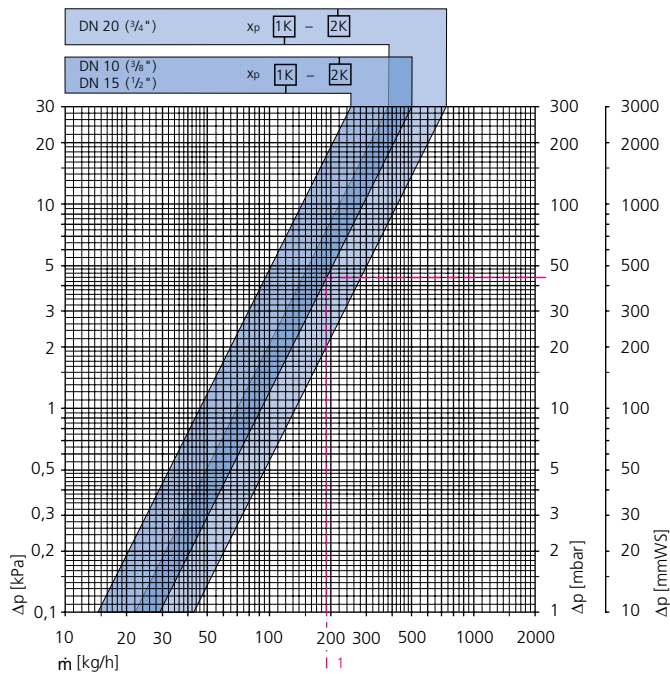
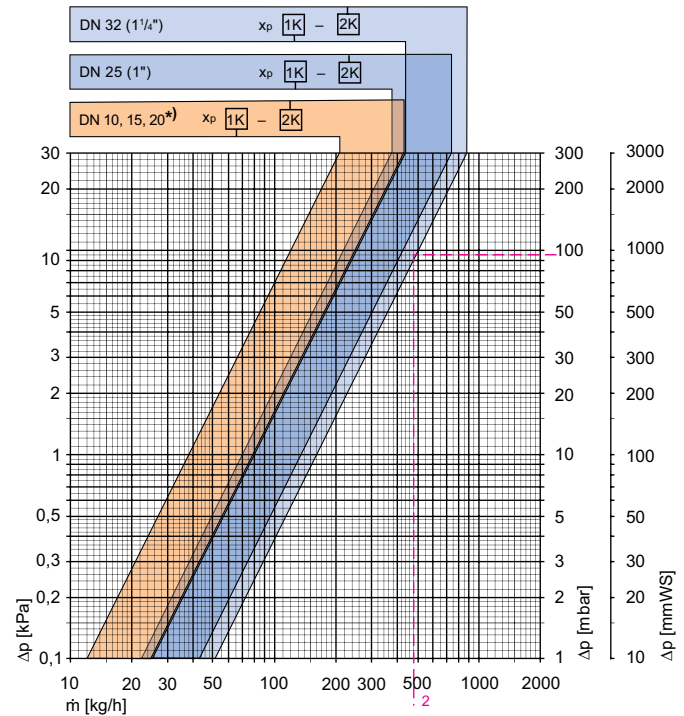


Diagram DN 10 (3/8") axial, DN 10 (3/8") and DN 15 (1/2") double angle, DN 20 (3/4") flat sealing, DN 25 (1") and DN 32 (1 1/4"), valve body with thermostatic head



Valve body with thermostatic head	kv P-band xp [K]			Kvs angle	Kvs straight	Kvs axial	Kvs double angle	Permitted differential pressure, during which the valve is kept closed Δp [bar]		
	1,0	1,5	2,0					Th.-head	EMO T-TM/NC EMOtec/NC TA-TRI	EMO T/NO EMOtec/NO TA-Slider 160
DN 10 (3/8")	0,46	0,70	0,92	2,30	1,80			0,60	1,50	3,00
DN 10 (3/8")	0,38	0,59	0,79			1,50	1,30	1,00	3,50	3,50
DN 15 (1/2")	0,46	0,70	0,92	3,10	2,50	2,50		0,60	1,50	3,00
DN 15 (1/2")	0,38	0,59	0,79				1,50	1,00	3,50	3,50
DN 20 (3/4")	0,70	1,04	1,35	5,70	4,50			0,25	0,80	1,60
DN 20 (1")	0,38	0,59	0,79		2,50 *)			1,00	3,50	3,50
DN 25 (1")	0,70	1,04	1,35	5,70	5,70			0,25	0,80	1,60
DN 32 (1 1/4")	0,80	1,10	1,60	6,70	6,70			0,25	0,50	1,00

Kv/Kvs = m³/h at a pressure drop of 1 bar.

*) straight flat sealing, DN 20, 2272-03.000

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

Sample calculation 1

Target:

Pressure loss, thermostatic valve body with particularly low resistance DN 15 angle, straight with p-band 2 K

Given:

Heat flow Q = 2210 W

Temperature spread Δt = 10 K (55/45 °C)

Solution:

Mass flow $m = Q / (c \cdot \Delta t) = 2210 / (1,163 \cdot 10) = 190 \text{ kg/h}$

Pressure loss from diagram $\Delta p_v = 44 \text{ mbar}$

Sample calculation 2

Target:

Appropriate thermostatic valve body with particularly low resistance

Given:

Heat flow Q = 8375 W

Temperature spread Δt = 15 K (70/55 °C)

Pressure loss, thermostatic valve $\Delta p_v = 95 \text{ mbar}$

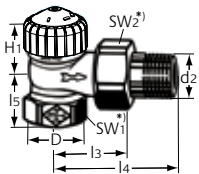
Solution:

Mass flow $m = Q / (c \cdot \Delta t) = 8375 / (1,163 \cdot 15) = 480 \text{ kg/h}$

Thermostatic valve body with particularly low resistance from diagram: DN 32 (1 1/4")

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

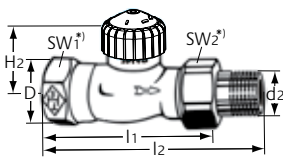
Articles



Angle

DN 10-20: Blue protection cap. DN 25-32: Black protection cap

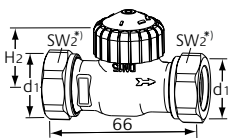
DN	D	d2	I3	I4	I5	H1	Kv [xp] 1 K / 2 K	Kvs	EAN	Article No
10	Rp3/8	R3/8	26	52	22	21,5	0,46 / 0,92	2,30	4024052179213	2241-01.000
15	Rp1/2	R1/2	29	58	26	21,5	0,46 / 0,92	3,10	4024052179312	2241-02.000
20	Rp3/4	R3/4	34	66	29	21,5	0,70 / 1,35	5,70	4024052179510	2241-03.000
25	Rp1	R1	40	75	32,5	23	0,70 / 1,35	5,70	4024052174317	2201-04.000
32	Rp1 1/4	R1 1/4	46	85	39	23	0,80 / 1,60	6,70	4024052174416	2201-05.000



Straight

DN 10-20: Blue protection cap. DN 25-32: Black protection cap

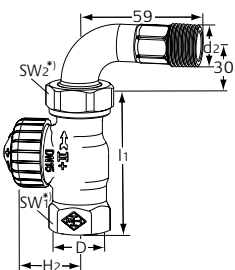
DN	D	d2	I1	I2	H2	Kv [xp] 1 K / 2 K	Kvs	EAN	Article No
10	Rp3/8	R3/8	59	85	21,5	0,46 / 0,92	1,80	4024052179718	2242-01.000
15	Rp1/2	R1/2	66	95	21,5	0,46 / 0,92	2,50	4024052179817	2242-02.000
20	Rp3/4	R3/4	74	106	23,5	0,70 / 1,35	4,50	4024052179916	2242-03.000
25	Rp1	R1	84	118	30,5	0,70 / 1,35	5,70	4024052176212	2202-04.000
32	Rp1 1/4	R1 1/4	95	135	30,5	0,80 / 1,60	6,70	4024052176311	2202-05.000



Straight

flat sealing. DN 15: Blue protection cap. DN 20: Black protection cap.

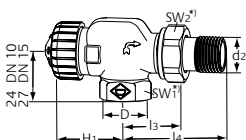
DN	d1	H2	Kv [xp] 1 K / 2 K	Kvs	EAN	Article No
15	G3/4	21,5	0,46 / 0,92	2,50	4024052547722	2276-02.000
20	G1	23,5	0,38 / 0,79	2,50	4024052547623	2272-03.000



Straight

with bended nipple. Blue protection cap.

DN	D	d2	I1	H2	Kv [xp] 1 K / 2 K	Kvs	EAN	Article No
15	Rp1/2	R1/2	66	21,5	0,46 / 0,92	2,50	4024052180110	2244-02.000



Axial

DN 10: Black protection cap. DN 15: Blue protection cap.

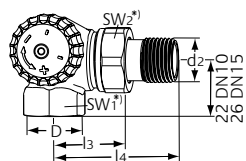
DN	D	d2	I3	I4	H1	Kv [xp] 1 K / 2 K	Kvs	EAN	Article No
10	Rp3/8	R3/8	26	52	31,5	0,38 / 0,79	1,50	4024052180417	2245-01.000
15	Rp1/2	R1/2	29	58	31,5	0,46 / 0,92	2,50	4024052180516	2245-02.000

*) SW1: DN 10 = 22 mm, DN 15 = 27 mm, DN 20 = 32 mm, DN 25 = 41 mm, DN 32 = 49 mm
 SW2: DN 10 = 27 mm, DN 15 = 30 mm, DN 20 = 37 mm, DN 25 = 47 mm, DN 32 = 52 mm

Values H1 and H2 are at the bearing surface thermostatic head or actuator.

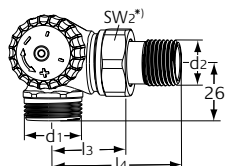
Kvs = m³/h at a pressure drop of 1 bar and fully open valve.
 Kv [xp] max. 1 K / 2 K = m³/h at a pressure drop of 1 bar with thermostatic head.

For compression fittings and other accessories, see datasheet "Accessories and spare parts for thermostatic radiator valves".


Double angle

Connection to radiator left. Black protection cap.

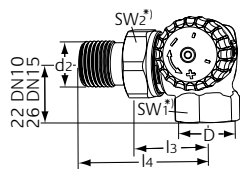
DN	D	d2	l3	l4	Kv [xp] 1 K / 2 K	Kvs	EAN	Article No
10	Rp3/8	R3/8	26	52	0,38 / 0,79	1,30	4024052184019	2341-01.000
15	Rp1/2	R1/2	29	58	0,38 / 0,79	1,50	4024052184118	2341-02.000


Double angle

with male thread G 3/4

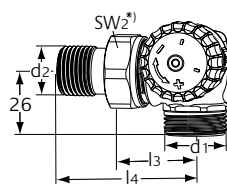
Connection to radiator left. Black protection cap.

DN	d1	d2	l3	l4	Kv [xp] 1 K / 2 K	Kvs	EAN	Article No
15	G3/4	R1/2	29	58	0,38 / 0,79	1,50	4024052184316	2343-02.000


Double angle

Connection to radiator right. Black protection cap.

DN	D	d2	l3	l4	Kv [xp] 1 K / 2 K	Kvs	EAN	Article No
10	Rp3/8	R3/8	26	52	0,38 / 0,79	1,30	4024052183517	2340-01.000
15	Rp1/2	R1/2	29	58	0,38 / 0,79	1,50	4024052183616	2340-02.000


Double angle

with male thread G 3/4

Connection to radiator right. Black protection cap.

DN	d1	d2	l3	l4	Kv [xp] 1 K / 2 K	Kvs	EAN	Article No
15	G3/4	R1/2	29	58	0,38 / 0,79	1,50	4024052184217	2342-02.000

*) SW1: DN 10 = 22 mm, DN 15 = 27 mm, DN 20 = 32 mm, DN 25 = 41 mm, DN 32 = 49 mm
 SW2: DN 10 = 27 mm, DN 15 = 30 mm, DN 20 = 37 mm, DN 25 = 47 mm, DN 32 = 52 mm

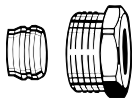
Values H1 and H2 are at the bearing surface thermostatic head or actuator.

Kvs = m³/h at a pressure drop of 1 bar and fully open valve.

Kv [xp] max. 1 K / 2 K = m³/h at a pressure drop of 1 bar with thermostatic head.

For compression fittings and other accessories, see datasheet "Accessories and spare parts for thermostatic radiator valves".

Accessories



Compression fitting

for copper or precision steel pipes.
Female thread connection Rp 3/8 – Rp 3/4.
Metal-to-metal joint.
Nickel-plated brass.
Support sleeves should be used for a pipe wall thickness of 0.8 – 1 mm. Follow the specifications of the pipe manufacturer.

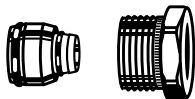
Ø Pipe	DN	EAN	Article No
12	10 (3/8")	4024052174614	2201-12.351
15	15 (1/2")	4024052175017	2201-15.351
16	15 (1/2")	4024052175116	2201-16.351
18	20 (3/4")	4024052175215	2201-18.351



Support sleeve

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

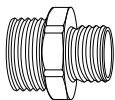
Ø Pipe	L	EAN	Article No
12	25,0	4024052127016	1300-12.170
15	26,0	4024052127917	1300-15.170
16	26,3	4024052128419	1300-16.170
18	26,8	4024052128815	1300-18.170



Compression fitting

For multi-layer pipes.
Female thread connection Rp 1/2.
Nickel-plated brass.

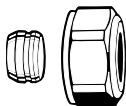
Ø Pipe	EAN	Article No
16 x 2	4024052138616	1335-16.351



Double connection fitting

For clamping plastic, copper, precision steel or multi-layer pipes.
Nickel-plated brass.

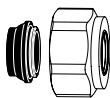
	L	EAN	Article No
G3/4 x R1/2	26	4024052308415	1321-12.083



Compression fitting

for copper or precision steel pipes.
Male thread connection G 3/4.
Metal-to-metal joint.
Nickel-plated brass.
Support sleeves should be used for a pipe wall thickness of 0.8 – 1 mm. Follow the specifications of the pipe manufacturer.

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



Compression fitting

for copper or precision steel pipes.
Male thread connection G 3/4.
Soft sealed.
Nickel-plated brass.

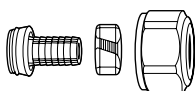
Ø Pipe	EAN	Article No
15	4024052515851	1313-15.351
18	4024052516056	1313-18.351



Compression fitting

for plastic pipes.
Male thread connection G 3/4.
Nickel-plated brass.

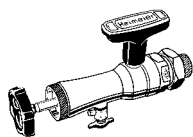
Ø Pipe	EAN	Article No
14x2	4024052134618	1311-14.351
16x2	4024052134816	1311-16.351
17x2	4024052134915	1311-17.351
18x2	4024052135110	1311-18.351
20x2	4024052135318	1311-20.351



Compression fitting

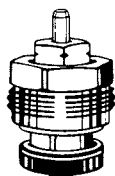
for multi-layer pipes.
Male thread connection G 3/4.
Nickel-plated brass.

Ø Pipe	Article No
16x2	1331-16.351



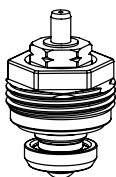
Fitting tool
complete with case, box spanner and replacement seals, for replacing thermostatic inserts without draining off the heating system (for DN 10 to DN 20).

	EAN	Article No
Fitting tool	4024052298914	9721-00.000



Replacement inserts
for axial DN 15, angle and straight, straight with bended nipple, straight with flat sealing DN 15.

For DN valve	EAN	Article No
from 1985. Blue stuffing box		
10, 15	4024052183715	2340-02.299
without colour identification		
20 ('05→), 25	4024052159819	2001-04.299



Replacement inserts
for axial DN 10, double angle, straight with flat sealing DN 20.
Black stuffing box, for thermostatic valve bodies **with II-marking, from 2012 and II+ -marking, from 2015.**

For DN valve	EAN	Article No
10, 15, 20	4024052132614	1302-02.300

For other accessories, see datasheet "Accessories and spare parts for thermostatic radiator valves".