

# Thermostatic valve bodies

for all thermostatic heads and actuators



**HEIMEIER** >

Pressurisation & Water Quality > Balancing & Control > Thermostatic Control

**ENGINEERING ADVANTAGE**

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## Standard

### Technical description

The Standard HEIMEIER thermostatic valve bodies with black protection caps can be used with all HEIMEIER thermostatic heads and actuators.

The stainless spindle is equipped with a double O-ring sealing. The outer O-ring is replaceable under pressure. With the HEIMEIER fitting tool, the complete thermostatic insert can be replaced with NW 10 to NW 20 without the need to drain off the system.

The body, which is made of corrosionresistant gunmetal with a female thread, is designed for connection to a threaded pipe, or in conjunction with compression fittings, for connection to copper, precision steel or multi-layer pipes (only NW 15).

The model with a male thread, in conjunction with the appropriate compression fittings, makes it possible to connect a plastic pipe. Versions with Viega press

connection (15 mm) with SC-Contur are suitable for copper, Viega Sanpress stainless steel and Prestabo steel pipes.

For the HEIMEIER valve bodies, use only the accompanying, labelled HEIMEIER compression fitting (label e. g. 15 THE).

The NW 10 / NW 15 models with boss marking can be converted to presetting or finest presetting.

The NW 10 / NW 15 thermostatic valve bodies in angle and straight form with a female thread and press connection can be fitted with covers (not for valve bodies with reduced length), see accessories.

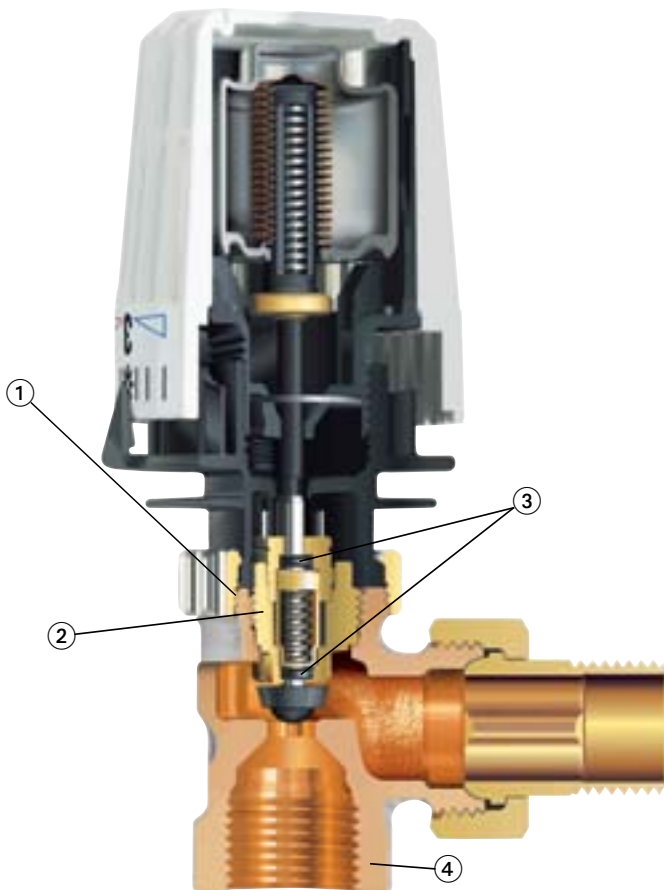
Permitted operating temperature TB 120°C (248°F), with cover, TB 90°C (194°F), with press connection TB 110°C (230°F).

Permitted operating pressure PB 10 bar, low pressure steam 110°C (230°F) / 0.5 bar.



## Assembly

### e. g. Thermolux K thermostatic valve



011

KEYMARK certified and tested according to DIN EN 215, see also page 46.

- Stainless spindle with double O-ring
- Body made of corrosionresistant gunmetal
- The thermostatic insert with NW 10 to NW 20 can be replaced under pressure
- Can be fitted with covers from the DESIGN-LINE range
- Also available in Press-Line version with Viega SC-Contur

1. M 30 x 1.5 HEIMEIER connection technology for all HEIMEIER thermostatic heads and actuators
2. The insert can be replaced without draining off the system with the HEIMEIER fitting tool
3. Long-life double O-ring sealing
4. Made from corrosionresistant gunmetal

## Application

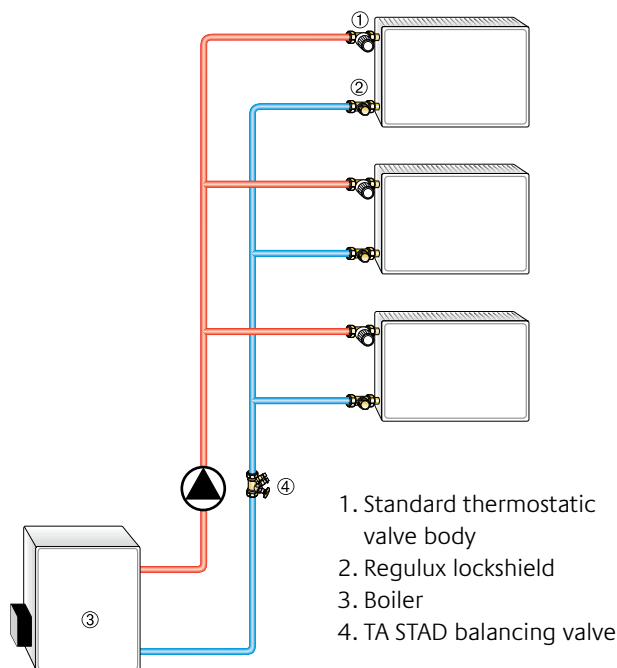
The HEIMEIER Standard thermostatic valve bodies are used in two-pipe pump heating systems with normal temperature spread. Corresponding to the standards EnEV and DIN V 4701-10, the valve bodies can be designed with a control difference from 1 K to 2 K thus enabling a broad flow spectrum.

Kvs diaphragms make the reduction or restriction of the mass flow possible.

A hydraulic balance, which is an additional requirement, can be reached with the appropriate lockshields e. g. HEIMEIER Regulux. To ensure low-noise operation, experience has shown that the differential pressure over the thermostatic valves should not exceed approx. 0.2 bar.

If when planning a system it is clear that high differential pressures occur in the partial load area, differential pressure regulating devices, e. g. the TA STAP differential pressure controller or the Hydrolux overflow valve should be used.

### Sample application



### 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 on the source apparatus 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.

– The thermostatic valve bodies can be used with all HEIMEIER thermostatic heads and 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.

### Press-Line Connection with Viega SC-Contur

Thermostatic valve bodies with 15 mm Viega press connection are suitable for copper pipes conforming to EN 1057 as well as Viega Sanpress stainless steel and Prestabo steel pipes. All press connections as well as the valve bodies are made of corrosion-resistant, dezincification-free gunmetal. Since this is a Viega press connection, all suitable Viega press-fitting jaws can be used. This means there is no need to purchase costly press-fitting tools and jaws. The pressing action is produced by a formed hexagon recess before and after the beading of the connector and gives the press-fitted joint the necessary strength. In addition, the press-fitting beading is specifically formed such as to give the highgrade EPDM sealing element its defined shape.

In the interest of safety, the press connections are equipped with SC-Contur (SC = safety connection) which makes it possible to detect non-pressed joints by visible leaks when filling the system. During the press-fitting operation, the SC-Contur is practically reformed and loses its effect in the process, thus producing a permanent, tight and positive joint connection.

Initially, press-fitting joints that do not feature SC-Contur can appear to be tight in the non-pressed state, however, they can slide apart during subsequent operation of the system.

The hexagon on the valve bodies is a particularly practical feature for holding the fittings while tightening the union nut.

The following press-fitting tools can be used, e.g.

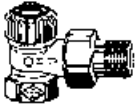
- Viega: Type 2, PT3-H, PT3-EH, PT3-AH, battery-powered Presshandy, Pressgun 4E/4B
- Geberit: PWH 75
- Geberit /Novopress: Type N 230V, Type N battery-powered
- Mapress/Novopress: EFP 2, ACO 1/ ECO 1
- Klauke: UAP 2

The suitability of other press-fitting tools should be verified with the respective manufacturer.

We recommend using only Viega press-fitting jaws to make Viega press connections.

## Articles – Standard

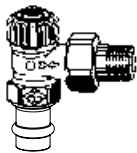
### Angle



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. No.
		2,0	3,0			
10 (3/8")	0,25	0,49	0,66	1,25	2201-01.000	
15 (1/2")	0,25	0,49	0,66	1,35	2201-02.000	
20 (3/4")	0,40	0,79	1,26	2,50	2201-03.000	
25 (1")	0,70	1,35	1,90	5,70	2201-04.000	
32 (1 1/4")	0,80	1,60	2,35	6,70	2201-05.000	

### Angle

with Viega press connection 15 mm



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. No.
		2,0	3,0			
15 (1/2")	0,25	0,49	0,66	1,35	2291-15.000	

### Angle

with reduced lengths

DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
10 (3/8")	0,25	0,49	0,66	1,25	2215-01.000	
15 (1/2")	0,25	0,49	0,66	1,35	2215-02.000	
20 (3/4")	0,40	0,79	1,26	2,50	2215-03.000	

### Straight



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
10 (3/8")	0,25	0,49	0,66	1,25	2202-01.000	
15 (1/2")	0,25	0,49	0,66	1,35	2202-02.000	
20 (3/4")	0,40	0,79	1,26	2,50	2202-03.000	
25 (1")	0,70	1,35	1,90	5,70	2202-04.000	
32 (1 1/4")	0,80	1,60	2,35	6,70	2202-05.000	

### Straight

with Viega press connection 15 mm



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
15 (1/2")	0,25	0,49	0,66	1,35	2292-15.000	

**Straight**

with reduced lengths

DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
10 (3/8")	0,25	0,49	0,66	1,25	2216-01.000	
15 (1/2")	0,25	0,49	0,66	1,35	2216-02.000	
20 (3/4")	0,40	0,79	1,26	2,50	2216-03.000	

**Straight**

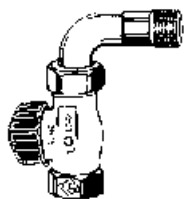
flat sealing



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
15 (1/2")	0,25	0,49	0,66	1,35	2272-02.000	
15 (1/2")	0,38	0,73	1,10	1,70	2274-02.000	
15 (1/2")	0,46	0,92	1,23	2,50 (blue cap)	2276-02.000	
20 (3/4")	0,40	0,79	1,26	2,50	2272-03.000	

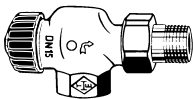
**Straight**

with bended nipple



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
15 (1/2")	0,25	0,49	0,66	1,35	2206-02.000	

**Axial**



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
10 (3/8")	0,25	0,49	0,66	1,25	2225-01.000	
15 (1/2")	0,25	0,49	0,66	1,35	2225-02.000	

**Axial**

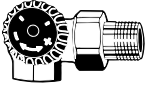
with male thread G3/4



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
15 (1/2")	0,25	0,49	0,66	1,35	2235-02.000	

**Double angle**

Connection to radiator left

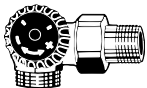


DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
10 (3/8")	0,25	0,49	0,66	1,10	2311-01.000	
15 (1/2")	0,25	0,49	0,66	1,15	2311-02.000	

**Double angle**

with male thread G 3/4

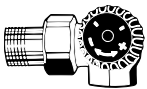
Connection to radiator left



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
15 (1/2")	0,25	0,49	0,66	1,15	2313-02.000	

**Double angle**

Connection to radiator right

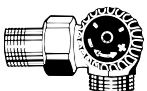


DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
10 (3/8")	0,25	0,49	0,66	1,10	2310-01.000	
15 (1/2")	0,25	0,49	0,66	1,15	2310-02.000	

**Double angle**

with male thread G 3/4

Connection to radiator right



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
15 (1/2")	0,25	0,49	0,66	1,15	2312-02.000	

Compression fittings, see accessories.

## V-exakt

### Technical description

The HEIMEIER V-exakt thermostatic valve bodies with integrated precision presetting and white protection cap can be used with all HEIMEIER thermostatic heads and actuators.

The flow ranges of the presetting can be easily and precisely set with a key. The selected value can be read on the front of the thermostatic insert. With the key, only a specialist can create or change the setting. It is impossible for a nonspecialist to tamper with the settings without a tool.

The stainless spindle is equipped with a double O-ring sealing. The outer O-ring is replaceable under pressure.

The complete thermostatic insert can be replaced with the HEIMEIER fitting tool without draining off the system.

The body, which is made of corrosion-resistant gunmetal with a female thread, is designed for connection to a threaded pipe, or in conjunction with compression fittings, for connection to copper, precision steel or multi-layer pipes (only NW 15). The model with a male thread, in conjunction with the appropriate compression fittings, makes it possible to connect a plastic pipe. Versions with Viega press connection (15 mm) with SC-Contur are suitable for copper, Viega Sanpress stainless steel and Prestabo steel pipes.

For HEIMEIER valve bodies, use only the accompanying, labelled HEIMEIER compression fitting (label e. g. 15 THE).

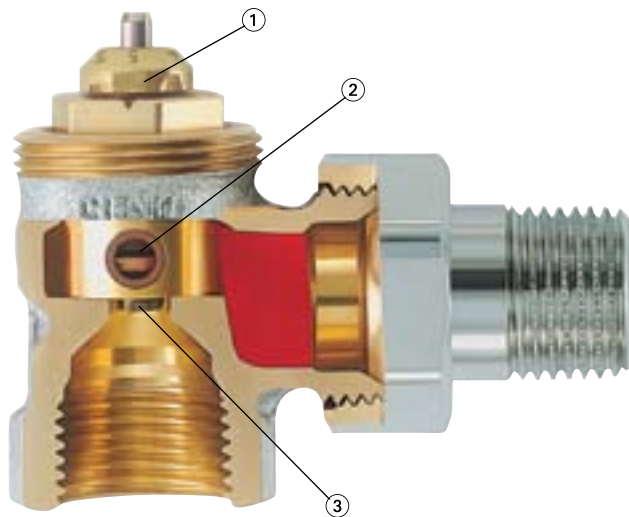
The NW 10 / NW 15 thermostatic valve bodies in angle and straight form with a female thread and press connection can be fitted with covers from the DESIGN-LINE range (not for valve bodies with reduced length) – see accessories.

Permitted operating temperature TB 120°C (248°F), with cover, TB 90°C (194°F), with press connection TB 110 °C (230°F). Permitted operating pressure PB 10 bar.



## Assembly

### V-exakt



1. Brass numerical cap
2. Precision bore hole for the lowest flow tolerances
3. Presetting cone for optimized flow restriction



KEYMARK certified and tested according to DIN EN 215, see also page 46.

- Presetting with one twist
- The setting can be controlled
- Secured against misuse by a key
- Lowest flow tolerances
- Optimized flow restriction
- Can be fitted with covers from the DESIGN-LINE range
- Also available in Press-Line version with Viega SC-Contur



V-exakt conforms to the requirements of the “highly expanded version” and the “standard version” of the specification FW 507 drawn up by the Arbeitsgemeinschaft Fernwärme (AGFW) (Working Group for District Heating).



## Application

HEIMEIER V-exakt thermostatic valve bodies are used in two-pipe warm water pump heating systems with normal to high temperature spread.

The integrated precision presetting makes precise hydraulic balancing possible with the aim of providing all heat consumers with hot water according to their heat requirements. A prerequisite for this is that the set values are actually reached in practise. For this to happen, it is absolutely necessary that flow tolerances are maintained. It is possible to meet this requirement thanks to 6 different large precision bore holes, only one of which is opened for the appropriate flow range at any time, depending on the setting.

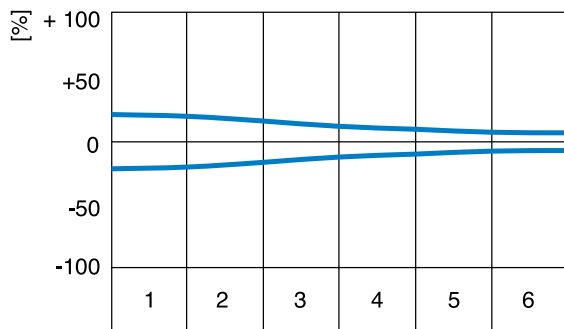
However, a regular distribution of water should not only be achieved while the system is operating according to the design, but also after a drop in room temperature or during intermissions in operation, particularly for large systems, in order to avoid under- or oversupply to parts of the system. In order to achieve this, the valve is fitted with a specially developed presetting cone to restrict the flow. This ensures that even when it is preset to 6, and the valve is fully open, the radiator mass flow will not exceed the approx. 1.5 part rate.

Corresponding to the standards EnEV and DIN V 4701-10, V-exakt thermostatic valve bodies can be designed with a control difference of up to max. 1 K or max. 2 K.

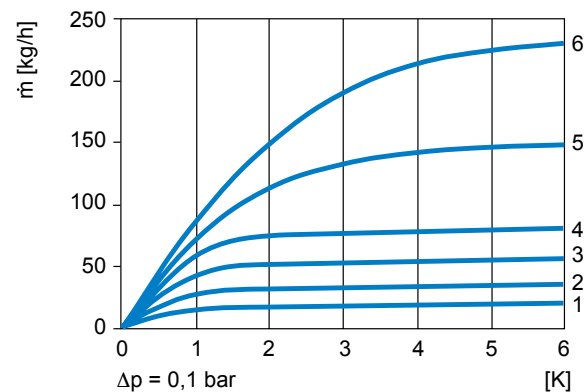
To ensure low-noise operation, experience shows that the differential pressure over the thermostatic valves should not exceed approx. 0.2 bar.

If when planning a system, it is clear that high differential pressures occur in the partial load area, differential pressure regulating devices, e. g. the TA STAP differential pressure controller or the Hydrolux overflow valve should be used.

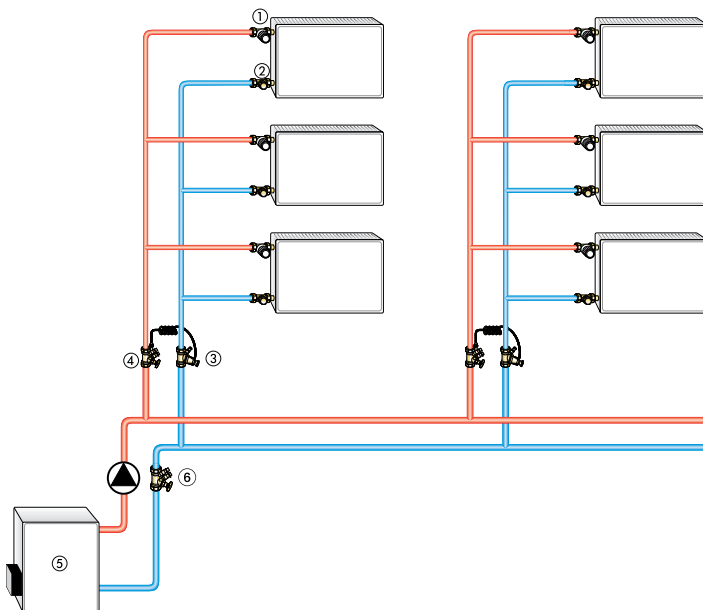
### Lowest flow tolerances



### Optimized flow restriction



### Sample application



1. V-exakt thermostatic valve body
2. Regulux/Regutec lockshield
3. TA STAP differential pressure controller
4. TA STS shut off valve
5. Boiler
6. TA 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 on the source apparatus 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.

– The thermostatic valve bodies can be used with all HEIMEIER thermostatic heads and 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.

## Press-Line Connection with Viega SC-Contur

Thermostatic valve bodies with 15 mm Viega press connection are suitable for copper pipes conforming to EN 1057 as well as Viega Sanpress stainless steel and Prestabo steel pipes. All press connections as well as the valve bodies are made of corrosion-resistant, dezincification-free gunmetal.

Since this a Viega press connection, all suitable Viega press-fitting jaws can be used. This means there is no need to purchase costly press-fitting tools and jaws.

The pressing action is produced by a formed hexagon recess before and after the beading of the connector and gives the press-fitted joint the necessary strength. In addition, the press-fitting beading is specifically formed such as to give the high-grade EPDM sealing element its defined shape.

In the interest of safety, the press connections are equipped with SC-Contur (SC = safety connection) which makes it possible to detect non-pressed joints by visible leaks when filling the system. During the press-fitting operation, the SC-Contur is practically reformed and loses its effect in the process, thus producing a permanent, tight and positive joint connection.

Initially, press-fitting joints that do not feature SC-Contur can appear to be tight in the non-pressed state, however, they can slide apart during subsequent operation of the system.

The hexagon on the valve bodies is a particularly practical feature for holding the fittings while tightening the union nut.

The following press-fitting tools can be used, e.g.

- Viega: Type 2, PT3-H, PT3-EH, PT3-AH, battery-powered Presshandy, Pressgun 4E/4B
- Geberit: PWH 75
- Geberit /Novopress: Type N 230V, Type N battery-powered
- Mapress/Novopress: EFP 2, ACO 1 / ECO 1
- Klauke: UAP 2

The suitability of other press-fitting tools should be verified with the respective manufacturer.

We recommend using only Viega press-fitting jaws to make Viega press connections.

## Operation

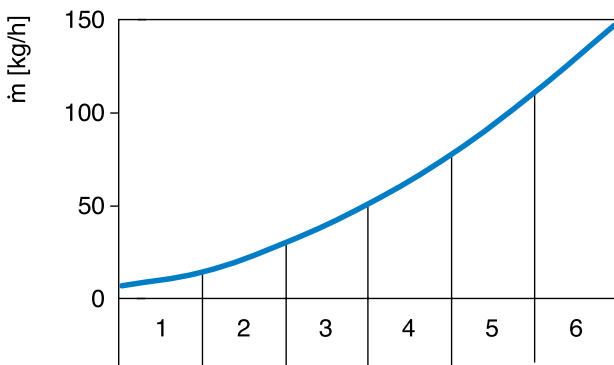
### Presetting

The valve body has over 6 flow areas which are adjacent to each other without gaps (see fig.). Due to the p-band variation, each area ensures a smooth adaptation or restriction of the radiator mass flow to the heating installation. In this way, the valve can smoothly realize each flow between the smallest and largest value despite precisely defined settings (see fig.).

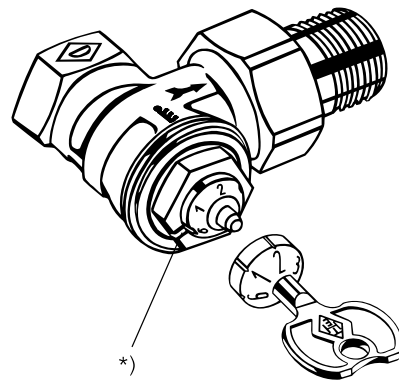
The presetting can be set at between 1, 2, 3, 4, 5 and 6. The setting 6 corresponds to the normal setting (manufacturer's setting). To set the presetting, the key (Art. no. 3501-02.142) is used on the valve insert and the required value is set. Then the key is removed.

The set value can be read on the front of the valve insert, i.e. from the control side (see fig.). Without a tool, it is impossible for a non-qualified person to tamper with the presetting.

## Gap-free flow ranges

 $\Delta p = 0,1 \text{ bar}$ 

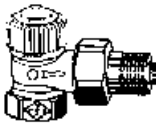
## Can be read from the front



\*) Directional marking

## &gt; Articles – V-exakt

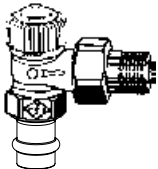
## Angle



DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
10 (3/8")	0,025	0,468	0,73	3511-01.000
15 (1/2")	0,025	0,468	0,73	3511-02.000
20 (3/4")	0,025	0,468	0,73	3511-03.000

## Angle

with Viega press connection 15 mm



DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
15 (1/2")	0,025	0,468	0,73	3517-15.000

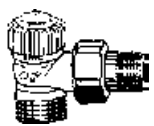
## Angle

with reduced lengths

DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
10 (3/8")	0,025	0,468	0,73	3515-01.000
15 (1/2")	0,025	0,468	0,73	3515-02.000

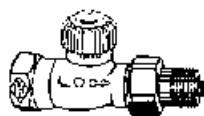
## Angle

with male thread G 3/4



DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
15 (1/2")	0,025	0,468	0,73	3519-02.000

**Straight**



DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
10 (3/8")	0,025	0,468	0,73	3512-01.000
15 (1/2")	0,025	0,468	0,73	3512-02.000
20 (3/4")	0,025	0,468	0,73	3512-03.000

**Straight**

with Viega press connection 15 mm



NW	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
15 (1/2")	0,025	0,468	0,73	3518-15.000

**Straight**

with reduced lengths

NW	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
10 (3/8")	0,025	0,468	0,73	3516-01.000
15 (1/2")	0,025	0,468	0,73	3516-02.000

**Straight**

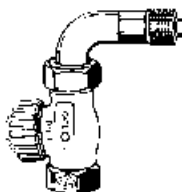
with male thread G 3/4



DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. No.
15 (1/2")	0,025	0,468	0,73	3520-02.000

**Straight**

with bended nipple



DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. No.
15 (1/2")	0,025	0,468	0,73	3556-02.000

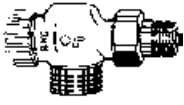
**Axial**



DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. No.
10 (3/8")	0,025	0,468	0,73	3510-01.000
15 (1/2")	0,025	0,468	0,73	3510-02.000

**Axial**

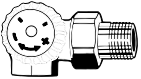
with male thread G 3/4



DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. No.
15 (1/2")	0,025	0,468	0,73	3530-02.000

**Double angle**

Connection to radiator left

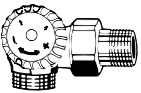


DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. No.
10 (3/8")	0,025	0,468	0,73	3513-01.000
15 (1/2")	0,025	0,468	0,73	3513-02.000

**Double angle**

with male thread G 3/4

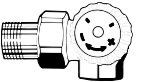
Connection to radiator left



DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. No.
15 (1/2")	0,025	0,468	0,73	3533-02.000

**Double angle**

Connection to radiator right

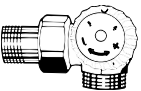


DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. No.
10 (3/8")	0,025	0,468	0,73	3514-01.000
15 (1/2")	0,025	0,468	0,73	3514-02.000

**Double angle**

with male thread G 3/4

Connection to radiator right



DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. No.
15 (1/2")	0,025	0,468	0,73	3534-02.000

Compression fittings, see accessories.

## F-exakt

### Technical description

The HEIMEIER F-exakt thermostatic valve bodies with integrated finest presetting and red protection cap can be used with all HEIMEIER thermostatic heads and actuators.

The flow ranges of the presetting can be set easily and precisely using a key. The selected value can be read on the front of the thermostatic insert. With the key, only a specialist can create or change the setting. It is not possible for an unqualified person to tamper with the settings without a tool.

The stainless spindle is equipped with a double O-ring sealing. The outer O-ring is replaceable under pressure.

The complete thermostatic insert can be replaced with the HEIMEIER fitting tool without draining off the system.

The body, which is made of corrosionresistant gunmetal with a female thread, is designed for connection to a threaded pipe, or in conjunction with compression fittings for connection to copper, precision steel or multi-layer pipes (only NW 15).

For HEIMEIER single-pipe valve bodies, use only the accompanying, labelled HEIMEIER compression fitting (label e. g. 15 THE).

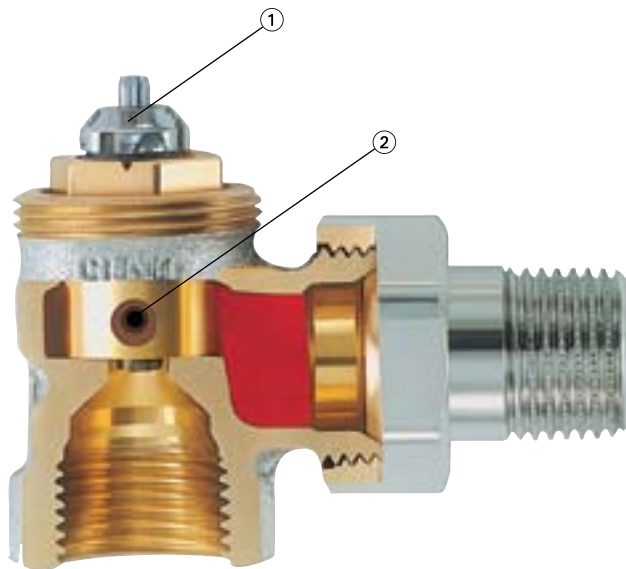
The thermostatic valve bodies in angle and straight form can be fitted with covers from the DESIGN-LINE range – see accessories.

Permitted operating temperature TB 120°C (248°F), with cover, TB 90°C (194°F). Permitted operating pressure PB 10 bar.



## Assembly

### F-exakt



1. Nickel-plated numerical cap
2. Precision bore hole for the lowest flow tolerances



011

KEYMARK certified and tested according to DIN EN 215, see also page 46.

- Finest presetting in one twist
- The setting can be checked
- Secured against misuse by a key
- Lowest flow tolerances
- Optimized flow restriction
- Can be fitted with covers from the DESIGN-LINE range



F-exakt conforms to the requirements of the “highly expanded version” and the “standard version” of the specification FW 507 drawn up by the Arbeitsgemeinschaft Fernwärme (AGFW) (Working Group for District Heating).

## Application

HEIMEIER F-exakt thermostatic valve bodies are used in two-pipe pump warm water heating systems with low mass flows. The integrated finest setting makes a precise hydraulic balance possible, with the aim of supplying all heat consumers with hot water according to their heating requirements. This implies that the values which have been calculated or set must also be reached in practise. For this to happen, it is absolutely necessary that flow tolerances are maintained. This accuracy is achieved by six precision bore holes which are co-ordinated with each other, only one of which is released for the appropriate flow range.

However, a regular distribution of water should not only be achieved while the system is operating according to the design, but also after a drop in room temperature or during intermissions in operation, particularly for large systems.

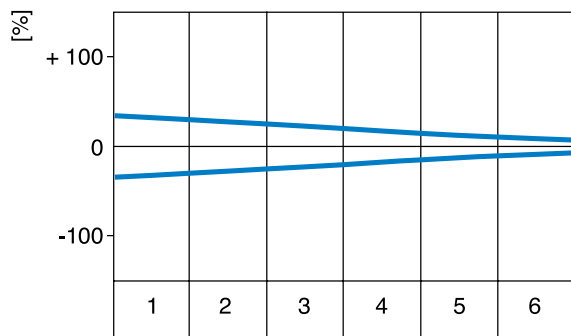
The flow restricting valve characteristics outside the design body prevent an under- or oversupply to the system.

Excessive mass flows are also avoided when the valve is fully open. At the latest, the flow reaches its highest value at approx. 3 K p-band. This is significant above all in e. g. systems which are district heated in order to better maintain return temperatures or adjustments.

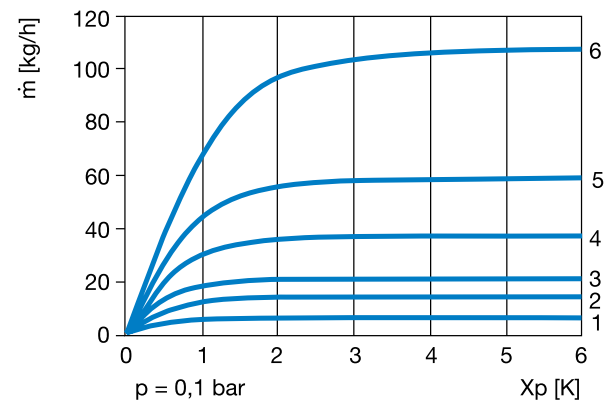
Corresponding to the standards EnEV and DIN V 4701-10, F-exakt thermostatic valve bodies can be designed with a control difference of up to max. 1 K or max. 2 K.

To ensure low-noise operation, experience has shown that the differential pressure over the thermostatic valves should not exceed a value of approx. 0.2 bar. If when planning a system it is clear that high differential pressures occur in the partial load area, differential pressure regulating devices, e. g. the TA STAP differential pressure controller or the Hydrolux overflow valve should be used.

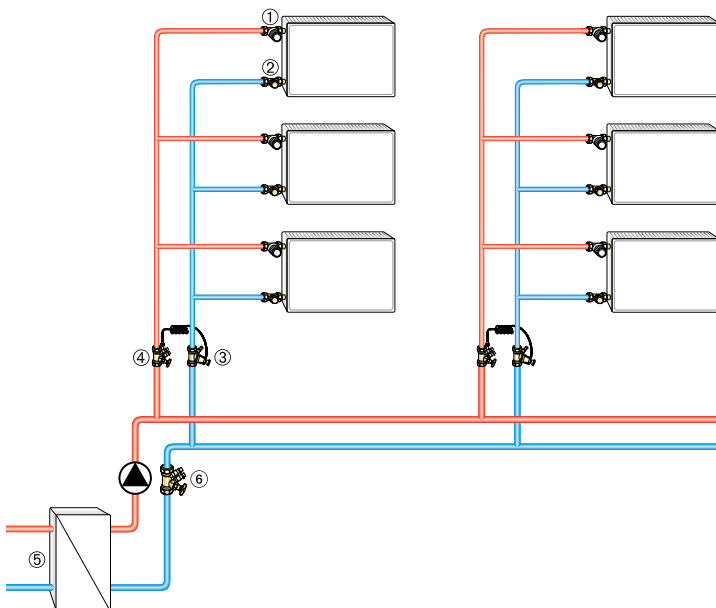
### Lowest flow tolerances



### Optimized flow restriction



### Sample application



1. F-exakt thermostatic valve body
2. Regulux/Regutec lockshield
3. TA STAP differential pressure controller
4. TA STS Shut-off valve
5. District heating connection
6. TA 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 on the source apparatus 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.

– The thermostatic valve bodies can be used with all HEIMEIER thermostatic heads and 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.

## Operation

### Presetting

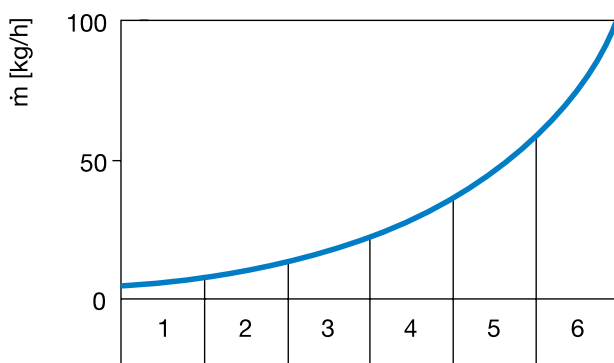
The valve body has over 6 flow areas which are adjacent to each other without gaps (see fig.). Due to the p-band variation, each area ensures a smooth adaptation or restriction of the radiator mass flow to the heating installation.

In this way, the valve can realize every flow between the smallest and the largest value without setting the interim values (see fig.).

The presetting can be set at between 1, 2, 3, 4, 5 and 6. The setting 6 corresponds to the normal setting (manufacturer's setting). To set the presetting, the key (Art. no. 3501-02.142) is used on the valve insert and the required value is set. Then the key is removed.

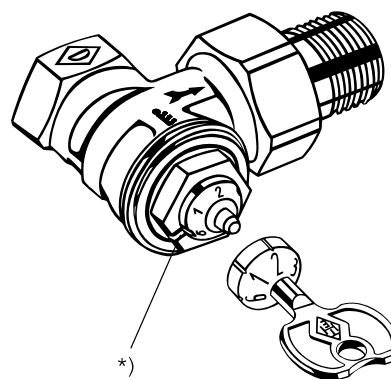
The set value can be read on the front of the valve insert, i. e. from the control side (see fig.). Without a tool, it is impossible for a non-qualified person to tamper with the presetting.

### Gap-free flow ranges



$\Delta p = 0,1 \text{ bar}$

### Can be read from the front



\*) Directional marking



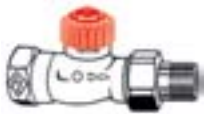
## Articles – F-exakt

### Angle



DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
10 (3/8")	0,013	0,316	0,35	3431-01.000
15 (1/2")	0,013	0,316	0,35	3431-02.000

### Straight



DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
10 (3/8")	0,013	0,316	0,35	3432-01.000
15 (1/2")	0,013	0,316	0,35	3432-02.000

### Axial



DN	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 1 [min]	Kv-value [m <sup>3</sup> /h] p-band max. 2 K Presetting 6 [max]	Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
10 (3/8")	0,013	0,316	0,35	3430-01.000
15 (1/2")	0,013	0,316	0,35	3430-02.000

Compression fittings, see accessories.

## > Valves with particularly low resistance

### Technical description

HEIMEIER thermostatic valve bodies with particularly low resistance (gravity) and blue protection cap can be used with all HEIMEIER thermostatic heads and actuators.

The stainless spindle is equipped with a double O-ring sealing. The outer O-ring is replaceable under pressure. With the HEIMEIER fitting tool, the complete thermostatic insert can be replaced with NW 10 to NW 15 without the need to drain off the system.

The body, which is made of corrosion-resistant gunmetal with a female thread, is designed for connection to a threaded pipe, or in conjunction with compression fittings, for connection to copper, precision steel or multi-layer pipes (only NW 15).

The model with a male thread, along with the compression fittings, makes it possible to also connect plastic pipes.

For HEIMEIER valve bodies, use only the accompanying, labelled HEIMEIER compression fitting (label e. g. 15 THE).

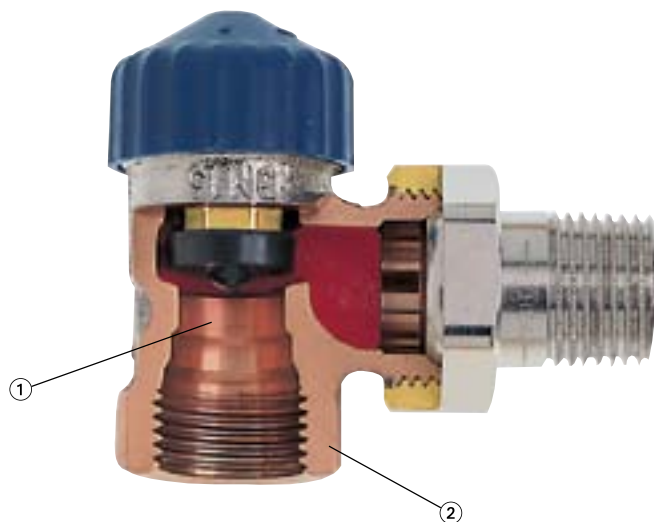
The thermostatic valve bodies NW 10 / NW 15 in angle and straight form with female thread can be fitted with covers from the DESIGN-LINE range – see accessories.

Permitted operating temperature TB 120°C (248°F), with cover, TB 90°C (194°F). Permitted operating pressure PB 10 bar, low pressure steam 110°C (230°F) / 0.5 bar. DN 25 / DN 32 black protection cap.



## > Assembly

### Thermostatic valve body with particularly low resistance (gravity)



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



011

KEYMARK certified and tested according to DIN EN 215, see also page 46.

- Stainless spindle with double O-ring sealing
- Body made of corrosion resistant gunmetal
- The thermostatic insert with NW 10 and NW 15 can be replaced under pressure
- Can be fitted with covers from the DESIGN-LINE range

## Application

The HEIMEIER 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.

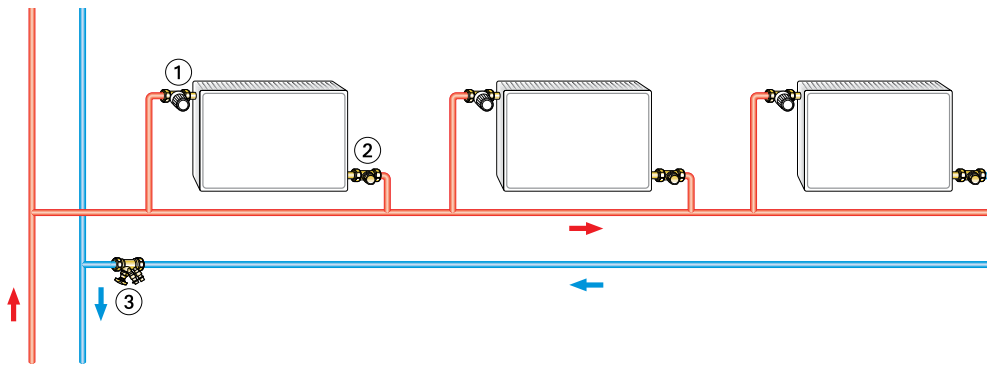
A hydraulic balance, which is an additional requirement for two-pipe heating systems, can be reached with the appropriate lockshields, e. g. HEIMEIER Regulux.

To ensure low-noise operation, experience shows that the differential pressure over the thermostatic valves should not exceed approx. 0.2 bar.

If when planning a system it is clear that high differential pressures occur in the partial load area, differential pressure regulating devices, e. g. the TA STAP differential pressure controller or the Hydrolux overflow valve should be used.

### Sample application

Single pipe heating system



1. Thermostatic valve body with particularly low resistance
2. Lockshield
3. TA 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 on the source apparatus 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.

– The thermostatic valve bodies can be used with all HEIMEIER thermostatic heads and 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.

## Articles – Valves with particularly low resistance

### Angle



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
10 (3/8")	0,46	0,92	1,23	2,30	2241-01.000	
15 (1/2")	0,46	0,92	1,23	3,10	2241-02.000	
20 (3/4")	0,70	1,35	1,90	5,70	2241-03.000	
25 (1")	0,70	1,35	1,90	5,70	2201-04.000	
32 (1 1/4")	0,80	1,60	2,35	6,70	2201-05.000	

### Straight



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
10 (3/8")	0,46	0,92	1,23	1,80	2242-01.000	
15 (1/2")	0,46	0,92	1,23	2,50	2242-02.000	
20 (3/4")	0,70	1,35	1,90	4,50	2242-03.000	
25 (1")	0,70	1,35	1,90	5,70	2202-04.000	
32 (1 1/4")	0,80	1,60	2,35	6,70	2202-05.000	

### Straight

with bended nipple



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
15 (1/2")	0,46	0,92	1,23	2,50	2244-02.000	

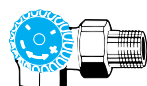
### Axial



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
10 (3/8")	0,46	0,92	1,23	1,80	2245-01.000	
15 (1/2")	0,46	0,92	1,23	2,50	2245-02.000	

### Double angle

Connection to radiator left



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
10 (3/8")	0,46	0,92	1,23	1,50	2341-01.000	
15 (1/2")	0,46	0,92	1,23	1,85	2341-02.000	

**Double angle**

with male thread G 3/4

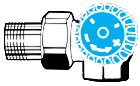
Connection to radiator left



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
15 (1/2")	0,46	0,92	1,23	1,85	2343-02.000	

**Double angle**

Connection to radiator right



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
10 (3/8")	0,46	0,92	1,23	1,50	2340-01.000	
15 (1/2")	0,46	0,92	1,23	1,85	2340-02.000	

**Double angle**

with male thread G 3/4

Connection to radiator right



DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
15 (1/2")	0,46	0,92	1,23	1,85	2342-02.000	

Compression fittings, see accessories.

## > Valves for reversed flow direction

### Technical description

The HEIMEIER thermostatic valve bodies for reversed flow direction with black protection cap can be used with all HEIMEIER thermostatic heads and actuators.

The stainless spindle is equipped with a double O-ring sealing.

The outer O-ring is replaceable under pressure. The complete thermostatic insert can be replaced with the HEIMEIER fitting tool without draining off the system.

The body, which is made of corrosionresistant gunmetal with a female thread, is designed for connection to a threaded pipe, or in conjunction with compression fittings, for connection to copper or precision steel pipes.

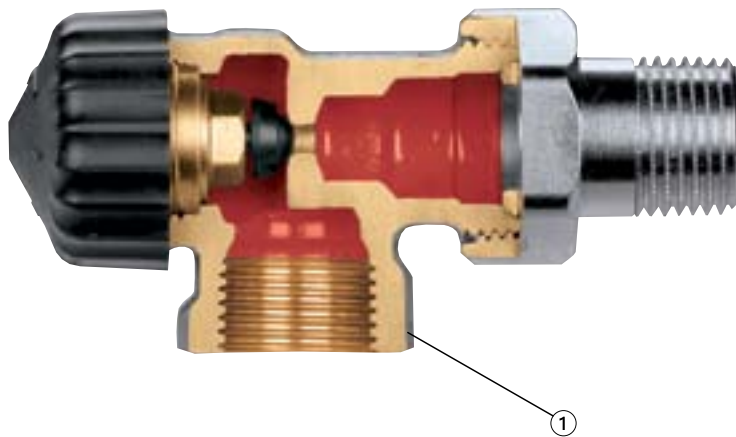
For HEIMEIER valve bodies, use only the accompanying, labelled HEIMEIER compression fitting (label e. g. 15 THE).

Permitted operating temperature TB 120°C (248°F). Permitted operating pressure PB 10 bar, low pressure steam 110°C (230°F) / 0.5 bar.



## > Assembly

### Thermostatic valve body for reversed flow direction



- Stainless spindle with double O-ring sealing
- Body made of nickel-plated corrosion-free gunmetal
- Thermostatic insert can be replaced under pressure

1. Valve body made of corrosion-resistant nickel-plated gunmetal

## Application

The HEIMEIER thermostatic valve bodies for reversed flow direction can be used in two-pipe pump heating systems for interchangeable supply and return flow (hammering noises).

If any questions arise regarding the increased or reduced output of the radiator in relation to through-flow, ask the radiator manufacturer for information.

The valve bodies can be mounted into the return flow connection of radiators in a raised position or tall radiators.

This makes the thermostatic head more easily accessible.

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

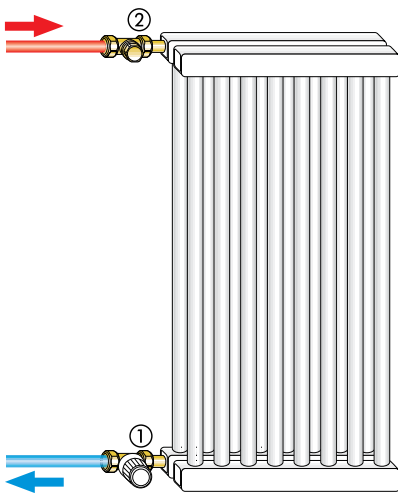
A hydraulic balance, which is an additional requirement, can be reached with the appropriate lockshields e. g. HEIMEIER Regulux.

To ensure low-noise operation, experience shows that the differential pressure over the thermostatic valves should not exceed approx. 0.2 bar. If when planning a system it is clear that high differential pressures occur in the partial load area, differential pressure control devices, e. g. the TA STAP differential pressure controller or the Hydrolux overflow valve should be used.

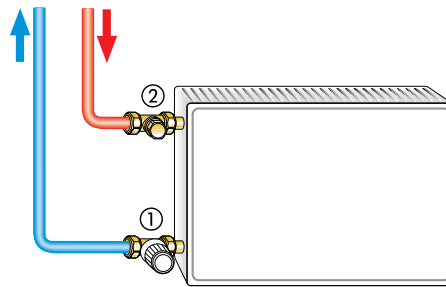
### Sample application

#### Thermostatic valve in the reverse flow connection

Radiator, room high



Radiator, raised position



1. Thermostatic valve body for reversed flow direction
2. Regulux lockshield

#### 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 on the source apparatus and usually lead to the disintegration of EPDM seals.

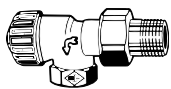
When using nitrite-free frost and corrosion resistance solutions with an ethylene glycol base, pay close attention to the details outlined in the manufacturers' documentation, particularly concerning concentration and specific additives.

– The thermostatic valve bodies can be used with all HEIMEIER thermostatic heads and thermal or motorized actuators.

The optimal tuning of the components guarantees maximum safety.

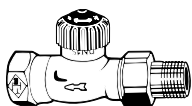
When using actuators from other manufacturers, make sure that the pressure power is appropriate for thermostatic valve bodies with soft sealing valve discs.

## Articles – For reversed flow direction



### Angle

DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
10 (3/8")	0,25	0,49	0,66	1,25	9101-01.000	
15 (1/2")	0,25	0,49	0,66	1,35	9101-02.000	



### Straight

DN	1,0	Kv-value [m <sup>3</sup> /h] p-band [K]			Kvs [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. no.
		2,0	3,0			
10 (3/8")	0,25	0,49	0,66	1,25	9102-01.000	
15 (1/2")	0,25	0,49	0,66	1,35	9102-02.000	

Compression fittings, see accessories.



## Three-way valve bodies with automatic bypass control

### Technical description

The HEIMEIER thermostatic three-way valve bodies with automatic bypass control and black protection cap can be used with all HEIMEIER thermostatic heads and actuators. The bypass can be connected with the corresponding bypass T-piece on the radiator return.

Models for the connection on the radiator, left or right.

The stainless spindle is equipped with a double O-ring sealing. The outer O-ring is replaceable under pressure.

The body of the valve body, which is made of nickel-plated gunmetal, or the bypass T-piece, which is made of nickelplated brass, is designed for connection to the threaded pipe or when used with compression fittings, for connection to copper, precision steel or multi-layerpipes.



For HEIMEIER valve bodies, use only the accompanying, labelled HEIMEIER compression fitting (label e. g. 15 THE).

Bypass connection with:

Ø 15 compression fitting,

NW 15 (1/2") threaded nipple or

Ø 15 soldered nipple.

Permitted operating temperature TB 120°C (248°F). Permitted Operating pressure PB 10 bar.

## Assembly

### Thermostatic three-way valve body



- Stainless spindle with double O-ring sealing
- Body made of corrosion resistant gunmetal
- Outer O-ring can be replaced while under pressure

1. Valve body made of corrosion-resistant nickel-plated gunmetal
2. Bypass bore hole with regulating cone
3. Bypass connection

## Application

The HEIMEIER thermostatic three-way-valve bodies are used in two-pipe pump heating systems. For one-pipe pump heating systems a retrofitting thermostatic insert is available.

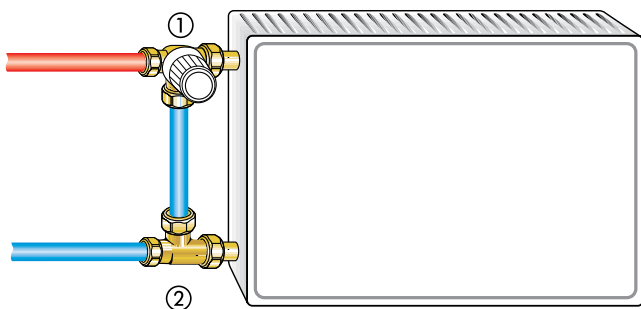
When almost all valves are closed at the same time, additional pressures build up in the heating system. If the HEIMEIER three-way valve intercepts the radiator flow, the bypass for the return flow is fully opened. Additional pressures are avoided and the pressure is kept almost constant. The total flow of the HEIMEIER three-way valve body has a kv value of 1.45 m<sup>3</sup>/h (see curve 2 in the diagram). 1 three-way valve is allocated for each heating circuit. For normal systems, for almost every 18 kW.

For wall-mounted gas fired heaters with a set minimum circulatory flow level, the number of three-way valves should be calculated from curve 2 (see diagram). Curve 1, or the kv values of the different p-bands, acts as a pressure loss definition for the set radiator mass flow.

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.

For the valve installation, select the point furthest away from the pump. The ideal installation sites are the hallway or the bathroom.

### Sample application



1. Thermostatic three-way valve body
2. Bypass T-piece

### 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 on the source apparatus 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.

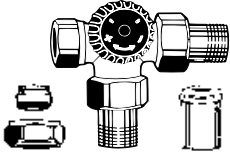
– The thermostatic valve bodies can be used with all HEIMEIER thermostatic heads and thermal or motorized actuators. The optimal tuning of the components guarantees maximum safety.

When using actuators from other manufacturers, make sure that the pressure power is appropriate for thermostatic valve bodies with soft sealing valve discs.

## Articles – Three-way valve bodies with automatic bypass control

### Thermostatic three-way valve body

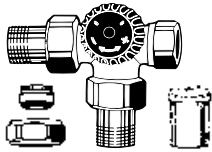
Connection on the radiator left



Bypass connection	DN	1,0	Radiator kv-value [m <sup>3</sup> /h]		Kv-value total <sup>2)</sup> [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. No.
			P-band [K]			
Ø 15 Compression fitting	15 (1/2")	0,38	2.0 <sup>1)</sup>	3.0	1,45	4149-02.000
NW 15 (1/2") Screwed nipple	15 (1/2")	0,38	0,73	0,98	1,45	4151-02.000
Ø 15 Soldered nipple	15 (1/2")	0,38	0,73	0,98	1,45	4153-02.000

### Thermostatic three-way valve body

Connection on the radiator right



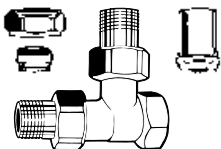
Bypass connection	DN	1,0	Radiator kv-value [m <sup>3</sup> /h]		Kv-value total <sup>2)</sup> [m <sup>3</sup> /h]	Gunmetal nickel-plated Art. No.
			P-band [K]			
Ø 15 Compression fitting	15 (1/2")	0,38	2.0 <sup>1)</sup>	3.0	1,45	4148-02.000
NW 15 (1/2") Screwed nipple	15 (1/2")	0,38	0,73	0,98	1,45	4150-02.000
Ø 15 Soldered nipple	15 (1/2")	0,38	0,73	0,98	1,45	4152-02.000

<sup>1)</sup> Distribution ratio at 2.0 K approx. 50%.

<sup>2)</sup> Total Kv-value for radiator and bypass.

### Bypass T-piece

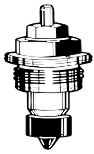
Connection on the radiator left or right



Bypass connection	DN	Brass nickel-plated Art. no.
Ø 15 Compression fitting	15 (1/2")	4156-02.000
NW 15 (1/2") Screwed nipple	15 (1/2")	4154-02.000
Ø 15 Soldered nipple	15 (1/2")	4155-02.000

Compression fittings, see accessories.

## Accessories

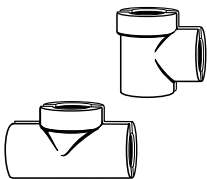


### Retrofit thermostatic insert

For the application of thermostatic three-way valve bodies in one-pipe heating systems. The circuit flow rate is designed to be distributed to 35% radiator and 65% bypass. Kv-value total 2,40 [m<sup>3</sup>/h] (with 2 K p-band). Flow diagram on request.

#### Art. No.

4101-03-300



### Cover

2-part, plastic, white RAL 9016, for thermostatic valve bodies with female thread and press connection (not for valve bodies with reduced lengths).

#### DN valve

#### Art. No.

#### Angle form

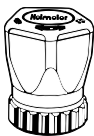
10 (3/8")  
15 (1/2")

1361-01.553  
1361-02.553

#### Straight form

10 (3/8")  
15 (1/2")

1362-01.553  
1362-02.553



### Handwheel

for all HEIMEIER thermostatic valve bodies. Max. medium temperature 100°C (212°F).

#### Art. No.

#### With locking ring

white RAL 9016

2001-00.325

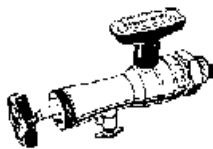
#### With direct connection

white RAL 9016

chrome-plated

1303-01.325

1303-10.325



### Fitting tool

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

Refer also to the assembly and operating instructions.

#### Art. No.

Fitting tool

9721-00.000

Replacement seals

9721-00.514



### Box spanner SW 19

for loosening and tightening the thermostatic inserts.

Refer also to the assembly and operating instructions.

#### Art. No.

2001-00.258



### Theft protection

for thermostatic head K.

By security ring.

Refer also to the assembly and operating instructions.

#### Art. No.

6020-01.347



### Locking cap

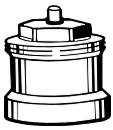
Brass, with seal, on the radiator side for thermostatic valves.

#### DN valve

10 (3/8")  
15 (1/2")  
20 (3/4")

#### Art. No.

2001-01.314  
2001-02.314  
2001-03.314



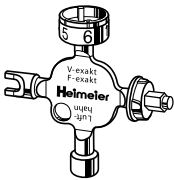
**Spindle extension**  
for thermostatic valve bodies

L	Art. No.
<b>Brass nickel-plated</b>	
20	2201-20.700
30	2201-30.700
<b>Plastic, black</b>	
15	2001-15.700
30	2002-30.700



**Setting key**  
for V-exakt and F-exakt.  
Refer also to the assembly and operating instructions.

Art. No.
3501-02.142



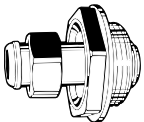
**Universal key**  
as an alternative to the setting key art. no. 3501-02.142 for adjusting V-exakt/F-exakt. Also for thermostatic head B (temperature setting), Regulux lockshield, Vekolux double connection fitting and radiator air vent.  
Refer also to the assembly and operating instructions.

Art. No.
0530-01.433



**Kvs-diaphragm**  
for mass flow restriction for Standard thermostatic valve bodies.

NW valve	Art. No.
10 (3/8")	2001-01.514
15 (1/2")	2001-02.514



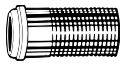
**Ventilux**  
Radiator compensation fitting with continuously adjustable screw nipple. With this fitting, old valves of different supply and return pipe lengths can easily be replaced. Double O-ring sealing. Permitted operating pressure PB 10 bar. Permitted operating temperature TB 120°C (248°F). Adjustable to 35 mm. Radiator connection NW 32 (1 1/4"). High static pressures can lead to displacement of the compensation fitting. Secure pipes and radiators adequately. Ensure that stress-free installation is carried out.

DN valve	Art. No.
<b>Right-handed thread</b>	
10 (3/8")	2001-01.600
15 (1/2")	2001-02.600
20 (3/4")	2001-03.600
<b>Left-handed thread</b>	
10 (3/8")	2002-01.600
15 (1/2")	2002-02.600
20 (3/4")	2002-03.600



**Reducing piece**  
for replacing old valves with valve bodies with smaller nominal widths.  
Brass nickel-plated.

	Art. No.
Rp 3/4 x R 1/2	2201-32.044
Rp 1 x R 1/2	2201-42.044
Rp 1 x R 3/4	2201-43.044
Rp 1 1/4 x R 1/2	2201-52.044
Rp 1 1/4 x R 3/4	2201-53.044



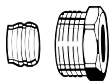
**Threaded nipple**  
for length compensation. Brass nickel-plated.

Total length [mm]		Art. No.
47,0	R 3/8	2201-01.010
54,0	R 1/2	2201-02.010
52,5	R 3/4	2201-03.010



**Threaded nipple**  
Standard length. Continuous thread for reduced lengths. Brass nickel-plated.

Total length [mm]		Art. No.
27,0	R 3/8	2202-01.010
31,5	R 1/2	2202-02.010
32,5	R 3/4	2202-03.010



**Compression fitting**  
for copper or precision steel pipes.  
Metal-to-metal joint.  
Brass nickel-plated.  
Female thread connection Rp 3/8–Rp3/4.

Ø Pipe	NW	Art. No.
12	10 (3/8")	2201-12.351
15	15 (1/2")	2201-15.351
16	15 (1/2")	2201-18.351
18	20 (3/4")	2201-18.351

Support sleeves should be used for a pipe wall thickness of 0.8 – 1 mm. Follow the specifications of the pipe manufacturer.



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

Ø Pipe	Art. No.
12	3831-12.351
15	3831-15.351
16	3831-16.351
18	3831-18.351



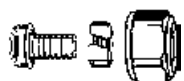
**Support sleeve**  
for copper or precision steel pipe with a 1 mm wall thickness. Brass nickel-plated.

L	Ø Pipe	Art. No.
25,0	12	1300-12.170
26,0	15	1300-15.170
26,3	16	1300-16.170
26,8	18	1300-18.170



**Compression fitting**  
for copper or precision steel pipes.  
Soft sealed. Brass nickel plated. Male thread connection G 3/4.

Ø Pipe	Art. No.
15	1313-15.351
18	1313-18.351

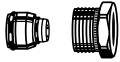


**Compression fitting**  
for plastic pipes. Brass, nickel plated  
Male thread connection G 3/4.

Ø Pipe	Art. No.
14x2	1311-14.351
16x2	1311-16.351
17x2	1311-17.351
18x2	1311-18.351
20x2	1311-20.351

**Compression fitting**

for multi-layer pipes. Nickel-plated brass.

**Connection nipple**

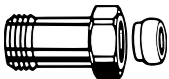
for flat sealing valve bodies

**Double connection fitting**

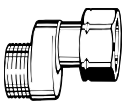
For clamping plastic, copper, precision steel or multi-layer pipes. Brass, nickel-plated.

**Double nipple**

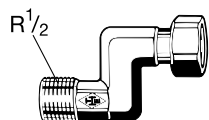
Both sides for clamping plastic, copper, precision steel or multi-layer pipes. Brass nickel-plated.

**Length adjustment fitting**

For clamping plastic, copper, precision steel or multi-layer pipes. For valves with male thread connection G 3/4. Brass nickel-plated.

**S-connection**

For compensating different pipe distances, e. g. when replacing old single pipe valves. Note flow direction! Brass, nickel-plated.

**S-connection**

For compensating different connection dimensions when replacing radiators. Gunmetal nickel-plated.

	Ø Pipe	Art. No.
Male thread connection G 3/4	16x2	1331-16.351
Female thread connection Rp 1/2	16x2	1335-16.351 *)

\*) can be used for valve from 04.1995

DN valve	Ø Pipe	Art. No.
<b>Threaded nipple</b>		
15 (1/2")	1/2"	4160-02.010
20 (3/4")	3/4"	4160-03.010
<b>Soldered nipple</b>		
15 (1/2")	15	4160-15.039
15 (1/2")	16	4160-16.039
15 (1/2")	18	4160-18.039
20 (3/4")	22	4160-22.039
<b>Welded nipple</b>		
15 (1/2")	1/2"	4160-02.043
20 (3/4")	3/4"	4160-02.043

	L	Art. No.
G 3/4 x R 1/2	26	1321-12.083

	Art. No.
G 3/4 x G 3/4	1321-03.081

	L	Art. No.
G 3/4 x G 3/4	25	9713-02.354
G 3/4 x G 3/4	50	9714-02.354

	Axial distance	Total length	Art. No.
G 3/4 x G 3/4	11,5 mm	43 mm	1351-02.362

DN valve	Axial distance	Total length	Art. No.
10 (3/8")	26 mm	68 mm	1353-01.362
15 (1/2")	26 mm	68 mm	1353-02.362
20 (3/4")	26 mm	68 mm	1353-03.362

## Thermostatic inserts



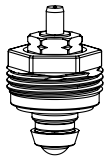
T label on the valve body no connecting thread



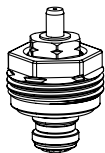
Connecting thread for the thermostatic head on the valve body



Boss marking



Replacement inserts For DN	Thermostatic valve bodies	Reversed flow direction	Male thread on both sides	Art. No.
<b>Standard</b> , stuffing box without coloured label, from the end of 1982				
DN 10, 15	2001, 2002, 2201, 2202, 2215, 2216, 2225, 2310, 2311	9002, 9002	2072, 2312, 2313, 2235	2001-02.300
DN 20	2001, 2002, 2201, 2202, 2215, 2216		2072	2001-03.300
DN 25	2001, 2002, 2201, 2202			2001-04.299
DN 32	2001, 2002, 2201, 2202			2001-05.299



Replacement inserts	Thermostatic valve bodies	Reversed flow direction	Male thread on both sides	Art. No.
<b>Special insert for inverse direction of flow</b> with reversed supply and return pipes				
	2001, 2002, 2201, 2202, 2215, 2216, 2225, 2310, 2311, 3501, 3502, 3505, 3506, 3510, 3511, 3512, 3513, 3514, 3515, 3516, 3430, 3431, 3432		2072, 2312, 2313, 2235, 3533, 3534	2002-24.300

For thermostatic valve bodies:

- **Standard** from end of 1982, DN 10, 15
- **V-exakt/F-exakt** from 1994, DN 10-20



Retrofitting/ Replacement inserts For DN valve	Thermostatic valve bodies	Reversed flow direction	Male thread on both sides	Art. No.
<b>V-exakt</b> with precision presetting, for thermostatic valve bodies with boss marking, from 1994				
DN 10, 15	3501, 3502, 3505, 3506, 3510, 3511, 3512, 3513, 3514, 3515, 3516		3533, 3534	3501-02.300
(also for DN 20 V-exakt valve bodies)				

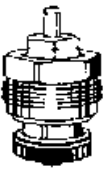


Retrofitting/ Replacement inserts For DN valve	Thermostatic valve bodies	Reversed flow direction	Male thread on both sides	Art. No.
<b>F-exakt</b> , with finest presetting, for thermostatic valve bodies with boss marking, from 1994, nickel-plated stuffing box				
DN 10, 15	3430, 3431, 3432			3420-02.300



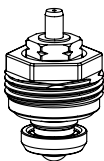


Replacement inserts For DN valve	Thermostatic valve bodies	Reversed flow direction	Male thread on both sides	Art. No.
<b>Presetting</b> , stuffing box with white label, from 1985 to 1994 DN 10, 15, 20	2101, 2102, 2111, 2112, 2135, 2170, 2171	9200, 9201, 9204, 9205	2172, 2173	2101-02.299

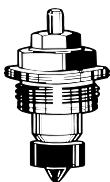


Replacement inserts For DN valve	Thermostatic valve bodies	Reversed flow direction	Male thread on both sides	Art. No.
<b>Gravity, until end 1984</b> Stuffing box without coloured label DN 15	2241, 2242, 2245, 2340, 2341			2241-02.299
<b>from 1985</b> Stuffing box with blue label DN 10, 15	2241, 2242, 2245, 2340, 2341	9101, 9102	2076, 2342, 2343	2340-02.299
without coloured label DN 20 (→'05), 32	2241, 2242, 2201, 2202			2001-05.299
DN 20 ('05→), 25	2201, 2202			2001-04.299

Replacement inserts For DN valve	Thermostatic valve bodies	Reversed flow direction	Male thread on both sides	Art. No.
<b>Thermostatic three-way inserts</b> DN 15	4138, 4139, 4140, 4141, 4142, 4143, 4148, 4149, 4150, 4151, 4152, 4153			4140-02.300



Retrofitting/ Replacement inserts For DN valve	Mikrotherm manual valves (with connector thread on the body)	Thermostatic valve bodies	Art. No.
<b>from February 1985</b> Stuffing box with black label DN 10, 15	0101, 0102	1302, 1304, 1308, 1322, 1324, 1328, 2074	1302-02.300
<b>without coloured label</b> DN 20	0101, 0102		2001-03.300



Retrofitting/ Replacement inserts For DN valve	Mikrotherm manual valves (with T label)	Art. No.
<b>Old model, to February 1985</b> DN 10, 15	0101, 0102	4101-02.300
DN 20	0101, 0102	4101-03.300
DN 25	0101, 0102	2001-04.299
DN 32	0101, 0102	2001-05.299

## Technical data – Standard

Diagram DN 10 (3/8") to DN 20 (3/4"), valve body with thermostatic head

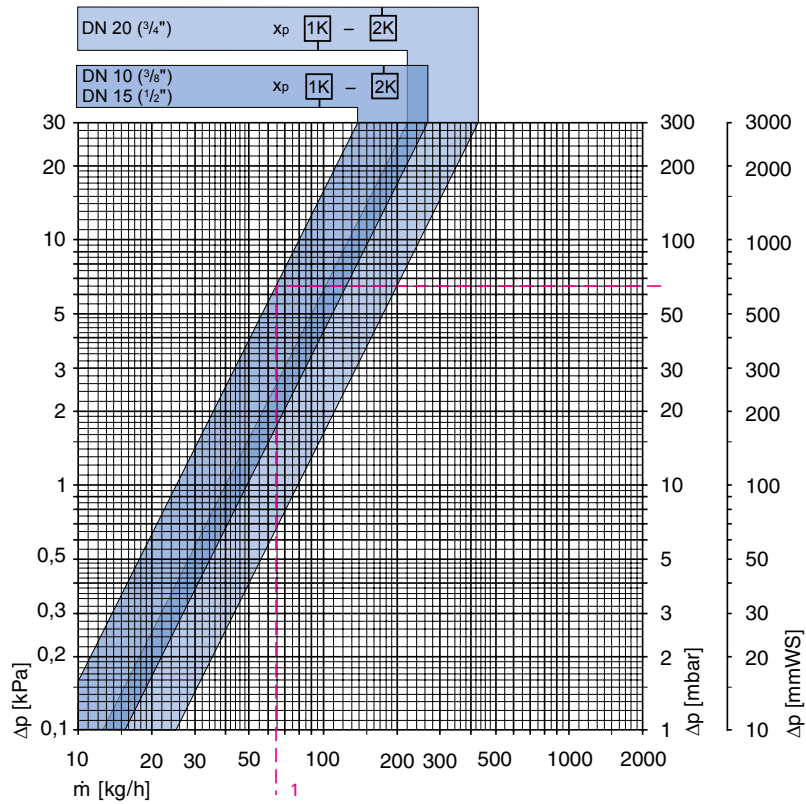
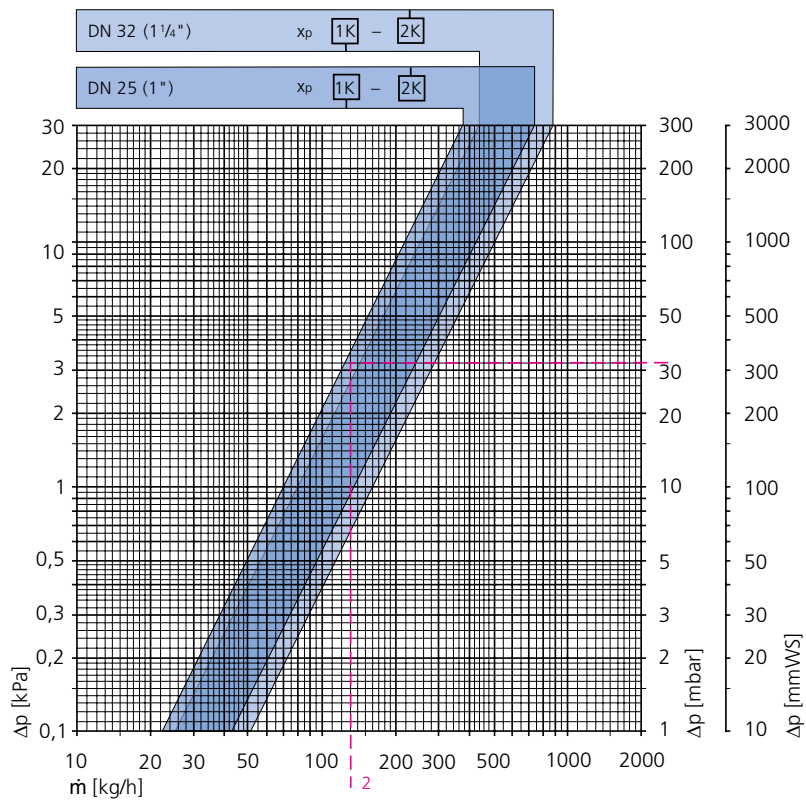


Diagram DN 25 (1") and DN 32 (1 1/4"), valve body with thermostatic head



Valve body with thermostatic head		Kv-value [m <sup>3</sup> /h] P-band [K]					Kvs [m <sup>3</sup> /h]		Permitted operating temperature TB <sup>2)</sup> [C°]	Permitted operating pressure PB [bar]	Permitted differential pressure, during which the valve is kept closed Δp [bar]		
		1,0	1,5	2,0	2,5	3,0	Angle Straight Axial	Double angle			Th.-head	EMO T/NC EMOtec/NC EMO 1/3 EMO EIB/ LON	EMO T/NO EMOtec/ NO
DN 10 (3/8") <sup>1)</sup>	Angle, straight, double angle, axial	0,25	0,37	0,49	0,58	0,66	1,25	1,10	120	10	1,00	3,50	3,50
DN 15 (1/2") <sup>1)</sup>	Angle, straight, double angle, axial	0,25	0,37	0,49	0,58	0,66	1,35	1,15	120	10	1,00	3,50	3,50
DN 20 (3/4")	Angle, straight	0,40	0,60	0,79	0,98	1,26	2,50		120	10	1,00	2,00	3,50
DN 25 (1")	Angle, straight	0,70	1,04	1,35	1,65	1,90	5,70		120	10	0,25	0,80	1,60
DN 32 (1 1/4")	Angle, straight	0,80	1,10	1,60	2,00	2,35	6,70		120	10	0,25	0,50	1,00
DN 10 (3/8")	Data with kvs diaphragm for with <sup>1)</sup> labelled valves	0,22	0,29	0,33	0,36	0,38	0,41	0,41	120	10	1,00	3,50	3,50
DN 15 (1/2")	Data with kvs diaphragm for with <sup>1)</sup> labelled valves	0,25	0,37	0,47	0,54	0,59	0,73	0,73	120	10	1,00	3,50	3,50

<sup>2)</sup> with protection cap or actuator 100 °C (212 °F), with cover 90 °C (194 °F), with press connection 110 °C (230 °F).  
 Technical data/diagram DN 10/DN 15 only apply to thermostatic valve bodies for reversed flow direction.  
 Kvs-diaphragms, see accessories.

### Sample calculation 1

Target: Pressure loss of Standard thermostatic valve body DN 15 with a p-band of 1 K

Given: Heat flow  $\dot{Q} = 1135 \text{ W}$

Temperature spread  $\Delta t = 15 \text{ K (65/50°C)}$

Solution: Mass flow  $\dot{m} = \dot{Q} / (c \cdot \Delta t) = 1135 / (1,163 \cdot 15) = 65 \text{ kg/h}$

Pressure loss from diagram  $\Delta p_v = 65 \text{ mbar}$

### Sample calculation 2

Target: Appropriate Standard thermostatic valve body

Given: Heat flow  $\dot{Q} = 2270 \text{ W}$

Temperature spread  $\Delta t = 15 \text{ K (70/55°C)}$

Pressure loss, thermostatic valve  $\Delta p_v = 32 \text{ mbar}$

Solution: Mass flow  $\dot{m} = \dot{Q} / (c \cdot \Delta t) = 2270 / (1,163 \cdot 15) = 130 \text{ kg/h}$

Standard thermostatic valve body from diagram: DN 25 (1")

$$c_v = \frac{k_v}{0,86}$$

$$k_v = c_v \cdot 0,86$$

## Technical data – Standard, flat sealing

Diagram DN 15 (1/2") [Kvs 1.35] and DN 15 (1/2") [Kvs 1.70], valve body with thermostatic head

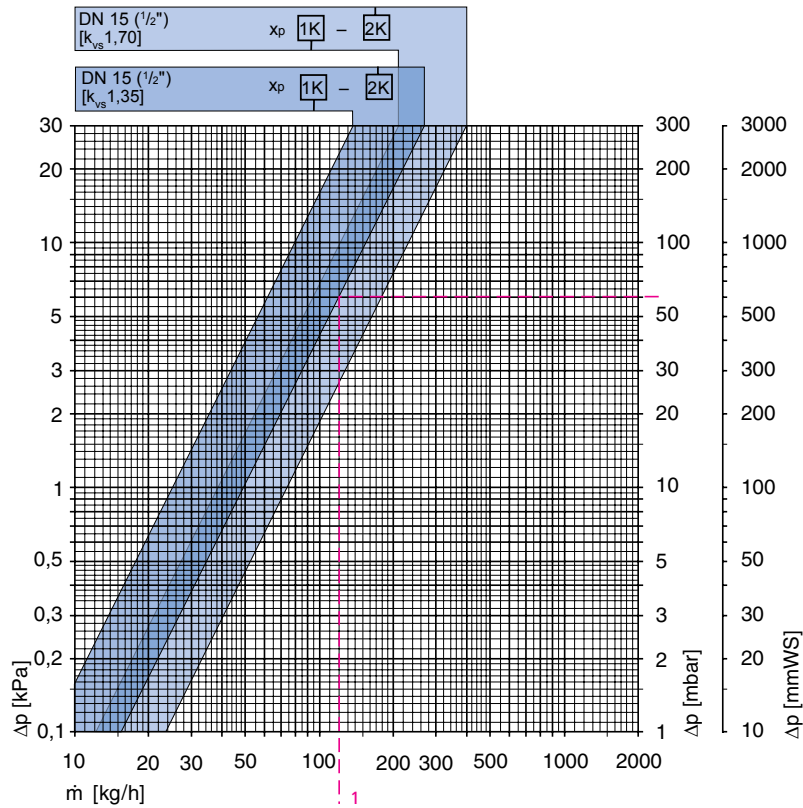
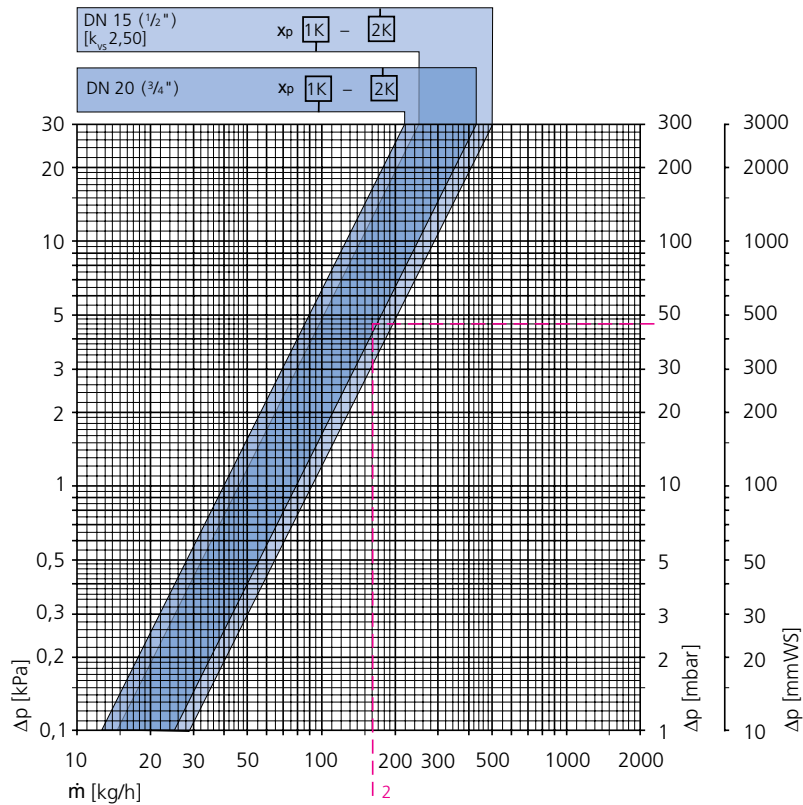


Diagram DN 15 (1/2") [Kvs 2.50] and DN 20 (3/4"), valve body with thermostatic head



Valve body with thermostatic head	Kv-value [m <sup>3</sup> /h] P-band xp [K]	Kv-value [m <sup>3</sup> /h]					Kvs [m <sup>3</sup> /h]	Permitted operating temperature TB <sup>2)</sup> [C°]	Permitted operating pressure PB [bar]	Permitted differential pressure, during which the valve is kept closed Δp		
		1,0	1,5	2,0	2,5	3,0				[bar]	EMO T/NC EMOtec/NC EMO 1/3 EMO EIB/LON	EMO T/NO EMOtec/NO
DN 15 (1/2") <sup>1)</sup> flat sealing (straight)		0,25	0,37	0,49	0,58	0,66	1,35	120	10	1,00	3,50	3,50
DN 15 (1/2") flat sealing (straight)		0,38	0,59	0,73	0,95	1,10	1,70	120	10	1,00	2,70	3,50
DN 15 (1/2") flat sealing (straight)		0,46	0,70	0,92	1,05	1,23	2,50	120	10	0,60	1,50	3,00
DN 20 (3/4") flat sealing (straight)		0,40	0,60	0,79	0,98	1,26	2,50	120	10	1,00	2,00	3,50
DN 15 (1/2") data with kvs diaphragm for with <sup>1)</sup> la- belled valve		0,25	0,37	0,47	0,54	0,59	0,73	120	10	1,00	3,50	3,50

2) with protection cap or actuator 100 °C (212 °F).

Kvs-diaphragms, see accessories.

### Sample calculation 1

Target: Pressure loss, Standard thermostatic valve body – flat sealing, DN 15 [kvs 1.35] with p-band 2 K

Given: Heat flow  $\dot{Q} = 2095$  W

Temperature spread  $\Delta t = 15$  K (70/55 °C)

Solution: Mass flow  $\dot{m} = \dot{Q} / (c \cdot \Delta t) = 2095 / (1,163 \cdot 15) = 120$  kg/h

Pressure loss from diagram  $\Delta p_v = 60$  mbar

### Sample calculation 2

Target: Appropriate Standard thermostatic valve – flat sealing

Given: Heat flow  $\dot{Q} = 2790$  W

Temperature spread  $\Delta t = 15$  K (65/50 °C)

Pressure loss thermostatic valve  $\Delta p_v = 46$  mbar

Solution: Mass flow  $\dot{m} = \dot{Q} / (c \cdot \Delta t) = 2790 / (1,163 \cdot 15) = 160$  kg/h

Standard thermostatic valve body – flat sealing

from diagram:

DN 15 (1/2") [kvs 2,50] oder

DN 20 (3/4")

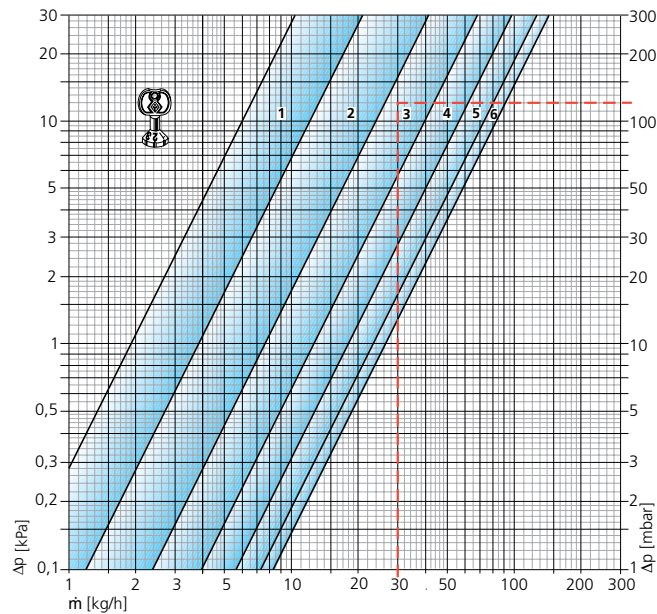
$$c_v = \frac{k_v}{0,86}$$

$$k_v = c_v \cdot 0,86$$

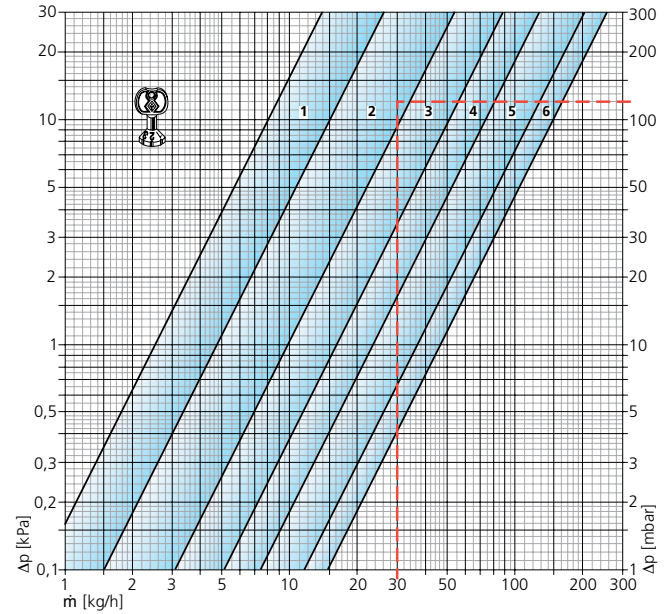
## Technical data – V-exakt

### Diagram, valve body with thermostatic head

P-band [xp] min. 0,4 K to **max. 1,0 K**



P-band [xp] min. 0,5 K to **max. 2,0 K**



Valve body with thermostatic head		Precision presetting						Permitted operating temperature TB*) [°C]	Permitted operating pressure PB [bar]	Permitted differential pressure, during which the valve is kept closed Δp [bar]		
DN	P-band xp min. 0.4 K to <b>max. 1.0 K</b> P-band. xp min. 0.5 K to <b>max. 2.0 K</b>	1	2	3	4	5	6			Th.-head	EMO T/NC EMOtec/NC EMO 1/3 EMO EIB/ LON	EMO T/ NO EMOtec/ NO
10/15/20 (3/8"/1"/2"/3"/4")	min. kv-value max. kv-value kvs-value [m³/h] Flow tolerance ± [%]	0,019 - 0,054 20	>0,038 - 0,104 15	>0,076 - 0,174 10	>0,126 - 0,247 8	>0,180 - 0,459 7	>0,234 - 0,730 6	120	10	4,0	3,5	3,5

\*) with protection cap or actuator 100 °C (212 °F), with cover 90 °C (194 °F), with press connection 110 °C (230 °F).  
Kv-value in [m³/h]

### Sample calculation

Target: Setting range

Given: Heat flow  $\dot{Q} = 525 \text{ W}$ ,  
Temperature spread  $\Delta t = 15 \text{ K (65/50 °C)}$   
Pressure loss, thermostatic valve  $\Delta p_v = 120 \text{ mbar}$

Solution: Mass flow  $\dot{m} = \dot{Q} / (c \cdot \Delta t) = 525 / (1,163 \cdot 15) = 30 \text{ kg/h}$

Setting range from Diagram:

With P-band **max. 1,0 K**: 3,

With P-band **max. 2,0 K**: 2

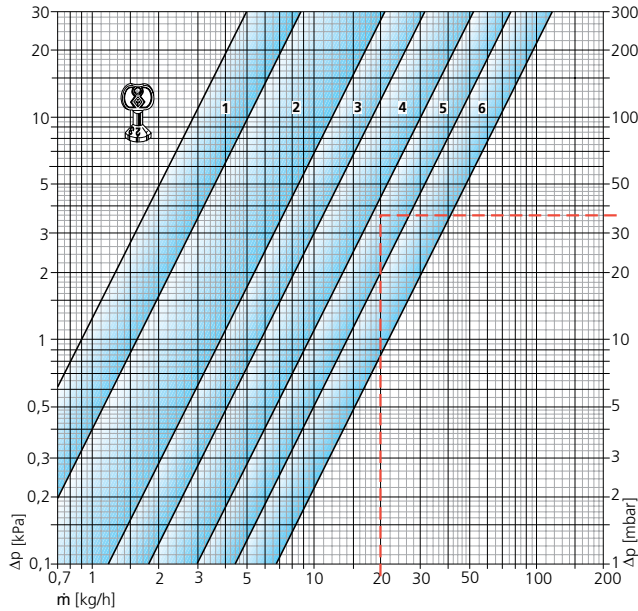
$$c_v = \frac{k_v}{0,86}$$

$$k_v = c_v \cdot 0,86$$

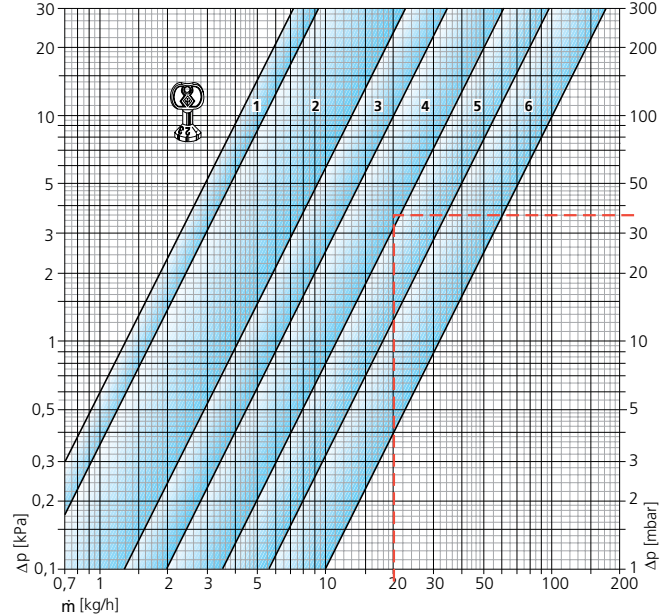
## Technical data – F-exakt

### Diagram, valve body with thermostatic head

P-band [xp] min. 0,3 K to **max. 1,0 K**



P-band [xp] min. 0,4 K to **max. 2,0 K**



Valve body with thermostatic head		Finest presetting						Permitted operating temperature TB <sup>*)</sup> [C°]	Permitted operating pressure PB [bar]	Permitted differential pressure, during which the valve is kept closed Δp [bar]			
		1	2	3	4	5	6			Th.-head	EMO T/NC EMOtec/NC EMO 1/3 EMO EIB/ LON	EMO T/ NO EMOtec/ NO	
DN 10/15 (3/8"/1/2")	P-band xp min. 0,3 K to <b>max. 1,0 K</b>	min. kv-value	0,009	>0,016	>0,038	>0,057	>0,095	>0,141	120	10	4,0	3,5	3,5
		max. kv-value	0,016	0,038	0,057	0,095	0,141	0,215					
	P-band xp min. 0,4 K to <b>max. 2,0 K</b>	min. kv-value	0,013	>0,017	>0,041	>0,063	>0,111	>0,177					
		max. kv-value	0,017	0,041	0,063	0,111	0,177	0,316					
	kvs-value [m <sup>3</sup> /h]	0,017	0,041	0,063	0,114	0,187	0,350						
	Flow tolerance ± [%]	30	25	20	15	10	8						

\*) with protection cap or actuator 100 °C (212 °F), with cover 90 °C (194 °F).

Kv-value in [m<sup>3</sup>/h]

### Sample calculation

Target: Setting range

Given: Heat flow

$$\dot{Q} = 350 \text{ W,}$$

Temperature spread

$$\Delta t = 15 \text{ K (65/50 °C)}$$

Pressure loss, thermostatic valve

$$\Delta p_V = 36 \text{ mbar}$$

Solution: Mass flow

$$\dot{m} = \dot{Q} / (c \cdot \Delta t) = 350 / (1,163 \cdot 15) = 20 \text{ kg/h}$$

Setting range from Diagram:

$$c_V = \frac{k_V}{0,86}$$

With P-band **max. 1,0 K**: 5,

With P-band **max. 2,0 K**: 4

$$k_V = c_V \cdot 0,86$$

## Technical data – Valve with particularly low resistance

Diagram DN 10 (3/8") to DN 20 (3/4"), valve body with thermostatic head

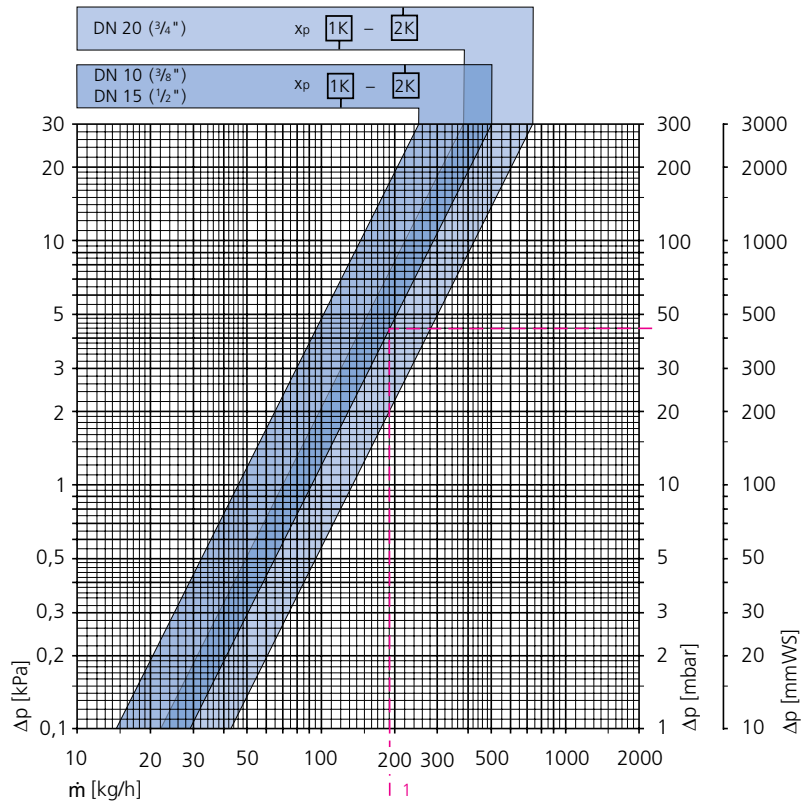
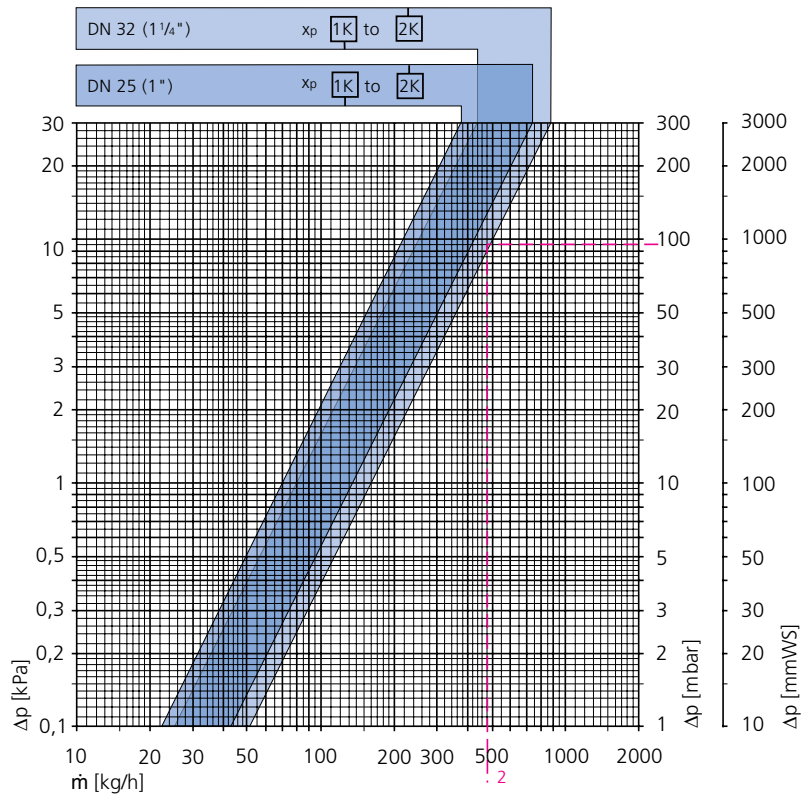


Diagram DN 25 (1") and DN 32 (1 1/4"), valve body with thermostatic head





Valve body with thermostatic head	Kv-value [m <sup>3</sup> /h] P-band xp [K]					Kvs [m <sup>3</sup> /h]	Kvs [m <sup>3</sup> /h]	Kvs [m <sup>3</sup> /h]	Permitted operating temperature TB' [C°]	Permitted operating pressure PB [bar]	Permitted differential pressure, during which the valve is kept closed Δp [bar]			
	1.0	1.5	2.0	2.5	3.0						angle	straight, axial	double angle	Th.- head
DN 10 (3/8")	angle, straight, double angle, axial	0,46	0,70	0,92	1,05	1,23	2,30	1,80	1,50	120	10	0,60	1,50	3,00
DN 15 (1/2")	angle, straight, double angle, axial	0,46	0,70	0,92	1,05	1,23	3,10	2,50	1,85	120	10	0,60	1,50	3,00
DN 20 (3/4")	angle, straight	0,70	1,04	1,35	1,65	1,90	5,70	4,50		120	10	0,25	0,50	1,00
DN 25 (1")	angle, straight	0,70	1,04	1,35	1,65	1,90	5,70	5,70		120	10	0,25	0,80	1,60
DN 32 (1 1/4")	angle, straight	0,80	1,10	1,60	2,00	2,35	6,70	6,70		120	10	0,25	0,50	1,00

\*) with protection cap or actuator 100 °C (212 °F), with cover 90 °C (194 °F).

#### Sample calculation 1

Target: Pressure loss, thermostatic valve body with particularly low resistance  
DN15 with p-band 2 K

Given: Heat flow  $\dot{Q} = 2210 \text{ W}$ , Temperature spread  $\Delta t = 10 \text{ K (55/45 °C)}$

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

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  $\dot{Q} = 8375 \text{ W}$

Temperature spread  $\Delta t = 15 \text{ K (70/55 °C)}$

Pressure loss,

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

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

Thermostatic valve body with particularly low resistance

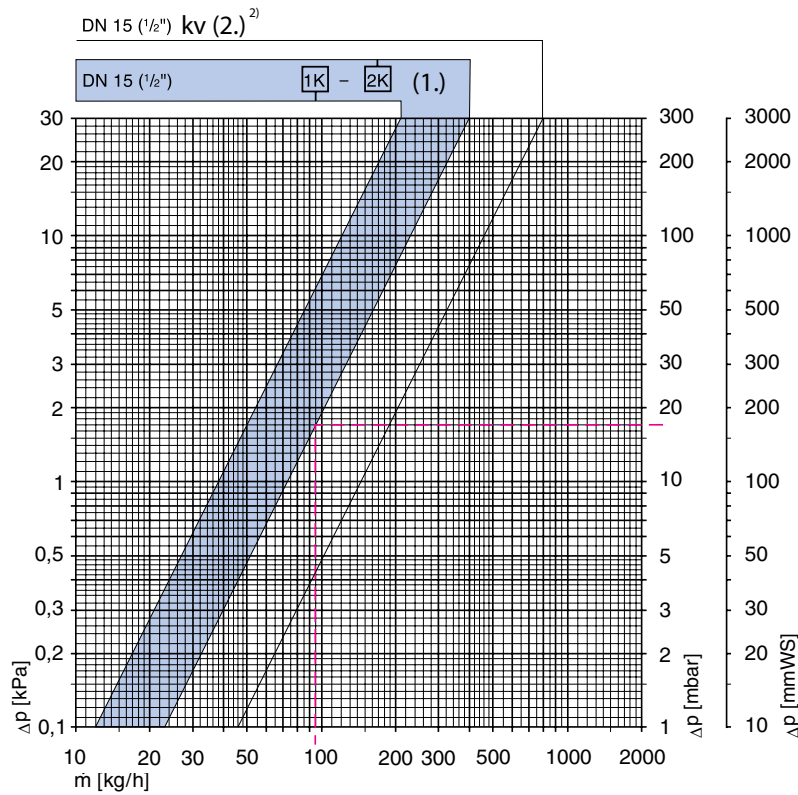
from diagram: DN 32 (1 1/4")

$$c_v = \frac{k_v}{0,86}$$

$$k_v = c_v \cdot 0,86$$

## Technical data – Thermostatic three-way valve body

Diagram, three-way valve body with thermostatic head



Three-way valve body with thermostatic head	Kv-value [m³/h] xp P-band [K]					Kvs <sup>1)</sup> [m³/h]	Permitted operating temperature TB <sup>2)</sup> [C°]	Permitted operating pressure PB [bar]	Permitted differential pressure, during which the valve is kept closed Δp [bar]		
	1.0	1.5	2.0	2.5	3.0				Th.-head	EMO T/NC EMOtec/NC EMO 1/3 EMO EIB/LON	EMO T/NO EMOtec/ NO
DN 15 (1/2")	0,38	0,55	0,73	0,87	0,98	1,45	120	10	1,0	2,0	3,5

<sup>1)</sup> Total kv value for radiator and bypass.

<sup>2)</sup> With protection cap or actuator 100°C (212°F).

### Sample calculation 1

Target: Pressure loss, thermostatic three-way valve body with p-band 2 K

Given: Heat flow  $Q = 1660 \text{ W}$ ,  
Temperature spread  $\Delta t = 15 \text{ K (70/55°C)}$

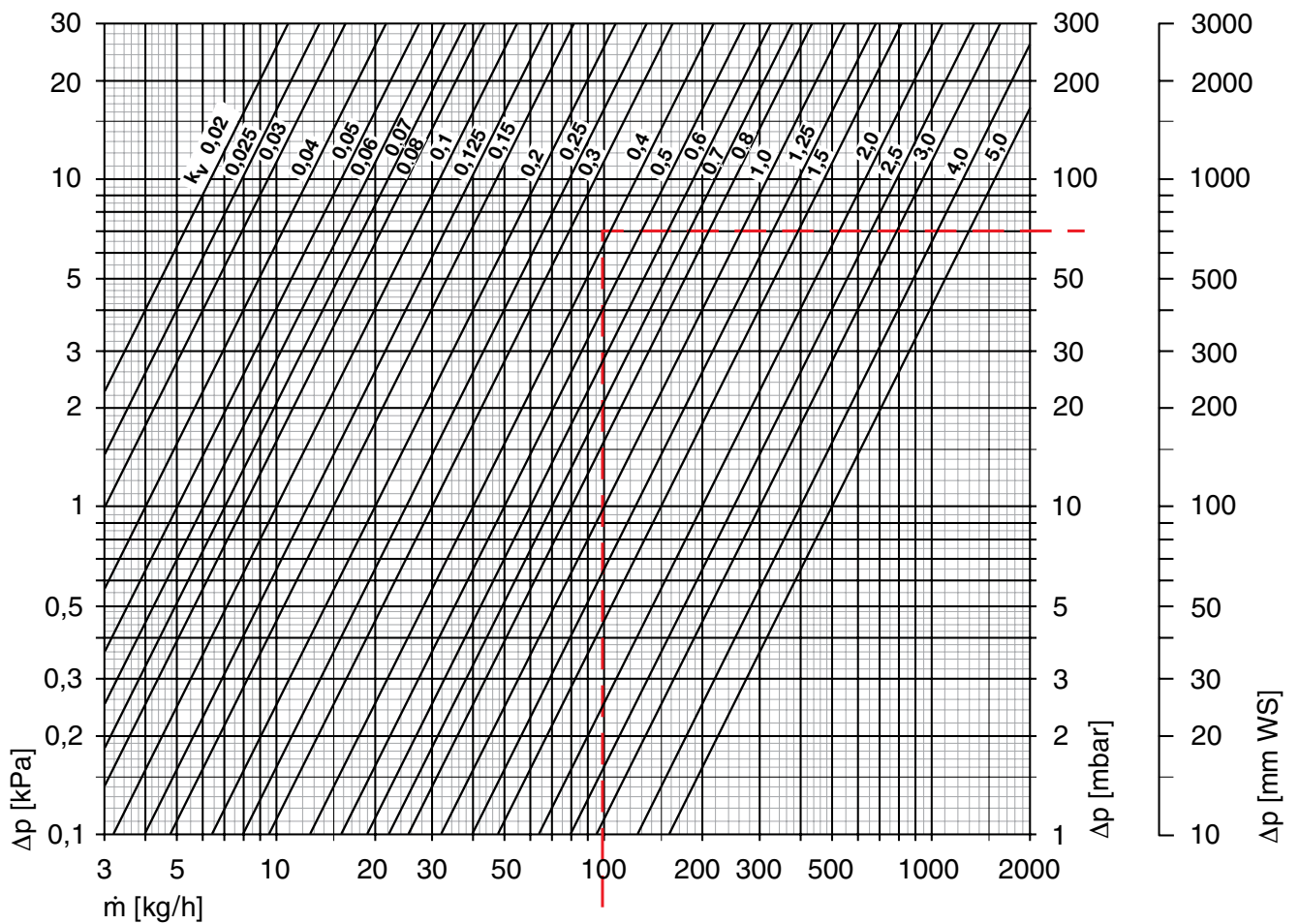
Solution: Mass flow  $m = Q / (c \cdot \Delta t) = 1660 / (1,163 \cdot 15) = 95 \text{ kg/h}$

Pressure loss from diagram  $\Delta p_v = 17 \text{ mbar}$

$$c_v = \frac{k_v}{0,86}$$

$$k_v = c_v \cdot 0,86$$

## Kv and Kvs-value definition



### kv-value and kvs-value (cv-value)

The kv-value of a valve indicates the volume flow in m<sup>3</sup>/h with a specific stroke (cv-value) (p-band) and a pressure loss of 1.0 bar. The kvs-value indicates the volume flow when the valve is completely open.

Standard formula for water medium:  $k_v = \frac{\dot{V}}{\sqrt{\Delta p}}$

Symbols and units of measure

$k_v/k_{vs}$  Valve characteristic in m<sup>3</sup>/h

$\dot{V}$  Volume flow in m<sup>3</sup>/h

$\Delta p$  Pressure loss in bar

### Sample calculation

Target: kv-value for valve definition

Given: Mass flow  $m = 98$  kg/h

Pressure loss  $\Delta p = 70$  mbar

Solution: kv-value from the diagram: 0,37 m<sup>3</sup>/h

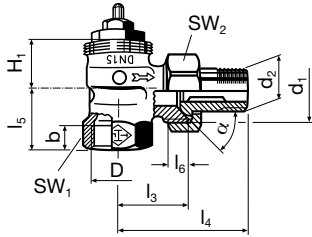
Selected: Standard, Thermostatic valve body, DN 15 (1/2"), P-band 1,5 K

$$c_v = \frac{k_v}{0,86}$$

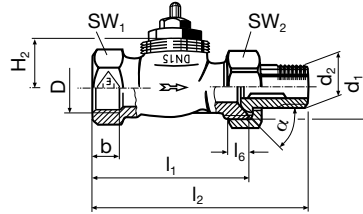
$$k_v = c_v \cdot 0,86$$

## Dimensions

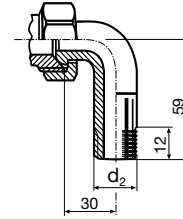
2201; 2241; 3431; 3511



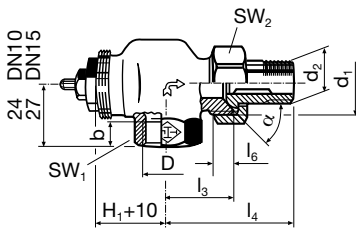
2202; 2242; 3432; 3512



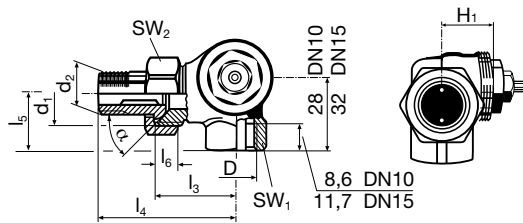
2206; 2244; 3556



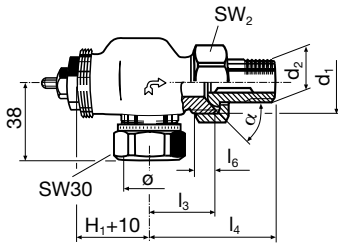
2225; 2245; 3430; 3510



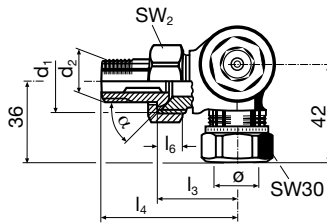
2310/ 2311; 2340/2341; 3513/3514



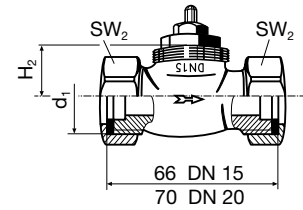
2235; 3530



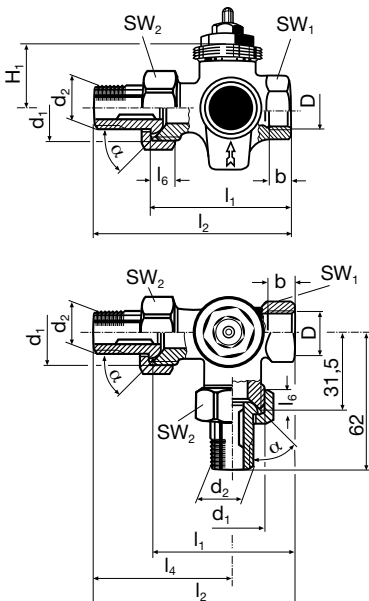
2312/2313; 2342/2343; 3533/3534



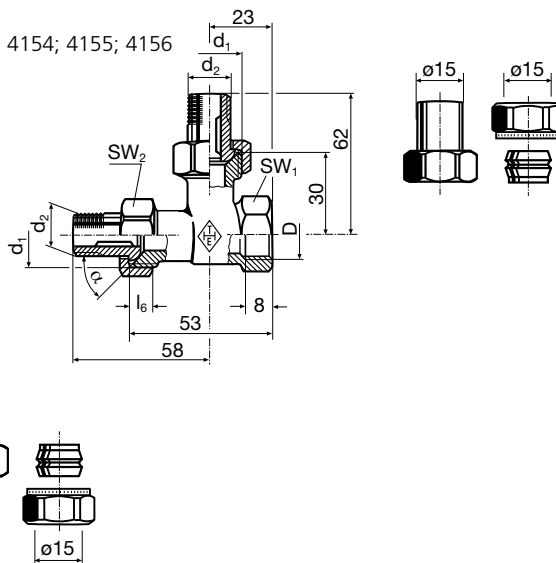
2272; 2274; 2276

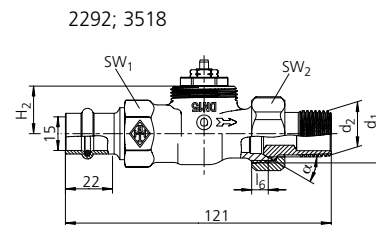
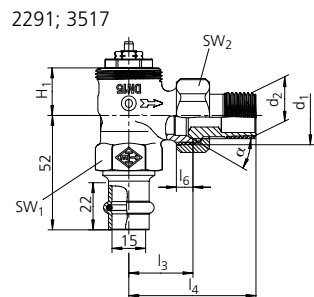
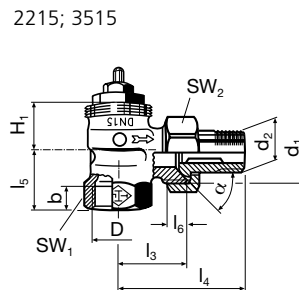
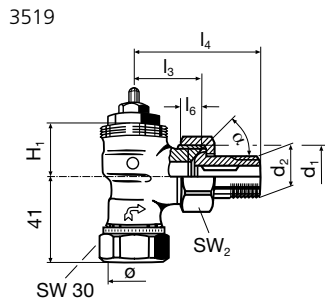
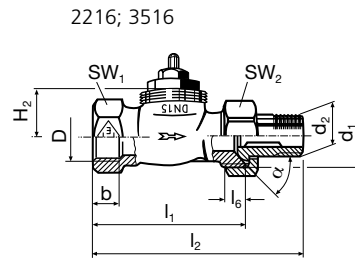
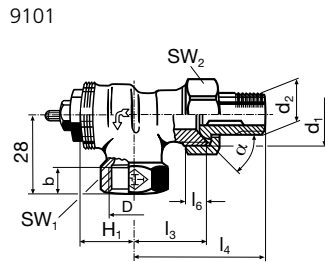
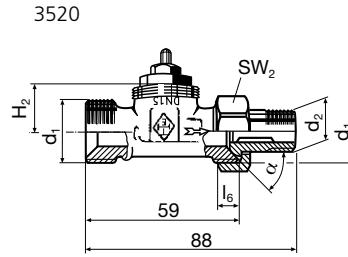
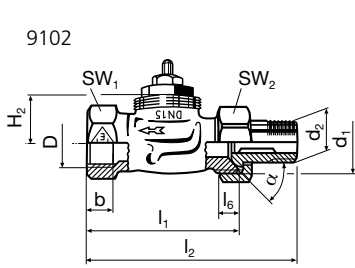


4148; 4149; 4150; 4151; 4152; 4153



4154; 4155; 4156





Thermostatic valve bodies

$\alpha = 70^\circ (\pm 10^\circ)$

DN	D	b min.	d <sub>1</sub>	d <sub>2</sub>	l <sub>1</sub> ±2	l <sub>2</sub> ±2	l <sub>3</sub> ±1	l <sub>4</sub> ±1,5	l <sub>5</sub> ±1,5	l <sub>6</sub> min.	SW <sub>1</sub>	SW <sub>2</sub>	H <sub>1</sub> -0,5	H <sub>2</sub> -0,5
10	Rp3/8	10,0	G5/8	R3/8	59	85	26	52	22	6	22	27	21,5	21,5
15	Rp1/2	13,2	G3/4	R1/2	66	95	29	58	26	7	27	30	21,5	21,5
20	Rp3/4	14,5	G1	R3/4	74	106	34	66	29	8	32	37	21,5	23,5
25	Rp1	17	G1 1/4	R1	84	118	40	75	32,5	9	41	47	23	30,5
32	Rp1 1/4	21	G1 1/2	R1 1/4	95	135	46	85	39	10	49	52	23	30,5

Thermostatic valve bodies with reduced lengths

$\alpha = 60^\circ (\pm 1^\circ)$

DN	D	b min.	d <sub>1</sub>	d <sub>2</sub>	l <sub>1</sub> ±0,5	l <sub>2</sub> ±2	l <sub>3</sub> ±0,5	l <sub>4</sub> ±1,5	l <sub>5</sub> ±0,5	l <sub>6</sub> min.	SW <sub>1</sub>	SW <sub>2</sub>	H <sub>1</sub> -0,5	H <sub>2</sub> -0,5
10	Rp3/8	8	G5/8	R3/8	50	75	24	49	20	6	22	27	21,5	21,5
15	Rp1/2	9	G3/4	R1/2	55	82	26	53	23	7	27	30	21,5	21,5
20	Rp3/4	10	G1	R3/4	65	98	30	63	26	8	32	37	21,5	23,5

SW = Spanner opening

1 mm = 0,0394 inch

## Thermostatic heads and valve bodies



Certified and tested by KEYMARK in accordance with DIN EN 215 (Series D and F)  
KEYMARK symbol approval number  
011-6T 0006

### Thermostatic heads

#### Art. No.

2500-00.500  
6000-00.500  
6000-00.600  
6001-00.500  
6002-00.500  
6005-00.500  
6008-00.500  
6010-00.500  
6001-00.600  
6002-00.600  
6700-00.500  
6850-00.500  
7000-00.500

### Thermostatic valve bodies, Series D

Art. No.	Art. No.	Art. No.
DN 10	DN 15	DN 20
2201-01.000	2201-02.000	2201-03.000
2202-01.000	2202-02.000	2202-03.000
2241-01.000	2241-02.000	
2242-01.000	2242-02.000	
3431-01.000	3431-02.000	
3432-01.000	3432-02.000	
3511-01.000	3511-02.000	3511-03.000
3512-01.000	3512-02.000	3512-03.000

### Thermostatic valve bodies, Series F

Art. No.	Art. No.	Art. No.
DN 10	DN 15	DN 20
2215-01.000	2215-02.000	2215-03.000
2216-01.000	2216-02.000	2216-03.000
3515-01.000	3515-02.000	
3516-01.000	3516-02.000	

### Thermostatic valve bodies

Art. No.	Art. No.	Art. No.
DN 10	DN 15	DN 20
	2206-02.000	
	2244-02.000	
	2291-15.000	
	2292-15.000	
	3517-15.000	
	3518-15.000	



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