Three-Way Mixing Valve

with or without presetting, for heating and cooling systems

Heimeier

Three-Way Mixing Valve

Description

HEIMEIER three-way mixing valve, with or without presetting, for mixing volume flows in heating and cooling systems, made of gunmetal, with protection cap.

Stainless spindle with double O-ring sealing. Outer O-ring can be exchanged without draining the system.

Models: flat sealing, and flat sealing with T-piece. Connection with threaded, soldering, or welding nipples.

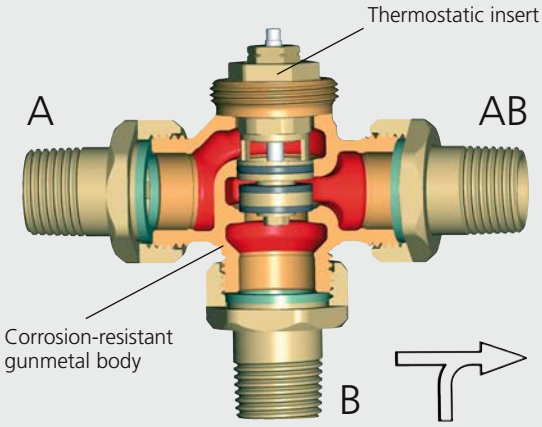
Models: conically sealing DN 15, G $^{3}/_{4}$ male thread. Connection with HEIMEIER compression fittings for plastic, copper, precision steel, or multi-layer pipes.

Operating temperature 2 °C to 120 °C; with protection cap or actuator up to 100 °C. Admissible operating over-pressure PB 10 bar.

Max. admissible differential pressure:
DN 15 = 1.20 bar
DN 20 = 0.75 bar
DN 25 = 0.50 bar
DN 32 = 0.25 bar

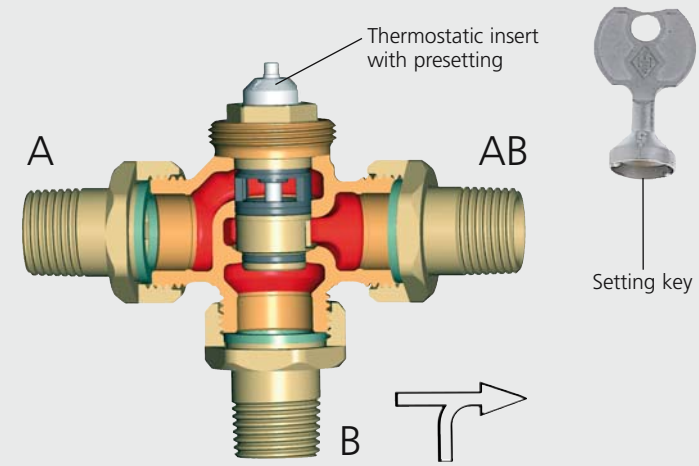
Construction

Three-Way Mixing Valve (black protection cap)



- **models with or without presetting**
- **ideal for supply temperature control with actuator EMO 3/230**
- **for all HEIMEIER thermostatic heads and actuators**
- **corrosion-resistant gunmetal body**
- **universal connection possibilities**

Three-Way Mixing Valve with Presetting (white protection cap)



Function

Thermostatic heads (brochure: Thermostatic Head K with contact or immersion sensor and/or thermostatic heads) are used for proportional control without auxiliary power. When the temperature rises, the angled B-AB passage is closed, and the straight A-AB passage is opened.

The EMO 1, EMO EIB, EMOLON, and/or EMO 3 / EMO 3/230 motorized actuators are used for proportional and/or three-step control with auxiliary power (brochure: EMO, EMO EIB, EMOLON).

The EMO T (brochure: EMO T) thermal actuator is used for two-step control with auxiliary power.

In the model normally open (NO), the angled B-AB passage is open without , and the straight A-AB passage is closed without current.

In the model, normally closed (NC), the angled B-AB passage is closed without current, and the straight A-AB passage is open without current.

The models with continuously adjustable presetting enable the adjustment of the necessary volume flow in the AB outlet. To preset, the setting key is slipped onto the valve insert, and the desired value is set. The setting values are displayed on the front of the valve insert. Without an instrument, the presetting cannot be manipulated by unauthorised persons.

Application

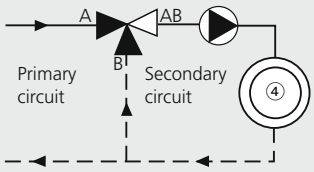
Mixing function
Admixture control in heating or cooling systems. Variable volume flow in the primary circuit. Constant volume flow in the secondary circuit.

Distributing function
Power control in heating or cooling systems by means of flow rate control. Constant volume flow in the primary circuit. Variable volume flow in the secondary circuit.

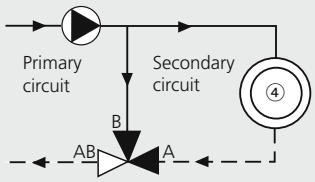
Principle heating mode[1)]

with EMO T thermal actuator normally open (NO), or with motorized actuator EMO 1/3/EIB/LON[2)]

Mixing function

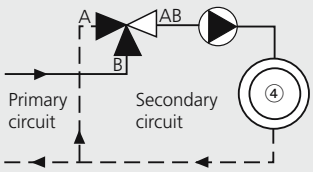


Distributing function

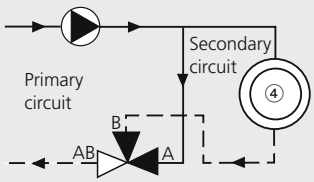


with thermostatic head or with EMO T thermal actuator normally closed (NC)

Mixing function

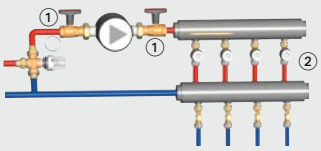


Distributing function

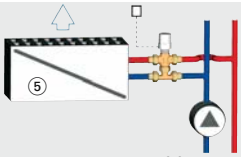


[1)] For cooling, the connection of inlets A and B must be exchanged.
[2)] The effective direction of the EMO 1/3/EIB/LON motorized actuators is determined by the controller or the connection.

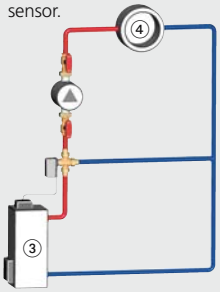
Examples of use



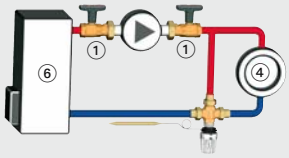
Supply temperature control for floor heating circuit manifolds with thermostatic head K with contact sensor.



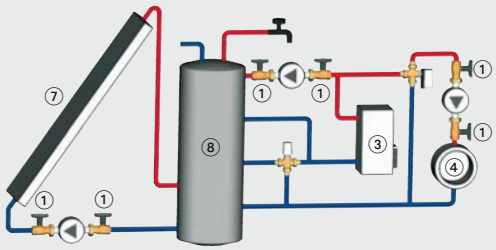
Water-side control of fan-coil appliances (air-conditioning systems / fan-coil units), e. g. with EMO T (NO).



Supply temperature control by means of admixture control in the heating circuit with EMO 3/230.



Return temperature increase for solid-fuel boilers with thermostatic head K with contact sensor.



Heating support for bivalent solar facilities with EMO T (NO), for example.
Admixture control in the heating circuit with EMO 3/230, for example.

① Globo P
② Floor heating circuit manifold
③ Oil/gas boiler
④ Radiator
⑤ Fan/coil unit
⑥ Solid-fuel boiler
⑦ Solar collector
⑧ Combined solar storage tank

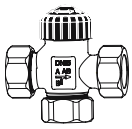
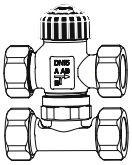
Information

To prevent damage and incrustation in hot water heating systems, the composition of the heat transfer medium should meet VDI [German Engineer Association] directive 2035. The instruction leaflet of the VdTÜV [German Association of Technical Inspection Authorities] "1466/AGFW-Merkblatt 5/15" must be observed for industrial and long-distance energy systems. Mineral oil or mineral-oil based lubricants of all kinds in the heat transfer medium lead to considerable swelling and, in most cases, to a failure of EPDM seals. When using non-nitrite anti-freeze and anti-corrosive agents based on ethylene glycol, please read the respective particulars-especially on the concentration of the individual additives-in the manufacturer's documentation.

Three-Way Mixing Valve

Article numbers

Three-Way Mixing Valve without Presetting (black protection cap)

Illustration	Article	DN	art. no.	DN	art. no.	DN	art. no.	DN	art. no.
	**Three-way mixing valve** flat sealing	15	**4170-02.000**	20	**4170-03.000**	25	**4170-04.000**	32	**4170-05.000**
	**Three-way mixing valve with T-piece** flat sealing	15	**4172-02.000**	20	**4172-03.000**	–	–	–	–
	**Three-way mixing valve** conically sealing	15	**4171-02.000** G $^3/_4$ Male thread	–	–	–	–	–	–

Three-Way Mixing Valve with Presetting (white protection cap)

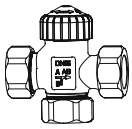
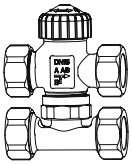
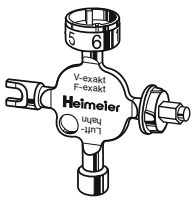
Illustration	Article	DN	art. no.	DN	art. no.	DN	art. no.	DN	art. no.
	**Three-way mixing valve** flat sealing	15	**4175-02.000**	20	**4175-03.000**	–	–	–	–
	**Three-way mixing valve with T-piece** flat sealing	15	**4177-02.000**	20	**4177-03.000**	–	–	–	–
	**Three-way mixing valve** conically sealing	15	**4176-02.000** G $^3/_4$ Male thread	–	–	–	–	–	–

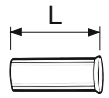
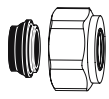
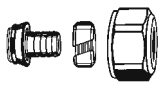
Illustration	Description	art. no.
	**Setting key** for activating the three-way mixing valve with presetting. For thermostatic valve body also V-exakt/F-exakt.	**3501-02.142**
	**Universal spanner** as an alternative to the setting key (art. no. 3501-02.142), for activating the three-way mixing valve with presetting. Also for thermostatic valve bodies V-exakt/F-exakt, thermostatic head B (temperature setting), Regulux lockshield, Vekolux double connection fitting, and radiator air vents.	**0530-01.433**

Accessories

For Three-Way Mixing Valve, Flat Sealing

Illustration	Description	DN valve	Ø pipe	art. no.
	**Connecting nipple** for flat sealing three-way mixing valves.			
	Threaded nipple	15 (1/2") 20 (3/4") 25 (1") 32 (1 1/4")	R 1/2 R 3/4 R 1 R 1 1/4	**4160-02.010** **4160-03.010** **4160-04.010** **4160-05.010**
	**Soldering nipple**	15 (1/2") 15 (1/2") 15 (1/2") 20 (3/4") 25 (1") 32 (1 1/4")	15 16 18 22 28 35	**4160-15.039** **4160-16.039** **4160-18.039** **4160-22.039** **4160-28.039** **4160-35.039**
	**Welding nipple**	15 (1/2") 20 (3/4") 25 (1") 32 (1 1/4")	20,8 26,3 33,2 41,8	**4160-02.043** **4160-03.043** **4160-04.043** **4160-05.043**

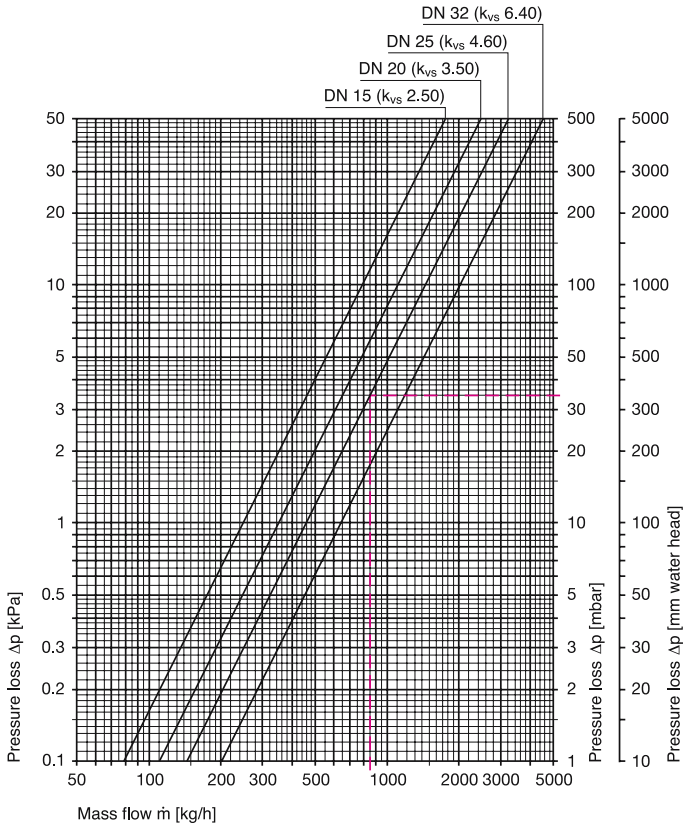
For Three-Way Mixing Valve, Conically Sealing

Illustration	Description	L [mm]	Ø pipe	art. no.
	**Compression fitting** for copper or precision steel pipes. Brass. Metal-to-metal joint. For pipes with 0.8–1 mm thick walls, support bushes must be used. Observe pipe manufacturer's particulars.		10 12 14 15 16 18	**1300-10.351** **1300-12.351** **1300-14.351** **1300-15.351** **1300-16.351** **1300-18.351**
	**Support bushes** for copper or precision steel pipes with 1 mm thick walls. Brass.	18,5 25,0 25,0 26,0 26,3 26,8	10 12 14 15 16 18	**1300-10.170** **1300-12.170** **1300-14.170** **1300-15.170** **1300-16.170** **1300-18.170**
	**Compression fitting** for copper or precision steel pipes. Brass, nickel-plated. Soft sealing.		12 14 15 16 18	**1313-12.351** **1313-14.351** **1313-15.351** **1313-16.351** **1313-18.351**
	**Compression fitting** for plastic pipes. Brass.		12 x 2 14 x 2 16 x 2 17 x 2 18 x 2 18 x 2,5 20 x 2 21 x 2,5	**1301-12.351** **1301-14.351** **1301-16.351** **1301-17.351** **1301-18.351** **1302-18.351** **1301-20.351** **1301-21.351**
	**Compression fitting** for multi-layer pipes.. Brass.		14 x 2 16 x 2 18 x 2	**1330-14.351** **1330-16.351** **1330-18.351**

Three-Way Mixing Valve

Technical data

Diagram, three-way mixing valve, k_{VS} values



Three-way mixing valve	k_v value with thermostatic head 1) [m^3/h]	k_{vs} value 2) [m^3/h]	Admissible operating temperature TB [°C]	Admissible operating over-pressure PB [bar]	Admissible differential pressure under which the valve still closes Δp [bar]
DN 15	1,40	2,50	120	10	1,20
DN 15 with T-piece	1,40	2,50	120	10	1,20
DN 20	1,90	3,50	120	10	0,75
DN 20 with T-piece	1,90	3,50	120	10	0,75
DN 25	2,60	4,60	120	10	0,50
DN 32	3,50	6,40	120	10	0,25

1) The kv value corresponds with the flow in angular direction B-AB or in straight direction A-AB when the valve cone is in the middle respectively. The mixing ratio is then 50 %.

2) The K_{vs} value corresponds with the flow in angular direction B-AB when the valve is fully open, or with the flow in straight direction A-AB when the valve is closed.

Calculation example

Required: pressure loss Δp_v

Given: three-way mixing valve DN 25 with actuator (add-mixing control)
heat flow $\dot{Q}$ = 14830 W
Supply temperature primary circuit t_v = 70 °C
Return temperature secondary circuit t_r = 55 °C

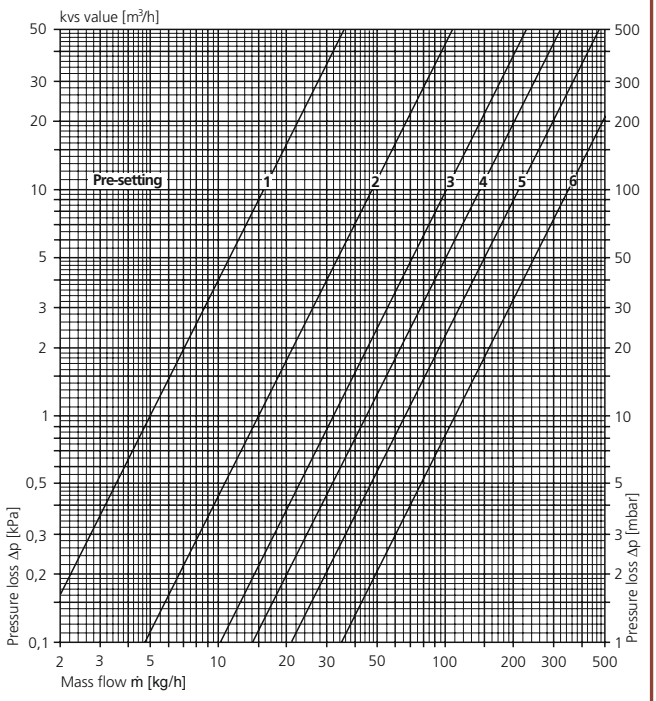
Solution: Mass flow $\dot{m} = \frac{\dot{Q}}{c \cdot \Delta t} = \frac{14830}{1{,}163 \cdot (70\text{-}55)} = 850$ kg/h

pressure loss from diagram Δp_V = 34 mbar

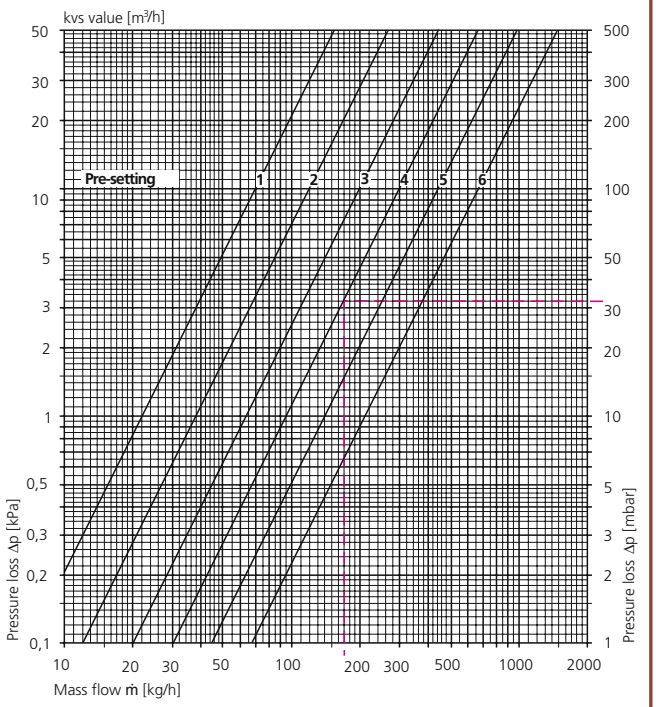
Technical data

Diagram, three-way mixing valve with presetting, k_{VS} values

DN 15



DN 20



Three-way mixing valve with presetting		Presetting 1	2	3	4	5	6	Admissible operating temperature TB [°C]	Admissible operating over-pressure PB [bar]	Admissible differential pressure under which the valve still closes Δp [bar]
DN 15	k_V value with thermostatic head[1] [m³/h]	0,03	0,08	0,17	0,24	0,35	0,58	120	10	1,20
	k_{VS} value[2] [m³/h]	0,05	0,15	0,32	0,45	0,66	1,10			
DN 20	k_V value with thermostatic head[1] [m³/h]	0,12	0,20	0,32	0,49	0,79	1,11	120	10	0,75
	k_{VS} value[2] [m³/h]	0,22	0,38	0,63	0,95	1,41	2,07			

1) The kv value corresponds with the flow in angular direction B-AB or in straight direction A-AB when the valve cone is in the middle respectively. The mixing ratio is then 50 %.

2) The K_{VS} value corresponds with the flow in angular direction B-AB when the valve is fully open, or with the flow in straight direction A-AB when the valve is closed.

Calculation example

Required: Presetting value for three-way mixing valve NW 20 with actuator (admixture control)

Given:

Heat flow	$\dot{Q}$	= 5930 W
Supply temperature primary circuit	t_v	= 70 °C
Return temperature secondary circuit	t_r	= 40 °C
Pressure loss	Δp_V	= 32 mbar

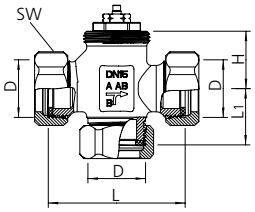
Solution: Mass flow $\dot{m} = \frac{\dot{Q}}{c \cdot \Delta t} = \frac{5930}{1{,}163 \cdot (70\text{-}40)} = 170$ kg/h

Presetting value as per diagram: 4

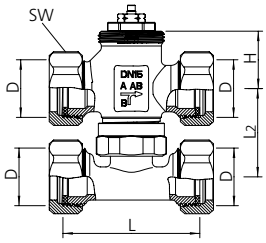
Three-Way Mixing Valve

Dimensions

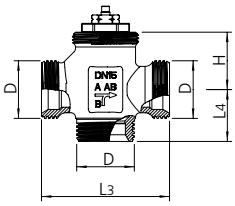
flat sealing



flat sealing, with T-piece

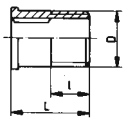


conically sealing



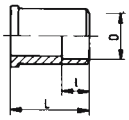
DN	D	L	L_1	L_2	L_3	L_4	H	SW
15	G 3/4	62	25,5	40	58	23,5	26,0	30
20	G 1	71	35,5	60			31,5	37
25	G 1 1/4	84	42,0				33,5	47
32	G 1 1/2	89	44,5				33,5	52

Threaded nipple



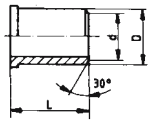
D	L	l
R 1/2	27,5	13,2
R 3/4	30,5	14,5
R 1	33	16,8
R 1 1/4	36,5	19,1

Soldering nipple



D	L	l
15	18	12
16	19	13
18	20	14
22	23	17
28	27	20
35	32	35

Welding nipple



D	L	d
20,8	35	17
26,3	40	22
33,2	45	28
41,8	45	34

Printed on chlorine-free bleached paper.
Technical changes must be taken into account

Leaflet 3.1.1
3110-18.483 / 11.05

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