Three-way reversing valve

for heating and cooling systems

To be precise.

Heimeier

Three-way reversing valve

Description

HEIMEIER three-way reversing valve for the distribution of mass flow in heating and cooling systems, made of gunmetal, with protection cap.

Stainless spindle has double O-ring seal. Outer O-ring can be replaced without draining the system.

Connection via screwed, soldered, or welded nipple.

Operating temperature from 2°C (36°F) to 120°C (248°F), with protection cap or actuator up to 100°C (212°F).

Maximum allowable working pressure 10 bar.
Low-pressure steam 110°C (230°F)/ 0.5 bar.

Allowable differential pressure
DN 15 = 1.20 bar
DN 20 = 0.75 bar
DN 25 = 0.50 bar

Construction

Three-way reversing valve

- **Body made of corrosion-resistant gunmetal**
- **Universal connection via screwed, soldered, or welded nipple**
- **Stainless spindle with double O-ring seal**
- **Outer O-ring can be replaced while under pressure**

Function

For two-point control, the EMO T thermal actuator is installed (currentless open model) (see EMO T prospectus).
If there is no voltage present, the straight passage of the three-way reversing valve is opened and the angled exit closed.

During switching, there are no resulting pressure surges in the system.

If thermostatic heads are installed, the valve may also operate in intermediate positions (see prospectus for thermostatic head K with contact or immersion sensor). As the temperature increases, the straight passage is closed and the angled exit opened.

For proportional or three point control, the electromotive actuators EMO 1, EMO EIB, EMOLON or EMO 3 are installed (see prospectus for EMO, EMO EIB, EMOLON).

Application

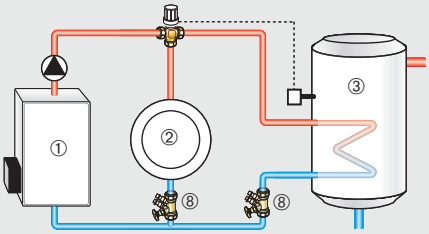
– Output control of heat exchangers via flow rate control, e.g. for air heaters, coolers or other heat exchangers. Volume flow remains steady in the primary circuit.

– Switching between heat consuming apparatuses such as the heating circuit and heater for potable water or between various heat generating devices such as boilers, heat pumps, or solar energy systems.

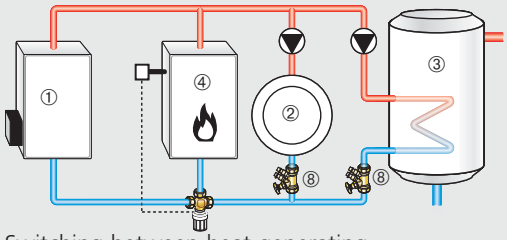
– Mixing control through installation in the return pipe (external mixing point). Approximately equal volume flow in the secondary circuit.

Three-way reversing valve

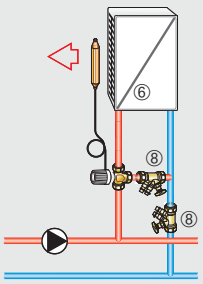
Sample applications



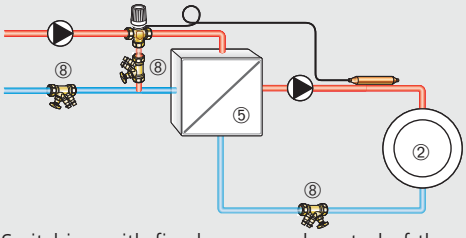
Switching between heat consumers such as heating circuits and hot water storages.



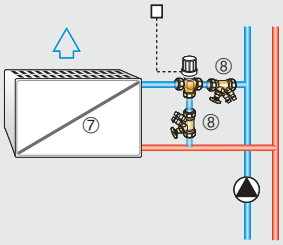
Switching between heat generating devices such as an oil/gas boiler or boilers for solid fuels.



Flow rate control for constant blow-out temperature with air heaters.



Switching with fixed-command control of the flow temperature to a secondary circuit of the heat exchanger, such as heaters for potable water, industrial pools, and swimming pool water.



Control of the water circuit from fan-coil devices (air conditioners / forced air convectors).

① Oil/gas boiler
② Heating circuit
③ Hot water storage
④ Boiler for solid fuels
⑤ Heat exchanger
⑥ Air heater
⑦ Fan-coil device
⑧ TA STAD balancing valve

Note

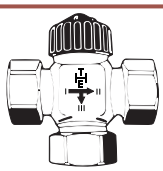
The composition of the heat transfer medium should be one which avoids damage or the accumulation of stones in hot water heating systems, in accordance with VDI guide line 2035.

For industrial and long-distance energy systems, see applicable codes VdTÜV and 1466/AGFW 5/15.

Heat transfer media containing mineral oils or lubricants containing mineral oil can have seriously 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 details concerning concentration and specific additives.

Article numbers

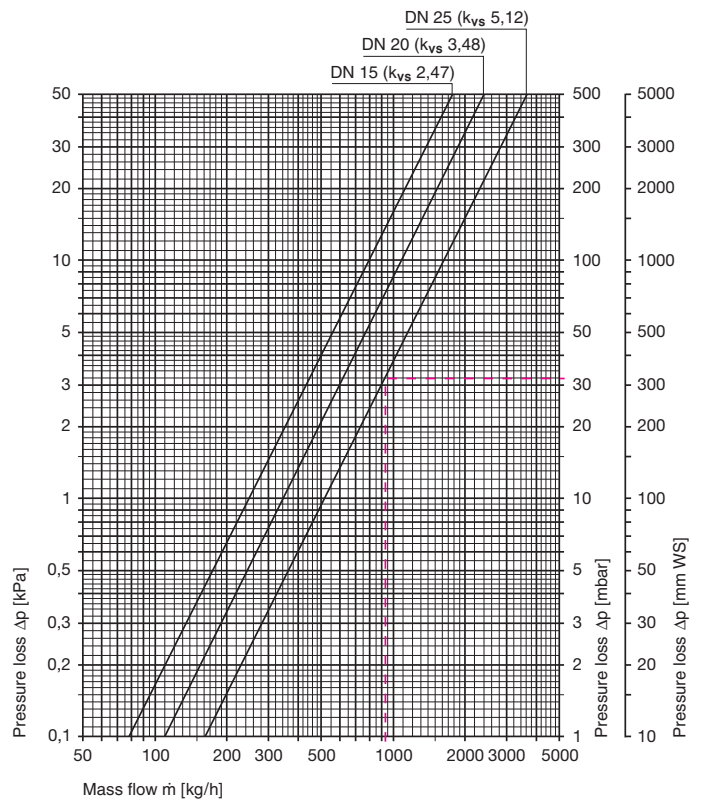
Illustration	Article	NW	Art. no.	NW	Art. no.	NW	Art. no.
	**Three-way reversing valve**	15	**4160-02.000**	20	**4160-03.000**	25	**4160-04.000**
Accessories	**Article**	**Ø Pipe**	**Art. no.**	**Ø Pipe**	**Art. no.**	**Ø Pipe**	**Art. no.**
	**Screwed nipple**	R 1/2	**4160-02.010**	R 3/4	**4160-03.010**	R 1	**4160-04.010**
	**Soldered nipple**	15 16 18	**4160-15.039** **4160-16.039** **4160-18.039**	22	**4160-22.039**	28	**4160-28.039**
	**Welded nipple**	20.8	**4160-02.043**	26.3	**4160-03.043**	33.2	**4160-04.043**

Sample order: 1 Three-way reversing valve Art. no. **4160-02.000**
3 Soldered nipples Ø 15 Art. no. **4160-15.039**

Three-way reversing valve

Technical data

Diagram Three-way reversing valve with thermal actuator



Three-way reversing valve with Thermostatic head K*)

Three-way reversing valve with immersion/contact sensor	k_v value [m^3/h] P-band [K] 2.0	4.0	6.0	8.0	k_{vs}-Value [m^3/h]
DN 15	0,60	1,20	1,71	2,10	2,47
DN 20	0,70	1,50	2,39	3,10	3,48
DN 25	1,08	2,28	3,48	4,62	5,12

*) The k_v values correspond to the flow in the direction of passage I-II at the given system deviations. The k_{vs} value corresponds to the flow in the direction I-II with a completely opened valve and in the direction I-III with a closed valve.

Sample calculation

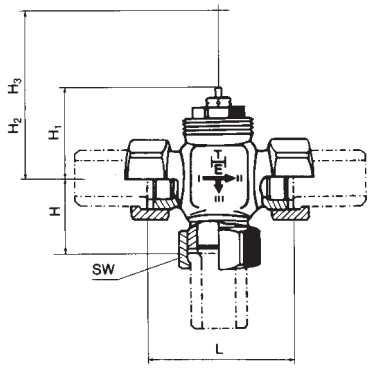
Goal: Pressure loss Δp_v

Given: Three-way reversing valve NW 25 with thermal actuator
Heat flow $\dot{Q}$ = 21000 W
Temperature adjustment Δt = 20 K (70/50°C)

Solution: Mass flow $\dot{m} = \frac{\dot{Q}}{c \cdot \Delta t} = \frac{21000}{1.163 \cdot 20} = 903$ kg/h

Pressure loss from diagram Δp_V = 31 mbar

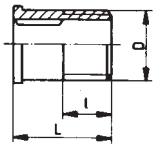
Dimensions



D	L	H	H_1	H_2	H_3	SW
15	60	30	38,0	108,0	86,5	30
20	64	36	44,5	114,5	93,0	37
25	84	46	50,0	120,0	98,5	47

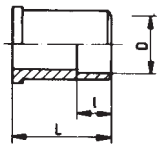
H_2 = Height with Thermostatic head K
H_3 = Height with thermal actuator EMO T

Screwed nipple



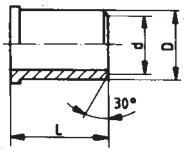
D	L	l
R 1/2	27,5	13,2
R 3/4	30,5	14,5
R 1	33	16,8

Soldered nipple



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

Welded nipple



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

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