IMI HEIMEIER

Three-way mixing valve

Thermostatic 3-way control valves

For heating and cooling systems

IMI Hydronic Engineering

Breakthrough Engineering

Three-way mixing valve

Three-way mixing valve, for mixing volume flows in heating and cooling systems.

Key features

- **Ideal for supply temperature control with actuator TA-TRI**
- **For all HEIMEIER thermostatic heads and actuators**
- **Valve body in gunmetal**
  Corrosion-resistant and safe

Technical description

Applications:
Heating and cooling systems.

Function:
Mixing of volume flows

Dimensions:
DN 15-32

Pressure class:
PN 10

Max. differential pressure (ΔpV):
DN 15: 120 kPa = 1.20 bar
DN 20: 75 kPa = 0.75 bar
DN 25: 50 kPa = 0.50 bar
DN 32: 25 kPa = 0.25 bar

Temperature:
Max. working temperature: 120°C, with protection cap or actuator max. 100°C.
Min. working temperature: 2°C.

Materials:
Valve body: Corrosion resistant Gunmetal.
O-rings: EPDM rubber
Valve disc: EPDM rubber
Return spring: Stainless steel
Valve insert: Brass
Spindle: Niro-steel spindle with double O-ring sealing. The outer O-ring can be replaced under pressure.

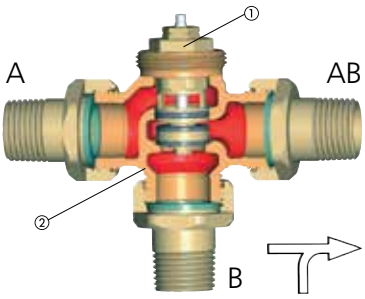
Marking:
THE, DN, PN, country code, flow direction arrow, marking of control gates (A, B, AB).
Black protection cap.

Pipe connection:
Connection with threaded or soldering nipples. Flat sealing.

Connection to thermostatic head and actuator:
HEIMEIER M30x1,5

Construction

Three-way mixing valve
(black protection cap)



1. Thermostatic insert
2. Corrosion-resistant gunmetal body

Function

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 TA-Slider 160 and/or TA-TRI motorized actuators are used for proportional and/or three-step control with auxiliary power.
The 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.

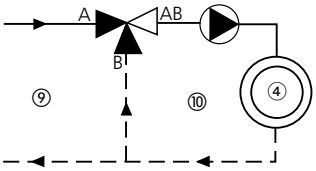
Application

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

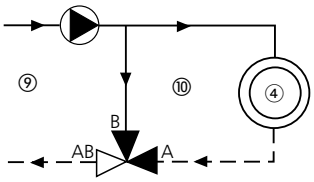
Distributing function
Power control in heating or cooling systems by means of flow rate control.
Constant volume flow in the primary circuit. Variable volume flow in the secondary circuit.

Principle - Heating mode[1)]
With EMO T thermal actuator normally open (NO), or with motorized actuator TA-Slider 160/TA-TRI [2)]

Mixing function

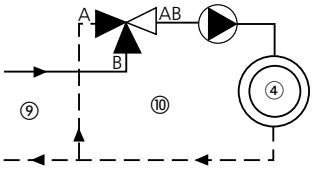


Distributing function

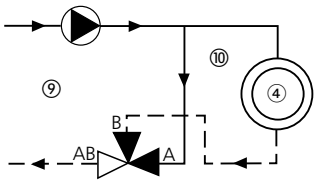


With thermostatic head or with EMO T thermal actuator normally closed (NC)

Mixing function

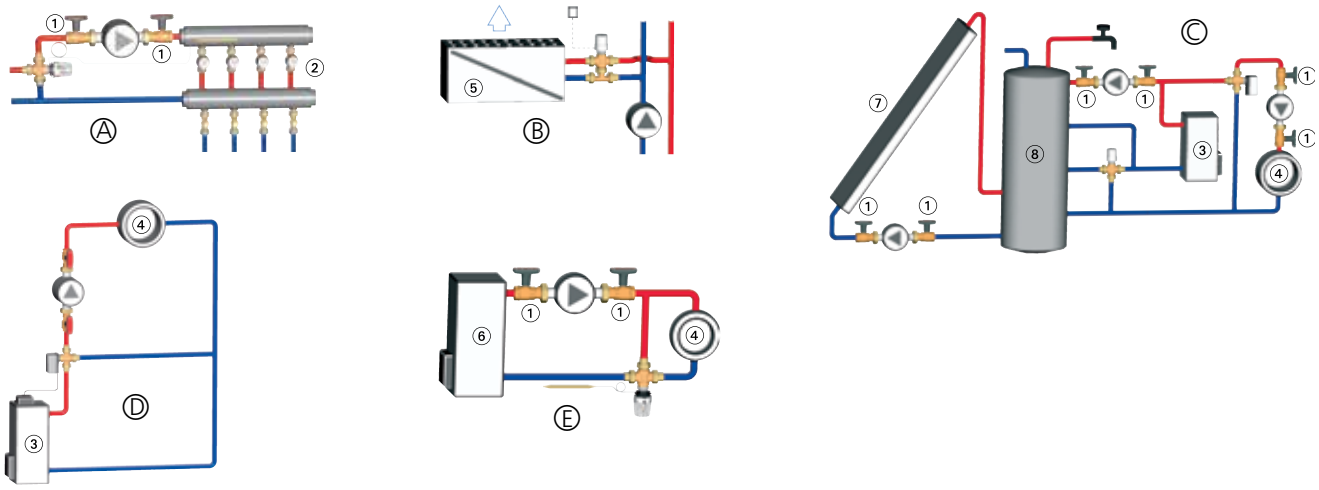


Distributing function[3)]



1) For cooling, the connection of inlets A and B must be exchanged.
2) The effective direction of the TA-Slider 160/TA-TRI motorized actuators is determined by the controller or the connection.
3) For Return temperature increase with thermostatic head, the connection of inlets A and B must be exchanged.

Sample application



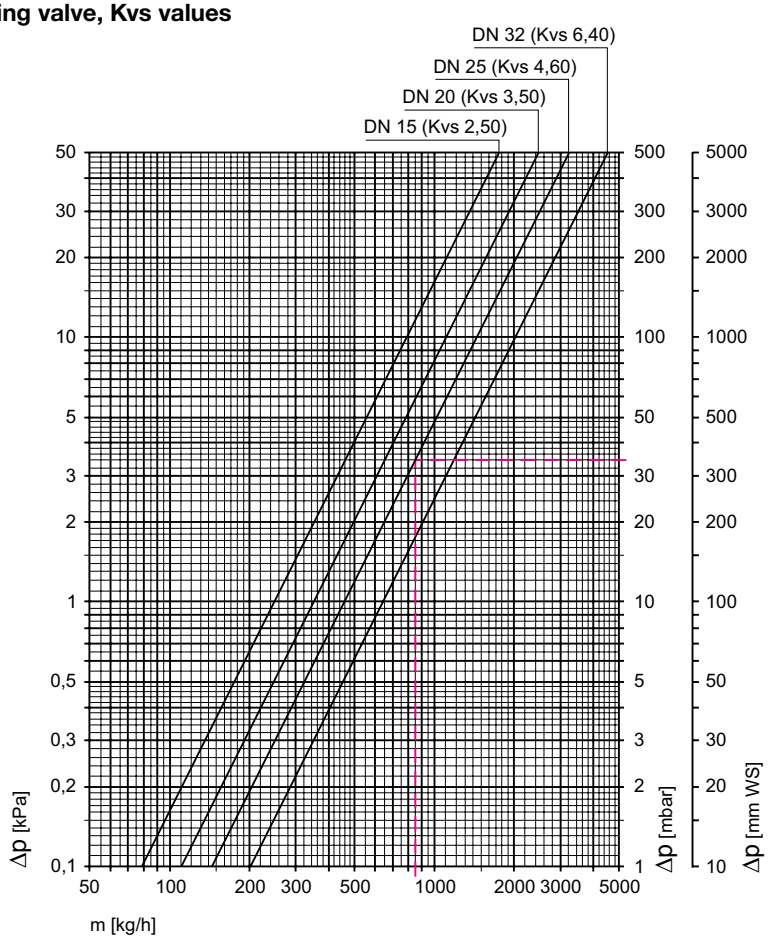
1. Globo P
2. Floor heating circuit manifold
3. Oil/gas boiler
4. Radiator
5. Fan/coil unit
6. Solid-fuel boiler
7. Solar collector
8. Combined solar storage tank
9. Primary circuit
10. Secondary circuit

A. Supply temperature control for floor heating circuit manifolds with thermostatic head K with contact sensor.
B. Water-side control of fan-coil appliances (air-conditioning systems / fan-coil units), e. g. with EMO T (NO).
C. Heating support for bivalent solar facilities with EMO T (NO), for example. Admixture control in the heating circuit with TA-TRI, for example.
D. Supply temperature control by means of admixture control in the heating circuit with TA-TRI.
E. Return temperature increase for solid-fuel boilers with thermostatic head K with contact sensor.

Notes
To avoid damage and the formation of scale deposit in the hot-water heating system, the composition of the heat transfer medium should be in accordance with the VDI guideline 2035. For industrial and long-distance energy systems, see the applicable codes VdTÜV and 1466/AGFW FW 510. A heat transfer medium containing mineral oils, or any type of lubricant containing mineral oil can have extremely negative effects and usually lead to the disintegration of EPDM seals. When using nitrite-free frost and corrosion resistance solutions with an ethylene glycol base, pay close attention to the details outlined in the manufacturers' documentation, particularly concerning concentration and specific additives.

Technical data

Diagram – Three-way mixing valve, Kvs values



		Kv value with thermostatic head [1]	Kvs [2]
DN 15		1,40	2,50
DN 15	with T-piece	1,40	2,50
DN 20		1,90	3,50
DN 25		2,60	4,60
DN 32		3,50	6,40

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 Kvs 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.

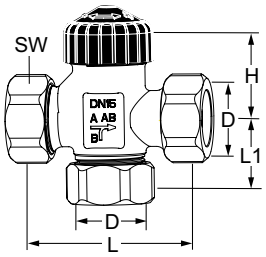
Calculation example

Required:
Pressure loss Δp_V

Given:
Three-way mixing valve DN 25 with actuator (add-mixing control)
Heat flow Q = 14830 W
Supply temperature primary circuit t_v = 70 °C
Return temperature secondary circuit t_r = 55 °C

Solution:
Mass flow m = Q / (c · Δt) = 14830 / (1,163 · 15)) = 850 kg/h
Pressure loss from diagram Δp_V = 34 mbar

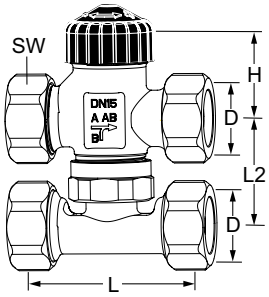
Articles



Three-way mixing valve
(black protection cap)

Flat sealing

DN	D	L	L1	H	SW	Kvs	EAN	Article No
15	G3/4	62	25,5	26,0	30	2,50	4024052466450	4170-02.000
20	G1	71	35,5	31,0	37	3,50	4024052466559	4170-03.000
25	G1 1/4	84	42,0	33,5	47	4,60	4024052466658	4170-04.000
32	G1 1/2	98	49,0	33,5	52	6,40	4024052466757	4170-05.000

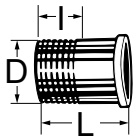


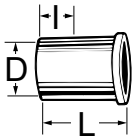
With T-piece, Flat sealing

DN	D	L	L2	H	SW	Kvs	EAN	Article No
15	G3/4	62	40	26	30	2,50	4024052491759	4172-02.000

SW = Spanner opening

Accessories – Flat sealing





Connecting nipple for flat sealing three-way mixing valves

DN valve	D	L	I	EAN	Article No
Threaded nipple					
15 (1/2”)	R1/2	27,5	13,2	4024052222810	4160-02.010
20 (3/4”)	R3/4	30,5	14,5	4024052223213	4160-03.010
25 (1”)	R1	33,0	16,8	4024052223619	4160-04.010
32 (1 1/4”)	R1 1/4	36,5	19,1	4024052223916	4160-05.010
Soldered nipple					
	Ø Pipe				
20 (3/4”)	22	23,0	17,0	4024052225217	4160-22.039
25 (1”)	28	27,0	20,0	4024052225415	4160-28.039