

Electric Control Valves Types 3226/5857, 3226/5824, 3226/5825

Pneumatic Control Valves Types 3226/2780-1, 3226/2780-2



Three-way Valve Type 3226

Application

Control valves available as mixing or diverting valves for heating, ventilation, and air-conditioning systems.

DN 15 to DN 50, G ½ to G 1 · PN 25 · Version up to 150 °C (water and non-flammable gases)

The control valves consist of a Type 3226 Three-way Valve and either an electric or pneumatic actuator.

Special features

- Type 3226 Three-way Valve designed as a **diverting valve** with welding ends or threaded ends (DN 15 to 50)
- Type 3226 Three-way Valve designed as a **mixing valve** with welding ends or threaded ends (DN 15 to 50) or screwed ends with female thread (G ½ to G 1)
- Type 3226 Three-way Valve mounted on a Type 5857 Electric Actuator in special version
- Force-locking connection between valve and actuator
- Special version: DVGW-tested

Versions

Electric control valves		
Type 3226/5857 · Fig. 1	PN 25	DN 15 to 25 G ½ to G 1
Type 3226/5824 · Fig. 2	PN 25	DN 15 to 50 G ½ to G 1
Type 3226/5825 ¹⁾	PN 25	DN 15 to 50 G ½ to G 1
Pneumatic control valves		
Type 3226/2780-1 · Fig. 3	PN 25	DN 15 to 50 G ½ to G 1
Type 3226/2780-2 ²⁾	PN 25	DN 15 to 50 G ½ to G 1

- ¹⁾ Electric actuators with safety function: Type 5825
Port B of the mixing valve closes when the safety function is triggered
Port A of the diverting valve closes when the safety function is triggered
- ²⁾ Pneumatic actuator suitable for integral positioner attachment

Also available:

- Type 3226 Three-way Valve mounted on a controller with electric actuator (refer to Data Sheet T 5763 EN)
- Three-way valve with flanges and electric, electrohydraulic or pneumatic actuator (refer to Data Sheet T 5861 EN)
- Three-way valve with flanges mounted on a controller with electric actuator (refer to Data Sheet T 5761 EN)



Fig. 1 · Type 3226/5857 (version with female thread)



Fig. 2 · Type 3226/5824 (version with female thread)



Fig. 3 · Type 3226/2780-1 (version with welding ends)

Principle of operation (Fig. 4)

The three-way valve in the version with welding and threaded ends can be used for mixing or flow-diverting service. The valves vary in the plug arrangement and must be installed accordingly. The version with female thread can only be used for mixing service. The valve and actuator have a force-locking connection.

The position of the plug (3) determines the cross-sectional area of flow between the plug and the seat (2). The plug stem follows the actuator stem, which is changed by the control signal acting on the actuator, owing to the force of the valve spring (5). The signal of the **electric actuators** is normally a three-point stepping signal or an analog signal of 0(4) to 20 mA or 0(2) to 10 V when an additional electric positioner is used.

Type 5825 with safety function (actuator stem extends only) · The Type 5825 Electric Actuator is equipped with a spring assembly and an electromagnet that can be connected to a safety interlock circuit. When the control circuit is interrupted or the power supply fails, the magnet disengages the gear from the self-locking motor and releases the spring assembly.

The electric actuators can be equipped with additional accessories.

Refer to Data Sheet for details	
Type 5857	→ Data Sheet T 5857 EN
Type 5824/5825	→ Data Sheet T 5824 EN

Type 2780-1 **Pneumatic Actuator** uses a control signal of 0.4 to 1 bar and the Type 2780-2 Actuator a control signal of 0.4 to 2 bar. Both actuators are available with the fail-safe action "Actuator stem extends" (FA) and "Actuator stem retracts" (FE).

Refer to Data Sheet for details	
Type 2780-1/-2	→ Data Sheet T 5840 EN

Installation

The control valves can be mounted in any position. However, the electric actuators (Types 5857, 5824/5825) must not be suspended downwards.

Make sure that the maximum ambient temperature of 50 °C for the actuator, which is attached to the valve bonnet, is not exceeded.

Make sure that the inlet and outlet flows of the plant are correctly assigned to ports A, B, and AB. Fig. 5 schematically illustrates a few typical applications.

Strainers must be installed upstream of the inlets of valves mounted on actuators with safety function (e.g. Type 1N or Type 1FN).

Ordering text

- Electric Control Valve · Type 3226/5857, Type 3226/5824 or Type 3226/5825
Power supply 24/230 V, 50 Hz · 110/120 V, 60 Hz
Optional additional accessories
- Pneumatic Control Valve · Type 3226/2780-1 or Type 3226/2780-2
Fail-safe position: Actuator stem extends/retracts
Type 2780-1: Loading pressure connection G 1/8"/1/8" NPT
- Mixing valve or diverting valve
- DN ..., G ...

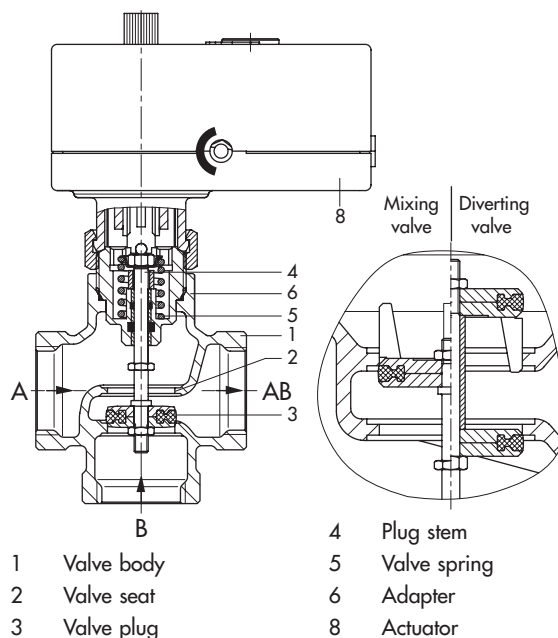


Fig. 4 · Functional diagram of Type 3226/5857 (left) as a mixing valve (DN 15 to 25) · Plug arrangement (right) for version with male thread (mixing and diverting valve)

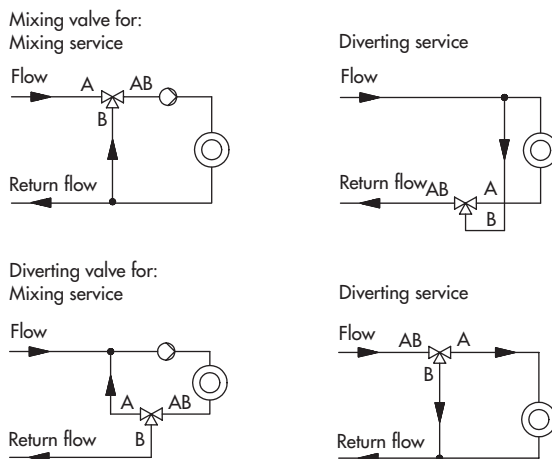


Fig. 5 · Typical installations

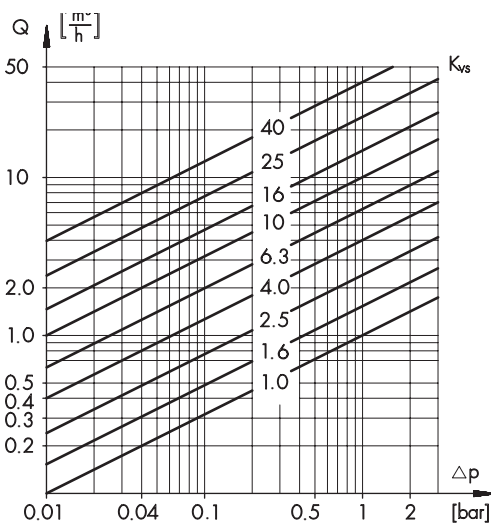


Fig. 6 · Flow rate diagram for water

Table 1 · Technical data · All pressures in bar (gauge)

Thread size	Mixing valve with female thread	G	½	¾	1	–	–	–
Nominal size	Mixing or diverting valve with welding ends or threaded ends	DN	15	20	25	32	40	50
Nominal pressure		PN	25					
DVGW version		PN	10					
Permissible temperature		°C	+5 (–15 ¹⁾) to 150 ²⁾					
DVGW version		°C	+5 to 90 °C ³⁾					
Permissible differential pressure for actuators								
Type 5857		bar	4	2.6	1.8	–	–	–
Type 5824/5825, Type 2780-1/-2		bar	4	4	4	1.7	1.1	1.1
Rated travel		mm	6	6	6	12	12	12
Seat/plug sealing	Soft sealing							
Leakage rate acc. to DIN EIN 1349	Class IV (≤0.05 % of K _{VS})							
Materials								
Valve body	CC491K (G-CuSn5ZnPb)							
Plug	CW617N (CuZn40Pb2zh) with EPDM							
Packing	O-rings made of FKM and EPDM							
Welding ends	St 37							
Threaded ends	Red brass							
Screw-on flanges	St 37.2							

1) Version for water: –15 to +5 °C with intermediate insulating section

2) Use an intermediate insulating section for networks with constant media temperatures between 130 to 150 °C

3) **Special version DVGW-tested:** Only as diverting valve

Special version DVGW-compliant (materials and lubricants same as DVGW-tested): Only as mixing valve

Table 2 · Overview: Nominal sizes and K_{VS} coefficients

Thread size	Mixing valve with female thread	G	½				¾	1	–	–	–
Nominal size	Mixing or diverting valve with welding ends or threaded ends	DN	15				20	25	32	40	50
K _{VS} coefficient			1.0	1.6	2.5	4	6.3	10	16	25	40
Rated travel		mm	6	6	6	6	6	6	12	12	12

Table 3 · Possible combinations for Type 3226 Three-way Valve ¹⁾/actuators

Actuator	Type	Refer to Data Sheet for details	Nominal size DN					
			15	20	25	32	40	50
Electric, without safety function	5857	T 5857 EN	•	•	•	–	–	–
	5824-10	T 5824 EN	•	•	•	–	–	–
	5824-13		•	•	•	–	–	–
	5824-20		–	–	–	•	•	•
	5824-23		–	–	–	•	•	•
Electric, with safety function (actuator stem extends)	5825-10	T 5824 EN	•	•	•	–	–	–
	5825-13		•	•	•	–	–	–
	5825-20		–	–	–	•	•	•
	5825-23		–	–	–	•	•	•
Electric, with safety function (actuator stem retracts)	5825-15	T 5824 EN	•	•	•	–	–	–
	5825-25		–	–	–	•	•	•
Pneumatic	2780-1	T 5840 EN	•	•	•	•	•	•
	2780-2		•	•	•	•	•	•

¹⁾ The valve spring in the Type 3226 Valve intended for mounting on the Type 5857 Actuator is different from that of the Type 3226 intended for mounting on Types 5824/5825 Electric Actuators and Types 2780-1/-2 Pneumatic Actuators. Actuators with a larger nominal thrust (e.g. Type 5824) may also be combined with valves for Type 5857 Actuator, however, not vice versa.

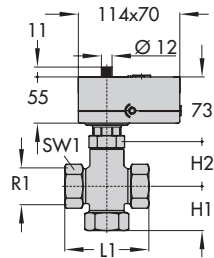
Table 4 · Dimensions and weights

Table 4.1 · Type 3226 Three-way Valve							
Thread size	G	½	¾	1	–	–	–
Nominal size	DN	15	20	25	32	40	50
Height H2	mm	51			61		
Valves with female threads							
Connection size R1		G ½	G ¾	G 1	–	–	–
Length L1	mm	65	75	90	–	–	–
Height H1	mm	40			–	–	–
Width across flats SW1		27	34	46	–	–	–
Weight w/o actuator (approx. kg)		0.9	1.1	1.3	–	–	–
Valves with connection nuts							
Connection size	R	G ¾	G 1	G 1¼	G 1¾	G 2	G 2½
Width across flats SW		30	36	46	59	65	82
Length L	mm	65	70	75	100	110	130
Height H3	mm	40			60	65	
... and welding ends							
Pipe Ød	mm	21.3	26.8	33.7	42	48	60
Length L2	mm	210	234	244	268	294	330
Height H4	mm	112	122	124	149	162	175
Weight w/o actuator (approx. kg)		3.2	3.6	4.0	6.1	7.0	8.0
... and threaded ends (male thread)							
Male thread A		G ½	G ¾	G 1	G 1¼	G 1½	G 2
Length L3	mm	128	143	158	179	195	227
Height H5	mm	71.5	76.5	81.5	99	108	114
Weight w/o actuator (approx. kg)		3.2	3.6	4.0	6.1	7.0	8.0

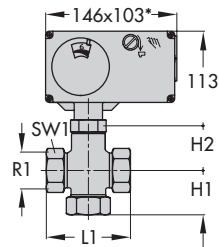
Table 4.2 · Actuators						
	Type	5857	5824	5825	2780-1	2780-2
Weight (without valve)	approx. kg	0.7	1.0	1.25	2.0	3.2

Dimensions in mm

Electric control valves



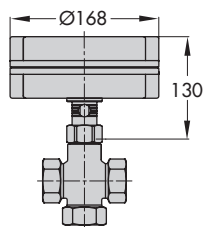
Type 3226/5857, DN 15 to 25
Version with female thread



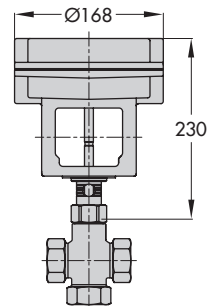
Type 3226/5824-xx: DN 15 to 50
Type 3226/5825-xx: DN 15 to 50

* Dimensions for Type 5824-x3
and Type 5825-x3 Actuators:
146 x 136

Pneumatic control valves

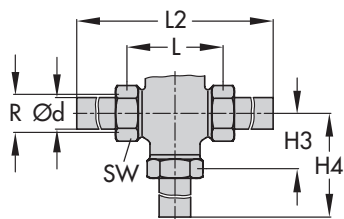


Type 3226/2780-1: DN 15 to 50

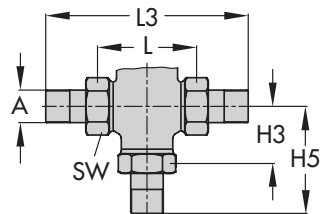


Type 3226/2780-2: DN 15 to 50

Versions



Version with welding ends



Version with threaded ends

Specifications subject to change without notice.



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