

Electric Control Valves Types 3222/5857, 3222/5824, 3222/5825, 3222/5757, 3222/5757-7, 3222/5724, 3222/5725, 3222/5725-7



Pneumatic Control Valve Type 3222/2780

Single-seated Globe Valve Type 3222

Application

Globe valve for heating, ventilation and air-conditioning systems.

DN 15 to 50, G ½ to G 1 · PN 25

Version up to 150 °C (for water, oil and other liquids)

Version up to 200 °C (for water above 150 °C and steam)



Special features

- Single-seated globe valves partly available with balanced valve plugs
- Single-seated globe valves optionally available with male thread connection and welding ends, threaded ends, flanges or with female thread connection as well as with flanged valve body
- Force-locking connection between valve and actuator

Versions

Electric control valves			
Type 3222/5857	PN 25	DN 15 to 25	G ½ to 1
Type 3222/5824	PN 25	DN 15 to 50	G ½ to 1
Type 3222/5825 ¹⁾	PN 25	DN 15 to 50	G ½ to 1
Electric control valve/controller with electric actuator for domestic hot water heating			
Type 3222/5757	PN 25	DN 15 to 25	G ½ to 1
Type 3222/5724	PN 25	DN 15 to 50	G ½ to 1
Type 3222/5725 ¹⁾	PN 25	DN 15 to 50	G ½ to 1
Electric control valves/controller with electric actuator for heating and cooling applications			
Type 3222/5757-7	PN 25	DN 15 to 25	G ½ to 1
Type 3222/5725-7 ¹⁾	PN 25	DN 15 to 50	G ½ to 1
Pneumatic control valves			
Type 3222/2780-1	PN 25	DN 15 to 50	G ½ to 1
Type 3222/2780-2 ²⁾	PN 25	DN 15 to 50	G ½ to 1

¹⁾ Electric actuators with fail-safe action

²⁾ Pneumatic actuator suitable for integral positioner attachment

Register number

The valves mounted on Types 5825, 5725 and 5725-7 for fail-safe action "Actuator stem extends" are typetested according to DIN EN 14597 by the German technical inspectorate TÜV. The register number is available on request.

Also available:

Type 3222 N Valve suitable for local heat supply and large heating networks (refer to T 5867 EN)

Fig. 1
Type 3222/5857
Type 3222/5757
(version with welding ends)



Fig. 2
Type 3222/5825
Type 3222/5725
(flanged body version)

Fig. 3
Type 3222/2780-1
(flanged body version)



Fig. 4
Type 3222/2780-2
with positioner
(version with welding ends)

Principle of operation (Fig. 5)

The medium flows through the single-seated globe valve in the direction indicated by the arrow.

The position of the plug determines the flow rate across the area released between plug (3) and valve seat (2). The valve is opened by the valve spring (5) when the actuator stem retracts. A special version is required for water with temperatures above 150 °C and for steam. The plug is positioned by control signal changes which act on the actuator.

The valve (1) and actuator (10) have a force-locking connection.

Fail-safe position

For globe valves mounted to an actuator with fail-safe action, the control valve has two different positions which become effective upon power supply failure:

Actuator stem extends

- The globe valve closes upon power supply failure

Actuator stem retracts

- The globe valve opens upon power supply failure

Electric actuators

The electric actuators can be controlled either using a three-stepping point signal or, in the version with positioner, with continuous signals adjustable in the range from 0 to 20 mA or from 0 to 10 V. Various optional electric accessories can be mounted onto the control valve.

Type 5825 Electric Actuator is able to perform a fail-safe action. Refer to Table 4.

Refer to the data sheets for more details on the electric actuators:

- **T 5857 EN:** Type 5857 Electric Actuator
- **T 5824 EN:** Types 5824 and 5825 Electric Actuators

Controllers with electric actuators

The actuator consists of a digital controller which is integrated into the electric actuator housing. The Types 5757, 5724 and 5725 Controller with Electric Actuator are suited for domestic hot water heating, whereas Types 5757-7 and 5725-7 are suited for heating and cooling applications. They are controlled by continuous signals which can be adjusted in ranges from 0 to 20 mA or 0 to 10 V.

Types 5725 and 5725-7 are able to perform a fail-safe action. Refer to Table 4.

Refer to the data sheets for more details on the controller with electric actuator:

- **T 5757 EN:** Type 5757 Controller with Electric Actuator for domestic hot water heating
- **T 5757-7 EN:** Type 5757-7 Controller with Electric Actuator for heating and cooling applications
- **T 5724 EN:** Type 5724 Controller with Electric Actuator for domestic hot water heating
- **T 5725-7 EN:** Type 5725-7 Controller with Electric Actuator for heating and cooling applications

Pneumatic actuators

The Type 2780-1 Pneumatic Actuator uses a control signal from 0.4 to 1 bar and Type 2780-2 uses a control signal from 0.4 to 2 bar which is applied to the loading pressure connection. The pneumatic actuators require a supply pressure of at least 0.2 bar above the maximum bench range. They are available for

fail-safe action "Actuator stem extends (FA)" or "Actuator stem retracts (FE)".

The Type 2780-2 Pneumatic Actuator is suitable for integral positioner attachment.

Refer to the data sheet for more details on the pneumatic actuators:

- **T 5840 EN:** Types 2780-1 and 2780-2 Pneumatic Actuator

Installation of the control valve

- Version for water, oil and other liquids: the valve can be mounted in any desired position, however, the actuator must not be suspended downwards.
- Version for water above 150 °C and steam: the valve must be installed with the valve in the upright position.

If the control valve is to be insulated, the actuator and the coupling nut must not be insulated as well. Additionally, it must be ensured that the maximum permissible ambient temperature is not exceeded. If necessary, an intermediate insulating piece must be used; it should only be insulated up to 25 mm.

Ordering text

Control Valve Type:

- 3222/5857, 3222/5824-..., 3222/5825-...,
- 3222/5757, 3222/5757-7, 3222/5724-...,
- 3222/5725-..., 3222/5725-7...,
- 3222/2780-1, 3222/2780-2

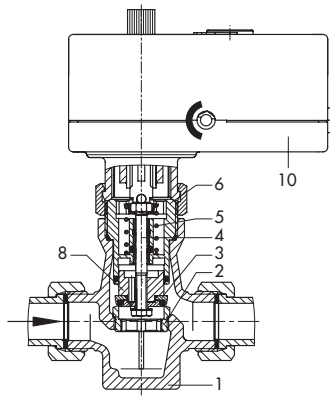
- End connections:
 - male thread connection and welding ends DN ...,
 - male thread connection and threaded ends DN ...,
 - male thread connection and flanges DN ...,
 - flanged body DN ...,
 - female thread connection G ...
- Kvs coefficient: ...
- Max. temperature: ...
- Version:
 - for water, oil and other liquids
 - for water above 150 °C and steam
- Intermediate insulating piece (1990-1712): yes, no

Further specifications for electric actuator

- Control signal: three-stepping point signal, continuous (positioner)
- Power supply: ...
- Electric additional equipment: ...

Further specifications for pneumatic actuator

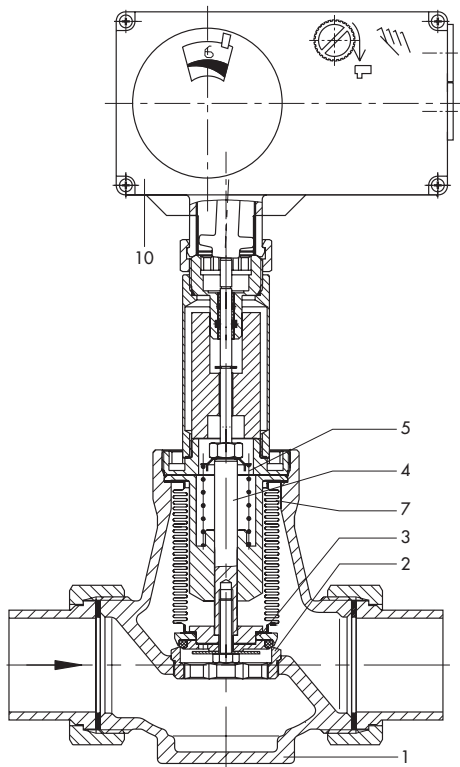
- Type: 2780-1, Type 2780-2
- Loading pressure connection for Type 2780-1: G 1/8, 1/8 NPT
- Fail-safe position: stem extends (FA), stem retracts (FE)



- 1 Valve body
- 2 Seat
- 3 Plug
- 4 Plug stem
- 5 Valve spring
- 6 Guide nipple
- 7 Balancing bellows
- 8 Balancing piston
- 10 Actuator

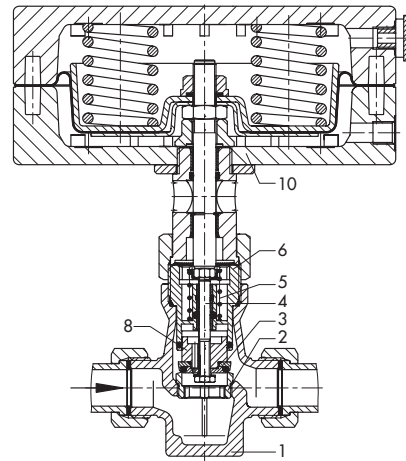
Type 3222/5857
 Type 3222/5757
 Type 3222/5757-7

Version for water, oil and other liquids



Type 3222/5824
 Type 3222/5724

Version for water above 150 °C and steam



Type 3222/2780-1

Fig. 5 · Functional diagrams

Table 1 · Technical data

Type 3222 Globe Valve								
Nominal size	Globe valve with male thread connection or with flanged body	DN	15	20	25	32	40	50
Connection	Globe valve with female thread connection	G	1/2	3/4	1	-	-	-
Nominal pressure		PN	25					
Seat/plug sealing			Metal sealing for $K_{VS} \leq 2.5$ · Soft sealing for $K_{VS} \geq 3.6$					
Rated travel		mm	6			12		
Rangeability			50:1					
Leakage rate acc. to DIN EN 60534-4			Class I (< 0.05 % of the K_{VS} coefficient)					
Version for water, oil and other liquids								
Max. permissible temperature			150 °C ^{1, 2)}					
Max. perm. differential pressure Δp								
	Types 5824, 5825, 5724, 5725, 5725-7, 2780	bar	20	20	20	12/16 ⁵⁾	12	12
	Types 5857, 5757, 5757-7	bar	20	20	20	-	-	-
Versions for water above 150 °C and steam								
Max. permissible temperature			200 °C					
Max. perm. differential pressure Δp								
	Types 5824, 5825, 5724, 5725, 5725-7, 2780	bar	20 · 10 for $3.6 \leq K_{VS} \leq 8$			8	8	8
	Types 5857, 5757, 5757-7	bar	20 ³⁾ · 5 ⁴⁾	5	5	-	-	-

- 1) For temperatures above 130 °C, use an intermediate insulating piece (1990-1712) to protect the actuator
- 2) DN 15 to 25 with Type 5757 Actuator for liquids up to 120 °C
- 3) Differential pressure with $K_{VS} = 1$ and 1.6
- 4) Differential pressure with $K_{VS} = 2.5$ and 4
- 5) Applies in combination with $K_{VS} = 10$

Table 2 · Materials (material number acc. to DIN EN)

Type 3222 Globe Valve	
Valve body	Red brass CC491K (G-CuSn5ZnPb)
Version with flanged body	EN-JS1049 (GGG-40.3)
Seat	Stainless steel 1.4104
Plug	1.4104/CW509L (CuZn40) with soft sealing · 1.4104 with $0.1 \leq K_{VS} \leq 2.5$
Valve spring	Stainless steel 1.4310 K
Packing	EPDM/FPM (FKM) · Oil-resistant version: FPM
Welding ends	St 37
Threaded ends	CC491K (red brass)
Screwed-on flanges	St 37.2

Table 3 · Overview: Nominal sizes and K_{V5} coefficients

Type 3222 Globe Valve		DN	15	20	25	32	40	50
Nominal size	Globe valve with male thread connection or flanged body							
Connection size	Globe valve with female thread	G	½	¾	1	–	–	–
K _{V5} coefficient			4 ¹⁾ · 3.6 ²⁾	6.3 ¹⁾ · 5.7 ²⁾	8 ¹⁾ · 7.2 ²⁾	16 ¹⁾	20 ¹⁾	25 ¹⁾
Reduced K _{V5} coefficients			0.1 · 0.16 · 0.25 · 0.4 · 0.63 · 1.0 · 1.6 · 2.5	1.0 · 1.6 · 2.5 · 4 ¹⁾ · 3.6 ²⁾		10 ³⁾	–	–
Rated travel		mm	6	6	6	12	12	12

1) Version with male thread connection or flanged valve body version

2) Version with female thread

3) 6 mm rated travel

Table 4 · Possible combinations

Type 3222 Globe Valve/actuator												
Type	Fail-safe action: Actuator stem		Refer to Data Sheet	Nominal size DN						Connection G		
	extends	retracts		15	20	25	32	40	50	½	¾	1
Electric actuators												
5857	–	–	T 5857 EN	•	•	•	–			•	•	•
5824-10	–	–	T 5824 EN	•	•	•	–			•	•	•
5824-13 ¹⁾	–	–		•	•	•	–			•	•	•
5825-10	•	–		•	•	•	–			•	•	•
5825-13 ¹⁾	•	–		•	•	•	–			•	•	•
5825-15	–	•		•	•	•	–			•	•	•
5824-20	–	–		–			•	•	•	–		
5824-23	–	–		–			•	•	•	–		
5825-20	•	–		–			•	•	•	–		
5825-23	•	–		–			•	•	•	–		
5825-25	–	•		–			•	•	•	–		
Controller with electric actuator for domestic hot water heating												
5757	–	–	T 5757 EN	•	•	•	–			•	•	•
5724-10	–	–	T 5724 EN	•	•	•	–			•	•	•
5725-10	•	–		•	•	•	–			•	•	•
5724-20	–	–		–			•	•	•	–		
5725-20	•	–		–			•	•	•	–		
Controller with electric actuator for heating and cooling applications												
5757-7	–	–	T 5757-7 EN	•	•	•	–			•	•	•
5725-710	•	–	T 5725-7 EN	•	•	•	–			•	•	•
5725-715	–	•		•	•	•	–			•	•	•
5725-720	•	–		–			•	•	•	–		
5725-725	–	•		–			•	•	•	–		
Pneumatic actuators												
2780-1	•	•	T 5840 EN	•	•	•	•	•	•	•	•	•
2780-2	•	•		•	•	•	•	•	•	•	•	•

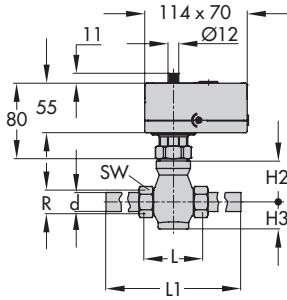
1) Version with half transit time

Table 5 · Dimensions and weights

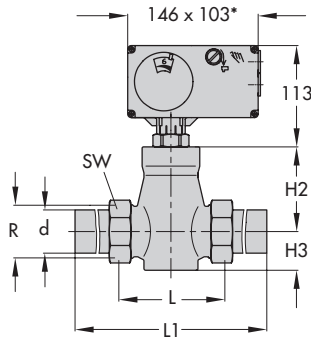
Table 5.1 · Type 3222 Globe Valve							
Valves with male thread connection							
Nominal size	DN	15	20	25	32	40	50
Length L	mm	65	70	75	100	110	130
Height H2	mm	45.5	45.5	45.5	94	94	94
Version for water up to 150 °C and steam or version with intermediate insulating piece (1990-1712)		140	140	140	185	185	185
Height H3	mm	30	30	30	55	55	55
... with welding ends							
Connection size R	G	¾	1	1¼	1¾	2	2½
Pipe Ød	mm	21.3	26.8	33.7	42	48	60
Width across flats SW		30	36	46	59	65	82
Length L1	mm	210	234	244	268	294	330
Weight without actuator	kg	1.4	1.8	2.3	4.0	4.4	6.8
Version for water up to 150 °C and steam or version with intermediate insulating piece (1990-1712)		1.9	2.3	2.8	4.5	4.9	7.3
... with threaded ends							
Length L2	mm	129	144	159	180	196	228
Male thread A	G	½	¾	1	1¼	1½	2
Width across flats SW		30	36	46	59	65	82
Weight without actuator	kg	1.4	1.8	2.3	4.0	4.4	6.8
Version for water up to 150 °C and steam or version with intermediate insulating piece (1990-1712)		1.9	2.3	2.8	4.5	4.9	7.3
... with flanges							
Width across flats SW		30	36	46	59	65	82
Length L3	mm	130	150	160	180	200	230
Weight without actuator	kg	2.5	3.4	4.1	6.9	7.7	10.7
Version for water up to 150 °C and steam or version with intermediate insulating piece (1990-1712)		3.0	3.9	4.6	7.4	8.2	11.2
Valves with female thread							
Connection size	G	½	¾	1		–	
Width across flats SW		30	36	46		–	
Length L4	mm	65	75	90		–	
Female thread	G	½	¾	1		–	
Weight without actuator	kg	1.2	1.4	1.5		–	
Version for water up to 150 °C and steam or version with intermediate insulating piece (1990-1712)		1.7	1.9	2.0		–	
Flanged body version							
Nominal size	DN	15	20	25	32	40	50
Height H2	mm	45.5	45.5	45.5	94	94	92
Length L3	mm	130	150	160	180	200	230
Weight without actuator	kg	2.5	3.4	4.1	6.9	8.4	11.6
Version for water up to 150 °C and steam or version with intermediate insulating piece (1990-1712)		3.0	3.9	4.6	7.4	8.9	12.1

Electric control valves

Type 3222 Globe Valve with male thread connection and welding ends

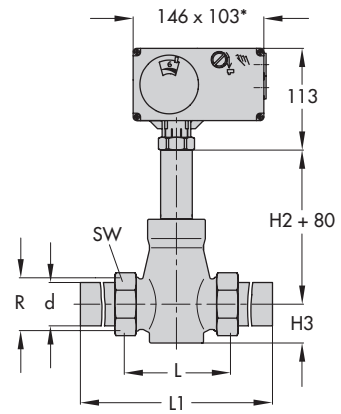


Type 3222/5857: DN 15 to 25
 Type 3222/5757: DN 15 to 25
 Type 3222/5757-7: DN 15 to 25



Type 3222/5824: DN 15 to 50
 Type 3222/5825: DN 15 to 50
 Type 3222/5724: DN 15 to 50
 Type 3222/5725: DN 15 to 50
 Type 3222/5725-7: DN 15 to 50

* Dimensions for Types 5824-x3,
 5825-x3, 5724-x3, 5725-x3 Actuators:
 146 x 136



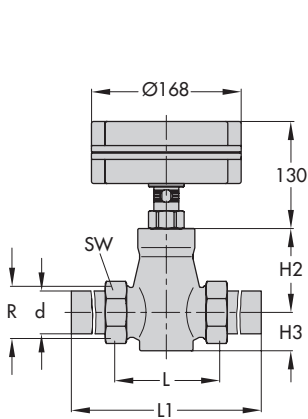
Version for water up to 150 °C and steam

Type 3222/5824: DN 15 to 50
 Type 3222/5825: DN 15 to 50
 Type 3222/5724: DN 15 to 50
 Type 3222/5725: DN 15 to 50
 Type 3222/5725-7: DN 15 to 50

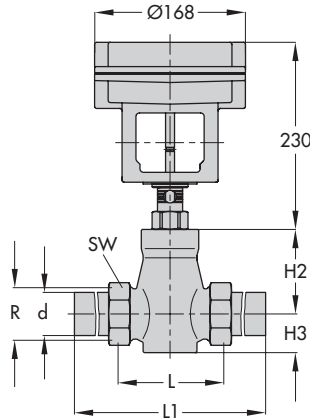
* Dimensions for Types 5824-x3, 5825-x3,
 5724-x3, 5725-x3 Actuators : 146 x 136

Pneumatic control valves

Type 3222 Globe Valve with male thread connection and welding ends



Type 3222/2780-1: DN 15 to 50

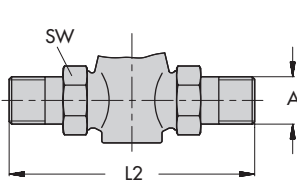


Type 3222/2780-2: DN 15 to 50

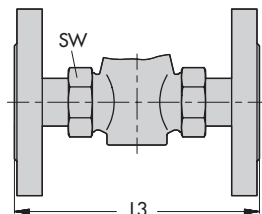


Intermediate
 insulating piece
 (1990-1712)

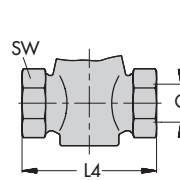
Other versions of Type 3222 Globe Valve



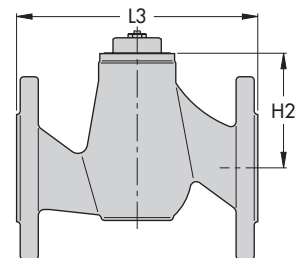
Version with threaded ends



Version with flanges



Version with female thread



Flanged body version

Table 5.2 · Electric actuators				
Type		5857	5824	5825
Weight	approx. kg	0.7	1.0	1.25

Table 5.3 · Controller with electric actuator				
Type		5757/-7	5724	5725/-7
Weight	approx. kg	0.7	1.1	1.3

Table 5.4 · Pneumatic actuators			
Type		2780-1	2780-2
Effective area	cm ²	120	
Diaphragm ØD	mm	170	
Loading pressure connection	a	G 1/8	
Weight	approx. kg	2	3.2

Specifications subject to change without notice.

