DATA SHEET

T 3963 EN
Type 3963 Solenoid Valve

Application

Solenoid valves for controlling pneumatic actuators in hazardous areas

The Type 3963 Solenoid Valve provides a high level of operating safety and short actuating times for controlling pneumatic actuators in hazardous areas. Intrinsically safe, low-power binary signals issued by automation equipment or fieldbus systems can be used for controlling purposes.

Different switching functions, flow rates and connection types allow the variable configuration of the solenoid valve to suit individual applications (Fig. 1 to Fig. 3).

General features

- SIL according to IEC 61508 (optional)
- Safety function for use on control valves (optional)
- Corrosion-resistant enclosure with degree of protection IP 54 or IP 65 for use in humid or rough ambient conditions
- Version compatible with paint (on request)
- Service life of over 20 million switching cycles
- Ambient temperature range –20 to +80 °C or –45 to +80 °C
- Rail, wall or pipe mounting
- Mounting to linear actuators with NAMUR rib according to IEC 60534-6 or to rotary actuators with NAMUR interface according to VDI/VDE 3845

Special features of the pilot valve

- Electropneumatic binary converter with flapper/nozzle assembly
- Nominal signal 6/12/24 V DC or 115/240 V AC
- Type of protection II 2G Ex ia IIC T6 Gb or II 3G Ex nA II T6 Gc/II 3G Ex ic IIC Gc according to ATEX. Other certification according to EAC GOST, KCS, CSA/FM and NEPSI
- 6 to 27 mW or 0.04 to 0.46 VA power consumption (depending on nominal signal)
- Manual override using pushbutton or switch (optional)

Fig. 1: *5/2-way solenoid valve · Actuated on one side · With spring return mechanism · K_{VS} 0.16 · G ¼ connection*

Fig. 2: *3/2-way solenoid valve Actuated on one side With spring return mechanism · K_{VS} 4.3 G ½ connection*

Fig. 3: *5/2-way solenoid valve Actuated on both sides With two detent positions · K_{VS} 1.4 · G ¼ connection, NAMUR*

SAMSON AKTIENGESELLSCHAFT · Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507 · samson@samson.de · www.samson.de

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– Supply air 1.4 to 6 bar
– Electrical connection using M20x1.5 cable gland to terminals or with connector
– Cable break protection (accessories)

Special features of the booster valve

– Diaphragm actuator with return spring or spool actuated either on one side or both sides
– 3/2-, 5/2-, 5/3 or 6/2-way function
– Exhaust air feedback (optional)
– K_{VS} 0.16 to 4.3
– Supply/exhaust air restrictors to adjust different closing and opening times in a ratio of 1:15 (optional) · ▶ AB 11
– G ¼ or G ½ (¼ NPT or ½ NPT) threaded connections
– NAMUR interface ¼" or ½"

Table 1: *Versions with threaded connection*
Table 1.1: *Solenoid valves for mounting on actuators for throttling or on/off service*

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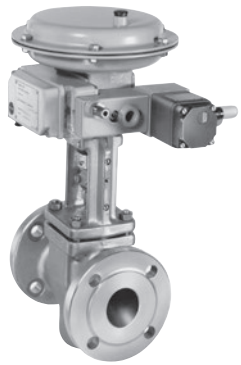
<td>  </td>
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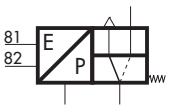
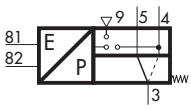
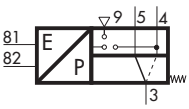
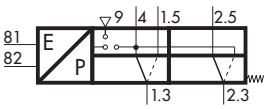
<td> 

Type 3963-XXX003240XXXXX
Solenoid Valve
– 3/2-way function
– K_{VS} 0.32
– Safety function (SIL/TÜV)
– Mounting with mounting block on Type 3277 Linear Actuator with Types 3730, 3766, 3767 and 378X Positioners</td>
<td> 

Type 3963-XXX0022XXXXXXX
Solenoid Valve
– 3/2-way function
– K_{VS} 0.32
– G ¼ or ¼ NPT connection
– Safety function (SIL/TÜV)
– Mounting to linear actuators with NAMUR rib, e.g. Type 3271</td>
<td> 

Type 3963-XXX0012XXXXXXX
Solenoid Valve
– 3/2-way function
– K_{VS} 0.32
– G ¼ or ¼ NPT connection
– Safety function (SIL/TÜV)
– Rail mounting, wall mounting or mounting to linear actuators (e.g. Type 3271 or Type 3277) using pipe fitting</td>
<td> 

Type 3963-XXX1011XXXXXX0
Solenoid Valve
– 5/2-way function
– K_{VS} 0.16
– G ¼ or ¼ NPT connection
– Rail or wall mounting</td>
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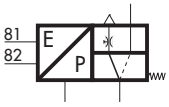
<td> 

Type 3963-XXX013141XXXX0
Solenoid Valve
– 3/2-way function
– Adjustable exhaust air restrictor
– K_{VS} 0.16
– Mounting with mounting block on Type 3277 Linear Actuator with Types 3730, 3766, 3767 and 378X Positioners</td>
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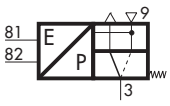
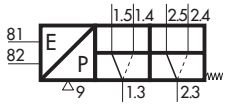
<td> 

Type 3963-XXX0011X0XXXXX
Solenoid Valve
– 3/2-way function
– K_{VS} 0.16
– G ¼ or ¼ NPT connection
– Rail mounting, wall mounting or mounting to linear actuators (e.g. Type 3271 or Type 3277) for on/off service using pipe fitting</td>
<td> 

Type 3963-XXX8011XXXXXX0
Solenoid Valve
– 6/2-way function
– K_{VS} 0.16
– G ¼ or ¼ NPT connection
– Rail or wall mounting</td>
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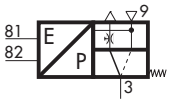
<td> 

Type 3963-XXX0111X0XXXX0
Solenoid Valve
– 3/2-way function
– Adjustable exhaust air restrictor
– K_{VS} 0.16
– G ¼ or ¼ NPT connection
– Rail mounting, wall mounting or mounting to linear actuators (e.g. Type 3271 or Type 3277) for on/off service using pipe fitting</td>
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Table 1.2: *Solenoid valves for mounting on actuators for throttling or on/off service*

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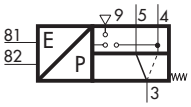
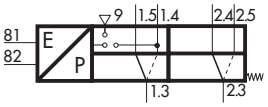
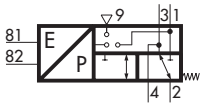
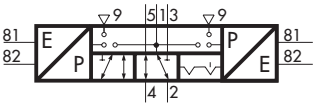
<td> 

Type 3963-XXX0014XXXXXXX
Solenoid Valve
– 3/2-way function
– K_{VS} 4.3
– G ½ or ½ NPT connection
– Safety function (SIL/TÜV)
– Wall mounting or mounting to linear actuators (e.g. Type 3271 or Type 3277) using pipe fitting</td>
<td> 

Type 3963-XXX1014XXXXXX0
Solenoid Valve
– 5/2-way function
– K_{VS} 4.3
– G ½ or ½ NPT connection
– Wall or pipe mounting</td>
<td> 

Type 3963-XXX0013XXXXXXX
Solenoid Valve
– 3/2-way function
– Exhaust air feedback
– K_{VS} 1.4
– G ¼ or ¼ NPT connection
– Safety function (TÜV)
– Wall or pipe mounting or mounting to linear actuators (e.g. Type 3271 or Type 3277) using pipe fitting</td>
<td> 

Type 3963-XXX2013XXXXXXX
Solenoid Valve
– 5/2-way function with two detent positions
– K_{VS} 1.4
– G ¼ or ¼ NPT connection
– Safety function (TÜV)
– Wall or pipe mounting</td>
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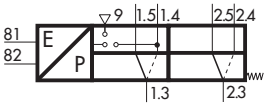
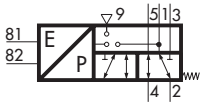
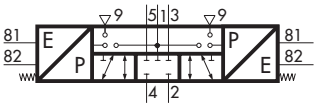
<td> 

Type 3963-XXX8014XXXXXX0
Solenoid Valve
– 6/2-way function
– K_{VS} 4.3
– G ½ or ½ NPT connection
– Wall or pipe mounting</td>
<td> 

Type 3963-XXX1013XXXXXX0
Solenoid Valve
– 5/2-way function
– K_{VS} 1.4
– G ¼ or ¼ NPT connection
– Wall mounting or mounting to linear actuators (e.g. Type 3271 or Type 3277) using pipe fitting</td>
<td> 

Type 3963-XXX3013XXXXXX0
Solenoid Valve
– 5/3-way function with spring-centered mid-position (ports 2 and 4 closed)
– K_{VS} 1.4
– G ¼ or ¼ NPT connection
– Wall or pipe mounting</td>
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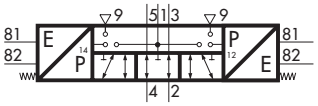
<td> 

Type 3963-XXX5013XXXXXX0X
Solenoid Valve
– 5/3-way function with spring-centered mid-position (ports 2 and 4 vented)
– K_{VS} 1.4
– G ¼ or ¼ NPT connection
– Safety function (TÜV)
– Wall or pipe mounting</td>
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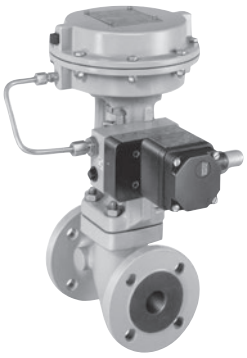
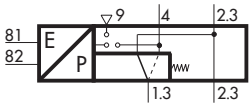
Table 2: *Versions with NAMUR interface*

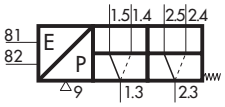
Table 2.1: *Solenoid valves for mounting on actuators for throttling or on/off service*





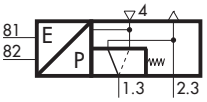
Type 3963-XXX0002XXXXXXX
Solenoid Valve

– 3/2-way function
– Exhaust air feedback
– K_{VS} 0.32
– G ¼ or ¼ NPT connection, NAMUR
– Safety function (SIL/TÜV)
– Mounting on rotary actuators with NAMUR interface (optionally with positioner)



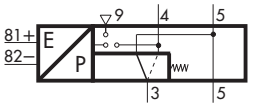
Type 3963-XXX8001XXXXXX0
Solenoid Valve

– 6/2-way function
– K_{VS} 0.16
– G ¼ or ¼ NPT connection, NAMUR
– Mounting on rotary actuators with NAMUR interface



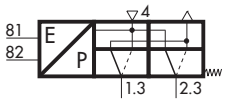
Type 3963-XXX0001X0XXXXX
Solenoid Valve

– 3/2-way function
– Exhaust air feedback
– K_{VS} 0.16
– G ¼ or ¼ NPT connection, NAMUR
– Safety function (SIL/TÜV)
– Mounting on rotary actuators for on/off service with NAMUR interface or with an adapter plate (item no. 1400-6751) on linear actuators with NAMUR rib (e.g. Type 3241-1)



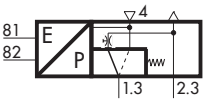
Type 3963-XXX0007XXXXXXX
Solenoid Valve

– 3/2-way function
– Exhaust air feedback
– K_{VS} 2.0
– G ¼ or G ½/¼ NPT or ½ NPT connection, NAMUR ¼"
– Safety function (SIL/TÜV)
– Mounting on rotary actuators for on/off service with NAMUR interface ⅛" or ¼" or mounting on linear actuators with NAMUR rib using an adapter plate (item no. 1400-6751)



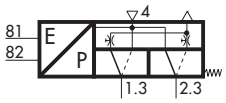
Type 3963-XXX1001XXXXXX0
Solenoid Valve

– 5/2-way function
– K_{VS} 0.16
– G ¼ or ¼ NPT connection, NAMUR
– Mounting on rotary actuators for on/off service with NAMUR interface



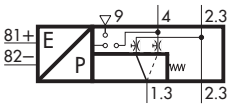
Type 3963-XXX0101X0XXXX0
Solenoid Valve

– 3/2-way function
– Exhaust air feedback
– Adjustable exhaust air restrictor
– K_{VS} 0.16
– G ¼ or ¼ NPT connection, NAMUR
– Mounting on rotary actuators for on/off service with NAMUR interface or with an adapter plate (item no. 1400-6751) on linear actuators with NAMUR rib (e.g. Type 3241-1)



Type 3963-XXX1201X0XXXX0
Solenoid Valve

– 5/2-way function
– Two adjustable exhaust air restrictors
– K_{VS} 0.16
– G ¼ or ¼ NPT connection, NAMUR
– Mounting on rotary actuators for on/off service with NAMUR interface



Type 3963-XXX0301XXXXXX0
Solenoid Valve

– 3/2-way function
– Adjustable supply air/exhaust air restrictors
– K_{VS} 0.16
– G ¼ or ¼ NPT connection, NAMUR
– Mounting on rotary actuators with NAMUR interface or with an adapter plate (item no. 1400-6751) on linear actuators with NAMUR rib (e.g. Type 3241-1)

Table 2.2: *Solenoid valves for mounting on actuators for throttling or on/off service*

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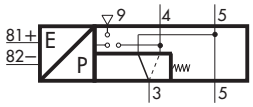
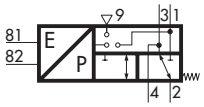
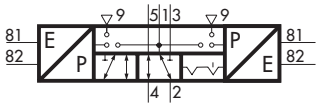
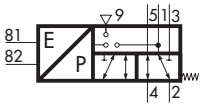
<td> 

Type 3963-XXX0004XXXXXXX
Solenoid Valve
– 3/2-way function
– Exhaust air feedback
– K_{VS} 4.3
– G ½/½ NPT connection or NAMUR ½“
– Safety function (SIL/TÜV)
– Mounting on rotary actuators for on/off service with NAMUR interface ⅜“ or ½“</td>
<td> 

Type 3963-XXX0003XXXXXXX
Solenoid Valve
– 3/2-way function
– Exhaust air feedback
– K_{VS} 1.4
– G ¼ or ¼ NPT connection, NAMUR
– Safety function (TÜV)
– Mounting on rotary actuators with NAMUR interface or mounting on linear actuators with NAMUR rib using an adapter plate (item no. 1400-6751)</td>
<td> 

Type 3963-XXX2003XXXXXXX
Solenoid Valve
– 5/2-way function with two detent positions
– K_{VS} 1.4
– G ¼ or ¼ NPT connection, NAMUR
– Safety function (TÜV)
– Mounting on rotary actuators with NAMUR interface</td>
<td> 

Type 3963-XXX1006XXXXXX0
Solenoid Valve
– 5/2-way function
– K_{VS} 2.9
– G ½/½ NPT connection or NAMUR ½“
– Mounting on rotary actuators with NAMUR interface ⅜“ or ½“</td>
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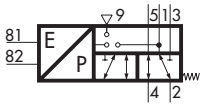
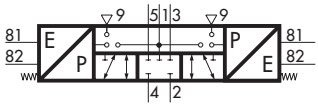
<td> 

Type 3963-XXX1003XXXXXX0
Solenoid Valve
– 5/2-way function
– K_{VS} 1.4
– G ¼ or ¼ NPT connection, NAMUR
– Mounting on rotary actuators with NAMUR interface or mounting on linear actuators with NAMUR rib using an adapter plate (item no. 1400-6751)</td>
<td> 

Type 3963-XXX3003XXXXXX0
Solenoid Valve
– 5/3-way function with spring-centered mid-position (ports 2 and 4 closed)
– K_{VS} 1.4
– G ¼ or ¼ NPT connection, NAMUR
– Mounting on rotary actuators with NAMUR interface</td>
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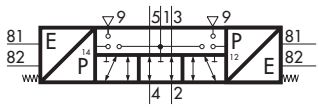
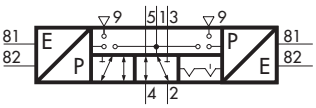
<td> 

Type 3963-XXX5003XXXXXXX
Solenoid Valve
– 5/3-way function with spring-centered mid-position (ports 2 and 4 vented)
– K_{VS} 1.4
– G ¼ or ¼ NPT connection, NAMUR
– Mounting on rotary actuators with NAMUR interface</td>
<td> 

Type 3963-XXX2006XXXXXX0
Solenoid Valve
– 5/2-way function with two detent positions
– K_{VS} 2.9
– G ½/½ NPT connection or NAMUR ½“
– Mounting on rotary actuators with NAMUR interface ⅜“ or ½“</td>
</tr>
</table>

Design and principle of operation

Solenoid valves actuated on one side

The solenoid valves consist of an electropneumatic binary converter (A) with manual override (B, optional) and a booster valve (C) actuated on one side with return spring (Fig. 4).

The air supply for the electropneumatic binary converter (A) is routed internally through the booster valve (C) (delivered state). The solenoid valve can be converted to accept an external air supply at port 9 by turning a gasket.

The pressure reducer (5) reduces the supply air pressure to 1.4 bar.

In the idle position, the flapper (2) is lifted off the outlet nozzle (1) by the spring (3). As a result, a pressure lower than the deactivation pressure of the booster valve (C) builds up in the pressure divider, which consists of the restrictor (6) and outlet nozzle (1).

When the solenoid (4) is energized by an electric binary signal, the outlet nozzle (1) is closed by the flapper (2) against the force of the spring (3). This causes the pressure in the pressure divider to rise above the switch-on pressure of the booster valve (C), switching it to the operating position.

After the solenoid is de-energized, the booster valve (C) is switched to the idle position again by a return spring.

Solenoid valves actuated on both sides

The solenoid valves consist of two electropneumatic binary converters (A) with manual override (B, optional) and a booster valve (C) actuated on both sides with two detent positions or spring-centered mid-position.

The air supply for the electropneumatic binary converters (A) is routed internally through the booster valve (C) (delivered state). The solenoid valve can be converted to accept an external air supply at port 9 by turning two gaskets.

The pressure reducer (5) reduces the supply air pressure to 1.4 bar.

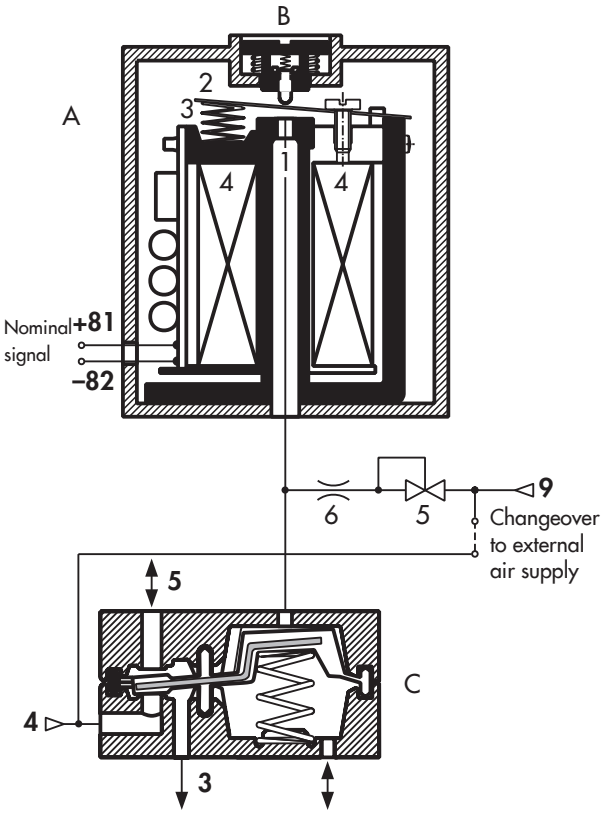
In the idle position, the flapper (2) is lifted off the outlet nozzle (1) by the spring (3). As a result, a pressure lower than the deactivation pressure of the booster valve (C) builds up in the pressure divider, which consists of the restrictor (6) and outlet nozzle (1).

When the solenoid (4) is energized by an electric binary signal, the outlet nozzle (1) is closed by the flapper (2) against the force of the spring (3). This causes the pressure in the pressure divider to rise above the switch-on pressure of the booster valve (C), switching it to the operating position.

After the solenoid is de-energized, the operating position of the detented booster valve (C) is kept until the opposing signal is received. The spring-centered booster valve (C) is switched to the mid-position by a return spring after the solenoid is de-energized.

A simultaneous control of the electropneumatic binary converter (A) must be ruled out on the electric control level.

Functional diagram



1	Outlet nozzle	A	Electropneumatic binary converter
2	Flapper	B	Manual override
3	Spring	C	Booster valve
4	Solenoid		
5	Pressure reducer		
6	Restrictor		

Fig. 4: *Solenoid valve with diaphragm switching element as a booster valve (K_{VS} 0.16)*

Technical data

General data		
Design		Solenoid with flapper/nozzle assembly and booster valve
Degree of protection		IP 54 with filter
		IP 65 with filter check valve
Material	Enclosure	Polyamide PA 6-3-T-GF35, black
	Connecting plate	AlMg, powder coated, gray beige RAL 1019
		1.4404 (see Versions and ordering data for special versions)
		Polyamide PA 6-3-T-GF35, black
	Screws	1.4571
	Springs	1.4310
	Seals	Silicone rubber, Perbunan
	Diaphragms	Chloroprene rubber 57 Cr 868 (–20 to +80 °C)
		Silicone rubber (–45 to +80 °C)
Supply air	Medium	Instrument air free from corrosive substances or nitrogen
	Pressure	1.4 to 6 bar
Air consumption		≤80 l/h at 1.4 bar supply air in neutral position
		≤10 l/h at 1.4 bar supply air in operating position
Switching time		≤65 ms
Service life		≥2 x 10^7 switching cycles (at –20 to +80 °C)
		≥2 x 10^6 switching cycles (at –45 to +80 °C)
Ambient temperature		Refer to Electric data
Mounting position		Any desired position (▶ EB 3963)

Electric data							
Type 3963			**-X1**	**-X2**	**-X3**	**-06**	**-05**
Nominal signal		U_N	6 V DC Max. 27 V [1]	12 V DC Max. 25 V [1]	24 V DC Max. 32 V [1]	115 V AC Max. 130 V [1]	230 V AC Max. 255 V [1]
		f_N				48 to 62 Hz	
Switching point	ON	$U_{+80\ °C}$	≥4.8 V	≥9.6 V	≥18 V	82 to 130 V	183 to 255 V
		$I_{+20\ °C}$	≥ 1.41 mA	≥ 1.52 mA	≥ 1.57 mA	≥ 2.2 mA	≥ 2.6 mA
		$P_{+20\ °C}$	≥5.47 mW	≥13.05 mW	≥26.71 mW	≥0.17 VA	≥0.46 VA
	OFF	$U_{-25\ °C}$	≤1.0 V	≤2.4 V	≤4.7 V	≤18 V	≤36 V
Impedance		$R_{+20\ °C}$	2.6 kΩ	5.5 kΩ	10.7 kΩ	Approx. 40 kΩ	Approx. 80 kΩ
Temperature influence			0.4 %/°C	0.2 %/°C	0.1 %/°C	0.05 %/°C	0.03 %/°C
Type of protection Ex ia IIC [2] for use in hazardous areas (Zone 1)							
Type 3963			**-11**	**-12**	**-13**		
Maximum values when connected to a certified intrinsically safe circuit							
Output voltage [4]		U_i	25 V · 27 V · 28 V · 30 V · 32 V				
Output current [4]		I_i	150 mA · 125 mA · 115 mA · 100 mA · 85 mA				
Power dissipation		P_i	250 mW	No restrictions			
Outer capacitance		C_i	≈0				
Outer inductivity		L_i	≈0				
Ambient temperature in temperature class		T6	−45 to +60 °C				
		T5	−45 to +70 °C				
		T4	−45 to +80 °C				
Type of protection Ex nA II [3] for use in hazardous areas (Zone 2)							
Type 3963			**-81**	**-82**	**-83**		
Ambient temperature in temperature class		T6	−45 to +60 °C				
		T5	−45 to +70 °C				
		T4	−45 to +80 °C				

1) Maximum permissible value at 100 % duty cycle. The maximum permissible value U_i applies to explosion-protected versions.
2) II 2G Ex ia IIC T6 according to EC type examination certificate PTB 01 ATEX 2085
3) II 3G Ex nA II T6 according to statement of conformity PTB 01 ATEX 2086 X
4) Pairs of values U_i/I_i apply to 6, 12, 24 V DC nominal signals.

Solenoid valves actuated on one side, K_{VS} 0.16 or K_{VS} 0.32				
Switching function	3/2-way function	3/2-way function	5/2-way function	6/2-way function
K_{VS} [1]	0.16	0.32	0.16	0.16
Safety function	SIL [3], TÜV [4]	SIL [3], TÜV [4]	SIL [3], TÜV [4]	–
Type	Diaphragm switching element, soft seated, with return spring			
Operating medium	Instrument air free from corrosive substances [5], air containing oil or non-corrosive gases [6]			
Operating pressure	Max. 6 bar			
Output signal	Operating pressure			
Ambient temperature [2]	−45 to +80 °C			
Connection	G ¼ or ¼ NPT			
Approx. weight	570 g (standard version)			

1) The air flow rate when p_1 = 2.4 bar and p_2 = 1.0 bar is calculated using the following formula: $Q = K_{VS} \times 36.22$ in m³/h.
2) The permissible ambient temperature of the solenoid valve depends on the permissible ambient temperature of the components, type of protection and temperature class.
3) SIL according to IEC 61508
4) Emergency release or locking of compressed air supply
5) With internal air supply
6) With external air supply

Solenoid valve, actuated on one side, K_{VS} 4.3, with threaded connections					
Switching function		3/2-way function	3/2-way function	5/2-way function [8]	6/2-way function [8]
K_{VS} [1] (direction of flow)		1.9 (4→3), 1.5 (3→4) 4.3 (3→5), 4.7 (5→3)	1.9 (4→3), 1.5 (3→4) 4.3 (3→5), 4.7 (5→3)	1.9 (4→3), 1.5 (3→4) 4.3 (3→5), 4.7 (5→3)	1.9 (4→3), 1.5 (3→4) 4.3 (3→5), 4.7 (5→3)
Ambient temperature [2]		–20 to +80 °C	–45 to +80 °C	–20 to +80 °C	–20 to +80 °C
Safety function		SIL [3], TÜV [4]	SIL [3], TÜV [4]	–	–
Type		Poppet valve with diaphragm actuator, soft seated, with return spring			
Material	Enclosure	GD AlSi 12, powder coated, gray beige RAL 1019 1.4404 (see Versions and ordering data for special versions)			
	Diaphragm	Chloroprene rubber	Silicone rubber	Chloroprene rubber	Chloroprene rubber
	Seals	Chloroprene rubber	Silicone rubber	Chloroprene rubber	Chloroprene rubber
	Screws	1.4571			
Actuation		Controlled on one side by a pilot valve, K_{VS} 0.16			
Operating medium		Instrument air free from corrosive substances or nitrogen [5] Instrument air free from corrosive substances, air containing oil or non-corrosive gases [6]			
Max. operating pressure (direction of flow)		10 bar (4→3, 3→5) 2 bar (as required)	10 bar (4→3, 3→5) 2 bar (as required)	10 bar (as required) 2 bar (as required)	10 bar (as required) 2 bar (as required)
Switching cycles (operating pressure)		$\geq 10^7$ (6 bar) $\geq 10^6$ (10 bar)	$\geq 10^6$ (6 bar) $\geq 10^5$ (10 bar)	$\geq 10^7$ (6 bar) $\geq 10^6$ (10 bar)	$\geq 10^7$ (6 bar) $\geq 10^6$ (10 bar)
Connection		G ½ or ½ NPT			
Approx. weight		585 g (standard version)		1100 g (standard version)	

Solenoid valve, actuated on one side, K_{VS} 2.0 or 4.3, with NAMUR interface					
Switching function		3/2-way function with exhaust air feedback			
K_{VS} [1] (direction of flow)		1.1 (4→3) 2.0 (3→5)	1.1 (4→3) 2.0 (3→5)	1.9 (4→3) 4.3 (3→5)	1.9 (4→3) 4.3 (3→5)
Ambient temperature [2]		–20 to +80 °C	–45 to +80 °C	–20 to +80 °C	–45 to +80 °C
Safety function		SIL [3], TÜV [4]	SIL [3], TÜV [4]	SIL [3], TÜV [4]	SIL [3], TÜV [4]
Design		Poppet valve with diaphragm actuator, soft seated, with return spring			
Material	Enclosure	GD AlSi 12, powder coated, gray beige RAL 1019 1.4404 (see Versions and ordering data for special versions)			
	Diaphragm	Chloroprene rubber	Silicone rubber	Chloroprene rubber	Silicone rubber
	Seals	Chloroprene rubber	Silicone rubber	Chloroprene rubber	Silicone rubber
	Screws	1.4571			
Actuation		Controlled on one side by a pilot valve, K_{VS} 0.16			
Operating medium		Instrument air free from corrosive substances or nitrogen [5] Instrument air free from corrosive substances, air containing oil or non-corrosive gases [6]			
Max. operating pressure		10 bar	10 bar	10 bar	10 bar
Switching cycles (operating pressure)		$\geq 10^7$ (6 bar) $\geq 10^6$ (10 bar)	$\geq 10^6$ (6 bar) $\geq 10^5$ (10 bar)	$\geq 10^7$ (6 bar) $\geq 10^6$ (10 bar)	$\geq 10^7$ (6 bar) $\geq 10^5$ (10 bar)
Connection	Supply air	G ¼ or ¼ NPT, NAMUR interface ¼" [7], G ⅜		G ½ or ½ NPT, NAMUR interface ½" [7]	
	Exhaust air	G ½ or ½ NPT, NAMUR interface ½" [7], G ⅜		G ½ or ½ NPT, NAMUR interface ½" [7]	
Approx. weight		1380 g (standard version)		1500 g (standard version)	

1) The air flow rate when p_1 = 2.4 bar and p_2 = 1.0 bar is calculated using the following formula: Q = K_{VS} x 36.22 in m³/h.
2) The permissible ambient temperature of the solenoid valve depends on the permissible ambient temperature of the components, type of protection and temperature class.
3) SIL according to IEC 61508
4) Emergency release or locking of compressed air supply
5) With internal air supply
6) With external air supply
7) NAMUR interface according to VDI/VDE 3845
8) Connecting hose between booster valves made of polyamide, see Fig. 12 and Fig. 13

Solenoid valves actuated on one side, K_{VS} 1.4 or K_{VS} 2.9			
Switching function		3/2-way function with exhaust air feedback	5/2-way function
K_{VS} [1]		1.4 or 2.9	
Safety function		TÜV [2] (with K_{VS} 1.4)	–
Type		Spool, metal-to-metal seat, zero overlap, with return spring	
Material	Enclosure	GD AlSi 12, powder coated, gray beige RAL 1019 1.4404 (see Versions and ordering data for special versions)	
	Seals	Silicone	
	Filter	Polyethylene	
	Screws	1.4571	
Actuation		Controlled on one side by a pilot valve, K_{VS} 0.01 (with 1.4) or K_{VS} 0.16 (with 2.9)	
Operating medium		Instrument air free from corrosive substances or nitrogen [3] Instrument air free from corrosive substances, air containing oil or non-corrosive gases [4]	
Max. operating pressure		6 bar [3] or 10 bar [4]	
Ambient temperature 5)		–45 to +80 °C	
Switching cycles		≥2 x 10^7	
Connection	K_{VS} 1.4	G ¼ or ¼ NPT, NAMUR interface [6]	
	K_{VS} 2.9	G ½ or ½ NPT, NAMUR interface [6]	
Approx. weight	K_{VS} 1.4	485 g (standard version)	
	K_{VS} 2.9	1760 g (standard version)	

Solenoid valves actuated on both sides, K_{VS} 1.4 or K_{VS} 2.9				
Switching function		5/2-way function with two detent positions	5/3-way function with spring-centered mid-position (ports 2 and 4 closed)	5/3-way function with spring-centered mid-position (ports 2 and 4 vented)
K_{VS} [1]		1.4 or 2.9	1.4 (2.9 on request)	1.4 (2.9 on request)
Safety function		TÜV [2] (with K_{VS} 1.4)	–	TÜV [2] (with K_{VS} 1.4)
Type		Spool, metal-to-metal seat, zero overlap		
Material	Enclosure	GD AlSi 12, powder coated, gray beige RAL 1019 1.4404 (see Versions and ordering data for special versions)		
	Seals	Silicone		
	Filter	Polyethylene		
	Screws	1.4571		
Actuation		Controlled on both sides by two pilot valves, K_{VS} 0.01 (with 1.4) or K_{VS} 0.16 (with 2.9)		
Operating medium		Instrument air free from corrosive substances or nitrogen [3] Instrument air free from corrosive substances, air containing oil or non-corrosive gases [4]		
Max. operating pressure		6 bar [3] or 10 bar [4]		
Ambient temperature [5]		–45 to +80 °C		
Switching cycles		≥2 x 10^7		
Connection	K_{VS} 1.4	G ¼ or ¼ NPT, NAMUR interface [6]		
	K_{VS} 2.9	G ½ or ½ NPT, NAMUR interface [6]		
Approx. weight	K_{VS} 1.4	685 g (standard version)		
	K_{VS} 2.9	2180 g (standard version)		

1) The air flow rate when p_1 = 2.4 bar and p_2 = 1.0 bar is calculated using the following formula: Q = K_{VS} x 36.22 in m^3/h.
2) Emergency release or locking of compressed air supply
3) With internal air supply
4) With external air supply
5) The permissible ambient temperature of the solenoid valve depends on the permissible ambient temperature of the components, type of protection and temperature class.
6) NAMUR interface according to VDI/VDE 3845

Dimensions

All dimensions in mm

Dimensions of devices without threaded connections

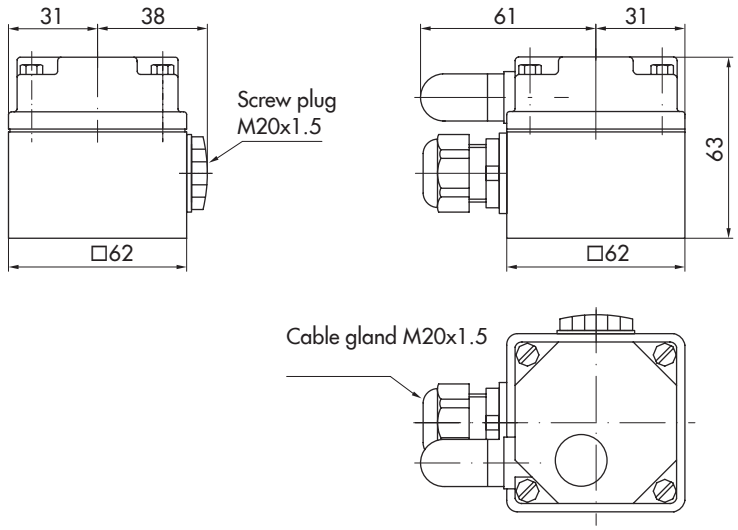


Fig. 5: *Pilot valve, K_{VS} 0.01*

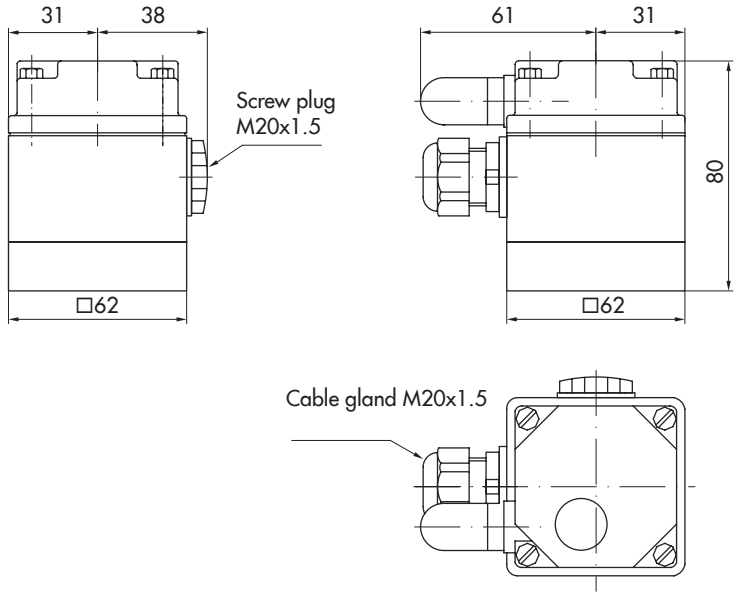


Fig. 6: *Pilot valve, K_{VS} 0.16*

Dimensions of devices with threaded connections

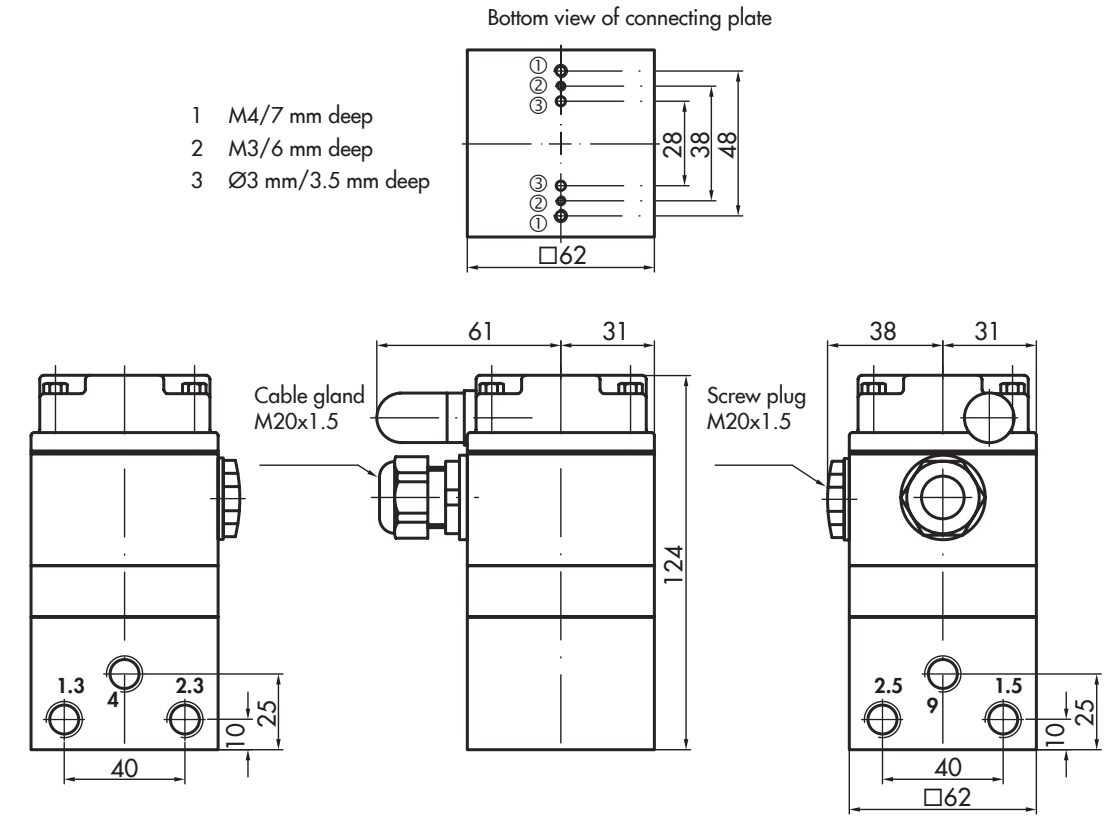


Fig. 7: *5/2-way solenoid valve, actuated on one side, K_{VS} 0.16*

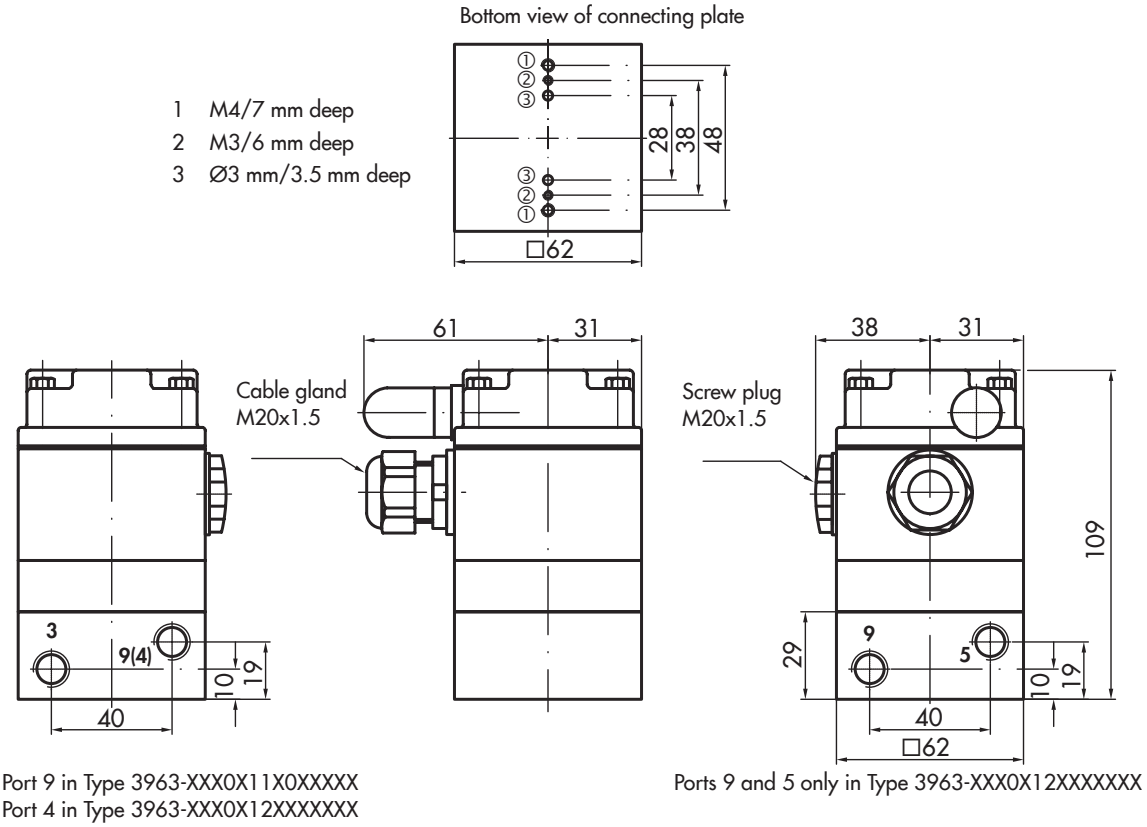


Fig. 8: *3/2-way solenoid valve, actuated on one side, K_{VS} 0.16 or K_{VS} 0.32*

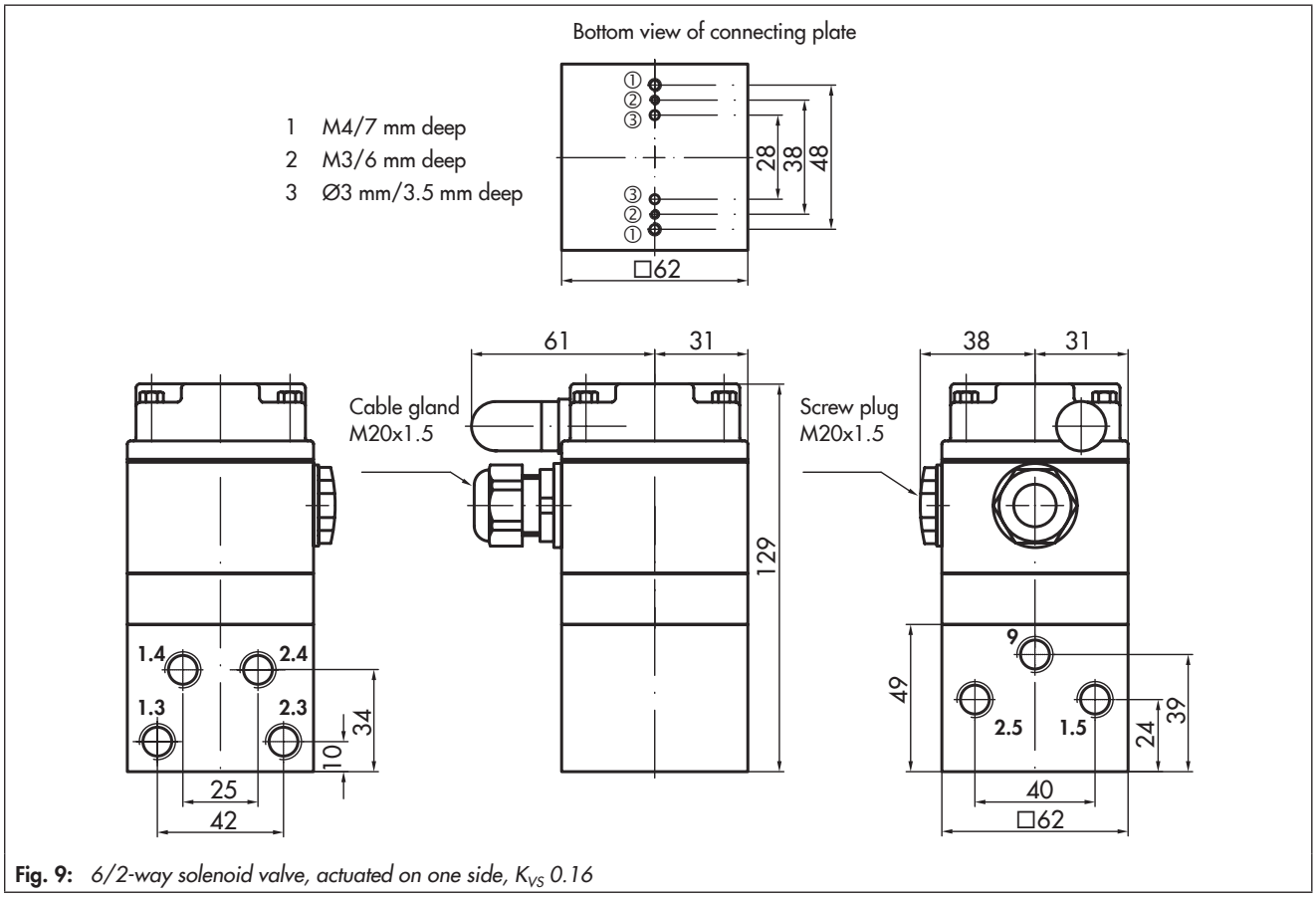


Fig. 9: *6/2-way solenoid valve, actuated on one side, K_{VS} 0.16*

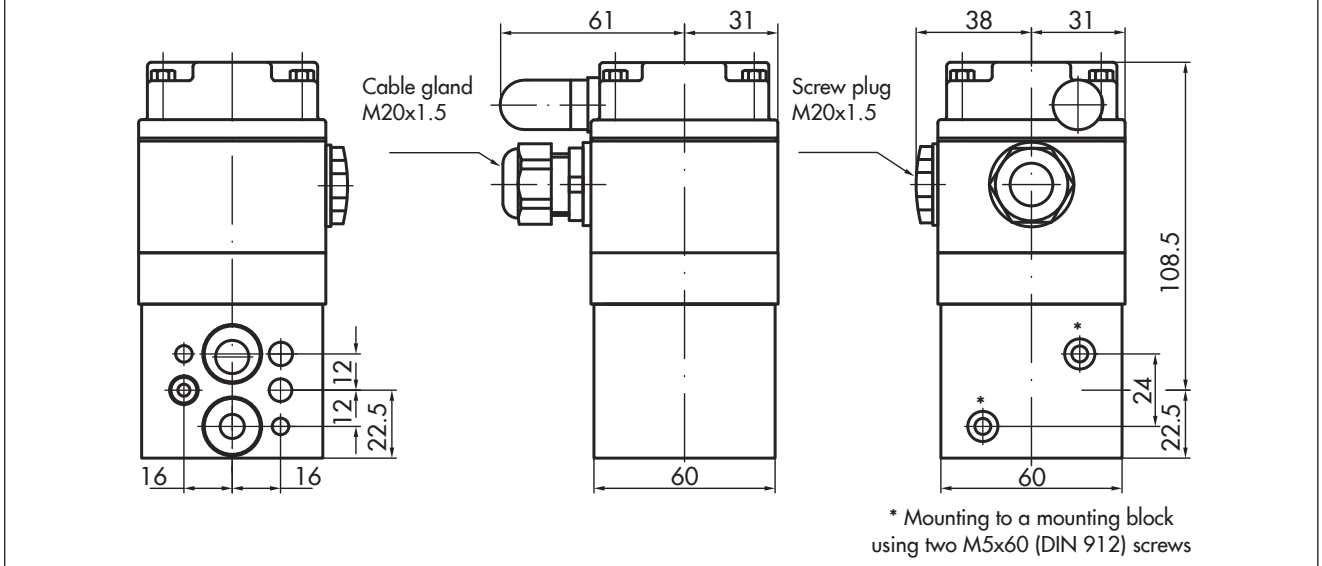


Fig. 10: *3/2-way solenoid valve, actuated on one side, K_{VS} 0.16 or K_{VS} 0.32, for mounting to linear actuators using a mounting block*

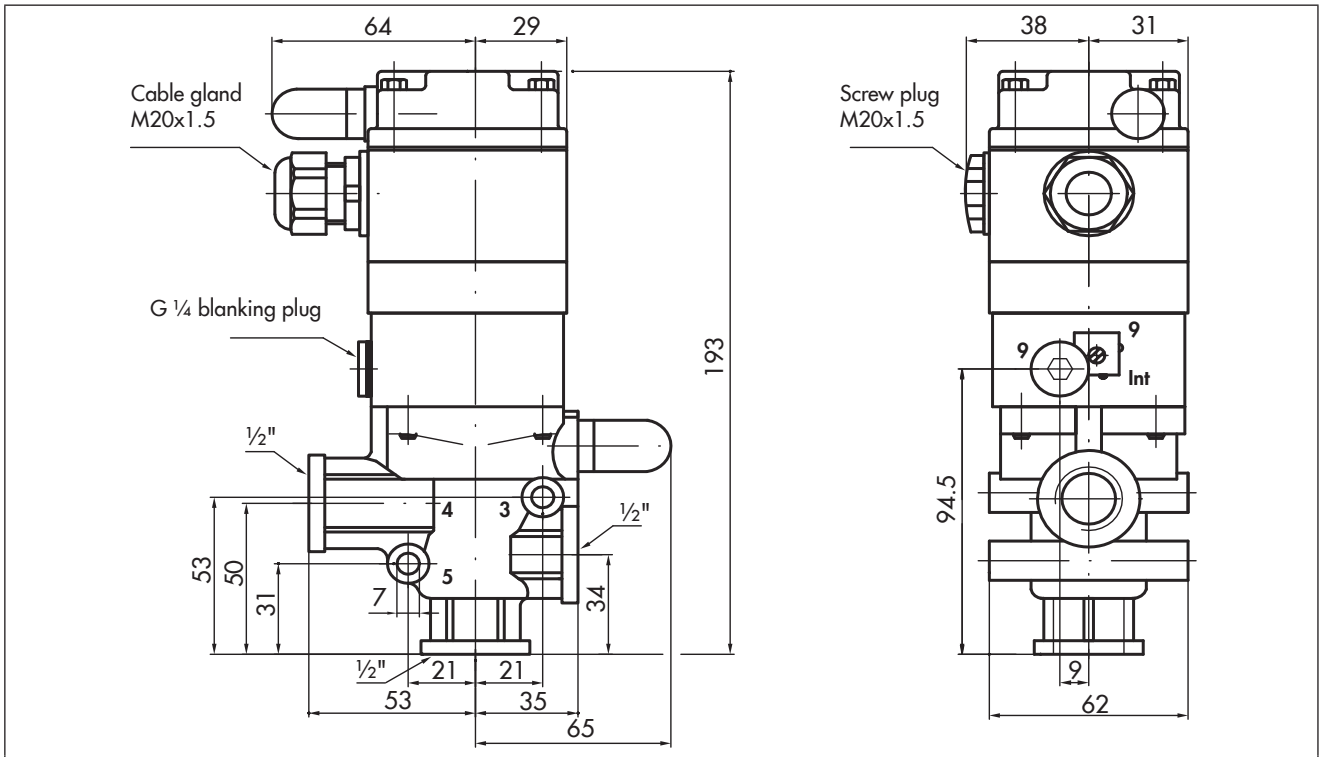


Fig. 11: *3/2-way solenoid valve, actuated on one side, K_{VS} 4.3*

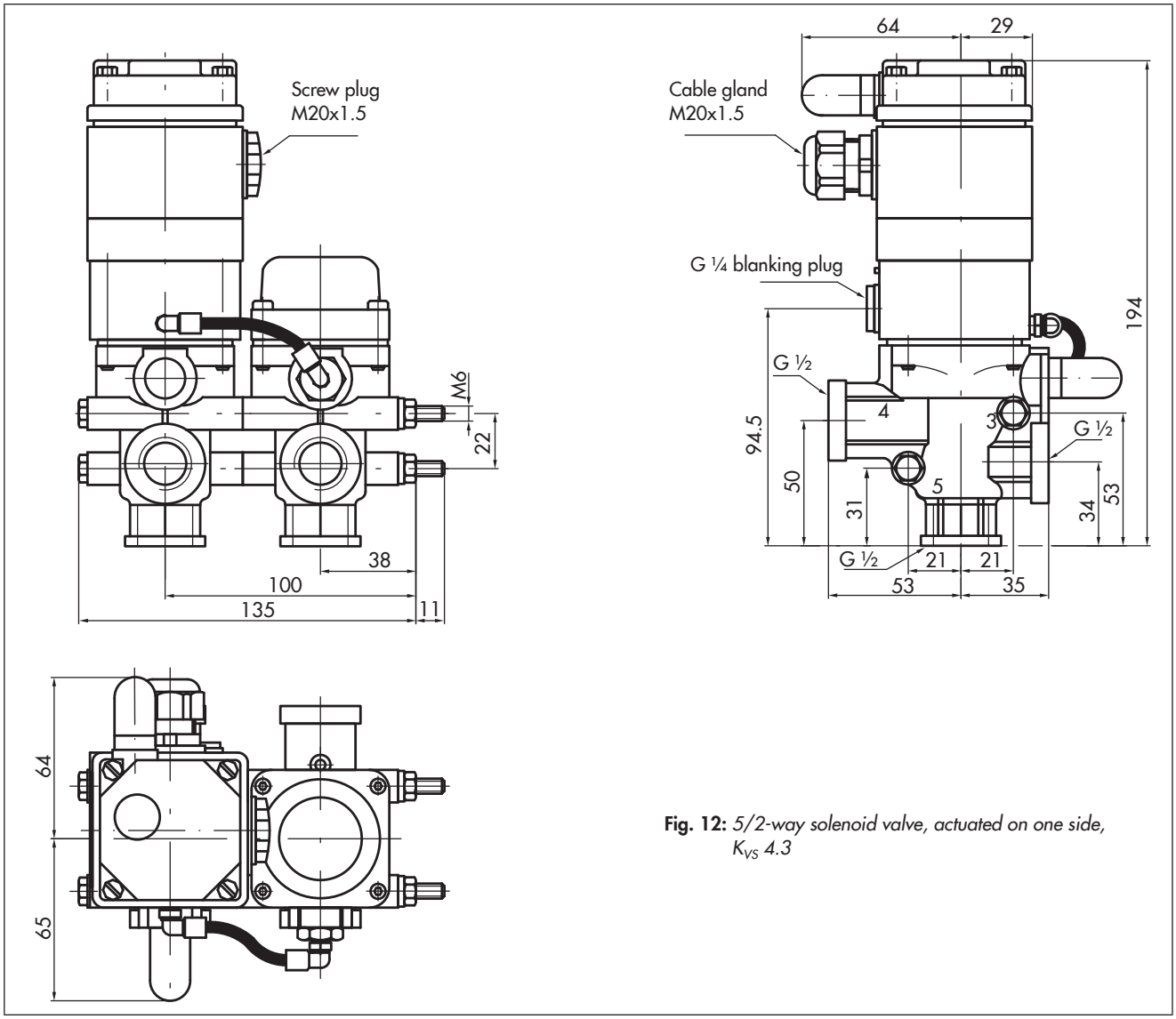


Fig. 12: *5/2-way solenoid valve, actuated on one side, K_{VS} 4.3*

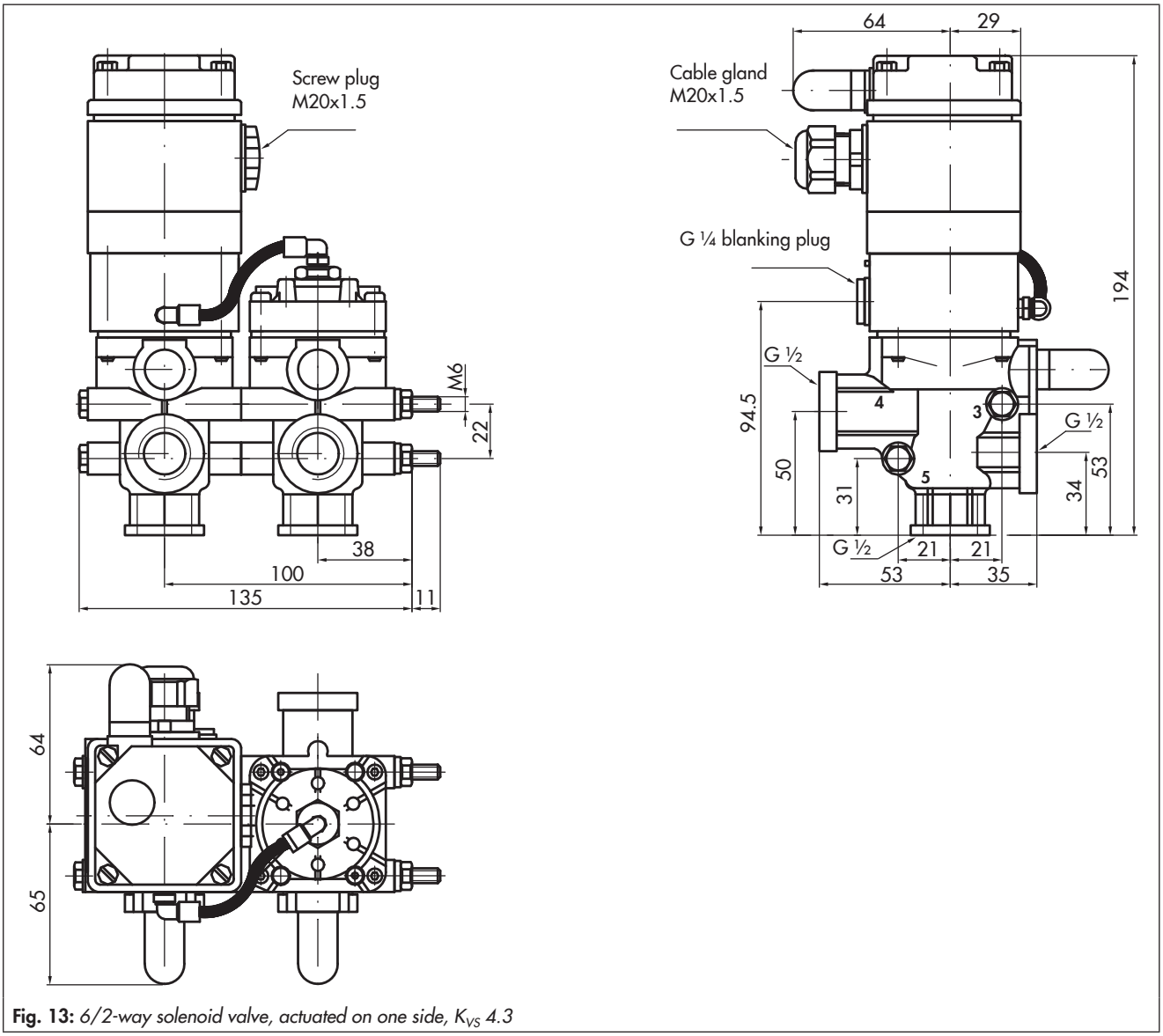


Fig. 13: *6/2-way solenoid valve, actuated on one side, K_{VS} 4.3*

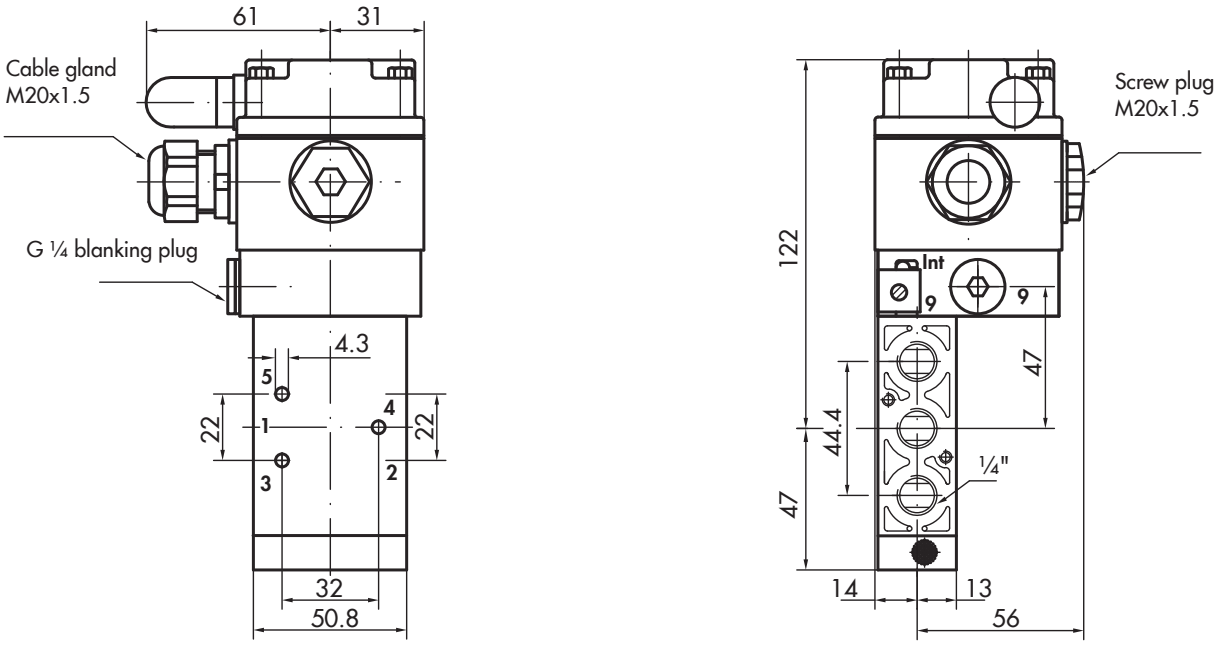


Fig. 14: *3/2 or 5/2-way solenoid valve, actuated on one side, K_{VS} 1.4*

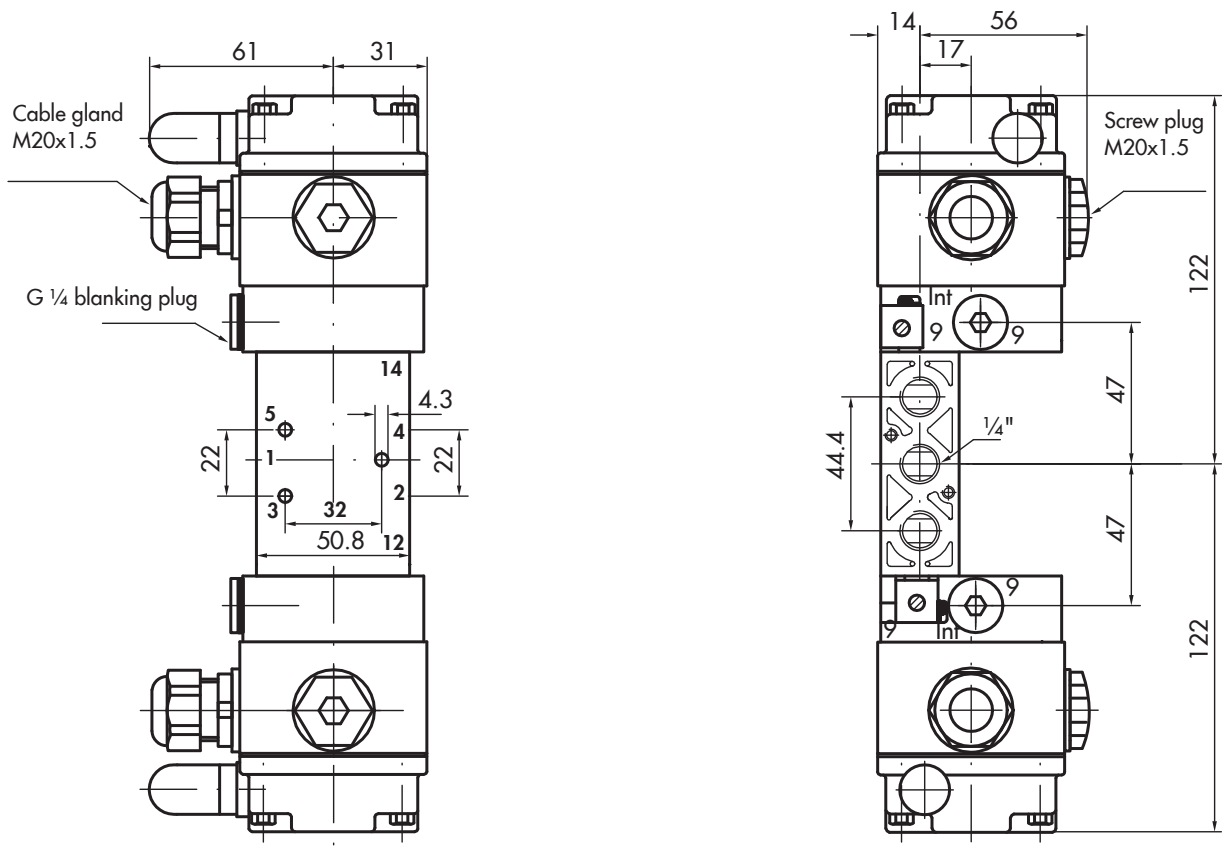


Fig. 15: *5/2 or 5/3-way solenoid valve, actuated on both sides, K_{VS} 1.4*

Dimensions of devices with threaded connections for linear actuators with NAMUR rib

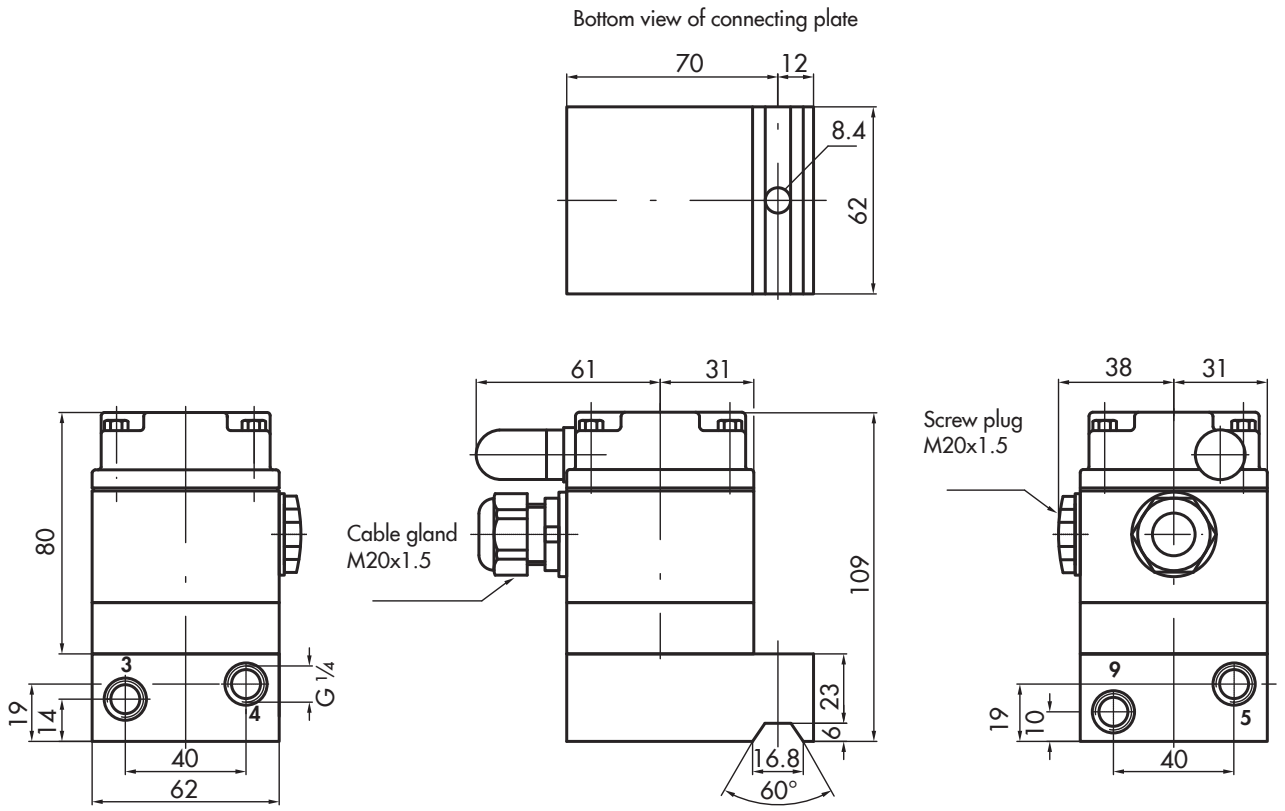


Fig. 16: *3/2-way solenoid valve, actuated on one side, K_{VS} 0.32*

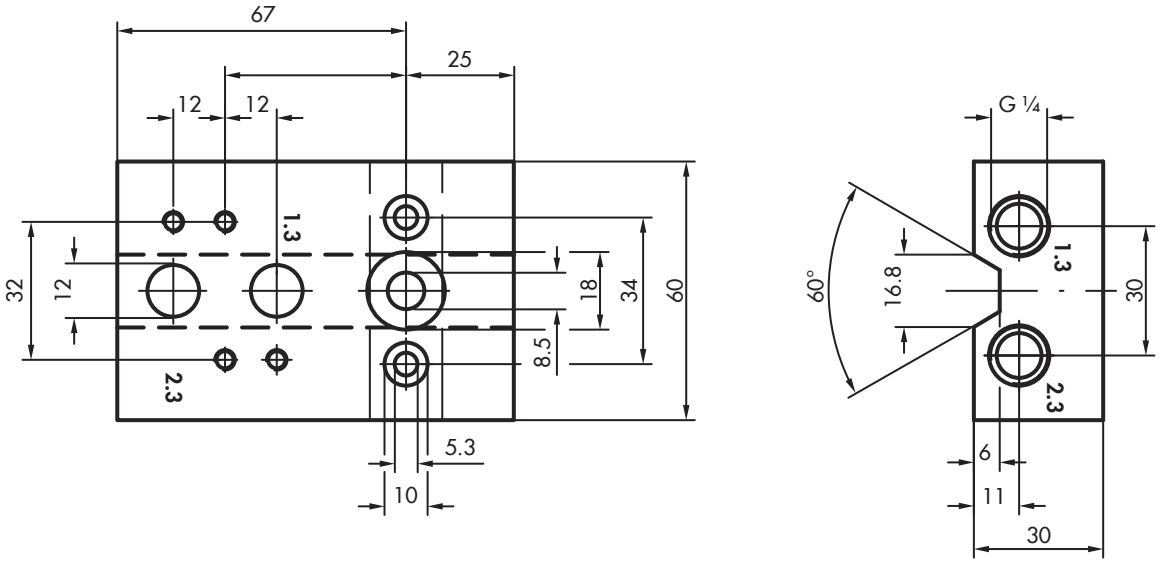


Fig. 17: *Adapter plate with NAMUR interface/NAMUR rib (item no. 1400-6751)*

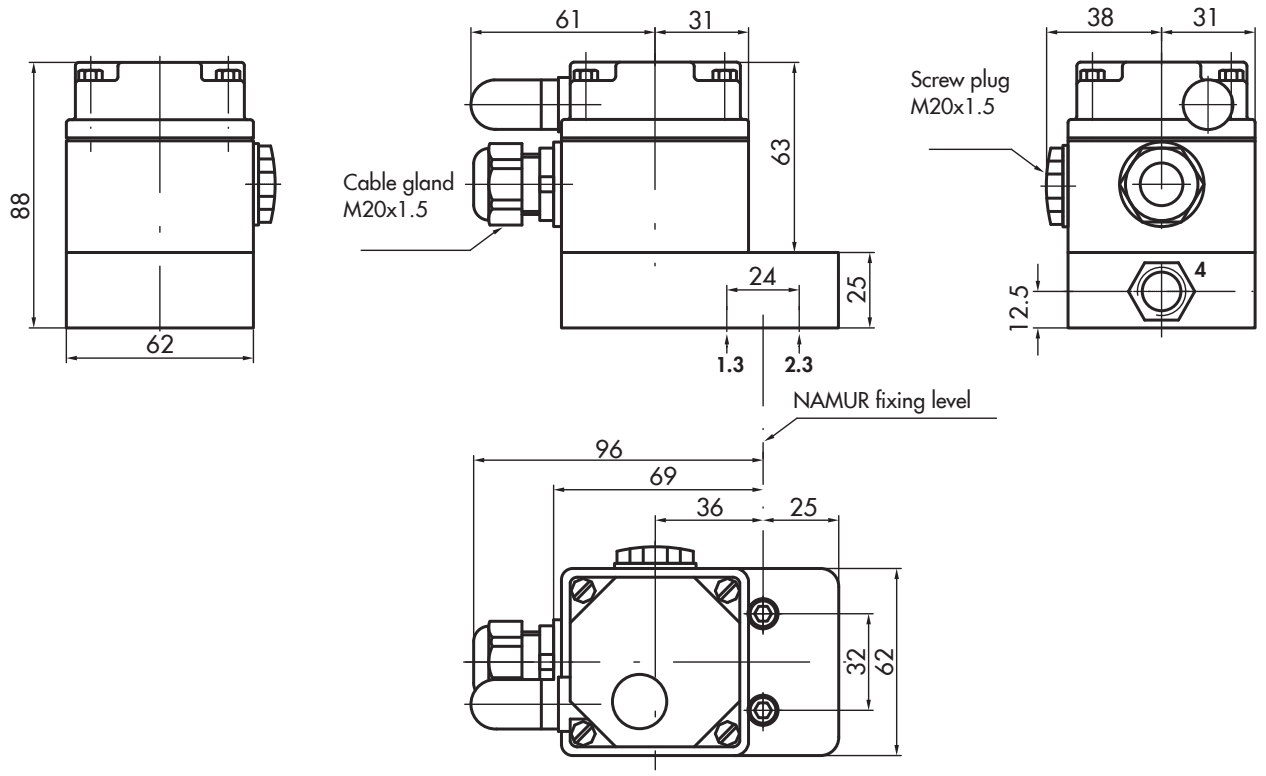


Fig. 18: *3/2 or 5/2-way solenoid valve, actuated on one side, K_{VS} 0.16*

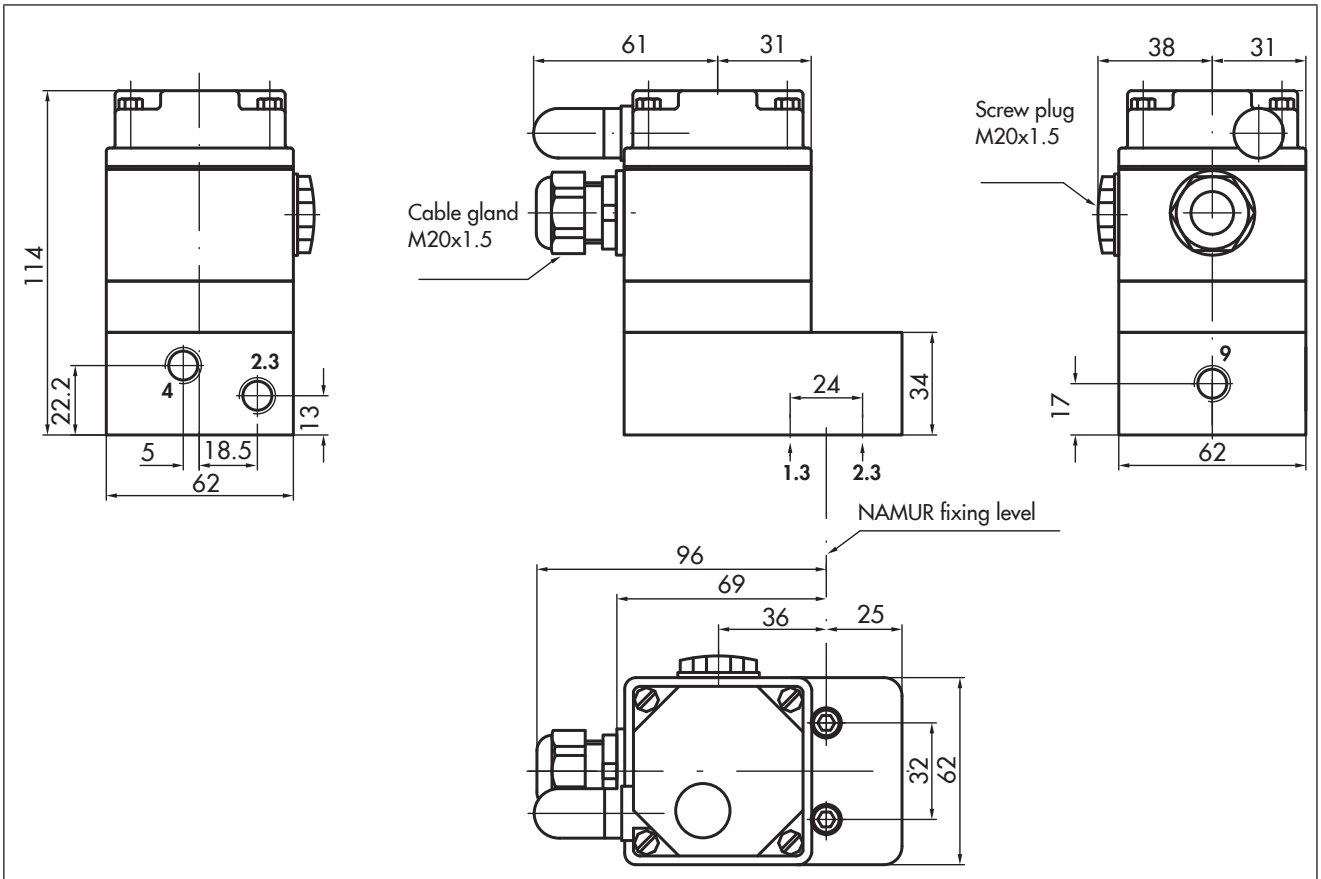


Fig. 19: *3/2-way solenoid valve, actuated on one side, K_{VS} 0.32*

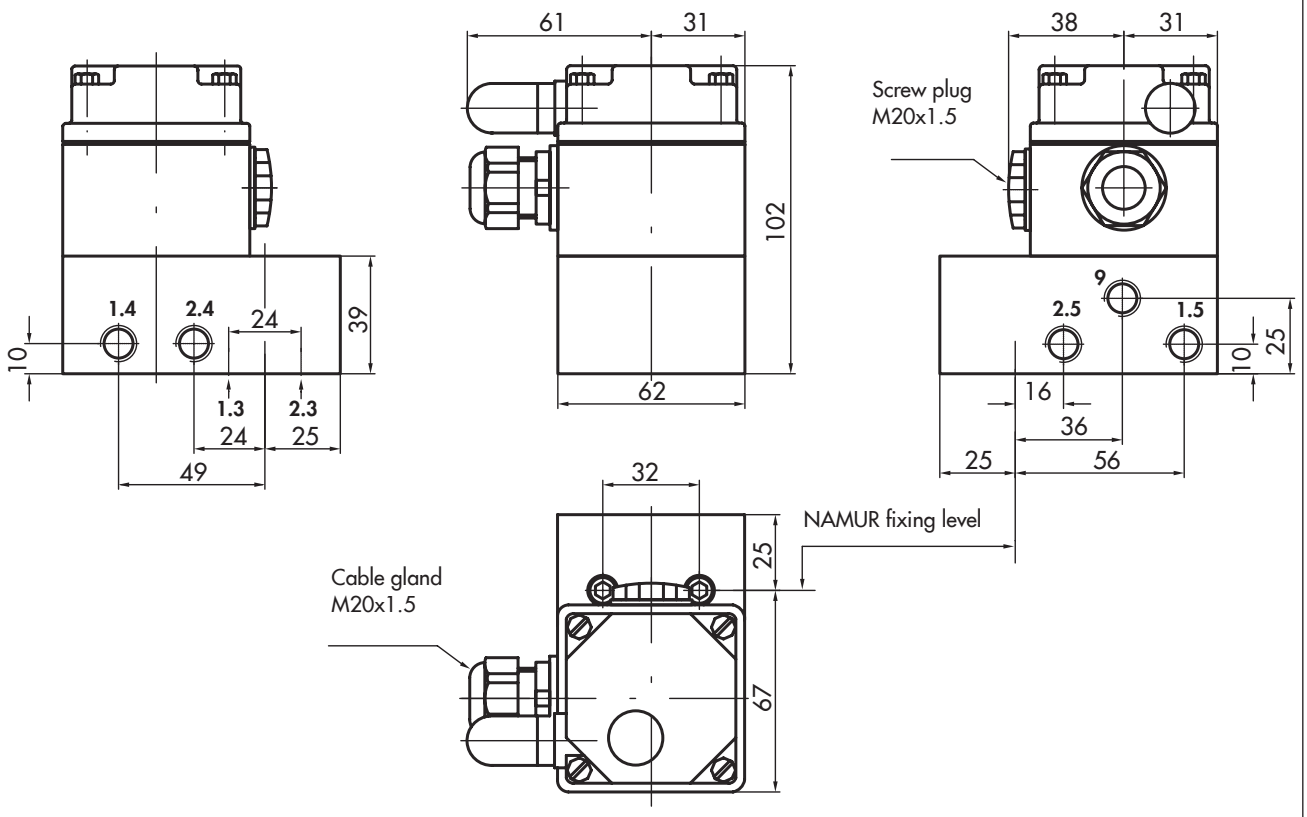
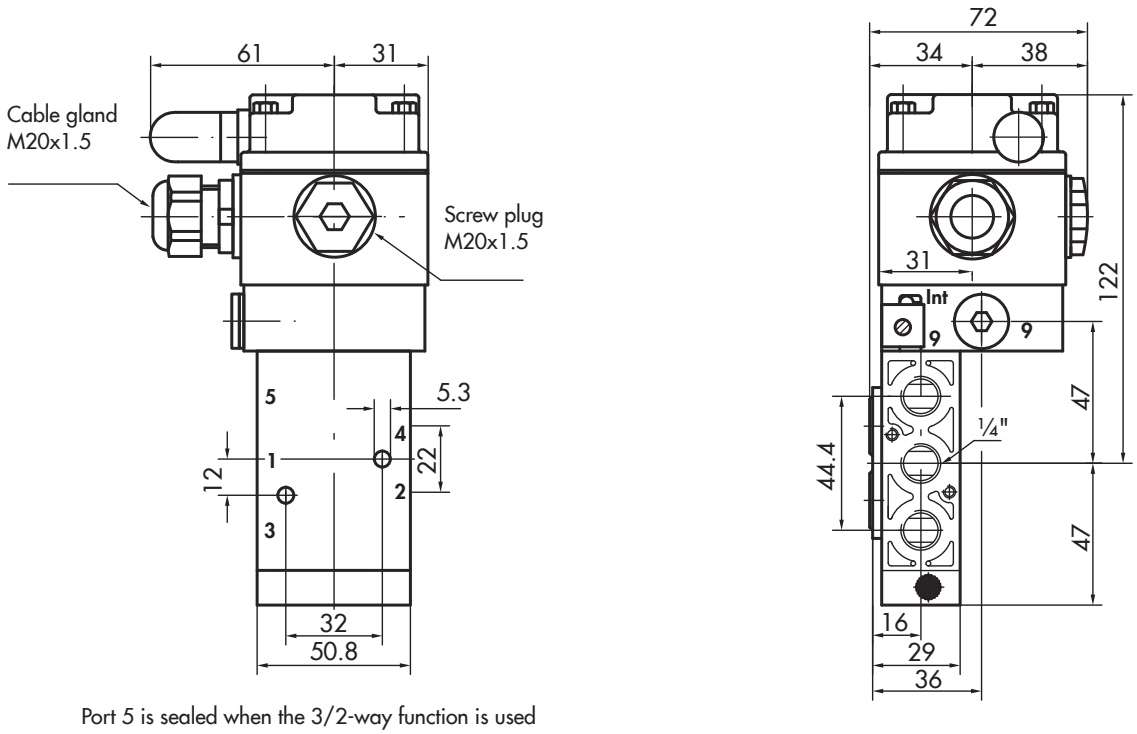


Fig. 20: *6/2-way solenoid valve, actuated on one side, K_{VS} 0.16*



Port 5 is sealed when the 3/2-way function is used

Fig. 21: *3/2 or 5/2-way solenoid valve, actuated on one side, K_{VS} 1.4*

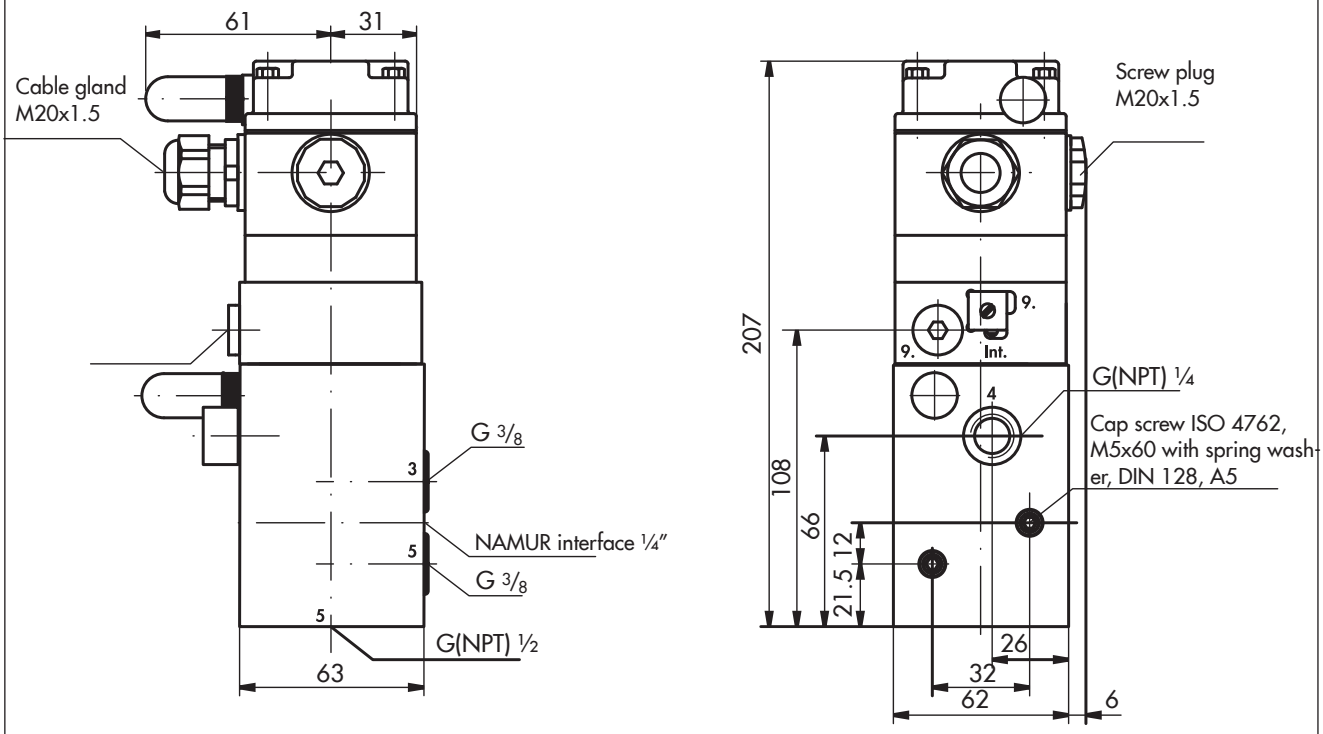


Fig. 22: *3/2-way solenoid valve, actuated on one side, K_{VS} 2.0*

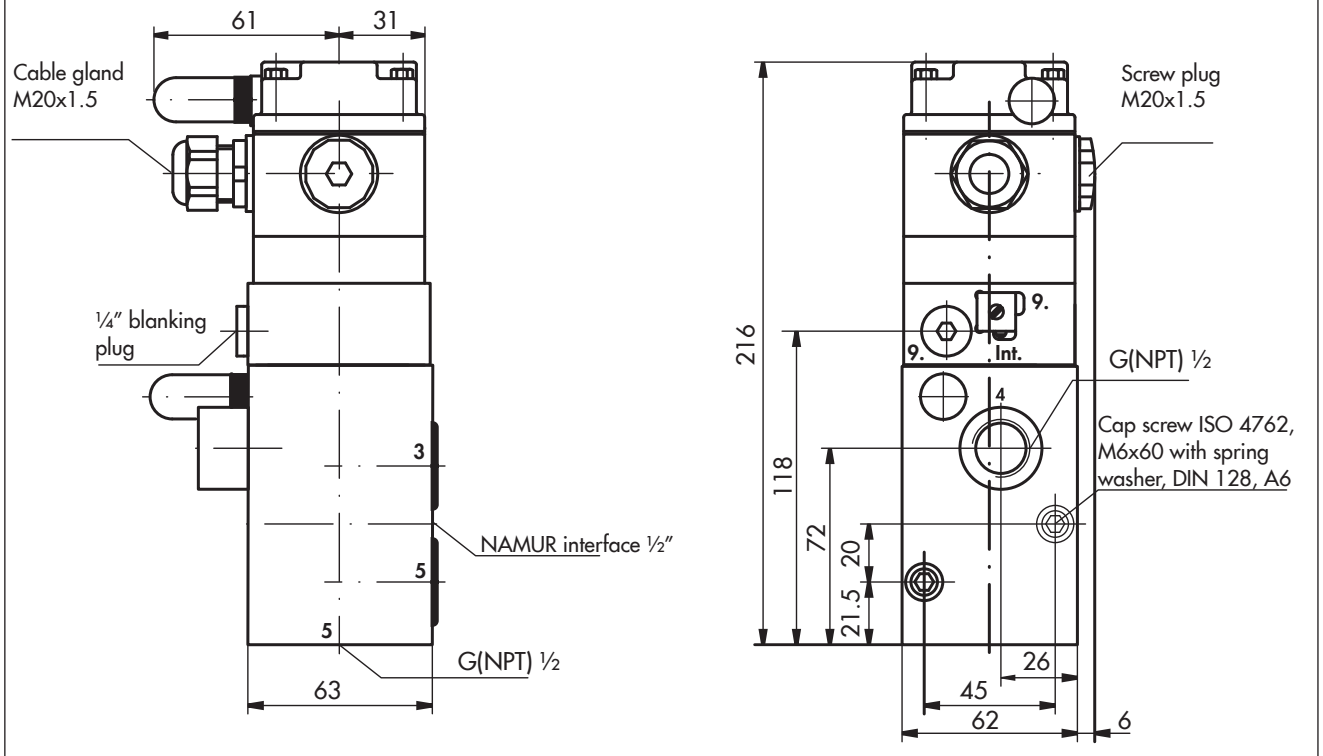


Fig. 23: *3/2-way solenoid valve, actuated on one side, K_{VS} 4.3*

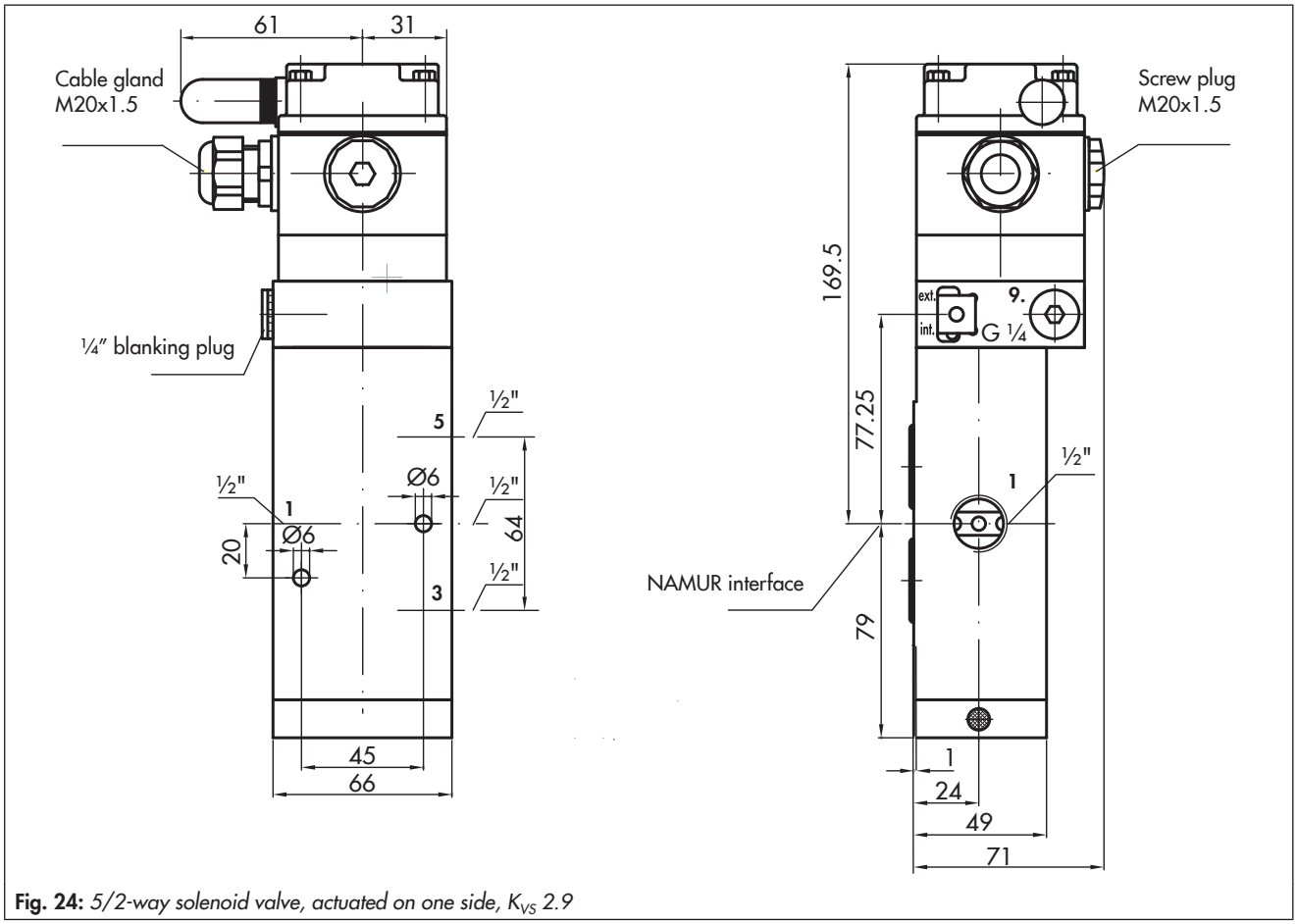


Fig. 24: *5/2-way solenoid valve, actuated on one side, K_{VS} 2.9*

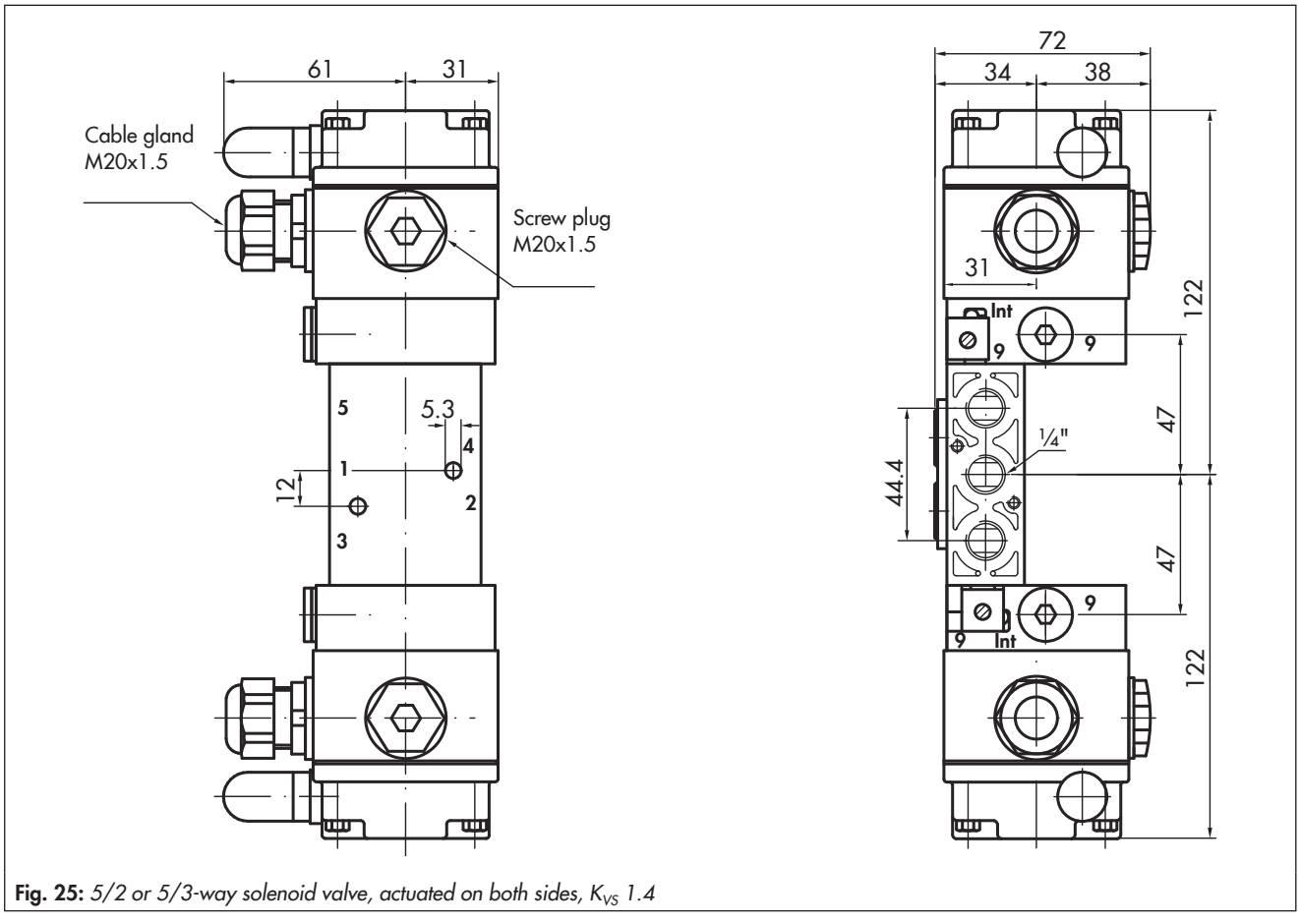


Fig. 25: *5/2 or 5/3-way solenoid valve, actuated on both sides, K_{VS} 1.4*

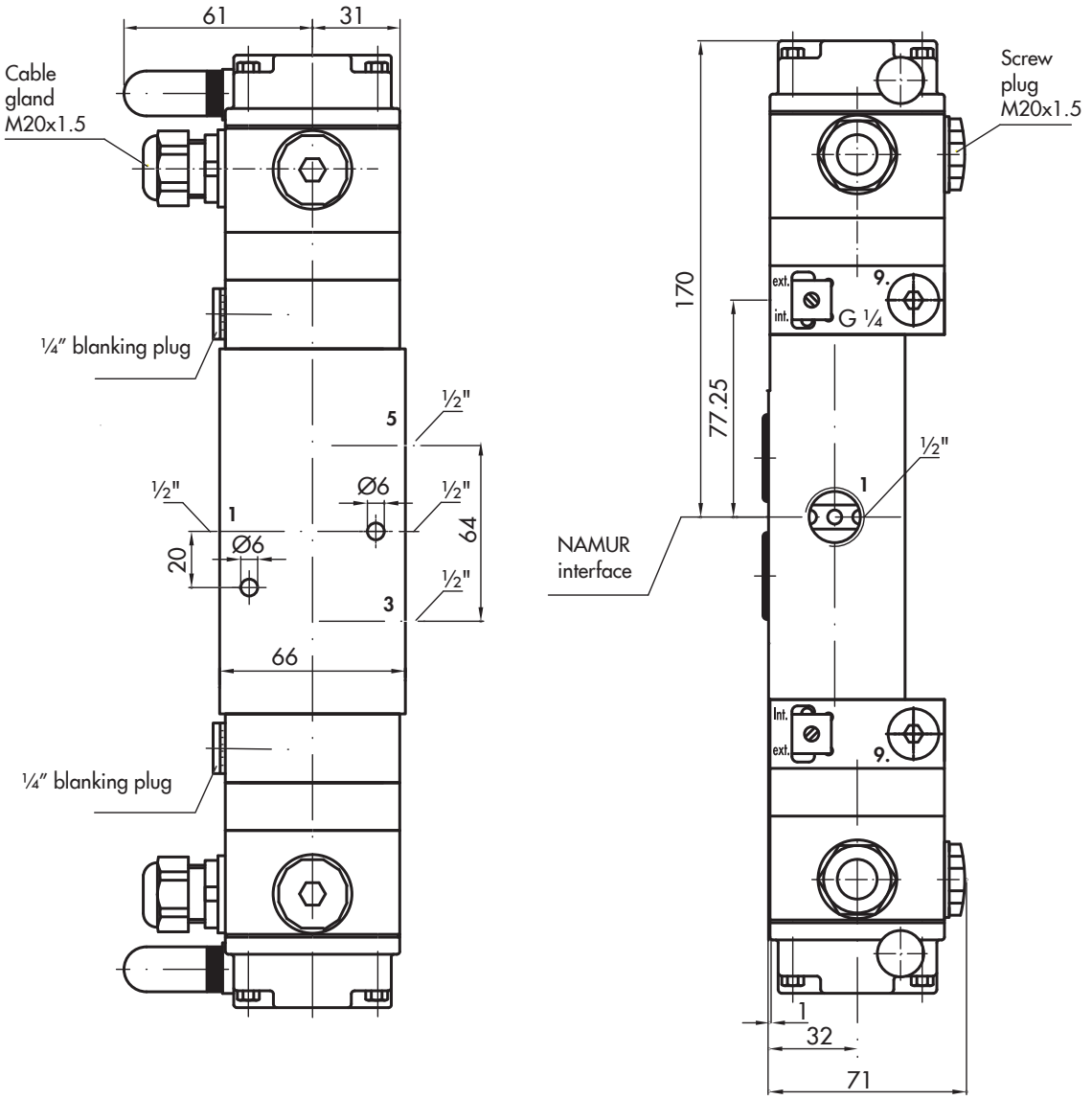


Fig. 26: *5/2-way solenoid valve, actuated on both sides, K_{VS} 2.9*

Versions and ordering data

Type 3963 Solenoid Valve	Type 3963-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Type of protection																		
No explosion protection		**0**																
II 2G Ex ia IIC T6 Gb (**ATEX**) [1] (max. 60/70/80 °C in T6/T5/T4)		**1**																
Ex ia (**CSA/FM**) (max. 60/70/80 °C in T6/T5/T4)		**3**																
II 3G Ex nA II T6 Gc/II 3G Ex ic IIC Gc (**ATEX**) [2] (max. 60/70/80 °C in T6/T5/T4)		**8**																
Nominal signal																		
6 V DC, 5.47 mW power consumption			**1**															
12 V DC, 13.05 mW power consumption			**2**															
24 V DC, 26.71 mW power consumption			**3**															
230 V AC, 0.46 VA power consumption (without explosion protection)			**5**															
115 V AC, 0.17 VA power consumption (without explosion protection)			**6**															
Manual override																		
Without manual override (**SIL/TÜV**)				**0**														
Pushbutton underneath the enclosure cover (**SIL/TÜV**)				**1**														
External pushbutton (accessible using a pin)				**2**														
External switch (accessible using a screwdriver)				**3**														
Switching function																		
3/2-way function with spring-return mechanism **SIL/TÜV** (all K_{VS} coefficients)					**0**													
5/2-way function with spring-return mechanism (**SIL** with K_{VS} 0.16, K_{VS} 0.16/1.4/2.9/4.3)					**1**													
5/2-way function with two detent positions **TÜV** (K_{VS} 1.4/2.9)					**2**													
5/3-way function with spring-centered mid-position (ports 2 and 4 closed, K_{VS} 1.4)					**3**													
5/3-way function with spring-centered mid-position (ports 2 and 4 vented) **TÜV** (K_{VS} 1.4)					**5**													
6/2-way function with spring-return mechanism (K_{VS} 0.16/4.3)					**8**													
Restrictors																		
Without restrictors **SIL/TÜV** (all K_{VS} coefficients)						**0**												
One exhaust air restrictor (3/2-way function/NAMUR interface or mounting block/K_{VS} 0.16)						**1**												
Two exhaust air restrictors (5/2-way function/NAMUR interface/K_{VS} 0.16)						**2**												
One supply air/exhaust air restrictor (3/2-way function/NAMUR interface/K_{VS} 0.16)						**3**												
Attachment																		
NAMUR interface according to VDI/VDE 3845 **SIL/TÜV** (all K_{VS} coefficients)							**0**											
Threaded connection for rail, wall or pipe mounting **SIL/TÜV** (K_{VS} 0.16, 0.32, 1.4, 4.3)							**1**											
NAMUR ribs according to IEC 60534-6-1 **SIL/TÜV** (K_{VS} 0.32)							**2**											
Mounting block for Type 3277 Linear Actuator **SIL/TÜV** (K_{VS} 0.16, 0.32)							**3**											
Type 3963 (flange), only as spare part (K_{VS} 0.01/0.16)							**4**											
K_{VS} [3]																		
0.16 **SIL/TÜV**								**1**										
0.32 **SIL/TÜV**								**2**										
1.4 **TÜV**								**3**										
4.3 **SIL/TÜV**								**4**										
0.01 (as spare part)								**5**										
2.9 (NAMUR interface)								**6**										
2.0 **SIL/TÜV** (NAMUR interface)								**7**										
Pneumatic connection																		
G ¼ (K_{VS} 0.16, 0.32, 1.4, 2.0)									**0**									
¼ NPT (K_{VS} 0.16, 0.32, 1.4, 2.0)									**1**									
G ½ (K_{VS} 2.9, 4.3)									**2**									
½ NPT (K_{VS} 2.9, 4.3)									**3**									
Without (pilot valve as spare part/mounting block for Type 3277 Linear Actuator)									**4**									
Air supply																		
Internal supply for actuators for on/off service										**0**								
External air supply for actuators for throttling service										**1**								

Type 3963 Solenoid Valve	Type 3963-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Electrical connection																		
Blanking plug M20x1.5											**0**	**0**						
Cable gland M20x1.5 made of black polyamide											**0**	**1**						
Cable gland M20x1.5 made of blue polyamide											**1**	**1**						
Adapter M20x1.5 to ½ NPT (aluminum)											**1**	**2**						
Cable gland M20x1.5 (CEAG) made of black polyamide											**1**	**3**						
Cable gland M20x1.5, nickel-plated brass											**1**	**4**						
Cable gland M20x1.5, nickel-plated brass, blue											**1**	**5**						
Cable gland M20x1.5 (CEAG) made of blue polyamide											**1**	**6**						
Cable gland M20x1.5 (Jacob) made of blue polyamide											**1**	**7**						
Device connector according to DIN EN 175301-803, black polyamide [1]											**2**	**3**						
Device connector with LED according to DIN EN 175301-803, black polyamide [1]											**2**	**5**						
Adapter M20x1.5 to ½ NPT (stainless steel)											**2**	**6**						
Degree of protection																		
IP 54 with polyethylene filter													**0**					
IP 65 with filter check valve made of polyamide													**1**					
IP 65 with filter check valve made of stainless steel													**2**					
NEMA 4 with filter check valve made of polyamide													**4**					
NEMA 4 with filter check valve made of stainless steel													**5**					
Ambient temperature [5]																		
–20 to +80 °C														**0**				
–45 to +80 °C														**2**				
Safety function																		
Without															**0**			
SIL [6]															**1**			
TÜV [7]															**2**			
Special version [8]																		
Without																**0**	**0**	**0**
Material																		
Connecting plate/booster valve enclosure made of 1.4404 on request																**0**	**0**	**1**
Explosion protection																		
NEPSI Ex ia																**0**	**0**	**9**
EAC GOST Ex ia																**0**	**1**	**1**
KCS Ex ia																**0**	**1**	**3**

1) EC type examination certificate PTB 01 ATEX 2085
2) Statement of conformity PTB 01 ATEX 2086 X
3) The air flow rate when p_1 = 2.4 bar and p_2 = 1.0 bar is calculated using the following formula: $Q = K_{VS} \times 36.22$ in m³/h.
4) The cable socket is not included in the scope of delivery (see Spare parts and accessories).
5) The maximum permissible ambient temperature of the solenoid valve depends on the permissible ambient temperature of the components, type of protection and temperature class.
6) SIL according to IEC 61508
7) Emergency release or locking of compressed air supply
8) Further special versions on request

Spare parts and accessories

Spare parts for Type 3963 Solenoid Valve	
Order no.	**Designation**
0430-2287	Gasket made of silicone rubber (VMQ), −45 to +80 °C (for connecting plate)
8502-1091	Formed seal (for supply air in booster valves with K_{VS} 1.4)
0520-0620	Diaphragm made of chloroprene rubber (CR), −20 to +80 °C (for booster valve with K_{VS} 2.0 or K_{VS} 4.3)
0520-0622	Diaphragm made of chloroprene rubber (CR), −20 to +80 °C (for all booster valves, except those with K_{VS} 2.0 or K_{VS} 4.3)
0520-1097	Diaphragm made of silicone rubber (VMQ), −45 to +80 °C (for booster valve with K_{VS} 2.0 or K_{VS} 4.3)
0520-1128	Diaphragm made of silicone rubber (VMQ), −45 to +80 °C (for all booster valves, except those with K_{VS} 2.0 or K_{VS} 4.3)
1180-8311	Switching element, −20 to +80 °C (for booster valve with K_{VS} 2.0 or 4.3)
1180-8553	Switching element, −45 to +80 °C (for booster valve with K_{VS} 2.0 or 4.3)
8421-9002	O-ring 13×3.5, −45 to +80 °C (for NAMUR interface ¼", K_{VS} 1.4)
8421-0364	O-ring 16×2, −20 to +80 °C (for NAMUR interface ¼", K_{VS} 2.0)
8421-0368	O-ring 16×2, −45 to +80 °C (for NAMUR interface ¼", K_{VS} 2.0)
8421-1077	O-ring 24×2, −20 to +80 °C (for NAMUR interface ½", K_{VS} 4.3)
8421-0425	O-ring 24×2, −45 to +80 °C (for NAMUR interface ½", K_{VS} 4.3)
8421-0419	O-ring 28×2, −45 to +80 °C (for NAMUR interface ½", K_{VS} 2.9)
8421-0085	O-ring 26×2, −20 to +80 °C (for booster valve with K_{VS} 2.0 or K_{VS} 4.3)
8421-0418	O-ring 26×2, −45 to +80 °C (for booster valve with K_{VS} 2.0 or K_{VS} 4.3)
8421-0439	O-ring 30×2, −45 to +80 °C (for booster valve with K_{VS} 2.9)
8421-0102	O-ring 36×2, −20 to +80 °C (for booster valve with K_{VS} 2.0, K_{VS} 2.9 or K_{VS} 4.3)
8421-0101	O-ring 36×2, −45 to +80 °C (for booster valve with K_{VS} 2.0 or K_{VS} 4.3)
8421-0112	O-ring 48×1, −20 to +80 °C (for booster valve with K_{VS} 4.3)
8421-0474	O-ring 48×1, −45 to +80 °C (for booster valve with K_{VS} 4.3)
8421-1027	O-ring 48×1.5, −45 to +80 °C (for booster valve with K_{VS} 2.0 or K_{VS} 4.3)
8421-1061	O-ring 48×1.5, −20 to +80 °C (for booster valve with K_{VS} 2.0 or K_{VS} 4.3)
	Enclosure cover without filter (for pilot valve)
1099-0673	Without manual override
1099-0674	With external switch (accessible using a screwdriver)
1099-0675	With external pushbutton (accessible using a pin)
1099-1194	With switch lever (accessible from the outside)
1402-1298	Enclosure cover for start-up
0070-0858	Blanking plug G ¼, 1.4571 (for port 9 at the pilot valve)
0070-0862	Blanking plug ¼ NPT, 1.4571 (for port 9 at the pilot valve)
8421-0070	NBR O-ring 14x1.5 (for blanking plug)

Accessories for Type 3963 Solenoid Valves	
Order no.	**Designation**
0790-6658	Cable socket according to EN 175301-803, Form A, made of polyamide, black, degree of protection IP 65
1170-4069	Cable socket with LED according to EN 175301-803, Form A, made of polyamide, black, degree of protection IP 65
1400-8298	Cable socket (Harting), 7-pole, made of aluminum, silver, degree of protection IP 65
8801-2810	Sensor connecting lead, two-wire, 3 m, blue, with angle connector M12x1, 4-pole, degree of protection IP 68
8831-0716	Cable socket (Binder), 7-pole, made of PBT GV, black, degree of protection IP 67
8831-0865	Cable socket M12x1, 4-pole, angled design, made of polyamide, black, degree of protection IP 67
3994-0160	Cable breakage protection with activation delay, enclosure for 35 mm top-hat rail mounting, IP 20 (for Type 3963-X1 with 6-V DC nominal signal)
1400-5268	Filter made of polyethylene, G 1/G ½ connection, degree of protection IP 54 (required for actuator size >1400 cm²)
8504-0066	Filter made of polyethylene, G ¼ connection, degree of protection IP 54
8504-0068	Filter made of polyethylene, G ½ connection, degree of protection IP 54
1790-7408	Filter check valve in housing with G ¼ thread made of polyamide, degree of protection IP 65
1790-7253	Filter check valve in housing with G ¼ thread made of 1.4301, degree of protection IP 65
1790-9645	Filter check valve in housing with G ¼ thread made of polyamide, degree of protection NEMA 4
1790-9646	Filter check valve in housing with G ¼ thread made of 1.4301, degree of protection NEMA 4
1400-5930	Mounting base for G-profile rail 32 according to EN 50035 (2 pcs. required)
1400-5931	Mounting base for 35 mm top-hat rail according to EN 50022 (2 pcs. required)
1400-6726	Mounting plate for wall mounting

Mounting kits for Type 3963 Solenoid Valves with threaded connections	
Order no.	**Designation**
	Mounting kit for linear actuators (175/240 cm² actuator area, G ¼ connection)
1400-6759	with pipe fitting, G ¼/G ¼ connection, made of CrNiMo steel
	Mounting kit for linear actuators (350/355/700/750 cm² actuator area, G ⅜ connection)
1400-6735	with pipe fitting, G ½/G ⅜ connection, made of CrNiMo steel
1400-6761	with pipe fitting, G ¼/G ⅜ connection, made of CrNiMo steel
	Mounting kit for linear actuators (1000/1400-60 cm² actuator area, G ¾ connection)
1400-6736	with pipe fitting, G ½/G ¾ connection, made of CrNiMo steel
	Mounting kit for linear actuators (1400-120/1400-250/2800/2 x 2800 cm² actuator area, G 1 connection)
1400-6737	with pipe fitting, G ½/G 1 connection, made of CrNiMo steel
	Mounting kit for linear actuators (175/240 cm² actuator area, G ¼ connection)
	with CrNiMo steel mounting bracket
1400-6749	and screw fittings for 8×1 pipe, G ¼/G ¼ connection, made of zinc-coated steel
1400-6750	and screw fittings for 8×1 pipe, G ¼/G ¼ connection, made of CrNiMo steel

Mounting kits for Type 3963 Solenoid Valves with threaded connections	
Order no.	**Designation**
	Mounting kit for linear actuators (350/355/700/750 cm² actuator area, G ⅜ connection)
	with CrNiMo steel mounting bracket
1400-6738	and screw fittings for 8×1 pipe, G ¼/G ⅜ connection, made of zinc-coated steel
1400-6739	and screw fittings for 8×1 pipe, G ¼/G ⅜ connection, made of CrNiMo steel
1400-6743	and screw fittings for 12×1 pipe, G ¼/G ⅜ connection, made of CrNiMo steel
1400-6744	and screw fittings for 10×1 pipe, G ¼/G ⅜ connection, made of polyamide
1400-6745	and screw fittings for 10×1 pipe, G ¼/G ⅜ connection, made of polyamide
	Mounting kit for linear actuators (700/750 cm² actuator area, G ⅜ connection)
	with CrNiMo steel mounting bracket
1400-6740	and screw fittings for 12×1 pipe, G ½/G ⅜ connection, made of zinc-coated steel
1400-6741	and screw fittings for 12×1 pipe, G ¼/G ⅜ connection, made of zinc-coated steel
1400-6742	and screw fittings for 12×1 pipe, G ½/G ⅜ connection, made of CrNiMo steel

Mounting kits for Type 3963 Solenoid Valves with NAMUR interface	
Order no.	**Designation**
	Mounting kit for linear actuators (350/355/700/750 cm² actuator area, G ⅜ connection) with NAMUR rib
	using adapter plate with NAMUR interface/NAMUR rib (item no. 1400-6751)
1400-6746	and screw fittings for 12×1 pipe, G ¼/G ⅜ connection, made of zinc-coated steel
1400-6747	and screw fittings for 12×1 pipe, G ¼/G ⅜ connection, made of CrNiMo steel
1400-6748	and screw fittings for 10×1 pipe, G ¼/G ⅜ connection, made of polyamide
	Mounting kit for linear actuators (175/240 cm² actuator area, G ¼ connection) with NAMUR rib
	using adapter plate with NAMUR interface/NAMUR rib (item no. 1400-6751)
1400-6752	and screw fittings for 6×1 pipe, G ¼/G ¼ connection, made of zinc-coated steel
1400-6753	and screw fittings for 6×1 pipe, G ¼/G ¼ connection, made of CrNiMo steel
1400-6756	and screw fittings for 10×1 hose, G ¼/G ¼ connection, made of polyamide
	Mounting kit for linear actuators (350/355/700/750 cm² actuator area, G ⅜ connection) with NAMUR rib
	using adapter plate with NAMUR interface/NAMUR rib (item no. 1400-6751)
1400-6754	and screw fittings for 8×1 pipe, G ¼/G ⅜ connection, made of zinc-coated steel
1400-6755	and screw fittings for 8×1 pipe, G ¼/G ⅜ connection, made of CrNiMo steel
1400-6757	and screw fittings for 10×1 pipe, G ¼/G ⅜ connection, made of polyamide
	Mounting kit for linear actuators (175/240 cm² actuator area, G ¼ connection)
1400-6759	with pipe fitting, G ¼/G ¼ connection, made of CrNiMo steel
	Mounting kit for Type 3353 Angle Seat Valve
1400-3001	with adapter plate for NAMUR interface, 1.4301

Accessories for mounting kits	
Order no.	**Designation**
0320-1416	Support for NAMUR rib (required when a positioner or limit switch is additionally mounted to the linear actuator for valves up to DN 50)
8320-0131	M8x60 hexagon screw, A4, DIN 931
1400-6751	Adapter plate with NAMUR rib/NAMUR interface (G ¼)
1400-9924	Adapter plate with NAMUR rib/NAMUR interface (¼ NPT)

Mounting blocks and accessories for mounting solenoid valves to Type 3277 Linear Actuators	
Order no.	**Designation**
	Mounting block for Type 3277 Linear Actuator with mounted Types 3793, 3766, 3767 and 3730 Positioners
1400-8813	G ¼ connection
1400-8814	¼ NPT connection
1400-6950	Pressure gauge mounting block, 1x Output and 1x Supply, made of stainless steel/brass (for mounting block)
	Piping for actuator with "stem retracts" fail-safe action
1400-6444	240 cm² actuator area, zinc-coated steel
1400-6445	240 cm² actuator area, CrNiMo steel
1400-6446	350 cm² actuator area, zinc-coated steel
1400-6447	350 cm² actuator area, CrNiMo steel
1400-6448	700 cm² actuator area, zinc-coated steel
1400-6449	700 cm² actuator area, CrNiMo steel