



3/2 way solenoid valve for pneumatic applications

- Robust servo-piston valve
- Service-friendly manual override
- Single or block assembly
- Explosion-proof versions available

Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with

	Type 2518 Cable Plug DIN EN 175301-803 - Form A	▶
	Type 1087 Timer	▶
	Type 2513 Cable plug acc. to DIN EN 175301-803 Form A	▶

Type description

Type 5411 is a pilot operated 3/2 way solenoid valve with manual override as standard. The body includes a servo piston with the seat seals. Through pilot channels, the servo piston is either loaded with input pressure or released. A minimum pressure difference of 1 bar is required for switching. The vent port is integrated as a sintered bronze silencer directly in the valve body. The valves can be combined (up to 6 valves) on a single-channel manifold with common pressure supply.

Type 5411: available until August 2023

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1. General Technical Data

Product properties	
Dimensions	Detailed information can be found in chapter "5. Dimensions" on page 7.
Material	
Body	Polyamide (reinforced) with moulded-in brass threads
Coil	Polyamide, Epoxy
Seal	NBR
Nominal diameter	DN 6.0 mm
Performance data	
Compressed air quality	ISO 8573-1:2010, class 7.4.4 ^{1.)}
Flow (Q _{Nn} value air)	900 l/min (measured at +20 °C, 6 bar pressure at valve inlet and 1 bar pressure difference)
Nominal operating mode	100 % ED continuously rated
Switching times^{2.)}	
Opening	50 ms pressure rise 0...90 %
Closing	30 ms pressure drop 100...10 %
Electrical data	
Operating voltage	24 V DC 24/110/230 V, 50...60 Hz
Power consumption (max.)	Version with V DC: 2 W Version with V AC: 11 VA (inrush), 6 VA (hold)
Voltage tolerance	± 10 %
Medium data	
Type of medium	Neutral medium, e.g. lubricated or unlubricated compressed air
Medium temperature	-10 °C...+60 °C
Process/Port connection & communication	
Port connection size	G 1/4
Electrical connection	Tag connectors according to DIN EN 175 301 - 803 Form A for cable plug Type 2518 Detailed information can be found in chapter "Cable plug Type 2518, Form A according to DIN EN 175301 - 803" on page 12.
Approvals and certificates	
Degree of protection	IP65 with cable plug
Environment and installation	
Installation position	As required, preferably with solenoid system upright; air exhausted from the relief port with pressed sintered bronze silencer must not be impeded
Ambient temperature	55 °C

1.) To prevent freezing of the expanded compressed air, the pressure dew point must be at least 10 K lower than the temperature of the medium.

2.) Measured at +20 °C, 6 bar pressure at valve inlet and 1 bar pressure difference.

2. Product versions

2.1. Standard version



Product properties

Dimensions	Detailed information can be found in chapter “5.1. Standard version” on page 7.
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Electrical data

Operating voltage	24 V DC 24/110/230 V, 50...60 Hz
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Power consumption

Inrush	AC: 11 VA
Hold (hot coil)	AC: 6/2 VA/W DC: 2 W
Voltage tolerance	+ 10 %

Process/Port connection & communication

Port connection size	G ¼
Electrical connection	Tag connectors according to DIN EN 175 301 - 803 Form A for cable plug Type 2518 Detailed information can be found in chapter “Cable plug Type 2518, Form A according to DIN EN 175301 - 803” on page 12.

Environment and installation

Installation position	As required, preferably with solenoid system upright; air exhausted from the relief port with pressed sintered bronze silencer must not be impeded.
Ambient temperature (max.)	55 °C

2.2. ATEX/IECEx version

Note:

The approval Ex m is achieved by the mounting of an approved push-over coil. The cable connection and the cable are non-detachable and sealed together with the valve. The valves can be used individually or in blocks.



Product properties

Dimensions	Detailed information can be found in chapter “5.2. Ex m version” on page 8.
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Electrical data

Operating voltage	24/110/230 V UC
Voltage tolerance	+ 10 %

Process/Port connection & communication

Port connection size	G ¼
Electrical connection	3 m cable, moulded Junction box (without fuse)

Approvals and certificates

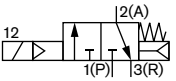
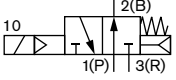
Type of protection (ATEX and IECEx)

With moulded cable	EPS 18 ATEX 1232 X / IECEx EPS 18.0110X II 2G Ex mb IIC (T4/T5/T6) Gb II 2D Ex mb IIIC T (130 °C/95 °C/80 °C) Db
With junction box	EPS 16 ATEX 1046 X / IECEx EPS 16.0021 X II 2G EX eb mb IIC (T4/T5/T6) Gb II 2D EX mb tb IIIC (130 °C/ 95 °C/ 80 °C) Db

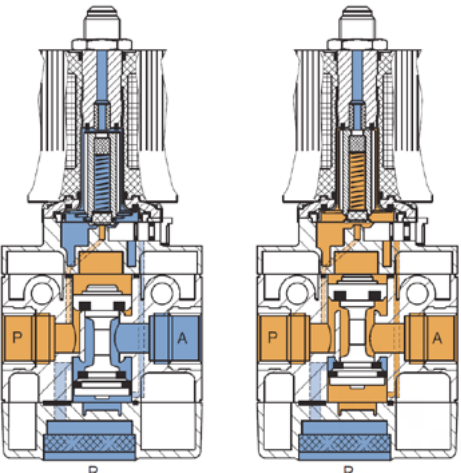
Environment and installation

Installation position	As required, preferably with actuator upright
Ambient temperature	Single mounting: -30 °C...+60 °C Block mounting: -30 °C...+50 °C

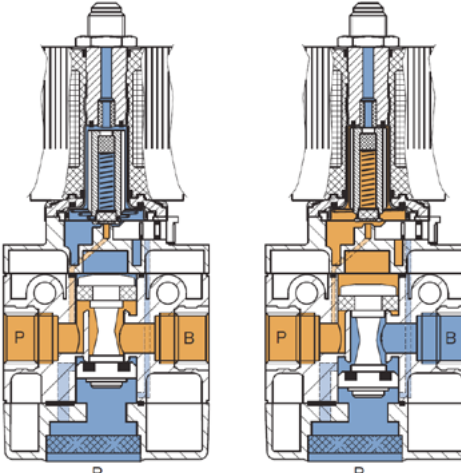
3. Circuit functions

Circuit functions	Description
	Type: C, solenoid valve 3/2 way servo-controlled normally closed
	Type: D, solenoid valve 3/2 way servo-controlled normally open

3.1. Circuit function Type: C, solenoid valve

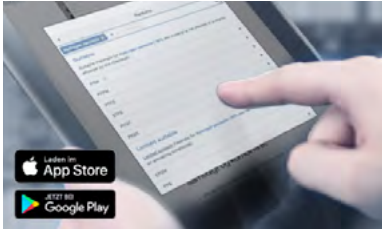
Overview	Description
	Position power-off: The space below the piston is normally relieved to the outside via the pilot valve. The compressed air from the connection (P) pushes the piston downward and closes the upper seat, the connection (A) is relieved via the lower seat. Position after switching on the current: The pilot valve opens the pilot bore and exposes the piston from below to pressure. Through the large surfaces on the actuation side, the piston is pushed up, closes the lower seat, and opens the connection from (P) to (A) through the upper seat.

3.2. Circuit function Type: D, solenoid valve

Overview	Description
	Position power-off: Without current, the space below the piston is relieved to the outside via the pilot valve. The compressed air from port (P) pushes the piston down and closes the upper seat, port (A) is relieved above the lower seat. Position after switching on the current: When switching on, the pilot valve opens the control bore and applies pressure to the servo piston from below. Due to the large surfaces on the actuating side, the piston is pushed upwards, closes the lower seat and opens the connection from (P) to (A) via the upper seat.

4. Materials

4.1. Chemical Resistance Chart – Bürkert resistApp

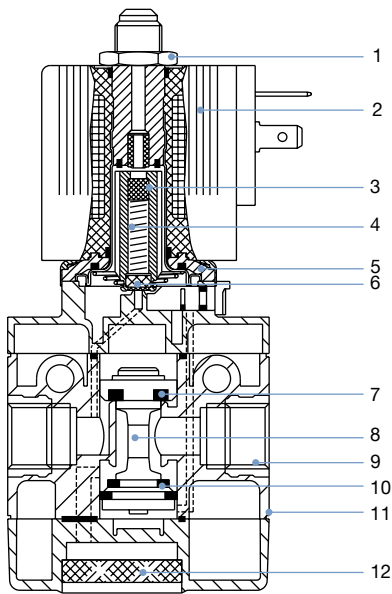


Bürkert resistApp – Chemical Resistance Chart

You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

Start Chemical Resistance Check

4.2. Material specifications



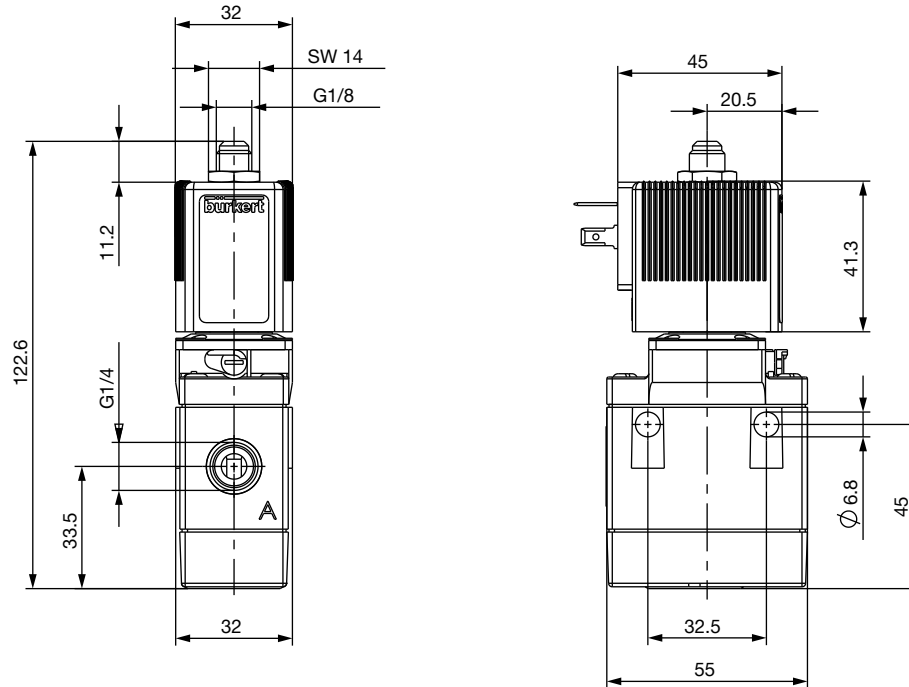
No.	Element	Material
1	Nut	Steel, surface thick-film passivated (brass version) Stainless steel 1.4305 PTFE coated
2	Coil	Standard: Polyamide, epoxy Ex version: epoxy
3	Stopper	1.4105
4	Magnet core	1.4105
5	Flange	Steel, surface thick-film passivated (brass version) Stainless steel 1.4301 (stainless steel version)
6	Core seal	FKM
7	Seal poppet	NBR
8	Poppet	Plastic
9	Moulded-in thread	Brass
10	Seal poppet	NBR
11	Body	Polyamide (reinforced)
12	Silencer	Sintered bronze

5. Dimensions

5.1. Standard version

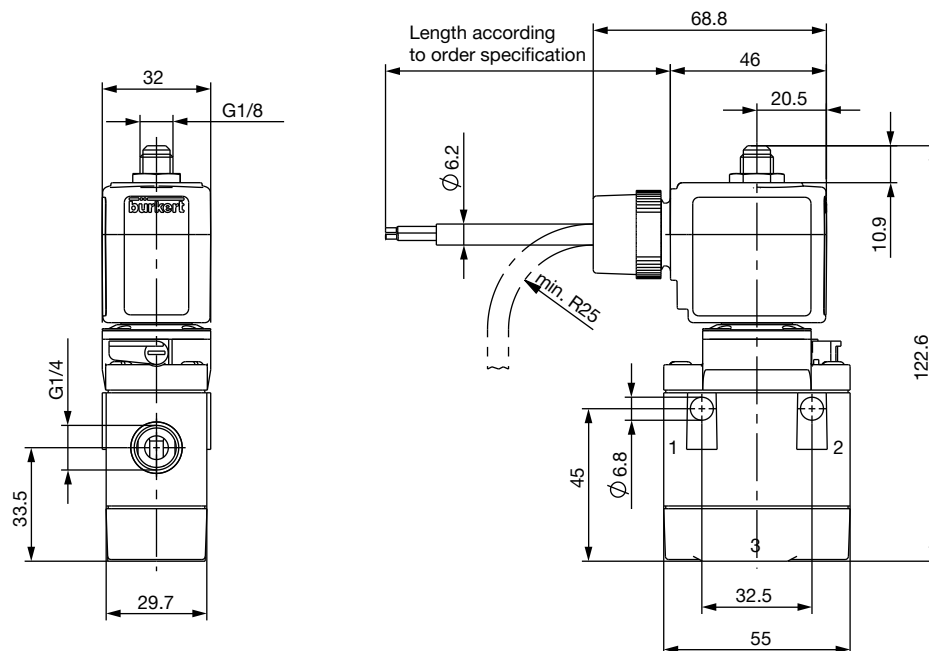
Note:

Dimensions in mm

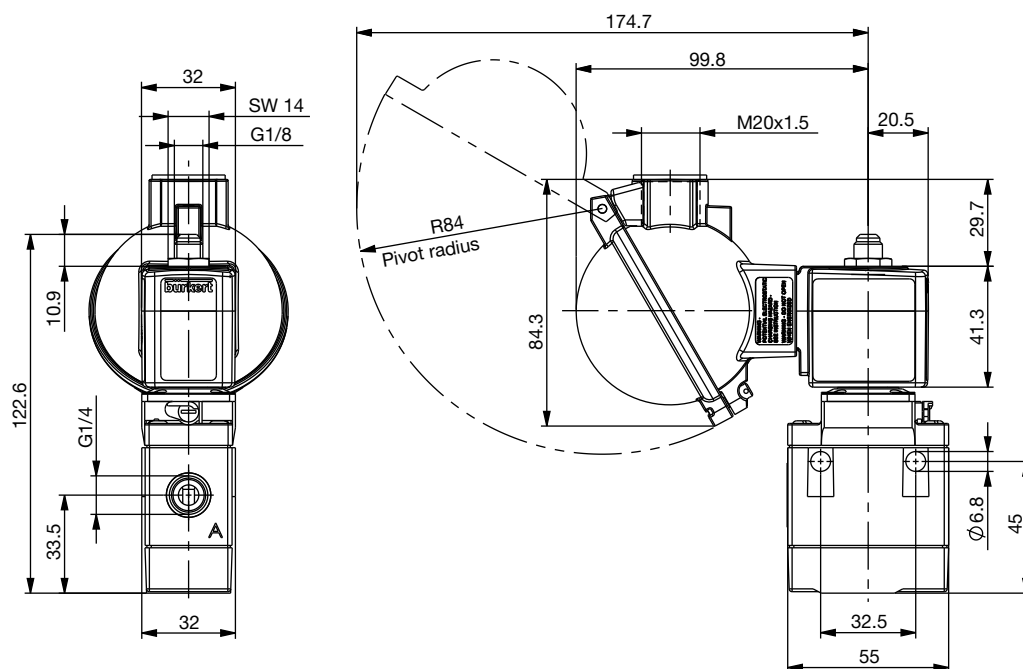


Version with 3 m moulded cable

Dimensions in mm



Dimensions in mm

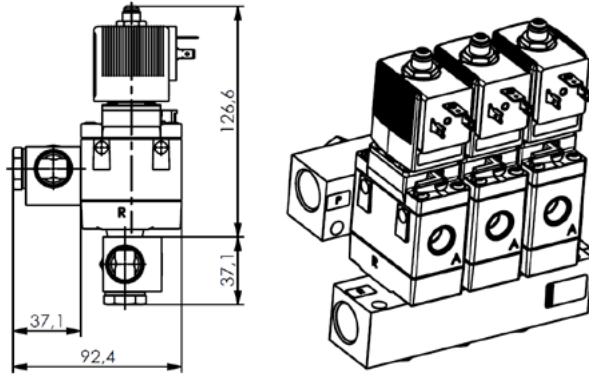


6. Product installation

6.1. Mounting options

Note:

The following figure (right) serves as an example of a block mounting.

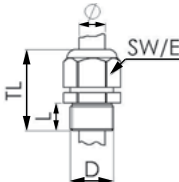
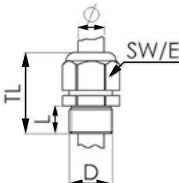


7. Product accessories

7.1. Cable glands for ATEX/IECEx terminal box

Note:

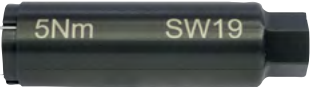
A cable gland in polyamide version is included in the delivery. A nickel-plated brass version can be ordered at a surcharge.

Description	Ex approvals		Dimensions										
	Certification	Identification											
Ex cable gland, Brass, nickel-plated, 6...13 mm	PTB 04 ATEX 1112 X, IECEx PTB 13.0027X	II 2 G Ex e IIC Gb, II 2 D Ex tb IIIC Db IP68	 <table><tr><td>TL</td><td>29...37 mm</td></tr><tr><td>L</td><td>6 mm</td></tr><tr><td>D</td><td>20 mm</td></tr><tr><td>SW</td><td>24 mm</td></tr><tr><td>E</td><td>27 mm</td></tr></table>	TL	29...37 mm	L	6 mm	D	20 mm	SW	24 mm	E	27 mm
TL	29...37 mm												
L	6 mm												
D	20 mm												
SW	24 mm												
E	27 mm												
Ex cable gland, Polyamide, 7...13 mm	PTB 13 ATEX 1015 X, IECEx PTB 13.0034X	II 2 G Ex e IIC Gb, II 2 D Ex tb IIIC Db IP68	 <table><tr><td>TL</td><td>36...45 mm</td></tr><tr><td>L</td><td>10 mm</td></tr><tr><td>D</td><td>20 mm</td></tr><tr><td>SW</td><td>24 mm</td></tr><tr><td>E</td><td>28 mm</td></tr></table>	TL	36...45 mm	L	10 mm	D	20 mm	SW	24 mm	E	28 mm
TL	36...45 mm												
L	10 mm												
D	20 mm												
SW	24 mm												
E	28 mm												

7.2. Special tool to turn the junction box

Note:

- This special tool is not supplied with the valve (see [“Accessories for ATEX/IECEX terminal box”](#) on page 13).
- This special tool can only be used with ATEX AC10 coils.

Description	Components of the set
Set SC02-AC10 	• Special wrench • Service manual

8. Ordering information

8.1. Bürkert eShop – Easy ordering and quick delivery



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8.2. Bürkert product filter



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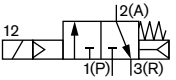
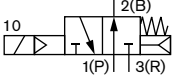
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8.3. Ordering chart

Standard version with manual override and NBR seal

Note:

- Please note that the cable plug has to be ordered separately, see “[Cable plug Type 2513, Form A according to DIN EN 175301-803](#)” on [page 13](#) or separate data sheet **Type 2513** ►.
- Please note that the cable plug has to be ordered separately, see “[Cable plug Type 2518, Form A according to DIN EN 175301-803](#)” on [page 12](#) or separate data sheet **Type 2518** ►.
- To switch a pressure difference of 1 bar is required. NPT ¼ connection on request.

Circuit function	Nominal diameter [mm]	Port connection [inch]	Q _{Nn} value air ^{1.)} [l/min]	Pressure range ^{2.)} [bar]	Power consumption [W]	Voltage/ Frequency [V/Hz]	Article no.
Type: C, solenoid valve 3/2 way servo-controlled solenoid valve, normally closed 	6.0	G ¼	900	1...10	2	024/DC	134607
						024/50...60	134608
						110/50...60	134609
						230/50...60	134610
Type: D, solenoid valve 3/2 way servo-controlled solenoid valve, normally open 	6.0	G ¼	900	1...10	2	024/DC	134611
						024/50...60	134612
						110/50...60	134613
						230/50...60	134614

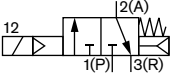
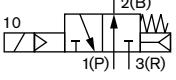
1.) Flow rate: Q_{Nn} value air: measurement at +20 °C, 6 bar pressure at valve inlet, 1 bar pressure difference

2.) Pressure data: overpressure to atmospheric pressure

Ex m version with manual override, NBR seal and moulded 3 m cable

Note:

- The maximum medium temperature must not exceed the permissible temperature class (T4: 135 °C, T5: 100 °C, T6: 85 °C) minus 5 K in any case.
- A pressure difference of 1 bar is required for switching. NPT ¼ connection on request.

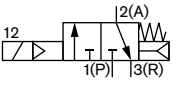
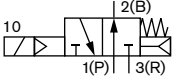
Circuit function	Nominal diameter [mm]	Port connection [inch]	Q _{Nn} value air ^{1.)} [l/min]	Pressure range ^{2.)} [bar]	Power consumption [W]	Voltage/ Frequency [V/Hz]	Article no.
Type: C, solenoid valve 3/2 way servo-controlled solenoid valve, normally closed 	6.0	G ¼	900	1...10	3	024/UC	350432
						110/UC	On request
						230/UC	On request
Type: D, solenoid valve 3/2 way servo-controlled solenoid valve, normally open 	6.0	G ¼	900	1...10	3	024/UC	350428
						110/UC	On request
						230/UC	On request

1.) Flow rate: Q_{Nn} value air: measurement at +20 °C, 6 bar pressure at valve inlet, 1 bar pressure difference

2.) Pressure data: overpressure to atmospheric pressure

Ex me version with manual override, NBR seal and terminal box**Note:**

- The maximum media temperature must not exceed the permissible temperature class (T4: 135 °C, T5: 100 °C, T6: 85 °C) minus 5 K under any circumstances.
- A pressure difference of 1 bar is required for switching. NPT ¼ connection on request.
- Terminal box without fuse.

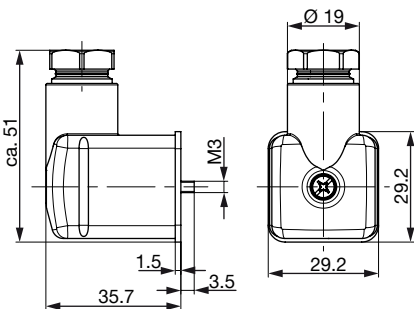
Circuit function	Nominal diameter	Port connection	Q _{Nn} value air ^{1.)}	Pressure range ^{2.)}	Power consumption	Voltage/Frequency	Article no.
	[mm]	[inch]	[l/min]	[bar]	[W]	[V/Hz]	
Type: C, solenoid valve 3/2 way servo-controlled solenoid valve, normally closed 	6.0	G ¼	900	1...10	3	024/UC	350422 
						048/UC	On request
						110/UC	On request
						230/UC	350427 
Type: D, solenoid valve 3/2 way servo-controlled solenoid valve, normally open 	6.0	G ¼	900	1...10	3	024/UC	On request
						048/UC	On request
						110/UC	On request
						230/UC	On request

1.) Flow rate: Q_{Nn} value air: measurement at +20 °C, 6 bar pressure at valve inlet, 1 bar pressure difference

2.) Pressure data: overpressure to atmospheric pressure

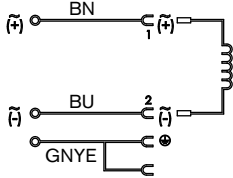
8.4. Ordering chart accessories**Cable plug Type 2518, Form A according to DIN EN 175301-803****Note:**

Further versions see data sheet **Type 2518** ►

Cable plug	Dimensions	Version	Voltage	Article no.
		Without circuitry (AC/DC)	0...250 V AC/DC	314802 
		With LED (AC/DC)	12...24 V AC/DC	314812 
		With LED and varistor (AC/DC)	12...24 V AC/DC	314820 
		With rectifier, LED and varistor	12...24 V AC/DC	314816 

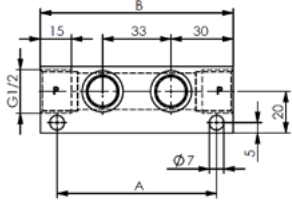
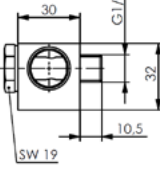
Cable plug Type 2513, Form A according to DIN EN 175301 -803**Note:**

- The cable plug Type 2513 meets the requirements of ATEX category 3 GD.
- For more information on the cable plug, see data sheet **Type 2513** ►.

Cable plug	Circuit diagram	Cable length [mm]	Article no.
		12000	260893 
		5000	260892 
		3000	260891 
		300	260890 

Single-channel manifold blocks**Note:**

For common pressure port P, made of aluminium with banjo bolts and seals (a common balanced pressure port R is possible)

Dimensions	Manifold	Hole spacing A [mm]	Total length B [mm]	Article no.
	2 fold	77	93	005811 
	3 fold	110	126	005717 
	4 fold	143	159	005843 
	5 fold	176	192	005776 
	6 fold	209	225	005718 
				

Accessories for ATEX/IECEx terminal box**Note:**

- A cable gland in polyamide version is included in the delivery. A nickel-plated brass version can be ordered at surcharge.
- For more information on Ex cable glands, see **“7.1. Cable glands for ATEX/IECEx terminal box” on page 9**.

Description	Article no.
Ex cable gland, brass, nickel-plated, 6...13 mm ^{1.)}	773278 
Ex cable gland, polyamide, 7...13 mm ^{1.)}	773277 
Set SC02-AC10: Special wrench ^{2.)} incl. service manual	293488 

1.) Cable diameter

2.) Not included in the scope of delivery of the valve

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