






## 4/2 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

- |   |   |
|---|---|
|   | <b>Type 2518</b> ▶<br>Cable Plug DIN EN 175301 - 803 - Form A       |
|  | <b>Type 1087</b> ▶<br>Timer   |
|  | <b>Type 2513</b> ▶<br>Cable plug acc. to DIN EN 175301 - 803 Form A |

### Type description

Type 5413 is a pilot operated 4/2 way solenoid valve with manual override as standard. A 3/2 way solenoid pilot valve allows control. The valve consists basically of two assembled 3/2 way valves for ports A and B with a counter built-in servo piston with seat seals. Through pilot channels, the servo piston is operated at the input pressure and pushed either apart or towards the valve centre. A minimum pressure difference of 1 bar is required for switching.

**Type 5413: available until August 2023**

Phase out

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## 1. General Technical Data

Product properties	
Dimensions	Detailed information can be found in chapter <b>"5. Dimensions"</b> on page 7.
Material	
Body	Polyamide (reinforced) with moulded-in brass threads
Coil	Polyamide, Epoxy
Seal	NBR
Nominal diameter	DN6.0 mm
Performance data	
Compressed air quality	ISO 8573 - 1:2010, class 7.4.4 <sup>1.)</sup>
Flow (Q <sub>Nn</sub> 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 <sup>2.)</sup>	
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	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 non-lubricated compressed air
Medium temperature	- 10 °C...+60 °C
Medium pressure	1...10 bar
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 <b>"Cable plug Type 2518, Form A according to DIN EN 175301 - 803"</b> 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.
Electrical data	
Operating voltage	24 V DC 24/110/230 V, 50...60 Hz
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. ATEX/IECEx version" on page 8.
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

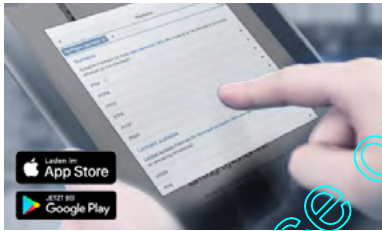
Circuit functions	Description
	<p><b>Type: G, solenoid valve</b>                      4/2 way                      servo-controlled                      normally open</p>

#### 3.1. Circuit function Type: G, solenoid valve

Overview	Description
	<p><b>Position power-off:</b>                      Normally both servo pistons are relieved on the operating side. The servo pistons are pushed apart with the pressure applied on the port (P), the upper piston opens the connection from (P) to (B), and the lower piston opens the connection from (A) to (R).</p> <p><b>Position after switching on the current:</b>                      The pilot valve opens the pilot bore and exposes both pistons to pressure and pushes them towards the valve centre. The upper piston released the connection (B) to (R), the lower piston opens the connection (P) to (A).</p>

### 4. Materials

#### 4.1. Chemical Resistance Chart – Bürkert resistApp



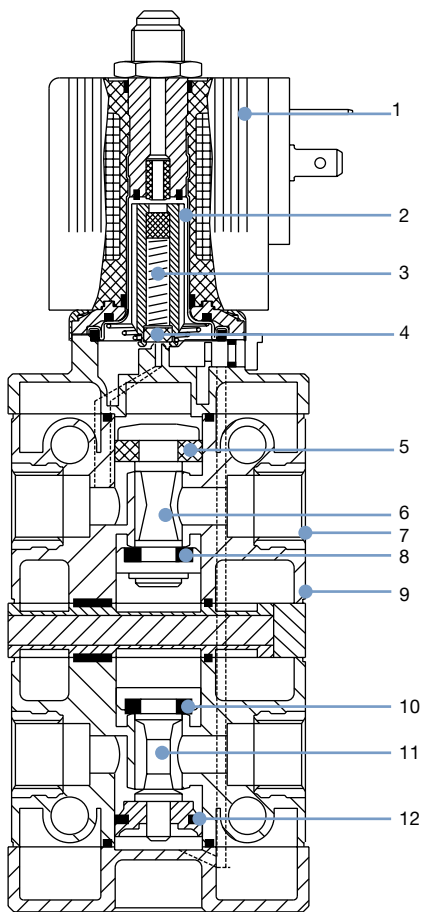
**Bürkert resistApp – Chemical Resistance Chart**

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](#)

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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	Seal poppet	NBR
13	Poppet	Plastic
14	Seal poppet	NBR

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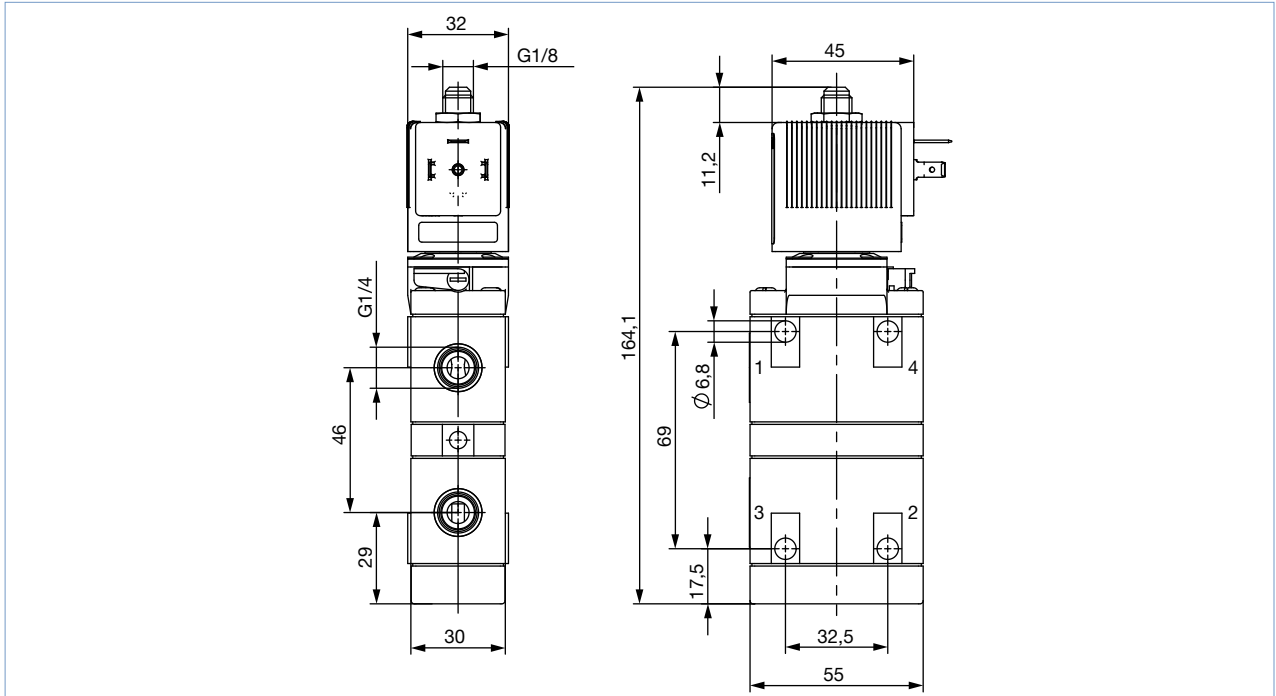
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## 5. Dimensions

### 5.1. Standard version

**Note:**

Dimensions in mm



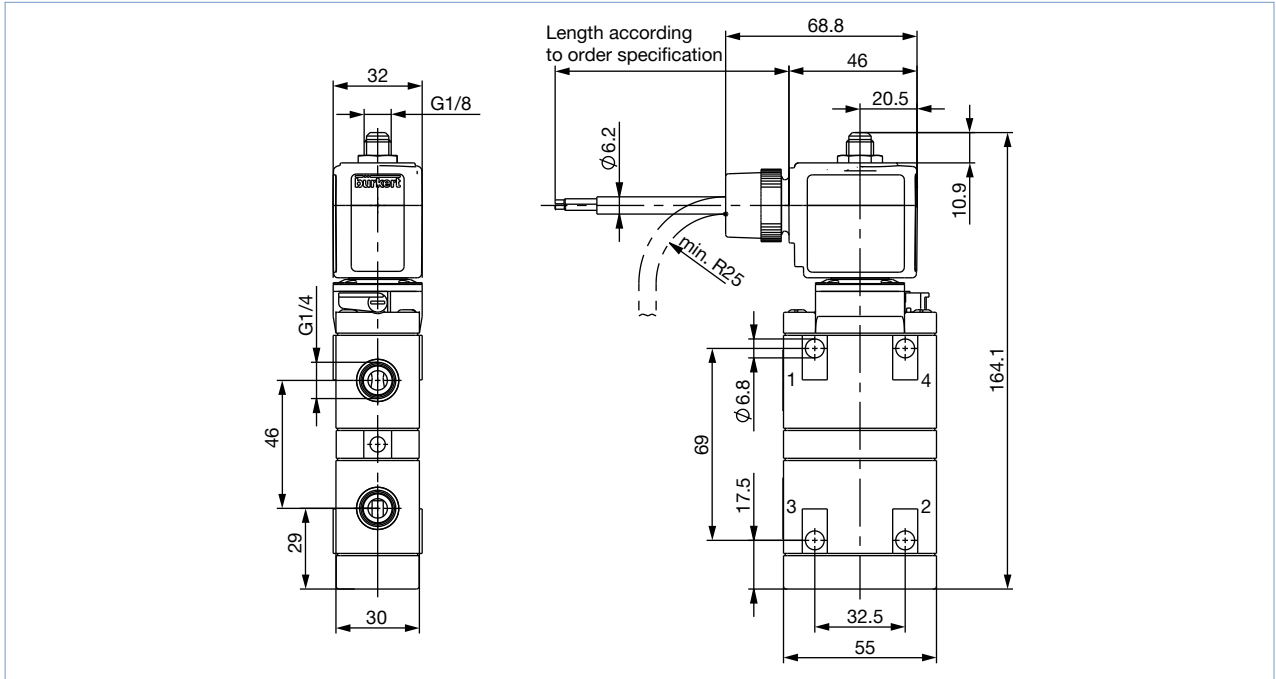
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5.2. ATEX/IECEEx version

Version with 3 m moulded cable

Note:

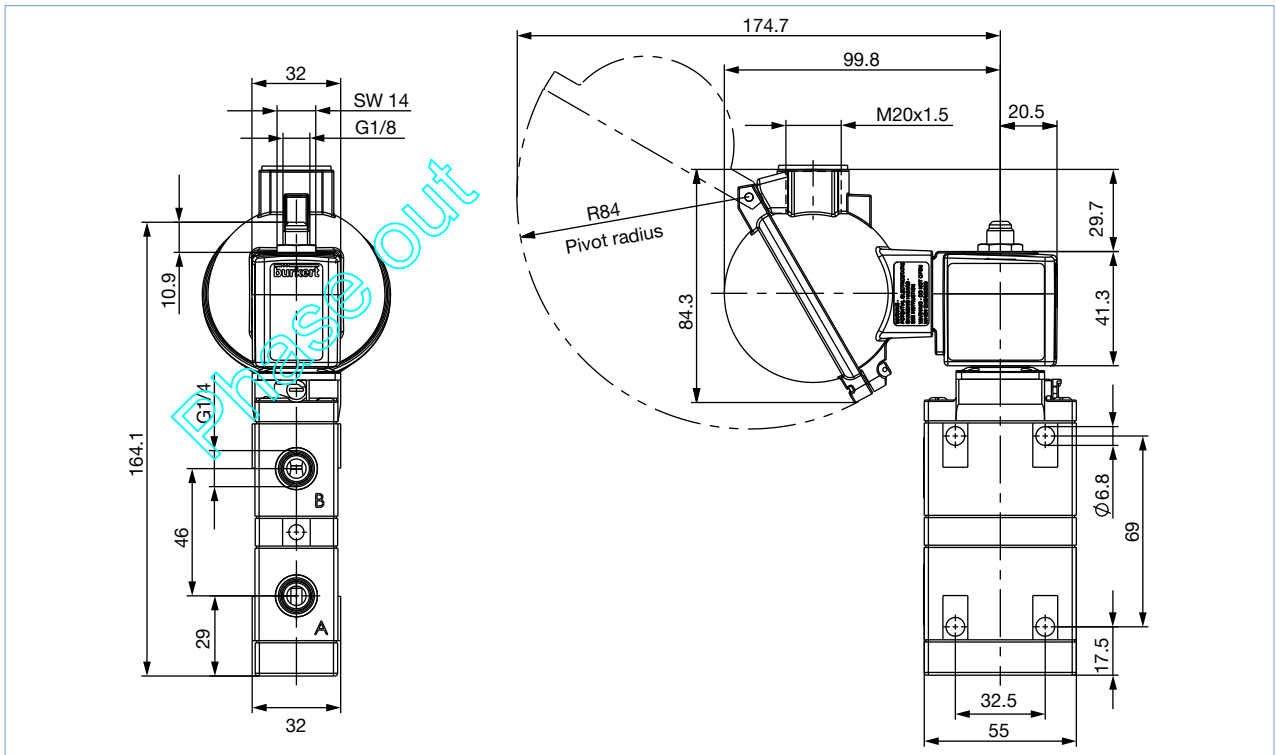
Dimensions in mm



Version with junction box

Note:

Dimensions in mm



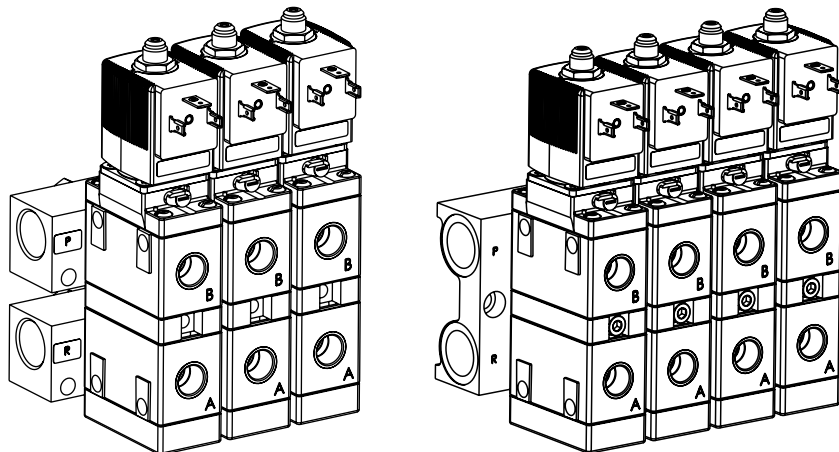


## 6. Product installation

### 6.1. Mounting options

**Note:**

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


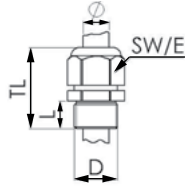

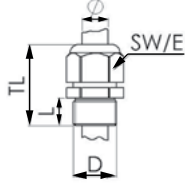


## 7. Product accessories

### 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 border="1"> <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 border="1"> <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												

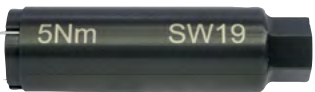
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## 7.2. Special tool to turn the junction box


**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 	<ul style="list-style-type: none"> <li>• Special wrench</li> <li>• Service manual</li> </ul>

## 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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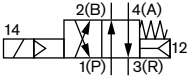




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### 8.3. Ordering chart

#### 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 12 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.

Circuit function	Nominal diameter	Port connection	Q <sub>Nn</sub> value air <sup>1.)</sup>	Pressure range <sup>2.)</sup>	Power consumption	Voltage/ Frequency	Article no.
	[mm]	[inch]	[l/min]	[bar]	[W]	[V/Hz]	
<b>Type: G, solenoid valve</b> 4/2 way servo-controlled normally open  	6.0	G ¼	900	1...10	2	024/DC	134615 
						024/50...60	134616 
						110/50...60	134617 
						230/50...60	134618 

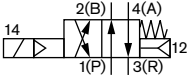



1.) Flow rate: Q<sub>Nn</sub> value air: measurement at +20 °C, 6 bar pressure at valve inlet, 1 bar pressure difference

2.) Pressure data: overpressure to atmospheric pressure

#### ATEX/IECEx 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.

Circuit function	Nominal diameter	Port connection	Q <sub>Nn</sub> value air <sup>1.)</sup>	Pressure range <sup>2.)</sup>	Power consumption	Voltage/Fre- quency	Article no.
	[mm]	[inch]	[l/min]	[bar]	[W]	[V/Hz]	
<b>Type: G, solenoid valve</b> 4/2 way servo-controlled normally open  	6.0	G ¼	900	1...10	3	024/DC	350437 
						110/UC	350438 
						230/UC	350439 

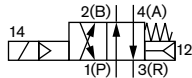
1.) Flow rate: Q<sub>Nn</sub> value air: measurement at +20 °C, 6 bar pressure at valve inlet, 1 bar pressure difference

2.) Pressure data: overpressure to atmospheric pressure

**ATEX/IECEx 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 <sub>Nn</sub> value air <sup>1.)</sup>	Pressure range <sup>2.)</sup>	Power consumption	Voltage/Frequency	Article no.
	[mm]	[inch]	[l/min]	[bar]	[W]	[V/Hz]	
<b>Type: G, solenoid valve</b> 4/2 way servo-controlled normally open 	6.0	G ¼	900	1...10	1.8	024/UC	350419
						048/UC	On request
						110/UC	350421
						230/UC	350420


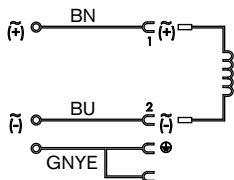
1.) Flow rate: Q<sub>Nn</sub> value air: measurement at +20 °C, 6 bar pressure at valve inlet, 1 bar pressure difference  
 2.) Pressure data: overpressure to atmospheric pressure

**8.4. Ordering chart accessories**

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

**Note:**


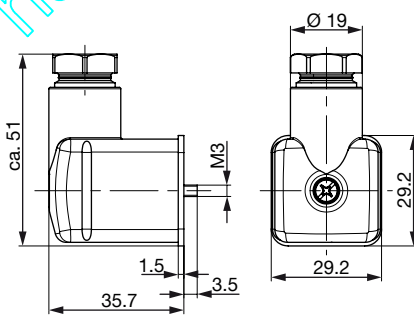
- The cable plug Type 2513 meets the requirements of ATEX category 3 GD.
- For more information on the cable plug, see data sheet **Type 2513**

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

**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

**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

**Double channels manifolds blocks**

**Note:**

For pressure and exhaust port, with mounting screws M5×60 DIN 912 and O-rings 11×2.5

Dimensions	Manifold	Hole spacing A [mm]	Total length B [mm]	Article no.
	2 fold	78	93	005686
	3 fold	111	126	005688
	4 fold	144	159	005719
	5 fold	177	192	005696
	6 fold	210	225	005626
	7 fold	243	258	005738
	8 fold	276	291	005724
	9 fold	309	324	005739
	10 fold	342	357	005740
	12 fold	408	423	005700

**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 <sup>1)</sup>	773278
Ex cable gland, polyamide, 7...13 mm <sup>1)</sup>	773277
Set SC02-AC10: Special wrench <sup>2)</sup> incl. service manual	293488

1.) Cable diameter

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

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