

4/2-way solenoid valve for pneumatic applications



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

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.

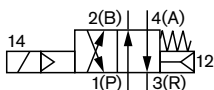
Technical data	
Orifice	DN6.0 mm
Port connection	G ¼
Body material	Polyamide (reinforced) with moulded-in brass threads
Coil material	Polyamide, Epoxy
Seal material	NBR
Medium	neutral medium, e.g. lubricated or unlubricated compressed air
Air pressure quality	ISO 8573-1:2010, class 7.4.4*
Medium Temperature	-10 °C to +60 °C
Medium pressure	1 to 10 bar
Ambient Temperature	max. 55 °C
Q_{Nn}-Value air	900 l/min
Operating voltage	24 V DC 24/110/230 V, 50-60 Hz
Voltage tolerance	±10 %
Power consumption	version with V DC: 2 W version with V AC: 11 VA (inrush), 6 VA (hold)
Response time	opening: 50 ms (Pressure rise 0 to 90 %) closing: 30 ms (Pressure drop 100 to 10 %)
Duty cycle	100 % continuously rated
Electrical connection	Tag connectors according to DIN EN 175301-803 (previously DIN 43650) Form A for cable plug Type 2508
Protection class	IP65 with cable plug
Installation	As required, preferably with solenoid system upright; Air exhausted from the relief port with pressed sintered bronze silencer must not be impeded.

Flow rate: Q_{Nn}-value air [l/min]: Measured at +20 °C, 6 bar pressure at valve inlet and 1 bar pressure difference.

Pressure ranges [bar]: Overpressure to the atmospheric pressure

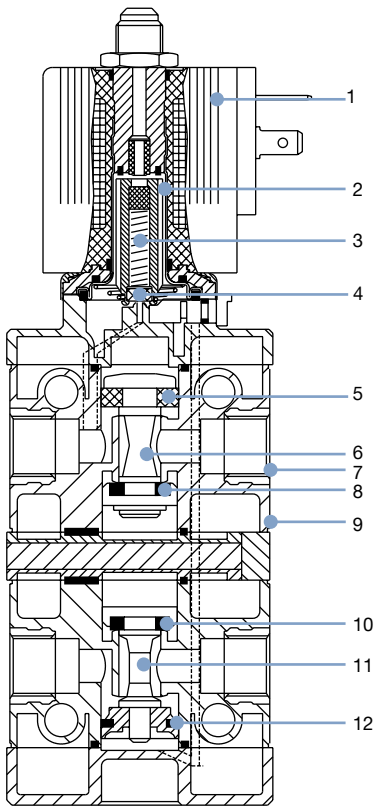
* To prevent freezing of the expanded compressed air, the pressure dew point must be at least 10 K lower than the temperature of the medium.

Circuit function G



4/2 way servo-controlled solenoid valve

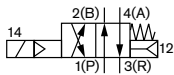
Materials



No.	Element	Material
1	Coil	Standard: Polyamide, Epoxy Ex version: Epoxy
2	Stopper	1.4105
3	Magnet core	1.4105
4	Core Seal	FKM
5	Seal poppet	NBR
6	Poppet	Plastic
7	Moulded-in thread	Brass
8	Seal poppet	NBR
9	Body	Polyamide (reinforced)
10	Seal poppet	NBR
11	Poppet	Plastic
12	Seal poppet	NBR

Circuit function G

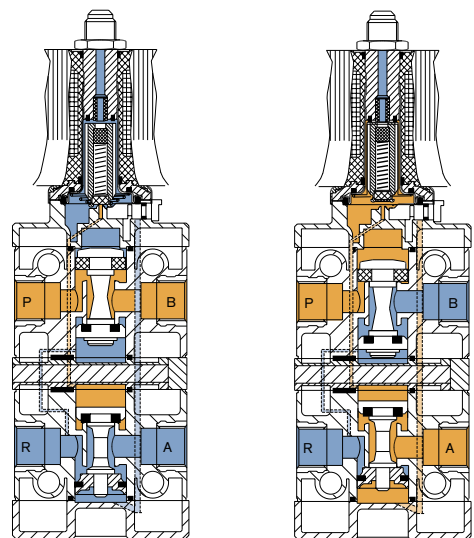
Circuit function G

*Position power-off:*

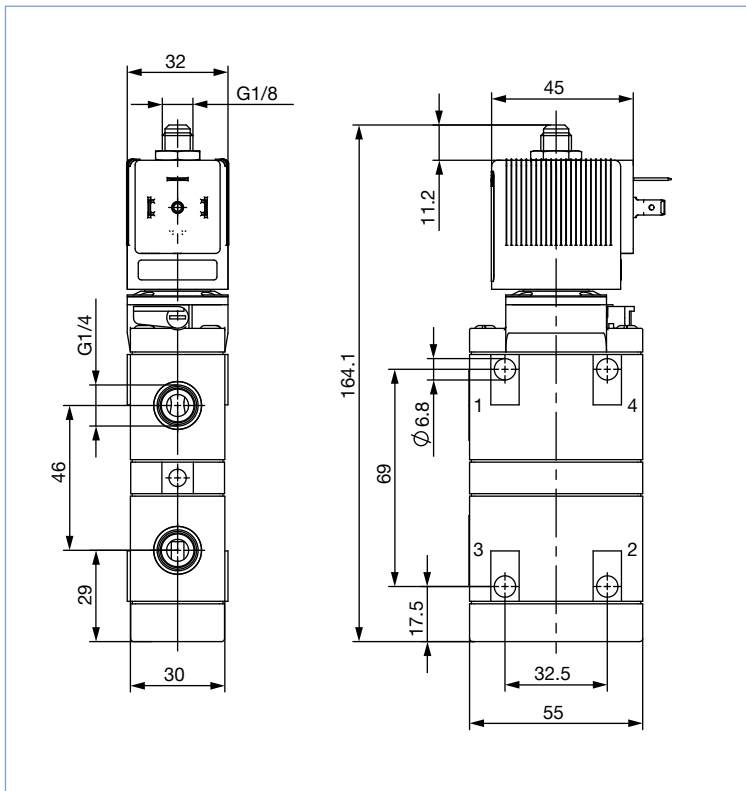
Normally both servo pistons are relieved on the operating side. The servo pistons are pushed apart with the pressure applied on the port (P), the upper piston opens the connection from (P) to (B), and the lower piston opens the connection from (A) to (R).

Position after switching on the current:

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).

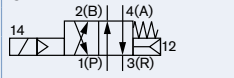






Dimensions for standard version [mm]



Ordering chart

Version with manual override, NBR seal

Circuit function	Orifice [mm]	Port connection	Q_{Nn} value air l/m	Pressure range [bar]	Power consumption [W]	Voltage/Frequency [V/Hz]	Article no.
G  4/2 way servo-controlled solenoid valve	6	G ¼	900	1-10	2	024/DC	134615 
						024/50-60	134616 
						110/50-60	134617 
						230/50-60	134618 

Note: To switch a pressure difference of 1 bar is required.

Type 5413 – ATEX/IECEX version



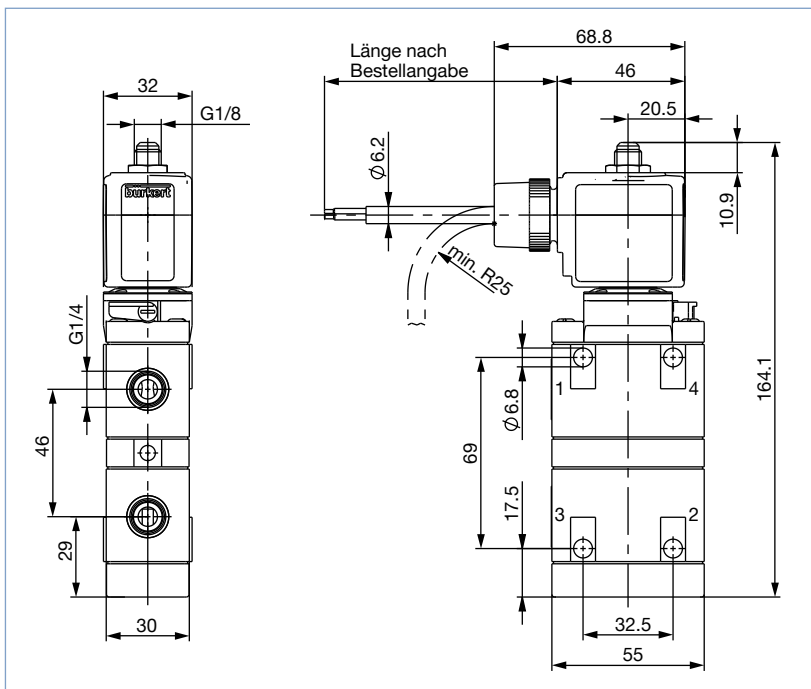
The approval Ex m is achieved by the mounting of an approved push-over coil. The cable connection and the cable are non-detachable and sealed together with the valve. The valves can be used individually or in blocks.

Technical data	
Body material	Polyamide
Seal material	NBR
Medium	neutral medium, e.g. lubricated or unlubricated compressed air
Air pressure quality	ISO 8573-1:2010, class 7.4.4*
Medium temperature	-10 °C to +60 °C
Ambient temperature	
Single mounting	-30 °C to +60 °C
Block mounting	-30 °C to +50 °C
Port connection	G ¼
Operating voltage	24/110/230 V UC
Voltage tolerance	+10 %
Duty cycle	100 % ED continuously rated
Electrical connection	3 m cable, moulded Junction box (without fuse), moulded
Protection class	IP65
Type of protection	
with moulded cable	PTB 14 ATEX 2023 X / IECEx PTB 14.0049 X II 2G Ex mb IIC T5 Gb II 2D Ex mb IIIC T 100 °C Db
with junction box	EPS 16 ATEX 1046 X / IECEx EPS 16.0021 X II 2G EX eb mb IIC T5 Gb II 2D EX mb tb IIIC T100 °C Db
Installation	As required, preferably with actuator upright

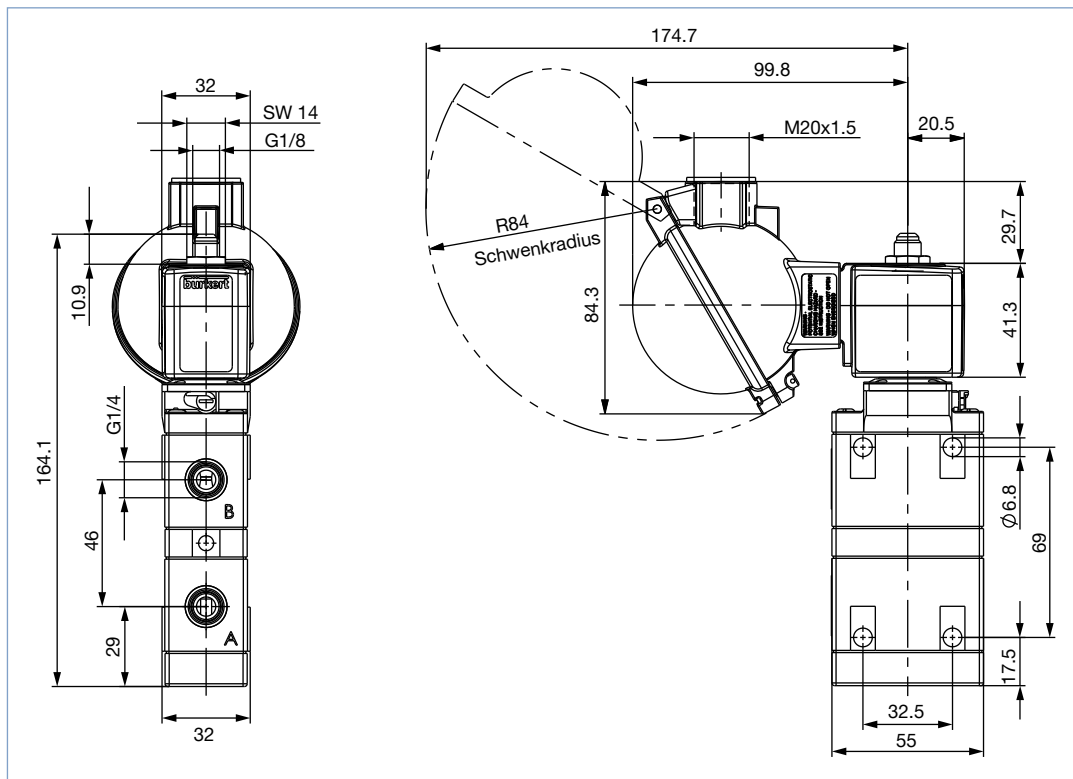
* To prevent freezing of the expanded compressed air, the pressure dew point must be at least 10 K lower than the temperature of the medium.

Dimensions for ATEX/IECEX versions [mm]

Version with moulded cable (3 m)



Version with junction box



Ordering chart for ATEX/IECEx versions

Version with manual override, NBR seal and moulded cable (3 m)

The maximum fluid temperature may never exceed the permissible temperature class (T4 135 °C, T5 100 °C, T6 85 °C) minus 5K.

Circuit function	Orifice [mm]	Port connection	Q_{Nn} - value air l/m	Pressure range [bar]	Power consumption [W]	Voltage/Frequency [V/Hz]	Article no.
 4/2 way servo-controlled solenoid valve	6	G ¼	900	1-10	3	024/UC	566775
						110/UC	566776
						230/UC	566777

Note: To switch a pressure difference of 1 bar is required.

Version with manual override, NBR seal and junction box (without fuse)

The maximum fluid temperature may never exceed the permissible temperature class (T4 135 °C, T5 100 °C, T6 85 °C) minus 5K.

Circuit function	Orifice [mm]	Port connection	Q_{Nn} - value air l/m	Pressure range [bar]	Power consumption [W]	Voltage/Frequency [V/Hz]	Article no.
 4/2 way servo-controlled solenoid valve	6	G ¼	900	1-10	1.8	024/UC	288801
						048/UC	x
						110/UC	288804
						230/UC	288802






Note: To switch a pressure difference of 1 bar is required.

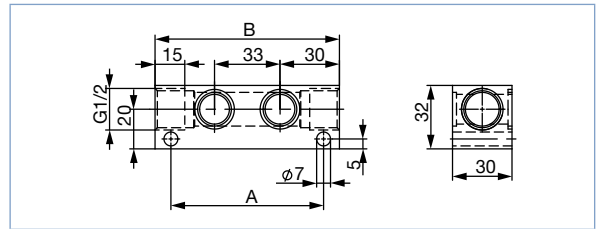
x: Article on request

Ordering chart for accessories

Single channel manifolds


For pressure port, in aluminium with banjo bolts and seals

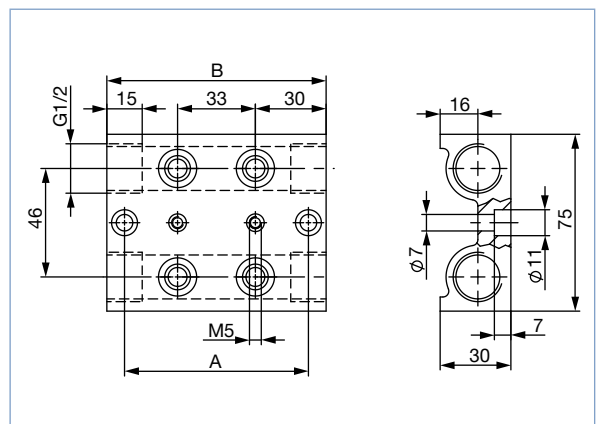
Manifold	Hole spacing A	Total length B	Article no.
2-fach	77	93	005811 
3-fach	110	126	005717 
4-fach	143	159	005843 
5-fach	176	192	005776 
6-fach	209	225	005718 



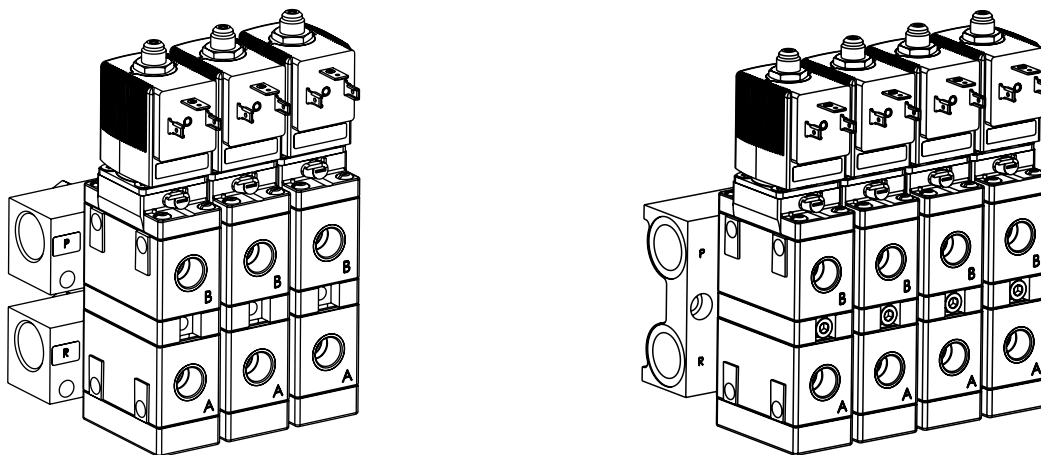
Double channels manifolds

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

Manifold	Hole spacing A	Total length B	Article no.
2-fach	78	93	005686 
3-fach	111	126	005688 
4-fach	144	159	005719 
5-fach	177	192	005696 
6-fach	210	225	005626 
7-fach	243	258	005738 
8-fach	276	291	005724 
9-fach	309	324	005739 
10-fach	342	357	005740 
11-fach	375	390	005804 
12-fach	408	423	005700 

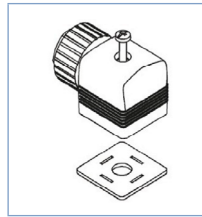


Example for block mounting



Cable plug Type 2508 acc. to DIN 43650 Form A

Description	Voltage	Article no.
Standard cable plug	0-250 V AC/DC	008376
with LED	12-24 V AC/DC	008360
with LED	100-120 V AC/DC	008361
with LED and varistor	12-24 V AC/DC	008367
with LED and varistor	100-120 V AC/DC	008368
with LED and varistor	200-240 V AC/DC	008369



Note: The delivery of a cable plug includes the flat seal and fixing screw.
A wide selection of further cable plugs is available. Please refer to data sheet Type 2508.

Ex-Cable gland

(Polyamide version included in delivery / surcharge applied for brass nickel plated version)

Photo	Description	Ex Approvals		Article no	Drawing										
		Certification	Identification												
	Brass nickelplated, 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	773278	<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</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	SW	24 mm	E	27 mm
TL	29-37 mm														
L	6 mm														
D	20														
SW	24 mm														
E	27 mm														
	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	773277	<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</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	SW	24 mm	E	28 mm
TL	36-45 mm														
L	10 mm														
D	20														
SW	24 mm														
E	28 mm														

Special tool to turn the junction box

(not included in delivery)

Photo	Description	Article no.
	Set SC02-AC10 Special wrench Service Manual	293488

Fuse for terminal box

Voltage [V]	Max. current [A]	Article no.
24	0.4	153734
230	0.63	153717

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In case of special application conditions,
please consult for advice.

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