



## 4/2-Way Pneumatic Solenoid Valve

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

Type 5413 can be combined with ...



**Type 2508**  
Cable plug



**Type 2510/11**  
Cable plug ASI



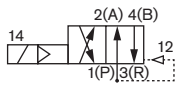
**Type 2012**  
Globe valve



**Type 2030**  
Diaphragm valve

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 inlet pressure and pushed either apart or towards the valve centre. To switch a minimum pressure difference of 1 bar is required.

### Circuit function G



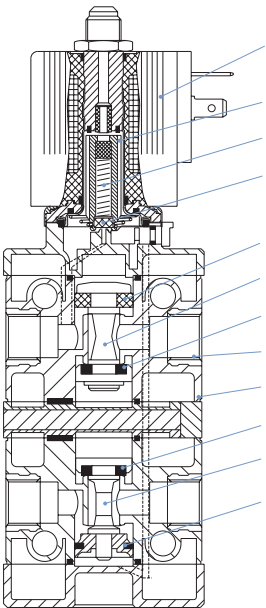
4/2-way valve, normally pressure port 1 connected to outlet 2, outlet 4 relieved

| Technical data               |   |
|------------------------------|---|
| <b>Orifice</b>               | DN 6.0 mm   |
| <b>Port connection</b>       | G 1/4   |
| <b>Body material</b>         | Polyamide (reinforced) with moulded-in brass threads  |
| <b>Coil material</b>         | Polyamide, Epoxy  |
| <b>Seal material</b>         | NBR   |
| <b>Medium</b>                | neutral medium, e.g. lubricated or unlubricated compressed air  |
| <b>Air pressure quality</b>  | ISO 8573-1:2010, class 7.4.4*   |
| <b>Medium Temperature</b>    | -10 to +60 °C   |
| <b>Medium pressure</b>       | 1 to 10 bar   |
| <b>Ambient Temperature</b>   | max. 55 °C  |
| <b>QnN-Value air</b>         | 900 l/min   |
| <b>Operating voltage</b>     | 024 V DC<br>024/110/230 V/50-60Hz   |
| <b>Voltage tolerance</b>     | ± 10%   |
| <b>Power consumption</b>     | version with V DC: 2 W<br>version with V AC: 11 VA (inrush), 6 VA (hold)  |
| <b>Response time</b>         | opening: 50 ms (Pressure rise 0 to 90%)<br>closing: 30 ms (Pressure drop 100 to 10%)  |
| <b>Duty cycle</b>            | 100% continuously rated   |
| <b>Electrical connection</b> | Tag connectors according to DIN EN 175301-803 (previously DIN 43650) Form A for cable plug Type 2508  |
| <b>Protection class</b>      | IP65 with cable plug  |
| <b>Installation</b>          | As required, preferably with solenoid system upright; Air exhausted from the relief port with pressed sintered bronze silencer must not be impeded. |

**Flow rate:** QnN-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.

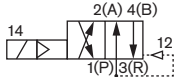
Materials



|                          |   |
|--------------------------|---|
| <b>Coil</b>              | Standard: Polyamide, Epoxy<br>Ex version: Epoxy |
| <b>Stopper</b>           | 1.4105  |
| <b>Magnet core</b>       | 1.4105  |
| <b>Core Seal</b>         | FKM   |
| <b>Seal poppet</b>       | NBR   |
| <b>Poppet</b>            | Plastic   |
| <b>Seal poppet</b>       | NBR   |
| <b>Moulded-in thread</b> | Brass   |
| <b>Body</b>              | Polyamide (reinforced)                          |
| <b>Seal poppet</b>       | NBR   |
| <b>Poppet</b>            | Plastic   |
| <b>Seal poppet</b>       | NBR   |

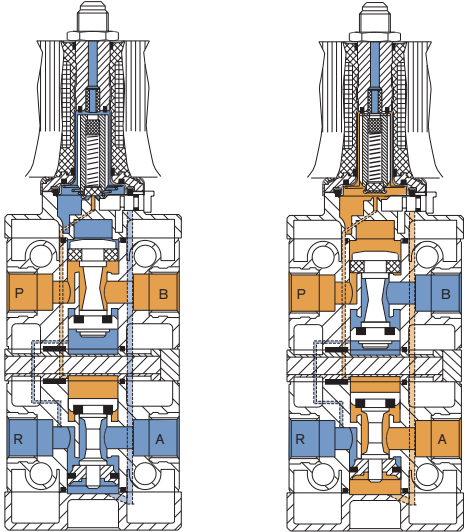
Circuit function G

**Circuit function G**

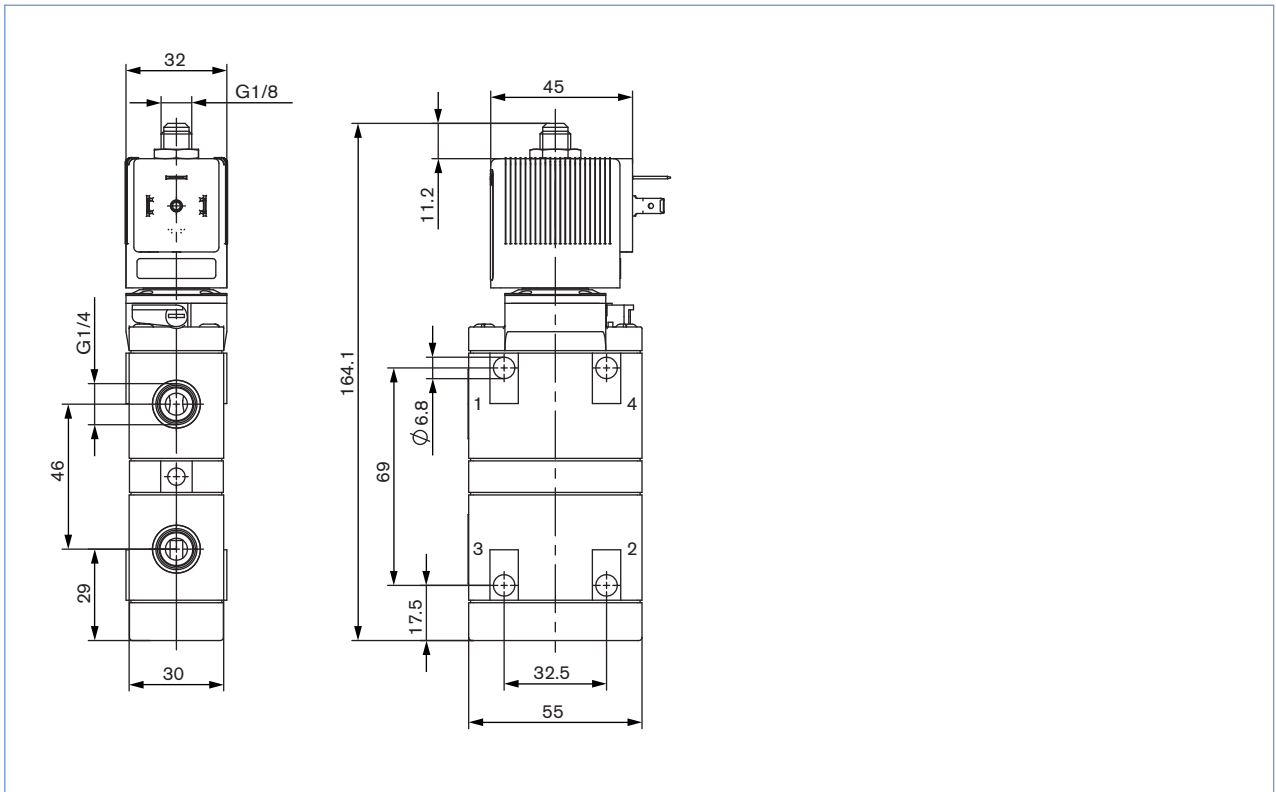


*Position power-off:*  
Normally both servo pistons are relieved on the operating side. The servo pistons are pushed apart with the pressure applied on the port (P), the upper piston opens the connection from (P) to (B), and the lower piston opens the connection from (A) to (R).

*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 <sub>Nn</sub> value air l/m | Pressure range [bar] | Power consumption [W] | Voltage/ Frequency [V/Hz] | Item no. |
|--------------|--|--------------|-----------------|-------------------------------|----------------------|-----------------------|---------------------------|----------|
| <b>G</b><br> | 4/2-way valve, normally pressure port 1 connected to outlet 2, outlet 4 relieved | 6            | G 1/4           | 900                           | 1-10                 | 2                     | 024/DC                    | 134 615  |
|              |  |              |                 |                               |                      |                       | 024/50-60                 | 134 616  |
|              |  |              |                 |                               |                      |                       | 110/50-60                 | 134 617  |
|              |  |              |                 |                               |                      |                       | 230/50-60                 | 134 618  |

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

## Type 5413 – ATEX/IECEx version



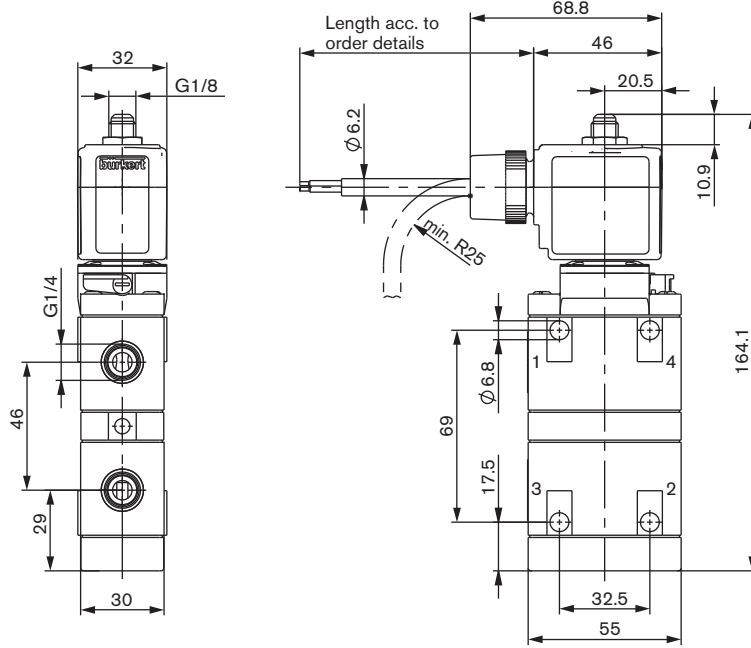
The approval Ex m is achieved by the mounting of an approved push-over coil. The cable connection and the cable are non-detachable and sealed together with the valve. The valves can be used individually or in blocks.

| Technical data               |  |
|------------------------------|--|
| <b>Body material</b>         | Polyamide  |
| <b>Seal material</b>         | NBR  |
| <b>Medium</b>                | neutral medium, e.g. lubricated or unlubricated compressed air   |
| <b>Air pressure quality</b>  | ISO 8573-1:2010, class 7.4.4*  |
| <b>Medium temperature</b>    | -10 °C to +60 °C   |
| <b>Ambient temperature</b>   |  |
| Single mounting              | -30 °C to +60 °C   |
| Block mounting               | -30 °C to +50 °C   |
| <b>Port connection</b>       | G1/4   |
| <b>Operating voltage</b>     | 24/ 110/ 230 V UC  |
| <b>Voltage tolerance</b>     | +10%   |
| <b>Duty cycle</b>            | 100% continuously rated  |
| <b>Electrical connection</b> | 3m cable, moulded<br>Junction box (without fuse), moulded  |
| <b>Protection class</b>      | IP65   |
| <b>Type of protection</b>    |  |
| with moulded cable           | PTB 14 ATEX 2023 X / IECEx PTB 14.0049 X<br>II 2G Ex mb IIC T5 Gb<br>II 2D Ex mb IIIC T 100 °C Db      |
| with junction box            | EPS 16 ATEX 1046 X / IECEx EPS 16.0021 X<br>II 2G EX eb mb IIC T5 Gb<br>II 2D EX mb tb IIIC T100 °C Db |
| <b>Installation</b>          | As required, preferably with actuator upright  |

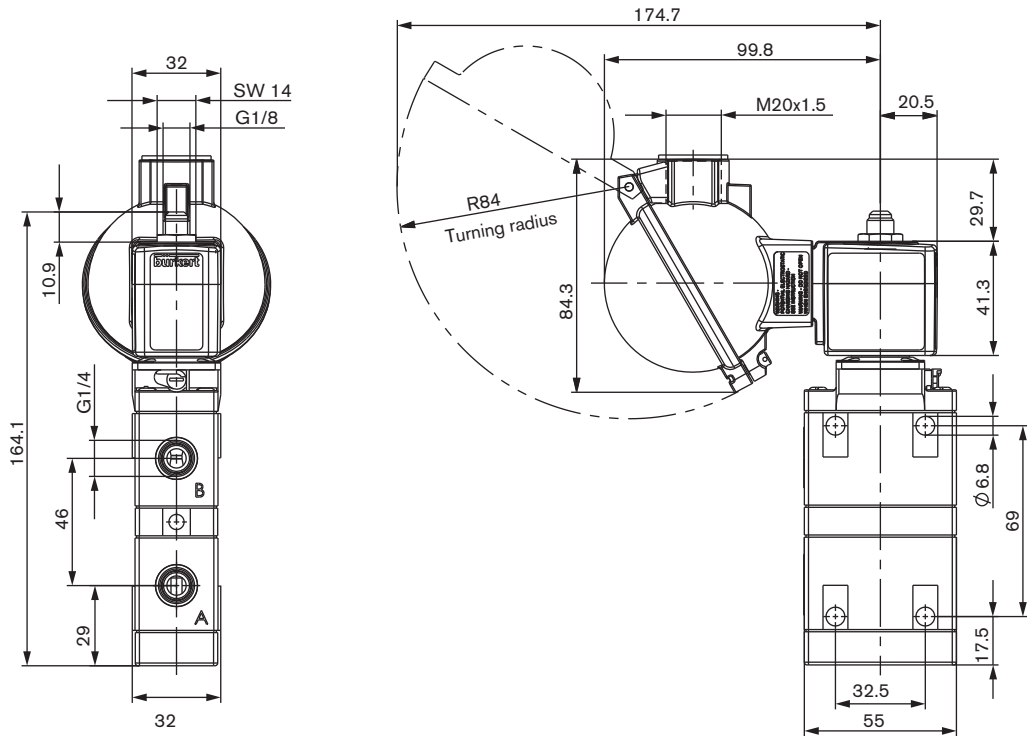
\* To prevent freezing of the expanded compressed air, the pressure dew point must be at least 10 K lower than the temperature of the medium.

Dimensions for ATEX/IECEx versions [mm]

Version with moulded cable (3 m)



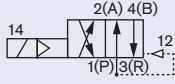
Version with junction box



## Ordering chart for ATEX/IECEx versions

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

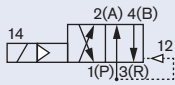
The maximum fluid temperature may never exceed the permissible temperature class (T4 135 °C, T5 100 °C, T6 85 °C) minus 5K.

| Circuit function   | Orifice [mm] | Port connection | QNm- value air l/m | Pressure range [bar] | Power consumption [W] | Voltage/ Frequency [V/Hz] | Item no. |
|--|--------------|-----------------|--------------------|----------------------|-----------------------|---------------------------|----------|
| <b>G</b> <br>4/2-way valve, normally pressure port 1 connected to outlet 2, outlet 4 relieved | 6            | G 1/4           | 900                | 1-10                 | 3                     | 024/UC                    | 566 775  |
|  |              |                 |                    |                      |                       | 110/UC                    | 566 776  |
|  |              |                 |                    |                      |                       | 230/UC                    | 566 777  |

**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 | QNm- value air l/m | Pressure range [bar] | Power consumption [W] | Voltage/ Frequency [V/Hz] | Item no. |
|--|--------------|-----------------|--------------------|----------------------|-----------------------|---------------------------|----------|
| <b>G</b> <br>4/2-way valve, normally pressure port 1 connected to outlet 2, outlet 4 relieved | 6            | G 1/4           | 900                | 1-10                 | 5                     | 024/UC                    | x        |
|  |              |                 |                    |                      |                       | 048/UC                    | x        |
|  |              |                 |                    |                      |                       | 110/UC                    | x        |
|  |              |                 |                    |                      |                       | 230/UC                    | x        |

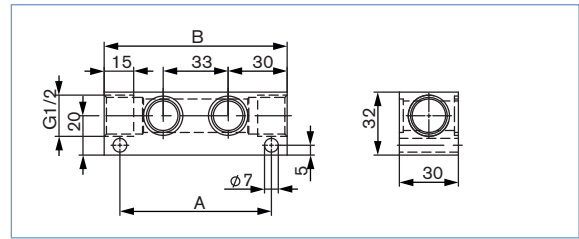
**Note:** To switch a pressure difference of 1 bar is required.

x on request

## Ordering chart for accessories

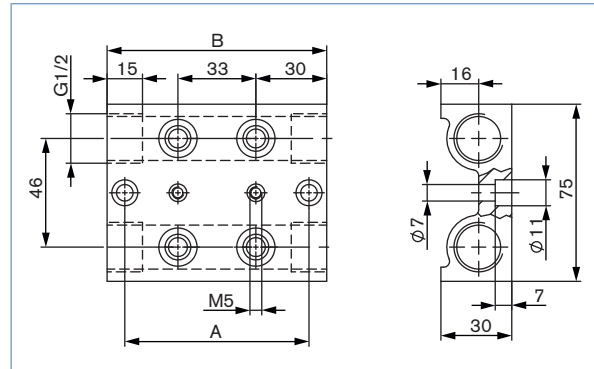
### Single channel manifolds (for pressure port) in aluminium with banjo bolts and seals

| Manifold | Hole spacing A | Total length B | Item no. |
|----------|----------------|----------------|----------|
| 2 valves | 77             | 93             | 005 811  |
| 3 valves | 110            | 126            | 005 717  |
| 4 valves | 143            | 159            | 005 843  |
| 5 valves | 176            | 192            | 005 776  |
| 6 valves | 209            | 225            | 005 718  |



### Double channels manifolds (for pressure and exhaust port) with mounting screws M5x60 DIN 912 and O-rings 11x2.5

| Manifold  | Hole spacing A | Total length B | Item no. |
|-----------|----------------|----------------|----------|
| 2 valves  | 78             | 93             | 005 686  |
| 3 valves  | 111            | 126            | 005 688  |
| 4 valves  | 144            | 159            | 005 719  |
| 5 valves  | 177            | 192            | 005 696  |
| 6 valves  | 210            | 225            | 005 626  |
| 7 valves  | 243            | 258            | 005 738  |
| 8 valves  | 276            | 291            | 005 724  |
| 9 valves  | 309            | 324            | 005 739  |
| 10 valves | 342            | 357            | 005 740  |
| 11 valves | 375            | 390            | 005 804  |
| 12 valves | 408            | 423            | 005 700  |



### Cable plug Type 2508 acc. to DIN 43650 Form A

| Description           | Voltage         | Item no. |
|-----------------------|-----------------|----------|
| Standard cable plug   | 0-250 V AC/DC   | 008 376  |
| with LED              | 12-24 V AC/DC   | 008 360  |
| with LED              | 100-120V AC/DC  | 008 361  |
| with LED and varistor | 12-24 V AC/DC   | 008 367  |
| with LED and varistor | 100-120V AC/DC  | 008 368  |
| with LED and varistor | 200-240 V AC/DC | 008 369  |

**Note:** The delivery of a cable plug includes the flat seal and fixing screw.


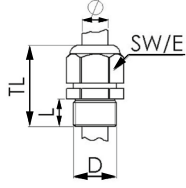

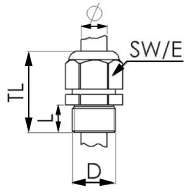
A wide selection of further cable plugs is available. Please refer to data sheet Type 2508.



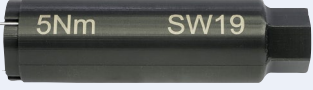
**Accessories (continued)**

**Ex-Cable gland**

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

| Photo   | Description                   | Ex Approvals                           |  | Item no | Drawing   |    |          |   |       |   |    |    |       |   |       |
|---|-------------------------------|--|--|---------|---|----|----------|---|-------|---|----|----|-------|---|-------|
|   |                               | Certification                          | Identifica-tion                                |         |   |    |          |   |       |   |    |    |       |   |       |
|  | 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, | 773 278 |  <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  | 773 277 |  <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                                       | Item no. |
|---|---|----------|
|  | Set SC02-AC10<br>Special wrench<br>Service Manual | 293 488  |

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