

Servo-assisted 2/2 way piston valve



Type 6407 can be combined with...



Type 2508

- Servo-assisted piston valve up to diameter DN50
- Safe opening with hard-coupled piston system without differential pressure
- Vibration-resistant, push-over coil
- Explosion-proof versions
- Energy-saving double coil technology with Kick and Drop electronics

Type 6407 is a servo-assisted piston valve. The fix coupling between pilot valve and piston provides an opening of the valve without differential pressure.

As a piston valve 6407 is particular applicable for media like gas and steam. As well as liquids with low temperature under 0 °C. The stopper and plunger guiding tube are welded together to enhance pressure resistance and leak-tightness. Various seal material combinations are available depending on the application. The coils are moulded with chemically resistant epoxy.

To reduce power consumption in operation coils with "Kick and Drop" (KD) electronics (double coil technology) are available. In combination with a plug in accordance to DIN EN 175301-803 Form A, the valves satisfy protection class IP65.

| Content 6407 | | Page |
|-----------------------------------|--|-------------|
| Technical data | | 2 |
| Materials | | 3 |
| Version DN13-32 | Dimensions - Version DN13-32 | 4 |
| | Ordering charts - Standard version | 5 |
| | Ordering charts - Steam version | 5 |
| Version DN50 | Dimensions - Version DN50 | 6 |
| | Ordering charts - Standard version | 7 |
| | Ordering charts - Steam version | 7 |
| ATEX/IECEX-version | Dimensions - ATEX/IECEX-version | 8 |
| | Ordering charts - ATEX/IECEX-version with 3 m cable | 9 |
| | Ordering charts - ATEX/IECEX-version terminal connection box | 9 |
| Ordering chart accessories | | 10 |

| Technical data | |
|-----------------------|--|
| Orifice | DN13 - DN50 |
| Body material | Brass |
| Coil material | Epoxy |
| Coil insulation class | H |
| Seal material | PTFE/graphite |
| Media | Neutral gases and liquid media (e.g. compressed air, water, hydraulic oil) hot water and steam |
| Media temperature | |
| Standard | |
| PTFE + Graphit | -40 to 150 °C |
| PTFE + FKM | -10 to 120 °C |
| Steam version | |
| PTFE + Graphit | 0 to 150 °C |
| PTFE + FKM | 0 to 120 °C |
| ATEX/IECEX version | -10 to 90 °C |
| Ambient temperature | |
| Standard | |
| PTFE + Graphit | -40 to 45 °C |
| PTFE + FKM | -10 to 55 °C |
| Steam version | |
| PTFE + Graphit | 0 to 45 °C |
| PTFE + FKM | 0 to 55 °C |
| ATEX/IECEX version | -10 to 40 °C |
| Viscosity | Max. 21 mm ² /s |
| Voltage tolerance | ±10% |
| Duty cycle | 100 % continuous rating; KD coil max. 6 switching cycles/minute |
| Electrical connection | Cable plug for cable Ø 7 mm, acc. to DIN EN 175301-803 Form A (not included in delivery) |
| Protection class | IP65 with cable plug |
| Installation | As required, preferably with actuator upright |

Power consumption

| Orifice [mm] | Coil size [mm] | AC | | | DC | | ATEX AC/DC | KD-coil AC/DC | | | AC with external rectifier |
|-----------------|----------------------|-------------------------|--------------------------|-----|---------------------------------|---------------------------------|-------------------------|---|---|---|----------------------------------|
| | | Inrush power [VA] | Holding power [VA] | [W] | Cold perform- ance [W] | Warm perform- ance [W] | Nominal power [W] | Cold performance Inrush power [W] 500 ms | Cold performance Holding power [W] | Warm performance Holding power [W] | Nominal power [W] |
| 13 | 42 | 140 | 41 | 16 | 21 | 16 | 12 | 85 | 8.5 | 7 | - |
| 20 | 42 | 150 | 41 | 16 | - | - | - | 85 | 8.5 | 7 | - |
| 25 | 42 | 160 | 41 | 16 | - | - | - | 85 | 8.5 | 7 | - |
| 32 | 42 | 170 | 41 | 16 | - | - | - | 85 | 8.5 | 7 | - |
| 20-32 | 65 | - | - | - | 28 | 21 | 20 | - | - | - | - |
| 50 | 72 | - | - | - | 39 | 30 | - | - | - | - | 45 |

KD coil AC/DC

"Kick and Drop" coil (KD coil)

Integrated electronics for short-term power increase and reduction in dual coil technology

Response times

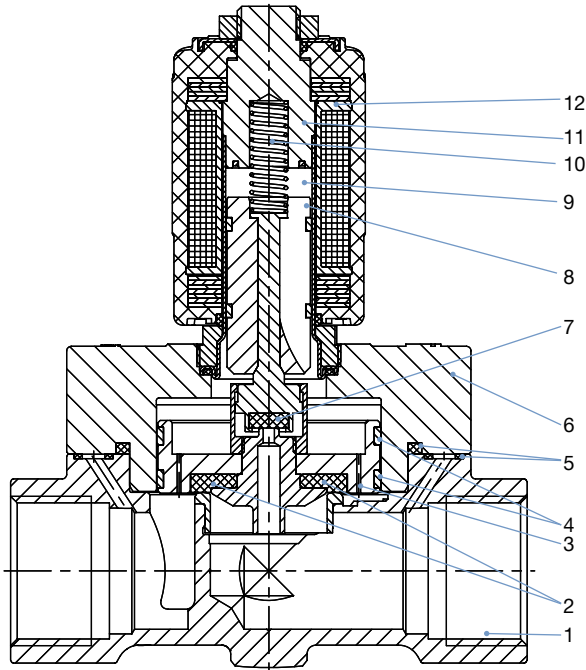
| Orifice [mm] | Response times | |
|-----------------|----------------|--------------|
| | Opening [ms] | Closing [ms] |
| 13 | 30 | 250 |
| 20 | 30 | 250 |
| 25 | 60 | 700 |
| 32 | 80 | 900 |
| 50 | 500 | 2000 |

Measured with water at valve outlet at 6 bar and +20 °C

Opening: pressure build-up 0...90%, closing: pressure relief 100...10%
(depending on the application conditions, deviations are possible)

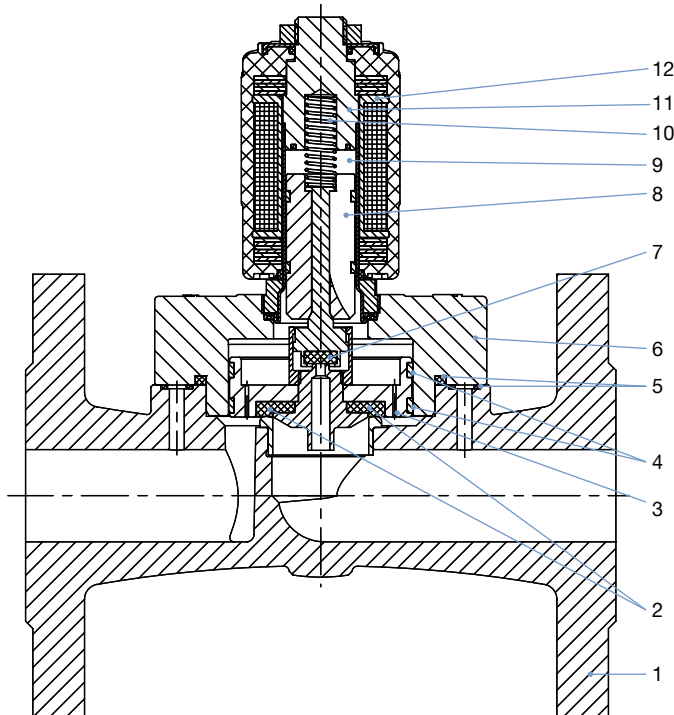
Materials

Threaded body



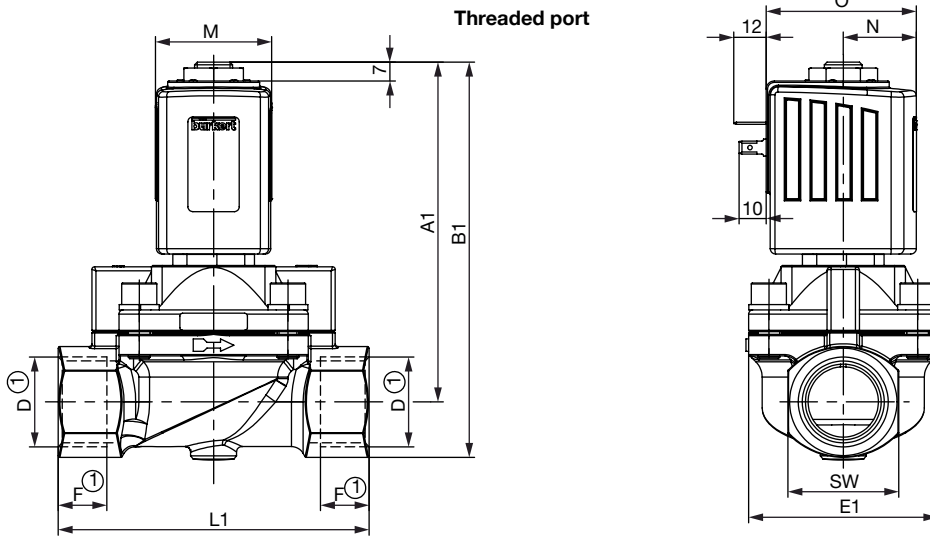
| | |
|-------------------|------------------------|
| 1 Housing | Brass |
| 2 Piston seal | PTFE |
| 3 Plunger | Brass |
| 4 Piston rings | PTFE |
| 5 Sealing rings | Graphite |
| 6 Cover | Brass |
| 7 Seal | PTFE |
| 8 Core | 1.4113 Stainless steel |
| 9 Core guide tube | 1.4303 Stainless steel |
| 10 Spring | 1.4310 Stainless steel |
| 11 Stopper | 1.4113 Stainless steel |
| 12 Coil | Epoxy |

Flange body



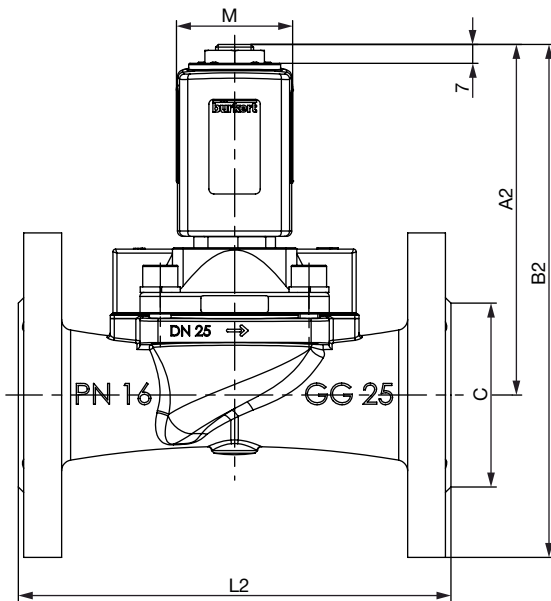
| | |
|-------------------|------------------------|
| 1 Housing | Grey cast iron |
| 2 Piston seal | PTFE |
| 3 Plunger | Brass |
| 4 Piston rings | PTFE |
| 5 Sealing rings | Graphite |
| 6 Cover | Brass |
| 7 Seal | PTFE |
| 8 Core | 1.4113 Stainless steel |
| 9 Core guide tube | 1.4303 Stainless steel |
| 10 Spring | 1.4310 Stainless steel |
| 11 Stopper | 1.4113 Stainless steel |
| 12 Coil | Epoxy |

Dimensions [mm] DN13-32



- ① For G-thread dimensions F1 and G1 applies
- For NPT-thread dimensions F2 and G2 applies
- For Rc-thread dimensions F3 and G3 applies

Flange port DIN EN 1092-1 (on request)



| Coil dimension | | | |
|----------------|----|------|------|
| Coil size | M | N | O |
| K | 42 | 27 | 55.5 |
| L | 65 | 37.5 | 72 |

| DN | Threaded port in brass | | | | | | | | | | | Flange port in grey cast iron | | | | | | | |
|----|------------------------|-------|---------|----|-----------|------|----------|------|----|-----|----|-------------------------------|-------|----|----|-----|-----|----|-----|
| | A1 | B1 | D1 | F1 | D2 | F2 | D3 | F3 | E1 | L1 | SW | A2 | B2 | C | E2 | G | L2 | M | K |
| 13 | 118.7 | 132.7 | - | - | - | - | Rc 3/8 | 10.1 | 40 | 65 | 27 | - | - | - | - | - | - | - | - |
| 13 | | | G 1/2 | 14 | NPT 1 1/2 | 13.7 | Rc 1/2 | 13.2 | | | | | | | | | | | |
| 20 | 119.7 | 135.7 | G 3/4 | 16 | NPT 1 1/4 | 14.0 | Rc 3/4 | 14.5 | 60 | 100 | 32 | - | - | - | - | - | - | - | - |
| 25 | 125.7 | 146.2 | G 1 | 18 | NPT 1 | 16.8 | Rc 1 | 16.8 | 70 | 115 | 41 | 129.7 | 189.7 | 68 | 73 | 120 | 160 | 14 | 85 |
| 32 | 142.7 | 167.7 | G 1 1/4 | 20 | NPT 3/4 | 17.3 | Rc 1 1/4 | 19.1 | 85 | 126 | 50 | 142.7 | 212.7 | 78 | 85 | 140 | 180 | 18 | 100 |
| 32 | 146.7 | 176.7 | G 1 1/2 | 22 | NPT 1 1/2 | 17.3 | Rc 1 1/2 | 19.1 | 85 | 126 | 60 | 146.7 | 221.7 | 88 | 85 | 150 | 200 | 18 | 110 |

Ordering chart for valves DN13-32 (other versions on request)

Standard version

| Circuit function | Port connection | Orifice [mm] | K _v value water [m ³ /h] ¹⁾ | Pressure range [bar] ²⁾ | Max. media temperature [°C] | Coil size [mm] | Article no. per voltage/frequency [V/Hz] | | |
|---------------------------------------|-----------------|--------------|--|------------------------------------|-----------------------------|----------------|--|--------|--------|
| | | | | | | | 024/DC | 024/50 | 230/50 |
| Brass body, seal PTFE+Graphite | | | | | | | | | |
| A NC, normally closed | G ½ | 13 | 3.7 | 0-10 | 150 | 42 | 332166 | 332164 | 332165 |
| | | 20 | 5.6 | 0-10 | 150 | 42 | - | 332167 | 332168 |
| | G 1 | 25 | 10.0 | 0-10 | 150 | 42 | 332169 | - | - |
| | | 32 | 16.0 | 0-10 | 150 | 42 | - | 332170 | 332172 |
| | G 1¼ | 32 | 16.0 | 0-10 | 150 | 42 | 332171 | - | - |
| | | 32 | 16.0 | 0-10 | 150 | 42 | - | 332173 | 332174 |
| | G 1½ | 32 | 16.0 | 0-10 | 150 | 42 | 332176 | - | - |
| | | 32 | 16.0 | 0-10 | 150 | 42 | - | 332177 | 332178 |
| | | | | | | 65 | 332179 | - | - |

Steam version with valve seat in stainless steel

| Circuit function | Port connection | Orifice [mm] | K _v value water [m ³ /h] ¹⁾ | Pressure range [bar] ²⁾ | Max. media temperature [°C] | Coil size [mm] | Article no. per voltage/frequency [V/Hz] | | |
|---------------------------------------|-----------------|--------------|--|------------------------------------|-----------------------------|----------------|--|--------|--------|
| | | | | | | | 024/DC | 024/50 | 230/50 |
| Brass body, seal PTFE+Graphite | | | | | | | | | |
| A NC, normally closed | G ½ | 13 | 3.7 | 0-10 | 150 | 42 | 320877 | 320859 | 320856 |
| | | 20 | 5.6 | 0-10 | 150 | 42 | - | 320861 | 320857 |
| | G 1 | 25 | 10.0 | 0-10 | 150 | 42 | 320878 | - | - |
| | | 32 | 16.0 | 0-10 | 150 | 42 | - | 320862 | 320858 |
| | G 1¼ | 32 | 16.0 | 0-10 | 150 | 42 | 320879 | - | - |
| | | 32 | 16.0 | 0-10 | 150 | 42 | - | 330406 | 330401 |
| | G 1½ | 32 | 16.0 | 0-10 | 150 | 42 | 330420 | - | - |
| | | 32 | 16.0 | 0-10 | 150 | 42 | - | 330427 | 330429 |
| | | | | | | 42 | 330435 | - | - |

Steam version with KD-coil cURus (UL-recognized) coil approval

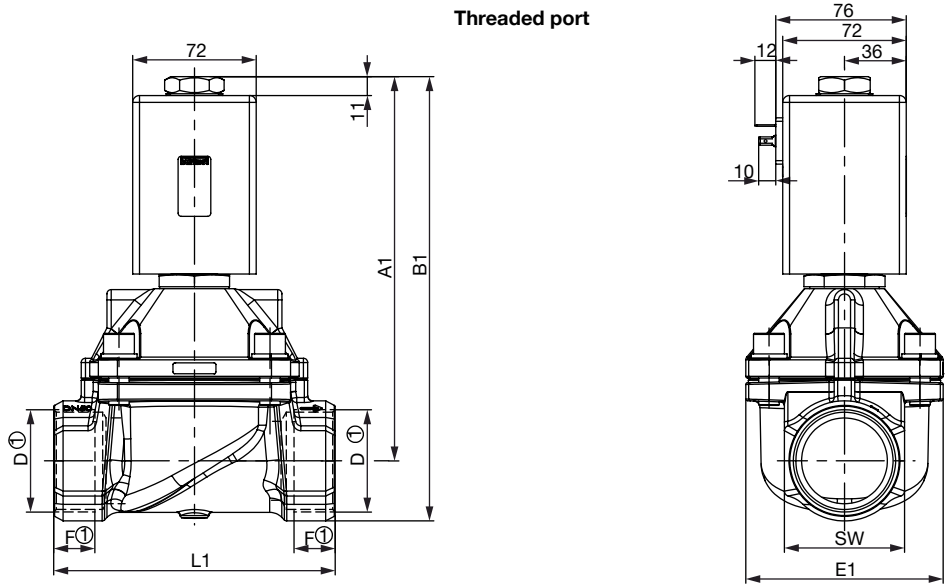
| Circuit function | Port connection | Orifice [mm] | K _v value water [m ³ /h] ¹⁾ | Pressure range [bar] ²⁾ | Max. media temperature [°C] | Coil size [mm] | Article no. with KD-coil [V/Hz] | | |
|---|-----------------|--------------|--|------------------------------------|-----------------------------|----------------|---------------------------------|----------------------------|----------------------------|
| | | | | | | | 24 V AC/DC | 110-120 V AC ³⁾ | 230-240 V AC ³⁾ |
| Brass body, seal combination PTFE/Graphite | | | | | | | | | |
| A NC, normally closed | NPT ½ | 13 | 3.7 | 0-10 | 150 | 42 | 320874 | 320863 | 320866 |
| | | 20 | 5.6 | 0-10 | 150 | 42 | 320875 | 320864 | 320867 |
| | NPT 1 | 25 | 10.0 | 0-10 | 150 | 42 | 320876 | 320865 | 320868 |
| | NPT 1¼ | 32 | 16.0 | 0-10 | 150 | 42 | 330421 | 330425 | 330426 |
| | NPT 1½ | 32 | 16.0 | 0-10 | 150 | 42 | 330442 | 330443 | 330444 |

Steam version with DC-coil cURus (UL-recognized) coil approval

| Circuit function | Port connection | Orifice [mm] | K _v value water [m ³ /h] ¹⁾ | Pressure range [bar] ²⁾ | Max. media temperature [°C] | Coil size [mm] | Article no. per voltage/frequency [V/Hz] |
|---|-----------------|--------------|--|------------------------------------|-----------------------------|----------------|--|
| | | | | | | | 024/DC |
| Brass body, seal combination PTFE/Graphite | | | | | | | |
| A NC, normally closed | NPT ½ | 13 | 3.7 | 0-10 | 140 | 42 | 324978 |
| | | 20 | 5.6 | 0-10 | 140 | 65 | 324979 |
| | NPT 1 | 25 | 10.0 | 0-10 | 140 | 65 | 324980 |
| | NPT 1¼ | 32 | 16.0 | 0-10 | 140 | 65 | 332519 |
| | NPT 1½ | 32 | 16.0 | 0-10 | 140 | 65 | 332520 |

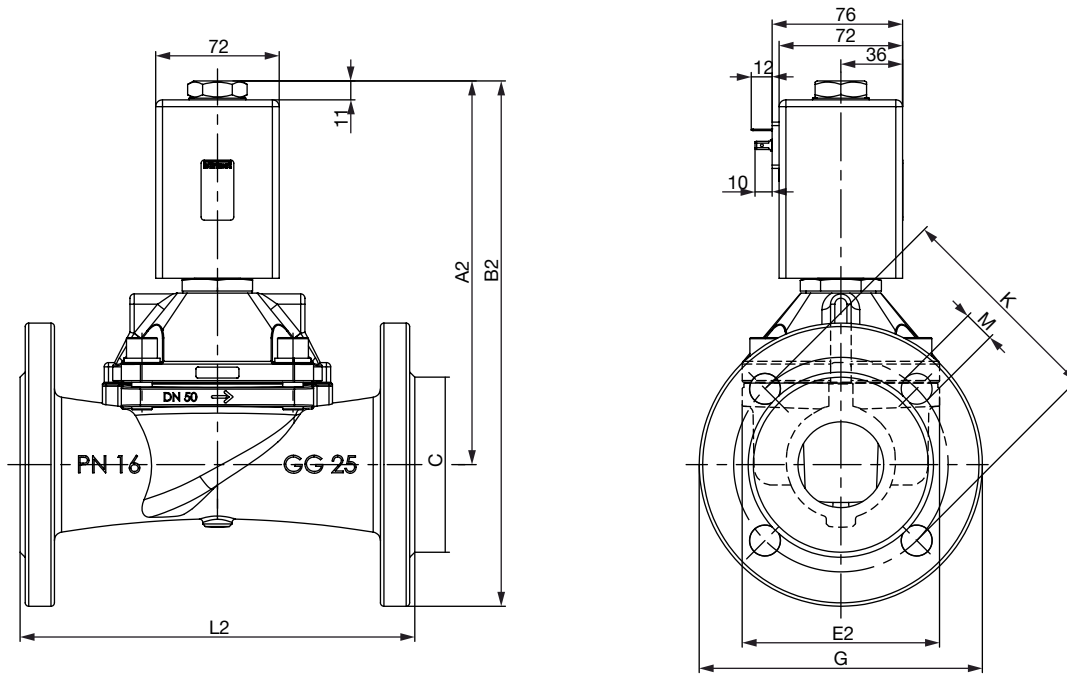
¹⁾ Measured at +20 °C, 1 bar²⁾ pressure at valve inlet and free outlet.²⁾ Pressure data [bar]: Overpressure with respect to atmospheric pressure³⁾ AC indicates 50 Hz or 60 Hz

Dimensions [mm] DN50



- ① For G-thread dimensions F1 and G 1 applies
- For NPT-thread dimensions F2 and G 2 applies
- For Rc-thread dimensions F3 and G 3 applies





Flange port DIN EN 1092-1 (on request)





| DN | Threaded port in brass | | | | | | | | | | Flange port in grey cast iron | | | | | | | | | |
|----|------------------------|--------|------|----|--------|------|------|------|-----|-----|-------------------------------|--------|--------|-----|-----|-----|-----|----|-----|---|
| | A1 | B1 | D1 | F1 | D2 | F2 | D3 | F3 | E1 | L1 | SW | A2 | B2 | C | E2 | G | L2 | M | K | |
| 50 | 223.75 | 258.75 | G 2 | 24 | NPT 2 | 17.6 | Rc 2 | 23.4 | 115 | 164 | 70 | 223.45 | 305.95 | 102 | 115 | 165 | 230 | 18 | 125 | |
| | 223.45 | 223.45 | G 2½ | 27 | NPT 2½ | 23.6 | - | 13.2 | | 179 | 85 | - | - | - | - | - | - | - | - | - |

Ordering chart for valves DN50 (other versions on request)

Standard version

| Circuit function | Port connection | Orifice [mm] | K _v value water [m ³ /h] ¹⁾ | Pressure range [bar] ²⁾ | Max. media temperature [°C] | Coil size [mm] | Article no. per voltage/frequency [V/Hz] | |
|--|-----------------|--------------|--|------------------------------------|-----------------------------|----------------|--|--|
| | | | | | | | 024/DC | 230/UC ³⁾ |
| Brass body, seal combination PTFE/FKM | | | | | | | | |
| A NC, normally closed | G 2 | 50 | 36.0 | 0-10 | 150 | 72 | 332162  | 332163  |
| | G 2½ | 50 | 36.0 | 0-10 | 150 | 72 | 332160  | 332161  |

Steam version with valve seat in stainless steel

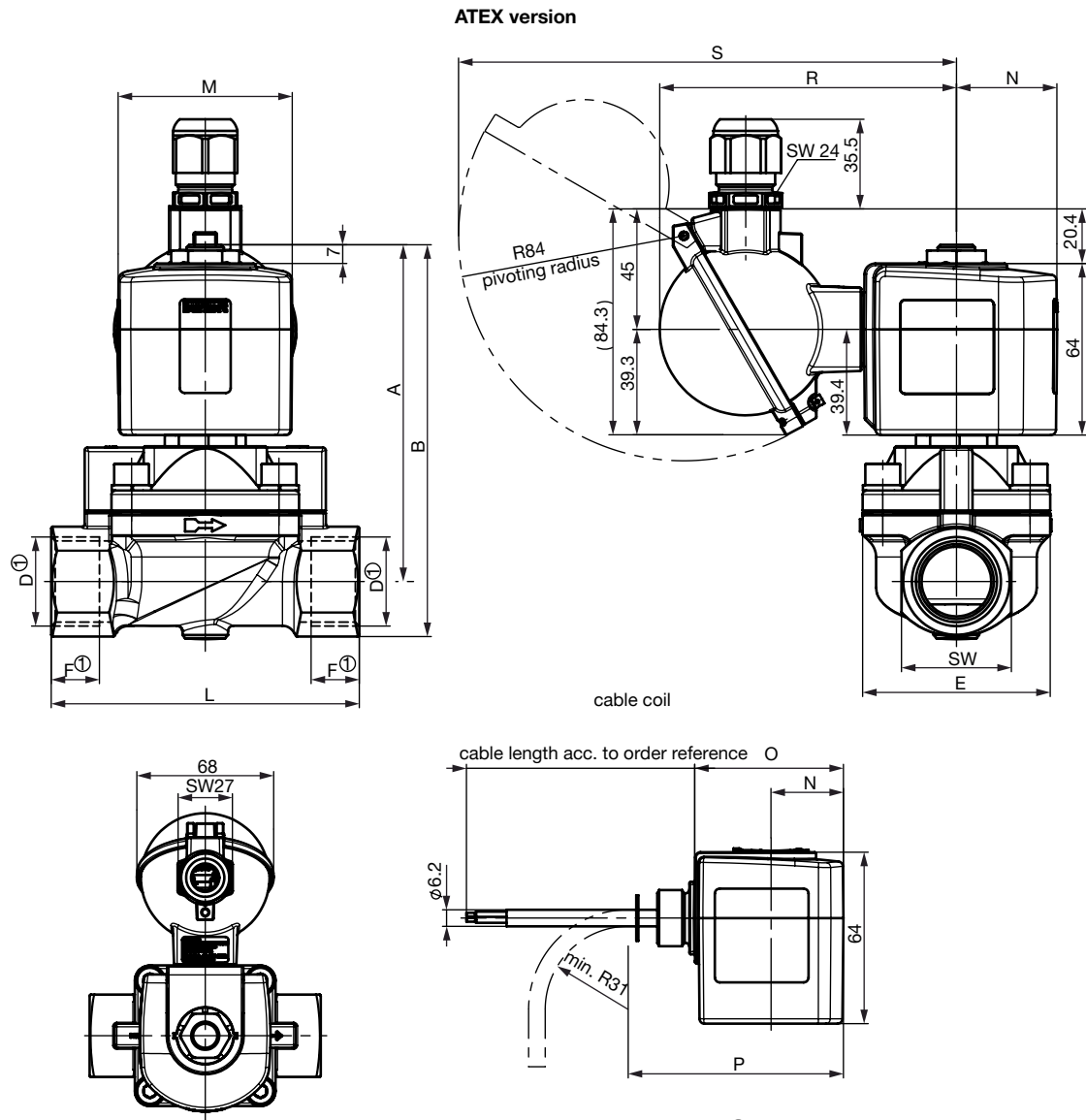
| Circuit function | Port connection | Orifice [mm] | K _v value water [m ³ /h] ¹⁾ | Pressure range [bar] ²⁾ | Max. media temperature [°C] | Coil size [mm] | Article no. per voltage/frequency [V/Hz] | |
|--|-----------------|--------------|--|------------------------------------|-----------------------------|----------------|--|--|
| | | | | | | | 024/DC | 230/UC ³⁾ |
| Brass body, seal combination PTFE/FKM | | | | | | | | |
| A NC, normally closed | G 2 | 50 | 36.0 | 0-10 | 150 | 72 | 332149  | 332156  |

¹⁾ Measured at +20 °C, 1 bar²⁾ pressure at valve inlet and free outlet.

²⁾ Pressure data [bar]: Overpressure with respect to atmospheric pressure

³⁾ For versions with external rectifier the cable plug is included in the delivery.

Dimensions [mm] ATEX/IECEEx



① For G-thread dimensions F1 and G1 applies
 For NPT-thread dimensions F2 and G2 applies
 For Rc-thread dimensions F3 and G3 applies

| Coil dimensions | | | | | | |
|-----------------|----|------|------|------|-------|-------|
| Coil size | M | N | O | P | R | S |
| K | 42 | 27 | 55.5 | 80.3 | 104.8 | 179.8 |
| L | 65 | 37.5 | 72 | 97 | 110.8 | 185.8 |

| DN | A | B | D1 | F1 | D2 | F2 | D3 | F3 | E | L | SW |
|----|-------|-------|-------|----|---------|------|--------|------|----|-----|----|
| 13 | 118.7 | 132.7 | - | - | - | - | Rc 3/8 | 10.1 | 40 | 65 | 27 |
| 13 | | | G 1/2 | 14 | NPT 1/2 | 13.7 | Rc 1/2 | 13.2 | | | |
| 20 | 119.7 | 135.7 | G 3/4 | 16 | NPT 3/4 | 14.0 | Rc 3/4 | 14.5 | 60 | 100 | 32 |
| 25 | 125.7 | 146.2 | G 1 | 18 | NPT 1 | 16.8 | Rc 1 | 16.8 | 70 | 115 | 41 |

Ordering chart for valves ATEX/IECEX (other versions on request)

Valves with ATEX/IECEX with 3 meter cable

| Circuit function | Port connection | Orifice [mm] | K _v value water [m ³ /h] ¹⁾ | Pressure range [bar] ²⁾ | Max. media temperature [°C] | Coil size [mm] | Article no. per voltage/frequency [V/Hz] | |
|--|-----------------|--------------|--|------------------------------------|-----------------------------|----------------|--|--------|
| | | | | | | | 024/UC | 230/UC |
| Brass body, seal combination PTFE/FKM | | | | | | | | |
| A NC, normally closed | G ½ | 13 | 3.7 | 0-10 | 90 | 42 | 326054 | 320872 |
| | G ¾ | 20 | 5.6 | 0-10 | 90 | 65 | 331566 | 331567 |
| | G 1 | 25 | 10 | 0-10 | 90 | 65 | 331568 | 331570 |

Valves with ATEX/IECEX terminal connection box


| Circuit function | Port connection | Orifice [mm] | K _v value water [m ³ /h] ¹⁾ | Pressure range [bar] ²⁾ | Max. media temperature [°C] | Coil size [mm] | Article no. per voltage/frequency [V/Hz] | |
|--|-----------------|--------------|--|------------------------------------|-----------------------------|----------------|--|--------|
| | | | | | | | 024/UC | 230/UC |
| Brass body, seal combination PTFE/FKM | | | | | | | | |
| A NC, normally closed | G ½ | 13 | 3.7 | 0-10 | 90 | 42 | 326055 | 326057 |
| | G ¾ | 20 | 5.6 | 0-10 | 90 | 65 | 331571 | 331572 |
| | G 1 | 25 | 10 | 0-10 | 90 | 65 | 331574 | 331575 |

¹⁾ Measured at +20 °C, 1 bar²⁾ pressure at valve inlet and free outlet.

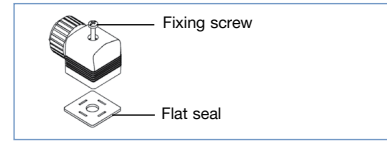
²⁾ Pressure data [bar]: Overpressure with respect to atmospheric pressure

Ordering chart accessories

Cable plug Type 2508 according to DIN EN 175 301-803 Form A

|  | Circuitry | Voltage/ Frequency | Article no. |
|---|----------------------------------|-----------------------|-------------|
| | Without (Standard) | 0 ... 250 V AC/DC | 008376 |
| | With LED | 12 ... 24 V AC/DC | 008360 |
| | With LED and varistor | 12 ... 24 V AC/DC | 008367 |
| | With rectifier, LED and Varistor | 12 ... 24 V AC/DC | 008363 |
| | With LED | 200 ... 240 V | 008362 |
| | With LED and varistor | 200 ... 240 V | 008369 |

Further versions see data sheet Type 2508.




The delivery of a cable plug includes the flat seal and the fixing screw. For other cable plug versions according to DIN EN 175 301-803 (previously DIN 43650) Form A, see separate datasheet for Type 2508. When you click on the orange box "More info." below, you will come to our website for the resp. product where you can download the datasheet.

More info.

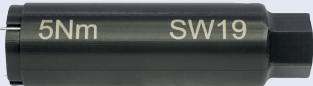
Cable glands for ATEX/IECEX terminal box

Polyamid version part of delivery / brass nickel-plated orderable as accessory



|  | Certificate | Ex certification | | Article no. |
|--|--|--|-----------|-------------|
| | | Certificate | Labelling | |
| 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 | | 773278 |
| 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 |

Special tool for turning the terminal box ATEC/IECEX version

Not included in the valve delivery

|  | Article no. |
|---|--|
| 5Nm SW19 | Set SC02-AC10 Special key Service manual 293488 |

i Further versions on request

-  **Voltage**
110/50 and further voltages on request
-  **Port connection**
NPT-thread, flange body acc. to DIN EN 1902-1

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

Subject to alteration.
© Christian Bürkert GmbH & Co. KG

1811/2_EU-en_1000348453