

## 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
<b>Technical data</b>		2
<b>Materials</b>		3
<b>Version DN13-32</b>	Dimensions - Version DN13-32	4
	Ordering charts - Standard version	5
	Ordering charts - Steam version	5
<b>Version DN50</b>	Dimensions - Version DN50	6
	Ordering charts - Standard version	7
	Ordering charts - Steam version	7
<b>ATEX/IECEX-version</b>	Dimensions - ATEX/IECEX-version	8
	Ordering charts - ATEX/IECEX-version with 3 m cable	9
	Ordering charts - ATEX/IECEX-version terminal connection box	9
<b>Ordering chart accessories</b>		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 <sup>2</sup> /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

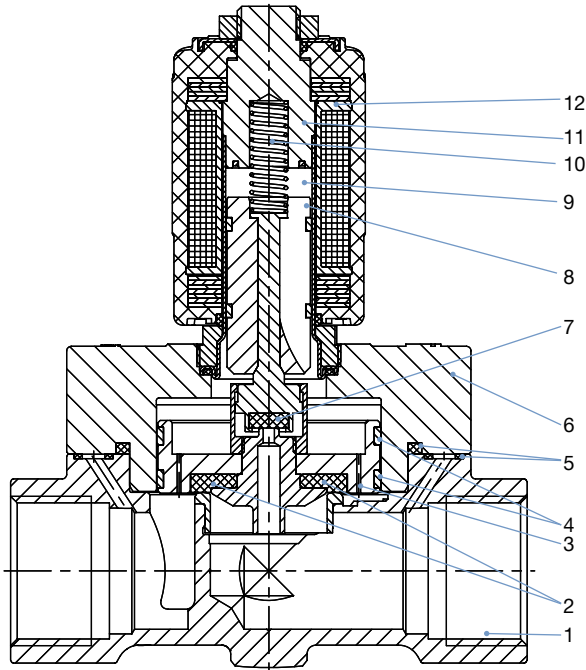
Orifice [mm]	Response times	
	Opening [ms]	Closing [ms]
13	30	250
20	30	250
25	60	700
32	80	900
50	500	2000

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)

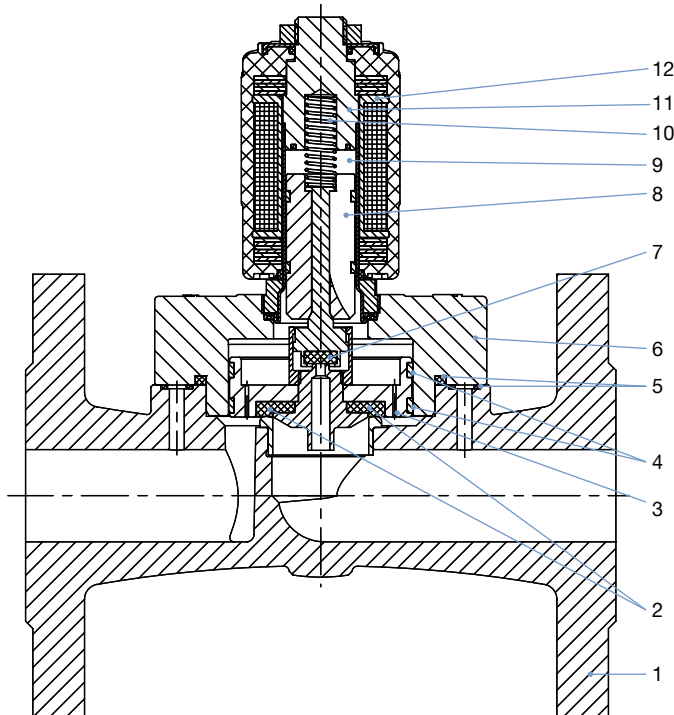
## Materials

## Threaded body



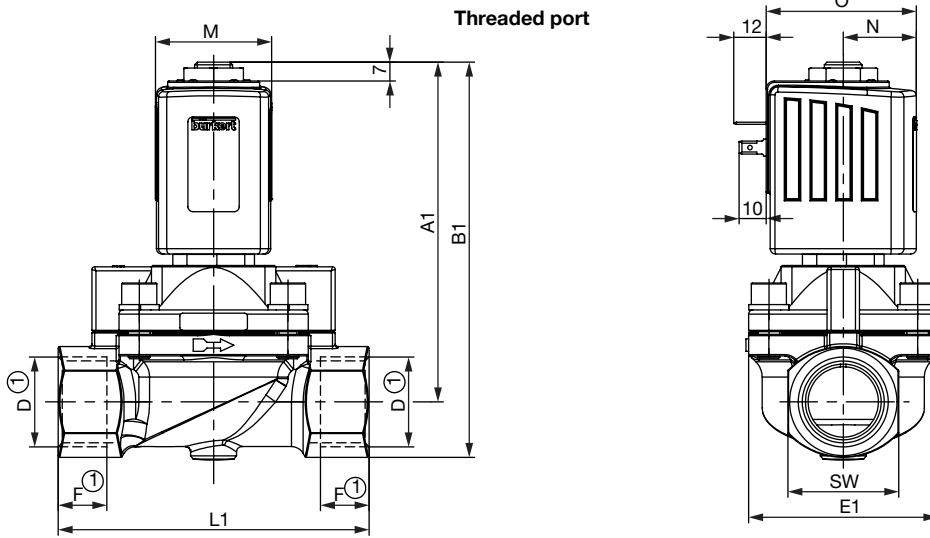
1 Housing	Brass
2 Piston seal	PTFE
3 Plunger	Brass
4 Piston rings	PTFE
5 Sealing rings	Graphite
6 Cover	Brass
7 Seal	PTFE
8 Core	1.4113 Stainless steel
9 Core guide tube	1.4303 Stainless steel
10 Spring	1.4310 Stainless steel
11 Stopper	1.4113 Stainless steel
12 Coil	Epoxy

## Flange body



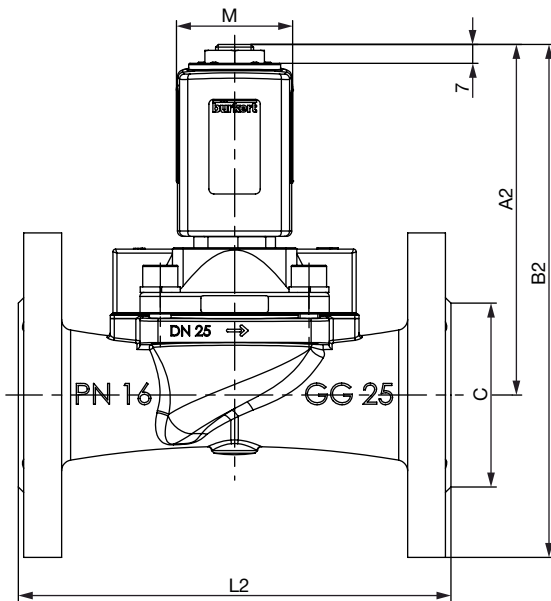
1 Housing	Grey cast iron
2 Piston seal	PTFE
3 Plunger	Brass
4 Piston rings	PTFE
5 Sealing rings	Graphite
6 Cover	Brass
7 Seal	PTFE
8 Core	1.4113 Stainless steel
9 Core guide tube	1.4303 Stainless steel
10 Spring	1.4310 Stainless steel
11 Stopper	1.4113 Stainless steel
12 Coil	Epoxy

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 <sub>v</sub> value water [m <sup>3</sup> /h] <sup>1)</sup>	Pressure range [bar] <sup>2)</sup>	Max. media temperature [°C]	Coil size [mm]	Article no. per voltage/frequency [V/Hz]		
							024/DC	024/50	230/50
<b>Brass body, seal PTFE+Graphite</b>									
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	-	-
		25	10.0	0-10	150	65	-	332170	332172
	G 1¼	32	16.0	0-10	150	42	332171	-	-
		32	16.0	0-10	150	65	-	332173	332174
	G 1½	32	16.0	0-10	150	42	332176	-	-
		32	16.0	0-10	150	65	-	332177	332178
							332179	-	-

## Steam version with valve seat in stainless steel

Circuit function	Port connection	Orifice [mm]	K <sub>v</sub> value water [m <sup>3</sup> /h] <sup>1)</sup>	Pressure range [bar] <sup>2)</sup>	Max. media temperature [°C]	Coil size [mm]	Article no. per voltage/frequency [V/Hz]		
							024/DC	024/50	230/50
<b>Brass body, seal PTFE+Graphite</b>									
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	-	-
		25	10.0	0-10	150	65	-	320862	320858
	G 1¼	32	16.0	0-10	150	42	320879	-	-
		32	16.0	0-10	150	65	-	330406	330401
	G 1½	32	16.0	0-10	150	42	330420	-	-
		32	16.0	0-10	150	65	-	330427	330429
							330435	-	-

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

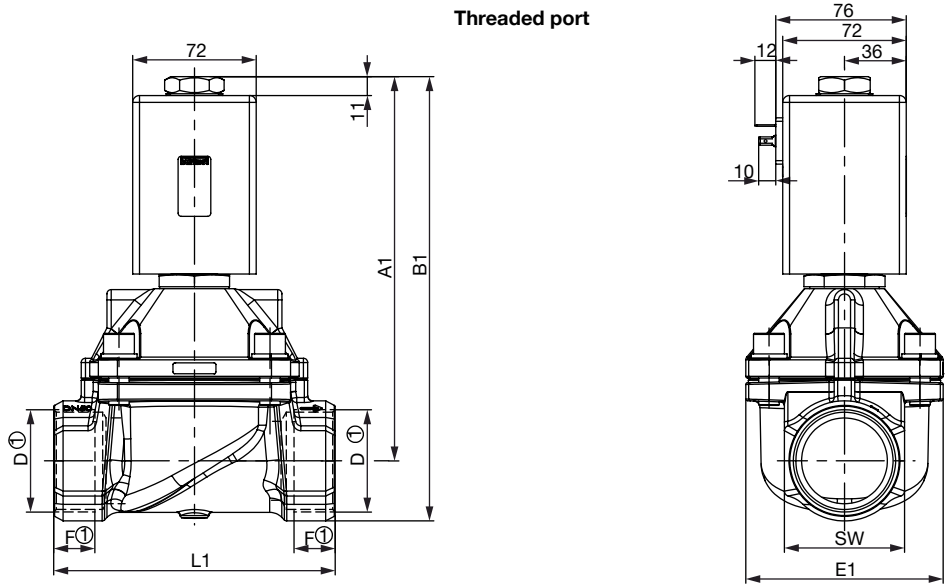
Circuit function	Port connection	Orifice [mm]	K <sub>v</sub> value water [m <sup>3</sup> /h] <sup>1)</sup>	Pressure range [bar] <sup>2)</sup>	Max. media temperature [°C]	Coil size [mm]	Article no. with KD-coil [V/Hz]		
							24 V AC/DC	110-120 V AC <sup>3)</sup>	230-240 V AC <sup>3)</sup>
<b>Brass body, seal combination PTFE/Graphite</b>									
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 <sub>v</sub> value water [m <sup>3</sup> /h] <sup>1)</sup>	Pressure range [bar] <sup>2)</sup>	Max. media temperature [°C]	Coil size [mm]	Article no. per voltage/frequency [V/Hz]
							024/DC
<b>Brass body, seal combination PTFE/Graphite</b>							
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

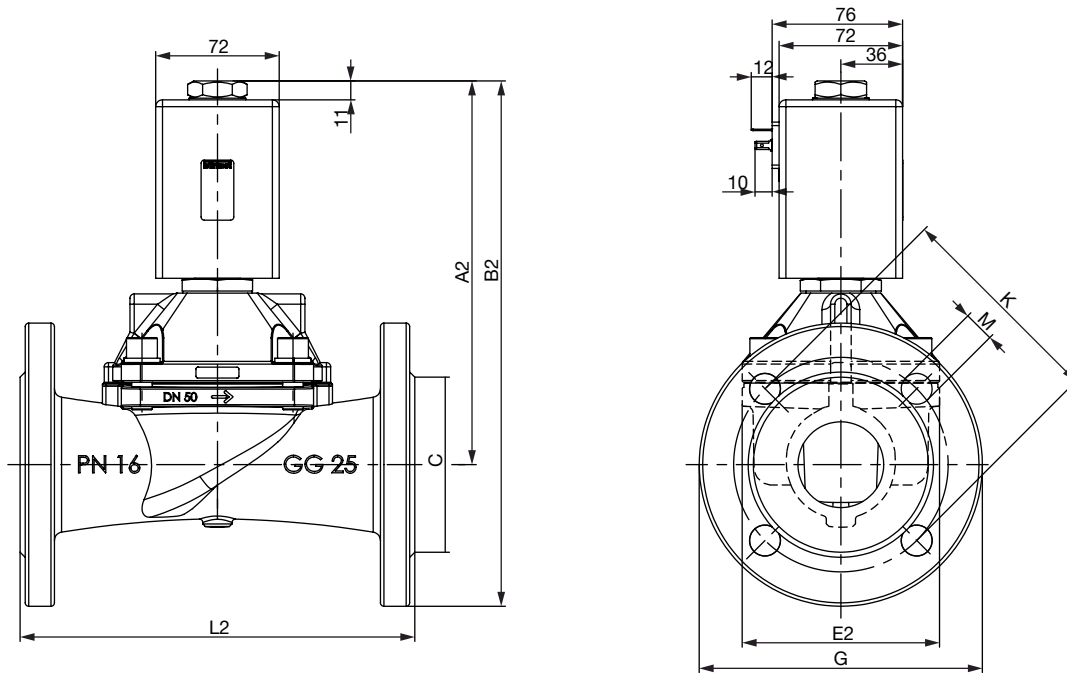
<sup>1)</sup> Measured at +20 °C, 1 bar<sup>2)</sup> pressure at valve inlet and free outlet.<sup>2)</sup> Pressure data [bar]: Overpressure with respect to atmospheric pressure<sup>3)</sup> AC indicates 50 Hz or 60 Hz

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 <sub>v</sub> value water [m <sup>3</sup> /h] <sup>1)</sup>	Pressure range [bar] <sup>2)</sup>	Max. media temperature [°C]	Coil size [mm]	Article no. per voltage/frequency [V/Hz]	
							024/DC	230/UC <sup>3)</sup>
<b>Brass body, seal combination PTFE/FKM</b>								
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

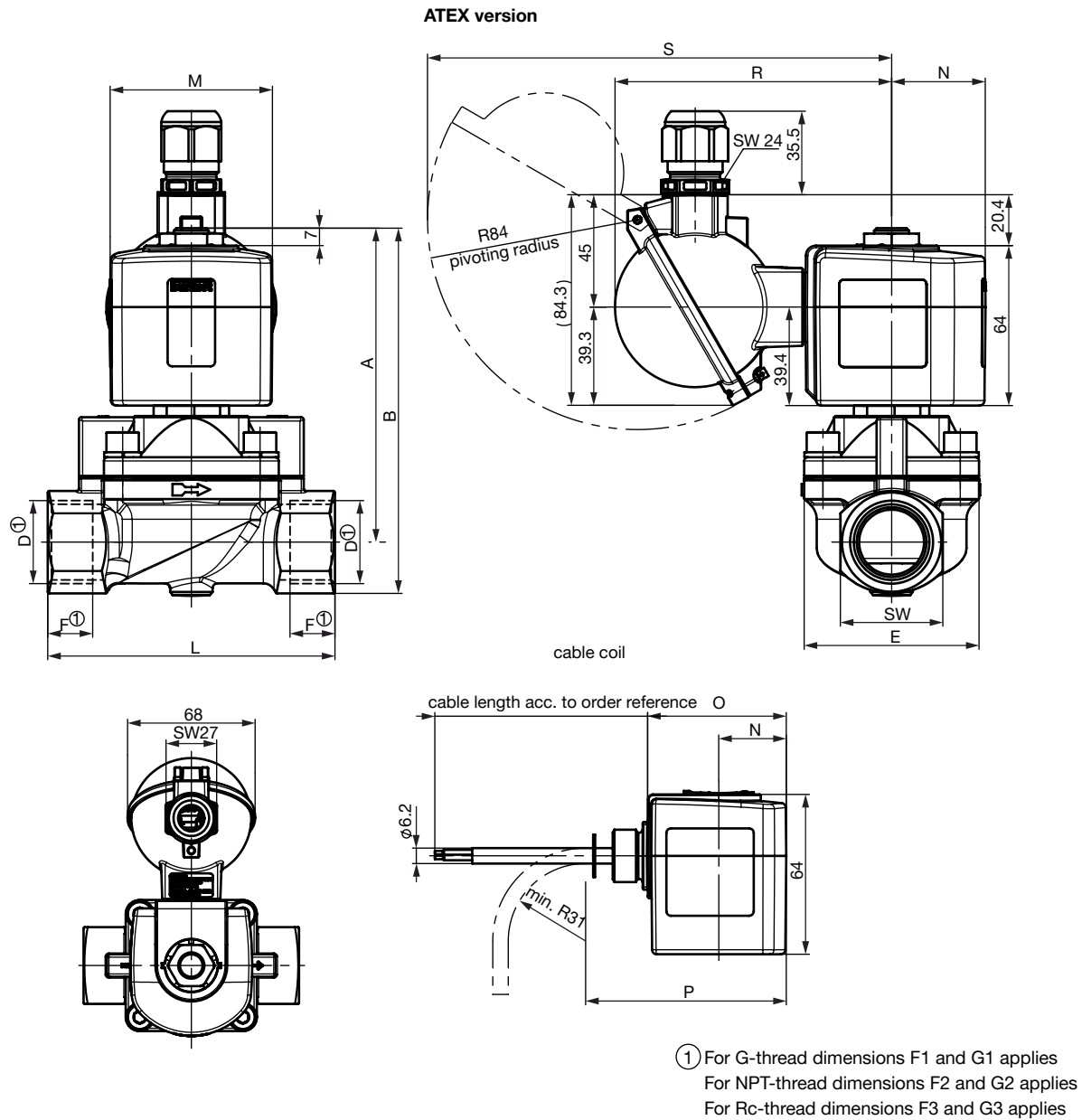
Circuit function	Port connection	Orifice [mm]	K <sub>v</sub> value water [m <sup>3</sup> /h] <sup>1)</sup>	Pressure range [bar] <sup>2)</sup>	Max. media temperature [°C]	Coil size [mm]	Article no. per voltage/frequency [V/Hz]	
							024/DC	230/UC <sup>3)</sup>
<b>Brass body, seal combination PTFE/FKM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

<sup>1)</sup> Measured at +20 °C, 1 bar<sup>2)</sup> pressure at valve inlet and free outlet.

<sup>2)</sup> Pressure data [bar]: Overpressure with respect to atmospheric pressure

<sup>3)</sup> For versions with external rectifier the cable plug is included in the delivery.

## Dimensions [mm] ATEX/IECEEx









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 $\frac{3}{8}$	10.1	40	65	27
13			G $\frac{1}{2}$	14	NPT $\frac{1}{2}$	13.7	Rc $\frac{1}{2}$	13.2			
20	119.7	135.7	G $\frac{3}{4}$	16	NPT $\frac{3}{4}$	14.0	Rc $\frac{3}{4}$	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 <sub>v</sub> value water [m <sup>3</sup> /h] <sup>1)</sup>	Pressure range [bar] <sup>2)</sup>	Max. media temperature [°C]	Coil size [mm]	Article no. per voltage/frequency [V/Hz]	
							024/UC	230/UC
<b>Brass body, seal combination PTFE/FKM</b>								
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 <sub>v</sub> value water [m <sup>3</sup> /h] <sup>1)</sup>	Pressure range [bar] <sup>2)</sup>	Max. media temperature [°C]	Coil size [mm]	Article no. per voltage/frequency [V/Hz]	
							024/UC	230/UC
<b>Brass body, seal combination PTFE/FKM</b>								
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 

<sup>1)</sup> Measured at +20 °C, 1 bar<sup>2)</sup> pressure at valve inlet and free outlet.

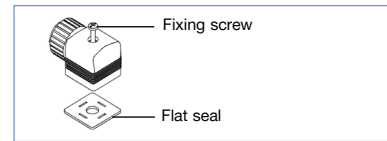
<sup>2)</sup> Pressure data [bar]: Overpressure with respect to atmospheric pressure

## 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.**

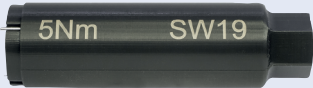

## Cable glands for ATEX/IECEX terminal box

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

	Certificate	Ex certification		Article no.
		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

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