



Servo-assisted 2/2-way piston valve

- Safety shut-off valve in fuel cell systems and other hydrogen applications
- Very compact solenoid valve with reliably high tightness and service life
- Available for up to orifice 12 mm and pressure range 40 bar
- Available as flange or cartridge variant for quick system integration
- Degree of protection IP65 or IP6K9K with automotive plug

Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with



Type 2518
Cable plug, form A
according to DIN EN
175301 - 803



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



Type 2509
Cable plug, form A
according to DIN EN
175301 - 803



Type description

The valve 6440 is a servo-assisted piston valve. The stopper and the core guide tube are welded together to increase pressure resistance and leak-tightness. The coils are moulded with highly chemically resistant epoxy. Sliding rings increase the service life for dry gases. Cartridge and flange connections, and solenoids with automotive plugs (IP6K9K), are available for optimised use in fuel cells.

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1. General technical data

Product properties	
Dimensions	Detailed information can be found in chapter “4. Dimensions” on page 6.
Material	
Seal	EPDM
Housing	Stainless steel
Coil	Epoxide
Tightness	10 ⁻⁴ mbar l/s
Pressure	
Pressure level	PN 40 bar
Burst pressure	250 bar for flange and threaded body 125 bar for cartridge body DN 6, DN 8 110 bar for cartridge body DN 12
Differential pressure	Detailed information can be found in chapter “7. Ordering information” on page 16.
Orifice	DN 6, DN 8, DN 12
Thermal insulation class of solenoid	Class H
Performance data	
Nominal operating mode	Continuous operation The power must be reduced to 50 % of the nominal power (holding phase) with the aid of current control or PWM signal after max. 500 ms (switch-on pulse) for mobile applications with increased ambient temperature.
Switching time¹⁾	
DN 6, DN 8	Opening: 10...20 ms Closing: 40...50 ms
DN 12	Opening: 20...40 ms Closing: 80...100 ms
Electrical data	
Power consumption	Detailed information can be found in chapter “5. Performance specifications” on page 15.
Voltage tolerance	
Stationary applications	± 10 %
Mobile applications	12 V: 9 V...16 V 24 V: 18 V...32 V
Medium data	
Operating medium	Neutral gases and liquids such as compressed air, water, nitrogen Optimised for hydrogen
Medium temperature	- 40 °C...+ 120 °C
Viscosity	Max. 21 mm ² /s
Approvals and certificates	
Degree of protection	Standard: IP65 with cable plug, NEMA 4x with cable plug Type 2509 ▶ for VA versions (other versions on request) Automotive Coil: IP6K acc. to ISO 20653:2013 IPX7 acc. to ISO 20653:2013 (submersion test acc. to ISO 16750-4:2010) IPX9K acc. to ISO 20653:2013 This degree of protection can only be guaranteed as long as the coil is not removed from the valve.
Process/Port connection & communication	
Electrical connection	Plug contacts according to DIN EN 175 301 - 803 shape 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 21. Automotive plugs for IP6K9K coil variants: Plug KOSTAL MLK1.2, 2-pin, coding A (male) Plug TE MCON 1.2, 2-pin, coding A (male) Other plug shapes on request
Port connection	Cartridge, flange, G ¼, G ⅜, G ½, NPT ¼, NPT ⅜, NPT ½

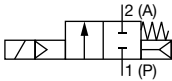
Environment and installation

Installation position	As required, preferably with actuator upright
Ambient temperature	- 40 °C...+ 55 °C/+ 75 °C for stationary applications depending on performance level - 40 °C...+ 85 °C for mobile applications ^{2.)}

1.) Measurement at 6 bar and + 20 °C at the valve outlet, opening: pressure build-up 0...90 %, closing: pressure reduction 100...10 %

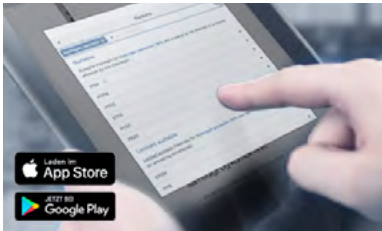
2.) The power must be reduced to 50 % of the nominal power (holding phase) with the aid of current control or PWM signal after max. 500 ms (switch-on pulse).

2. Circuit functions

Circuit function	Description
	Type: A, solenoid valve 2/2-way Servo-controlled Normally closed

3. Materials

3.1. Chemical Resistance Chart – Bürkert resistApp

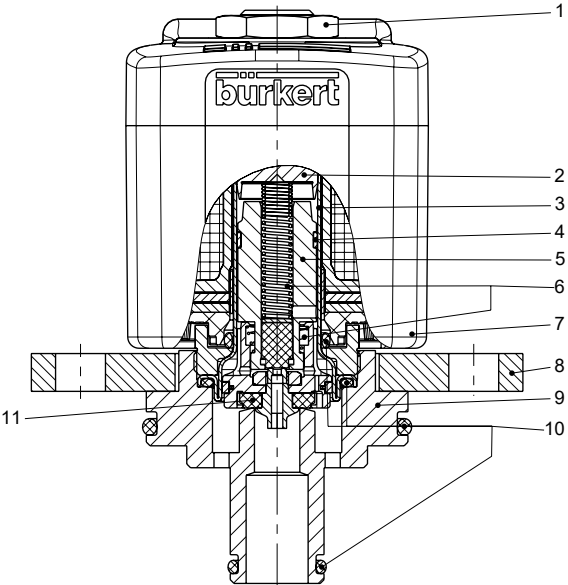


Bürkert resistApp – Chemical Resistance Chart

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

3.2. Material specifications



No.	Element	Material
1	Nut	Stainless steel 1.4305/303 ^{1.)} , PTFE-coated
2	Stopper	1.4113/434 ^{1.)}
3	Core guide tube	1.4303/305 ^{1.)} /308 ^{1.)}
4	Guide ring	PTFE carbon-filled
5	Core	1.4113/434 ^{1.)}
6	Springs	1.4310/301 ^{1.)}
7	Coil	Epoxide
8	Retaining plate	Stainless steel 1.4301/304 ^{1.)}
9	Body	Stainless steel 1.4404/1.4571/316L ^{1.)} /316Ti ^{1.)}
10	External seal	EPDM
11	Whole piston	Stainless steel 1.4305/303 ^{1.)} PPS PTFE carbon-filled EPDM

1.) Material designation according to AISI

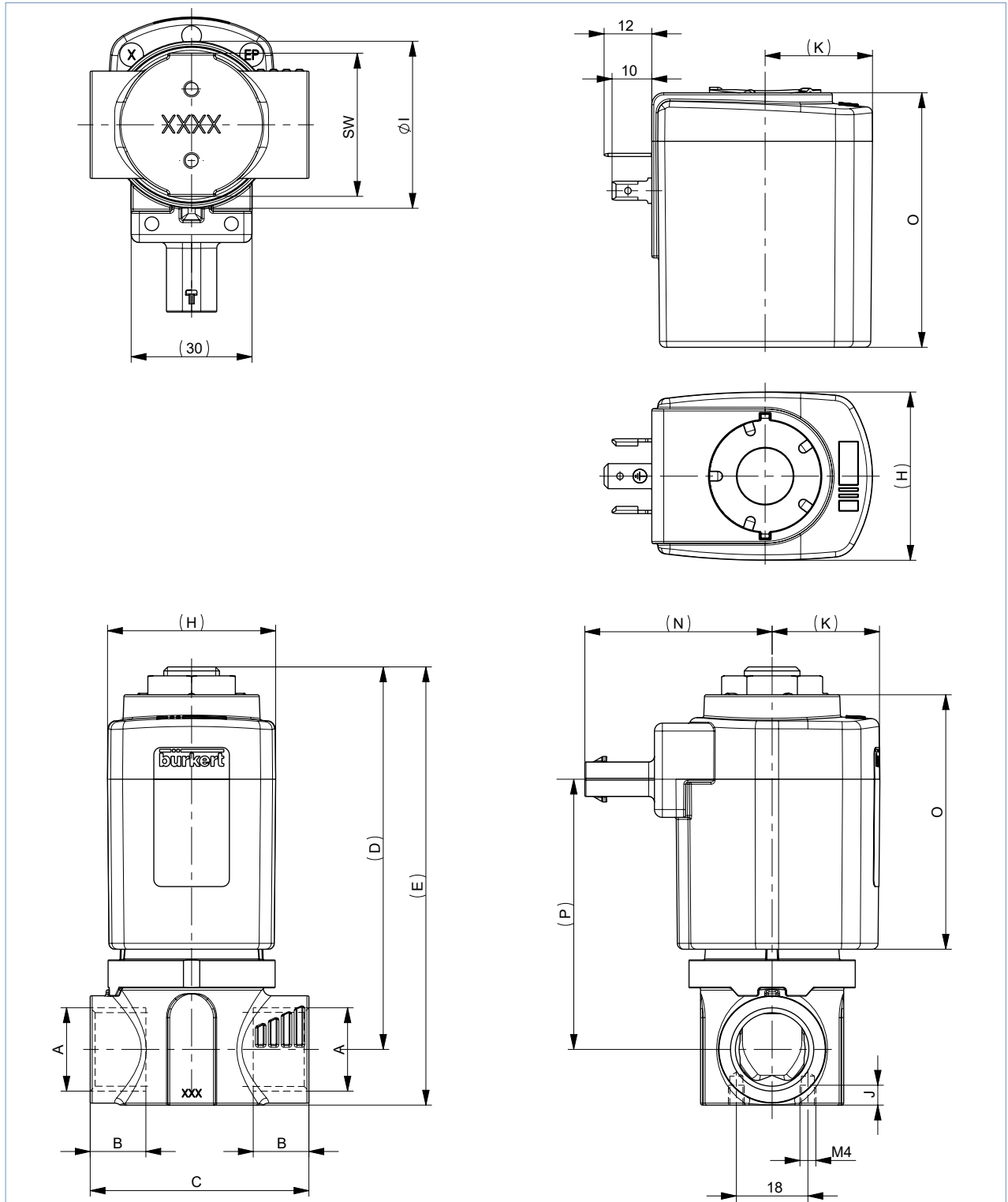
4. Dimensions

4.1. Threaded version

Valve complete

Note:

- Dimensions in mm
- The corresponding dimensions of the solenoid coil can be found in chapter [“Solenoid coil dimensions” on page 7.](#)



DN	A (port connection)	B	C	(D)	(E)	I	J	(P)	SW
6/8	G ¼	12	40	61	71	27	4.5	46	24
	NPT ¼	10							
	RC ¼	9.7							
	G ⅜	12	50	62	74			47	
	NPT ⅜	10.3							
	RC ⅜	10.1							
12	G ½	14	55	96	110	42	5	68	36
	NPT ½	13.7							
	RC ½	13.2							

Solenoid coil dimensions

Note:

The corresponding dimensions to the letters mentioned can be found in the chapter [“Valve complete” on page 6](#).

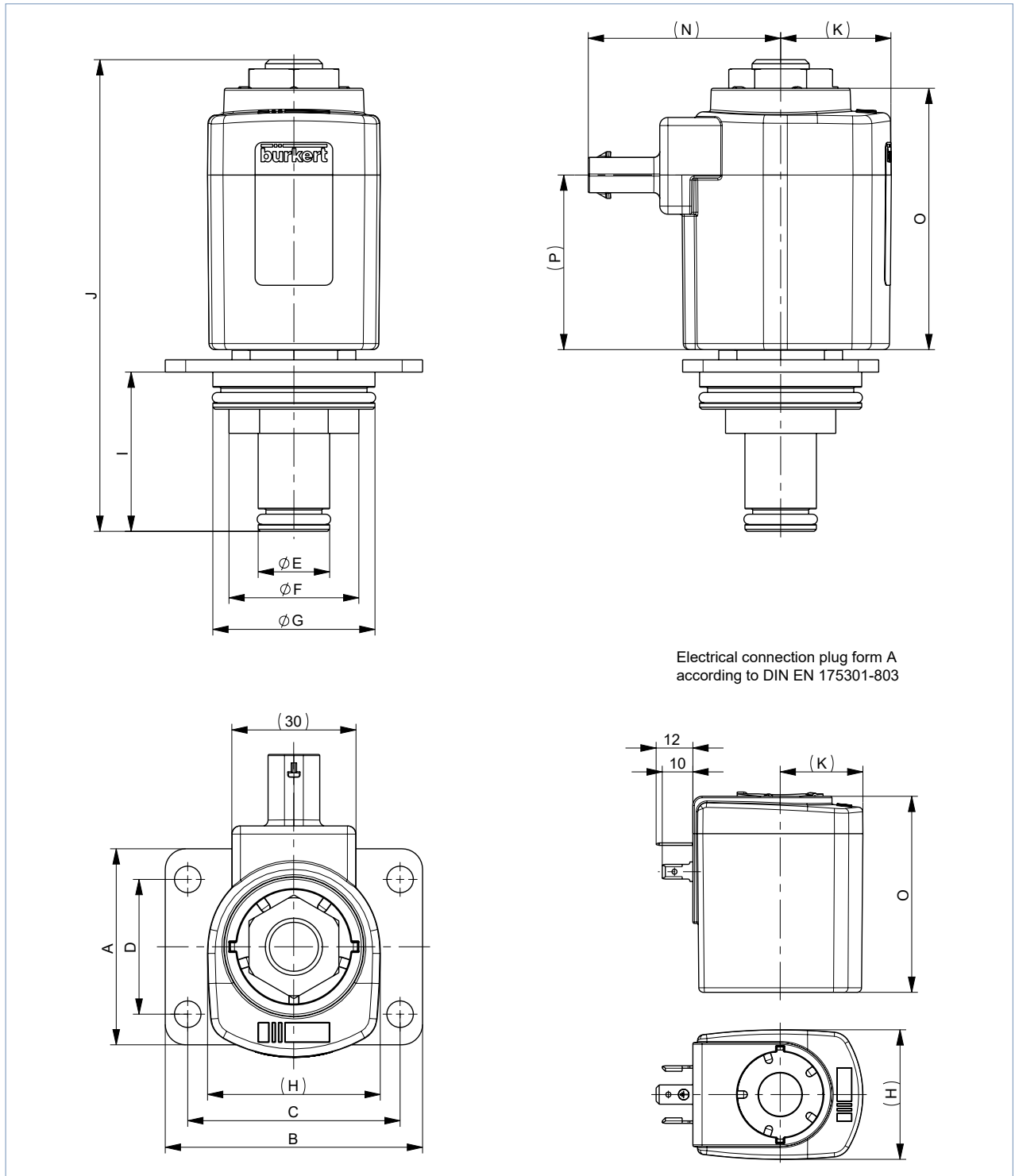
DN	Electrical connection	SG (coil size)	(H)	(K)	(N)	O
6/8	Steckerform A nach DIN EN 175301 - 803	5	32	21	–	41
		6	40	24	–	
	Stecker KOSTAL MLK1.2 / TE MCON 1.2, 2-pin, Codierung A (male)				46	
12	Steckerform A nach DIN EN 175301 - 803	K	42	27	–	64
	Stecker KOSTAL MLK1.2 / TE MCON 1.2, 2-pin, Codierung A (male)				47	

4.2. Cartridge version

Valve complete

Note:

- Dimensions in mm
- The corresponding dimensions of the solenoid coil can be found in chapter “Solenoid coil dimensions” on page 9.



DN	Port connection	A	B	C	D	ØE	ØF	ØG	I	(J)	(P)
6/8	FC16	55	55	52	–	12.4	23.9	34.1	25.4	76	33
12	FC17	48	63	52	33	17.5	31.8	39.7	39	113	42

Solenoid coil dimensions

Note:

The corresponding dimensions to the letters mentioned can be found in the chapter **“Valve complete”** on page 8.

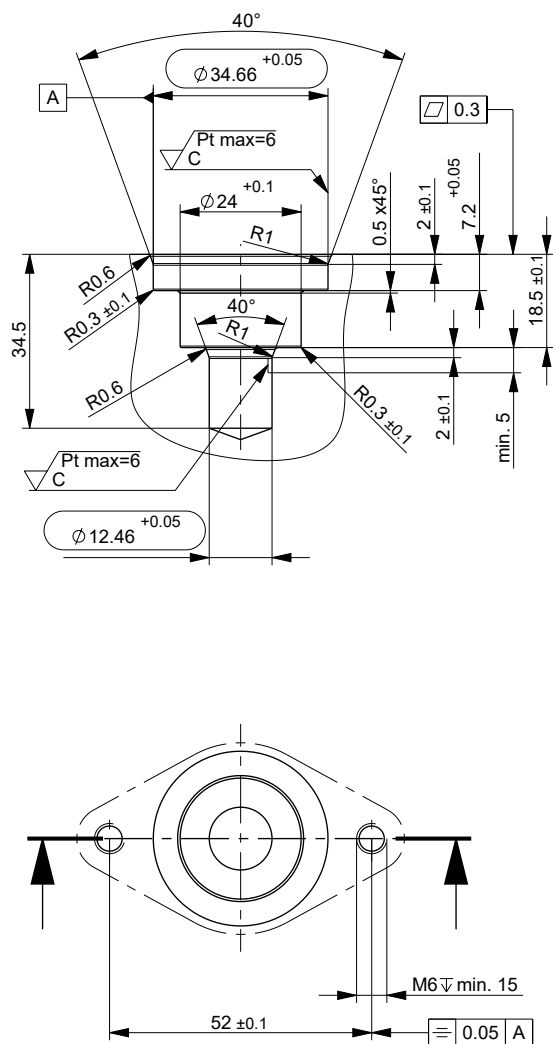
DN	Electrical connection	SG (coil size)	(H)	(K)	(N)	O
6/8	Steckerform A nach DIN EN 175301 - 803	5	32	21	–	41
		6	40	24	–	
	Stecker KOSTAL MLK1.2 / TE MCON 1.2, 2-pin, Codierung A (male)				46	
12	Steckerform A nach DIN EN 175301 - 803	K	42	27	–	64
	Stecker KOSTAL MLK1.2 / TE MCON 1.2, 2-pin, Codierung A (male)				47	

Cartridge connection diagram

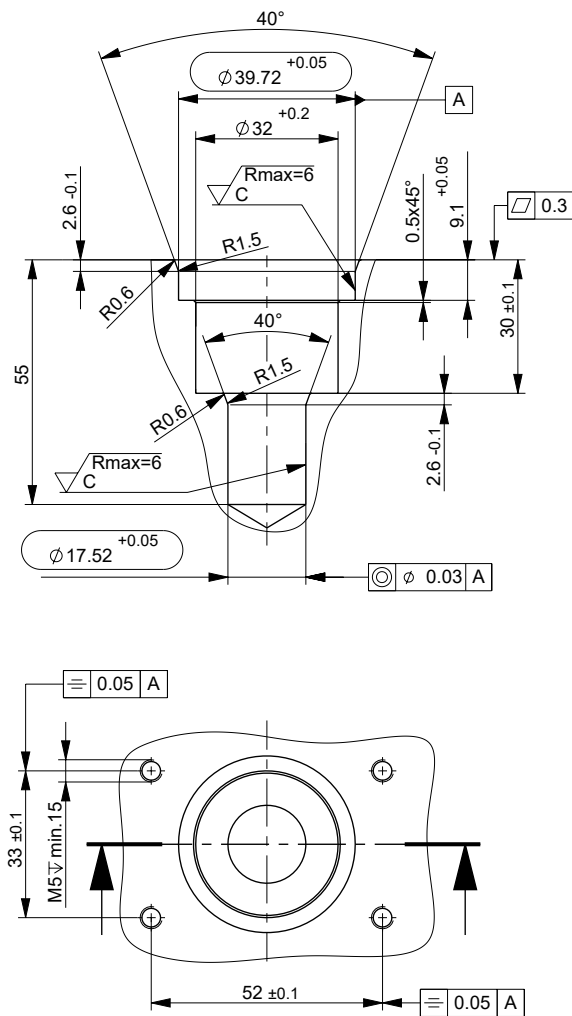
Note:

Dimensions in mm

Connection contour FC16



Connection contour FC17

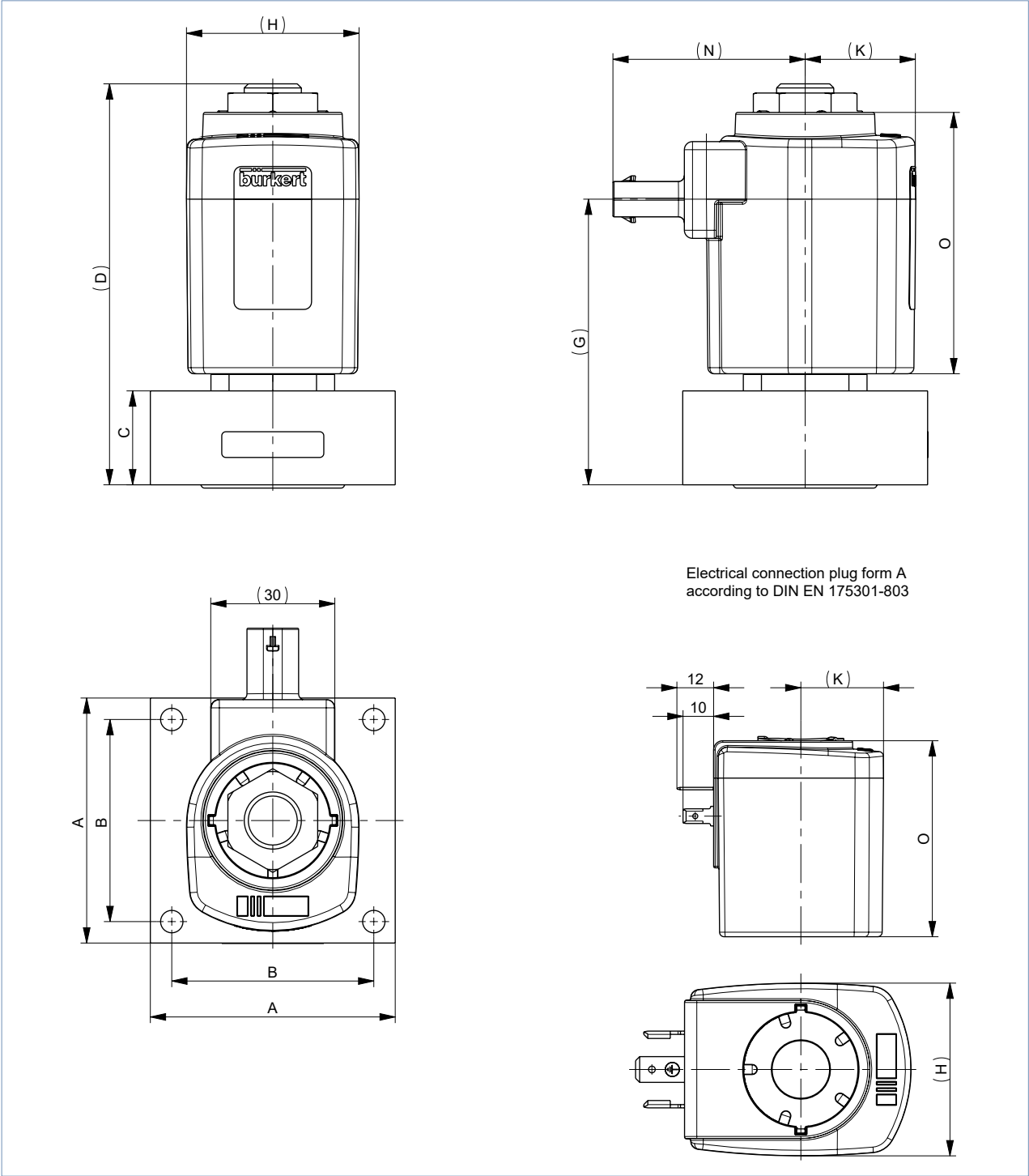


4.3. Flange version

Valve complete

Note:

- Dimensions in mm
- The corresponding dimensions of the solenoid coil can be found in chapter “Solenoid coil dimensions” on page 12.



DN	Port connection	A	B	C	(D)	(G)
6/8	FK14	55	46	13	58	43
12	FK17	60	49.5	23	98	70

Solenoid coil dimensions

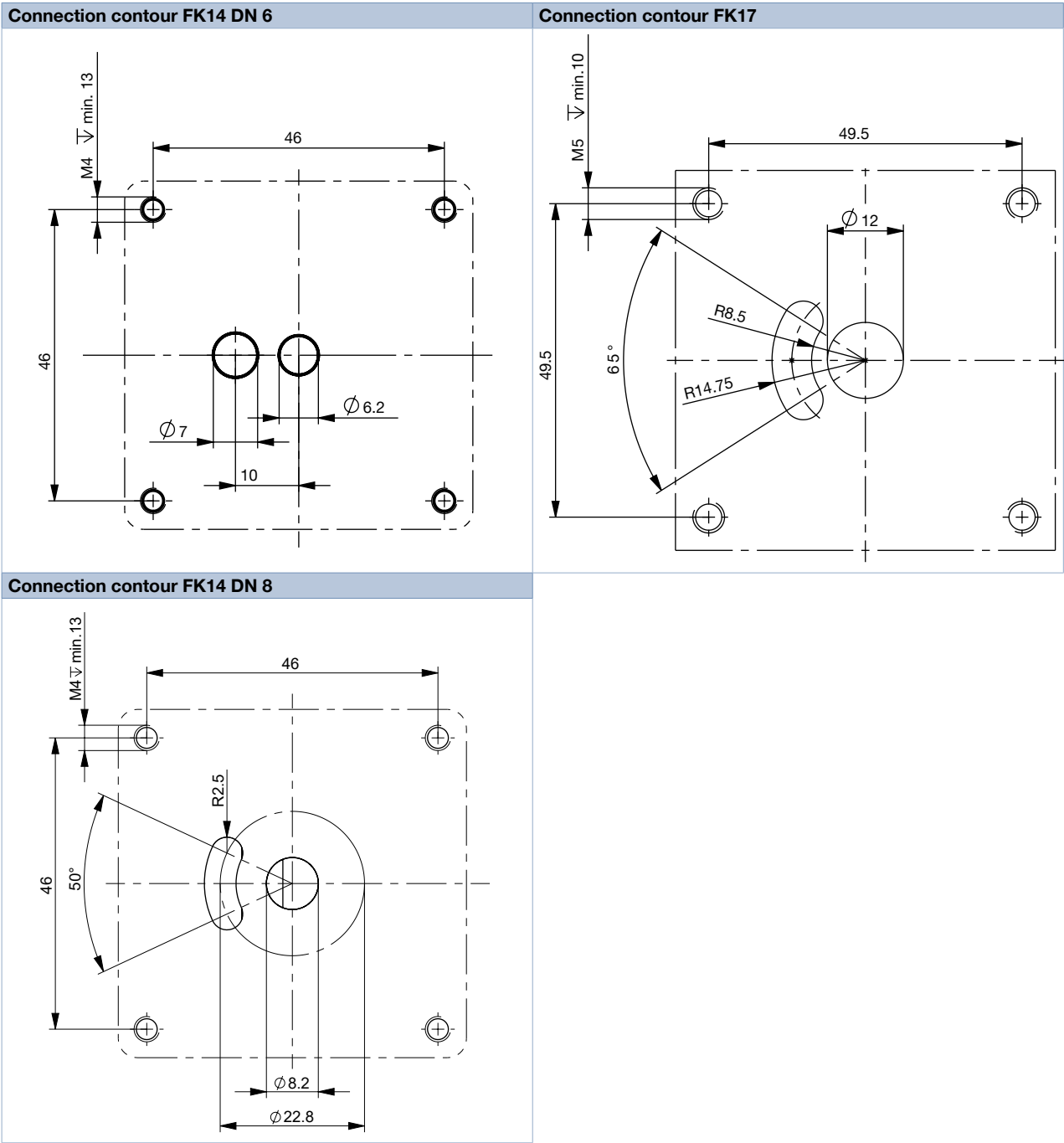
Note:

The corresponding dimensions to the letters mentioned can be found in the chapter [“Valve complete” on page 11](#).

DN	Electrical connection	SG (coil size)	(H)	(K)	(N)	O
6/8	Steckerform A nach DIN EN 175301 - 803	5	32	21	–	41
		6	40	24	–	
	Stecker KOSTAL MLK1.2 / TE MCON 1.2, 2-pin, Codierung A (male)				46	
12	Steckerform A nach DIN EN 175301 - 803	K	42	27	–	64
	Stecker KOSTAL MLK1.2 / TE MCON 1.2, 2-pin, Codierung A (male)				47	

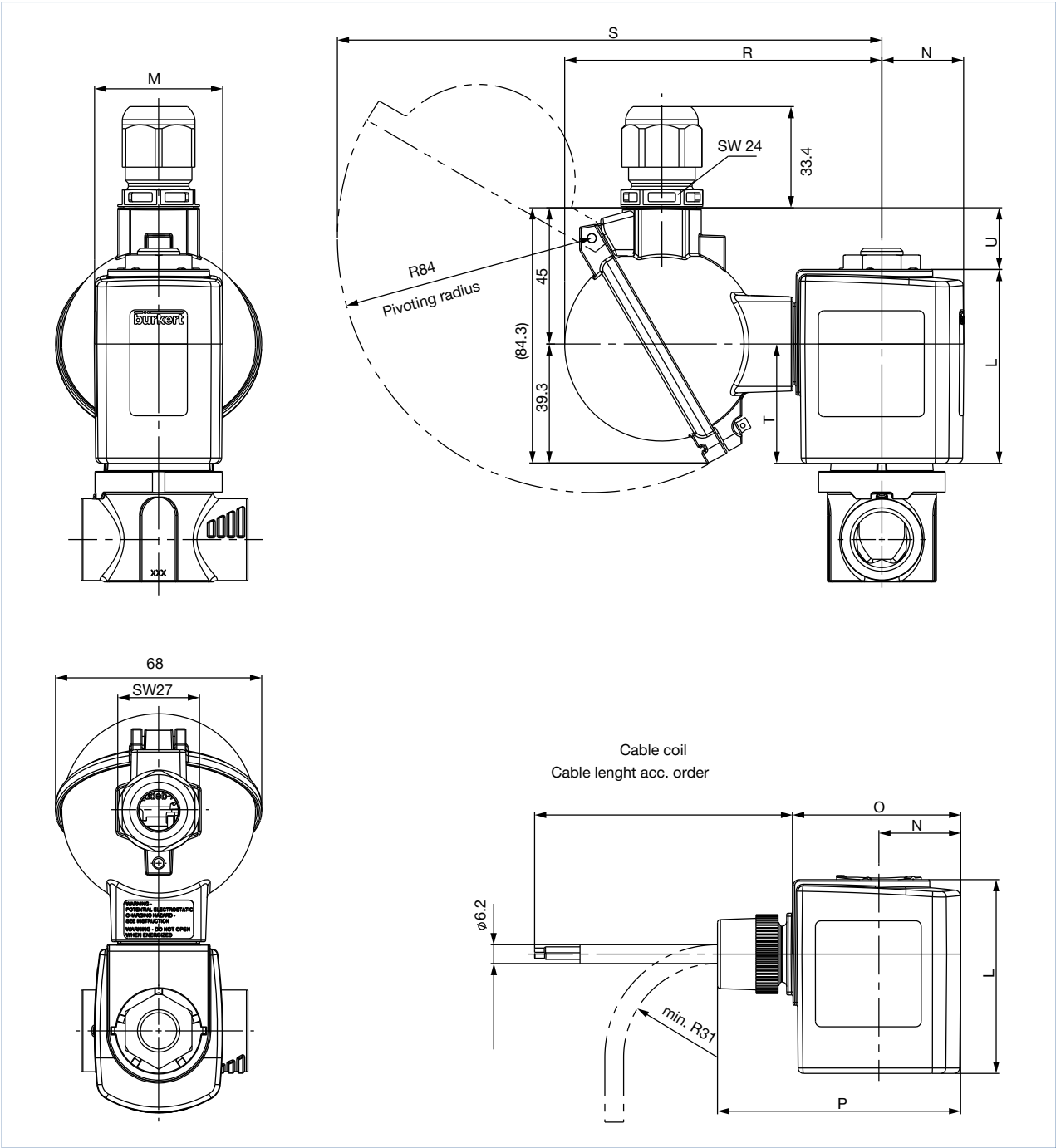
Flange connection diagram

Note:
Dimensions in mm



4.4. ATEX/IECEx version (PX58, PX38 and PX39)

Note:
Dimensions in mm



5. Performance specifications

5.1. Power consumption

Note:

The Kick and Drop coil (AC/DC) features integrated electronics for short-term power increase and decrease in double coil technology.

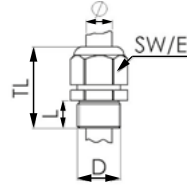
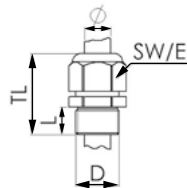
Orifice	Coil size	DC		Kick and Drop coil AC/DC		
		Cold power	Warm power	Cold power inrush	Cold power hold	Warm power hold
DN	[mm]	[W]	[W]	[W] 500 ms	[W]	[W]
6/8	32 (5)	12	10	–	–	–
	40 (6)	14	12	–	–	–
		16	14	–	–	–
		–	–	20	2	2
	40 (6) EX	9	7.5	–	–	–
12	42 (K)	21	16	–	–	–
		30	20	–	–	–
		–	–	44	6.5	5.5
	42 (K) EX	15	12	44	6.5	5.5

6. Product accessories

6.1. 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, see [“7.5. Ordering chart accessories” on page 21](#).

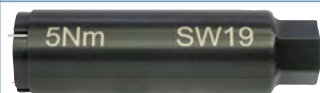
Description	Ex-Approval		Dimensions											
	Certification	Identification												
Ex cable gland, Brass, nickel-plated, 6...13 mm 	PTB 04 ATEX 1112 X, IECEX PTB 13.0027X	II 2 G Ex e IIC Gb, I 2 D Ex tb IIIC Db IP68		<table><tr><td>TL</td><td>29...37 mm</td></tr><tr><td>L</td><td>6 mm</td></tr><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><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													

6.2. Special tool to turn the junction box

Note:

This special tool is not supplied with the valve, see “6.1. Cable glands for ATEX/IECEX terminal box” on page 15.

Set SC02-AC10



Set includes:

- Special wrench
- Service manual

7. Ordering information

7.1. Bürkert eShop – Easy ordering and quick delivery



Bürkert eShop – Easy ordering and quick delivery

You want to find your desired Bürkert product or spare part quickly and order directly? Our online shop is available for you 24/7. Sign up and enjoy all the benefits.

[Order online now](#)

7.2. Bürkert product filter



Bürkert product filter – Get quickly to the right product

You want to select products comfortably based on your technical requirements? Use the Bürkert product filter and find suitable articles for your application quickly and easily.

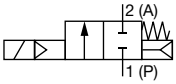
[Try out our product filter](#)

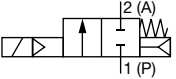
7.3. Ordering chart for stationary applications, cable plug form A according to DIN EN 175301 - 803 (IP65 coil)

Standard version

Note:

- 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 21 or separate data sheet **Type 2518** ▶.
- Further variants with alternative voltages, NPT or RC internal threads possible on request.

Circuit function	Port connection	Orifice	K _v value water	Coil power	Pressure range (MAWP ¹⁾)		Coil size	Article no.				
					Ambient temperature 75 °C	Ambient temperature 55 °C		024/DC				
		[mm]	[m³/h]	[W]	[bar]	[bar]		[V/Hz]				
Stainless steel body, seal material EPDM/EPDM												
A, solenoid valve 2/2-way Servo-controlled, normally closed 	Threaded connection with G internal thread											
	G ¼	6.0	0.6	12	–	0...20	32	X				
					0...16	–		20044959 				
				14	–	0...35	40	X				
					0...30	–		X				
				16	–	0...40		X				
					0...35	–		X				
	G ⅜	6.0	0.6	12	–	0...20	32	X				
					0...16	–		X				
				14	–	0...35	40	X				
					0...30	–		X				
				16	–	0...40		X				
					0...35	–		X				
	G ½	12.0	2.2	21	–	0...20	42	X				
					0...16	–		20044518 				
				30	–	0...40		X				
				Cartridge body								
				FC16	6.0	0.6	12	–	0...20	32	X	
	0...16	–	20044961 									
	14	–	0...35				40	X				
		0...30	–					X				
	16	–	0...35					X				
		0...35	–					X				
	8.0	1.1	12		–	0...20	32	X				
					0...16	–		X				
			14		–	0...35	40	X				
					0...30	–		X				
			16		–	0...35		X				
					0...35	–		X				
	FC17	12.0	2.2	21	–	0...20	42	X				
					0...16	–		20043705 				
				30	–	0...25		X				

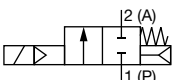
Circuit function	Port connection	Orifice	K _v value water	Coil power	Pressure range (MAWP ^{1.)})		Coil size	Article no.
					Ambient temperature 75 °C	Ambient temperature 55 °C		024/DC
		[mm]	[m³/h]		[bar]	[bar]		[V/Hz]
A, solenoid valve 2/2-way Servo-controlled, normally closed 	Flange body FK14	6.0	0.6	12	–	0...20	32	X
					0...16	–		20044960 
				14	–	0...35	40	X
					0...30	–		X
				16	–	0...40		X
					0...35	–		X
		8.0	1.0	12	–	0...20	32	X
					0...16	–		X
				14	–	0...35	40	X
					0...30	–		X
				16	–	0...40		X
					0...35	–		X
	FK17	12.0	2.2	21	–	0...20	42	20043704 
					0...16	–		X
				30	–	0...40		X

X: on request

1.) Maximum allowable working pressure

Version with Kick and Drop coil**Note:**

- 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 21](#) or separate data sheet **Type 2518** ▶.
- The Kick and Drop coil (AC/DC) features integrated electronics for short-term power increase and decrease in double coil technology.
- Further variants with alternative voltages, NPT or RC internal threads possible on request.

Circuit function	Port con- nection	Orifice	K _v value water	Coil power		Pressure range (MAWP ^{1.)})	Coil size	Article no.
				Starting power	Holding power	Ambient temper- ature 75 °C		024/DC
		[mm]	[m³/h]	[W]	[W]	[bar]		[V/Hz]
Stainless steel body, seal material EPDM/EPDM								
A, solenoid valve 2/2-way Servo-controlled, normally closed 	Threaded connection with G internal thread							
	G ¼	6.0	0.6	20	2	0...40	40	X
	G ⅜	6.0	0.6	20	2	0...40	40	X
	G ½	12.0	2.2	44	6.5	0...40	42	X
	Cartridge body							
	FC16	6.0	0.6	20	2	0...35	40	X
	FC16	8.0	1.1	20	2	0...35	40	X
	FC17	12.0	2.2	44	6.5	0...25	42	X
	Flange body							
	FK14	6.0	0.6	20	2	0...40	40	X
	FK17	12.0	2.2	44	6.5	0...40	42	X

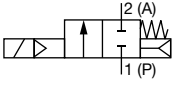
X: on request

1.) Maximum allowable working pressure

ATEX/IECEx-cable version

Note:

- The Kick and Drop coil (AC/DC) features integrated electronics for short-term power increase and decrease in double coil technology.
- Further variants with alternative voltages, NPT or RC internal threads possible on request.
- ATEX/IECEx versions with terminal box are available on request.

Circuit function	Port connection	Orifice	K _v value water	Coil power		Pressure range (MAWP ^{1.)}	Coil size	Article no.
				Starting power	Holding power	Ambient temperature 75 °C		024/DC
		[mm]	[m³/h]	[W]	[W]	[bar]	[mm]	[V/Hz]
Stainless steel body, seal material EPDM/EPDM								
A, solenoid valve 2/2-way Servo-controlled, normally closed 	Threaded connection with G internal thread							
	G ¼	6.0	0.6	9	–	0...16	40	X
	G ⅜	6.0	0.6	9	–	0...16	40	X
	G ½	12.0	2.2	15	–	0...10	42	X
				44	6.5	0...40	42	X
	Cartridge body							
	FC16	6.0	0.6	9	–	0...16	40	X
	FC16	8.0	1.1	9	–	0...16	40	X
	FC17	12.0	2.2	15	–	0...10	42	X
						44	6.5	0...25
	Flange body							
	FK14	6.0	0.6	9	–	0...16	40	X
		8.0	1.0	9	–	0...16	40	X
	FK17	12.0	2.2	15	–	0...10	42	X
				44	6.5	0...40	42	X

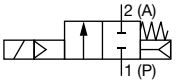
X: on request

1.) Maximum allowable working pressure

7.4. Ordering chart of mobile applications with automotive plug (IP6K9K coil)

Note:

- The power must be reduced to 50 % of the nominal power (holding phase) with the aid of current control or PWM signal after max. 500 ms (switch-on pulse).
- Further variants with alternative voltages, NPT or RC internal threads possible on request.

Circuit function	Port connection	Orifice	K _v value water	Coil power ^{1.)}	Pressure range (MAWP ^{2.)}) Ambient temperature 85°C ^{3.)}	Coil size	Article no.	
							012/DC	024/DC
		[mm]	[m³/h]	[W]	[bar]		[mm]	[V/Hz]
Stainless steel body, seal material EPDM/EPDM								
A, solenoid valve 2/2-way Servo-controlled, normally closed 	Threaded connection with G internal thread							
	G ¼	6.0	0.6	14	0...30	40	X	028364 𐌶
	G ¼	6.0	0.6	16	0...35	40	20030083 𐌶	X
	G ⅜	6.0	0.6	14	0...30	40	X	X
	G ⅜	6.0	0.6	16	0...35	40	X	X
	G ½	12.0	2.2	30	0...35	42	X	X
	Cartridge body							
	FC16	6.0	0.6	14	0...30	40	X	20028366 𐌶
		6.0	0.6	16	0...35	40	X	X
		8.0	0.6	14	0...30	40	X	X
		8.0	0.6	16	0...35	40	X	X
	FC17	12.0	2.2	30	0...30	42	X	X
	Flange body							
	FK14	6.0	0.6	14	0...30	40	X	20028365 𐌶
		6.0	0.6	16	0...35	40	20039221 𐌶	X
		8.0	1.0	14	0...30	40	X	X
		8.0	1.0	16	0...35	40	X	X
	FK17	12.0	2.2	30	0...35	42	X	X

X: on request

1.) The stated power represents the required power of the pick-up phase. The power must be reduced by min. 50 % by means of current control or PWM signal after max. 500 ms (switch-on pulse) (holding phase).

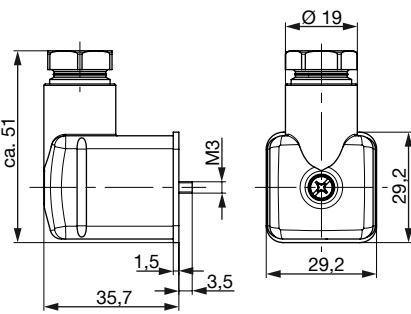
2.) Maximum allowable working pressure

3.) Use at this ambient temperature is only guaranteed if the power is reduced to 50 % of the nominal power by means of current control or PWM signal after max. 500 ms (switch-on pulse).

7.5. Ordering chart accessories

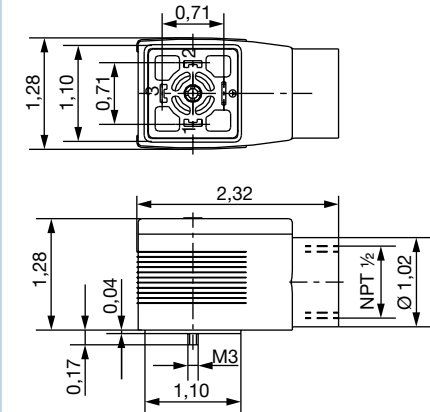
Cable plug Type 2518, form A according to DIN EN 175301 - 803

Note:
For 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 
		Without circuitry (AC/DC) with silicone seal for higher ambient temperature, e.g. steam version (NA07)	0...250 V AC/DC	361687 

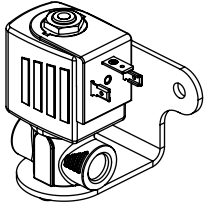
Cable plug Type 2509, form A according to DIN EN 175301 - 803

- Note:**
- Without circuitry (Standard)
 - For more information on the cable plug, see data sheet [Type 2509](#) ▶.

Cable plug	Dimensions	Version	Voltage	Article no.
		Without circuitry	0...250 V AC/DC	137943 

Mounting bracket**Note:**

- The scope of delivery includes the mounting bracket, two cylinder screws M4x8 and two spring rings.
- The mounting bracket can be used for all standard and high-pressure versions including ATEX / IECEx and DIN EN 161 options up to orifice of 12 mm.
- The mounting bracket can not be used for the oil burner and DN13 versions as well as various special housings made of solid material.

Description	Article no.
Mounting bracket for Type 6027/6240	282304
	

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