Explosion Proof 3/2 Directional Valve, Solenoid Operated, Spool Type, Direct Acting

SD2EX-B3

7/8-14 UNF • Q_{max} 60 l/min (16 GPM) • p_{max} 350 bar (5100 PSI)

Technical Features

- 3/2-screw-in cartridge directional control valve, spool type, with 7/8-14 UNF connection thread
- Maximum operating pressure 350 bar
- Certification of solenoid coil ATEX (Directive 2014/34/EU) and IECEx, valid for mines and environments with potentially explosive atmospheres consisting of gases or dust
- Coil protection by encapsulation "m" for gases and by flameproof enclosure "t" for dust
- Robust design resistant to mechanical damage
- Protection against static discharge by grounding the valve surface
- Valves applicable for temperature classes T4 (135 °C), T5 (100 °C) and T6 (85 °C) depending on maximum ambient temperature
- Optional coil supply voltage, valve connection and type of manual override
- The valve is zinc coated for 520 h corrosion protection in NSS acc. to ISO 9227 and as protection against ignition spark in the event of mechanical impact

Product Description

Screw-in cartridge directional control valve, spool type, direct-operated by solenoid. The valve is designed to control the direction of fluid flow or to dam it. For example, it can control a single-acting cylinder or alternately connect two independent branches of a circuit to a pressurized fluid source. The valve is certified for use in potentially explosive atmospheres of gases, vapors, dusts and combustible particles with a high protection level of EPL = b.

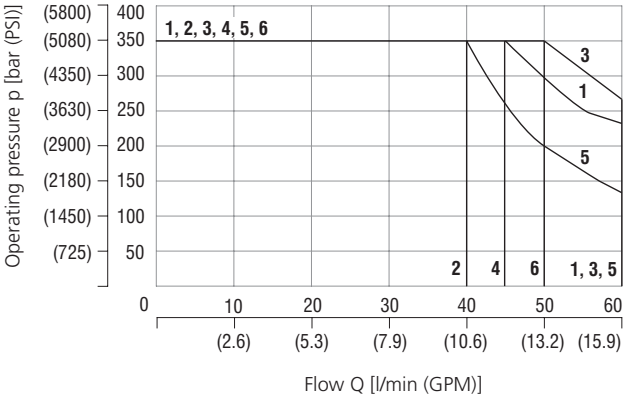
Use of the valve in potentially explosive atmospheres

	EPS14ATEX1744 X	IECEx EPS14.0064 X
AC	Ex I M2 Ex mb I Mb	Ex mb I Mb
	Ex II 2G Ex mb IIC T4, T5, T6 Gb	Ex mb IIC T4, T5, T6 Gb
	Ex II 2D Ex mb IIIC T135°C, T100°C, T85°C Db	Ex mb IIIC T135°C, T100°C, T85°C Db
DC	Ex I M2 Ex eb mb I Mb	Ex eb mb I Mb
	Ex II 2G Ex eb mb IIC T4, T5, T6 Gb	Ex eb mb IIC T4, T5, T6 Gb
	Ex II 2D Ex tb IIIC T135°C, T100°C, T85°C Db	Ex tb IIIC T135°C, T100°C, T85°C Db

Characteristics measured at ν = 32 mm²/s (156 SUS)

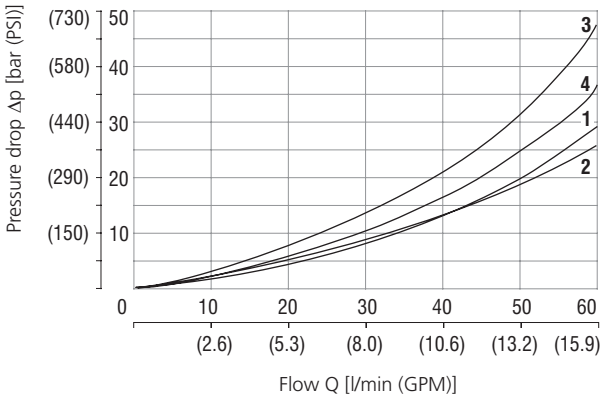
Operating limits

Ambient temperature 70 °C (158 °F), Voltage U_N -10 % (24 VDC), Power P_N 10 W



	Model	Direction		Model	Direction
1	2D21	3→2	4	2D25	2→1
2	2D21	2→1	5	2D26	3→2
3	2D25	3→2	6	2D26	2→1

Pressure drop related to flow rate



	Model	Direction		Model	Direction
1	2D21	2→1	1	2D26	3→2
2	2D21	3→2	1	2D26	2→1
3	2D25	3→2	4	2D25	2→1

For operating limits under conditions other than shown contact the technical support.

Technical Data

Valve size / Cartridge cavity		7/8-14 UNF-2A / B3 (C-10-3)	
Max. flow	l/min (GPM)	60 (15.9)	
Max. operating pressure	bar (PSI)	350 (5080)	
Fluid temperature range (NBR)	°C (°F)	-30 ... +70 (-22 ... +158)	
Max. switching frequency	1/h	15 000	
Weight with coil	kg (lbs)	1.61 (3.55)	
Technical Data - Explosion Proof Solenoid			
Voltage type		AC 50 / 60 Hz	DC
Available nominal voltages U_N	V	110, 230	12, 24, 48, 110
Available nominal input power	W	10	
Supply voltage fluctuations		U_N ± 10 %	
Duty cycle		S1(100 % ED)	
Enclosure type acc. to EN 60529		IP66 / IP68*	
*Test procedure IP68: Pressure 1 m under water, test duration 24 h. The indicated IP protection level is only achieved if the cable is properly mounted.			
Weight (coil only)	kg (lbs)	1.3 (2.87)	
Ambient temperature range	°C (°F)		
Temperature class / Nominal power T4-10 W		-30 ... +70 (-22 ... +158)	
Temperature class / Nominal power T5-10 W		-30 ... +55 (-22 ... +131)	
Temperature class / Nominal power T6-10 W		-30 ... +45 (-22 ... +113)	
	Datasheet	Type	
General information	GI_0060	Products and operating conditions	
Operating Instructions	14065		
Valve bodies In-line mounted	SB_0018	SB-B3*	
Valve bodies Sandwich mounted	SB-04(06)_0028	SB-*B3*	
Cavity details / Form tools	SMT_0019	SMT-B3*	
Spare parts	SP_8010		

Ordering Code

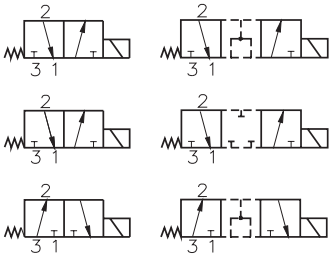
SD2EX - B3 / H [ ] / [ ] [ ] [ ] [ ] [ ] [ ] **- B** [ ]

Explosion proof 3/2 directional valve, solenoid operated, spool type, direct acting

Valve cavity
7/8-14 UNF (C-10-3)

Model
High performance

Model / Symbol



2D21	
2D25	
2D26	

Rated supply voltage of solenoids

DC voltage (I_N)
(connection box + cable gland)

12 V DC / 0.75 A	**01200**
24 V DC / 0.39 A	**02400**
48 V DC / 0.19 A	**04800**
110 V DC / 0.094 A	**11000**

AC voltage 50/60 Hz (I_N)
(fix installed cable)

110 V AC / 0.112 A	**11050**
230 V AC / 0.052 A	**23050**

Temperature class - solenoid nominal input power

A4	class T4 - 10 W
A6	class T6 (T5) - 10 W

Cable length

No designation	(only for DC)	without cable
3	(AC and DC version)	3 m
8	(AC and DC version)	8 m

Manual override

No designation	standard
N7	detent assembly
N9	without manual override

Seals

No designation	NBR

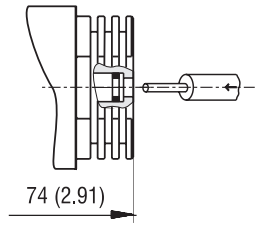
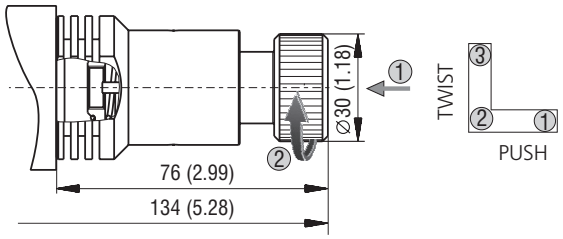
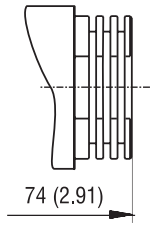
Surface treatment
zinc-coated (ZnNi), ISO 9227 (520 h)

Certifications of valve

No designation	ATEX, IECEx, CCC*
A	IECEx for Australia and New Zealand
E	EAC for EAEU** States

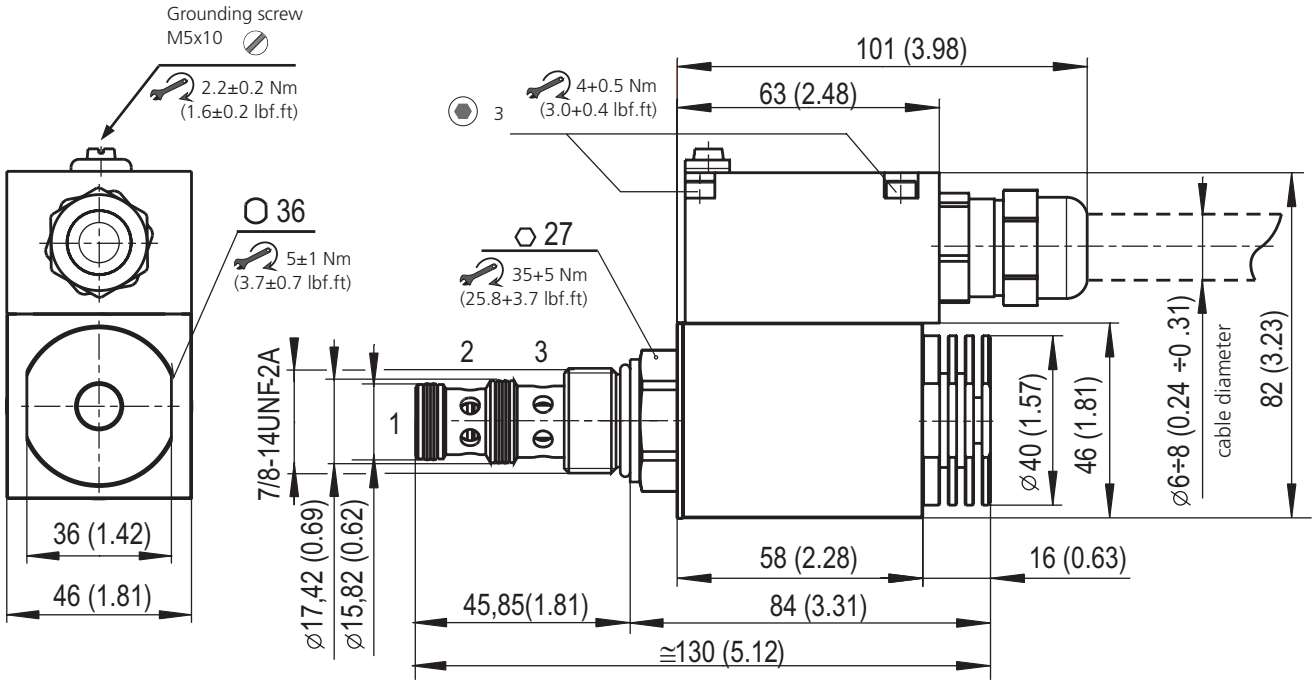
*CCC certification (China Compulsory Certification) for the People's Republic of China does not apply to the equipment group I intended for use in mines
**EAEU=Eurasian Economic Union, certificate according to TR TS 012/2011 valid for the Russian Federation, Belarus, Armenia, Kazakhstan and Kyrgyzstan.
- Besides the valve versions shown, which are the most frequently used, other special versions are available.
- Consult our technical department for their identification, feasibility and operating limits.

Manual Override in millimeters (inches)

No designation - standard	N7 - detent assembly	N9 - without manual override
		

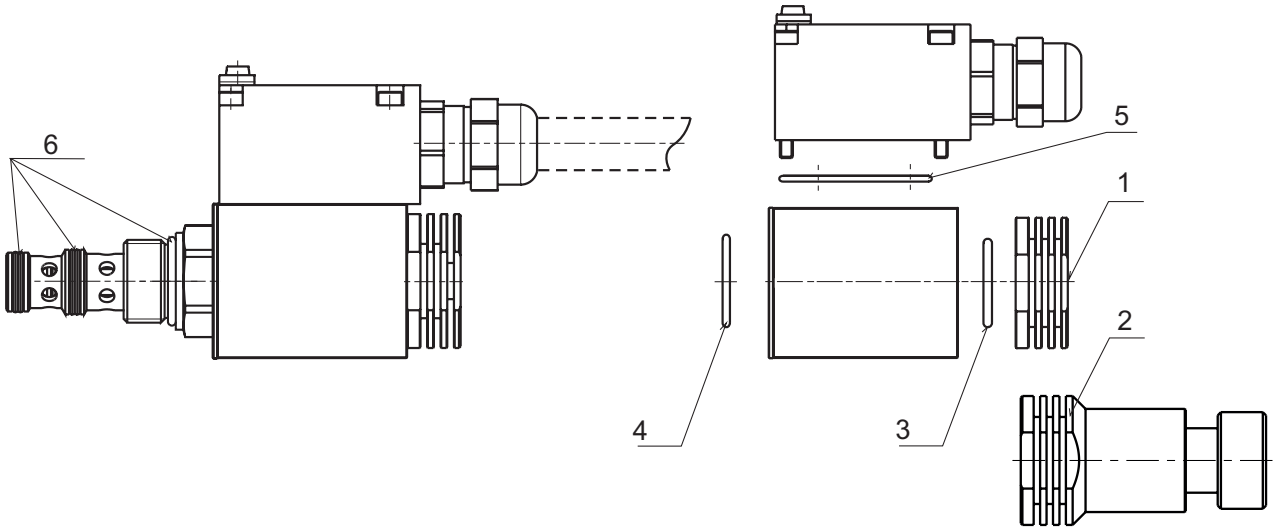
In case of solenoid malfunction or power failure, the valve spool can be shifted by manual override under the condition that the pressure in the back line does not exceed 25 bar (363 PSI).

Dimensions in millimeters (inches)



SPARE PARTS

Position		Component name	Description	Ordering number
1		Coil nut	Nut	
3	Set	Nut sealing	O-ring 21.89x2.62 VMQ 70 (silicone)	45904300
4		Sealing ring actuating system-coil	O-ring 22x1.5 VMQ 50 (silicone)	
2		Coil nut with manual override N7	Nut	
3	Set	Nut sealing	O-ring 21.89x2.62 VMQ 70 (silicone)	45904200
4		Sealing ring actuating system-coil	O-ring 22x1.5 VMQ 50 (silicone)	
5		Sealing ring of terminal box cover	O-ring 46x2 VMQ (silicone)	34950700
6	Set	Bush sealing	SP-SK-B3-N O-ring 19.4 x 2.1 NBR Dualseal 15.07 x 17.47 x 3.1 PU Dualseal 13.47 x 15.87 x 3.1 PU	18960700



Information for customers

› Before installing the product, please read the Product Instructions for Use, which is available in full on the manufacturer's website (www.argo-hytos.com) near the data sheet. Please also pay attention to the chapter describing the target user group, their professional qualifications and medical fitness to install, use and repair the product.

› The product may only be used in the zones indicated, otherwise there is a risk of initiating an explosion

Area of application

Equipment - group I – MINES	**Equipment - group II (IIG) - GAS**		**Equipment - group III (IID) - DUST**	
Category M1 – **NO**	Zone 0 - **NO**		Zone 20 - **NO**	
Category M2 (the device remains switched off)	Zone 1 Zone 2	IIA (propane)	Zone 21 Zone 22	IIIA (combustible particles)
		IIB (ethylene)		IIIB (non-conductive dust)
		IIC (hydrogen)		IIIC (conductive dust)

› For use in the temperature class, the maximum ambient temperature (see technical data table) must be observed for a given coil input (10 W), the maximum temperature of the working fluid 70 °C and the nominal voltage of the coil supply.

› The user must ensure free heat dissipation from the valve surface. The surface must not be covered, exposed to a heat source or direct sunlight. When mounting the valves in groups, observe the minimum distances specified in the Instructions for Use.

› A certified cable of temperature insulation class corresponding to the application temperature class must be used to the electrical connection of coil with DC supplying.

› The rectifier and terminal block of coils with AC supplying are protected with encapsulation. Therefore, these coils are only supplied with mounted cable. No modification to the connected cable are allowed except for shortening the cable to a suitable length and fitting a connector to the free end.

› The valve surface must be grounded using the screw on the terminal box cover of coil to prevent electrostatic discharge.

› It is forbidden to install, dismantle or repair the product in an explosive atmosphere. Repairs to the product shall be carried out by the manufacturer, except for repairs permitted by the user under the conditions specified in the Instructions for Use.

› Attention! The surface of the coil and the valve gets hot during operation. There is a risk of skin burns if touched.