Explosion Proof 2/2 Directional Valve, Solenoid Operated, Poppet Type, Piloted

SD3EX-C2*S5(S6)

1-1/16-12 UN • Q_{max} 150 l/min (40 GPM) • p_{max} 350 bar (5100 PSI)

Technical Features

- Valve and solenoid design prevents a surface temperature capable of igniting
- Solenoid coil in acc. with directive 2014/34/EU (ATEX) for explosion-hazard zones
- Explosion protection for gas, dust, and mining; solutions for all zones
- Solenoid with encapsulated enclosure
- Hardened precision parts
- High flow capacity, transmitted hydraulic power and leak-free closing
- All ports may be fully pressurised
- Wide range of manual overrides available
- Coils interchangeable within ARGO-HYTOS ATEX/IECEx product line
- In the standard version, the valve is zinc-coated for 520 h protection acc. to ISO 9227

Technical Data

Valve size / Cartridge cavity			1-1/16-12UN / C2 (VC12-2)
Max. flow		l/min (GPM)	150 (39.6)
Max. operating pressure		bar (PSI)	350 (5080)
Fluid temperature range		°C (°F)	-30 ... +70 (-22 ... +158)
Max. switching frequency		1/h	7 000
Weight with coil		kg (lbs)	1.70 (3.75)
Technical Data - Explosion proof solenoid			
Voltage type			AC 50 / 60 HZ / DC
Available voltages		V	110, 230 / 12, 24, 48, 110
Available nominal power		W	10
Supply voltage tolerance		%	AC, DC ± 10
Duty cycle			S1 (100 % ED)
Enclosure type acc. to EN 60529			IP66 / IP68
Weight (solenoid only)		kg (lbs)	1.3 (2.87)
Ambient temperature range			
Temperature class / Nominal power	T4 / 10 W	°C (°F)	-30 ... +70 (-22 ... +158)
	T5 / 10 W		-30 ... +55 (-22 ... +131)
	T6 / 10 W		-30 ... +45 (-22 ... +113)
		Datasheet	Type
General information		GI_0060	Products and operating conditions
Operating Instructions		4090	
Coil types			74 EX 18
Valve bodies	In-line mounted	SB_0018	SB-C2*
	Sandwich mounted	SB-04(06)_0028	on request
Cavity details / Form tools		SMT_0019	SMT-C2*
Spare parts		SP_8010	

ATEX/IECEx Classification

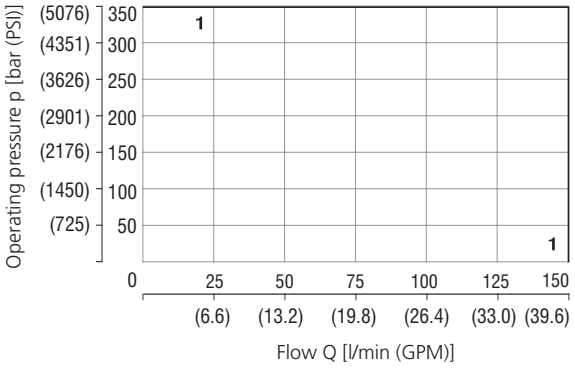
	EPS14ATEX1744 X
AC	Ex I M2 Ex mb I Mb
AC	Ex II 2G Ex mb IIC T4, T5, T6 Gb
AC	Ex II 2D Ex mb IIIC T135°C, T100°C, T85°C Db
DC	Ex I M2 Ex e mb I Mb
DC	Ex II 2G Ex e mb IIC T4, T5, T6 Gb
DC	Ex II 2D Ex tb IIIC T135°C, T100°C, T85°C Db
	IECEx EPS14.0064 X
AC	Ex mb I Mb
AC	Ex mb IIC T4, T5, T6 Gb
AC	Ex mb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

Function: 2-way, 2-position pilot operated poppet valve in form of a screw-in cartridge. The valve is used mainly for on-off bi-directional control of flow to actuators with leak-free closing in both directions.

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

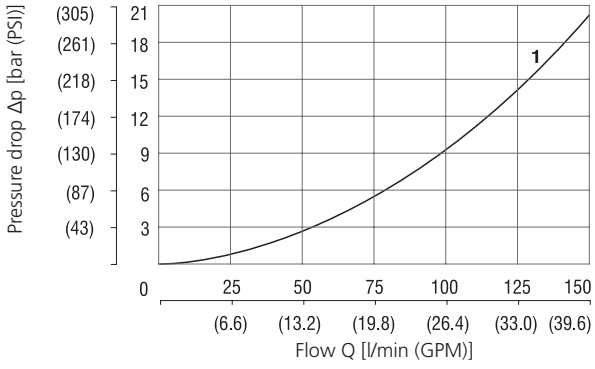
Operating limits

Ambient temperature 70 °C (158 °F), Voltage U_n -10 % (24 V DC), Power P_n 10 W



	Model	Connection
1	2S5	1→2, 2→1
1	2S6	1→2, 2→1

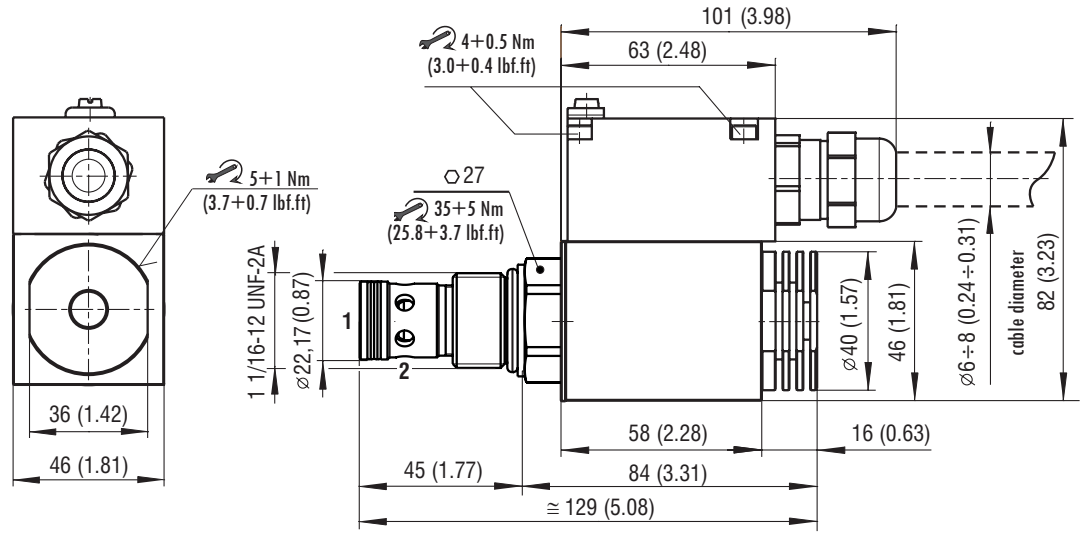
Pressure drop related to flow rate



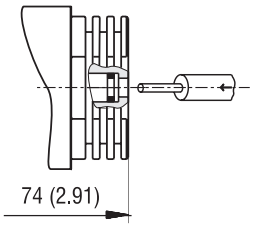
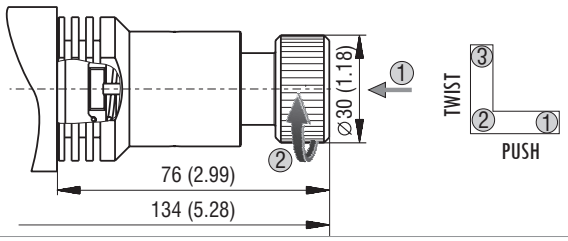
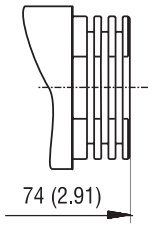
	Model	Connection	Solenoid
1	2S5	1→2, 2→1	on
1	2S6	1→2, 2→1	off

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

Dimensions in millimeters (inches)



Manual Override in millimeters (inches)

No designation - standard for 2S6 only	M7 - detent assembly for 2S6 only	M9 - without manual override
		

In case of solenoid malfunction or power failure, the spool of the valve can be shifted by manual override.
For alternative manual overrides contact our technical support.

Ordering Code

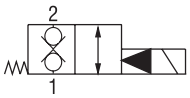
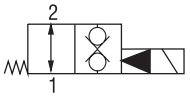
SD3EX - C2 / H ☐ / ☐ ☐ ☐ ☐ ☐ ☐ - B

Explosion proof 2/2 directional valve, solenoid operated, poppet type, piloted

Valve cavity
1-1/16-12UN / C2 (VC12-2)

Model
High performance

Model / Symbol

normally closed (NC), blocking		**2S5**
normally open (NO), blocking		**2S6**

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

Seals

No designation	NBR

Manual override

No designation	standard for 2S6 only
M7	detent assembly for 2S6 only
M9	without manual override

Cable length

No designation	(only for DC)	without cable
3	(AC and DC version)	3000 mm
8	(AC and DC version)	8000 mm

Temperature class - solenoid nominal power

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

DC voltage connection box + cable gland

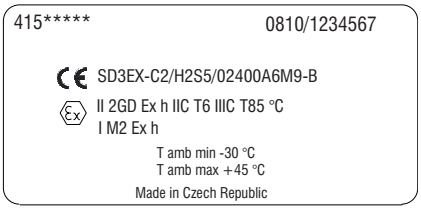
01200	12 V DC / 0.75 A
02400	24 V DC / 0.39 A
04800	48 V DC / 0.19 A
11000	110 V DC / 0.094 A

AC voltage 50/60 Hz, fix installed cable

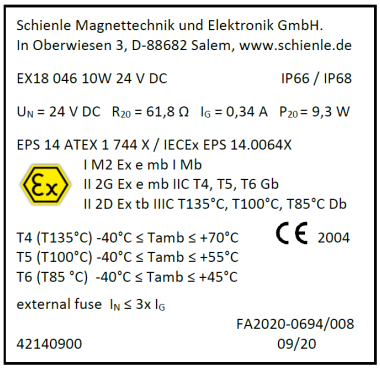
11050	110 V AC / 0.112 A
23050	230 V AC / 0.052 A

Besides the shown, commonly used valve versions other special models are available.
Contact our technical support for their identification, feasibility and operating limits.

Marking Example



Solenoid Marking



Group I (Mining)

Ex	ATEX mark of conformity to the 2014/34/EU directive and to the applicable technical norms
I	Group I for mines
M2	High protection - equipment category
Ex e mb	Type of protection: e - increased safety, mb - encapsulated
I	Gas group (methane)
Mb	Equipment protection level - high level protection for explosive atmosphere

Group II

Ex	ATEX mark of conformity to the 2014/34/EU directive and to the applicable technical norms
II 2G	Solenoid for surface plants with gas and vapors environment for zones 1 and 2
II 2D	Solenoid for surface plants with dust environment for zones 21 and 22
Ex e mb	Type of protection: e - increased safety, mb - encapsulated
Ex tb	Type of protection: tb - protection by enclosure
IIC	Equipment suitable for substances (gas) of all group
IIIC	Equipment suitable for all kinds of dust
T6/T4	Temperature class (maximum solenoid surface temperature)
T85/T135	Maximum solenoid surface temperature
Gb	Equipment protection level - high level protection for explosive gas atmosphere
Db	Equipment protection level - high level protection for explosive dust atmosphere

Initial installation

› The ambient temperature range shall not exceed the temperatures given in chapter 2. The maximum temperature of the medium (generally hydraulic fluid) shall not exceed 70 °C (158 °F).
› It is the user's duty to ensure free and unhindered heat emission during operation. This means that the solenoid shall neither be covered nor stored immediately adjacent to heat sources (e.g. fan heaters) during operation.
› The solenoid shall not be subjected to direct sunlight during operation.

Installation notice - installation, mounting, demounting

› Using the V DC type for temperature class T4 requires a cable with an operating temperature limit of at least +105 °C (221 °F), e.g. LAPP FD Robust. T5 and T6 require a cable with an operating temperature limit of at least +90 °C (194 °F). The fastening torque on the cable gland depends of the used cable and is to be determined by the installing user.
› When installing the V DC solenoid, the fastening torque of the screws shall be [4 Nm (2.95 lbf.ft)] and for the BARTEC connection box [0.4 Nm (0.30 lbf.ft)].
› When installing the V DC solenoid, an appropriate cable shoe of size M3 with a crosssectional area of 0.75mm^2 with an operating temperature limit of at least +105 °C (221 °F) is to be used.
› The user has to safeguard each solenoid with a fuse: $I_n \leq 3xI_G$, with trigger characteristic "slow blow". (I_G values see Operating Instructions HA 4090 - Table 2). The breaking capacity of the fuse link has to be stronger than the maximum short circuit current at the user's operating area.
› EX-secured components must be used during mounting in case the fuse and/or the interface are within the EX-range.

Safety notice - Please read carefully

› In case the solenoid shows any signs of a defect, malfunctioning or external damage (including corrosion), the device must immediately be taken out of operation.
› Any deposits on the surface of the device shall not obstruct heat emission.
› To maintain legibility of the data plate, the solenoid must not be coated.

Caution

› Always disconnect the solenoid from the power supply before any maintenance or other work on it.
› Always exchange the complete solenoid. Do not try to repair the solenoid.
› Under no circumstances shall any changes be made to the solenoid or the connecting cable.
› Never operate the solenoid when disconnected from the valve body.
› Demount the solenoid only in secure areas (not in EX-areas). If this is not possible, the solenoid must cool off for at least 10 minutes.