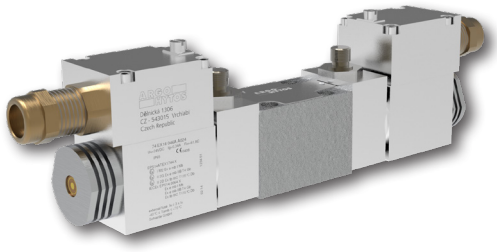
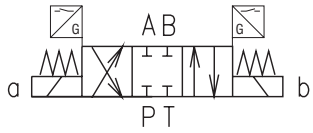
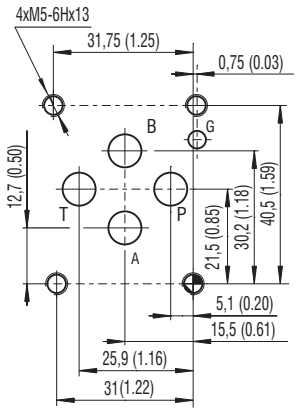
RPEX3-06*S6

Size 06 (D03) • Q_{max} 60 l/min (16 GPM) • p_{max} 350 bar (5100 PSI)





ISO 4401-03-02-0-05



Ports P, A, B, T - max. ∅7.5 mm (0.29 in)

Technical Features

- Hydraulic, spool-type directional control valve with cast iron body and connection pattern according to ISO 4401 and DIN 24340 (CETOP 03)
- Maximum operating pressure 350 bar (P, A, B ports) / 210 bar (T port)
- High transmitted power and low pressure drops
- 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 the coil input and maximum ambient temperature
- Inductive spool position contactless sensor
- Selectable coil supply voltage, valve gate connection and type of manual emergency control
- 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

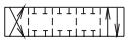
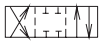
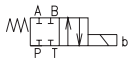
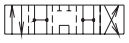
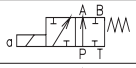
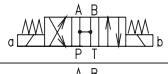
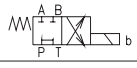
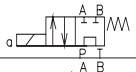
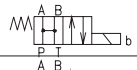
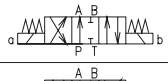
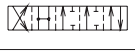
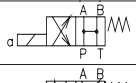
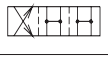
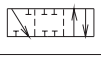
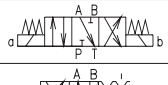
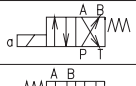
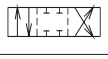
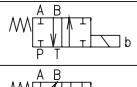
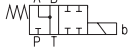
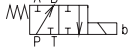
Product Description

Direct-acting, spool-type directional control valve operated by solenoid. The valve is designed to control the direction of movement of the appliance output component (direction of piston feed in the cylinder, direction of rotation of the hydraulic motor shaft) or its stop. The valve is certified for use in potentially explosive atmospheres of gases, vapors, dusts and flammable particles with high protection level 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
AC	Ex II 2G Ex mb IIC T4, T5, T6 Gb	Ex mb IIC T4, T5, T6 Gb
AC	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
DC	Ex II 2G Ex eb mb IIC T4, T5, T6 Gb	Ex eb mb IIC T4, T5, T6 Gb
DC	Ex II 2D Ex tb IIIC T135°C, T100°C, T85°C Db	Ex tb IIIC T135°C, T100°C, T85°C Db

Spool Symbols

Type	Symbol	Interposition	Type	Symbol	Interposition	Type	Symbol	Interposition
Z11			R30			Z11		
C11			A51			X30		
H11			Y51			C11		
Y11			C51			H11		
M21			H51			N11		
N41			X51			B71		
J15			Y13			V41		

Ordering Code

RPEX3-06 [ ] [ ] / [ ] [ ] [ ] [ ] [ ] **S6 - B** [ ]

Explosion proof, 4/2 and 4/3, directional control valve

Valve size

Number of spool positions
two positions **2**
three positions **3**

Spool symbols
see the table „Spool Symbols"

Rated supply voltage of solenoids
DC voltage (I_N of coil 10 W)
(Standard delivery without cable with grommet)
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 of coil 10 W)
(Standard delivery with non-removable 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
B4 Class T4 - 18 W***

Cable length
No designation (only for DC) without cable
3 (AC and DC version) 3 m Solenoid, 2 m Sensor
8 (AC and DC version) 8 m Solenoid, 10 m Sensor

Manual override
No designation standard
N7 detent assembly with the nut
N9 without manual override

Seals
No designation NBR

Spool position monitoring
350 bar (5080 PSI)

Surface treatment
520 h salt spray test (ISO 9227)

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

***Coil B4 (18 W) available only in combination with spool **J15**

*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.

- Mounting bolts M5 x 45 DIN 912-10.9 (ISO 4762) or studs must be ordered separately.
- 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.

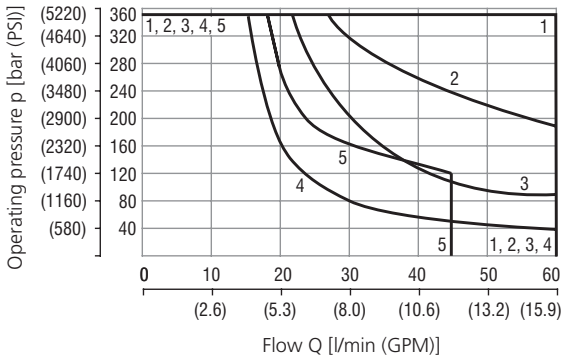
Technical Data

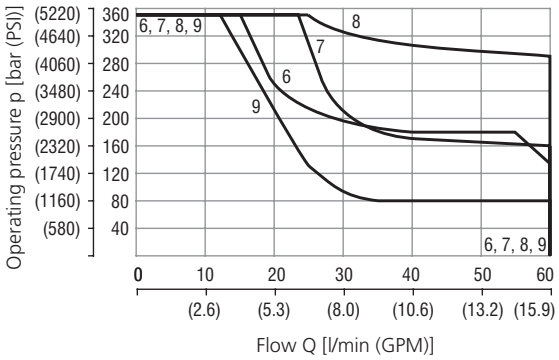
Valve size			06 (D03)	
Max. flow		l/min (GPM)	60 (15.9)	
Max. operating pressure at ports P, A, B		bar (PSI)	350 (5080)	
Max. operating pressure at ports T		bar (PSI)	210 (3050)	
Pressure drop		bar (PSI)	see Δp-Q characteristics	
Fluid temperature range (NBR)		°C (°F)	-30 ... +70 (-22 ... +158)	
Max. switching frequency		1/h	15 000	
Switching time ON at ν=32 mm²/s (156 SUS)		ms	AC: 30 ... 40	DC: 30 ... 50
Switching time OFF at ν=32 mm²/s (156 SUS)		ms	AC: 30 ... 70	DC: 10 ... 50
Weight	valve with 1 solenoid and 1 sensor	kg (lbs)	2.95 (6.50)	
	valve with 2 solenoids and 2 sensors		4.83 (10.65)	
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, 18	
Supply voltage fluctuations			U_N ± 10 %	
Duty cycle			100 % ED	
Enclosure type of the Solenoid 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.				
Ambient temperature range		°C (°F)		
Temperature class / Nominal power	T4-10 W / 18 W		-25 ... +70/60 (-13 ... +158/140)	
	T5-10 W		-25 ... +55 (-13 ... +131)	
	T6-10 W		-25 ... +45 (-13 ... +113)	
		Datasheet	Type	
General information		GI_0060	products and operating conditions	
Operating Instructions		14094		
Mounting surface		SMT_0019	Size 06	
Subplates		DP*_0002		
Spare parts		SP_8010		

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





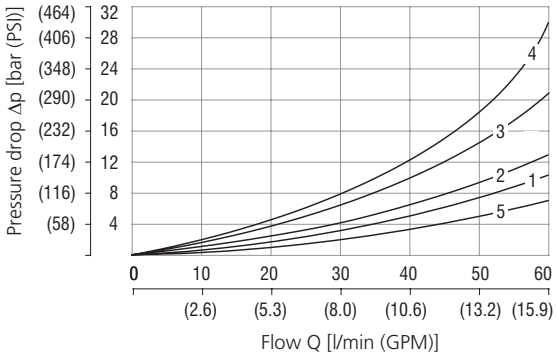
1	R30, X30, J15*
2	Z11
3	Y11, N11, V41
4	H11, B71
5	C11
6	2H11, 2H51
7	2C51
8	3M21
9	2A51

Operating limits of other than shown versions consult with our technical department. *Spool J15 available only with solenoid B4 (18 W).

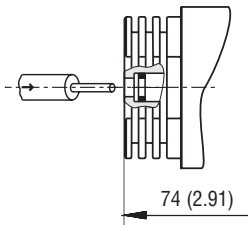
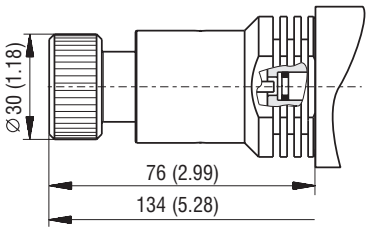
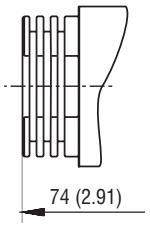
Pressure drop related to flow rate

	P→A	P→B	A→T	B→T	P→T		P→A	P→B	A→T	B→T	P→T
Z11, J15*	1	1	2	2		Y11	1	1	1	1	
C11	3	3	3	4	2	R30	1	1	2	2	
H11	1	1	1	2	2	X30	1	1	2	2	
B71	1			1		2C51	3			4	2
2A51	1	1				2H11	1	1	1	2	2
2H51		1	2			3M21	1	5	1	1	

*Spool J15 available only with solenoid B4 (18 W).



Manual Override in millimeters (inches)

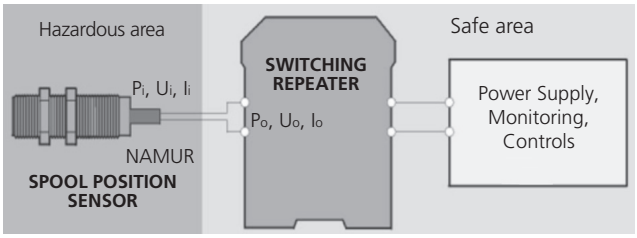
No designation - standard	N7 - detent assembly	N9 - without manual override
		

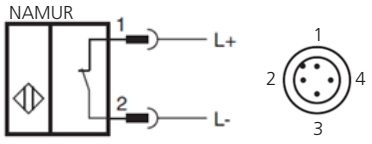
In case of solenoid malfunction or power failure, the valve spool can be shifted by manual override under the condition that the pressure in the back line does not exceed 25 bar (363 PSI).

Spool Position Sensor S6 (NC)

The position sensor **S6** manufactured by PEPPERL + FUCHS is a certified inductive sensor for use in explosive atmospheres with type of protection „ia" (the device is not capable of generating initiation sparks due to the low voltage). The sensor may only be powered by a power supply circuit with an intrinsically safe separating element, which separates the sensor in an explosive atmosphere from other electrical parts located in a safe area. The electrical parameters of the sensor depend on the separating element used, see the User's Manual_RPEX3-06*S6_14094 and the User's Manual for the NJ1,5-18GM-N-D-V1 sensor, document of the manufacturer PEPPERL + FUCHS.
The range of use of the sensor covers the range of use of the valve.

Technical Data of the Sensor		
Max. operating pressure	bar (PSI)	350 (5080)
Electrical power connector		M12x1; 4 PIN
Available nominal voltages U_N	V	8.2
Ambient temperature	°C	-25 ... +85
Electrical protection of sensor		IP66 / IP67
Switching frequency	Hz	0 ... 400



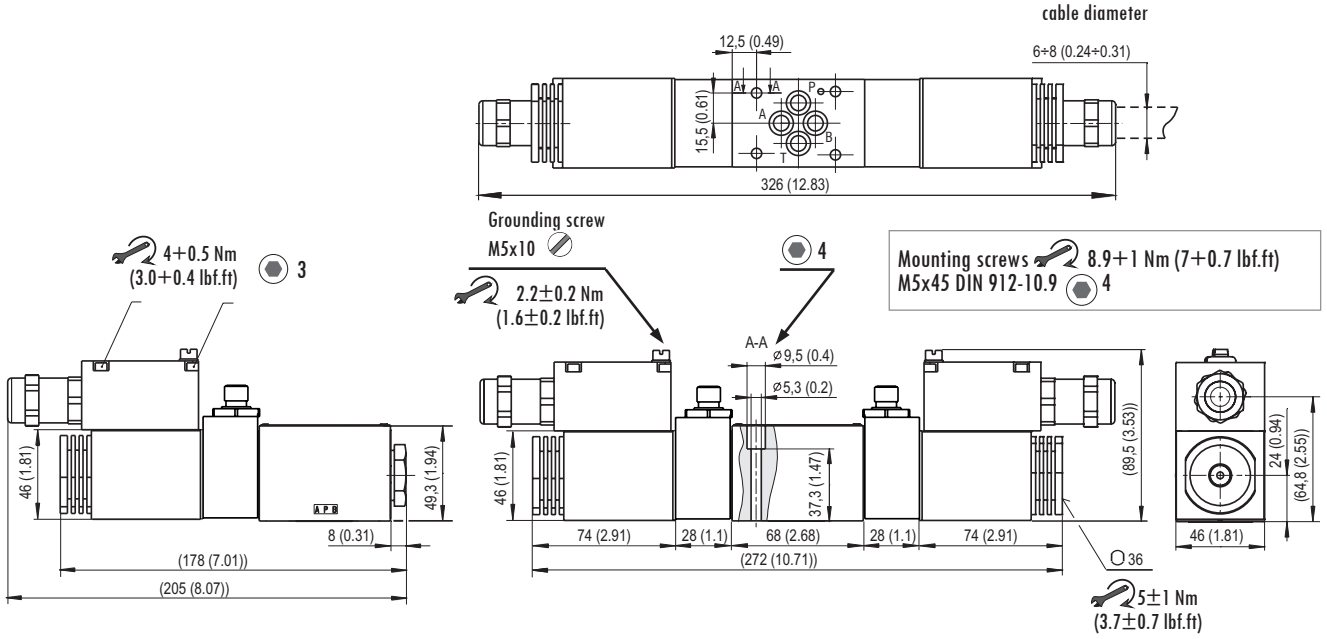


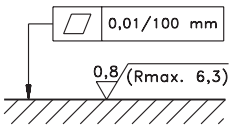
1 – brown
2 - blue

NOTE: In the basic position, the core is located under the coil of the NC sensor, which means that the sensor is in operation, the contacts are opened. After the coil is activated, the spool is moved away from the activated coil and the sensor switches on.

Solenoid coil		Spool position	Position sensor at the solenoid	
a	b		a	b
0	0	Basic position (middle)	0	0
1	0	End position right →	1	0
0	1	← End position left	0	1
1 = solenoid in operation			1 = contacts closed	

Dimensions in millimeters (inches)

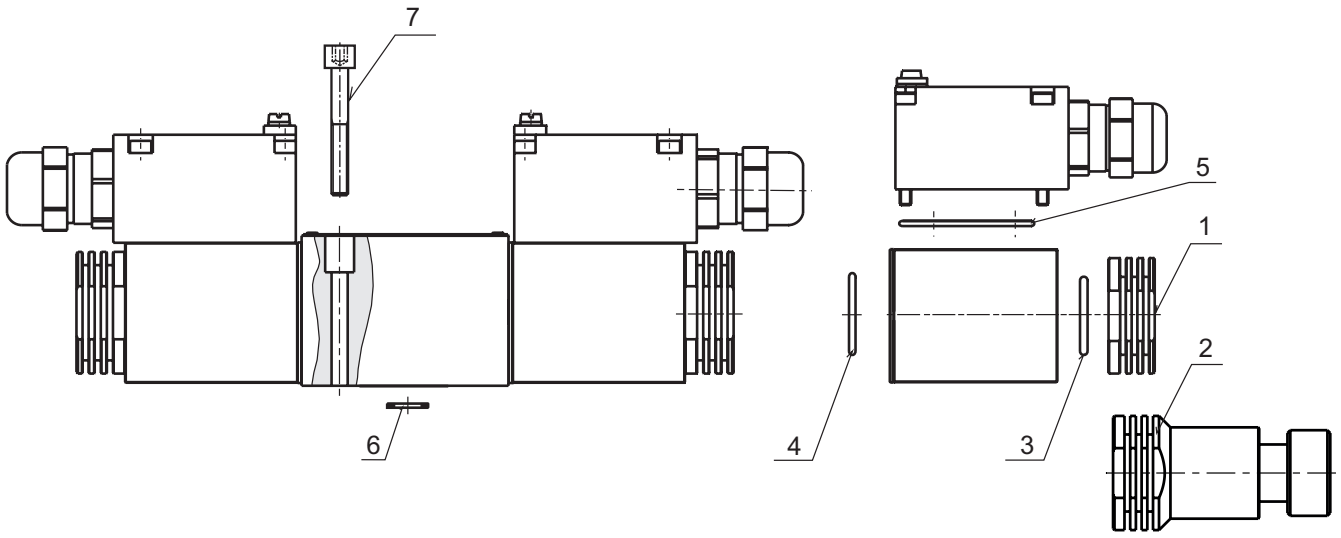




Required surface quality of the counterpart

SPARE PARTS

Position		Component name	Description	Ordering number
1	Set	Coil nut	Nut	45904300
3		Nut sealing	O-ring 21.89x2.62 VMQ 70 (silicone)	
4		Sealing ring actuating system-coil	O-ring 22x1.5 VMQ 50 (silicone)	
2	Set	Coil nut with manual override N7	Nut	45904200
3		Nut sealing	O-ring 21.89x2.62 VMQ 70 (silicone)	
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 of seals	4x Square ring 9.25x1.68 NBR	15845200
7		Valve mounting screws	4x M5x45 DIN 912 10.9	15845100



› 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 the coil input (10/18 W), the maximum working fluid temperature of 70 °C and the nominal coil supply voltage. The 18 W coil valve may only be used in temperature class T4 (135 °C).

› 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.