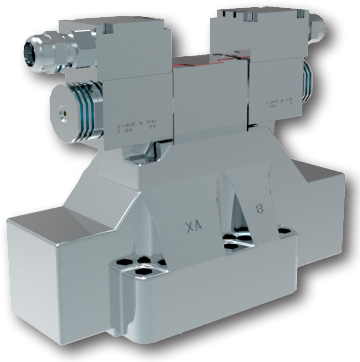
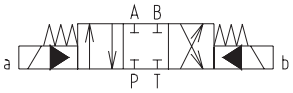
RNEXH4-25

Size 25 (D08) • Q_{max} 600 l/min (160 GPM) • p_{max} 320 bar (4600 PSI) / 420 bar (6100 PSI)





Technical Features

- Hydraulic, pilot-operated, spool-type directional control valve with cast iron body with connection pattern according to ISO 4401-08-08-0-05 (Size 25)
- Maximum operating pressure 320 bar / 420 bar (high pressure version)
- Internal or external power supply of the pilot valve RPEX3-06 controlled by solenoids
- Solenoid coil certification 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
- Optional spool type, optional coil supply voltage and manual override of the pilot valve
- Optional spool speed control to prevent pressure surges in the circuit and adjustable stops for flow restriction
- 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

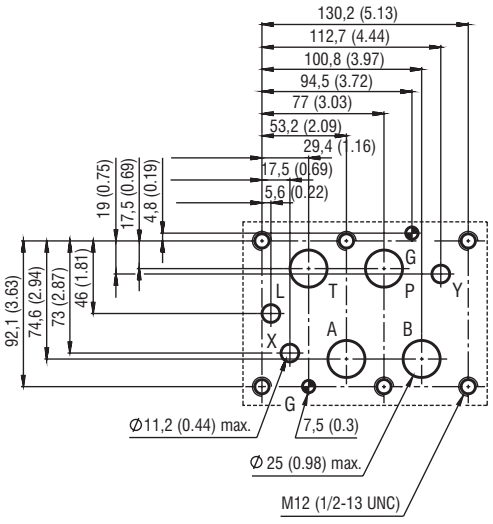
Product Description

Hydraulic, pilot operated, spool-type directional control valve with pilot valve RPEX3-06.
The main valve spool is hydraulically controlled by the a solenoid operated pilot valve.
The design of the valve allows the control of a large volumetric flow. The valve is designed to control the direction of movement of the appliance outlet component or to stop it.
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
	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

ISO 4401-08-08-0-05



Ports P, A, B, T max. ∅25 mm (0.98 in)

Technical Data

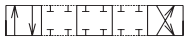
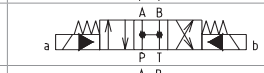
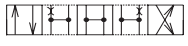
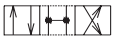
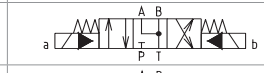
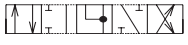
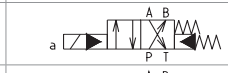
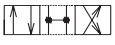
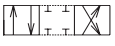
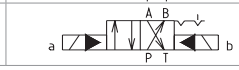
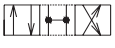
Valve type			RNEXH4-25	RNEXH4H-25
Valve size			10 (D05)	
Max. flow		l/min (GPM)	600 (160)	
Max. operating pressure at ports P, A, B		bar (PSI)	320 (4640)	420 (6090)
- at port T (external drain)		bar (PSI)	210 (3050)	350 (5080)
- at port T (internal drain)		bar (PSI)	210 (3050)	
Minimum pilot pressure		bar (PSI)	12 (174)	
Maximum pilot pressure		bar (PSI)	210 (3050)*	350 (5080)*
Fluid temperature range (NBR)		°C (°F)	-30 ... +70 (-22 ... +158)	
Ambient temperature range				
Temperature class / Nominal input power	T4-10 W/18 W	°C (°F)	-30 ... +70/60 (-22 ... +158/140)	
	T5-10 W	°C (°F)	-30 ... +55 (-22 ... +131)	
	T6-10 W	°C (°F)	-30 ... +45 (-22 ... +113)	
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 %	
Max. switching frequency		1/h	10 000	
Enclosure type acc.to EN 60529			IP66 / IP68***	
Switching time at ν=32 mm²/s (156 SUS)	ON	ms	AC: 45 ... 60**	DC: 55 ... 75**
	OFF	ms	AC: 60 ... 90**	DC: 60 ... 90**
Weight	RNEXH4-252	kg (lbs)	15,9 (35.1)	
	RNEXH4-253		17,4 (38.4)	
		Datasheet	Type	
General information		GI_0060	products and operating conditions	
Operating instructions		14059		
Mounting surface		SMT_0019	Size 25	
Spare parts		SP_8010		

*For higher system pressure use option „Z"

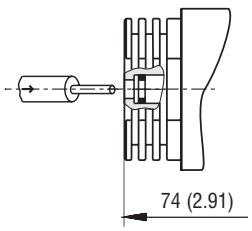
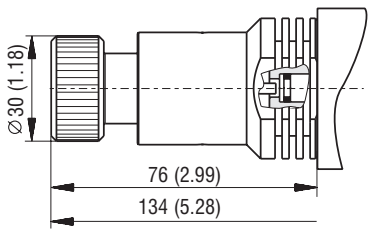
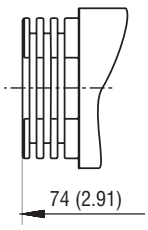
**The values indicated refer to a solenoid valve working with a pilot pressure of 100 bar (mineral oil, temperature = 50 °C, viscosity = 36 mm²/s, P - A and B - T connected).

***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.

Spool Symbols

Three positions with centering spring			Two positions with return spring		
Z11			R51		
H11			R52		
Y11			X51		
C11			X52		
			Two positions with mechanical detent on pilot valve		
			J17		
			J27		

Manual Override of the Pilot Valve RPEX3-06 measured in millimeters (in)

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).

Ordering Code

RNEXH □-25 □□/□□□/□/□□□□□-B□

Explosion proof 4/2 and 4/3 directional control valve, internally and externally pilot operated

Design series
standard 320 bar **4**
high pressure 420 bar **4H**
(not available for C11 spools)

Valve size
ISO 4401-08-08-0-05 (CETOP 08)

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

Spool symbols
see the table "Spool Symbols"

Control options
without additional features **No designation**
main spool stroke limiter **C**
main spool shifting speed control **D**
shifting speed control, with orifice (0.8 mm) in port P of solenoid pilot valve **PF**

Piloting
internal (from P-channel of the controlled valve) **No designation**
internal with installed pressure reducing valve, fixed 30 bar setting **Z**
external **E**

Drain
external **No designation**
internal **I**

Check valve incorporated in P-line
none **No designation**
with back pressure check valve **C3**

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

Surface treatment
520 h salt spray test (ISO 9227)

Seals
No designation NBR

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

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

Temperature class - solenoid nominal input power
A4 Class T4 - 10 W
A6 Class T6 (T5) - 10 W
B4 Class T4 - 18 W**

**Coil B4 (18 W) available only in combination with spools J17 and J27

Rated supply voltage of solenoids
DC voltage (I_N of coil 10 W)
(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 / 0.086 A
11000

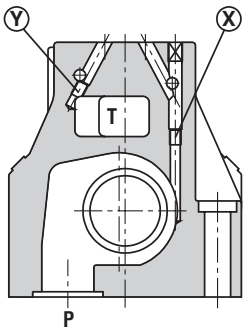
AC voltage 50/60 Hz (I_N of coil 10 W)
(fix installed cable)
11050 110 V AC / 0.084 A
23050 230 V AC / 0.046 A

*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.

Pilot and Drain RPEX3-06

The internal supply of the pilot valve is ensured by connection to the P channel of the main valve, the internal drain is ensured by connection to the T channel. In case of external supply (X channel) and drain (Y channel) of the pilot valve, the connection is closed by a glued threaded plug.

Type of valve		Plug assembly	
		X	Y
RNEXH4-25**/*	internal pilot and external drain	NO	YES
RNEXH4-25**/*I	internal pilot and internal drain	NO	NO
RNEXH4-25**/*E	external pilot and external drain	YES	YES
RNEXH4-25**/*EI	external pilot and internal drain	YES	NO



X: plug M6x8 for external pilot
Y: plug M6x8 for external drain

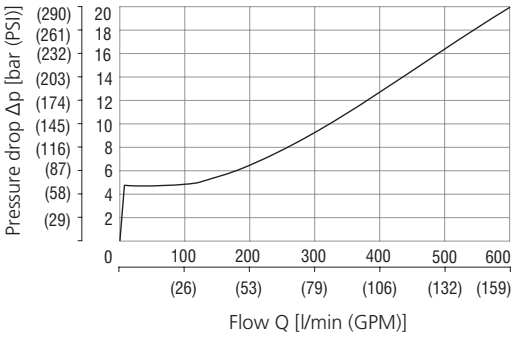
Actuation RNEXH4-25

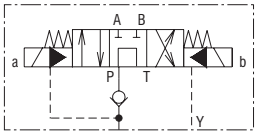
For detail information on the pilot valve RPEX3-06 refer to datasheet No. 4054.

The minimum control pressure to operate the spool of the main valve is 5 to 12 bar depending on the volume flow rate.
If the inlet pressure of the main valve is higher than 350 bar, an external supply to the pilot directional control valve must be used. Another option is to install a pressure reducing valve in the size 06 modular plate between the main and pilot valves (version „Z“). The reduced pressure is set to 30 bar.

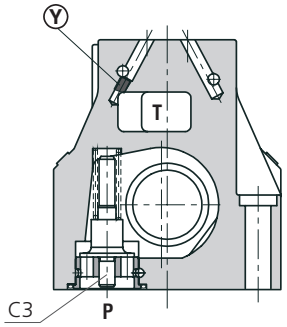
When using the main valve spool, which in some position connects the P-T channels (H11, C11, R52, X52, J27), the minimum pressure required for control by external power supply of the pilot valve must be ensured.

The second option is to build the valve into the inlet of the P channel of the main valve (C3 version), whose opening pressure is set to 5 bar at a volume flow rate of 15 l/min. The preloading check valve provides the minimum pressure for the control valve RPEX3-06.





pilot always internal
Y: plug M6x8 for external drain



Pressure drop of the preloading check valve (should be added to the pressure drop of the RNEXH4-25 valve)

Note:
Preloading check valve can be ordered separately - see spare parts catalogue HA 8010.

When the solenoids are switched off, the position of the spool with detent assembly (J17, J27) is not defined.

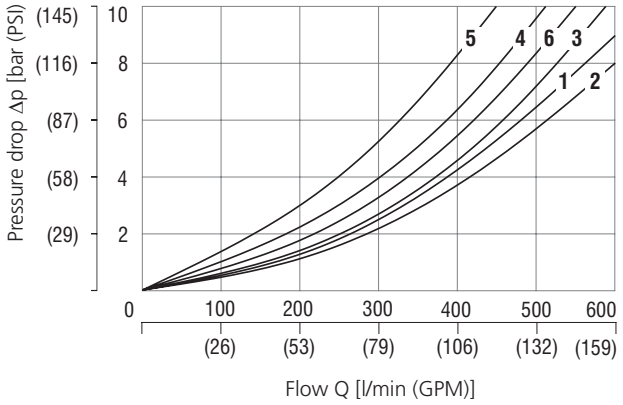
Characteristics measured at ν = 32 mm²/s (156 SUS)

Operating limits

Operating limits for maximum hydraulic power at rated temperature and supplied with voltage equal to 90% of the nominal value.

Maximum flow rates in l/min (GPM)	at pressure	
	210 bar (3050 PSI)	320 bar (4640 PSI)
Spool type C11	500 (133)	450 (119)
All other spools	600 (159)	500 (133)

Pressure drop related to flow rate

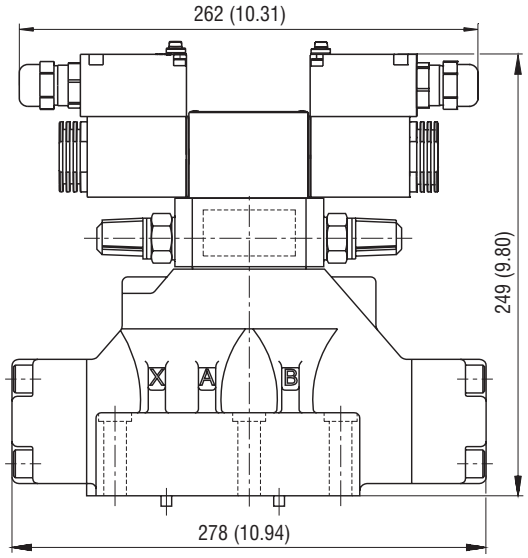


	Spool position	P-A	P-B	A-T	B-T	P-T
Z11, J17, J27	Energized	1	1	2	3	
H11	De-energized					6*
	Energized	5	5	1	2	
Y11	De-energized			4**	4***	
	Energized	1	1	1	2	
C11	De-energized					6
	Energized	6	6	3	4	
R51, R52, X51, X52	De-energized		1	2		
	Energized	1	1	2	3	
P11	De-energized	4**	4***			
	Energized	2	2	2	3	

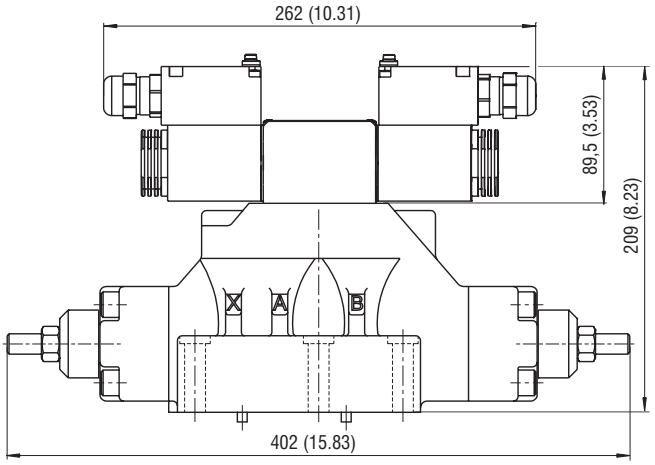
* A-B blocked ** B blocked *** A blocked

Control Options - Special Features

Control of the main spool shifting speed
By installing a double throttle valve in the size 06 modular plate between the main and pilot valve (version "D"), the spool speed of the main valve can be adjusted independently in both directions.
This can reduce pressure peaks in the circuit. With a nozzle of D = 0.8 mm in the inlet channel of the pilot valve (version "PF"), the speed of the adjustment is the same in both directions and is determined by the nozzle diameter.



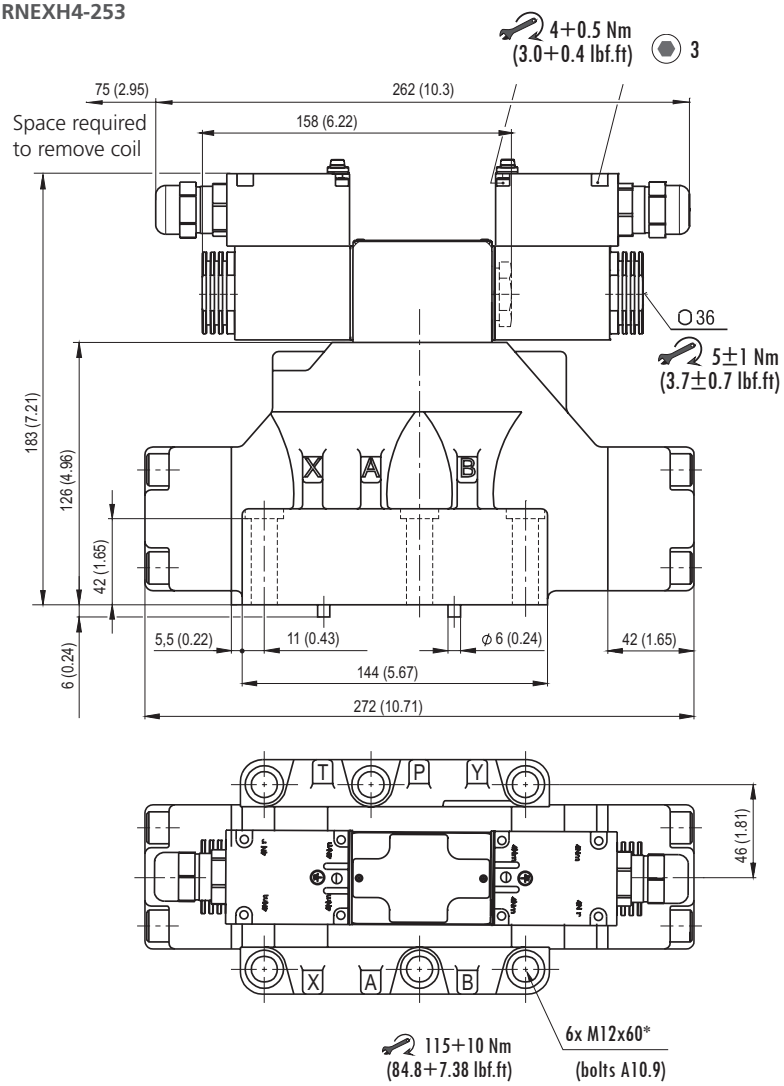
Volume flow limit setting
When using side flanges of the main valve with adjustable stops (version "C"), the end position of the valve spool can be adjusted and thus the maximum volume flow rate at a given pressure gradient independently in both directions.

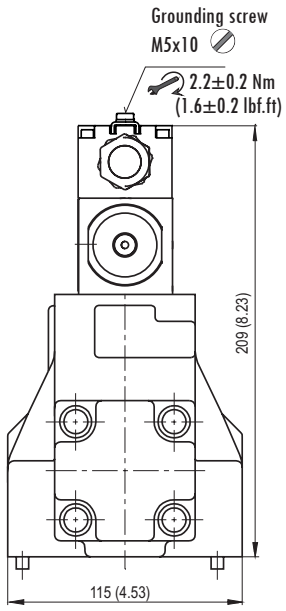


Using the H11 spool in the pilot valve
This configuration allows the main spool control channels to be relieved by connecting to the T-channel when the pilot valve spool is in the base position. An external power supply to the pilot valve must be used.

Dimensions in millimeters (in)

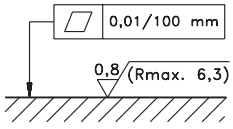
RNEXH4-253





Mounting hole threads: M12x20 (1/2-13 UNC)

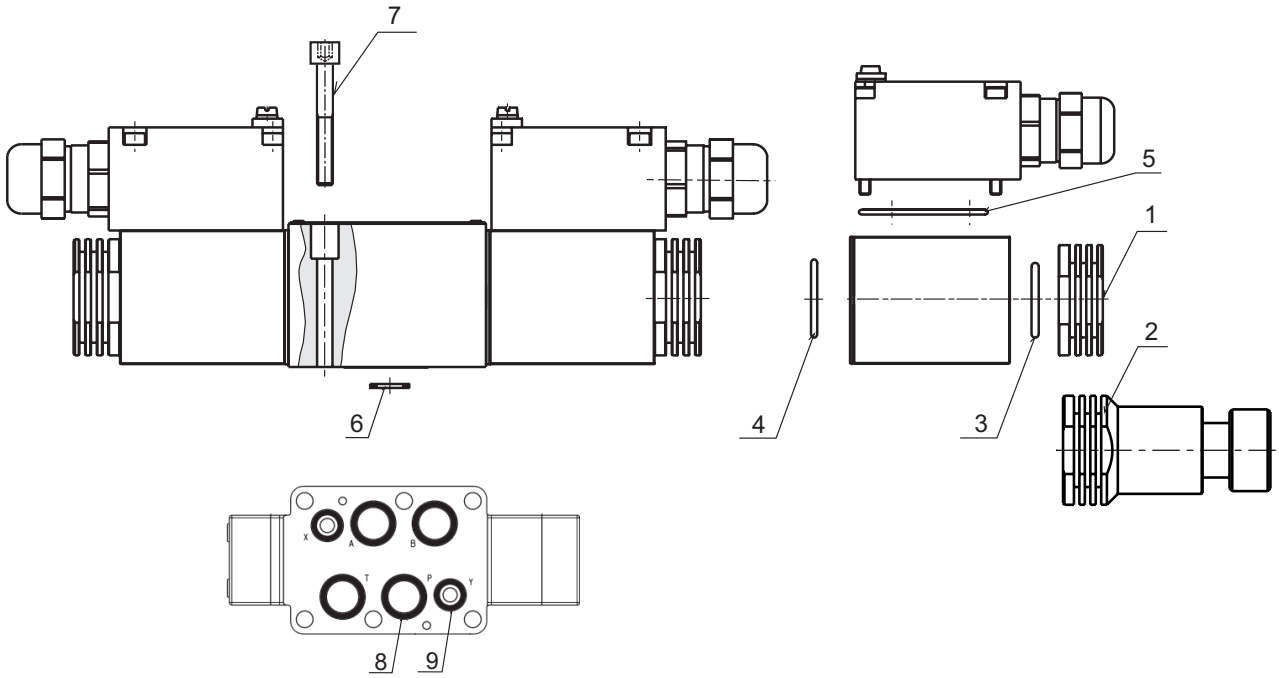
*bolts not supplied.



Required surface quality of the counterpart

SPARE PARTS

Position		Component name	Description	Ordering number
Spare parts for pilot valve RPEX3-06				
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	Set	Valve mounting screws	4x M5x45 DIN 912 10.9	15845100
Spare parts for main valve				
8	Set	Set of seals	4x O-ring 29.82x2.62 NBR	40076200
9		Set of seals	2x O-ring 20.29x2.62 NBR	
		Check valve C3 (in channel P)	DSP7-*/10-C	31950200



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 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.