

Explosion Proof Proportional Pressure Control Valve, Reducing - Relieving, Direct-Acting

PVRMX3-103

M24 x 1.5 • Q_{max} 40 l/min (11 GPM) • p_{max} 90 bar (1300 PSI)



Technical Features

- › Screw-in cartridge proportional pressure reducing valve with connection thread M24x1.5
- › Maximum inlet pressure (P) 90 bar, maximum reduced pressure (A) 80 bar
- › 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 to temperature class T4 (135 °C) depending on maximum ambient temperature
- › Optional coil supply voltage (12 / 24 V DC)
- › 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

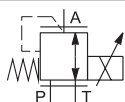
Product Description

Screw-in cartridge proportional pressure reducing valve, direct-operated by solenoid. When flowing towards the appliance (channel A), the valve reduces the value of the input pressure from the source-pump (channel P) to the set value of the output pressure and keeps it constant. The value of the reduced pressure is proportional to the electrical control signal. When the appliance is overloaded, e.g. by excessive external load, the valve closes the pressure input from the pump and relieves the appliance branch by connecting it to the tank (T-channel). The valve is certified for use in potentially explosive atmospheres of gases, vapors, dusts and flammable particles with a high protection level EPL = b. A suitable electronic control unit (not included) should be used to control the valve, which must meet the required protection level or be located outside the explosive atmosphere.

Use of the valve in potentially explosive atmospheres

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

Symbol



Ordering Code

PVRMX3 - 103 / S - - B4 - B

Explosion proof
Proportional pressure
control valve,
reducing - relieving, direct-acting

Valve cavity
M24 x 1.5 / QJ3

Model
screw-in cartridge

Max. reduced pressure
30 bar (440 PSI)
80 bar (1160 PSI)

Supply voltage / limit current (I_c)
12 V DC / 1.37 A
24 V DC / 0.65 A

Certifications of valve
ATEX, IECEx, CCC*
A IECEx for Australia and New Zealand
E EAC for EAEU** States

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

Seals
NBR

Cable length
without cable
3 m
8 m

Temperature class - solenoid nominal input power
Class T4 - 18 W

*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.

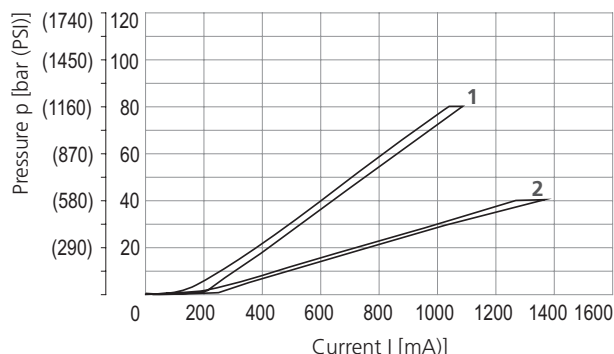
Technical Data

Valve size / Cartridge cavity		M24 x 1,5 / QJ3	
Max. operating pressure (port P)	bar (PSI)	50 (730)	90 (1300)
Max. reduced pressure (port A)	bar (PSI)	30 (440)	80 (1160)
Max. flow rate P-A	l/min (GPM)	40 (11)	
Fluid temperature range (NBR)	°C (°F)	-30 ... +70 (-22 ... +158)	
Ambient temperature range	°C (°F)	-30 ... +60 (-22 ... +140)	
Response time at 100 % signal	ms	< 50	
Technical Data - Explosion Proof Solenoid			
Available nominal voltages U _N	V	12 DC	24 DC
Available nominal input power	W	18	
Supply voltage fluctuations		U _N ± 10 %	
Limit current	A	1.37	0.65
Rated resistance at 20 °C (68 °F)	Ω	7.7	32.3
Duty cycle		S1 (100 % ED)	
Optimal PWM frequency	Hz	150	
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.			
Ambient temperature range T4/18 W Temperature class / Nominal power	°C (°F)	-30 ... +60 (-22 ... +140)	
Weight with coil	kg (lbs)	1.5 (3.31)	
	Datasheet	Type	
General information	GI_0060	Products and operating conditions	
Operating Instructions	15184		
Cavity details / Form tools	SMT_0019	SMT-QJ3*	
Spare parts	SP_8010		

Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

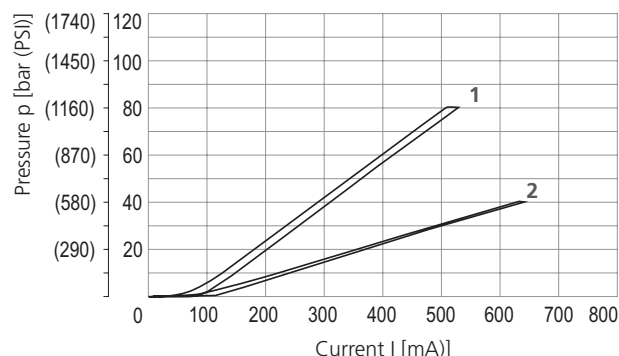
Reduced pressure in port A related to a control signal with zero flow through the valve ($Q = 0 \text{ l/min}$)

$U_c = 12 \text{ V}$, PWM = 150 Hz



	Pressure level	Input pressure (P port)
1	80 bar (1160 PSI)	90 bar (1300 PSI)
2	30 bar (440 PSI)	50 bar (730 PSI)

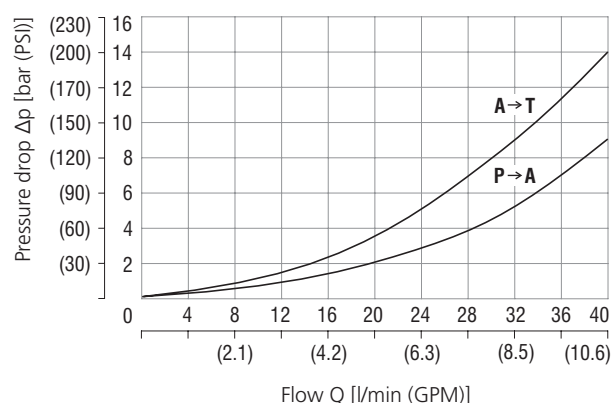
$U_c = 24 \text{ V}$, PWM = 150 Hz



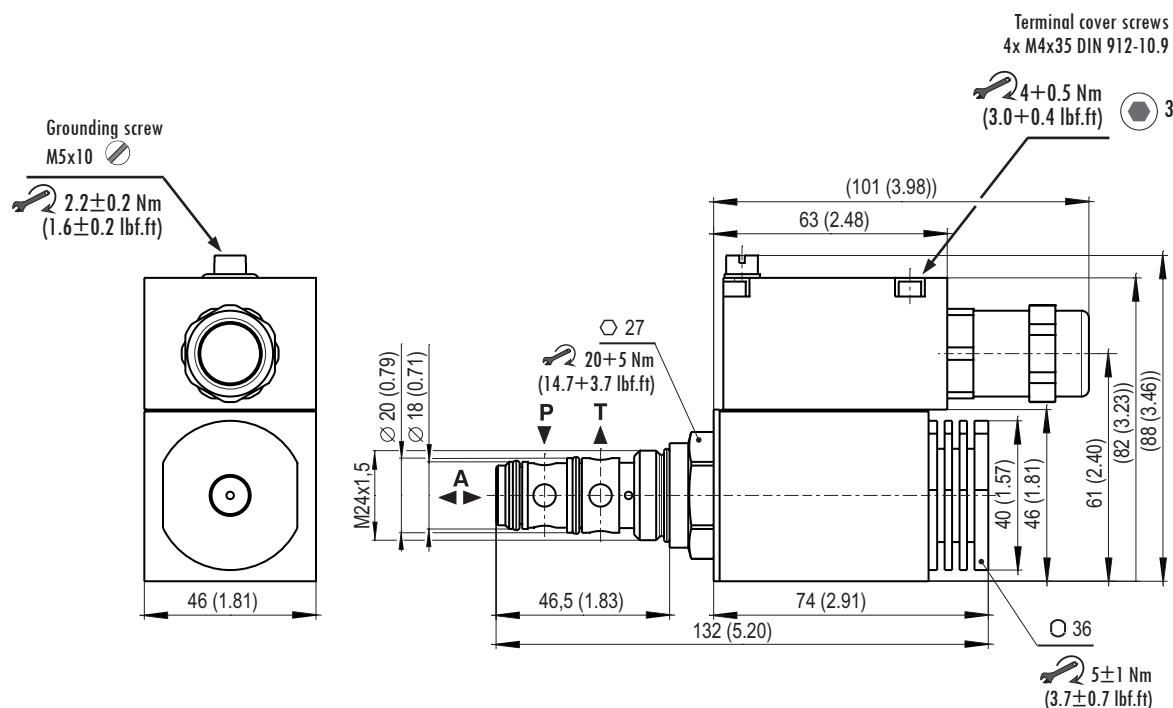
Pressure drop related to flow rate

A-T, Valve coil de-energized (relieving function)

P-A, Valve coil energized (reducing function)

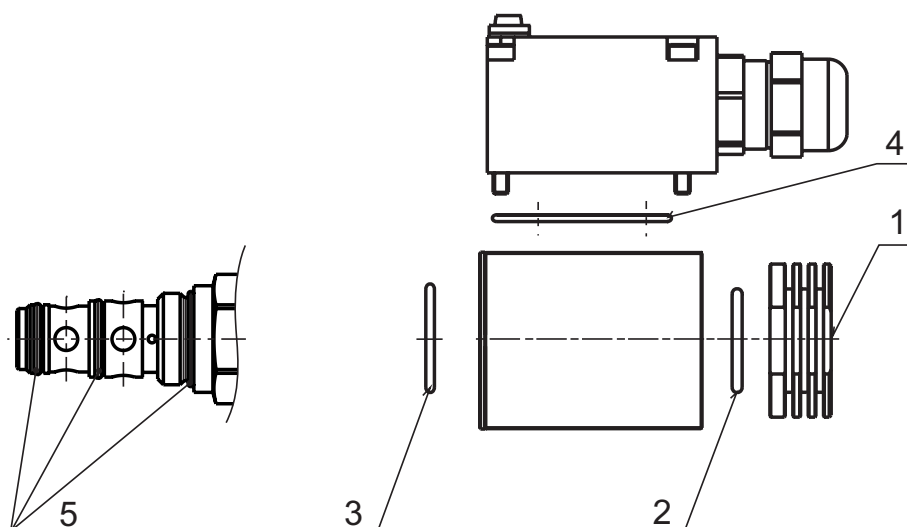


Dimensions in millimeters (inches)



SPARE PARTS

Position	Component name	Description	Ordering number
1	Coil nut	Nut	45904300
2	Nut sealing	O-ring 21.89x2.62 VMQ 70 (silicone)	
3	Sealing ring actuating system-coil	O-ring 22x1.5 VMQ 50 (silicone)	
4	Sealing ring of terminal box cover	O-ring 46x2 VMQ (silicone)	34950700
5	Set of seals	O-ring 20.3x2.4 NBR	44461000
		O-ring 17x1.8 NBR	
		O-ring 15x1.8 NBR	



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	IIA (propane)	Zone 21 Zone 22	IIIA (combustible particles)
	Zone 2	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 (18 W), the maximum temperature of the working fluid 70 °C and the nominal voltage of the coil supply. 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 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.