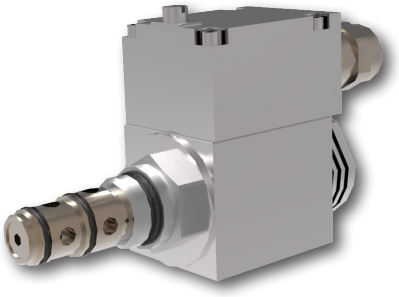
Explosion Proof Proportional Pressure Control Valve, Reducing - Relieving, Direct-Acting

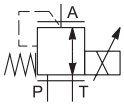
PVRMX3-103

M24x1.5 • Q_{max} 40 l/min (11 GPM) • p_{max} 90 bar (1300 PSI)



Technical Features

- Valve and solenoid design prevents a surface temperature capable of igniting
- Solenoid coil in acc. with directive ATEX 2014/34/EC for explosion-hazard zones
- Explosion protection for gas and dust
- Encapsulation enclosure solenoid version
- Excellent stability throughout flow range with rapid response to proportional current input change
- Low hysteresis, accurate pressure control and low pressure drop through CFD optimized flow paths
- Precise pressure control vs current and excellent repeatability
- Integrated relief function for protection against pressure peaks
- 12 or 24 V DC coils
- Coil interchangeability with all Argo-Hytos ATEX/IECEx product line
- In the standard version, the valve is zinc coated for 520 h protection acc. to ISO 9227

Symbol


ATEX/IECEx Classification

Certificate EPS14ATEX1744 X
Ⓔx I M2 Ex e mb I Mb
Ⓔx II 2G Ex e mb IIB T4 Gb
Ⓔx II 2D Ex tb IIIC T135°C Db

Certificate IECEx EPS14.0064 X
Ex e mb I Mb
Ex e mb IIB T4 Gb
Ex tb IIIC T135°C Db

Technical Data

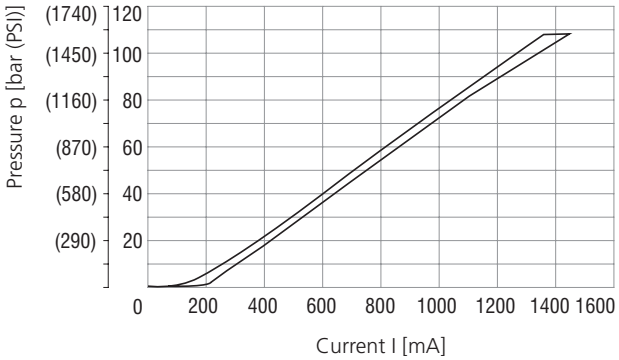
Valve size / Cartridge cavity		M24x1.5 / QJ3			
Max. operating pressure (port P)	bar (PSI)	50 (730)			90 (1305)
Max. reduced pressure (port A)	bar (PSI)	18 (260)	20 (290)	30 (435)	80 (1160)
Max. flow rate P-A	l/min (GPM)	40 (11)			
Fluid temperature range	°C (°F)	-30 ... +60 (-22 ... +140)			
Ambient temperature range	°C (°F)	-30 ... +60 (-22 ... +140)			
Response time at 100 % signal	ms	< 50			
Technical Data - Explosion proof solenoid					
Available voltages	V	12 DC		24 DC	
Available nominal power	W	18			
Suppply voltage tolerance	%	±10			
Max. current	A	1.56		0.74	
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**		IP65			
Ambient temperature range T4/18 W Temperature class / Nominal power	°C (°F)	-30 ... +60 (-22 ... +140)			
Mass with coil	kg (lbs)	1.5 (3.31)			

	Data Sheet	Type
General information	GI_0060	Products and operating conditions
Cavity details / Form tools	SMT_0019	SMT-QJ3*
Spare parts	SP_8010	

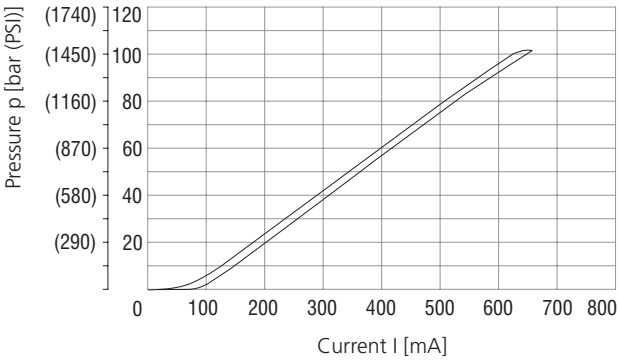
Characteristics measured at ν = 32 mm²/s (156 SUS)

Reduced pressure related to control signal

Uc = 12 V, f = 150 Hz
Port A, range 0 - 80 bar (1160 PSI), Q = 0 lpm (GPM),
Port P, inlet pressure 90 bar (1305 PSI)



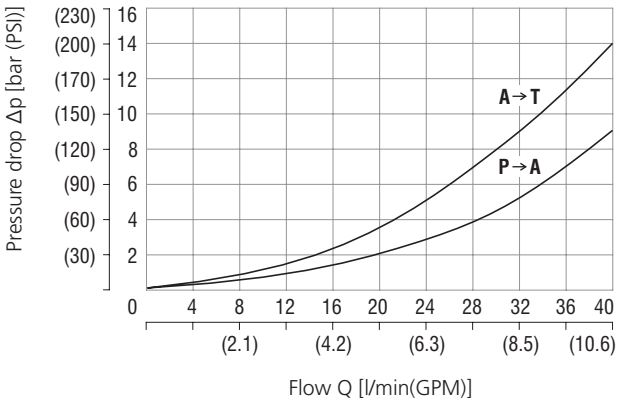
Uc = 24 V, f = 150 Hz
Port A, range 0 - 80 bar (1160 PSI), Q = 0 lpm (GPM),
Port P, inlet pressure 90 bar (1305 PSI)



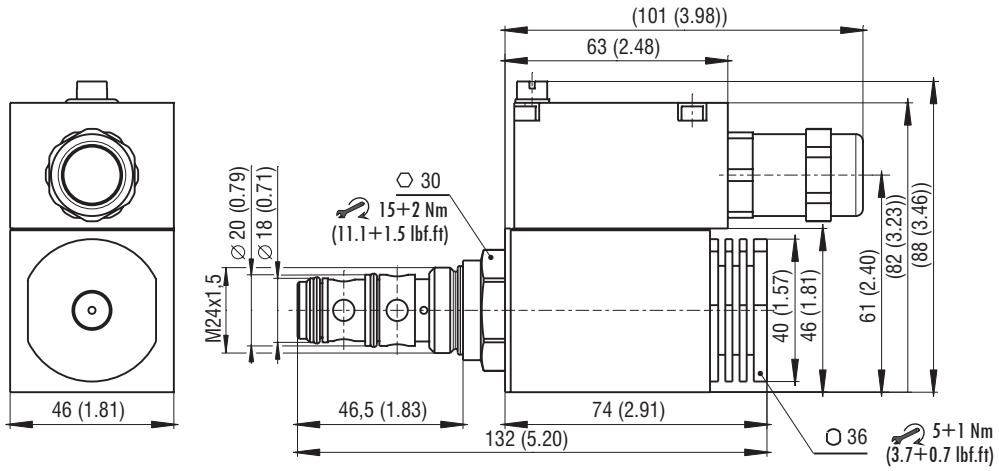
Characteristics measured at ν = 32 mm²/s (156 SUS)

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)



Ordering Code

PVRMX3 - 103 / S - □ - □ □ □ □ - □

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

Valve cavity
M24x1.5 / QJ3

Model
screw-in cartridge

Max. reduced pressure

18 bar (260 PSI)	**18**
20 bar (290 PSI)	**20**
30 bar (435 PSI)	**30**
80 bar (1160 PSI)	**80**

Supply voltage / max. current

12 V DC / 1.56 A	**12**
24 V DC / 0.74 A	**24**

Temperature class - solenoid nominal power

B4	Class T4 - 18 W

Cable length

No designation	without cable
3	3000 mm
8	8000 mm

Seals

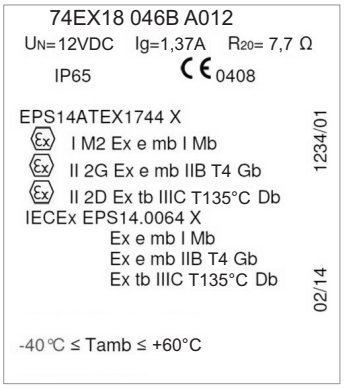
No designation	NBR

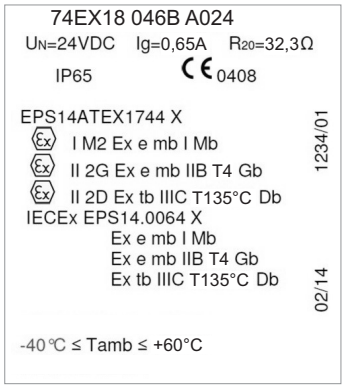
Surface treatment

B	zinc-coated (ZnNi), ISO 9227 (520 h)

Marking Example

Solenoid Marking





Group I (Mining)

Ex	ATEX mark of conformity to the 2014/34/EC 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/EC 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
IIB	Equipment suitable for substances (gas) of group IIB
IIIC	Equipment suitable for conductive dust
T4	Temperature class (maximum solenoid surface temperature)
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 60 °C (140 °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. 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 0.75 mm^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.