Explosion Proof Proportional Directional Control Valve, Pilot Operated

PRMX8-06
Size 06 (D03) • Q_{max} 140 l/min (37 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 ATEX 2014/34/EU for explosion-hazard zones
› Explosion protection for gas and dust
› Encapsulation enclosure solenoid version
› Pilot operated proportional control valve with exceptional hydraulic power limits
› The valve opening and resulting flow rate can be modulated continuously
   in proportion to the reference signal
› Five chamber housing design with reduced hydraulic power dependence on fluid
   viscosity
› 12 or 24 V DC coils, the coil can be rotated by 90°
› In the standard version, the valve housing is zinc-coated for 520 h protection
   acc. to ISO 9227

ATEX/IECEx Classification

<table>
<thead>
<tr>
<th>EPS14ATEX1744 X</th>
<th>IECEx EPS14.0064 X</th>
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<tr>
<td>DC</td>
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<td>Ex M2 Ex e mb I Mb</td>
<td>Ex e mb I Mb</td>
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<tr>
<td>Ex 2G Ex e mb IIC T4 Gb</td>
<td>Ex e mb IIC T4 Gb</td>
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<tr>
<td>Ex 2D Ex tb IIIIC T135°C Db</td>
<td>Ex tb IIIIC T135°C Db</td>
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Technical Data

| Valve size | 06 (D03) |
| Max. operating pressure at ports P, A, B bar (PSI) | 350 (5080) |
| Max. flow at pressure 320 bar (4640 PSI) l/min (GPM) | 140 (37) |
| Maximum operating pressure at port T bar (PSI) | 210 (3050) |
| Fluid temperature range (NBR) °C (°F) | -30 ... +60 (-22 ... +140) |
| Ambient temperature max. °C (°F) | -30 ... +60 (-22 ... +140) |
| Nominal flow rate Q at Δp=10 bar (145 PSI) l/min (GPM) | 25 (6.6) |
| Hysteresis | < 6 |
| Weight valve with 1 solenoid kg (lbs) | 2.52 (5.56) |
| valve with 2 solenoids | 3.97 (8.75) |

Technical Data - Explosion proof solenoid

| Available voltages | V DC | 12 | 24 |
| Available nominal power | W | 18 |
| Supply voltage tolerance | ±10 |
| Max. current A | 1.56 |
| Rated resistance at 20 °C (68 °F) Ω | 2.3 |
| Data Sheet | Type |
| General information | GL_0060 | Products and operating conditions |
| Mounting surface | SMT_0019 | Size 06 |
| Spare parts | SP_8010 |
**Ordering Code**

PRMX8-06 / 25 - B4 / 1 B

**Explosion proof**
Proportional directional control valve, pilot operated

**Valve size**

**Spool symbols**

- **Nominal flow rate at ∆p = 10 bar (145 PSI)**
  25 l/min (6.6 GPM)

**Supply voltage / max. current**

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

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

**Clamping length for mounting screw**
22 mm (0.86 in)

**Seals**
NBR

**Manual override**
standard detent assembly

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

**Flow characteristic:**

**Δp = 10 bar (145 PSI)**
Flow direction P → A / B → T or P → B / A → T

**Flow Q [l/min (GPM)]**

![Flow characteristic graph]

- For proportional valves with two solenoids, one solenoid must be de-energized before the other solenoid can be charged.
- Mounting bolts M5 x 30 ISO 4762 or studs must be ordered separately. Tightening torque is 8.9 Nm (6.56 lbf.ft).
- Besides the shown widely used valve versions other special models are available. Contact our technical support for their identification, feasibility and operating limits.

**Characteristics** measured at v = 32 mm/s (156 SUS)

**Flow characteristic:**

**∆p = 10 bar (145 PSI)**
Flow direction P → A / B → T or P → B / A → T

**Flow Q [l/min (GPM)]**

![Flow characteristic graph]

**Operating limits:**

- **Exciting current Ic [mA]**
- **Input pressure p_in [bar (PSI)]**

Subject to change · PRMX8-06_5185_2en_01/2020

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Marking Example

Marking of Solenoid

Group I (Mining)

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

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
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

Manual Override in millimeters (inches)

No designation  - standard

74 (2.91)  145 (5.71)

0408IP 66/68
EPS14ATEX1744 X
I  M2 Ex e mb I Mb
II 2G Ex e mb IIIC T135 °C Db
IECEEx EPS14.0064 X
Ex e mb I Mb
Ex e mb IIIC T135 °C Db
-40 °C ≤ Tamb ≤ +60 °C

74 EX 18 046B A024
U=24V DC  Ig=0,65A  R=32,3Ω
IP 66/68
EPS14ATEX1744 X
I  M2 Ex e mb I Mb
II 2G Ex e mb IIIC T135 °C Db
IECEEx EPS14.0064 X
Ex e mb I Mb
Ex e mb IIIC T135 °C Db
-40 °C ≤ Tamb ≤ +60 °C
Customer Information

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 on 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 cross-sectional area of 0.75 mm² 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: Iₙ ≤ 3xI₆G, with trigger characteristic “slow blow”. (IG 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.