Proportional throttle valve PVDE_2-11-EX according to ATEX-directive

direct operated, solenoid operated
operating pressure max. 250 bar
volume flow max. 20 l/min
cavity PVDE2-11

Table of contents

<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
<td>1</td>
</tr>
<tr>
<td>Technical data</td>
<td>2</td>
</tr>
<tr>
<td>Performance</td>
<td>3</td>
</tr>
<tr>
<td>Dimensions</td>
<td>3</td>
</tr>
<tr>
<td>Type code</td>
<td>5</td>
</tr>
<tr>
<td>Accessories and additional information</td>
<td>5</td>
</tr>
<tr>
<td>Set-up</td>
<td>6</td>
</tr>
</tbody>
</table>

Characteristics

- proportional 2/2-way throttle valve in spool design
- according to the ATEX-directive for the use in potentially explosive atmospheres
- normally open or normally closed models
- slip-in valve for cavity PVDE2-11
- maintenance-free
## Technical data

### Hydraulic
- **Operating pressure max.**: 250 bar, differential pressure control $\Delta p$ max. 25 bar
- **Flow rate**: 2.4, 5.6, 8.8, 13.6 l/min; 16.8 l/min (only SO), 20 l/min (only SG) at differential pressure control $\Delta p = 10$ bar
- **Performance limit**: max. nominal flow rate also at a higher differential pressure control $\Delta p$
- **Flow direction**: 1 to 2, (2 to 1 not allowed)
- **Hydraulic fluid**: mineral oil according to DIN 51524, other hydraulic fluids upon request
- **Viscosity range**: 10 - 350 cSt
- **Filtration**: oil cleanliness according to ISO 4406 (1999) 18/16/13, filter with $\beta_5(c) > 200$
- **Repeatability**: < 3 % with optimized PWM-signal*
- **Hysteresis**: < 5 % with optimized PWM-signal*

* at 20 % to 100 % of the nominal valve current

### Mechanic
- **Design**: PVDE slip-in design or PVDR in in-line body, direct operated by solenoids
- **Size**: 11
- **Fluid temperature**: -30 °C to +50 °C
- **Ambient temperature**: -30 °C to +50 °C
- **Storage temperature**: -30 °C to +50 °C (non-condensing)
- **Installation position**: any
- **Maximum acceleration**: 3 g crossways
- **Weight**: PVDE2-11: 2.6 kg, PVDR2-11: 3.27 kg
- **Material**: valve parts and manifold: steel, seals: NBR, Viton optional
- **Surface protection**: exterior parts: zinc coated steel

### Electric
- **Nominal voltage**: 24 V DC
- **Nominal valve current**: 0.6 A
- **Nominal resistance (R20)**: 23.1 $\Omega$
- **Power consumption**: 15.6 W at nominal valve current
- **Shifting time**: 100% ED
- **Control command**: PWM-signal
- **PWM-frequency**: typically 85 Hz (depending on application)
- **Protection system**: IP67 according to IEC/EN 60529, IP69K according to DIN 40050-9 with intended assembling
- **Protection class**: III according to DIN VDE 0580
**Technical Data**

*Electric*

EC Type Examination Cert.: IBExU 13 ATEX 1040 X, IECEx IBE 13.0017X

Electronic controllers: see chapter 6 "electronics and sensors" as well as our online catalogue at www.weber-hydraulik.com.

Electronics that are used in explosion protected areas must be Ex-certified!

**Performance**

Performance graphs upon request

**Dimensions**

*Slip-in valve PvDE2-11-EX*

Installation torque 5-1 Nm

SW 26

Solenoid 360° rotatable*

Earth connection

Connecting cable 15 m

Installation torque 3 Nm

SW 3

* with EC Type Examination Certificate

IBExU 13 ATEX 1040 X, IECEx IBE 13.0017X

**Cavity PvDE2-11**

For a detailed drawing of the cavity please see chapter 11 „general information“ or our online catalogue at www.weber-hydraulik.com.

**NOTE**

For a detailed drawing of the cavity please see chapter 11 „general information“ or our online catalogue at www.weber-hydraulik.com.
**Slip-in valve in in-line body G 3/8”**

**PVDR2-11_EX**

- **Installation torque:** 3 Nm
- **SW:** 3
- **Measuring port:** G 1/4”
- **Slip-in valve in in-line body G 3/8”**
- **PVDR 2-11 / 4x1,5-SG-1-24V-EX-15m-FHN**
- **HM4 / 10 30 04**

**Dimensions**

- **Connecting cable:** 15 m
- **Installation torque:** 5 \( \times \) 1 Nm, SW 26
- **Earth connection**
- **Measuring port:** G 1/4”
- **Solenoid:** 360° rotatable*

* with EC Type Examination Certificate

**IBExU 13 ATEX 1040 X, IECEx IBE 13.0017X**
**Type code**

<table>
<thead>
<tr>
<th>PVD</th>
<th>2</th>
<th>11</th>
<th>x</th>
<th>-</th>
<th>-</th>
<th>1</th>
<th>24V</th>
<th>EX</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>PVD throttle valve, model</td>
<td>E</td>
<td>slip-in valve</td>
<td>R</td>
<td>in in-line body</td>
<td>Nominal flow at $\Delta p = 10$ bar</td>
<td>1 x 1</td>
<td>2,4 l/min</td>
<td>2 x 1</td>
</tr>
</tbody>
</table>

**Spool type**

- **SG**: normally closed
- **SO**: normally open

**Seals**

- NBR
- Viton

**Accessories and additional information**

<table>
<thead>
<tr>
<th>Accessories/ spare parts</th>
<th>Article:</th>
<th>Material number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seal kit PVDE2-11 (NBR)</td>
<td>Seal kit PVDE2-11 (Viton)</td>
<td>405.0020</td>
</tr>
</tbody>
</table>

**NOTE**

For the appropriate electronic controllers, see chapter 6 “electronics and sensors” as well as our online catalogue at [www.weber-hydraulik.com](http://www.weber-hydraulik.com).

Please consider whether the electronic controller will be located inside or outside of the explosion protected area. Electronics that are used in explosion protected areas must be certified according to the ATEX-directive!
Set-up

The solenoid coil may only be operated when installed on the appropriate valve. Further information can be found in the provided operation manual of the solenoid. When operating the valve, information contained in the provided operation manual of the solenoid, as well as our general operating manual must be followed precisely!

Single or multiple mounting of the valve in single operation must have a minimum size of 46 x 46 x 66 mm and a base plate ≥ 46 x 30 x 66 mm. The material must be Fe or material with the same or better thermal conductivity.

The installation of these electrical components must be carried out by an electrician with adequate qualifications.

Each solenoid must be short-circuit fuse protected suitable to its nominal valve current (max. 3 \times I_{\text{N}} \text{ according to IEC/EN 60127-2}). This could, for example, be a motor protecting switch with thermal quick release and short-circuit protection (adjusted to the rated current).

The installed fuse must have a voltage rating equal or larger than the rated voltage of the solenoid, and the fuse should be installed in the associated power supply. If this is not possible, the fuse can be installed separately if the appropriate safety instructions are carefully considered.

When connecting the fuse to the circuit, it is of utmost importance to consider whether the fuse will be located inside, or outside of the explosion protected area. If the fuse will be connected to the circuit inside of the explosion protected area, then it must be mounted in an Ex-certificated terminal box.

For equipotential bonding, a ground terminal is provided on the outside of the solenoid.

Manual

Information regarding installation, set-up and maintenance can be found in our product catalogue in chapter 11 „general information“ under the category „general operating manual“ or will be provided upon request.