4/2, 4/3 Directional Control Valve, Manually Operated

RPR1-10

Size 10 (D05) • Q_{max} 140 l/min (37 GPM) • p_{max} 350 bar (5100 PSI)

Technical Features

› Directional control valve with subplate mounting interface acc. to ISO 4401, DIN 24340 (CETOP 05)
› High transmitted hydraulic power up to 350 bar with optimized design to minimize pressure drops
› Three chamber housing design for production cost saving
› Manual lever and actuation element can be rotated in 90° increments for flexible installation
› Wide range of interchangeable spools available
› Springless, detented valves available, valve holds last selected position, available for all spools
› Spool end position sensing option
› Spool stroke limit option
› In the standard version, the valve housing is phosphated and steel parts zinc-coated for 240 h salt spray protection acc. to ISO 9227
› Enhanced surface protection for mobile sector available (ISO 9227, 520 h salt spray)

Technical Data

Model Code  Z11  Z11 with Sensors  R11  J15
Symbol

ISO 4401-05-04-0-05

Valve size  10 (D05)
Max. flow  l/min (GPM)  140 (37)
Max. operating pressure at ports P, A, B  bar (PSI)  350 (5080)
Max. operating pressure at port T  bar (PSI)  100 (1450) for versions with sensor
Operating force  N (lbf)  < 40 (9)
Fluid temperature range (NBR) °C (°F)  -30 .... +100 (-22 ... +212)
Fluid temperature range (FPM) °C (°F)  -20 .... +120 (-4 ... +248)
Service life  cycles  106
Weight  kg (Ibs)  3.4 (7.5)

Technical Data Sensor and Connector

Rated power supply voltage  V  24 DC
Power supply voltage range  V  10 ... 30 DC
Rated current  mA  200
Enclosure type of sensor to EN 60529  IP 67
Switching frequency  Hz  1000
Ambient temperature range °C (°F)  -25 ... +80 (-13 ... +176)

Datasheet

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Ordering Code

RPR1 - 10

4/2 and 4/3 directional control valve, manually operated

Valve size

Number of valve positions
- two positions: 2
- three positions: 3

Spool symbols

see the table “Spool Symbols”

Spool flow rate

directional control valve spool: No designation
prop. spool, nominal flow 30 l/min (7.9 GPM): 30
prop. spool, nominal flow 60 l/min (15.8 GPM): 60

Manual lever and actuating section position

standard, lever on side A, upward: A1
standard, lever on side B, upward: B1

Stroke limit option

without stroke limiter: 0
with stroke limiter, side A: SLA
with stroke limiter, side B: SLB
with stroke limiter, side A and B: SLC

Surface treatment

standard: No designation
A: zinc-coated (ZnC-3), ISO 9227 (240 h)
B: zinc-coated (ZnNi), ISO 9227 (520 h)

Seals

NBR
FPM (Viton)

Spool and position sensor type

without sensor: No designation
SO: normally-open sensor
SC: normally closed sensor

Spool position sensor supply voltage

without sensor: No designation
rated supply voltage, 24 V DC: 24

The port restrictor plugs can be ordered separately from the spare parts data sheet SP_8010.

Mounting bolts M6 x 45 DIN 912-10.9 or studs must be ordered separately. Tightening torque is 14 Nm (10.3 lbf.ft).

Besides the commonly used valve versions shown other special models are available. Contact our technical support for their identification, feasibility and operating limits.

Spool Symbols

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<tr>
<th>Type</th>
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<th>Interposition</th>
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### Operating limits (Directional valve)

Operating limits for maximum hydraulic power and rated lever force

![Graph showing operating pressure vs. flow rate for directional valves.]

For operating limits under conditions and flow directions other than shown contact our technical support. Admissible operating limits may be considerably lower with only one direction of flow (A or B plugged, or without flow.)

### Operating limits (Proportional valve)

Operating limits for maximum hydraulic power and rated lever force

#### 30 l/min (7.9 GPM)

![Graph showing operating pressure vs. flow rate for proportional valves.]

#### 60 l/min (15.8 GPM)

![Graph showing operating pressure vs. flow rate for proportional valves.]

### Pressure drop related to flow rate

![Graph showing pressure drop vs. flow rate.]

### Proportional Valve Actuation Characteristics

#### Proportional spool flow rate 30 l/min (7.9 GPM)

![Graph showing flow vs. lever position.]

1. $\Delta p = 10$ bar (145 PSI)
2. $\Delta p = 50$ bar (725 PSI)
3. $\Delta p = 160$ bar (2321 PSI)
4. $\Delta p = 350$ bar (5076 PSI)

#### Proportional spool flow rate 60 l/min (15.8 GPM)

![Graph showing flow vs. lever position.]

1. $\Delta p = 10$ bar (145 PSI)
2. $\Delta p = 50$ bar (725 PSI)
3. $\Delta p = 160$ bar (2321 PSI)
4. $\Delta p = 350$ bar (5076 PSI)
Manual lever and actuating section are shown in the most frequently used standard position. Both elements can be rotated in 90° increments. For other positions of lever and actuating section contact our technical support.