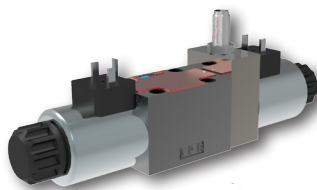


4/2 and 4/3 Directional Control Valve, Solenoid Operated

RPE3-06

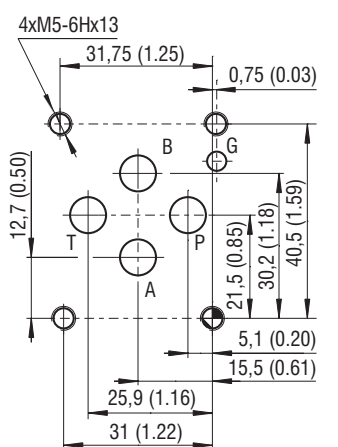
Size 06 (D03) • Q_{max} 80 l/min (21 GPM) • p_{max} 350 bar (5100 PSI)



Technical Features

- › Direct acting, directional control valve with subplate mounting interface acc. to ISO 4401, DIN 24340 (CETOP 03)
- › High transmitted hydraulic power up to 350 bar with optimized design to minimize pressure drop
- › Five chamber housing design with reduced hydraulic power dependence on fluid viscosity
- › The valve is available with interchangeable DC solenoids, also for AC power supply using a built-in rectifier bridge
- › Wide range of solenoid electrical terminal versions available
- › Wide range of interchangeable spools and manual overrides available
- › CSA Certificate upon request
- › Inductive contactless Normally Open and Normally Closed spool position sensor option
- › Soft-shift spool speed control option
- › The coil is fastened to the core tube with a retaining nut and can be rotated by 360° to suit the available space
- › 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)

ISO 4401-03-02-0-05



Ports P, A, B, T - max \varnothing 7.5 mm (0.29 in)

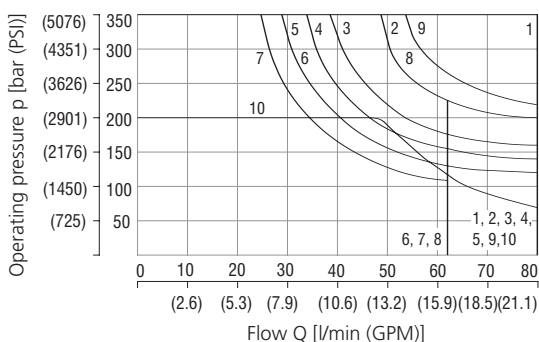
Technical Data

| | | |
|---|--|---|
| Valve size | 06 (D03) | |
| Max. flow | l/min (GPM) 80 (21.1) | |
| Max. operating pressure at ports P, A, B | bar (PSI) standard 350 (5080) 320 (4640) acc. to CSA | |
| Max. operating pressure at port T | bar (PSI) 210 (3050), 50 (730) for monitoring S1, S4 | |
| Fluid temperature range (NBR) | °C (°F) -30 ... +80 (-22 ... +176) | |
| Fluid temperature range (FPM) | °C (°F) -20 ... +80 (-4 ... +176) | |
| Ambient temperature range | °C (°F) -30 ... +50 (-22 ... +122) | |
| Supply voltage tolerance | AC: \pm 10 DC: \pm 10 | |
| Max. switching frequency | 1/h 15 000 | |
| Switching time at v=32 mm ² /s (156 SUS) | ON | ms AC: 30 ... 40 DC: 30 ... 50 |
| | OFF | ms AC: 30 ... 70 DC: 10 ... 50 |
| Mass | kg (lbs) - valve with 1 solenoid: 1.6 (3.52) - valve with 2 solenoids: 2.2(4.85) | |
| Datasheet | | Type |
| General information | | GI_0060 Products and operating conditions |
| Coil types / connectors | | C_8007 / K_8008 C22B* / K* |
| Mounting interface / tolerances | | SMT_0019 Size 06 |
| Spare parts | | SP_8010 |

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

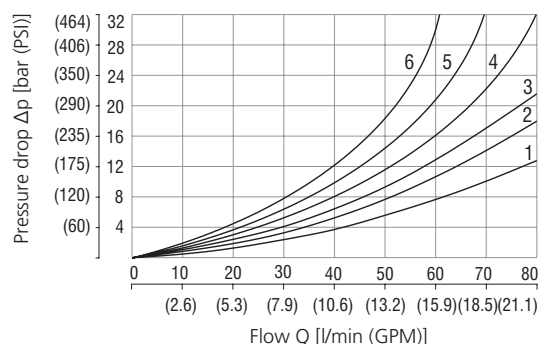
Operating limits

Operating limits for maximum hydraulic power at rated temperature and supply voltage equal to 90% nominal.



| | | | | | |
|---|-----|---|-----|----|-----|
| 1 | Z11 | 5 | F11 | 7 | Z91 |
| 6 | C11 | 3 | R11 | 5 | R31 |
| 5 | H11 | 4 | R21 | 5 | H51 |
| 1 | P11 | 5 | A51 | 7 | F51 |
| 2 | Y11 | 1 | P51 | 3 | X11 |
| 5 | L21 | 2 | Y51 | 7 | K11 |
| 8 | B11 | 6 | C51 | 7 | N11 |
| 6 | Y41 | 1 | Z51 | 10 | X25 |
| 1 | Z21 | 7 | Z71 | 1 | J15 |
| 5 | C41 | 7 | Z81 | 9 | J75 |

Pressure drop related to flow rate



| | | | | | | | | | | | |
|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | P-A | P-B | A-T | B-T | P-T | | P-A | P-B | A-T | B-T | P-T |
| Z11,L21,B11,R11 | 2 | 2 | 3 | 3 | | P51 | 1 | 3 | | | |
| R21,X11,N11,J15 | 5 | 5 | 5 | 6 | 3 | Y51 | 2 | 2 | | | |
| C11 | 2 | 2 | 2 | 3 | 3 | C51 | 2 | | 3 | 4 | |
| H11 | 1 | 1 | 3 | 3 | | Z71 | 3 | 3 | | | |
| P11 | 2 | 2 | 2 | 2 | | Z81 | | | 3 | 3 | |
| Y11 | 3 | 3 | 3 | 3 | | Z91 | 3 | | | 3 | 3 |
| Y41 | | | | | | R31 | 2 | | | 3 | |
| Z21,Z51,H51 | 4 | 4 | | | 5 | F51 | 2 | 3 | | | |
| C41 | 1 | 2 | | 3 | 3 | K11 | 2 | 3 | | | |
| F11 | 2 | 2 | | | | X25 | 3 | 3 | 3 | | |
| A51,J75 | | | | | | | | | | | |

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.)

Ordering Code

RPE3 - 06 [] [] / [] [] [] [] [] [] [] [] [] []

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

Valve size

Number of spool positions
 two positions **2**
 three positions **3**

Spool symbols
 see the table "Spool Symbols"

Rated supply voltage of solenoids
 (at the coil terminals)

| | |
|--------------------------------|----------------|
| 12 V DC / 2.72 A | ☉ 01200 |
| 24 V DC / 1.29 A | ☉ 02400 |
| 27 V DC / 1.07 A | 02700 |
| 205 V DC / 0.15 A | 20500 |
| 24 V AC / 1.56 A / 50 (60 Hz) | 02450 |
| 120 V AC / 0.26 A / 60 Hz | ☉ 12060 |
| 230 V AC / 0.15 A / 50 (60) Hz | ☉ 23050 |

☉ CSA upon request - only for 320 bar (4640 PSI)

Connector
 EN 175301-803-A **E1**
 E1 with quenching diode **E2**
 AMP Junior Timer - axial direction (2 pins; male) **E3A**
 E3A with quenching diode **E4A**
 EN 175301-803-A with integrated rectifier **E5**
 Loose conductors (two insulated wires) **E8**
 E8 with quenching diode **E9**
 Deutsch DT04-2P - axial direction (2 pins; male) **E12A**
 E12A with quenching diode **E13A**

No designation
U CSA Certified standard CSA marking

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

No designation
V Surface treatment standard

No designation
S1 normally-open sensor, 50 bar (730 PSI)
S2 normally-open sensor, 210 bar (3050 PSI)
S4 normally-closed sensor, 50 bar (730 PSI)

No designation
T1 Soft-shift spool speed control without soft-shift control orifice Ø 0.7 mm (0.03 inch) in solenoid

No designation
N1 standard
N2 cap nut covered
N3 rubber boot protected
N4 detent assembly
N5 hand screw
N9 socket head screw without manual override

- For other solenoid voltage supply options see data sheet C_8007.
- The solenoid operated valves are delivered without connectors. For available connectors see data sheet K_8008.
- The orifice to the P port can be ordered separately, see data sheet SP_8010.
- Mounting bolts M5 x 45 DIN 912-10.9 or studs must be ordered separately. Tightening torque is 8.9 Nm (6.56 ft-lbf)
- Besides the shown, commonly used valve versions other special models are available. Contact our technical support for their identification, feasibility and operating limits.

Spool Symbols

| Type | Symbol | Interposition | Type | Symbol | Interposition | Type | Symbol | Interposition |
|------|--------|---------------|------|--------|---------------|------|--------|---------------|
| Z11 | | | R11 | | | Z11 | | |
| C11 | | | R21 | | | X11 | | |
| H11 | | | A51 | | | C11 | | |
| P11 | | | P51 | | | H11 | | |
| Y11 | | | Y51 | | | K11 | | |
| L21 | | | C51 | | | N11 | | |
| B11 | | | Z51 | | | F11 | | |
| Y41 | | | Z71 | | | X25 | | |
| Z21 | | | Z81 | | | J15 | | |
| C41 | | | Z91 | | | J75 | | |
| F11 | | | R31 | | | | | |
| | | | H51 | | | | | |
| | | | F51 | | | | | |

Solenoid Coil in millimeters (inches)

| E1, E2 | E3A, E4A | E5 | E8, E9 | E12A, E13A |
|------------------------|------------------------|------------------------|--|-----------------------|
| Protection degree IP65 | Protection degree IP67 | Protection degree IP65 | Protection degree IP65 | Protection IP67 / 69K |
| | | | | |
| | | | Note: A = Standard 300 mm, (11.8 in) other lengths on demand | |

The indicated IP protection level is only achieved if the connector is properly mounted.

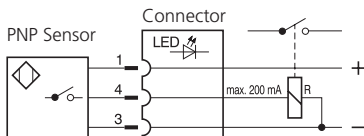
Manual Override in millimeters (inches)

| No designation - standard | Designation N1 - cap nut covered | Designation N2 - rubber boot protected | Designation N3 - detent assembly | Designation N4 - hand screw | Designation N5 - socket head screw, size 3 | Designation N9 - without manual override |
|---------------------------|----------------------------------|--|----------------------------------|-----------------------------|--|--|
| | | | | | | |

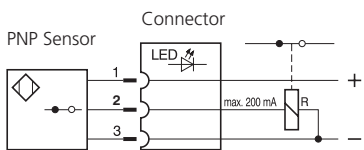
In case of solenoid malfunction or power failure, the spool of the valve can be shifted by manual override as long as the pressure in port T does not exceed 25 bar (363 PSI). For alternative manual overrides contact our technical support.

Spool Position Sensor

S1, S2 - Circuit diagram for the normally - **OPEN** sensor



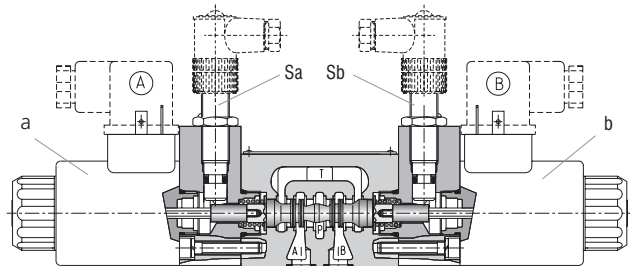
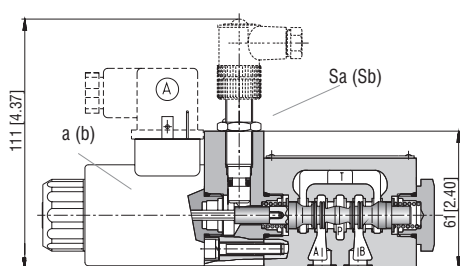
S4 - Circuit diagram of the normally - **CLOSED** sensor



| Technical Data of the Sensor | | S1, S4 | S2 |
|--|-----------|----------------------------|------------|
| Rated power supply voltage | V | 24 DC | |
| Power supply voltage range | V | 10 ... 30 DC | |
| Rated current | mA | 200 | |
| Sensor enclosure protection (EN 60529) | | IP 67 | |
| Max. operating pressure | bar (PSI) | 50 (725) | 210 (3046) |
| Switching frequency | Hz | 1000 | |
| Ambient temperature range | °C (°F) | -25 ... +80 (-13 ... +176) | |
| Technical Data of the Connector | | | |
| Power supply voltage range | V | 10 ... 30 DC | |
| Ambient temperature range | °C (°F) | -25 ... +80 (-13 ... +176) | |
| Indicator | | yellow LED | |

| Signal of solenoid ① Signal of sensor ② | Two-Position Directional Control Valve | | | | |
|--|--|----|----------|-----|-----|
| | ① a(b) | | ③ Sa(Sb) | | LED |
| | S1, S2 | S4 | S1, S2 | S4 | |
| 0 | 1 | 0 | ON | OFF | |
| 1 | 0 | 1 | OFF | ON | |

| Three-Position Directional Control Valve | | | | | | | | | |
|--|---|----------|----|----|----|----------|----------|----------|----------|
| ① a(b) | | ③ Sa(Sb) | | | | LED | | | |
| a | b | Sa | Sb | Sa | Sb | Sa - LED | Sb - LED | Sa - LED | Sb - LED |
| 0 | 0 | 1 | 1 | 0 | 0 | ON | ON | OFF | OFF |
| 1 | 0 | 0 | 1 | 1 | 0 | OFF | ON | ON | OFF |

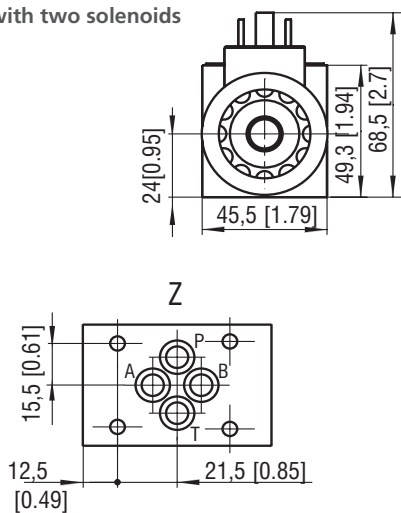


Spool Speed Control in millimeters (inches)

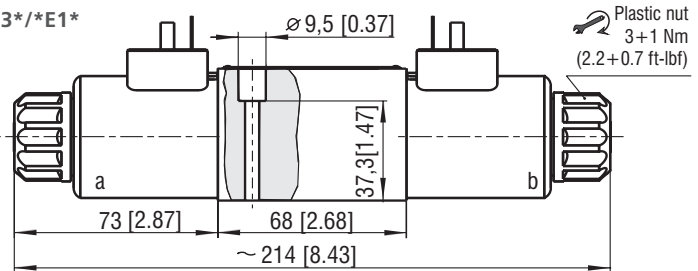
| | |
|---|---|
| Designation T1 | Important: |
| | <p>This directional valve provides the means to control spool soft shifting by an orifice situated in the solenoid armature. To ensure the proper function of the valve, unobstructed venting of the solenoid is required through the bleeding plug (1). The plugs are accessible after removing the rubber boot (2) from the solenoid cap nut (3).</p> |
| Switching time ON and OFF | 300 ... 800 ms |
| <p>The switching times shown are valid for viscosity $\nu = 32 \text{ mm}^2/\text{s}$ (156 SUS) and nominal voltage. They depend on working pressure and flow rate of the directional control valve.</p> | |

Dimensions in millimeters (inches)

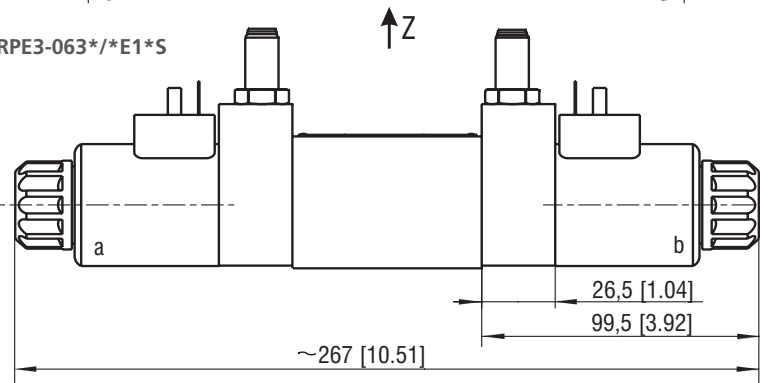
Valve with two solenoids



RPE3-063*/E1*

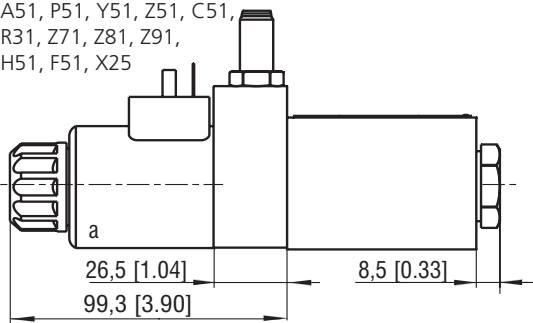


RPE3-063*/E1*S



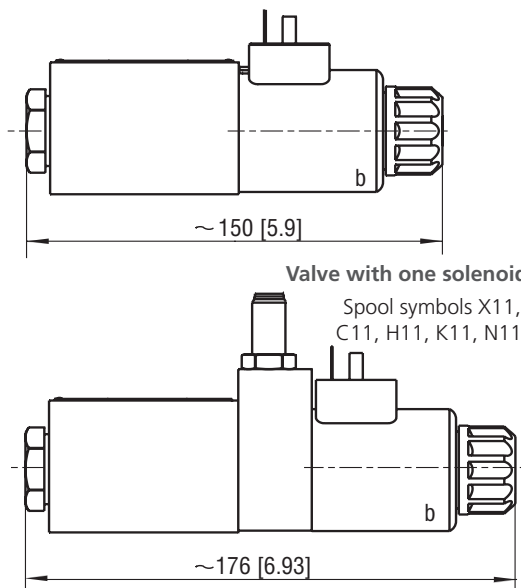
Valve with one solenoid „a”

Spool symbols R11, R21, A51, P51, Y51, Z51, C51, R31, Z71, Z81, Z91, H51, F51, X25



Valve with one solenoid „b”

Spool symbols X11, Z11, C11, H11, K11, N11, F11



Mounting screws 8.9 Nm (7 ft-lbf)
M5 x 45 DIN 912-10.9