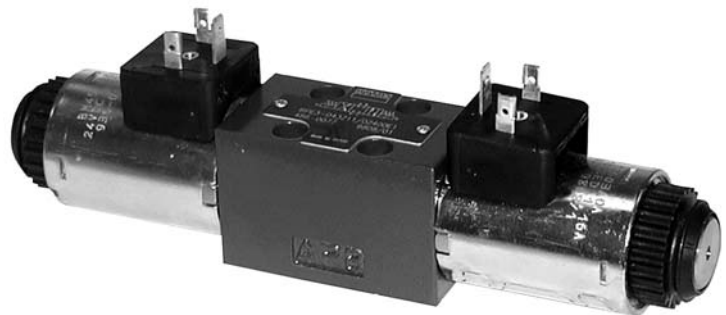
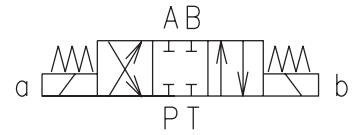


- 4/3-, 4/2- and 3/2-way directional control valves with solenoid control
- Solenoids can be turned around their axis to any position
- Push button manual override
- Installation dimensions according to ISO 4401 CETOP - RP 121H and NFPA T3.5.1 - D 02
- Subplates see data sheet HU 0002
- CSA Upon request



Functional Description

The RPE3-04 directional control valves consist of cast iron housing (1), control spool (5) with two centering springs (4) and operating solenoids (2, 3).

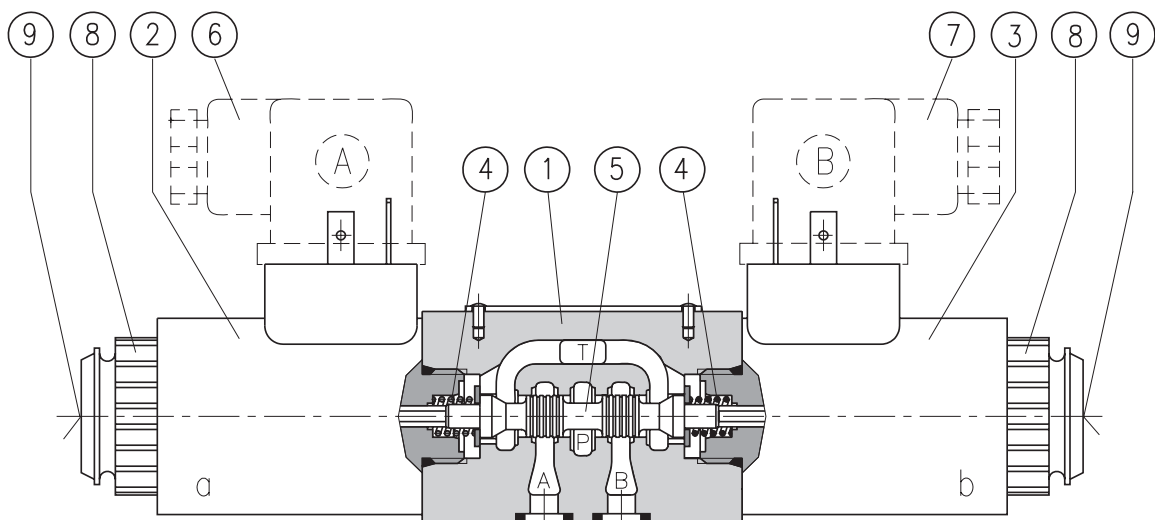
The three-position directional valves are fitted with two solenoids and two springs. Two-position directional valves have either one solenoid and one return spring or two solenoids and a detent assembly.

The operating solenoids are DC solenoids supplied through connectors A, B (6, 7). For AC supply the solenoids are provided with a rectifiers which are

integrated in the DIN connector socket as part of the solenoid. By loosening the nut (8), the solenoid can be turned around its axis up to 360°.

In the case of solenoid malfunction or power failure, the spool of the valve can be repositioned by manual override (9), provided the pressure in the T-port does not exceed 363 PSI (25 bar).

The valve housing (1) is phosphate coated and the solenoids (2, 3) are zinc coated.



Technical Data

| | | |
|---|--------------------------|--|
| Valve size | US (mm) | D 02 (04) |
| Maximum flow | GPM (L/min) | see p-Q characteristics |
| Maximum operating pressure at ports P, A, B | PSI (bar) | 4600 (320) |
| Maximum operating pressure at port T | PSI (bar) | 3045 (210) |
| Pressure drop | PSI (bar) | see Δp -Q characteristics |
| Hydraulic fluid | | Petroleum oils (HM, HL, HLP) Phosphate ester fluids (HFD-R) |
| Fluid temperature range (NBR / Viton) | °F (°C) | -22 ... +176 (-30 ... +80) / -4 ... +176 (-20 ... +80) |
| Ambient temperature, max. | °F (°C) | up to +122 (+50) |
| Viscosity range | SUS (mm ² /s) | 98 ... 1840 (20 ... 400) |
| Maximum degree of fluid contamination | | Class 21/18/15 to ISO 4406 (1999). |
| Maximum allowable voltage variation | % | AC: ± 10 DC: ± 10 |
| Maximum switching frequency | 1/h | 15 000 |
| Switching time, ON; at $v = 156$ SUS (32 mm ² /s) | ms | 30 ... 50 |
| Switching time, OFF; at $v = 156$ SUS (32 mm ² /s) | ms | AC: 70 ... 100 DC: 30 ... 50 |
| Duty cycle | % | 100 |
| Service life | cycles | 10 ⁷ |
| Enclosure type to DIN 40 050 | | IP 65 |
| Weight - valve with 1 solenoid - valve with 2 solenoid | lbs (kg) | 1.978 (0.9) 2.747 (1.25) |
| Mounting position | | any |

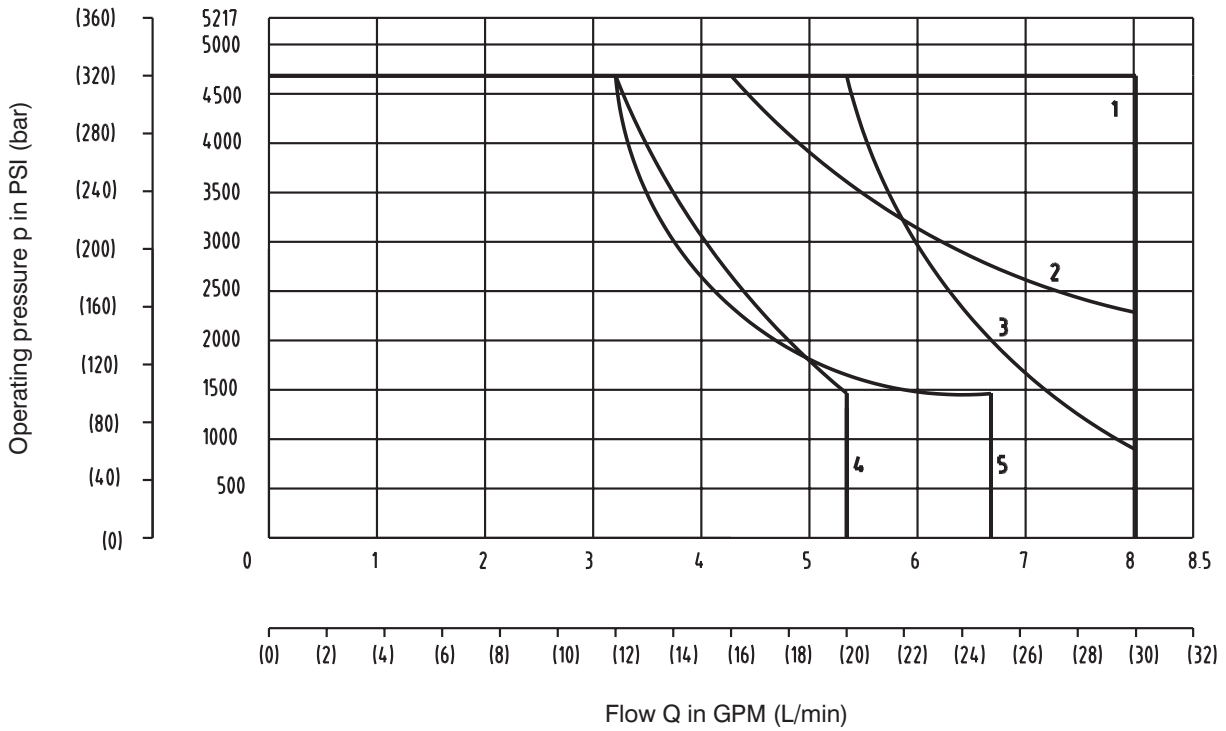
Spool Symbols

| Type | Symbol | Crossover | Type | Symbol | Crossover |
|------|--------|-----------|------|--------|-----------|
| Z11 | | | P51 | | |
| C11 | | | Y51 | | |
| H11 | | | C51 | | |
| P11 | | | Z51 | | |
| Y11 | | | Z11 | | |
| L21 | | | X11 | | |
| B11 | | | C11 | | |
| Y71 | | | H11 | | |
| R11 | | | J15 | | |
| R21 | | | J75 | | |
| A51 | | | | | |

p-Q Characteristic

Measured at $v = 156 \text{ SUS } (32 \text{ mm}^2/\text{s})$ and $t = 104 \text{ }^\circ\text{F } (40 \text{ }^\circ\text{C})$

Operating limits for maximum hydraulic power transferred by the directional valve. For respective spool type - see spool symbols.

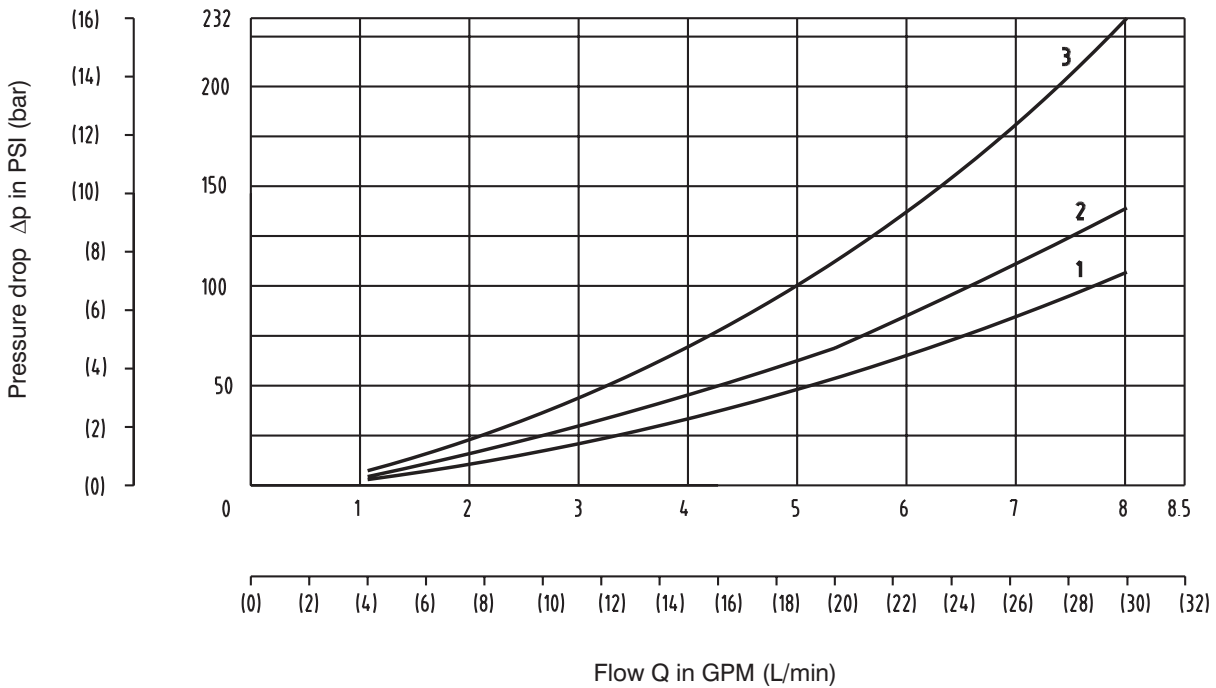


| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Z11 | C11 | H11 | P11 | Y11 | L21 | B11 | Y71 | R11 | R21 | A51 | P51 | Y51 | C51 | Z51 | X11 | J15 | J75 |
| 1 | 2 | 1 | 1 | 1 | 4 | 1 | 5 | 1 | 3 | 4 | 1 | 1 | 2 | 1 | 1 | 1 | 4 |

Δp-Q Characteristic

Measured at $v = 156 \text{ SUS } (32 \text{ mm}^2/\text{s})$ and $t = 104 \text{ }^\circ\text{F } (40 \text{ }^\circ\text{C})$

Pressure drop Δp related to flow rate.

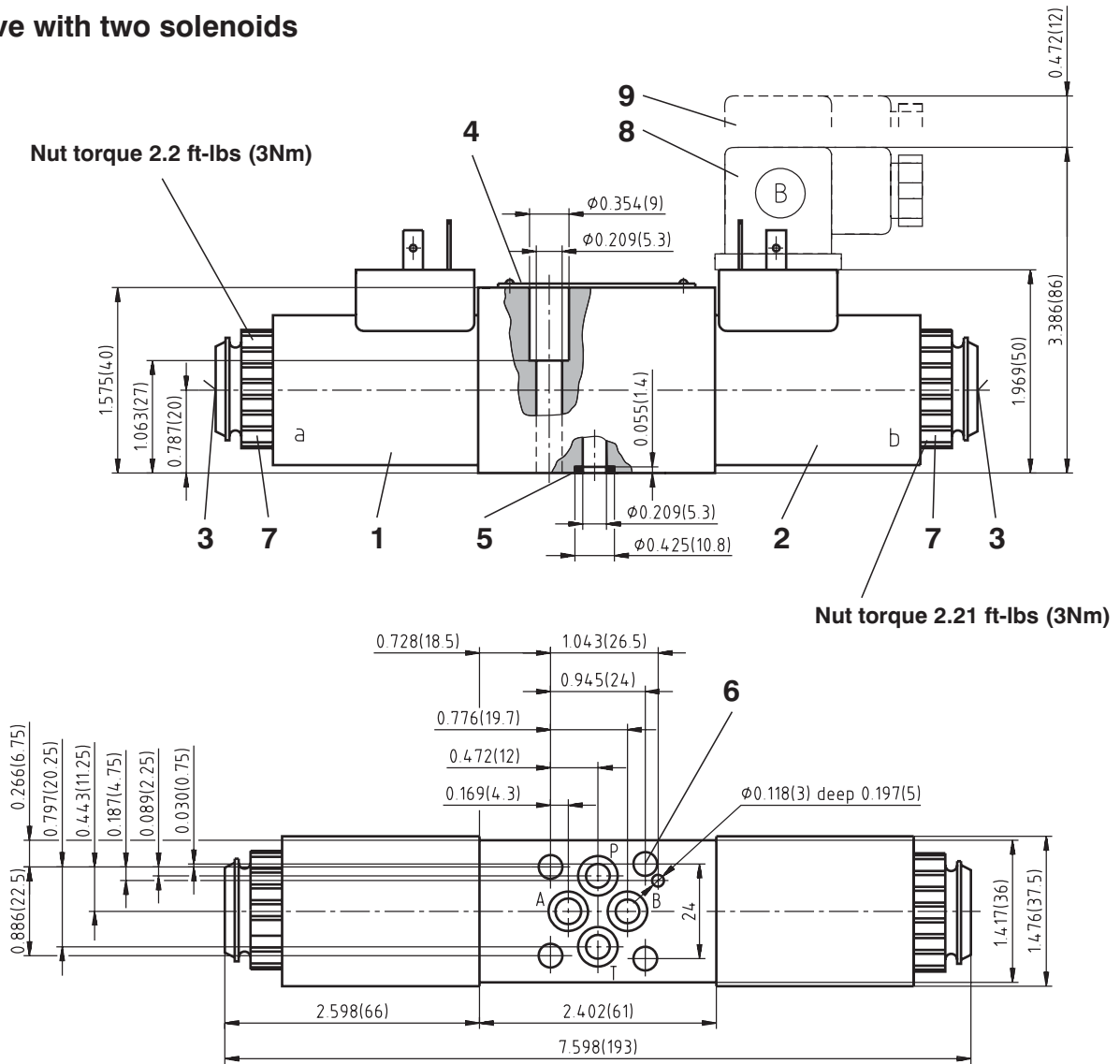


| | Z11 | C11 | H11 | P11 | Y11 | L21 | B11 | Y71 | R11 | R21 | A51 | P51 | Y51 | C51 | Z51 | X11 | J15 | J75 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| P-A | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 1 | | | 3 | | 2 | 2 | 1 |
| P-B | 1 | 3 | 1 | 1 | 1 | 1 | 1 | | 2 | 2 | 1 | 1 | 1 | | 1 | 2 | 2 | 1 |
| A-T | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | | 1 | 1 | | 1 | 2 | 2 | |
| B-T | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | | | | 3 | | 2 | 2 | |
| P-T | | 2 | 2 | | | | | | | | | | | 2 | | | | |

Valve Dimensions

Dimensions in inches and millimeters (in brackets)

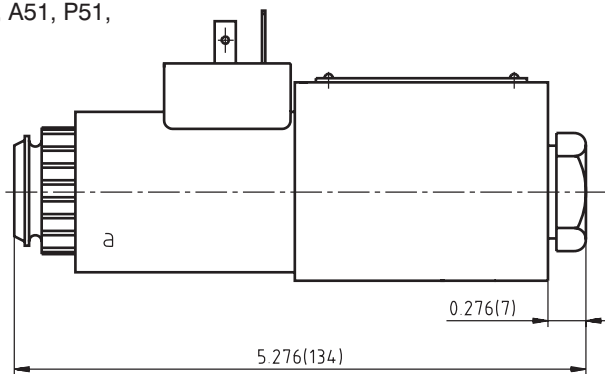
Valve with two solenoids



Nut torque 2.21 ft-lbs (3Nm)

Valve with one solenoid a

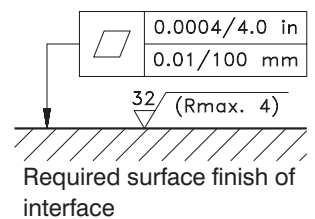
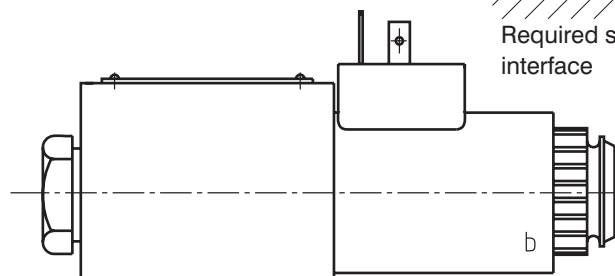
Spool symbols R11, R21, A51, P51, Y51, C51, Z51



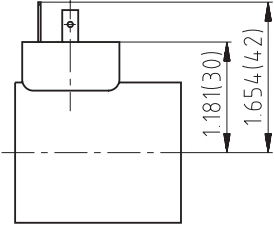
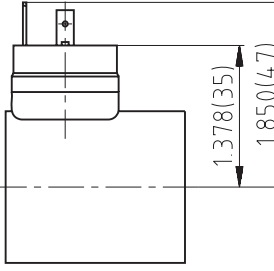
- 1 Solenoid a [(Nut torque 2.21 ft-lbs. (3Nm))]
- 2 Solenoid b [(Nut torque 2.21 ft-lbs. (3Nm))]
- 3 Manual override
- 4 Name plate
- 5 Square ring 7.65 x 1.68 (4 pcs.) supplied with valve
- 6 4 mounting holes
- 7 Retaining nut of the solenoid
- 8 Electrical connector, DIN 43 650
- 9 Space required to remove connector

Valve with one solenoid b

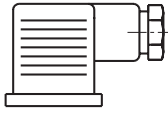
Spool symbols Z11, X11, C11, H11



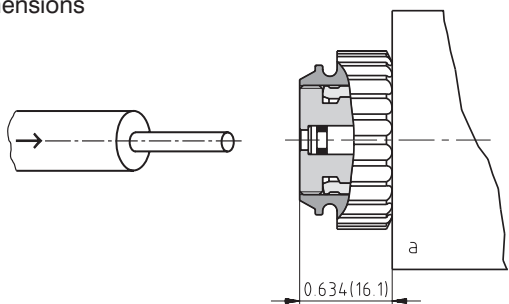
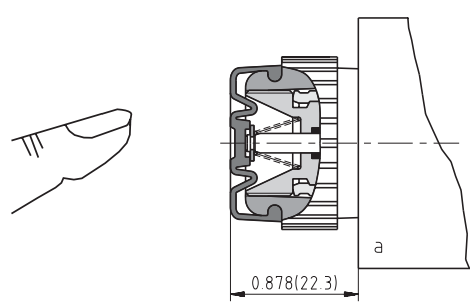
Type of the Solenoid Coil

| Type | Dimensions | Description |
|-----------|---|---|
| E1 |  | Solenoid coil with terminal for the electrical connector, DIN 43 650. |
| E2 | | Solenoid coil with integrated quenching diode (bipolar transistor diode) and terminal for the electrical connector, DIN 43 650. |
| E5 |  | Solenoid coil with integrated rectifier and terminal for the electrical connector, DIN 43 650. |

Electrical connector, DIN 43 650

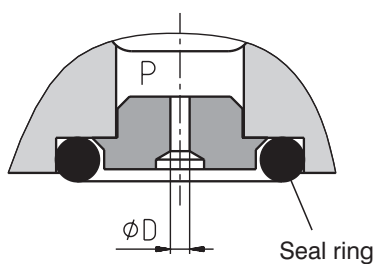
| Description | Description (see page 8 for order numbers) | Max. input voltage | Solenoid connections |  |
|-------------|--|--------------------|--|---|
| K1 | DIN connector - B (black) | 230 V AC/DC | M16x1.5 bushing bore \varnothing 0.24-0.31 in (\varnothing 6-8 mm) | |
| | DIN connector - A (gray) | | | |
| K5 | DIN connector - B (black) | 230 V AC/DC | M16x1.5 bushing bore \varnothing 0.16-0.24 in (\varnothing 4-6 mm) | |
| | DIN connector - A (gray) | | | |
| K11 | DIN connector - B (black) | 230 V AC/DC | 1/2 NPTF bushing bore \varnothing 0.24-0.31 in (\varnothing 6-8 mm) | |
| | DIN connector - A (gray) | | | |
| K2 | DIN connector with LED and quenching diode - B (black) | 230 V AC/DC | M16x1.5 bushing bore \varnothing 0.24-0.31 in (\varnothing 6-8 mm) | |
| | DIN connector with LED and quenching diode - A (gray) | | | |
| K12 | DIN connector with LED and quenching diode - B (black) | 12 ... 24 V DC | 1/2 NPTF bushing bore \varnothing 0.24-0.31 in (\varnothing 6-8 mm) | |
| | DIN connector with LED and quenching diode - A (gray) | | | |

Manual override

| STANDARD | RUBBER BOOT |
|---|---|
| <p>Dimensions</p>  <p>Standard model of manual override. Standard retaining nut of the solenoid.</p> | <p>Type N2</p> <p>Dimensions</p>  <p>Manual override protected by rubber boot.</p> |

Orifice in P-Port

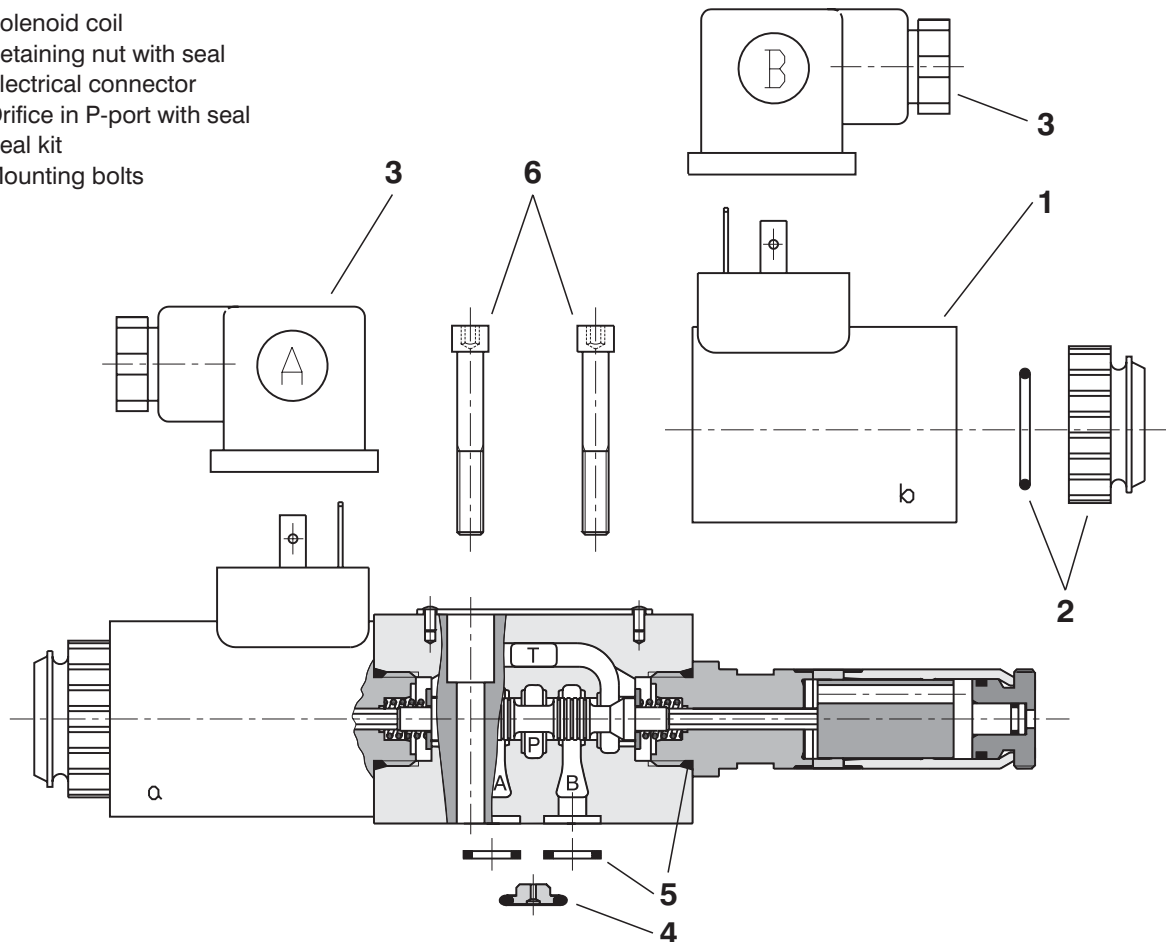
| Type | ∅D inch (mm) |
|-----------|--------------|
| D1 | 0.032 (0.8) |
| D2 | 0.040 (1.0) |
| D3 | 0.047 (1.2) |
| D4 | 0.059 (1.5) |
| D5 | 0.028 (0.7) |



P-port orifices limits the flow into the directional control valve.

Spare Parts

- 1 Solenoid coil
- 2 Retaining nut with seal
- 3 Electrical connector
- 4 Orifice in P-port with seal
- 5 Seal kit
- 6 Mounting bolts



Solenoid coil

| Solenoid type | Coil type | | |
|---------------|--------------|----------|----------|
| | E1 | E2 | E5 |
| | Order number | | |
| 01200 | 936-0022 | 936-0690 | |
| *01200 | 943-0001 | - | |
| 02400 | 936-0026 | 936-0693 | |
| *02400 | 943-0002 | - | |
| 12060 | | | 936-2180 |

Solenoid retaining nut with seal

| Type of the nut | Seal | Order number |
|----------------------|----------|--------------|
| Standard nut | 18 x 1.5 | 486-9010 |
| Nut with rubber boot | | 486-9013 |

* CSA Upon request

| Electrical connector, DIN 43 650 | | | |
|--|----------------------|---------------------|----------------------|
| Type | Max. input voltage | Connector A gray | Connector B black |
| | | Order number | |
| K1 | 230 V AC/DC | 936-9902 | 936-9901 |
| K5 | 230 V AC/DC | 936-9906 | 936-9905 |
| K11 | 230 V AC/DC | 936-9925 | 936-9926 |
| K2 | 230 V AC/DC | 936-9918 | 936-9919 |
| K2 | 12...24V DC | 936-9908 | 936-9907 |
| K2 | 120 V AC | 936-9916 | 936-9917 |
| K12 | 12 ...24V DC | 936-9927 | 936-9933 |
| Orifice in P-Port | | | |
| Type | ∅D inch (mm) | Seal ring | Order number |
| D1 | 0.032 (0.8) | 7.65 x 1.78 | 486-9005 |
| D2 | 0.040 (1.0) | | 486-9006 |
| D3 | 0.047 (1.2) | | 486-9007 |
| D4 | 0.059 (1.5) | | 486-9008 |
| D5 | 0.028 (0.7) | | 486-9014 |
| Seal kit | | | |
| Type | Dimensions, quantity | | Order number |
| | Square ring | O-ring | |
| Standard NBR70 | 7.65 x 1.68 (4 pcs.) | 16 x 2 (2 pcs.) | 486-9002 |
| Viton | 7.65 x 1.78 (4 pcs.) | 16 x 2 (2 pcs.) | 486-9009 |
| Bolt kit (for studs see HU 0020) | | | |
| Dimensions, quantity | | Bolt torque | Order number |
| M5 x 35 DIN 912-10.9 (4 pcs.) | | 3.7 ft-lbs (5 Nm) | 486-9011 |
| 10-24 UNC x 1.375 (4 pcs.) | | | 2 000 106 |
| Caution! | | | |
| <ul style="list-style-type: none"> • With functional symbols A51 and J75 for pressures exceeding 1450 PSI (100 bar), the T-port should be connected directly to the tank. • For directional valves with two solenoids, one solenoid must be without power before the other solenoid can be powered. Switching time for directional valves with detent assembly (impulse control) should not be shorter than 60 ms. • Other spool symbols on request. • The plastic packaging foil is recyclable. • Mounting bolts, studs and DIN-connectors must be ordered separately • Certified documentation is available per request. | | | |
| ARGO-HYTOS a. s. CZ - 543 15 Vrchlábí Tel.: +420-499-403111, Fax: +420-499-403421 E-mail: sales.cz@argo-hytos.com www.argo-hytos.com | | | |