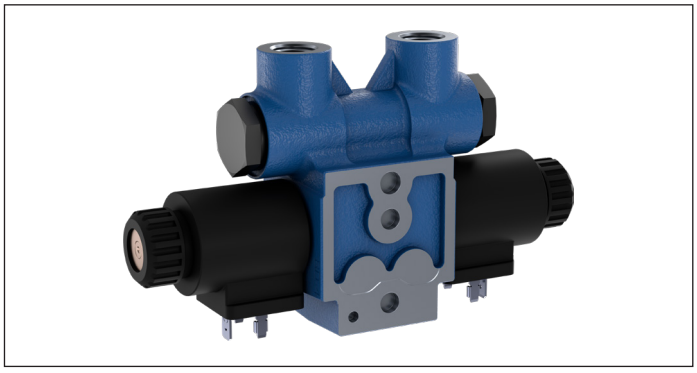
# 4/3 Directional valve elements with or without secondary relief valves, with or without LS connections, and with PO check valves

B8_4V... (EDB-A-VR/VU)

**RE 18300-57**
Edition: 03.2025
Replaces: 06.2022



- Size 4
- Series 00
- Maximum operating pressure 250 bar (3625 psi)
- Maximum flow 20 l/min (5.3 gpm)
- Port connections G 3/8 SAE6 - M16x1.5

**General specifications**

Valve elements with 4 ways and 3 positions.
Control spools directly operated by solenoids with removable coils.
In the de-energized condition, the control spool is held in the central position by return springs.
Wet pin tubes for DC coils, with push rod for mechanical override; burnish surface treatment.
Single or Dual cross piloted check valves on A and B ports.
PO checks valves with 4:1 pilot ratio.
Coils can be rotated 360° around the tube.
Manual override (push-button or screw type) available as option.

**Contents**

## Ordering details

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|
| **B** | **8** | | **4V** | | | | | | | |

**Family**

| | | |
|---|---|---|
| 01 | Directional Valve elements EDB | **B** |

**Type**

| | | |
|---|---|---|
| 02 | Size 4 | **8** |

**Configuration**

| | | |
|---|---|---|
| 03 | Standard | **0** |
| | With secondary valve on A1 | **1** |
| | With channels for Load Sensing | **D** |

**Coil type**

| | | |
|---|---|---|
| 04 | D36 | **4V** |

**Spool variants**[1)]

| | | |
|---|---|---|
| 05 | 4/3 operated on both sides a and b | **_ 2 _ _** |

| **Voltage supply** | | **07** | **04** | **03** | **01** | **00** | |
|---|---|---|---|---|---|---|---|
| 06 | Without coil | – | – | – | – | ● | **00** |
| | 12V DC | ● | ● | ● | ● | – | **OB** |
| | 24V DC | ● | ● | ● | ● | – | **OC** |
| | 48V DC | ● | ● | ● | ● | – | **OD** |

**Electric connections**

| | | |
|---|---|---|
| 07 | Without coils | **00** |
| | With coils, without mating connector DIN EN 175301-803 | **01** [2)] |
| | With coils, with bi-directional diode, without mating connector vertical Amp-Junior | **03** |
| | With coils, with bi-directional diode, without mating connector horizontal Amp-Junior | **04** |
| | With coils, with bi-directional diode, without mating connector DT04-2P | **07** |

**Ports**

| | | |
|---|---|---|
| 08 | G 3/8 DIN 3852 | **3** |
| | M 16x1,5 DIN 3852 | **U** |
| | 9/16-18 UNF 2-B (SAE6) | **B** |

**Secondary valves setting**

| | | |
|---|---|---|
| 09 | 50-210 bar (725-3045 psi) | **0** |
| | 100-310 bar (1450-4500 psi) | **1** |
| | 25-50 bar (362-725 psi) | **2** |
| | Without secondary valve | **3** |

**PO check valve position**

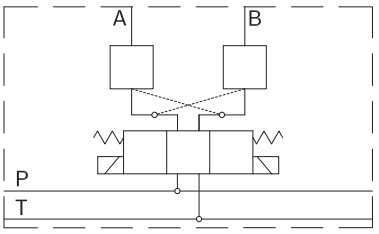
| | | |
|---|---|---|
| 10 | Check valve on port A | **1** |
| | Check valve on port B | **2** |
| | Check valve on both ports A and B | **3** |

**Options**

| | | |
|---|---|---|
| 11 | No options | **No code** |
| | Standard | **0** |
| | Push-button type manual override | **P** |
| | Screw type manual override | **F** |

● = Available – = Not available

**Symbols**

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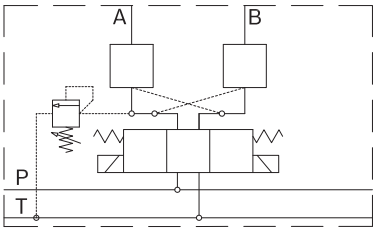


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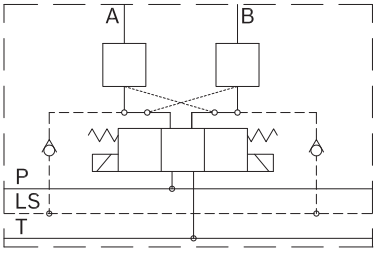


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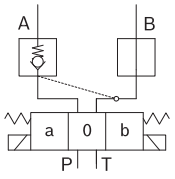
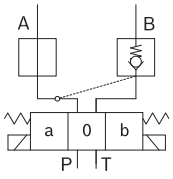
**Spool variants**

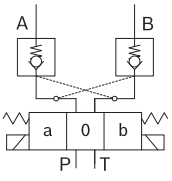
B8_9_____1

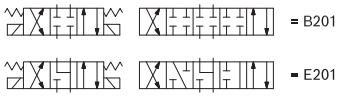



B8_9_____2




B8_9_____3



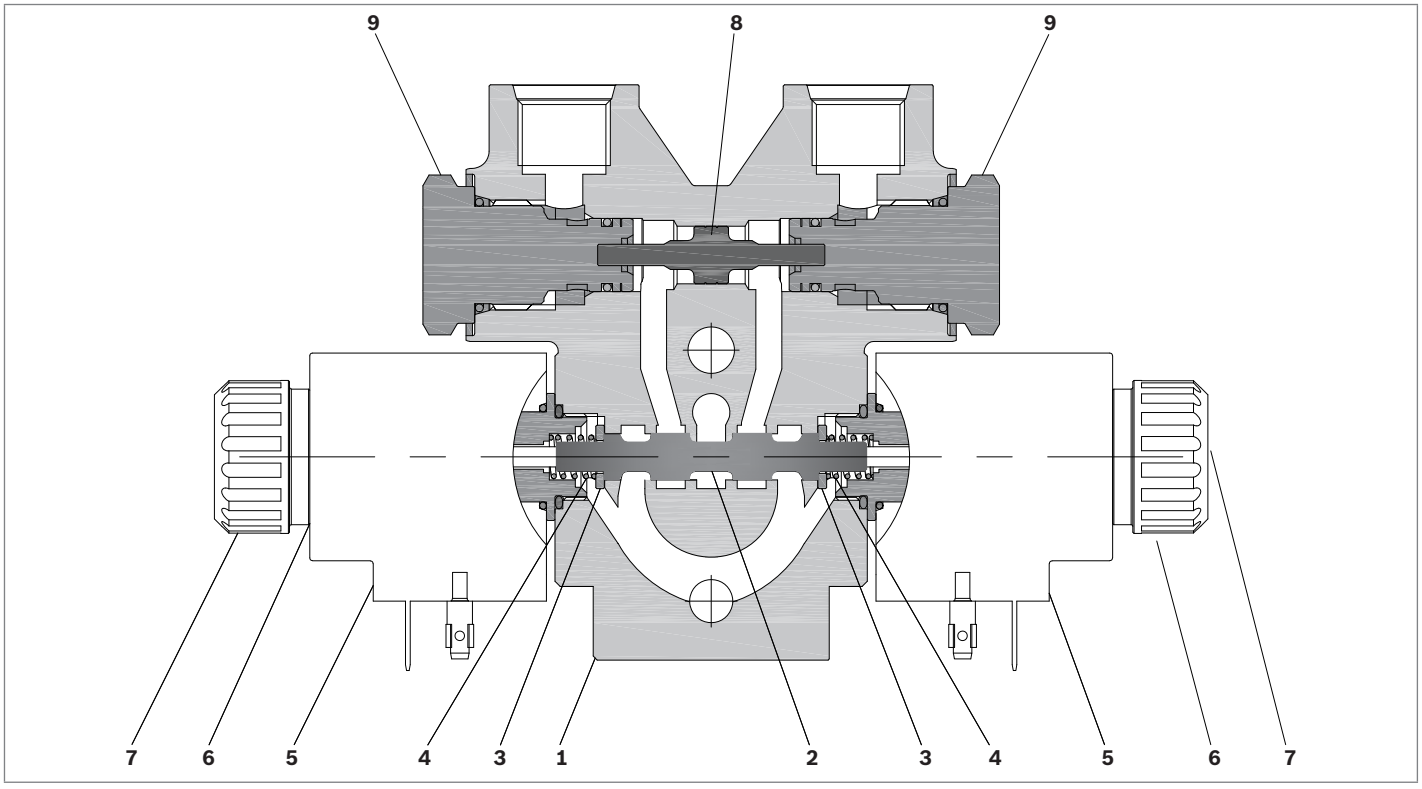




1) The required hydraulic symbol and spool variant can be chosen by consulting this page.

2) For connectors ordering code see data sheet RE 18325-90.

The secondary valves have a maximum flow capacity of 6 l/min. (1.6 gpm).

## Functional description




The sandwich plate design directional valve elements B8_4V... are very compact direct operated solenoid valves which control the start, the stop and the direction of the oil flow. These elements basically consist of a stackable housing (**1**) with a control spool (**2**), two solenoids (**5**), and two return springs (**4**). The upper part of the housing is extended in order to provide space for the cavities where two PO check valves are fitted. They consist of two cartridges (**9**), which allow upstream flow but lock and prevent the return flow. The return flow is possible when they are opened by the pilot piston (**8**), if enough pilot pressure is present in the opposite line.

When energized, the force of the solenoid (**5**) pushes the control spool (**2**) from its neutral-central position “0” to the required end position “a” or “b”, and the required flow from P to A (with B to T), or P to B (with A to T) is achieved.
Once the solenoid is de-energized, the return spring (**4**) pushes the spool thrust washer (**3**) back against the housing and the spool (**2**) returns in its neutral-central position.
Each coil is fastened to the solenoid tube by a ring nut (**6**). A pin (**7**) allows to push the spool (**2**) in emergency conditions, when the solenoid cannot be energized, like in case of voltage shortage.

## Technical data

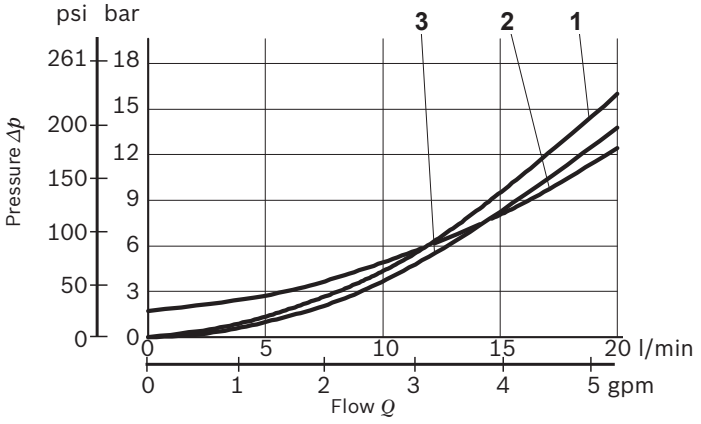
| | | | | |
|---|---|---|---|---|
| **General** | | | | |
| Valve element with 2 solenoids | kg (lbs) | 1.75 (3.86) | | |
| Ambient Temperature | °C (°F) | –30....+90 (-22....+194) (NBR seals) | | |
| MTTFd | | 150 years see RE 18350-51 | | |
| **Hydraulic** | | | | |
| Maximum pressure at P, A and B ports | bar (psi) | 250 (3625) | | |
| Maximum pressure at T | bar (psi) | 250 (3625) | | |
| Maximum inlet flow | l/min (gpm) | 20 (5.3) | | |
| Hydraulic fluid<br>General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example: | | Mineral oil based hydraulic fluids HL (DIN 51524 part 1).<br>Mineral oil based hydraulic fluids HLP (DIN 51524 part 2).<br>For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us. | | |
| Fluid Temperature | °C (°F) | –30....+100 (-22....+212) (NBR seals) | | |
| Permissible degree of fluid contamination | | ISO 4572: $\beta_x \geq 75$ X=12...15<br>ISO 4406: class 20/18/15<br>NAS 1638: class 9 | | |
| Viscosity range | $mm^2/s$ | 5....420 | | |
| **Electrical** | | | | |
| Voltage type | | DC (AC only with RAC connection) | | |
| Voltage tolerance (nominal voltage) | % | -10 .... +10 | | |
| Duty | | Continuous, with ambient temperature ≤ 50°C (122°F) | | |
| Coil wire temperature not to be exceeded | °C (°F) | 150 (302) | | |
| Insulation class | | H | | |
| Compliance with | | Low Voltage Directive LVD 73/23/EC (2006/95/EC), 2004/108/EC | | |
| Coil weight with connection EN 175301-803 | kg (lbs) | 0.18 (0.40) | | |
| Voltage | V | 12 | 24 | 48 |
| Voltage type | | DC | DC | DC |
| Power consumption | W | 20 | 20 | 20 |
| Current (nominal at 20 °C (68 °F)) | A | 1.62 | 0.84 | 0.45 |
| Resistance (nominal at 20 °C (68 °F)) | Ω | 7.4 | 28.4 | 106.4 |

**Note**
For applications with different specifications consult us.

| Code | Voltage [V] | Connector type | Coil description | Marking | Coil Mat no. |
|---|---|---|---|---|---|
| **OB 01** | 12 DC | EN 175301-803 (Ex. DIN 43650) | D3601 12DC | 12V DC | R901393412 |
| **OB 03** | 12 DC | AMP JUNIOR | D3603 12DC | 12V DC | R901435507 |
| **OB 04** | 12 DC | AMP JUNIOR Horizontal | D3604 12DC | 12V DC | R901395031 |
| **OB 07** | 12 DC | DEUTSCH DT 04-2P | D3607 12DC | 12V DC | R901394397 |
| **OC 01** | 24 DC | EN 175301-803 (Ex. DIN 43650) | D3601 24DC | 24V DC | R901393577 |
| **OC 03** | 24 DC | AMP JUNIOR | D3603 24DC | 24V DC | R901435494 |
| **OC 04** | 24 DC | AMP JUNIOR Horizontal | D3604 24DC | 24V DC | R901395035 |
| **OC 07** | 24 DC | DEUTSCH DT 04-2P | D3607 24DC | 24V DC | R901394399 |
| **OD 01** | 48 DC | EN 175301-803 (Ex. DIN 43650) | D3601 48DC | 48V DC | R901394117 |

**Note**
For further versions contact factory.

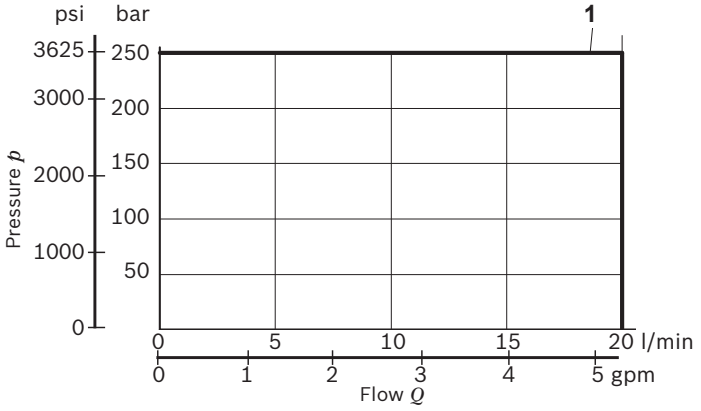
## Characteristic curves




| Spool Variant | Curve no. | | | |
|---|---|---|---|---|
| | P>A | P>B | A>T | B>T |
| B201 | 2 | 2 | 1 | 1 |
| E201 | 2 | 2 | 3 | 3 |

Measured with hydraulic fluid ISO-VG32 at 45° ±5 °C (113° ±9 °F); ambient temperature 20 °C (68 °F).

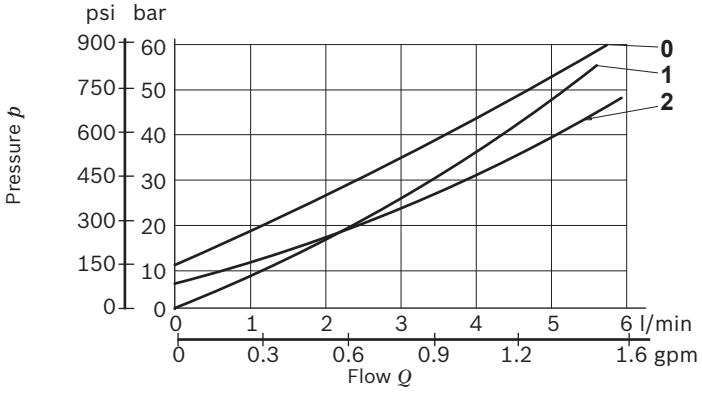
### Performance limits




| Spool Variant | Curve no. |
|---|---|
| B201 | 1 |
| E201 | 1 |

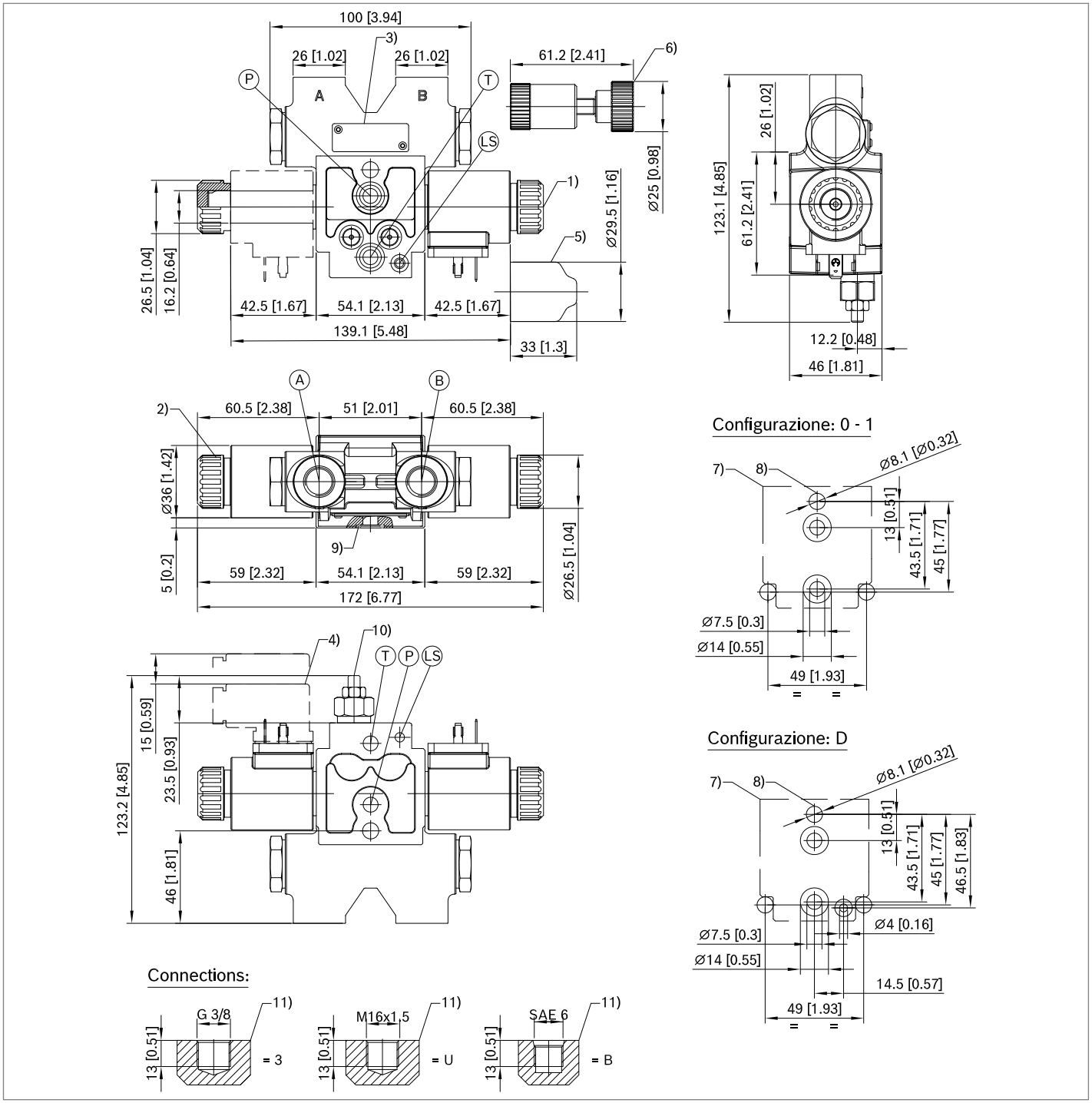
The performance curves are measured with flow going across and coming back, like P>A and B>T, with symmetrical flow areas.
In case of special circuit connections, the performance limits can change.

### Lowest pressure setting curve for secondary valves




| Secondary valve setting | Curve no. |
|---|---|
| 50-210 bar (700-2950 psi) | 0 |
| 100-310 bar (1400-4500 psi) | 1 |
| 25-50 bar (350-700 psi) | 2 |

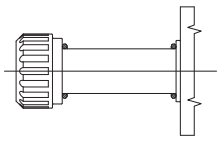
## External dimensions and fittings



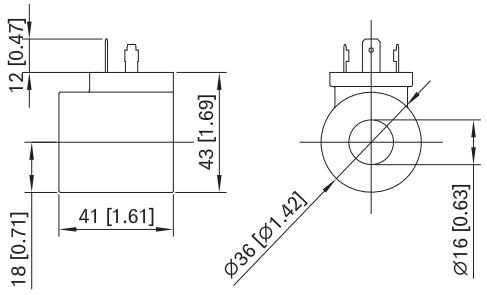

**1** Solenoid tube ø16 (0.63inch).
**2** Ring nut for tube coil locking (OD 26.5); torque 3-4Nm (2.2-3 ft-lb).
**3** Identical label.
**4** Clearance needed for connector removal.
**5** Optional push-button manual override, EP type, for spool opening: it is pressure stuck to the ring nut for tube coil locking. Mat no. R930059524.
**6** Optional screw type manual override, EF type, for spool opening: it is screwed (torque 5-6Nm (3.7-4.4 ft-lb)) to the tube as replacement of the coil ring nut. Mat no. R930059561.
**7** Flange specifications for coupling to ED intermediate elements.
**8** For tie rod and tightening torque information see data sheet RE 18301-90.
**9** O-Ring for T and P line on ED flange.
**10** Space needed for secondary valve in configuration 1.
**11** A and B ports

## Electric connections

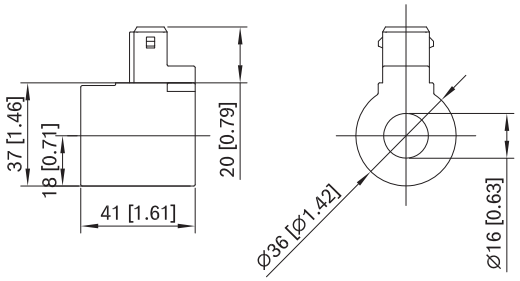
**00** Without coil



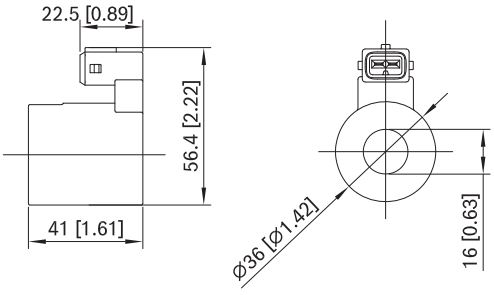
**01** Protection class: IP 65 when connector with seal is properly screwed down.



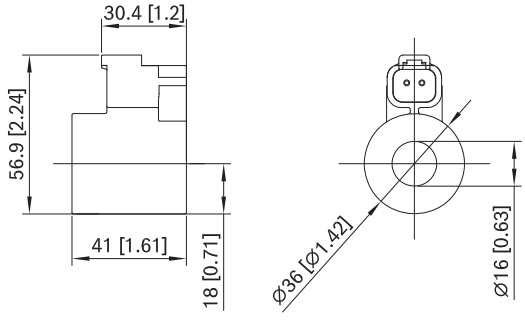

**03** Protection class: IP 65 with female connector properly fitted (see drawing).




**04** Protection class: IP 69 with horizontal connector properly fitted (see drawing).




**07** Protection class: IP 69 with female connector properly fitted (see drawing).

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