

4/3 Directional valve elements
 with or without secondary relief valves,
 with or without LS connections,
 and with PO check valves
 B8_4A... (EDB-A-VR)

RE 18300-57

Edition: 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 | 2 |
| Symbols | 2 |
| Functional description | 3 |
| Technical data | 4 |
| Characteristic curves | 6 |
| External dimensions and fittings | 7 |
| Electric connection | 8 |

Ordering details

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

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 | 4A |
|----|-----|-----------|

Spool variants¹⁾

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

Voltage supply

| | | 31 | 07 | 04 | 03 | 01 | 00 | |
|----|--------------|----|----|----|----|----|----|-----------|
| 06 | Without coil | - | - | - | - | - | • | 00 |
| | 12V DC | • | • | • | • | • | - | OB |
| | 24V DC | • | • | • | • | • | - | OC |
| | 48V DC | - | • | • | • | • | - | OD |
| | 96V DC | - | - | - | - | • | - | OU |
| | 205V DC | - | - | - | - | • | - | AH |

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 |
| | With coils and bipolar sheathed lead 300mm (11,8 in) long | 31 |

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

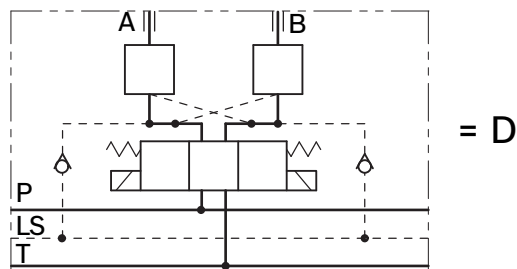
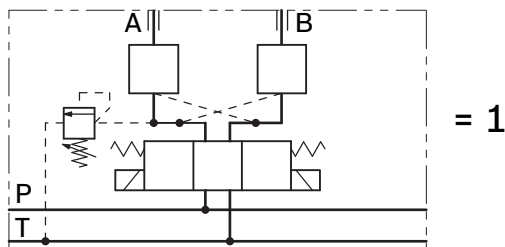
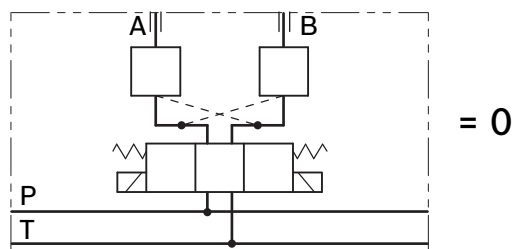
| | | |
|----|------------------------------------|----------|
| 10 | Check valve on port A | 1 |
| | Check valve on both ports A and Bv | 3 |

Options

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

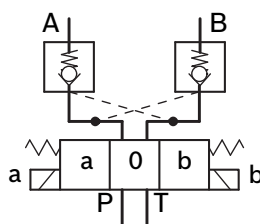
• = Available - = Not available

▼ Symbols

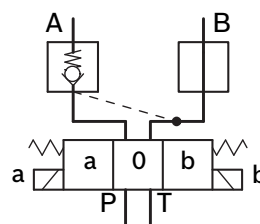


▼ Spool variants

48_ 2 _____ 3



48_ 2 _____ 1

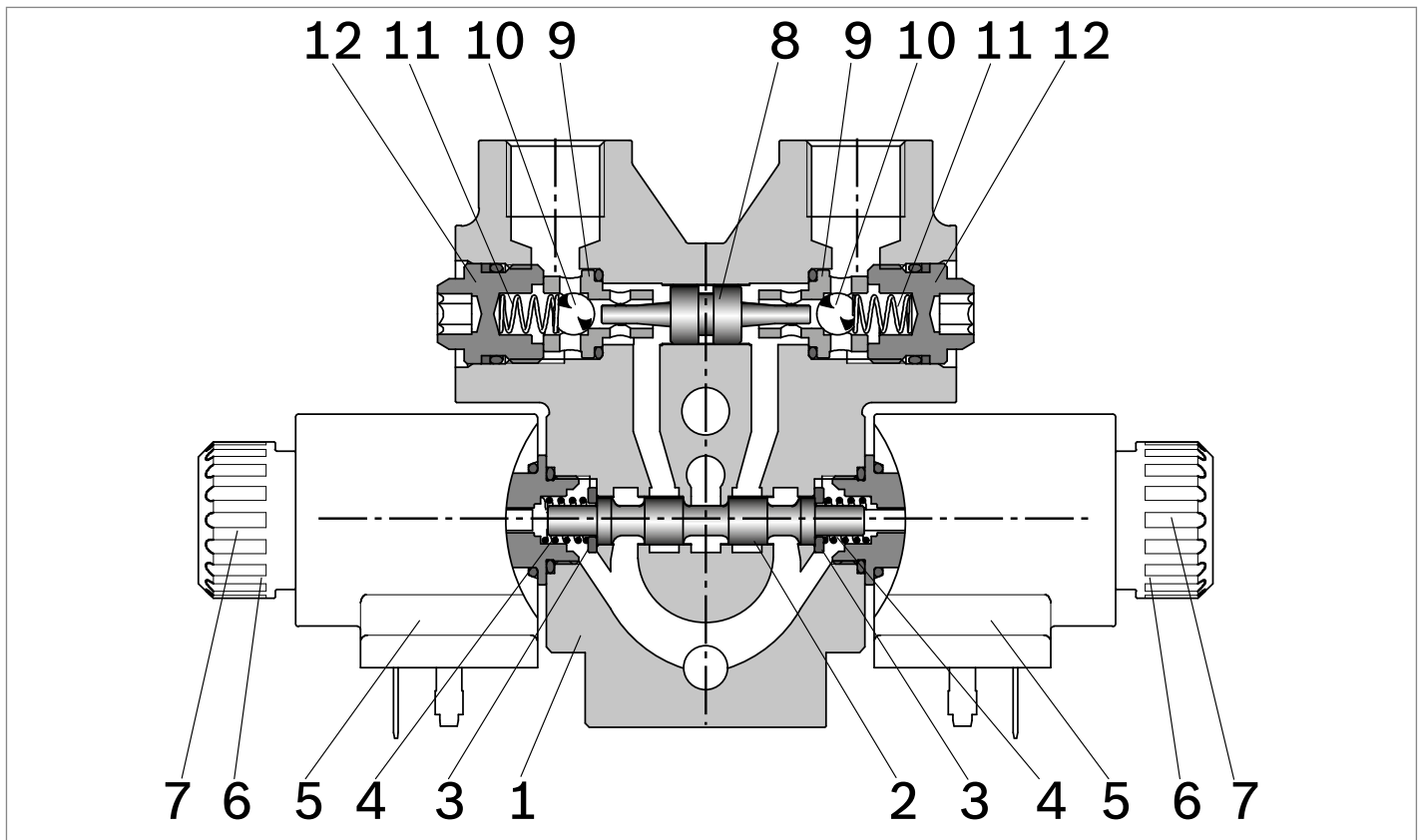


1) The required hydraulic symbol and spool variant can be chosen by consulting this page.

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_4A... 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 calibrated balls (10), with return springs (11), which allow upstream flow but lock on the respective seats (9) 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 | | Mineral oil based hydraulic fluids HL (DIN 51524 part 1). | | | | |
| 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 HLP (DIN 51524 part 2). 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: β _x ≥75 X=12...15 ISO 4406: class 20/18/15 NAS 1638: class 9 | | | | |
| Viscosity range | mm²/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 | 96 | 205 |
| Voltage type | | DC | DC | DC | DC | DC |
| Power consumption | W | 20 | 20 | 20 | 20 | 20 |
| Current (nominal at 20 °C (68 °F)) | A | 1.62 | 0.84 | 0.45 | 0.21 | 0.01 |
| Resistance (nominal at 20 °C (68 °F)) | Ω | 7.4 | 28.4 | 106.4 | 451 | 2062 |

Note

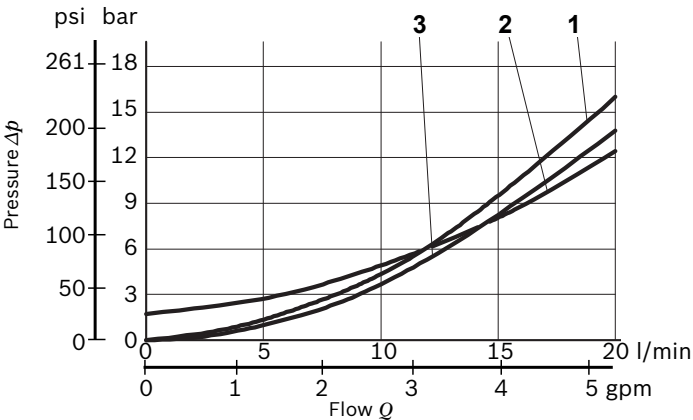
For applications with different specifications consult us

| 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 |
| OU 01 | 96 DC | EN 175301-803 (Ex. DIN 43650) | D3601 96DC | 96V DC | R901394229 |
| AH 01 | 205 DC | EN 175301-803 (Ex. DIN 43650) | D3601 205DC | 205V DC | R901394231 |

Note

For further versions (i.e. cable single lead) contact factory.

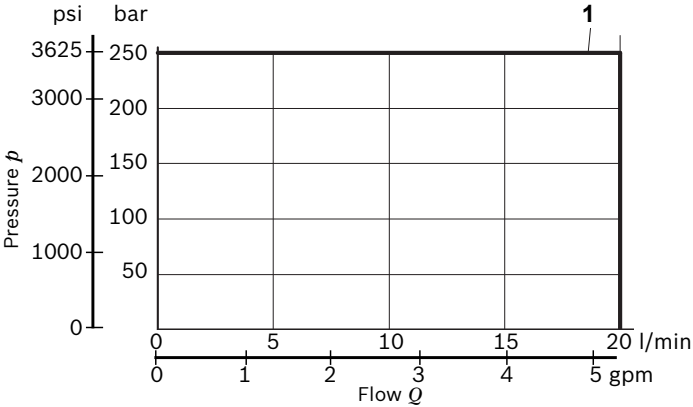
Characteristic curves



| 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

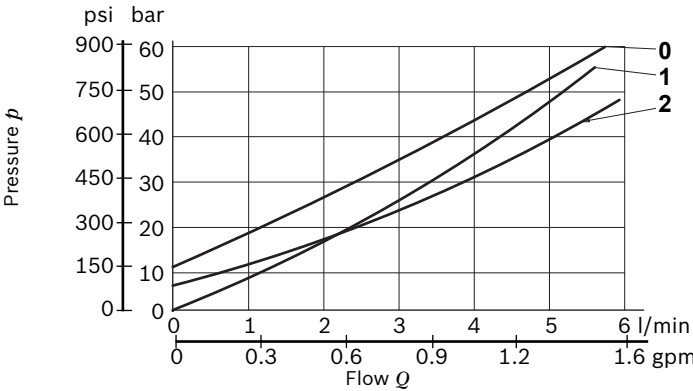


| Spool Variant | Curve no. |
|---------------|-----------|
| B201 | 1 |
| E201 | 1 |

The performance curves are measured with flow going across and coming back, like P>A and B>T, with symmetrical flow areas.

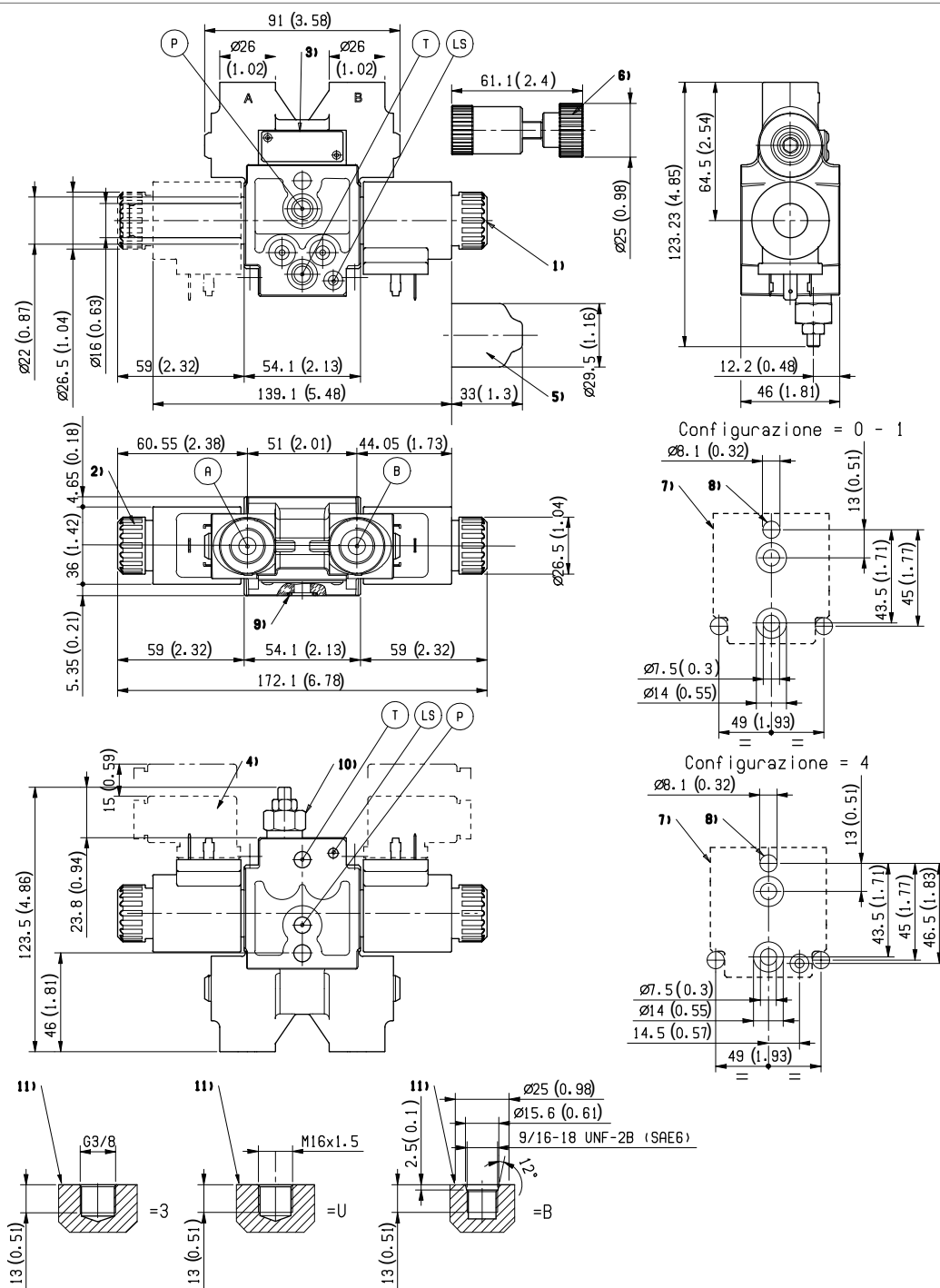
In case of special circuit connections, the performance limits can change.

Lowest pressure setting curve for secondary valves



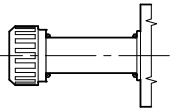
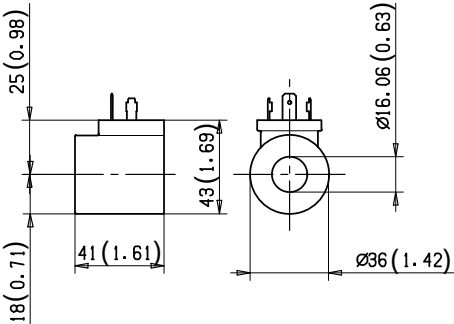
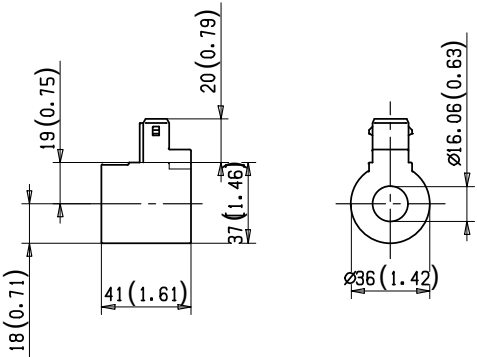
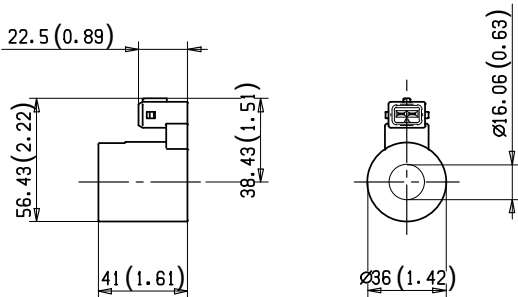
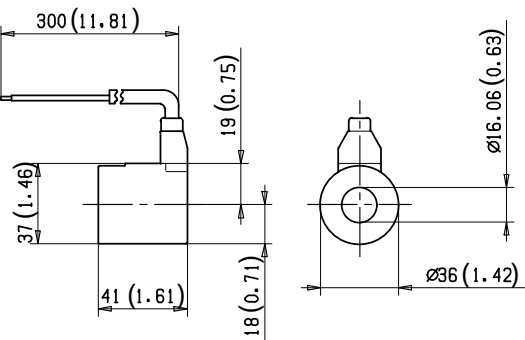
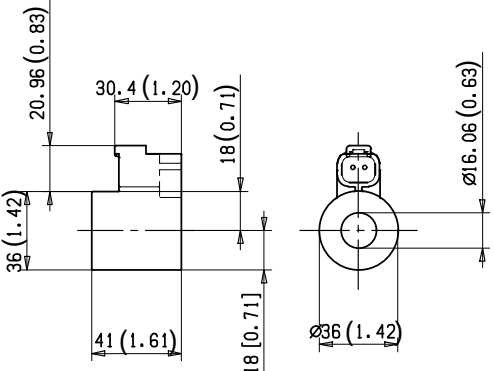
| Secondary valve setting | Curve no. |
|-----------------------------|-----------|
| 50-210 bar (700-2950 psi) | 0 |
| 100-310 bar (1400-4500 psi) | 1 |
| 25-50 bar (350-700 psi) | 2 |

External dimensions and fittings



- | | |
|---|--|
| <p>1 Solenoid tube $\varnothing 16$ (0.63inch).</p> <p>2 Ring nut for tube coil locking (OD 26.5); torque 3-4Nm (2.2-3 ft-lb).</p> <p>3 Identical label.</p> <p>4 Clearance needed for connector removal.</p> <p>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.</p> <p>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.</p> | <p>7 Flange specifications for coupling to ED intermediate elements.</p> <p>8 For tie rod and tightening torque information see data sheet RE 18301-90.</p> <p>9 O-Ring for T and P line on ED flange.</p> <p>10 Space needed for secondary valve in configuration 1.</p> <p>11 A and B ports</p> |
|---|--|

Electric connection

| | |
|--|--|
| <p>00</p>  | <p>01</p>  |
| <p>03 Protection class: IP 65 with female connector properly fitted (see drawing).</p>  | <p>04 Protection class: IP 65 with female connector properly fitted (see drawing).</p>  |
| <p>31</p>  | <p>07 Protection class: IP 69 K with female connector properly fitted (see drawing).</p>  |

Bosch Rexroth Oil Control S.p.A.

Oleodinamica LC Division
Via Artigianale Sedrio, 12
42030 Vezzano sul Crostolo
Reggio Emilia - Italy
Tel. +39 0522 601 801
Fax +39 0522 606 226 / 601 802
compact-hydraulics-cdv@boschrexroth.com
www.boschrexroth.com/compacthydraulics

© This document, as well as the data, specifications and other information set forth in it, are the exclusive property of Bosch Rexroth Oil Control S.p.A.. It may not be reproduced or given to third parties without its consent. The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.
Subject to change.