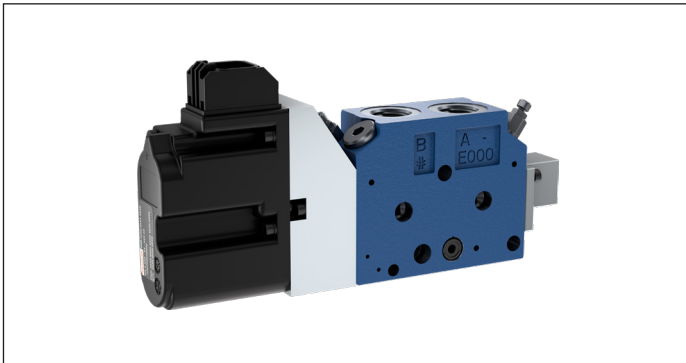


4/3 Proportional directional valve elements with LS - On Board Electronics

EDG-OBE

RE 18301-35

Edition: 11.2023



- ▶ Size 6
- ▶ Maximum operating pressure:
 - ▶ 350 bar (5000 psi) on pump side
 - ▶ 350 bar (5000 psi) on consumer side
- ▶ Maximum flow at 8 bar bias spring (116 psi):
60 l/min (15.8 gpm)
- ▶ Ports connections G 3/8 - G 1/2 - SAE8
- ▶ C-Samples available starting from January 2024

General specifications

- ▶ The inlet section can be configured for either a fixed displacement pump or load-sense variable displacement pump. When simultaneous machine functions are actuated, the pre-compensators will automatically adjust to the highest load pressure via a shuttle arrangement, making the system circuit independent of variations in loads and pump pressures. Thanks to modularity concept, it's possible to combine stacks of flexible sections across the entire EDG family. The new On Board Electronics (OBE) module ensures the maximum efficiency in all working conditions, thanks to a control loop that allows an integration and communication between sensors and hydraulic components.

Main Field of Application

- ▶ Truck mounted applications
- ▶ Forestry machinery
- ▶ Forklifts and Telehandler
- ▶ Municipal vehicles
- ▶ Cranes
- ▶ Construction machines
- ▶ Mobile elevating working platforms
- ▶ Heavy duty vehicles
- ▶ Agricultural machines

Contents

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Ordering details

| | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
|------------|----|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|
| EDG | - | OBE | - | - | - | - | - | - | - | - | - | - | - | - | - |

Family

| | | |
|----|--|------------|
| 00 | Directional Valve elements EDG Size 6 proportional | EDG |
|----|--|------------|

Type and configuration

| | | |
|----|---|------------|
| 01 | Electro - Piloted with On Board Electronics | OBE |
|----|---|------------|

Ports & Connections

| | | |
|----|-----------------------|------------|
| 02 | G 3/8 DIN 3852 | G38 |
| | G 1/2 DIN 3852 | G12 |
| | 3/4-16 UNF 2-B (SAE8) | S08 |

Local compensator bias spring

| | | |
|----|-----------------|----------|
| 03 | 4 bar (58 psi) | 1 |
| | 7 bar (102 psi) | 2 |
| | 8 bar (116 psi) | 3 |

Flange configuration

| | | |
|----|--|----------|
| 04 | With P-TA-TB-LS-Xa-Xb-X-Y lines | 2 |
| | With P-TA-TB-LS-Xa-Xb-X-Y lines and LS return line | 3 |

Hydraulic connections in neutral

| | | |
|----|------------------------|----------|
| 05 | P, A, B closed LS to T | B |
| | P closed A, B, LS to T | E |

Spool variants

| | | |
|----|---------------------------------|----------|
| 06 | 4/3 operated both sides a and b | 2 |
|----|---------------------------------|----------|

Flow rates over valve connection (according to table 1)

| | | |
|----|-------------------------|-----------------|
| 07 | Flow rate P>A | - |
| 08 | Flow rate P>B | - |
| 09 | Nominal flow rate (A>T) | - ⁴⁾ |
| 10 | Nominal flow rate (B>T) | - ⁴⁾ |

Secondary valve types

| | | |
|----|---|------------------------|
| 11 | Without secondary valve | 00 |
| | Double or single full relief valve with Anticavitation (VMA) or anticavitation only (VUM) or plug | M0²⁾ |
| | Double or single LS relief valve (VMGLS) or plug | 0M³⁾ |
| | Combination of M0 and 0M options together | MM |

Secondary valve config. setting:

Full Relief or Anticavitation selection (according to table 2)

| | | |
|----|--------------------|-----------------|
| 12 | A>Ta setting @5lpm | - ¹⁾ |
| 13 | B>Tb setting @5lpm | - ¹⁾ |

Secondary valve config. setting: LS Relief (VMGLS) (according to table 3)

| | | |
|----|-----------------------------|-----------------|
| 14 | LSA>T setting range @1.5lpm | - ¹⁾ |
| 15 | LSB>T setting range @1.5lpm | - ¹⁾ |

- 1) "0" option is the only one available for "without secondary valves" selection.
- 2) For fixed setting relief valve data sheet see Data Sheet RE 18329-11.
For anticavitation valve data sheet see Data Sheet RE 18329-51.
- 3) See Table 3.
- 4) Asymmetrical spools available on request.

Ordering details

Table 1

| | Spring Setting | | |
|---------------|----------------|------|------|
| | 4bar | 7bar | 8bar |
| | 3333 | 20 | 25 |
| | 6666 | 30 | 40 |
| Spool Variant | 9999 | -- | 50 |
| | | | 60 |

Table 2

Full relief valve configuration setting

| 0 | 9 | | | | | 8 | | | | | |
|--|--|----------|----------|----------|----------|----------------------------|----------|----------|----------|----------|----------|
| Without valve cavity on both sides (not drilled) | With valve cavity plugged (Normally closed plug) | | | | | With anti-cavitation valve | | | | | |
| A | B | C | D | E | F | G | H | I | J | K | |
| 50 bar | 60 bar | 70 bar | 80 bar | 90 bar | 100 bar | 110 bar | 120 bar | 130 bar | 140 bar | 150 bar | |
| 725 psi | 870 psi | 1015 psi | 1160 psi | 1305 psi | 1450 psi | 1595 psi | 1740 psi | 1885 psi | 2030 psi | 2175 psi | |
| L | M | N | O | P | Q | R | S | T | U | V | X |
| 160 bar | 170 bar | 180 bar | 190 bar | 200 bar | 210 bar | 220 bar | 230 bar | 240 bar | 250 bar | 270 bar | 290 bar |
| 2320 psi | 2465 psi | 2611 psi | 2756 psi | 2901 psi | 3046 psi | 3191 psi | 3336 psi | 3481 psi | 3626 psi | 3916 psi | 4206 psi |

Note

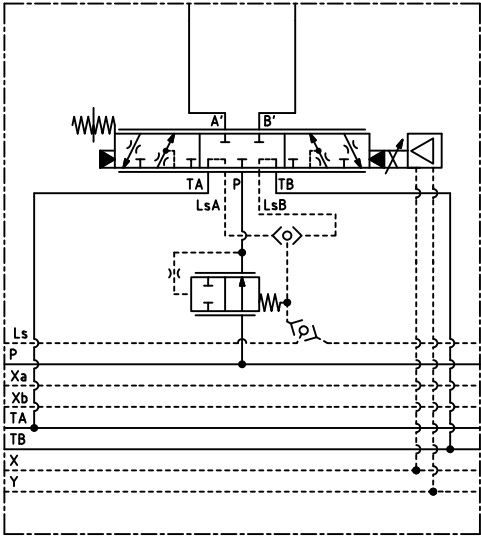
For pressure higher than 290 bar (4206 psi), contact factory.

Table 3

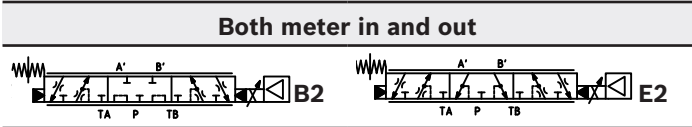
LS relief valve configuration setting

| Option selection | Description | Standard setting (bar) |
|------------------|-----------------------------|------------------------|
| 0 | without valve cavity | - |
| 1 | 30-90 bar (Setting range) | 70 |
| 2 | 80-140 bar (Setting range) | 110 |
| 3 | 135-225 bar (Setting range) | 180 |
| 4 | 210-310 bar (Setting range) | 250 |
| 5 | 290-380 bar (Setting range) | 300 |
| 9 | Normally closed plug | R930082023 |

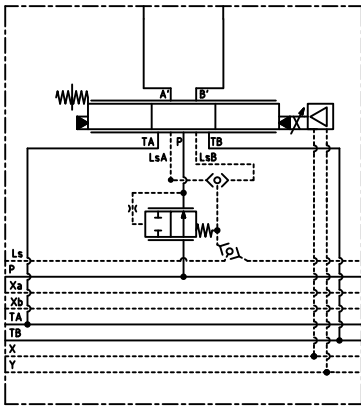
General hydraulic layout



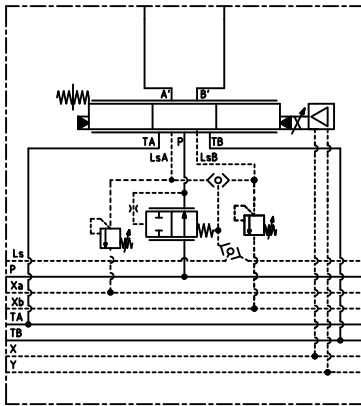
07 - Spool Variants



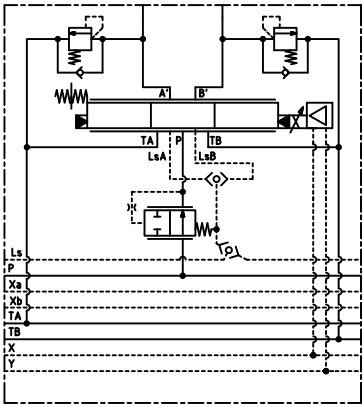
14 - Secondary valve types



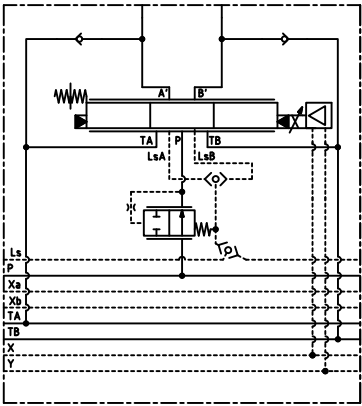
00
No secondary valves



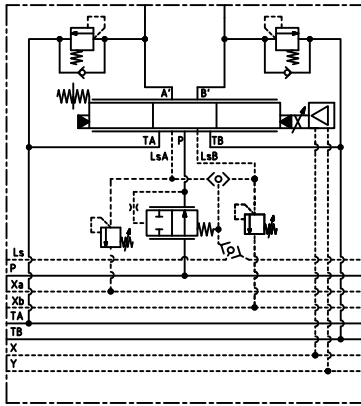
0M
LS relief valves option



M0
Relief valves with
anticavitation option

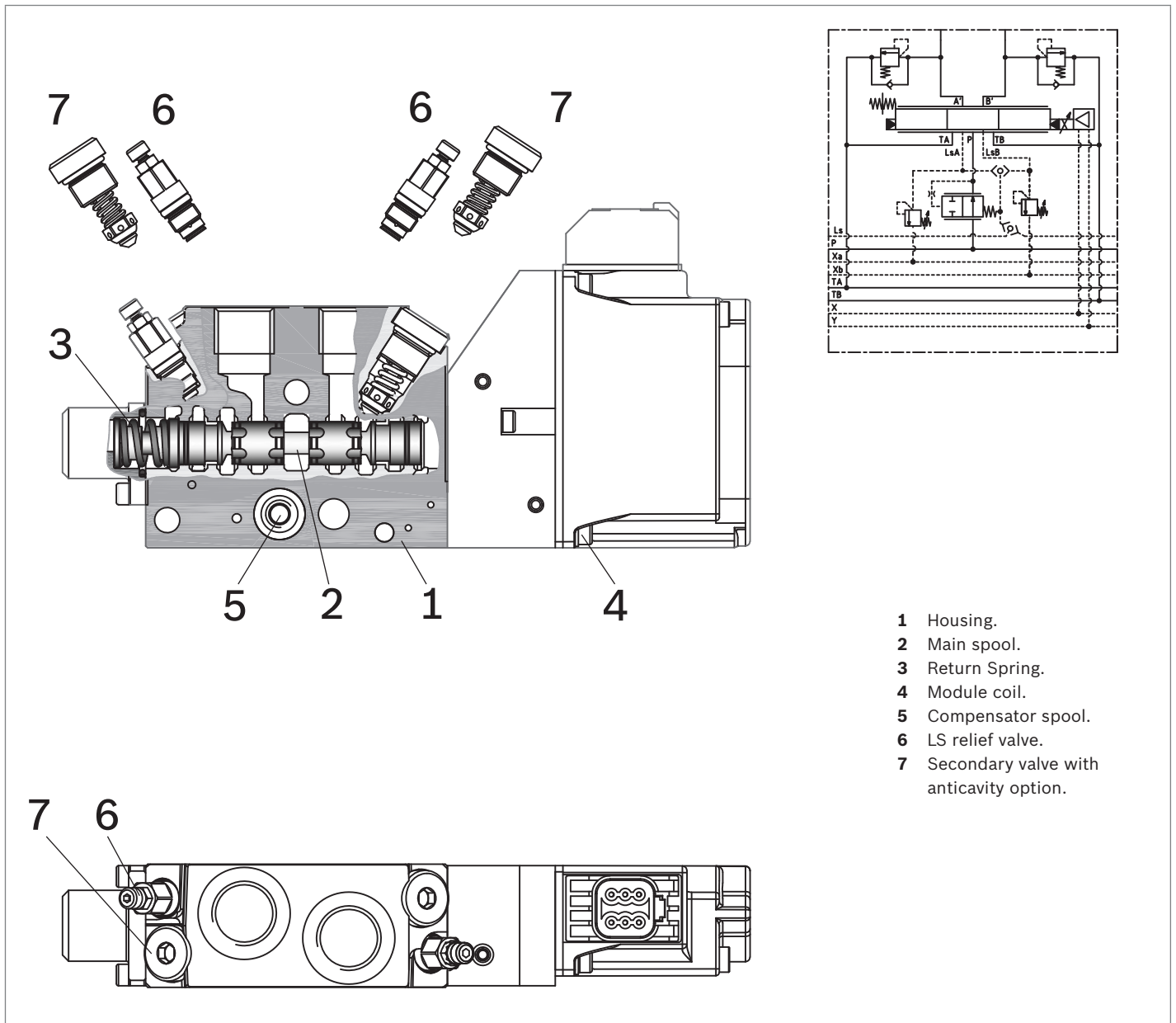


M0
Anticavitation
valves option



MM
Combination of
M0 and 0M options

Functional description



- 1 Housing.
- 2 Main spool.
- 3 Return Spring.
- 4 Module coil.
- 5 Compensator spool.
- 6 LS relief valve.
- 7 Secondary valve with anticavity option.

The EDG OBE pilot operated proportional sectional valves with pressure compensation controls the oil flow to actuators with a close loop.

These elements consist of a stackable housing (1) with a control spool (2), an On Board Electronics (OBE) module (4), one return spring (3). The OBE module (4) displaces the control spool from its neutral-central position "0" proportionally to the current received, with a control in close loop. When the spool is shifted and the metering notch is open, flow delivery starts and is controlled by a 2 way pressure compensator (5) ($P > A$; $P > B$).

Load pressure compensation

The pressure compensator (5) keeps the pressure differential on the main spool (2). The flow to the consumers remains constant, despite varying loads. Port relief valves with anti-cavitation function on A and B (7) protect the system against pressure peaks and cavitation. LS relief valves (6), for each consumer port, can be adjusted according to specific application requirements.

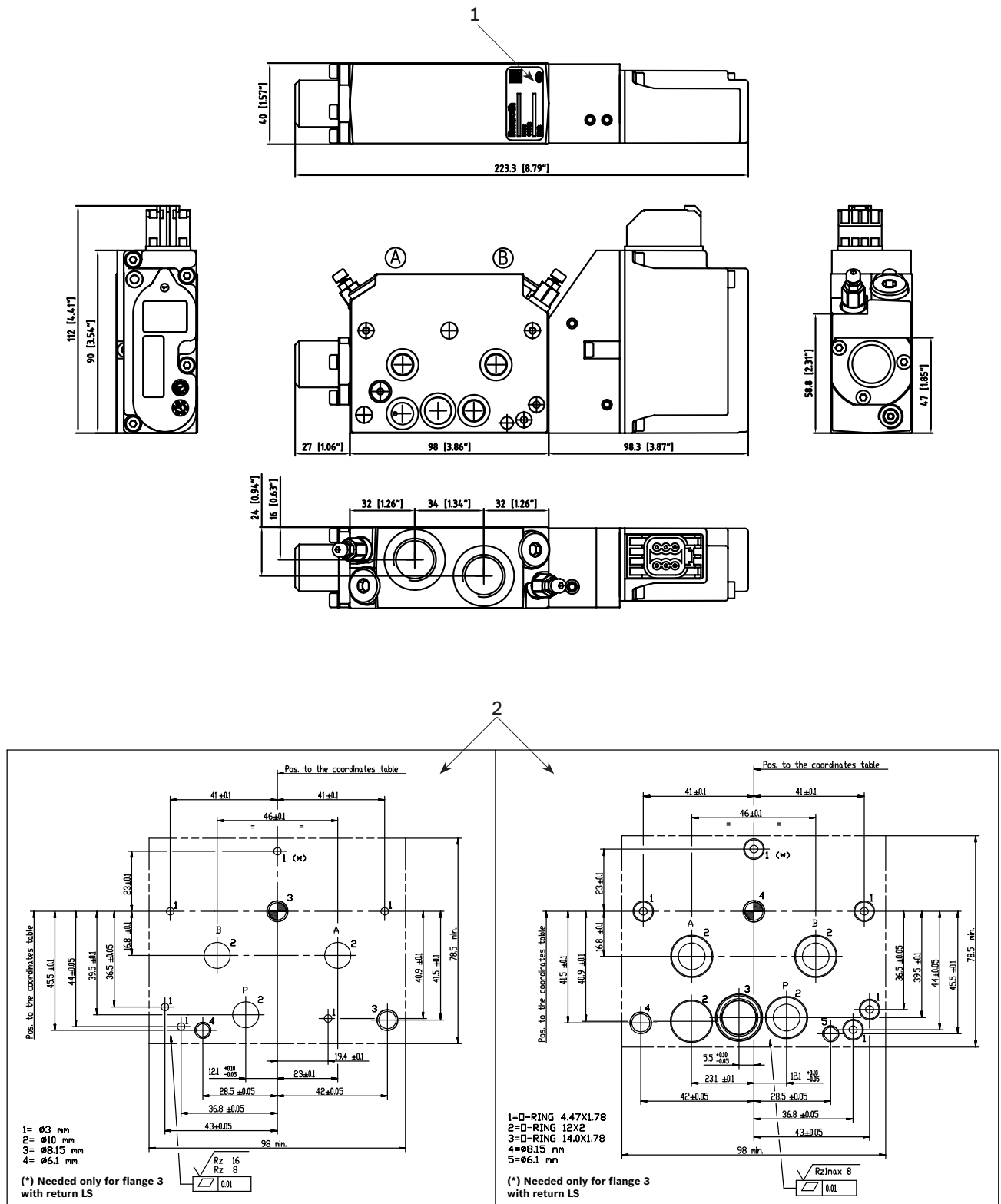
Technical data

| General | | |
|---|---|---------------------------------------|
| Valve element | kg (lbs) | 2.7 (5.95) |
| Ambient Temperature | °C (°F) | -30...+50 (-22...+122) |
| Hydraulic | | |
| Maximum pressure at P, A and B ports | bar (psi) | 350 (5000) |
| Piloting pressure range (X) | bar (psi) | 12 ÷ 35 (175 ÷ 508) |
| Maximum static pressure at T | bar (psi) | 210 (3050) |
| Maximum drain line (Y) back pressure | bar (psi) | 20 (290) |
| Max. regulated flow at 8 bar (116 psi) | l/min (gpm) | 60 (15.8) |
| For E schemes symmetrical spool pattern in neutral position (connection A to T and B to T). | Approx. 2% of the nominal cross-section | |
| Hydraulic fluid General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems. | Mineral oil based hydraulic fluids HL (DIN 51524 part 1). 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: $\beta_{x \geq 75} X=12...15$ ISO 4406: class 20/18/15 NAS 1638: class 9 | |
| Viscosity range | mm ² /s | 20....380 (optimal 30....46) |
| Electrical | | |
| Voltage range | V | 8,5 ÷ 30 |
| Maximum current consumption | mA | 1000 |
| Input signal | CAN BUS SAE-J1939 | |
| Output signal | CAN BUS SAE-J1939 | |
| Output spool position signal | V | 0÷5 |
| Environmental protection level | IP69K | |
| Node ID | 0 (default) adjustable | |
| EMC (Emission & Immunity) | EN13766 - EN14982 | |
| Connector type | DT04-6P MALE DEUTSCH | |

Note

For applications with different specifications consult us.

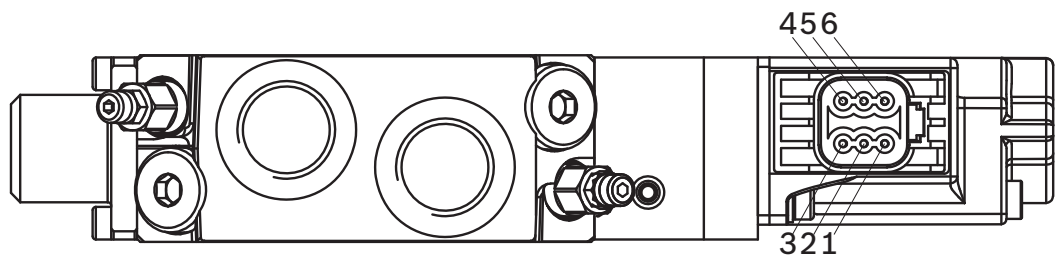
* In addition to relief valve pressure setting value.

External dimensions and fittings

- 1 Identification label.
- 2 Flange specifications. For tie rod and tightening torque information see data sheet RE 18301-92.

Electric connection

01 Protection class: IP 69K with connector properly fitted.



DT04-6P MALE DEUTSCH

Connector-Pin OUT

| Pin | D/C0 VER. |
|-----|--------------------------|
| 1 | +V (Power Supply) |
| 2 | CAN-L |
| 3 | N.C. (Pos. feedback) |
| 4 | N.C. (Analog IN) |
| 5 | CAN-H |
| 6 | -V (Ground Power Supply) |

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