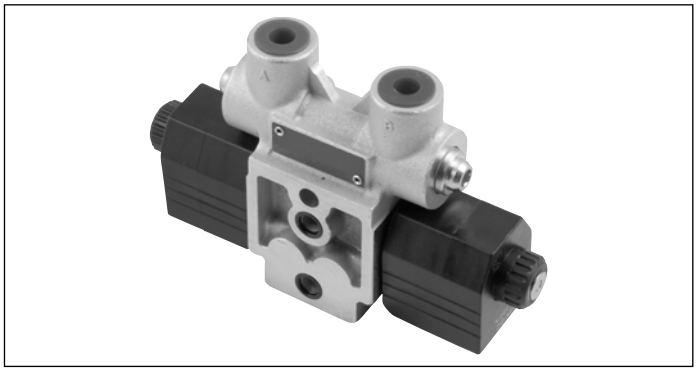
rexroth
A Bosch Company

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

B8_48... (EDBZ-VR)

RE 18300-53
Edition: 09.2018
Replaces: 05.2017



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**		**48**							

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	**4**

Coil type

04	C36	**08**

Spool variants[1)]

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**
	13V DC	–	–	–	–	●	–	**AD**
	24V DC	●	●	●	●	●	–	**OC**
	27V DC	–	–	–	–	●	–	**AC**
	48V DC	–	–	●	–	●	–	**OD**
	110V DC	–	–	–	–	●	–	**OE**
	24V AC (21.5 DC)	–	–	–	–	●	–	**OV**
	110V AC (98 DC)	–	–	–	–	●	–	**OW**
	230V AC (207 DC)	–	–	–	–	●	–	**OZ**

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 DT04-2P	**07**
	With coils and bipolar sheathed lead 350mm (13,8 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

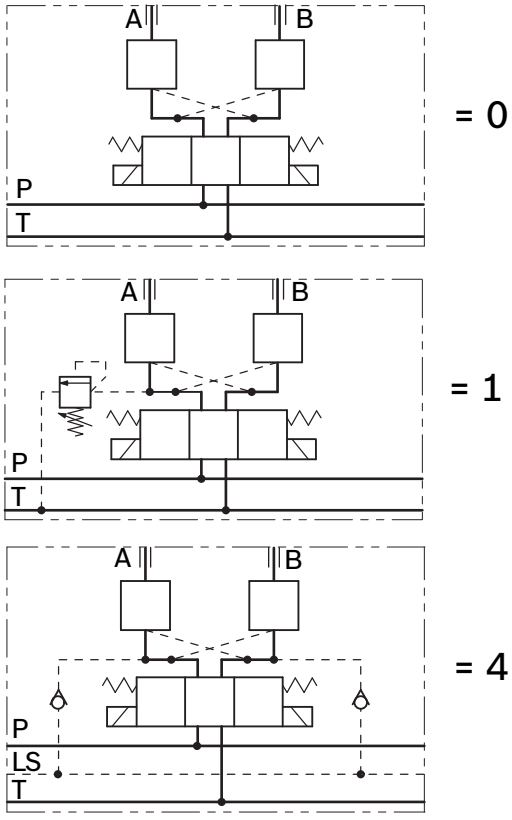
10	Check valve on port A	**1**
	Check valve on both ports A and Bv	**3**

Options

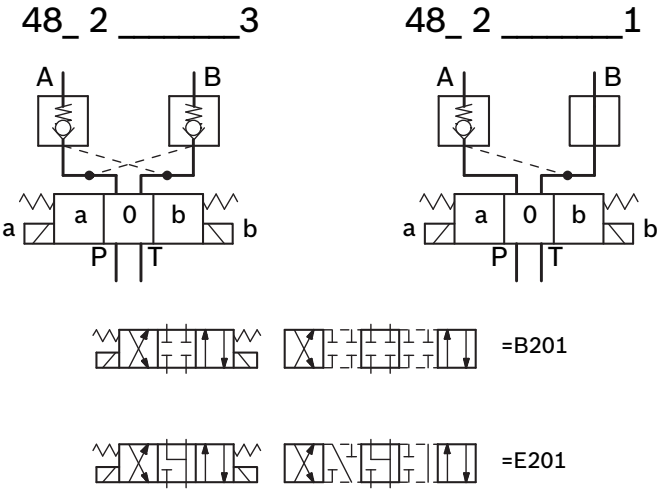
11	No options	**No code**
	Standard	**0**
	Push-button type manual override	**P**
	Screw type manual override	**F**

● = Available – = Not available

Symbols

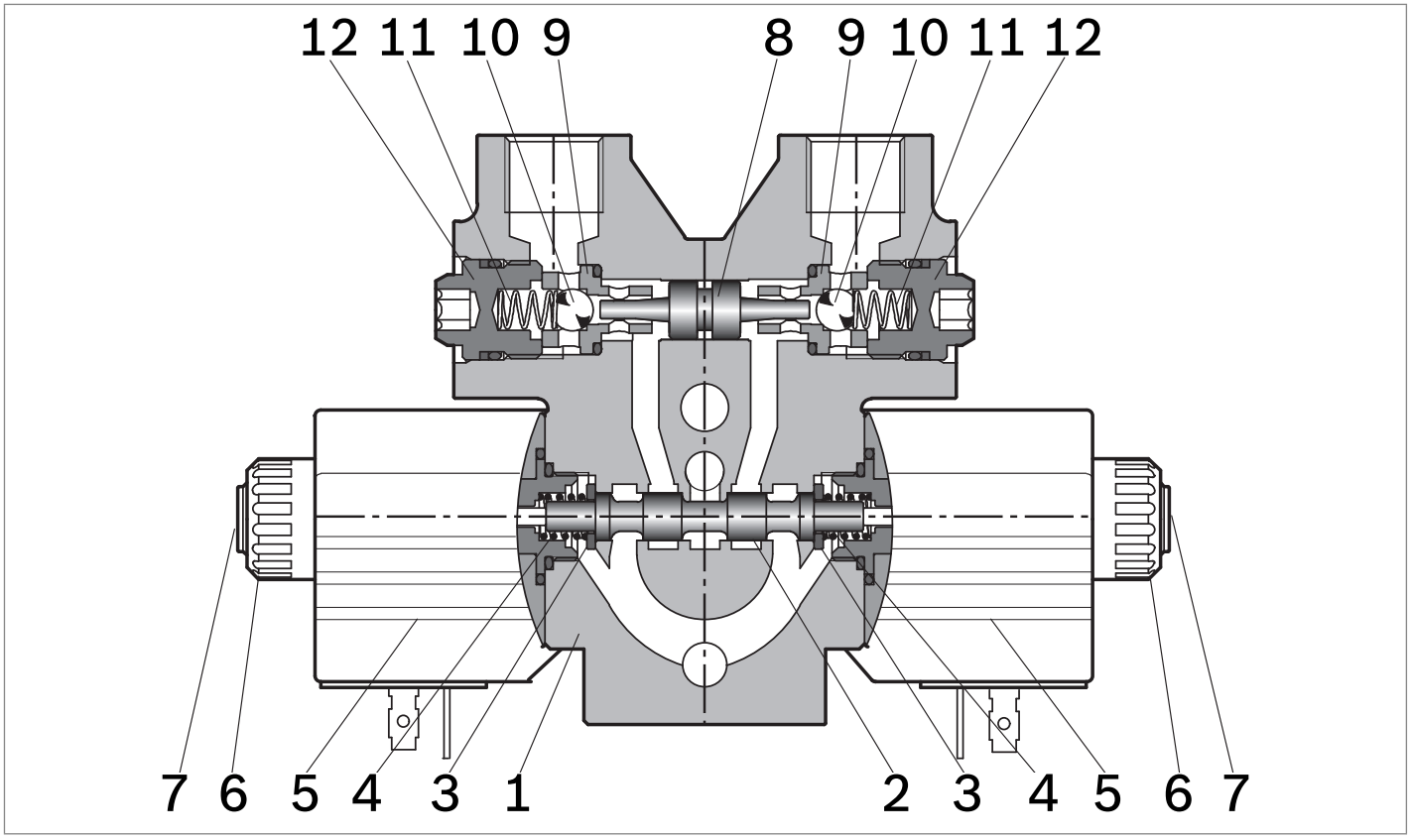


Spool variants



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_48... 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.

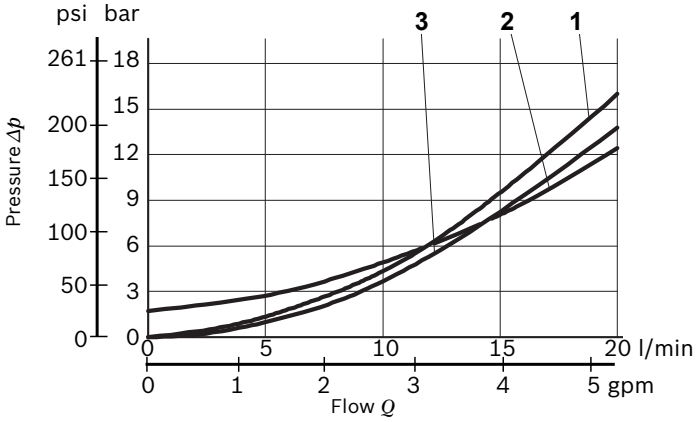
Technical data

General									
Valve element with 2 solenoids	kg (lbs)	1.75 (3.86)							
Ambient Temperature	°C (°F)	–20....+50 (-4....+122) (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 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). 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)	–20....+80 (-4....+176) (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	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)	0.215 (0.44)							
Voltage	V	12	13	24	27	48	110	24 +RAC (21,5)	110 +RAC (98)	230 +RAC (207)
Voltage type		DC	DC	DC	DC	DC	DC	DC	DC	DC
Power consumption	W	26	26	26	26	26	26	29	29	29
Current (nominal at 20 °C (68 °F))	A	2.15	2.0	1.10	1.0	0.54	0.27	1.20	0.29	0.14
Resistance (nominal at 20 °C (68 °F))	Ω	5.5	6.5	22	28	89	413	18	338	1430

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)	C3601 12DC	12 DC	R933000044
=OB 03	12 DC	AMP JUNIOR	C3603 12DC	12 DC	R933000047
=OB 07	12 DC	DEUTSCH DT 04-2P	C3607 12DC	12 DC	R933000048
=OB 31	12 DC	Cable 350 mm long	C3631 12DC	12 DC	R933000045
=AD 01	13 DC	EN 175301-803 (Ex. DIN 43650)	C3601 13DC	13 DC	R933000051
=AD 07	13 DC	DEUTSCH DT 04-2P	C3607 13DC	13 DC	R933000049
=OC 01	24 DC	EN 175301-803 (Ex. DIN 43650)	C3601 24DC	24 DC	R933000053
=OC 03	24 DC	AMP JUNIOR	C3603 24DC	24 DC	R933000057
=OC 07	24 DC	DEUTSCH DT 04-2P	C3607 24DC	24 DC	R933000058
=OC 31	24 DC	Cable 350 mm long	C3637 24DC	24 DC	R933000055
=AC 01	27 DC	EN 175301-803 (Ex. DIN 43650)	C3601 27DC	27 DC	R933000056
=AC 07	27 DC	DEUTSCH DT 04-2P	C3607 27DC	27 DC	R933000050
=OD 01	48 DC	EN 175301-803 (Ex. DIN 43650)	C3601 48DC	48 DC	R933000059
=OE 01	110 DC	EN 175301-803 (Ex. DIN 43650)	C3601 110DC	110 DC	R933000061
=OV 01	24 RAC	EN 175301-803 (Ex. DIN 43650)	C3601 21.5DC	21.5 DC	R933000054
=OW 01	110 RAC	EN 175301-803 (Ex. DIN 43650)	C3601 98DC	98 DC	R933000060
=OZ 01	230 RAC	EN 175301-803 (Ex. DIN 43650)	C3601 207DC	207 DC	R933000062

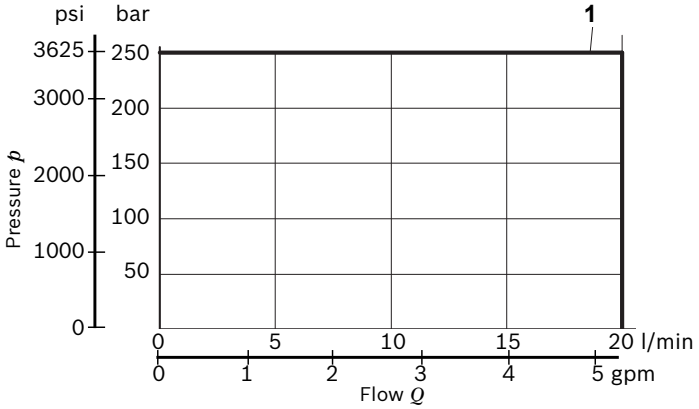
Characteristic curves



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).

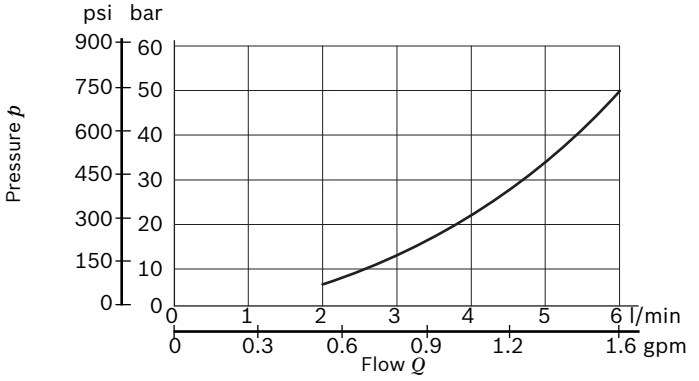
Performance limits



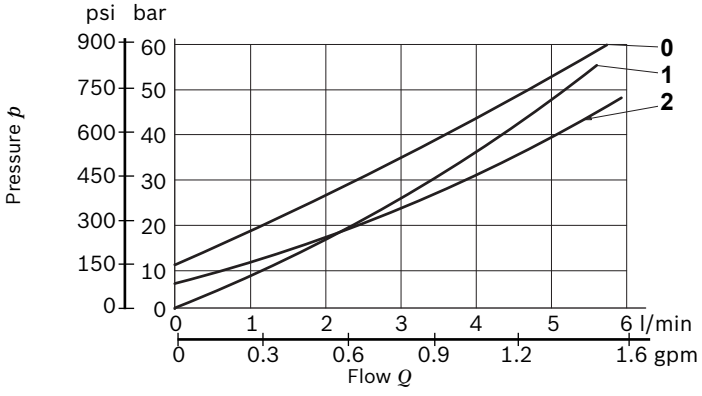
Spool Variant	Curve no.
B201	1
E201	1

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.

Minimum flow for efficiency of LS control

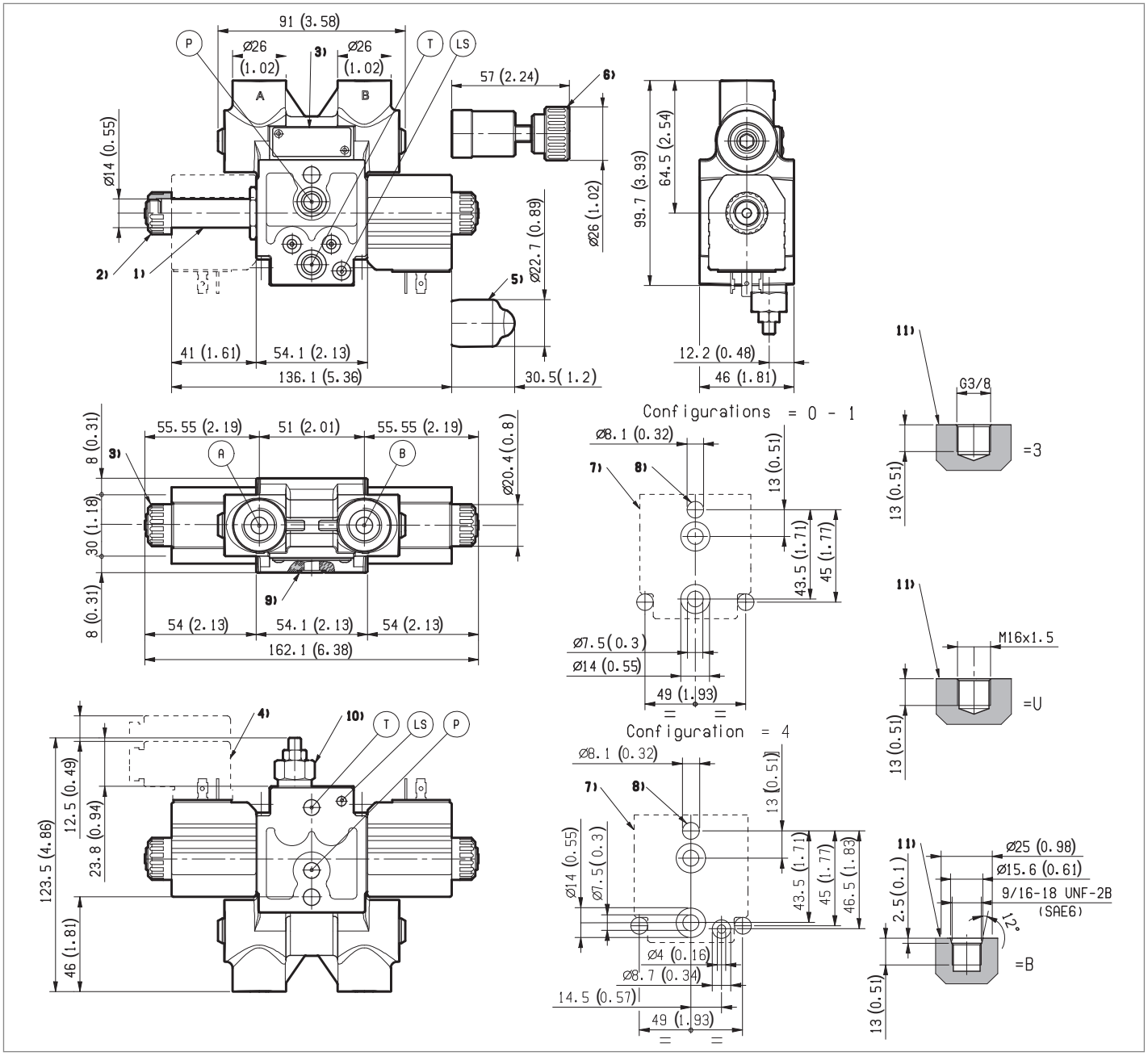


Lowest pressure setting curve for secondary valves



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

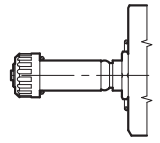
External dimensions and fittings



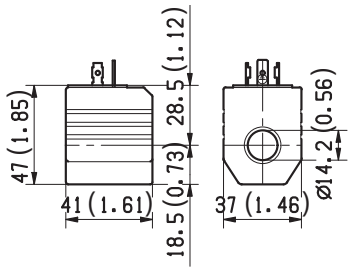
1 Solenoid tube Ø 14 mm (0.55 inch).
2 Ring nut for coil locking (OD 20.5 mm); torque 3-4Nm (2.2-3 ft-lb).
3 Identification label.
4 Clearance needed for connector removal.
5 Optional push-button manual override, EP type, for spool opening: it is pressure stuck to the ring nut for coil locking. Mat no. R933000042.
6 Optional screw type manual override, EF type, for spool opening: it is screwed (torque 6-7 (4.4-5.2 ft-lb)) to the tube as replacement of the coil ring nut. Mat no. R933000021.
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-Rings for P and T ports.
10 Space needed for secondary valve, for configuration 1. Hex. 17, torque 9-10 Nm (6.6-7.4 lb-ft).
11 A and B ports.

Electric connection

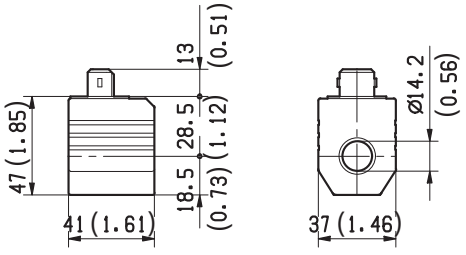
00



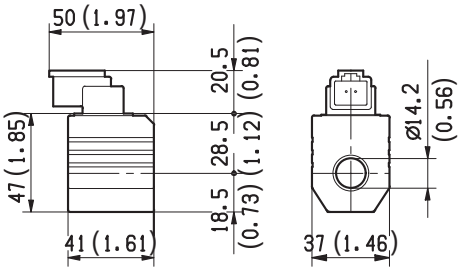
01



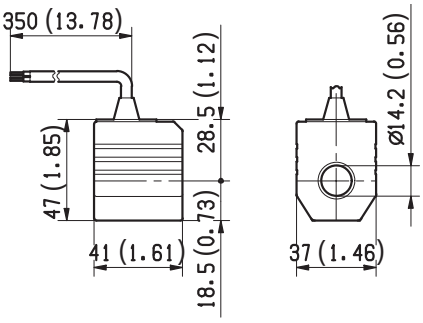
03 Protection class: IP 65 with female connector properly fitted (see drawing).



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



31



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