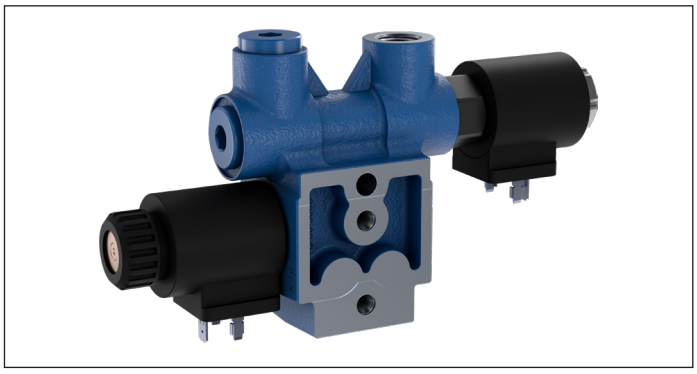
4/3 Directional valve elements with or without secondary relief valves, with or without LS connections and with 2/2 solenoid cartridge valve

EDB-A-VEI

RE 18300-58
Edition: 03.2025
Replaces: 06.2022



- Size 4
- Series 00
- Maximum operating pressure 310 bar (4500 psi)
- Maximum flow 25 l/min (6.6 gpm)
- Port connections G 3/8 SAE6 - M16x1.5

General specifications

Valve elements with 4 ways and 2 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 spring.
Wet pin tubes for DC coils, with push rod for mechanical override; burnish surface treatment.
Manual override (push-button or screw type) available as option.
Additional solenoid cartridge 2/2, NO or NC, single locking or dual locking on port A.

Contents

Ordering details

01	02	03	04	05	06	07	08	09	10	11	12
B	**8**		**5**	**A**	**E401**						

Family

01	Directional Valve elements EDB	**B**

Type

02	Size 4	**8**

Configuration

03	Standard	**0**
	With secondary valve on A	**1**
	With channels for Load Sensing	**D**

Body type

04	With cavity for 2/2 solenoid cartridge valve	**5**

Coil type

05	D36	**A**

Spool variants

06	4/2 operated on side b only	**E401**

Voltage supply

		31	07	04	03	01	00	
07	Without coil	–	–	–	–	–	●	**00**
	12 V DC	●	●	●	●	●	–	**OB**
	24 V DC	●	●	●	●	●	–	**OC**

Electric connections

08	Without coils	**00**
	With coils, without mating connector DIN EN 175301-803	**01** [1]
	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

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

Secondary valves setting [2]

10	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**

Solenoid screw-in cartridge VEI

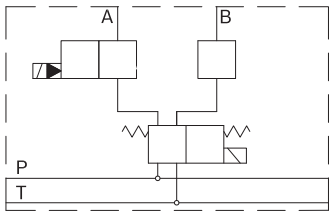
11	Without valve	**N**
	Normally closed	**C**
	Normally open	**A**
	Dual locking normally closed	**D**
	Dual locking normally open	**O**

Options

12	Standard	**0**
	Push-button type manual override	**P**
	Screw type manual override	**F**

● = Available – = Not available

Symbols



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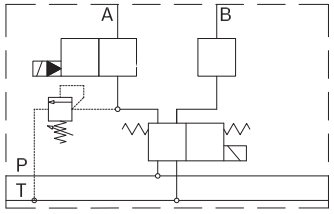

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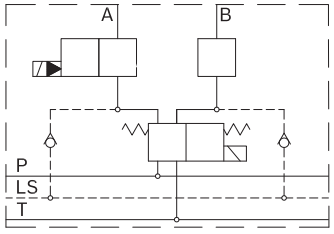

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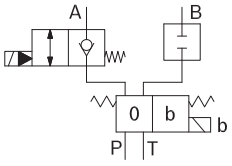
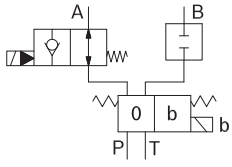
Spool variants

__C_



__A_



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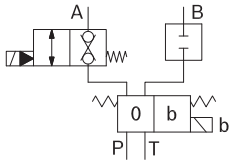

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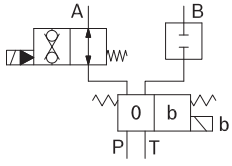
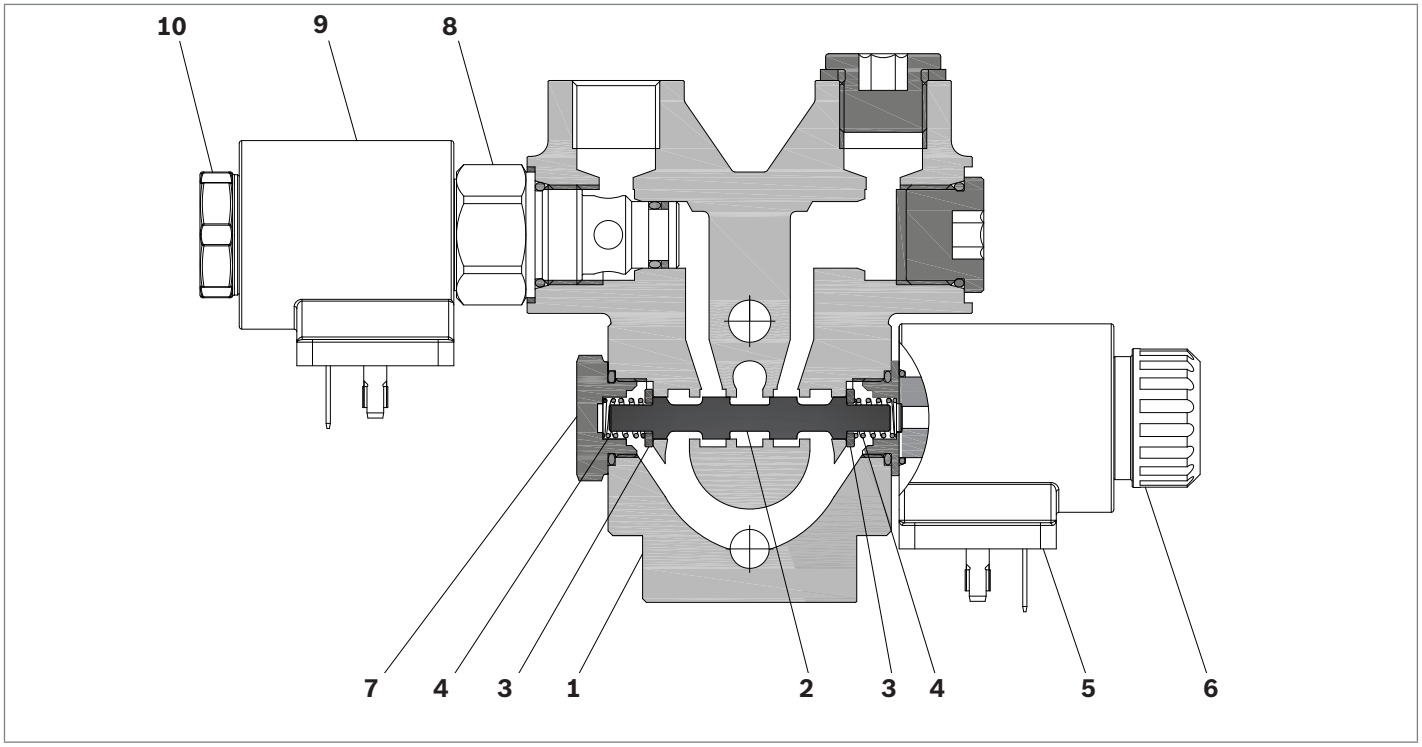


1) For connectors ordering code see data sheet RE 18325-90.
2) VEI solenoid cartridge must be ordered separately.
The secondary valves have a maximum flow capacity of 6 l/min. (1.6 gpm).

Functional description



The sandwich plate design directional valve elements B8_5A... are very compact direct operated solenoid valves which control the start, the direction and the leak free stop of the oil flow. These elements basically consist of a stackable housing (**1**) with a control spool (**2**), one solenoid (**5**), a spring holder plug (**7**); two return springs (**4**); a solenoid screw-in cartridge VEI (**8**) with its coil (**9**).
When energized, the force of the solenoid (**5**) pushes the control spool (**2**) from its rest position “0” to the end position “b”. If there is a solenoid cartridge VEI (**8**) type C, A, O, the oil flow goes directly to the port A; if there is a solenoid cartridge VEI (**8**) type D (Dual locking), it is necessary to energize the solenoid cartridge as well in order to allow the oil flow to the port A.
Once the solenoid (**5**) is de-energized, the return spring (**4**) pushes the spool thrust washer (**3**) back against the housing and the spool (**2**) returns in its rest position. The leak free holding at port A is provided by energizing (or de-energizing, if the VEI is NC type) the solenoid cartridge. By energizing open the VEI (**8**) (“C“ and “A“ versions), the A port is open to tank and downstream flow is possible.
The coils are fastened to the respective solenoids (**5**) and VEI (**8**) by the ring nuts (**6**) and (**10**).

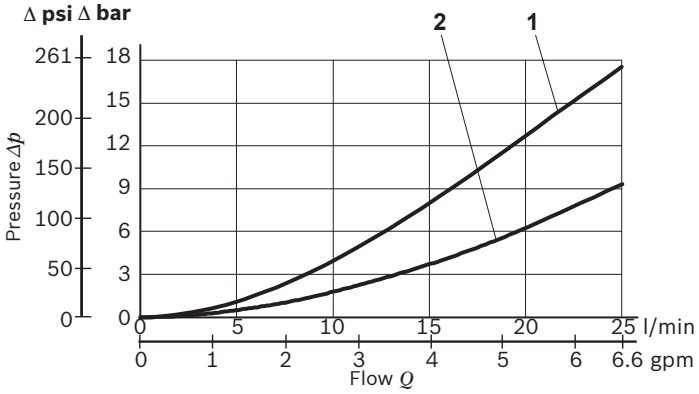
Technical data

General			
Valve element with solenoid	kg (lbs)	1.8 (3.96)	
Ambient Temperature	°C (°F)	-30....+90 (-22....+194) (NBR seals)	
Hydraulic			
Maximum pressure at P, and A ports	bar (psi)	310 (4500)	
Maximum pressure at T	bar (psi)	250 (3625)	
Maximum inlet flow	l/min (gpm)	25 (6.6)	
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)	-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	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
Voltage type		DC	DC
Power consumption	W	20	20
Current (nominal at 20 °C (68 °F))	A	1.62	0.84
Resistance (nominal at 20 °C (68 °F))	Ω	7.4	28.4

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

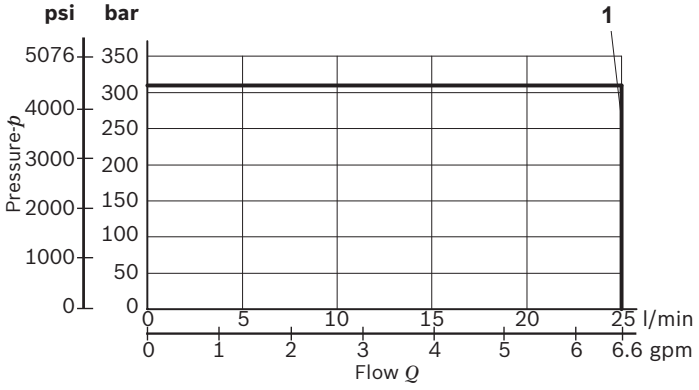
Characteristic curves



Spool Variant	Curve no.	
	B>T	P>A
X301	1	2

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

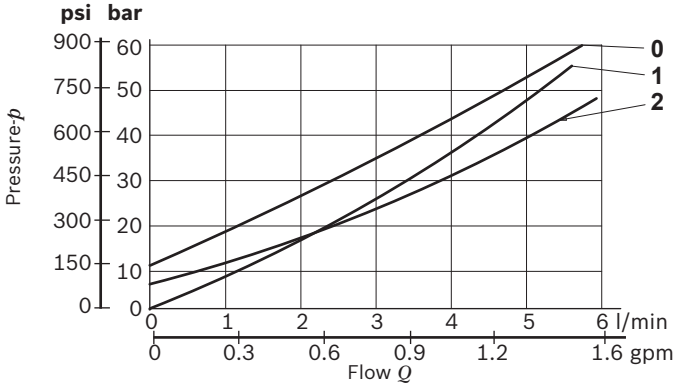
Performance limits



Spool Variant	Curve no.
X401	1

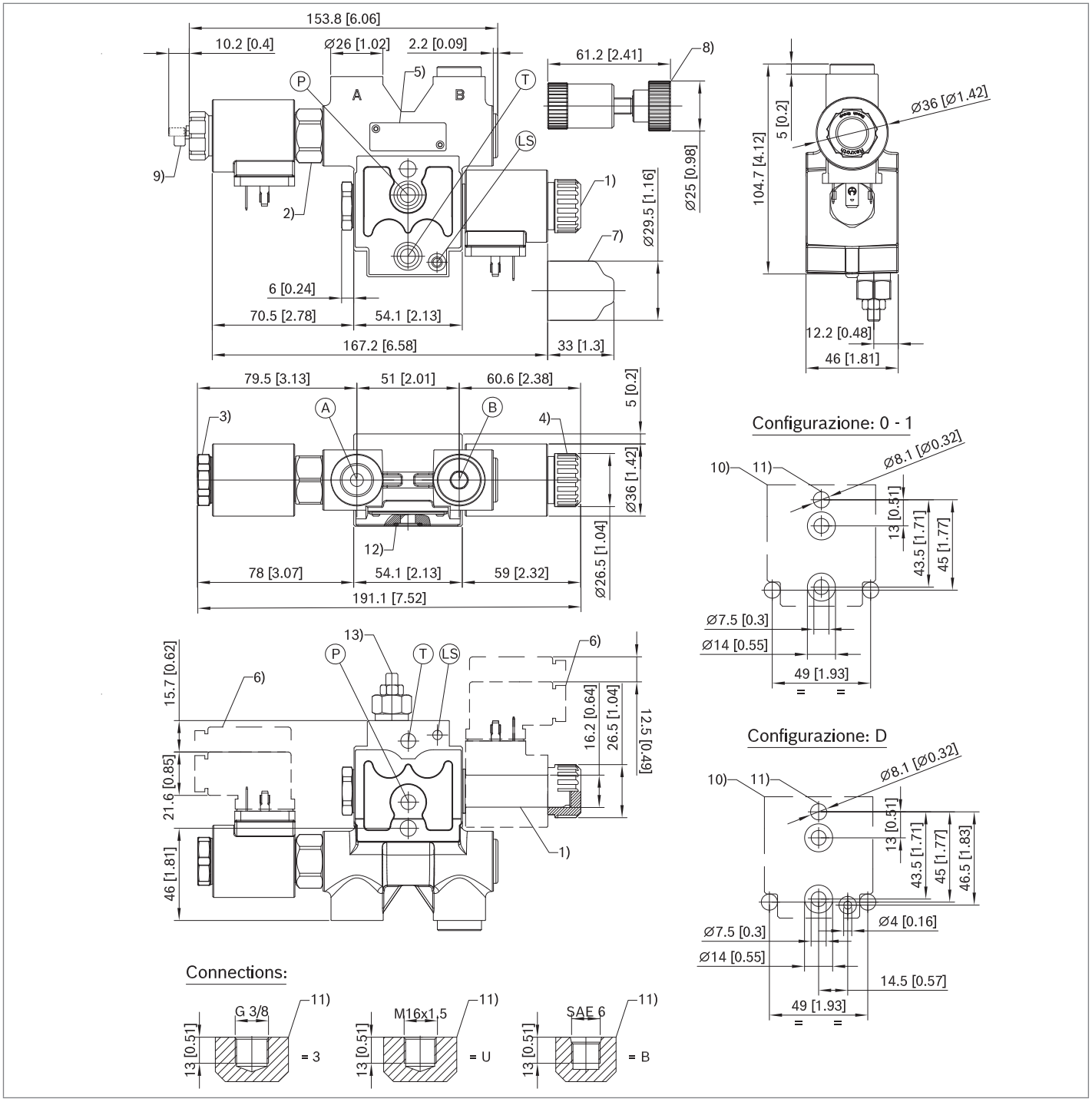
The performance curves are measured with flow going across and coming back, like P>A and B>T, with symmetrical flow areas.
In case of special circuit connections, the performance limits can change.

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

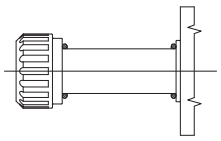


1 Solenoid tube ø16 (0.63inch).
2 Screw-in solenoid cartridge VEI hex 24mm (0.94inch).
3 Ring nut for cartridge coil locking (Ch.24); torque 2-3Nm (1.5-2.2 ft-lb).
4 Ring nut for tube coil locking (OD 26.5); torque 3-4Nm (2.2-3 ft-lb).
5 Identical label.
6 Clearance needed for connector removal.
7 Optional push-button manual override, EP type, for spool opening: it is pressure stuck to the ring nut for tube coil locking. Mat no. R930059524.
8 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.
9 Optional manual override for VEI cartridge: it can be push/pull or screw type. Please refer to the VEI catalogue for details.
10 Flange specifications for coupling to ED intermediate elements.
11 For tie rod and tightening torque information see data sheet RE 18301-90.
12 O-Ring for T and P line on ED flange.
13 Space needed for secondary valve in configuration 1.
14 A and B ports

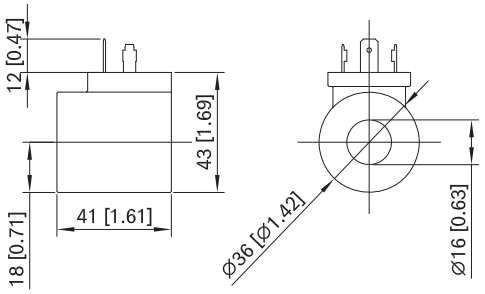
Dimensions mm [inches]

Electric connections

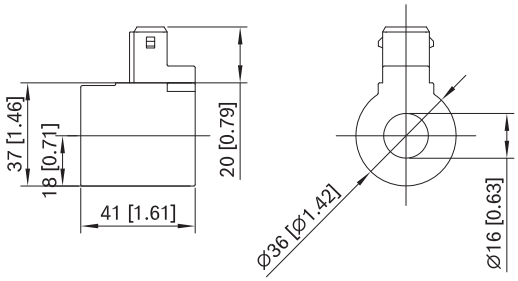
00 Without coil



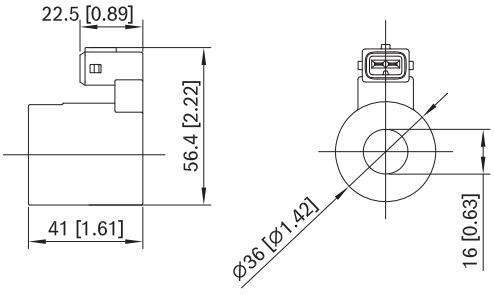
01 Protection class: IP 65 when connector with seal is properly screwed down.



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



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



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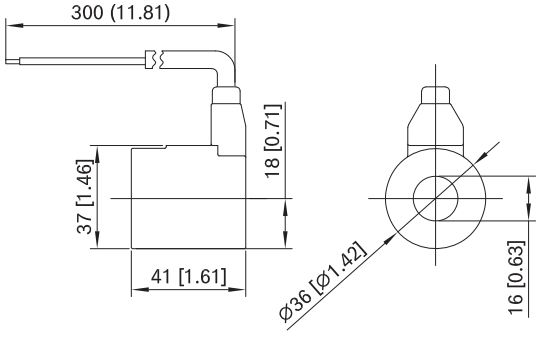
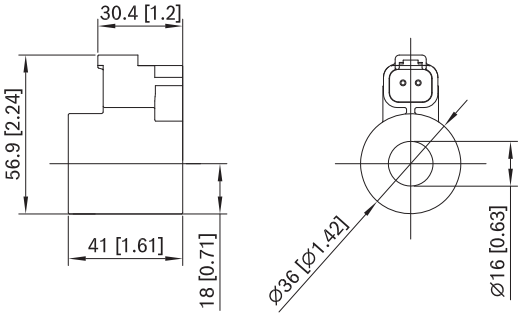


07 Protection class: IP 69 with female connector properly fitted (see drawing).



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