Rexroth
Bosch Group

4/3, 4/2 proportional directional valves solenoid operated (for open loop control)

RE 18303-03/07.12 1/8
Replaces: RE00157/12.07

Type L5080… (LC04P)

Size 4
Series 00
Maximum operating pressure 310 bar *[4500 psi]*
Nominal flow rated 12 l/min *[3.17 gpm]*


DV0005

Table of contents

Features

- Proportional solenoid operated directional spool valve.
- Actuation by proportional solenoids with a central tube and removable coil.
- Spring centered control spool.
- For mounting on industry standard surface port pattern to CETOP RP121 H-4.2-P02.
- Wet pin DC solenoids with removable coil and manual override.
- Coil can be rotated by 360°.

Ordering code

L	5	0	8	0	_	_	_ _	_ _	_ _	_ _

Division
Ddirectional valves

Type
CETOP Valve

Size
NG 4 (P02)

Operation
Solenoid operated
P45 proportional coil

Spools
P – T closed in neutral = **B**
A and B to T in neutral = **E**

Hydraulic scheme
4/3 operated A and B side = **2**
4/2 operated A side = **3**
4/2 operated B side = **4**

Optionals
00 = Standard

Electric connections
00 = Without coils
01 =** With coils, without mating connector DIN EN 175301-803
03 = With coils, with bi-directional diode, without mating connector vertical Amp-Junior

Voltage
00 = Without coil
OB = 12V DC
OC = 24V DC

[1] **Nominal flow**
S3 = 4 l/min *[1.06 gpm]*
S4 = 8 l/min *[2.11 gpm]*
S5 = 12 l/min *[3.17 gpm]*

[1] With Δp (P > T) 10 bar *[145 psi]*, corresponding approx. to Δp P>A,B 5 bar *[73 psi]*.

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

Hydraulic schemes

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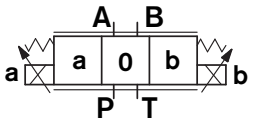

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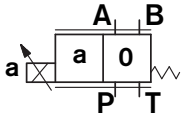

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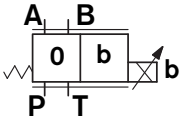

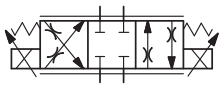

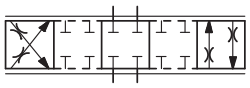

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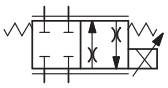

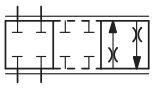

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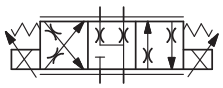

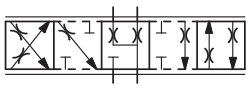

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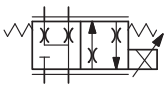

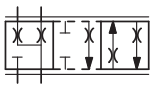

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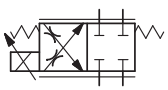

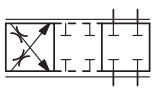

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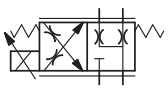

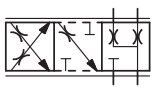

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Function, section

Type L5080

The proportional valves type L5080 are designed as the solenoid operated ones; they are actuated by proportional electromagnets and the current supply to the solenoids is controlled by external electronic control system (Power Wave Modulator, or PWM). They provide 3 or 4 way flow control, usually from port P to either port A or B, and the consequent flow return to T from B or A respectively.

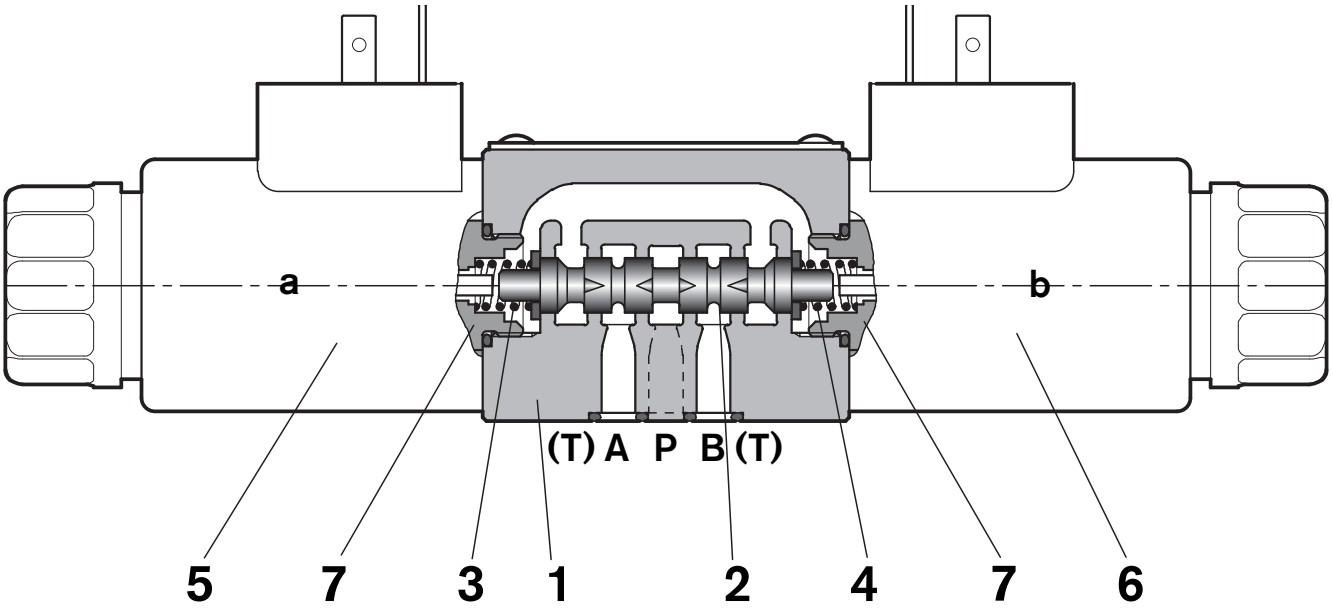
The valves are composed by a central cast iron body (1) which mounts on industry standard surfaces where the flow ports and the installation holes are located; the central body houses the precisely machined directional control spool (2) which is held in the neutral or initial position by the return springs (3) and (4). One or two solenoids (5) and (6), composed by a central tube and a surrounding coil (a) and (b), are fitted to the body at the spool's ends: when one coil is energized, the magnetic field develops a force on the oil immersed mobile plunger incorporated in the tube which pushes the control spool from the initial position into a displaced position: the spool displacement is proportional to the electric input.

Example for solenoid (6):

- when coil (b) is energized, the spool (2) travels to the left proportionally to the electric input supply then the corresponding opening area of the spool notches is achieved.
- Across the orifice-like openings, flow becomes possible from P to A, and from B to T.
- When coil (b) is de-energized, the force of spring (3) pushes the spool (2) back to the central position.

Type L5080.3… and L5080.4…

These valves have one solenoid, either (a) or (b), consequently the directional control spool can travel from the initial position to one side only. A blinding threaded plug (7) is fitted in place of the second solenoid.



Technical Data (for applications with different specifications consult us)

Generals

Valve weight with 2 solenoids	kg *[lbs]*	1.27 *[2.8]*
Valve weight with 1 solenoid	kg *[lbs]*	0.91 *[2.0]*
Installation position		Unrestricted
Ambient temperature range	°C *[°F]*	–20....+50 *[-4....+122]* (NBR seals)

Hydraulics

Maximum pressure on **P, A, B**	bar *[psi]*	310 *[4500]*
Maximum pressure on **T**	bar *[psi]*	180 *[2610]*
Maximum flow	l/min *[gpm]*	29 *[7.66]*
Nominal flow at ΔP =10 bar	l/min *[gpm]*	4, 8, 12 *[1.06, 2.11, 3.17]*
E-schemes closed pass in the neutral position (connection from A to T and B to T)		Approx. 2.3% of the nominal cross-section
Hysteresis	%	≤ 5
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=10...12 ISO 4406: class 19/17/14 NAS 1638: class 8
Viscosity range	mm^2/s	20....380 (optimal 30....46)

Electrical

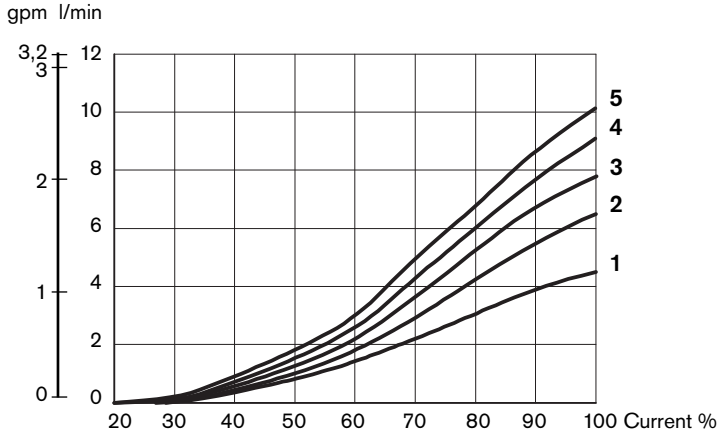
Voltage type		PWM	120 Hz								
Voltage tolerance (nominal voltage)		%	-10 .... +10								
Duty			Continuous, with ambient temperature ≤ 50°C *[122°F]*								
Coil wire temperature not to be exceeded		°C *[°F]*	150 *[302]*								
Insulation class			H								
Compliance with			Low Voltage Directive LVD 73/23/EC (2006/95/EC), 2004/108/EC								
Coil weight		kg *[lbs]*	0.228 *[0.503]*								
Voltage		V	12	24							
Nominal 100% current		A	1.76	0.94							
Coil resistance (nominal at 20°C *[68°F]*)	- Cold value	Ω	3.71	13							
	- Max. hot value	Ω	6.1	22.9							

	Voltage (V)	Connector type	Coil description	Marking	Coil Mat no.
=OB 01	12 DC	EN 175301-803 (Ex. DIN 43650)	P45 01	12 DC	R933000088
=OB 03	12 DC	AMP-JUNIOR	P45 03	12 DC	R933000089
=OC 01	24 DC	EN 175301-803 (Ex. DIN 43650)	P45 01	24 DC	R933000090
=OC 03	24 DC	AMP-JUNIOR	P45 03	24 DC	R933000091

Characteristic curves

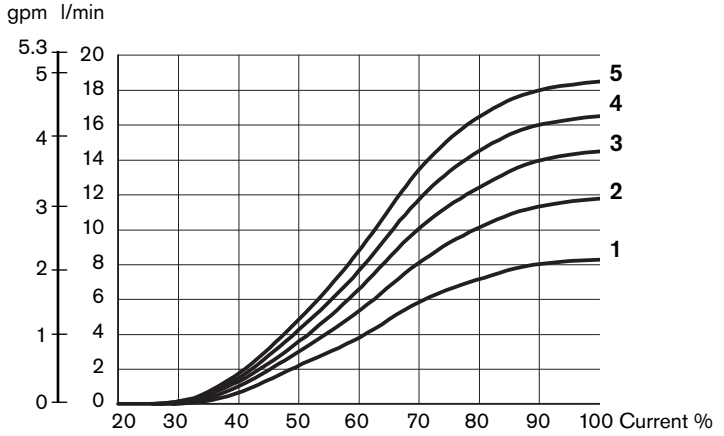
Measured with hydraulic fluid ISO-VG32 at 45° ± 5° C *[113° ± 9° F]*; ambient temperature 20° C *[68° F]*.

Ordering code S3: it supplies 4 l/min *[1.06 gpm]* nominal flow at 100% duty cycle, with 10 bar *[145 psi]* pressure drop.



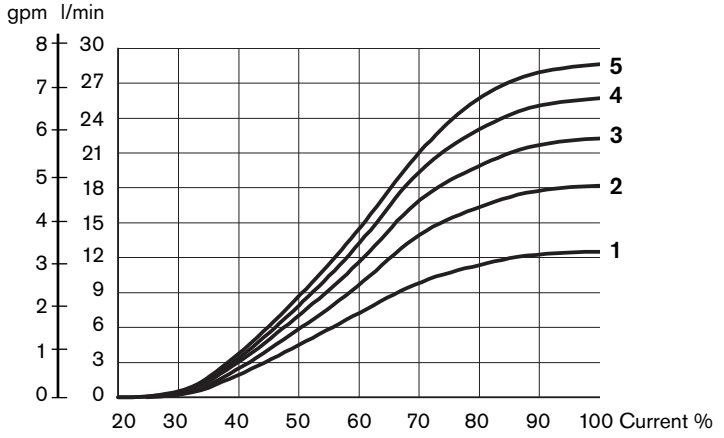
1 ΔP = 10 bar *[145 psi]* constant
2 ΔP = 20 bar *[290 psi]* constant
3 ΔP = 30 bar *[435 psi]* constant
4 ΔP = 40 bar *[580 psi]* constant
5 ΔP = 50 bar *[725 psi]* constant

Ordering code S4: it supplies 8 l/min *[2.11 gpm]* nominal flow at 100% duty cycle, with 10 bar *[145 psi]* pressure drop.



1 ΔP = 10 bar *[145 psi]* constant
2 ΔP = 20 bar *[290 psi]* constant
3 ΔP = 30 bar *[435 psi]* constant
4 ΔP = 40 bar *[580 psi]* constant
5 ΔP = 50 bar *[725 psi]* constant

Ordering code S5: it supplies 12 l/min *[3.17 gpm]* nominal flow at 100% duty cycle, with 10 bar *[145 psi]* pressure drop.



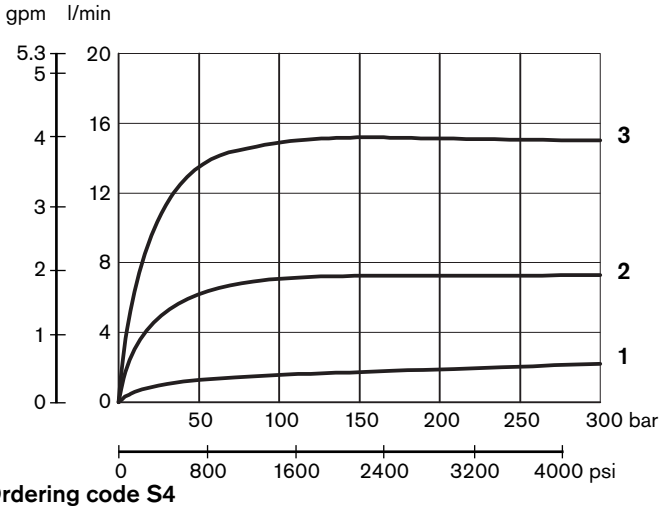
1 ΔP = 10 bar *[145 psi]* constant
2 ΔP = 20 bar *[290 psi]* constant
3 ΔP = 30 bar *[435 psi]* constant
4 ΔP = 40 bar *[580 psi]* constant
5 ΔP = 50 bar *[725 psi]* constant

ΔP = valve pressure differential (inlet pressure minus load pressure and minus return pressure)
The characteristic curves are obtained with 4 way connected, P→A / B→T or P→B / A→T.

Characteristic curves

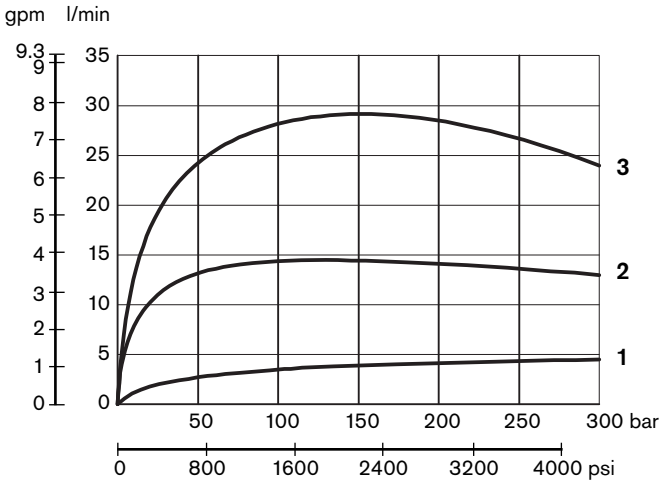
Measured with hydraulic fluid ISO-VG32 at 45° ± 5° C *[113° ± 9° F]*; ambient temperature 20° C *[68° F]*.

Ordering code S3



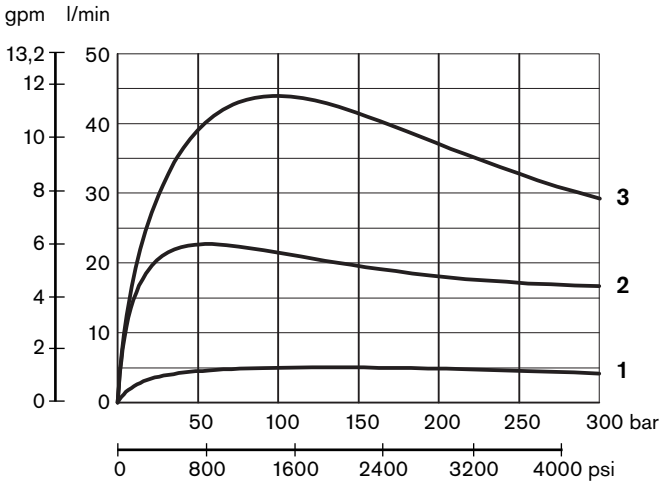
1 at 40% mean current
2 at 70% mean current
3 at 100% mean current

Ordering code S4



1 at 40% mean current
2 at 70% mean current
3 at 100% mean current

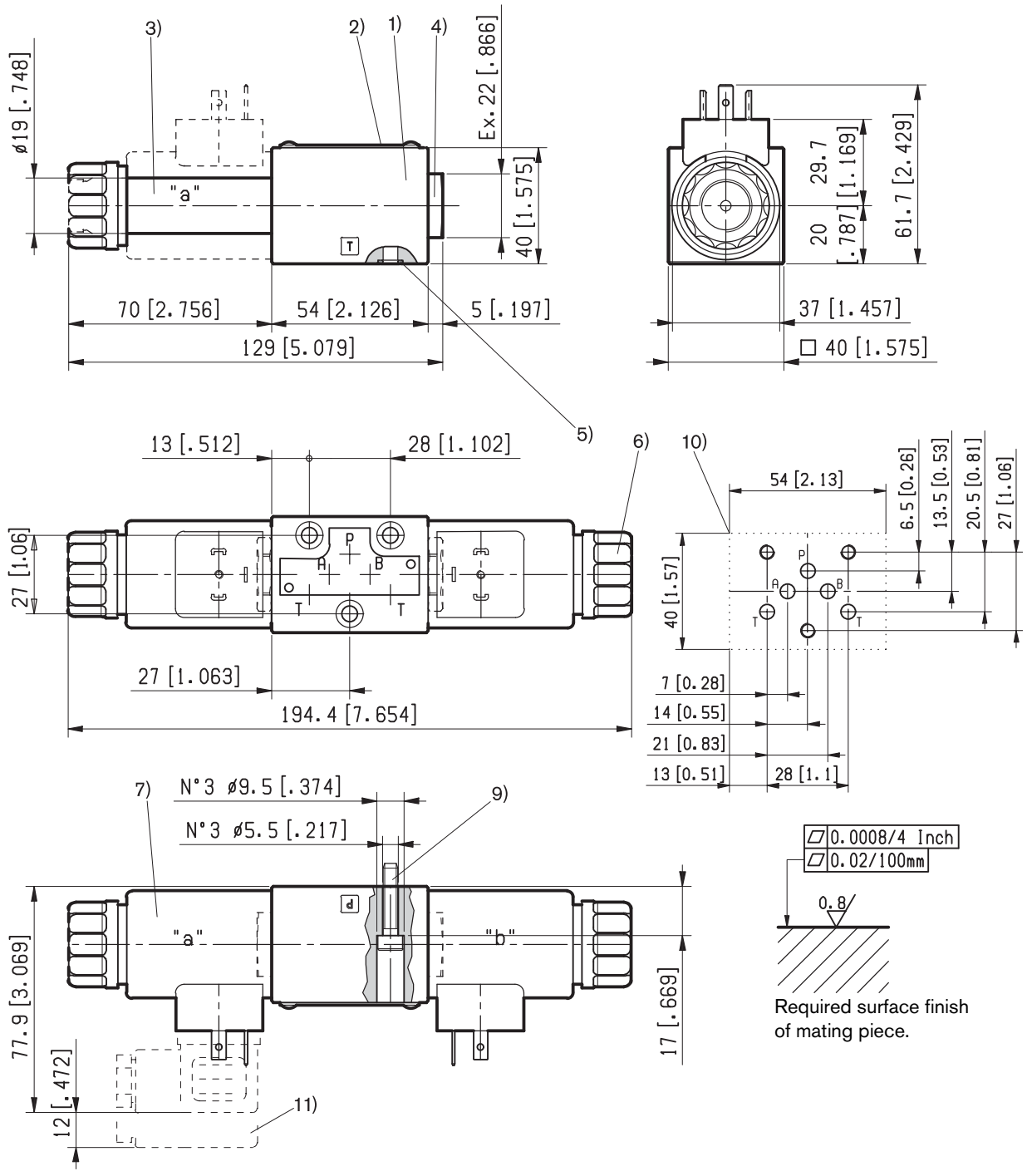
Ordering code S5



1 at 40% mean current
2 at 70% mean current
3 at 100% mean current

The performance curves are obtained with two ports connected, P→A or P→B.

Dimensions



1 Valve body.

2 Identification label.

3 Proportional solenoid.

4 Blinding threaded plug, for versions L 5080.3… and L5080.4…, with 2 switched positions.

5 Seals (same O Ring) on ports A,B,P,T.

6 Threaded coil retainer nut. Torque 5÷6 Nm *[3.69÷4.42 ft-lb]*.

7 Proportional solenoid, with coil (a).

9 Locking screws 3 pieces: ISO 4762 (UNI 5931) hexagon socket head cap screw M 5x25, recommended specific strength 8.8 class, to be ordered separately. Torque 5 ÷ 6 Nm *[3.69 ÷ 4.42 ft-lb]*.

10 Drilling specifications of standard mounting surface according to CETOP RP 121 H-4.2-4-P02.

11 Clearance needed for connector removal.

Electric connection

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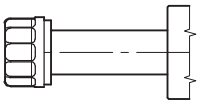

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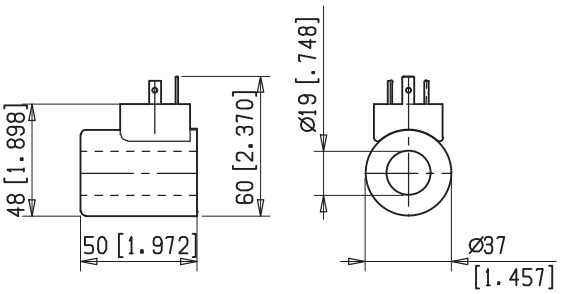
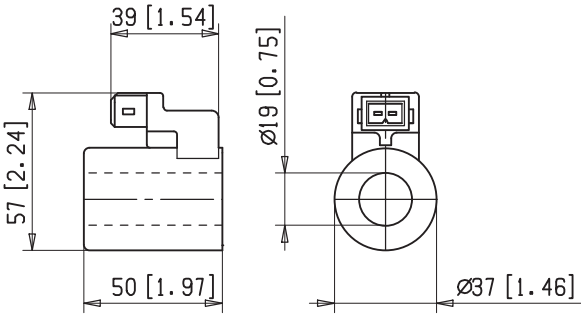


Code	Type
R933000088	COIL P45 01 OB-12DC
R933000090	COIL P45 01 OC-24DC

=03

Protection class: IP 65 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-directional-valves@oilcontrol.com
www.boschrexroth.com