

4/3 - 4/2 Directional valves solenoid operated

L5010... (LC04Z)

RE 18303-01

Edition: 02.2016

Replaces: 07.2012



Size 4

Series 00

Maximum operating pressure 310 bar (4500 psi)

Maximum flow 25 l/min (6.6 gpm)

General specifications

Direct solenoid operated spool valve, standard version.
 Spool switching is by on off 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.
 Manual override as option (push or screw-in type).
 Coil can be rotated through 360°.
 Available electrical connections: EN 175301-803 (Ex. DIN 43650); AMP JUNIOR; DT04-2P (Deutsch); Free leads.

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Ordering details

01	02	03	04	05	06	07	08
L	5	0	10				

Family

01	Directional Valves	L
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Type

02	CETOP Valves	5
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Size

03	NG 4 (P02)	0
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Operation

04	Solenoid operated C36 coil	10
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Spool variants

05	4/3 operated A and B side	2
	4/2 operated A and B side	2
	4/2 operated A side	3
	4/2 operated B side	4
	4/2 operated A and B side with detent	5

Voltage supply

		31	07	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 ¹⁾
	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

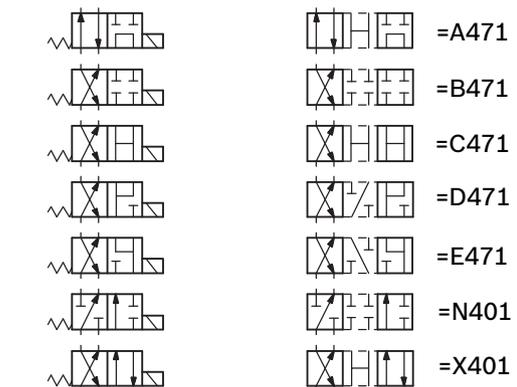
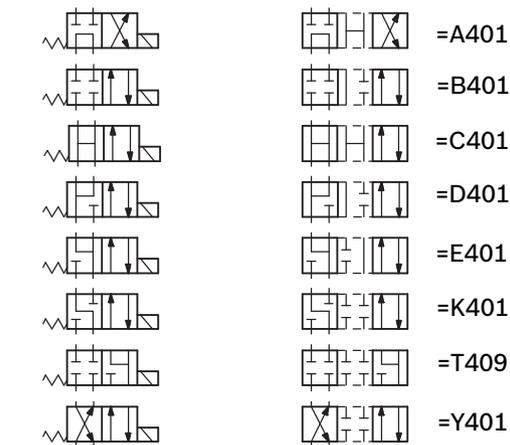
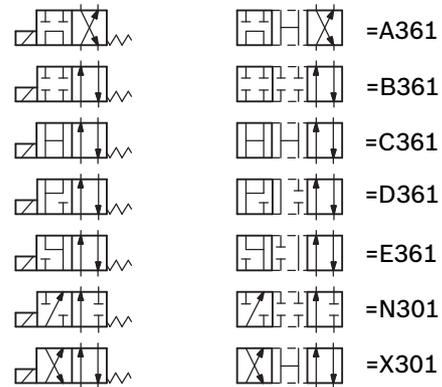
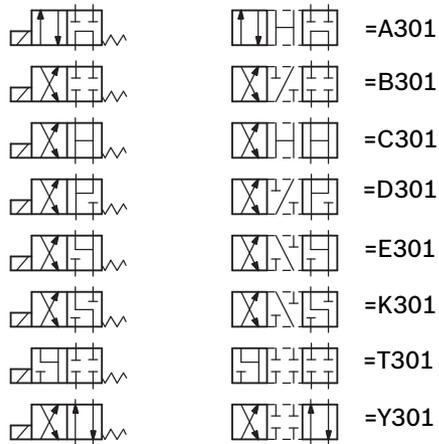
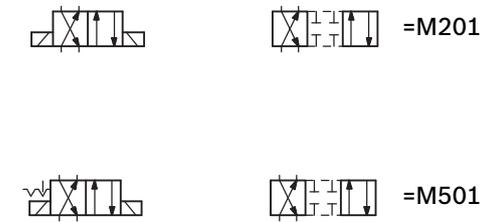
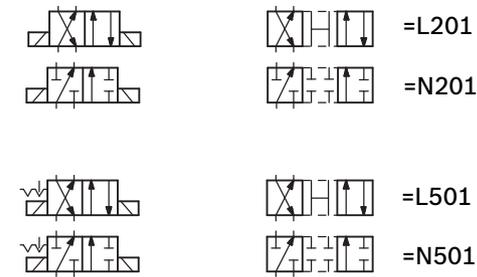
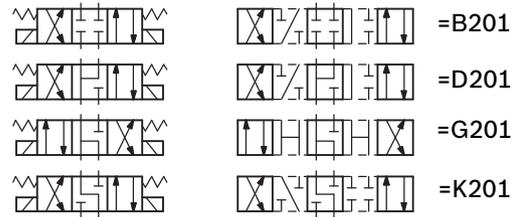
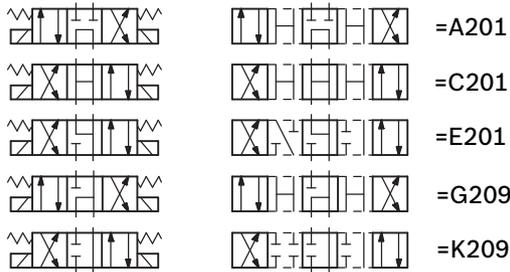
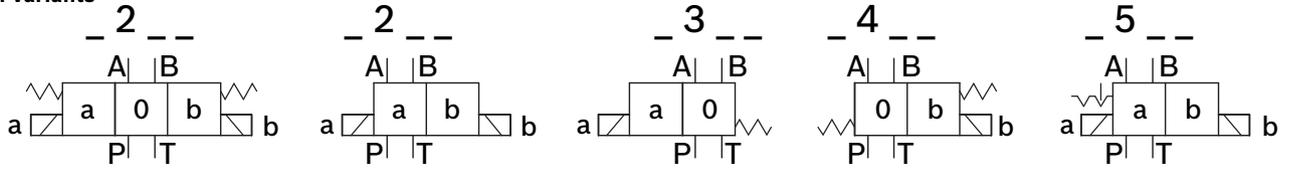
Options

08	Standard	00
	External push button manual override	EP
	Screw-in type manual override	EF

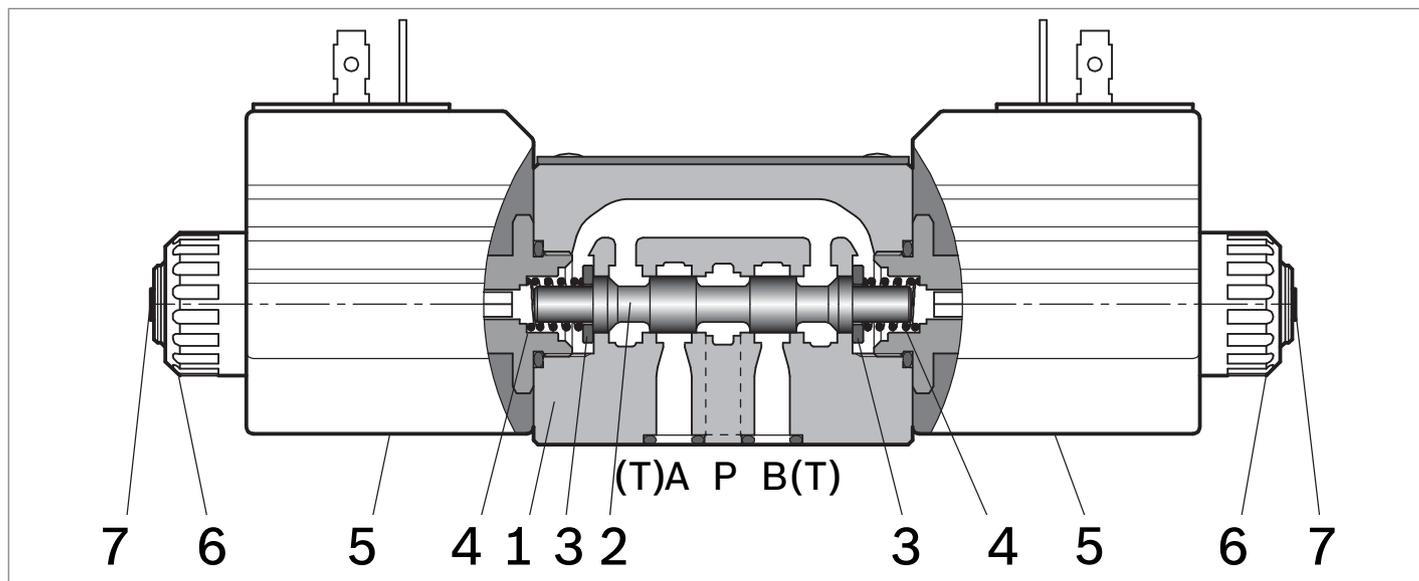
● = Available - = Not available

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

Spool variants



Functional description



Type L5010

The solenoid operated valves type L 5010 provide 3-way 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 (4). One or two solenoids, composed by a central tube and a surrounding coil (5), are fitted to the body at the spool's ends: when the coils are energized, their 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 shifted position where oil flow is allowed from **P** to either **A** or **B**.

With coils (5) de-energized, the control spool (2) returns to the central or initial position pushed by the washers (3) supported by the return springs (4).

The coils (5) are locked on the tube by threaded plastic nuts (6); the tube incorporates an externally reachable push rod (7) which can be pushed for emergency spool shifting in case of electric failure.

Type L5010L201_, L5010M201_, L5010N201_

These valves do not have return springs (4) for the directional control spool (2): the spool can shift between two positions, driven only by the magnetic force developed by the two solenoids (5), and, when the solenoids are not energized, the neutral position of the spool is not defined. The directional control spool holds a specific position only when one of the solenoids is maintained energized.

Type L5010L501_, L5010M501_, L5010N501_

In these valves the directional control spool has two switched positions, each one with a mechanical detent. Shifting of the spool's position is achieved by energizing one of the solenoids, but it is unnecessary to maintain the coil energized in order to keep the spool shifted.

Technical data

General										
Valve element with 2 solenoids	kg (lbs)	1.08 (2.2)								
Valve element with 1 solenoid	kg (lbs)	0.82 (1.7)								
Valve installation positions		Unrestricted								
Ambient Temperature	°C (°F)	-20...+50 (-4...+122) (NBR seals)								
Hydraulic										
Maximum pressure at P, A and B ports	bar (psi)	310 (4500)								
Maximum pressure at T	bar (psi)	250 (3625)								
Maximum flow	l/min (gpm)	25 (6.6)								
Maximum flow when using spool type A201, A301, A401, A361, A471, G201, G209	l/min (gpm)	18 (4.7)								
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 $\leq 50^\circ\text{C}$ (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	AC	AC	AC
Power consumption	W	26	26	26	26	26	26	29	29	29
Current (nominal at 20 °C (68 °F))	A	2.15	2.00	1.10	1.00	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

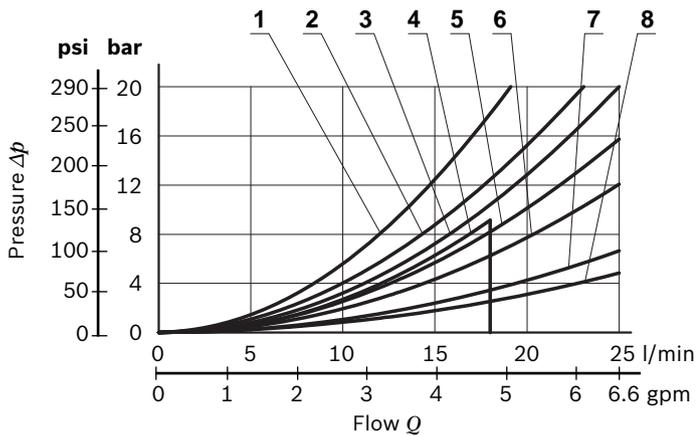
Note

For applications with different specifications consult us

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 Technical data

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

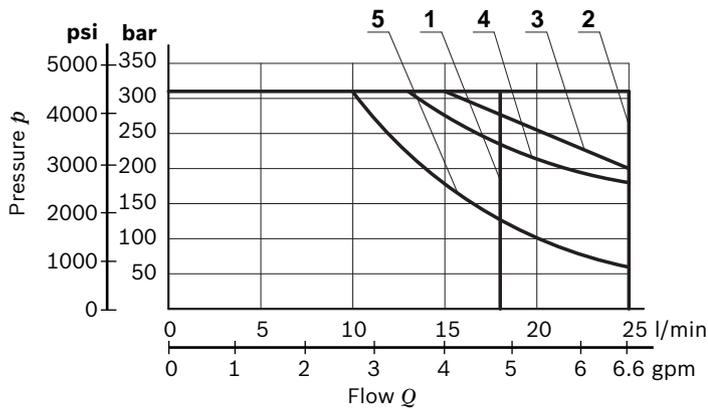
Characteristic curves



Spool Variant	Curve no.				
	P>T	P>A	P>B	A>T	B>T
A201, A301, A401, A361, A471, G201, G209	4	1	1	2	2
B201, B301, B401		5	5	7	7
B361, B471		5	5	8	8
C201, C301, C401, C361, C471, D201, D301, D401; D361, D471	6	6	6	8	8
E201, E301, E401, E361, E471, K201, K209, K301, K401		5	5	8	8
L201		5	5	8	7
L501		3	5	7	7
M201		3	3	7	6
M501		2	3	6	5
N201		3	3		
N301		2	5		
N401		5	2		
N501		2	3		
T301, T409				5	5
X301, Y301		3	5	8	6
X401, Y401		5	3	6	8

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

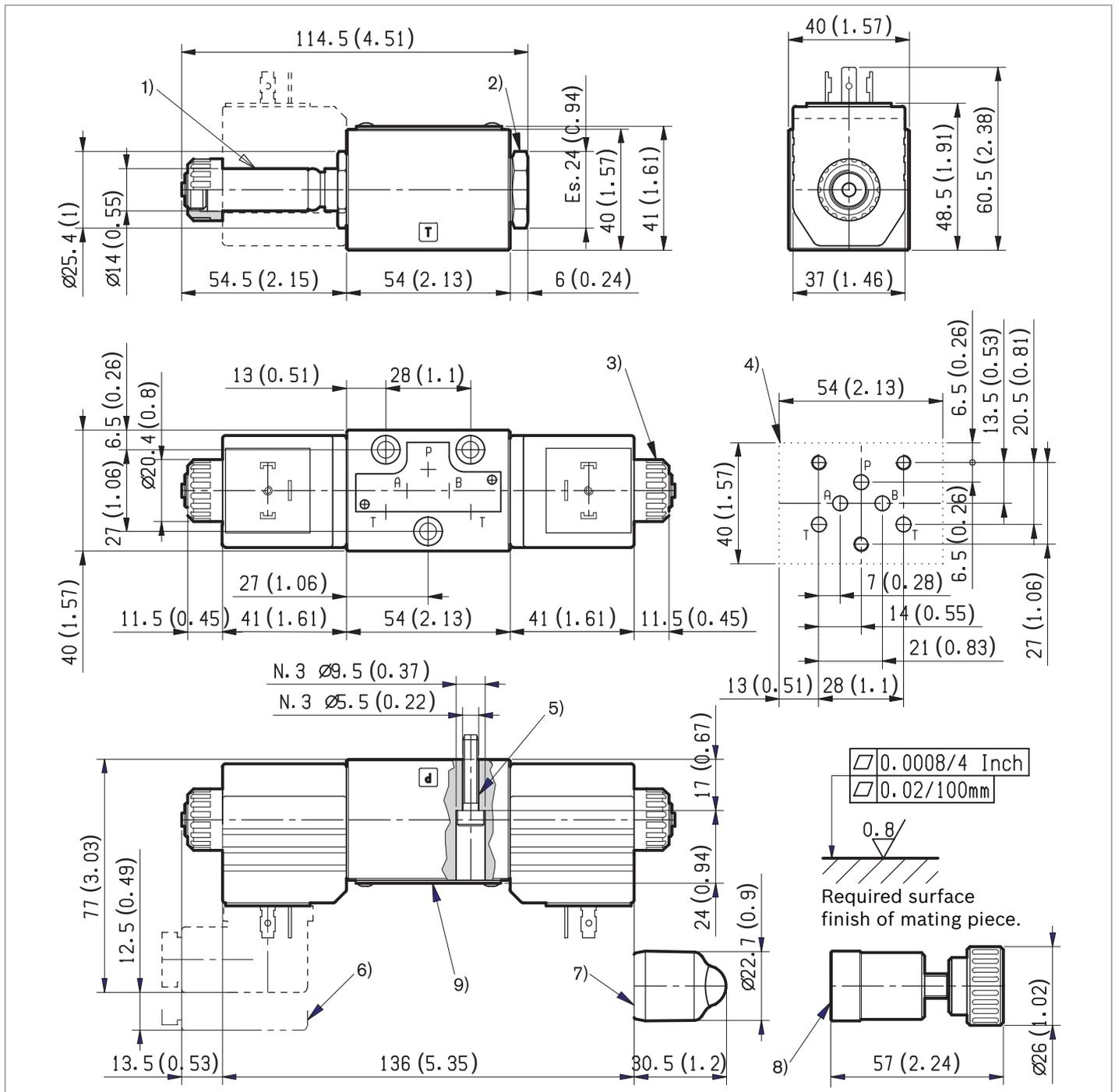
Performance limits



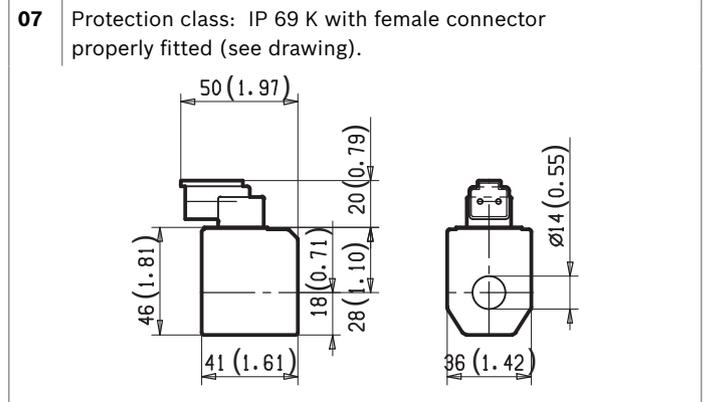
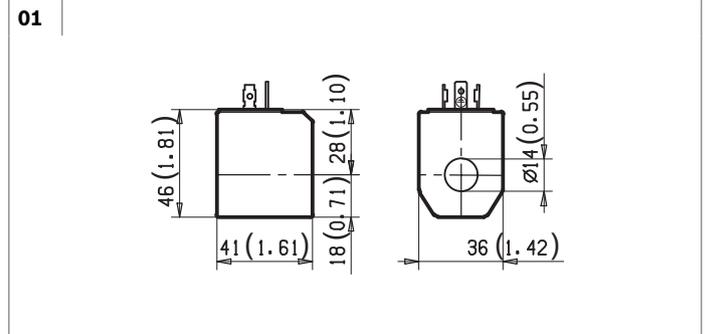
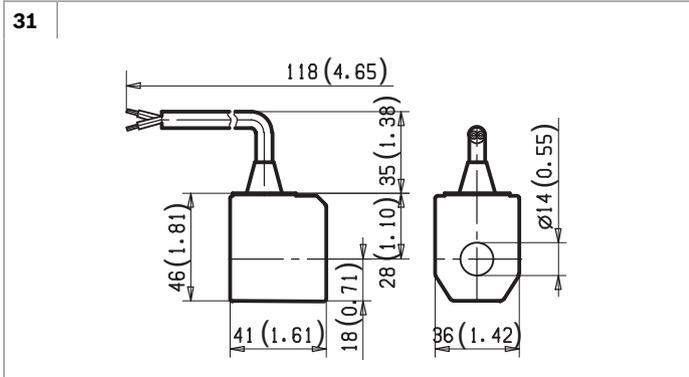
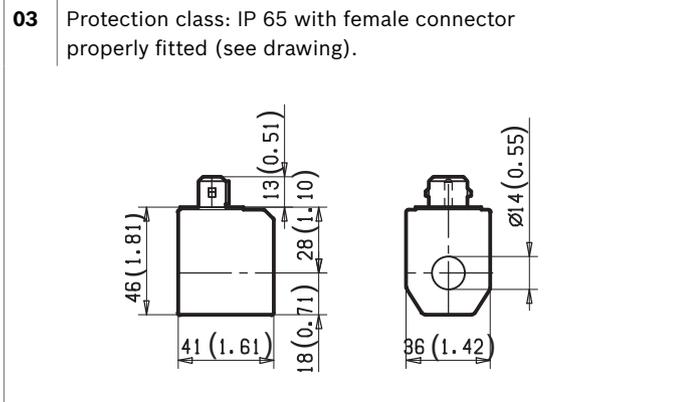
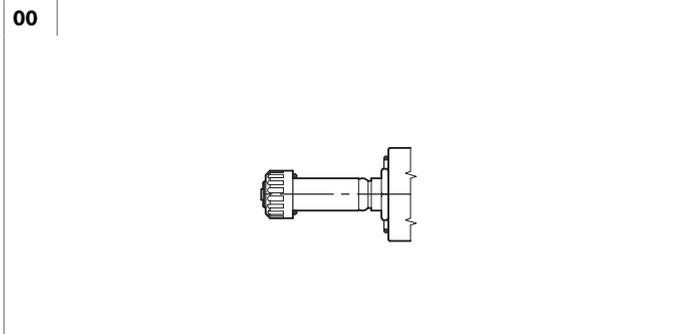
Spool Variant	Curve no.
A201; A301; A401; A361; A471; G201; G209	1
B201; B301; B401; B361; B471; C201; C301; C401; C361; C471; L201; L501; M201; M501	2
E201, E301, E401; E361; E471; D201, D301, D401; D361; D471; K201, K209; K301; K401; T301; T409	3
X301; X401; Y301; Y401	4
N201; N301; N401; N501	5

The performance curves here shown are applicable when oil flow is travelling in both directions, example P>A and B>T. In special circuit schemes the performance limits can be lower.

External dimensions and fittings



Electric connection



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Electric connection

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