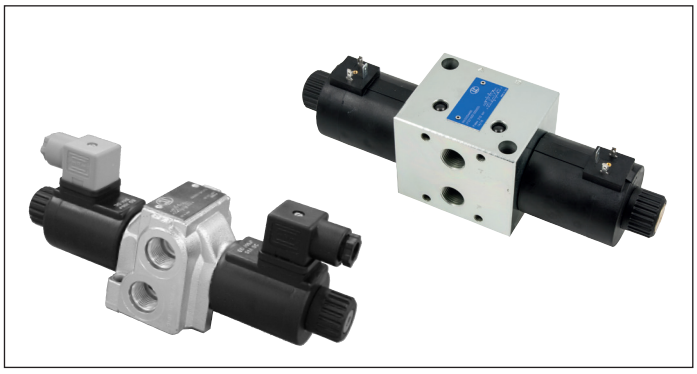
rexroth
A Bosch Company

Stand alone 4/3, 4/2 solenoid operated directional valve FAN DRIVE

(LF...)

RE 18305-04
Edition: 06.2023
Replaces: 03.2017



LF1 Size 6
LF2 Size 10
Series 00
LF1 Maximum operating pressure 310 bar (4500 psi)
LF2 Maximum operating pressure 250 bar (3600 psi)
LF1 Maximum flow 60 l/min (15.9 gpm)
LF2 Maximum flow 90 l/min (23.8 gpm)
Ports G 3/8 - G1/2 - SAE 8 - SAE10

General specifications

4 way, 3 position spool type solenoid operated directional valves which control or reverse the direction of the oil flow.
Stand-alone valve body intended for “in-line” application. Available with a choice of threaded ports; mounting surface with installation holes for direct fitting on the machine structure.
Zinc plated high strength cast iron body, with yellow trivalent chrome treatment.
Wet pin tubes for DC coils, with push rod for mechanical override; nickel plated surface.
Coils can be rotated 360° around the tube.
Plug-in connectors available: EN 175301-803 (was DIN 43650); AMP Junior; DT04-2P (Deutsch), free leads.
Coils fastened by ring nut: they are easily removable.
Manual override (push button or lever type) available as option.

Contents

Ordering details

▼ **LF1**

01	02	03	04	05	06	07	08	09
L	**F**	**1**		**2**				

Family

01	Directional Valve elements CDV	**L**

Type

02	Directional valve 4/3, 4/2	**F**

Size

03	6	**1**

Ports

04	G 3/8	**3**
	3/4” - 16 UNF (SAE8)	**C**

Coil Type

05	C 45	**2**

Spool variants

06	4/3 operated on both sides a and b	**_ 2 _ _**
	4/2 operated on side a only	**_ 3 _ _**

Voltage supply		**07**	**03**	**01**	**00**	
07	Without coil	–	–	–	●	**00**
	12V DC	●	●	●	–	**OB**
	13V DC	●	●	●	–	**AD**
	24V DC	●	●	●	–	**OC**
	27V DC	●	●	●	–	**AC**

Electric connections

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

Options

09	Standard	**00**
	Push-button type manual override	**0P**
	Screw type manual override	**0F**

▼ **LF2**

01	02	03	04	05	06	07	08	09
L	**F**	**2**						

Family

01	Directional Valve elements CDV	**L**

Type

02	Directional valve 4/3, 4/2	**F**

Size

03	10	**2**

Ports

04	G 1/2 DIN 3852	**2**
	7/8” - 14 UNF (SAE10)	**D**

Coil Type

05	C65DZL coil (24 W)	**0**
	C65DZ coil (44 W)	**1**

Spool variants

06	4/3 operated on both sides a and b	**_ 2 _ _**
	4/2 operated on side a only	**_ 3 _ _**

Voltage supply [2]		**07**	**03**	**01**	**00**	
07	Without coil	–	–	–	●	**00**
	12V DC	●	●	●	–	**OB**
	13V DC	●	–	●	–	**AD**
	24V DC	●	●	●	–	**OC**
	27V DC	●	–	●	–	**AC**

Electric connections [3]

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

Options

09	Standard	**00**
	Push-button type manual override	**0P**
	Screw type manual override	**0F**

● = Available – = Not available

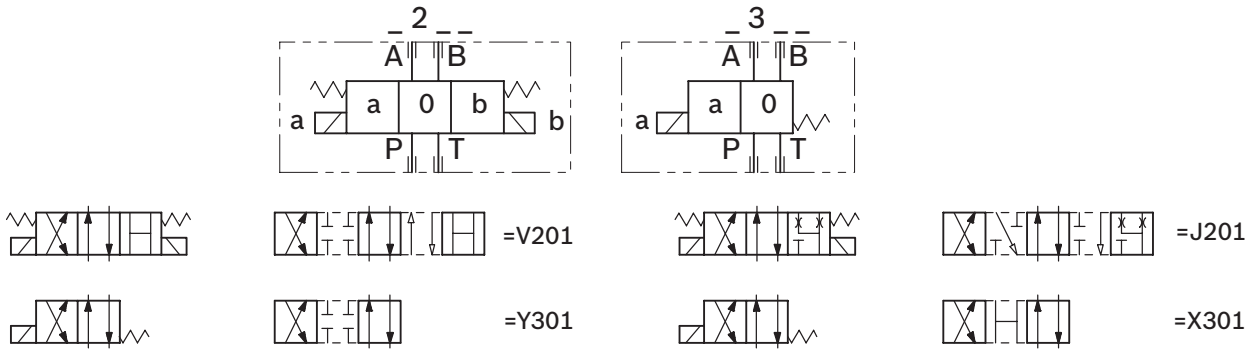
1) For connectors ordering code see data sheet RE 18325-90.

2) C65DZL coil (24 W) is only available as 12-24V DC version.

3) C65DZL coil (24 W) is available with AMP Junior and DEUTSCH DT 04-2P connectors.

Symbols

▼ **Spool variants**



V201 for fixed displacement pumps - **J201** for variable displacement pumps.

Technical data

General		
Valve element LF1 with 2 solenoids	kg (lbs)	2.23 (4.92)
Valve element LF2 with 2 solenoids	kg (lbs)	7.45 (16.42)
Mounting position		Unrestricted
Ambient Temperature	°C (°F)	–20....+50 (-4....+122) (NBR seals)
Hydraulic		
Maximum pressure at P, A and B ports	bar (psi)	250 (3600)
Maximum pressure at T for LF1	bar (psi)	250 (3600)
Maximum pressure at T for LF2	bar (psi)	210 (3045)
Maximum inlet flow for LF1	l/min (gpm)	60 (16)
Maximum inlet flow for LF2	l/min (gpm)	90 (24)
Maximum flow for LF2 with spool J201	l/min (gpm)	80 (21)
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			
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)			
Maximum frequency	Hz	2			
Insulation class		H			
Compliance with		Low Voltage Directive LVD 73/23/EC (2006/95/EC), 2004/108/EC			
Coil for LF1					
Voltage	V	12	13	24	27
Voltage type		DC	DC	DC	DC
Power consumption	W	33	31	33	33
Current (nominal at 20 °C (68 °F))	A	2.8	2.4	1.4	1.2
Resistance (nominal at 20 °C (68 °F))	Ω	4.24	5.42	17	21.8
Coil for LF2 C65 DZL type					
Voltage	V	12	24		
Voltage type		DC	DC		
Power consumption	W	24	24		
Current (nominal at 20 °C (68 °F))	A	2	1		
Resistance (nominal at 20 °C (68 °F))	Ω	5.99	23.71		
Coil for LF2 C65 DZ type					
Voltage	V	12	13	24	27
Voltage type		DC	DC	DC	DC
Power consumption	W	44	44	44	44
Current (nominal at 20 °C (68 °F))	A	3.6	3.4	1.8	1.6
Resistance (nominal at 20 °C (68 °F))	Ω	3.2	3.6	12.8	16.8

Note
For applications with different specifications consult us.

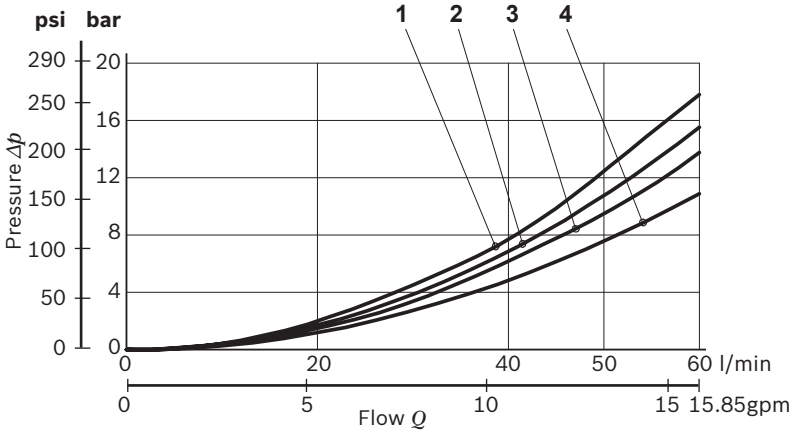
Electrical coil for LF1					
Code	**Voltage [V]**	**Connector type**	**Coil description**	**Marking**	**Coil Mat no.**
OB 01	12 DC	EN 175301-803 (Ex. DIN 43650)	C4501 12DC	12 DC	R933000026
OB 03	12 DC	AMP JUNIOR	C4503 12DC	12 DC	R933000027
OB 07	12 DC	DEUTSCH DT 04-2P	C4507 12DC	12 DC	R933000030
AD 01	13 DC	EN 175301-803 (Ex. DIN 43650)	C4501 13DC	13 DC	R933000028
AD 03	13 DC	AMP JUNIOR	C4503 13DC	13 DC	R933000029
AD 07	13 DC	DEUTSCH DT 04-2P	C4507 13DC	13 DC	R933000031
OC 01	24 DC	EN 175301-803 (Ex. DIN 43650)	C4501 24DC	24 DC	R933000034
OC 03	24 DC	AMP JUNIOR	C4503 24DC	24 DC	R933003630
OC 07	24 DC	DEUTSCH DT 04-2P	C4507 24DC	24 DC	R933000032
AC 01	27 DC	EN 175301-803 (Ex. DIN 43650)	C4501 27DC	27 DC	R933000035
AC 03	27 DC	AMP JUNIOR	C4503 27DC	27 DC	R933000036
AC 07	27 DC	DEUTSCH DT 04-2P	C4507 27DC	27 DC	R933000033

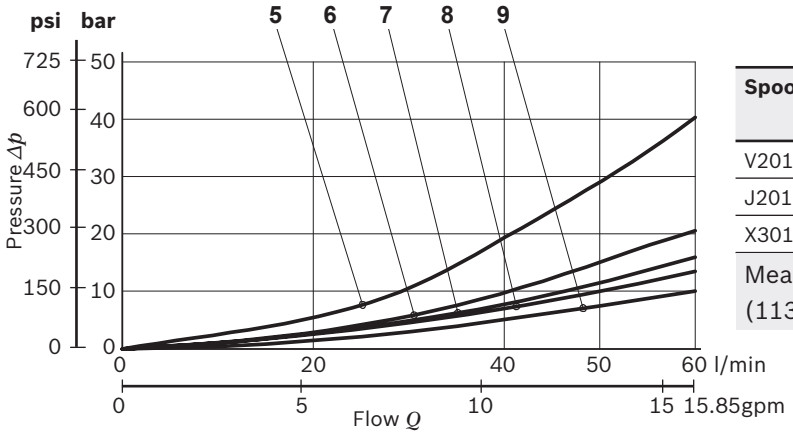
Electrical coil for LF2, C65 DZL (24 W) type					
Code	**Voltage [V]**	**Connector type**	**Coil description**	**Marking**	**Coil Mat no.**
OB 07	12 DC	DEUTSCH DT 04-2P	C6507 12DC	12 DC	R933000108
OC 03	24 DC	AMP JUNIOR	C6503 24DC	24 DC	R933003182
OC 07	24 DC	DEUTSCH DT 04-2P	C6507 24DC	24 DC	R933000109

Electrical coil for LF2, C65 DZ (44 W) type					
Code	**Voltage [V]**	**Connector type**	**Coil description**	**Marking**	**Coil Mat no.**
OB 01	12 DC	EN 175301-803 (Ex. DIN 43650)	C6501 12DC	12 DC	R933000100
OB 03	12 DC	AMP JUNIOR	C6503 12DC	12 DC	R933000119
OB 07	12 DC	DEUTSCH DT 04-2P	C6507 12DC	12 DC	R933000107
AD 01	13 DC	EN 175301-803 (Ex. DIN 43650)	C6501 13DC	13 DC	R933000101
AD 07	13 DC	DEUTSCH DT 04-2P	C6507 13DC	13 DC	R933000112
OC 01	24 DC	EN 175301-803 (Ex. DIN 43650)	C6501 24DC	24 DC	R933000102
OC 03	24 DC	AMP JUNIOR	C6503 24DC	24 DC	R933000120
OC 07	24 DC	DEUTSCH DT 04-2P	C6507 24DC	24 DC	R933000111
AC 01	27 DC	EN 175301-803 (Ex. DIN 43650)	C6501 27DC	27 DC	R933000103
AC 07	27 DC	DEUTSCH DT 04-2P	C6507 27DC	27 DC	R933000113

Characteristic curves

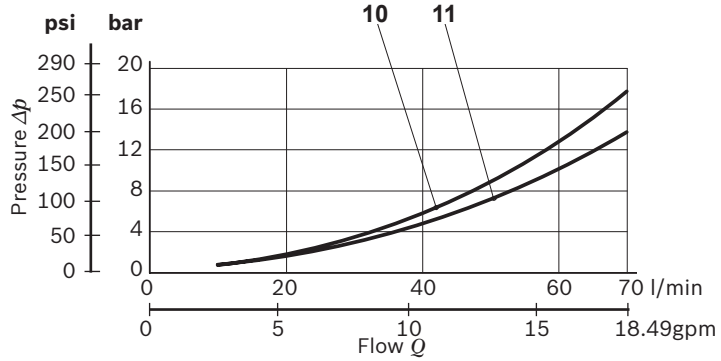
▼ **LF1**



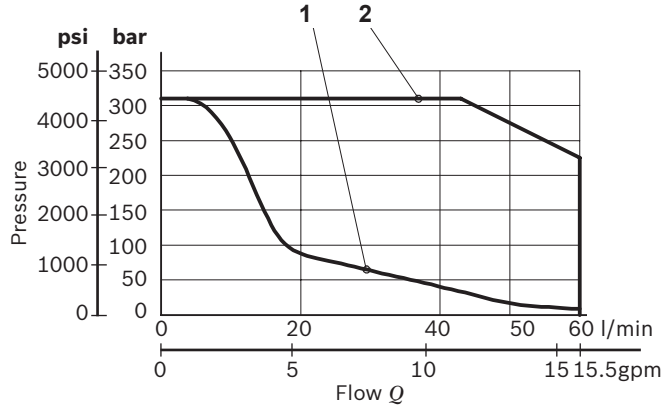


Spool Variant	Curve no.					
	P>T	P>A	P>B	A>T	B>T	A/B>T
V201	4	3	3	1	2	
J201		9	6	7	8	5
X301, Y301		10	10	11	11	

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



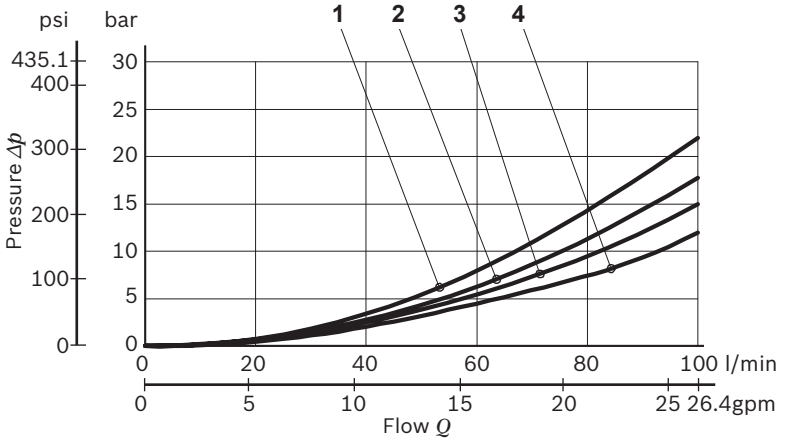
Performance limits

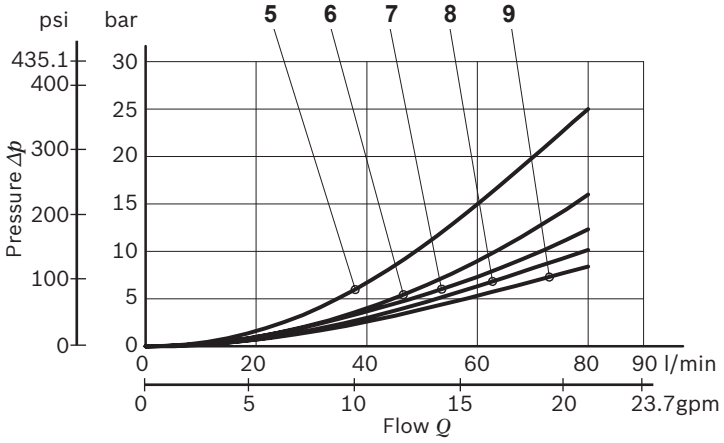


Spool Variant	Curve no.
V201, J201	1
X301, Y301	2

The performance curves are measured with flow going across and coming back, like P>A and B>T. With “lever type” emergency control, the performance limits are slightly lower.

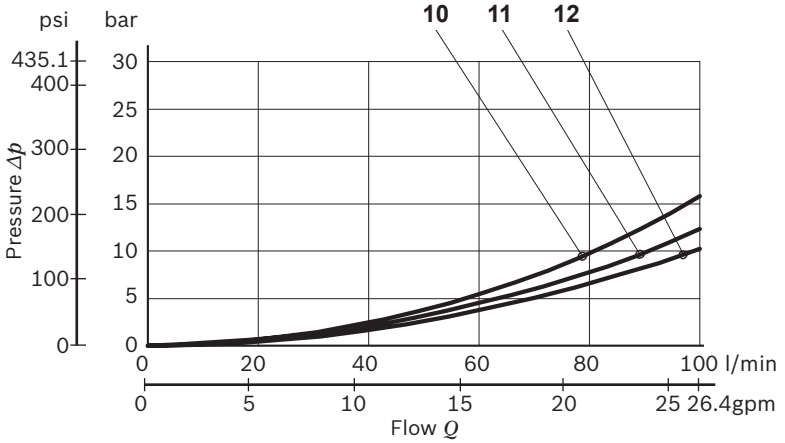
▼ **LF2**





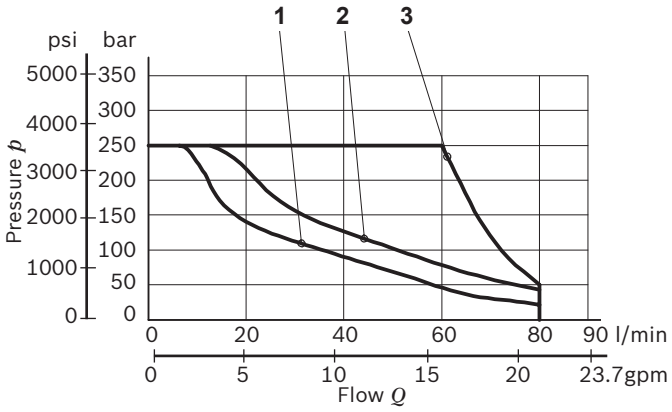
Spool Variant	Curve no.					
	P>T	P>A	P>B	A>T	B>T	A/B>T
V201	3	4	2	1	3	
J201		9	7	6	8	5
X301, Y301		12	11	11	10	

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



▼ **LF2 DZL (24W)**

Performance limits

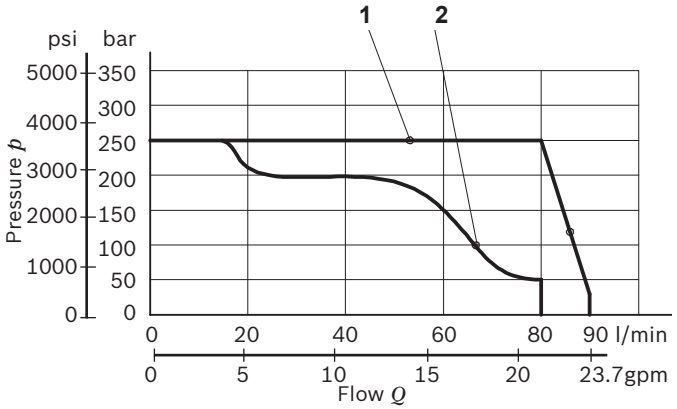


Spool Variant	Curve no.
V201, J201	1
X301	2
Y301	3

The performance curves are measured with flow going across and coming back, like P>A and B>T. With “lever type” emergency control, the performance limits are slightly lower.

▼ **LF2 DZ (44W)**

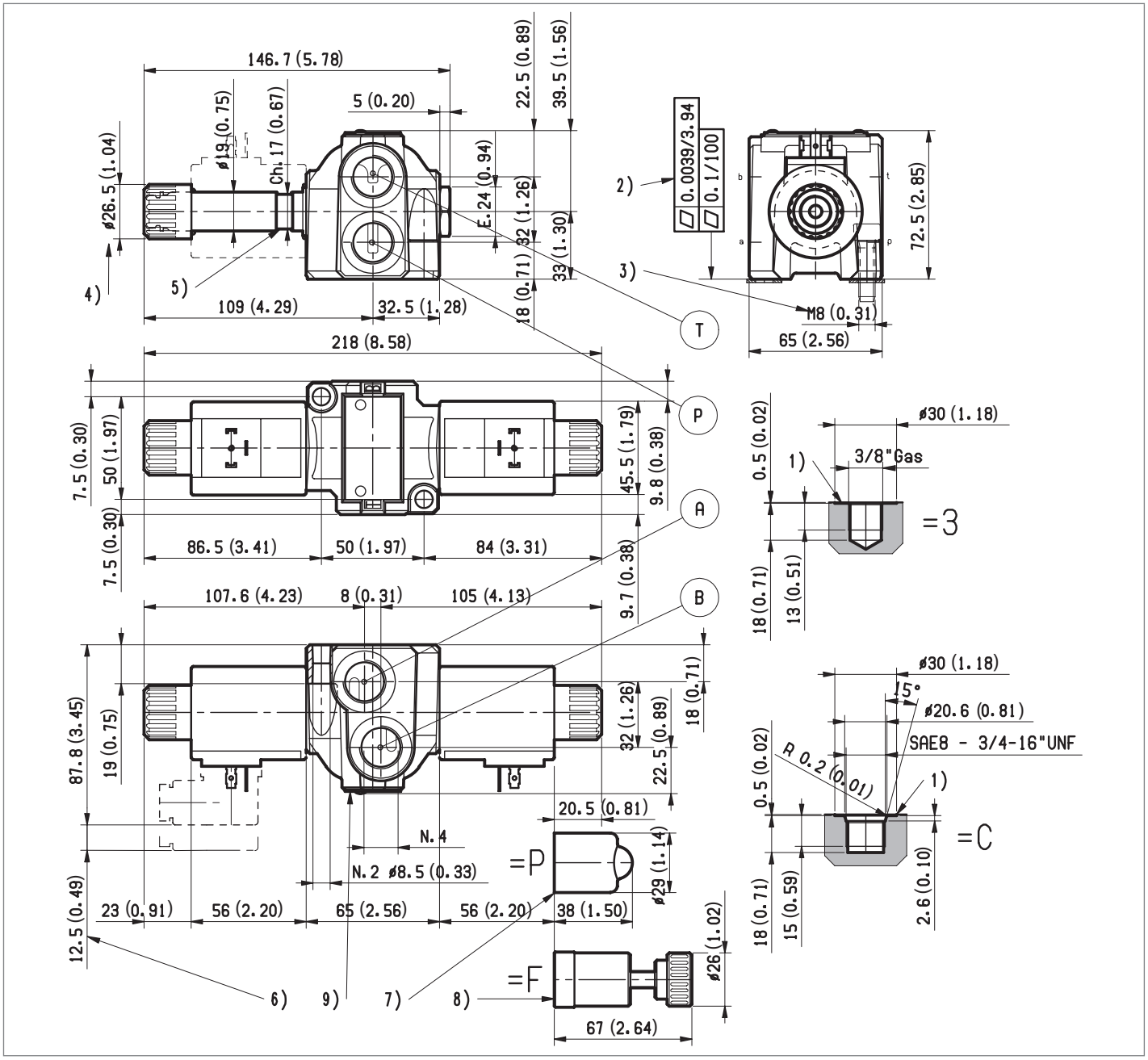
Performance limits



Spool Variant	Curve no.
X301, Y301, V201	1
J201	2

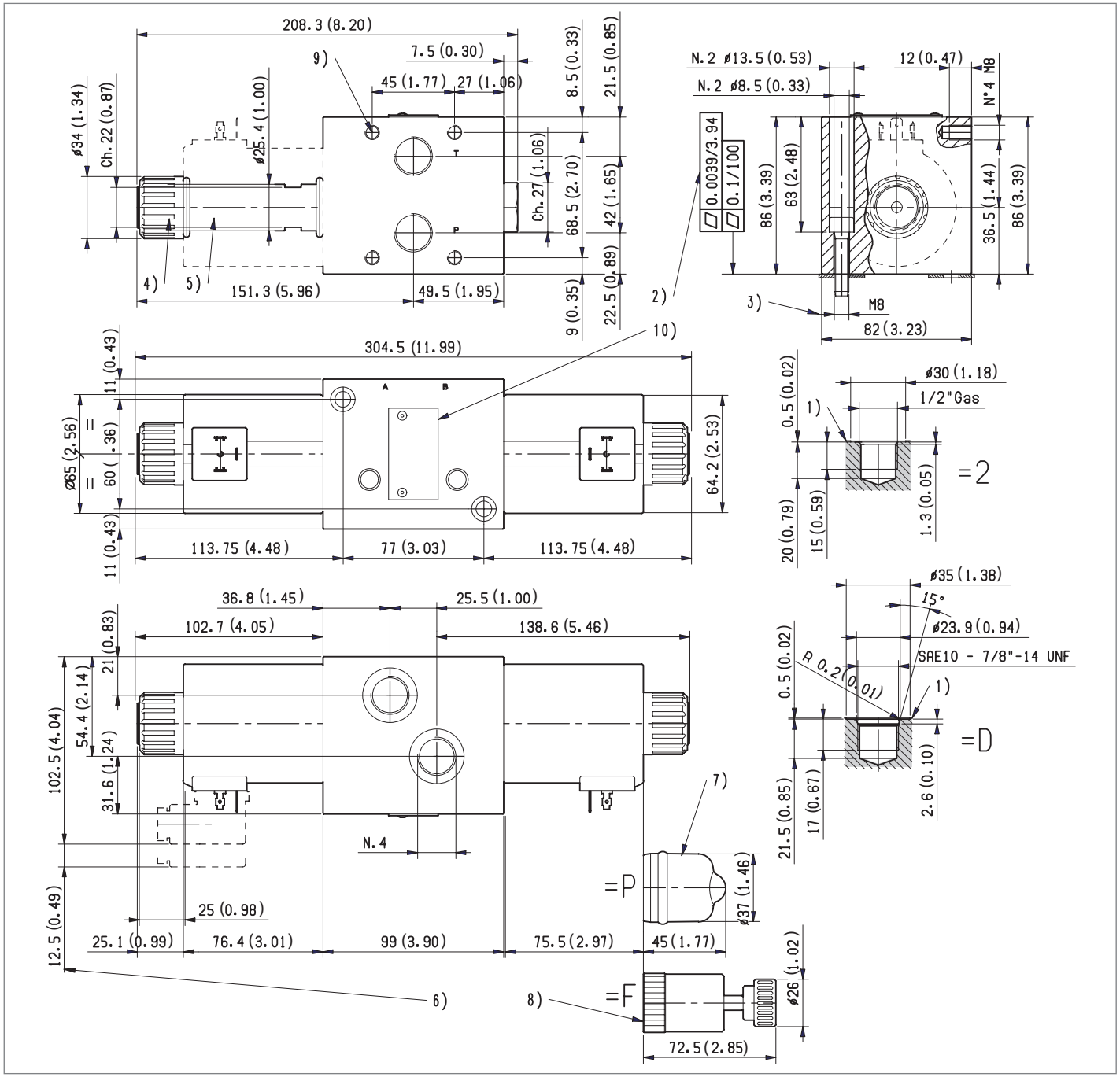
The performance curves are measured with flow going across and coming back, like P>A and B>T. With “lever type” emergency control, the performance limits are slightly lower.

External dimensions and fittings LF1



1 Work ports A, B, P, and T.
2 Flatness needed for mounting surface.
3 Two through installation holes reccomended screws M8 DIN 8.8: torque 20-22 Nm (14.7-16.2 ft-lb).
Must be ordered separately.
4 Ring nut for coil locking 26.5mm dia.
Torque 3-4 Nm (2.2-3 ft-lb).
5 Solenoid tube Ø 19 mm (0.75 inch).
6 Clearance needed for connector removal.
7 Optional push-button manual override for spool opening: it is pressure stuck to the ring nut for coil locking.
Mat no. R933000043.
8 Optional screw type manual override 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. R933007215.
9 Identification label.
10 Kit ring nut for coil locking with seals.
Mat no. R933003529.

External dimensions and fittings LF2



1 Work ports A, B, P, and T.
2 Flatness needed for mounting surface.
3 Two through installation holes reccomended screws M8 DIN 8.8: torque 20-22 Nm (14.7-16.2 ft-lb).
Must be ordered separately.
4 Ring nut for coil locking 34 mm dia.
Torque 7-8 Nm (5.2-5.9 ft-lb).
5 Solenoid tube Ø 25.4 mm (1 inch).
6 Clearance needed for connector removal.
7 Optional push-button manual override for spool opening: it is pressure stuck to the ring nut for coil locking.
Mat no. R933003424.
8 Optional screw type manual override 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.
Torque 6-7 Nm (4.4-5.2 ft-lb). Mat no. R933003713.
9 Four threaded holes M8 for fitting a secondary flangeable element on port A and B. Screws M8 with recommended strength class DIN 8.8: torque 20-22 Nm (14.7-16.2 ft-lb).
10 Identification label.
11 Kit ring nut for coil locking with seals.
Mat no. R933002879.

Electric connection

▼ **LF1**

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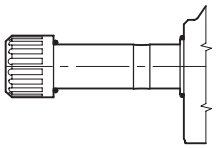
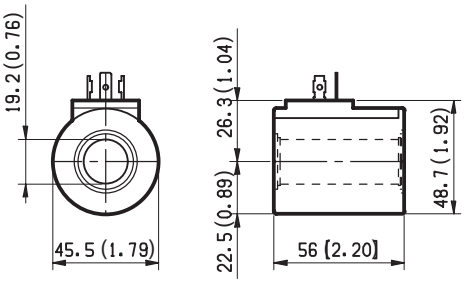
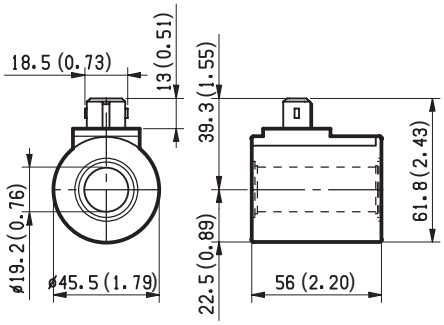


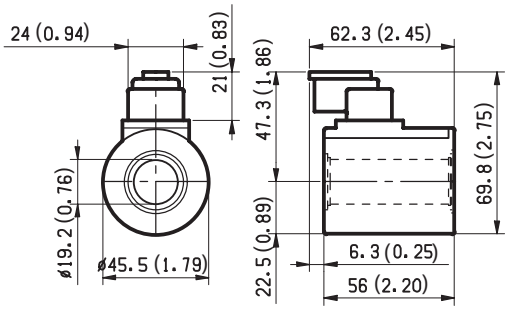
01



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).



▼ **LF2**

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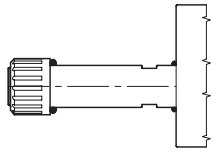

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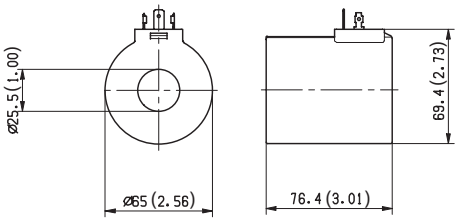
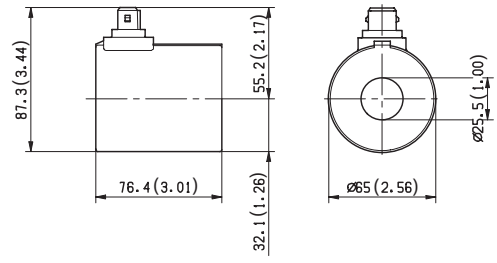
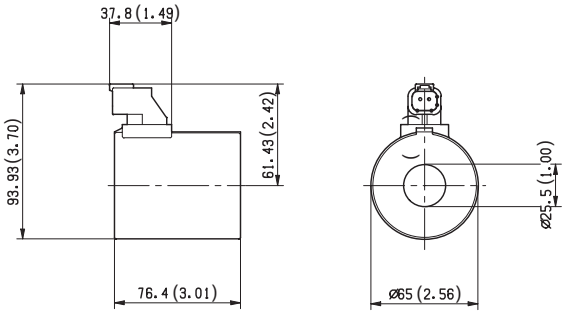


03 Protection class: IP 65 with female connector properly fitted (see drawing).



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



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