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

L8_10... (ED1-Z)

RE 18301-01
Edition: 06.2025
Replaces: 06.2022

- Size 6
- Series 00
- Maximum operating pressure 310 bar (4500 psi)
- Maximum flow 30 l/min (7.9 gpm)
- Port connections G 3/8 - SAE6

Spool position sensor available for this valve.
See RE18300-30

General specifications

Valve elements with solenoid operated directional spool.
Control spools 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; nickel plated surface.
Coils can be rotated 360° around the tube; they can be energized by AC current through special connectors with rectifier (RAC).
Manual override (push-button or screw type) available as option.

Contents

Ordering details

01	02	03	04	05	06	07	08	09	10
L	**8**	**_**	**10**	**_ _ _ _**	**_ _**	**_ _**	**_**	**_**	**_ _**

Family

01	Directional Valve elements ED	**L**

Type

02	Size 6	**8**

Configuration

03	Standard	**0**
	With secondary valve on A[1)]	**1**
	With secondary valve on B[1)]	**2**
	With secondary valves on A and B[1)]	**3**
	With channels for Load Sensing	**D**

Coil type

04	C36	**10**

Spool variants[2)]

05	4/3 operated on both sides a and b	**_ 2 _ _**
	4/2 operated on side a only	**_ 3 _ _**
	4/2 operated on side b only	**_ 4 _ _**

Voltage supply		**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** [3)]
	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**

Ports

08	G 3/8 DIN 3852	**0**
	9/16-18 UNF 2-B (SAE6)	**1**

Secondary valves setting

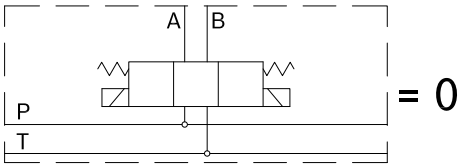
09	50-210 bar (725-3045 psi)	**0** [4)]
	100-310 bar (1450-4500 psi)	**1**
	25-50 bar (362-725 psi)	**2**
	50-100 bar (725-1450 psi)	**3**

Options

10	No options	**No code**
	Lever type manual override [5)]	**_ _**
	Push-button type manual override	**0P**
	Screw type manual override	**0F**

● = Available – = Not available

▼ Symbols



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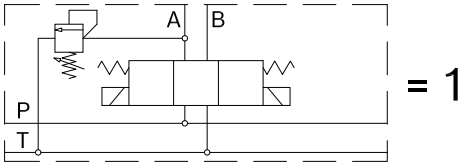

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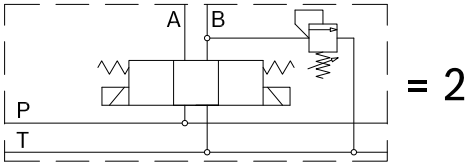

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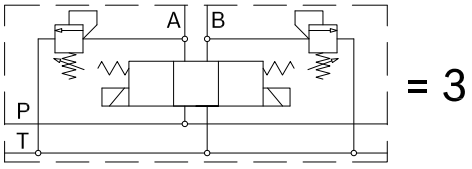

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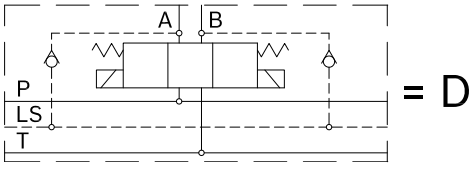
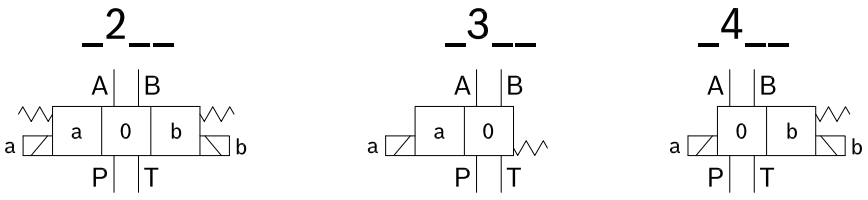
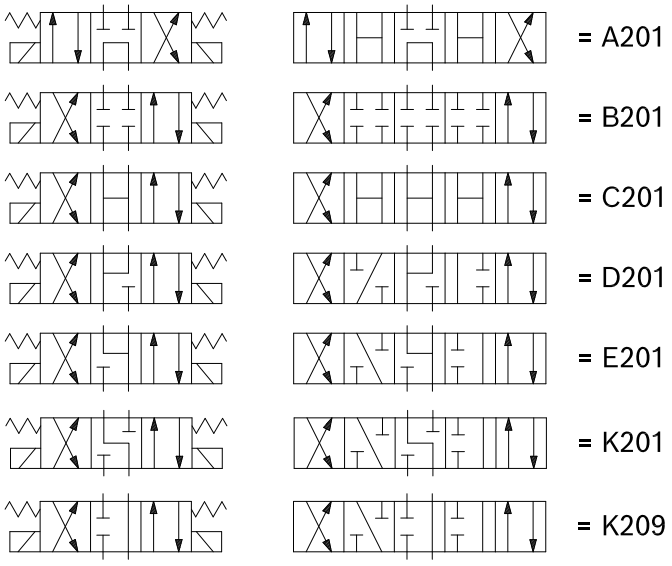


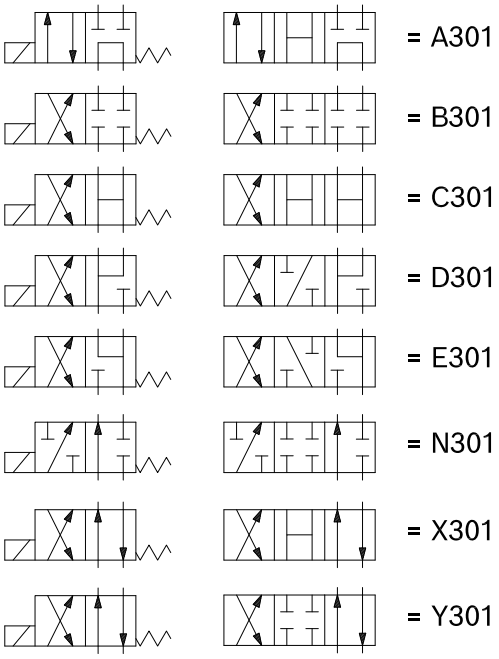
= D

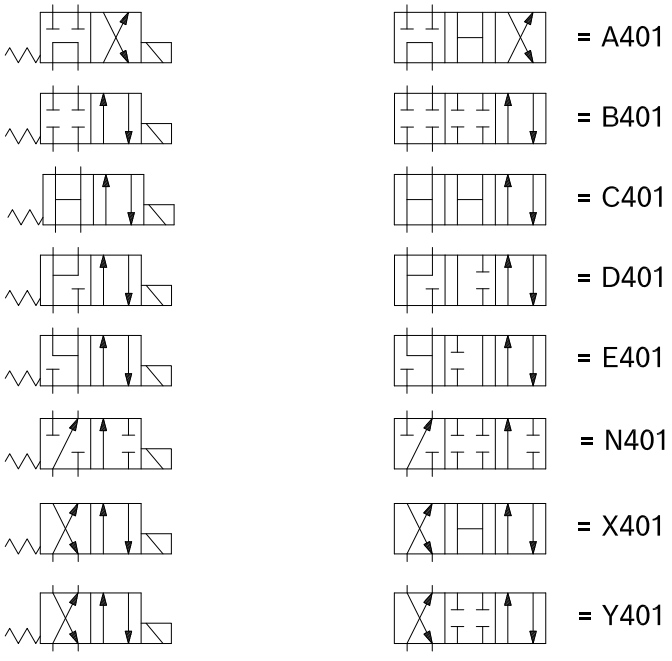
1) The secondary valves have a maximum flow capacity of 6 l/min (1.6 gpm).
2) The required hydraulic symbol and spool variant can be chosen by consulting page 3.
3) For connectors ordering code see data sheet RE 18325-90.
4) Without secondary valves (versions L80__; L84__), the standard configuration corresponds to “0”.
5) Available only for A, B, E and F spool configurations. See page 9 for code details.

▼ **Spool variants**

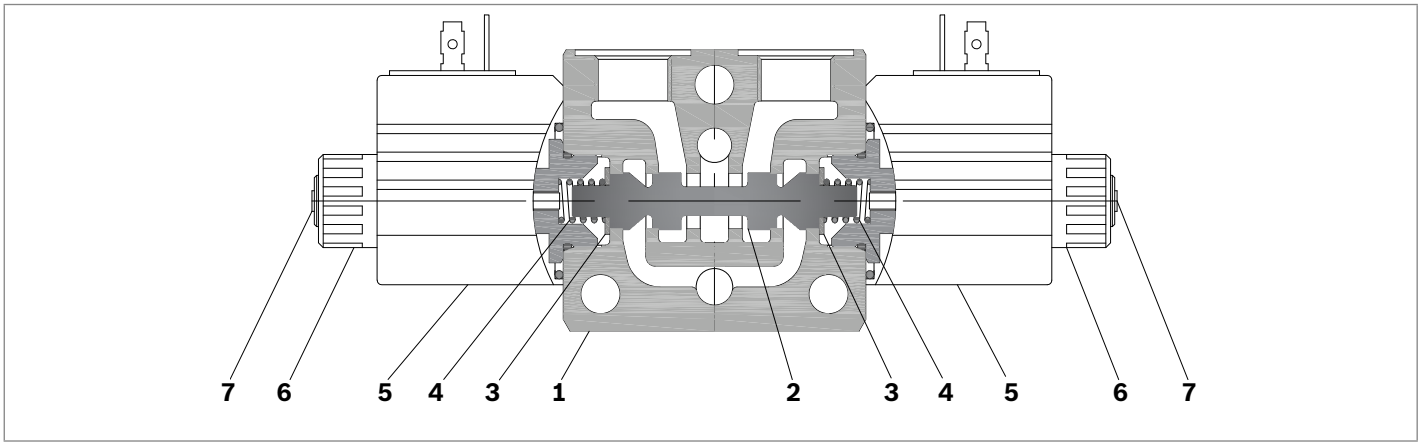








Functional description



The sandwich plate design directional valve elements L8_10... are 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**), one or two solenoids (**5**), and one or two return springs (**4**).
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 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

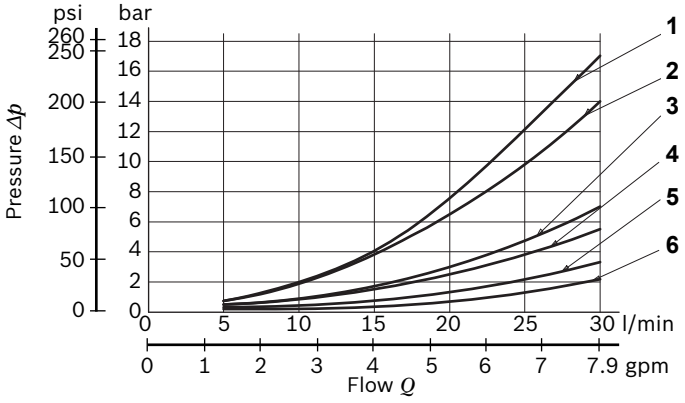
General		
Valve element with 2 solenoids	kg (lbs)	1.55 (3.42)
Valve element with 1 solenoid	kg (lbs)	1.25 (2.76)
Valve element with 2 solenoids, with lever type emergency	kg (lbs)	1.9 (4.2)
Valve element with 1 solenoid, with lever type emergency	kg (lbs)	1.6 (3.5)
Ambient Temperature	°C (°F)	–20....+50 (-4....+122) (NBR seals)
MTTFd		150 years see RE 18350-51
Hydraulic		
Maximum pressure at P, A and B ports	bar (psi)	310 (4500)
Maximum pressure at T	bar (psi)	250 (3625)
Max pressure, with lever type emergency at T	bar (psi)	200 (2900)
Maximum inlet flow	l/min (gpm)	30 (7.9)
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	2.00	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

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
=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
=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

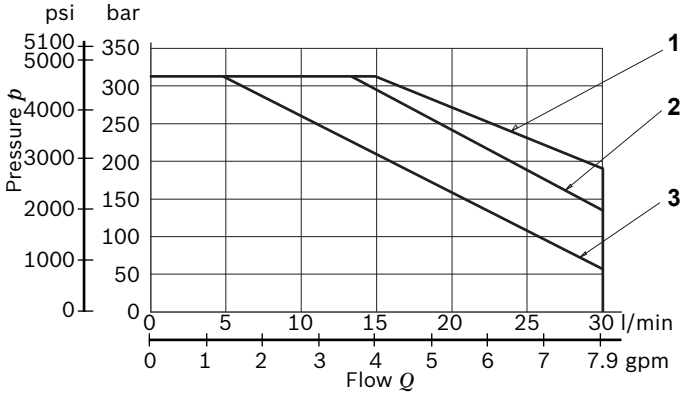
Characteristic curves



Spool Variant	Curve no.				
	P>T	P>A	P>B	A>T	B>T
A201, A301, A401	3	2	2	1	1
X301, X401		4	4	5	5
Y301, Y401		4	4	5	5
B201, B301, B401		5	5	5	5
C201, C301, C401	5	4	4	6	6
D201, D301, D401		5	5	4	4
E201, E301, E401		4	4	6	6
N301, N401		4	4		
K201, K209		4	4	4	4

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

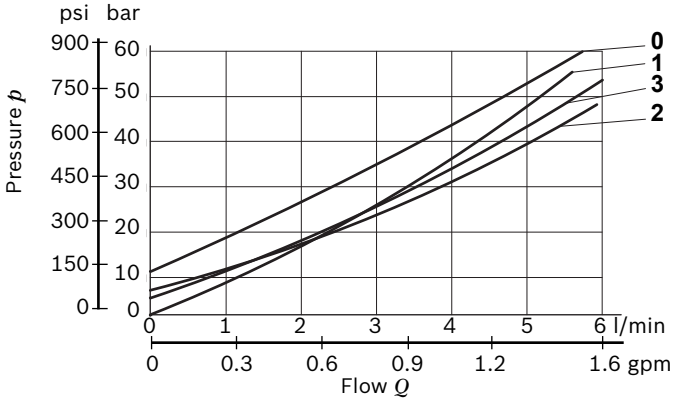
Performance limits



Spool Variant	Curve no.
A201-A301-A401-B201-B301-B401-Y401-X401-X301-Y301-C201-C301-C401-D201-D301-D401	1
K201-E201-E301-E401	2
N301, N401	3

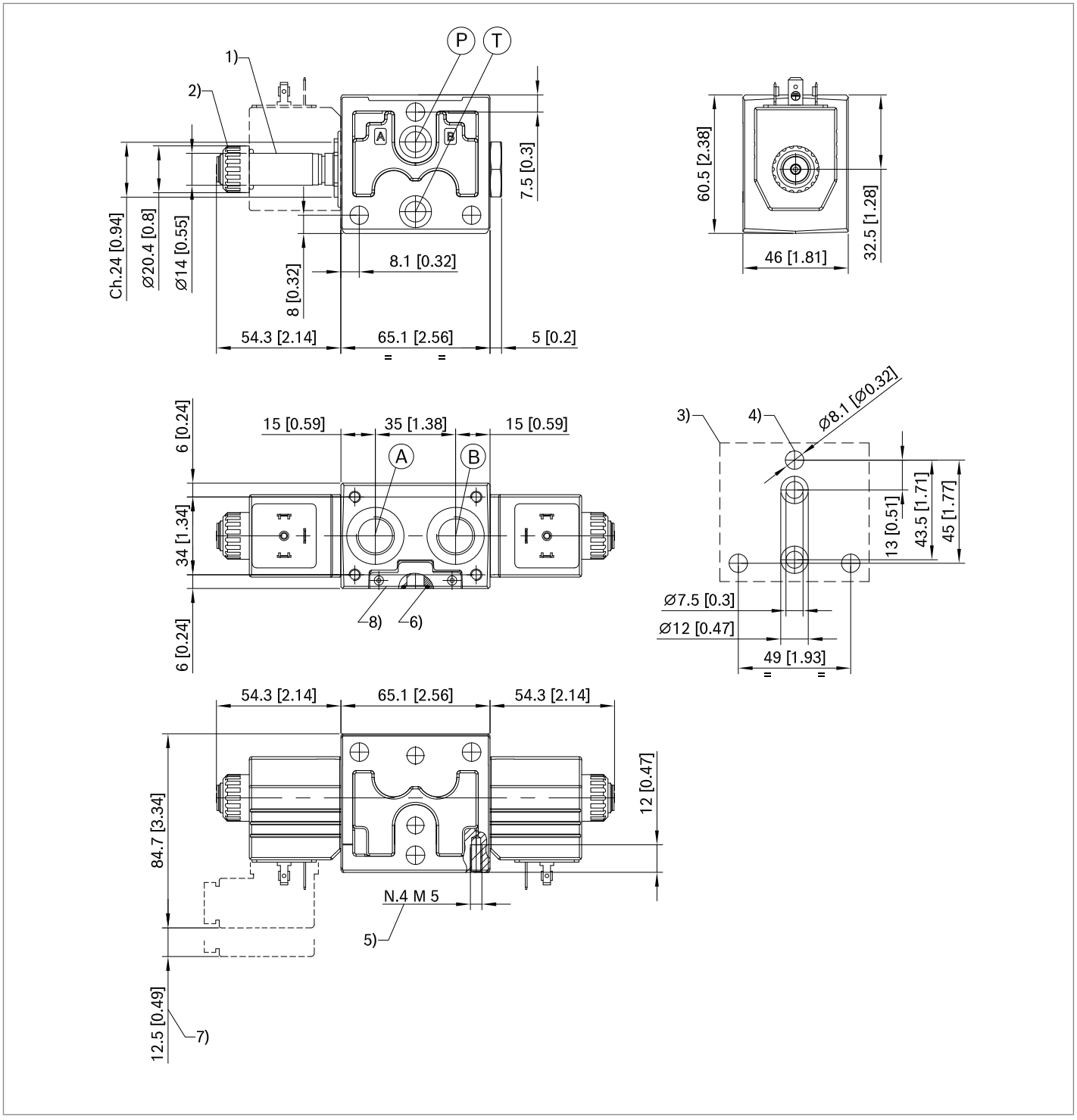
The performance curves are measured with flow going across and coming back, like P>A and B>T. With “lever type” emergency control, the performance limits are slightly lower.

Lowest pressure setting curve for secondary valves



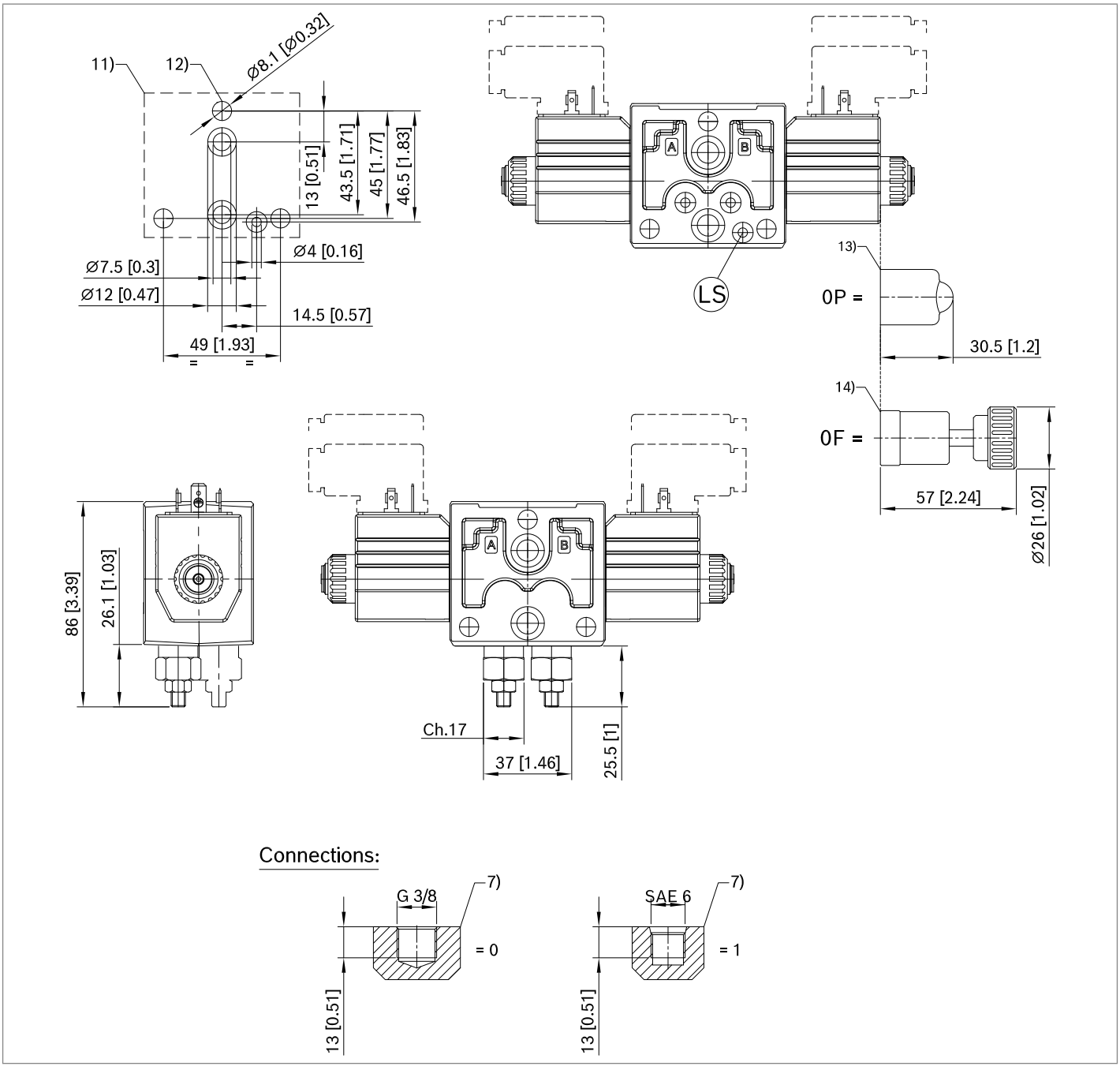
Secondary valve setting	Curve no.
50-210 bar (700-2950 psi)	0
100-310 bar (1400-4500 psi)	1
25-50 bar (350-700 psi)	2
50-100 bar (700-2950 psi)	3

External dimensions and fittings



1 Solenoid tube Ø 14 mm (0.55 inch).
2 Ring nut for coil locking (Ø 24 mm); torque 3-4Nm (2.2-3 ft-lb).
3 Flange specifications for coupling to ED intermediate elements.
4 For tie rod and tightening torque information see data sheet RE 18301-90.
5 Four threaded holes M5 for fi tting a secondary fl angeable element. Bolts M5 with recommended strength class DIN 8.8: torque 5-6 Nm (3.6-4.4 ft-lb).
6 O-Rings for P and T ports.
7 Clearance needed for connector removal.
8 Identification label.

Dimensions mm [inches]

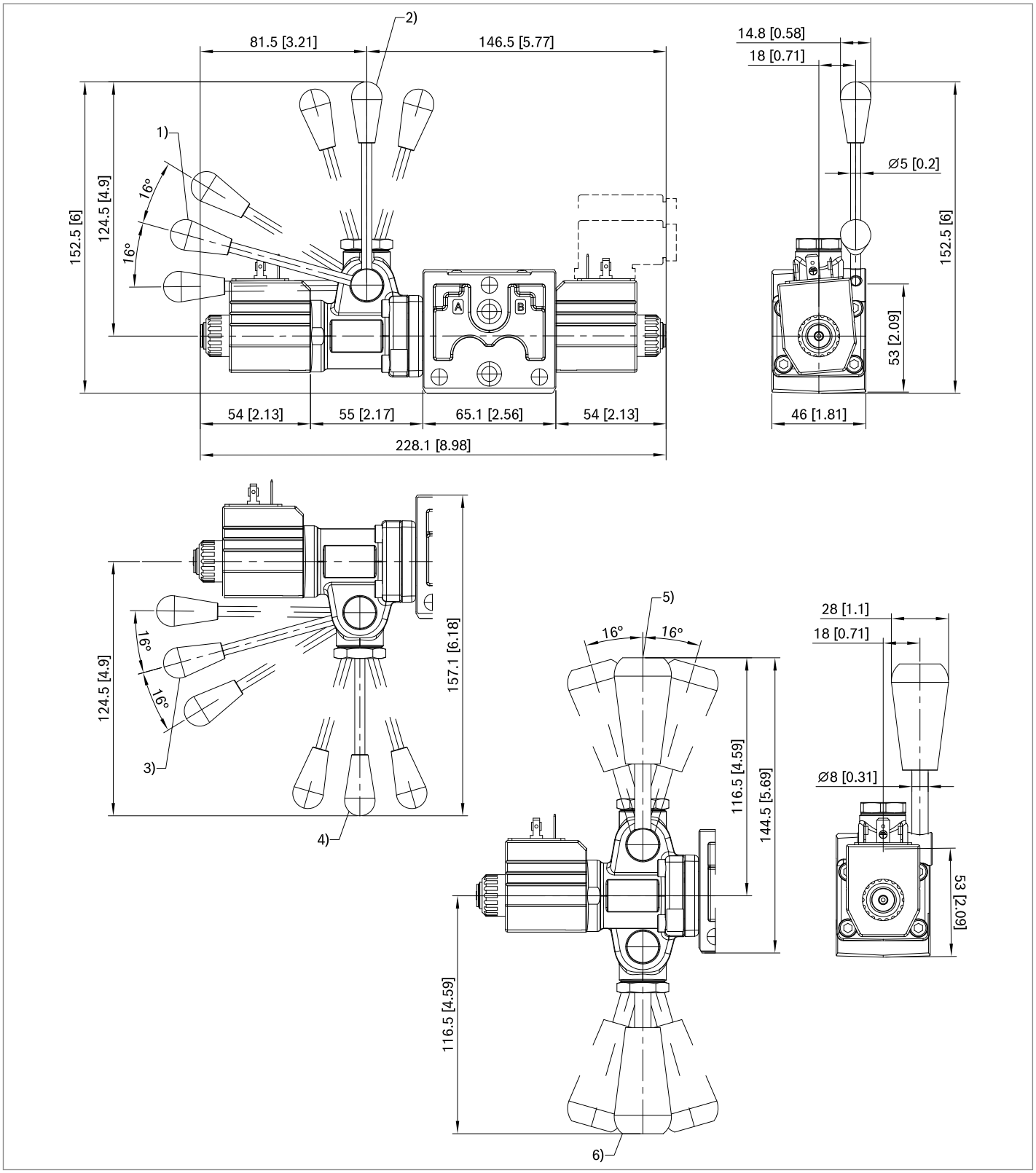


11 Flange specifications for coupling to ED intermediate elements.

12 For tie rod and tightening torque information see data sheet RE 18301-90.

13 Optional push-button manual override, 0P type, for spool opening: it is pressure stuck to the ring nut for coil locking. Mat no. R933000042.

14 Optional screw type manual override, 0F 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.



1 Ordering Details: HA (if fitted to side A) or HB (if fitted to side B)

2 Ordering Details: VA (if fitted to side A) or VB (if fitted to side B)

3 Ordering Details: H1 (if fitted to side A) or H9 (if fitted to side B)

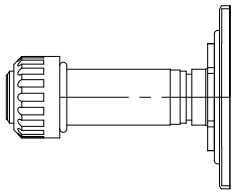
4 Ordering Details: V1 (if fitted to side A) or V9 (if fitted to side B)

5 Ordering Details: XA (if fitted to side A) or XB (if fitted to side B)

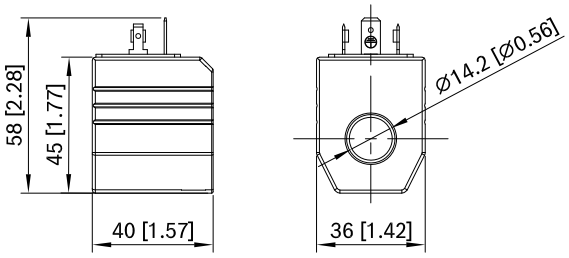
6 Ordering Details: X1 (if fitted to side A) or X9 (if fitted to side B)

Electric connections

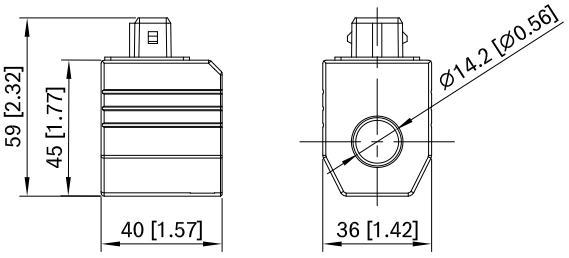
00 Without coil.



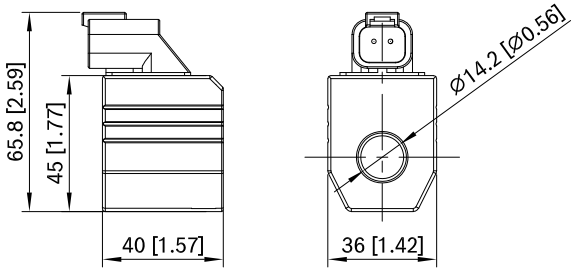
01 Protection class: IP 65 when connector with seal is properly screwed down.



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



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



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