

# L8580...(EDC-P) Series

Directional Valve Elements



## 4/3 - 4/2 proportional directional valve elements with flow sharing control (LUDV concept)

Size 6

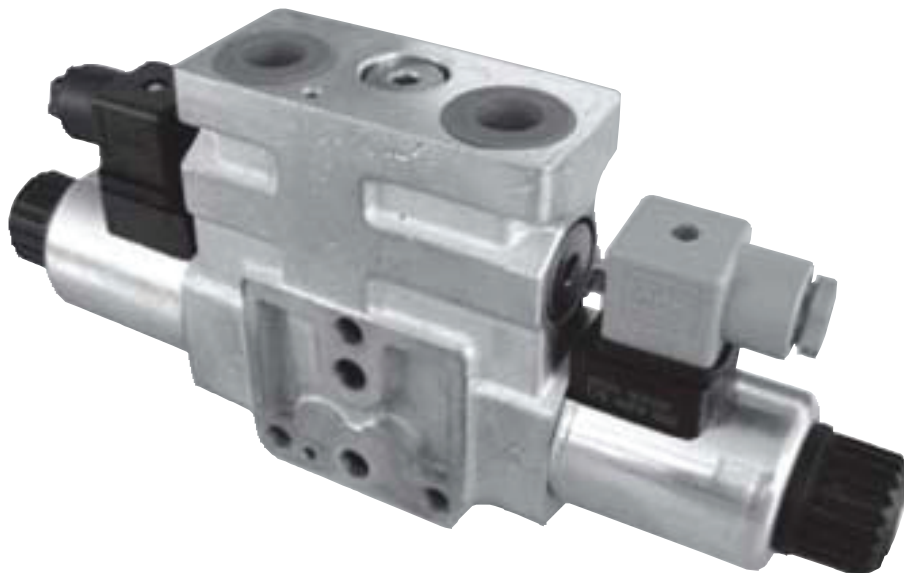
Series 00

Maximum operating pressure 310 bar [4500 psi]

Maximum flow at 14 bar [203 psi] 50 l/min [13.2 gpm]

Maximum flow at 18 bar [261 psi] 58 l/min [15.3 gpm]

Port connection G 3/8 - G 1/2 - SAE 8 and Modular



### General Specifications

Valve element with direct proportional flow sharing control.

It can achieve the simultaneous activation of different actuators by distributing the available flow proportionally to the speeds selected by the operator.

All simultaneous movements go on at the same reciprocal speed in case of flow shortage.

Each energized actuator receives a pressure compensated flow.

No shuttle valve fitted.

Wet pin tubes for DC coils, with push rod for mechanical override; nickel plated surface.

Manual override (push-button or screw type) available as option.

Different plug-in connectors available: see ordering details

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Directional Valve Elements

## Ordering details

	L	8	5	8	0	--	--	--	--	0	--
<b>Family</b> Directional valve elements ED											
<b>Type</b> Size 6, proportional											
<b>Configurations</b> Flow Sharing											
<b>Coil type</b> Diametro 23mm [0.91 inch]											
<b>Spool variant</b> 4/3 operated both sides a and b; P, A, B, T closed in neutral											= B2
4/2 operated on side a only; P, A, B, T closed in neutral											= B3
4/2 operated on side b only; P, A, B, T closed in neutral											= B4
4/3 operated on both sides a and b; P closed; A and B to T in neutral											= E2
4/3 operated on side a only; P closed; A and B to T in neutral											= E3
4/3 operated on side b only; P closed; A and B to T in neutral											= E4
<b>Flow pattern &amp; Nominal flow</b> <sup>1)-4)</sup>											
Both meter in and out, A 4l/min[1.06gpm] - B 4l/min[1.06gpm]											= S0
Both meter in and out, A 8l/min[1.85gpm] - B 8l/min[1.85gpm]											= S1
Both meter in and out, A 12l/min[3.17gpm] - B 12l/min[3.17gpm]											= S2
Both meter in and out, A 16l/min[4.23gpm] - B 16l/min[4.23gpm]											= S3
Both meter in and out, A 25l/min[6.6gpm] - B 25l/min[6.6gpm]											= S4
Both meter in and out, A 40l/min[10.57gpm] - B 40l/min[10.57gpm]											= S8
Both meter in and out, A 50l/min[13.2gpm] - B 50l/min[13.2gpm]											= S9
Only meter in, A 8l/min[1.85gpm] - B 8l/min[1.85gpm] <sup>2)</sup>											= I1
Only meter in, A 12l/min[3.17gpm] - B 12l/min[3.17gpm] <sup>2)</sup>											= I2
Only meter in, A 25l/min[6.6gpm] - B 25l/min[6.6gpm] <sup>2)</sup>											= I4
Only meter in, A 40l/min[10.57gpm] - B 40l/min[10.57gpm] <sup>2)</sup>											= I8
Only meter in, A 50l/min[13.2gpm] - B 50l/min[13.2gpm] <sup>2)</sup>											= I9
Both meter in and out, A 4l/min[1.06gpm] - B 8l/min[1.85gpm] <sup>2)</sup>											= O1
Both meter in and out, A 8l/min[1.85gpm] - B 12l/min[3.17gpm] <sup>2)</sup>											= I2
Both meter in and out, A 8l/min[1.85gpm] - B 16l/min[4.23gpm] <sup>2)</sup>											= I3
Both meter in and out, A 12l/min[3.17gpm] - B 16l/min[4.23gpm] <sup>2)</sup>											= 23
Both meter in and out, A 12l/min[3.17gpm] - B 25l/min[6.6gpm] <sup>2)</sup>											= 24
Both meter in and out, A 16l/min[4.23gpm] - B 25l/min[6.6gpm] <sup>2)</sup>											= 34
Both meter in and out, A 16l/min[4.23gpm] - B 40l/min[10.57gpm] <sup>2)</sup>											= 38
Both meter in and out, A 25l/min[6.6gpm] - B 40l/min[10.57gpm] <sup>2)</sup>											= 48
Both meter in and out, A 25l/min[6.6gpm] - B 50l/min[13.2gpm] <sup>2)</sup>											= 49
Both meter in and out, A 40l/min[10.57gpm] - B 50l/min[13.2gpm] <sup>2)</sup>											= 89

**Options fittings**

00 = Without manual override  
 0F = Screw type manual override  
 0P = Push-button type manual override  
 -- = Lever type manual override<sup>3)</sup>

**Ports**

0 = G 3/8 DIN 3852  
 2 = G 1/2 DIN 3852  
 3 = 3/4-16 UNF 2B (SAE8)  
 M<sup>5)</sup> = Machined for interfacing to modular elements

**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  
 07 = With coils, with bi-directional diode, without mating connector DT04-2P

**Voltage supply**

00 = Without coils  
 0B = 12V DC  
 0C = 24V DC

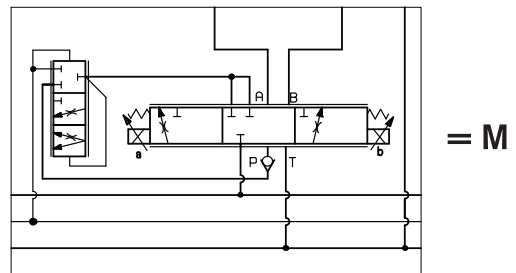
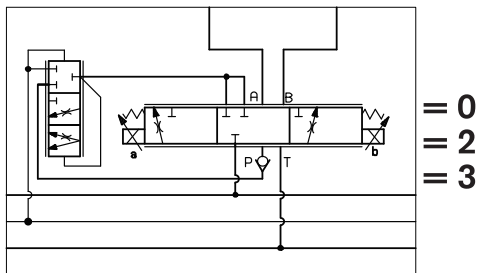
1) The required hydraulic layout and spool variant can be chosen by consulting page 3.  
 2) Available only for E\_ spool variant.  
 3) Each different option for the type of emergency chosen implies a specific ordering code (refer to page 8).  
 4) With Δp (P > A or P > B) 14 bar [203 psi].  
 5) See RE18301-45, RE18301-46, RE18301-47, for flangeable elements.  
 \*\* For connectors ordering code see data sheet RE 18325-90.

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Directional Valve Elements

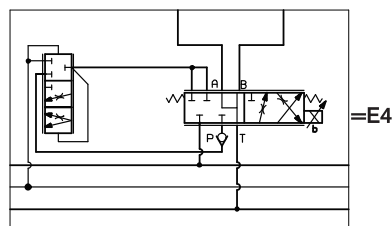
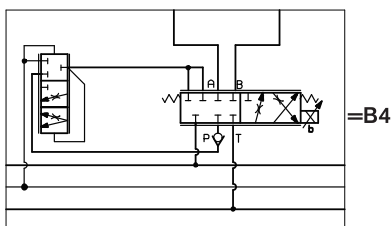
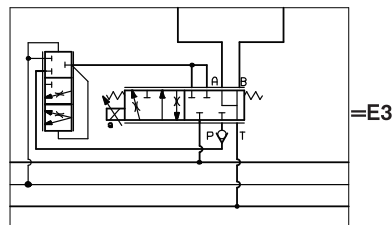
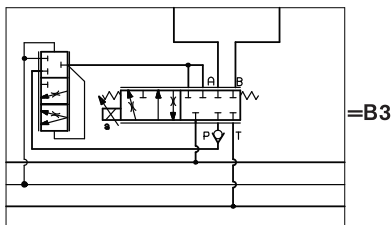
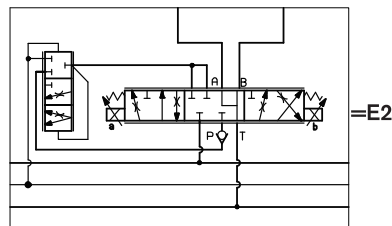
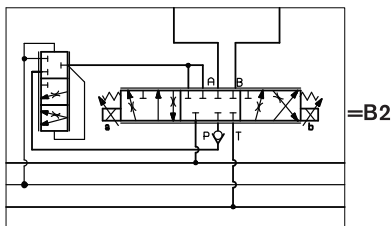


## Ports options

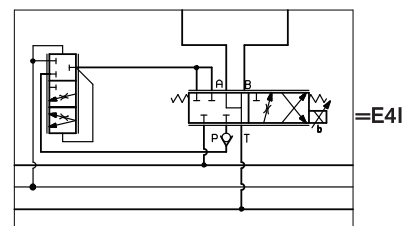
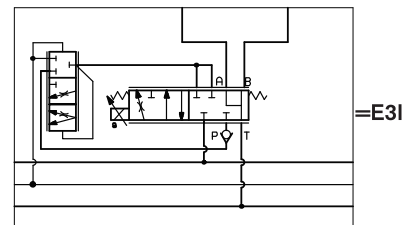
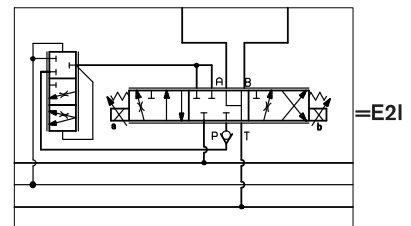


## Spool variant and Flow pattern

### Both meter in and out



### Only meter in



# L8580...(EDC-P) Series



Directional Valve Elements

## Principles of operation, cross section

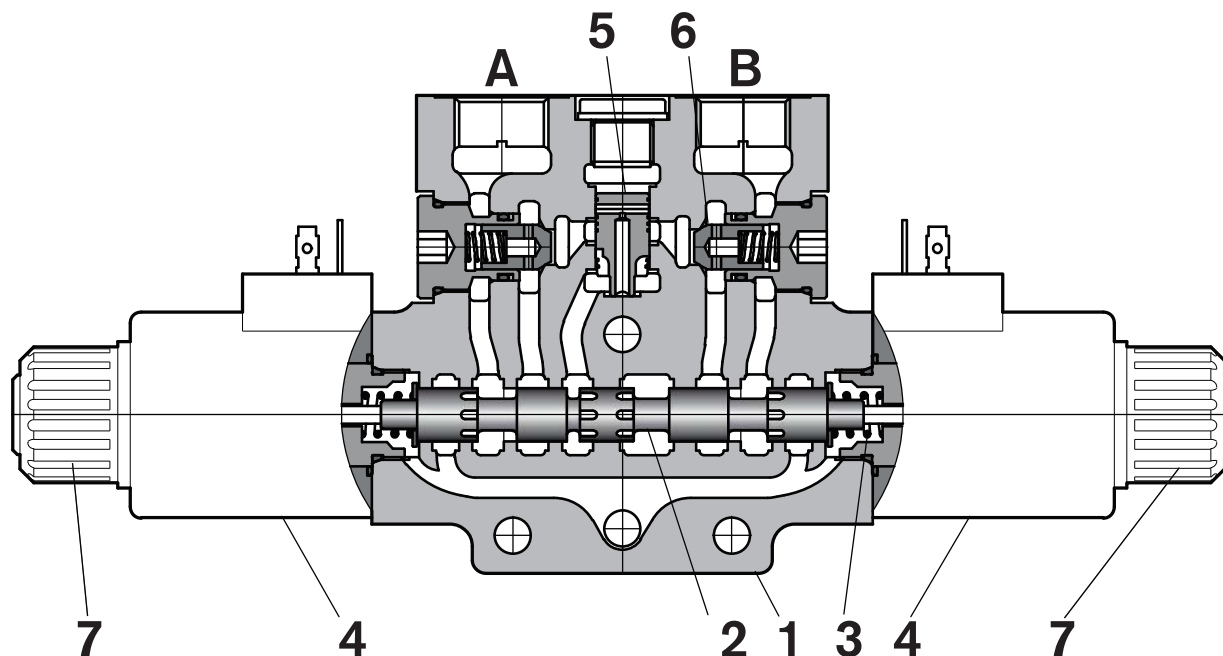
The sandwich plate design directional valve elements L8580... are compact direct operated pressure compensated proportional solenoid valves which control the start, the stop, the direction and the quantity of the oil flow, with a FLOW SHARING principle. These elements basically consist of a stackable housing (1) with a control spool, two solenoids (4), two return springs. Energized by an electronic feed regulator, each solenoid (4) displaces the control spool from its neutral-central position "0" proportionally to the current received. When the spool is shifted and the metering notch is open, flow delivery starts and is controlled by a 3 way pressure compensator followed by a check valve for each port A and B. The compensator, balanced by the LS pressure at the opposite

end, lifts up and unloads a regulated flow which is sent to the A (or B) port through the relevant check valve; at the same time the opposite port allows oil return to tank.

LS pressure reaches the compensator "dead end" directly from the A or B port, while the check valves lock eventual pressure oscillations which could affect the compensator function.

When the solenoid is de-energized, the return spring pushes the spool thrust washer back against the housing and the spool returns in its neutral-central position.

Each coil (4) is fastened to the solenoid tube by the ring nut (7). A pin allows to push the spool under emergency conditions, when the solenoid cannot be energized, like in case of voltage shortage.



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Directional Valve Elements

## Technical Data (for applications with different specifications consult us)

General	
Valve element with 2 solenoids	kg [lbs] 3.95 [8.71]
Valve element with 1 solenoid	kg [lbs] 3.6 [7.91]
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] 210 [3045]
Maximum pressure with lever emergency at T	bar [psi] 140 [2030]
Max. regulated flow at 14 bar [203 psi]	l/min [gpm] 50 [13.2]
Max. regulated flow at 18 bar [261 psi]	l/min [gpm] 58 [15.3]
E-schemes flow pattern symmetrical closed pass in the neutral position (connection from A to T and B to T)	Approx. 2% of the nominal cross-section
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: $\beta_{10} \geq 75$ X=10...12 ISO 4406: class 19/17/14 NAS 1638: class 8
Viscosity range	mm <sup>2</sup> /s 20....380 (optimal 30....46)
Electrical	
Voltage type	PWM Pulse Width Modulation pre-set at 120 Hz
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	kg [lbs] 0.335 [0.739]
Voltage	V 12 24
Current (nominal at 20°C [68°F])	A 1.76 0.88
Resistance (nominal at 20°C [68°F])	- Cold value at 20°C $\Omega$ 4 16
	- Max. hot value $\Omega$ 6.1 24.4

	Voltage (V)	Connector type	Coil description	Marking	Coil Mat no.
=OB 01	12 DC	EN 175301-803 (Ex. DIN 43650)	D15 01	12 DC	R933000092
=OB 03	12 DC	AMP JUNIOR	D15 03	12 DC	R933002877
=OB 07	12 DC	DEUTSCH DT 04-2P	D15 07	12 DC	R933000094
=OC 01	24 DC	EN 175301-803 (Ex. DIN 43650)	D15 01	24 DC	R933000093
=OC 03	24 DC	AMP JUNIOR	D15 03	24 DC	R933003515
=OC 07	24 DC	DEUTSCH DT 04-2P	D15 07	24 DC	R933002798

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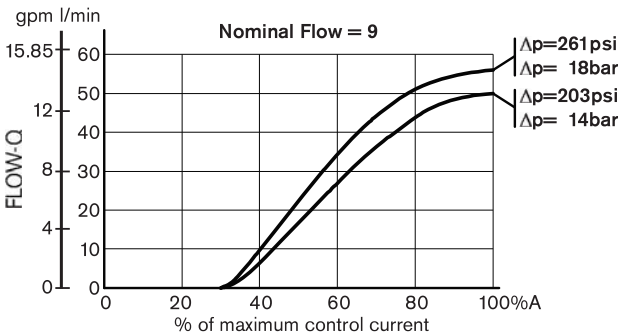
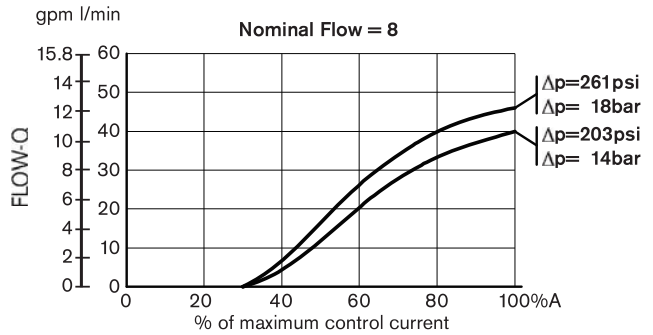
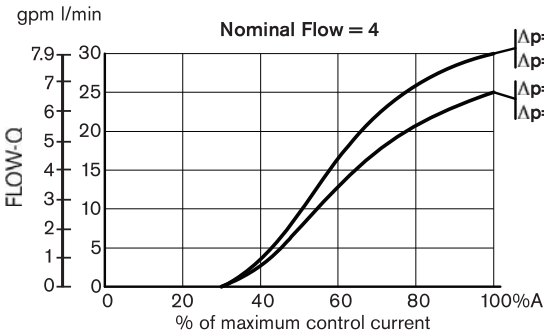
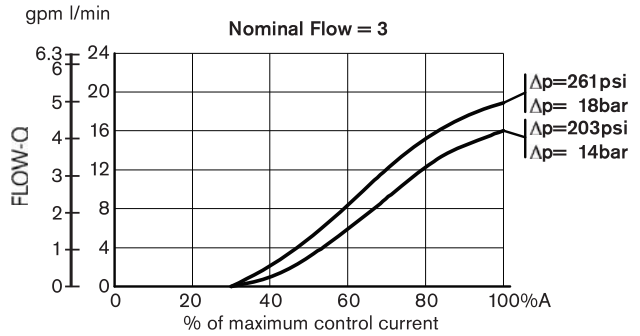
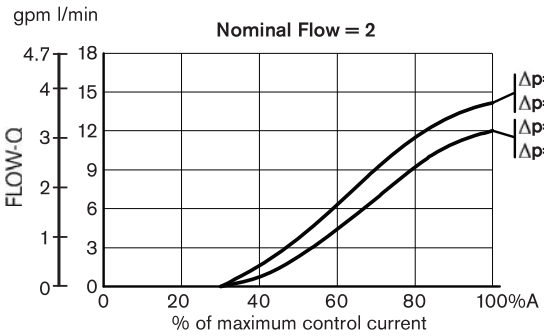
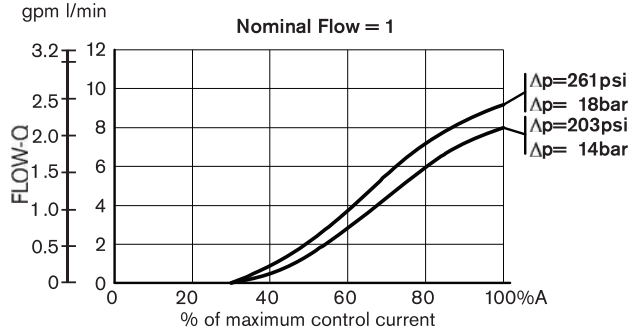
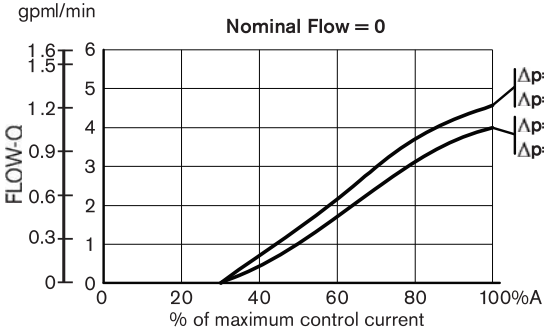


Directional Valve Elements

## Characteristic curves

Measured with hydraulic fluid ISO-VG32 at  $45^\circ \pm 5^\circ \text{C}$  [ $113^\circ \pm 9^\circ \text{F}$ ]; ambient temperature  $20^\circ \text{C}$  [ $68^\circ \text{F}$ ].

### Characteristic curves Q=Q (I)



The curves refer to the spool fully open.

# L8580...(EDC-P) Series

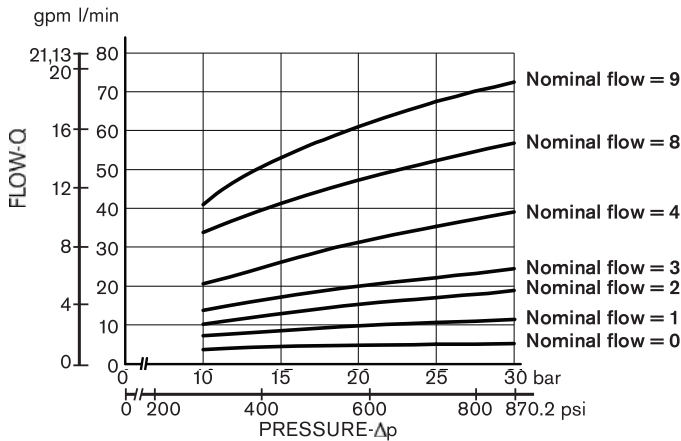


Directional Valve Elements

## Characteristic curves

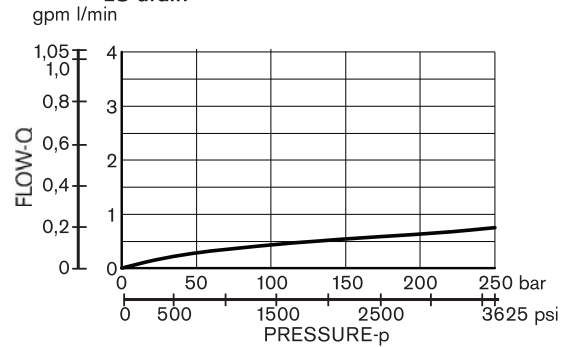
Measured with hydraulic fluid ISO-VG32 at  $45^\circ \pm 5^\circ \text{C}$  [ $113^\circ \pm 9^\circ \text{F}$ ]; ambient temperature  $20^\circ \text{C}$  [ $68^\circ \text{F}$ ].

### Nominal flow $Q_{\text{nom}}=Q_{\text{nom}}(\Delta P \text{ Is})$

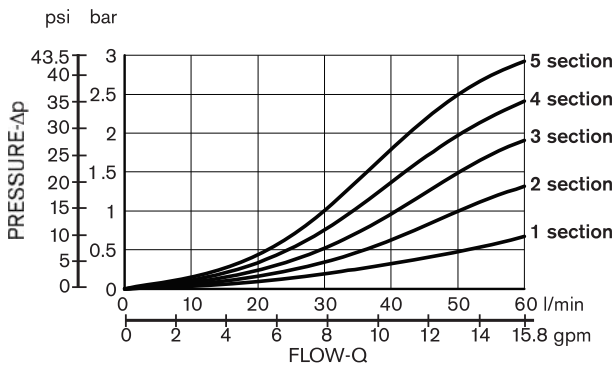


Pressure differential across the spool ( $\Delta P$ Is)

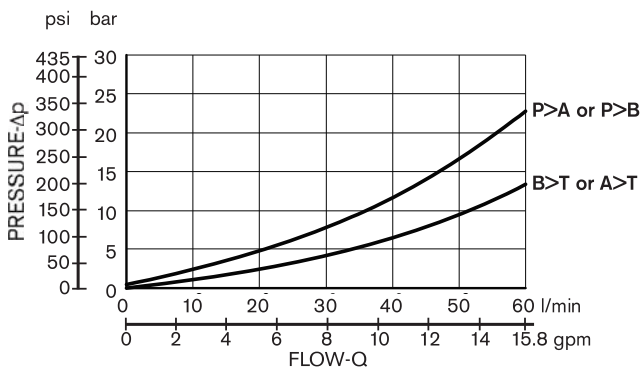
### LS drain



### Pressure drop $\Delta p = \Delta p(Q)$ ( $P_{\text{IN}} - P_{\text{OUT}}$ ) to the next section



### Pressure drop $\Delta p = \Delta p(Q)$ with spool B2S9



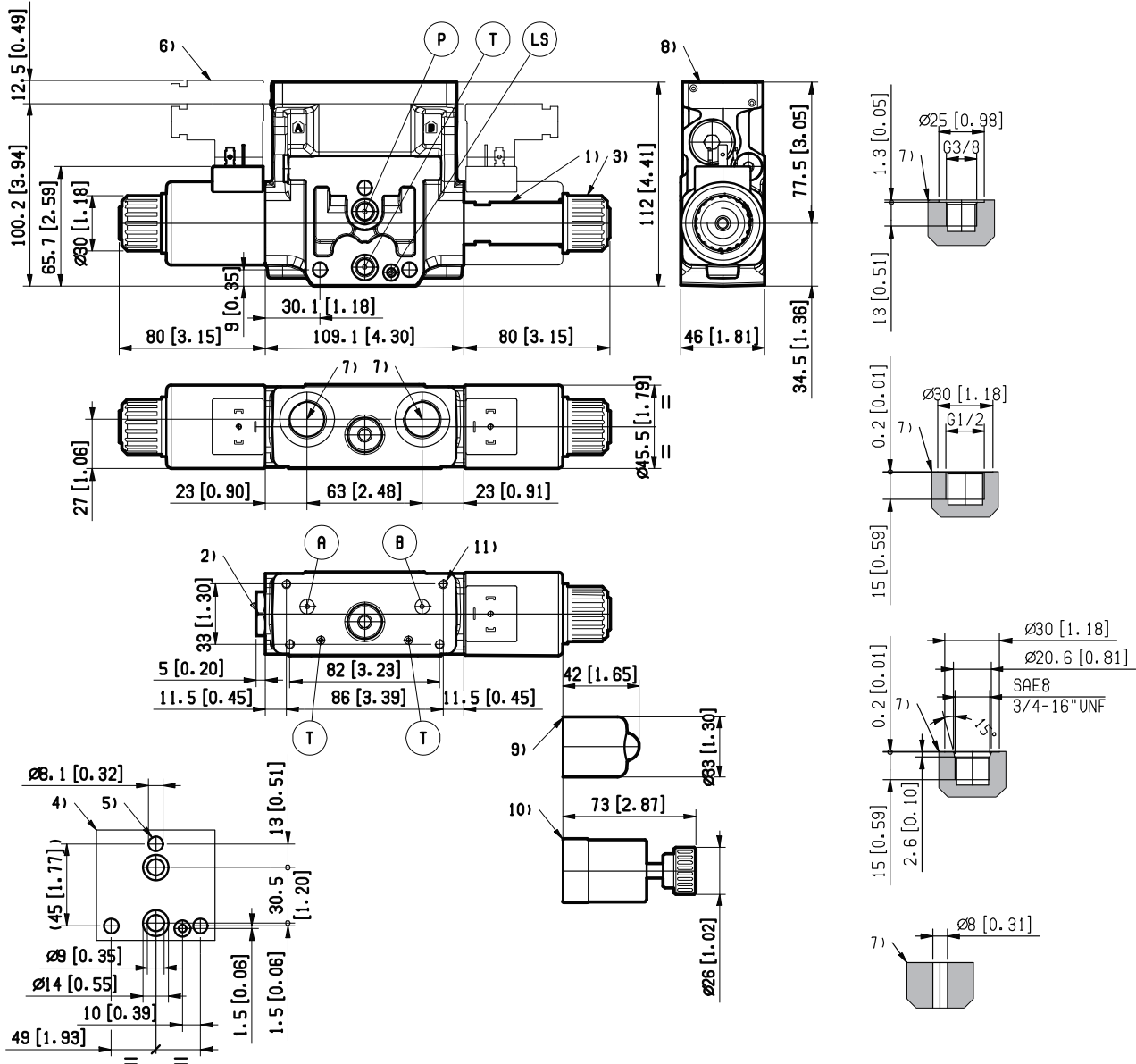
The curves refer to the spool fully open.

# L8580...(EDC-P) Series

Directional Valve Elements



## External Dimensions and Fittings



1 Solenoid tube  $\varnothing$  23 mm [0.91 inch].

2 Plug for 2 positions versions (4/2).

3 Ring nut for coil locking ( $\varnothing$  30.3 mm).  
Torque 6 – 7 Nm [4.4 – 5.2 ft-lb].

4 Flange specifications for coupling to ED intermediate elements.

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

6 Clearance needed for connector removal.

7 A and B ports.

8 Identification label.

9 Optional push-button manual override, 0P type, for spool opening: it is pressure stuck to the ring nut for coil locking. Mat no. R933003289.

10 Optional screw type manual override, 0F type, for spool opening: it is screwed (torque 6-7 Nm [4.4-5.2 ft-lb]) to the tube as replacement of the coil ring nut. Mat no. R933003116.

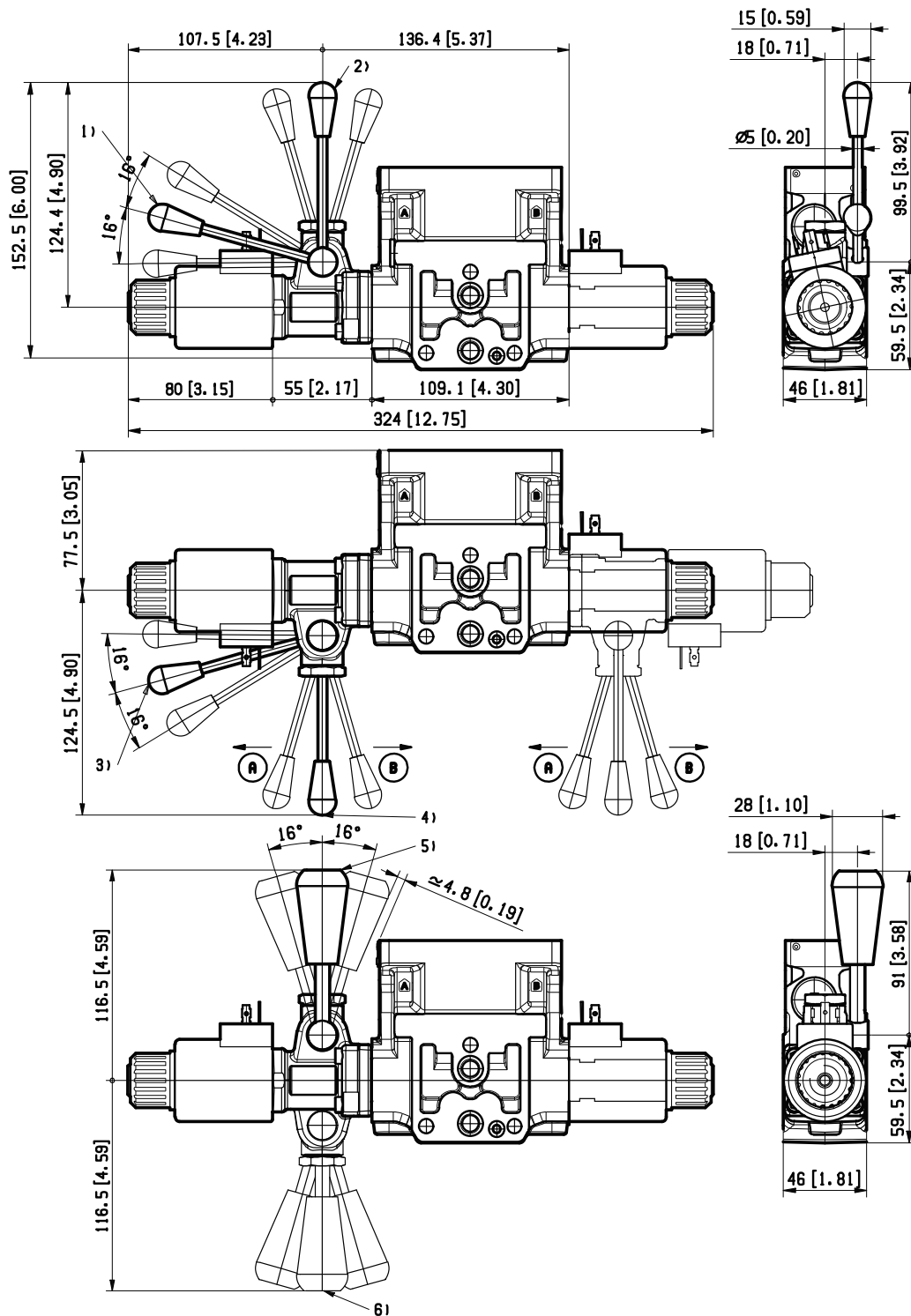
11 Four threaded holes M5 depth 12mm [0.47 inch] for fitting a secondary flangeable element. Bolts M5 with recommended strength class DIN8.8: torque 5-6 Nm [3.6-4.4 ft-lb] (only for version with modular secondary valves).

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Directional Valve Elements



## External Dimensions and Fittings



- 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)

# L8580...(EDC-P) Series

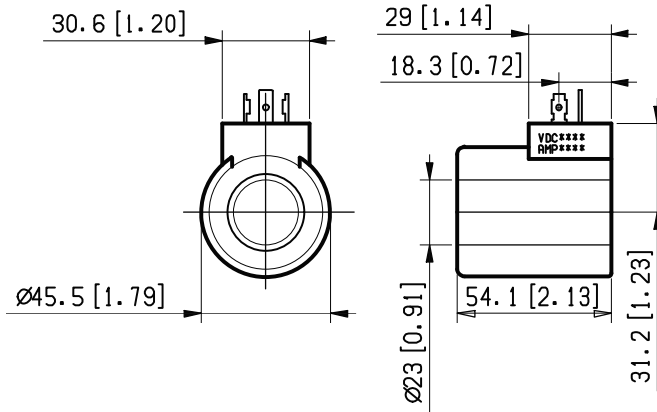


Directional Valve Elements

## Electric connection (or connections, in case of two solenoids)

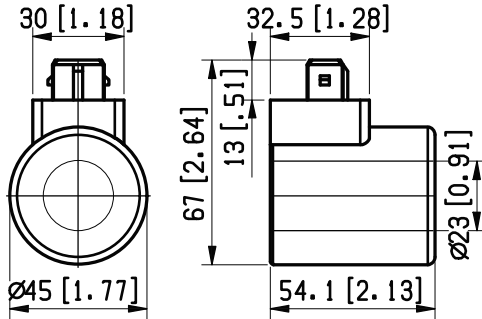
Protection class: IP 65 when connector with seal is properly screwed down.

=01



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

=03



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

=07

