

3/2 ways/positions flow diverters

RE 18302-02/12.09

1/8

L705... (VS81-VS82-VS84-VS85)

Size 6
 Series 00
 Maximum operating pressure 310 bar [4500 psi]
 Maximum flow 60 l/min [15.85 gpm]
 Ports G 3/8 - G 1/2 - SAE6 - SAE8



DVI0048

Summary

Description

General specifications
 Ordering details
 Spool variants
 Principles of operation, cross section
 Technical data
 Δp - Q_v characteristic curves
 External dimensions and fittings
 Electric connection

Page

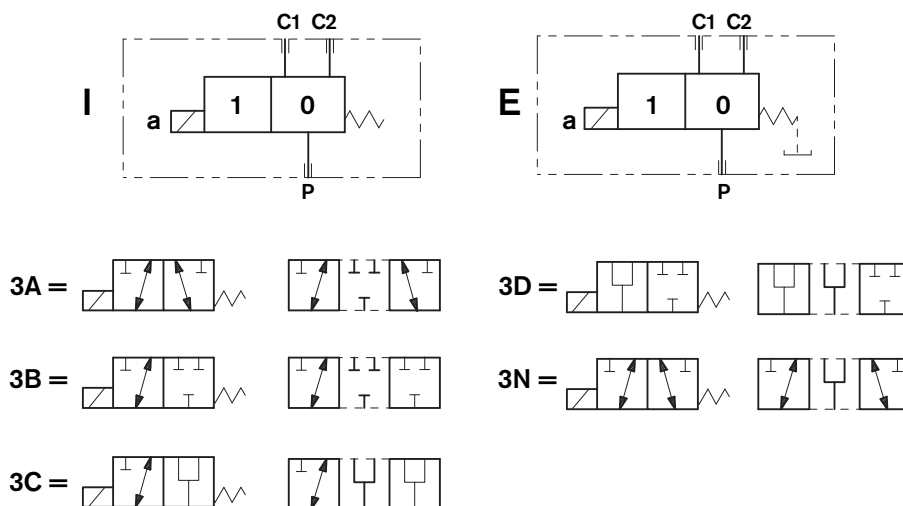
- 3 way 2 position valve
- 1 - Directional spool valve with direct solenoid control
- 2 - Upon request, hydraulic / pneumatic pilot, or manual push and twist control.
- 2
- 3 - Control spool operated by screwed-in solenoid, with easily extractable coil fastened by a ring nut.
- 3
- 5 - Wet pin tube for DC coil, with push rod for mechanical override in case of voltage shortage.
- 6 - Unrestricted 360° orientation of DC coil.
- 8 - Control spool held in normal position by return spring.
- Optional manual override (push-button or screw type).
- Connectors available: DIN 43650 – ISO 4400, AMP Junior, DT04-2P (Deutsch), Free leads.

General specifications

Ordering details

	L	7	05	_	_	_	_	_	_	0												
<p>Family Compact directional valve</p> <p>Type Flow Diverters</p> <p>Ports G3/8 DIN 3852 = 3 G1/2 DIN 3852 = 4 9/16-18 UNF-2B (SAE6) = B 3/4-16 UNF-2B (SAE8) = C</p> <p>Control type Solenoid (coil C 48) without emergency = 11 Solenoid (coil C 48) with push-button type emergency = 1P Solenoid (coil C 48) with screw type emergency = 1F Hydraulic / pneumatic control = P1 Manual push and twist control = H1</p> <p>Spool variants 3 Ways / 2 position = 3_</p>										<p>Electric connections 00 = Without coil 01 = With coil, without connector 02 = With coil and with non-assembled connector, type DIN 43650 – ISO 4400 03 = With coil having AMP Junior connector 07 = With coil having DEUTSCH DT 04-2P connect. 31 = With coil and bipolar sheathed lead 350mm [13.8"] long</p> <p>Voltage supply SG = Manual push and twist control 00 = Without coil OB = 12V DC AD = 13V DC OC = 24V DC AC = 27V DC OD = 48V DC</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 2px;">31</td> <td style="padding: 2px;">07</td> <td style="padding: 2px;">03</td> <td style="padding: 2px;">02</td> <td style="padding: 2px;">01</td> <td style="padding: 2px;">00</td> </tr> <tr> <td colspan="6" style="text-align: center; padding: 2px;">Available connections</td> </tr> </table> <p>Drain type I = Internal drain E = External drain</p>	31	07	03	02	01	00	Available connections					
31	07	03	02	01	00																	
Available connections																						

Spool variants



Principles of operation, cross section

A valve basically consists of a housing (1), a control spool (2), a return spring (3) and a solenoid (5). It is designed to select which one of two circuits (C1 or C2) is to be supplied with the oil delivered from one single hose (P): with spool in position "0", when the solenoid is de-energized, the flow goes from P to C1, with spool in position "1", when the solenoid is energized the flow goes from P to C2.

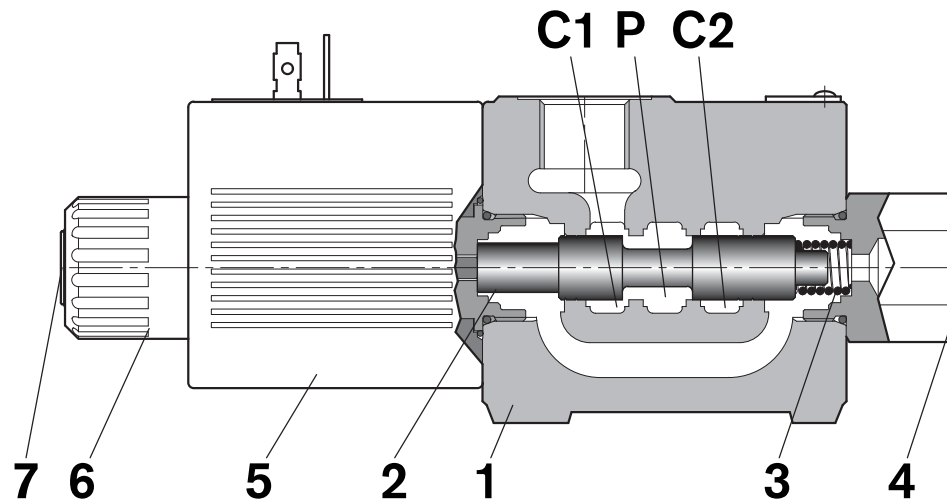
With the coil de-energized, the return spring (3) pushes back the spool (2) and holds it in position "0".

The coil (5) is fastened to the tube by the ring nut (6).

The manual override (7) allows to shift the spool (2) also in case of voltage shortage.

An external drain, to be connected to tank, ensures shifting operations also at higher working pressure.

Hydraulic / pneumatic pilot control, or manual push and twist control for spool shifting are available upon request.



Technical Data (for applications with different specifications consult us)

General

Valve weight	kg [lbs]	2.06 [4.54]
Ambient Temperature	°C [°F]	-20...+50 [-4...+122] (NBR seals)

Hydraulic

Maximum pressure with external drain	bar [psi]	310 [4500]
Maximum pressure with internal drain	bar [psi]	250 [3625]
Maximum flow	l/min [gpm]	60 [15.85]
Hydraulic fluid		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: classe 20/18/15 NAS 1638: classe 9
Viscosity range	mm ² /s	5...420
Internal leakage with 100 bar [1450 psi] secondary pressure at C	cc/min [in ³ /min]	min.10 [0.61] max. 20 [1.2]

Electrical

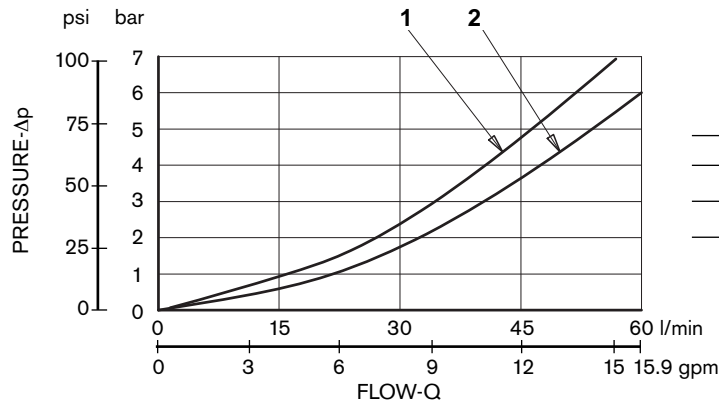
Voltage type	DC									
Voltage tolerance (nominal voltage)	%	-10 ... +10								
Duty	W	36								
Maximum coil temperature	%	Continuous, with ambient temperature $\leq 50^{\circ}\text{C}$ [122°F]								
Insulation class	$^{\circ}\text{C}$ [°F]	150 [302]								
Compliance with	H									
Coil weight with DIN 43650 – ISO 4400 connector	Low Voltage Directive LVD 73/23/EC (2006/95/EC), 2004/108/EC									
Voltage	kg [lbs]	0.215 [0.44]								
Voltage type	V	12	13	24	27	48				
Power consumption		DC	DC	DC	DC	DC				
Current ⁽¹⁾	W	36	36	36	36	36				
Resistance ⁽²⁾	A	3.0	2.77	1.53	1.32	0.75				
Resistenza ⁽²⁾	Ω	3.97	4.68	15.67	20.42	63.60				

¹⁾ Nominal - ²⁾ $\pm 7\%$ at temperature 20°C [68°F]

	Voltage (V)	Connector type	Coil description	Marking	Coil Mat no.
=OB 01 =OB 02	12 DC	EN 175301-803 (Ex. DIN 43650)	C4801 12DC	12 DC	R933000063
=OB 03	12 DC	AMP JUNIOR	C4803 12DC	12 DC	R933000065
=OB 07	12 DC	DEUTSCH DT 04-2P	C4807 12DC	12 DC	R933000068
=OB 31	12 DC	Cable 350 mm long	C4831 12DC	12 DC	R933000064
=AD 01 =AD 02	13 DC	EN 175301-803 (Ex. DIN 43650)	C4801 13DC	13 DC	R933000069
=AD 07	13 DC	DEUTSCH DT 04-2P	C4807 13DC	13 DC	R933000073
=OC 01 =OC 02	24 DC	EN 175301-803 (Ex. DIN 43650)	C4801 24DC	24 DC	R933000076
=OC 03	24 DC	AMP JUNIOR	C4803 24DC	24 DC	R933000071
=OC 07	24 DC	DEUTSCH DT 04-2P	C4807 24DC	24 DC	R933000075
=OC 31	24 DC	Cable 350 mm long	C4831 24DC	24 DC	R933000070
=AC 01 =AC 02	27 DC	EN 175301-803 (Ex. DIN 43650)	C4801 27DC	27 DC	R933000077
=AC 07	27 DC	DEUTSCH DT 04-2P	C4807 27DC	27 DC	R933000074
=OD 01 =OD 02	48 DC	EN 175301-803 (Ex. DIN 43650)	C4801 48DC	48 DC	R933000078

Characteristic curves

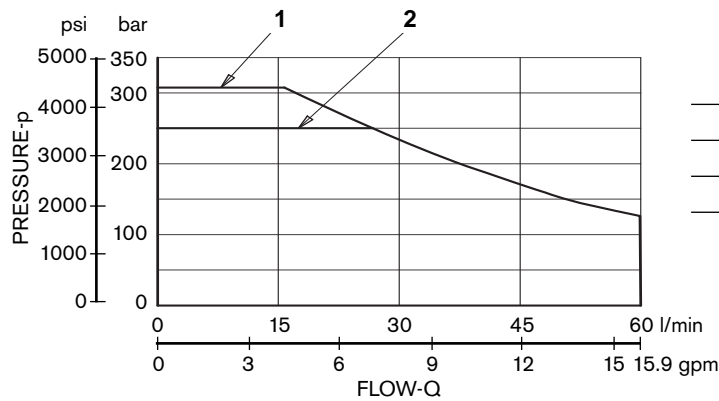
Measured with hydraulic fluid ISO-VG32 at $45^{\circ} \pm 5^{\circ} \text{ C}$ [$113^{\circ} \pm 9^{\circ} \text{ F}$]; ambient temperature 20° C [68° F].



Modello	N° Curva
VS81/84	1
VS82/85	2

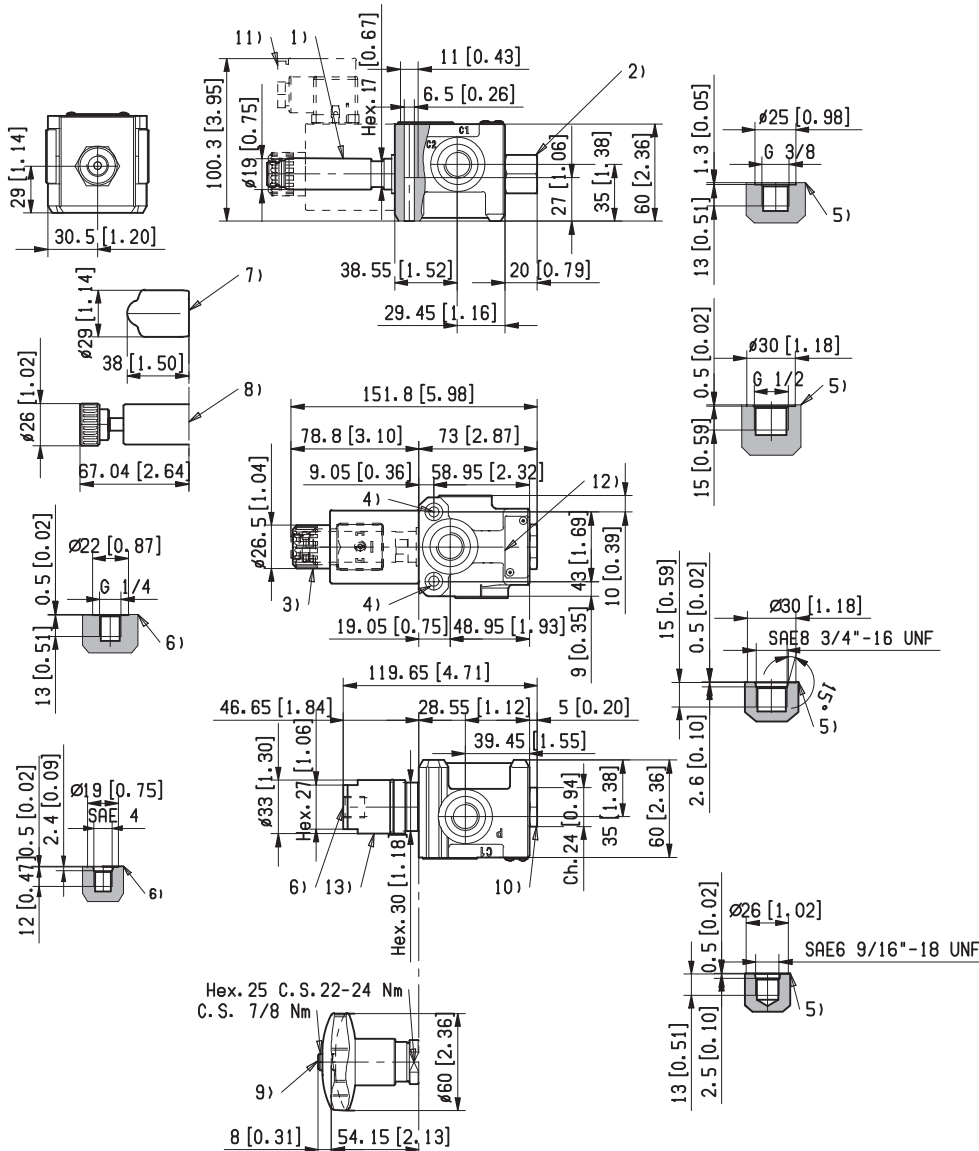
Performances limits

The performance limits refer to the following conditions: coils at operating temperature, voltage supply 10% below nominal, no back pressure in the tank line.



Curve n.	Drain type
1	External (-E-)
2	Internal (-I-)

External Dimensions and Fittings



1 Solenoid tube hex 17 mm. Torque 22-24 Nm [16.2-17.7 ft-lb].

2 Plug for version with external drain hex 24 mm.
Torque 22-24 Nm [16.2-17.7 ft-lb].

3 Ring nut for coil locking OD 26.5 mm [1.04 in].
Torque 5-6Nm [3.6-4.4 ft-lb].

4 Two through holes for installation.
Recommended screws M6 with strength class DIN 8.8.
Torque 9-10 Nm [6.6-7.4 ft-lb].

5 Ports P, C1, C2: G 3/8, G 1/2, SAE 6, SAE 8.

6 External drain and hydraulic, or pneumatic pilot port G 1/4,
SAE 4.

7 Optional push-button type emergency for spool opening: it is
pressure stuck to the ring nut for coil locking.
Mat no. R933000043.

8 Optional screw type emergency for spool opening: it is
screwed (torque 6-7Nm [4.4-5.2 ft-lb]) to the tube as
replacement of the coil ring nut. Mat no. R933007215.

9 Dimensions of optional manual version, push and twist type.
Hex 25mm, torque 22-24 Nm [16.2-17.7 ft-lb].

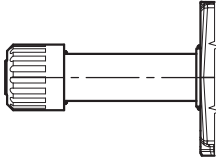
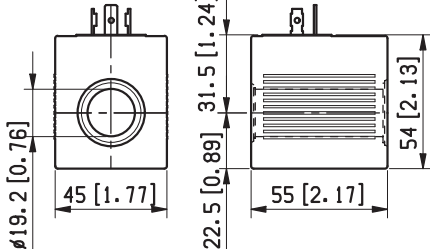
10 Plug for version with internal drain hex 24 mm.
Torque 22-24 Nm [16.2-17.7 ft-lb].

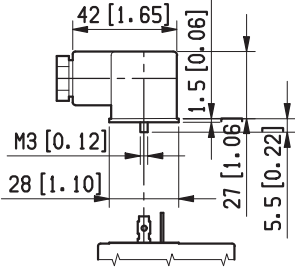
11 Minimum clearance needed for connector removal.

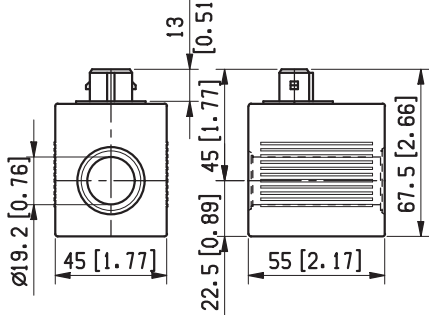
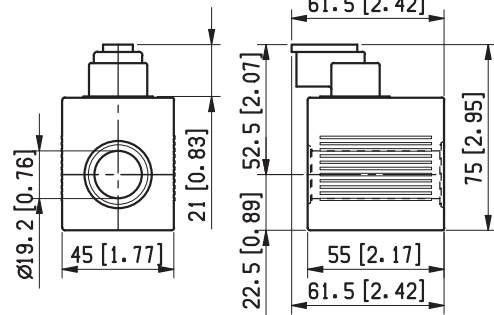
12 Identification label.

13 Hydraulic, or pneumatic pilot connector: hex 30 mm.
Torque 25-27 Nm [18.4-19.9 ft-lb].

Electric connection

=00	Without coils, but with ring nut and O-Rings for coil fitting (solution recommended for flexible stock handling)	=01	With coils having plug-in pins EN 175301-803, without connectors
			

=02	With coils and with connectors non-assembled, type EN 175301-803. Protection class: IP 65 when connector with seal is properly screwed down, and cable clamp is correctly tightened.																		
	<p> 182-09: Standard. 182-LED-T-A1: with LED monitoring presence of voltage. 182-09-G-DO-2-1: with VDR (Voltage Dependent Resistor), to prevent input voltage over-shootings. </p> <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Mat. No.</th> <th style="text-align: left;">Description</th> </tr> </thead> <tbody> <tr> <td>R933002885</td> <td>182-09 GRAY</td> </tr> <tr> <td>R933002889</td> <td>182-09 BLACK</td> </tr> <tr> <td>R933002893</td> <td>182-LED-T-A1 12 DC</td> </tr> <tr> <td>R933002894</td> <td>182-LED-T-A1 24 DC</td> </tr> <tr> <td>R933002896</td> <td>182-LED-T-A1 48 DC</td> </tr> <tr> <td>R933002886</td> <td>182-09-G-DO-2-1 12DC with VDR</td> </tr> <tr> <td>R933002887</td> <td>182-09-G-DO-2-1 24DC with VDR</td> </tr> </tbody> </table>			Mat. No.	Description	R933002885	182-09 GRAY	R933002889	182-09 BLACK	R933002893	182-LED-T-A1 12 DC	R933002894	182-LED-T-A1 24 DC	R933002896	182-LED-T-A1 48 DC	R933002886	182-09-G-DO-2-1 12DC with VDR	R933002887	182-09-G-DO-2-1 24DC with VDR
Mat. No.	Description																		
R933002885	182-09 GRAY																		
R933002889	182-09 BLACK																		
R933002893	182-LED-T-A1 12 DC																		
R933002894	182-LED-T-A1 24 DC																		
R933002896	182-LED-T-A1 48 DC																		
R933002886	182-09-G-DO-2-1 12DC with VDR																		
R933002887	182-09-G-DO-2-1 24DC with VDR																		
																			

=03	With coils having AMP Junior connector, and with bi-directional diode. Protection class: IP 65 with female connector properly fitted (see drawing).	=07	With coils having DEUTSCH DT 04-2P connector, and with bi-directional diode. Protection class: IP 69 K with female connector properly fitted (see drawing).
			

=31	With coils having bi-directional diode and bipolar sheathed free lead, 350 mm long, without pins.		
	