

6 to 12/2 ways/positions bankable flow diverters flangeable

RE 18302-08/07.12
Replaces: 12.09

1/8

L711... (VS120F-VS125F)

Size 4
Series 00
Maximum operating pressure 310 bar [4500 psi]
Maximum flow 20 l/min [5.3 gpm]
Ports G 1/4 - SAE4



DVI0089

Summary

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General specifications

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- 6 way 2 position valve.
- Directional spool valve with direct solenoid control.
- Hydraulic / pneumatic pilot available as option.
- Usable as stand-alone, or as multiple stackable units.
- Control spool operated by solenoid, with easily removable coil fastened by a ring nut.
- Wet pin tube for DC coil, with push rod for mechanical override in case of voltage shortage.
- Unrestricted 360° orientation of DC coil.
- 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.

Ordering details

	L	7	11	_	_	_	_	_	_	_																																																																																																				
Family Compact directional valve											Assembly 0 = Single diverter 2 = 2 Pre-assembled diverters 3 = 3 Pre-assembled diverters 4 = 4 Pre-assembled diverters																																																																																																			
Type Flow Diverters											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 04 = With coils, with bi-directional diode, without mating connector horizontal Amp-Junior 07 = With coils, with bi-directional diode, without mating connector DT04-2P 31 = With coils and bipolar sheathed lead 350mm [13,8 in] long																																																																																																			
Ports G 1/4" DIN3852 = 2 9/16-18 UNF2-B (SAE6) = A											Voltage supply Without coil 12V DC 13V DC 24V DC 27V DC 48V DC 110V DC																																																																																																			
Control type Solenoid (coil C36) without manual override = 10 Solenoid (coil C36) with push-button type manual override = 1P Solenoid (coil C36) with screw type manual override = 1F Hydraulic / pneumatic control = P1											<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%; text-align:center;">00 =</td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="text-align:center;">OB =</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td style="text-align:center;">AD =</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td style="text-align:center;">OC =</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td style="text-align:center;">AC =</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td style="text-align:center;">OD =</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td style="text-align:center;">OE =</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> </tr> <tr> <td></td> <td style="text-align:center;">31</td> <td style="text-align:center;">07</td> <td style="text-align:center;">04</td> <td style="text-align:center;">03</td> <td style="text-align:center;">01</td> <td style="text-align:center;">00</td> <td colspan="4"></td> </tr> <tr> <td></td> <td colspan="10" style="text-align:center;">Available connections</td> </tr> </table>	00 =											OB =											AD =											OC =											AC =											OD =											OE =												31	07	04	03	01	00						Available connections									
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Spool Variants 6 way / 2 position P1 side = 6_ 6 way / 2 position P2 side = 7_																																																																																																														
Drain type Internal drain = I External drain = E																																																																																																														

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

Spool variants

I

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Principles of operation, cross section

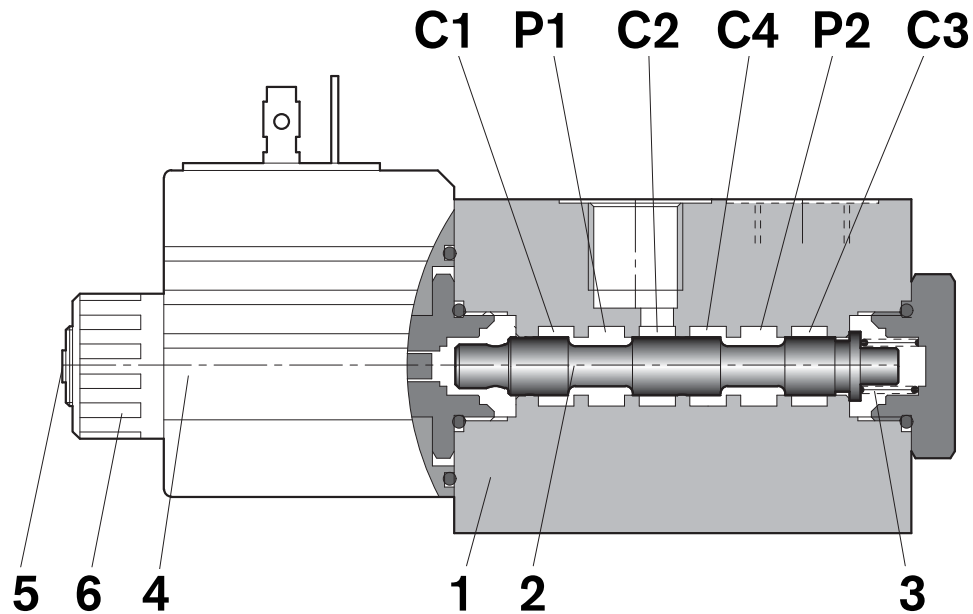
A valve basically consists of a housing (1), a control spool (2), a return spring (3) and a solenoid (4). It is designed to connect two inlet lines P1 – P2 (normally a set of hoses) and divert them to either the outlet ports (C1 – C4) with spool in position "0", when the solenoid is de-energized, or to the outlet ports (C2 – C3) with spool in position "1", when the solenoid is energized.

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

The coil (4) is fastened to the tube by the ring nut (6).

The manual override (5) allows to shift the spool (2) also in case of voltage shortage.

Hydraulic / pneumatic pilot control for spool shifting is available upon request.



Technical Data (for applications with different specifications consult us)

General

Valve weight	kg [lbs]	1.13 [2.5]
Mounting position		unrestricted
Ambient Temperature	°C [°F]	-20....+50 [-4....+122] (NBR seals)

Hydraulic

Maximum pressure with external drain ("E" type)	bar [psi]	310 [4500]
Maximum pressure with internal drain ("I" type)	bar [psi]	250 [3625]
Maximum inlet flow	l/min [gpm]	20 [5.3]
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: class 20/18/15 NAS 1638: class 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.7 [0.43] max. 15 [0.74]

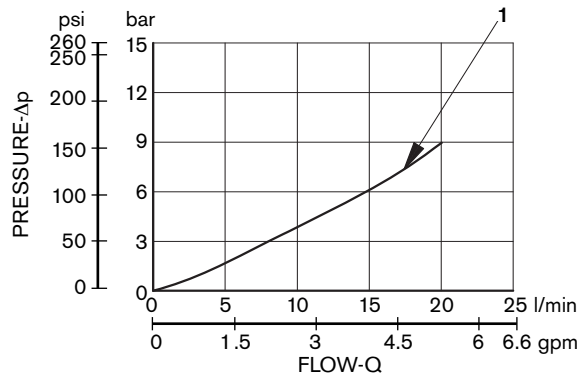
Electrical

Voltage type		DC							
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	$^{\circ}\text{C}$ [°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		
Voltage type		DC	DC	DC	DC	DC	DC		
Power consumption	W	26	26	26	26	26	26		
Current (nominal at 20°C [68°F])	A	2.15	2.00	1.10	1.00	0.54	0.27		
Resistance (nominal at 20°C [68°F])	Ω	5.5	6.5	22	28	89	413		

	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 04	12 DC	AMP JUNIOR Horizontal	C3604 12DC	12 DC	R933002913
=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 04	24 DC	AMP JUNIOR Horizontal	C3604 24DC	24 DC	R933002914
=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
=OD 04	48 DC	AMP JUNIOR Horizontal	C3604 48DC	48 DC	R933002915
=OE 01	110 DC	EN 175301-803 (Ex. DIN 43650)	C3601 110DC	110 DC	R933000061

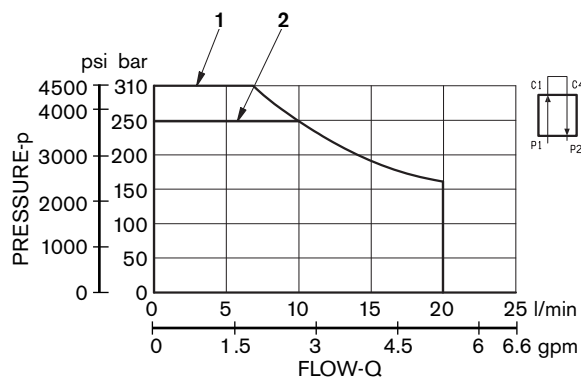
Characteristic curves

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].



Flow path	Curve No.
P1>C1	1
P1>C2	1
P2>C3	1
P2>C4	1

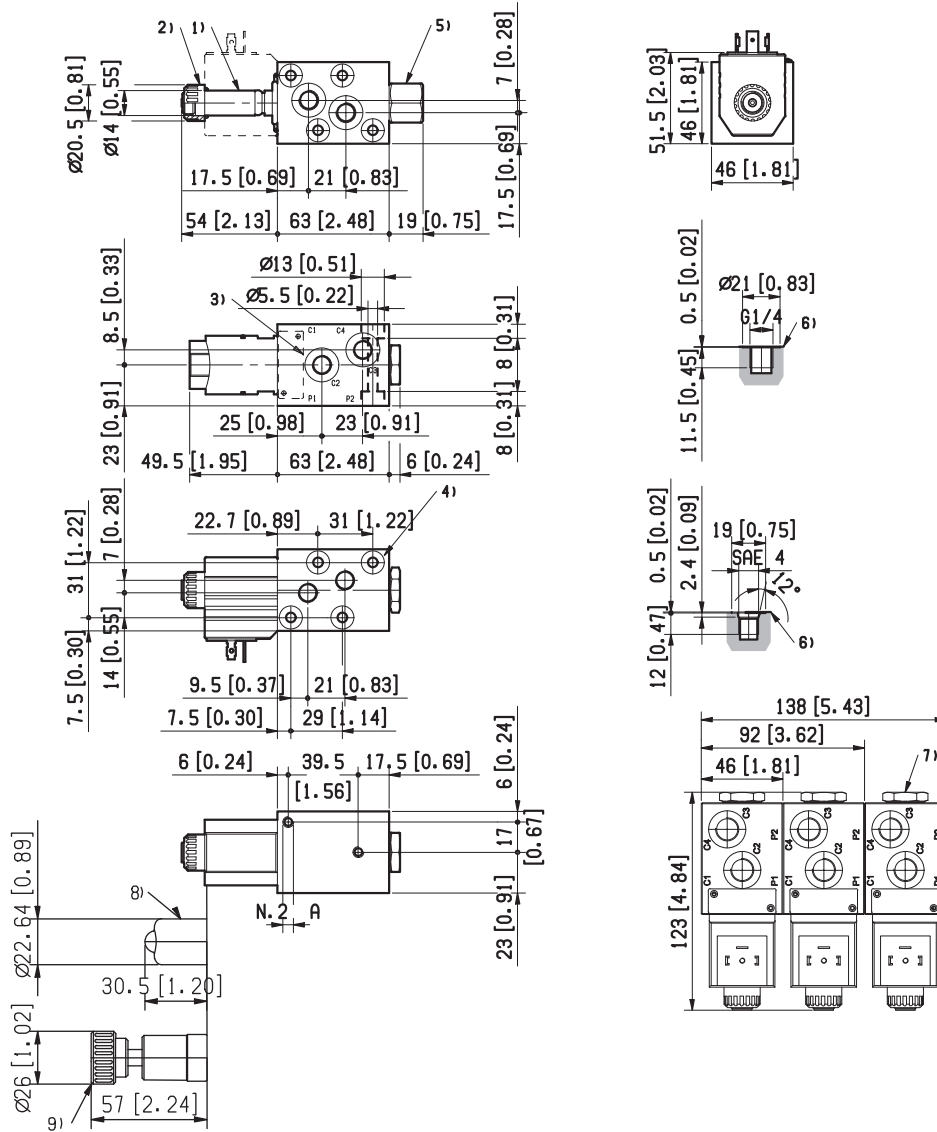
DI-DE performance limits



Drain type	Curve No.
External (-E-)	1
Internal (-I-)	2

Flow across both ways: forward across P1>C1 and reverse across C4>P2

External Dimensions and Fittings



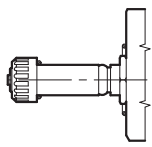
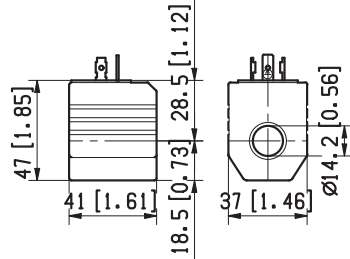
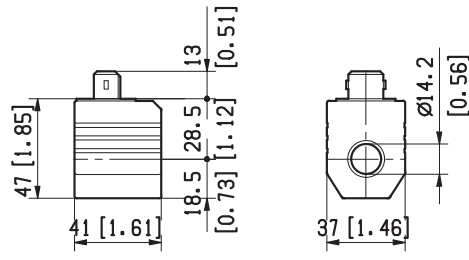
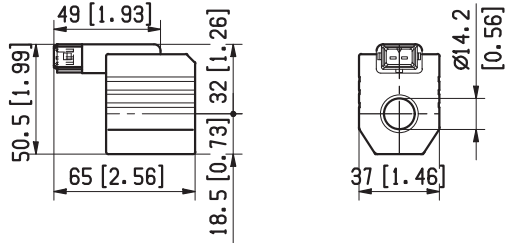
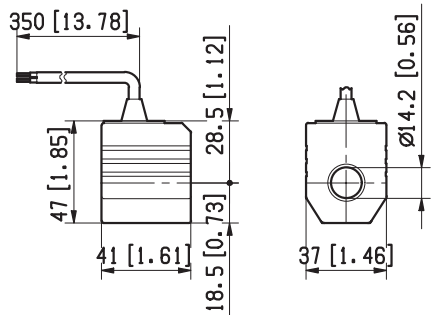
Quota	VS120-F (G1/4)	VS125-F (SAE 4)
A	M6	1/4" - 20 UNC

Total stacked units	Total length mm [inch]	Total rods length mm [inch]	Torque Nm / ft-lb
2	92 [3.62]	85 [3.34]	6 [4.4]
3	138 [5.4]	130 [5.11]	6 [4.4]
4	184 [7.2]	175 [6.88]	6 [4.4]

- 1 Solenoid tube Ø 14 mm [0.55 inch].
- 2 Ring nut for coil locking Ø 20.5 mm [1.04 inch]. Torque 3-4 Nm [2.2-3.0 ft-lb].
- 3 Identification label.
- 4 Four through holes for installation use M5 screws with strength class DIN 8.8. Torque 5-6 Nm [3.6-4.4 ft-lb].
- 5 External drain plug available with G 1/4 and SAE6 port.
- 6 Ports P1, P2, (without spot-facing) C1, C2, C3, C4.

- 7 Dimensions of assembly with 3 units.
- 8 Optional push-button, 1P type, manual override for spool opening: it is pressure stuck to the ring nut for coil locking. Mat no. R933000042.
- 9 Optional screw, 1F type, manual override for spool opening: it is screwed (6-7 Nm [4.4-5.5 ft-lb]) to the tube as replacement of the coil ring nut. Mat no. R933000021.

Electric connections

<p>≡00</p>		<p>≡01</p>	
<p>≡03</p>	<p>Protection class: IP 65 with female connector properly fitted (see drawing).</p> 	<p>≡04</p>	<p>Protection class: IP 65 with female connector properly fitted (see drawing).</p> 
<p>≡31</p>		<p>≡07</p>	<p>Protection class: IP 69 K with female connector properly fitted (see drawing).</p> 