

Part number:

HYDROMA

HYDRAULICKÉ SYSTÉMY

**HIDROMA
SYSTEMS**

UKŁADY HYDRAULICZNE

HYDROMA

ГИДРАВЛИЧЕСКИЕ СИСТЕМЫ

6 to 14/2 ways/positions bankable flow diverters flangeable

RE 18302-09/12.09

L732.... (VS241F-VS245F-VS246F-VS247F)

Size 6
Series 00
Maximum operating pressure 310 bar [4500 psi]
Maximum flow 50 l/min [13.2 gpm]
Ports G 3/8 - SAE8 - M18x1,5



DVI0087

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

General specifications

Page	
	- 6 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	- Usable as stand-alone, or as multiple stackable units.
3	- Control spool operated by screwed-in solenoid, with easily extractable coil fastened by a ring nut.
5	
6	- Wet pin tube for DC coil, with push rod for mechanical override in case of voltage shortage.
9	- 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.

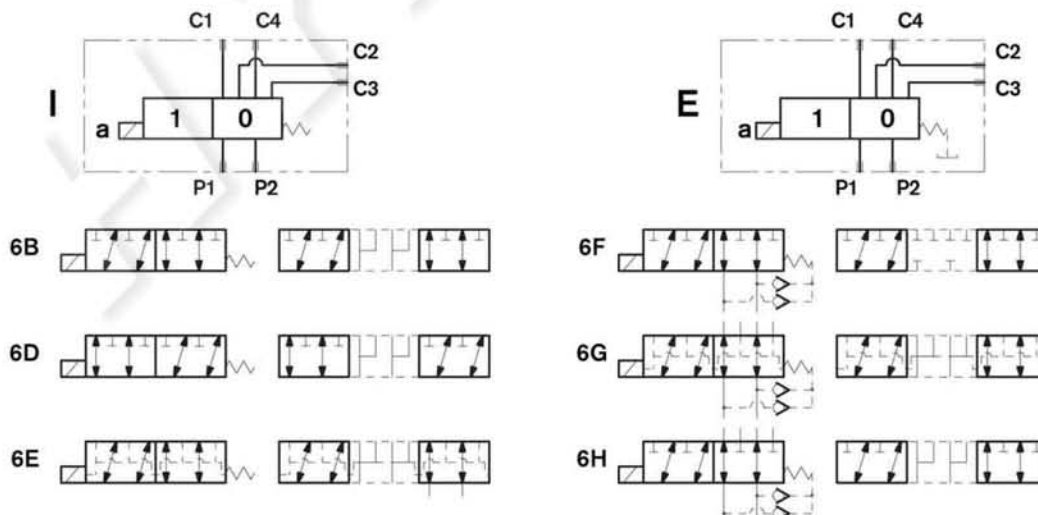
Ordering details

		L	7	3	2	-	-	-	-	-	-	-	-	-	-
Family Compact directional valve															
Type Flow Diverters															
Ports G 3/8 DIN 3852 = 3 3/4" - 16 UNF (SAE8) = C M18x1.5 UNI-ISO 6149-1 = Y M18x1.5 DIN 3852 = Z															
Control type Solenoid (coil C48) without emerg. = 11 Solenoid (coil C48) with push-button type emergency = 1P Solenoid (coil C48) with screw type emergency = 1F Hydraulic/pneumatic pilot = P1 Manual push and twist control = H1															
Spool variants 6 way / 2 position P1 side = 6_															
Drain type Internal drain = I External drain = E															

Assembly 0 = Single diverter 2 = 2 Pre-assembled diverters 3 = 3 Pre-assembled diverters 4 = 4 Pre-assembled diverters 5 = 5 Pre-assembled diverters	
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	
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	

SG =															
00 =															
OB =															
AD =															
OC =															
AC =															
OD =															
	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 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.

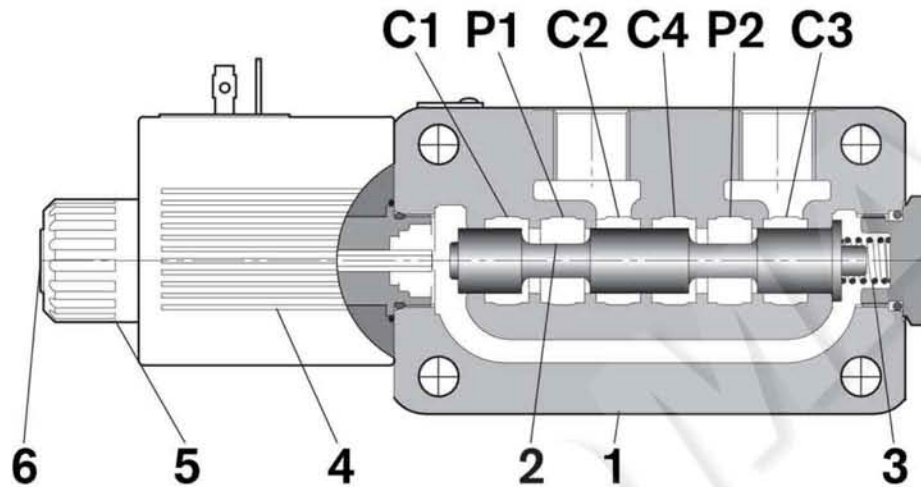
With the coil de-energized, the return spring (3) pushes back the spool (2) and holds it in position "0"

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

The manual override (6) 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]	3.2 [7.06]
Mounting position		unrestricted
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 pressure with internal drain and 6F or 6G or 6H scheme	bar [psi]	310 [4500]
Maximum inlet flow	l/min [gpm]	50 [13.2]
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. 25 [1.52]

Electrical

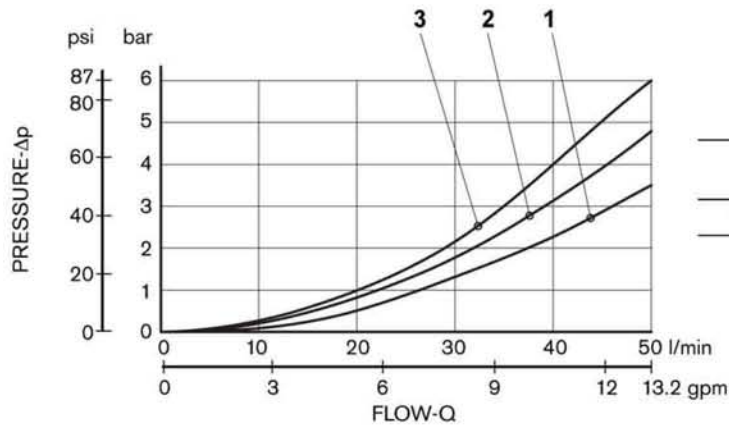
Voltage type	DC										
Voltage tolerance (nominal voltage)	%	-10 ... +10									
Duty	%	Continuous, with ambient temperature $\leq 50^{\circ}\text{C}$ [122°F]									
Maximum coil temperature	$^{\circ}\text{C}$ [°F]	150 [302]									
Insulation class	H										
Compliance with	Low Voltage Directive LVD 73/23/EC (2006/95/EC), 2004/108/EC										
Coil weight with DIN 43650 – ISO 4400 connector	kg [lbs]	0.5 [1.1]									
Voltage	V	12	13	24	27	48					
Voltage type		DC	DC	DC	DC	DC					
Power consumption	W	36	36	36	36	36					
Current ⁽¹⁾	A	3.0	2.77	1.53	1.32	0.75					
Resistance ⁽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	48 DC	DIN EN 175301-803 ISO 4400	C4801 48DC	48 DC	R933000078

Characteristic curves

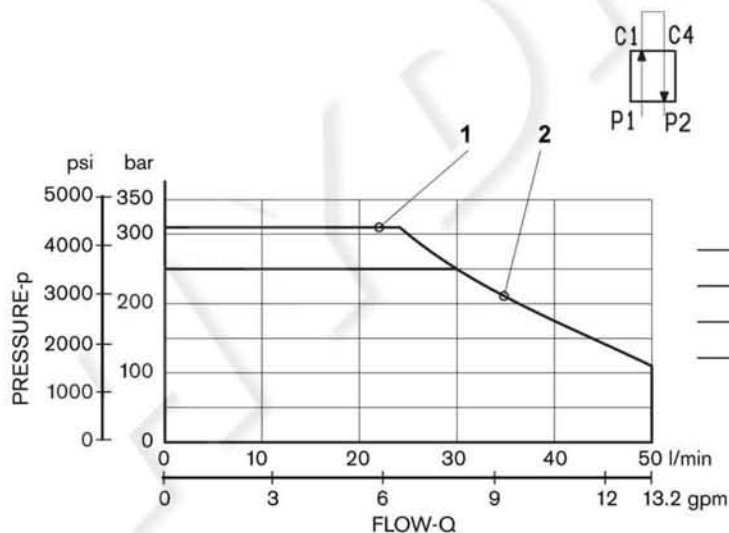
Measured with hydraulic fluid ISO-VG32 at $45^{\circ} \pm 5^{\circ} \text{ C}$ [$113^{\circ} \pm 9^{\circ} \text{ F}$]; ambient temperature 20° C [68° F].



Scheme	Curve n.			
	P1>C1	P1>C2	P2>C4	P2>C3
6B - 6D - 6E - 6F - 6G - 6H	1	2	2	3

Performances limits

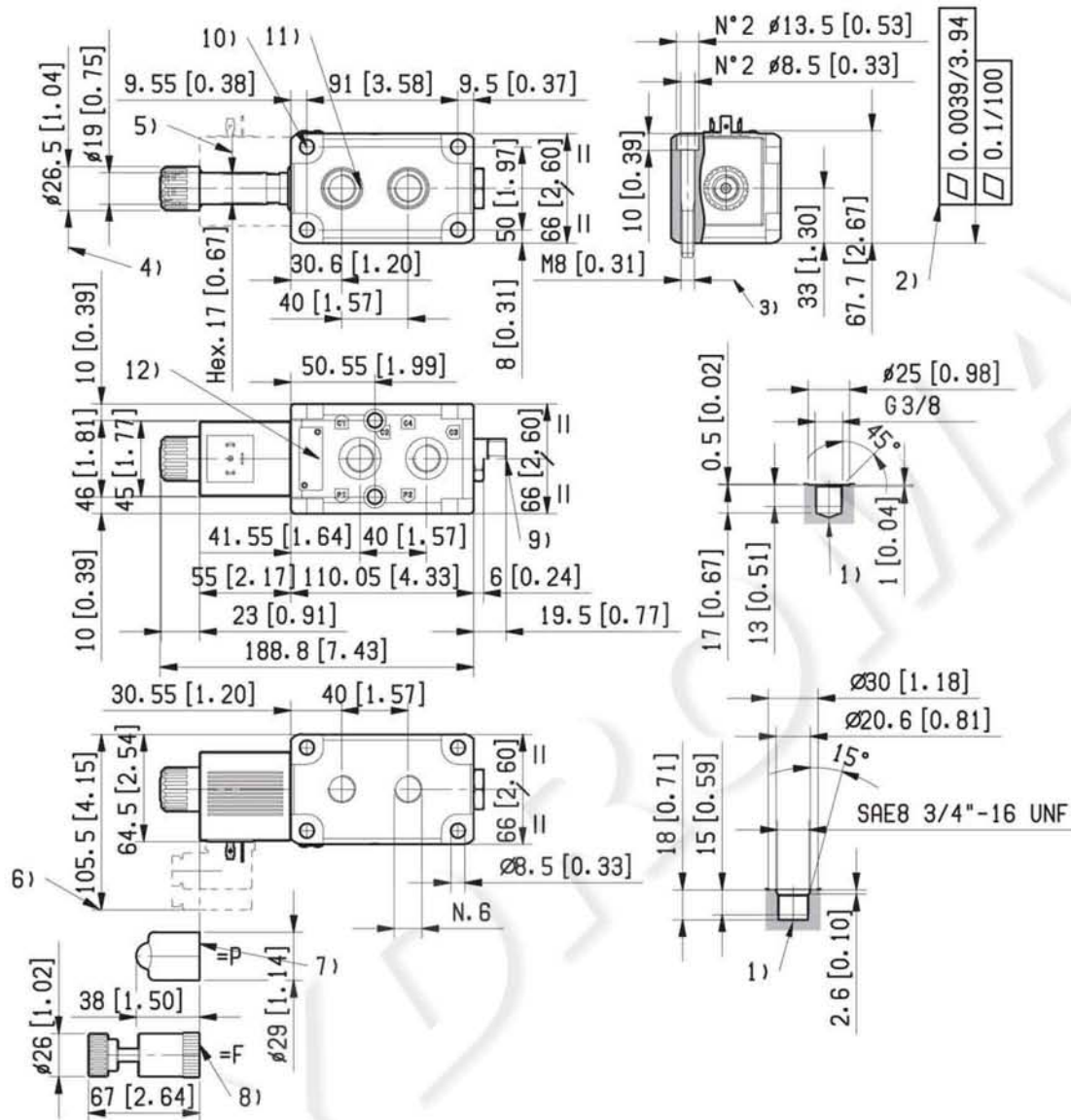
The performance limits refer to the following conditions: coils at operating temperature, voltage supply 10% below nominal, no back pressure in the tank line.



Scheme	Drain type
1	External (-E-)
2	Internal (-I-)

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

External Dimensions and Fittings



1 Ports P1, P2, C1, C2, C3, C4.

2 The mounting surface flatness must comply with specifications.

3 Two fixation screws M8x65 with strength class DIN 8.8. Torque 15 – 16 Nm [11,1-11,8 ft-lb].

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

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

6 Minimum clearance needed for connector removal.

7 Optional push-button, P type, emergency for spool opening:

it is pressure stuck to the ring nut for coil locking. Mat no. R933000043

8 Optional screw type emergency, F type, 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.

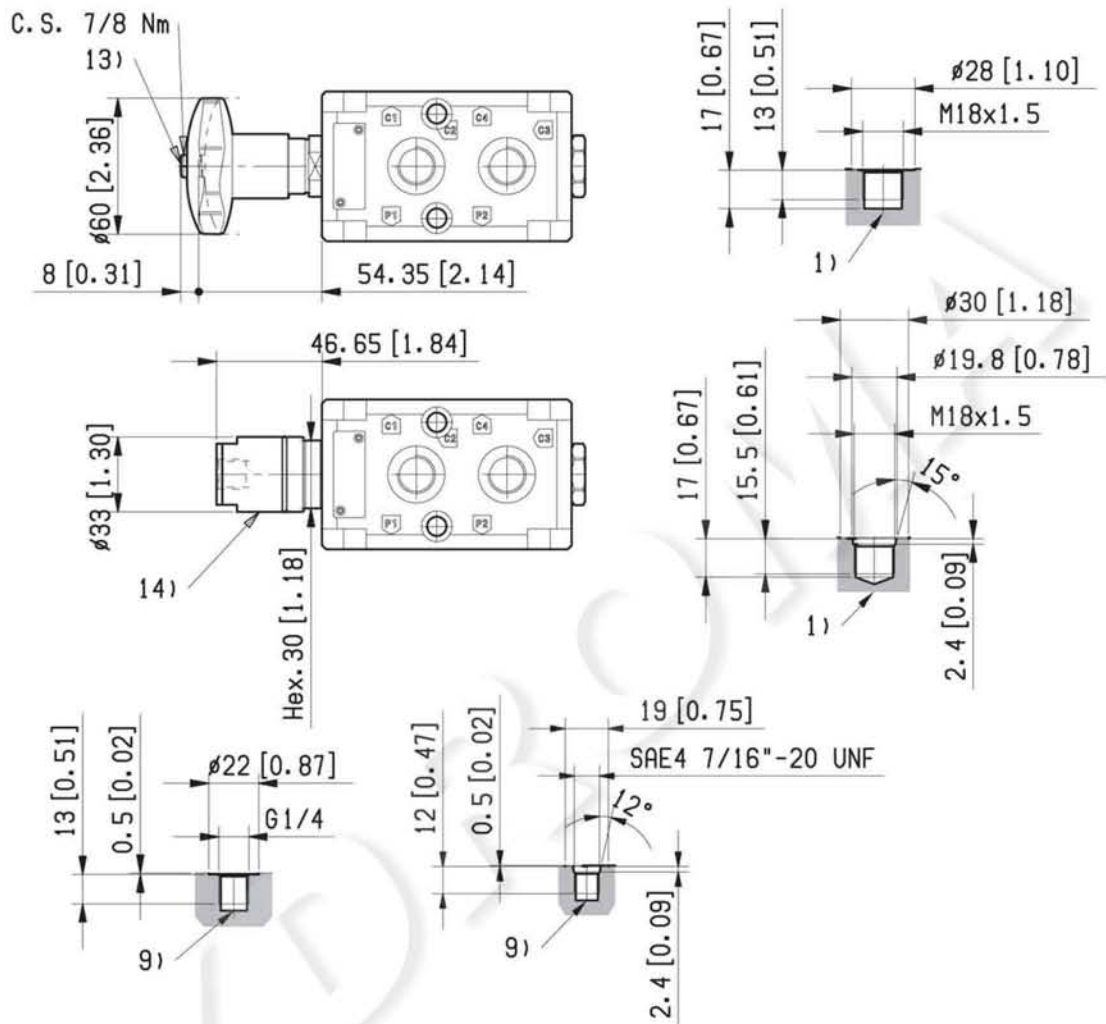
9 External drain plug available with G 1/4 and SAE 4 port; Hex.24 torque 22-24 Nm [16.2 – 17.7 ft-lb].

10 Four through holes, 8.5 mm dia., for coupling of other similar diverter valve.

11 O-Ring (NBR) for P1 and P2 ports.

12 Identification label.

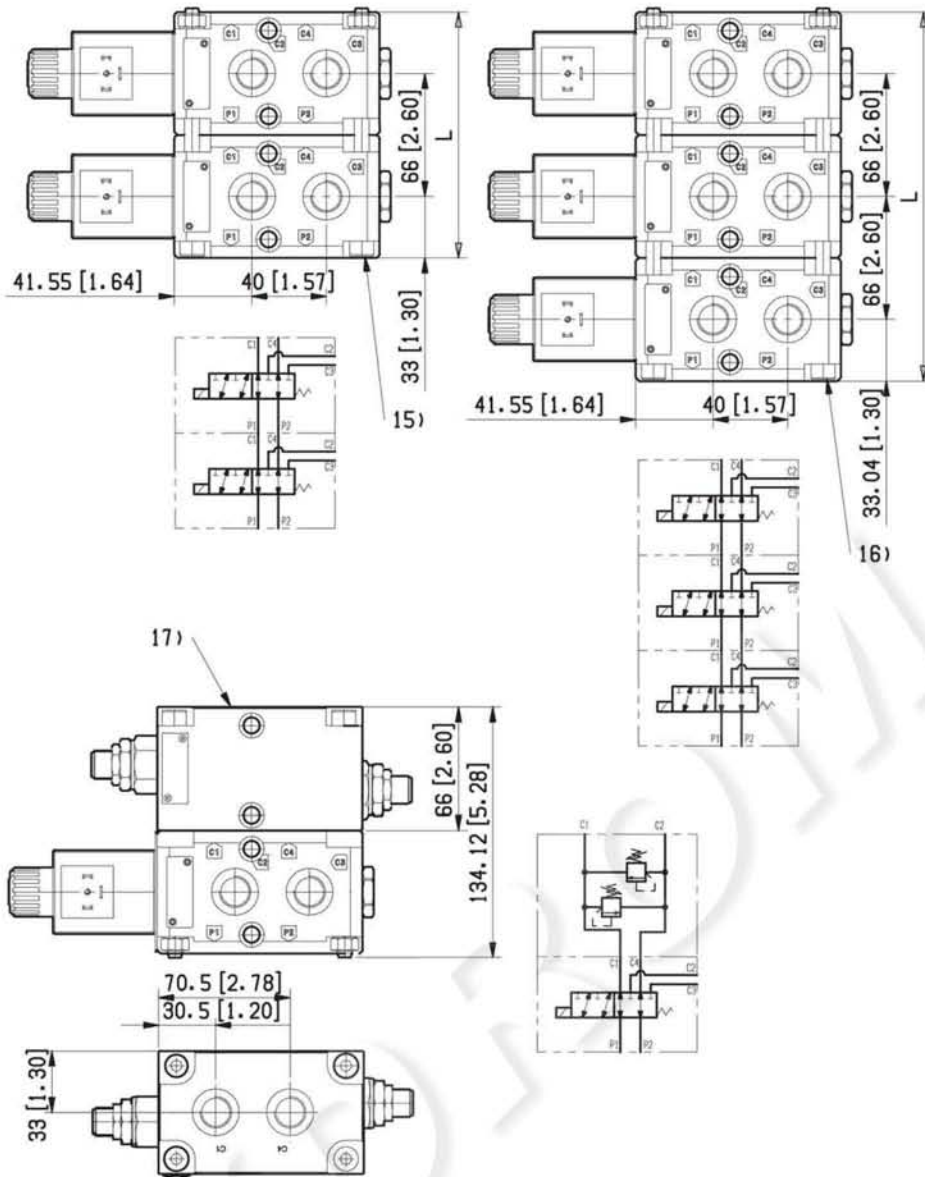
External Dimensions and Fittings



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

14 Dimensions of optional hydraulic / pneumatic piloted version. Pilot port plug available with G 1/4; hex 30 mm, torque 25-27 Nm [18.4-19.9 ft-lb].

External Dimensions and Fittings



Total stacked units	Total ports	Total length mm	Bolts (v) or Tie Rods (t)	Torque Nm / ft-lb
2	8	132	M8x125 (v)	16-18 / [11.8-13.2]
3	10	198	M8x190 (v)	16-18 / [11.8-13.2]
4	12	264	M8x270 (t)	16-18 / [11.8-13.2]
5	14	330	M8x330 (t)	16-18 / [11.8-13.2]

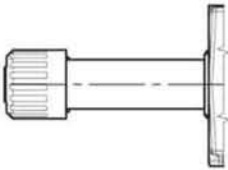
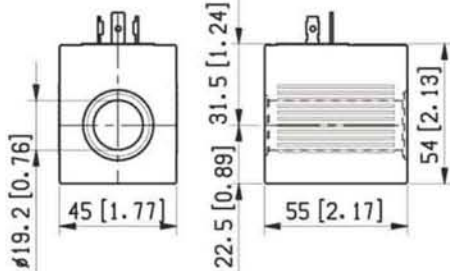
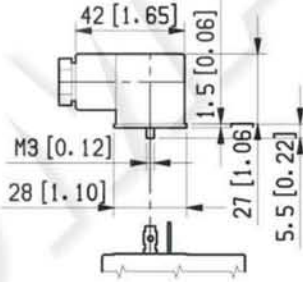
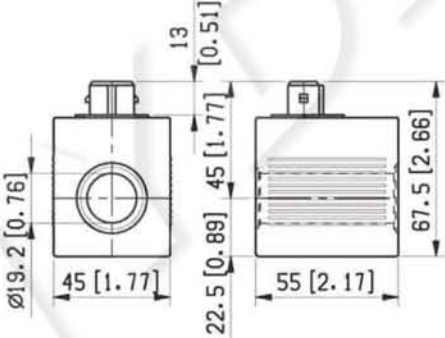
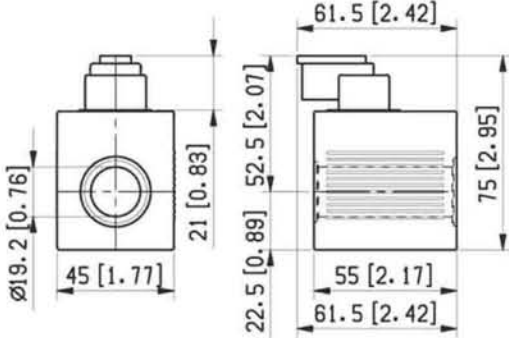
15 Four screws M8x125 DIN 912 for coupling together 2 diverter valves. Suggested bolt strength class DIN 8.8. Torque 16 – 18 Nm [11.8-13.3 ft-lb].

16 Four screws M8x190 DIN 912 for coupling together 3 diverter valves. Suggested bolt strength class DIN 8.8.

Torque 16-18 Nm [11.-13.3 ft lb].

17 Modular relief valves (cartridges VMD1040SV): with G 3/8 ports, code L7313610214SV00 with SAE 6 ports, code L731C610214SV00. Max pressure 250 bar [3625psi].

Electric connection

<p>=00</p>	<p>Without coils, but with ring nut and O-Rings for coil fitting (solution recommended for flexible stock handling)</p> 	<p>=01</p>	<p>With coils having plug-in pins EN 175301-803, without connectors</p> 																
<p>=02</p>	<p>With coils and with connectors non-assembled, type EN 175301-803.</p> <p>Protection class: IP 65 when connector with seal is properly screwed down, and cable clamp is correctly tightened.</p> <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="1" data-bbox="320 925 884 1160"> <thead> <tr> <th>Mat. No.</th> <th>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	
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R933002887	182-09-G-DO-2-1 24DC with VDR																		
<p>=03</p>	<p>With coils having AMP Junior connector, and with bi-directional diode.</p> <p>Protection class: IP 65 with female connector properly fitted (see drawing).</p> 	<p>=07</p>	<p>With coils having DEUTSCH DT 04-2P connector, and with bi-directional diode.</p> <p>Protection class: IP 69 K with female connector properly fitted (see drawing).</p> 																
<p>=31</p>	<p>With coils having bi-directional diode and bipolar sheathed free lead, 350 mm long, without pins.</p> 