

Part number:



## DF5

### Mechanical control monoblock diverter valves

- 2 - 3 - 6 ways configuration
- Mechanical lever, cam, hydraulic, pneumatic controls

This catalogue shows technical specifications and diagrams measured with mineral oil of 46 mm<sup>2</sup>/s (46 cSt) viscosity at 40°C - (104°F) temperature.

WORKING CONDITIONS		
N. of available ways		2 - 3 - 6
Max. flow rating		60 l/min (15.8 US gpm)
Max. pressure		315 bar (4600 psi)
Internal leakage A(B)⇒T	Δp=100 bar (1450 psi)	5 cm <sup>3</sup> /min (0.31 in <sup>3</sup> /min)
Fluid		Mineral based oil
Fluid temperature	with NBR (BUNA-N) seals	from -20°C to 80°C (from -4°F to 176°F)
	with FPM (VITON) seals	from -20°C to 100°C (from -4°F to 212°F)
Viscosity	operating range	from 15 to 75 mm <sup>2</sup> /s (from 15 to 75 cSt)
	min.	12 mm <sup>2</sup> /s (12 cSt)
	max.	400 mm <sup>2</sup> /s (400 cSt)
Max. level of contamination		21/19/16 - ISO 4406 - NAS 1638 - class 10
Ambient temperature for working conditions	with mechanical controls	from -40°C to 60°C (from -40°F to 140°F)
	with hydraulic and pneumatic controls	from -30°C to 60°C (from -22°F to 140°F)

NOTE - For different working conditions please contact Sales Dept.

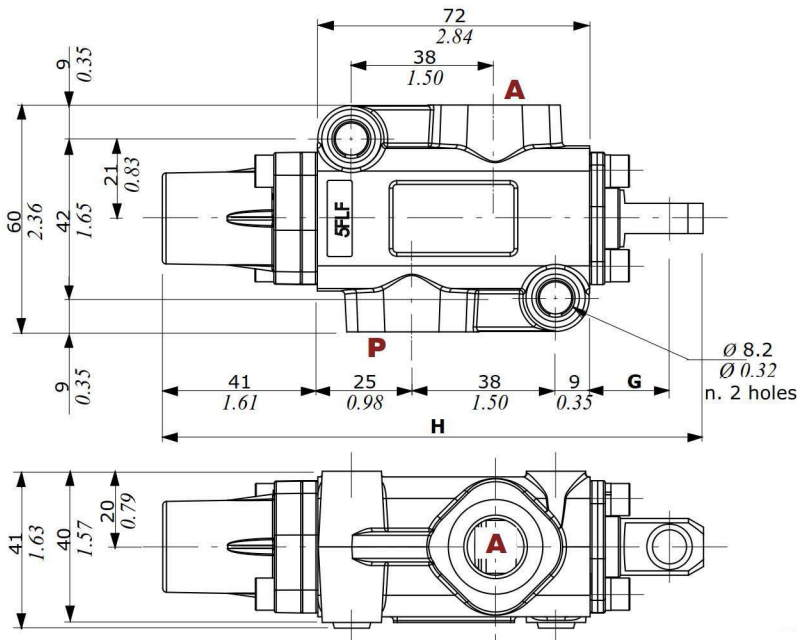
## Available threads

PORTS THREAD				
ALL PORTS	BSP	UN-UNF	METRIC* (ISO 9974-1)	METRIC* (ISO 6149)
<b>DF5</b>	G 3/8	3/4-16 (SAE 8)	M18x1.5	M18x1.5
PILOT PORTS				
Pneumatic	NPT 1/8-27	NPT 1/8-27	NPT 1/8-27	NPT 1/8-27
Hydraulic	G 1/4	9/16-18 (SAE 6)	-	-

(\* ) Optional threads  
for availability contact Sales  
Department

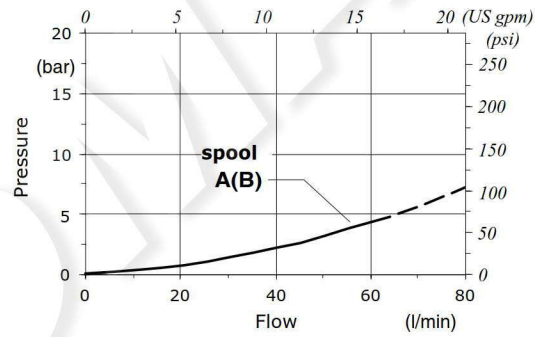
Dimensional data - hydraulic circuit - performance data

2 ways



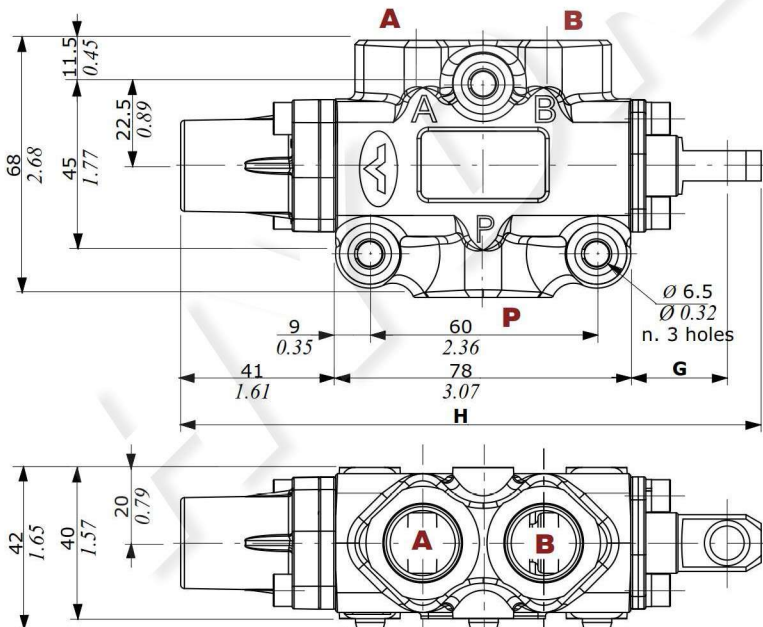
Pressure drop versus flow

P → A



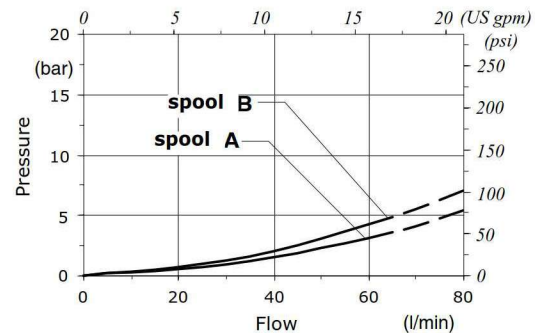
	G	H
With spool out	25.5 mm 1.00 in	147.5 mm 5.81 in
With spool in	14.5 mm 0.57 in	136.5 mm 5.37 in

3 ways

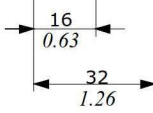


Pressure drop versus flow

P → A(B)

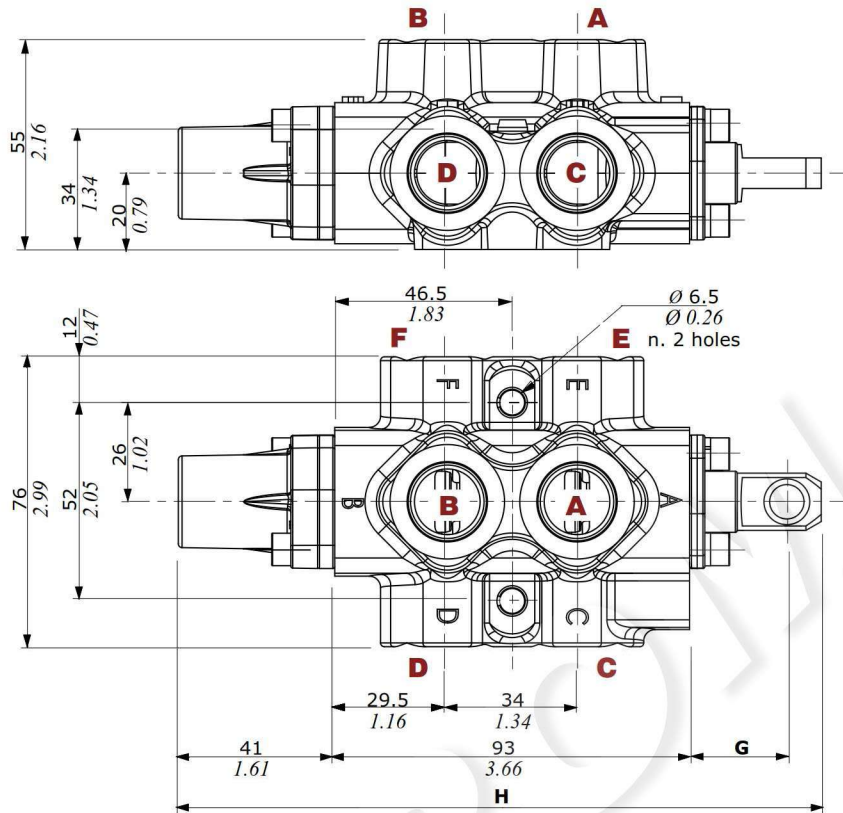


	G	H
With spool out	25.5 mm 1.00 in	153.5 mm 6.04 in
With spool in	14.5 mm 0.57 in	142.5 mm 5.60 in

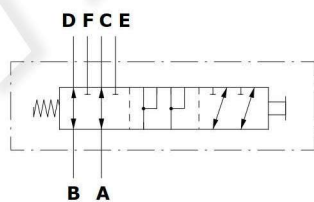


Dimensional data - hydraulic circuit - performance data

6 ways

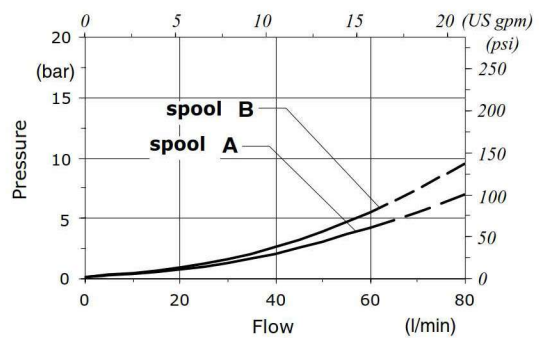


	G	H
With spool out	25.5 mm 1.00 in	168.5 mm 6.63 in
With spool in	14.5 mm 0.57 in	157.5 mm 6.20 in



Pressure drop versus flow

A → C(E)



## Part ordering codes

Example:

**DF5/3**   **A**   **17**   **SLP**   -   **...**   -   **(CVN)**

**1**

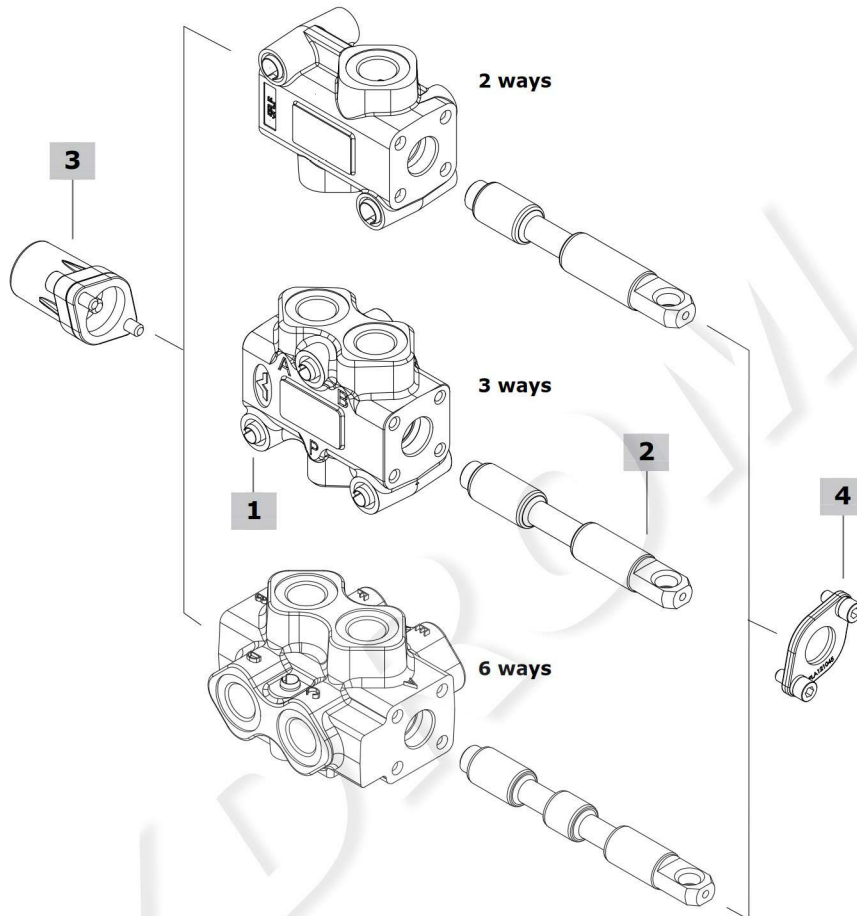
**2**

**3**

**4**

**5**

Painted with one layer of  
black Primer antirust

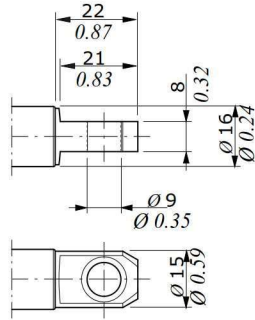




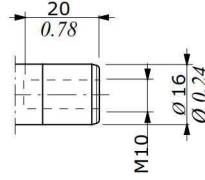
1 Body kit*			3 "A" side spool positioners <span style="float: right;">page 11</span>		
TYPE	CODE	DESCRIPTION	TYPE	CODE	DESCRIPTION
<b>DF5/2</b>	5CO2220300	2 ways body kit	<b>12</b>	5V12105000	Detent in positions 1 and 2
<b>DF5/3</b>	5CO2221300	3 ways body kit	<b>17</b>	5V17105000	Spring return in position 1
<b>DF5/6</b>	5CO2222300	6 ways body kit	<b>17WPOA</b>	5V17105002	As kit 17, waterproof type with plug for oil drain
<b>2 Spools <span style="float: right;">page 10</span></b>			<b>17A</b>	5V17105050	Spring return in pos. 1, it must be coupled to spool <b>D</b> (DF5/3)
TYPE	CODE	DESCRIPTION	<b>17ME</b>	5V17305000	As kit 17, with heavier spring type E
<b>for DF5/2:</b>			<b>17MEWPO</b>	5V17305002	As kit 17, with heavier spring type E waterproof type
<b>A</b>	3CAS105210	Open port in neutral position	<b>17YME</b>	5V17305003	As kit 17, with heavier spring type E
<b>B</b>	3CAS105110	Closed port in neutral position	<b>18ME</b>	5V18405110	Spring return in pos. 2, with heavier spring type E
<b>AT</b>	3CAS105230	As type A, with spherical end	<b>With microswitch</b>		
<b>BT</b>	3CAS105130	As type B, with spherical end	<b>17MEMG2(NO)</b>	5V17305680	Spring return in pos. 1, microswitch in pos. 2, with heavier spring type E
<b>AC</b>	3CAS105220	As type A, for cam control	<u>Pneumatic controls: must be coupled to the control kit side B with lever, with plate or cap</u>		
<b>BC</b>	3CAS105120	As type B, for cam control	<b>17PNB</b>	5V17105718	On/off with spring return in position 1, waterproof type
<b>V</b>	3CAS105115	With load check valve	<b>18PNB</b>	5V18105718	On/off with spring return in position 2, waterproof type
<b>VT</b>	3CAS105135	As type V, with spherical end	<u>Hydraulic controls: must be coupled to the control kit side B with lever, with plate or cap</u>		
<b>for DF5/3:</b>			<b>18IA1</b>	5V18105820*	On/off high pressure hydraulic control with spring return in position 2
<b>A</b>	3CAS105310	Flow in B in pos. 1. Ports connected in transit position	<b>18IB1N</b>	5V18105811*	On/off low pressure hydraulic control with spring return in position 2
<b>B</b>	3CAS105410	Flow in B in pos. 1. Ports closed in transit position	<b>4 "B" side options <span style="float: right;">page 16</span></b>		
<b>AT</b>	3CAS105330	As type A, with spherical end	TYPE	CODE	DESCRIPTION
<b>AC</b>	3CAS105320	As type A, for cam control	<b>SLP</b>	5COP105000	Without lever box, with dust-proof plate kit
<b>BC</b>	3CAS105420	As type B, for cam control	<b>SLC</b>	5COP205000	Without lever box, with cap
<b>D</b>	3CAS105511	Flow in A and B in pos. 1. Without transit position: need 17A control type for reduced spool stroke	<b>L</b>	5LEV105000	Aluminum lever box
<b>for DF5/6:</b>			<b>CA</b>	5CAM105000	Steel ball bearing cam operation
<b>A</b>	3CAS105610	Flow in C and D. E and F closed in pos. 1. Ports connected in transit position	<b>CB</b>	5CAM105020	Bronze cam operation
<b>B</b>	3CAS105710	Flow in C and D. E and F closed in pos. 1. Ports closed in transit position	<b>CAX/S5</b>	5CAM105030	Inox steel cam operation
<b>AC</b>	3CAS105620	As type A, for cam control	<u>Hydraulic controls</u>		
<b>BC</b>	3CAS105720	As type B, for cam control	<b>IA2</b>	5IDR505000*	On/off with high pressure pilot, need 17YME control type
			<b>IB2</b>	5IDR705000*	On/off with low pressure pilot, need 17YME control type
			5 Body threading		
			Specify threading always when it is different from <b>BSP</b> standard		

(\*) - Codes are referred to **BSP** thread

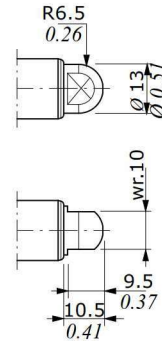
Spool end



Standard:  
spool type **A, B, D, V**



Rotary cam arrangement:  
spool type **AC, BC**



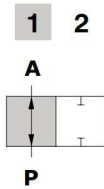
Spherical end:  
spool type **AT, BT, VT**

Spool circuits

**2 ways**

**Type A/AT/AC**

Open port in neutral position

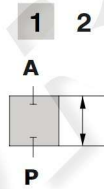


**Spool stroke**

Position 2: - 11 mm (- 0.43 in)

**Type B/BT/BC**

Closed port in neutral position

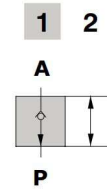


**Spool stroke**

Position 2: - 11 mm (- 0.43 in)

**Type V/VT**

With load check valve



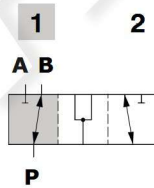
**Spool stroke**

Position 2: - 11 mm (- 0.43 in)

**3 ways**

**Type A/AT/AC**

Ports connected in transit position

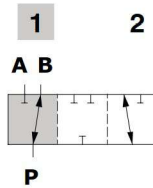


**Spool stroke**

Position 2: - 11 mm (- 0.43 in)

**Type B/BC**

Ports closed in transit position

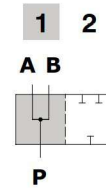


**Spool stroke**

Position 2: - 11 mm (- 0.43 in)

**Type D**

Without transit position  
Ports connected in neutral



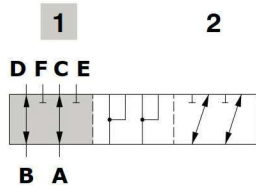
**Spool stroke**

Position 2: - 5.5 mm (- 0.21 in)

**6 ways**

**Type A/AC**

Flow in C and D. E and F closed in pos. 1  
Ports connected in transit position

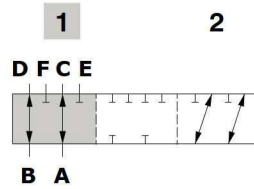


**Spool stroke**

Position 2: - 11 mm (- 0.43 in)

**Type B/BC**

Flow in C and D. E and F closed in pos. 1  
Ports closed in transit position



**Spool stroke**

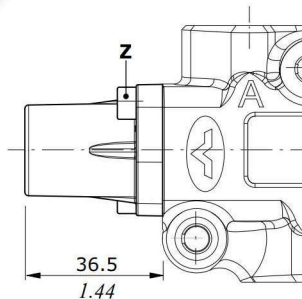
Position 2: - 11 mm (- 0.43 in)

**"A" side spool positioners**

**With detent**

**Type 12**

Detent in positions 1 and 2



**Wrenches and tightening torque**

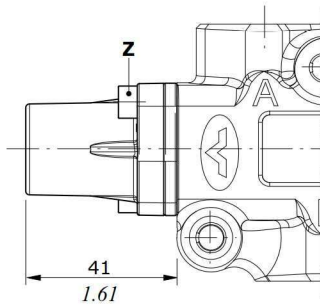
Z = wrench 4 - 6.6 Nm (4.9 lbf<sub>t</sub>)

"A" side spool positioners

With spring return in position 1

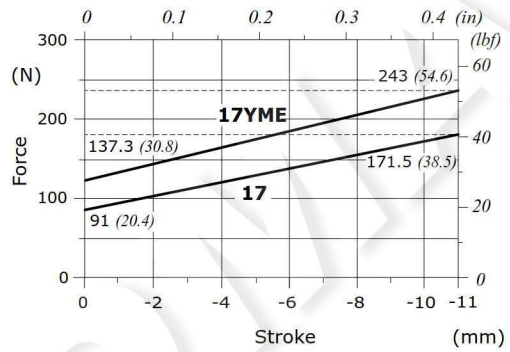
Available with standard or heavier spring type "E"

Type 17-17ME-17YME

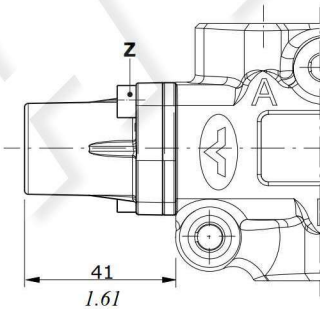


**Wrenches and tightening torque**  
**Z** = wrench 4 - 6.6 Nm (4.9 lbf)

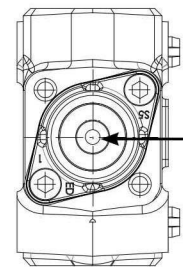
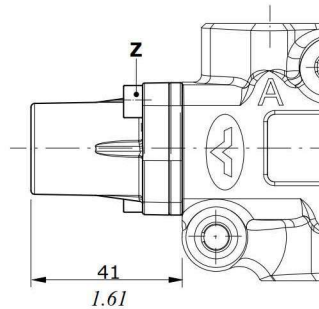
Force-Stroke diagram



**Type 17MEWPO**  
 With water proof sealing



**Type 17WPOA**  
 With water proof sealing and plug for oil drain



plug for oil drain

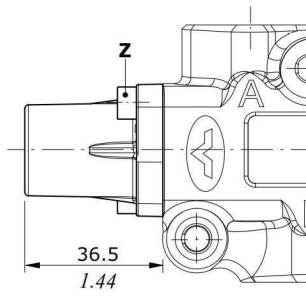


"A" side spool positioners

With spring return in position 1

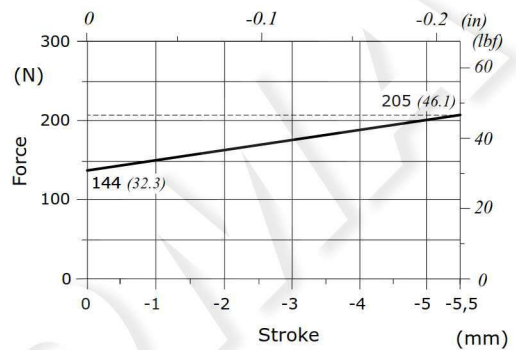
**Type 17A**

As type 17, for spool type D



**Wrenches and tightening torque**  
 Z = wrench 4 - 6.6 Nm (4.9 lbf<sub>t</sub>)

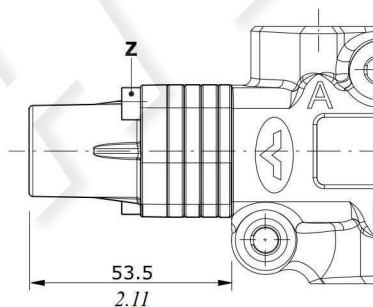
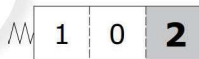
**Force-Stroke diagram**



With spring return in position 2

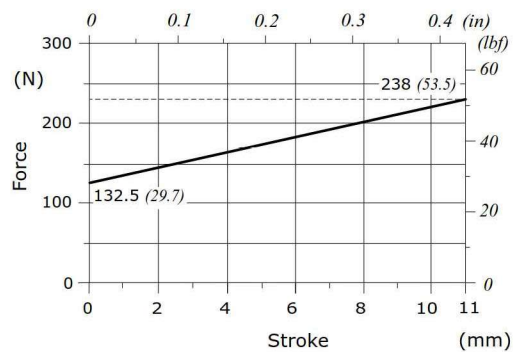
With heavier spring type "E"

**Type 18ME**



**Wrenches and tightening torque**  
 Z = wrench 4 - 6.6 Nm (4.9 lbf<sub>t</sub>)

**Force-Stroke diagram**



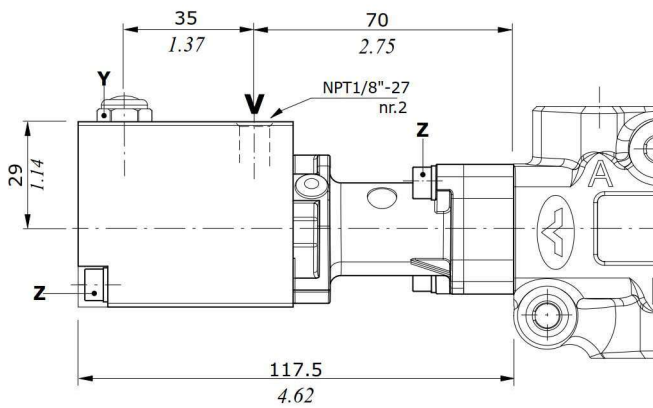
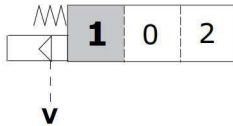


"A" side spool positioners

ON/OFF pneumatic controls

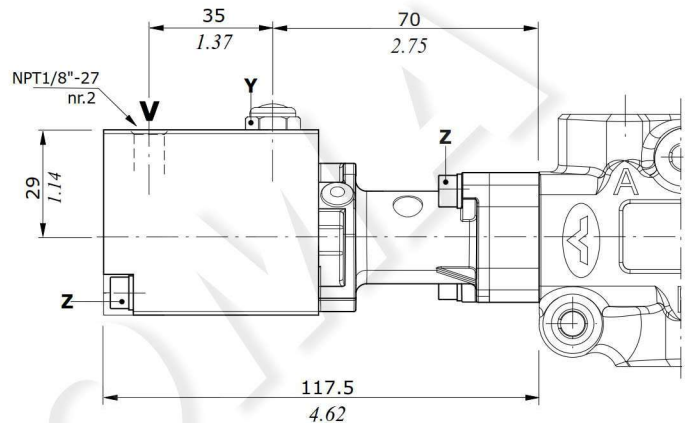
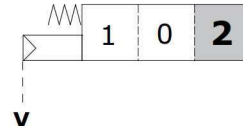
**Type 17PNB**

Spring return in pos. 1, waterproof type



**Type 18PNB**

Spring return in pos. 2, waterproof type



**Wrenches and tightening torque**

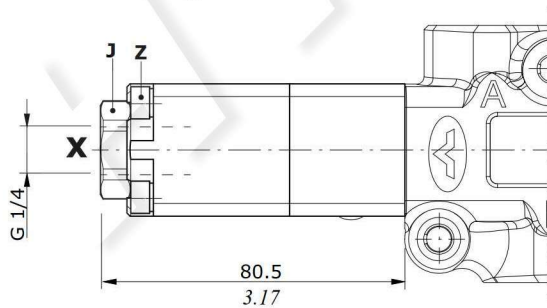
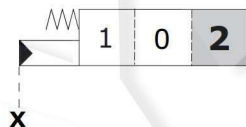
Z = wrench 4 - 6.6 Nm (4.9 lbf<sup>t</sup>)

Y = wrench 13 - 9.8 Nm (7.2 lbf<sup>t</sup>)

Hydraulic controls

**Type 18IA1**

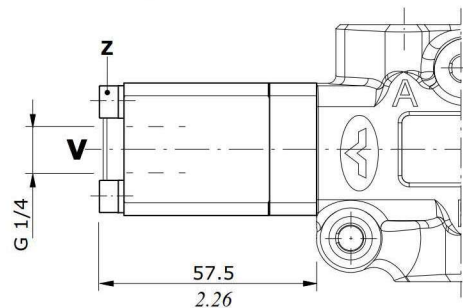
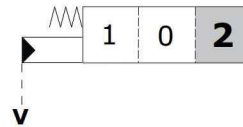
High pressure hydraulic control with spring return in position 2



Pilot pressure max. = 250 bar (3620 psi)

**Type 18IB1N**

Low pressure hydraulic control with spring return in position 2



Pilot pressure max. = 50 bar (725 psi)

**Wrenches and tightening torque**

Z = wrench 4 - 6.6 Nm (4.9 lbf<sup>t</sup>)

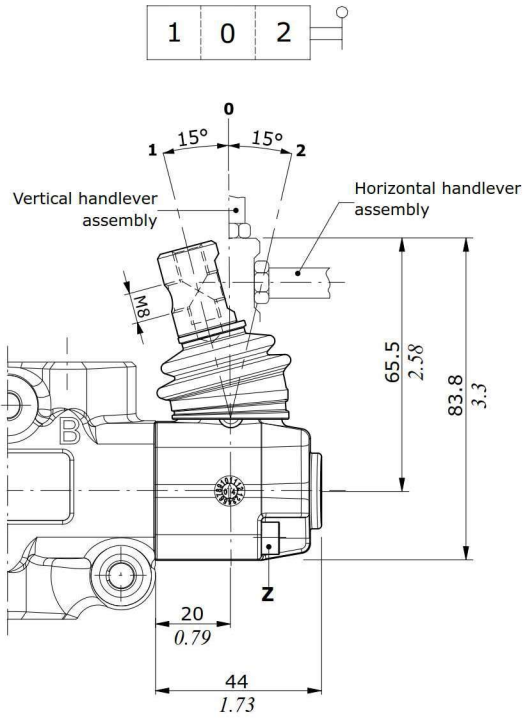
J = wrench 24 - 42 Nm (31 lbf<sup>t</sup>)

"B" side options

**Lever control kit**

Aluminium with protection boot lever pivot box; it can be rotated 180° (execution **L180**)

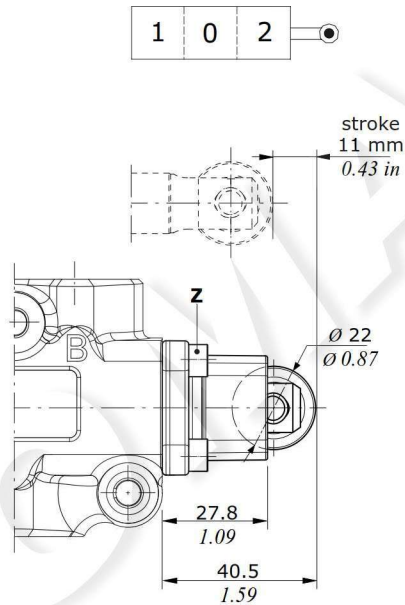
**Type L**



**Cam control kit**

Steel ball bearing cam operation (CA), bronze cam operation (CB) or inox steel cam operation (CAX); it must be coupled to 17 control kit

**Type CA-CB-CAX**

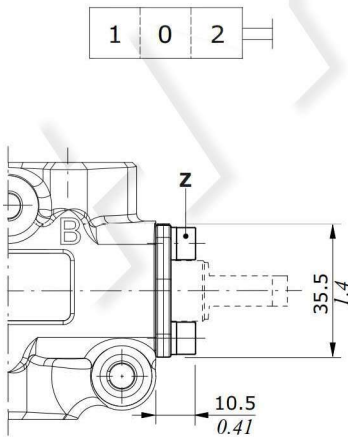


**Wrenches and tightening torque**

Z = wrench 4 - 6,6 Nm (4.9 lbf<sup>t</sup>)

**Without lever, with flange**

**Type SLP**



**Wrenches and tightening torque**

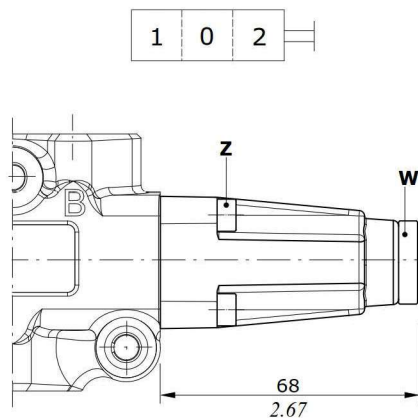
Z = wrench 4 - 6.6 Nm (4.9 lbf<sup>t</sup>)

W = wrench 8 - 24 Nm (17.7 lbf<sup>t</sup>)

**Without lever, with cap**

Protection cap to use with pneumatic and hydraulic spool positioner kits

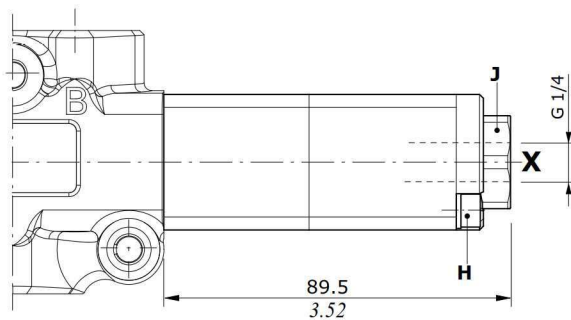
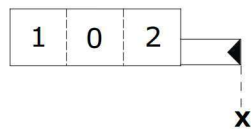
**Type SLC**



**Hydraulic controls**

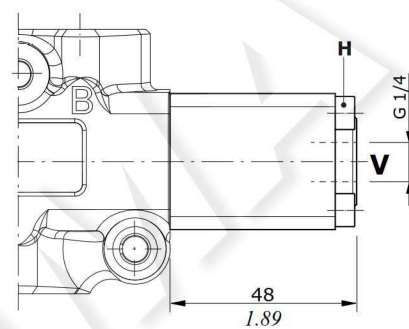
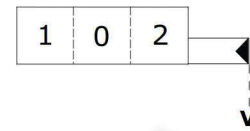
ON/OFF controls with high and low pressure pilot it must be only coupled to 17YME control kit

**Type IA2**  
High pressure pilot



Pilot pressure max. = 250 bar (3620 psi)

**Type IB2**  
Low pressure pilot



Pilot pressure max. = 50 bar (725 psi)

**Wrenches and tightening torque**

- H = wrench 5 - 9.8 Nm (7.2 lbft)
- J = wrench 24 - 42 Nm (31 lbft)