



## DF10

### Mechanical control monoblock diverter valves

- 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		3 - 6
Max. flow rating		90 l/min (23.7 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

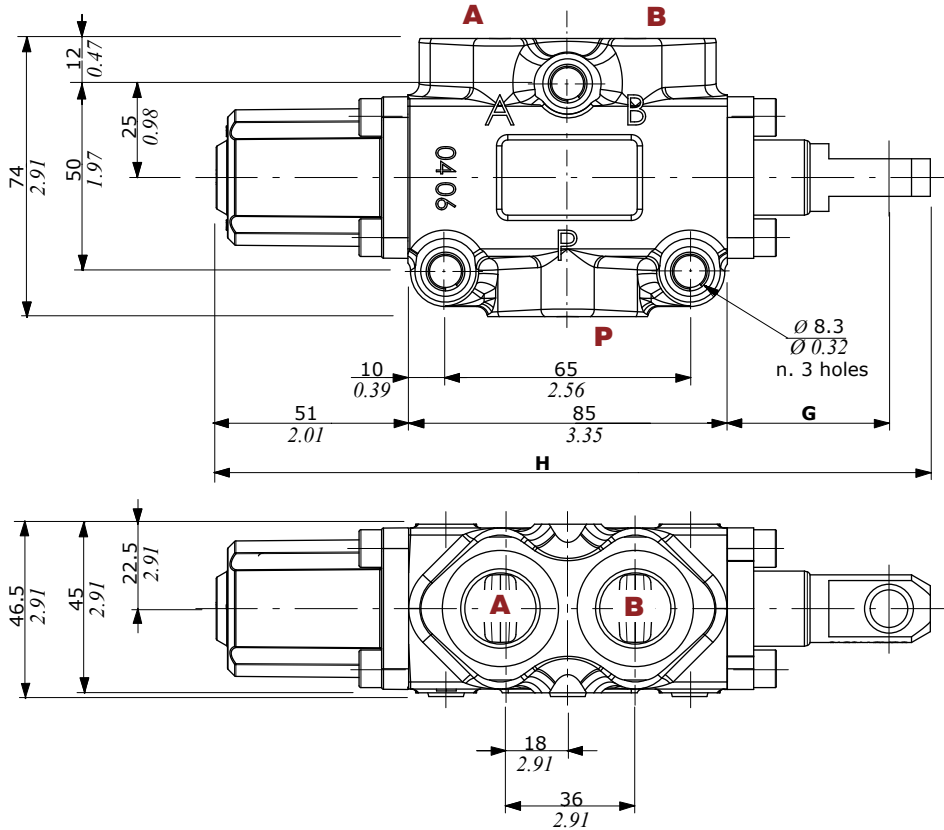
PORTS THREAD			
ALL PORTS	BSP	UN-UNF	METRIC* (ISO 9974-1)
<b>DF10</b>	G 1/2	7/8-14 (SAE 10)	M22x1.5
BOCCHIE PILOTAGGI			
Pneumatic	NPT 1/8-27	NPT 1/8-27	NPT 1/8-27
Hydraulic	G 1/4	9/16-18 (SAE 6)	-

(\*) Optional threads  
for availability contact Sales  
Department

## Dimensional data - hydraulic circuit - performance data

### 3 ways

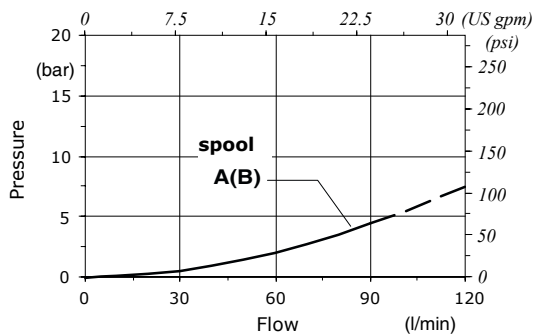
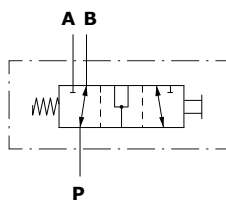
It's possible to obtain 2 ways diverter valve plugging port



	G	H
With spool out	43 mm 1.69 in	190 mm 7.48 in
With spool in	29 mm 1.14 in	176 mm 6.92 in

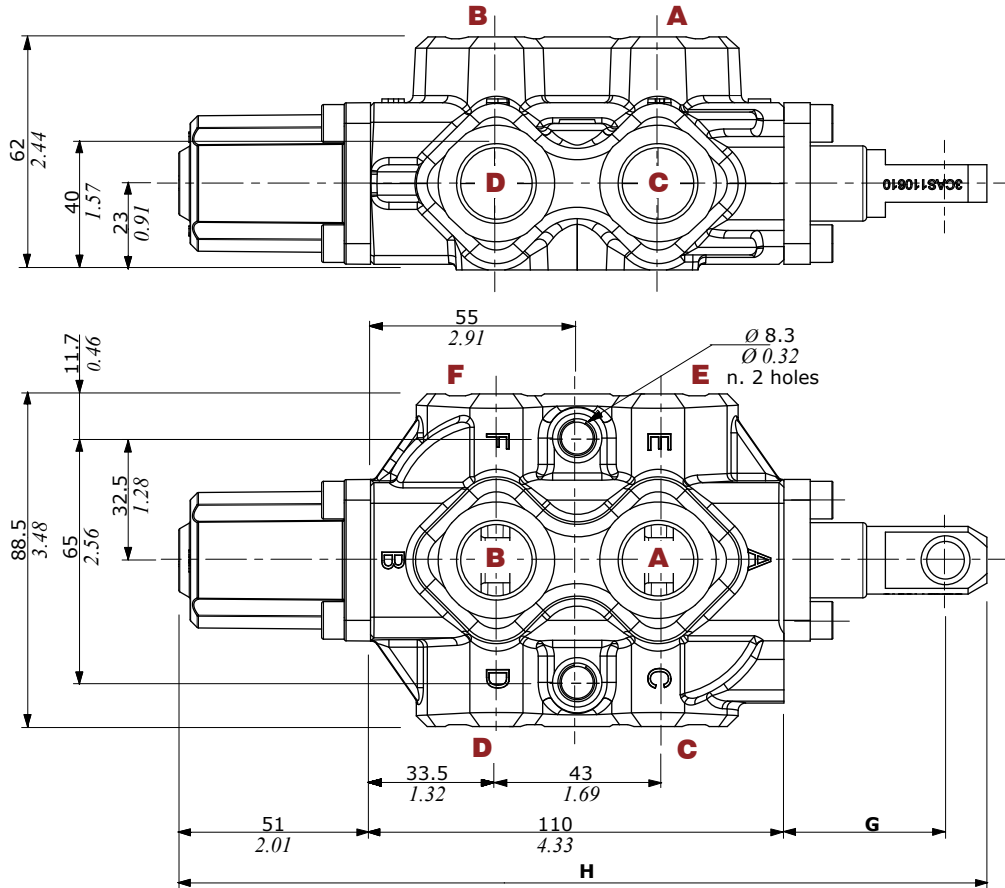
### Pressure drop versus flow

P → A(B)



**Dimensional data - hydraulic circuit - performance data**

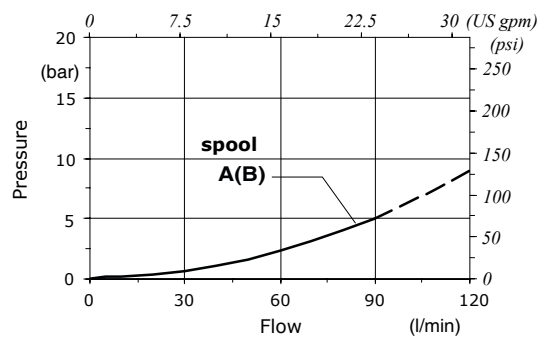
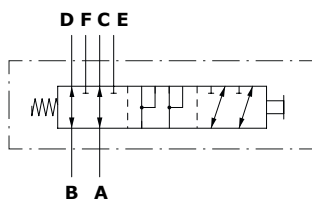
**6 ways**



	<b>G</b>	<b>H</b>
With spool out	43 mm 1.69 in	215 mm 8.46 in
With spool in	29 mm 1.14 in	201 mm 7.91 in

**Pressure drop versus flow**

**A → C(E)**

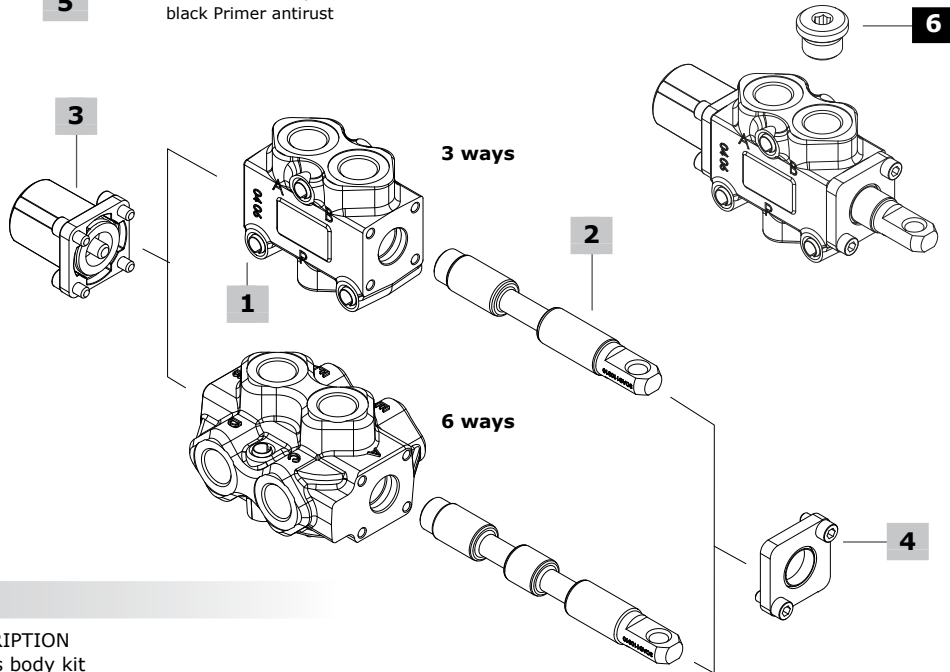


## Part ordering codes

Example:

**DF10/3** **A** **17** **SLP** - ... - **(CVN)**

**1** **2** **3** **4** **5** Painted with one layer of black Primer antirust



### 1 Body kit\*

TYPE	CODE	DESCRIPTION
<b>DF10/3</b>	5CO2241300	3 ways body kit
<b>DF10/6</b>	5CO2242300	6 ways body kit

### 2 Spools page 29

TYPE	CODE	DESCRIPTION
<b>for DF10/3:</b>		
<b>A</b>	3CAS110310	Flow in B in pos. 1. Ports connected in transit position
<b>B</b>	3CAS110410	Flow in B in pos. 1. Ports closed in transit position
<b>AT</b>	3CAS110330	As type A, with spherical end
<b>AC</b>	3CAS110320	As type A, for cam control
<b>BC</b>	3CAS110420	As type B, for cam control
<b>DC</b>	3CAS110520	Flow in A, B in pos. 1. Without transit position, for cam control

**for DF10/6:**

<b>A</b>	3CAS110610	Flow in C and D. E and F closed in pos. 1. Ports connected in transit position
<b>B</b>	3CAS110710	Flow in C and D. E and F closed in pos. 1. Ports closed in transit position
<b>AC</b>	3CAS110620	As type A, for cam control
<b>BC</b>	3CAS110720	As type B, for cam control

### 3 "A" side spool positioners page 30

TYPE	CODE	DESCRIPTION
<b>12</b>	5V12110000	Detent in positions 1 and 2
<b>17</b>	5V17110000	Spring return in position 1
<b>17ME</b>	5V17310000	As kit 17, with heavier spring type E
<b>18</b>	5V18110000	Spring return in position 2
<u>Pneumatic controls: must be coupled to the control kit side B with lever, with plate or cap</u>		
<b>17P</b>	5V17110700	On/off, with spring return in pos. 1
<b>18P</b>	5V18110710	On/off, with spring return in pos. 2
<u>Hydraulic controls: must be coupled to the control kit side B with lever, with plate or cap</u>		
<b>18IA1</b>	5V18110821*	On/off high pressure hydraulic kit with spring return in position 2
<b>18IB1</b>	5V18110810*	On/off low pressure hydraulic kit with spring return in position 2

### 4 "B" side options page 33

TYPE	CODE	DESCRIPTION
<b>SLP</b>	5COP110000	Without lever box, with dust-proof plate kit
<b>SLC</b>	5COP210000	Without lever box, with cap
<b>L</b>	5LEV110000	Aluminum lever box
<b>CA</b>	5CAM110000	Steel ball bearing cam operation
<b>CB</b>	5CAM110020	Bronze cam operation
<u>Hydraulic controls</u>		
<b>IA2</b>	5IDR510001*	On/off with high pressure pilot, need 17ME control type
<b>IB2</b>	5IDR710000*	On/off with low pressure pilot, need 17ME control type

### 5 Body threading

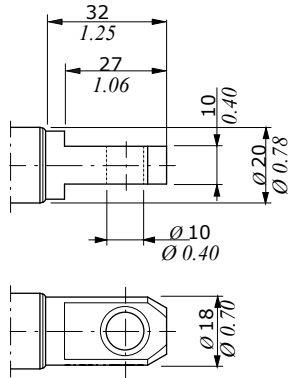
Specify threading always when it is different from **BSP** standard

### 6 Port plugs\*

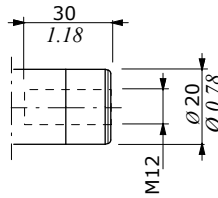
CODE	DESCRIPTION
3XTAP727180	G1/2 plug

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

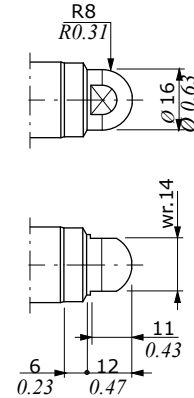
**Spool end**



Standard:  
spool  
type **A, B**



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



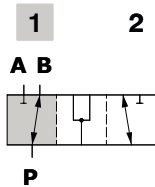
Spherical end:  
spool type **AT**

**Spool circuits**

**3 ways**

**Type A/AT/AC**

Ports connected  
in transit position

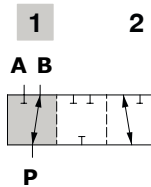


**Spool stroke**

Position 2: - 14 mm (- 0.55 in)

**Type B/BC**

Ports closed  
in transit position

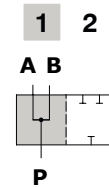


**Spool stroke**

Position 2: - 14 mm (- 0.55 in)

**Type DC**

Without transit position  
Ports connected in neutral



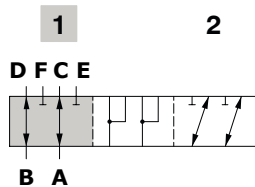
**Spool stroke**

Position 2: - 14 mm (- 0.55 in)

**6 ways**

**Type A/AC**

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

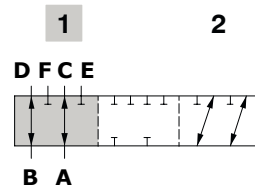


**Spool stroke**

Position 2: - 14 mm (- 0.55 in)

**Type B/BC**

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



**Spool stroke**

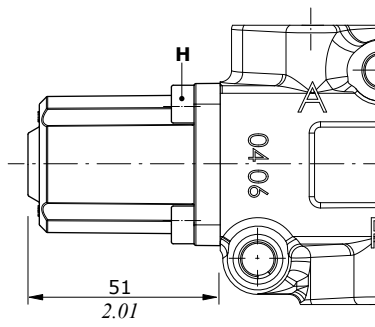
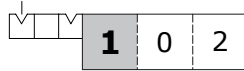
Position 2: - 14 mm (- 0.55 in)

"A" side spool positioners

With detent

**Type 12**

Detent in positions 1 and 2



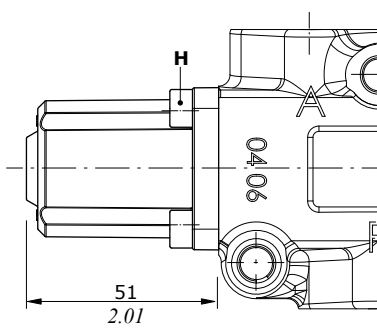
**Wrenches and tightening torque**

H = wrench 5 - 9.8 Nm (7.2 lbf<sub>t</sub>)

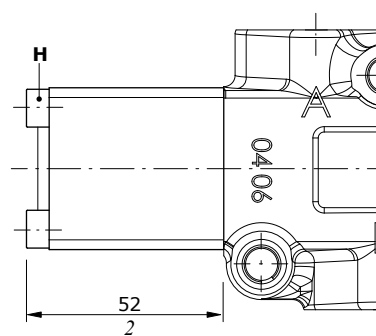
With spring return in position 1

With heavier spring type "E"

**Type 17**



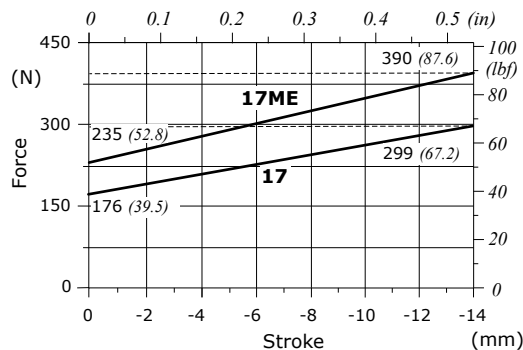
**Type 17ME**



**Wrenches and tightening torque**

H = wrench 5 - 9.8 Nm (7.2 lbf<sub>t</sub>)

**Force-Stroke diagram**

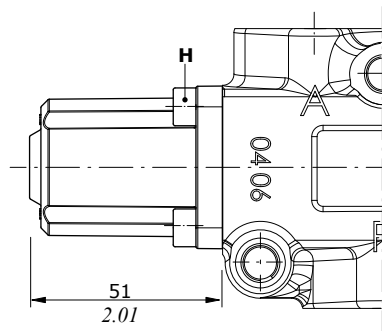
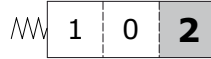


**"A" side spool positioners**

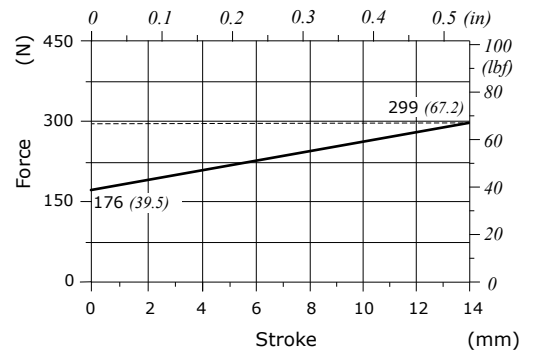
**With spring return in position 2**

**Type 18**

**Wrenches and tightening torque**  
**H** = wrench 5 - 9.8 Nm (7.2 lbf·ft)



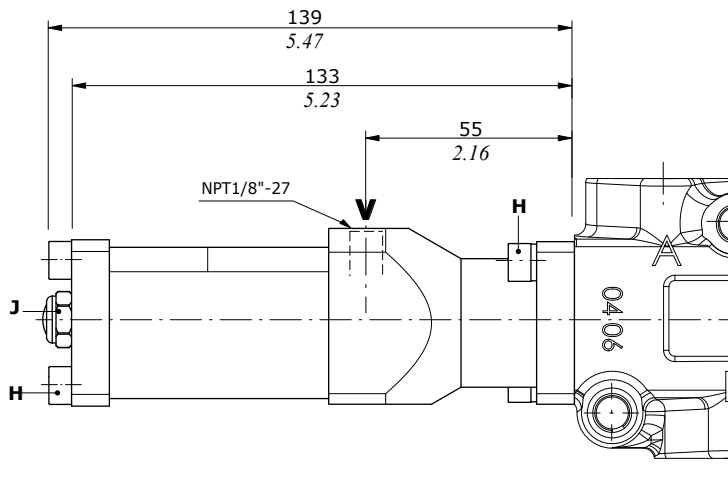
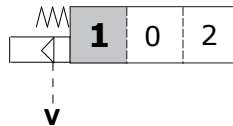
**Force-Stroke diagram**



**ON/OFF pneumatic controls**

**Type 17P**

Spring return in pos. 1



**Wrenches and tightening torque**  
**H** = wrench 5 - 9.8 Nm (7.2 lbf·ft)  
**J** = wrench 13 - 9.8 Nm (7.2 lbf·ft)

Pilot pressure... : min. 7 bar (101 psi) - max. 10 bar (145 psi)

"A" side spool positioners

ON/OFF pneumatic controls

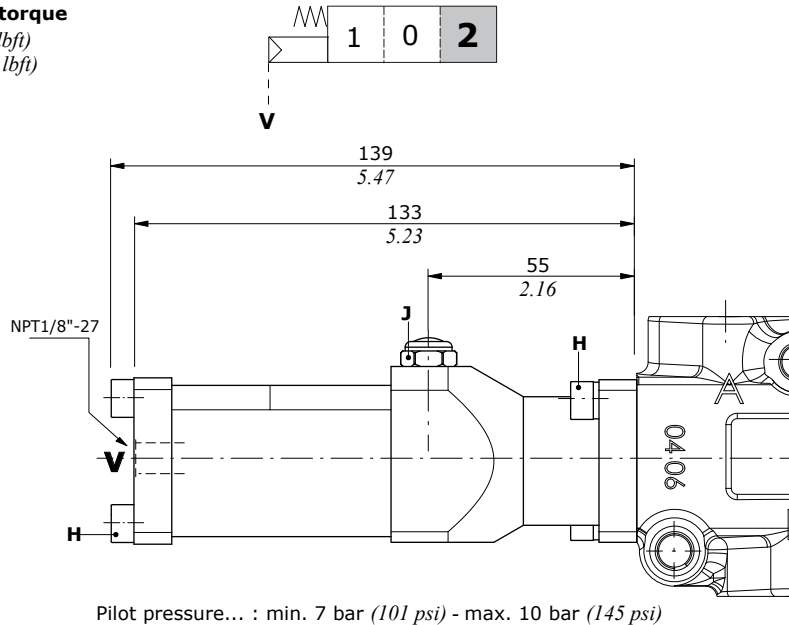
**Type 18P**

Spring return in pos. 2

**Wrenches and tightening torque**

**H** = wrench 5 - 9.8 Nm (7.2 lbf<sub>t</sub>)

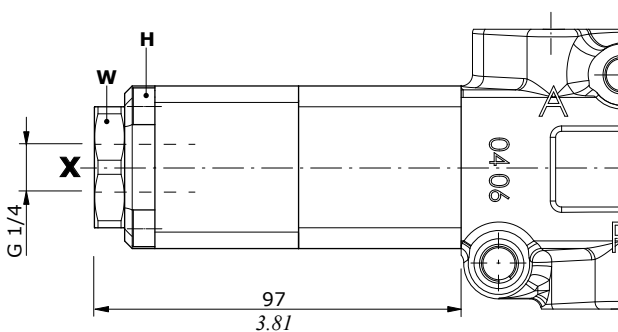
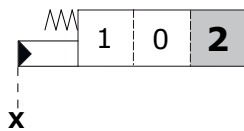
**J** = wrench 13 - 9.8 Nm (7.2 lbf<sub>t</sub>)



Hydraulic controls

**Type 18IA1**

High pressure hydraulic kit with spring return in position 2



Pilot pressure max. = 250 bar (3620 psi)

**Wrenches and tightening torque**

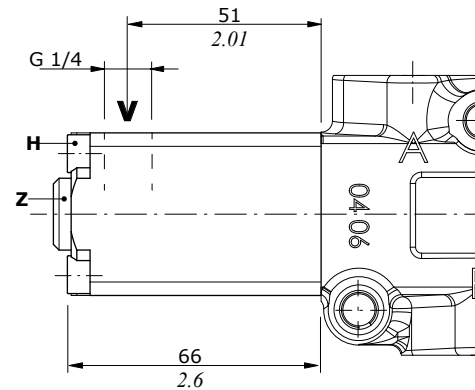
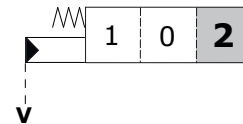
**H** = wrench 5 - 9.8 Nm (7.2 lbf<sub>t</sub>)

**Z** = wrench 6 - 24 Nm (17.7 lbf<sub>t</sub>)

**W** = wrench 32 - 42 Nm (31 lbf<sub>t</sub>)

**Type 18IB1**

Low pressure hydraulic kit with spring return in position 2



Pilot pressure max. = 50 bar (725 psi)

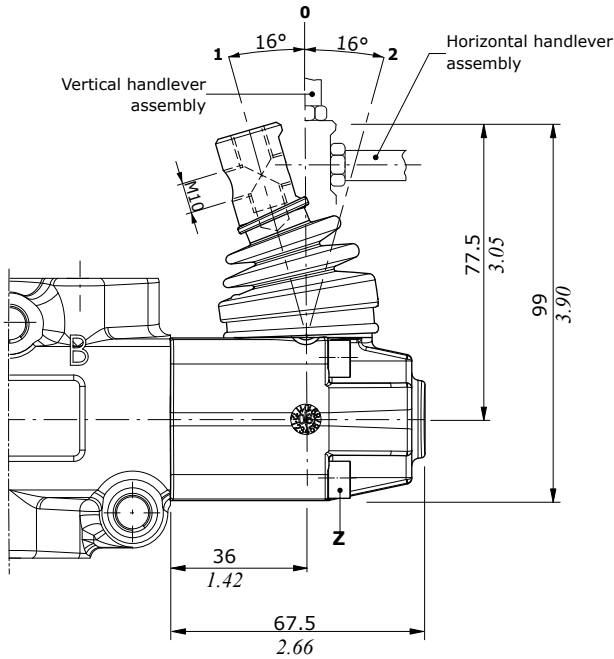
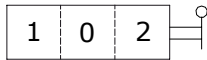


**"B" side options**

**Lever control kit**

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

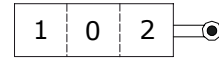
**Type L**



**Cam control kit**

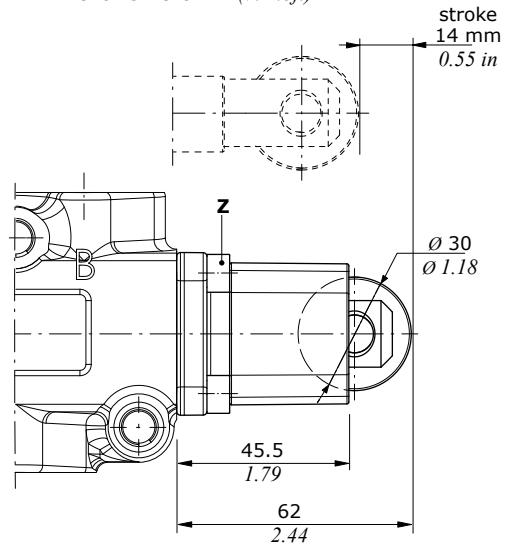
Steel ball bearing cam operation (CA), and bronze cam operation (CB); it must be coupled to 17 control kit

**Type CA-CB**



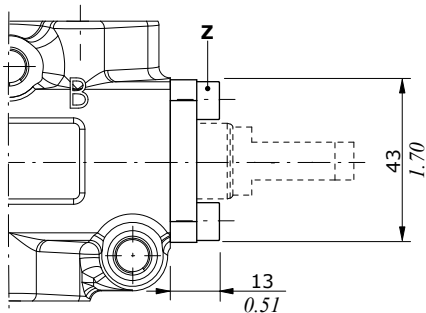
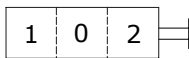
**Wrenches and tightening torque**

**Z** = wrench 5 - 9.8 Nm (7.2 lbf·ft)



**Without lever, with flange**

**Type SLP**



**Wrenches and tightening torque**

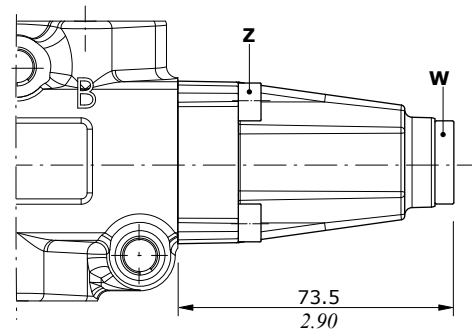
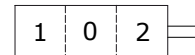
**Z** = wrench 5 - 9.8 Nm (7.2 lbf·ft)

**W** = wrench 8 - 24 Nm (17.7 lbf·ft)

**Without lever, with cap**

Protection cap to use with pneumatic and hydraulic spool positioner kits

**Type SLC**

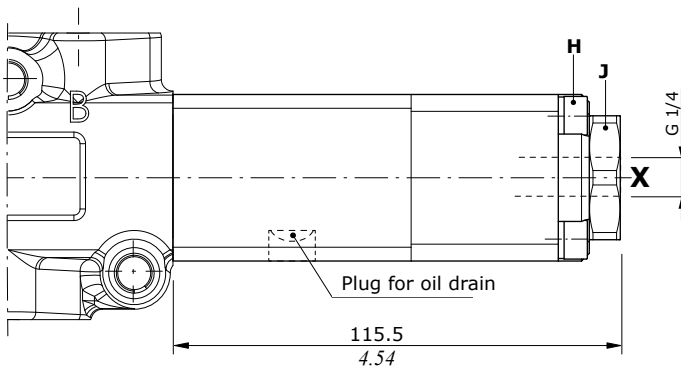
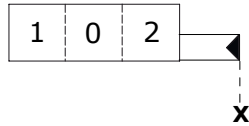


## "B" side options

### Hydraulic control kits

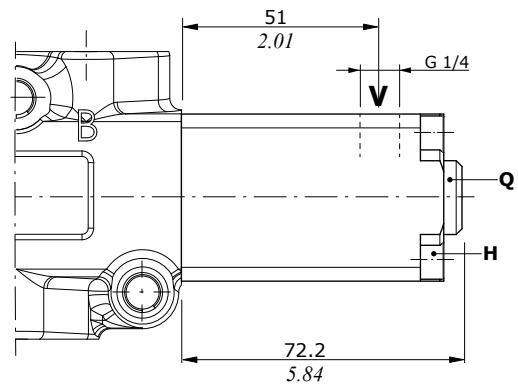
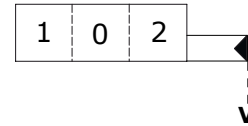
ON/OFF controls with high and low pressure pilot it must be only coupled to 17ME control kit

**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)
- Q = wrench 6 - 24 Nm (17.7 lbft)