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 mm²/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 cm³/min *(0.31 in³/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 mm²/s *(from 15 to 75 cSt)*
	min.	12 mm²/s *(12 cSt)*
	max.	400 mm²/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

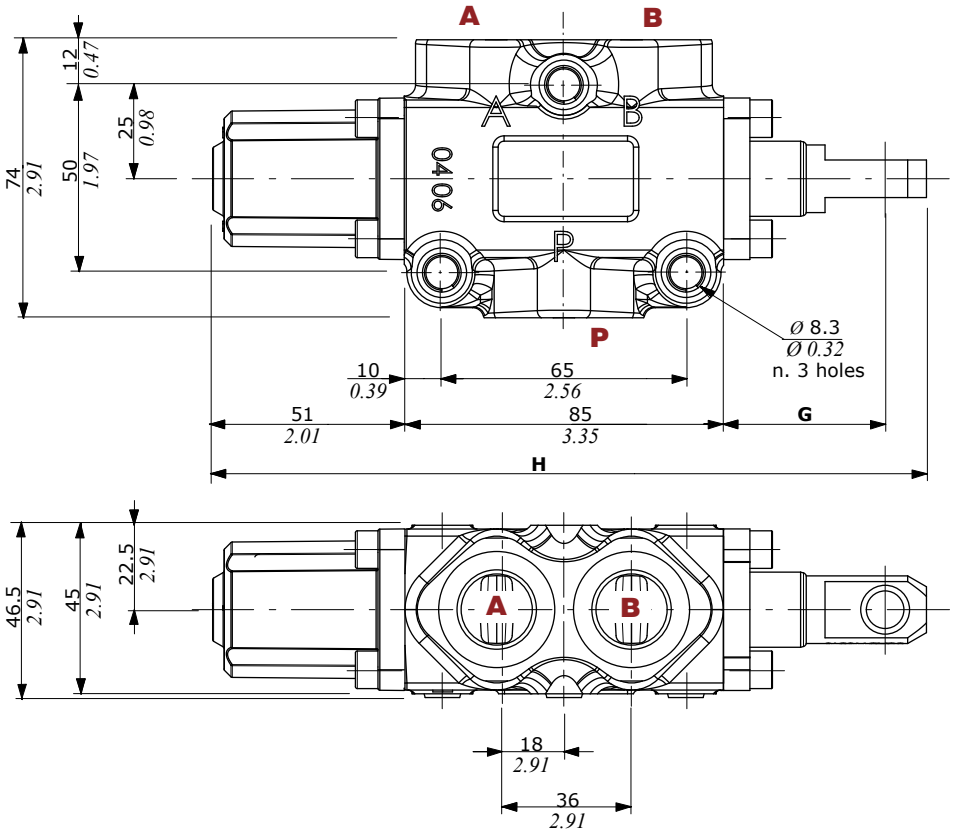
PORTS THREAD			
ALL PORTS	**BSP**	**UN-UNF**	**METRIC*** (ISO 9974-1)
DF10	G 1/2	7/8-14 (SAE 10)	M22x1.5
BOCCHE PILOTAGGI			
Pneumatic	NPT 1/8-27	NPT 1/8-27	NPT 1/8-27
Hydraulic	G 1/4	9/16-18 (SAE 6)	-

(*) Optional threads
for availability contact Sales Department

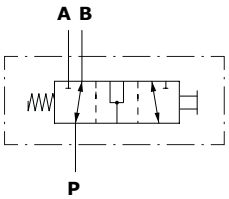
Dimensional data - hydraulic circuit - performance data

3 ways

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

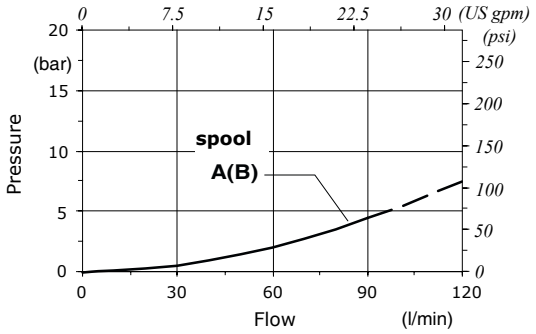


	G	H
With spool out	43 mm *1.69 in*	190 mm *7.48 in*
With spool in	29 mm *1.14 in*	176 mm *6.92 in*



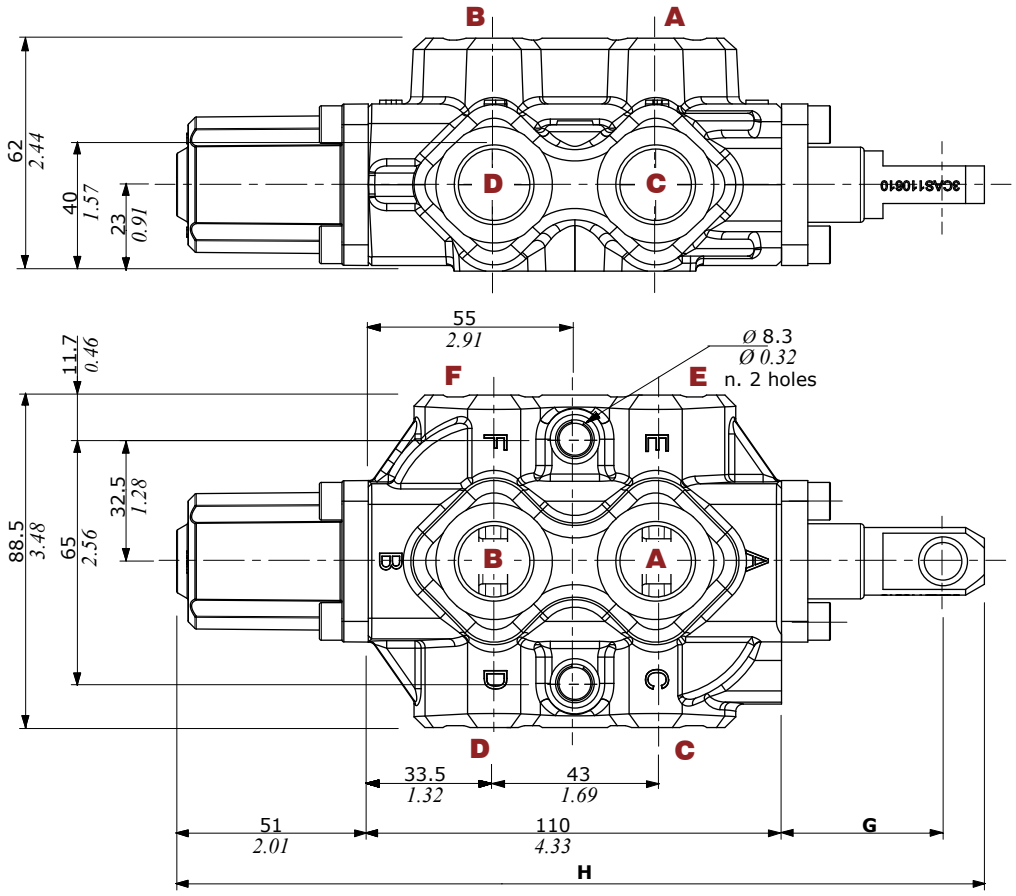
Pressure drop versus flow

P → A(B)

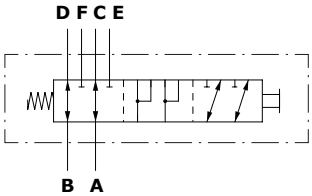


Dimensional data - hydraulic circuit - performance data

6 ways

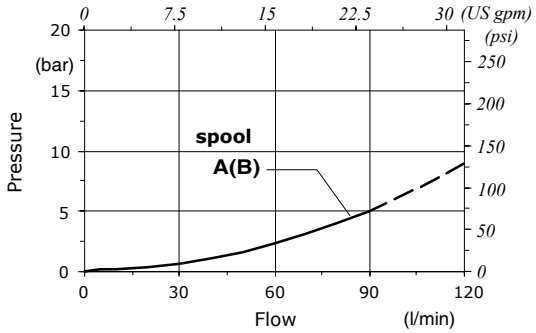


	G	H
With spool out	43 mm *1.69 in*	215 mm *8.46 in*
With spool in	29 mm *1.14 in*	201 mm *7.91 in*



Pressure drop versus flow

A → C(E)



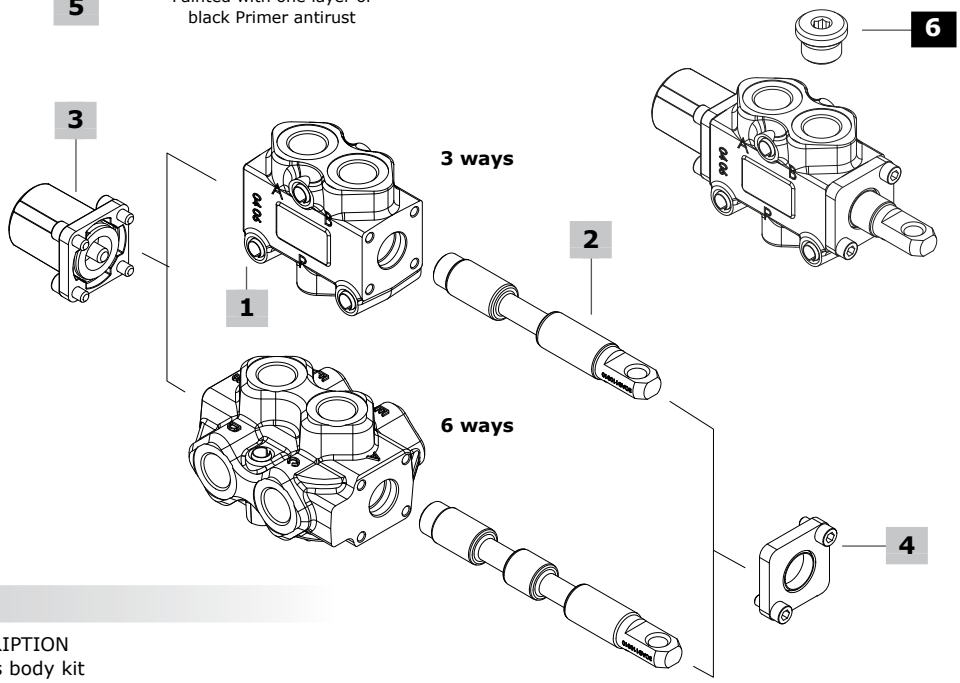
Part ordering codes

Example:

DF10/3 A 17 SLP - SAE - (CVN)

1 2 3 4 5

Painted with one layer of black Primer antirust



1 Body kit*

TYPE	CODE	DESCRIPTION
DF10/3	5CO2241700	3 ways body kit
DF10/6	5CO2242700	6 ways body kit

2 Spools page 29

TYPE	CODE	DESCRIPTION
for DF10/3:		
A	3CAS110310	Flow in B in pos. 1. Ports connected in transit position
B	3CAS110410	Flow in B in pos. 1. Ports closed in transit position
AT	3CAS110330	As type A, with spherical end
AC	3CAS110320	As type A, for cam control
BC	3CAS110420	As type B, for cam control
DC	3CAS110520	Flow in A, B in pos. 1. Without transit position, for cam control
for DF10/6:		
A	3CAS110610	Flow in C and D. E and F closed in pos. 1 Ports connected in transit position
B	3CAS110710	Flow in C and D. E and F closed in pos. 1 Ports closed in transit position
AC	3CAS110620	As type A, for cam control
BC	3CAS110720	As type B, for cam control

3 "A" side spool positioners page 30

TYPE	CODE	DESCRIPTION
12	5V12110000	Detent in positions 1 and 2
17	5V17110000	Spring return in position 1
17ME	5V17310000	As kit 17, with heavier spring type E
18	5V18110000	Spring return in position 2
Pneumatic controls: must be coupled to the control kit side B with lever, with plate or cap		
17P	5V17110700	On/off, with spring return in pos. 1
18P	5V18110710	On/off, with spring return in pos. 2
Hydraulic controls: must be coupled to the control kit side B with lever, with plate or cap		
18IA1	5V18110850*	On/off high pressure hydraulic kit with spring return in position 2
18IB1	5V18110870*	On/off low pressure hydraulic kit with spring return in position 2

4 "B" side options page 33

TYPE	CODE	DESCRIPTION
SLP	5COP110000	Without lever box, with dust-proof plate kit
SLC	5COP210000	Without lever box, with cap
L	5LEV110000	Aluminum lever box
CA	5CAM110000	Steel ball bearing cam operation
CB	5CAM110020	Bronze cam operation
Hydraulic controls		
IA2	5IDR510701*	On/off with high pressure pilot, need 17ME control type
IB2	5IDR710700*	On/off with low pressure pilot, need 17ME control type

5 Body threading

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

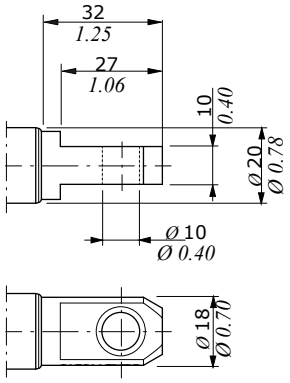
6 Port plugs*

It's possible to obtain 2 ways diverter valve plugging DF10/3 port

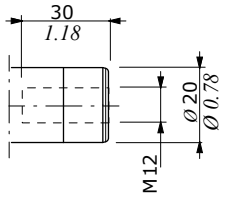
CODE	DESCRIPTION
3XTAP826160	SAE10 plug

(*) - Codes are referred to **UN-UNF** thread

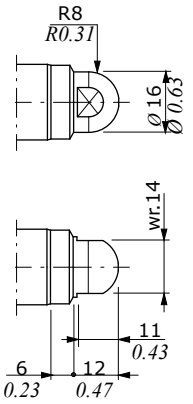
Spool end



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



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

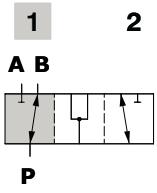


Spherical end:
spool type **AT**

Spool circuits

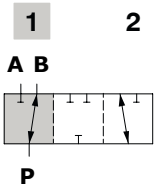
3 ways

Type A/AT/AC
Ports connected
in transit position



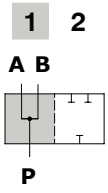
Spool stroke
Position 2: - 14 mm *(- 0.55 in)*

Type B/BC
Ports closed
in transit position



Spool stroke
Position 2: - 14 mm *(- 0.55 in)*

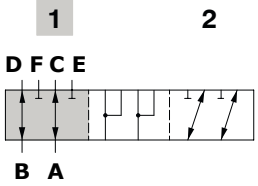
Type DC
Without transit position
Ports connected in neutral



Spool stroke
Position 2: - 14 mm *(- 0.55 in)*

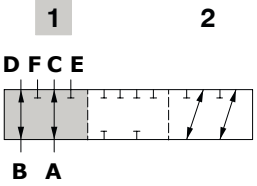
6 ways

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



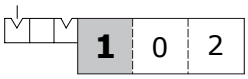
Spool stroke
Position 2: - 14 mm *(- 0.55 in)*

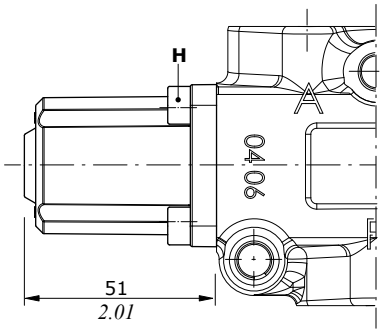
"A" side spool positioners

With detent

Type 12

Detent in positions 1 and 2



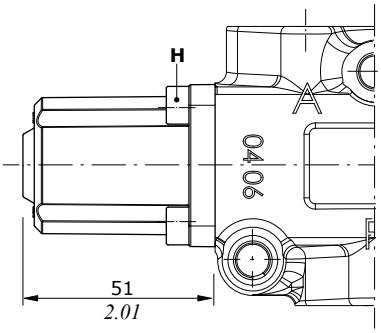


Wrenches and tightening torque
H = wrench 5 - 9.8 Nm *(7.2 lbft)*

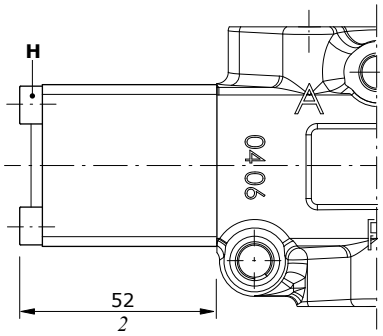
With spring return in position 1

With heavier spring type "E"

Type 17

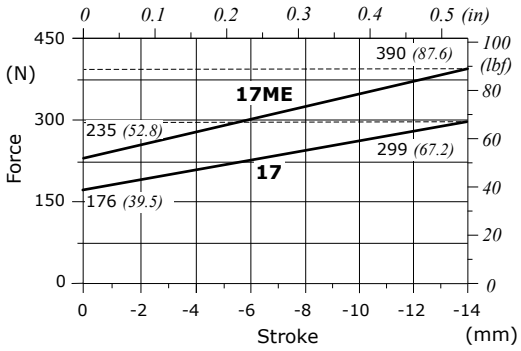


Type 17ME



Wrenches and tightening torque
H = wrench 5 - 9.8 Nm *(7.2 lbft)*

Force-Stroke diagram

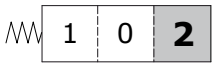


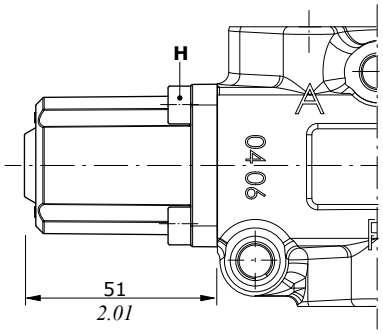
"A" side spool positioners

With spring return in position 2

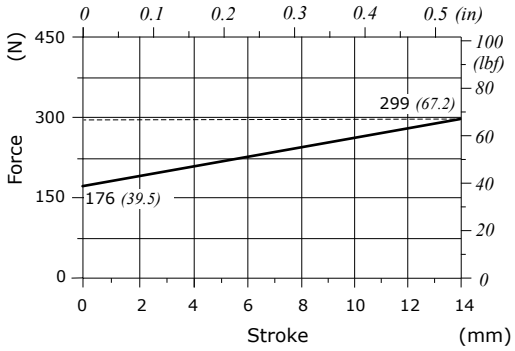
Type 18

Wrenches and tightening torque
H = wrench 5 - 9.8 Nm *(7.2 lbft)*



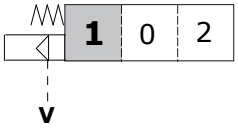


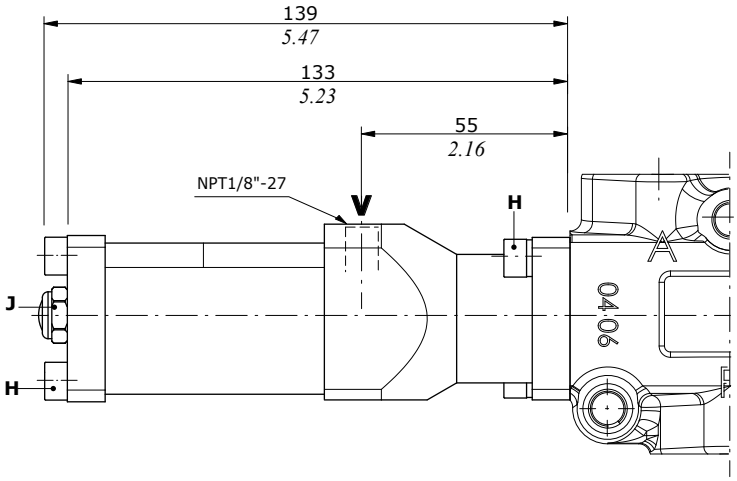
Force-Stroke diagram



ON/OFF pneumatic controls

Type 17P
Spring return in pos. 1





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

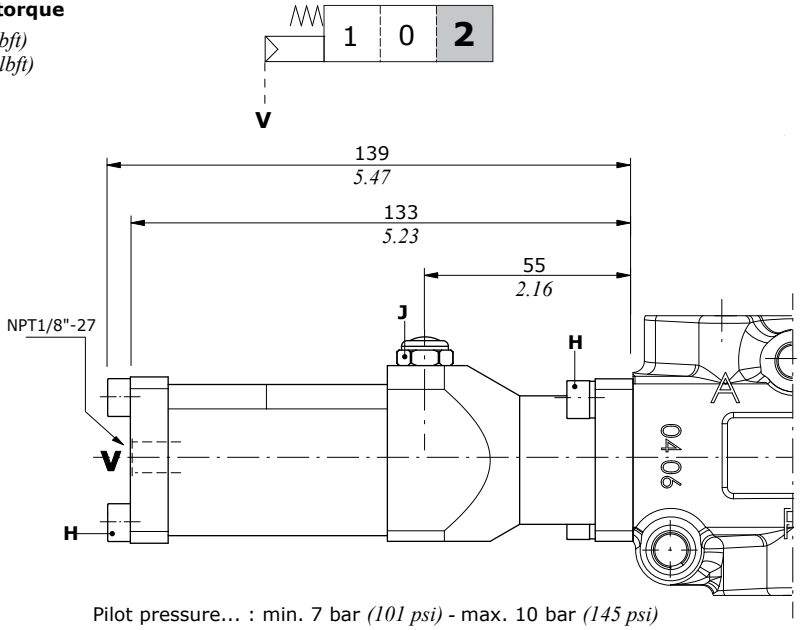
Pilot pressure... : min. 7 bar *(101 psi)* - max. 10 bar *(145 psi)*

"A" side spool positioners

ON/OFF pneumatic controls

Type 18P
Spring return in pos. 2

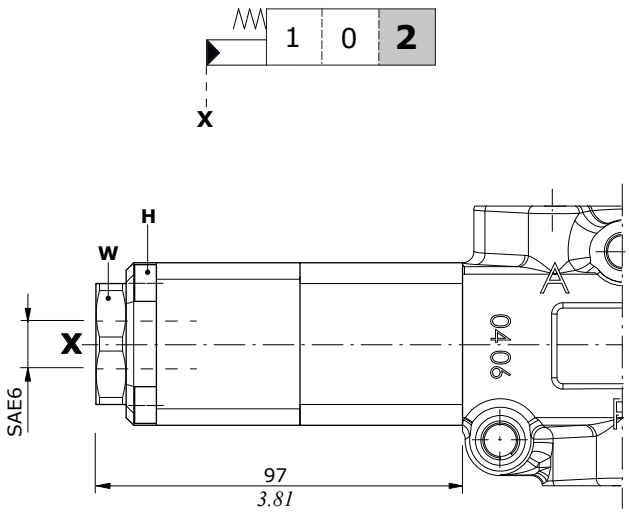
Wrenches and tightening torque
H = wrench 5 - 9.8 Nm *(7.2 lbft)*
J = wrench 13 - 9.8 Nm *(7.2 lbft)*



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

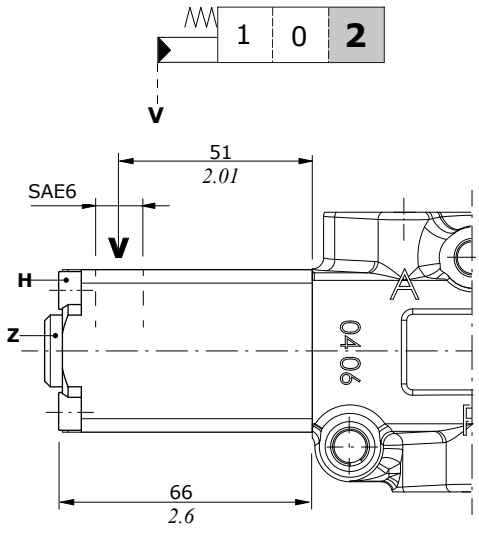
Hydraulic controls

Type 18IA1
High pressure hydraulic kit with spring return in position 2



Pilot pressure max. = 250 bar *(3620 psi)*

Type 18IB1
Low pressure hydraulic kit with spring return in position 2



Pilot pressure max. = 50 bar *(725 psi)*

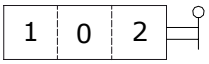
Wrenches and tightening torque
H = wrench 5 - 9.8 Nm *(7.2 lbft)*
Z = wrench 6 - 24 Nm *(17.7 lbft)*
W = wrench 32 - 42 Nm *(31 lbft)*

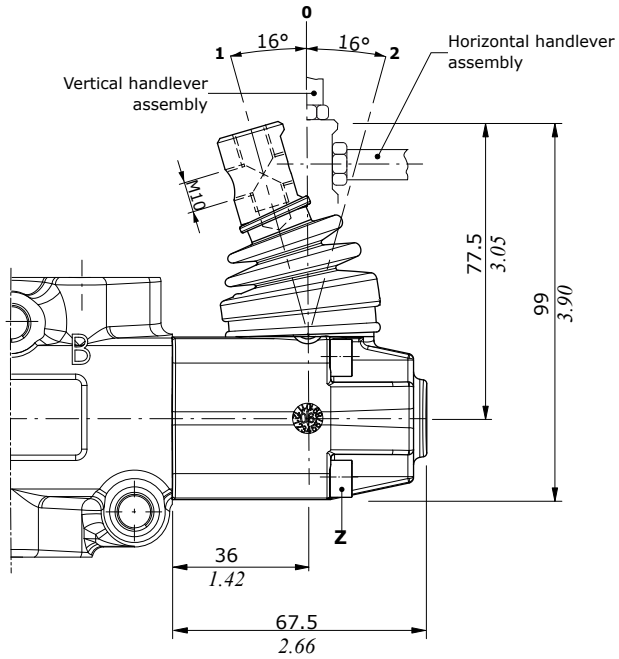
"B" side options

Lever control kit

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

Type L

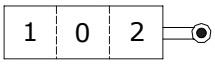




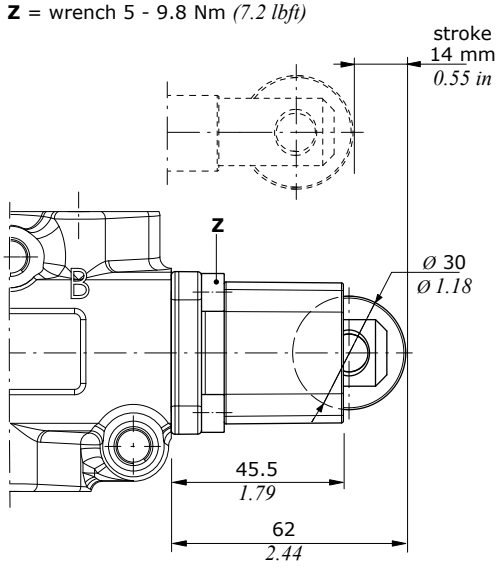
Cam control kit

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

Type CA-CB

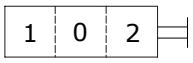


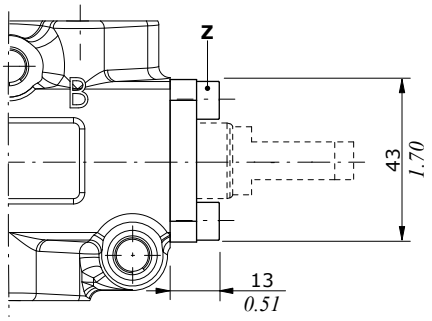
Wrenches and tightening torque
Z = wrench 5 - 9.8 Nm *(7.2 lbft)*



Without lever, with flange

Type SLP



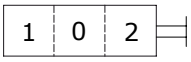


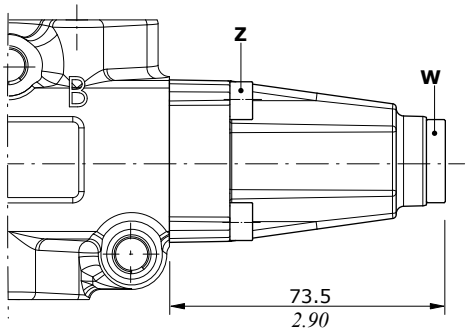
Wrenches and tightening torque
Z = wrench 5 - 9.8 Nm *(7.2 lbft)*
W = wrench 8 - 24 Nm *(17.7 lbft)*

Without lever, with cap

Protection cap to use with pneumatic and hydraulic spool positioner kits

Type SLC



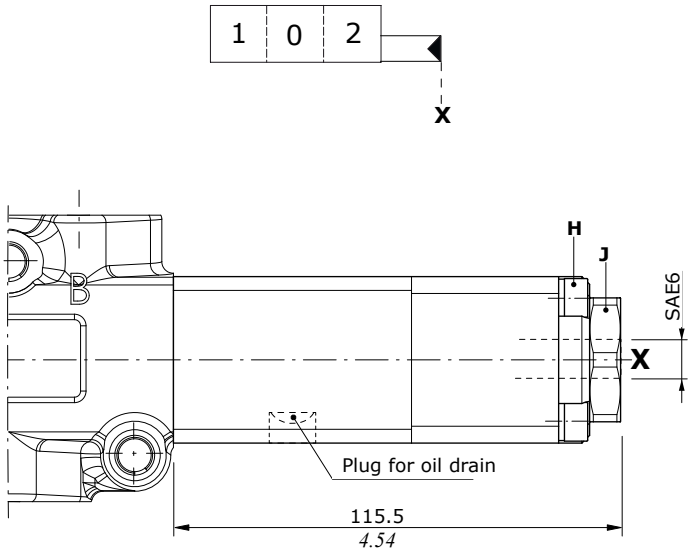


"B" side options

Hydraulic controls

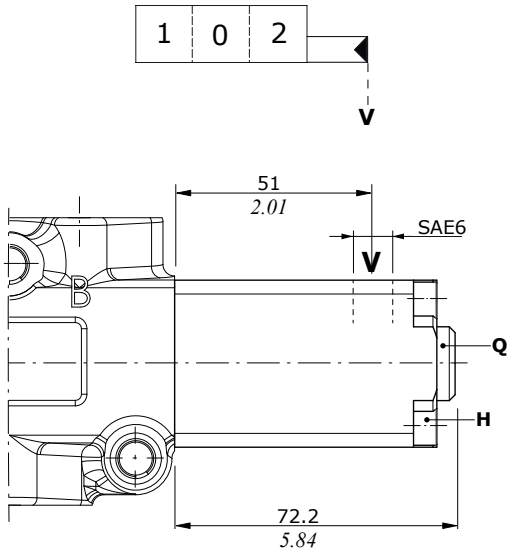
ON/OFF controls with high and low pressure pilot it must be only coupled to 17ME control kit

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)*