



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 mm²/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)	10 cm ³ /min (0.61 in ³ /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 ² /s (from 15 to 75 cSt)	
	min.	12 mm ² /s (12 cSt)	
	max.	400 mm ² /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.

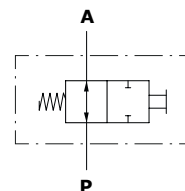
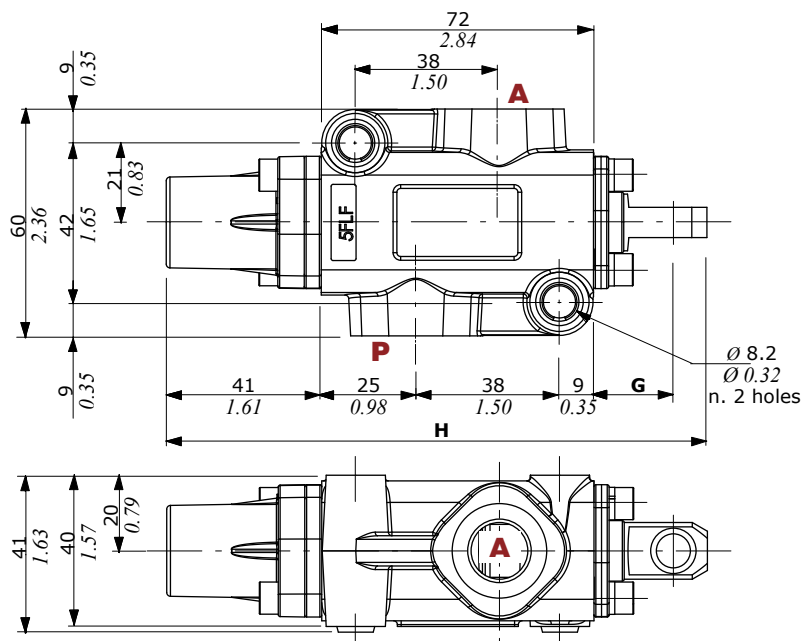
Available threads

PORTS THREAD				
ALL PORTS	BSP	UN-UNF	METRIC* (ISO 9974-1)	METRIC* (ISO 6149)
DF5	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

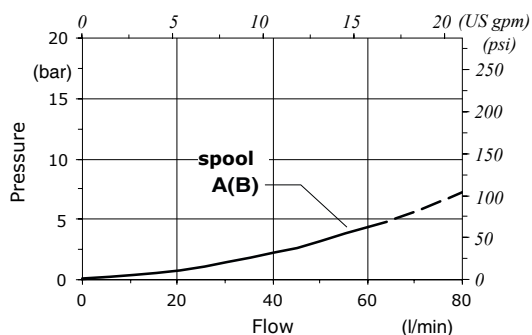
Dimensional data - hydraulic circuit - performance data

2 ways



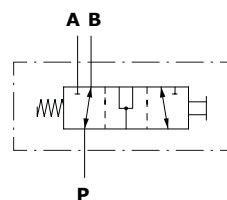
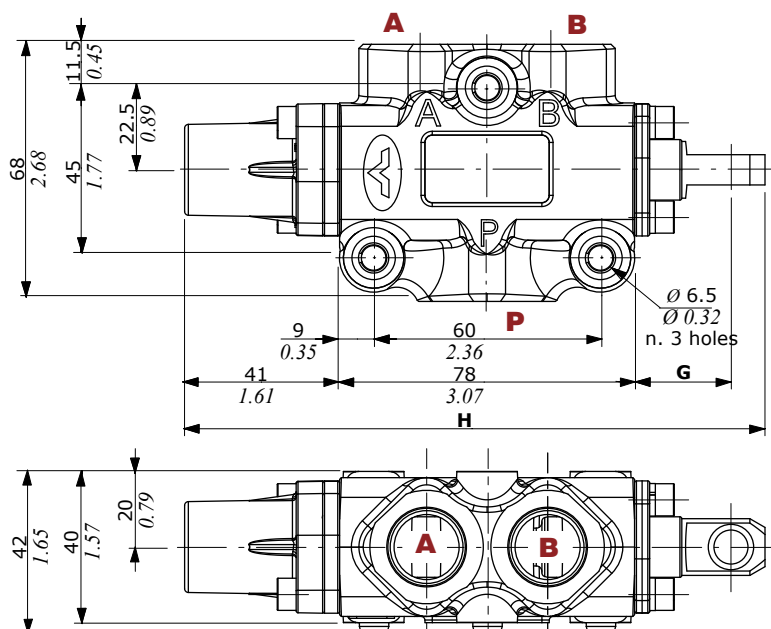
Pressure drop versus flow

P → A



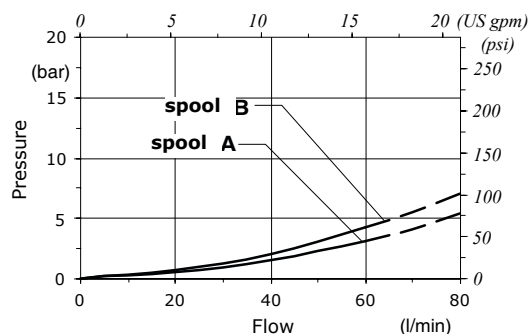
	G	H
With spool out	25.5 mm 1.00 in	147.5 mm 5.81 in
With spool in	14.5 mm 0.57 in	136.5 mm 5.37 in

3 ways



Pressure drop versus flow

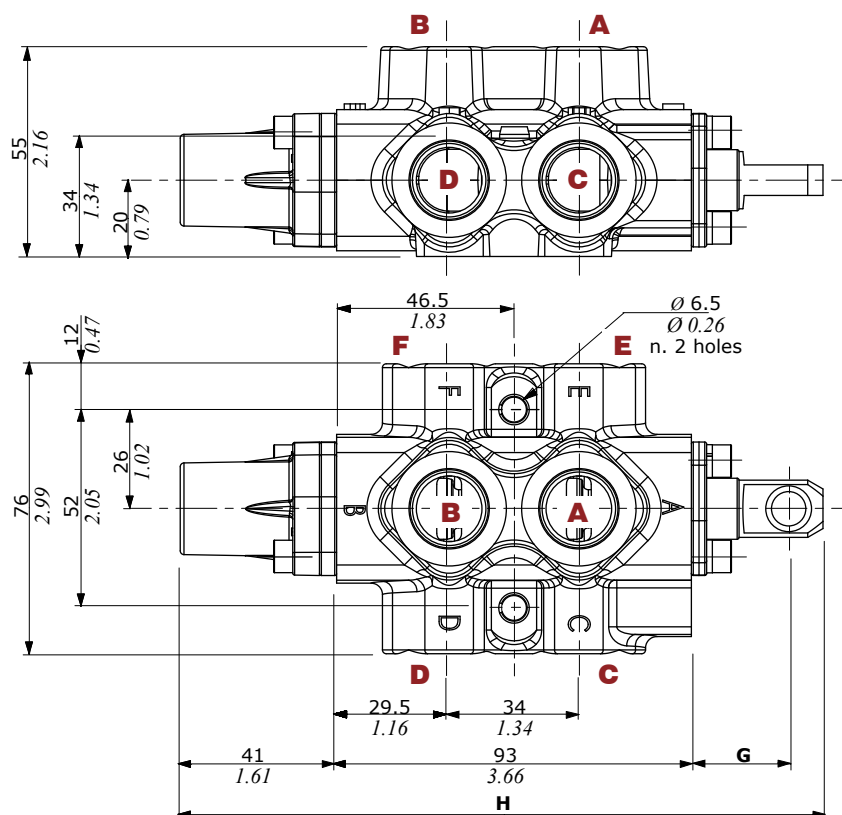
P → A(B)



	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

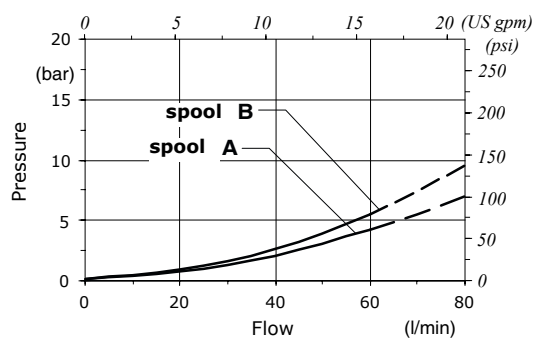
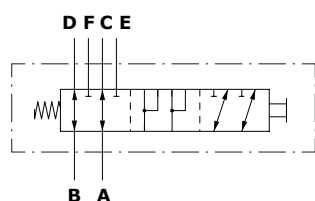
6 ways



	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

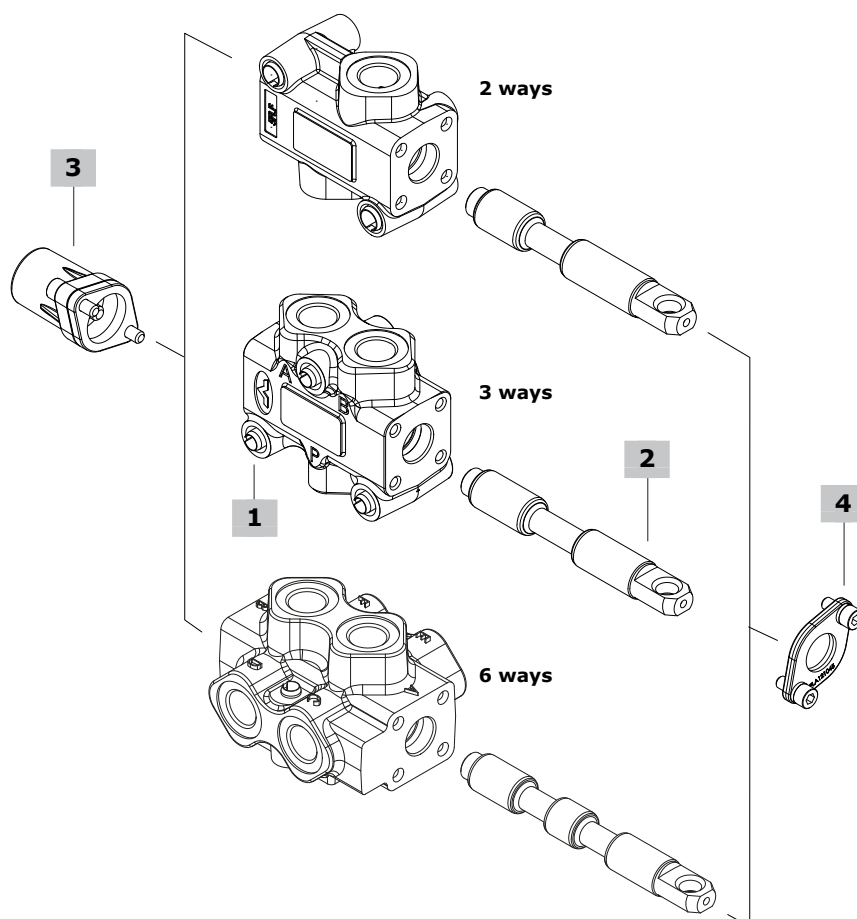
A → C(E)



Part ordering codes

Example:

DF5/3 **A** **17** **SLP** - **...** - **(CVN)**
1 **2** **3** **4** **5** Painted with one layer of black Primer antirust

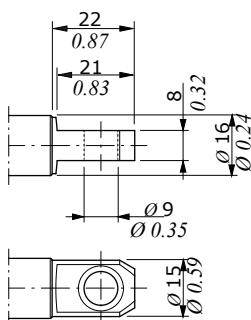


Part ordering codes

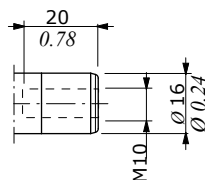
1 Body kit*			3 "A" side spool positioners page 11		
TYPE	CODE	DESCRIPTION	TYPE	CODE	DESCRIPTION
DF5/2	5CO2220300	2 ways body kit	12	5V12105000	Detent in positions 1 and 2
DF5/3	5CO2221300	3 ways body kit	17	5V17105000	Spring return in position 1
DF5/6	5CO222300	6 ways body kit	17WPOA	5V17105002	As kit 17, waterproof type with plug for oil drain
2 Spools page 10			17A	5V17105050	Spring return in pos. 1, it must be coupled to spool D (DF5/3)
TYPE	CODE	DESCRIPTION	17ME	5V17305000	As kit 17, with heavier spring type E
for DF5/2:			17MEWPO	5V17305002	As kit 17, with heavier spring type E waterproof type
A	3CAS105210	Open port in neutral position	17YME	5V17305003	As kit 17, with heavier spring type E
B	3CAS105110	Closed port in neutral position	18ME	5V18405110	Spring return in pos. 2, with heavier spring type E
AT	3CAS105230	As type A, with spherical end	With microswitch		
BT	3CAS105130	As type B, with spherical end	17MEMG2(NO)	5V17305680	Spring return in pos. 1, microswitch in pos. 2, with heavier spring type E
AC	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>		
BC	3CAS105120	As type B, for cam control	17PNB	5V17105718	On/off with spring return in position 1, waterproof type
V	3CAS105115	With load check valve	18PNB	5V18105718	On/off with spring return in position 2, waterproof type
VT	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>		
for DF5/3:			18IA1	5V18105820*	On/off high pressure hydraulic control with spring return in position 2
A	3CAS105310	Flow in B in pos. 1. Ports connected in transit position	18IB1N	5V18105811*	On/off low pressure hydraulic control with spring return in position 2
B	3CAS105410	Flow in B in pos. 1. Ports closed in transit position	4 "B" side options page 16		
AT	3CAS105330	As type A, with spherical end	TYPE	CODE	DESCRIPTION
AC	3CAS105320	As type A, for cam control	SLP	5COP105000	Without lever box, with dust-proof plate kit
BC	3CAS105420	As type B, for cam control	SLC	5COP205000	Without lever box, with cap
D	3CAS105511	Flow in A and B in pos. 1. Without transit position: need 17A control type for reduced spool stroke	L	5LEV105000	Aluminum lever box
for DF5/6:			CA	5CAM105000	Steel ball bearing cam operation
A	3CAS105610	Flow in C and D. E and F closed in pos. 1. Ports connected in transit position	CB	5CAM105020	Bronze cam operation
B	3CAS105710	Flow in C and D. E and F closed in pos. 1. Ports closed in transit position	CAX/S5	5CAM105030	Inox steel cam operation
AC	3CAS105620	As type A, for cam control	<u>Hydraulic controls</u>		
BC	3CAS105720	As type B, for cam control	IA2	5IDR505000*	On/off with high pressure pilot, need 17YME control type
			IB2	5IDR705000*	On/off with low pressure pilot, need 17YME control type
5 Body threading					
Specify threading always when it is different from BSP standard					

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

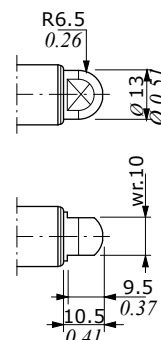
Spool end



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



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



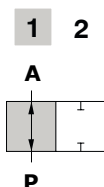
Spherical end:
spool type **AT, BT, VT**

Spool circuits

2 ways

Type A/AT/AC

Open port in neutral position

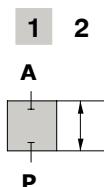


Spool stroke

Position 2: - 11 mm (- 0.43 in)

Type B/BT/BC

Closed port in neutral position

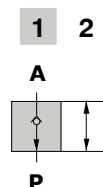


Spool stroke

Position 2: - 11 mm (- 0.43 in)

Type V/VT

With load check valve



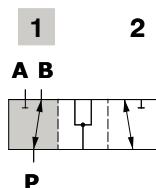
Spool stroke

Position 2: - 11 mm (- 0.43 in)

3 ways

Type A/AT/AC

Ports connected
in transit position

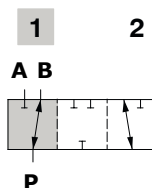


Spool stroke

Position 2: - 11 mm (- 0.43 in)

Type B/BC

Ports closed
in transit position

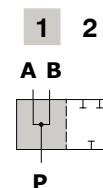


Spool stroke

Position 2: - 11 mm (- 0.43 in)

Type D

Without transit position
Ports connected in neutral



Spool stroke

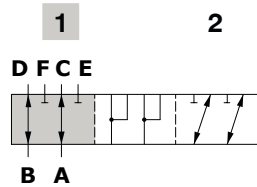
Position 2: - 5.5 mm (- 0.21 in)

Spool circuits

6 ways

Type A/AC

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

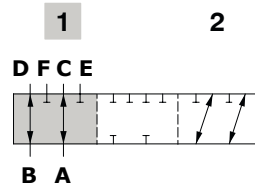


Spool stroke

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

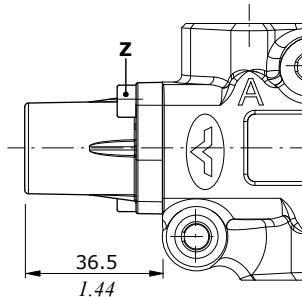
Position 2: - 11 mm (- 0.43 in)

"A" side spool positioners

With detent

Type 12

Detent in positions 1 and 2



Wrenches and tightening torque

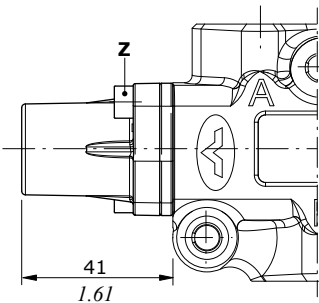
Z = wrench 4 - 6.6 Nm (4.9 lbf·ft)

"A" side spool positioners

With spring return in position 1

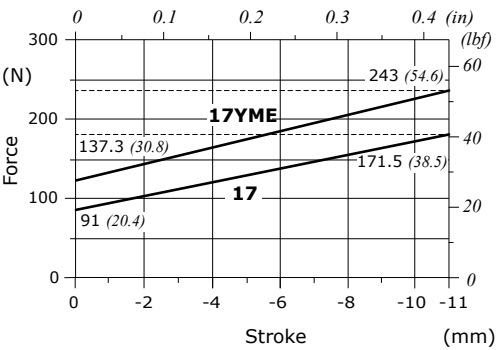
Available with standard or heavier spring type "E"

Type 17-17ME-17YME

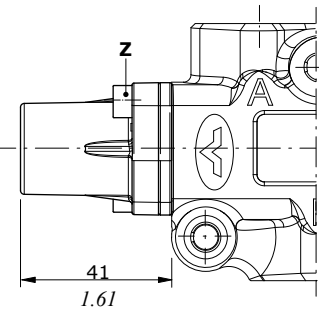
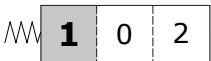


Wrenches and tightening torque
Z = wrench 4 - 6.6 Nm (4.9 lbf ft)

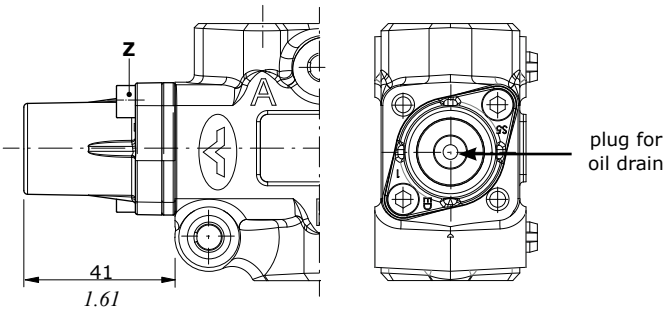
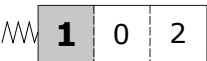
Force-Stroke diagram



Type 17MEWPO
With water proof sealing



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

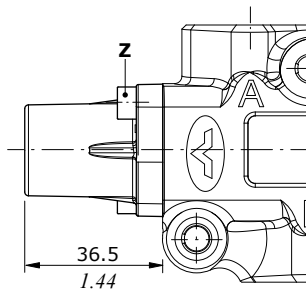


"A" side spool positioners

With spring return in position 1

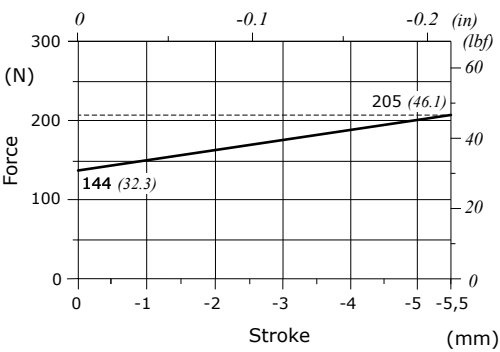
Type 17A

As type 17, for spool type D



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

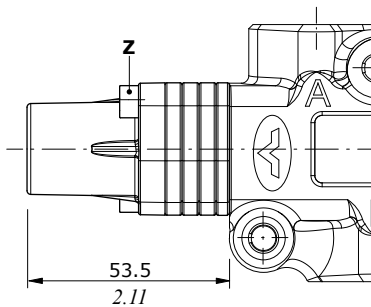
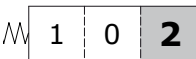
Force-Stroke diagram



With spring return in position 2

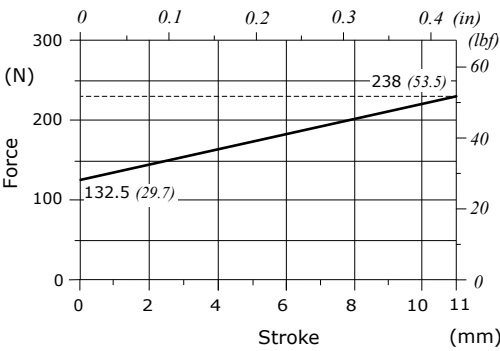
With heavier spring type "E"

Type 18ME



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

Force-Stroke diagram

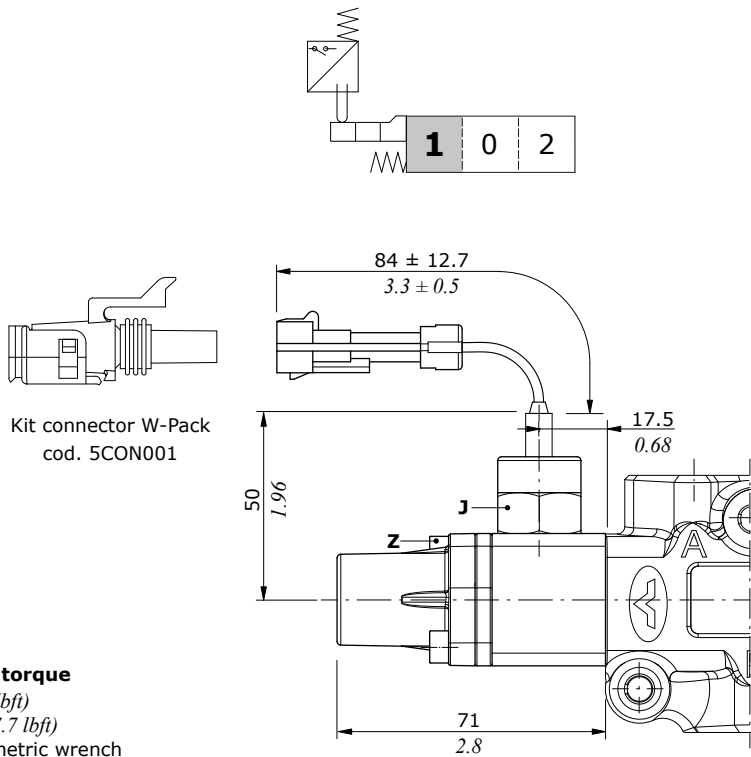


"A" side spool positioners

With spool position sensor

Type 17MEMG2(NO)

As type 17ME, with microswitch operated in pos. 1

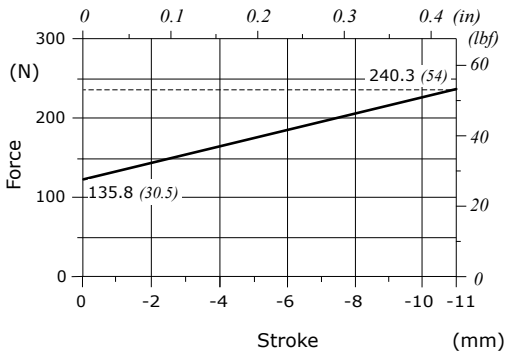


Wrenches and tightening torque
Z = wrench 4 - 6.6 Nm (4.9 lbf·ft)
J* = wrench 22 - 24 Nm (17.7 lbf·ft)
(*)Tightening with dynamometric wrench

Complete controls			
Microswitch operation			
Circuit	pos. 1 17MG1	pos. 2 17MEMG2	pos. 2 17MG2
(NO)	5V17105673	5V17305680	-
(NC)	-	-	5V17105672

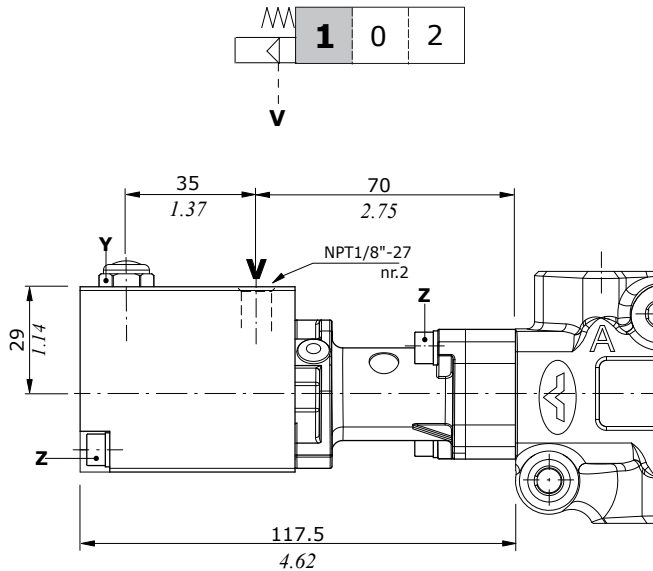
Features
MICROSWITCH
Mechanical life : 5x10⁵ operations
Electrical life (resistive load)....: 10⁵ oper. – 7A / 13.5VDC
 : 5x10⁴ oper. – 10A / 12VDC
 : 5x10⁴ oper. – 3A / 28VDC
Connector : Packard Weather-pack
Mating connector cod. 5CON001, not included

Force-Stroke diagram

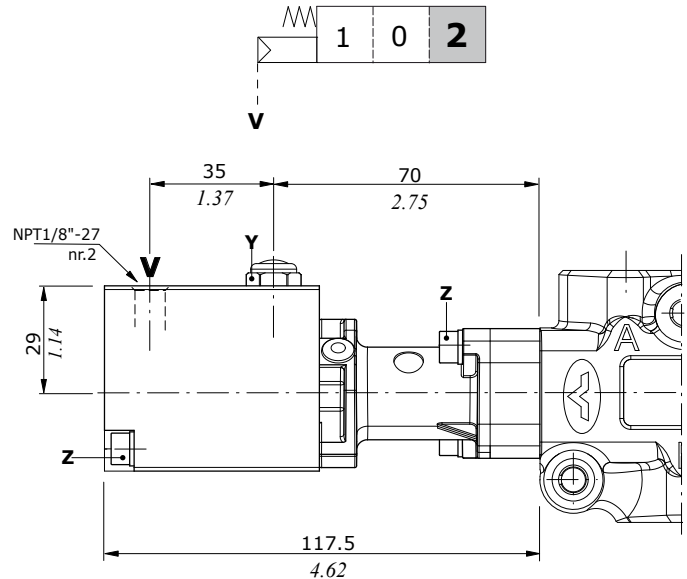


"A" side spool positioners**ON/OFF pneumatic controls****Type 17PNB**

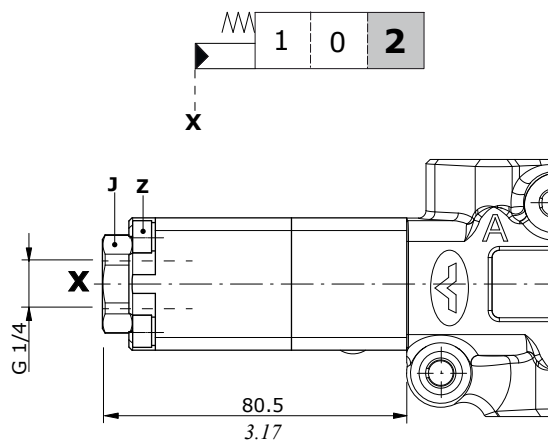
Spring return in pos. 1, waterproof type

**Type 18PNB**

Spring return in pos. 2, waterproof type

**Wrenches and tightening torque****Z** = wrench 4 - 6.6 Nm (4.9 lbf ft)**Y** = wrench 13 - 9.8 Nm (7.2 lbf ft)**Hydraulic controls****Type 18IA1**

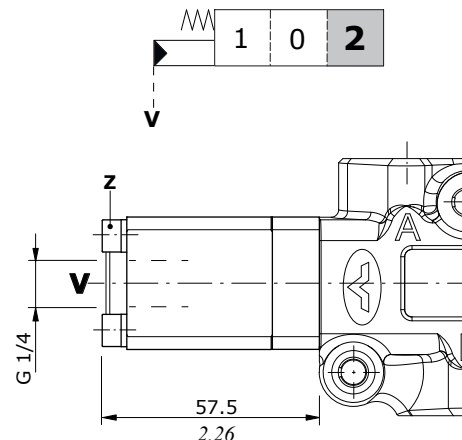
High pressure hydraulic control with spring return in position 2



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)

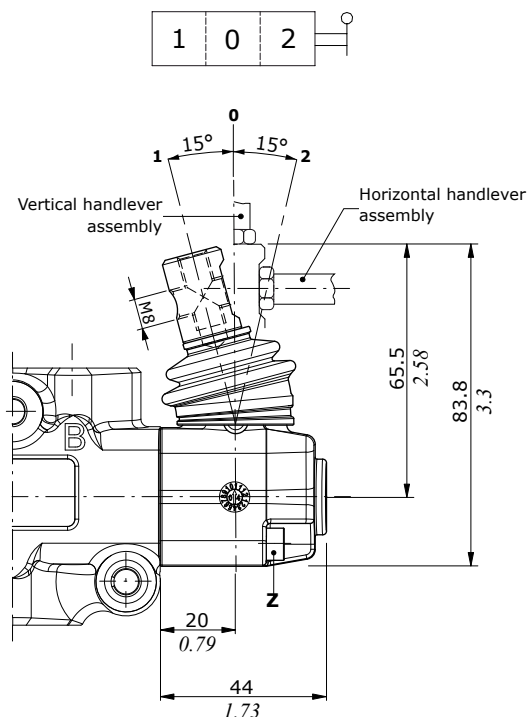
Wrenches and tightening torque**Z** = wrench 4 - 6.6 Nm (4.9 lbf ft)**J** = wrench 24 - 42 Nm (31 lbf ft)

"B" side options

Lever control kit

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

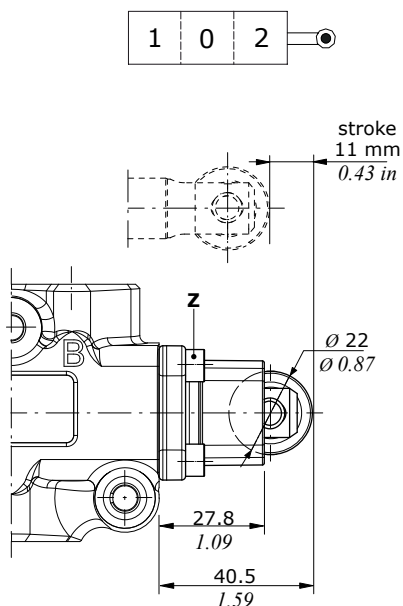
Type L



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

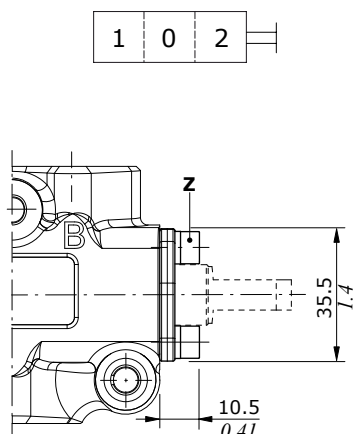


Wrenches and tightening torque

Z = wrench 4 - 6,6 Nm (4.9 lbft)

Without lever, with flange

Type SLP



Wrenches and tightening torque

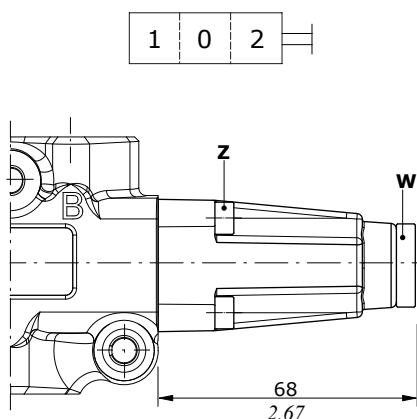
Z = wrench 4 - 6.6 Nm (4.9 lbft)

W = wrench 8 - 24 Nm (17.7 lbft)

Without lever, with cap

Protection cap to use with pneumatic and hydraulic spool positioner kits

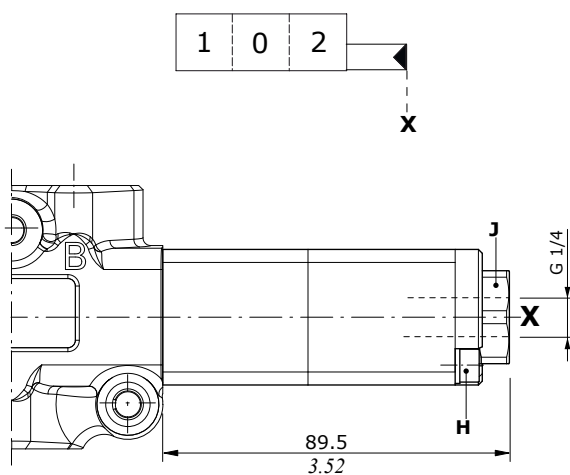
Type SLC



"B" side options**Hydraulic controls**

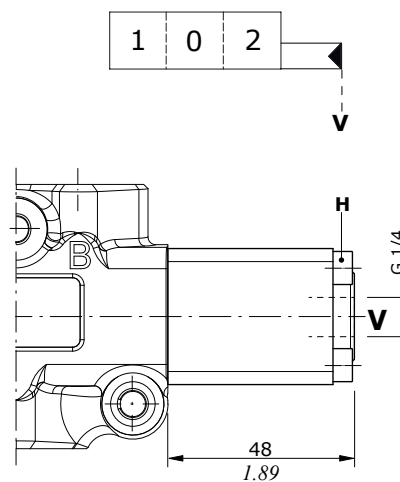
ON/OFF controls with high and low pressure pilot it must be only coupled to 17YME control kit

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)

