

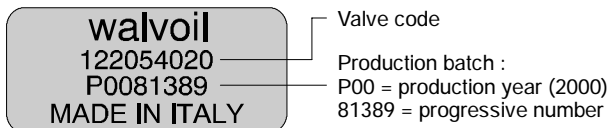
Diverter valves

Marking

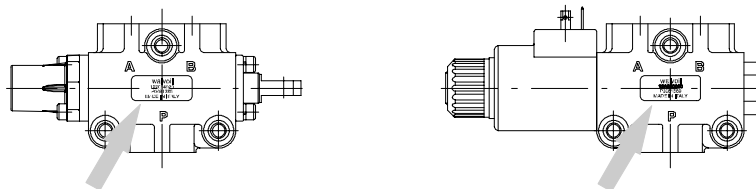
All Walvoil diverter valves are marked according to EN982 norm.

This marking includes: building firm, part code, production batch and manufacture country.

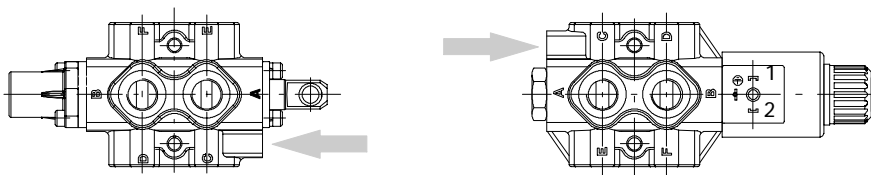
Marking zone depending on valve type, as indicate below.



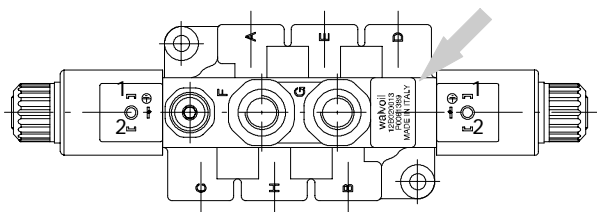
2-way and 3-way, types DF and DFE



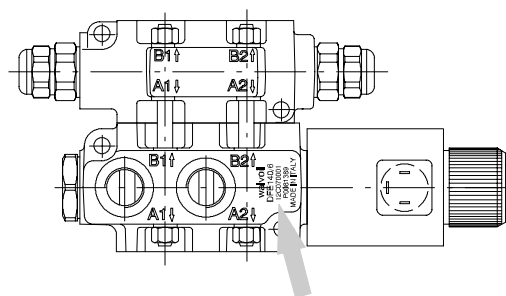
6-way, types DF and DFE



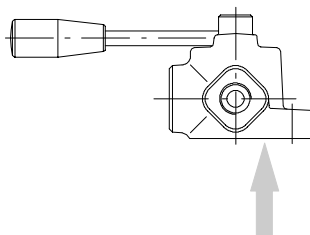
8-way, type DFE type



Type DFE140



Type DH





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Working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46 mm²/s – 46 cSt viscosity at 40°C temperature.

		DF5	DF10	DF20	DF25
N. of available ways		2-3-6	2-3-6	2-3-6	3
Nominal flow rating		60 l/min	90 l/min	140 l/min	280 l/min
Operating pressure (maximum)		315 bar 4600 psi	315 bar 4600 psi	315 bar 4600 psi	315 bar 4600 psi
Internal leakage A(B)→T	$\Delta p=100 \text{ bar } 1450 \text{ psi}$ with fluid and valve at 40°C	5 cm ³ /min 0.31 in ³ /min	5 cm ³ /min 0.31 in ³ /min	8 cm ³ /min 0.49 in ³ /min	8 cm ³ /min 0.49 in ³ /min
Hydraulic fluid		Mineral base oil			
Fluid temperature	with NBR seals	from -20° to 80°C			
	with FPM seals	from -20° to 100°C			
Viscosity	operating range	from 15 to 75 mm ² /s – from 15 to 75 cSt			
	minimum	12 mm ² /s – 12 cSt			
	maximum	400 mm ² /s – 400 cSt			
Max. level of contamination		19/16 – ISO 4406			
Ambient temperature		from -40° to 60°C			

NOTE - For different working conditions please contact Sales Dept.

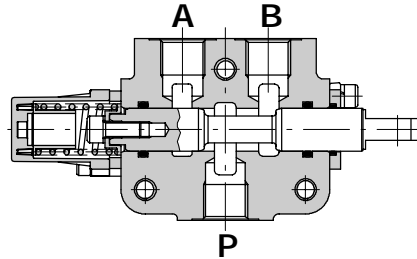
Standard threads

ALL PORTS	BSP (ISO 228/1)	UN-UNF (ISO 11926-1)
DF5	G 3/8	3/4-16 (SAE 8)
DF10	G 1/2	7/8-14 (SAE 10)
DF20	G 3/4	1 1/16-12 (SAE 12)
DF25	G 1	1 5/16-12 (SAE 16)
PILOT PORTS		
Pneumatic	NPT 1/8-27	NPT 1/8-27
Hydraulic	G 1/4	9/16-18 (SAE 6)

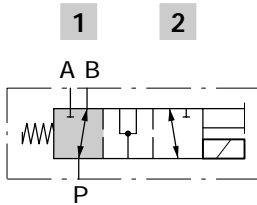
Hydraulic circuit

3-way

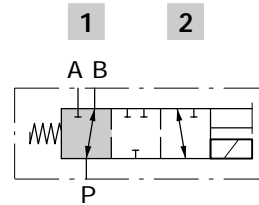
It's possible to obtain 2-way diverter valve plugging port A or B.



Spool type A



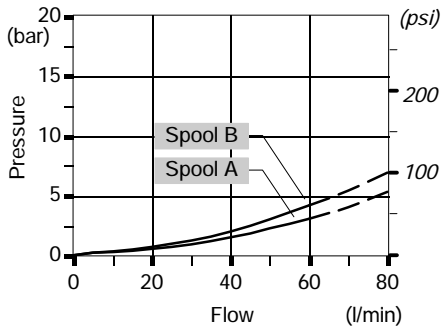
Spool type B B



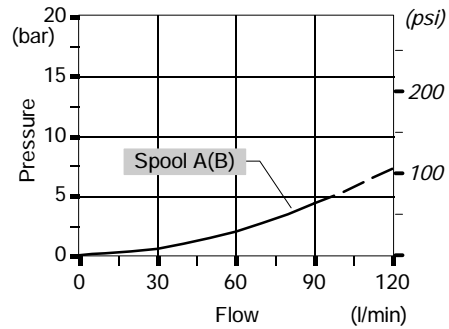
Performance data

Pressure drop versus flow: P→A(B)

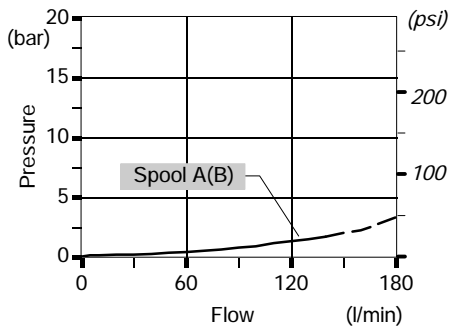
DF5/3



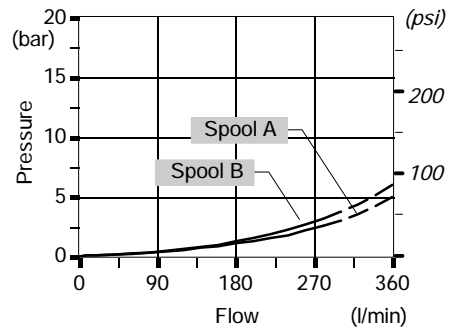
DF10/3



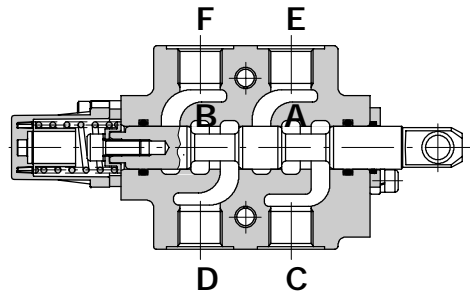
DF20/3



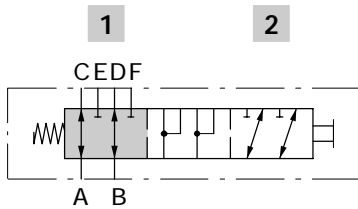
DF25/3



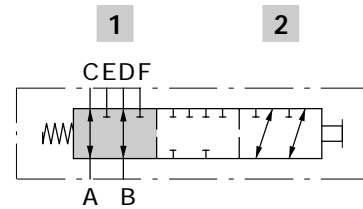
6-way



Spool type A



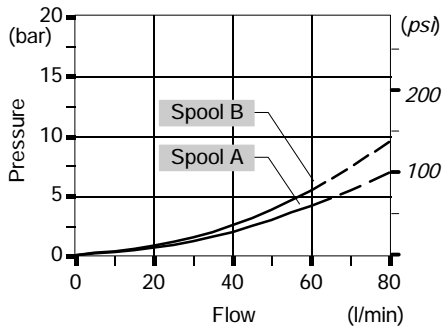
Spool type B



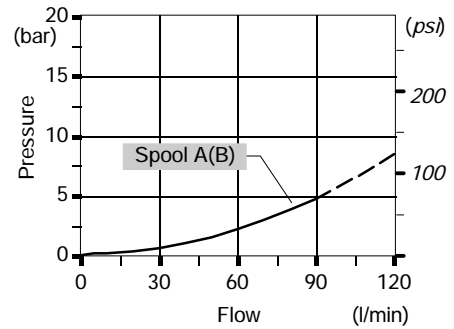
Performance data

Pressure drop versus flow: A→C(E).

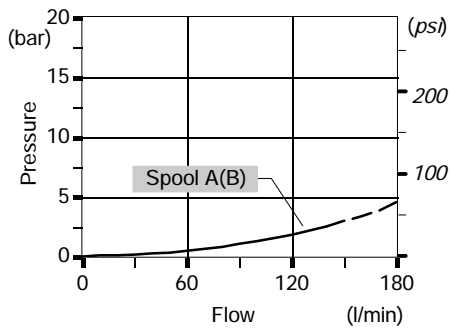
DF5/6



DF10/6

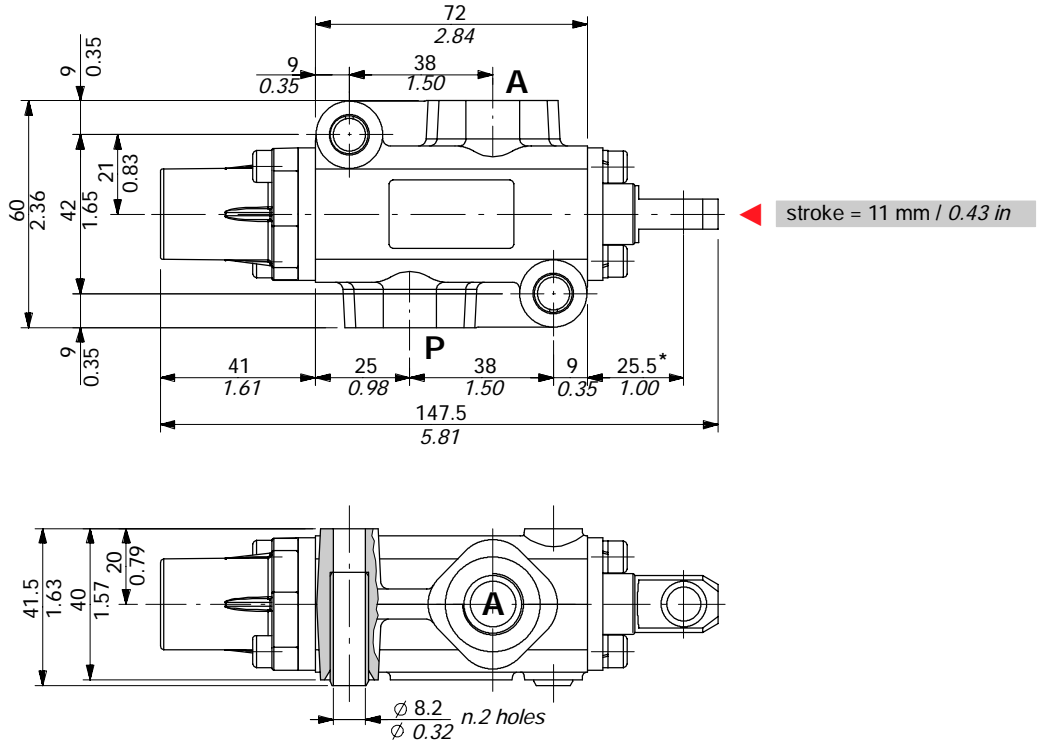


DF20/6

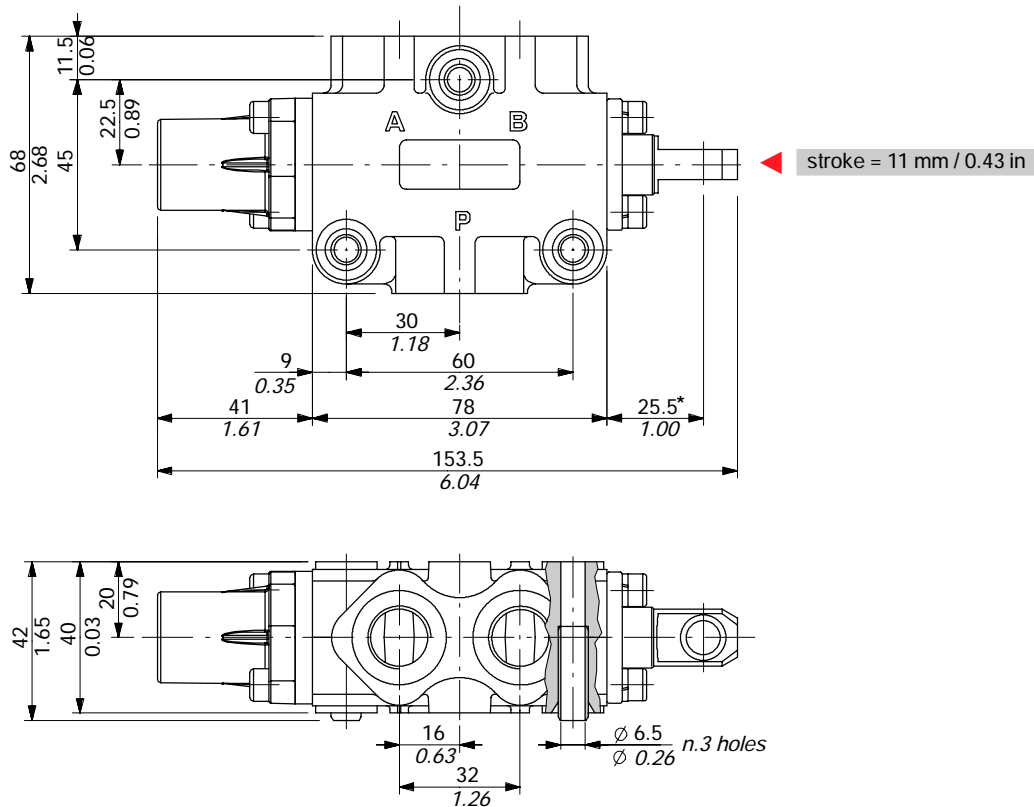


Dimensional data

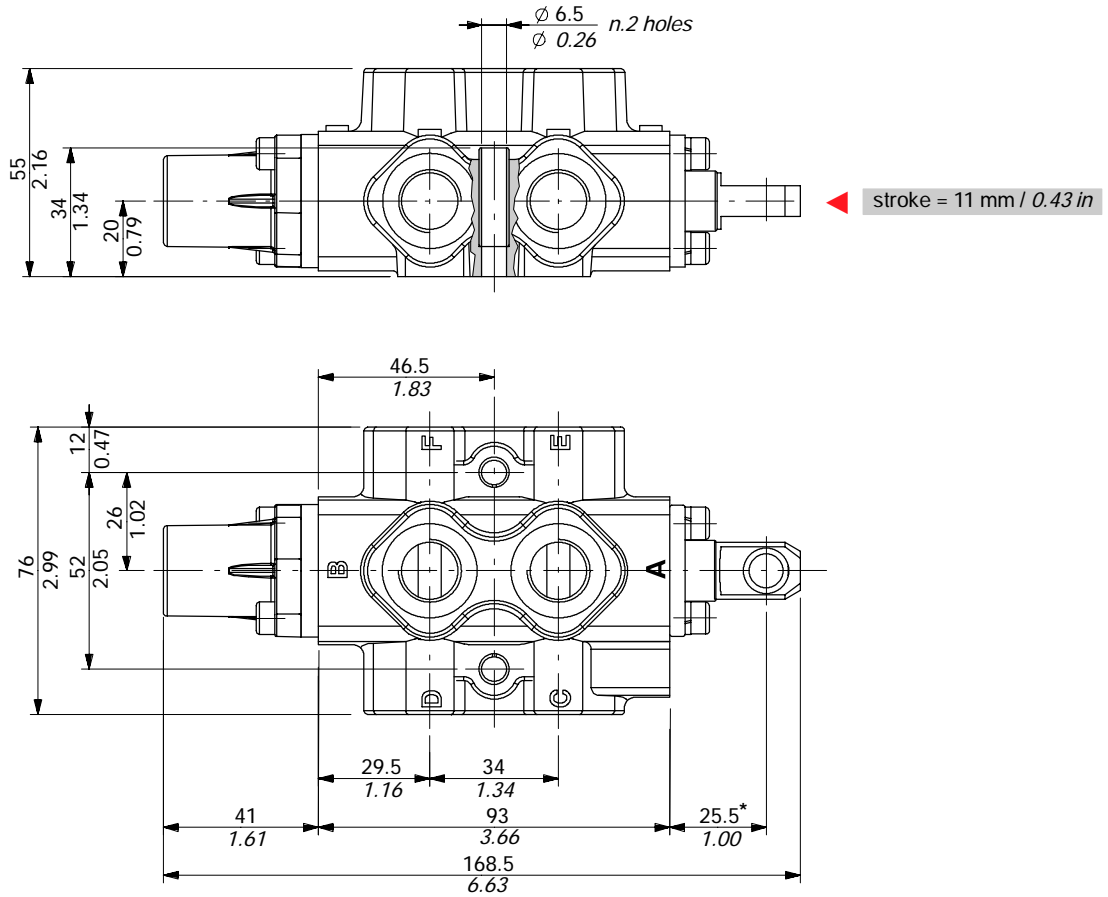
2-way DF5/2 valve



3-way DF5/3 valve

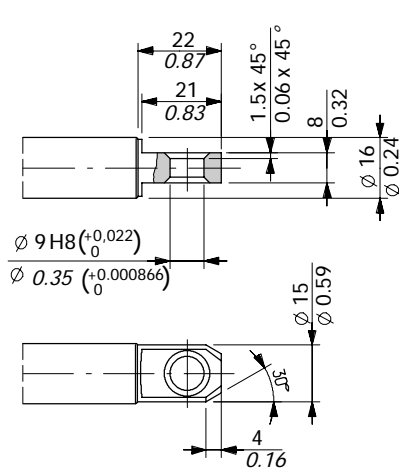


6-way DF5/6 valve



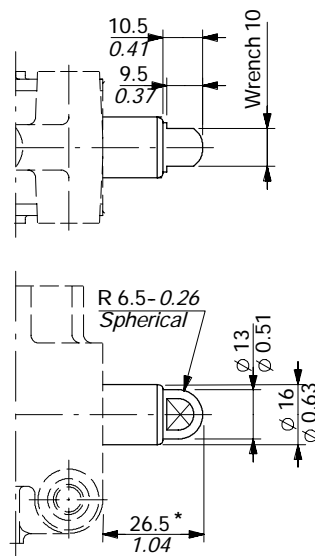
Spool end

Standard end

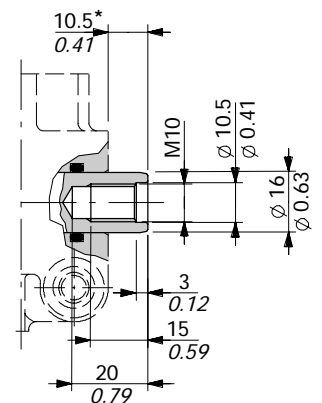


NOTE (*) - With spool out
(positioner kit type 17)

Spherical end type T

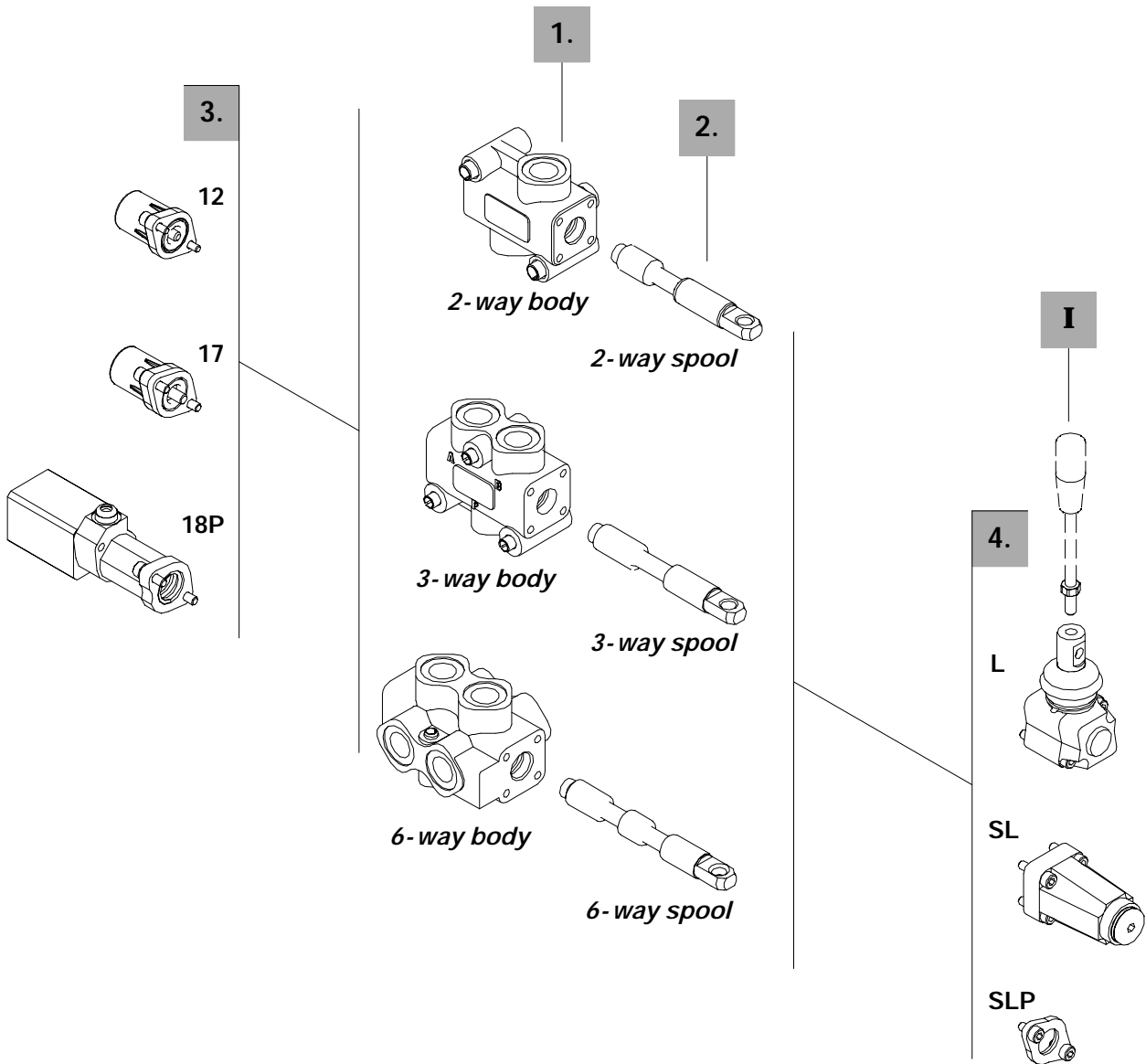


Rotary cam prearrangement



Ordering codes

Description example:



2-way

1. Body kit *

TYPE	BODY	DESCRIPTION
DF5/2	5CO2220300	Standard body kit, BSP threaded

Include body and seals

2. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS105210	2 positions with open centre in neutral
B	3CAS105110	2 positions with closed centre in neutral
AT	3CAS105230	As type A with spherical end
BT	3CAS105130	As type B with spherical end
AC	3CAS105220	As type A prearranged for cam control
BC	3CAS105120	As type B prearranged for cam control

3-way

1. Body kit *

TYPE	CODE	DESCRIPTION
DF5/3	5CO2221300	Standard body kit, BSP threaded

Include body and seal

2. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS105310	3-way, 2 positions with ports connected in transit position
B	3CAS105410	3-way, 2 positions with ports closed in transit position
AT	3CAS105330	As type A with spherical end
AC	3CAS105320	As type A prearranged for cam control
BC	3CAS105420	As type B prearranged for cam control

6-way

1. Body kit *

TYPE	CODE	DESCRIPTION
DF5/6	5CO2222300	Standard body kit, BSP threaded

Include body and seals

2. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS105610	6-way, 2 positions with ports connected in transit position
B	3CAS105710	6-way, 2 positions with ports closed in transit position
AC	3CAS105620	As type A prearranged for cam control
BC	3CAS105720	As type B prearranged for cam control

3. Positioner kits

page 14

TYPE	CODE	DESCRIPTION
12	5V12105000	Detent in positions 1 and 2
17	5V17105000	Spring return in position 1
17Y	5V17105010	As type 17, it must be coupled to IA2 control
18ME	5V18405110	Spring return in position 2
18P	5V18105700	ON/OFF pneumatic kit with spring return in position 2
18IA1	5V18105820*	ON/OFF high pressure hydraulic kit with spring return in position 2

4. Control kits

page 16

TYPE	CODE	DESCRIPTION
SLP	5COP105000	Without lever box with dust-proof plate kit
SLC	5COP205000	Without lever box with endcap
TQ	5TEL105110	Flexible cable connection
L	5LEV105000	Standard kever box
IA2	5IDR505000*	ON/OFF high pressure kit
CB	5CAM105020	Cam kit

I Optional handlever

TYPE	CODE	DESCRIPTION
AL01/M8x120	170011012	For lever L: height 120 mm / 4.72 in

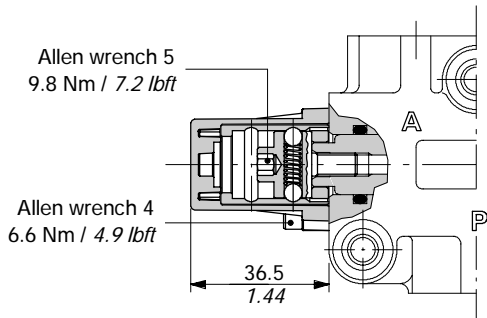
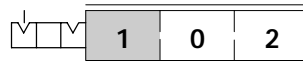
NOTE (*) - Codes are referred to **BSP** thread.

Positioner kits

With detent

12 kit

Detent in positions 1 and 2.



Operating features

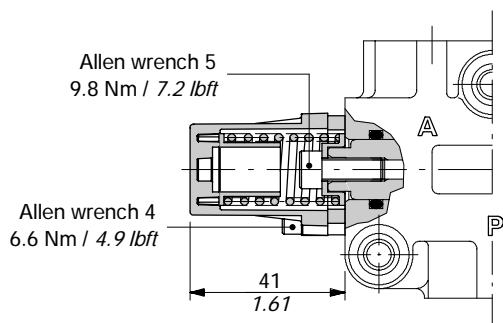
Locking and unlocking force 100 N / 22.5 lbf ±10%

With spring return

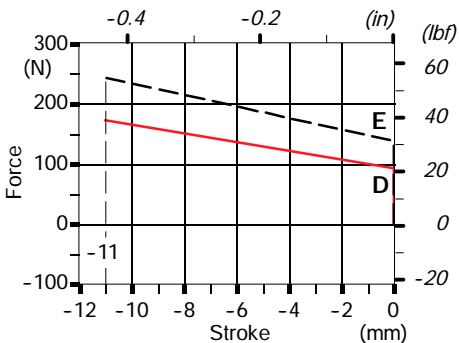
17 kit

Spring return in position 1; it's supplied with standard spring type D (see force-stroke diagram).

Available also with heavier spring type E (17ME code 5V17305000)



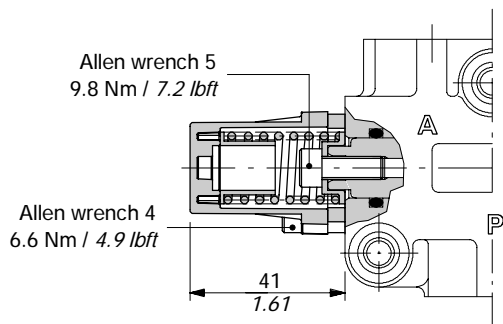
Force-Stroke diagram



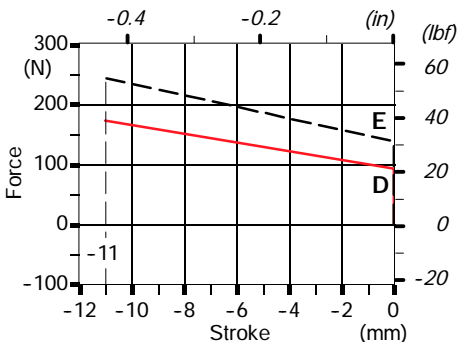
Kit 17Y

As kit 17, it must be coupled to IA2 control on page 17

It's available also with heavier spring type E (17YME code: 5V17305003).



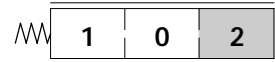
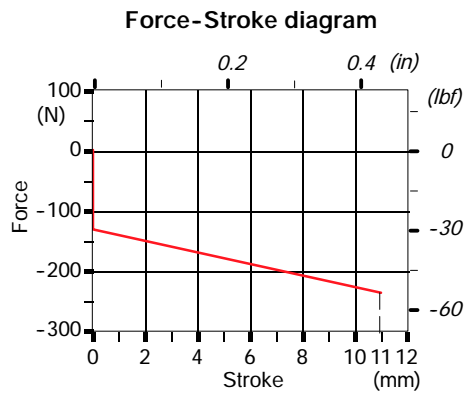
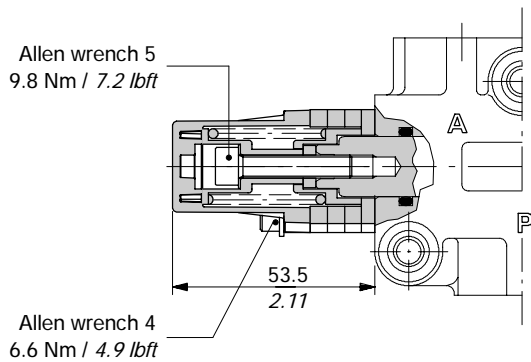
Force-Stroke diagram



With spring return

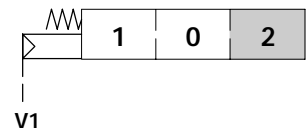
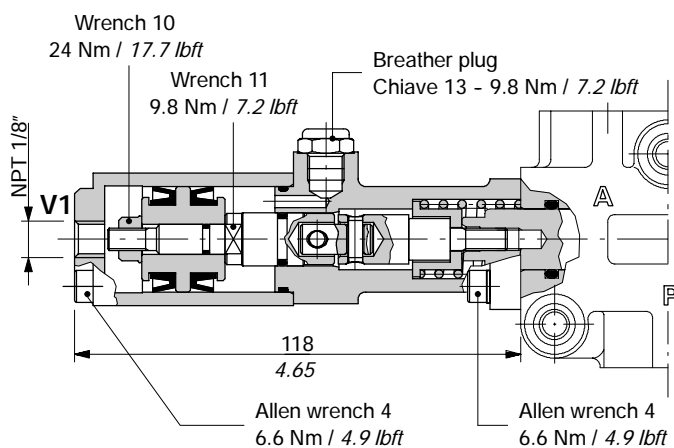
18ME kit

Spring return in position 2.



18P: ON/OFF pneumatic kit

With spring return in position 2.

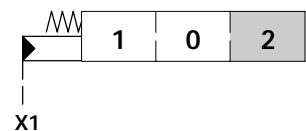
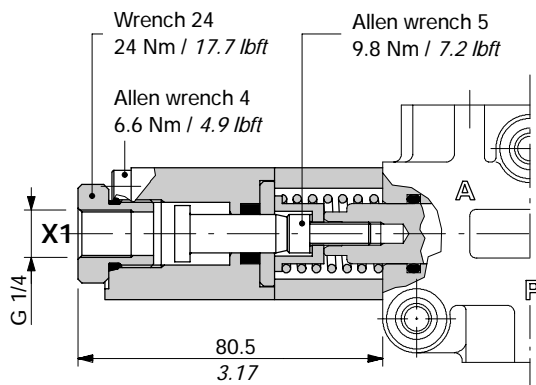


Operating features

Pilot pressure : min 6 bar / 87 psi
max. 10 bar / 145 psi

18IA1: ON/OFF hydraulic kit

With high pressure pilot and spring return to position 2.



Operating features

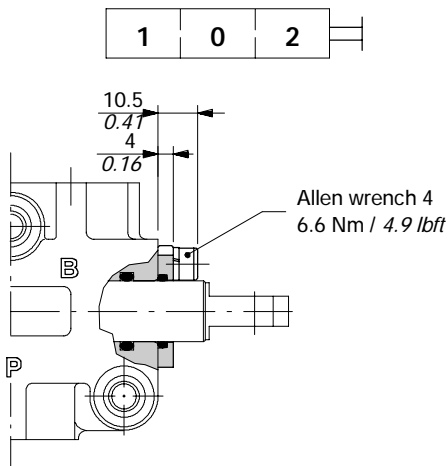
Pilot pressure : min. 30 bar / 435 psi
max. 250 bar / 3600 psi

Control kits

Controls prearrangement

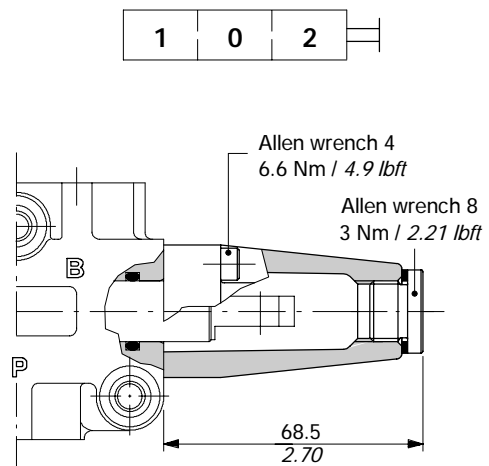
SLP kit

Mechanical control with dust-proof plate.



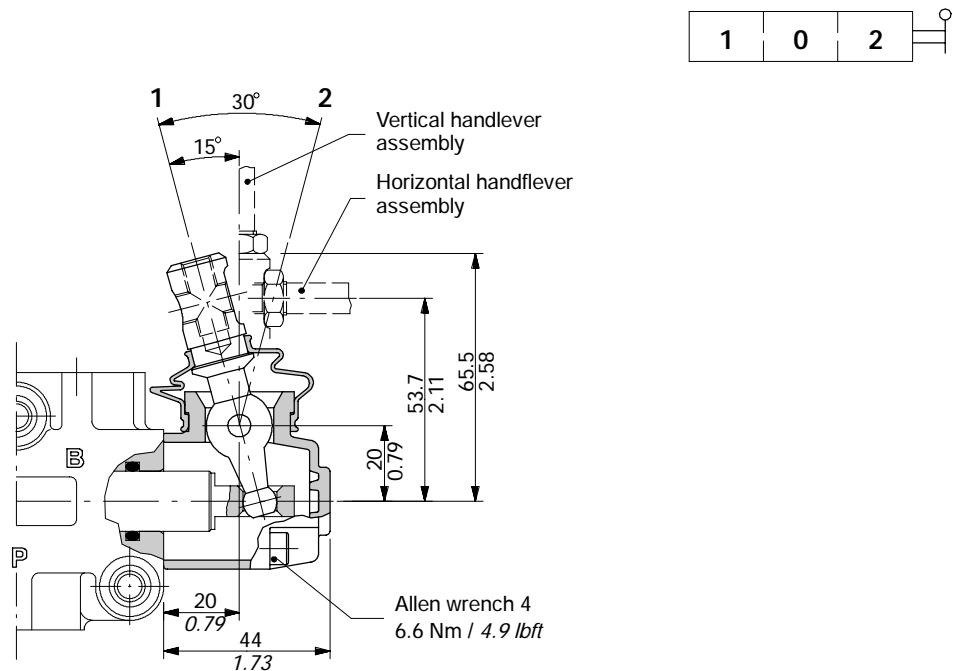
SLC kit

Protection cap usable with pneumatic and hydraulic spool positioner kits.



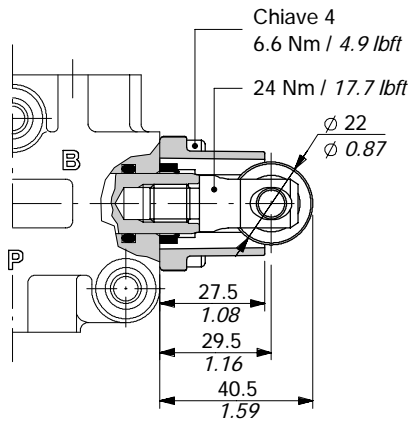
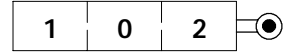
L lever control

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



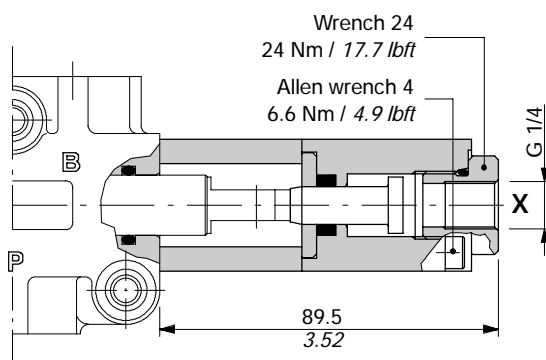
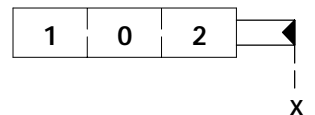
CB cam control

With bronze bearing; it must be coupled to 17 kit.



IA2: ON/OFF hydraulic control

With high pressure pilot; it must be coupled to 17Y kit (see page 14).



Operating features

Pilot pressure : min. 30 bar / 435 psi
max. 250 bar / 3600 psi

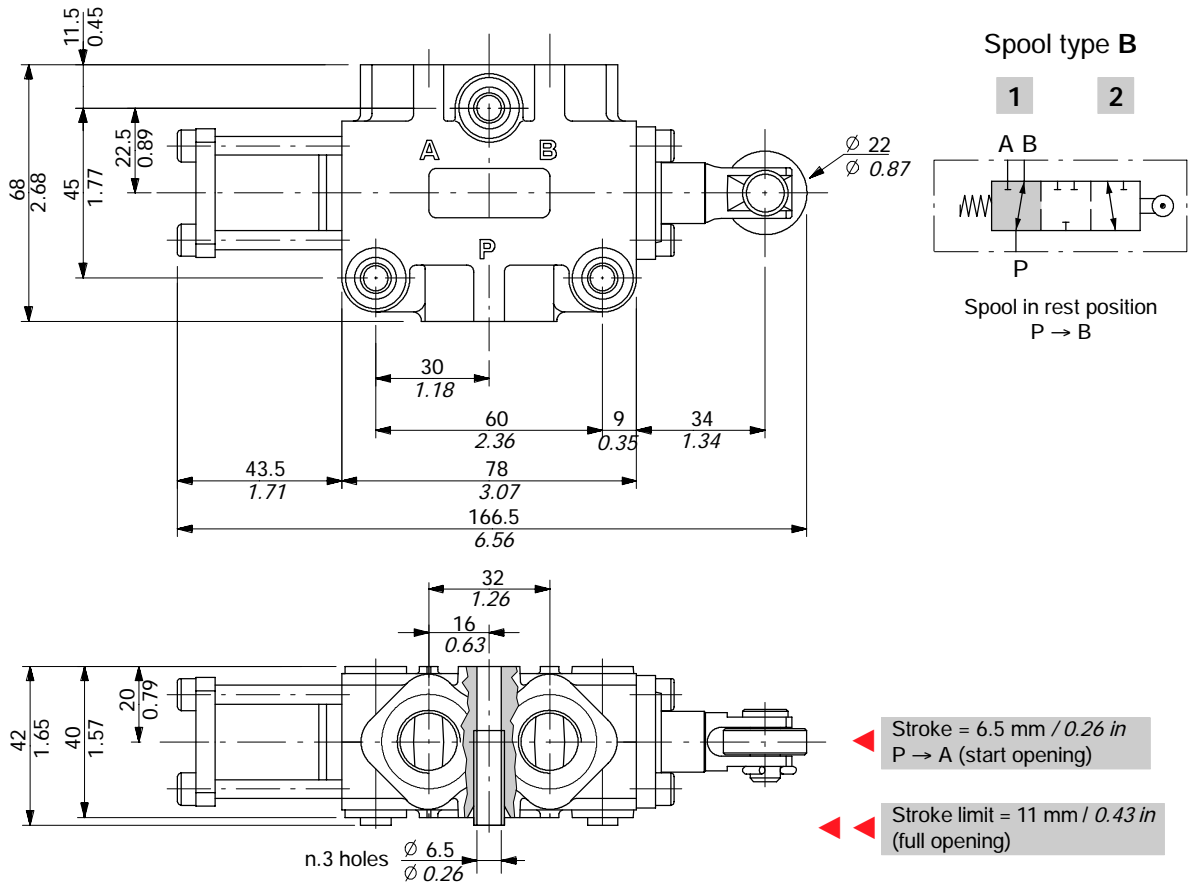
Other executions

Cam spool control suggested for severe applications; it requires a special body, spool and control kit.

3-way DFC050/3 valve

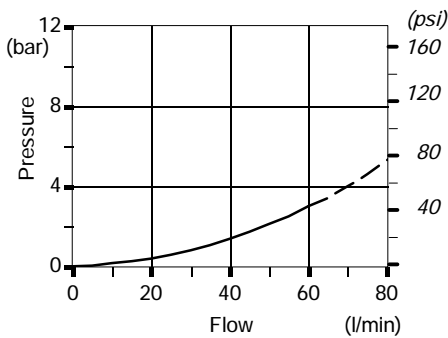
Complete description: DFC050/3B17GSLP-<CVN> code: 122050023

Valve is supplied painted as standard, with one coat of Primer black antirust paint

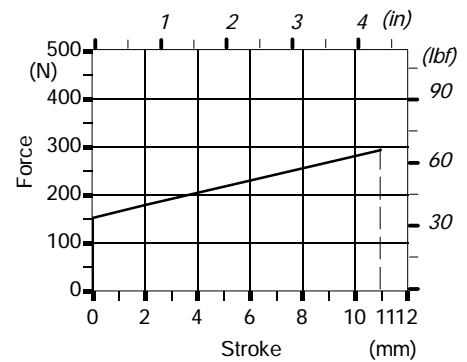


Performance data

Pressure drop versus flow
P→A(B)



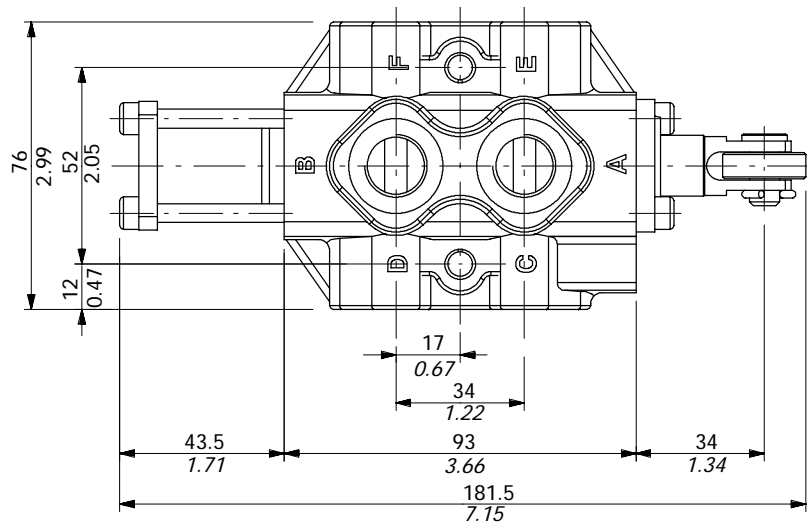
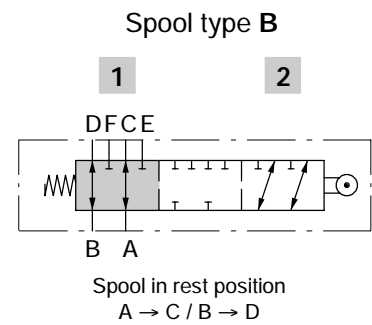
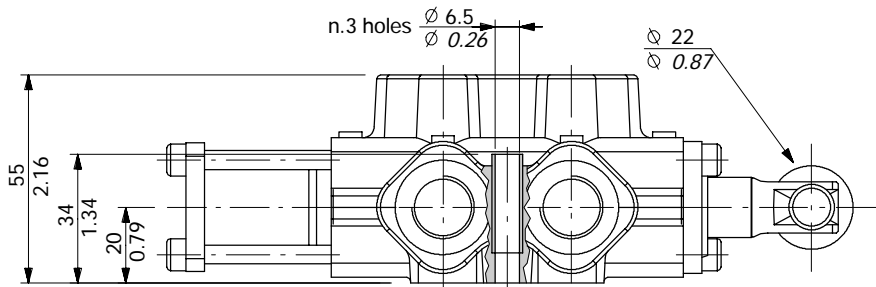
Operating force



6-way DFC050/6 valve

Complete description: DFC050/6B17GSLP-<CVN> code: 122080018

Valve is supplied painted as standard, with one coat of Primer black antirust paint

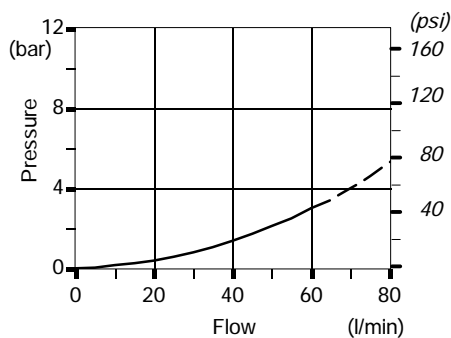


- ◀ Stroke = 6.8 mm / 0.27 in
A → E / B → F (start opening)
- ◀◀ Stroke limit = 11 mm / 0.43 in
(full opening)

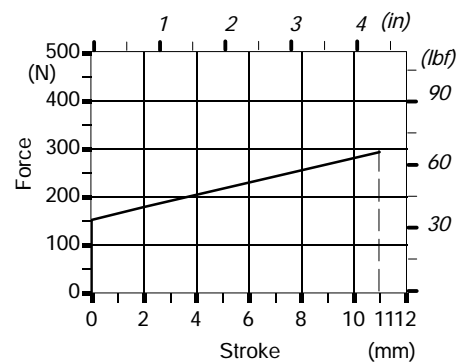
Performance data

Pressure drop versus flow

P→A(B)

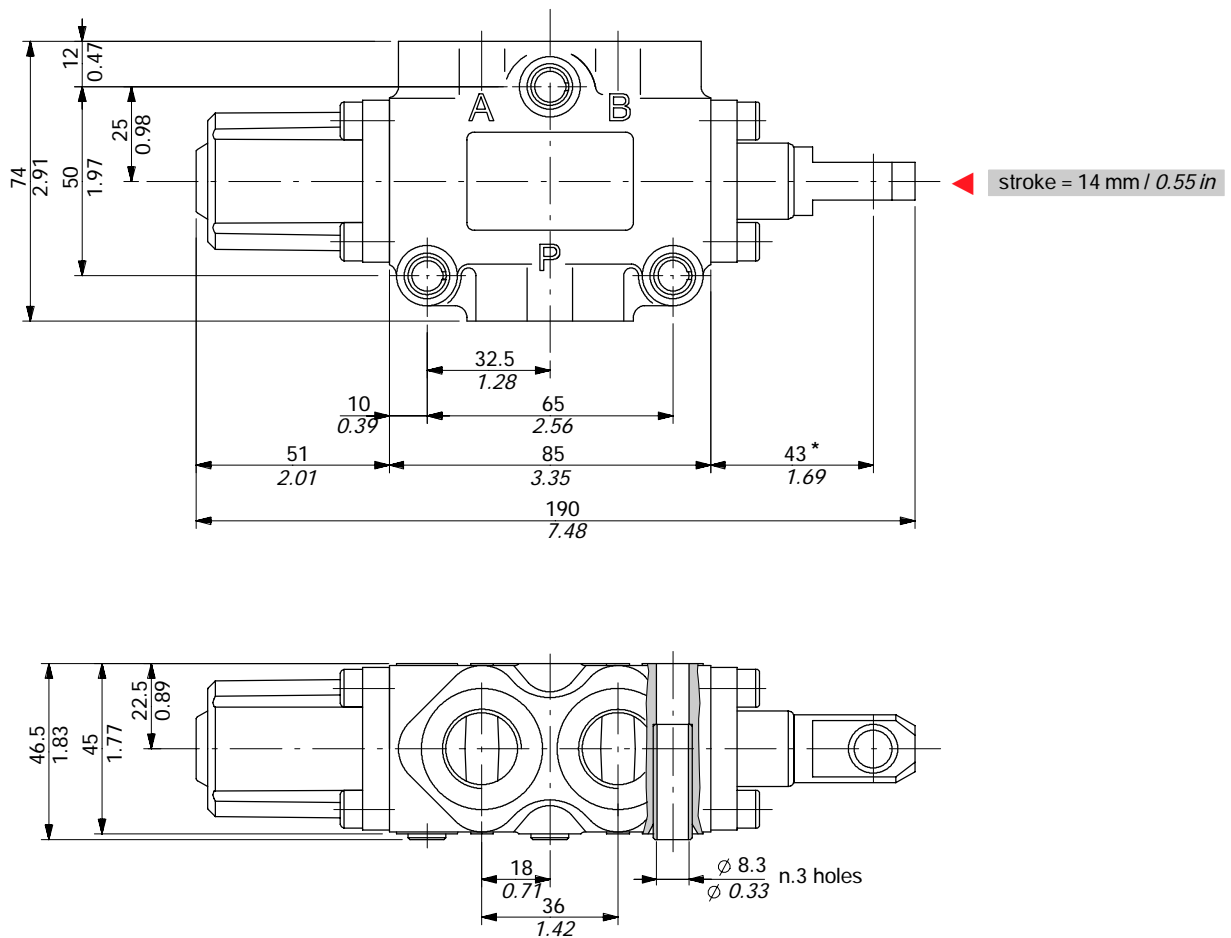


Operating force

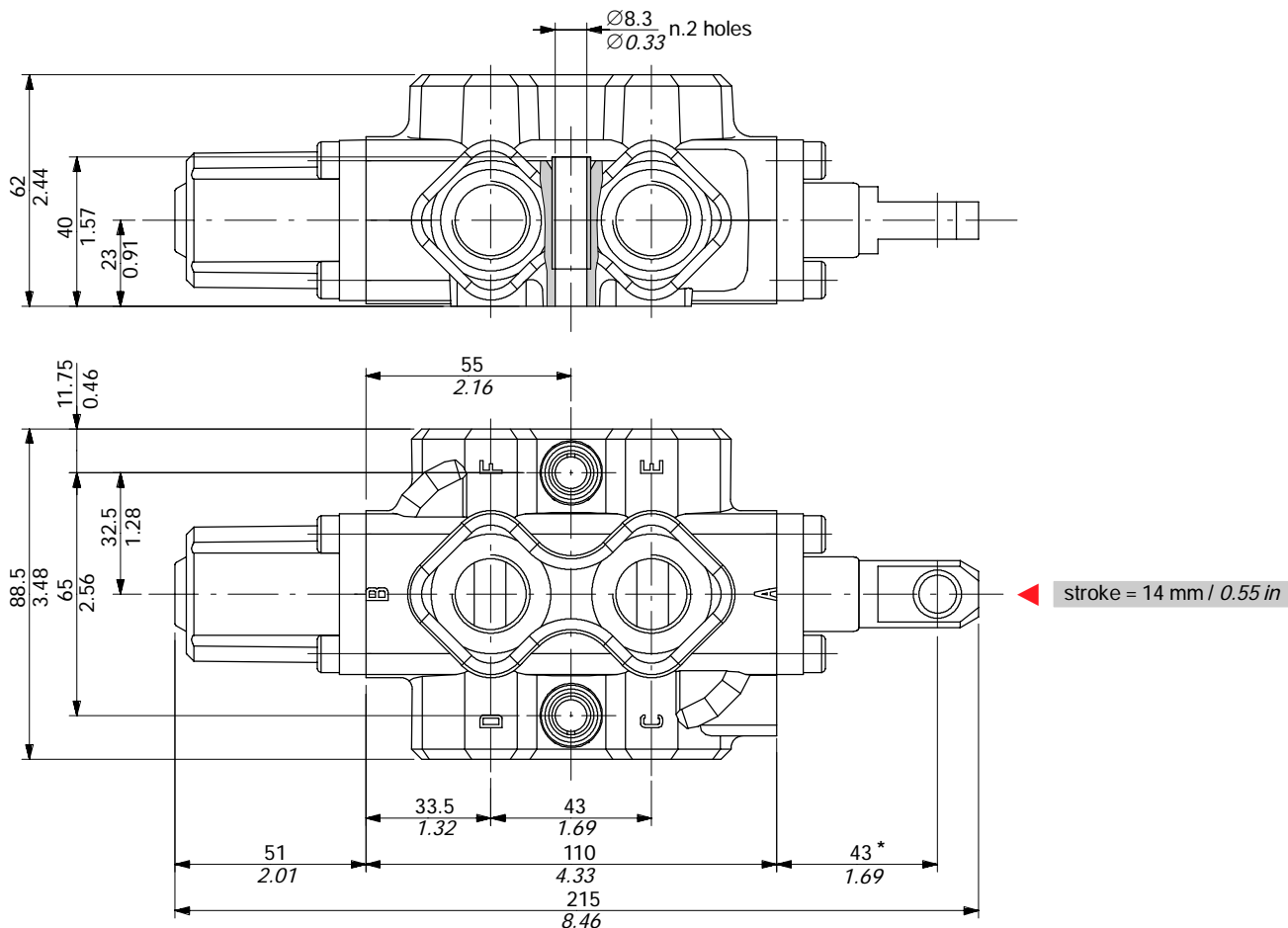


Dimensional data

3-way DF10/3 valve

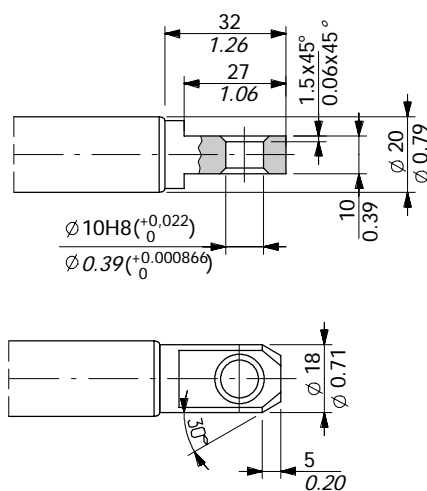


6-way DF10/6 valve



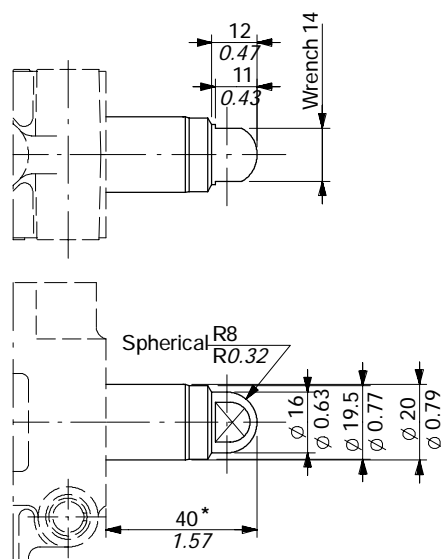
Spool end

Standard end

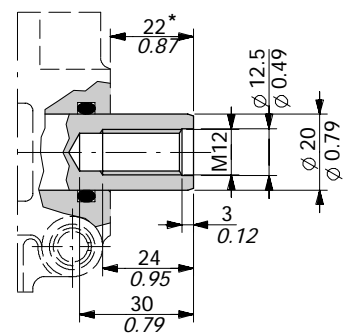


NOTE (*) - With spool out
(positioner kit type 17)

Spherical end type T



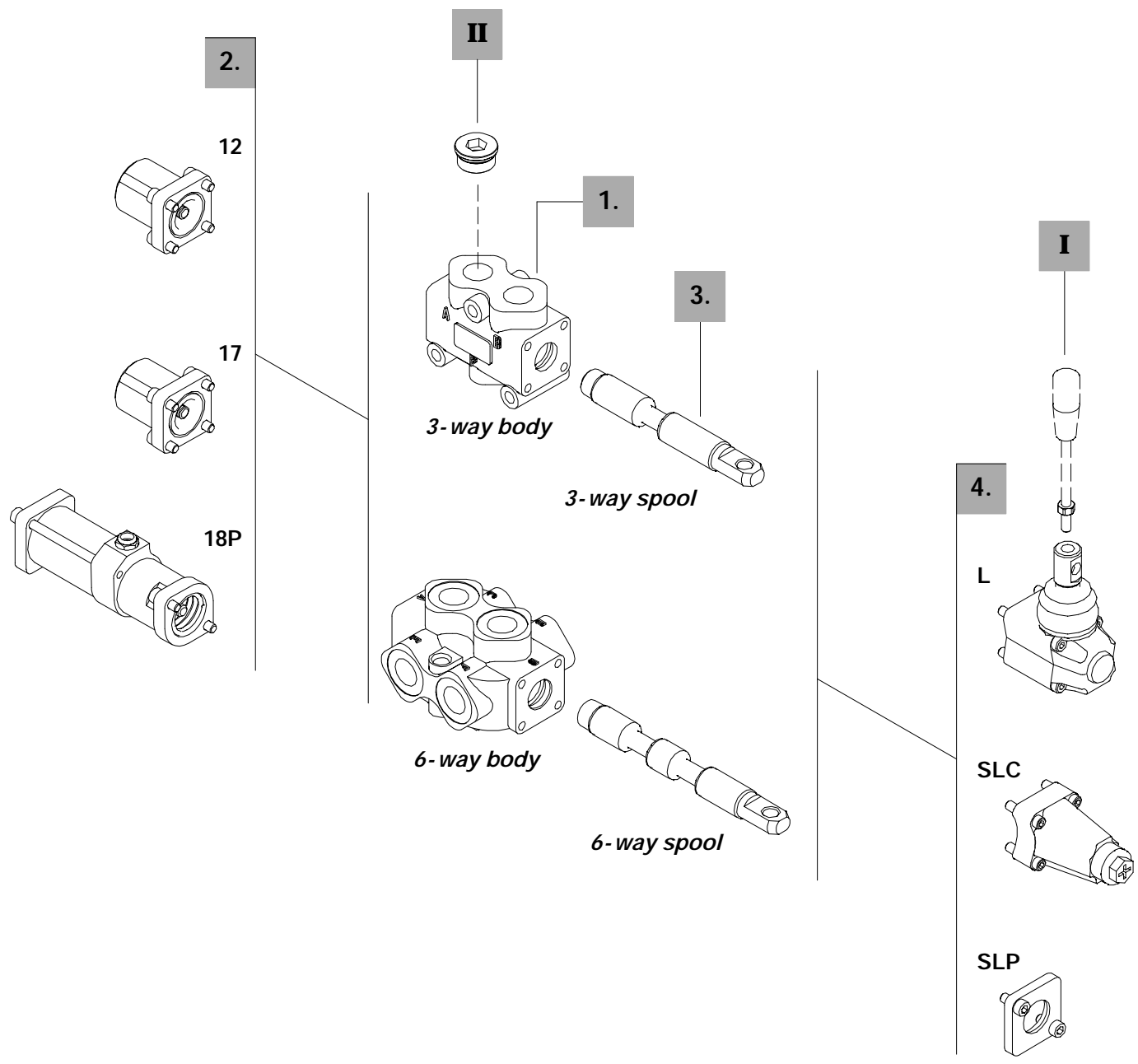
Rotary cam prearrangement



Ordering codes

Description example:

Diverter valve DF10/3 A 17 SLP
 1. 3. 2. 4.



3-way**1. body kit ***

TYPE	CODE	DESCRIPTION
DF10/3	5CO2241300	Standard body kit, BSP threaded

Include body and seals

3. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS110310	3-way, 2 positions with ports connected in transit position
B	3CAS110410	3-way, 2 positions with ports closed in transit position
AT	3CAS110330	As type A with spherical end
AC	3CAS110320	As type A prearranged for cam control
BC	3CAS110420	As type B prearranged for cam control

6-way**1. Body kit ***

TYPE	CODE	DESCRIPTION
DF10/6	5CO2242300	Standard body kit, BSP threaded

Include body and seals

3. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS110610	6-way, 2 positions with ports connected in transit positions
B	3CAS110710	6-way, 2 positions with ports closed in transit positions
AC	3CAS110620	As type A prearranged for cam control
BC	3CAS110720	As type B prearranged for cam control

2. Positioner kits*page 24*

TYPE	CODE	DESCRIPTION
12	5V12110000	Detent in positions 1 and 2
17	5V17110000	Spring return in position 1
18	5V18110000	Spring return in position 2
18P	5V18110710	ON/OFF pneumatic kit with spring return in position 2
18IA1	5V18110821*	ON/OFF high pressure hydraulic kit with spring return in position 2

4. Control kits*page 26*

TYPE	CODE	DESCRIPTION
SLP	5COP110000	Without lever box with dust-proof plate kit
SLC	5COP210000	Without lever box with endcap
L	5LEV110000	Standard lever box
IA2	5IDR510001*	ON/OFF high pressure kit
CB	5CAM110020	Cam kit

I Optional handlever

TYPE	CODE	DESCRIPTION
AL01/M10x200	170012020	For lever L, height 200 mm / 7.87 in

II Ports plug

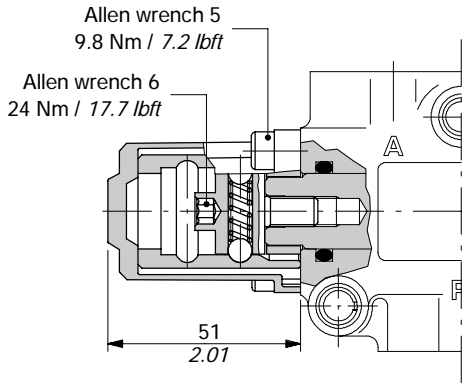
TYPE	CODE	DESCRIPTION
G1/2	3XTAP727180*	Body conversion from 3-way to 2-way circuit

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

Positioner kits

12 kit: with detent

Detent in positions 1 and 2.



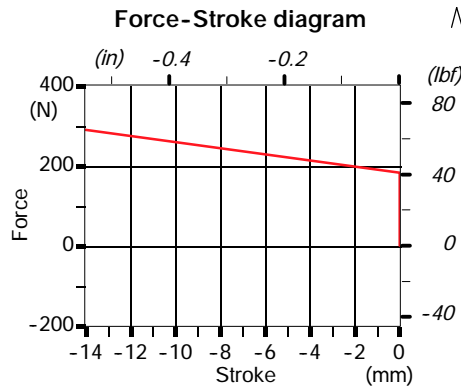
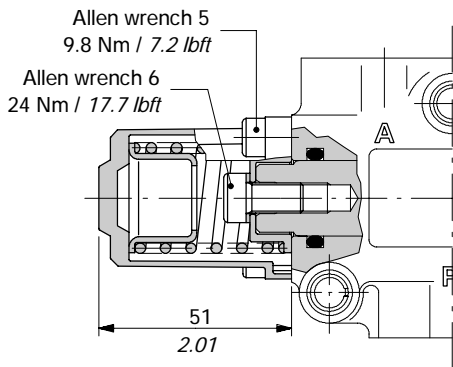
Operating features

Locking and unlocking force : ±10%

With spring return

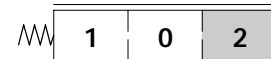
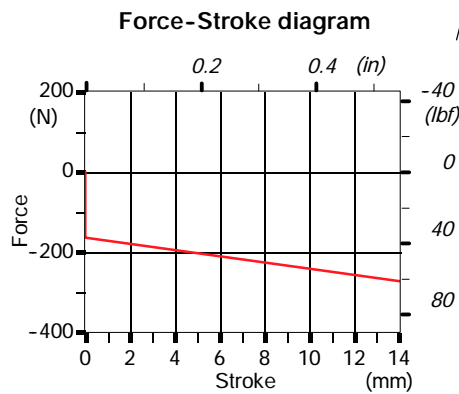
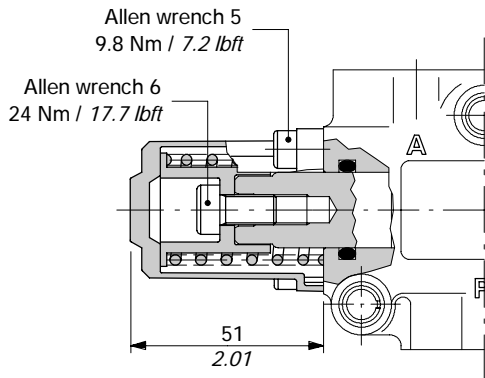
17 kit

Spring return in position 1.



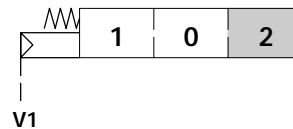
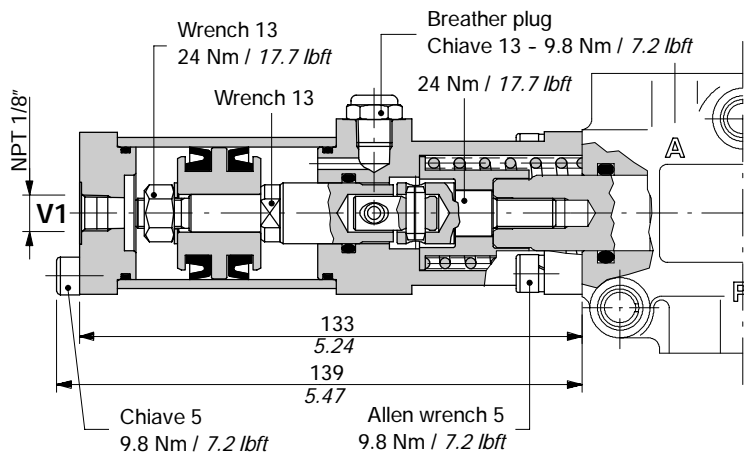
18 kit

Spring return in position 2.



18P: ON/OFF pneumatic kit

With spring return in position 2.

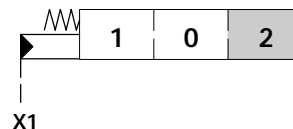
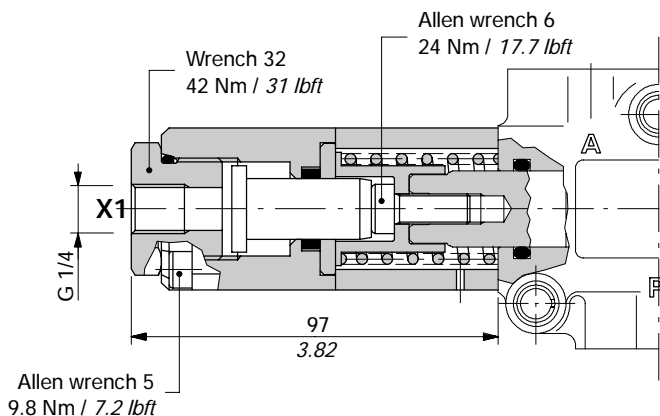


Operating features

Pilot pressure : min. 6 bar / 87 psi
 max. 10 bar / 145 psi

18IA1: ON/OFF hydraulic kit

With high pressure pilot and spring return to position 2.



Operating features

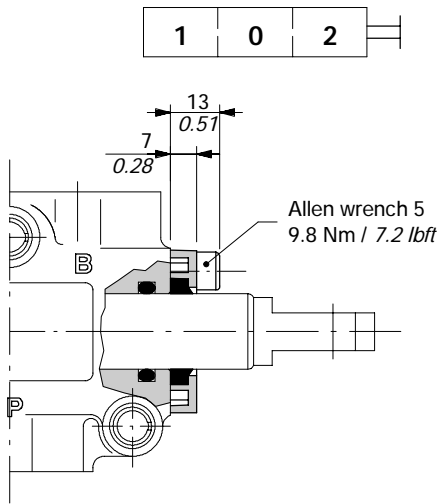
Pilot pressure : min. 30 bar / 435 psi
 max. 250 bar / 3600 psi

Control kits

Controls prearrangement

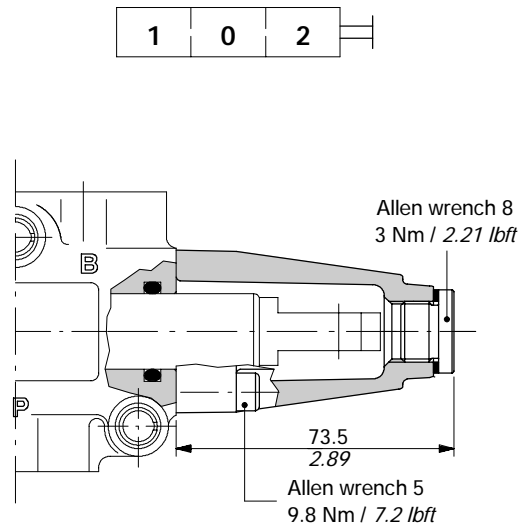
SLP kit

Mechanical control with dust-proof plate.



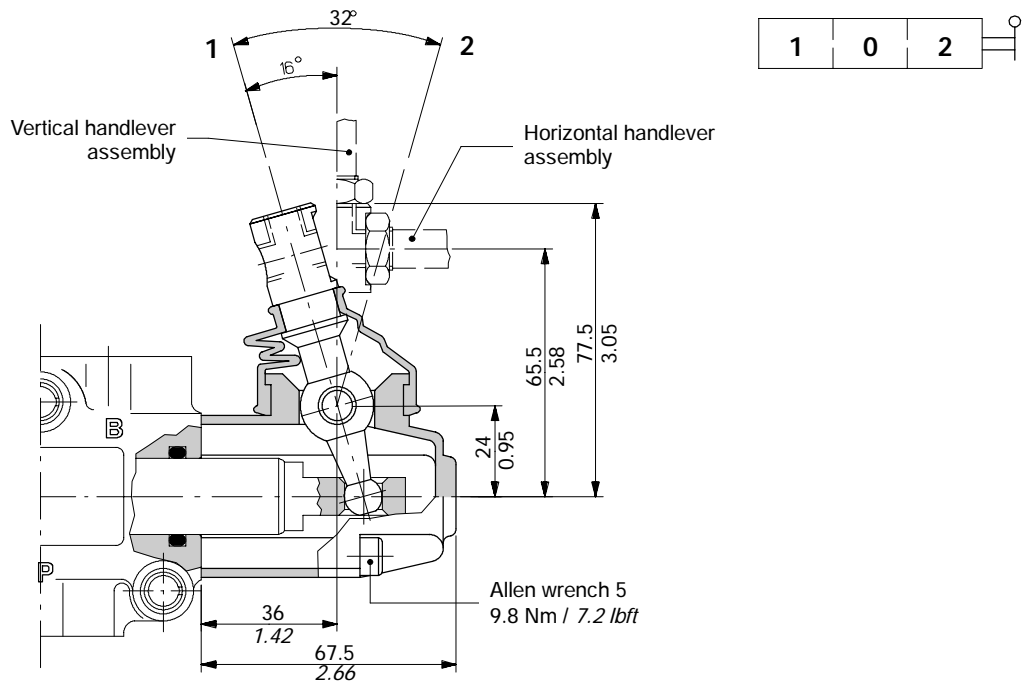
SLC kit

Protection cap usable with pneumatic and hydraulic spool positioner kits.



L lever control

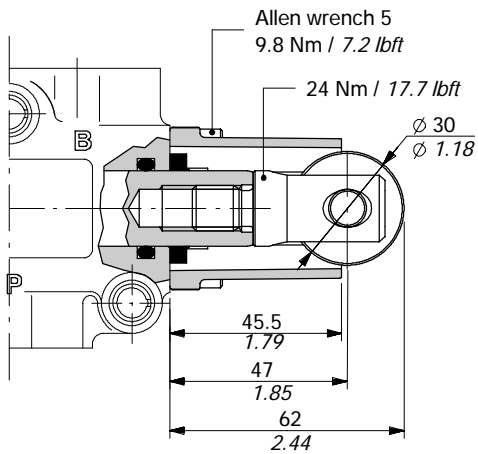
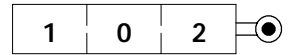
Alumium with protection boot lever pivot box; it can be rotated 180° (execution L180).



Control kits

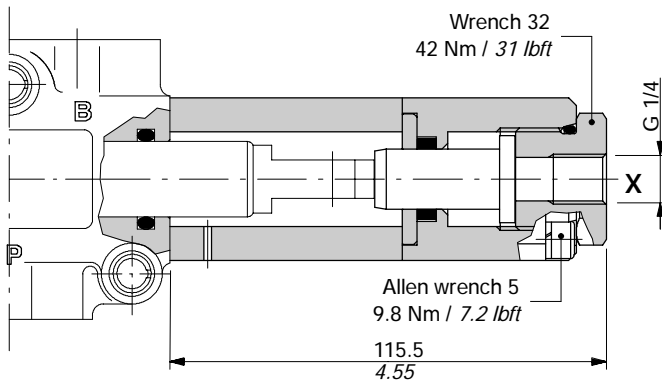
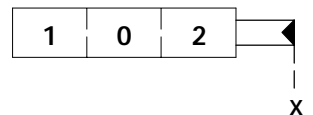
CB cam control

With bronze bearing; it must be coupled to 17 kit.



IA2: ON/OFF hydraulic control

With high pressure pilot; it must be coupled to 17 kit.



Operating features

Pilot pressure : min. 30 bar / 435 psi
 max. 250 bar / 3600 psi

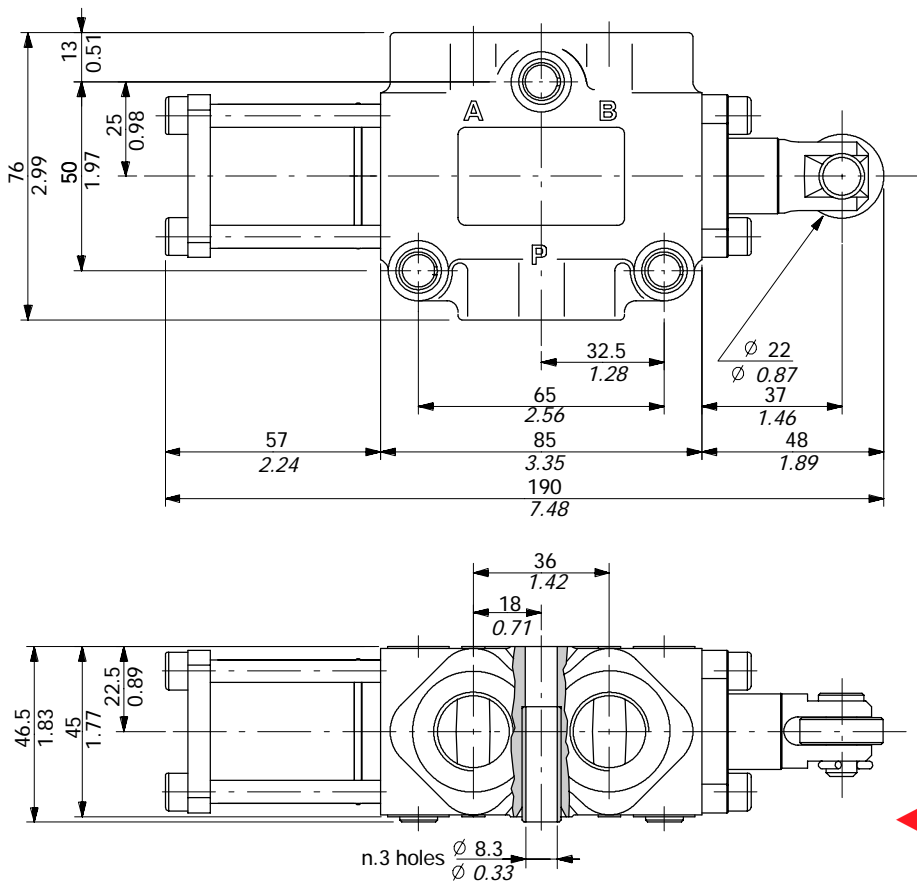
Other executions

Cam spool control suggested for severe applications; it requires a special body, spool and control kit.

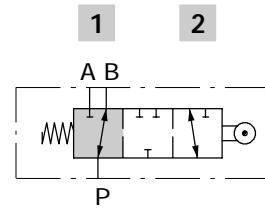
3-way DFC100/3 valve

Complete description: DFC100/3B17GSLP-<CVN> code: 124050016

Valve is supplied painted as standard, with one coat of Primer black antirust paint



Spool type B



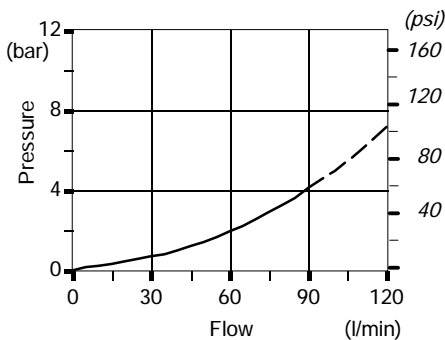
Spool in rest position
P → B

Stroke = 8.5 mm / 0.33 in
P → A (start opening)

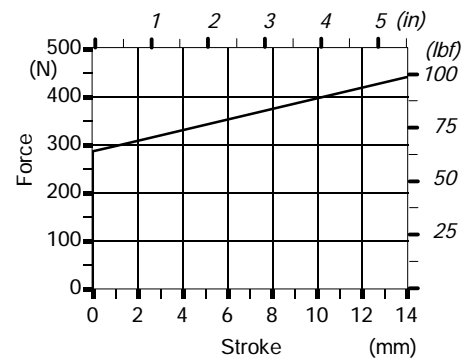
Stroke limit = 14 mm / 0.55 in
(full opening)

Performance data

Pressure drop versus flow
P → A(B)



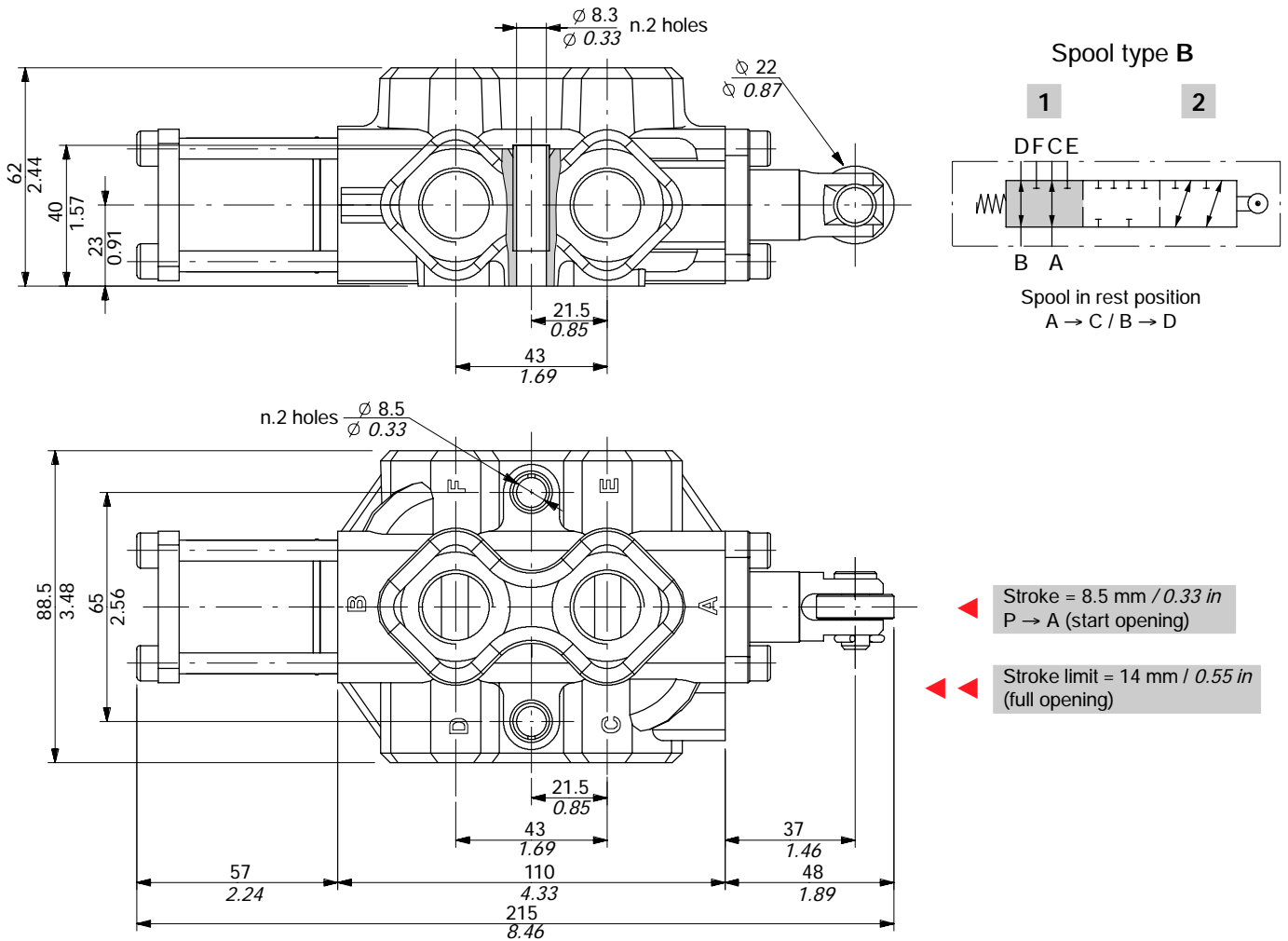
Operating force



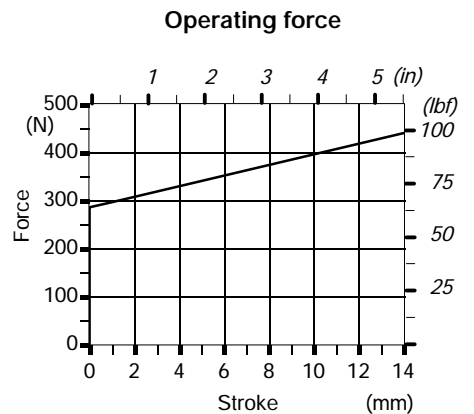
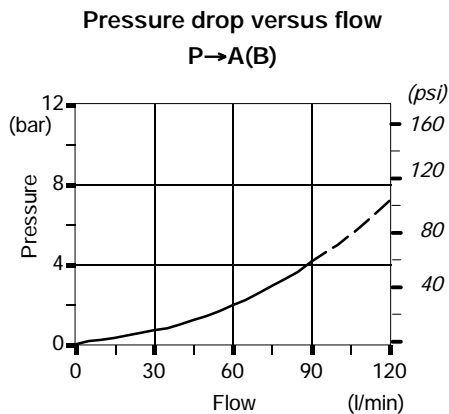
6-way DFC100/6 valve

Complete description: DFC100/6B17GSLP-<CVN> code: 124080013

Valve is supplied painted as standard, with one coat of Primer black antirust paint

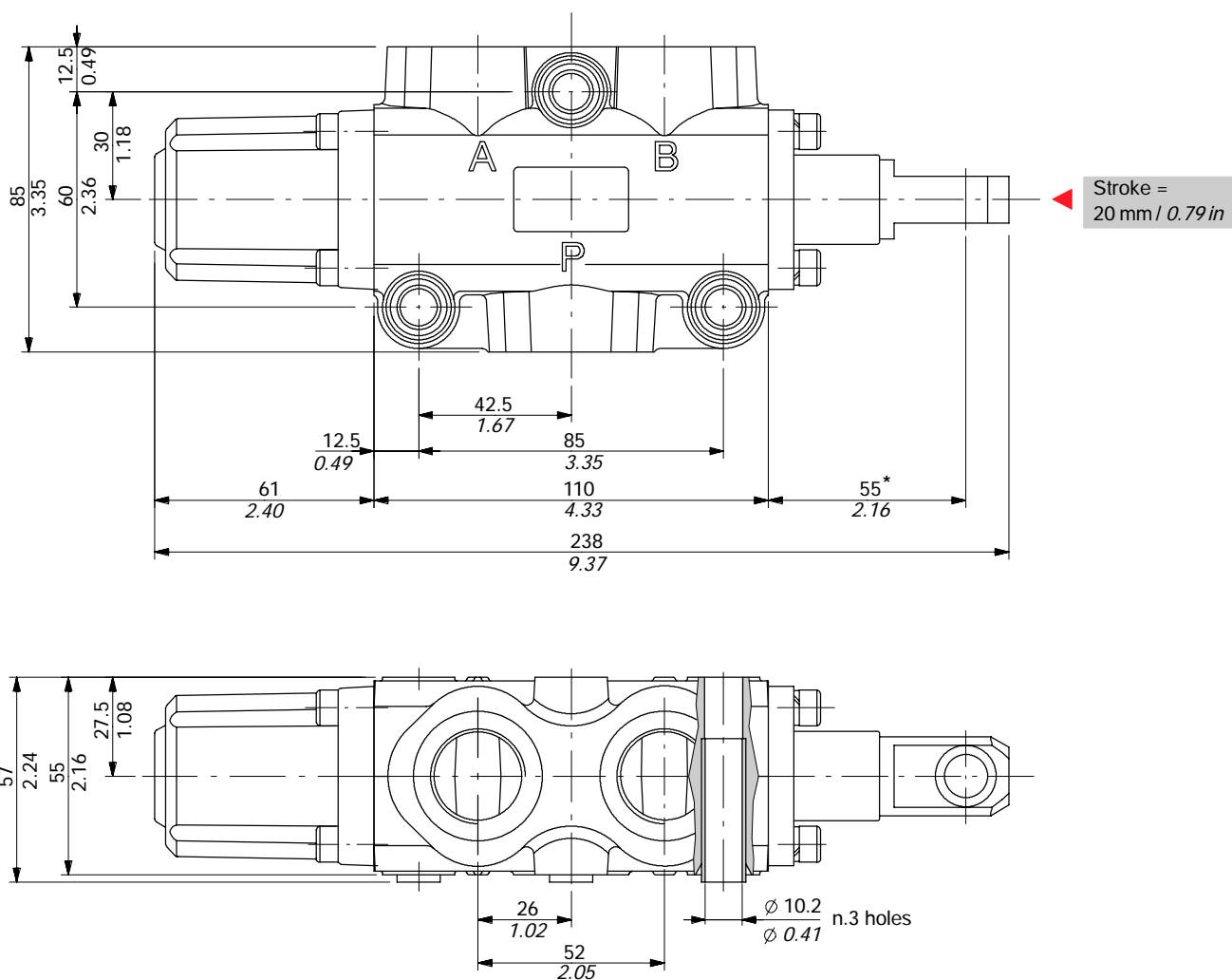


Performance data

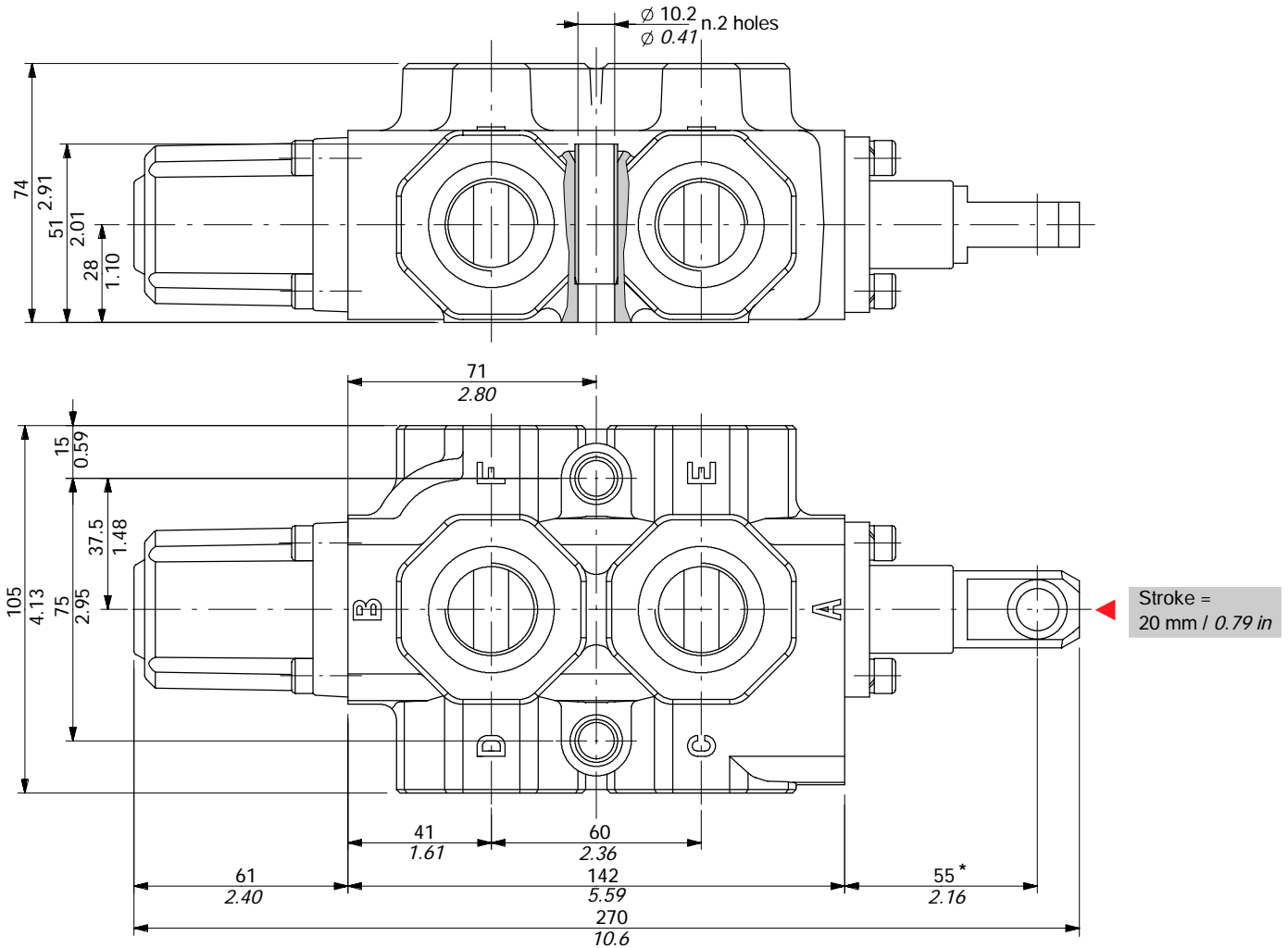


Dimensional data

3-way DF20/3 valve

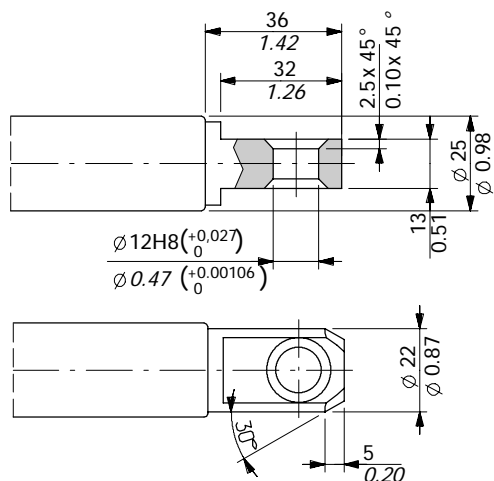


6-way DF20/6 valve

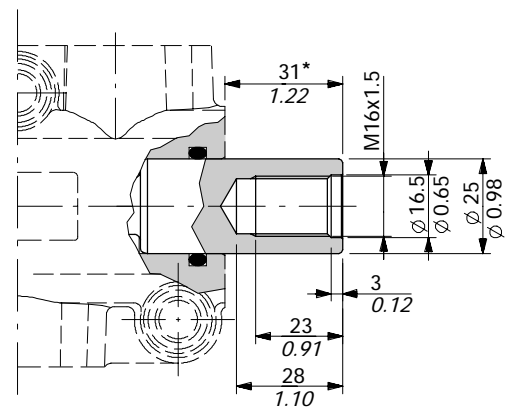


Spool end

Standard end



Rotary cam prearrangement



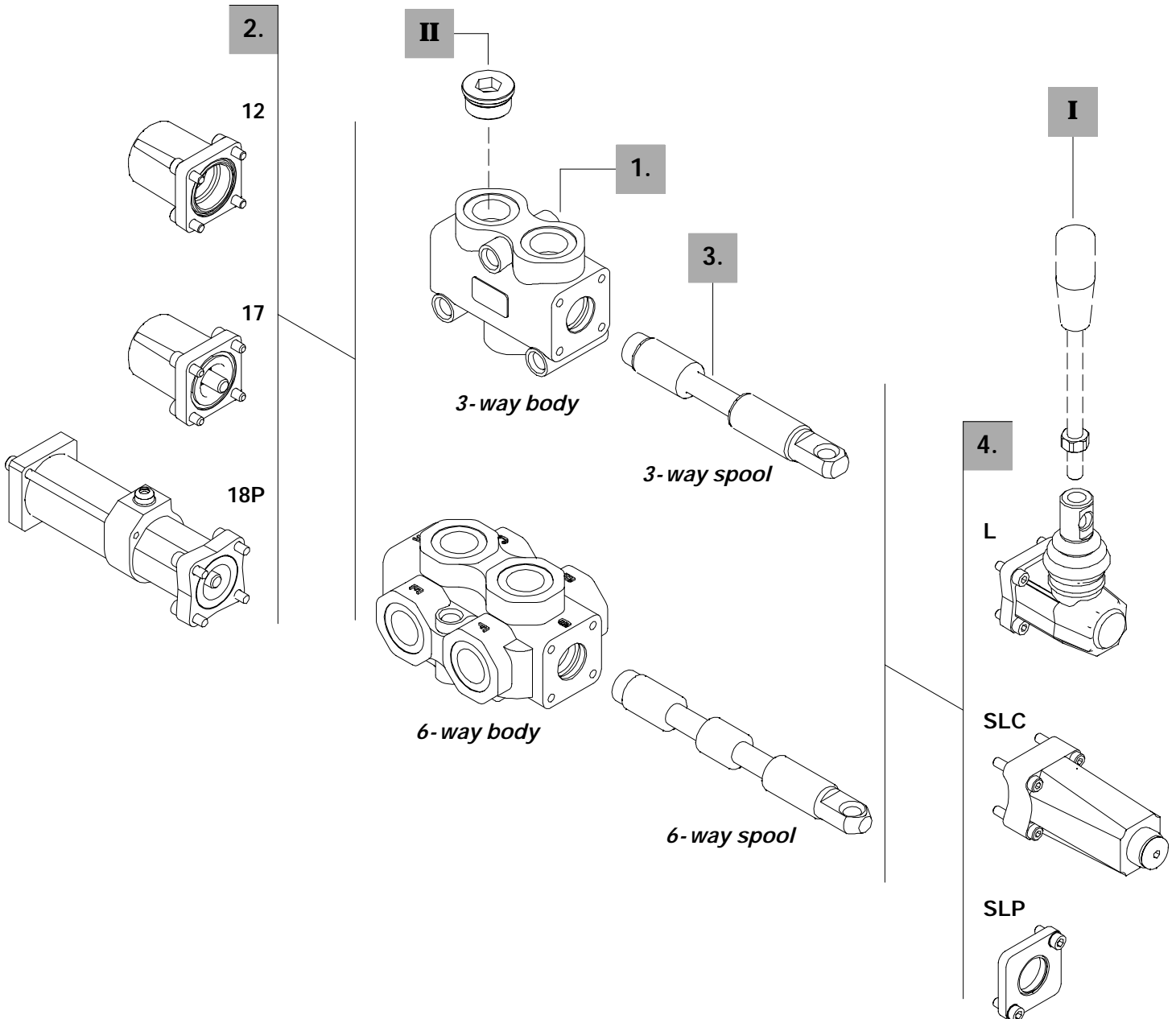
NOTA (*) - With spool out (positioner kit type 17)

Ordering codes

Description example:

Diverter valve DF20/3 A 17 SLP

- 1.
- 2.
- 3.
- 4.



3-way**1. Body kit ***

TYPE	CODE	DESCRIPTION
DF20/3	5CO2261300	Standard body kit, BSP threaded

Include body and seals

2. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS120310	3-way, 2 positions with ports connected in transit position
B	3CAS120410	3-way, 2 positions with ports closed in transit position
AC	3CAS120320	As type A prearranged for cam control
BC	3CAS120420	As type B prearranged for cam control

6-way**1. Body kit ***

TYPE	CODE	DESCRIPTION
DF20/6	5CO2262300	Standard body kit, BSP threaded

Include body and seals

2. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS120610	6-way, 2 positions with ports connected in transit position
B	3CAS120710	6-way, 2 positions with ports closed in transit position
AC	3CAS120620	As type A prearranged for cam control
BC	3CAS120720	As type B prearranged for cam control

3. Positioner kits*page 34*

TIPO	CODICE	DESCRIZIONE
12	5V12120000	Detent in positions 1 and 2
17	5V17120000	Spring return in position 1
18MB	5V18120000	Spring return in position 2
18P	5V18120700	ON/OFF pneumatic kit with spring return in position 2
18IA1	5V18120820*	ON/OFF high pressure hydraulic kit with spring return in position 2
18E11	5V18120350	12VDC ON/OFF electro-hydraulic kit with spring return in position 2
	5V18120351	24VDC ON/OFF electro-hydraulic kit with spring return in position 2

4. Control kits*page 37*

TYPE	CODE	DESCRIPTION
SLP	5COP120000	Without lever box with dust-proof plate kit
SLC	5COP220000	Without lever box with endcap
L	5LEV120000	Standard lever box
IA2	5IDR520000*	ON/OFF high pressure kit
CB	5CAM120020	Cam kit

I Optional handlever

TYPE	CODE	DESCRIPTION
AL01/M10x200	170013020	For lever L, height 200 mm / 7.87 in

II Ports plug

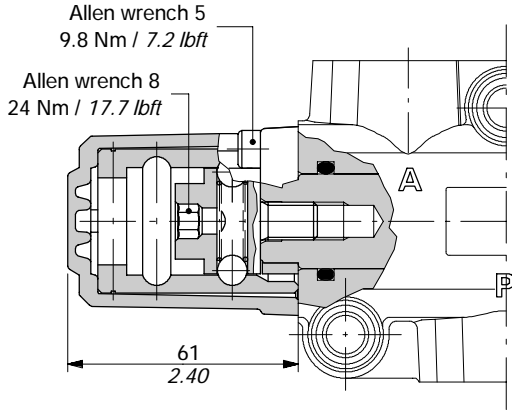
TYPE	CODE	DESCRIPTION
G3/4	3XTAP732200*	Body conversion from 3-way to 2-way circuit

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

Positioner kits

12 kit: with detent

Detent in positions 1 and 2.



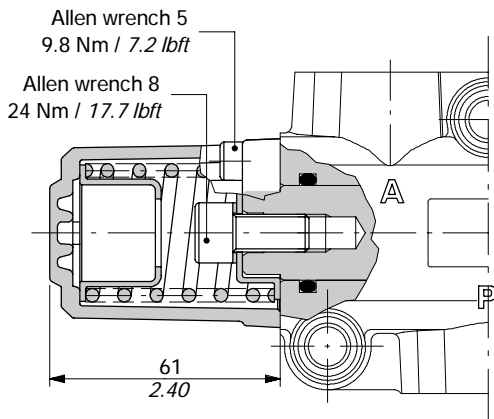
Operating features

Locking and unlocking force : ±10%

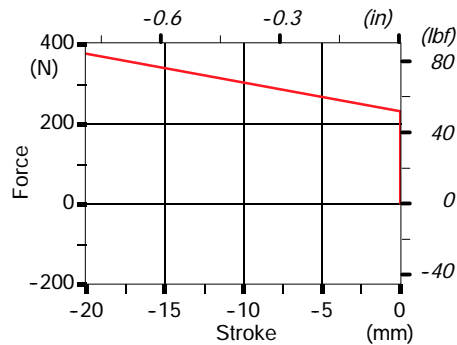
With spring return

17 kit

Spring return in position 1.

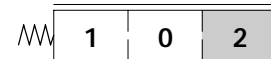
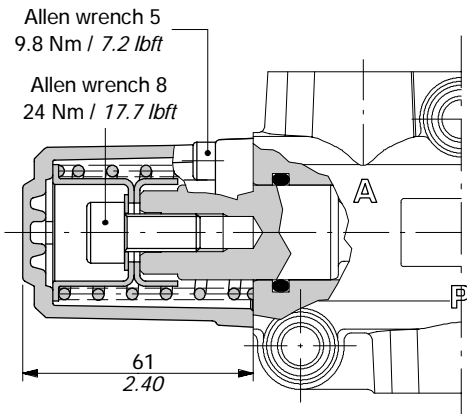


Force-Stroke diagram

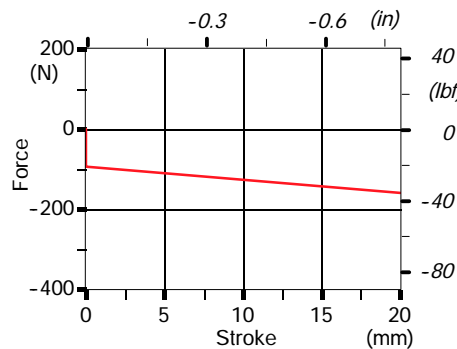


18MB kit

Spring return in position 2.

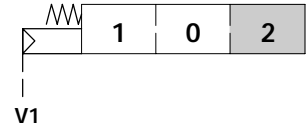
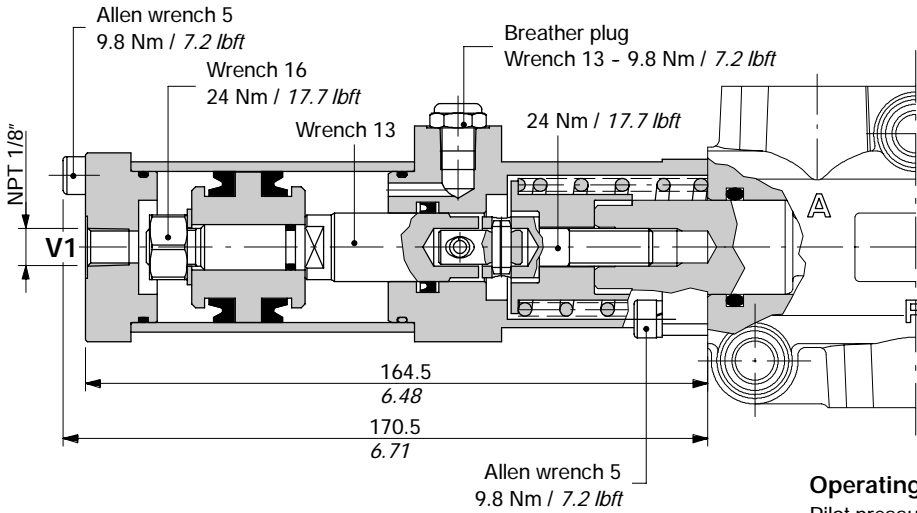


Force-stroke diagram



18P: ON/OFF pneumatic kit

With spring return in position 2.

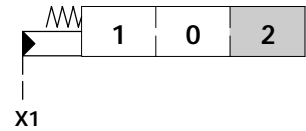
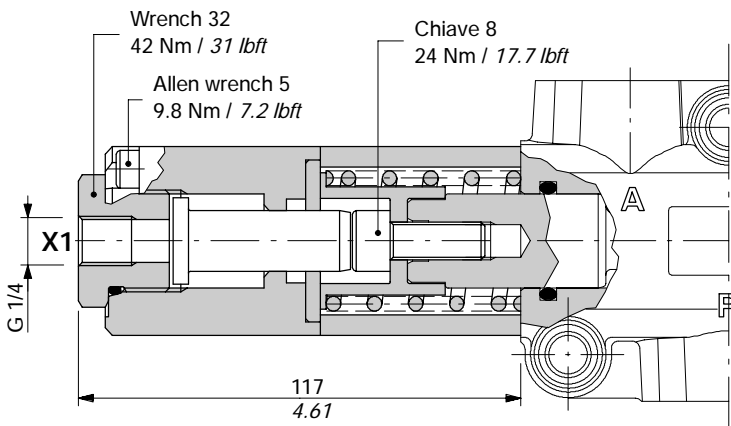


Operating features

Pilot pressure : min. 6 bar / 87 psi
 max. 10 bar / 145 psi

18IA1: ON/OFF hydraulic kit

With high pressure pilot and spring return to position 2.



Operating features

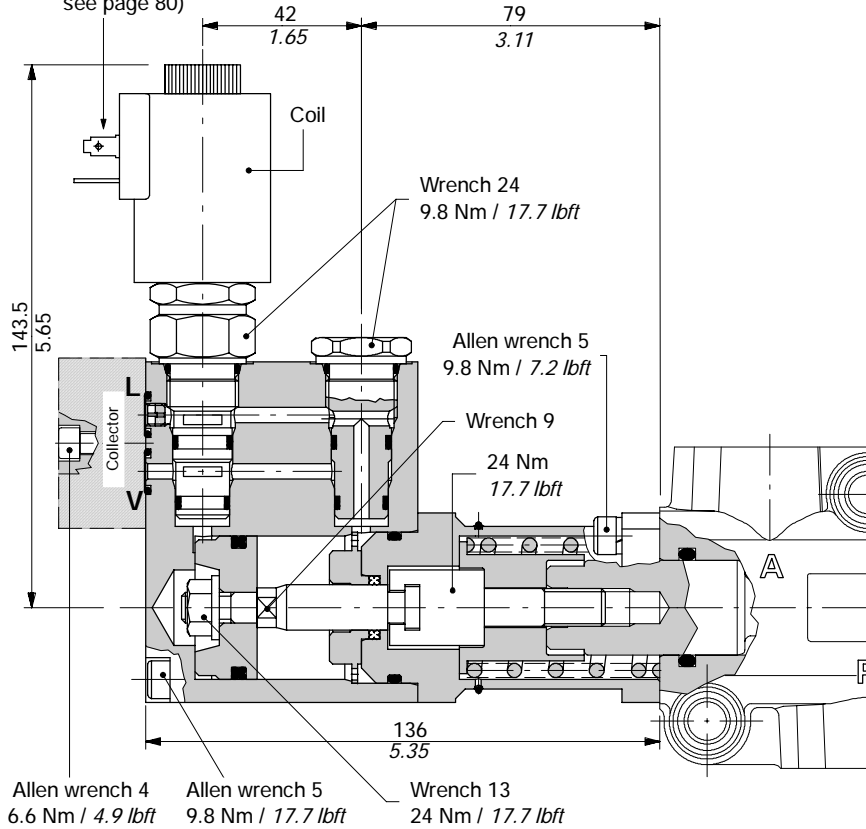
Pilot pressure : min. 30 bar / 435 psi
 max. 250 bar / 3600 psi

Positioner kits

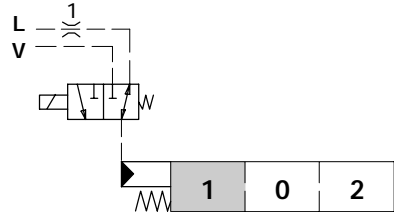
18E11: ON/OFF electro-hydraulic control

External pilot and drain, with spring return in position 2.

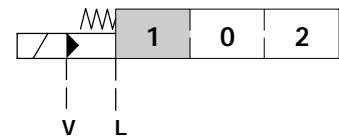
Connection ISO4400
(needs C02 connector,
see page 80)



Scheme



Scheme ISO 1219



Operating features

Pilot pressure : min.10 bar / 145 psi
: max.50 bar / 725 psi

Max. backpressure on
drain port L : 4 bar / 58 psi

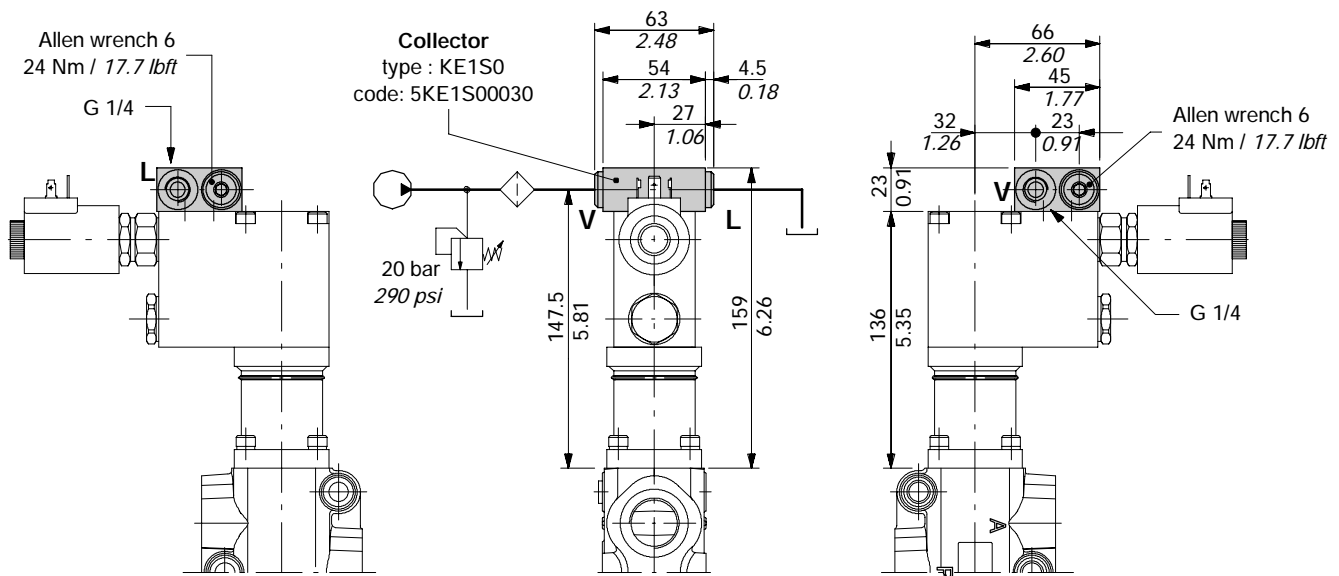
Solenoid operating features

Voltage tolerance : ±10%
Power rating : 21 W
Duty cycle : 100%

Ordering codes

CODE	DESCRIPTION
2S0EJ08002013	3-way solenoid valve
2X4350012	12VDC coil
2X4350024	24VDC coil

Collector kit for external pilot and drain

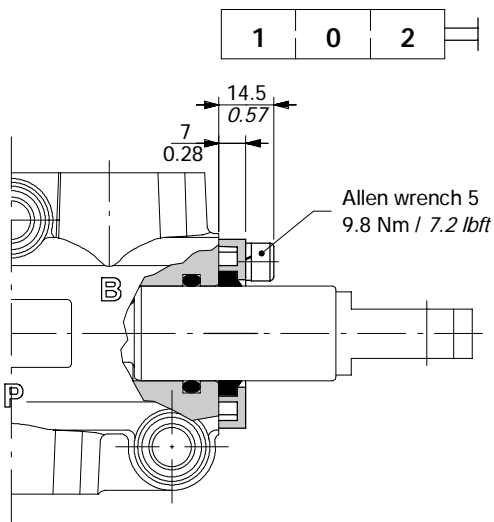


Ex: DF20/3A18E11SLC/KE1S0-12VDC

Controls prearrangement

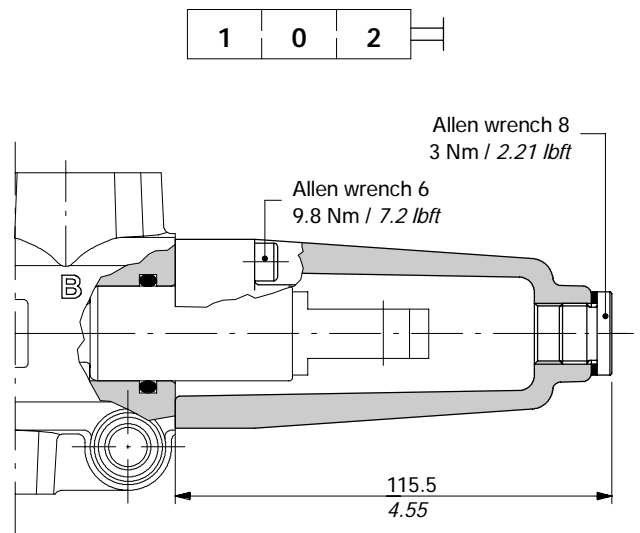
SLP kit

Mechanical control with dust-proof plate.



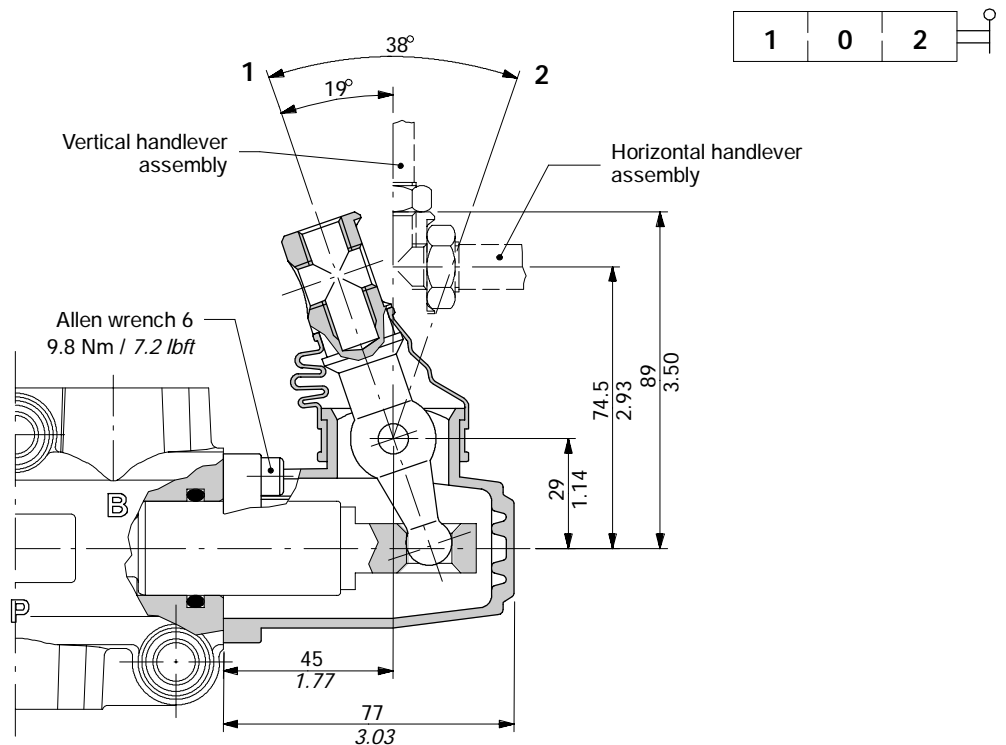
SLC kit

Protection cap usable with pneumatic and hydraulic spool positioner kits.



L lever control

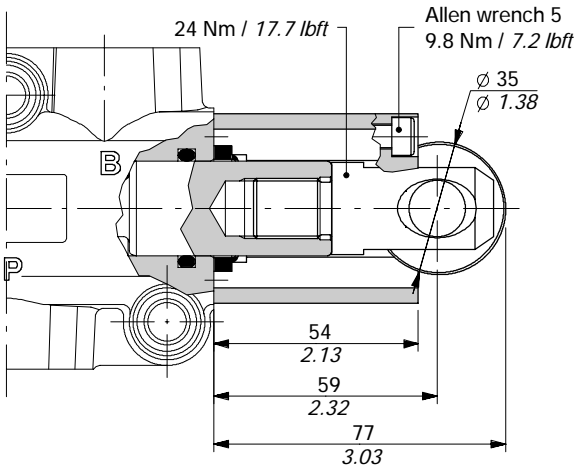
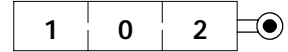
Aluminum with protection boot lever pivot box; it can be rotated 180° (execution L180).



Control kits

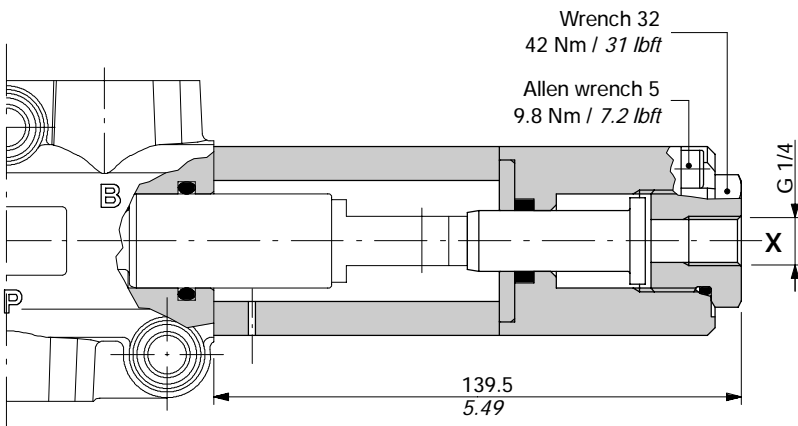
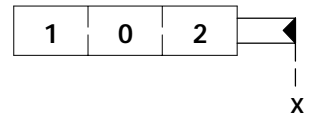
CB cam control

With bronze bearing; it must be coupled to 17 kit.



IA2: ON/OFF hydraulic control

With high pressure pilot; it must be coupled to 17 kit.



Operating features

Pilot pressure : min. 30 bar / 435 psi
 max. 250 bar / 3600 psi