

Q25 - Q45

Monoblock directional valves

- Simple, compact and heavy duty designed monoblock valve
- From 1 to 8 sections
- For open and closed center hydraulic systems, optional carry over port
- Mechanical, pneumatic, electropneumatic, hydraulic and direct solenoid controls

Working conditions

This catalogue shows technical specifications and diagrams measured through mineral oil of 46mm²/s - *46 cSt* viscosity at 40°C - *104°F* temperature.

		Q25	Q45
Nominal flow rating		30 l/min - *(8 Us gpm)*	50 l/min - *(13.2 Us gpm)*
Max. pressure	from 1 up to 2 sections	max. 300 bar *(4350 psi)*	
	3 sections		
	from 4 up to 8 sections		
Max. back pressure on outlet **T** port (*)		25 bar *(360 psi)*	
Number sections		from 1 to 8	
Internal leakage A(B)⇒T	Δp = 100 bar *(1450 psi)*	4 cm³/min *(0.24 in³/min)*	
Fluid		Mineral oil	
Fluid temperature	with NBR (BUNA-N) seals	from -30°C to 80°C - *from -22 °F to 176 °F*	
Viscosity	operating range	from 10 to 400 mm²/s - *from 10 to 400 cSt*	
Max. contamination level		16/14/12 - ISO 4406 - *NAS1638 class 6*	
Ambient temperature	without electric devices	from -40°C to 60°C - *from 40 °F to 140 °F*	
	with electric devices	from -20°C to 50°C - *from -4 °F to 122 °F*	

NOTE - For different conditions please contact our Sales Department.
(*): On request for 1 or 2 section monoblock valve only, max back pressure allowable is 180 bar *(2610 psi)*

REFERENCE STANDARD

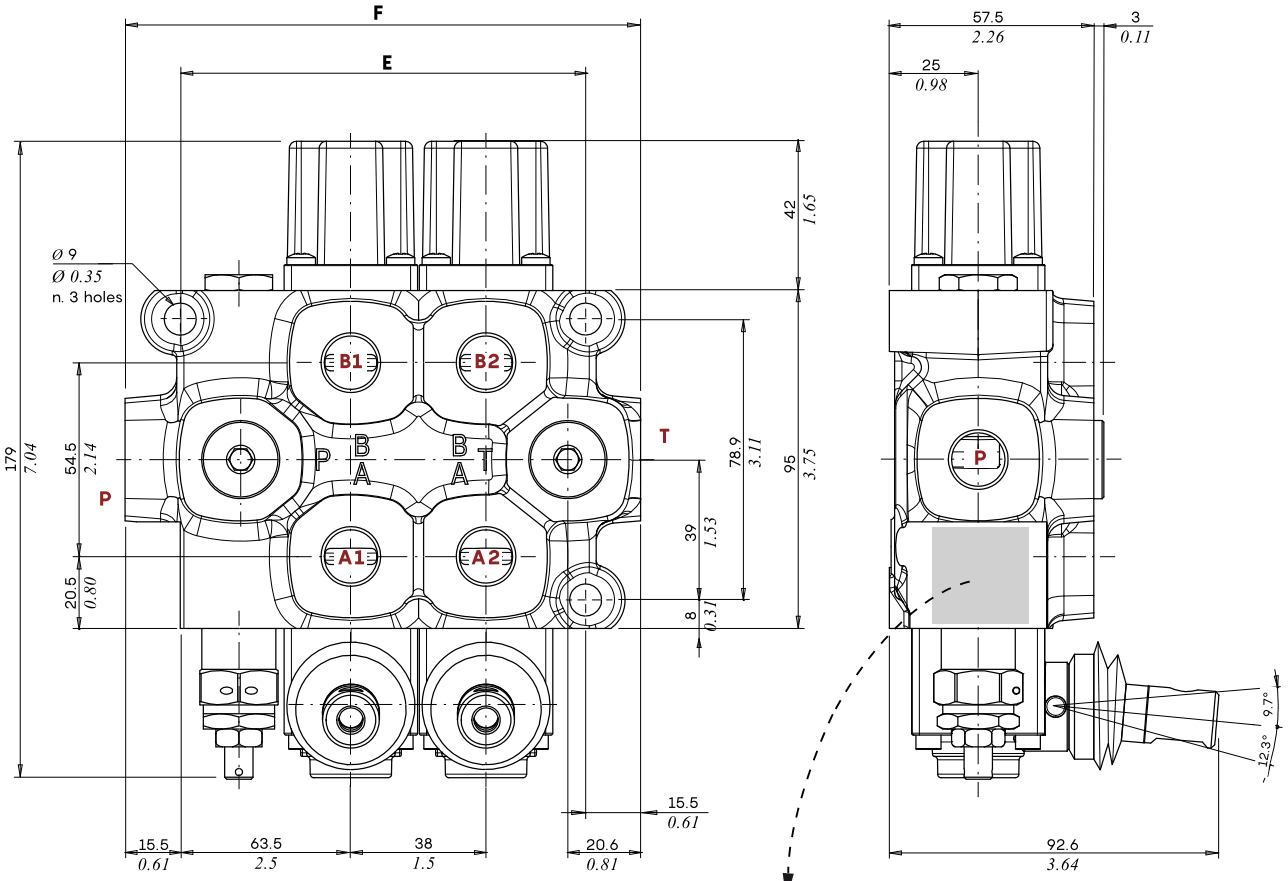
		BSP	UN-UNF
THREAD ACCORDING TO		ISO 228/1	ISO 263
		BS 2779	ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO	1179	11926
	SAE		J11926
	DIN	3852-2 shape X or Y	

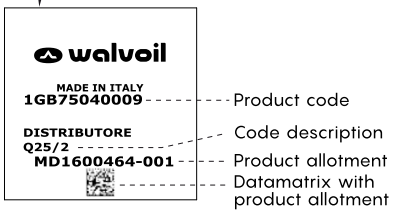
PORT THREADING

PORTS	Q25		Q45	
	BSP	UN-UNF	BSP	UN-UNF
P Inlet	G 3/8	9/16-18 (SAE 6)	G 1/2	3/4-16 (SAE 8)
P1 Inlet	G 3/8	9/16-18 (SAE 6)	G 1/2	3/4-16 (SAE 8)
A and **B** ports	G 3/8	9/16-18 (SAE 6)	G 1/2	3/4-16 (SAE 8)
T Outlet	G 1/2	7/8-14 (SAE 10)	G 1/2	7/8-14 (SAE 10)
T1 Outlet	G 3/8	9/16-18 (SAE 6)	G 1/2	3/4-16 (SAE 8)
Lc port (Carry-over plug - T port)	G 3/8	3/4-16 (SAE 8)	G 1/2	3/4-16 (SAE 8)
Hydraulic controls	G 1/4	9/16-18 (SAE 6)	G 1/4	9/16-18 (SAE 6)
Pneumatic controls	NPTF 1/8-27	NPTF 1/8-27	NPTF 1/8-27	NPTF 1/8-27

Dimensional data

The Q25 and Q45 monoblock valves, have same dimensions but different threads. See port threading on page 5.
Drawing are referred to a Q25 monoblock valve.

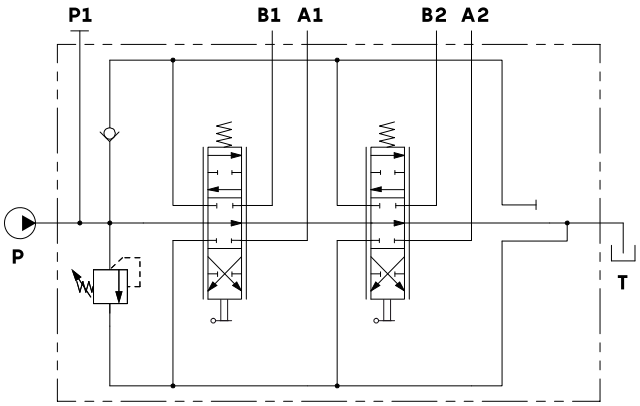




Type	E		F	
	mm	*in*	mm	*in*
Q25/1 - Q45/1	76	*2.99*	107	*4.21*
Q25/2 - Q45/2	114	*4.48*	145	*5.70*
Q25/3 - Q45/3	152	*5.98*	183	*7.2*
Q25/4 - Q45/4	190	*7.48*	221	*8.7*
Q25/5 - Q45/5	228	*8.97*	259	*10.19*
Q25/6 - Q45/6	266	*10.47*	297	*11.69*
Q25/7 - Q45/7	304	*11.96*	335	*13.18*
Q25/8 - Q45/8	342	*13.46*	373	*14.68*

NOTE: Drawings and dimensions are referred to a **BSP** threading configuration.

Hydraulic circuit

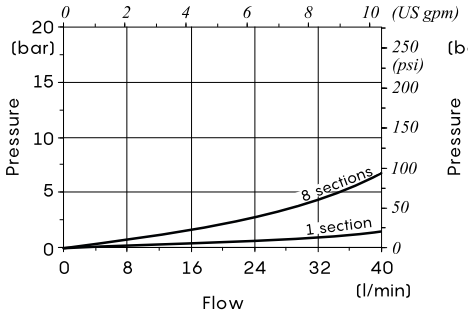


Description example (parallel circuit):
Q25/2/F1S(N250)/103-A1-M1/103-A1-M1/F3D-S
Q45/2/F1S(N250)/103-A1-M1/103-A1-M1/F3D-S

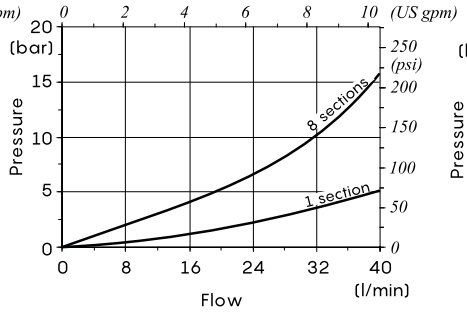
Performance data

Q25

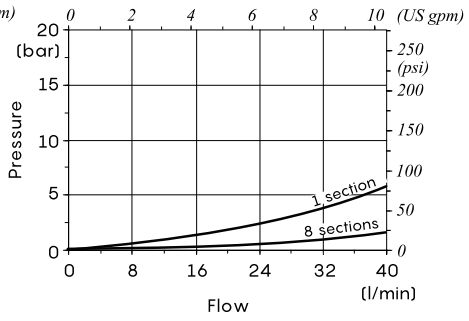
P⇒T pressure drops



P⇒A(B) pressure drops

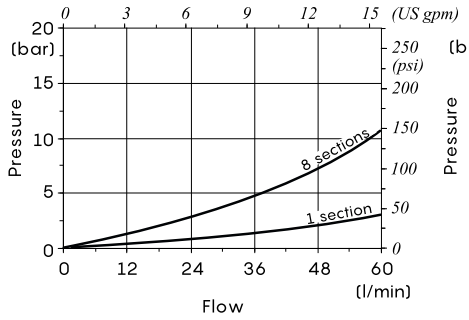


A(B)⇒T pressure drops

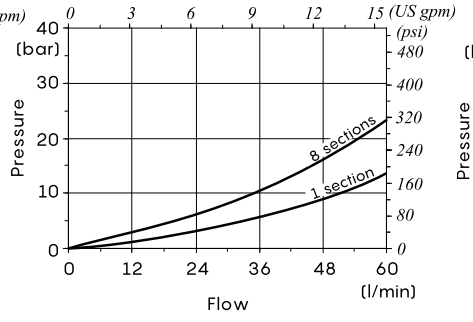


Q45

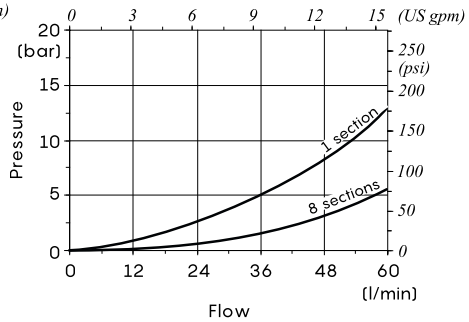
P⇒T pressure drops



P⇒A(B) pressure drops



A(B)⇒T pressure drops



Parts ordering codes

Mechanical control valve configuration example

valve setting (bar)

Q25 / 2 / F1S (N150) / 102 – A1 – M1 / 103 – A1 – M1 / F3D – S

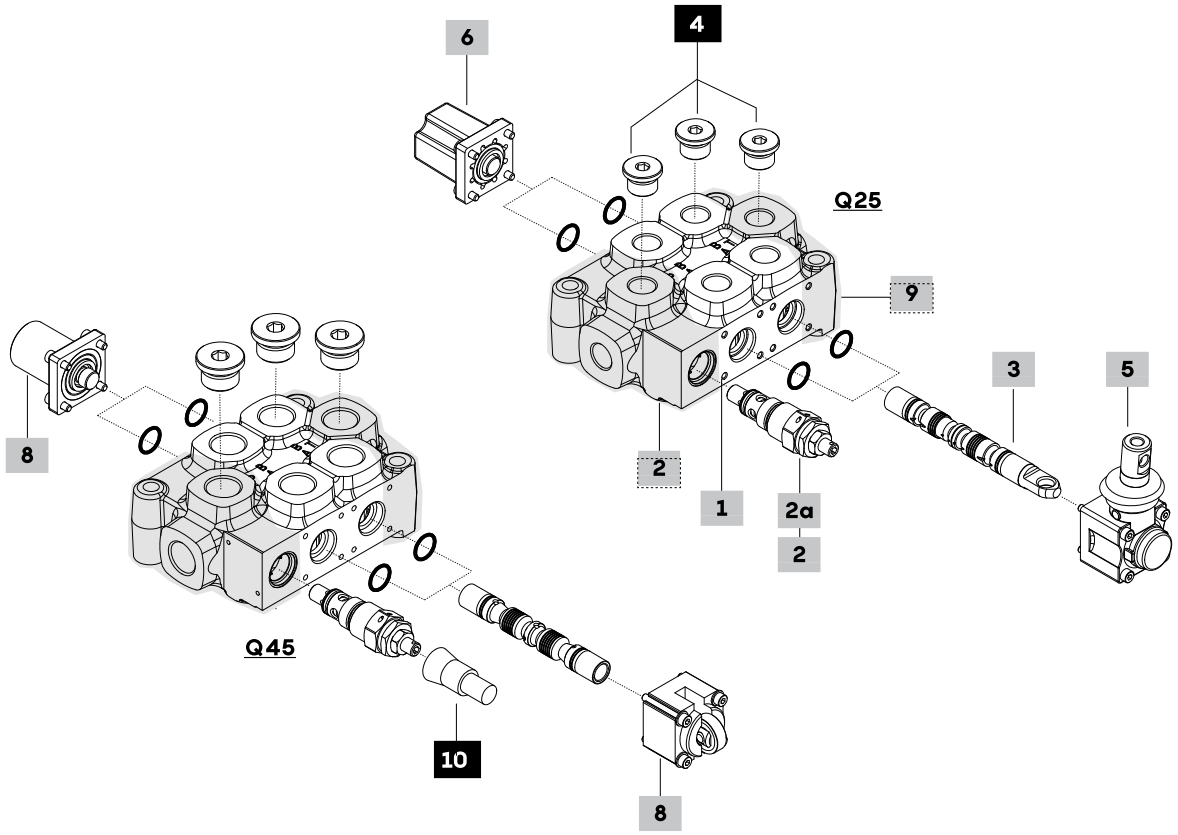
1 2 2a 3 5 6 9 aluminium controls

N. of section

C2/C3 complete mechanical control valve configuration example

Q45 / 2 / F1S (N150) / 103 – C3 / 103 – C3 / F3D – S

8



Parts ordering codes

1 Body kit*

The codes are referred to sections with O-ring seals

TYPE	CODE	DESCRIPTION
Q25/1	5KC0600127574	1 section
Q25/2	5KC0600127673	2 sections
Q25/3	5KC0600129552	3 sections
Q25/4	5KC0600129550	4 sections
Q25/5	5KC0600129551	5 sections
Q25/6	5KC0600129715	6 sections
Q25/7	5KC0600130905	7 sections
Q25/8	5KC0600131361	8 sections
Q45/1	5KC0600127973	1 section
Q45/2	5KC0600128051	2 sections
Q45/3	5KC0600129676	3 sections
Q45/4	5KC0600129677	4 sections
Q45/5	5KC0600129678	5 sections
Q45/6	5KC0600129876	6 sections
Q45/7	5KC0600131148	7 sections
Q45/8	5KC0600131620	8 sections

2 Inlet configuration* page 14

TYPE	DESCRIPTION
F1S	With load check and pressure relief valves
F2S	With load check valve
F7S	With pressure relief valve
F8S	Without valves (pressure relief valve plugged port)

Note: Inlet configurations require upper P port plugged: see #4

2a Main pressure relief valve page 15

TYPE: **B** CODE: 700035205000000
DESCRIPTION: VLP35S valve, setting range 10-100 bar *(145-1450 psi)*
TYPE: **N** CODE: 700035105000000
DESCRIPTION: VLP35S valve, setting range 101-200 bar *(1460-2900 psi)*
TYPE: **R** CODE: 700035305000000
DESCRIPTION: VLP35S valve, setting range 201-380 bar *(2910-5500 psi)*
TYPE: - CODE: 060002788899
DESCRIPTION: Relief valve blanking plug

3 Spool page 16

TYPE	CODE	DESCRIPTION
Standard spools		
103	060103179499	Double acting, A and B closed in neutral position
	3CUG3197800	As previous one, for **kick-out** control
106	KR30106	Double acting, for closed circuit
107	KR30107-108	Double acting, A to tank and B closed in neutral position
108	KR30107-108	Double acting, B to tank and A closed in neutral position
111	060103179599	Double acting, A and B to tank in neutral position
	KR30111K	As previous one, for **kick-out** control
114	KR30114	Double acting, A and B to tank in neutral position, for closed circuit
101	3CUG3218000	Single acting on port A (3)
102	3CUG3218001	Single acting on port B (3)
116	3CUG3179200	Double acting, with floating in the 4th position (spool in): requires dedicated spool control
126	3CUG3179201	Double acting, with floating in the 4th position (spool out): requires dedicated spool control

Note (3): Q25 valve required G3/8 plug, see #4
Q45 valve required G1/2 plug, see #4

3 Spool (cont.) page 17

TYPE	CODE	DESCRIPTION
Special spools for cam, microswitch controls and other leverless controls		
103	060103179099	Double acting, A and B closed in neutral position
111	060103179199	Double acting, A and B to tank in neutral position

4 Plug for single acting spool or P-T ports*

TYPE	CODE	DESCRIPTION
-	060002792199	G3/8 plug for Q25 valve
-	060002792099	G1/2 plug for Q45 valve

5 A side control page 31

TYPE	CODE	DESCRIPTION
For standard spools		
With lever control:		
A1	03600A1-A2	M8 thread plastic lever box
A2	03600A1-A2	As A1 type, with lever box rotated 180°
A1/10	03610A1-A2/10	M8 thread aluminium lever box
A2/10	03610A1-A2/10	As A1/10 type, with lever box rotated 180°
A1/06	03606A1-A2/06	Aluminium lever box with stroke limiter
A2/06	03606A1-A2/06	As A1/06 type, with lever box rotated 180°
A1/PM	03610A1-A2/PM	M10 thread aluminium lever box
A2/PM	03610A1-A2/PM	As A1/PM type, with lever box rotated 180°
A1/PMP	03610A1-A2/PMP	M10 thread plastic lever box
A2/PMP	03610A1-A2/PMP	As A1/PMP type, with lever box rotated 180°
A1/Z1	03610A1-A2/Z1	Plastic lever box for **116** spool type
A2/Z1	03610A1-A2/Z1	As A1/Z1 type, with lever box rotated 180°
With safety lever control:		
A1/S(1)	03624A1-A2/S	M8 thread aluminium lever box
A2/S(1)	03624A1-A2/S	As A1/S type, with lever box rotated 180°
Without lever control:		
A4/Z1	03617A4/Z1	M8 male thread external pin with flange, for **116** spool type
A6	03620A6	With flange
A6-H/Z1	03620A6-H/Z1SI	As A6 type, for **116** spool type
A8	03622A8	Flexible cable control arrangement
	03622A8/03	As previous one, with aluminium cap
A8/Z1	03622A8/Z1	As A8 type, for **116** spool type
Joystick controls for 2 section operation:		
A35/1	03640A35-12	Joystick 1 type
A35/2	03640A35-12	Joystick 2 type
A35/3	03640A35-34	Joystick 3 type
A35/4	03640A35-34	Joystick 4 type
For types 103 and 111 special spools		
With spool position microswitch:		
Note: to complete the control you must use the assembly kit at #7		
N1-A1	03641N1-A1/A2	Micro operation in pos. 1 and 2, with lever box
	03641N1-A1/10	As previous one, with aluminium lever box
N1A-A1	03642N1A-A1/A2	Micro operation in pos. 1, with lever box
N1B-A1	03643N1BA1/A2L	Micro operation in pos. 2, with lever box
N1-A3	03648N1-A3L	Micro operation in pos. 1 and 2, without lever with cap
N1A-A3	03648N1A-A3L	Micro operation in pos. 1, without lever with cap
N1B-A3	03648N1B-A3L	Micro operation in pos. 2, without lever with cap
Without lever control:		
A3	03614A3	Without lever, with cap
	03614A3/03	As previous one, with aluminium cap
A4	03617A4	M8 male thread external pin with flange
	03617A4/03	As previous one, with aluminium flange
A4/01	03617A4/01	M10 male thread external pin with flange
A5(2)	03619A5	Flange with spherical spool end
	03619A5/10	As previous one, with aluminium flange

(*): Codes are referred to **BSP** thread
(1): Always complete with lever knob
(2): To be assembled only with M4 control

Parts ordering codes

6 B side control page 25

TYPE	CODE	DESCRIPTION
With spring return:		
M1	03730M1	3 pos., spring return in neutral position
	03730M1/03	As previous one, with aluminium cap
M1-B1	03753M1-B1	As M1 type, with microswitch arrangement
	03753M1-B1/03	As previous one, with aluminium cap
M1/01	03730M1/01	As M1 type, for mechanical joystick
	03730M1/01/03	As previous one, with aluminium cap
M1/02	03730M1/02	As M1 type, with stroke limiter
M1-U1	03701M1-U1	As M1 type, with M8 male thread external pin
M2	03732M2	2 pos. (0-1), spring return in neutral pos.
	03732M2/03	As previous one, with aluminium cap
M2-U1	03702M2-U1	As M2 type, with M8 male thread external pin
M3	03733M3	2 pos. (0-2), spring return in neutral pos.
	03733M3/03	As previous one, with aluminium cap
M3-U1	03703M3-U1	As M3 type, with M8 male thread external pin
M4	03734M41-2/03	2 pos. (1-2), spring return in position 1
	03735M42-1/03	2 pos. (2-1), spring return in position 2
M4-U1	03704M4-U11-2	As M4 type (1-2), with M8 male thread external pin
With flexible cable control arrangement:		
M1-U2	03715M1-U2	3 pos., spring return in neutral position
M2-U2	03716M2-U2	2 pos. (0-1), spring return in neutral pos.
M3-U2	03717M3-U2	2 pos. (0-2), spring return in neutral pos.
With detent:		
R1	03741R1	3 pos., detent in position 1
	03741R1/03	As previous one, with aluminium cap
R2	03742R2	3 pos., detent in position 2
	03742R2/03	As previous one, with aluminium cap
R3	03743R3	3 pos., detent in all position
	03743R3/03	As previous one, with aluminium cap
R4	03744R4	2 pos., detent in position 0-1
	03744R4/03	As previous one, with aluminium cap
R5	03745R5	2 pos., detent in position 0-2
	03745R5/03	As previous one, with aluminium cap
R6	03746R6	2 pos., detent in position 1-2
	03746R6/03	As previous one, with aluminium cap
R8	03748R8	4 pos., detent in 4th pos., for **116** type spool
	03748R8/03	As previous one, with aluminium cap
R10/Z1	03750R10/Z1	4 pos., detent in 4th pos., for **126** type spool
	03750R10/Z1/03	As previous one, with aluminium cap
With detent and kick out function:		
R1K	03741R1K	3 pos., detent in position 1
	03741R1K/03	As previous one, with aluminium cap
R2K	03742R2K	3 pos., detent in position 2
	03742R2K/03	As previous one, with aluminium cap
R3K	08743R3K	3 pos., detent in all position
	03743R3K/03	As previous one, with aluminium cap

6 B side control (cont.) page 25

TYPE	CODE	DESCRIPTION
With spool position microswitch:		
Note: To complete the control you must use the assembly kit at #7		
M1-N1	03766M1-N1	3 pos., micro operation in pos. 1 and 2, spring return in neutral position
	03766M1- N1/03	As previous one, with aluminium lever box
M1-N1A	03767M1-N1AL	As M1-N1 type, micro operation in pos. 1
	03767M1-N1AL/3	As previous one, with aluminium cap
M1-N1B	03768M1-N1BL	As M1-N1 type, micro operation in pos. 2
	03768M1-N1BL/3	As previous one, with aluminium cap
M2-N1	03769M2-N1L	2 pos. (0-1), spring return in neutral pos.
M3-N1	03772M3-N1L	2 pos. (0-2), spring return in neutral pos.
Pneumatic and electropneumatic controls:		
P1NW	03661P1-NW	ON/OFF pneumatic control
P1NPW	03661P1-NPW	Proportional pneumatic control
D3W	03691D3-F-12DC	12 VDC, ON/OFF electropneumatic control
	03692D3-F-24DC	24 VDC, ON/OFF electropneumatic control

7 Microswitch assembling kit

CODE	DESCRIPTION
03650N1-01	Kit for 1 section
03650N1-02	Kit for 2 sections
03650N1-03	Kit for 3 sections
03650N1-04	Kit for 4 sections
03650N1-05	Kit for 5 sections
03650N1-06	Kit for 6 sections
03650N1-07	Kit for 7 sections
03650N1-08	Kit for 8 sections

8 Complete controls A+B sides page 31

TYPE	CODE	DESCRIPTION
For types 103 and 111 special spools		
C2	03792C2-C3	Cam control from position 1 to 2
C3	03792C2-C3	Cam control from position 2 to 1

9 Outlet configuration* page 35

TYPE	DESCRIPTION
F3D	Open center configuration: for Q25 valve, n. 1 G3/8 plug code 060002792199, on T1 port; for Q45 valve, n. 1 G1/2 plug code 060002792099, on T1 port
F6D	Carry-over configuration: for Q25 valve, n. 1 G3/8 joint code 060002278399, on T port; for Q45 valve, n. 1 G1/2 joint code 060002564799, on T port
F16D	Closed center configuration: for Q25 valve, n. 1 G3/8 plug code 060002792199 on T1 port and n. 1 G3/8 joint code 060002530099, on T port; for Q45 valve, n. 1 G1/2 plug code 060002792099 on T1 port and n. 1 G1/2 joint code 060002997699, on T port

10 Accessories

TYPE	CODE	DESCRIPTION
-	4COP120420	Antitamper cap for pressure relief valve

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

Parts ordering codes

Proportional hydraulic controls valve configuration example

valve setting (bar)

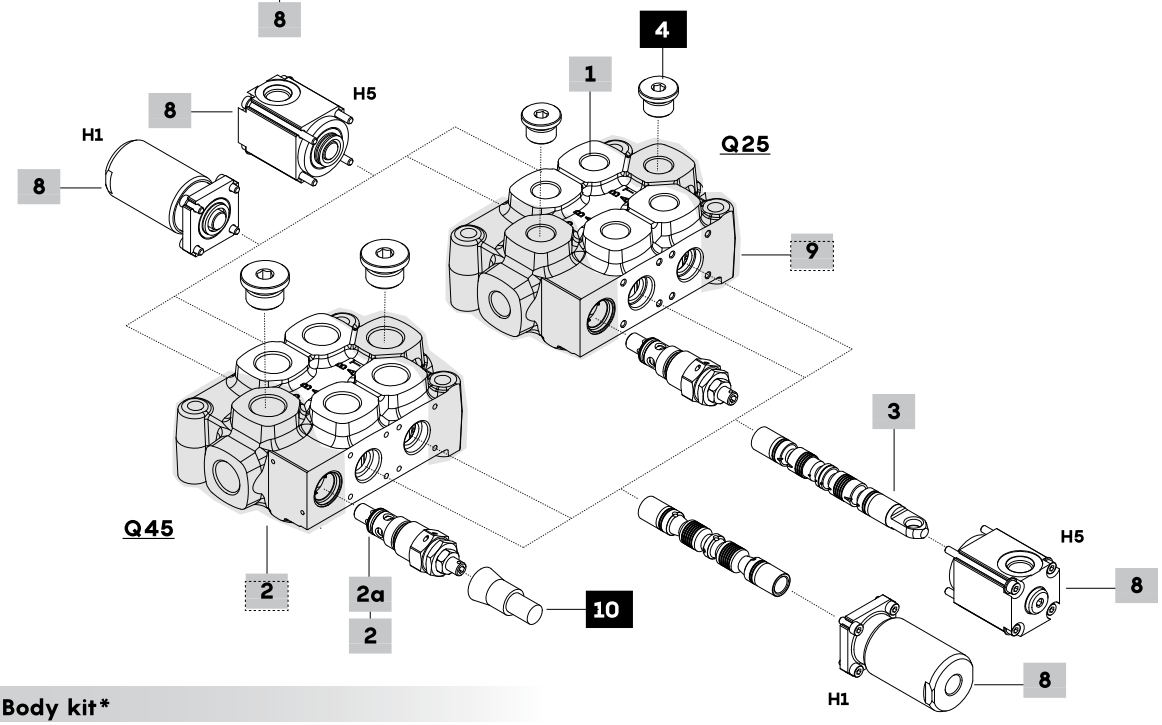
Q25 / 2 / F1S (N150) / 103 - H5 / 103 - H5 / F3D - S

1 2 2a 3 8 9 aluminium controls

N. of section

Q45 / 2 / F1S (N150) / 103 - H1 / 103 - H1 / F3D - S

8



1 Body kit*

The body kits listed below are for **H5** hydraulic control.
H1 hydraulic control requires standard body: see #1, page 9

TYPE	CODE	DESCRIPTION
Q25/1	5KC0600127574A	1 section
Q25/2	5KC0600127673A	2 sections
Q25/3	5KC0600129552A	3 sections
Q25/4	5KC0600129550A	4 sections
Q25/5	5KC0600129551A	5 sections
Q25/6	5KC0600129715A	6 sections
Q25/7	5KC0600130905A	7 sections
Q25/8	5KC0600131361A	8 sections
Q45/1	5KC0600127973A	1 section
Q45/2	5KC0600128051A	2 sections
Q45/3	5KC0600129676A	3 sections
Q45/4	5KC0600129677A	4 sections
Q45/5	5KC0600129678A	5 sections
Q45/6	5KC0600129876A	6 sections
Q45/7	5KC0600131148A	7 sections
Q45/8	5KC0600131620A	8 sections

2 Inlet configuration* page 14

See #2, page 9

2a Main pressure relief valve page 15

See #2a, page 9

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

3 Spool page 16

TYPE	CODE	DESCRIPTION
For H5 hydraulic control		
103	060103179499	Double acting, A and B closed in neutral position
For H1 hydraulic control		
103	060103179099	Double acting, A and B closed in neutral position
111	060103179199	Double acting, A and B to tank in neutral position

4 Plug for P-T ports*

See #4, page 9

8 Hydraulic controls A+B sides* page 32

TYPE	CODE	DESCRIPTION
H5	03785H5	Low pressure proportional type, upper ports
H1	03779H1	High pressure proportional type, side ports

9 Outlet configuration* page 35

See #9, page 10

10 Accessories

See #10, page 10

Parts ordering codes

One side - ON/OFF direct solenoid control valve configuration example

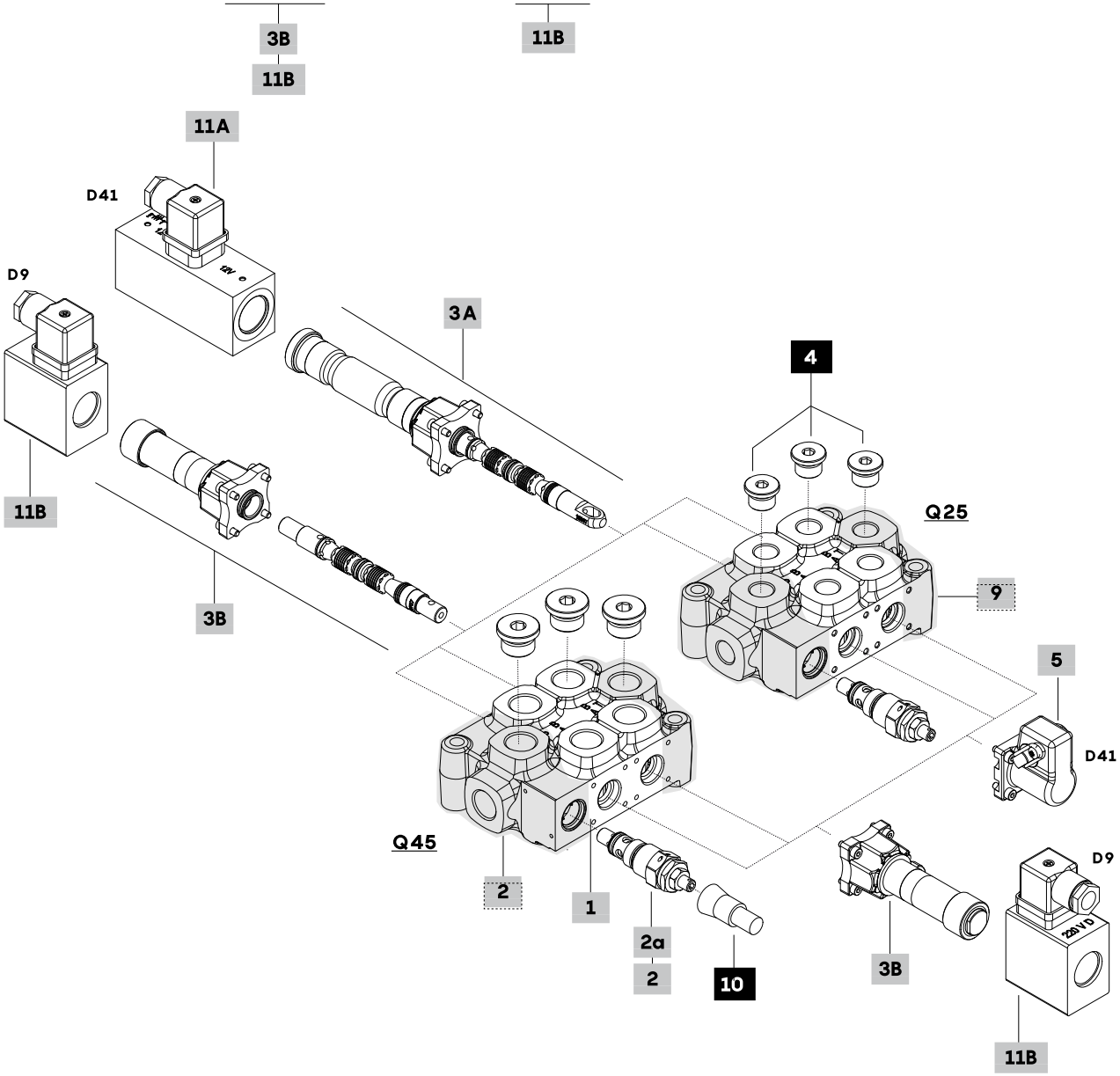
valve setting (bar)

Q25 / 2 / F1S (N150) / 101 - A1 - D41 / 101 - A1 - D41 / F3D - 12VDC - S

1 (N. of section) | 2 | 2a | 3A | 5 | 3A | 11A | 9 | 11A | aluminium controls

Two side - ON/OFF direct solenoid control valve configuration example

Q45 / 2 / F1S (N150) / 101 - D9 / 101 - D9 / F3D - 12VDC - S



Parts ordering codes

1 Body kit*

TYPE	CODE	DESCRIPTION
Q25/1	5KC0600127574A	1 section
Q25/2	5KC0600127673A	2 sections
Q25/3	5KC0600129552A	3 sections
Q25/4	5KC0600129550A	4 sections
Q25/5	5KC0600129551A	5 sections
Q25/6	5KC0600129715A	6 sections
Q25/7	5KC0600130905A	7 sections
Q25/8	5KC0600131361A	8 sections
Q45/1	5KC0600127973A	1 section
Q45/2	5KC0600128051A	2 sections
Q45/3	5KC0600129676A	3 sections
Q45/4	5KC0600129677A	4 sections
Q45/5	5KC0600129678A	5 sections
Q45/6	5KC0600129876A	6 sections
Q45/7	5KC0600131148A	7 sections
Q45/8	5KC0600131620A	8 sections

2 Inlet configuration* page 14

See #2, page 9

2a Main pressure relief valve page 15

See #2a, page 9

3A D41 solenoid control page 33

One side solenoid control

For Q25 valve:

TYPE	CODE	DESCRIPTION
103	X060102889799	Tube assembly with double acting spool, A and B closed in neutral position
107	X060102938199	Tube assembly with double acting spool, A to tank and B closed in neutral position
108	X060102937199	Tube assembly with double acting spool, B to tank and A closed in neutral position
109	X060102952699	Tube assembly with single acting spool on port A, A to tank in neutral position. G3/8 plug is required, see #4
111	X060102894299	Tube assembly with double acting spool, A and B to tank in neutral pos.
101	X060102905099	Tube assembly with single acting spool on port A. G3/8 plug is required, see #4
102	X060102894199	Tube assembly with single acting spool on port B. G3/8 plug is required, see #4

For Q45 valve:

103	X060102889700	Tube assembly with double acting spool, A and B closed in neutral pos.
107	X060102938100	Tube assembly with double acting spool, A to tank and B closed in neutral position
108	X060102937100	Tube assembly with double acting spool, B to tank and A closed in neutral position
109	X060102952600	Tube assembly with single acting spool on port A, A to tank in neutral position. G1/2 plug is required, see #4
111	X060102894200	Tube assembly with double acting spool, A and B to tank in neutral position
101	X060102905000	Tube assembly with single acting spool on port A. G1/2 plug is required, see #4
102	X060102894100	Tube assembly with single acting spool on port B. G1/2 plug is required, see #4

3B D9 solenoid control page 34

Two side solenoid control

For Q25/Q45 valves:

TYPE	CODE	DESCRIPTION
101	X060103012699	Tube assembly with single acting spool on port A (1)
102	X060103012699	Tube assembly with single acting spool on port B (1)
103	X060102998299	Tube assembly with double acting spool, A and B closed in neutral position
108	X060103070799	Tube assembly with double acting spool, B to tank and A closed in neutral position
110	X060103037699	Tube assembly with single acting spool on port B, B to tank in neutral position (1)
111	X060103000499	Tube assembly with double acting spool, A and B to tank in neutral position

Note (1): Q25 valve required G3/8 plug, see #4
Q45 valve required G1/2 plug, see #4

4 Plug for single acting spool or P-T ports*

See #4, page 9

5 A side control for D41 page 33

TYPE	CODE	DESCRIPTION
A1	060003236899	M8 thread cast iron lever box
A2	060003236899	As A1 type, with lever box rotated 180°

9 Outlet configuration* page 35

See #9, page10

10 Accessories

See #10, page 10

11A/B Coil page 33

D41 coil

For Q25 valve:

TYPE	CODE	DESCRIPTION
-	ZEB012	12 VDC ISO4400 coil
-	ZEB024	24 VDC ISO4400 coil

For Q45 valve:

-	4SLG111200	12 VDC ISO4400 coil
-	4SLG111400	24 VDC ISO4400 coil

D9 coil

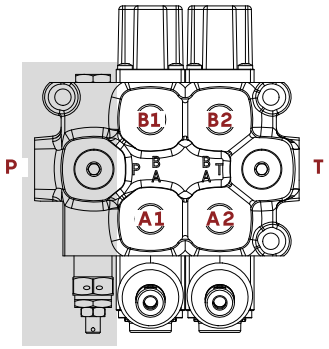
For Q25/Q45 valves:

-	ZDB212	12 VDC ISO4400 coil
-	ZDB224	24 VDC ISO4400 coil

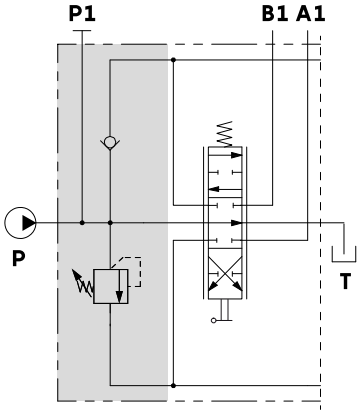
Note: The connector is included

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

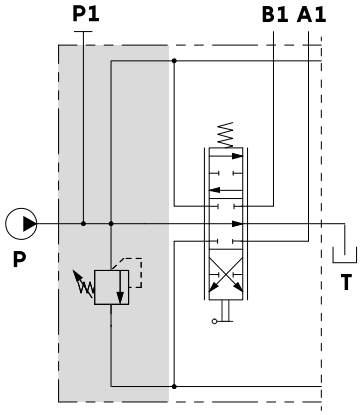
Inlet configuration

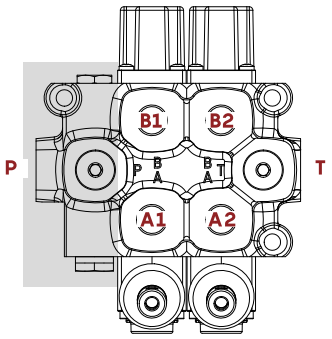


F1S configuration
With load check and pressure relief valve

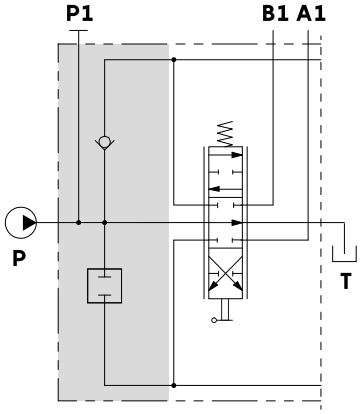


F7S configuration
With pressure relief valve

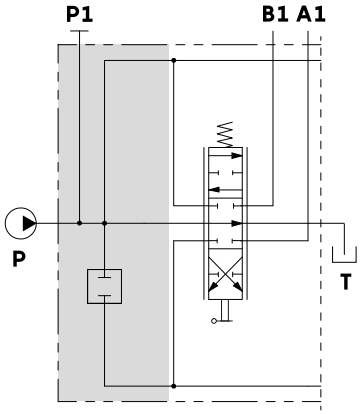




F2S configuration
With load check valve

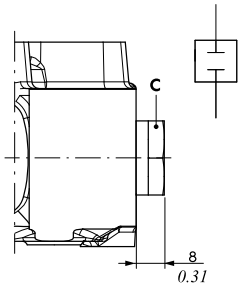


F8S configuration
Without valves
(pressure relief valve plugged port)

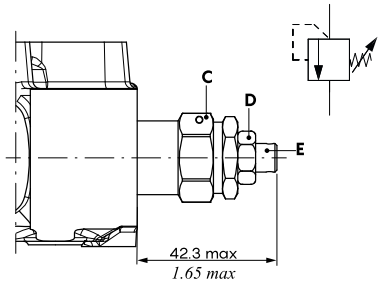


Main pressure relief valve

Relief valve blanking plug

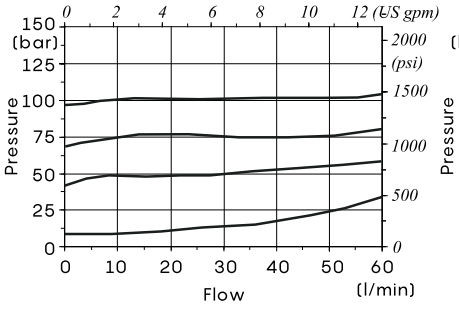


Main pressure relief valve

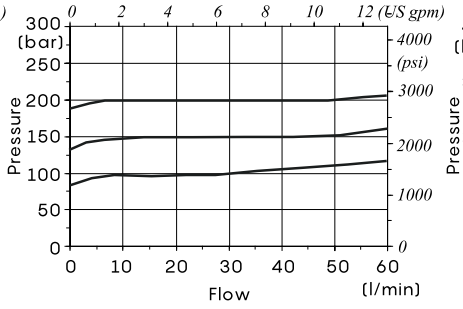


Spring type	Setting ranges (bar - *psi*)
B (white)	From 10 to 100 - *from 145 to 1450*
N (black)	From 101 to 200 - *from 1460 to 2900*
R (red)	From 201 to 380 - *from 2910 to 5500*

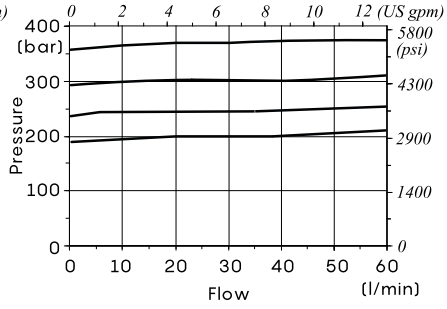
Setting example (B type spring)



Setting example (N type spring)



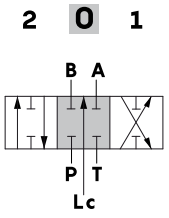
Setting example (R type spring)



Wrenches and tightening torques
C = wrench 22 - 42 Nm *(30.9 lbft)*
D = wrench 13 - 24 Nm *(17.7 lbft)*
E = allen wrench 4

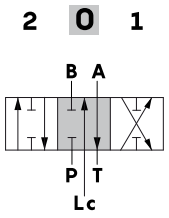
Spool

103 type
A and B closed
in neutral position



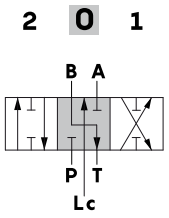
Stroke
Position 1: + 5 mm *(+ 0.19 in)*
Position 2: - 5 mm *(- 0.19 in)*

107 type
A to tank, B closed
in neutral position



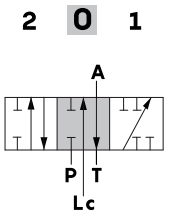
Stroke
Position 1: + 5 mm *(+ 0.19 in)*
Position 2: - 5 mm *(- 0.19 in)*

108 type
B to tank, A closed
in neutral position



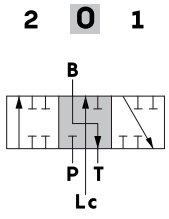
Stroke
Position 1: + 5 mm *(+ 0.19 in)*
Position 2: - 5 mm *(- 0.19 in)*

109 type
A to tank in neutral position,
B plugged



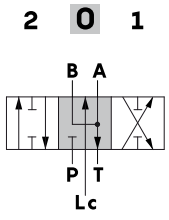
Stroke
Position 1: + 5 mm *(+ 0.19 in)*
Position 2: - 5 mm *(- 0.19 in)*

110 type
B to tank in neutral position,
A plugged



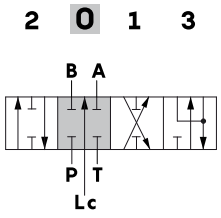
Stroke
Position 1: + 5 mm *(+ 0.19 in)*
Position 2: - 5 mm *(- 0.19 in)*

111 type
A and B to tank
in neutral position



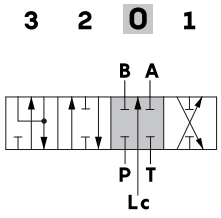
Stroke
Position 1: + 5 mm *(+ 0.19 in)*
Position 2: - 5 mm *(- 0.19 in)*

116 type
With floating in the 4th position
(spool in)



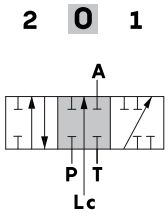
Stroke
Position 1: - 4 mm *(- 0.15 in)*
Position 2: + 5 mm *(+ 0.19 in)*
Position 3: - 8.6 mm *(- 0.33 in)*

126 type
With floating in the 4th position
(spool out)



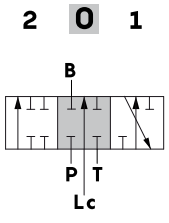
Stroke
Position 1: + 4 mm *(+ 0.15 in)*
Position 2: - 5 mm *(- 0.19 in)*
Position 3: + 8.6 mm *(- 0.33 in)*

101 type
Single acting on A,
B plugged



Stroke
Position 1: + 5 mm *(+ 0.19 in)*
Position 2: - 5 mm *(- 0.19 in)*

102 type
Single acting on B,
A plugged



Stroke
Position 1: + 5 mm *(+ 0.19 in)*
Position 2: - 5 mm *(- 0.19 in)*

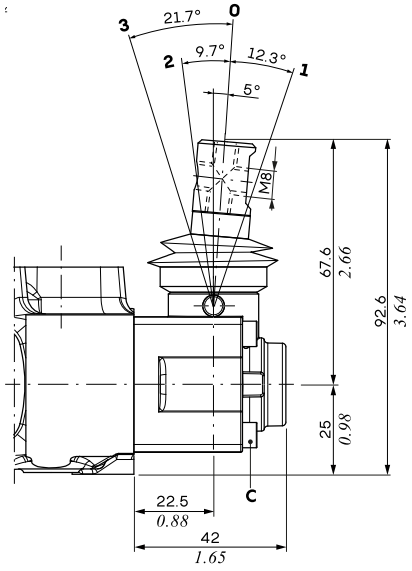
A side controls

Mechanical controls

With lever control

A1 type
M8 thread plastic lever box

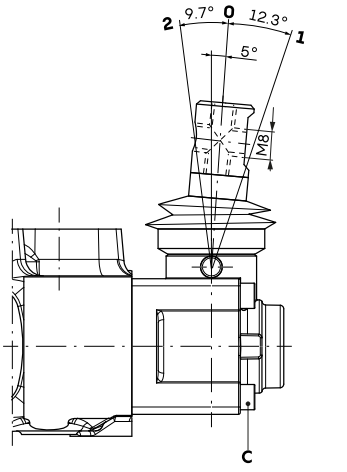
3	2	0	1



A1/10 type
M8 thread aluminium lever box.
Dimensions are the same
of A1 type

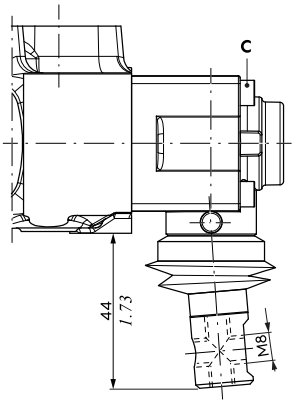
A2/10 type
As A1/10 type,
rotated 180°

2	0	1



A2 type
As A1 type, rotated 180°

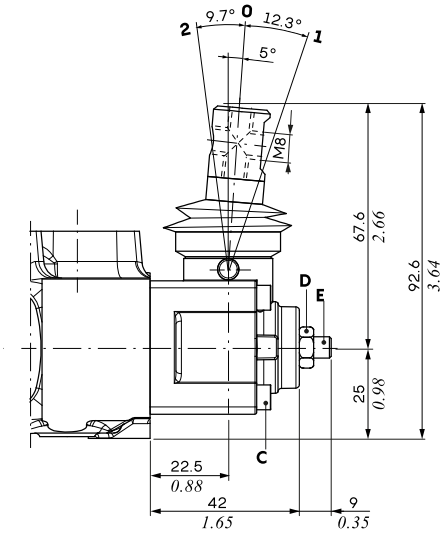
3	2	0	1



Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*
D = wrench 10 - 9.8 Nm *(7.2 lbft)*
E = allen wrench 4 - 9.8 Nm *(7.2 lbft)*

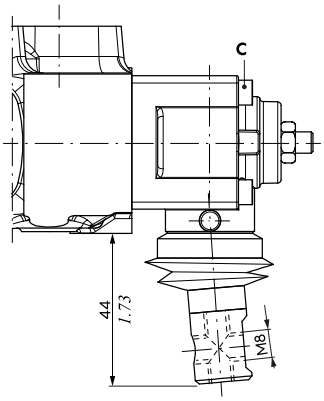
A1/06 type
M8 thread,
with stroke limiter

2	0	1



A2/06 type
As A1/06 type, rotated 180°

2	0	1

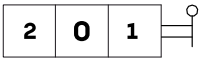


A side controls

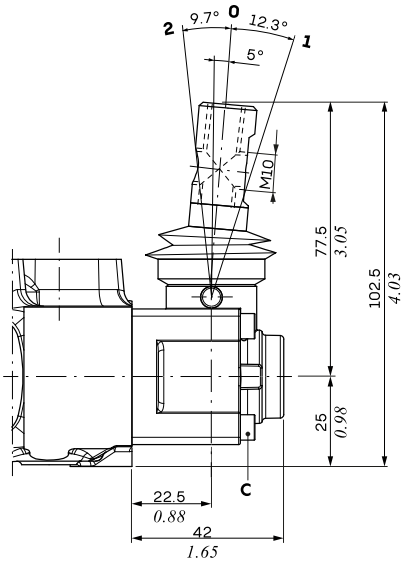
Mechanical controls

With lever control

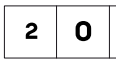
A1/PM type
M10 thread aluminium lever box

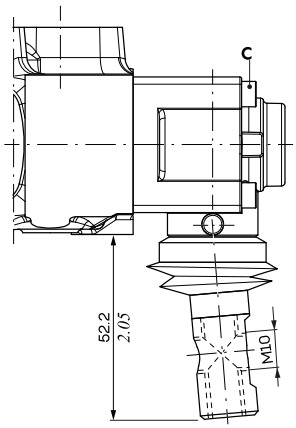


Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*



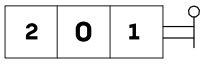
A2/PM type
As A1/PM type, rotated 180°

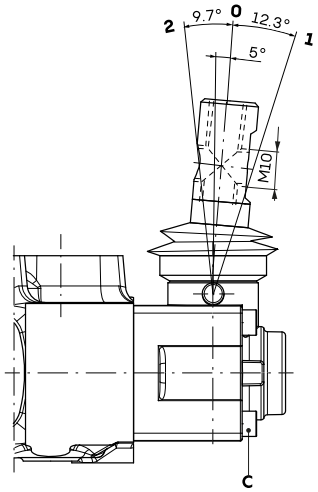




A1/PMP type
M10 thread
plastic lever box.
Dimensions are the same
of A1/PM type

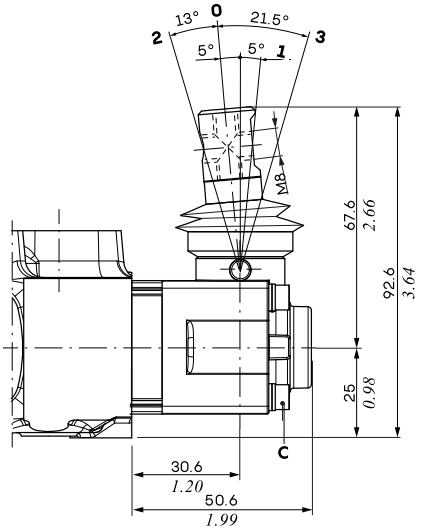
A2/PMP type
As A1/PMP type,
rotated 180°



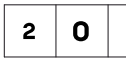


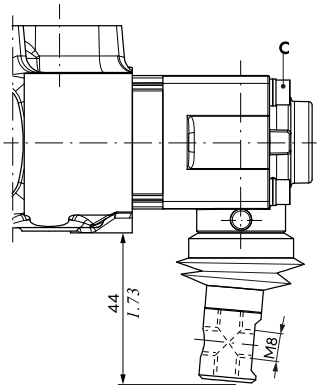
A1/Z1 type
M8 thread,
for 116 floating spool type





A2/Z1 type
As A1/Z1 type, rotated 180°





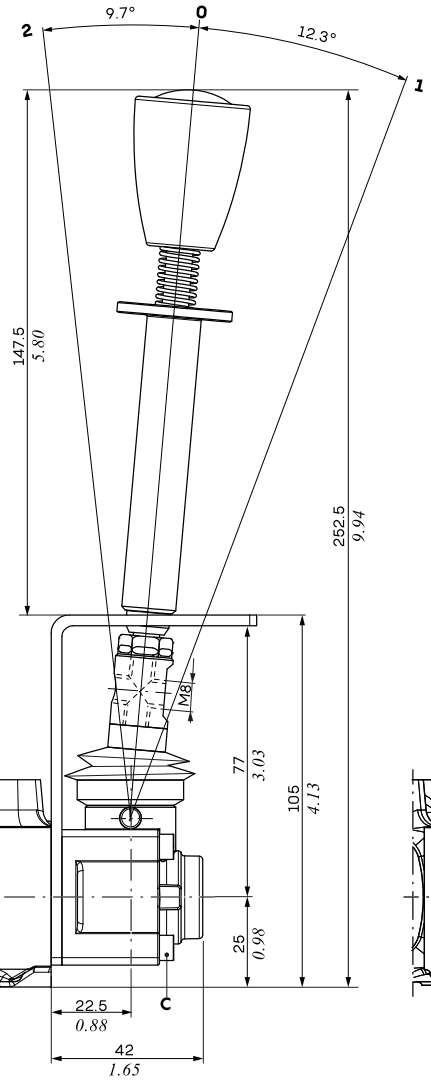
A side controls

Mechanical controls

With safety lever control

A1/S type
M8 thread, aluminium lever box

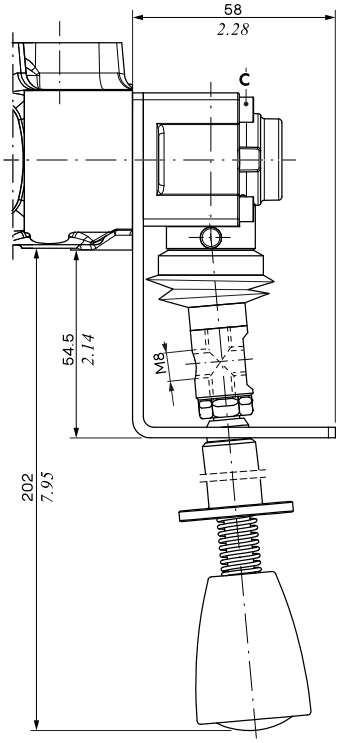
2	0	1



Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*
D = cross-head - 3 Nm *(2.2 lbft)*

A2/S type
As A1/S type, rotated 180°

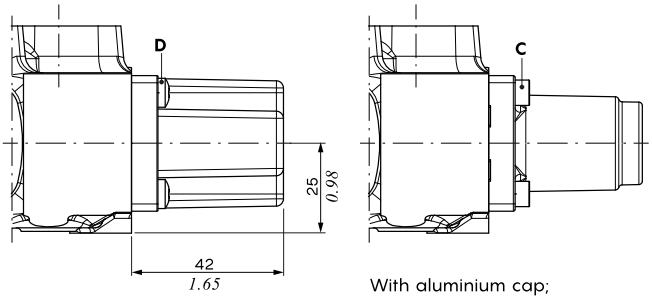
2	0	1



Without lever control

A3 type
With cap.
Available with aluminium cap

2	0	1



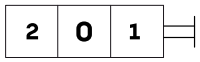
With aluminium cap;
dimensions are the same of standard type

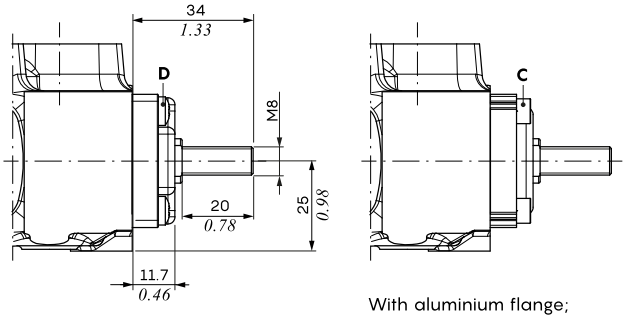
A side controls

Mechanical controls

Without lever control

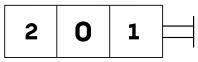
A4 type
M8 male thread external pin with flange.
Available with aluminium flange

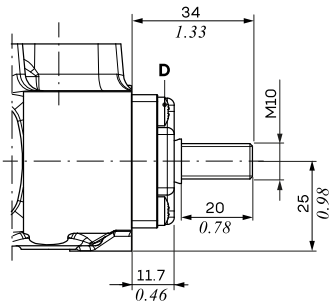




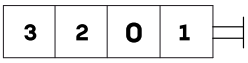
With aluminium flange;
dimensions are the same of standard type

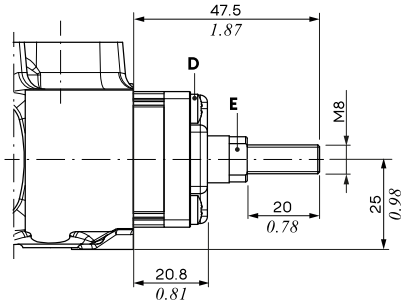
A4/01 type
M10 male thread external pin with flange



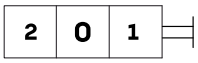


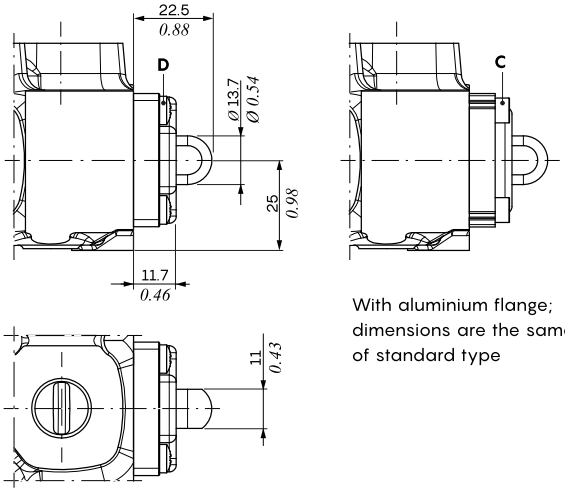
A4/Z1 type
As A4 type,
for 116 floating spool type





A5 type
Flange with spherical spool end.
Available with aluminium flange





With aluminium flange;
dimensions are the same
of standard type

Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*
D = cross-head - 3 Nm *(2.2 lbft)*
E = wrench 9 - 9.8 Nm *(7.2 lbft)*

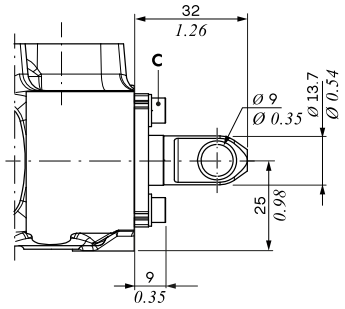
A side controls

Mechanical controls

Without lever control

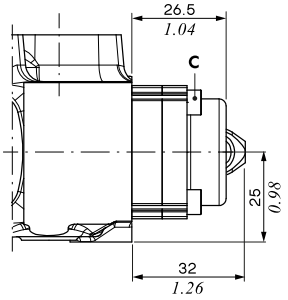
A6 type
With flange

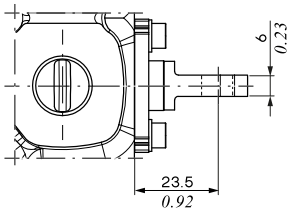
2	0	1



A6-H/Z1 type
As A6 type,
for 116 floating spool type

3	2	0	1



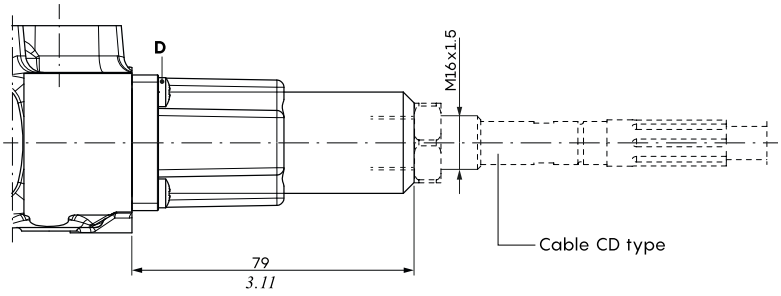


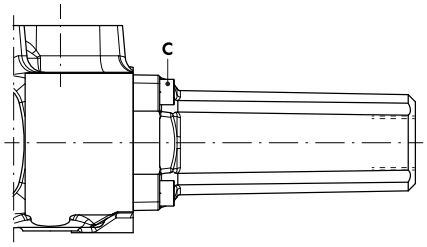
Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*
D = cross-head - 3 Nm *(2.2 lbft)*

With flexible cable control arrangement

A8 type
Flexible cable control arrangement.
Available with aluminium cap

2	0	1

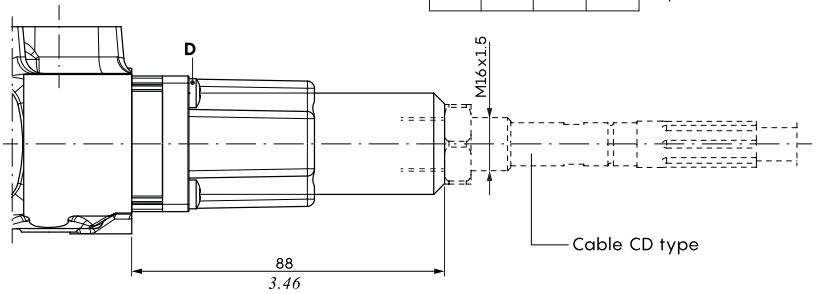




With aluminium cap;
dimensions are the same of standard type

A8/Z1 type
As A8 type,
for 116 floating spool type

3	2	0	1



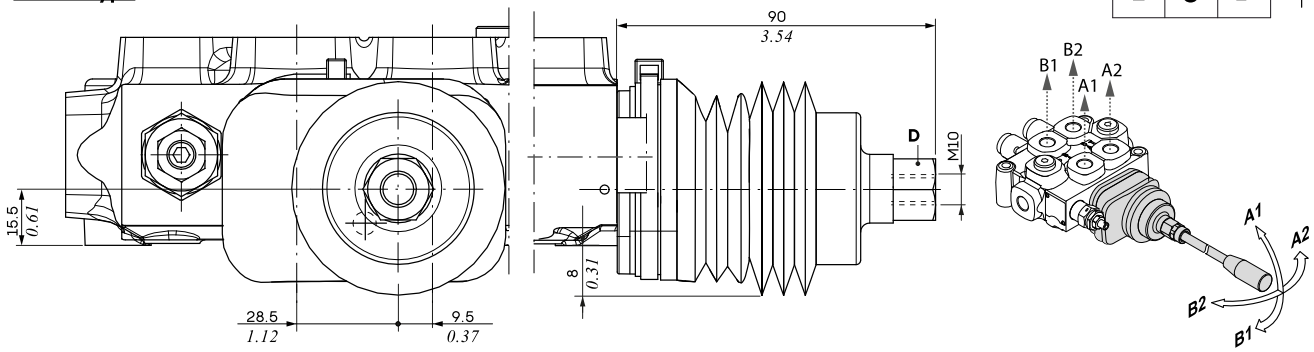
A side controls

Joystick controls

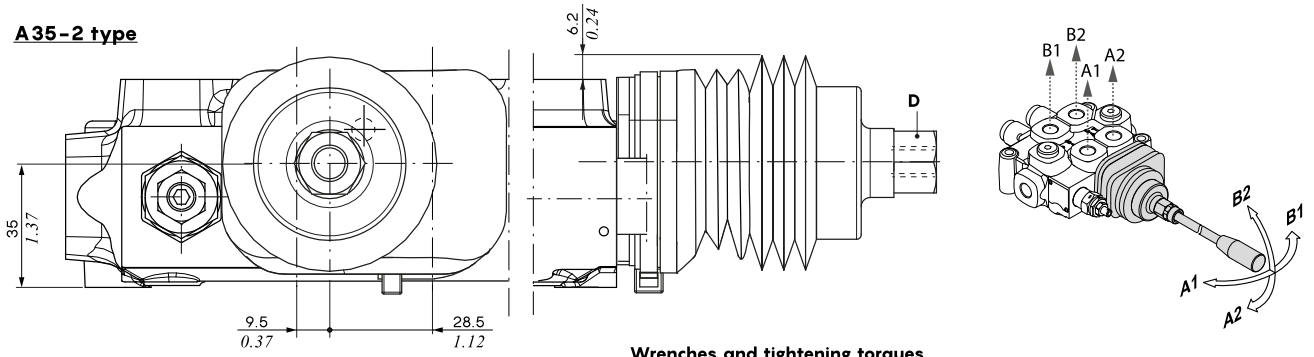
For operating the joystick control in the floating position, contact Sales Department.

2	0	1
2	0	1

A35-1 type

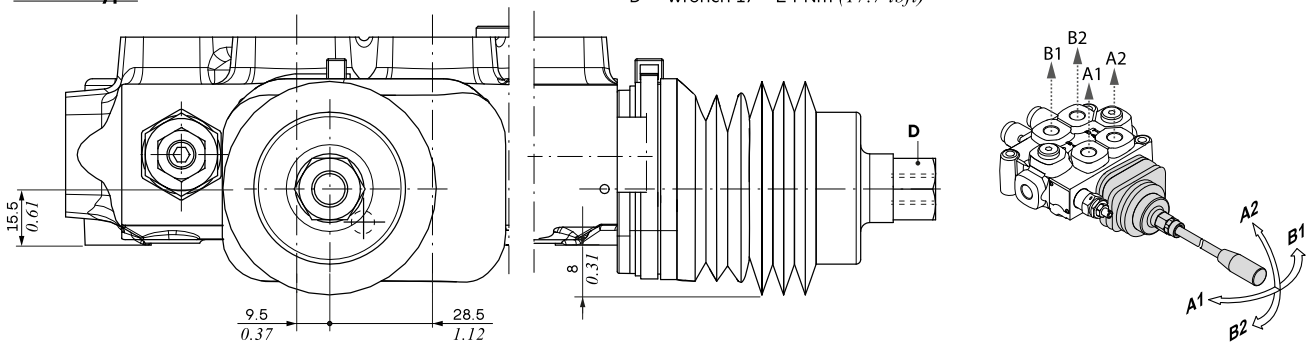


A35-2 type

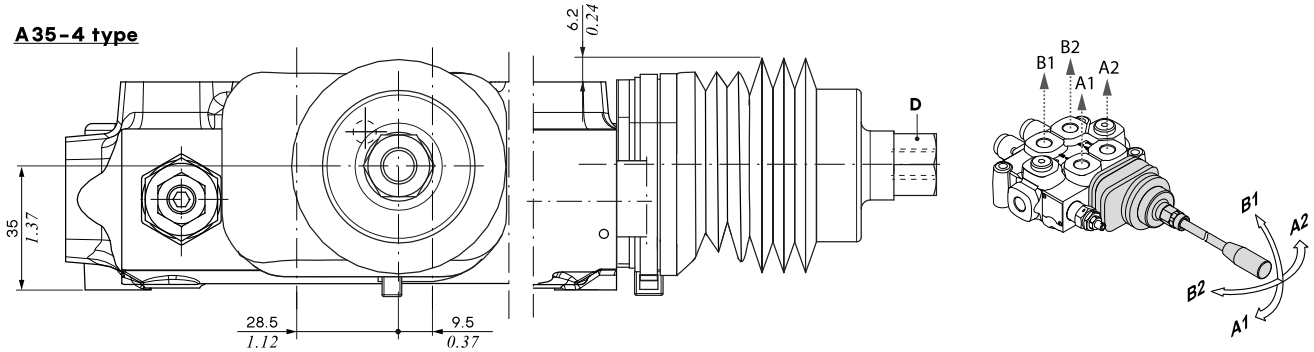


Wrenches and tightening torques
D = wrench 17 - 24 Nm *(17.7 lbft)*

A35-3 type



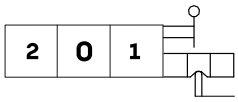
A35-4 type



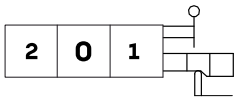
Spool position microswitch

With lever control

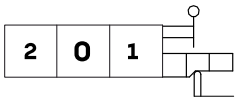
N1-A1 type
Micro operation in position 1 and 2.
Available with aluminium lever box

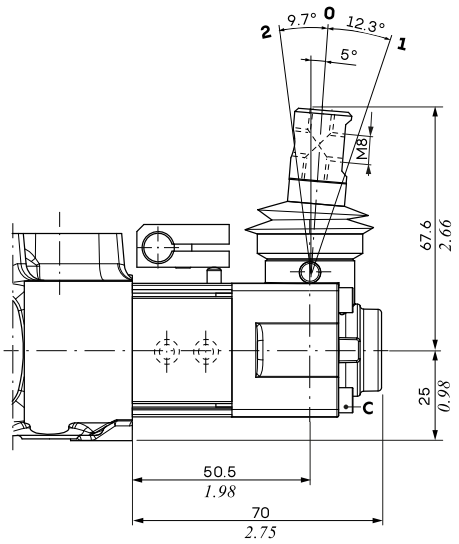


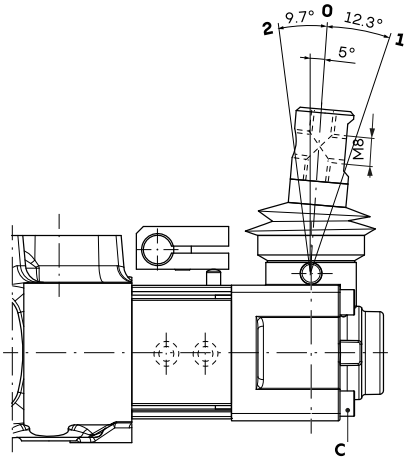
N1A-A1 type
Micro operation in position 1



N1B-A1 type
Micro operation in position 2



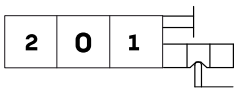




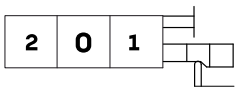
With aluminium lever box;
dimensions are the same of standard type

Without lever control, with cap

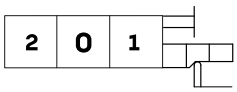
N1-A3 type
Micro operation in position 1 and 2

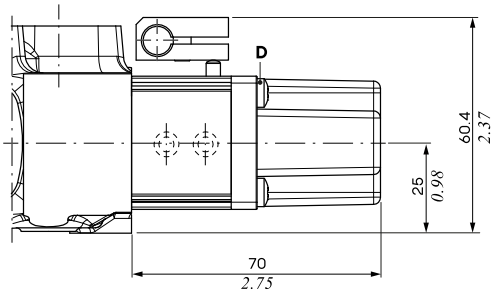


N1A-A3 type
Micro operation in position 1



N1B-A3 type
Micro operation in position 2



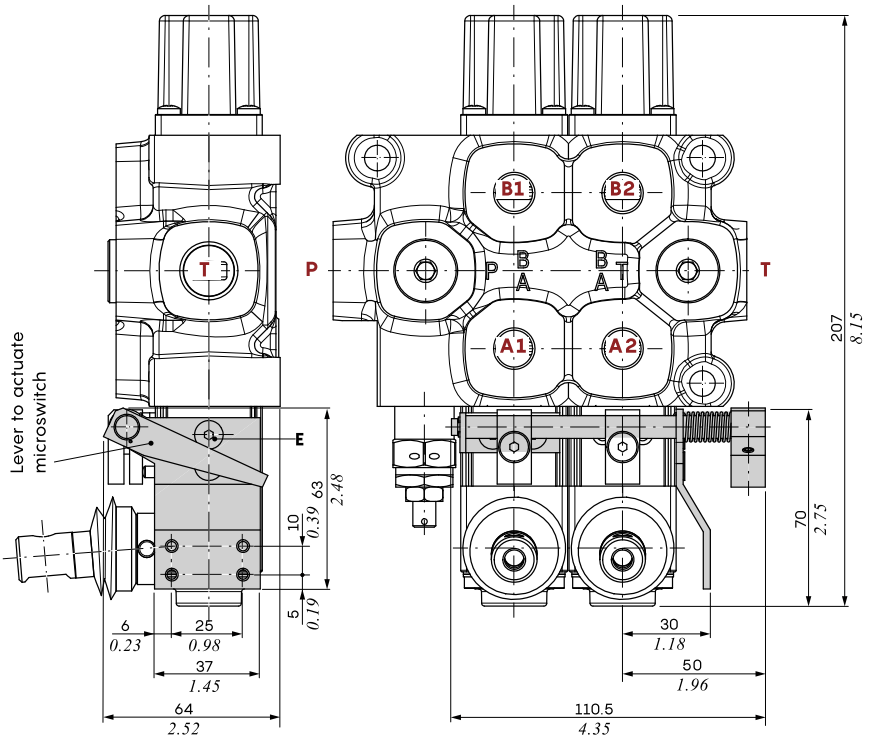


Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*
D = cross-head - 3 Nm *(2.2 lbft)*

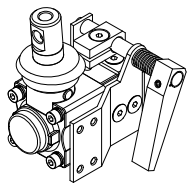
A side controls

Spool position microswitch

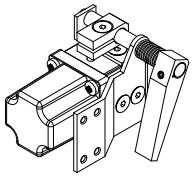
Microswitch assembly kit for 2 working section (N1-A1 type)



with cap



with lever box



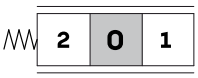
Wrenches and tightening torques
E = allen wrench 3 - 6.6 Nm *(4.8 lbft)*

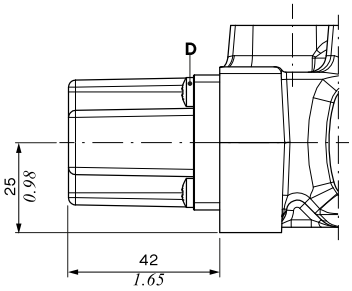
Drawing is referred to a Q25 monoblock valve.

Mechanical controls

With spring return control

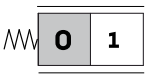
M1 type
3 position, spring return in neutral position.
Available with aluminium cap

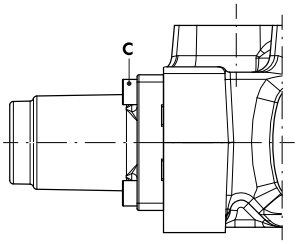




M1/01 type
3 position, for joystick control.
Available with aluminium cap

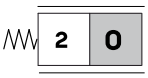
M2 type
2 position (0-1), spring return in neutral position.
Available with aluminium cap



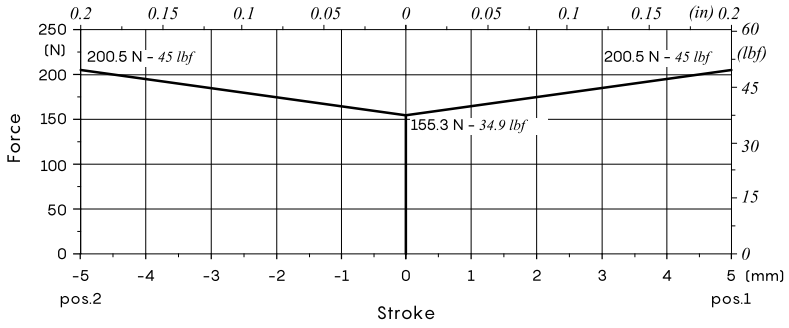


With aluminium cap;
dimensions are the same of standard type

M3 type
2 position (0-2), spring return in neutral position.
Available with aluminium cap

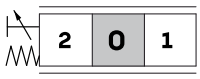


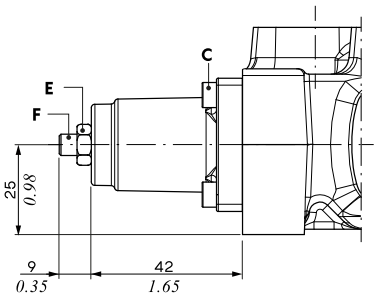
M1 control type - Force vs. Stroke diagram



Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*
D = cross-head - 3 Nm *(2.2 lbft)*
E = wrench 10 - 9.8 Nm *(7.2 lbft)*
F = allen wrench 4 - 9.8 Nm *(7.2 lbft)*

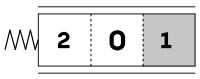
M1/02 type
As M1 type, with stroke limiter



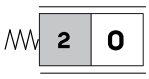


M4 types

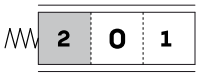
2 position (1-2), spring return in position 1

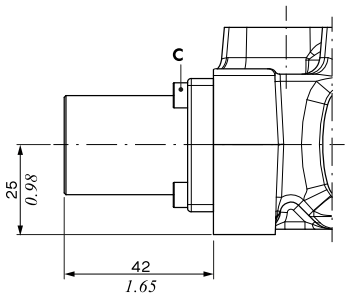


2 position (2-0), spring return in position 2



2 position (2-1), spring return in position 2



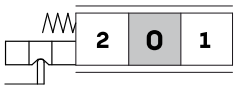


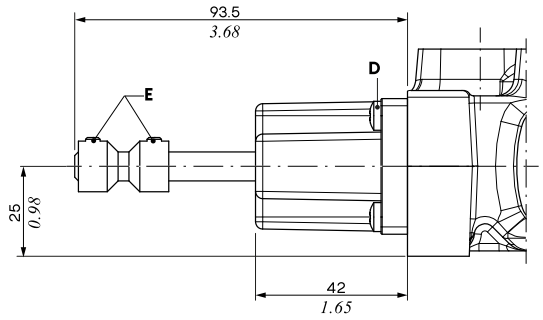
B side controls

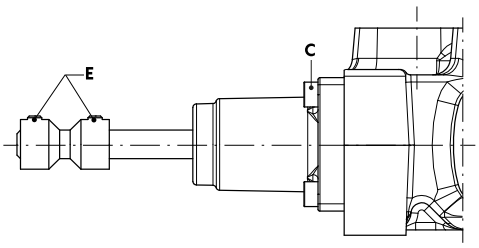
Mechanical controls

With spring return control

M1-B1 type
3 position, microswitch arrangement.
Available with aluminium cap



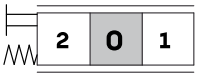




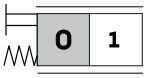
With aluminium cap;
dimensions are the same of standard type

With flexible cable control arrangement

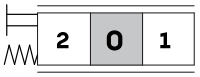
M1-U1 type
3 position, with M8 male thread external pin



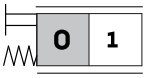
M2-U1 type
2 position (0-1), with M8 male thread external pin



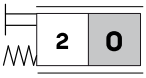
M1-U2 type
3 position, spring return in neutral position



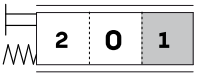
M2-U2 type
2 position (0-1), spring return in neutral position



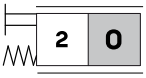
M3-U1 type
2 position (0-2), with M8 male thread external pin

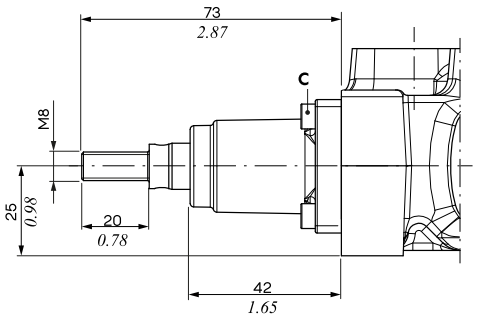


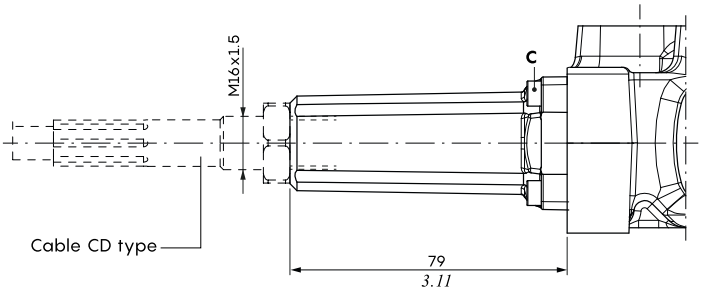
M4-U1 type
2 position (1-2), with M8 male thread external pin



M3-U2 type
2 position (0-2), spring return in neutral position





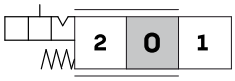


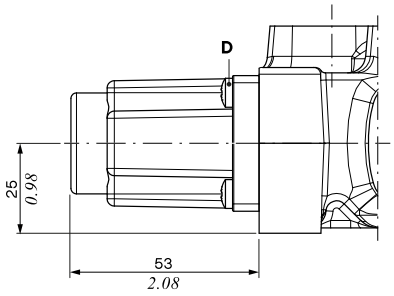
Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*
D = cross-head - 3 Nm *(2.2 lbft)*
E = allen wrench 3 - 5 Nm *(3.68 lbft)*

Mechanical controls

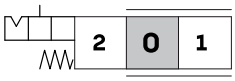
With detent control

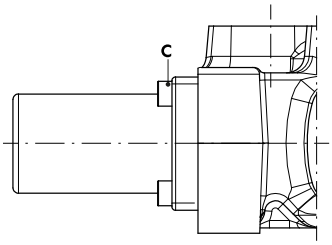
R1 type
3 position, detent in position 1.
Available with aluminium cap





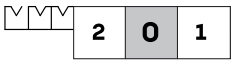
R2 type
3 position, detent in position 2.
Available with aluminium cap



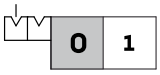


With aluminium cap;
dimensions are the same of standard type

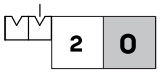
R3 type
3 position,
detent in all position.
Available with aluminium cap



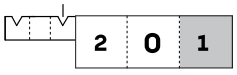
R4 type
2 position,
detent in position 0-1.
Available with aluminium cap

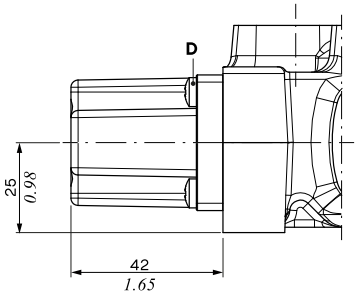


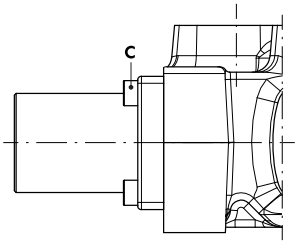
R5 type
2 position,
detent in position 0-2.
Available with aluminium cap



R6 type
2 position,
detent in position 1-2.
Available with aluminium cap







With aluminium cap;
dimensions are the same of standard type

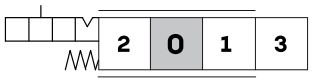
Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*
D = cross-head - 3 Nm *(2.2 lbft)*

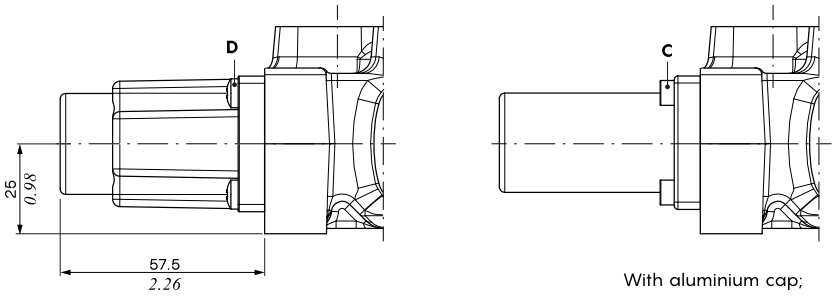
B side controls

Mechanical controls

With detent control

R8 type
4 position, detent in 4th position, for 116 floating spool type.
Available with aluminium cap

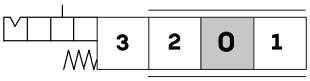


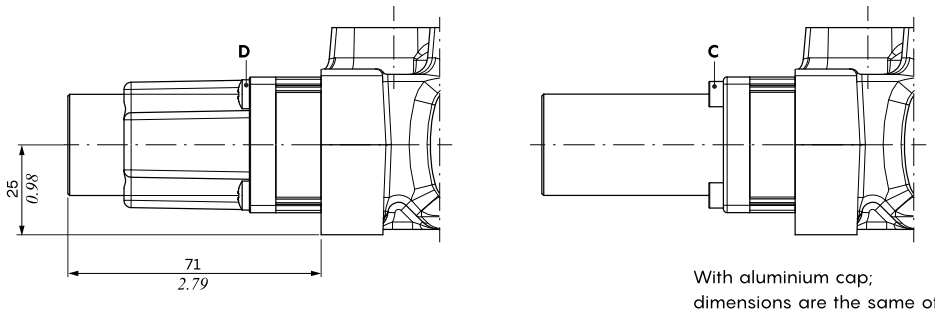


With aluminium cap;
dimensions are the same of standard type

Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*
D = cross-head - 3 Nm *(2.2 lbft)*
E = wrench 22 - 32 Nm *(23.6 lbft)*
F = wrench 16
G = allen wrench 10 - 32 Nm *(23.6 lbft)*

R10/Z1 type
4 position, detent in 4th position, for 126 floating spool type.
Available with aluminium cap

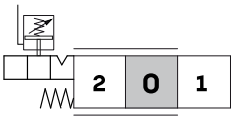




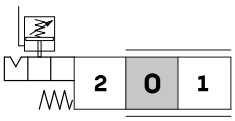
With aluminium cap;
dimensions are the same of standard type

With detent control and kick out function

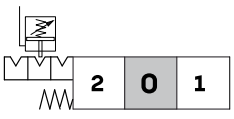
R1K type
3 position, detent in position 1.
Available with aluminium cap

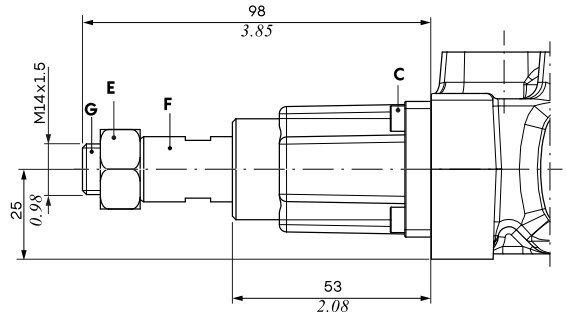


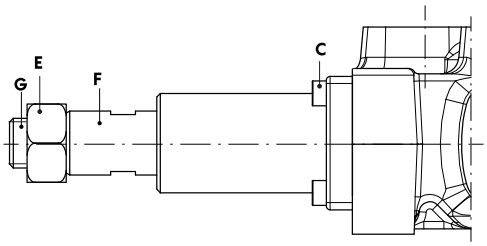
R2K type
3 position, detent in position 2.
Available with aluminium cap



R3K type
3 position, detent in all position.
Available with aluminium cap





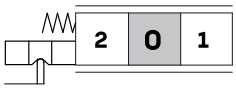


With aluminium cap;
dimensions are the same of standard type

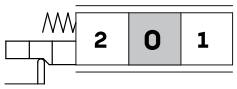
B side controls

Spool position microswitch

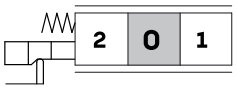
M1-N1 type
3 position, micro operation in position 1 and 2, spring return in neutral position.
Available with aluminium cap



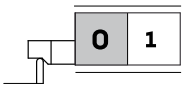
M1-N1A type
3 position, micro operation in position 1.
Available with aluminium cap

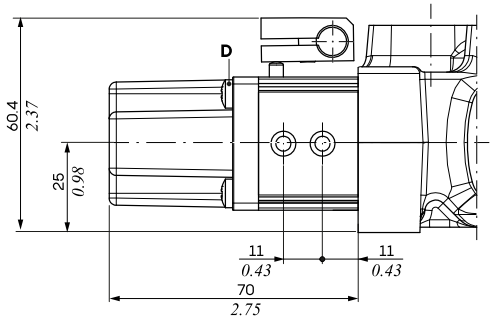


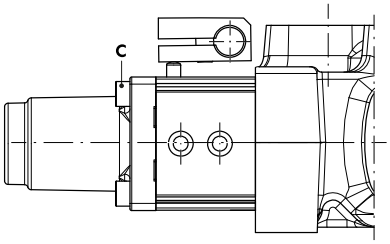
M1-N1B type
3 position, micro operation in position 2.
Available with aluminium cap



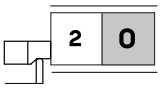
M2-N1 type
2 position (0-1) spring return in neutral position





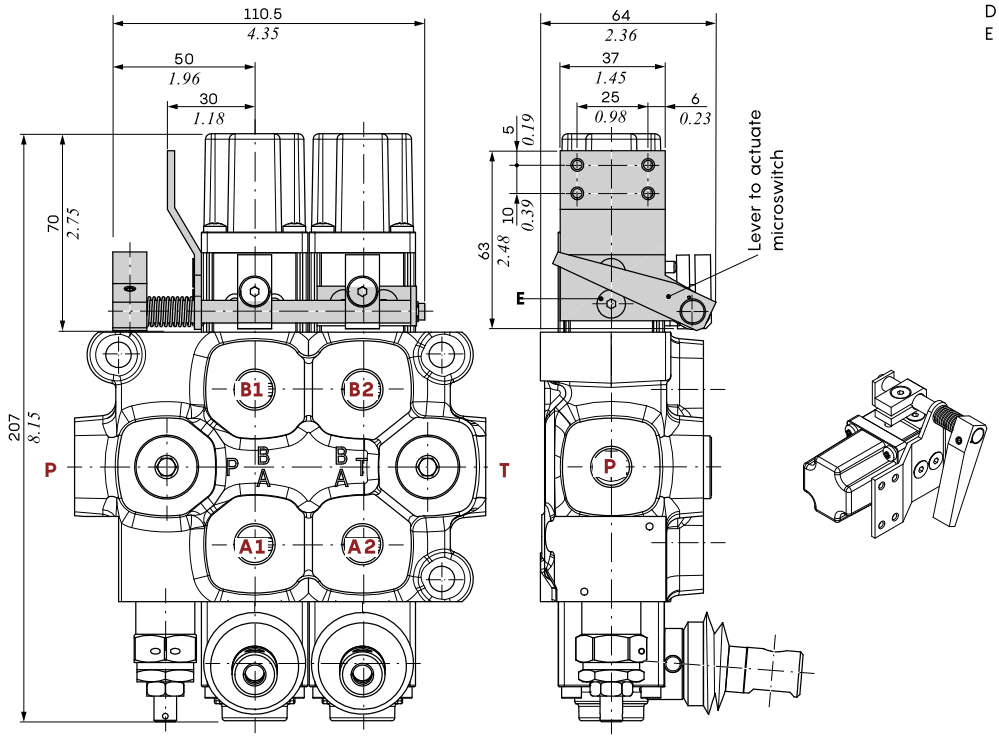


M3-N1 type
2 position (0-2) spring return in neutral position



With aluminium cap;
dimensions are the same of standard type

Microswitch assembly kit for 2 working section (M1-N1 type)



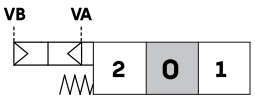
Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*
D = cross-head - 3 Nm *(2.2 lbft)*
E = allen wrench 3 - 6.6 Nm *(4.8 lbft)*

Drawing is referred to a Q25 monoblock valve.

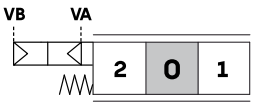
B side controls

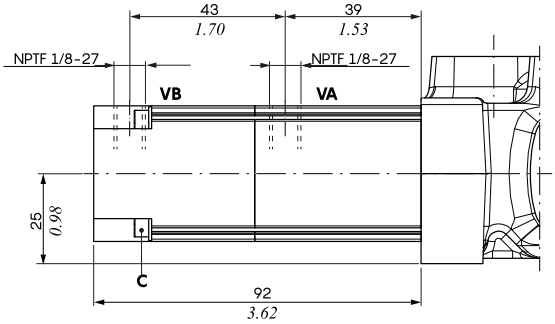
Pneumatic control

P1NW type
ON/OFF control

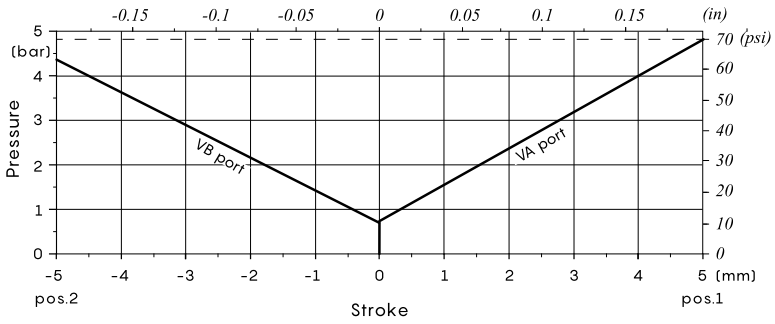


P1NPW type
Proportional control





Proportional pilot pressure curves

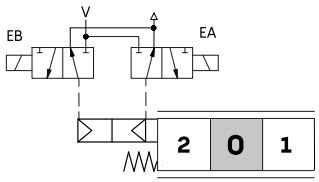


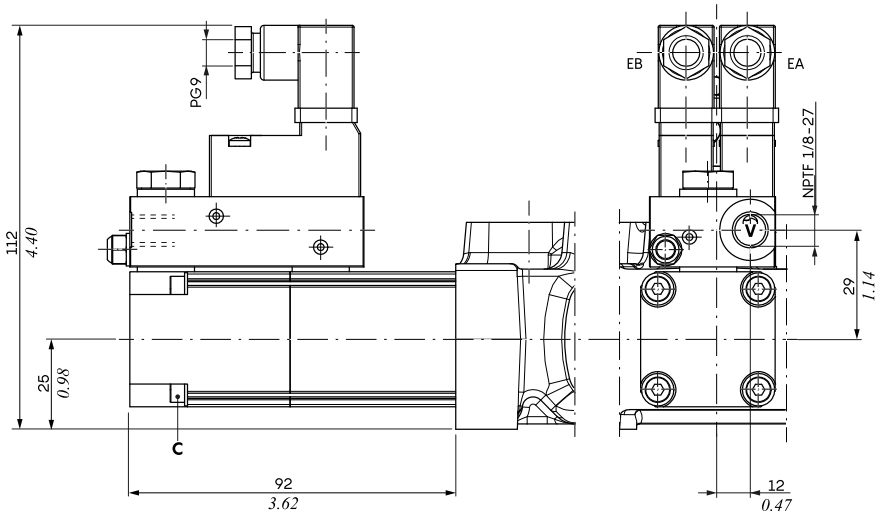
Operating features
Pilot pressure.....: min. 5 bar *(72.5 psi)* - max. 30 bar *(435 psi)*
Pilot volume.....: 4 cm³/min *(0.24 in³/min)*

Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*

ON/OFF electropneumatic control

D3 type
ON/OFF control





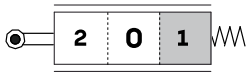
Operating features
Pilot pressure.....:min. 1 bar *(14.5 psi)*
max. 10 bar *(145 psi)*

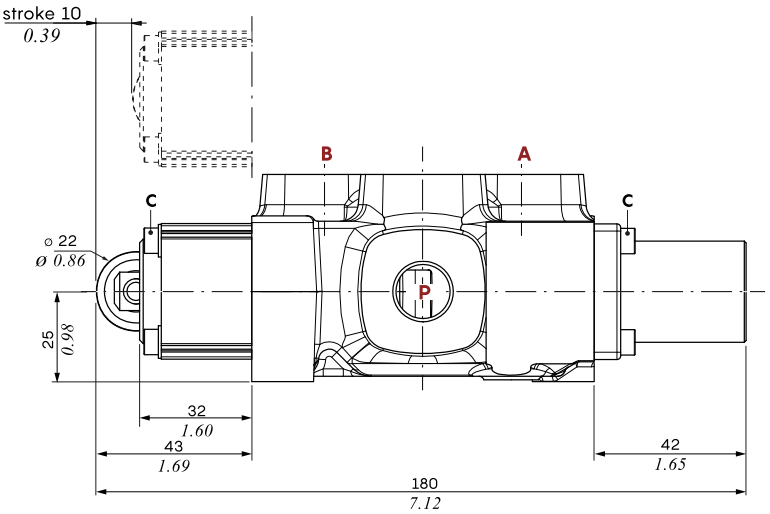
COILS
Nominal voltage tollerance.....: -5% +10%
Power rating.....: 2.3 W
Nominal current.....: 12 VDC - 24VDC
Coil insulation.....: Class F
Weather protection.....: IP65
Duty cicle.....: 100%

Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*

Cam control

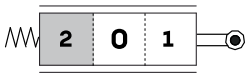
C2 type
From position 1 to position 2,
spring return in position 1

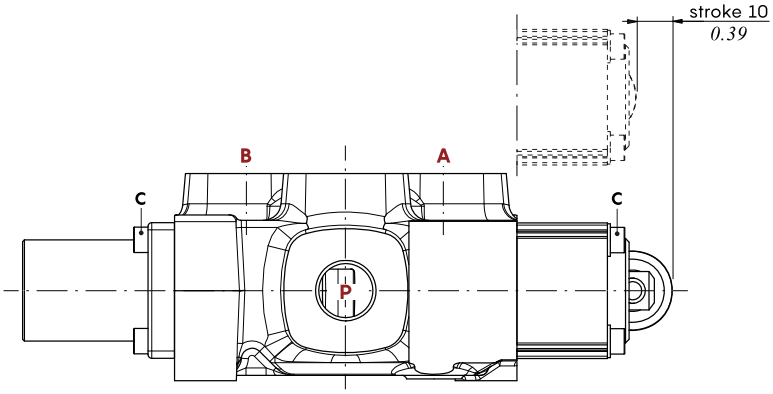




Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*

C3 type
From position 2 to position 1,
spring return in position 2.
Dimensions are the same of C2 type

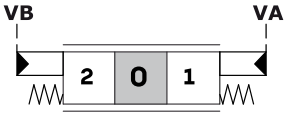


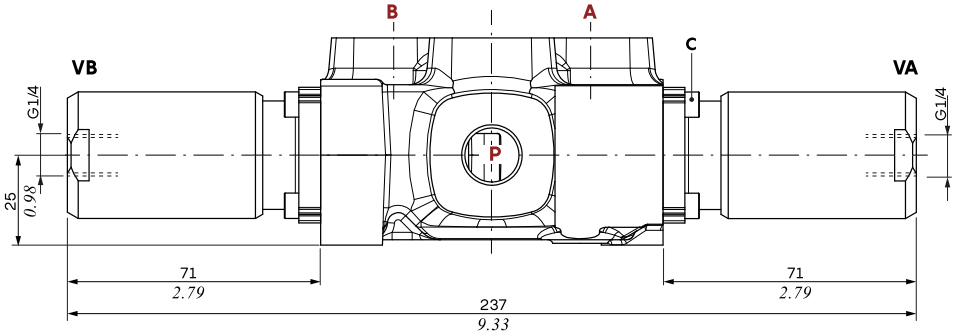


A+B side controls

Proportional hydraulic controls

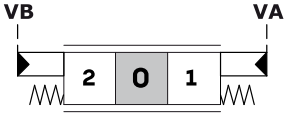
H1 type
High pressure control
with side ports

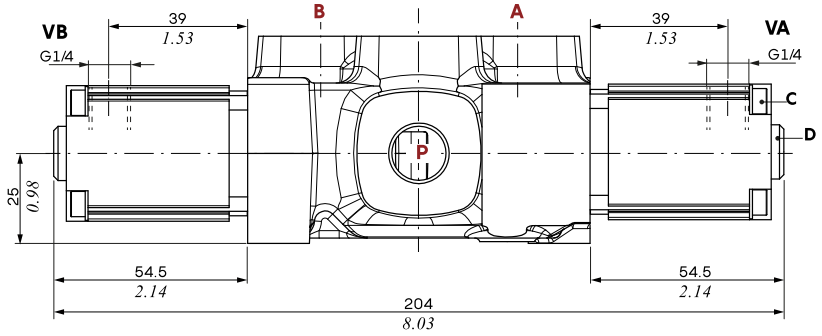




Operating features
Pilot pressure.....: min. 16 bar *(232 psi)* - max. 350 bar *(5070 psi)*

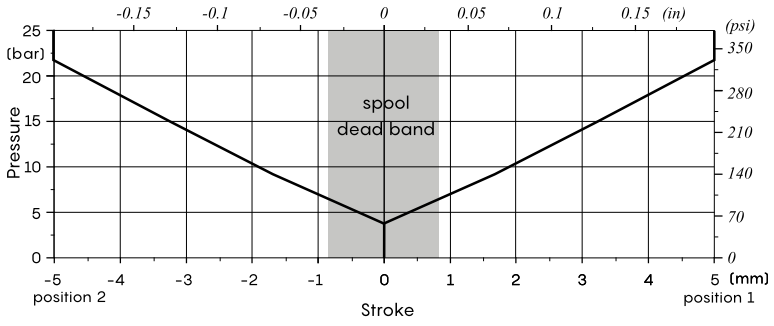
H5 type
Low pressure control
with upper ports





Operating features
Pilot pressure.....: max. 100 bar *(1450 psi)*

Stroke vs. Pressure diagram for H5 type control

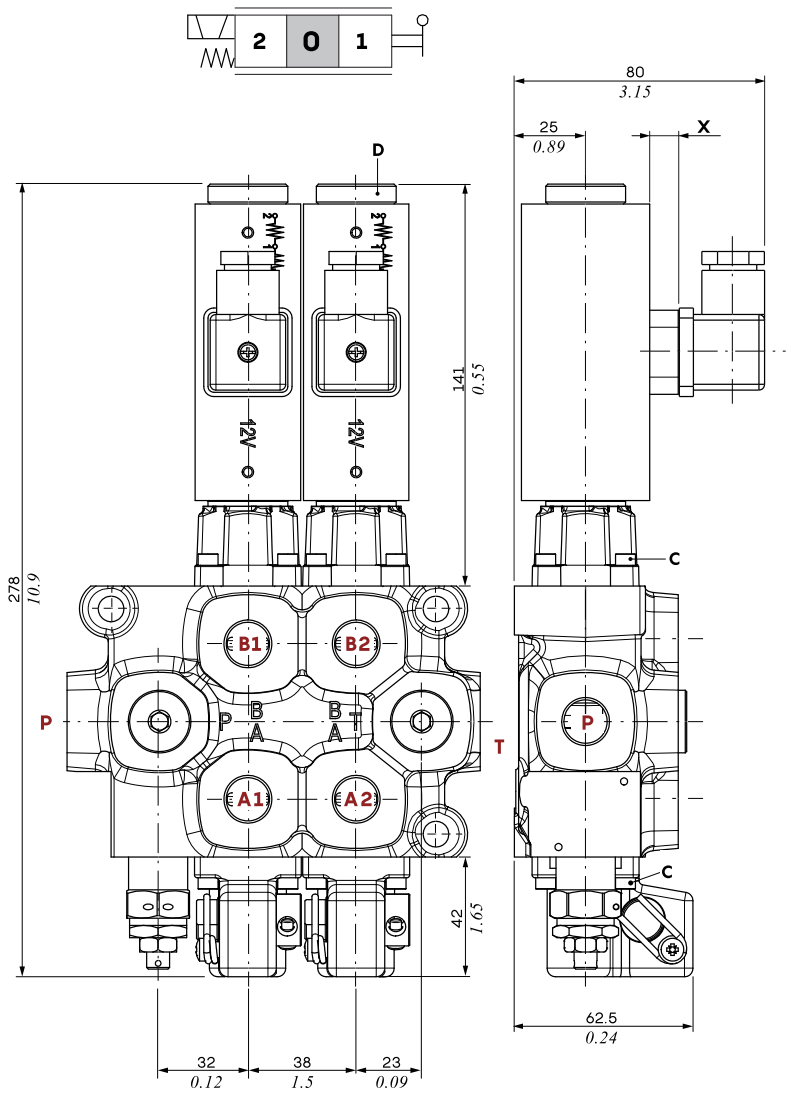


Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*
D = allen wrench 4 - 9.8 Nm *(7.2 lbft)*

Direct solenoid control

D41 type: ON/OFF one side

Drawing is referred to a Q25 monoblock valve.



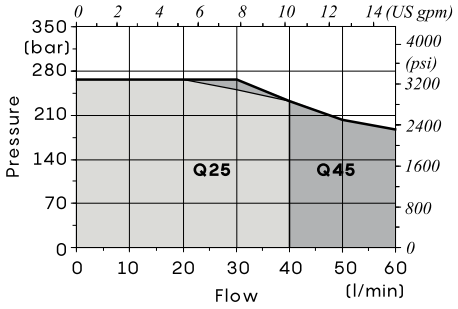
D41 coil		
	Q25	Q45
Nominal voltage	12 VDC 24 VDC	
Nominal voltage tolerance	±10%	
Power rating	58 W	52 W
Insulance	Class H	
Weather protection	IP65	

Connector type: ISO4400 3P+T-PG11

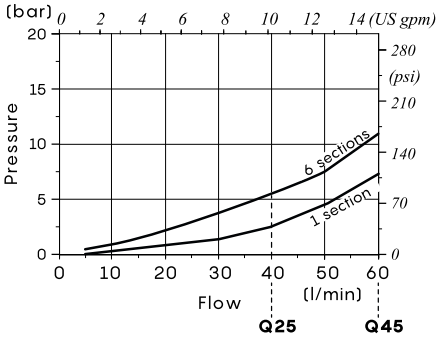
X		
	Coil type	mm - *in*
Q25	ZEB012 coil	10 - *0.39*
	ZEB024 coil	
Q45	4SLG111200 coil	8 - *0.31*
	4SLG111200 coil	

Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*
D = manual tightening - 6.6 Nm *(7.2 lbft)*

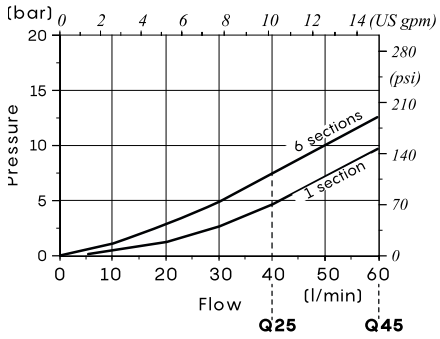
Dynamic conditions



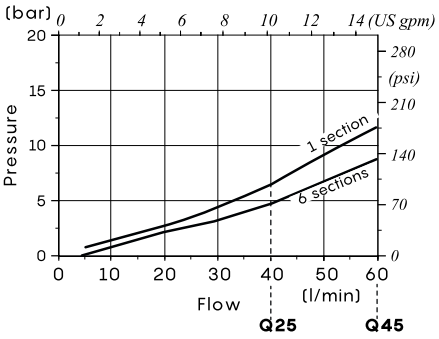
P⇒T pressure drops



P⇒A(B) pressure drops



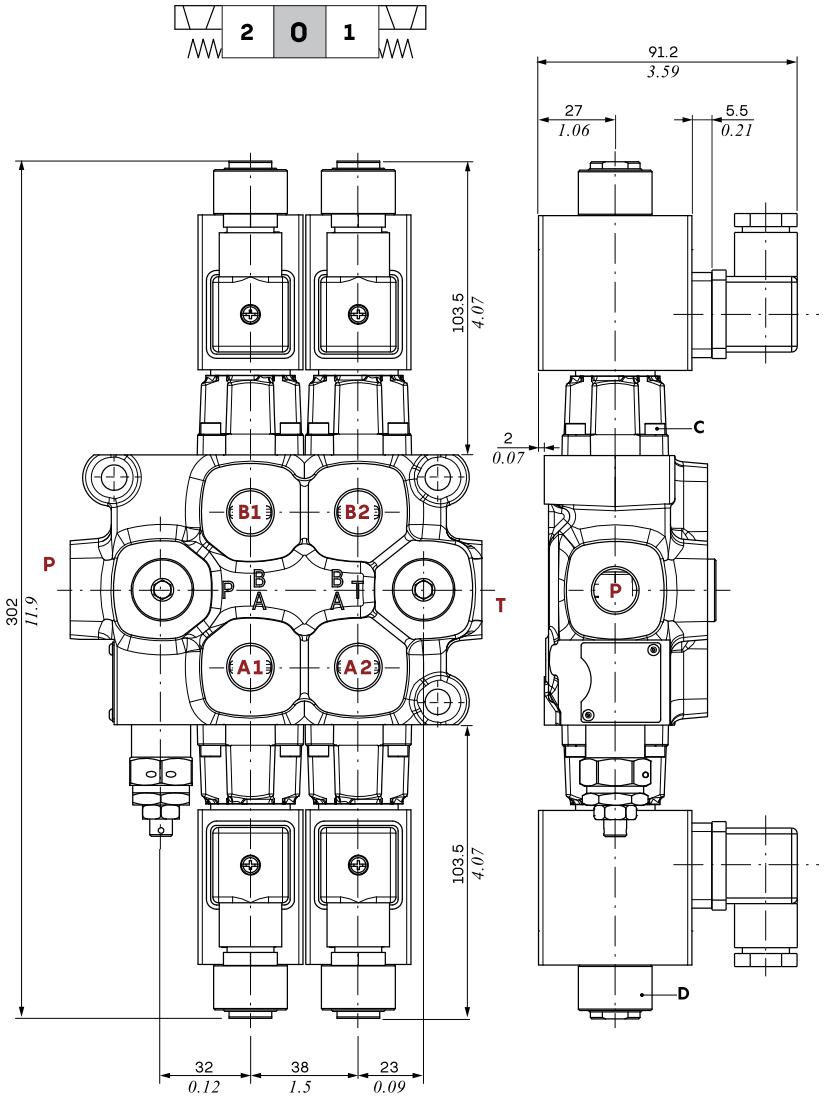
A(B)⇒T pressure drops



Direct solenoid control

D9 type: ON/OFF two side

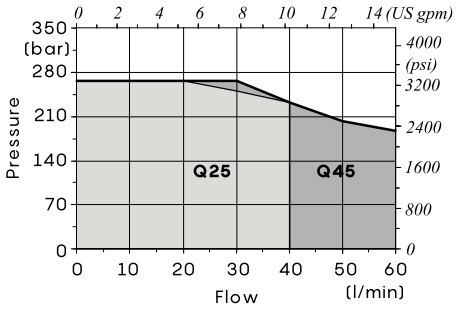
Drawing is referred to a Q25 monoblock valve.



D9 coil	
Nominal voltage	12 VDC 24 VDC
Nominal voltage tolerance	±10%
Power rating	58 W
Insulance	Class H
Weather protection	IP65

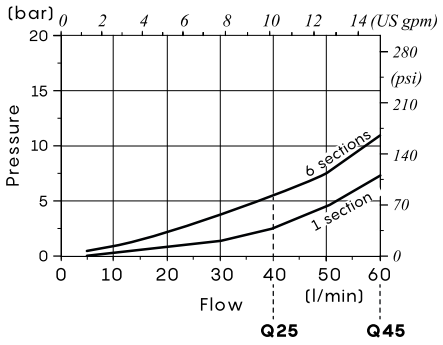
Connector type: ISO4400 3P+T-PG11

Dynamic conditions

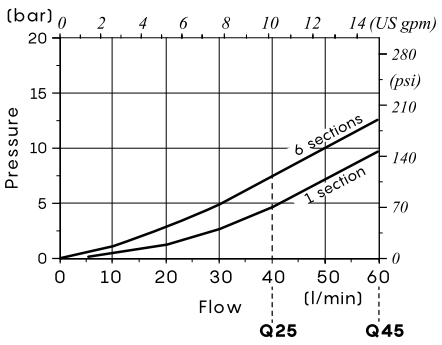


Wrenches and tightening torques
C = allen wrench 3 - 3 Nm *(2.2 lbft)*
D = manual tightening - 6.6 Nm *(4.8 lbft)*

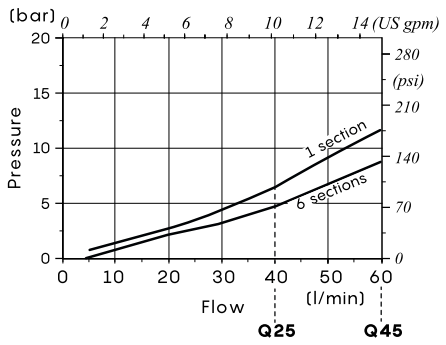
P⇒T pressure drops



P⇒A(B) pressure drops

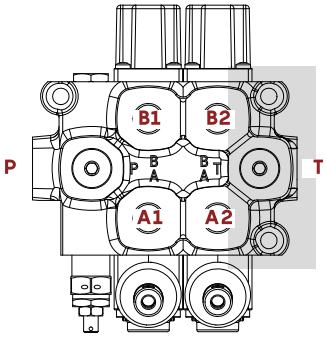


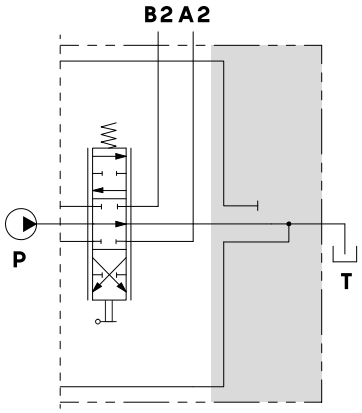
A(B)⇒T pressure drops

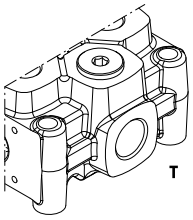


Outlet configuration

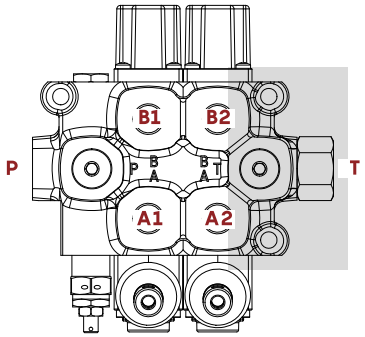
F3D configuration
Open center configuration

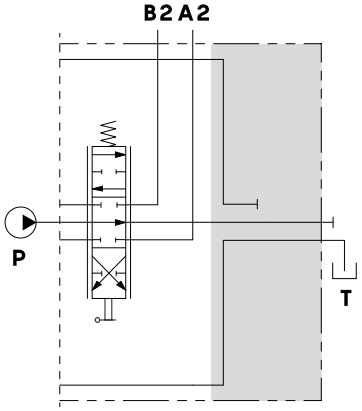


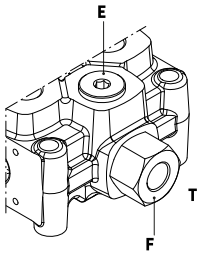




F16D configuration
Closed center configuration

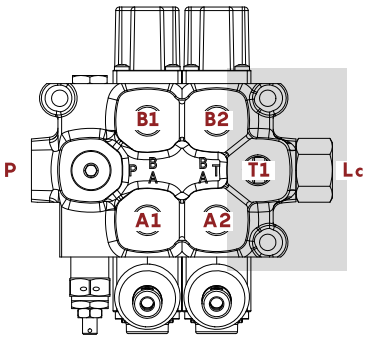


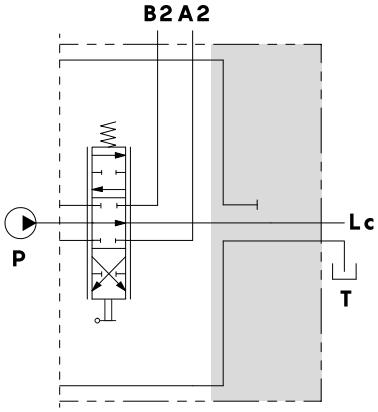


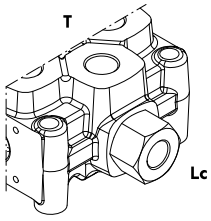


Wrenches and tightening torques
E (Q25) = allen wrench 6 - 24 Nm *(17.7 lbft)*
(Q45) = allen wrench 8 - 42 Nm *(22 lbft)*
F = wrench 30 - 42 Nm *(30.9 lbft)*

F6D configuration
Carry-over configuration



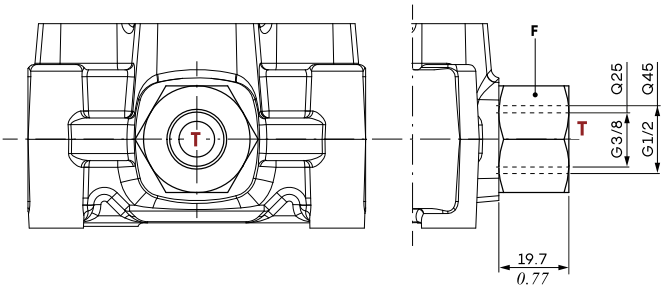




Outlet configuration

F6D - F16D joint dimension

Drawing is referred to a Q25 monoblock valve.



Wrenches and tightening torques
F = wrench 30 - 42 Nm *(30.9 lbft)*