

# Directional control valves range

TECHNICAL CATALOGUE



## Features

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Simple, compact and heavy duty designed monoblock/sectional valves from 1 to 10 sections

- Available with parallel, tandem or series circuit.
- For open and closed center hydraulic systems, optional carry-over port.
- Working sections with and without port valves arrangement.
- Available with manual, pneumatic, electropneumatic, hydraulic, direct solenoid and electrohydraulic on-off controls.

### **Additional information**

This catalogue shows the product in the most standard configurations.  
Please, contact Sales Dpt. for more detailed information or special request.

### **WARNING!**

All specifications of this catalogue refer to the standard product at this date.  
Walvoil, oriented to a continuous improvement, reserves the right to discontinue, modify or revise the specifications without notice.

WALVOIL IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY AN  
INCORRECT USE OF THE PRODUCT.

1<sup>st</sup> edition February 2023

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**Sectional directional control valves**

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## Q35 Monoblock directional valve

- Simple, compact and heavy duty designed monoblock valve
- Only one section for open center hydraulic systems
- Only mechanical controls available

### Working conditions

This catalogue shows technical specifications and diagrams measured through mineral oil of 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

Nominal flow rating	40 l/min - (10.6 Us gpm)	
Max. pressure	300 bar (4300 psi)	
Max. back pressure on outlet <b>T</b> port (*)	25 bar (360 psi)	
Number sections	1	
Internal leakage A(B)⇒T	$\Delta p = 100 \text{ bar (1450 psi)}$	5 cm <sup>3</sup> /min (0.30 in <sup>3</sup> /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 mm <sup>2</sup> /s - from 10 to 400 cSt
Max. contamination level	16/14/12 - ISO 4406 - NAS1638 class 6	
Ambient temperature	from -20°C to 50°C - from -4 °F to 122 °F	

NOTE - for different conditions please contact our Sales Department.

(\*): On request max back pressure allowable is 180 bar (2610 psi)

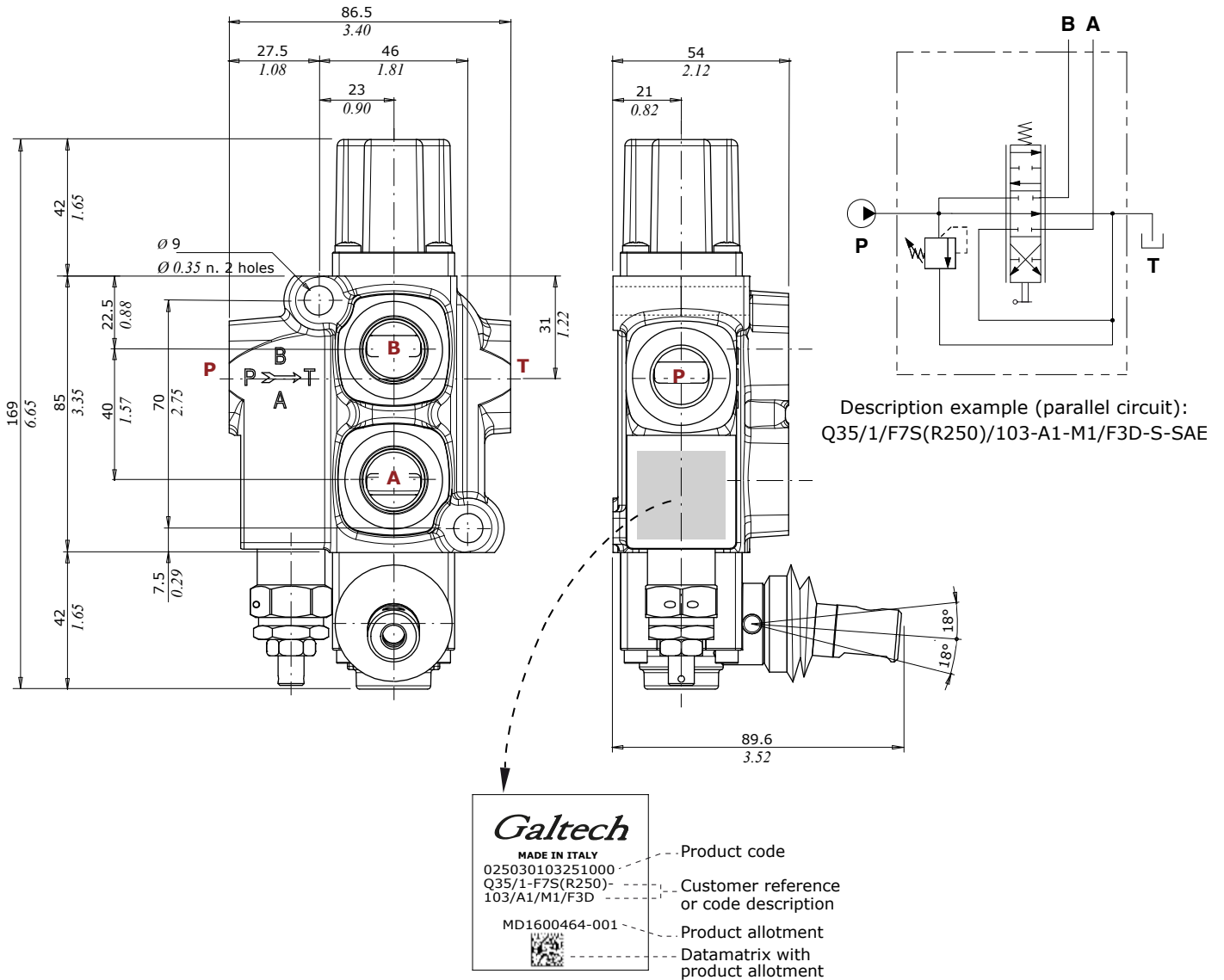
### REFERENCE STANDARD

		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	

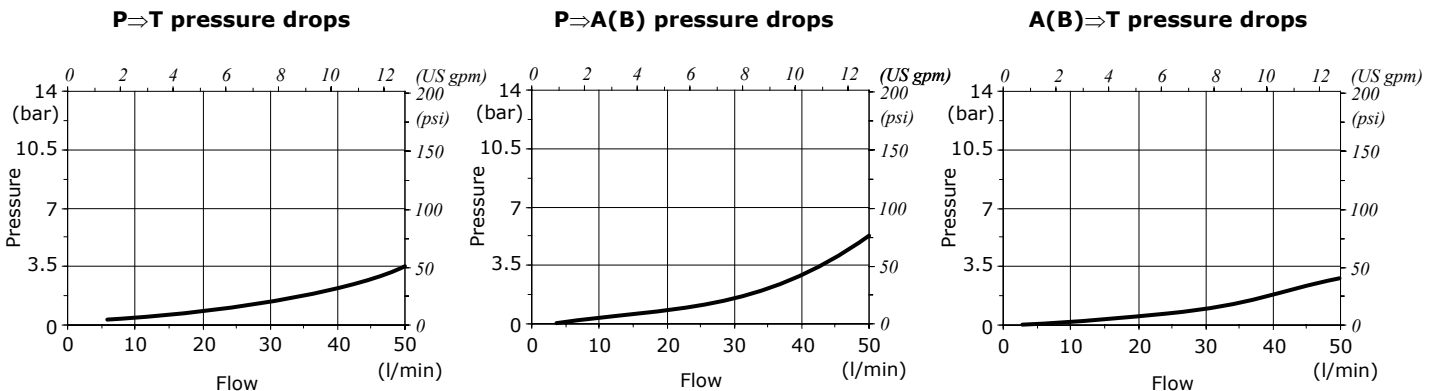
### PORT THREADING

PORTS	BSP	UN-UNF
<b>P</b> Inlet	G 3/8	3/4-16 (SAE 8)
<b>A</b> and <b>B</b> ports	G 3/8	3/4-16 (SAE 8)
<b>T</b> Outlet	G 3/8	3/4-16 (SAE 8)

**Dimensional data and hydraulic circuit**



**Performance data**



NOTE: Drawings and dimensions are referred to a **UN-UNF** threading configuration.

**Mechanical control valve configuration example**

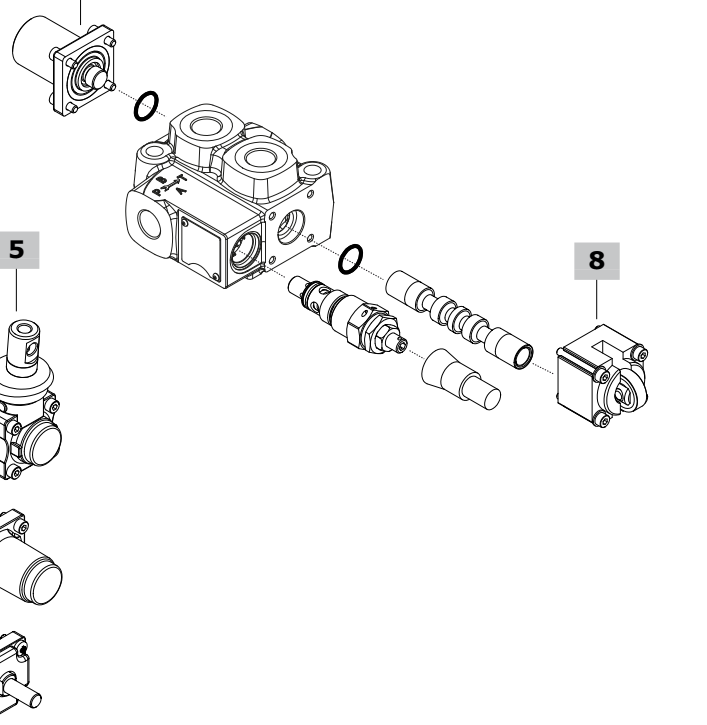
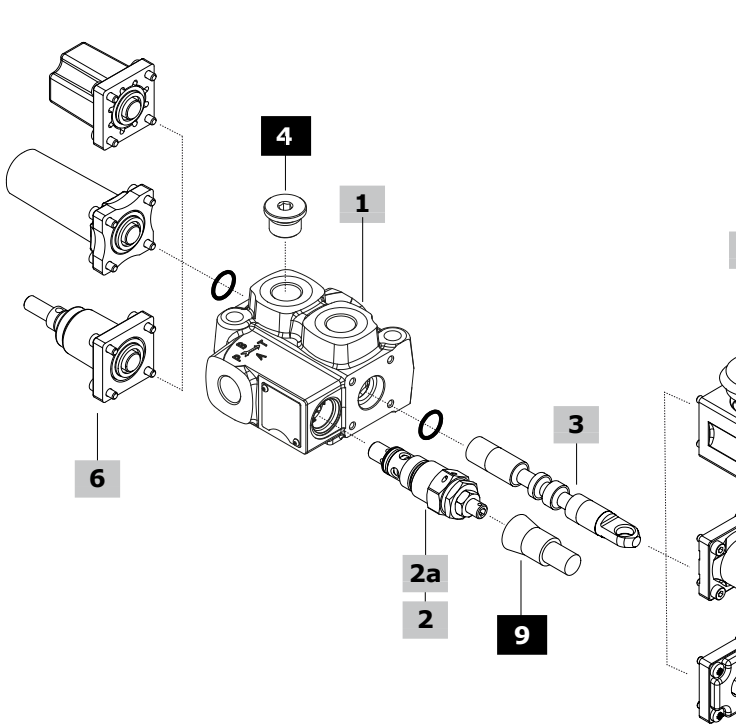
**C2/C3 complete mechanical controls valve configuration example**

valve setting (bar)  
**Q35 / 1 / F7S (R250) / 103 - A1 - M1 / F3D - S - SAE**

**Q35 / 1 / F7S (R250) / 103 - C3 / F3D - S - SAE**

1 N. of section  
 2  
 2a  
 3  
 5  
 6 open center aluminium controls

8



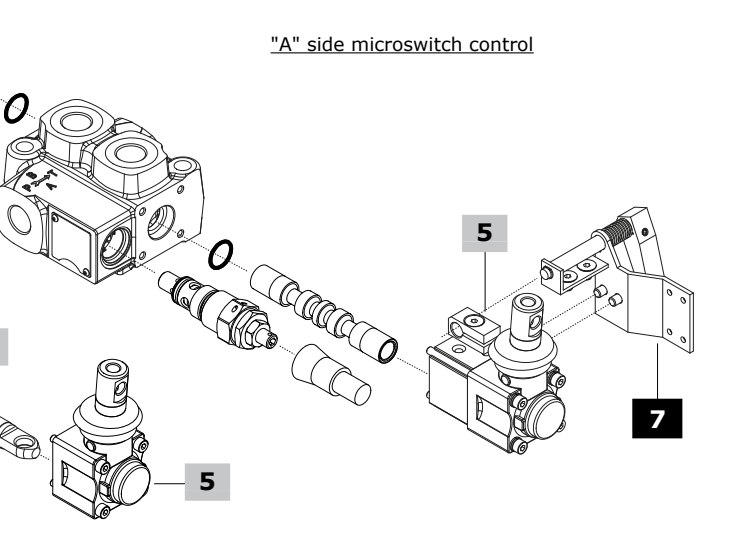
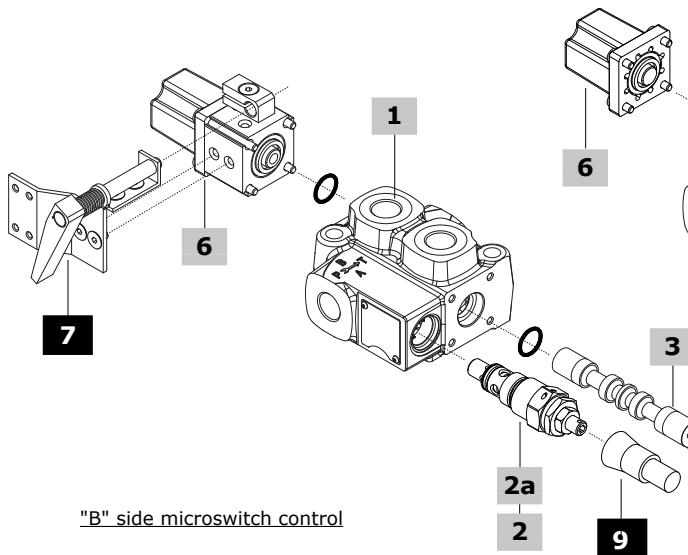
**Microswitch control valve configuration example**

valve setting (bar)  
**Q35 / 1 / F7S (R250) / 103 - A1 - M1-N1 / F3D - S - SAE**

**Q35 / 1 / F7S (R250) / 103 - N1-A1 - M1 / F3D - S - SAE**

1 N. of section  
 2  
 2a  
 3  
 5  
 6 open center aluminium controls

5 6



"B" side microswitch control

"A" side microswitch control

**Parts ordering codes**

**1 Body kit\***

The code are referred to sections with O-ring seals

TYPE	CODE	DESCRIPTION
<b>Q35/1-SAE</b>	5KC0600129518	1 section

**2 Inlet configuration** **page 9**

TYPE	DESCRIPTION
<b>F7S-SAE</b>	With pressure relief valve
<b>F8S-SAE</b>	Without valves (pressure relief valve plugged port)

**2a Main pressure relief valve** **page 9**

TYPE: <b>B</b>	CODE: 700035205000000	DESCRIPTION: VLP35S valve, setting range 10-100 bar (145-1450 psi)
TYPE: <b>N</b>	CODE: 700035105000000	DESCRIPTION: VLP35S valve, setting range 101-200 bar (1460-2900 psi)
TYPE: <b>R</b>	CODE: 700035305000000	DESCRIPTION: VLP35S valve, setting range 201-380 bar (2910-5500 psi)
TYPE: -	CODE: 060002788899	DESCRIPTION: Without valves (pressure relief valve plugged port)

**3 Spool** **page 10**

TYPE	CODE	DESCRIPTION
<b>Standard spools</b>		
<b>103</b>	KR35103	Double acting, A and B closed in neutral pos.
	KR35103N	As previous one, negative overlap
<b>111</b>	KR35111	Double acting, A and B to tank in neutral pos.
<b>101</b>	KR35101-102	Single acting on port A. SAE8 plug is required, see #4
<b>102</b>	KR35101-102	Single acting on port B. SAE8 plug is required, see #4

**Special spools for cam, microswitch controls and other leverless controls**

<b>103</b>	3CUG2800600	Double acting, A and B closed in neutral pos.
<b>111</b>	3CUG2807300	Double acting, A and B to tank in neutral pos.

**4 Plug for single acting spool\***

TYPE	CODE	DESCRIPTION
-	255008	SAE8 plug

**5 A side control** **page 11**

TYPE	CODE	DESCRIPTION
<b>For standard spools</b>		
<u>With lever control:</u>		
<b>A1</b>	03600A1-A2	M8 thread plastic lever box
<b>A2</b>	03600A1-A2	As A1 type, with lever box rotated 180°
<b>A1/10</b>	03610A1-A2/10	M8 thread aluminium lever box
<b>A2/10</b>	03610A1-A2/10	As A1/10 type, with lever box rotated 180°
<b>A1/PM</b>	03610A1-A2/PM	M10 thread aluminium lever box
<b>A2/PM</b>	03610A1-A2/PM	As A1/PM type, with lever box rotated 180°
<b>A1/PMP</b>	03610A1-A2/PMP	M10 thread plastic lever box
<b>A2/PMP</b>	03610A1-A2/PMP	As A1/PMP type, with lever box rotated 180°

With safety lever control:

<b>A1/S<sup>(1)</sup></b>	03624A1-A2/S	M8 thread aluminium lever box
<b>A2/S<sup>(1)</sup></b>	03624A1-A2/S	As A1/S type, with lever box rotated 180°

Without lever control:

<b>A8</b>	03622A8/03	Flexible cable control arrangement
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**For types 103 and 111 special spools**

With spool position microswitch:

**Note:** To complete the control you must use the assembly kit at #7

<b>N1-A1</b>	03641N1-A1/A2	Micro operation in pos. 1 and 2, with lever box
<b>N1A-A1</b>	03642N1A-A1/A2	Micro operation in pos. 1, with lever box
<b>N1B-A1</b>	03643N1BA1/A2L	Micro operation in pos. 2, with lever box
<b>N1-A3</b>	03648N1-A3L	Micro operation in pos. 1 and 2, without lever with cap
<b>N1A-A3</b>	03648N1A-A3L	Micro operation in pos. 1, without lever with cap
<b>N1B-A3</b>	03648N1B-A3L	Micro operation in pos. 2, without lever with cap

**5 A side control (cont.)** **page 11**

TYPE	CODE	DESCRIPTION
<b>For types 103 and 111 special spools</b>		
<u>Without lever control:</u>		
<b>A3</b>	03614A3	Without lever, with cap
	03614A3/03	As previous one, with aluminium cap
<b>A4</b>	03617A4	M8 male thread external pin with flange
	03617A4/03	As previous one, with aluminium flange
<b>A5<sup>(2)</sup></b>	03619A5	Flange with spherical spool end

**6 B side control** **page 15**

TYPE	CODE	DESCRIPTION
<u>With spring return:</u>		
<b>M1</b>	03730M1	3 pos., spring return in neutral position
	03730M1/03	As previous one, with aluminium cap
<b>M1-U1</b>	03701M1-U1	As M1 type, with M8 male thread external pin
<b>M2</b>	03732M2	2 pos. (0-1), spring return in neutral position
	03732M2/03	As previous one, with aluminium cap
<b>M2-U1</b>	03702M2-U1	As M2 type, with M8 male thread external pin
<b>M3</b>	03733M3	2 pos. (0-2), spring return in neutral position
	03733M3/03	As previous one, with aluminium cap
<b>M3-U1</b>	03703M3-U1	As M3 type, with M8 male thread external pin
<b>M4-U1</b>	03704M4-U11-2	2 pos. (1-2), spring return in pos. 1, with M8 male thread external pin

With flexible cable control arrangement:

<b>M1-U2</b>	03715M1-U2	3 pos., spring return in neutral position
<b>M2-U2</b>	03716M2-U2	2 pos. (0-1), spring return in neutral position

With detent:

<b>R1</b>	03741R1	3 pos., detent in position 1
	03741R1/03	As previous one, with aluminium cap
<b>R2</b>	03742R2	3 pos., detent in position 2
	03742R2/03	As previous one, with aluminium cap
<b>R3</b>	03743R3	3 pos., detent in all position
	03743R3/03	As previous one, with aluminium cap

With spool position microswitch:

**Note:** To complete the control is necessary to combine at #7 the assembly kit

<b>M1-N1</b>	03766M1-N1	3 pos., micro operation in pos. 1 and 2, spring return in neutral position
<b>M1-N1A</b>	03767M1-N1AL	As M1-N1 type, micro operation in pos. 1
<b>M1-N1B</b>	03768M1-N1BL	As M1-N1 type, micro operation in pos. 2
<b>M2-N1</b>	03769M2-N1L	2 pos. (0-1), spring return in neutral position
<b>M3-N1</b>	03772M3-N1L	2 pos. (0-2), spring return in neutral position

**7 Microswitch assembling kit**

CODE	DESCRIPTION
03650N1-01	Kit for 1 section

**8 Complete controls A+B sides** **page 18**

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

**9 Accessory**

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

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

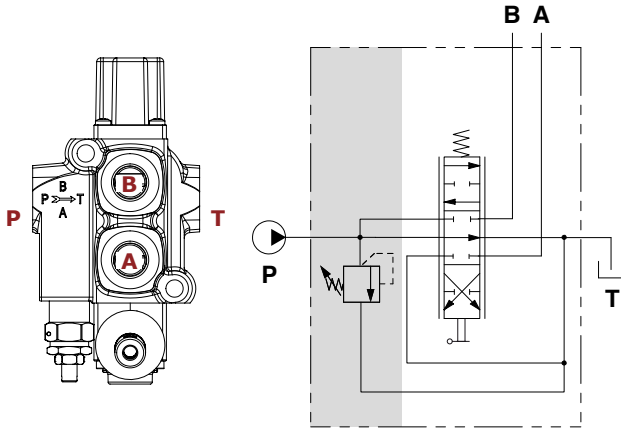
(<sup>1</sup>): Always complete with lever knob

(<sup>2</sup>): To be assembled only with M4 control

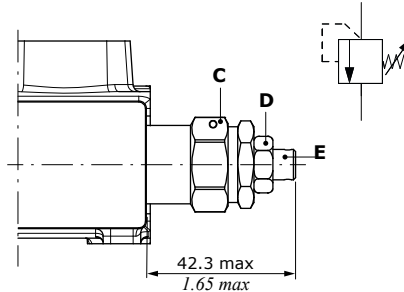


Main pressure relief valve

**F7S-SAE configuration**  
With pressure relief valve



**Main pressure relief valve**

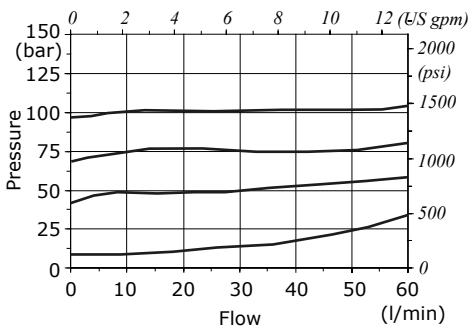


**Wrenches and tightening torques**

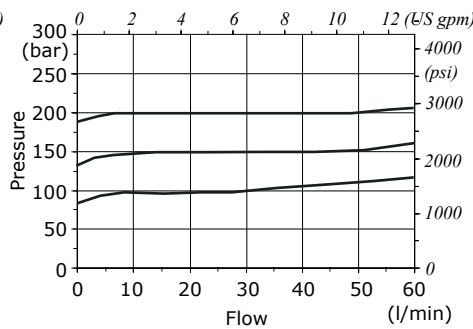
- C = wrench 22 - 42 Nm (30.9 lbft)
- D = wrench 13 - 24 Nm (17.7 lbft)
- E = allen wrench 4

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

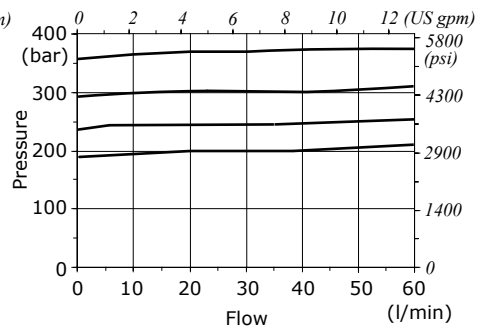
**Setting example (B type spring)**



**Setting example (N type spring)**

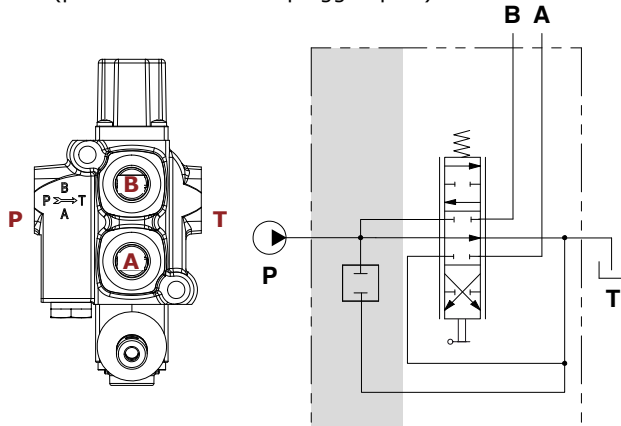


**Setting example (R type spring)**

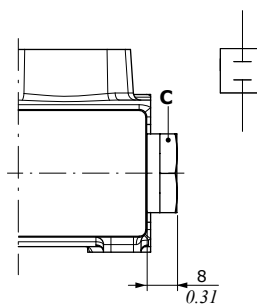


**F8S-SAE configuration**

Without valves  
(pressure relief valve plugged port)



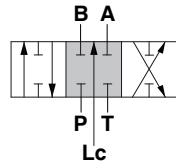
**Relief valve blanking plug**



**Spool**

**103 type**  
A and B closed  
in neutral position

2 **0** 1

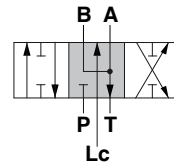


**Stroke**

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

**111 type**  
A and B to tank  
in neutral position

2 **0** 1

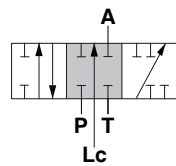


**Stroke**

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

**101 type**  
Single acting on A,  
B plugged

2 **0** 1

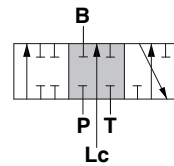


**Stroke**

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

**102 type**  
Single acting on B,  
A plugged

2 **0** 1



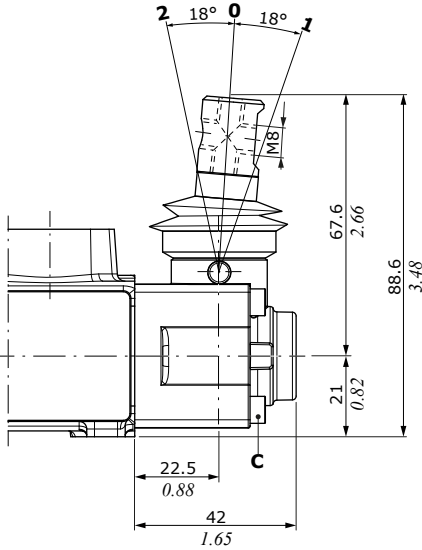
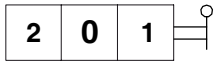
**Stroke**

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

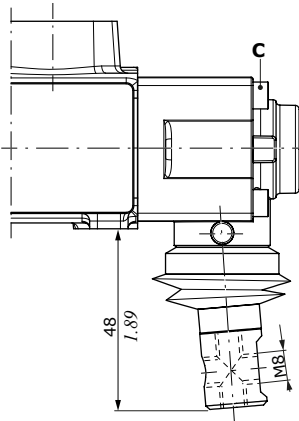
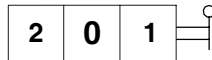
Mechanical controls

With lever control

**A1 type**  
M8 thread plastic lever box

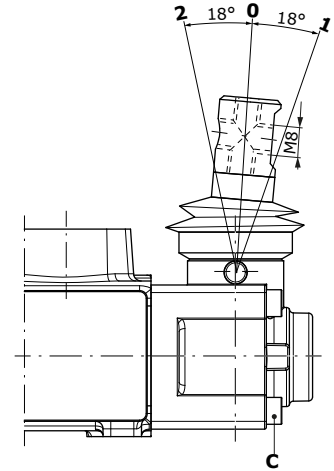


**A2 type**  
As A1 type, rotated 180°



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

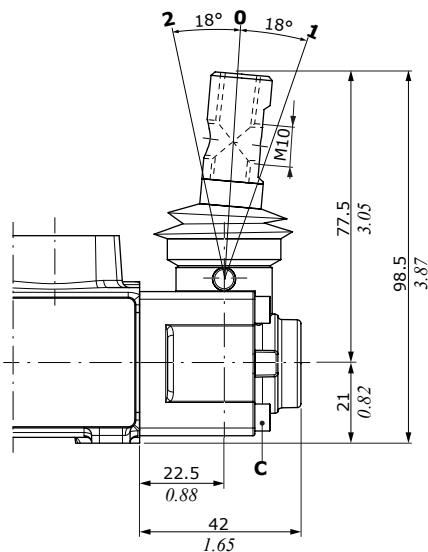
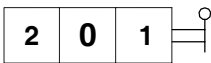
**A2/10 type**  
As A1/10 type, rotated 180°



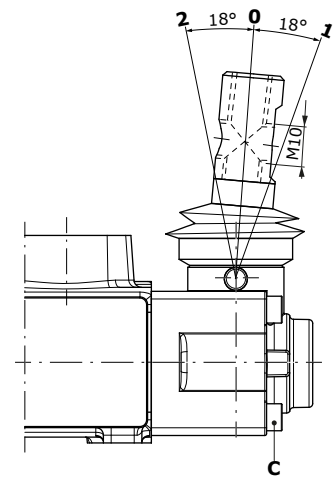
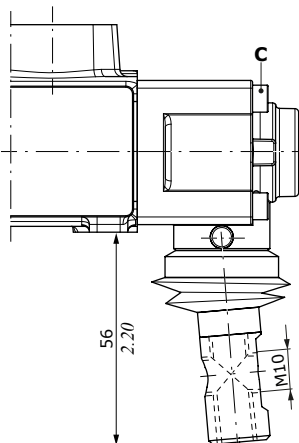
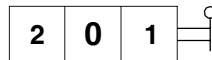
**A1/PM type**  
M10 thread plastic lever box.  
Dimensions are the same of A1/PM type

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

**A1/PM type**  
M10 thread aluminium lever box



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



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

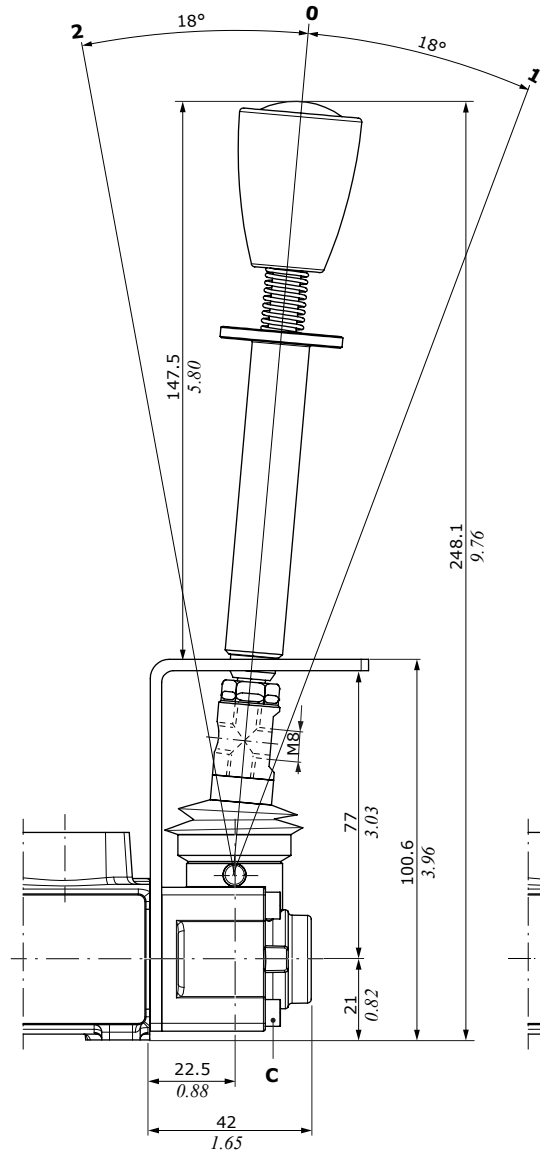
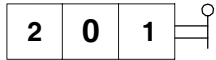
A side controls

Mechanical controls

With safety lever control

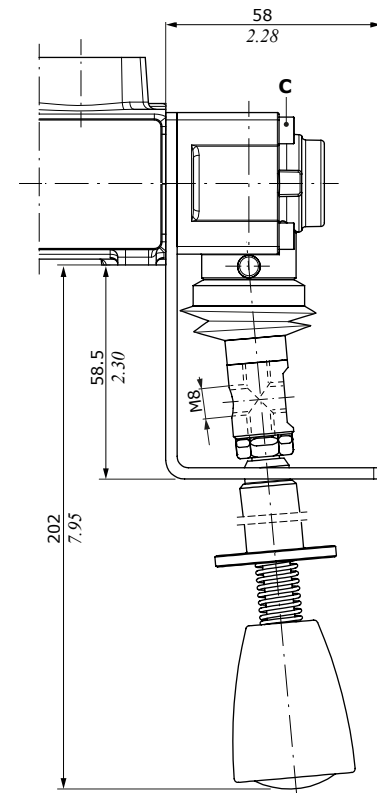
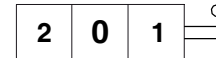
A1/S type

M8 thread, aluminium lever box



A2/S type

As A1/S type, rotated 180°



Wrenches and tightening torques

C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)

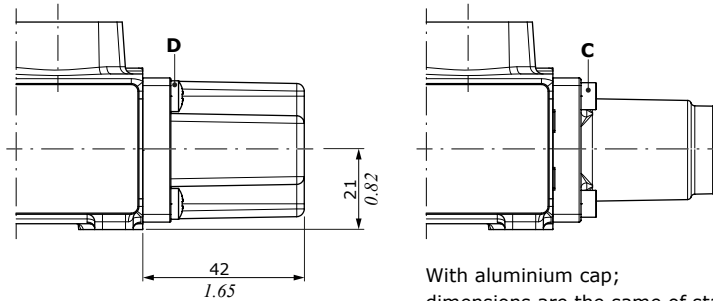
**Mechanical controls**

**Without lever control**

**A3 type**

With cap.

Available with aluminium cap

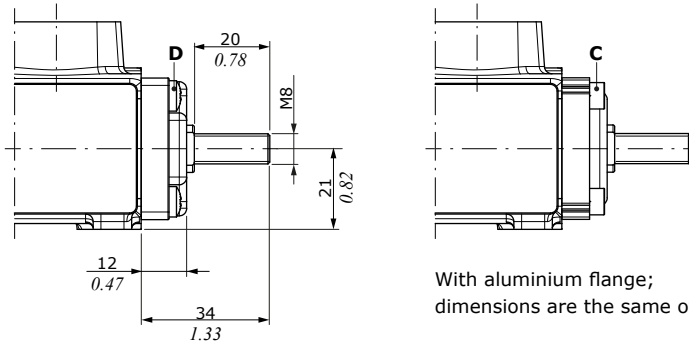
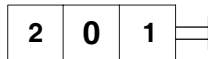


With aluminium cap;  
dimensions are the same of standard type

**A4 type**

M8 male thread external pin with flange.

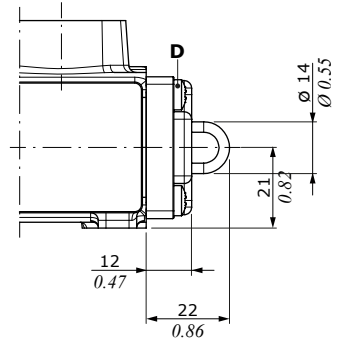
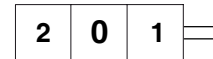
Available with aluminium flange



With aluminium flange;  
dimensions are the same of standard type

**A5 type**

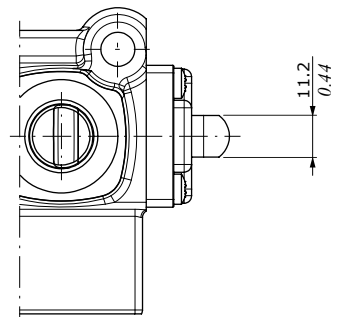
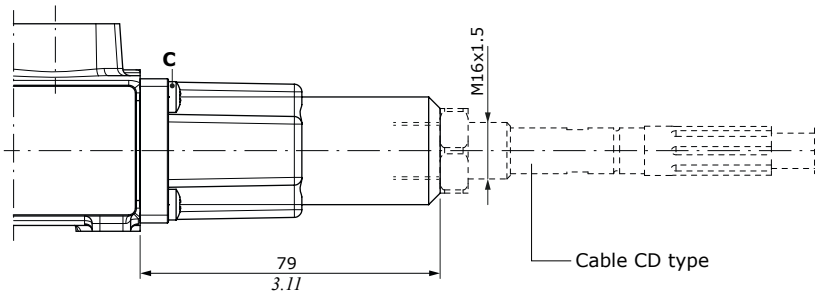
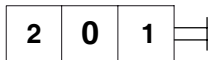
Flange with spherical pool end



**With flexible cable control arrangement**

**A8 type**

With flexible cable control arrangement



**Wrenches and tightening torques**

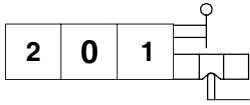
C = allen wrench 3 - 3 Nm (2.2 lbft)  
D = cross-head - 3 Nm (2.2 lbft)

**A side controls**

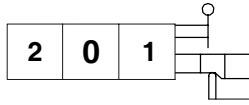
**Spool position microswitch**

**With lever control**

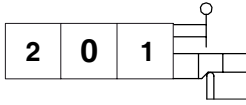
**N1-A1 type**  
Micro operation  
in position 1 and 2



**N1A-A1 type**  
Micro operation in  
position 1



**N1B-A1 type**  
Micro operation in  
position 2

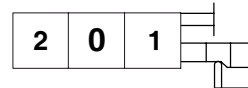


**Without lever control, with cap**

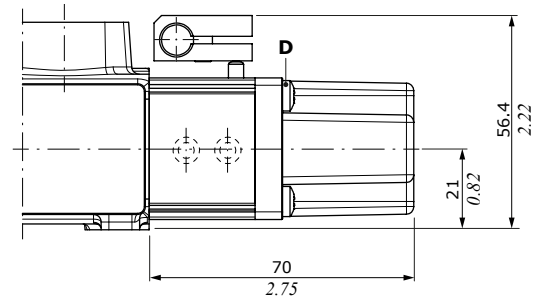
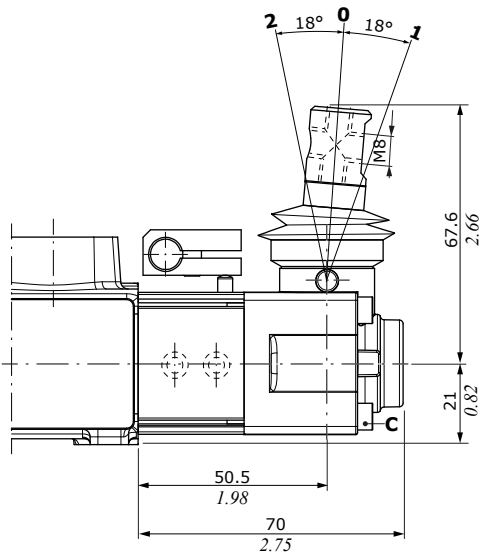
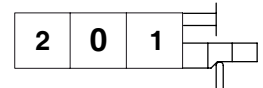
**N1-A3 type**  
Micro operation  
in position 1 and 2



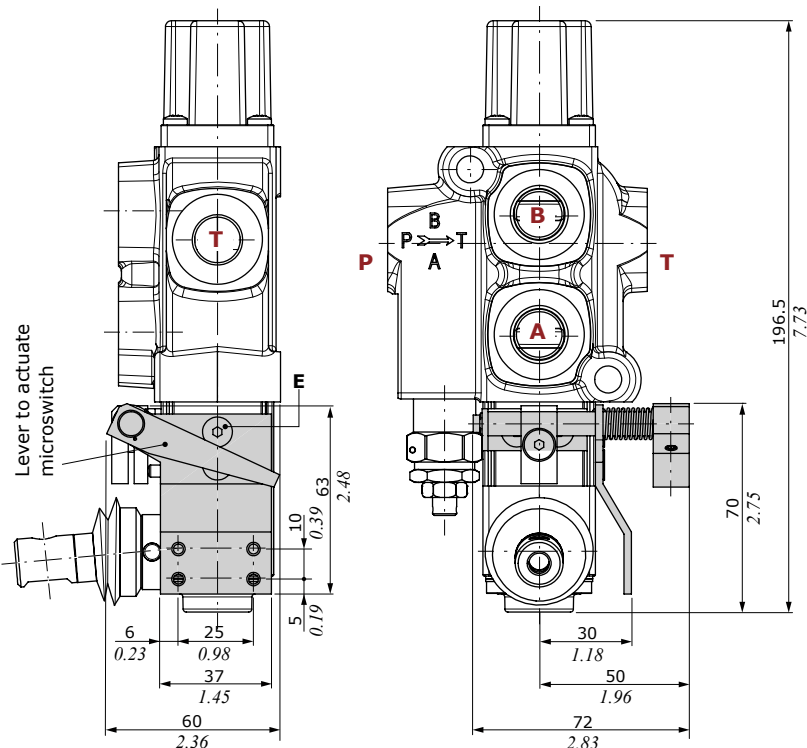
**N1A-A3 type**  
Micro operation in  
position 1



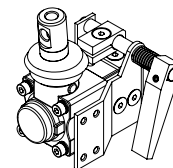
**N1B-A3 type**  
Micro operation in  
position 2



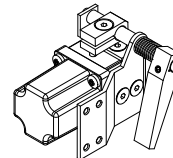
**Microswitch assembly kit for 1 working section (N1-A1 type)**



**with lever box**



**with cap**



**Wrenches and tightening torques**

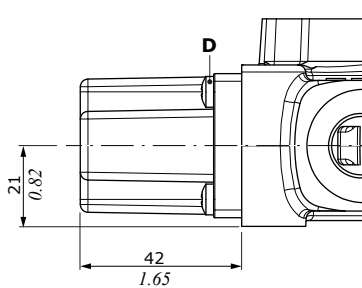
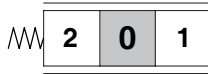
- C = allen wrench 3 - 3 Nm (2.2 lbft)
- D = cross-head - 3 Nm (2.2 lbft)
- E = allen wrench 3 - 6.6 Nm (4.8 lbft)

**Mechanical controls**

**With spring return control**

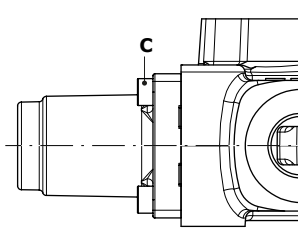
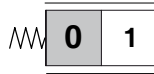
**M1 type**

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



**M2 type**

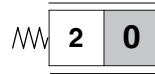
2 position (0-1), spring return in neutral position.  
Available with aluminium cap



With aluminium cap; dimensions are the same of standard type

**M3 type**

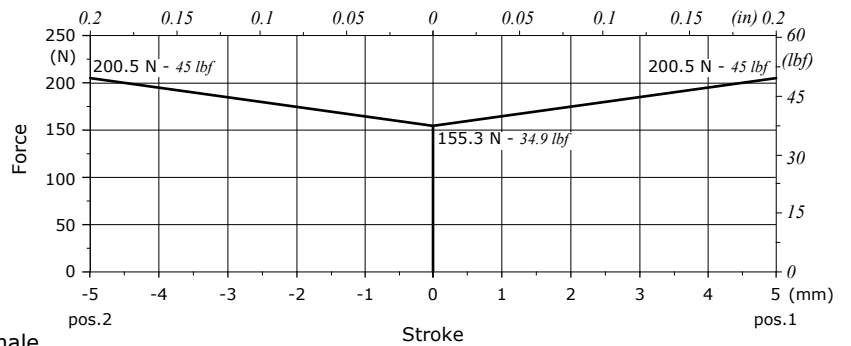
2 position (0-2), spring return in neutral position.  
Available with aluminium cap



**Wrenches and tightening torques**

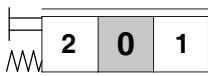
C = allen wrench 3 - 3 Nm (2.2 lbf)  
D = cross-head - 3 Nm (2.2 lbf)

**M1 control type - Force vs. Stroke diagram**



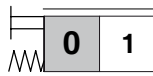
**M1/U1 type**

As M1 type, with M8 male thread external pin



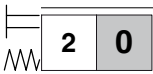
**M2/U1 type**

As M2 type, with M8 male thread external pin



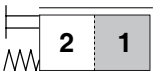
**M3/U1 type**

As M3 type, with M8 male thread external pin



**M4/U1 type**

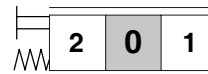
2 position (1-2), spring return in pos. 1, with M8 male thread external pin



**With flexible cable control arrangement**

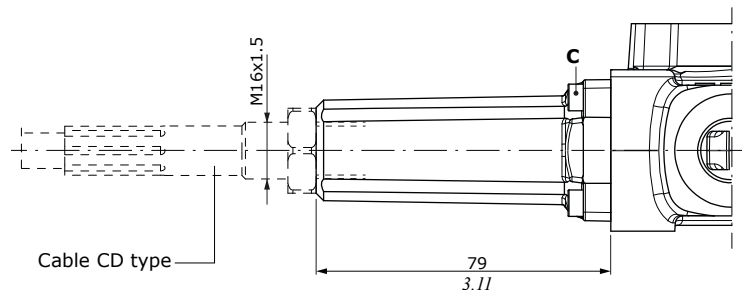
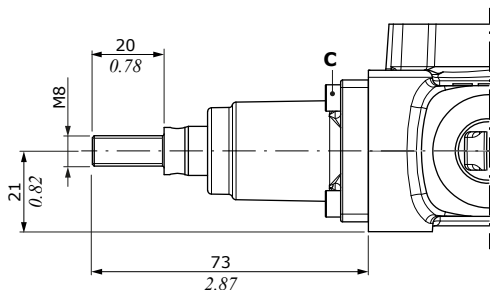
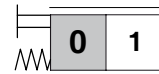
**M1/U2 type**

3 position, spring return in neutral position



**M2/U2 type**

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



B side controls

Mechanical controls

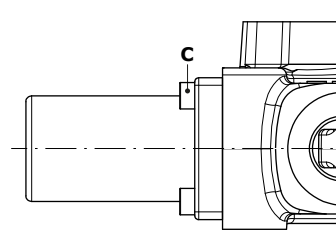
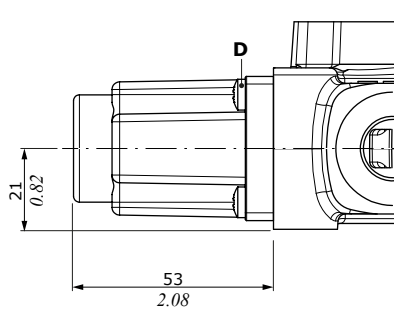
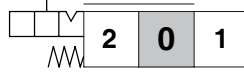
With detent control

**R1 type**

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

**Wrenches and tightening torques**

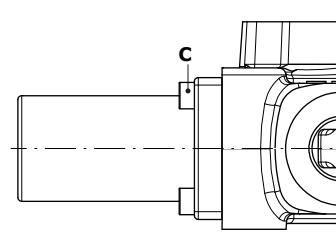
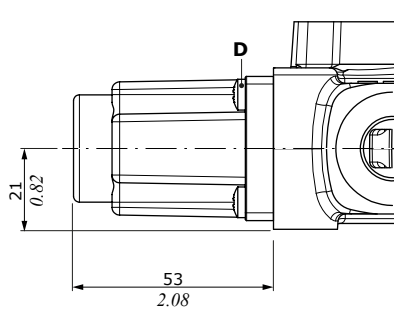
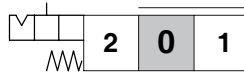
C = allen wrench 3 - 3 Nm (2.2 lbft)  
D = cross-head - 3 Nm (2.2 lbft)



With aluminium cap;  
dimensions are the same of standard type

**R2 type**

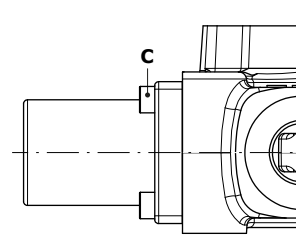
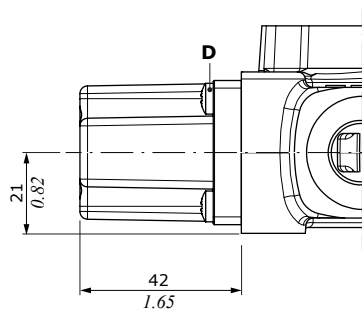
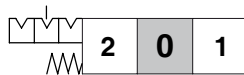
3 position, detent in position 2.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

**R3 type**

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



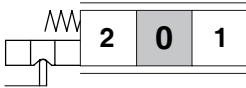
With aluminium cap;  
dimensions are the same of standard type



Spool position microswitch

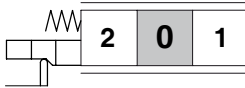
**M1-N1 type**

3 position, micro operation in position 1 and 2, spring return in neutral position



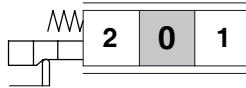
**M1-N1A type**

3 position, micro operation in position 1



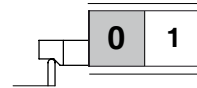
**M1-N1B type**

3 position, micro operation in position 2



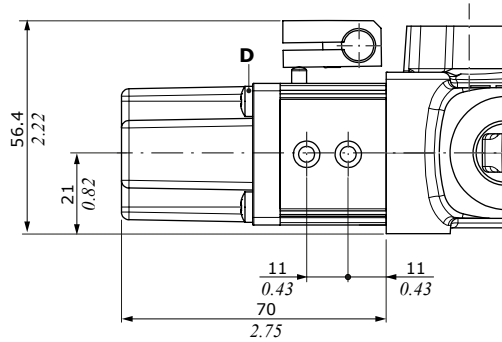
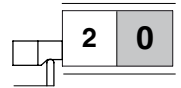
**M2-N1 type**

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



**M3-N1 type**

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

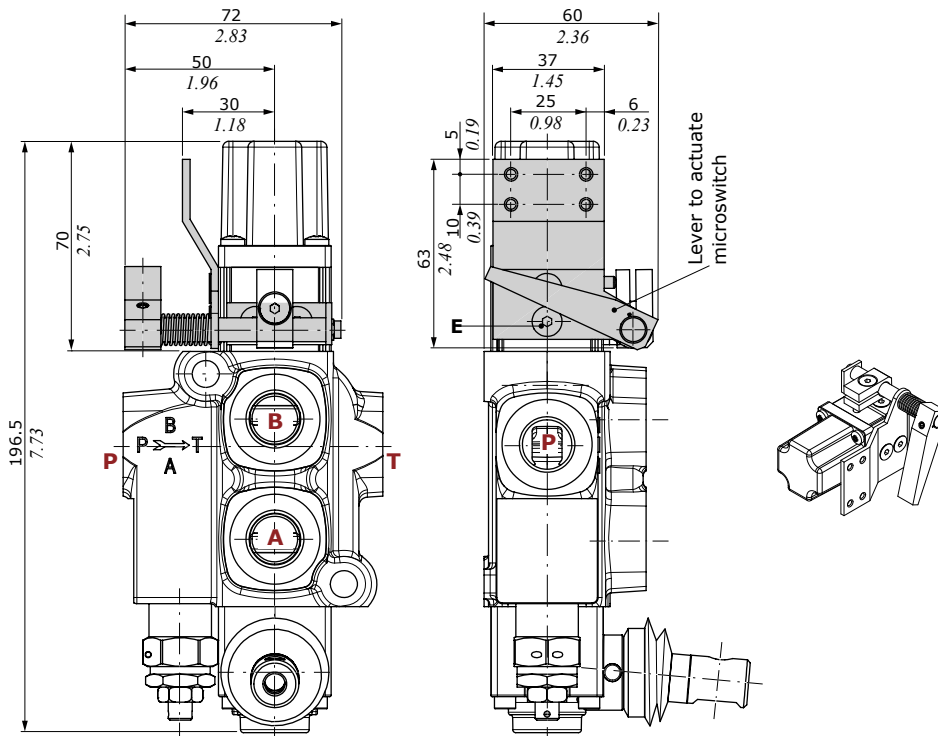


**Wrenches and tightening torques**

D = cross-head - 3 Nm (2.2 lbf)

E = allen wrench 3 - 6.6 Nm (4.8 lbf)

**Microswitch assembly kit for 1 working section (M1-N1 type)**

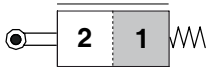


A+B side controls

With cam control

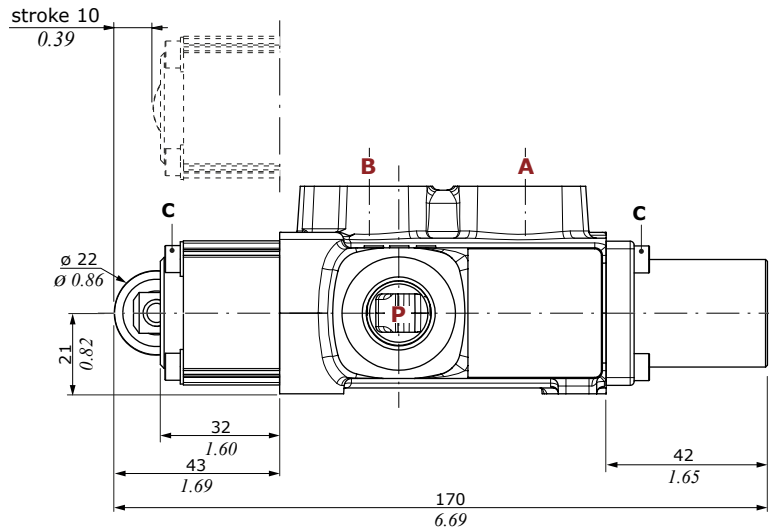
**C2 type**

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



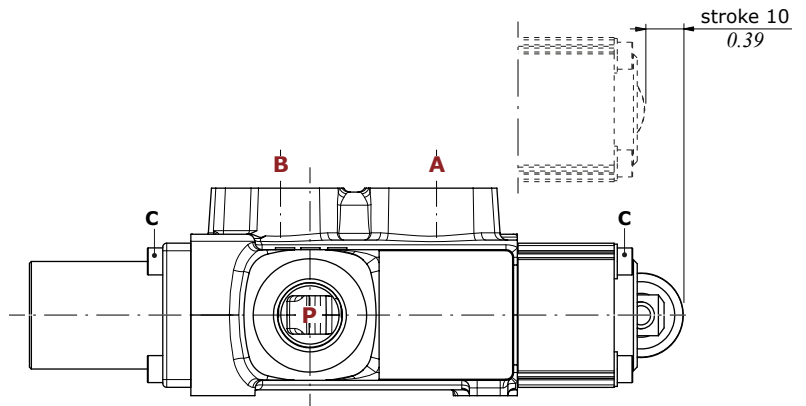
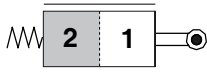
**Wrenches and tightening torques**

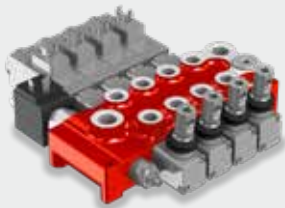
C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)



**C3 type**

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





## GMV15

### Monoblock directional valve

- Simple, compact and heavy duty designed monoblock valve
- From 2 to 4 sections
- For open and closed center hydraulic systems, optional carry over port
- Mechanical or direct solenoid controls

#### Working conditions

This catalogue shows technical specifications and diagrams measured through mineral oil of 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

Nominal flow rating		15 l/min - (4 Us gpm)
Max. pressure		280 bar (4060 psi)
Max. back pressure on outlet <b>T</b> port		25 bar (360 psi)
Number sections		from 2 to 4
Internal leakage A(B)⇒T	$\Delta p = 100 \text{ bar (1450 psi)}$	max. 5 cm <sup>3</sup> /min (0.30 in <sup>3</sup> /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 mm <sup>2</sup> /s - from 10 to 400 cSt
Max. contamination level		16/14/12 - ISO 4406 - NAS 1638 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.

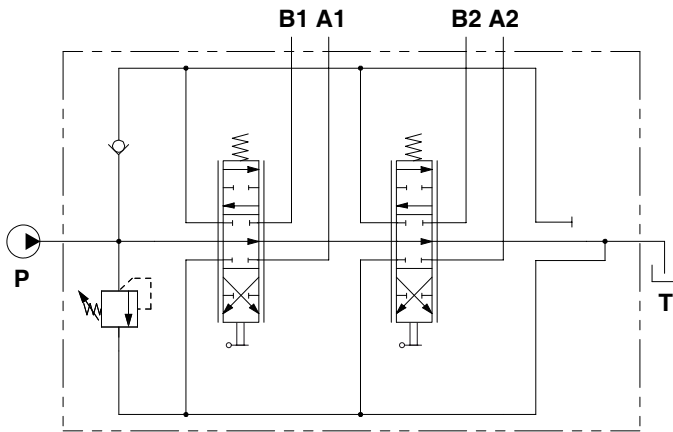
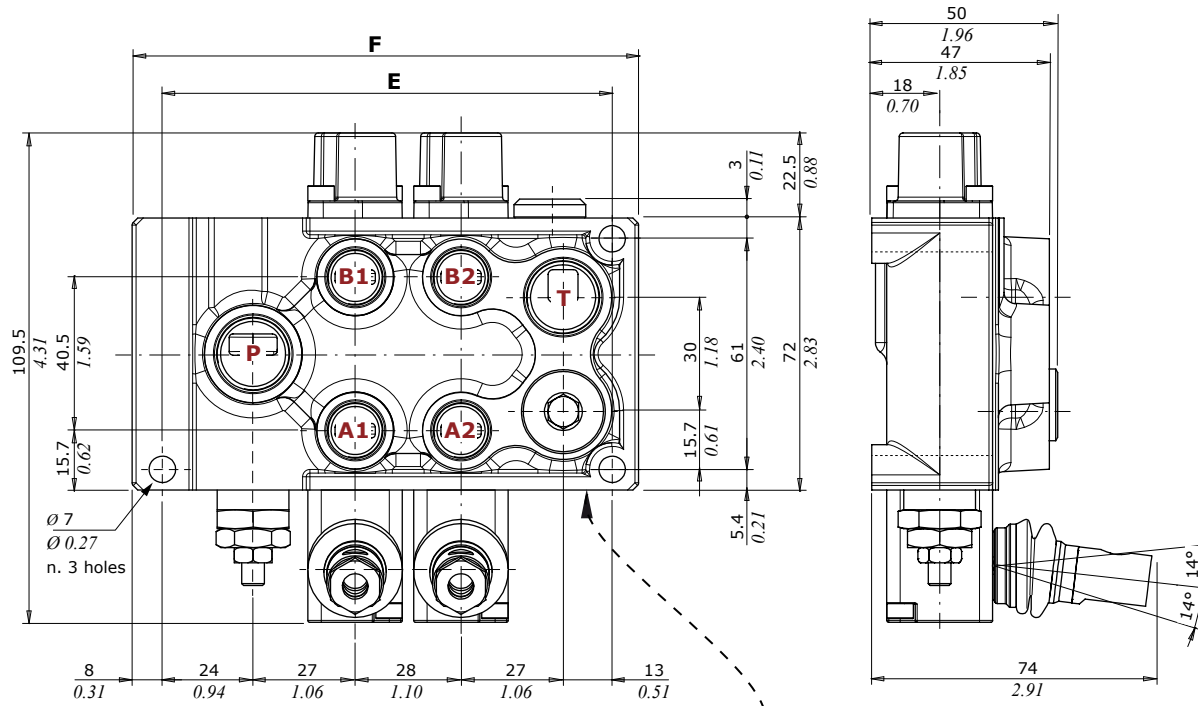
#### REFERENCE STANDARD

		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	BSP	UN-UNF
<b>P</b> Inlet	G 3/8	3/4-16 (SAE 8)
<b>A</b> and <b>B</b> ports	G 1/4	9/16-18 (SAE 6)
<b>T</b> Outlet	G 3/8	3/4-16 (SAE 8)
<b>Lc</b> port	G 3/8	3/4-16 (SAE 8)

## Dimensional data and hydraulic circuit



Description example (parallel circuit):  
GMV15/2/F1S(N150)/103-A1-M1/103-A1-M1/F3D-S-SAE

**Galtech**  
MADE IN ITALY

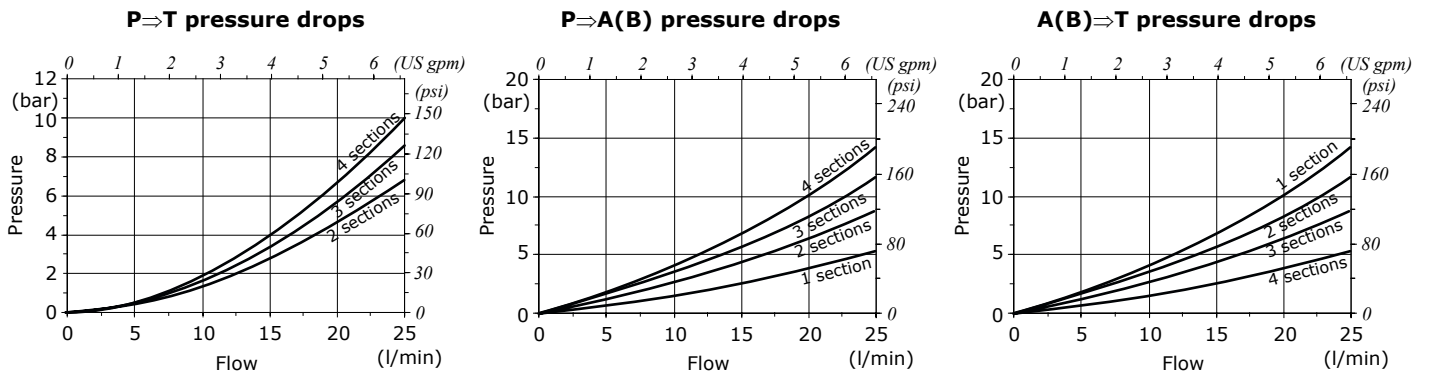
025030103251000  
GMV15/1-F7S(R250)-  
103/A1/M1/F3D

MD1600464-001

- Product code
- Customer reference or code description
- Product allotment
- Datamatrix with product allotment

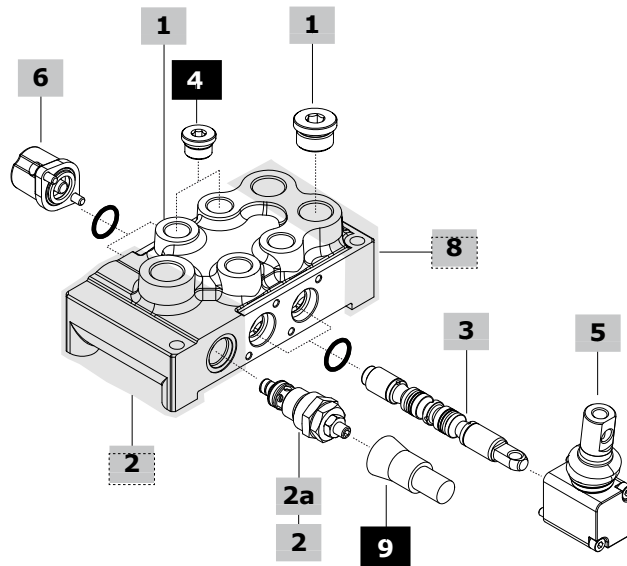
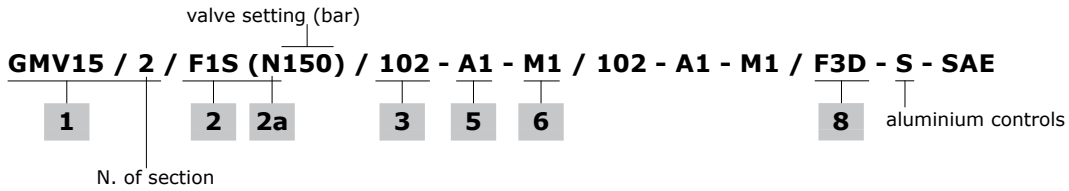
Type	E		F	
	mm	in	mm	in
<b>GMV15/2</b>	119	4.68	134	5.27
<b>GMV15/3</b>	147	5.78	162	6.37
<b>GMV15/4</b>	175	6.89	190	7.48

## Performance data

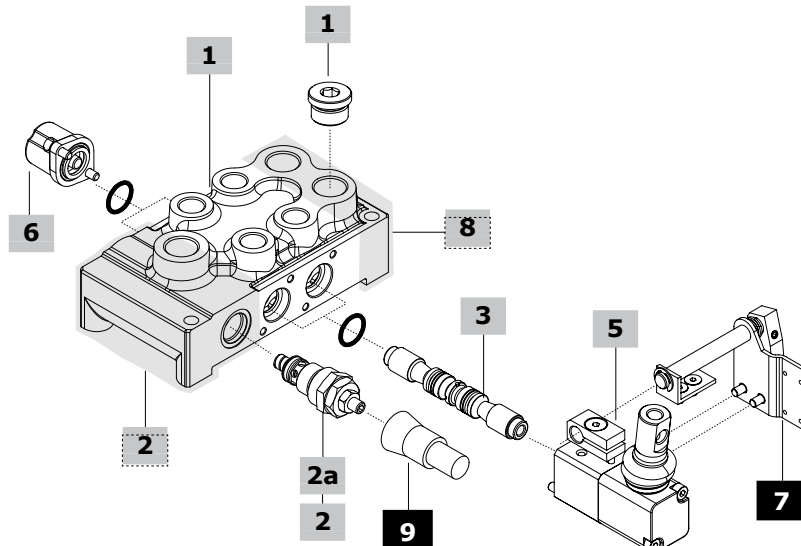
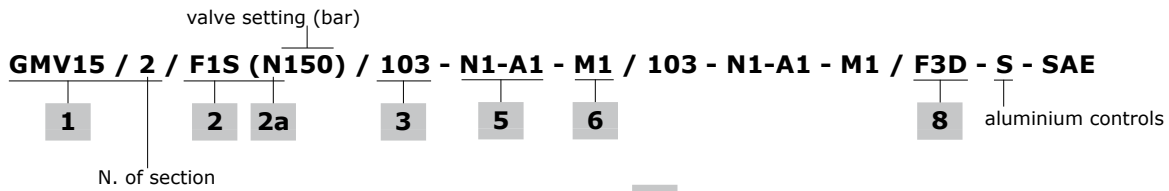


NOTE: Drawings and dimensions are referred to a **UN-UNF** threading configuration.

**Mechanical control valve configuration example**



**Microswitch control valve configuration example**



## Parts ordering codes

### 1 Body kit\*

The codes are referred to sections with O-ring seals

TYPE	CODE	DESCRIPTION
<b>GMV15/2-SAE</b>	5KC0600131996	2 sections
<b>GMV15/3-SAE</b>	5KC0600132001	3 sections
<b>GMV15/4-SAE</b>	5KC0600132005	4 sections

### 2 Inlet configuration page 24

TYPE	DESCRIPTION
<b>F1S-SAE</b>	With load check and pressure relief valve
<b>F2S-SAE</b>	With load check valve
<b>F7S-SAE</b>	With pressure relief valve
<b>F8S-SAE</b>	Without valves (pressure relief valve plugged port)

### 2a Main pressure relief valve page 24

TYPE: <b>B</b>	CODE: 700015200000000
DESCRIPTION: VLP15S valve, setting range 10-100 bar (145-1450 psi)	
TYPE: <b>N</b>	CODE: 700015100000000
DESCRIPTION: VLP15S valve, setting range 101-280 bar (1460-4050 psi)	
TYPE: -	CODE: 060003199099
DESCRIPTION: Relief valve blanking plug	

### 3 Spool page 25

TYPE	CODE	DESCRIPTION
<b>Standard spools</b>		
<b>103</b>	060103206599	Double acting, A and B closed in neutral position
<b>111</b>	KR15111RN	Double acting, A and B to tank in neutral position, negative overlap
<b>101</b>	KR15101-102	Single acting on port A. SAE6 plug is required, see #4
<b>102</b>	KR15101-102	Single acting on port B. SAE6 plug is required, see #4
<b>116</b>	KR15116-126	Double acting, with floating in the 4 <sup>th</sup> position (spool in): requires dedicated spool control
<b>126</b>	KR15116-126	Double acting, with floating in the 4 <sup>th</sup> position (spool out): requires dedicated spool control

#### Special spool for microswitch control

<b>111</b>	060103286899	Double acting, A and B to tank in neutral position
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### 4 Plug for single acting spool\*

TYPE	CODE	DESCRIPTION
-	255006	SAE6 plug

### 5 A side control page 26

TYPE	CODE	DESCRIPTION
<b>For standard spools</b>		
<u>With lever control:</u>		
<b>A1</b>	01610A1-A2/10	M8 thread aluminium lever box
<b>A2</b>	01610A1-A2/10	As A1 type, with lever box rotated 180°
<b>A1/Z1</b>	01610A1-2/10Z1	M8 thread aluminium lever box for <b>116</b> spool type
<b>A2/Z1</b>	01610A1-2/10Z1	As A1/Z1 type, with lever box rotated 180°
<b>For type 111 special spool</b>		
<u>With spool position microswitch:</u>		
<b>Note:</b> To complete the control you must use the assembly kit at #7		
<b>N1-A1</b>	01641N1-A1/A2	Micro operation in pos. 1 and 2

### 6 B side control page 28

TYPE	CODE	DESCRIPTION
<u>With spring return:</u>		
<b>M1</b>	01530M1	3 pos., spring return in neutral position
<u>With detent:</u>		
<b>R1</b>	01741R1	3 pos., detent in position 1
<b>R2</b>	01742R2	3 pos., detent in position 2
<b>R3</b>	01743R3	3 pos., detent in all position
<b>R4</b>	01744R4	2 pos., detent in position 0-1
<b>R5</b>	01745R5	2 pos., detent in position 0-2
<b>R8</b>	01748R8	4 pos., detent in 4 <sup>th</sup> position, for <b>116</b> type spool
<b>R10/Z1</b>	01750R10/Z1	4 pos., detent in 4 <sup>th</sup> position, for <b>126</b> type spool

### 7 Microswitch assembling kit

CODE	DESCRIPTION
01650N1-2	Kit for 2 section
01650N1-3	Kit for 3 section
01650N1-4	Kit for 4 section

### 8 Outlet configuration\* page 30

TYPE	DESCRIPTION
<b>F3D-SAE</b>	Open center configuration: n. 1 SAE8 plug code 255008; n. 1 SAE6 plug code 255006
<b>F6D-SAE</b>	Closed center configuration: n. 1 G1/8 conical plug code 251001; n. 1 SAE6 plug code 255006
<b>F16D-SAE</b>	Carry-over configuration: n. 1 G1/8 conical plug code 251001; n. 1 SAE8 plug code 255008; n. 1 SAE6 plug code 255006

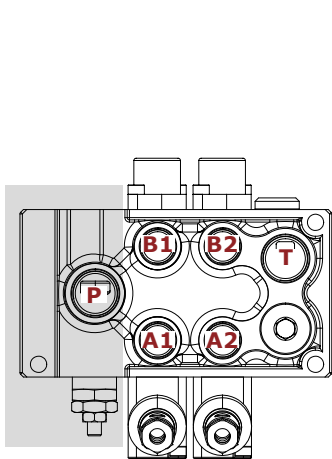
### 9 Accessory

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

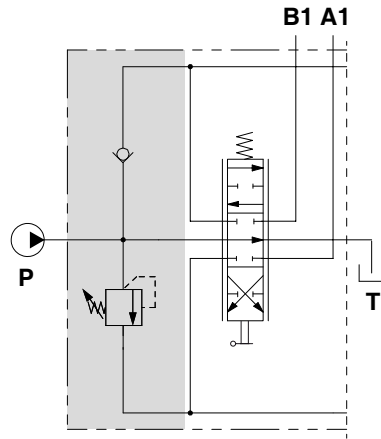
(\*): Codes are referred to **UN-UNF** thread



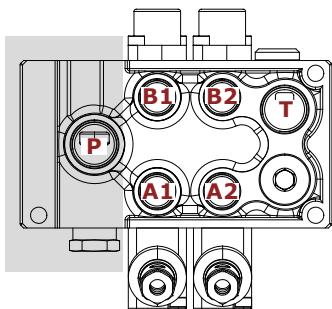
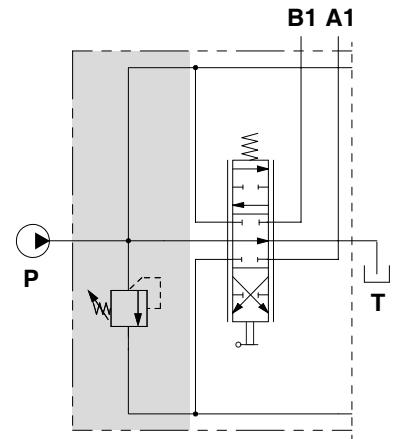
Inlet configuration



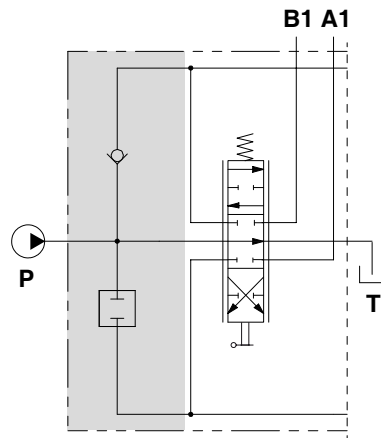
**F1S-SAE configuration**  
With load check and pressure relief valve



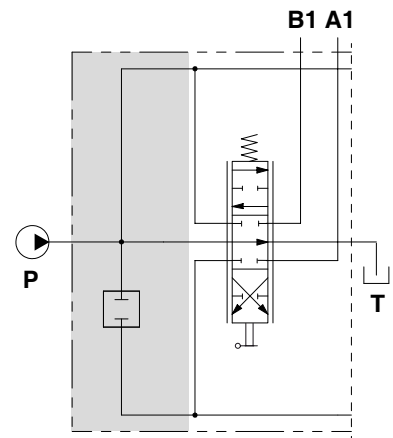
**F7S-SAE configuration**  
With pressure relief valve



**F2S-SAE configuration**  
With load check valve

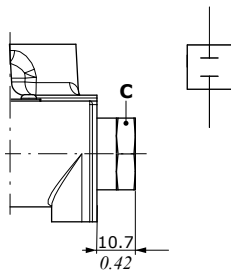


**F8S-SAE configuration**  
Without valves  
(pressure relief valve plugged port)

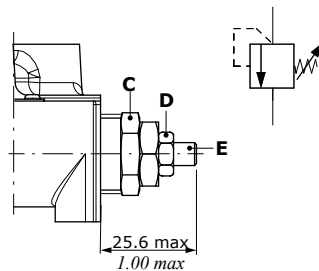


Main pressure relief valve

Relief valve blanking plug



Main pressure relief valve



Wrenches and tightening torques

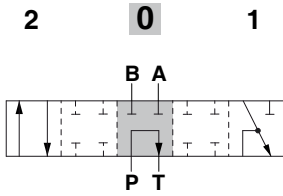
- C = wrench 19 - 24 Nm (17.7 lbf<sub>t</sub>)
- D = wrench 10 - 6 Nm (4.42 lbf<sub>t</sub>)
- E = allen wrench 3

Spring type	Setting ranges (bar - psi)
<b>B</b> (white)	From 10 to 100 - from 145 to 1450
<b>N</b> (black)	From 101 to 280 - from 1460 to 4050



**103 type**

A and B closed in neutral position

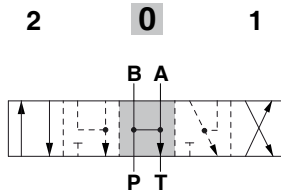


**Stroke**

Position 1: + 4 mm (+ 0.15 in)  
Position 2: - 4 mm (- 0.15 in)

**111 type**

A and B to tank in neutral position

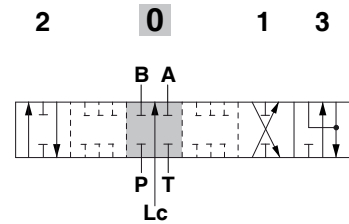


**Stroke**

Position 1: + 4 mm (+ 0.15 in)  
Position 2: - 4 mm (- 0.15 in)

**116 type**

With floating in the 4<sup>th</sup> position (spool in)

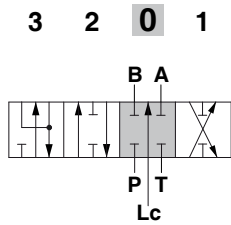


**Stroke**

Position 1: - 3 mm (- 0.11 in)  
Position 2: + 4 mm (+ 0.15 in)  
Position 3: - 6 mm (- 0.23 in)

**126 type**

With floating in the 4<sup>th</sup> position (spool out)

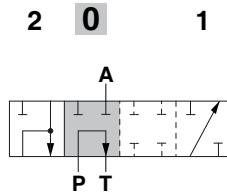


**Stroke**

Position 1: + 3 mm (+ 0.11 in)  
Position 2: - 4 mm (- 0.15 in)  
Position 3: + 6 mm (+ 0.23 in)

**101 type**

Single acting on A, B plugged

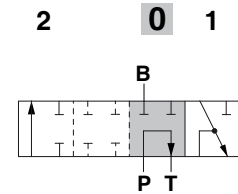


**Stroke**

Position 1: + 4 mm (+ 0.15 in)  
Position 2: - 4 mm (- 0.15 in)

**102 type**

Single acting on B, A plugged



**Stroke**

Position 1: + 4 mm (+ 0.15 in)  
Position 2: - 4 mm (- 0.15 in)

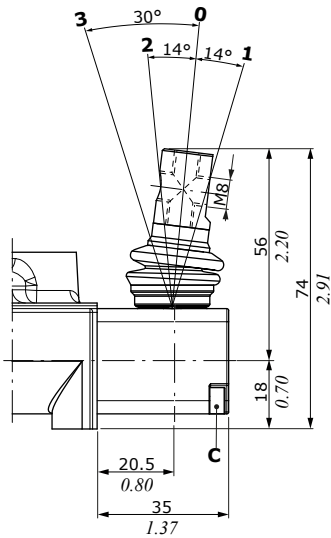
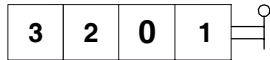
**A side controls**

**Mechanical controls**

**With lever control**

**A1 type**

M8 thread aluminium lever box

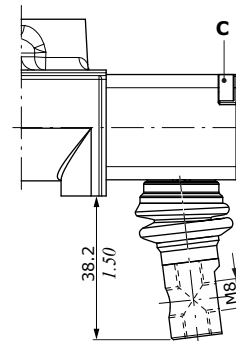
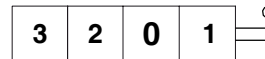


**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)

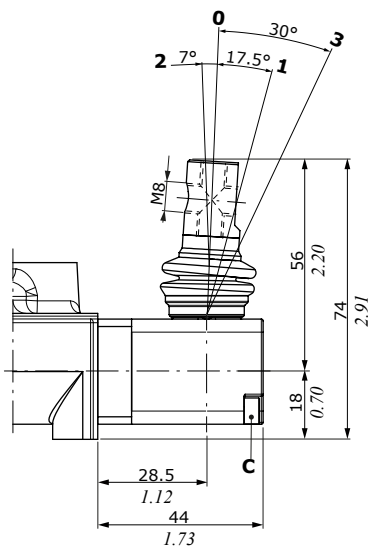
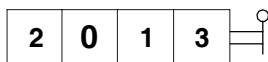
**A2 type**

As A1 type, rotated 180°



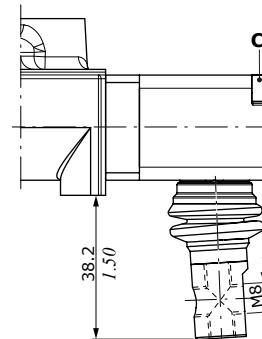
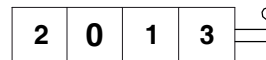
**A1/Z1 type**

M8 thread,  
for 116 floating spool type



**A2/Z1 type**

As A1/Z1 type, rotated 180°





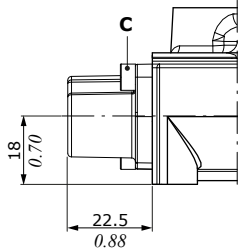
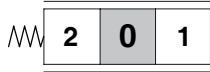
B side controls

Mechanical controls

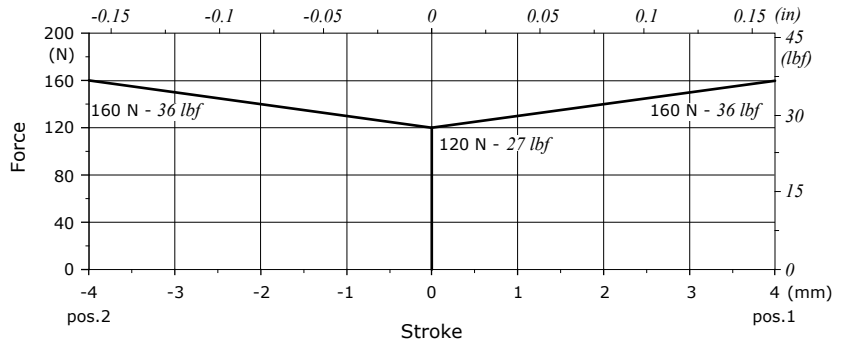
With spring return control

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

**M1 type**  
3 position, spring return  
in neutral position

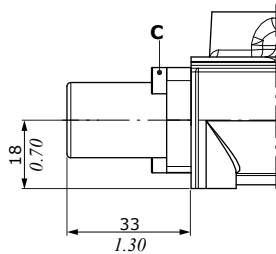
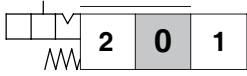


M1 control type - Force vs. Stroke diagram

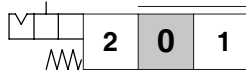


With detent control

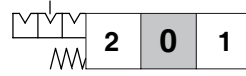
**R1 type**  
3 position,  
detent in position 1



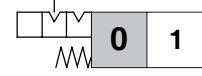
**R2 type**  
3 position,  
detent in position 2



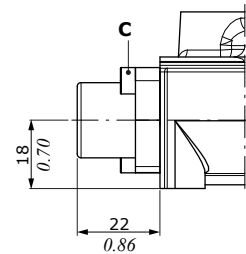
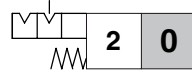
**R3 type**  
3 position,  
detent in all position



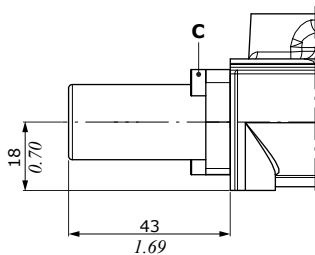
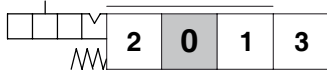
**R4 type**  
2 position,  
detent in position 0-1



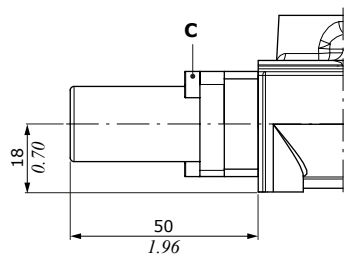
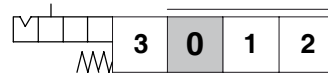
**R5 type**  
2 position,  
detent in position 0-2



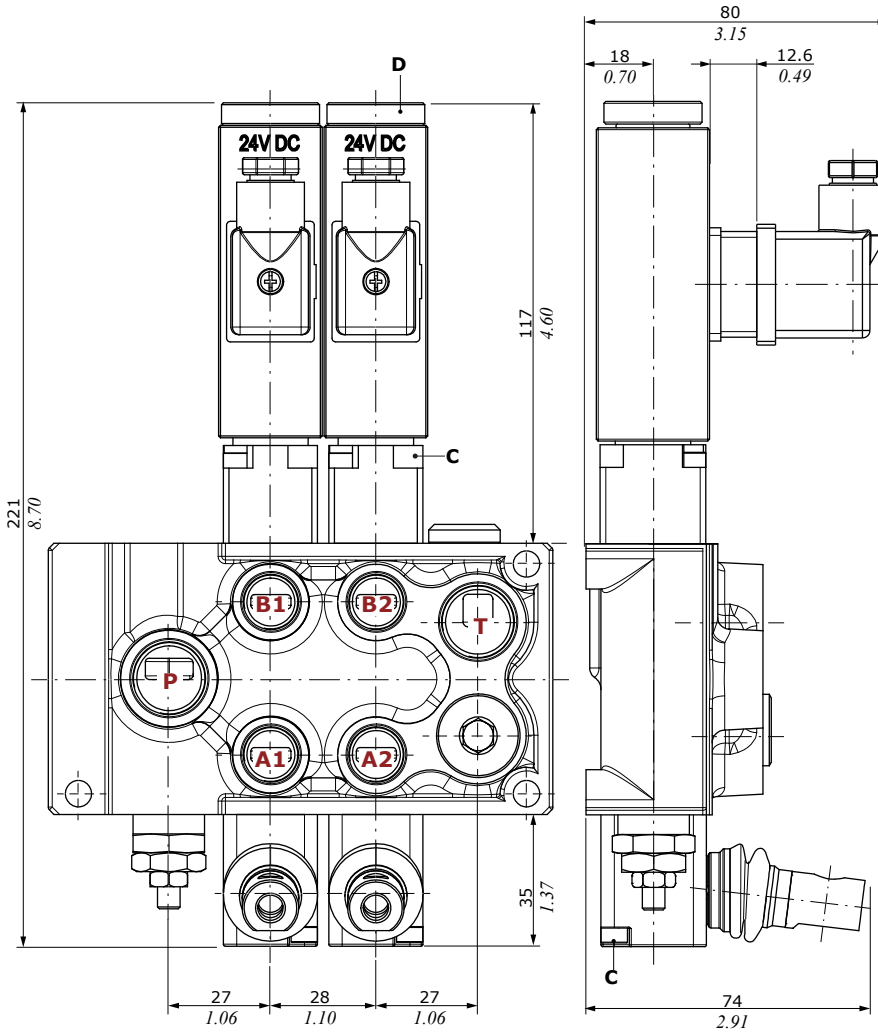
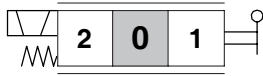
**R8 type**  
4 position, detent in 4<sup>th</sup> position,  
for 116 floating spool type



**R10/Z1 type**  
4 position, detent in 4<sup>th</sup> position,  
for 126 floating spool type



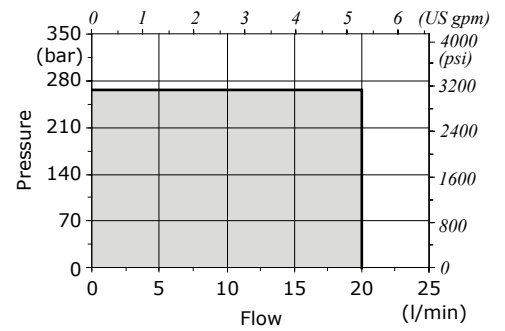
D41 type: ON/OFF one side



D41 coil	
Nominal voltage	12 VDC 24 VDC
Nominal voltage tolerance	±10%
Power rating	33 W
Insulation	Class H
Weather protection	IP65

Connector type: ISO4400 2P+T-PG9

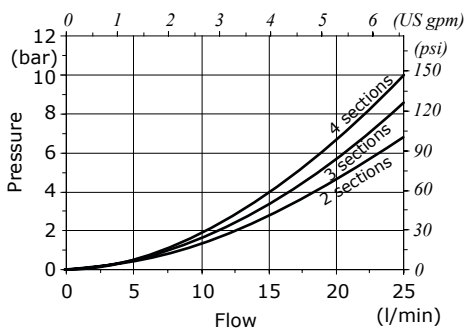
Dynamic conditions



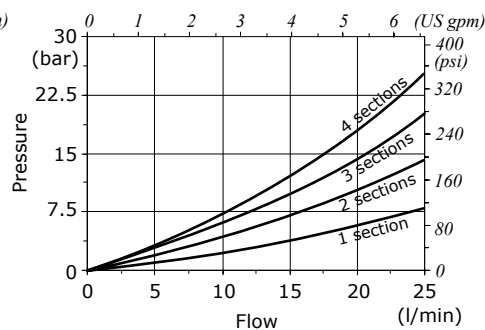
Wrenches and tightening torques

- C = allen wrench 3 - 3 Nm (2.2 lbf<sub>t</sub>)
- D = manual tightening - 6.6 Nm (4.8 lbf<sub>t</sub>)

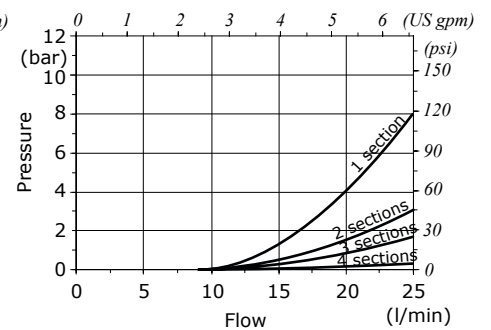
P⇒T pressure drops



P⇒A(B) pressure drops

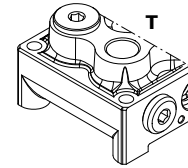
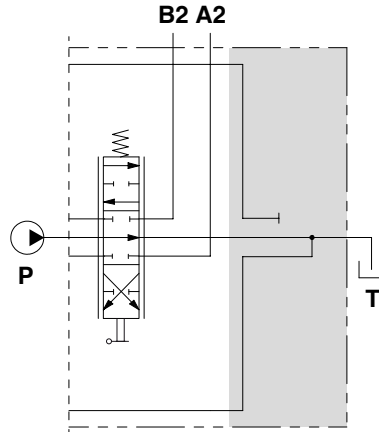
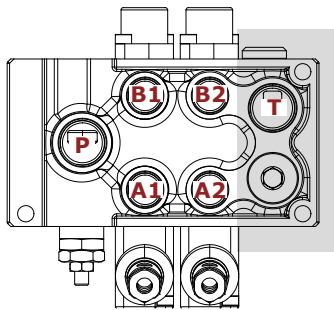


A(B)⇒T pressure drops

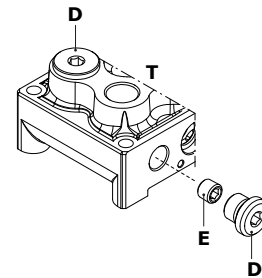
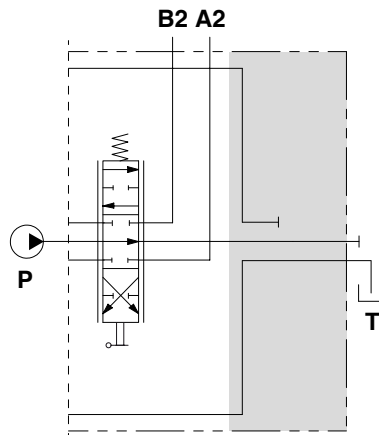


Outlet configuration

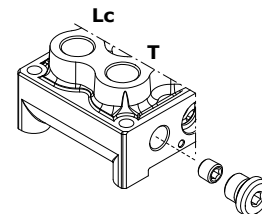
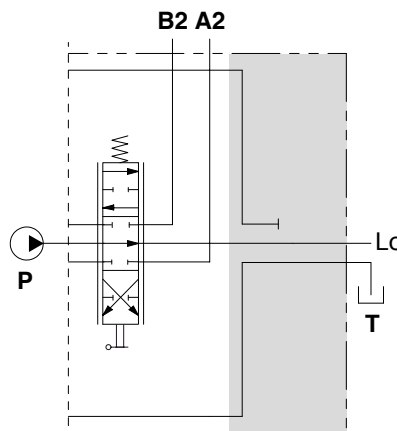
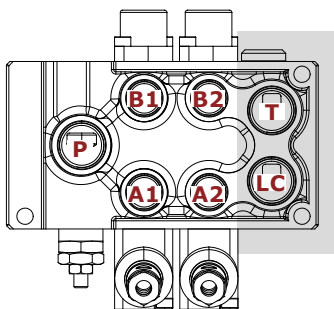
**F3D-SAE configuration**  
Open center configuration



**F16D-SAE configuration**  
Closed center configuration



**F6D-SAE configuration**  
Carry-over configuration



**Wrenches and tightening torques**  
D = allen wrench 6 - 24 Nm (17.7 lbft)  
E = allen wrench 6 - 9.8 Nm (7.22 lbft)



## 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 46mm<sup>2</sup>/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		
	3 sections		max. 300 bar (4350 psi)
	from 4 up to 8 sections		
Max. back pressure on outlet <b>T</b> port (*)			25 bar (360 psi)
Number sections			from 1 to 8
Internal leakage A(B)⇒T	Δp = 100 bar (1450 psi)		4 cm <sup>3</sup> /min (0.24 in <sup>3</sup> /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 mm <sup>2</sup> /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

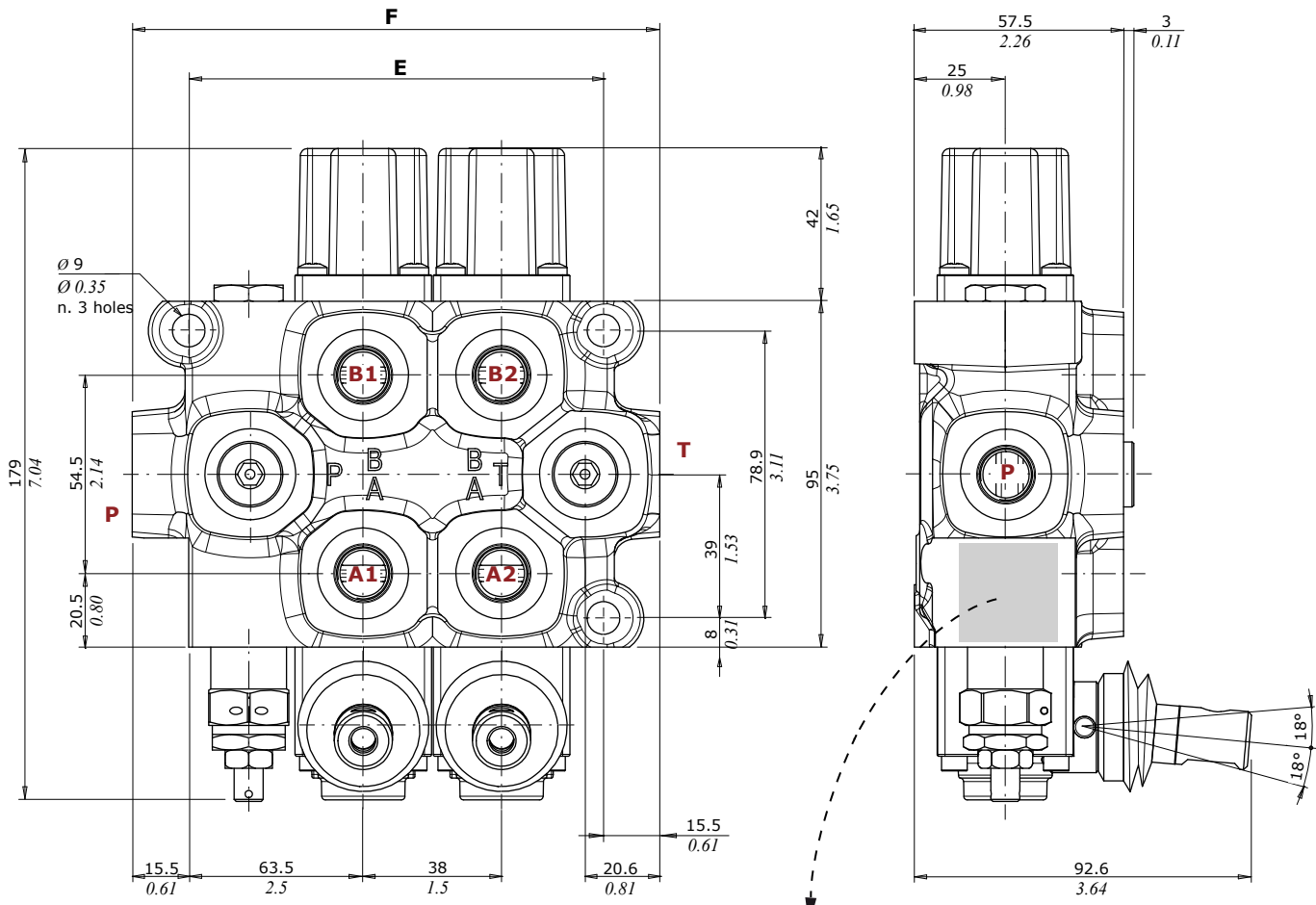
		BSP	UN-UNF
THREAD ACCORDING TO		ISO 228/1	ISO 263
		BS 2779	ANSI B1.1 unified
	ISO	1179	11926
CAVITY DIMENSION ACCORDING TO	SAE		J11926
	DIN	3852-2 shape X or Y	

#### PORT THREADING

PORTS	Q25		Q45	
	BSP	UN-UNF	BSP	UN-UNF
<b>P</b> Inlet	G 3/8	9/16-18 (SAE 6)	G 1/2	3/4-16 (SAE 8)
<b>P1</b> Inlet	G 3/8	9/16-18 (SAE 6)	G 1/2	3/4-16 (SAE 8)
<b>A</b> and <b>B</b> ports	G 3/8	9/16-18 (SAE 6)	G 1/2	3/4-16 (SAE 8)
<b>T</b> Outlet	G 1/2	7/8-14 (SAE 10)	G 1/2	7/8-14 (SAE 10)
<b>T1</b> Outlet	G 3/8	9/16-18 (SAE 6)	G 1/2	3/4-16 (SAE 8)
<b>Lc</b> 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 31. Drawing are referred to a Q25 monoblock valve.



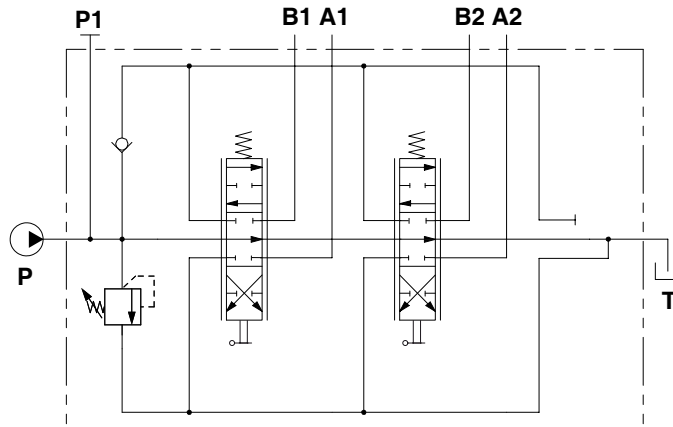
**Galtech**  
 MADE IN ITALY  
 025030103251000  
 Q25/2-F1S(N250)-  
 2x103/A1/M1/F3D  
 MD1600464-001

- Product code
- Customer reference or code description
- Product allotment
- Datamatrix with product allotment

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 **UN-UNF** threading configuration.



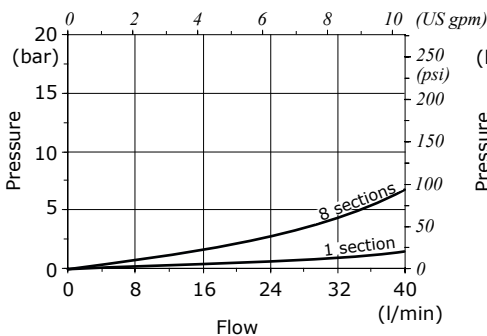


Description example (parallel circuit):  
 Q25/2/F1S(N250)/103-A1-M1/103-A1-M1/F3D-S-SAE  
 Q45/2/F1S(N250)/103-A1-M1/103-A1-M1/F3D-S-SAE

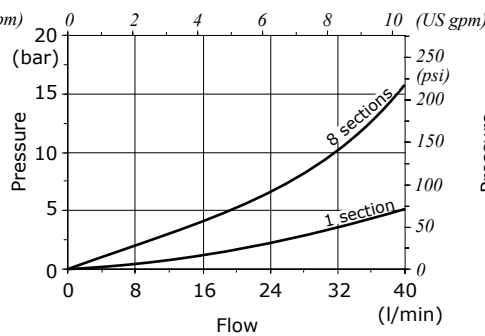
Performance data

Q25

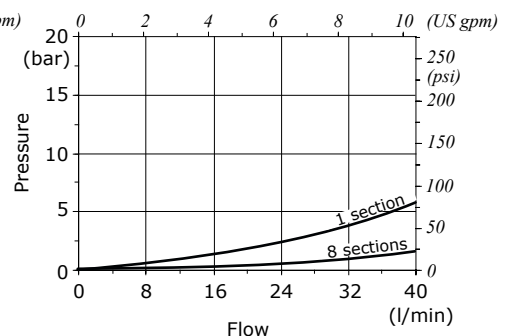
P⇒T pressure drops



P⇒A(B) pressure drops

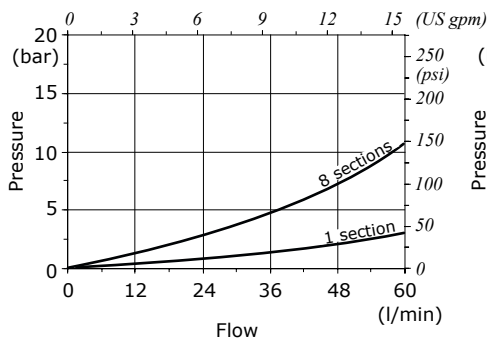


A(B)⇒T pressure drops

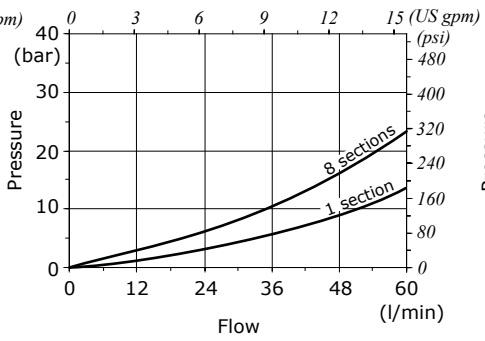


Q45

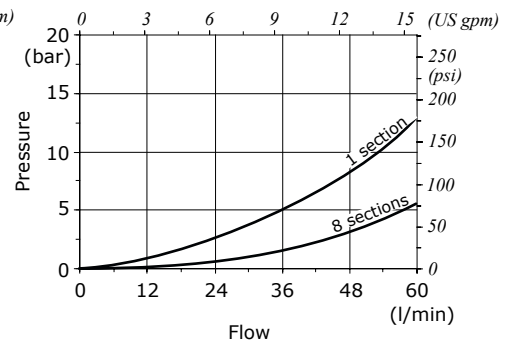
P⇒T pressure drops



P⇒A(B) pressure drops

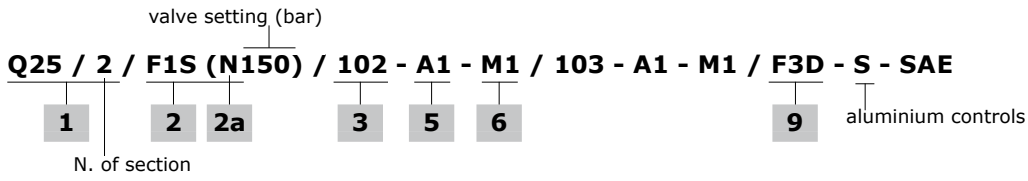


A(B)⇒T pressure drops

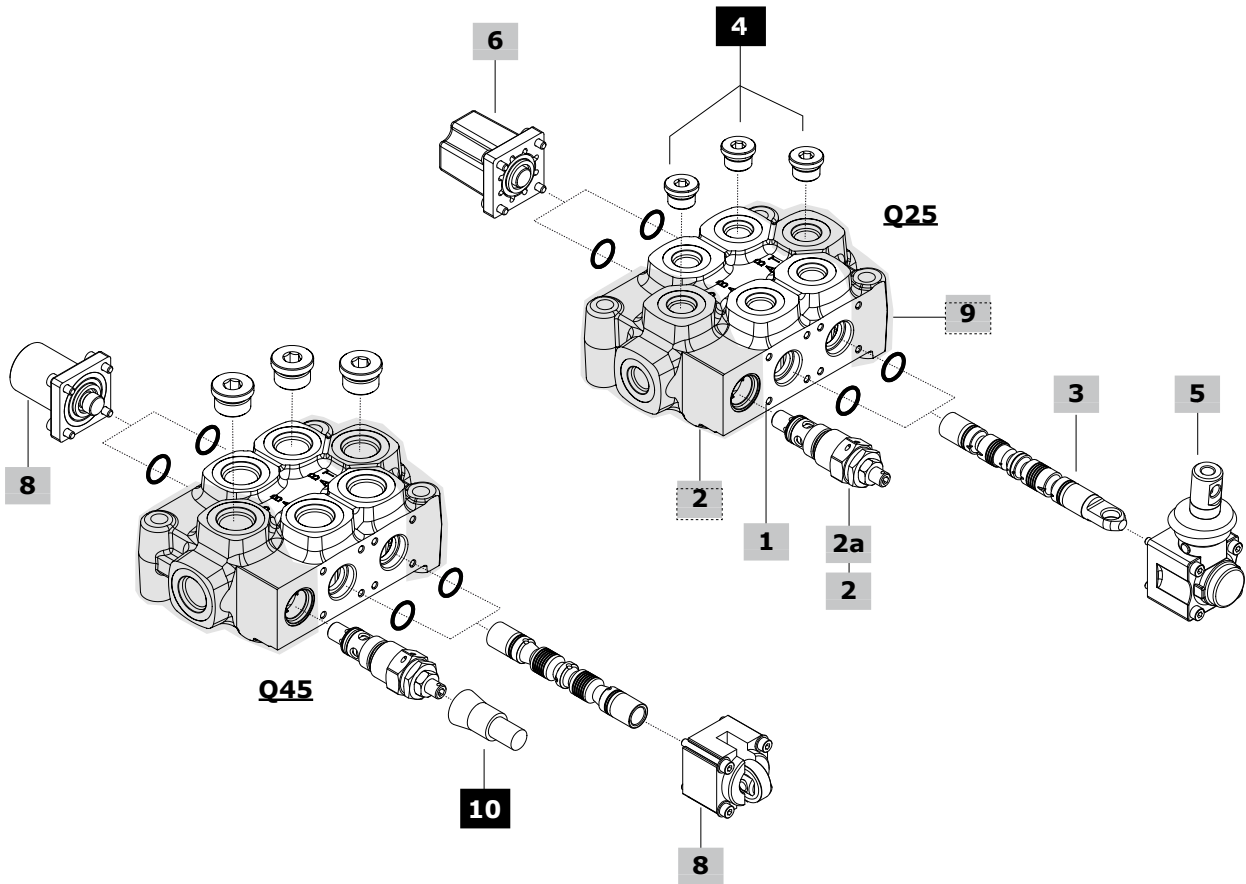
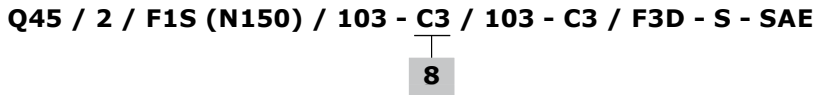


## Parts ordering codes

### Mechanical control valve configuration example



### C2/C3 complete mechanical control valve configuration example



**1 Body kit\***

The codes are referred to sections with O-ring seals

TYPE	CODE	DESCRIPTION
<b>Q25/1-SAE</b>	5KC0600132085	1 section
<b>Q25/2-SAE</b>	5KC0600131800	2 sections
<b>Q25/3-SAE</b>	5KC0600131842	3 sections
<b>Q25/4-SAE</b>	5KC0600131966	4 sections
<b>Q25/5-SAE</b>	5KC0600132436	5 sections
<b>Q25/6-SAE</b>	5KC0600131965	6 sections
<b>Q25/8-SAE</b>	5KC0600132438	8 sections

<b>Q45/1-SAE</b>	5KC0600128100	1 section
<b>Q45/2-SAE</b>	5KC0600128099	2 sections
<b>Q45/3-SAE</b>	5KC0600128103	3 sections
<b>Q45/4-SAE</b>	5KC0600128201	4 sections
<b>Q45/5-SAE</b>	5KC0600127785	5 sections
<b>Q45/6-SAE</b>	5KC0600129943	6 sections
<b>Q45/7-SAE</b>	5KC0600131149	7 sections
<b>Q45/8-SAE</b>	5KC0600131651	8 sections

**2 Inlet configuration\* page 40**

TYPE	DESCRIPTION
<b>F1S-SAE</b>	With load check and pressure relief valves
<b>F2S-SAE</b>	With load check valve
<b>F7S-SAE</b>	With pressure relief valve
<b>F8S-SAE</b>	Without valves (pressure relief valve plugged port)

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

**2a Main pressure relief valve page 41**

TYPE: <b>B</b>	CODE: 700035205000000
DESCRIPTION: VLP35S valve, setting range 10-100 bar (145-1450 psi)	
TYPE: <b>N</b>	CODE: 700035105000000
DESCRIPTION: VLP35S valve, setting range 101-200 bar (1460-2900 psi)	
TYPE: <b>R</b>	CODE: 700035305000000
DESCRIPTION: VLP35S valve, setting range 201-380 bar (2910-5500 psi)	
TYPE: -	CODE: 0600027888899
DESCRIPTION: Relief valve blanking plug	

**3 Spool page 42**

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

**Note (3):** Q25 valve required SAE6 plug, see #4  
Q45 valve required SAE6 plug, see #4

(\*): Codes are referred to **UN-UNF** thread  
(<sup>1</sup>): Always complete with lever knob  
(<sup>2</sup>): To be assembled only with M4 control

**3 Spool (cont.) page 42**

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

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

TYPE	CODE	DESCRIPTION
-	255006	SAE6 plug for Q25 valve
-	255008	SAE8 plug for Q45 valve

**5 A side control page 43**

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

Parts ordering codes

**6 B side control page 51**

TYPE	CODE	DESCRIPTION
<u>With spring return:</u>		
<b>M1</b>	03730M1	3 pos., spring return in neutral position
	03730M1/03	As previous one, with aluminium cap
<b>M1-B1</b>	03753M1-B1	As M1 type, with microswitch arrangement
	03753M1-B1/03	As previous one, with aluminium cap
<b>M1/01</b>	03730M1/01	As M1 type, for mechanical joystick
	03730M1/01/03	As previous one, with aluminium cap
<b>M1/02</b>	03730M1/02	As M1 type, with stroke limiter
<b>M1-U1</b>	03701M1-U1	As M1 type, with M8 male thread external pin
<b>M2</b>	03732M2	2 pos. (0-1), spring return in neutral position
	03732M2/03	As previous one, with aluminium cap
<b>M2-U1</b>	03702M2-U1	As M2 type, with M8 male thread external pin
<b>M3</b>	03733M3	2 pos. (0-2), spring return in neutral position
	03733M3/03	As previous one, with aluminium cap
<b>M3-U1</b>	03703M3-U1	As M3 type, with M8 male thread external pin
<b>M4</b>	03734M41-2/03	2 pos. (1-2), spring return in position 1
	03735M42-1/03	2 pos. (2-1), spring return in position 2
<b>M4-U1</b>	03704M4-U11-2	As M4 type (1-2), with M8 male thread external pin
<u>With flexible cable control arrangement:</u>		
<b>M1-U2</b>	03715M1-U2	3 pos., spring return in neutral position
<b>M2-U2</b>	03716M2-U2	2 pos. (0-1), spring return in neutral position
<b>M3-U2</b>	03717M3-U2	2 pos. (0-2), spring return in neutral position
<u>With detent:</u>		
<b>R1</b>	03741R1	3 pos., detent in position 1
	03741R1/03	As previous one, with aluminium cap
<b>R2</b>	03742R2	3 pos., detent in position 2
	03742R2/03	As previous one, with aluminium cap
<b>R3</b>	03743R3	3 pos., detent in all position
	03743R3/03	As previous one, with aluminium cap
<b>R4</b>	03744R4	2 pos., detent in position 0-1
	03744R4/03	As previous one, with aluminium cap
<b>R5</b>	03745R5	2 pos., detent in position 0-2
	03745R5/03	As previous one, with aluminium cap
<b>R6</b>	03746R6	2 pos., detent in position 1-2
	03746R6/03	As previous one, with aluminium cap
<b>R8</b>	03748R8	4 pos., detent in 4 <sup>th</sup> pos., for <b>116</b> type spool
	03748R8/03	As previous one, with aluminium cap
<b>R10/Z1</b>	03750R10/Z1	4 pos., detent in 4 <sup>th</sup> pos., for <b>126</b> type spool
	03750R10/Z1/03	As previous one, with aluminium cap
<u>With detent and kick out function:</u>		
<b>R1K</b>	03741R1K	3 pos., detent in position 1
	03741R1K/03	As previous one, with aluminium cap
<b>R2K</b>	03742R2K	3 pos., detent in position 2
	03742R2K/03	As previous one, with aluminium cap
<b>R3K</b>	08743R3K	3 pos., detent in all position
	03743R3K/03	As previous one, with aluminium cap
<u>With spool position microswitch:</u>		
<b>Note:</b> To complete the control you must use the assembly kit at #7		
<b>M1-N1</b>	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
<b>M1-N1A</b>	03767M1-N1AL	As M1-N1 type, micro operation in pos. 1
	03767M1-N1AL/3	As previous one, with aluminium cap
<b>M1-N1B</b>	03768M1-N1BL	As M1-N1 type, micro operation in pos. 2
	03768M1-N1BL/3	As previous one, with aluminium cap
<b>M2-N1</b>	03769M2-N1L	2 pos. (0-1), spring return in neutral pos.
<b>M3-N1</b>	03772M3-N1L	2 pos. (0-2), spring return in neutral pos.
<u>With pneumatic and electropneumatic controls:</u>		
<b>P1NW</b>	03661P1-NW	ON/OFF pneumatic control
<b>P1NPW</b>	03661P1-NPW	Proportional pneumatic control
<b>D3W</b>	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 57**

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

**9 Outlet configuration\* page 61**

TYPE	DESCRIPTION
<b>F3D-SAE</b>	Open center configuration: for Q25 valve, n. 1 SAE6 plug code 255006, on T1 port; for Q45 valve, n. 1 SAE10 plug code 255010, on T1 port
<b>F6D-SAE</b>	Closed center configuration: for Q25 valve, n. 1 SAE8 joint code 060002780899, on T port; for Q45 valve, n. 1 SAE8 joint code 060002780899, on T port
<b>F16D-SAE</b>	Carry-over configuration: for Q25 valve, n. 1 SAE6 plug code 255006 on T1 port and n. 1 SAE8 joint code 060002807999, on T port; for Q45 valve, n. 1 SAE10 plug code 255010 on T1 port and n. 1 SAE8 joint code 060002807999, on T port

**10 Accessory**

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

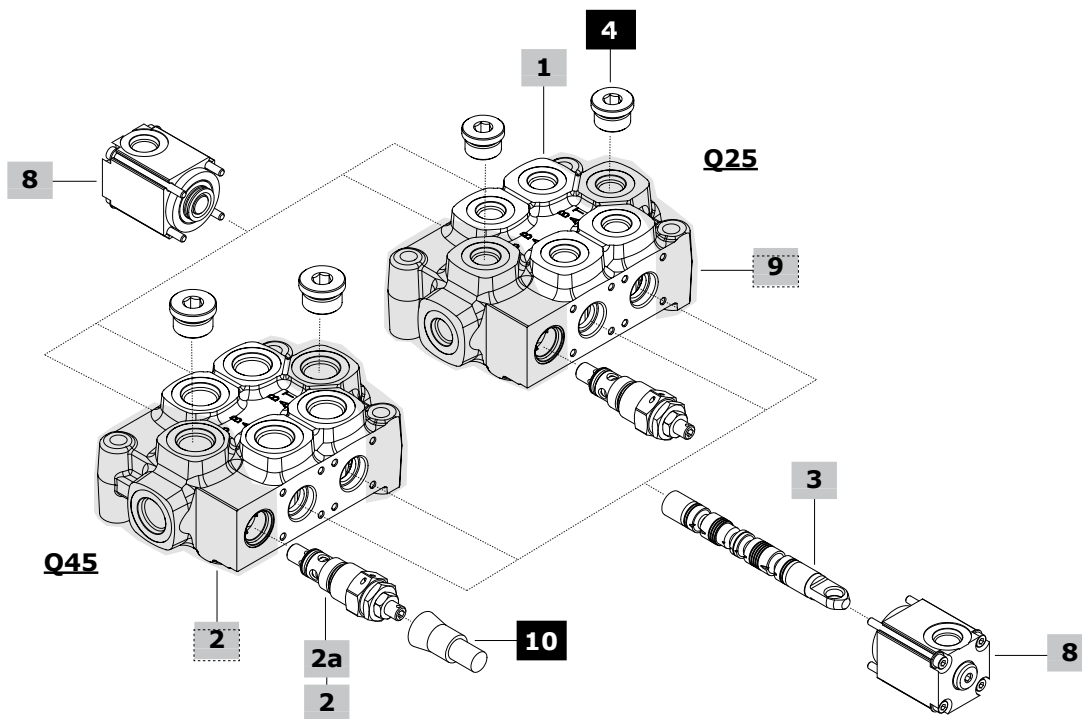
(\*): Codes are referred to **UN-UNF** thread

Proportional hydraulic controls valve configuration example

valve setting (bar)  
**Q25 / 2 / F1S (N150) / 103 - H5 / 103 - H5 / F3D - S - SAE**

1      2      2a      3      8      9      aluminium controls

N. of section



**1 Body kit\***

TYPE	CODE	DESCRIPTION
<b>Q25/1-SAE</b>	5KC0600132085A	1 section
<b>Q25/2-SAE</b>	5KC0600131800A	2 sections
<b>Q25/3-SAE</b>	5KC0600131842A	3 sections
<b>Q25/4-SAE</b>	5KC0600131966A	4 sections
<b>Q25/5-SAE</b>	5KC0600132436A	5 sections
<b>Q25/6-SAE</b>	5KC0600131965A	6 sections
<b>Q25/8-SAE</b>	5KC0600132438A	8 sections

<b>Q45/1-SAE</b>	5KC0600128100A	1 section
<b>Q45/2-SAE</b>	5KC0600128099A	2 sections
<b>Q45/3-SAE</b>	5KC0600128103C	3 sections
<b>Q45/4-SAE</b>	5KC0600128201A	4 sections
<b>Q45/5-SAE</b>	5KC0600127785A	5 sections
<b>Q45/6-SAE</b>	5KC0600129943A	6 sections
<b>Q45/7-SAE</b>	5KC0600131149A	7 sections
<b>Q45/8-SAE</b>	5KC0600131651A	8 sections

**2 Inlet configuration\* page 40**

See #2, page 35

**2a Main pressure relief valve page 41**

See #2a, page 35

**3 Spool page 42**

TYPE	CODE	DESCRIPTION
<b>103</b>	060103179499	Double acting, A and B closed in neutral position

**4 Plug for P-T ports\***

See #4, page 35

**8 Hydraulic controls A+B sides\* page 58**

TYPE	CODE	DESCRIPTION
<b>H5</b>	03785H5/SAE	Low pressure proportional type, upper ports

**9 Outlet configuration\* page 61**

See #9, page 36

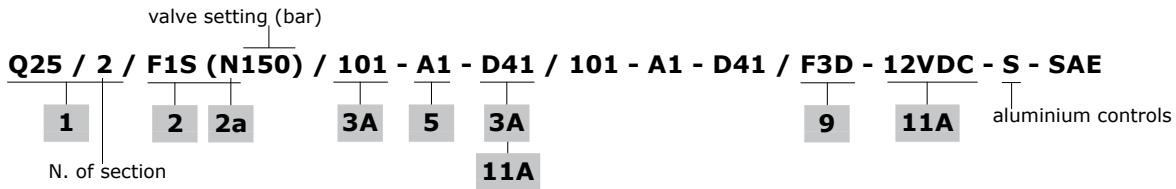
**10 Accessory**

See #10, page 36

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

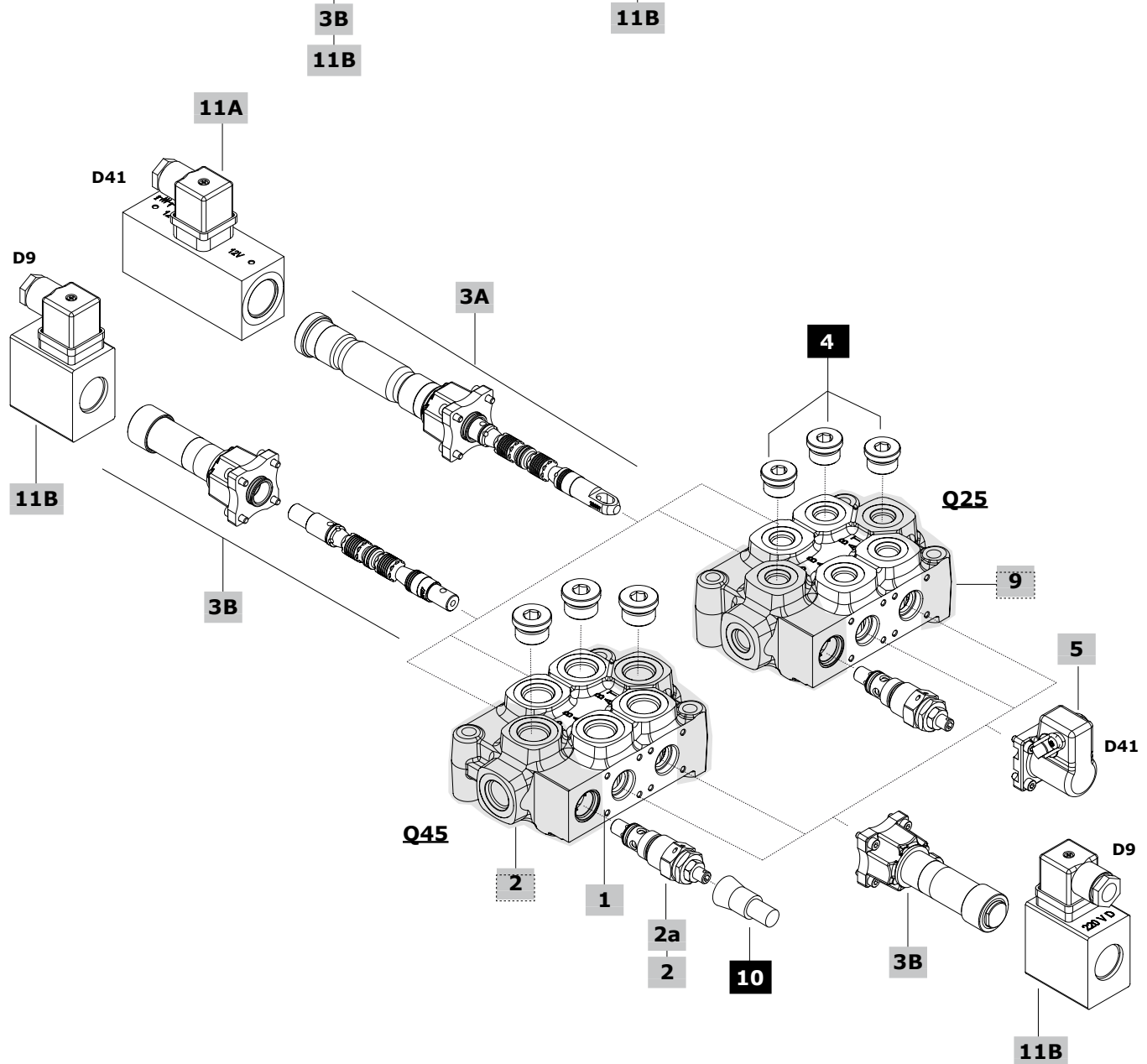
### Parts ordering codes

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



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

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



**1 Body kit\***

TYPE	CODE	DESCRIPTION
<b>Q25/1-SAE</b>	5KC0600132085A	1 section
<b>Q25/2-SAE</b>	5KC0600131800A	2 sections
<b>Q25/3-SAE</b>	5KC0600131842A	3 sections
<b>Q25/4-SAE</b>	5KC0600131966A	4 sections
<b>Q25/5-SAE</b>	5KC0600132436A	5 sections
<b>Q25/6-SAE</b>	5KC0600131965A	6 sections
<b>Q25/8-SAE</b>	5KC0600132438A	8 sections
<b>Q45/1-SAE</b>	5KC0600128100A	1 section
<b>Q45/2-SAE</b>	5KC0600128099A	2 sections
<b>Q45/3-SAE</b>	5KC0600128103C	3 sections
<b>Q45/4-SAE</b>	5KC0600128201A	4 sections
<b>Q45/5-SAE</b>	5KC0600127785A	5 sections
<b>Q45/6-SAE</b>	5KC0600129943A	6 sections
<b>Q45/7-SAE</b>	5KC0600131149A	7 sections
<b>Q45/8-SAE</b>	5KC0600131651A	8 sections

**2 Inlet configuration\* page 40**

See #2, page 35

**2a Main pressure relief valve page 41**

See #2a, page 35

**3A D41 solenoid control page 59**

**One side solenoid control**

**For Q25 valve:**

TYPE	CODE	DESCRIPTION
<b>103</b>	X060102889799	Tube assembly with double acting spool, A and B closed in neutral position
<b>107</b>	X060102938199	Tube assembly with double acting spool, A to tank and B closed in neutral position
<b>108</b>	X060102937199	Tube assembly with double acting spool, B to tank and A closed in neutral position
<b>109</b>	X060102952699	Tube assembly with single acting spool on port A, A to tank in neutral position. SAE6 plug is required, see #4
<b>111</b>	X060102894299	Tube assembly with double acting spool, A and B to tank in neutral position
<b>101</b>	X060102905099	Tube assembly with single acting spool on port A. SAE6 plug is required, see #4
<b>102</b>	X060102894199	Tube assembly with single acting spool on port B. SAE6 plug is required, see #4

**For Q45 valve:**

<b>103</b>	X060102889700	Tube assembly with double acting spool, A and B closed in neutral position
<b>107</b>	X060102938100	Tube assembly with double acting spool, A to tank and B closed in neutral position
<b>108</b>	X060102937100	Tube assembly with double acting spool, B to tank and A closed in neutral position
<b>109</b>	X060102952600	Tube assembly with single acting spool on port A, A to tank in neutral position. SAE8 plug is required, see #4
<b>111</b>	X060102894200	Tube assembly with double acting spool, A and B to tank in neutral position
<b>101</b>	X060102905000	Tube assembly with single acting spool on port A. SAE8 plug is required, see #4
<b>102</b>	X060102894100	Tube assembly with single acting spool on port B. SAE8 plug is required, see #4

**3B D9 solenoid control page 60**

**Two side solenoid control**

**For Q25/Q45 valves:**

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

**Note (1):** Q25 valve required SAE6 plug, see #4  
Q45 valve required SAE8 plug, see #4

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

See #4, page 35

**5 A side control for D41 page 59**

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

**9 Outlet configuration\* page 61**

See #9, page 36

**10 Accessory**

See #10, page 36

**11A/B Coil page 59**

**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**

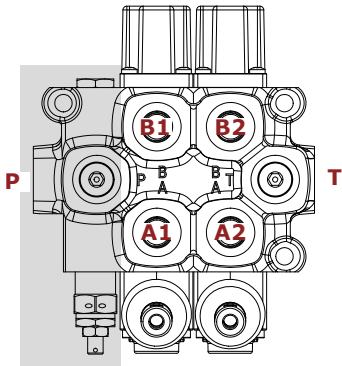
**For Q25/Q45 valves:**

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

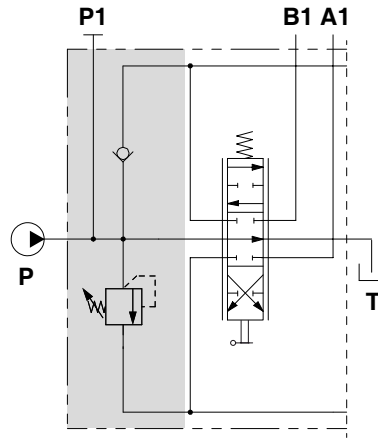
**Note:** The connector is included

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

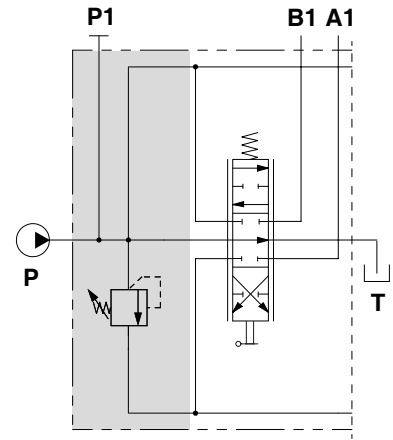
### Inlet configuration



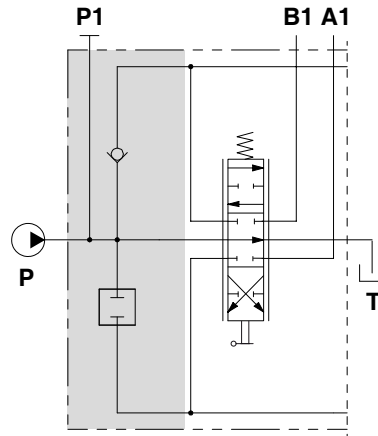
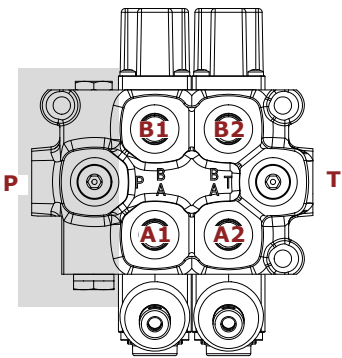
**F1S-SAE configuration**  
With load check and pressure relief valve



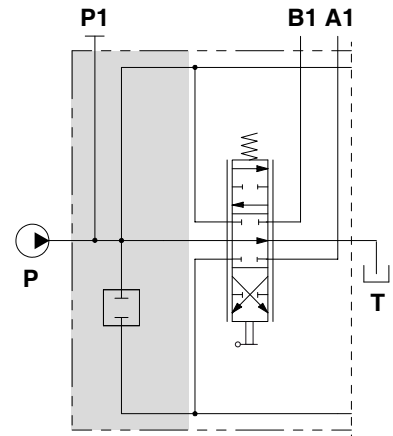
**F7S-SAE configuration**  
With pressure relief valve



**F2S-SAE configuration**  
With load check valve



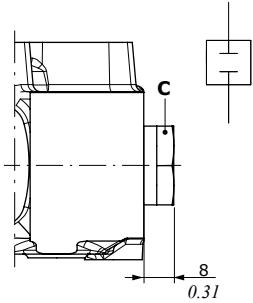
**F8S-SAE configuration**  
Without valves  
(pressure relief valve plugged port)



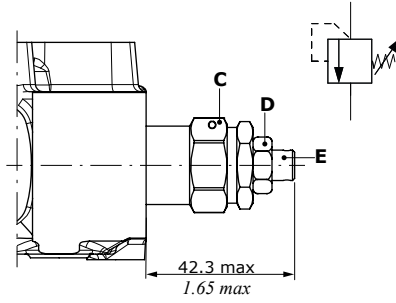


Main pressure relief valve

Relief valve blanking plug

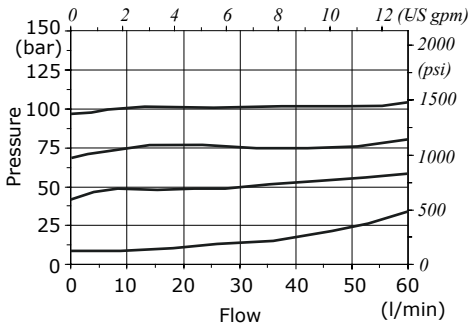


Main pressure relief valve

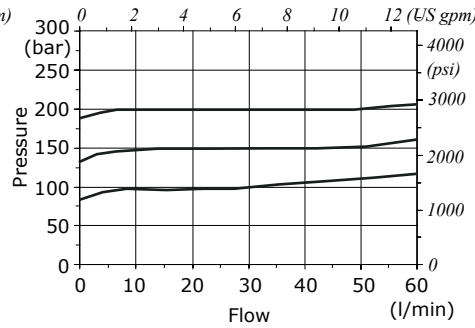


Spring type	Setting ranges (bar - psi)
<b>B</b> (white)	From 10 to 100 - from 145 to 1450
<b>N</b> (black)	From 101 to 200 - from 1460 to 2900
<b>R</b> (red)	From 201 to 380 - from 2910 to 5500

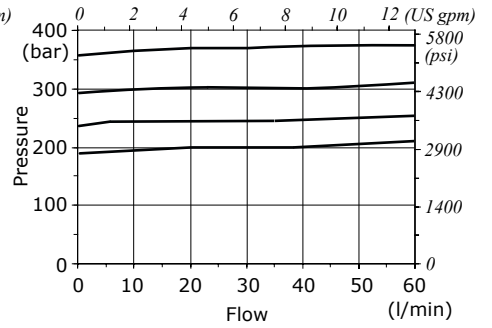
Setting example (B type spring)



Setting example (N type spring)



Setting example (R type spring)



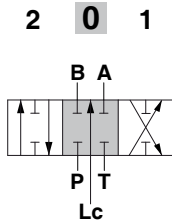
Wrenches and tightening torques

- C = wrench 22 - 42 Nm (30.9 lbf<sub>t</sub>)
- D = wrench 13 - 24 Nm (17.7 lbf<sub>t</sub>)
- E = allen wrench 4

### Spool

#### 103 type

A and B closed  
in neutral position

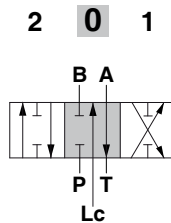


#### Stroke

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

#### 107 type

A to tank, B closed  
in neutral position

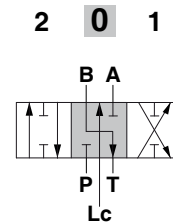


#### Stroke

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

#### 108 type

B to tank, A closed  
in neutral position

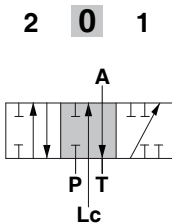


#### Stroke

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

#### 109 type

A to tank in neutral position,  
B plugged

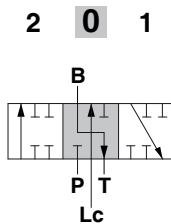


#### Stroke

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

#### 110 type

B to tank in neutral position,  
A plugged

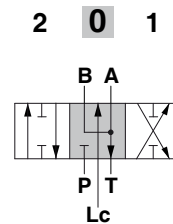


#### Stroke

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

#### 111 type

A and B to tank  
in neutral position

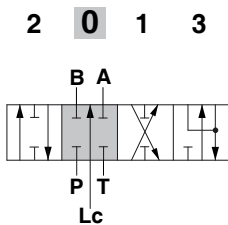


#### Stroke

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

#### 116 type

With floating in the 4<sup>th</sup> position  
(spool in)

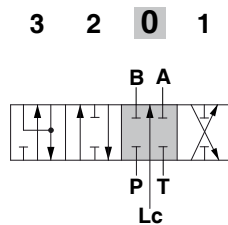


#### Stroke

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 4<sup>th</sup> position  
(spool out)

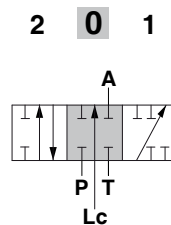


#### Stroke

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

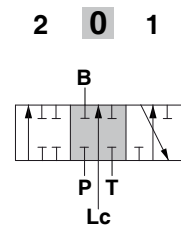


#### Stroke

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

#### 102 type

Single acting on B,  
A plugged



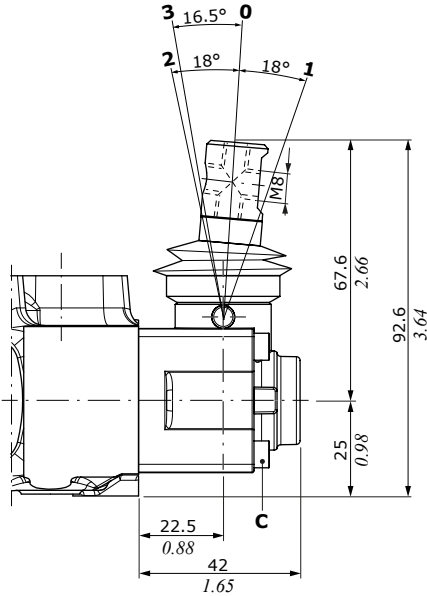
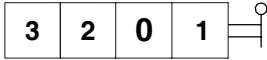
#### Stroke

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

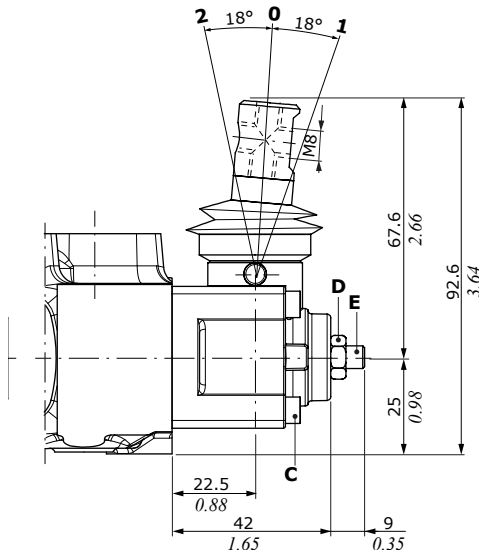
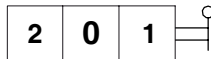
Mechanical controls

With lever control

**A1 type**  
M8 thread plastic lever box



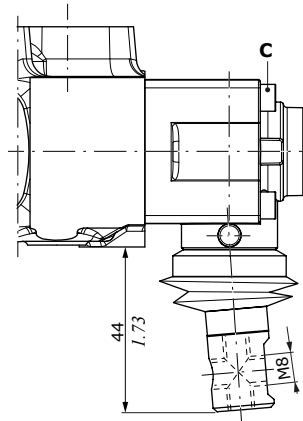
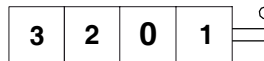
**A1/06 type**  
M8 thread,  
with stroke limiter



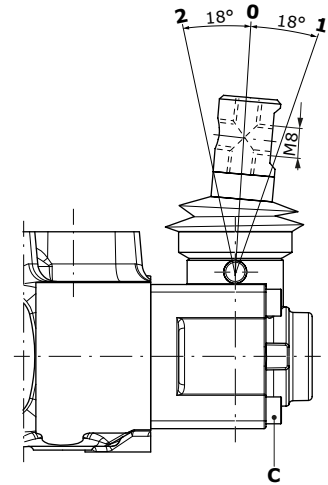
**A1/10 type**  
M8 thread aluminium lever box.  
Dimensions are the same  
of A1 type



**A2 type**  
As A1 type, rotated 180°



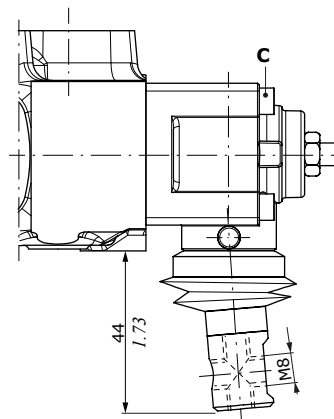
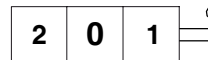
**A2/10 type**  
As A1/10 type,  
rotated 180°



**Wrenches and tightening torques**

- C = allen wrench 3 - 3 Nm (2.2 lbf<sub>t</sub>)
- D = wrench 10 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- E = allen wrench 4 - 9.8 Nm (7.2 lbf<sub>t</sub>)

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



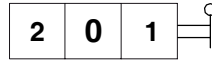
## A side controls

### Mechanical controls

#### With lever control

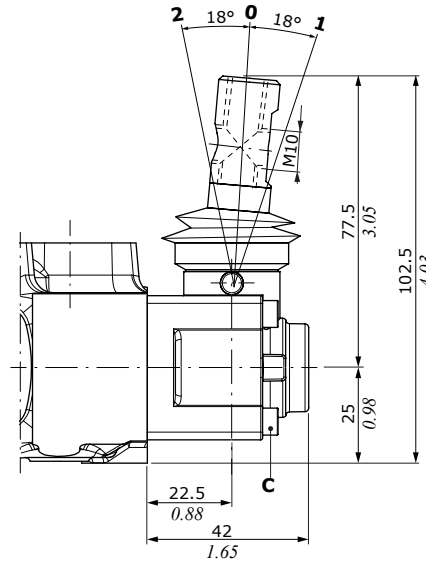
#### A1/PM type

M10 thread aluminium lever box



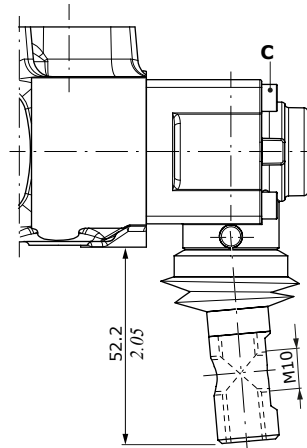
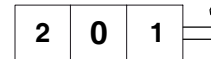
#### Wrenches and tightening torques

C = allen wrench 3 - 3 Nm (2.2 lbf)



#### A2/PM type

As A1/PM type, rotated 180°

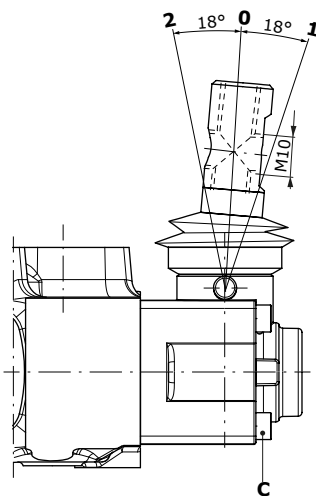
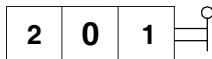


#### A1/PMP type

M10 thread

aluminium lever box.

Dimensions are the same of A1/PM type



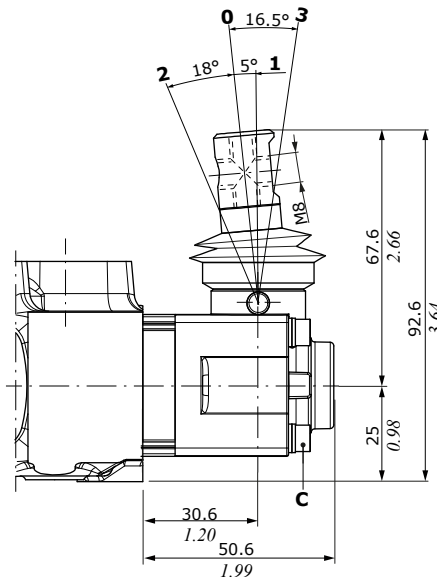
#### A2/PMP type

As A1/PMP type, rotated 180°

#### A1/Z1 type

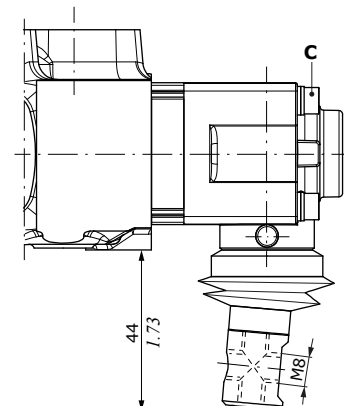
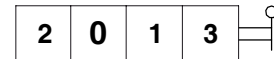
M8 thread,

for 116 floating spool type



#### A2/Z1 type

As A1/Z1 type, rotated 180°

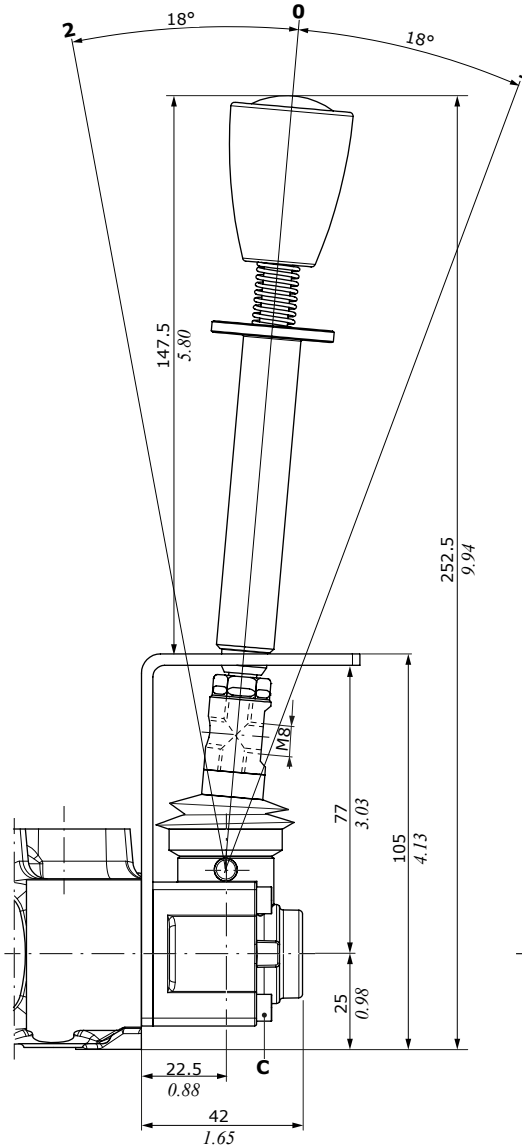


**Mechanical controls**

**With safety lever control**

**A1/S type**

M8 thread, aluminium lever box



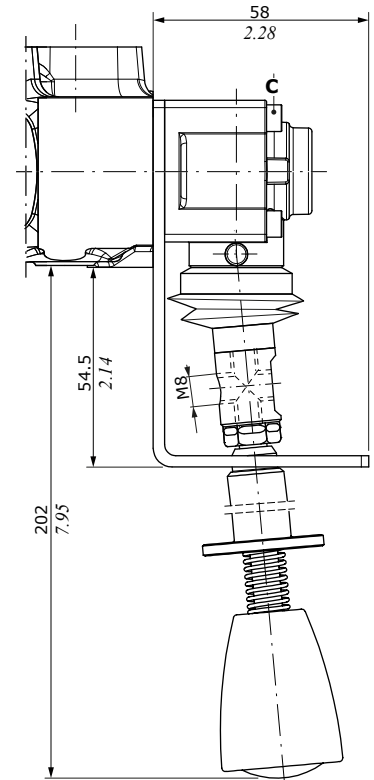
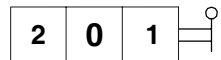
**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)

D = cross-head - 3 Nm (2.2 lbf<sup>t</sup>)

**A2/S type**

As A1/S type, rotated 180°

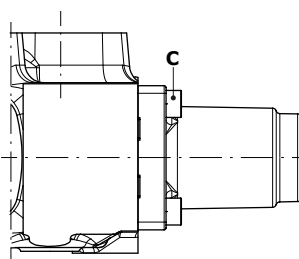
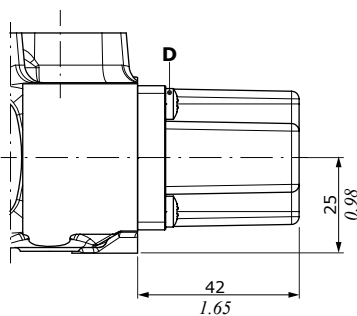
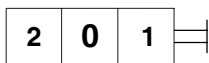


**Without lever control**

**A3 type**

With cap.

Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

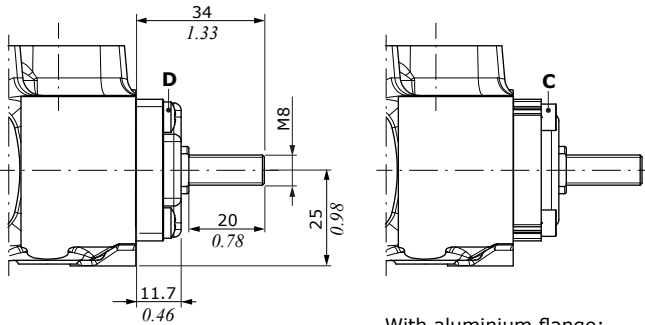
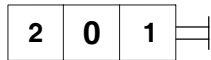
### A side controls

#### Mechanical controls

#### Without lever control

##### A4 type

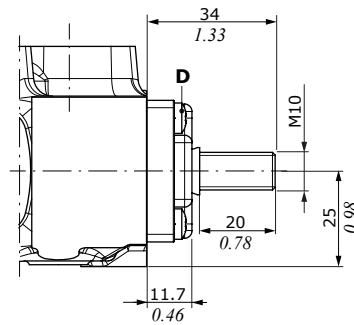
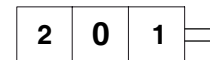
M8 male thread external pin with flange.  
Available with aluminium flange



With aluminium flange;  
dimensions are the same of standard type

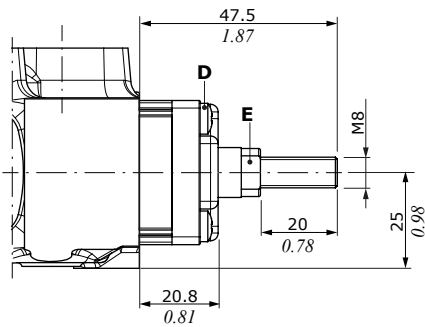
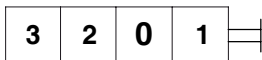
##### A4/01 type

M10 male thread external pin with flange



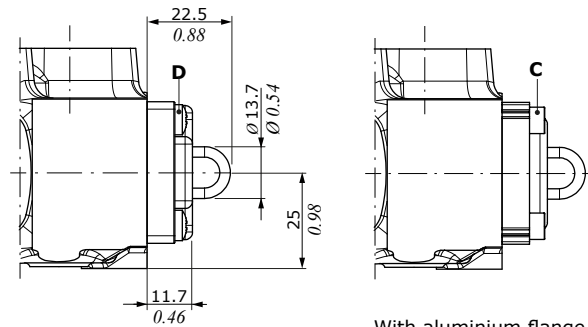
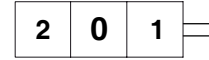
##### A4/Z1 type

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

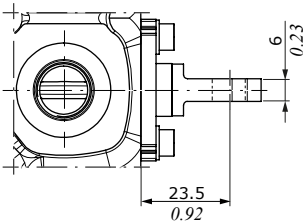
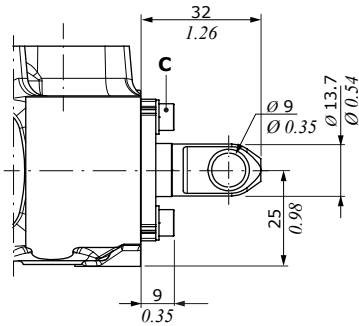
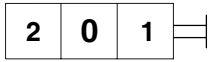
#### Wrenches and tightening torques

- C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)
- D = cross-head - 3 Nm (2.2 lbf<sup>t</sup>)
- E = wrench 9 - 9.8 Nm (7.2 lbf<sup>t</sup>)

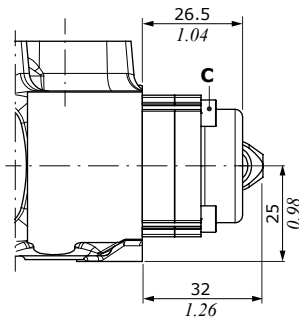
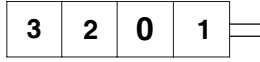
**Mechanical controls**

**Without lever control**

**A6 type**  
With flange



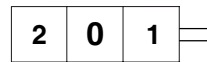
**A6-H/Z1 type**  
As A6 type,  
for 116 floating spool type



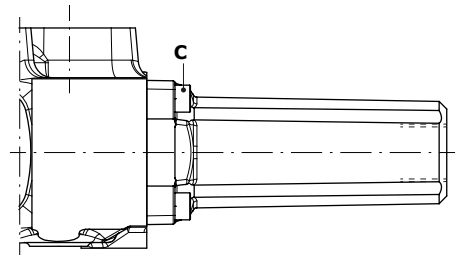
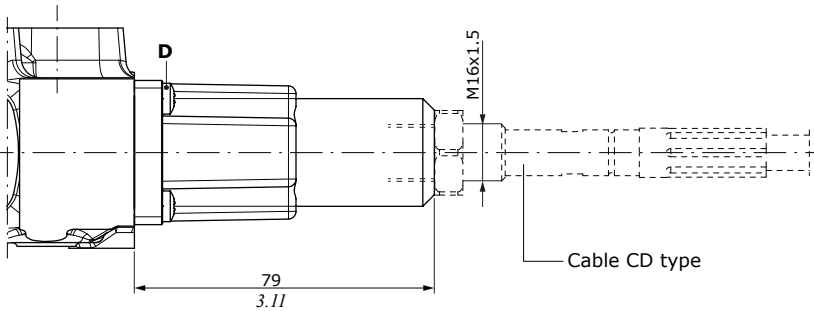
**Wrenches and tightening torques**  
C = allen wrench 3 - 3 Nm (2.2 lbft)  
D = cross-head - 3 Nm (2.2 lbft)

**A8 type**

Flexible cable control arrangement.  
Available with aluminium cap

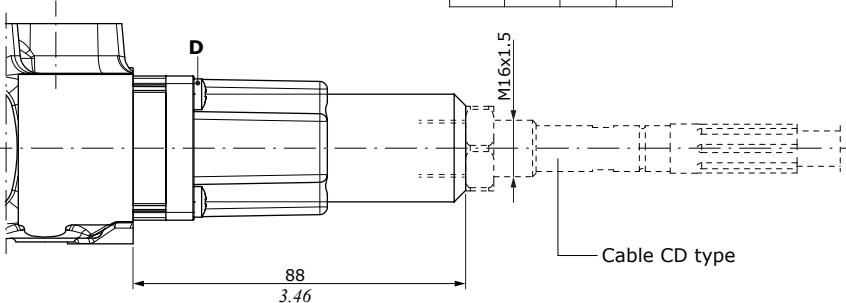
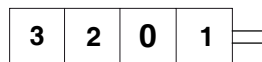


**With flexible cable control arrangement**



With aluminium cap;  
dimensions are the same of standard type

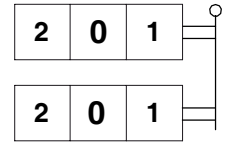
**A8/Z1 type**  
As A8 type,  
for 116 floating spool type



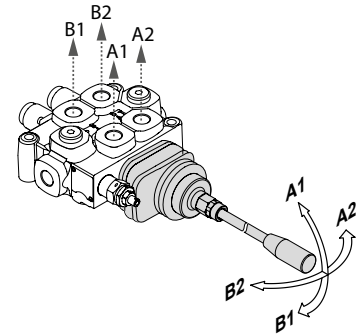
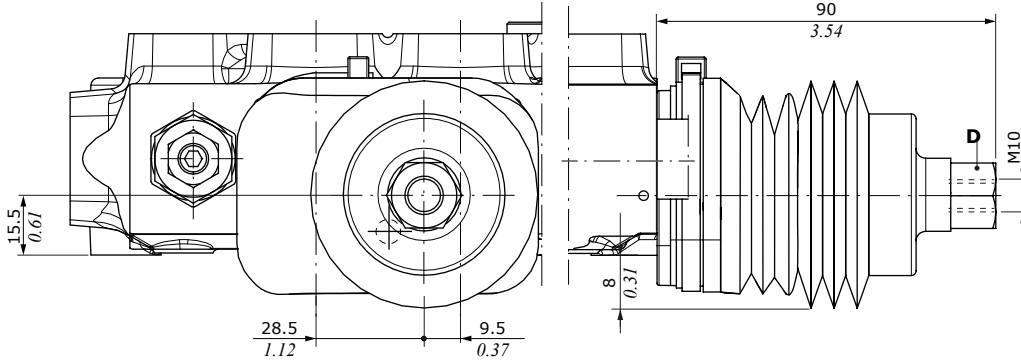
### A side controls

#### Joystick controls

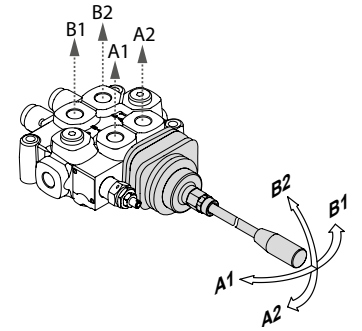
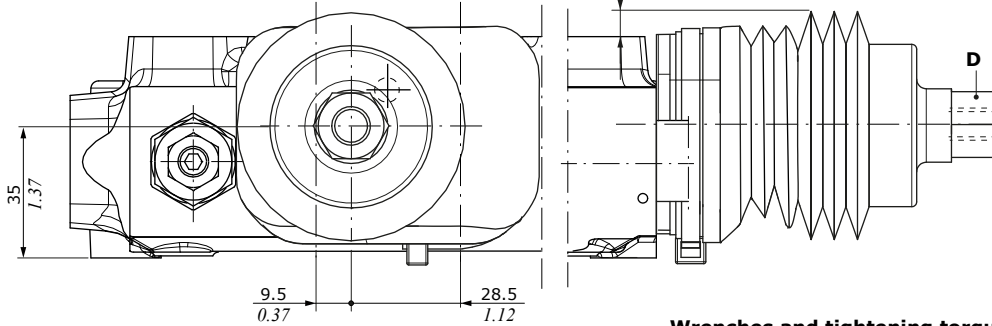
For operating the joystick control in the floating position, contact Sales Department.



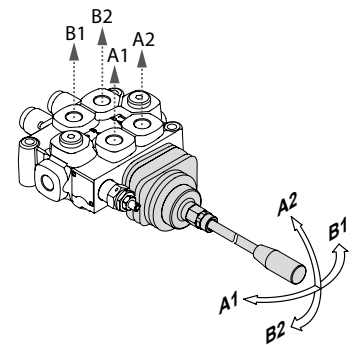
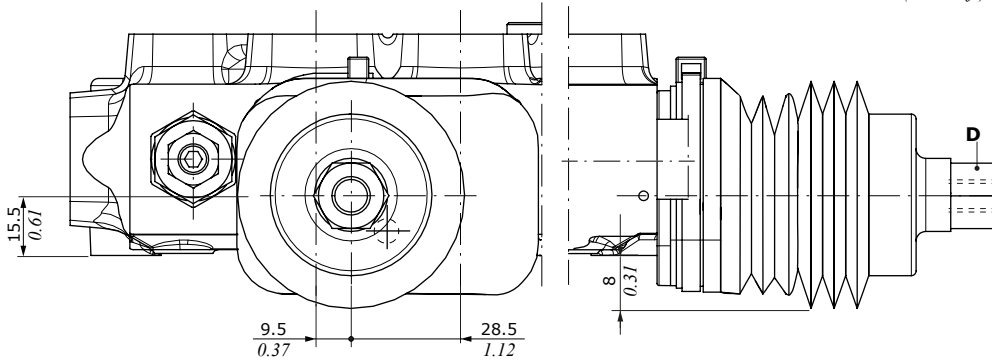
#### A35-1 type



#### A35-2 type



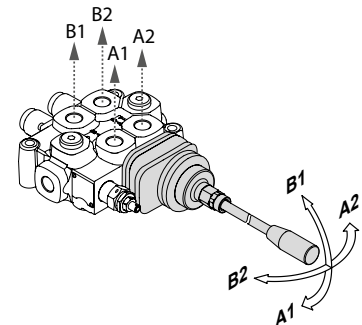
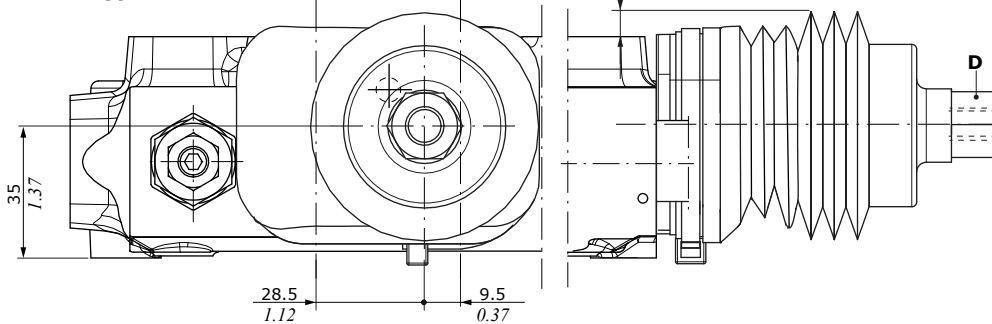
#### A35-3 type



#### Wrenches and tightening torques

D = wrench 17 - 24 Nm (17.7 lbf<sub>t</sub>)

#### A35-4 type



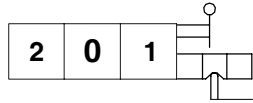


**Spool position microswitch**

**With lever control**

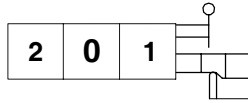
**N1-A1 type**

Micro operation in position 1 and 2.  
Available with aluminium lever box



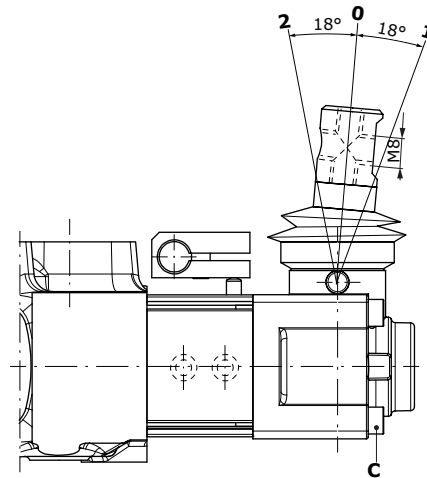
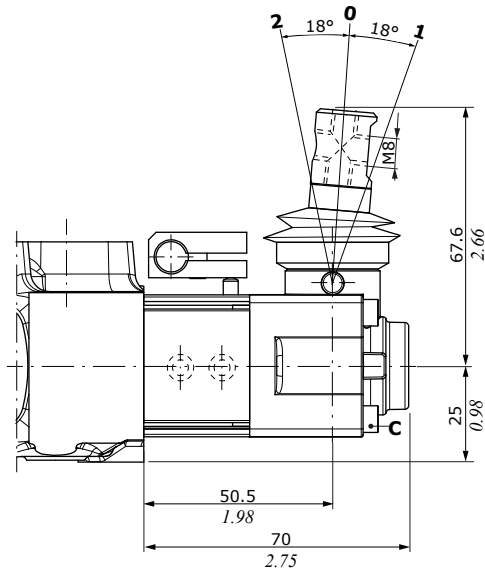
**N1A-A1 type**

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**

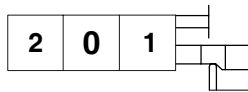
**N1-A3 type**

Micro operation in position 1 and 2



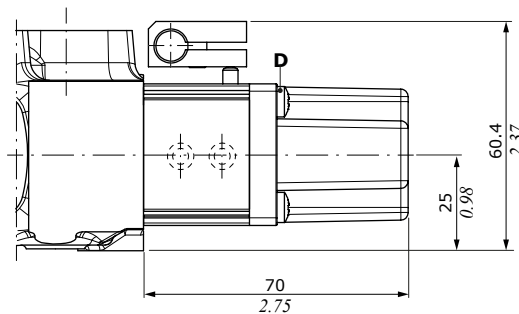
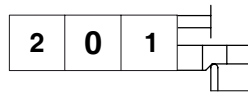
**N1A-A3 type**

Micro operation in position 1



**N1B-A3 type**

Micro operation in position 2



**Wrenches and tightening torques**

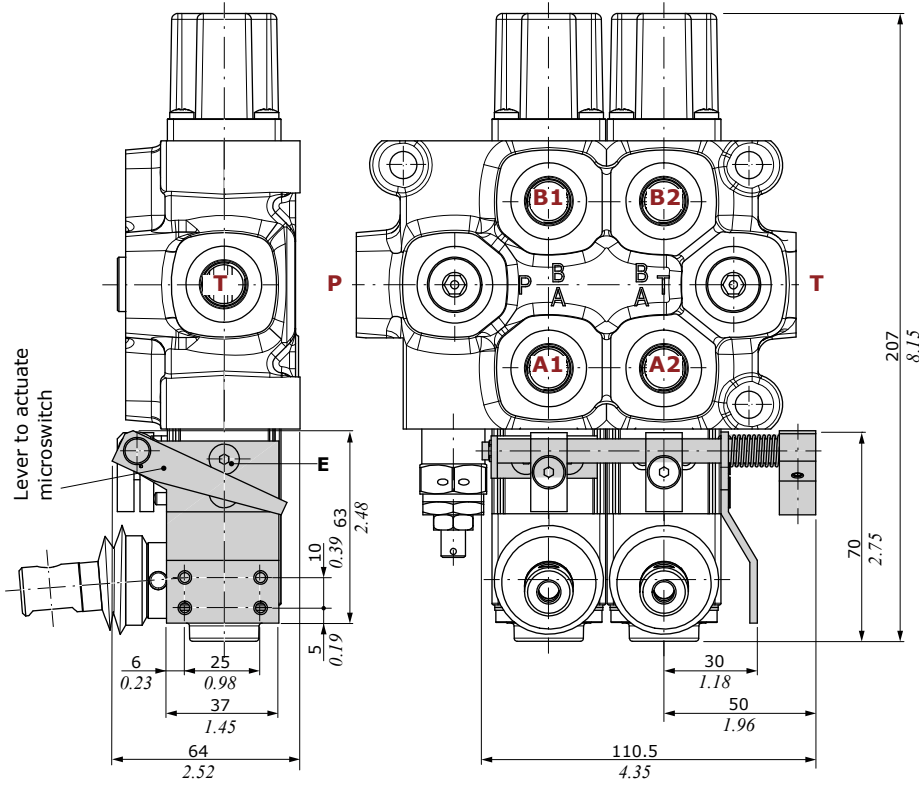
C = allen wrench 3 - 3 Nm (2.2 lbf<sub>t</sub>)

D = cross-head - 3 Nm (2.2 lbf<sub>t</sub>)

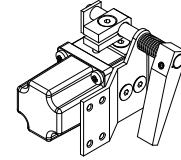
### A side controls

#### Spool position microswitch

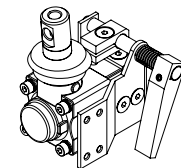
#### Microswitch assembly kit for 2 working section (N1-A1 type)



with cap



with lever box



**Wrenches and tightening torques**  
E = allen wrench 3 - 6.6 Nm (4.8 lbf<sup>t</sup>)

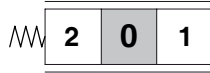
Drawing is referred to a Q25 monoblock valve.

**Mechanical controls**

**With spring return control**

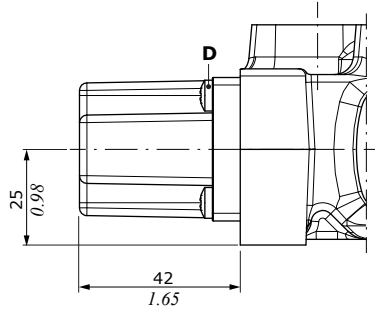
**M1 type**

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



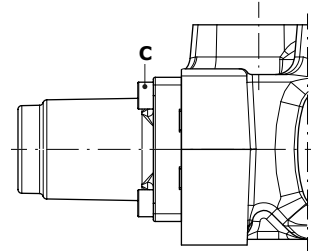
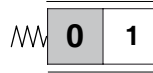
**M1/01 type**

3 position, for joystick control.  
Available with aluminium cap



**M2 type**

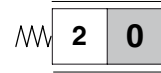
2 position (0-1), spring return in neutral position.  
Available with aluminium cap



With aluminium cap; dimensions are the same of standard type

**M3 type**

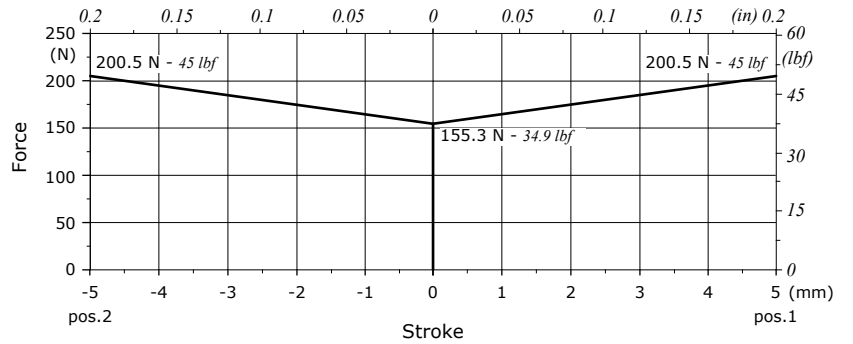
2 position (0-2), spring return in neutral position.  
Available with aluminium cap



**Wrenches and tightening torques**

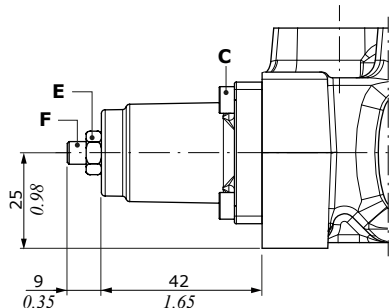
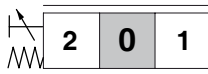
- C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)
- D = cross-head - 3 Nm (2.2 lbf<sup>t</sup>)
- E = wrench 10 - 9.8 Nm (7.2 lbf<sup>t</sup>)
- F = allen wrench 4 - 9.8 Nm (7.2 lbf<sup>t</sup>)

**M1 control type - Force vs. Stroke diagram**



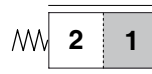
**M1/02 type**

As M1 type, with stroke limiter

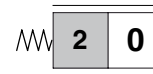


**M4 types**

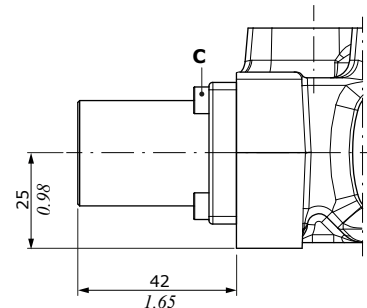
2 position (1-2), spring return in position 1



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



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



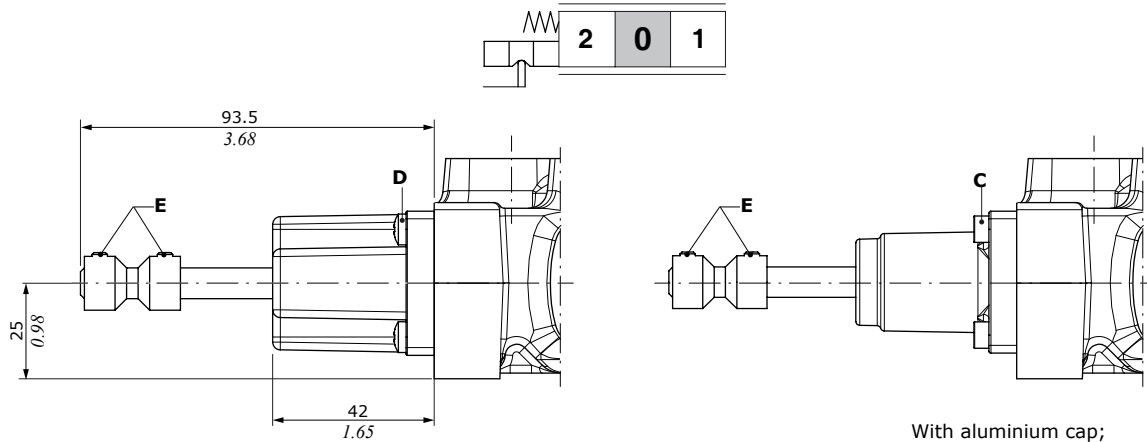
**B side controls**

**Mechanical controls**

**With spring return control**

**M1-B1 type**

3 position, microswitch arrangement.  
Available with aluminium cap

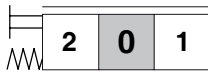


With aluminium cap;  
dimensions are the same of standard type

**With flexible cable control arrangement**

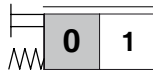
**M1-U1 type**

3 position, with M8 male thread external pin



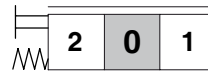
**M2-U1 type**

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



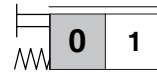
**M1-U2 type**

3 position, spring return in neutral position



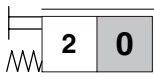
**M2-U2 type**

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



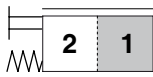
**M3-U1 type**

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



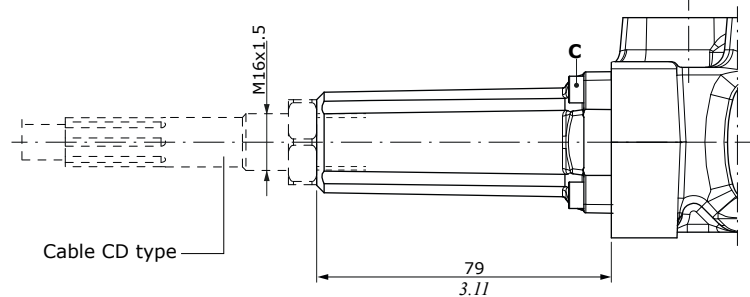
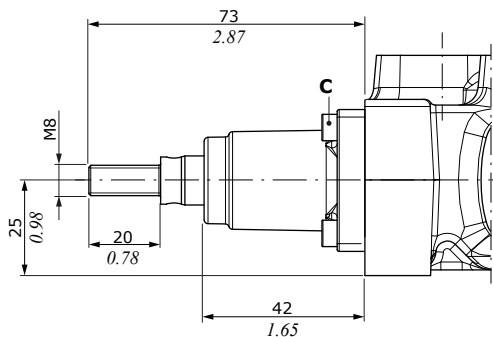
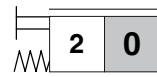
**M4-U1 type**

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**

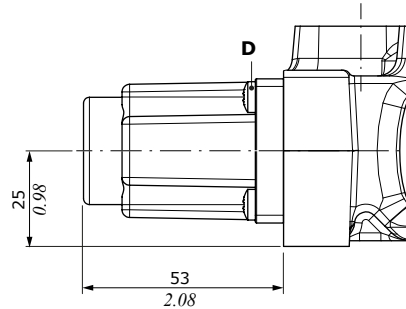
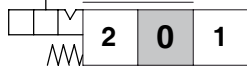
- C = allen wrench 3 - 3 Nm (2.2 lbf<sub>t</sub>)
- D = cross-head - 3 Nm (2.2 lbf<sub>t</sub>)
- E = allen wrench 3 - 5 Nm (3.68 lbf<sub>t</sub>)

**Mechanical controls**

**With detent control**

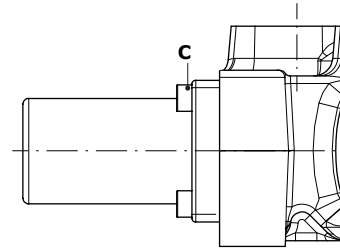
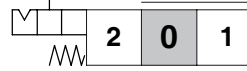
**R1 type**

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



**R2 type**

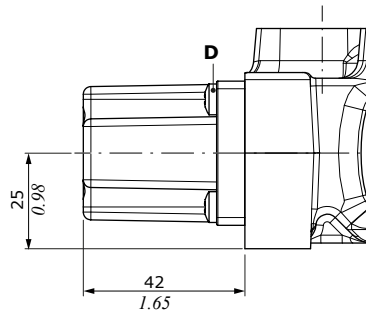
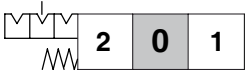
3 position, detent in position 2.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

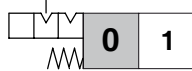
**R3 type**

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



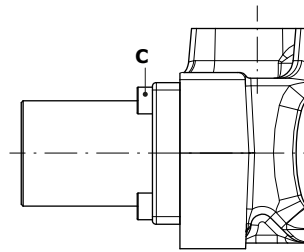
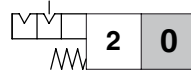
**R4 type**

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



**R5 type**

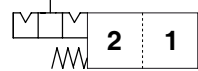
2 position,  
detent in position 0-2.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

**R6 type**

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



**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbf)  
D = cross-head - 3 Nm (2.2 lbf)

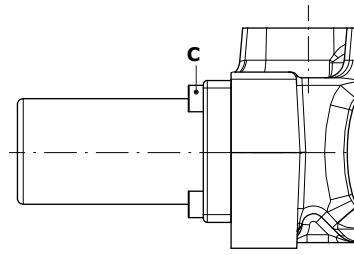
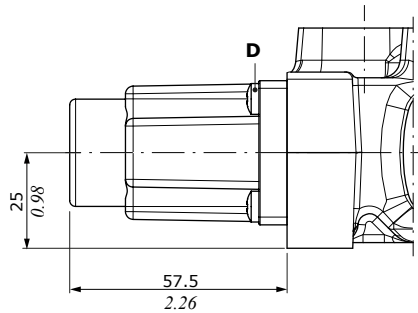
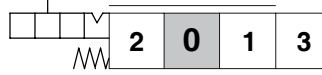
B side controls

Mechanical controls

With detent control

R8 type

4 position, detent in 4<sup>th</sup> position, for 116 floating spool type.  
Available with aluminium cap



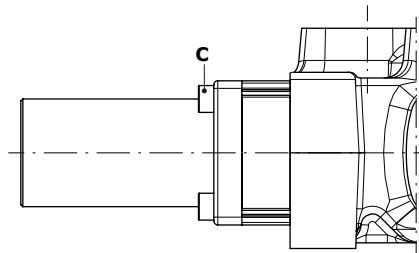
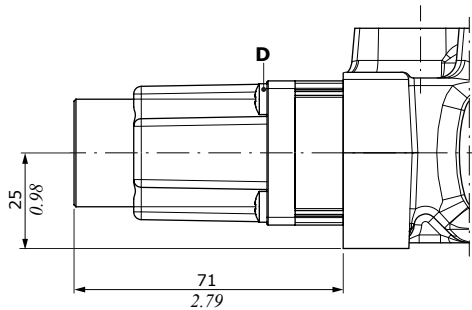
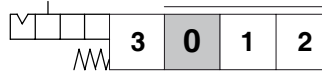
With aluminium cap;  
dimensions are the same of standard type

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 4<sup>th</sup> position, for 126 floating spool type.  
Available with aluminium cap

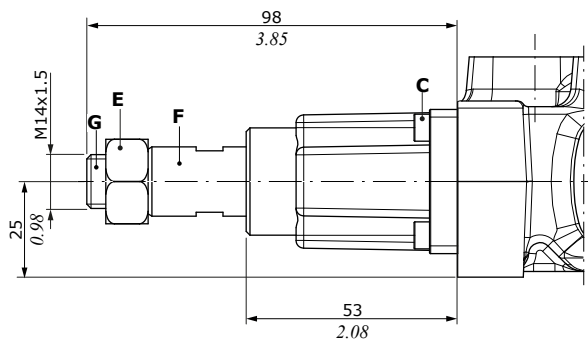
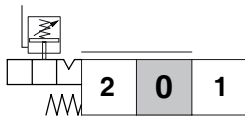


With aluminium cap;  
dimensions are the same of standard type

With detent control and kick out function

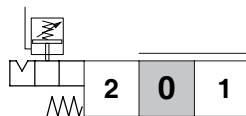
R1K type

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



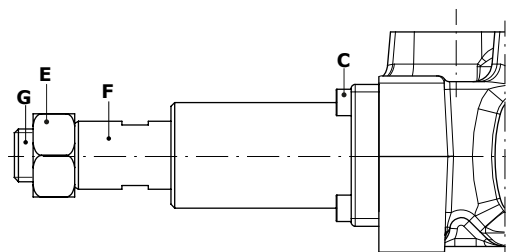
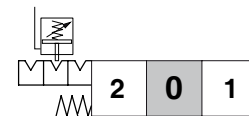
R2K type

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



R3K type

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

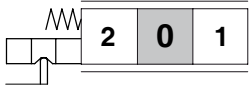


With aluminium cap;  
dimensions are the same of standard type

Spool position microswitch

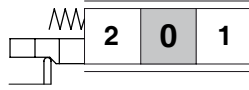
**M1-N1 type**

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



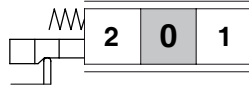
**M1-N1A type**

3 position, micro operation in position 1.  
Available with aluminium cap



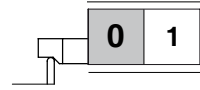
**M1-N1B type**

3 position, micro operation in position 2.  
Available with aluminium cap



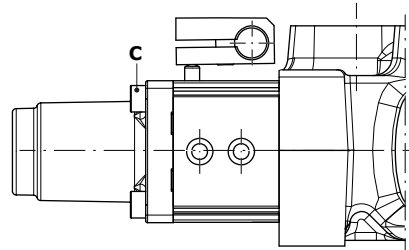
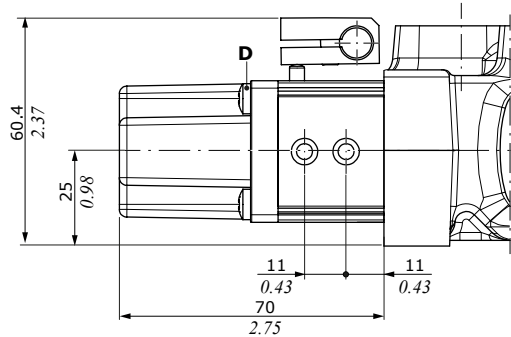
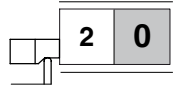
**M2-N1 type**

2 position (0-1) spring return in neutral position



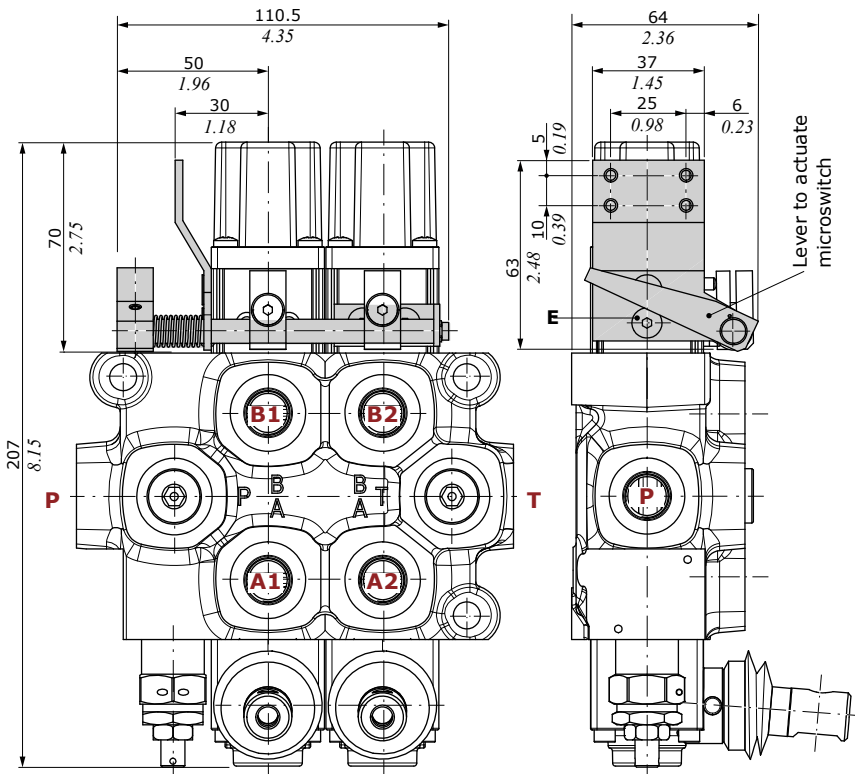
**M3-N1 type**

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



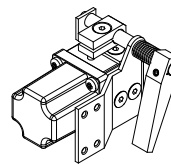
With aluminium cap; dimensions are the same of standard type

**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)



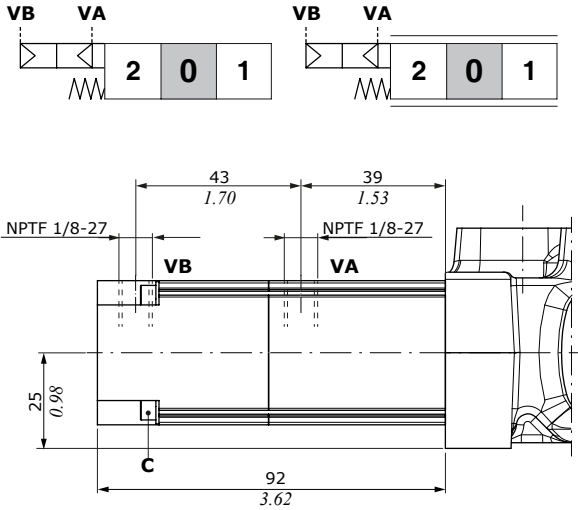
Drawing is referred to a Q25 monoblock valve.

**B side controls**

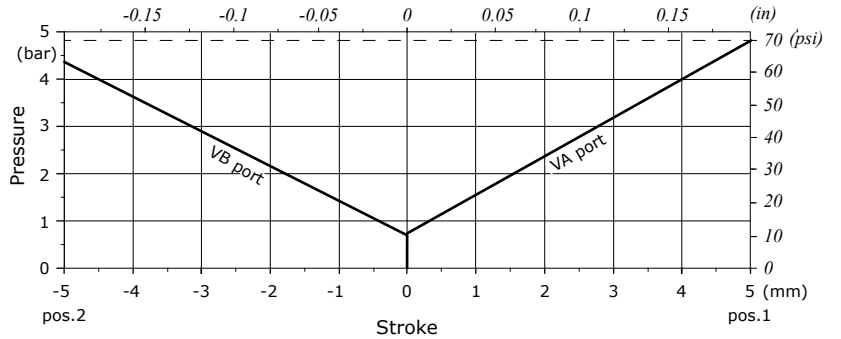
**Pneumatic control**

**P1NW type**  
ON/OFF control

**P1NPW type**  
Proportional control



**Proportional pilot pressure curves**



**Operating features**

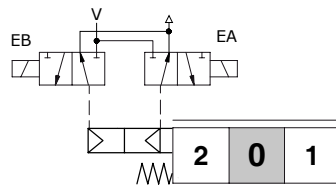
Pilot pressure..... : min. 5 bar (72.5 psi) - max. 30 bar (435 psi)  
 Pilot volume..... : 4 cm<sup>3</sup>/min (0.24 in<sup>3</sup>/min)

**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbft)

**ON/OFF electropneumatic control**

**D3 type**  
ON/OFF control



**Operating features**

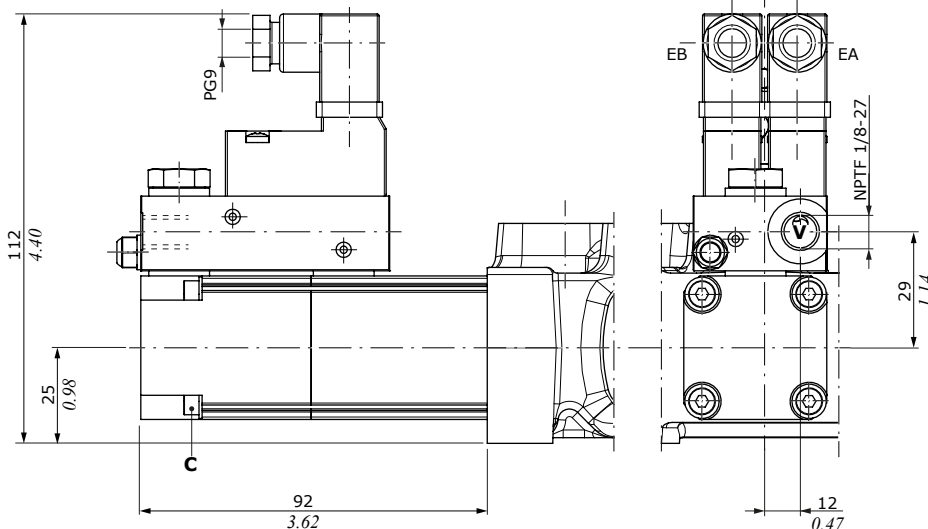
Pilot pressure..... : min. 1 bar (14.5 psi)  
 max. 10 bar (145 psi)

**COILS**

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

**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbft)

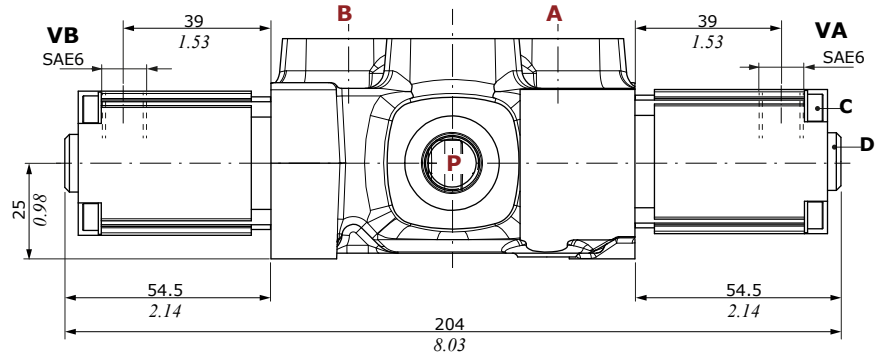
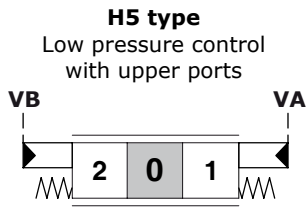






## A+B side controls

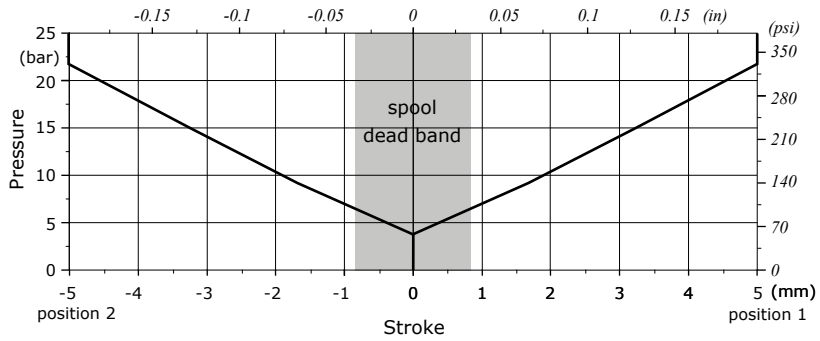
### Proportional hydraulic controls



### Operating features

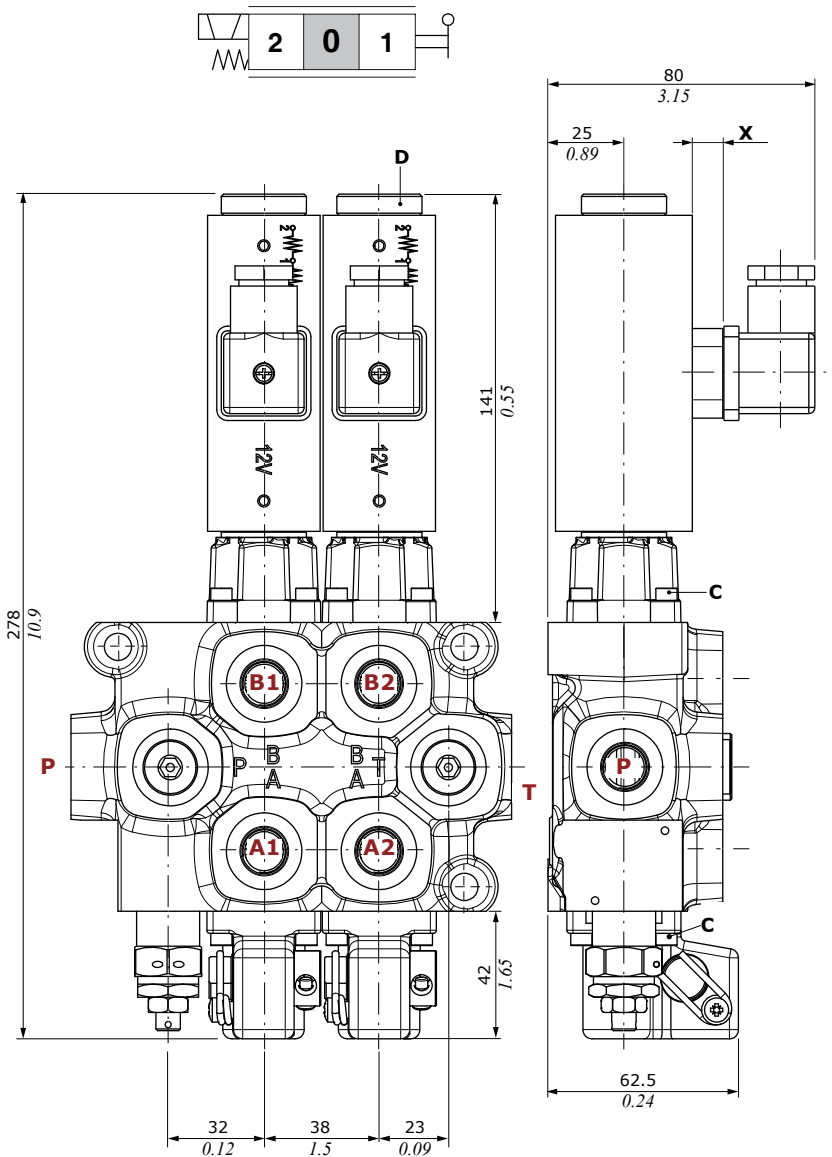
Pilot pressure..... : max. 100 bar (1450 psi)

**Stroke vs. Pressure diagram for H5 type 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

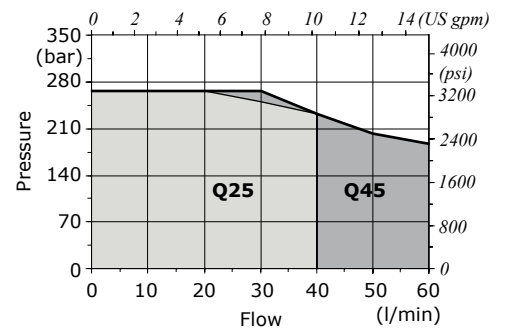
X	
	Coil type mm - in
Q25	ZEB012 coil 10 - 0.39
	ZEB024 coil
Q45	4SLG111200 coil 8 - 0.31
	4SLG111200 coil

Wrenches and tightening torques

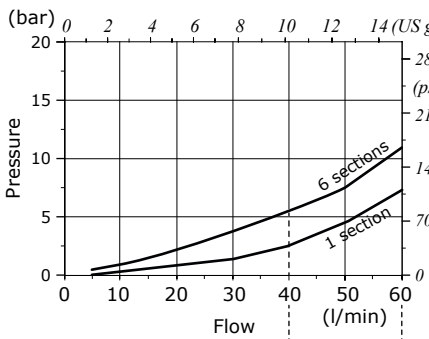
C = allen wrench 3 - 3 Nm (2.2 lbft)

D = manual tightening - 6.6 Nm (7.2 lbft)

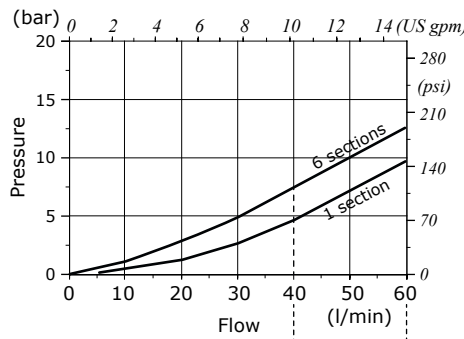
Dynamic conditions



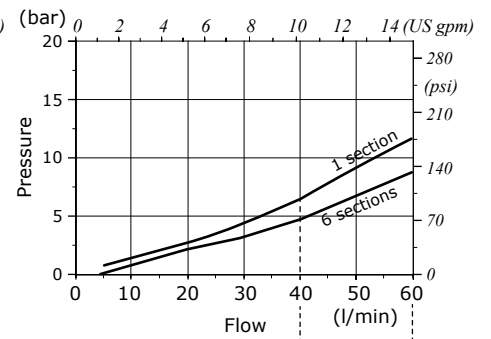
P⇒T pressure drops



P⇒A(B) pressure drops



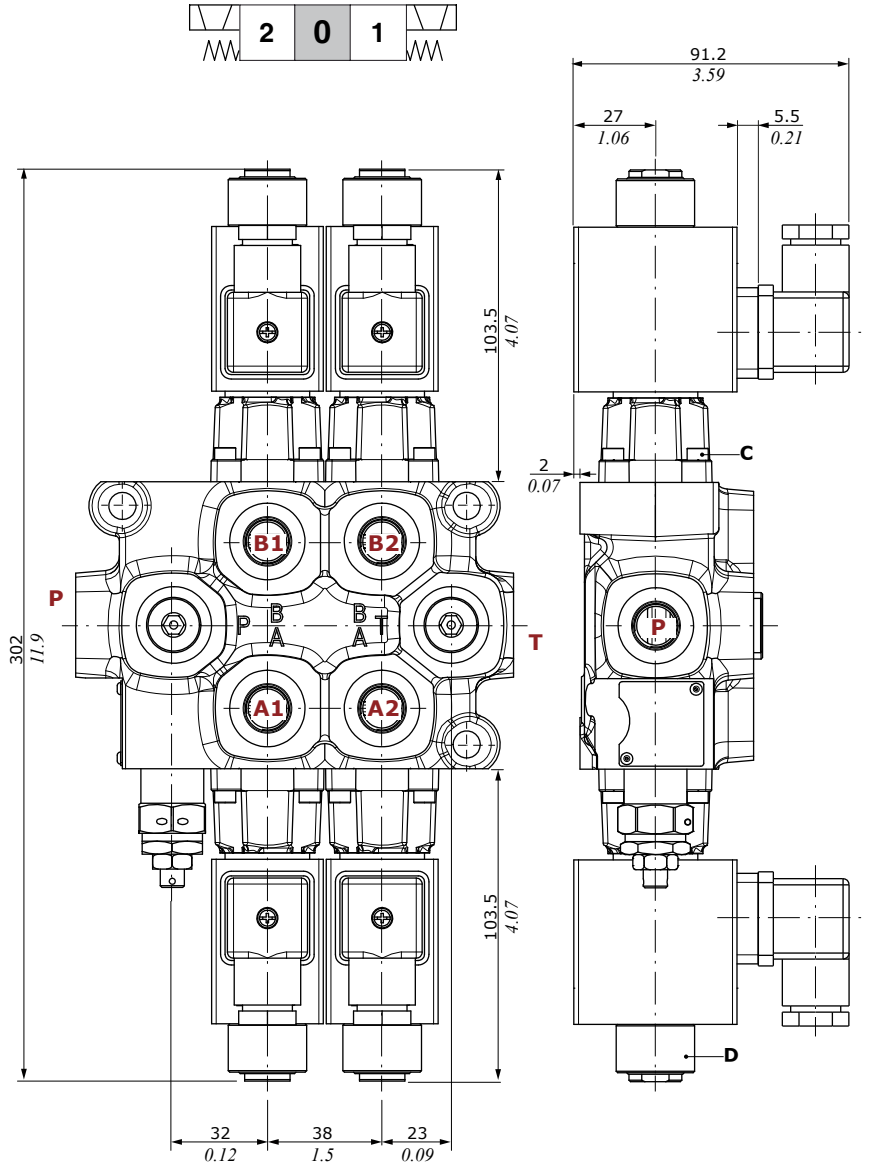
A(B)⇒T pressure drops



### Direct solenoid control

#### D9 type: ON/OFF two side

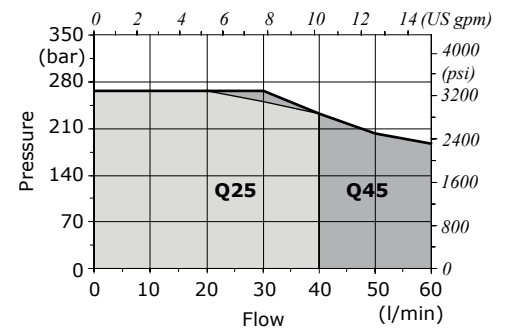
Drawing is referred to a Q25 monoblock valve.



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

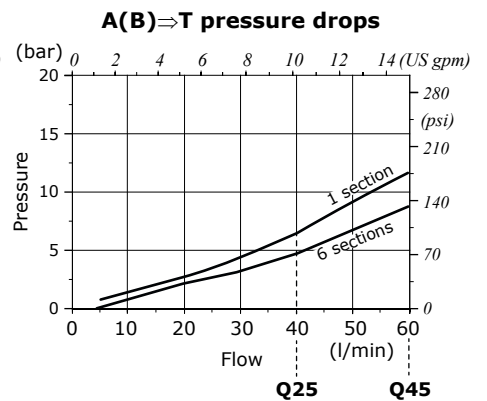
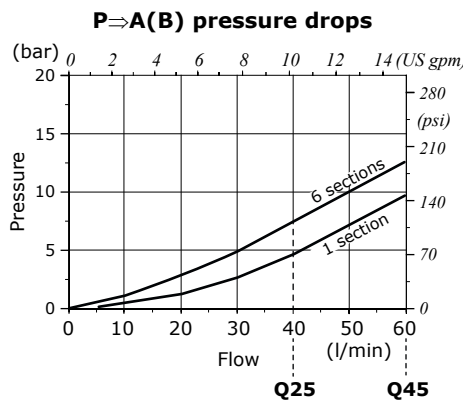
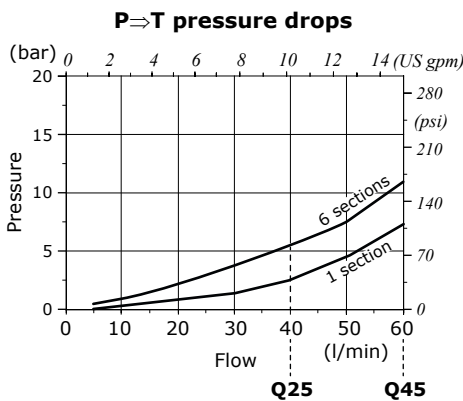
Connector type: ISO4400 3P+T-PG11

#### Dynamic conditions



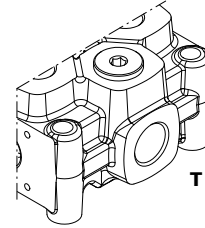
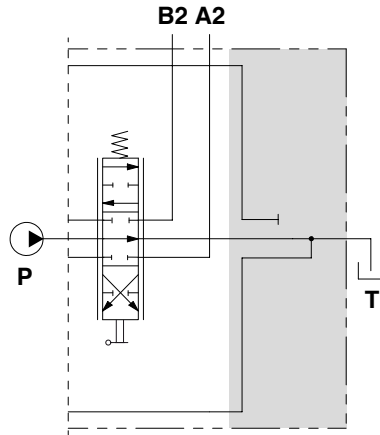
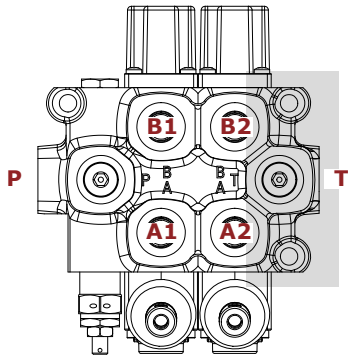
#### Wrenches and tightening torques

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

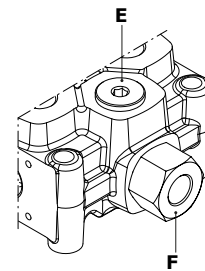
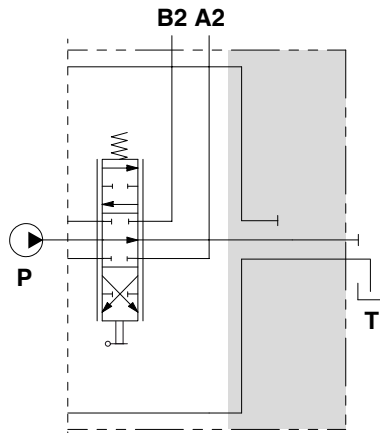
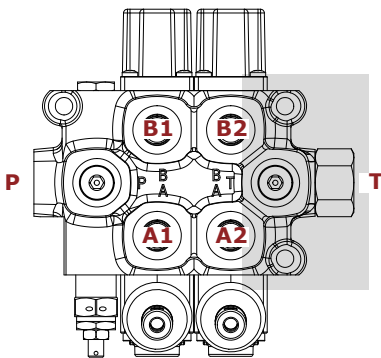


Outlet configuration

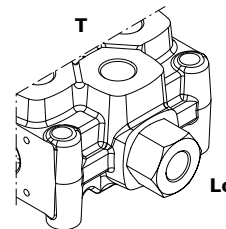
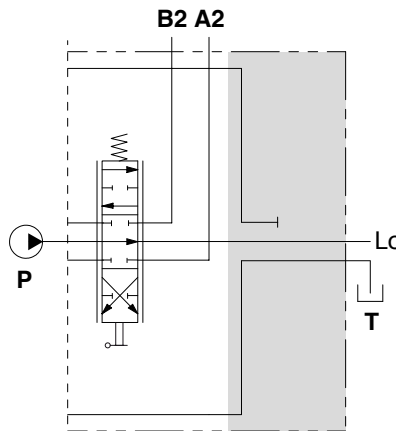
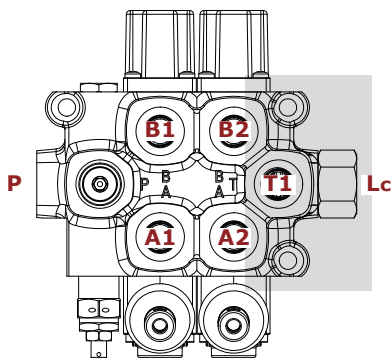
**F3D-SAE configuration**  
Open center configuration



**F16D-SAE configuration**  
Closed center configuration



**F6D-SAE configuration**  
Carry-over configuration



**Wrenches and tightening torques**

E (Q25) = allen wrench 6 - 24 Nm (17.7 lbft)

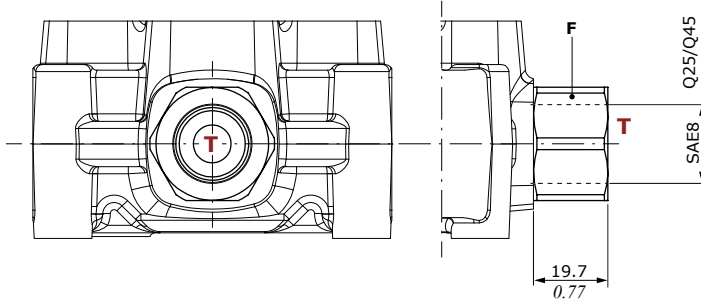
(Q45) = allen wrench 8 - 42 Nm (22 lbft)

F = wrench 30 - 42 Nm (30.9 lbft)

### 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 lbf)



## Q75 - Q95

### Monoblock directional valves

- Simple, compact and heavy duty designed monoblock valve
- From 1 to 6 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 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

	Q75	Q95
Nominal flow rating	80 l/min - (22 Us gpm)	100 l/min - (27 Us gpm)
Max. pressure	from 1 up to 2 sections	350 bar (5070 psi)
	3 sections	300 bar (4350 psi)
	from 4 up to 6 sections	270 bar (3900 psi)
Max. back pressure on outlet <b>T</b> port		25 bar (360 psi)
Number sections		from 1 to 6
Internal leakage A(B)⇒T	Δp = 100 bar (1450 psi)	6 cm <sup>3</sup> /min (0.36 in <sup>3</sup> /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 mm <sup>2</sup> /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

NOTES - For different conditions please contact our Sales Department.

#### REFERENCE STANDARD

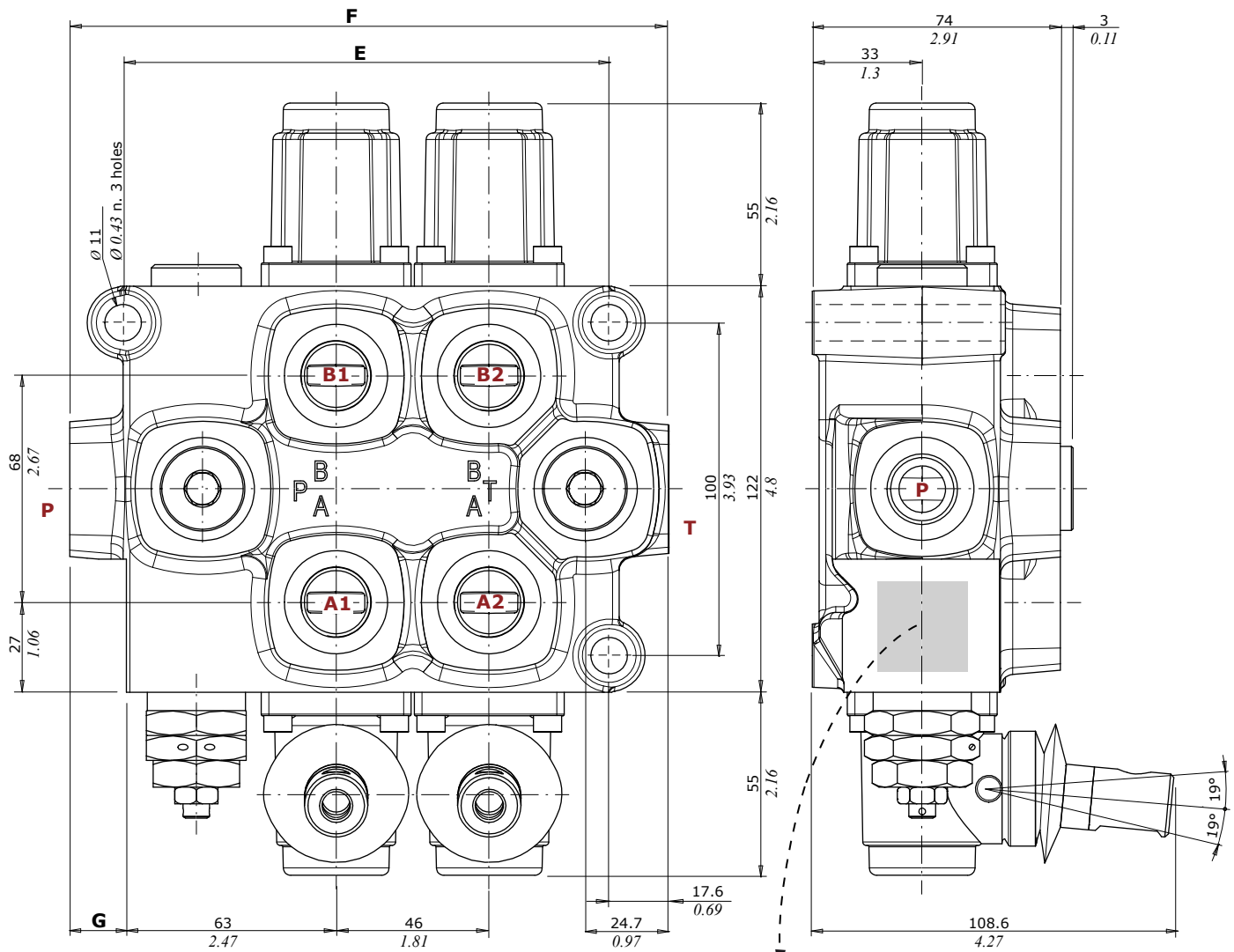
	BSP	UN-UNF
THREAD ACCORDING TO	ISO 228/1	ISO 263
	BS 2779	ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO	11926
	SAE	J11926
	DIN	3852-2 shape X or Y

#### PORT THREADING

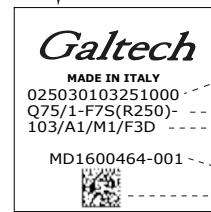
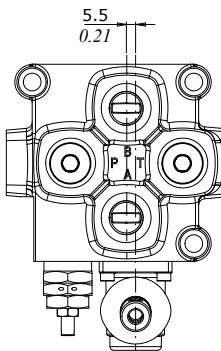
PORTS	Q75		Q95	
	BSP	UN-UNF	BSP	UN-UNF
<b>P</b> Inlet	G 1/2	7/8-14 (SAE 10)	G 3/4	1" 1/16-12 (SAE 12)
<b>P1</b> Inlet	G 1/2	7/8-14 (SAE 10)	G 3/4	1" 1/16-12 (SAE 12)
<b>A</b> and <b>B</b> ports	G 1/2	7/8-14 (SAE 10)	G 3/4	1" 1/16-12 (SAE 12)
<b>T</b> Outlet	G 3/4	1" 1/16-12 (SAE 12)	G 3/4	1" 1/16-12 (SAE 12)
<b>T1</b> Outlet	G 1/2	7/8-14 (SAE 10)	G 3/4	1" 1/16-12 (SAE 12)
<b>Lc</b> port (Carry-over plug - T port)	G 1/2	7/8-14 (SAE 10)	G 3/4	7/8-14 (SAE 10)
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 Q75 and Q95 monoblock valves, have same dimensions but different threads. See port threading on page 63. Drawing are referred to a Q75 monoblock valve.



Directional valve with 1 section

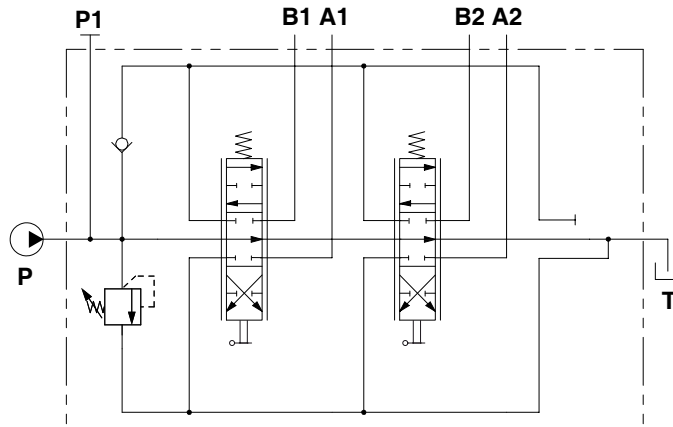


- Product code
- Customer reference or code description
- Product allotment
- Datamatrix with product allotment

Type	E		F		G	
	mm	in	mm	in	mm	in
Q75/1 - Q95/1	100	3.93	134	5.27	16.5	0.65
Q75/2 - Q95/2	146	5.75	180	7.08	16.5	0.65
Q75/3 - Q95/3	192	7.56	226	8.89	16.5	0.65
Q75/4 - Q95/4	238	9.37	269	10.59	13.5	0.53
Q75/5 - Q95/5	2.84	11.18	315	12.4	13.5	0.53
Q75/6 - Q95/6	330	13	365	14.67	16.5	0.65

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



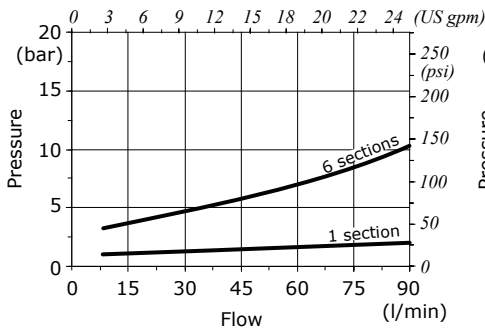


Description example (parallel circuit):  
 Q75/2/F1S(R250)/103-A1-M1/103-A1-M1/F3D-SAE  
 Q95/2/F1S(R250)/103-A1-M1/103-A1-M1/F3D-SAE

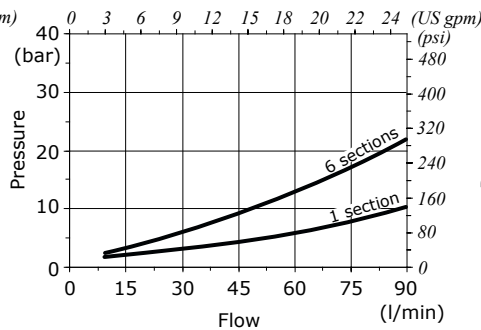
Performance data

**Q75**

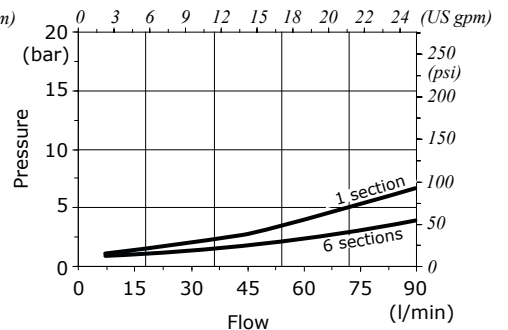
**P⇒T pressure drops**



**P⇒A(B) pressure drops**

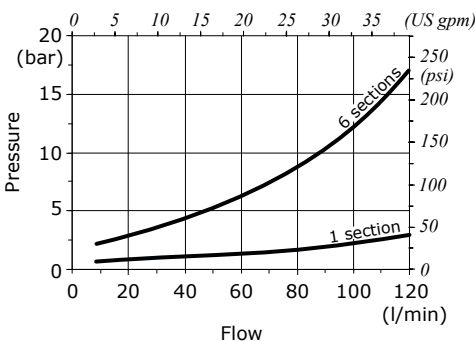


**A(B)⇒T pressure drops**

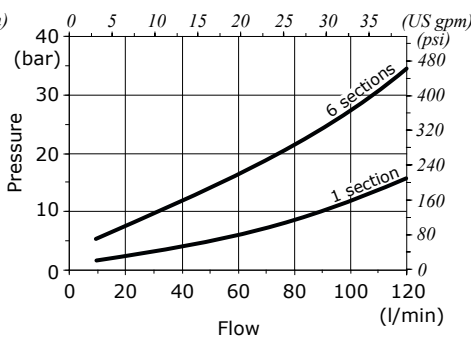


**Q95**

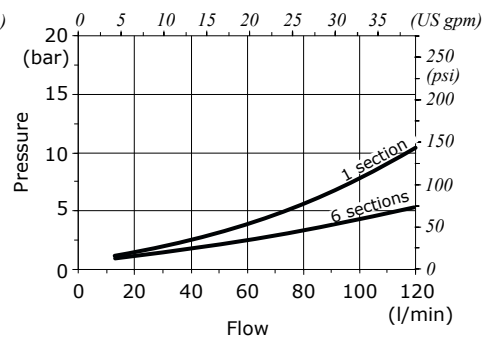
**P⇒T pressure drops**



**P⇒A(B) pressure drops**



**A(B)⇒T pressure drops**



## Parts ordering codes

### Mechanical control valve configuration example

valve setting (bar)

**Q75 / 2 / F1S (N150) / 102 - A1 - M1 / 102 - A1 - M1 / F3D - SAE**

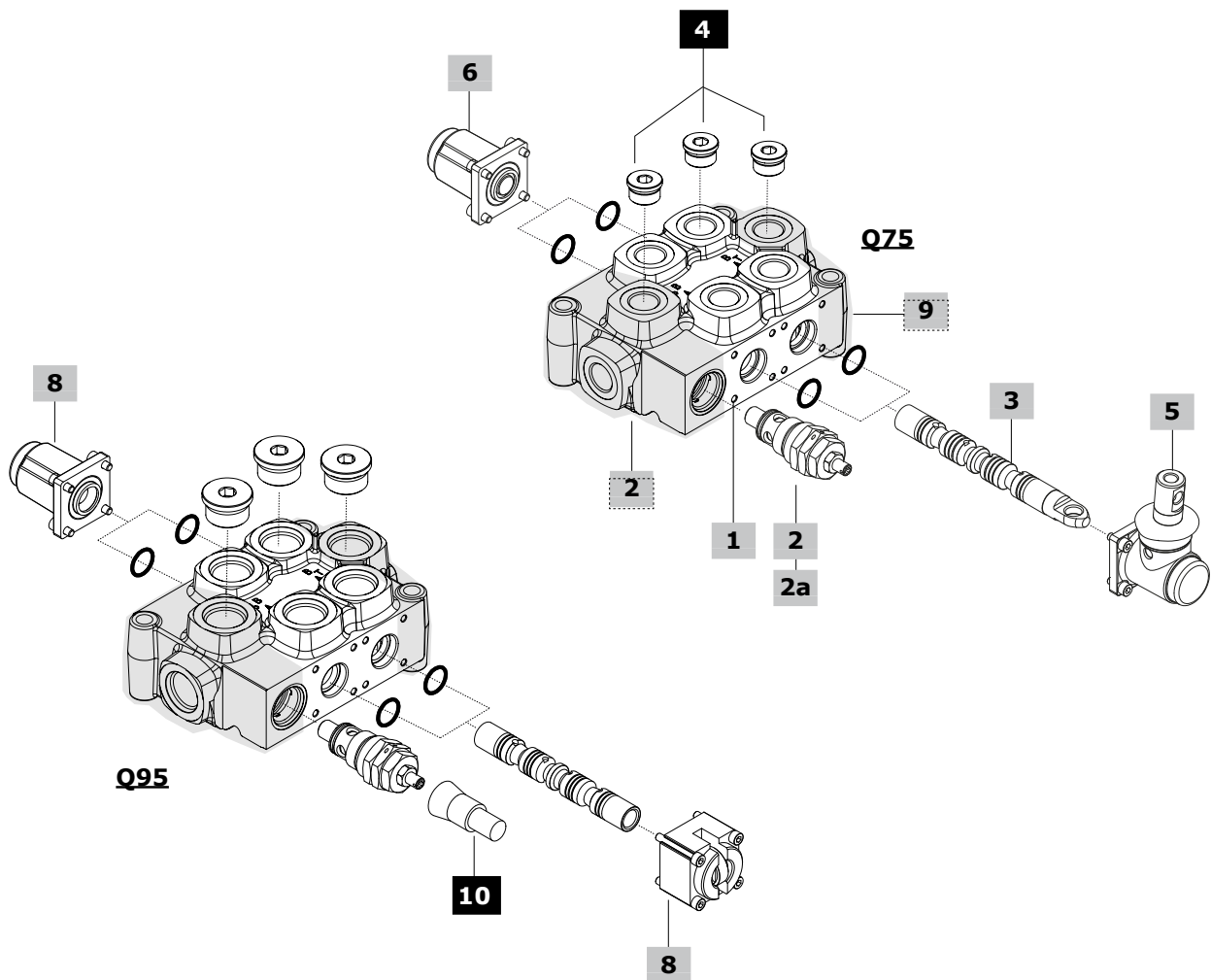
1    2 2a    3    5    6    9

N. of section

### C2/C3 complete mechanical control valve configuration example

**Q95 / 2 / F1S (N150) / 103 - C3 / 103 - C3 / F3D - SAE**

8



**1 Body kit\***

The codes are referred to sections with O-ring seals

TYPE	CODE	DESCRIPTION
<b>Q75/1-SAE</b>	5KC0600128155	1 section
<b>Q75/2-SAE</b>	5KC0600128156	2 sections
<b>Q75/3-SAE</b>	5KC0600128157	3 sections
<b>Q75/4-SAE</b>	5KC0600128158	4 sections
<b>Q75/5-SAE</b>	5KC0600127783	5 sections
<b>Q75/6-SAE</b>	5KC0600131404	6 sections

<b>Q95/1-SAE</b>	5KC0600130013	1 section
<b>Q95/2-SAE</b>	5KC0600130685	2 sections
<b>Q95/3-SAE</b>	5KC0600130764	3 sections
<b>Q95/4-SAE</b>	5KC0600132068	4 sections
<b>Q95/5-SAE</b>	5KC0600131719	5 sections
<b>Q95/6-SAE</b>	5KC0600131785	6 sections

**2 Inlet configuration\* page 71**

TYPE	DESCRIPTION
<b>F1S-SAE</b>	With load check and pressure relief valves
<b>F2S-SAE</b>	With load check valve
<b>F7S-SAE</b>	With pressure relief valve
<b>F8S-SAE</b>	Without valves (pressure relief valve plugged port)

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

**2a Main pressure relief valve page 72**

TYPE: <b>B</b>	CODE: 700065205000000
DESCRIPTION: VLP65S valve, setting range 10-100 bar (145-1450 psi)	
TYPE: <b>N</b>	CODE: 700065105000000
DESCRIPTION: VLP65S valve, setting range 101-200 bar (1460-2900 psi)	
TYPE: <b>R</b>	CODE: 700065305000000
DESCRIPTION: VLP65S valve, setting range 201-380 bar (2910-5500 psi)	
TYPE: -	CODE: 060002788999
DESCRIPTION: Relief valve blanking plug	

**3 Spool page 73**

TYPE	CODE	DESCRIPTION
<b>Standard spools</b>		
<b>103</b>	060102894999	Double acting, A and B closed in neutral position
	3CUG3051600	As previous one, for <b>kick-out</b> control
<b>106</b>	KR80106	Double acting, for closed circuit
<b>107</b>	KR80107-108	Double acting, A to tank and B closed in neutral position
<b>108</b>	KR80107-108	Double acting, B to tank and A closed in neutral position
<b>111</b>	060102996799	Double acting, A and B to tank in neutral position
<b>114</b>	KR80114	Double acting, A and B to tank in neutral position, for closed circuit
<b>101</b>	3CUG2891900	Single acting on port A (3)
<b>102</b>	3CUG2891901	Single acting on port B (3)
<b>116</b>	3CUG2897800	Double acting, with floating in the 4 <sup>th</sup> position (spool in): requires dedicated spool control
<b>126</b>	3CUG2897801	Double acting, with floating in the 4 <sup>th</sup> position (spool out): requires dedicated spool control

**Note (3):** Q75 valve required SAE10 plug, see #4  
Q95 valve required SAE12 plug, see #4

**Special spools for cam, microswitch controls and other leverless controls**

<b>103</b>	060102879199	Double acting, A and B closed in neutral position
<b>111</b>	060102864199	Double acting, A and B to tank in neutral position

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

TYPE	CODE	DESCRIPTION
-	060002792099	SAE10 plug for Q75 body kit
-	3XTAP732200	SAE12 plug for Q95 body kit

**5 A side control page 74**

TYPE	CODE	DESCRIPTION
<b>For standard spools</b>		
<u>With lever control:</u>		
<b>A1</b>	08600A1-A2	M10 thread aluminium lever box
<b>A2</b>	08600A1-A2	As A1 type, with lever box rotated 180°
<b>A1/06</b>	08606A1-A2/06	Aluminium lever box with stroke limiter
<b>A2/06</b>	08606A1-A2/06	As A1/06 type, with lever box rotated 180°
<b>A1/Z1</b>	08610A1-2/Z1	Aluminium lever box for <b>116</b> spool type
<b>A2/Z1</b>	08610A1-2/Z1	As A1/Z1 type, with lever box rotated 180°
<u>With safety lever control:</u>		
<b>A1/S<sup>(1)</sup></b>	08624A1-A2/S	M10 thread aluminium lever box
<b>A2/S<sup>(1)</sup></b>	08624A1-A2/S	As A1/S type, with lever box rotated 180°
<u>Without lever control:</u>		
<b>A6</b>	08620A6	With flange
<b>A8</b>	08622A8	Flexible cable control arrangement
<b>A8/Z1</b>	08622A8/Z1	As A8 type, for <b>116</b> spool type
<u>With joystick controls for 2 section operation:</u>		
<b>A35/1</b>	08637A35-12	Joystick 1 type
<b>A35/2</b>	08637A35-12	Joystick 2 type
<b>A35/3</b>	08637A35-34	Joystick 3 type
<b>A35/4</b>	08637A35-34	Joystick 4 type
<b>For types 103 and 111 special spools</b>		
<u>With spool position microswitch:</u>		
<b>Note:</b> To complete the control you must use the assembly kit at #7		
<b>N1-A1</b>	08641N1-A1/A2	Micro operation in pos. 1 and 2, with lever box
<b>N1A-A1</b>	08642N1A-A1/A2	Micro operation in pos. 1, with lever box
<b>N1B-A1</b>	08643N1B-A1/A2	Micro operation in pos. 2, with lever box
<b>N1-A3</b>	08648N1-A3L	Micro operation in pos. 1 and 2, without lever with cap
<b>N1A-A3</b>	08648N1A-A3	Micro operation in pos. 1, without lever with cap
<b>N1B-A3</b>	08648N1B-A3	Micro operation in pos. 2, without lever with cap
<u>Without lever control:</u>		
<b>A3</b>	08614A3	Without lever, with cap
<b>A4</b>	08617A4	M10 male thread external pin with flange
<b>A5<sup>(2)</sup></b>	08619A5	Flange with spherical spool end

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

(<sup>1</sup>): Always complete with lever knob

(<sup>2</sup>): To be assembled only with M4 control

**Parts ordering codes**

**6 B side control page 79**

TYPE	CODE	DESCRIPTION
<u>With spring return:</u>		
<b>M1</b>	08730M1	3 pos., spring return in neutral position
<b>M1-B1</b>	08753M1-B1	As M1 type, with microswitch arrangement
<b>M1/01</b>	08730M1/01	As M1 type, for mechanical joystick
<b>M1/02</b>	08730M1/02	As M1 type, with stroke limiter
<b>M1-U1</b>	08701M1-U1	As M1 type, with M10 male thread external pin
<b>M2</b>	08732M2	2 pos. (0-1), spring return in neutral position
<b>M2-U1</b>	08702M2-U1	As M2 type, with M10 male thread external pin
<b>M3</b>	08733M3	2 pos. (0-2), spring return in neutral position
<b>M3-U1</b>	08703M3-U1	As M3 type, with M10 male thread external pin
<b>M4</b>	08734M41-2	2 pos. (1-2), spring return in position 1
	08735M42-1	2 pos. (2-1), spring return in position 2
<b>M4-U1</b>	08704M4-U11-2	As M4 type (1-2), with M10 male thread external pin
<u>With flexible cable control arrangement:</u>		
<b>M1-U2</b>	08715M1-U2	3 pos., spring return in neutral position
<b>M2-U2</b>	08716M2-U2	2 pos. (0-1), spring return in neutral position
<b>M3-U2</b>	08717M3-U2	2 pos. (0-2), spring return in neutral position
<u>With detent:</u>		
<b>R1</b>	08741R1	3 pos., detent in position 1
<b>R2</b>	08742R2	3 pos., detent in position 2
<b>R3</b>	08743R3	3 pos., detent in all position
<b>R4</b>	08744R4	2 pos., detent in position 0-1
<b>R5</b>	08745R5	2 pos., detent in position 0-2
<b>R6</b>	08746R6	2 pos., detent in position 1-2
<b>R8</b>	08748R8	4 pos., detent in 4 <sup>th</sup> pos., for <b>116</b> type spool
<b>R10/Z1</b>	08750R10/Z1	4 pos., detent in 4 <sup>th</sup> pos., for <b>126</b> type spool
<u>With detent and kick out function:</u>		
<b>R1K</b>	08741R1K	3 pos., detent in position 1
	08741R1K-TS	As previous one, water-proof configuration
<b>R2K</b>	08742R2K	3 pos., detent in position 2
	08742R2K-TS	As previous one, water-proof configuration
<b>R3K</b>	08743R3K	3 pos., detent in all position
	08743R3K-TS	As previous one, water-proof configuration
<u>With spool position microswitch:</u>		
<b>Note:</b> to complete the control you must use the assembly kit at #7		
<b>M1-N1</b>	08766M1-N1	3 pos., micro operation in pos. 1 and 2, spring return in neutral position
<b>M1-N1A</b>	08767M1-N1A	As M1-N1 type, micro operation in pos. 1
<b>M1-N1B</b>	08768M1-N1B	As M1-N1 type, micro operation in pos. 2
<b>M2-N1</b>	08769M2-N1	2 pos. (0-1), spring return in neutral pos.
<b>M3-N1</b>	08772M3-N1	2 pos. (0-2), spring return in neutral pos.
<u>With pneumatic and electropneumatic controls:</u>		
<b>P1N</b>	08561P1-N	ON/OFF pneumatic control
<b>P1NP</b>	08561P1-NP	Proportional pneumatic control
<b>D3</b>	08591D3-V-12DC	12 VDC, ON/OFF electropneumatic control
	08592D3-V-24DC	24 VDC, ON/OFF electropneumatic control

**7 Microswitch assembling kit**

CODE	DESCRIPTION
08650N1-01	Kit for 1 section
08650N1-02	Kit for 2 sections
08650N1-03	Kit for 3 sections
08650N1-04	Kit for 4 sections
08650N1-05	Kit for 5 sections
08650N1-06	Kit for 6 sections

**8 Complete controls A+B sides page 84**

TYPE	CODE	DESCRIPTION
<u>For types 103 and 111 special spools</u>		
<b>C2</b>	08792C2-C3	Cam control from pos. 1 to 2
<b>C3</b>	08792C2-C3	Cam control from pos. 2 to 1

**9 Outlet configuration\* page 87**

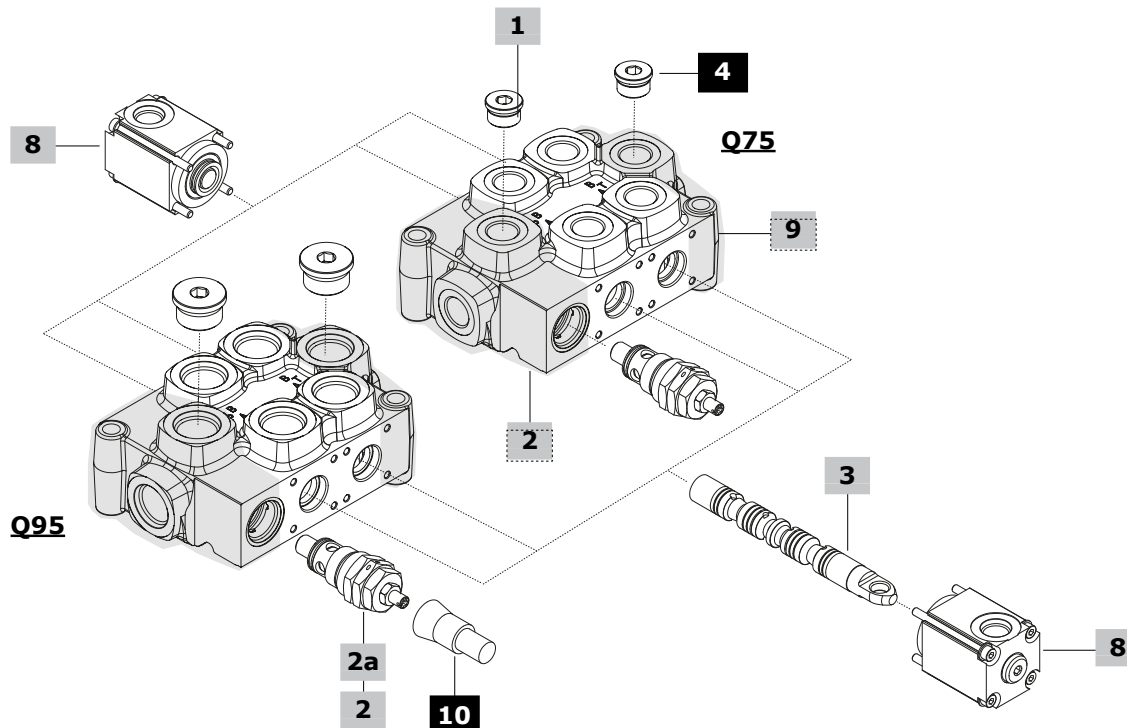
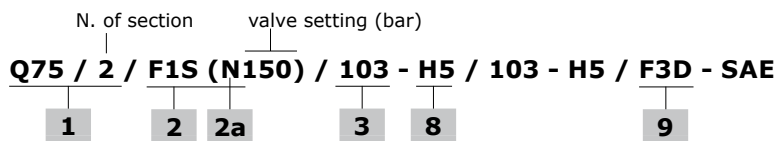
TYPE	DESCRIPTION
<b>F3D-SAE</b>	Open center configuration: for Q75 n. 1 SAE10 plug code 255010, on T1 port; for Q95 n. 1 SAE12 plug code 255012, on T1 port
<b>F6D-SAE</b>	Closed center configuration: for Q75 n. 1 SAE10 joint code 060002780999, on T port; for Q95 n. 1 SAE10 joint code 060002780999, on T port
<b>F16D-SAE</b>	Carry-over configuration: for Q75 n. 1 SAE10 plug code 255010, on T1 port; for Q75 n. 1 SAE10 joint code 060002808099, on T port; for Q95 n. 1 SAE12 plug code 255012, on T1 port; for Q95 n. 1 SAE10 joint code 060002808099, on T port

**10 Accessory**

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

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

**Proportional hydraulic controls valve configuration example**



**1 Body kit\* page 71**

TYPE	CODE	DESCRIPTION
<b>Q75/1-SAE</b>	5KC0600128155B	1 section
<b>Q75/2-SAE</b>	5KC0600128156B	2 sections
<b>Q75/3-SAE</b>	5KC0600128157B	3 sections
<b>Q75/4-SAE</b>	5KC0600128158B	4 sections
<b>Q75/5-SAE</b>	5KC0600127783B	5 sections
<b>Q75/6-SAE</b>	5KC0600131404B	6 sections

<b>Q95/1-SAE</b>	5KC0600130013B	1 section
<b>Q95/2-SAE</b>	5KC0600130685B	2 sections
<b>Q95/3-SAE</b>	5KC0600130764B	3 sections
<b>Q95/4-SAE</b>	5KC0600132068B	4 sections
<b>Q95/5-SAE</b>	5KC0600131719B	5 sections
<b>Q95/6-SAE</b>	5KC0600131785B	6 sections

**2 Inlet configuration\* page 71**

See #2, page 67

**2a Main pressure relief valve page 72**

See #2a, page 67

**3 Spool page 73**

TYPE	CODE	DESCRIPTION
<b>103</b>	060102894999	Double acting, A and B closed in neutral position

**4 Plug for P-T ports\***

See #4, page 67

**8 Hydraulic controls A+B sides\* page 85**

TYPE	CODE	DESCRIPTION
<b>H5</b>	08785H5/SAE	Low pressure proportional type, upper ports

**9 Outlet configuration\* page 87**

See #9, page 68

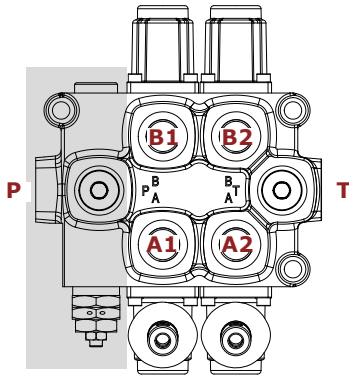
**10 Accessory**

See #10, page 68

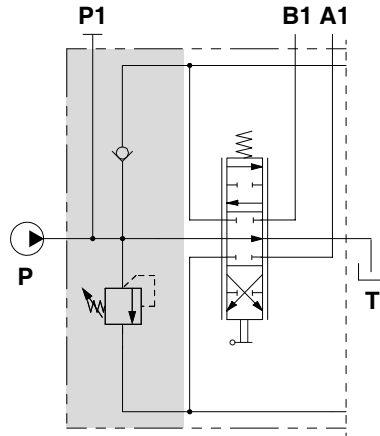
(\*): Codes are referred to UN-UNF thread



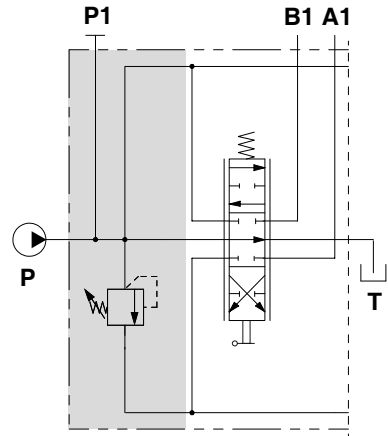
Inlet configuration



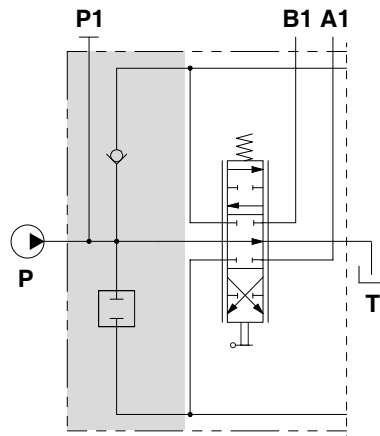
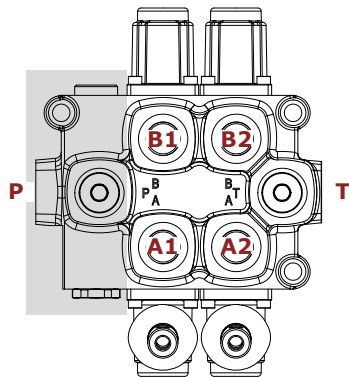
**F1S- SAE configuration**  
With load check and pressure relief valve



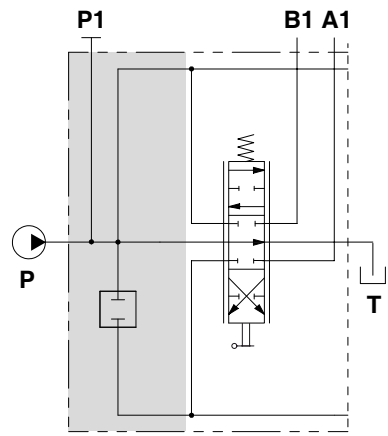
**F7S- SAE configuration**  
With pressure relief valve



**F2S- SAE configuration**  
With load check valve

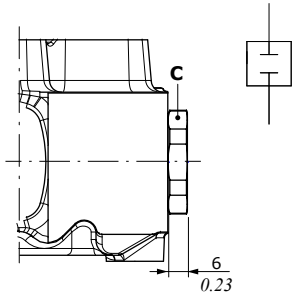


**F8S - SAE configuration**  
Without valves  
(pressure relief valve plugged port)

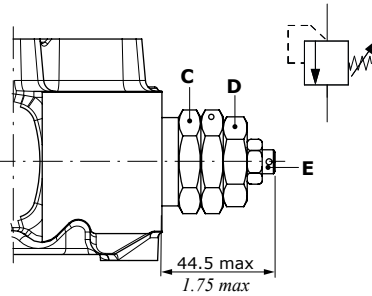


### Main pressure relief valve

Relief valve blanking plug

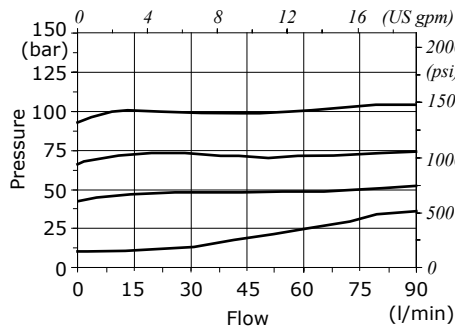


Main pressure relief valve

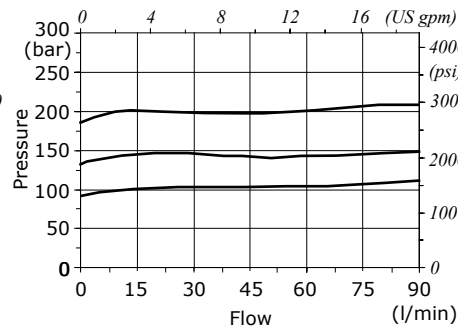


Spring type	Setting ranges (bar - psi)
<b>B</b> (white)	From 10 to 100 - from 145 to 1450
<b>N</b> (black)	From 101 to 200 - from 1460 to 2900
<b>R</b> (red)	From 201 to 380 - from 2910 to 5500

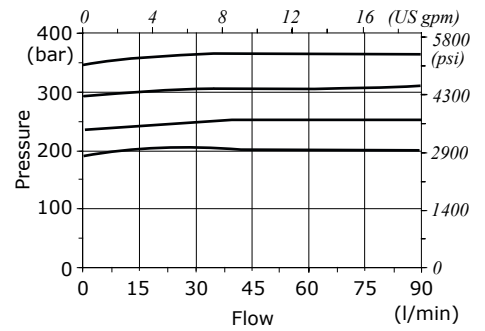
Setting example (B type spring)



Setting example (N type spring)



Setting example (R type spring)



#### Wrenches and tightening torques

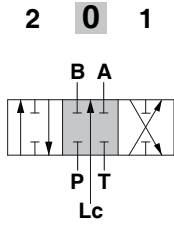
C = wrench 30 - 80 Nm (59 lbf ft)

D = wrench 26 - 42 Nm (35.2 lbf ft)

E = allen wrench 4

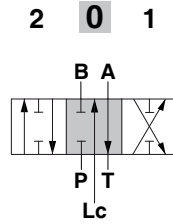


**103 type**  
A and B closed  
in neutral position



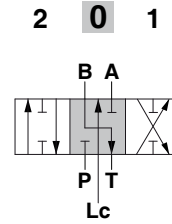
**Stroke**  
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

**107 type**  
A to tank, B closed  
in neutral position



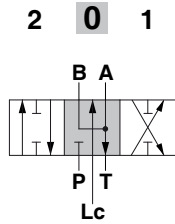
**Stroke**  
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

**108 type**  
B to tank, A closed  
in neutral position



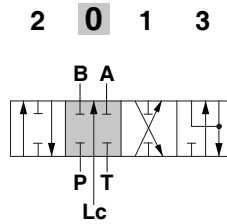
**Stroke**  
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

**111 type**  
A and B to tank  
in neutral position



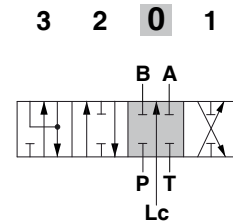
**Stroke**  
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

**116 type**  
With floating in the 4<sup>th</sup> position  
(spool in)



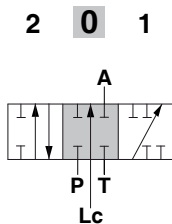
**Stroke**  
Position 1: - 7 mm (+ 0.27 in)  
Position 2: + 7 mm (+ 0.27 in)  
Position 3: - 10.25 mm (- 0.40 in)

**126 type**  
With floating in the 4<sup>th</sup> position  
(spool out)



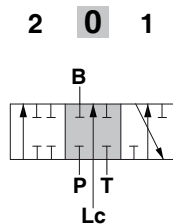
**Stroke**  
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (+ 0.27 in)  
Position 3: + 10.25 mm (- 0.40 in)

**101 type**  
Single acting on A,  
B plugged



**Stroke**  
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

**102 type**  
Single acting on B,  
A plugged



**Stroke**  
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

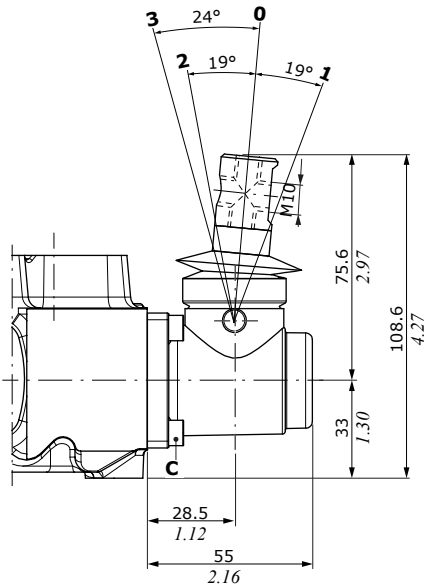
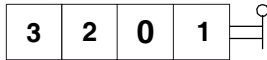
**A side controls**

**Mechanical controls**

**With lever control**

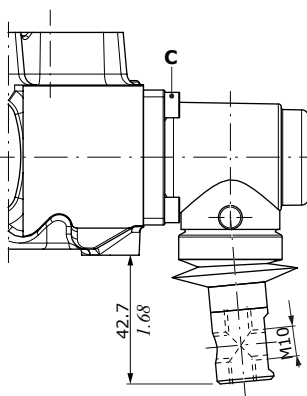
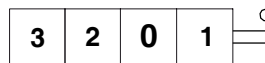
**A1 type**

M10 thread aluminium lever box



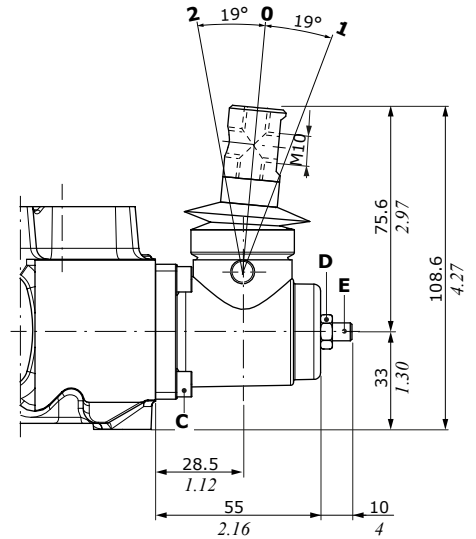
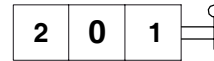
**A2 type**

As A1 type, rotated 180°



**A1/06 type**

M10 thread, with stroke limiter



**A1/Z1 type**

M10 thread, for 116 floating spool type



**Wrenches and tightening torques**

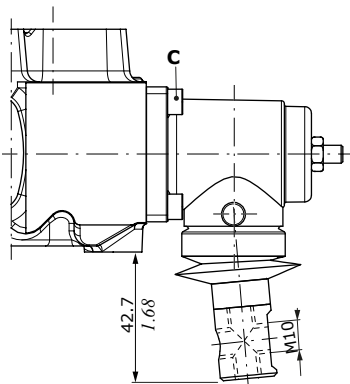
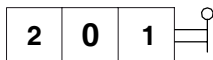
C = allen wrench 4 - 6.6 Nm (4.8 lbf<sup>t</sup>)

D = wrench 10 - 9.8 Nm (7.2 lbf<sup>t</sup>)

E = allen wrench 4 - 9.8 Nm (7.2 lbf<sup>t</sup>)

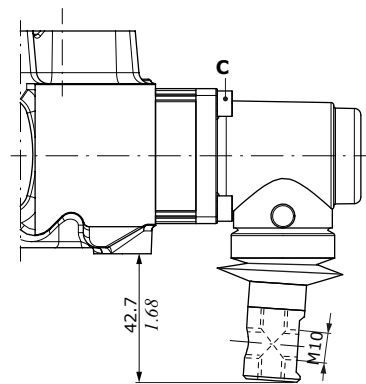
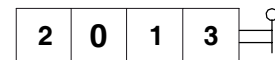
**A2/06 type**

As A1/06 type, rotated 180°



**A2/Z1 type**

As A1/Z1 type, rotated 180°

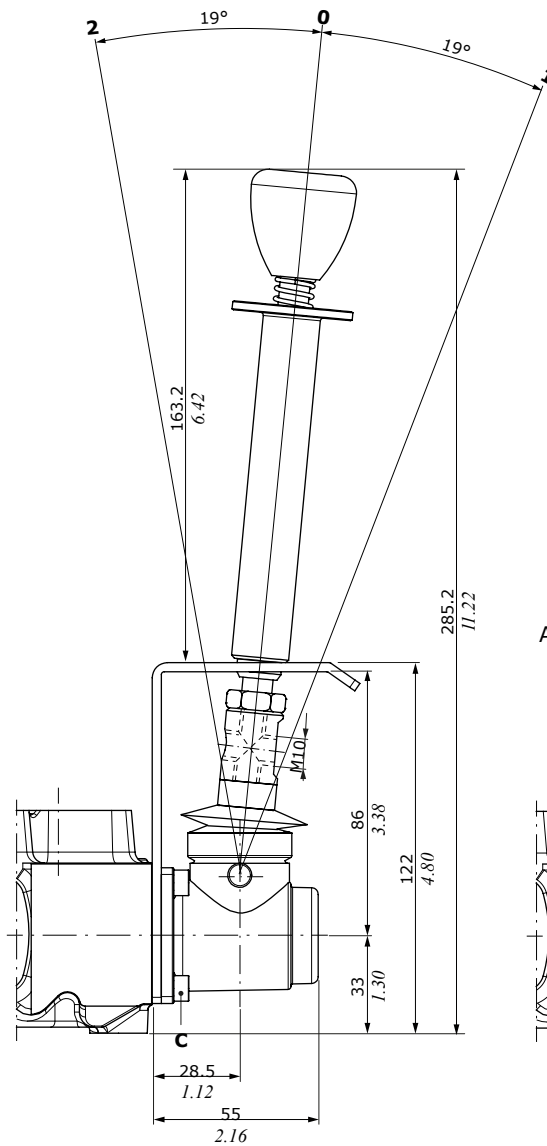
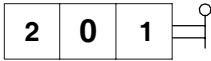


**Mechanical controls**

**With safety lever control**

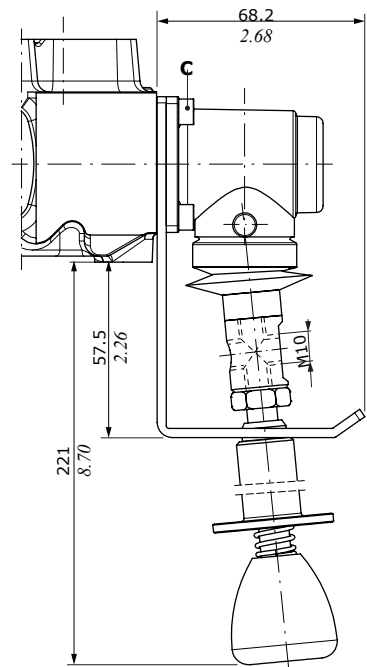
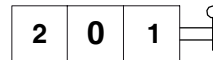
**A1/S type**

M10 thread, aluminium lever box



**A2/S type**

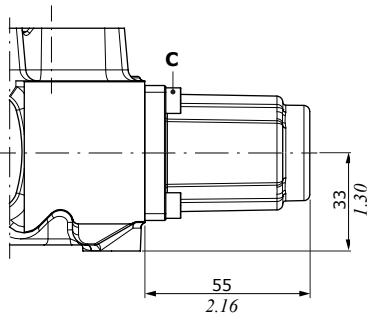
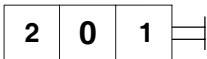
As A1/S type, rotated 180°



**Without lever control**

**A3 type**

With cap



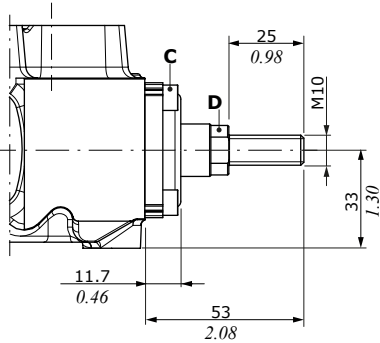
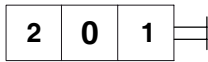
**A side controls**

**Mechanical controls**

**Without lever control**

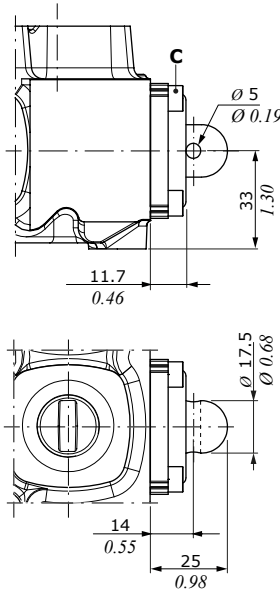
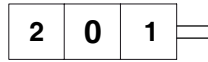
**A4 type**

M10 male thread  
external pin with flange



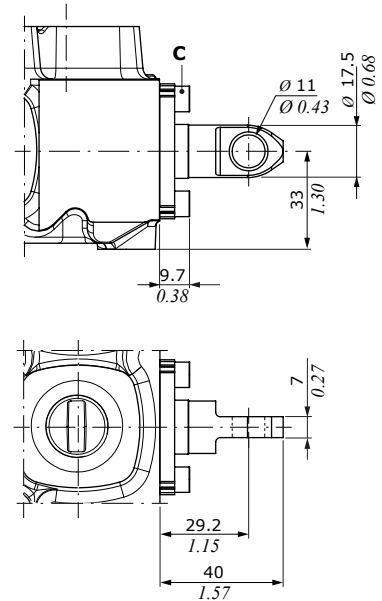
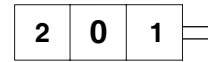
**A5 type**

Flange with spherical spool end



**A6 type**

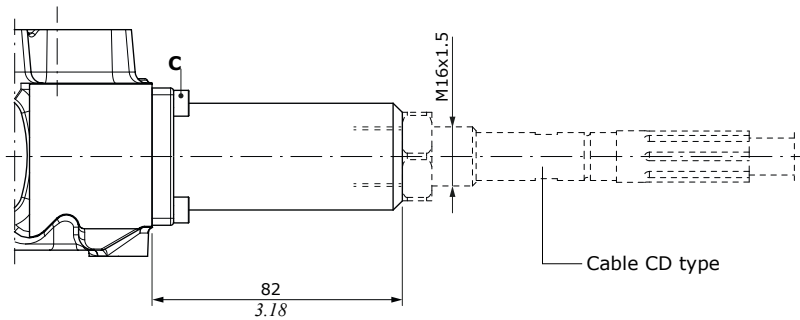
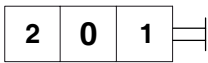
With flange



**With flexible cable control arrangement**

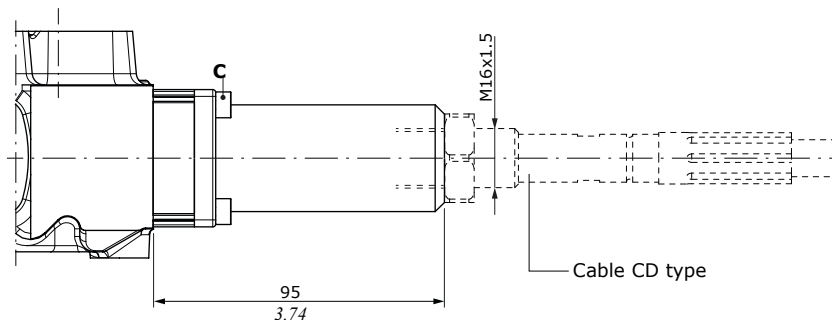
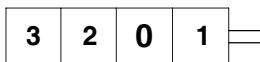
**A8 type**

Flexible cable control arrangement



**A8/Z1 type**

As A8 type,  
for 116 floating spool type



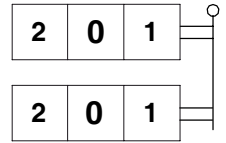
**Wrenches and tightening torques**

C = allen wrench 4 - 6.6 Nm (4.8 lbft)

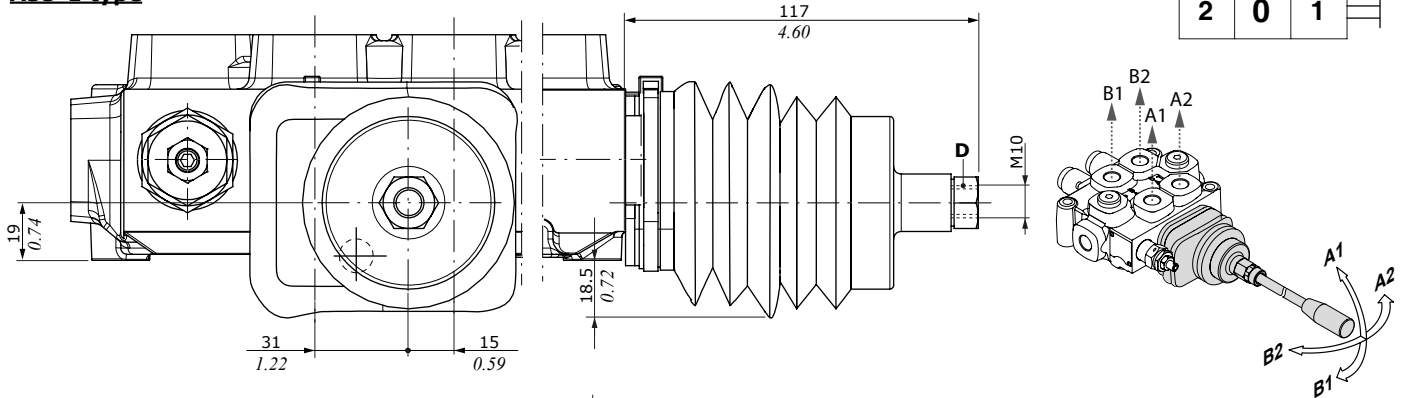
D = wrench 13 - 9.8 Nm (7.2 lbft)

**Joystick controls**

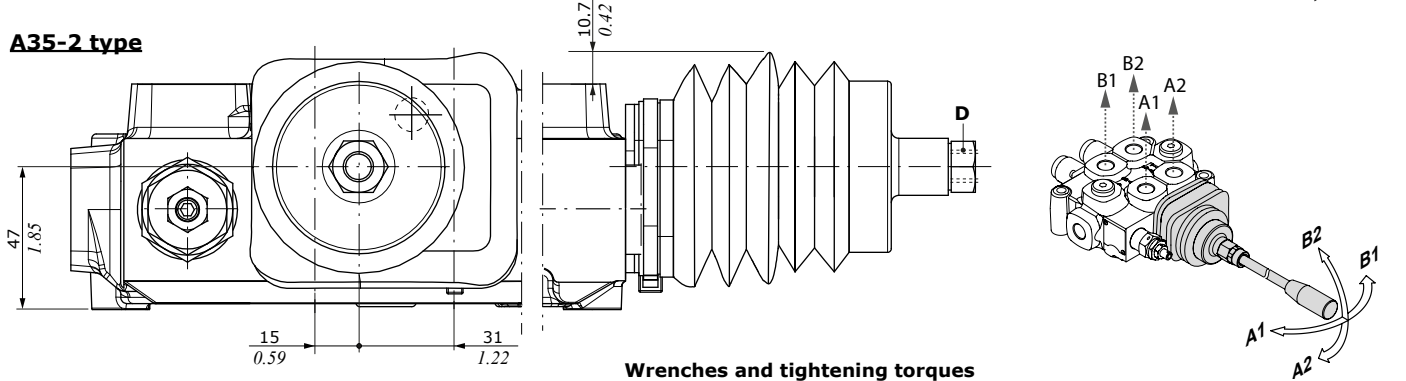
For operating the joystick control in the floating position, contact Sales Department.



**A35-1 type**

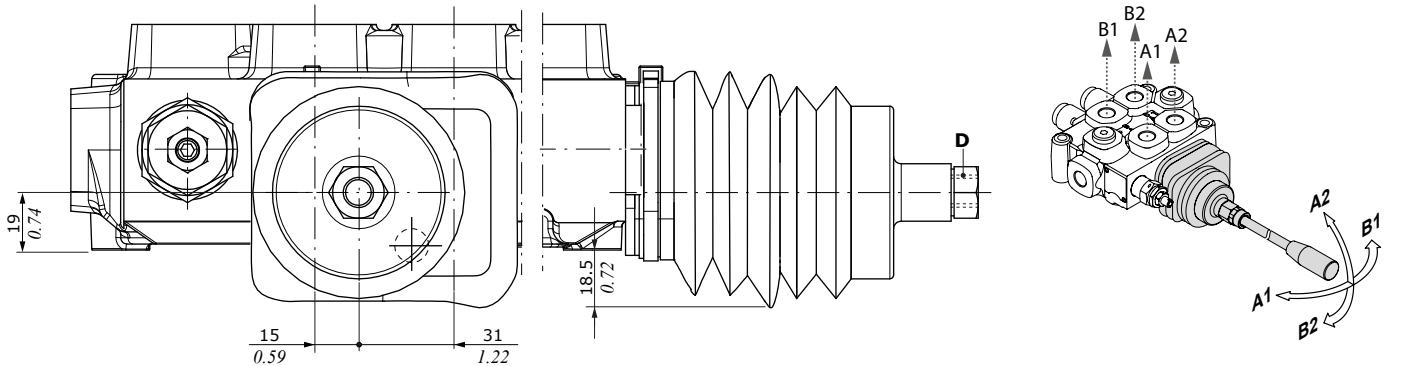


**A35-2 type**

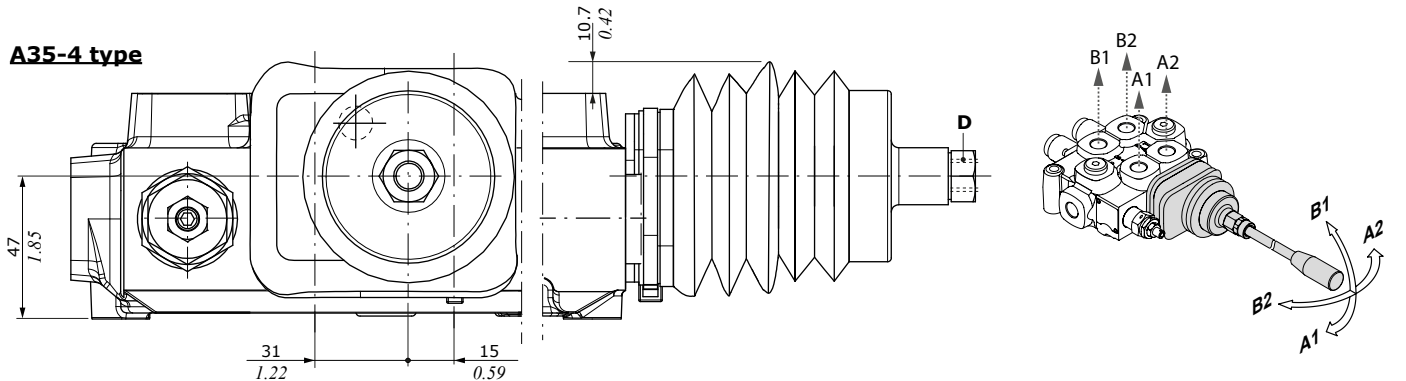


**Wrenches and tightening torques**  
D = wrench 17 - 24 Nm (17.7 lbf)

**A35-3 type**



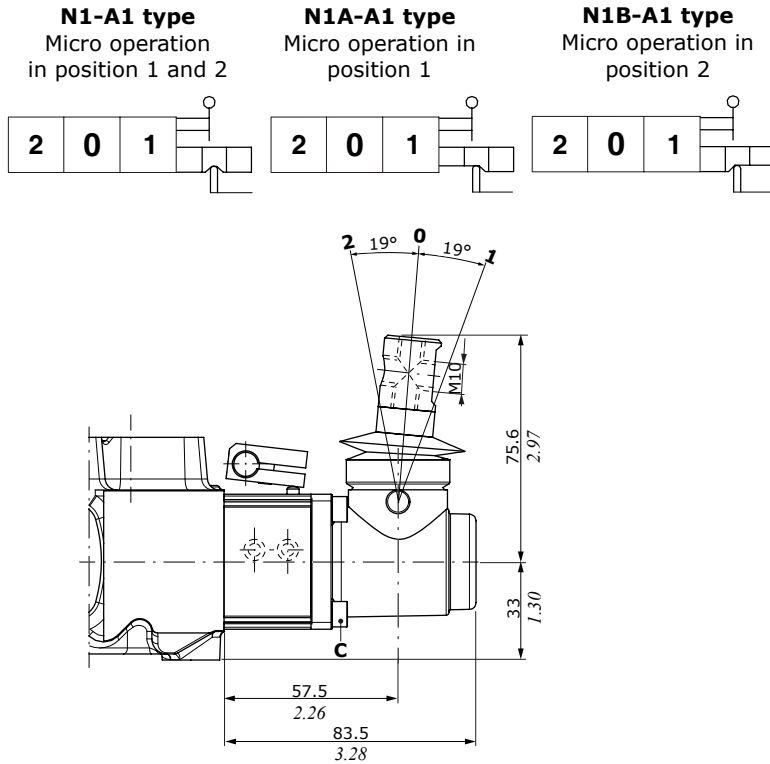
**A35-4 type**



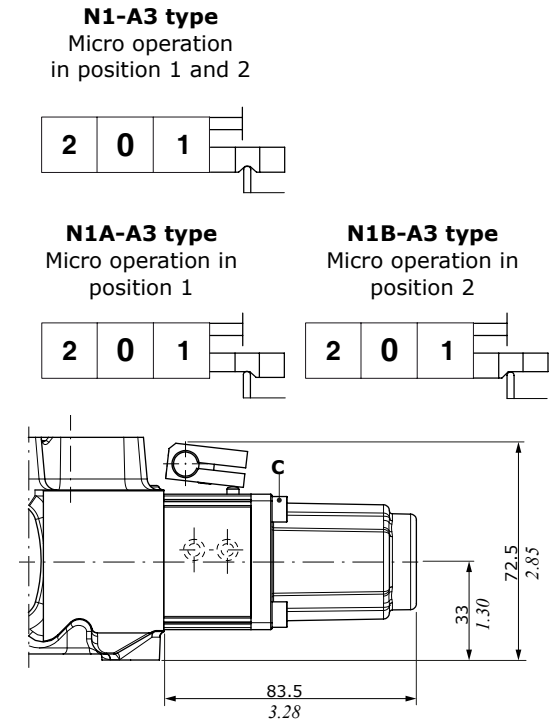
### A side controls

#### Spool position microswitch

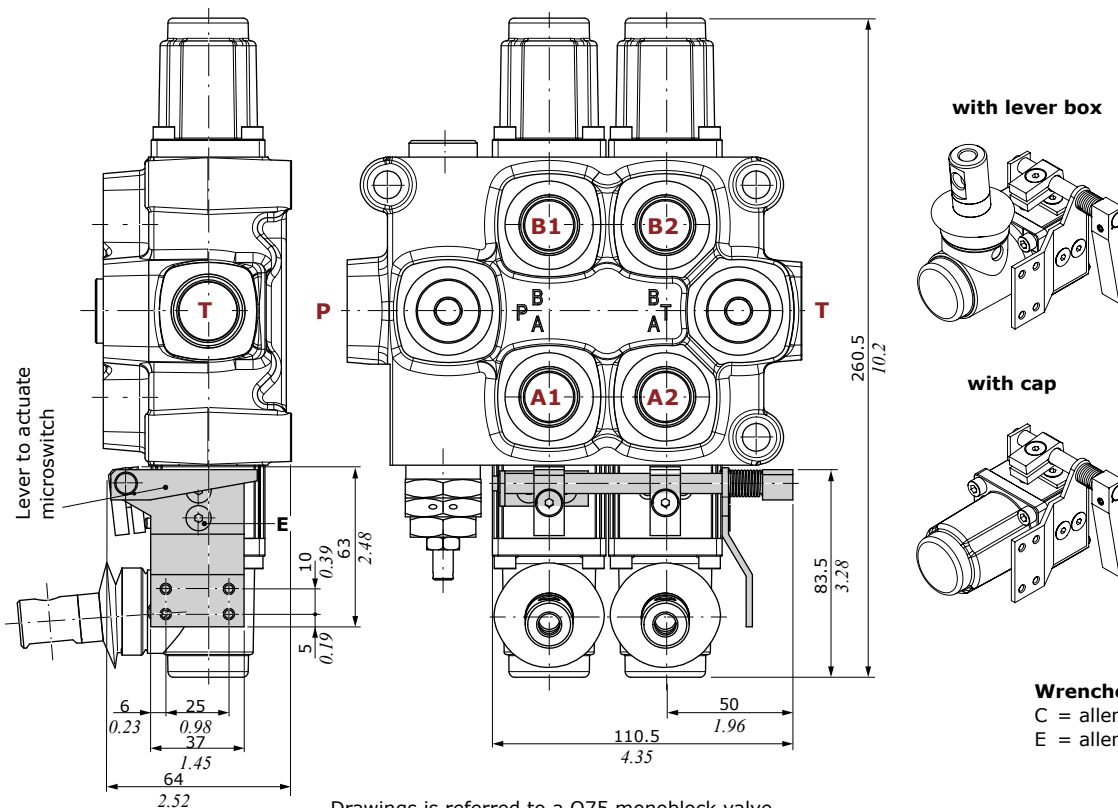
##### With lever control



##### Without lever control, with cap



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

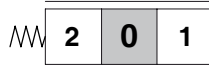


Drawings is referred to a Q75 monoblock valve.

**Mechanical controls**

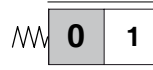
**With spring return control**

**M1 type**  
3 position, spring return  
in neutral position

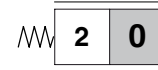


**M1/01 type**  
3 position,  
for joystick control

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

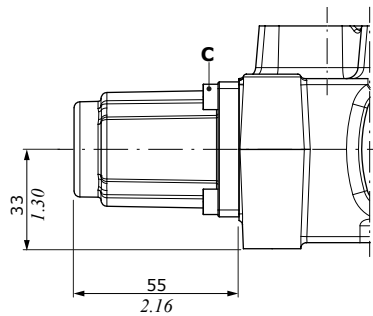
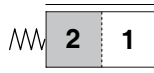
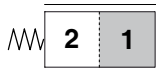


**M3 type**  
2 position (0-2), spring return  
in neutral position

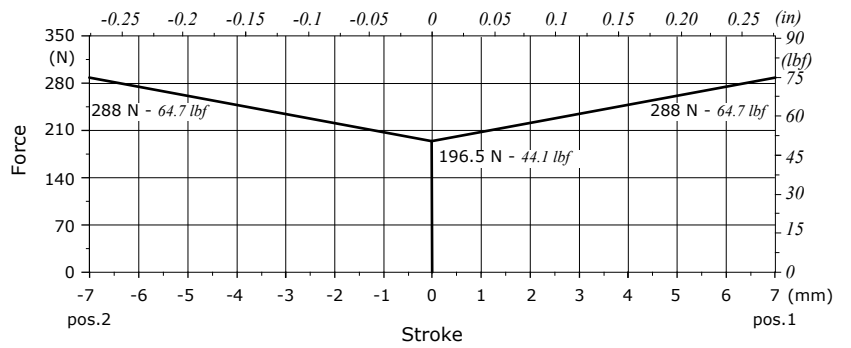


**M4 types**

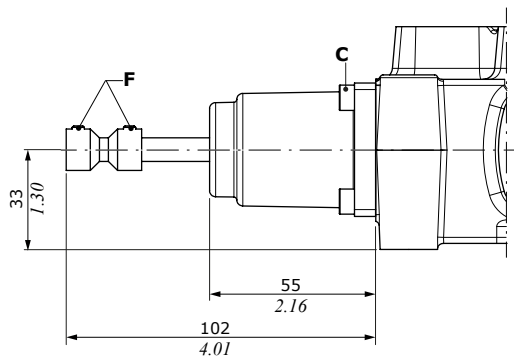
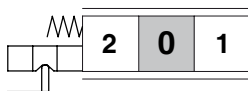
2 position (1-2),  
spring return in position 1      2 position (2-1),  
spring return in position 2



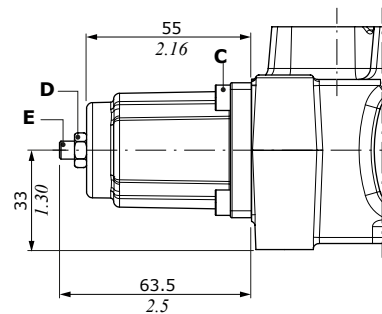
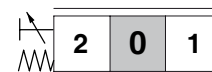
**M1 control type - Force vs Stroke diagram**



**M1-B1 type**  
3 position,  
microswitch arrangement



**M1/02 type**  
As M1 type, with stroke limiter



**Wrenches and tightening torques**

- C = allen wrench 4 - 6.6 Nm (4.8 lbf<sub>t</sub>)
- D = wrench 10 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- E = allen wrench 4 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- F = allen wrench 3 - 5 Nm (3.68 lbf<sub>t</sub>)

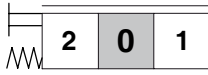
**B side controls**

**Mechanical controls**

**With spring return control**

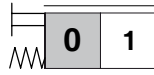
**M1-U1 type**

3 position, with M10 male thread external pin



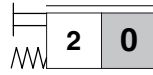
**M2-U1 type**

2 position (0-1), with M10 male thread male external pin



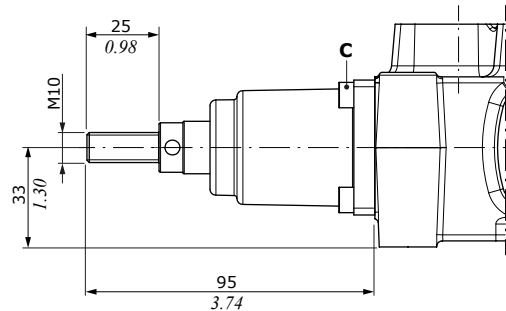
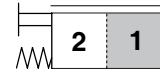
**M3-U1 type**

2 position (0-2), with M10 male thread male external pin



**M4-U1 type**

2 position (1-2), with M10 male thread external pin

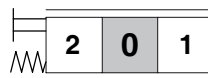


**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbf)

**With flexible cable control arrangement**

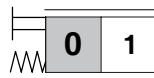
**M1-U2 type**

3 position, spring return in neutral position



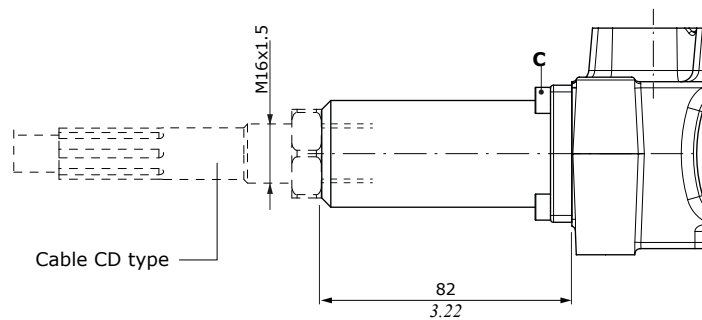
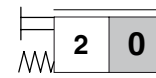
**M2-U2 type**

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



**M3-U2 type**

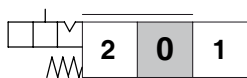
2 position (0-2), spring return in neutral position



**With detent control**

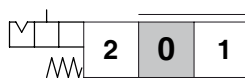
**R1 type**

3 position, detent in position 1



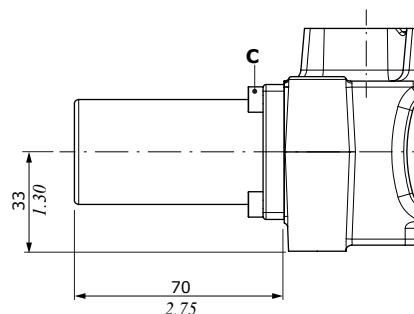
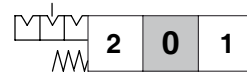
**R2 type**

3 position, detent in position 2



**R3 type**

3 position, detent in all position

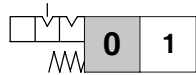




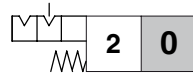
**Mechanical controls**

**With detent control**

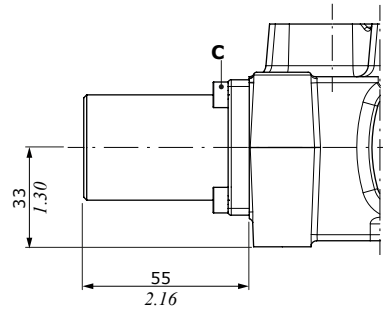
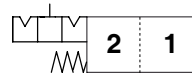
**R4 type**  
2 position,  
detent in position 0-1



**R5 type**  
2 position,  
detent in position 0-2

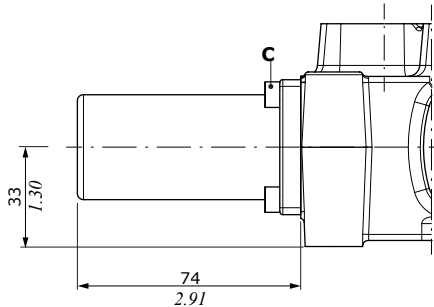
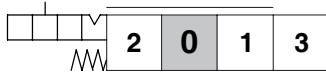


**R6 type**  
2 position,  
detent in position 1-2

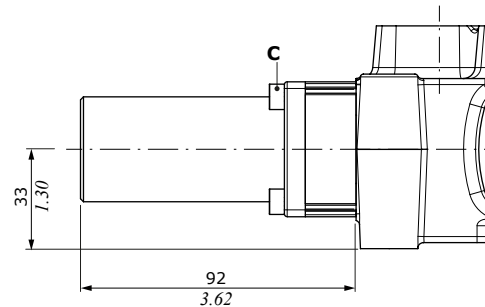
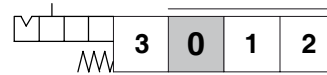


**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbf<sub>t</sub>)  
D = wrench 30 - 42 Nm (30.9 lbf<sub>t</sub>)  
E = wrench 22  
F = allen wrench 10 - 42 Nm (30.9 lbf<sub>t</sub>)

**R8 type**  
4 position, detent in 4<sup>th</sup> position,  
for 116 floating spool type

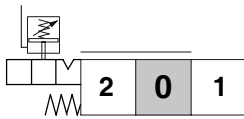


**R10/Z1 type**  
4 position, detent in 4<sup>th</sup> position,  
for 126 floating spool type

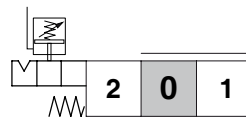


**With detent control and kick out function**

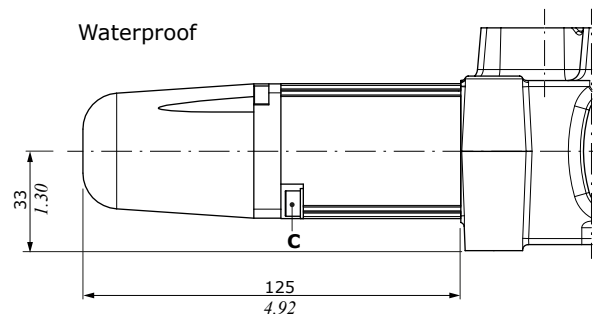
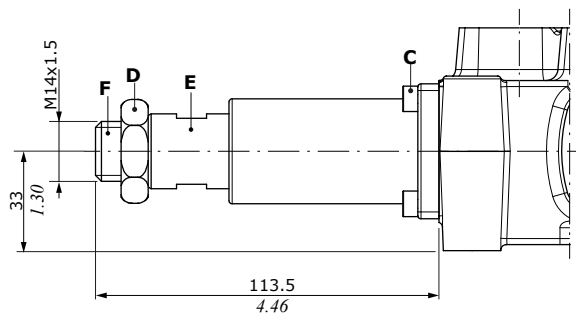
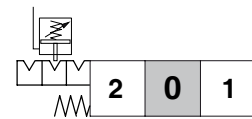
**R1K type**  
3 position, detent in position 1.  
Available with waterproof configuration



**R2K type**  
3 position, detent in position 2.  
Available with waterproof configuration



**R3K type**  
3 position, detent in all position.  
Available with waterproof configuration

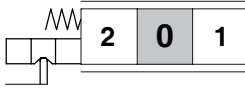


**B side controls**

**Spool position microswitch**

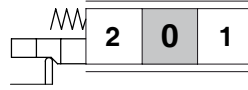
**M1-N1 type**

3 position, micro operation in position 1 and 2, spring return in neutral position



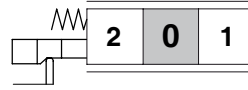
**M1-N1A type**

3 position, micro operation in position 1



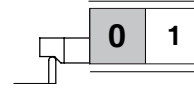
**M1-N1B type**

3 position, micro operation in pos. 2



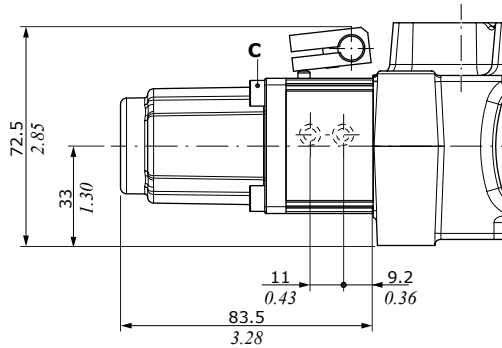
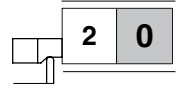
**M2-N1 type**

2 position (0-1) spring return in neutral position

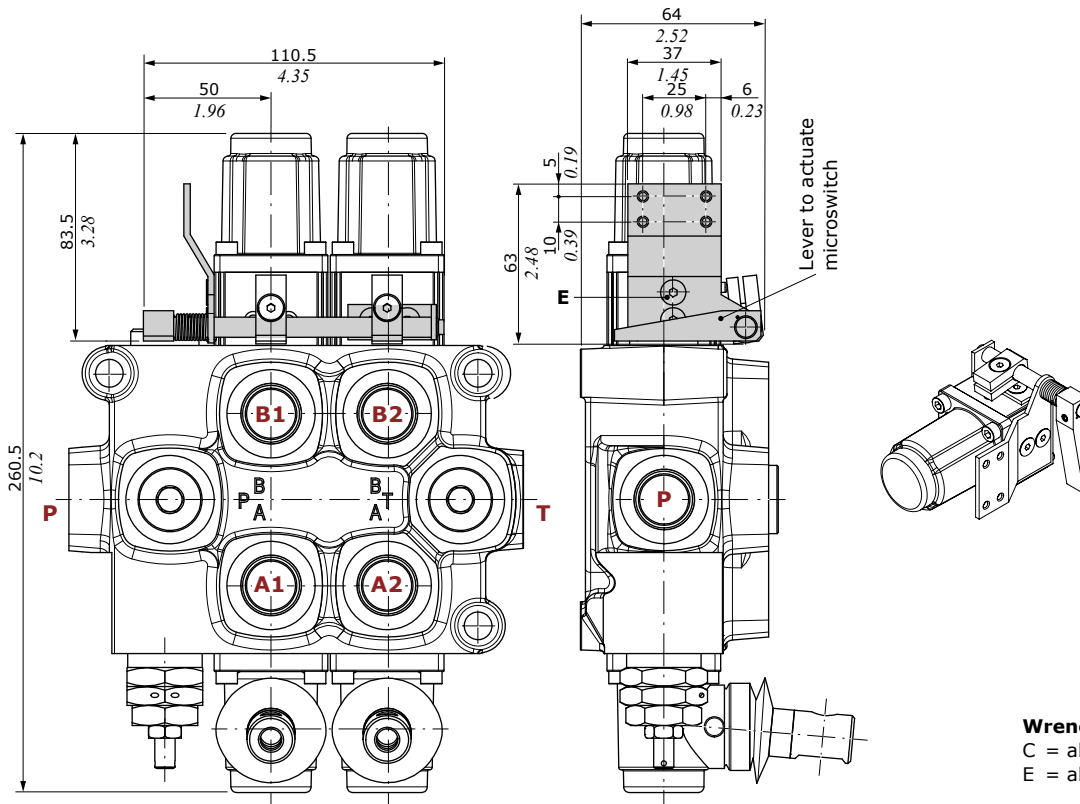


**M3-N1 type**

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



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



**Wrenches and tightening torques**

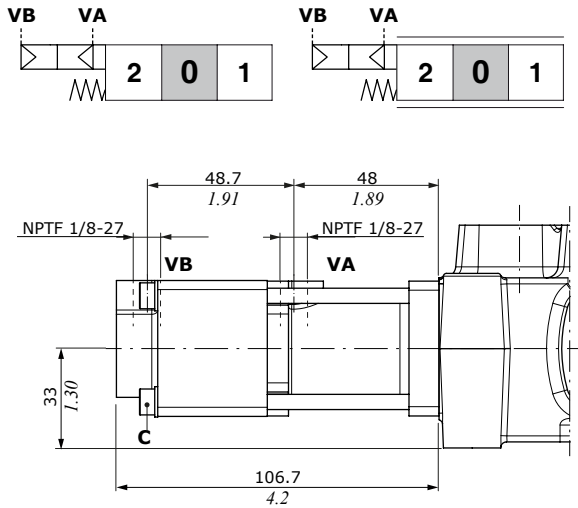
C = allen wrench 4 - 6.6 Nm (4.8 lbft)  
E = allen wrench 3 - 6.6 Nm (4.8 lbft)

Drawing is referred to a Q75 monoblock valve.

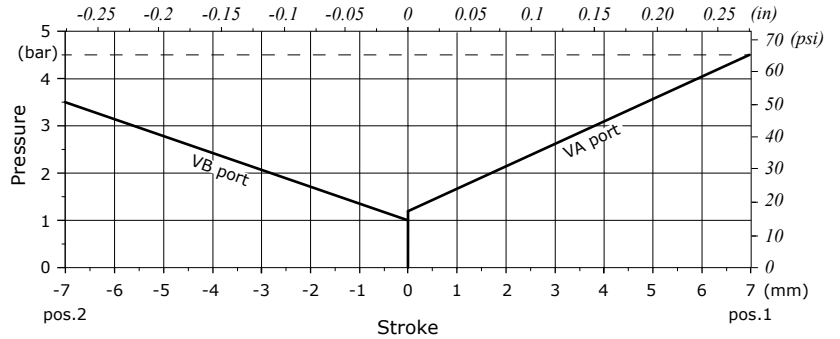
Pneumatic control

**P1N type**  
ON/OFF control

**P1NP type**  
Proportional control



**Proportional pilot pressure curves**



**Operating features**

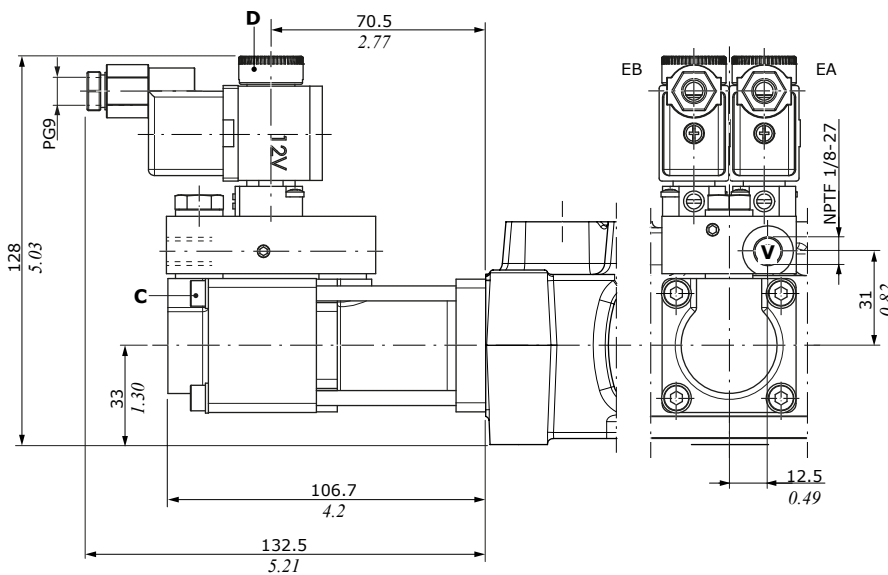
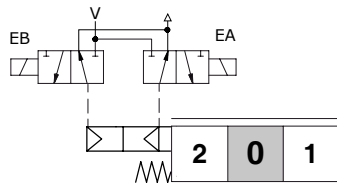
Pilot pressure..... : min. 5 bar (72.5 psi) - max. 30 bar (435 psi)  
 Pilot volume..... : 9 cm<sup>3</sup>/min (0.54 in<sup>3</sup>/min)

**Wrenches and tightening torques**

C = wrench 4 - 6.6 Nm (4.8 lbf<sub>t</sub>)

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

**Wrenches and tightening torques**

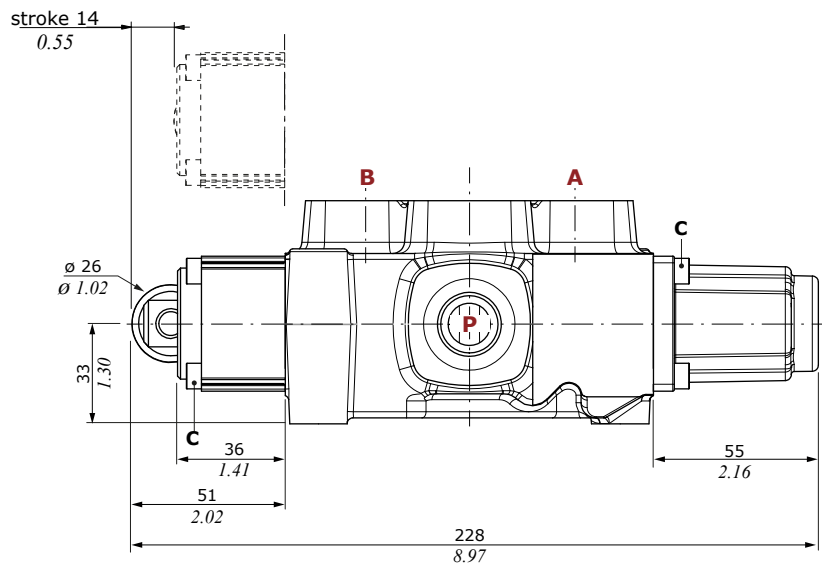
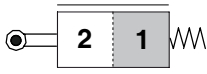
C = wrench 4 - 6.6 Nm (4.8 lbf<sub>t</sub>)  
 D = manual tightening - 6.6 Nm (4.8 lbf<sub>t</sub>)

### A+B side controls

#### Cam control

##### C2 type

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

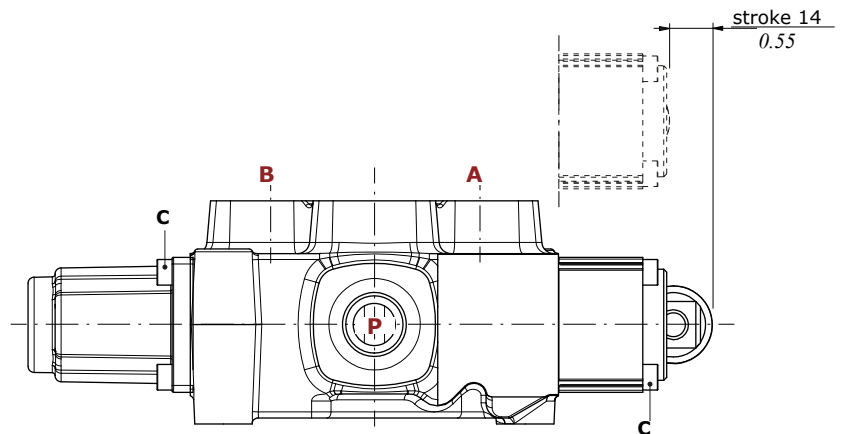
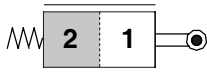


##### Wrenches and tightening torques

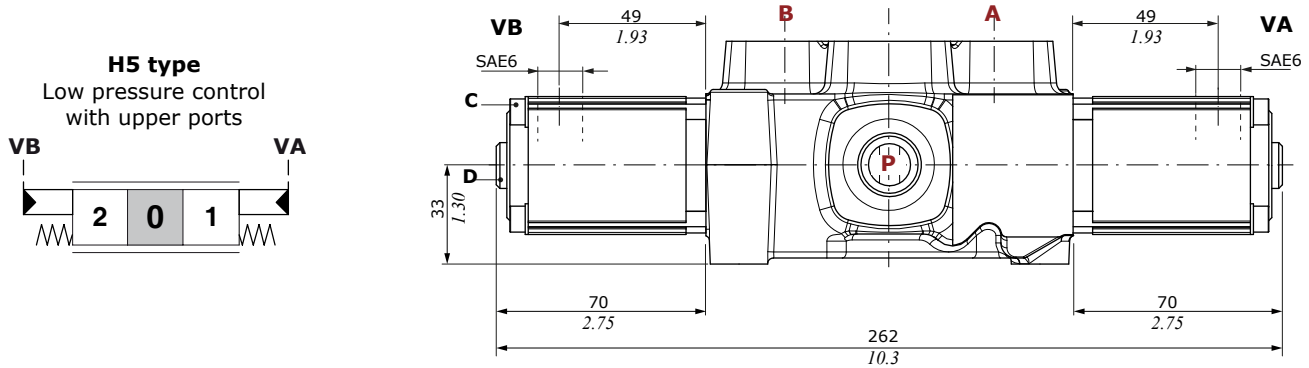
C = allen wrench 4 - 6.6 Nm (4.8 lbf)

##### C3 type

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



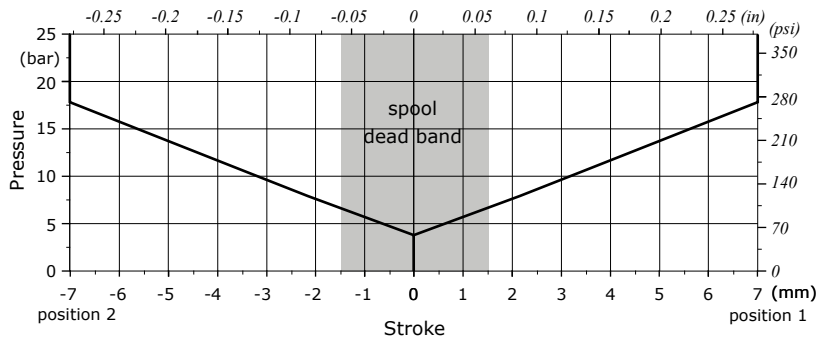
Proportional hydraulic control



Operating features

Pilot pressure..... : max. 100 bar (1450 psi)

Stroke vs. Pressure diagram for H5 type control



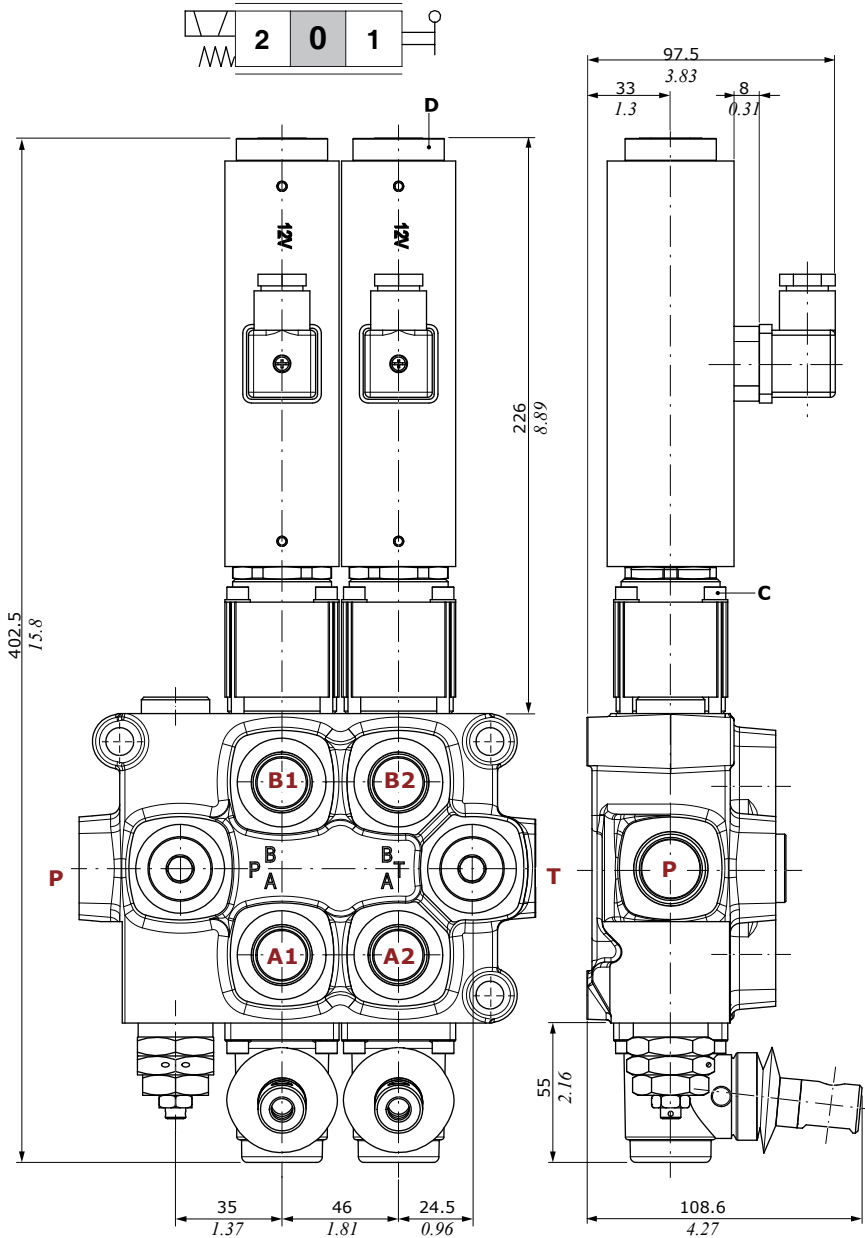
Wrenches and tightening torques

- C = allen wrench 4 - 6.6 Nm (4.8 lbf<sup>t</sup>)
- D = allen wrench 4 - 9.8 Nm (7.2 lbf<sup>t</sup>)

### Direct solenoid control

#### D41 type: ON/OFF one side

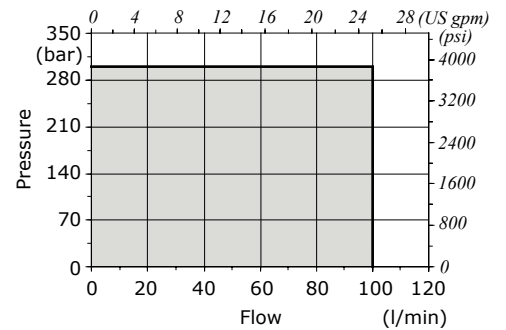
Drawing is referred to a Q75 monoblock valve.



D41 coil	
Nominal voltage	12 VDC 24 VDC
Nominal voltage tolerance	±10%
Power rating	80 W
Insulance	Class H
Weather protection	IP65

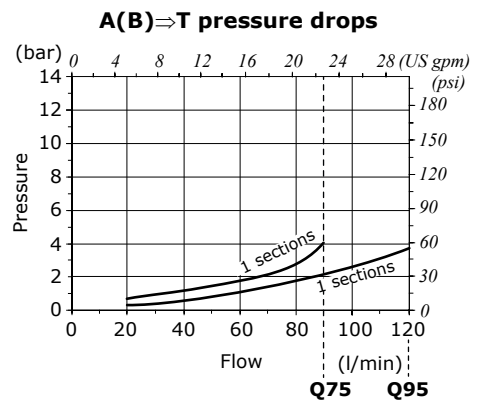
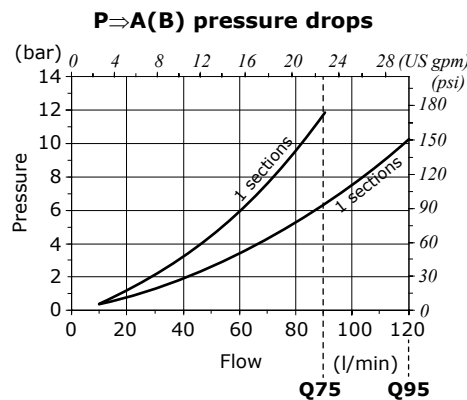
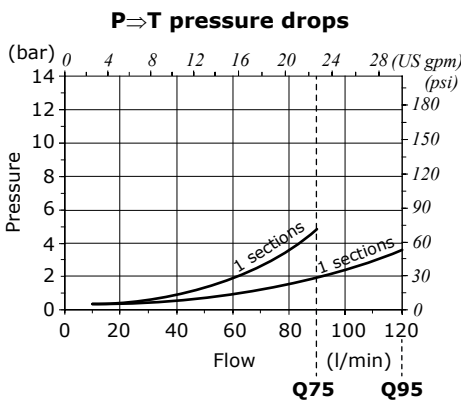
Connector type: ISO4400 3P+T-PG11

#### Dynamic conditions



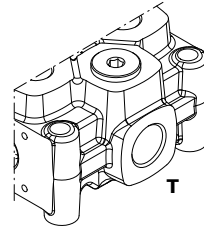
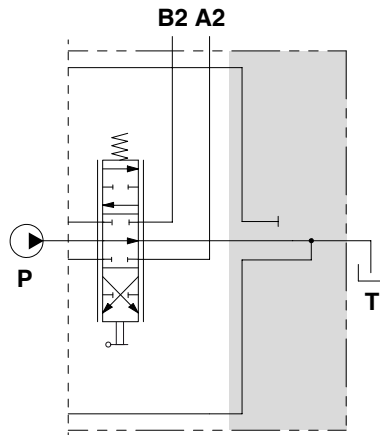
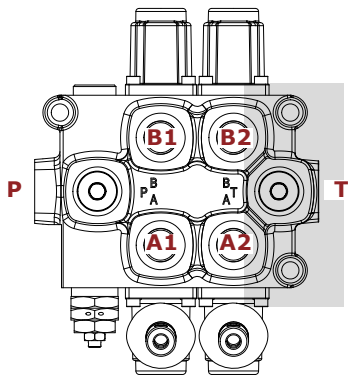
#### Wrenches and tightening torques

- C = allen wrench 4 - 6.6 Nm (4.8 lbft)
- D = manual tightening - 6.6 Nm (4.8 lbft)

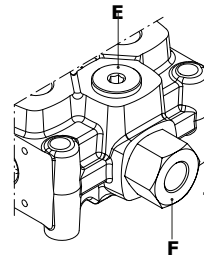
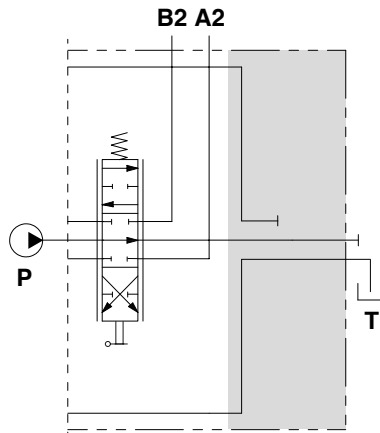
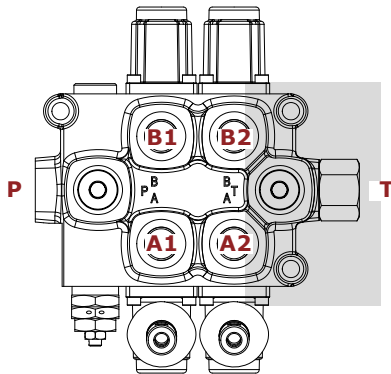


Outlet configuration

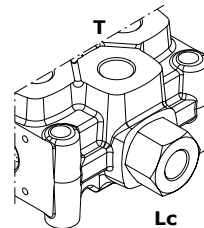
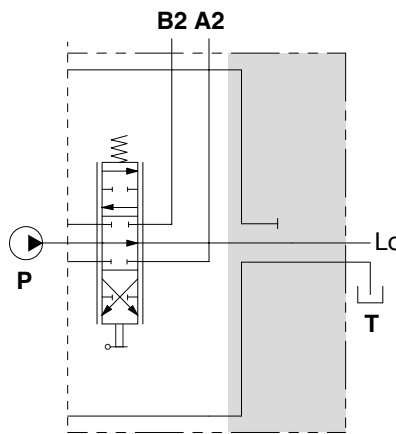
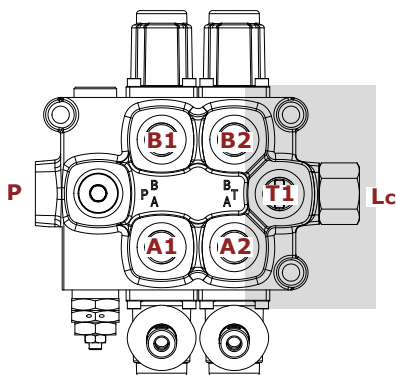
**F3D-SAE configuration**  
Open center configuration



**F16D-SAE configuration**  
Closed center configuration



**F6D-SAE configuration**  
Carry-over configuration



**Wrenches and tightening torques**

E (Q75) = allen wrench 6 - 24 Nm (17.7 lbft)

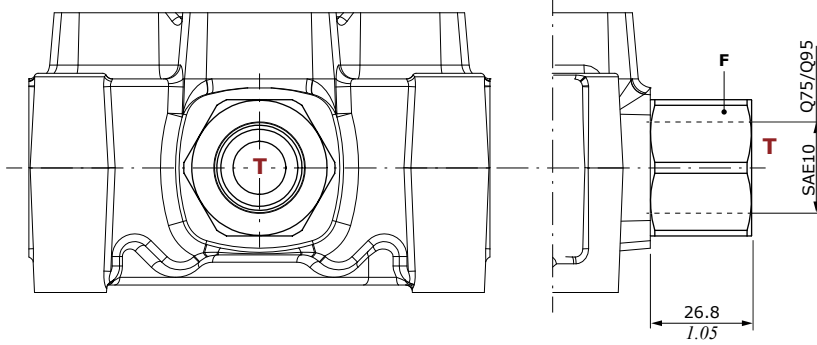
(Q95) = allen wrench 8 - 42 Nm (22 lbft)

F = wrench 36 - 80 Nm (59 lbft)

### Outlet configuration

#### F6D - F16D joint dimension

Drawing is referred to a Q75 monoblock valve.



**Wrenches and tightening torques**  
F = wrench 36 - 80 Nm (*59 lbf*)





## Q30 - Q50

### Sectional directional control valves

- Available with parallel, tandem or series circuit
- Optional carry over port
- A wide range of antishock + anticavitation port valves
- Intermediate sections for several types of circuit
- Mechanical, pneumatic, electropneumatic, hydraulic and direct solenoid controls

#### Working conditions

This catalogue shows technical specifications and diagrams measured through mineral oil of 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

		Q30	Q50
Nominal flow rating		30 l/min - (8 Us gpm)	50 l/min - (13.2 Us gpm)
Max. pressure	parallel circuit	315 bar (4600 psi)	
	series circuit	210 bar (3050 psi)	
Max. back pressure on outlet <b>T</b> port		25 bar (360 psi)	
Number sections		from 1 to 10	
Internal leakage A(B)⇒T	Δp = 100 bar (1450 psi)	5 cm <sup>3</sup> /min (0.30 in <sup>3</sup> /min)	
Fluid		Mineral oil	
Fluid temperature	with NBR (BUNA-N) seals	from -20°C to 80°C - from -4 °F to 176 °F	
Viscosity	operating range	from 12 to 400 mm <sup>2</sup> /s - from 12 to 400 cSt	
Max. contamination level		-/19/16 - ISO 4406 - NAS1638 class 6	
Ambient temperature	with pneumatic and hydraulic devices	from -30°C to 60°C - from -22 °F to 140 °F	
	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.

#### REFERENCE STANDARD

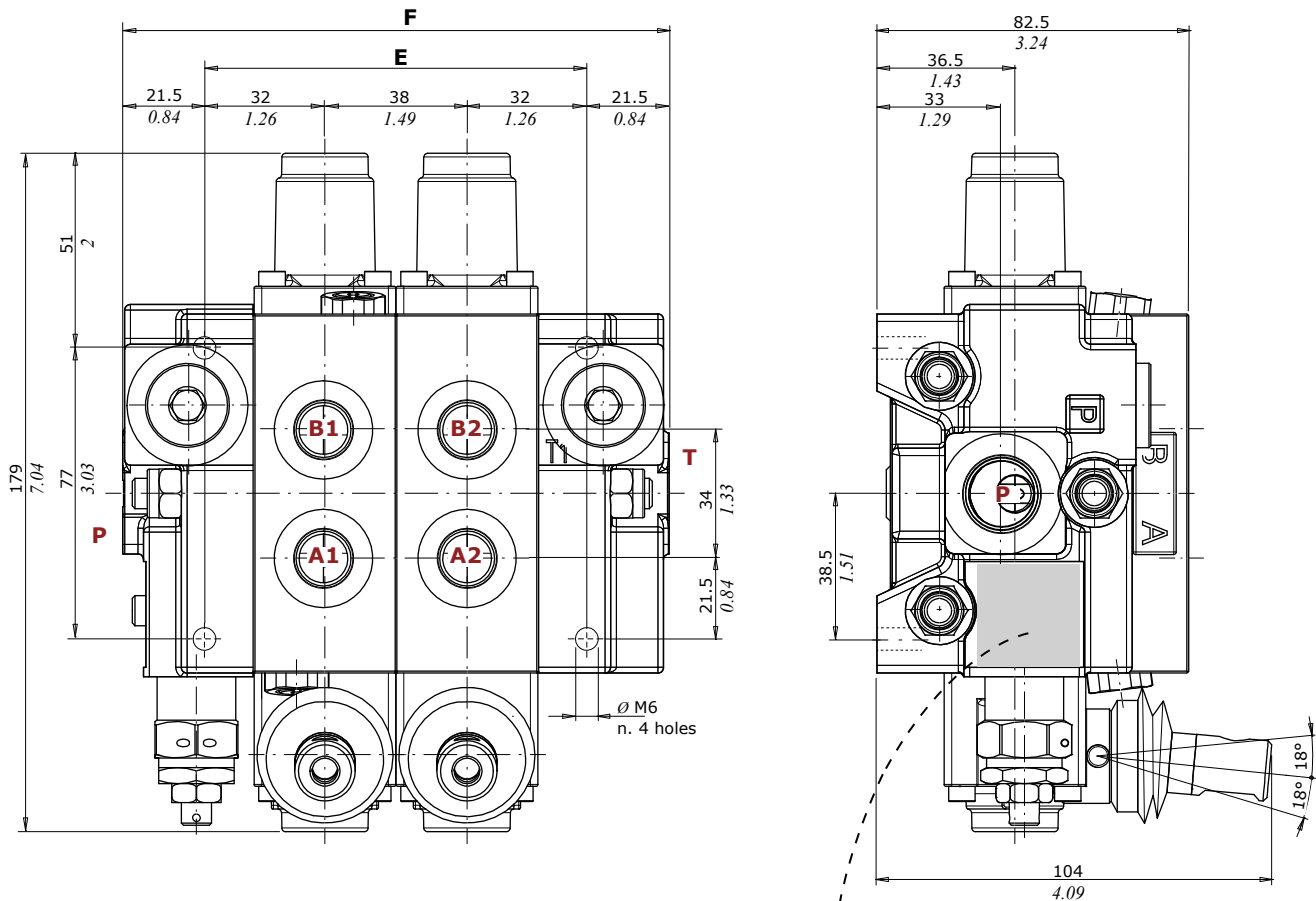
		BSP	UN-UNF
THREAD ACCORDING TO		ISO 228/1	ISO 263
		BS 2779	ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO	1179	11926
	SAE		J11926
	DIN	3852-2 shape X or Y	

#### PORT THREADING

PORTS	Q30		Q50	
	BSP	UN-UNF	BSP	UN-UNF
<b>P</b> Inlet	G 3/8	3/4-16 (SAE 8)	G 1/2	3/4-16 (SAE 8)
<b>P1</b> Inlet	G 3/8	3/4-16 (SAE 8)	G 1/2	3/4-16 (SAE 8)
<b>A</b> and <b>B</b> ports	G 3/8	9/16-18 (SAE 6)	G 1/2	3/4-16 (SAE 8)
<b>T</b> Outlet	G 1/2	7/8-14 (SAE 10)	G 1/2	7/8-14 (SAE 10)
<b>T1</b> Outlet	G 1/2	3/4-16 (SAE 8)	G 1/2	3/4-16 (SAE 8)
<b>Lc</b> port (Carry-over plug - T port)	G 3/8-G 1/2	3/4-16 (SAE 8) - 7/8-14 (SAE 10)	G 3/8-G 1/2	3/4-16 (SAE 8) - 7/8-14 (SAE 10)
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

#### Q30 - standard configuration\*



Type	E		F	
	mm	in	mm	in
Q30/1	64	2.52	107.5	4.23
Q30/2	102	4.01	145.5	5.72
Q30/3	140	5.51	183.5	7.22
Q30/4	178	7.00	221.5	8.72
Q30/5	216	8.50	259.5	10.21
Q30/6	254	10	297.5	11.71
Q30/7	292	11.50	335.5	13.20
Q30/8	330	13	373.5	14.70
Q30/9	368	14.48	411.5	16.20
Q30/10	406	15.98	449.5	17.69

**Galtech**

MADE IN ITALY


025030103251000

Q30/2-F7S(N150)-

2X103/A1/M1.VC-

F3D

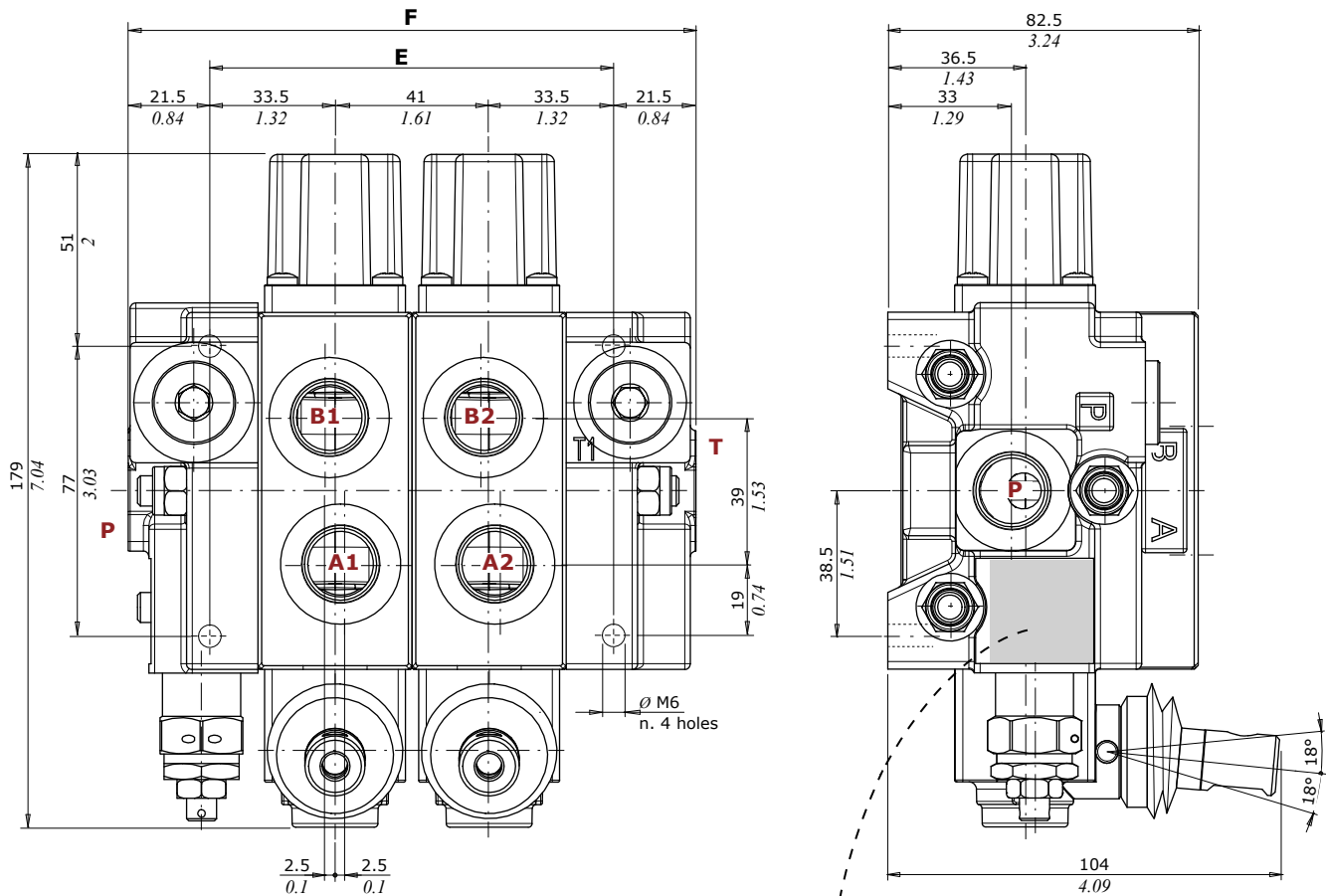
MD1600464-001



- Product code
- Customer reference or code description
- Product allotment
- Datamatrix with product allotment

NOTE: Drawings and dimensions are referred to a **UN-UNF** threading configuration.  
 (\*): For other configurations, see page 135


Q50 - standard configuration\*



Type	E		F	
	mm	in	mm	in
Q50/1	67	2.63	110	4.33
Q50/2	108	4.25	151	5.94
Q50/3	149	5.86	192	7.56
Q50/4	190	7.48	233	9.17
Q50/5	231	9.10	274	10.78
Q50/6	272	10.70	315	12.40
Q50/7	313	12.32	356	14
Q50/8	354	13.93	397	15.62
Q50/9	395	15.55	438	17.24
Q50/10	436	17.16	479	18.85

**Galtech**  
MADE IN ITALY

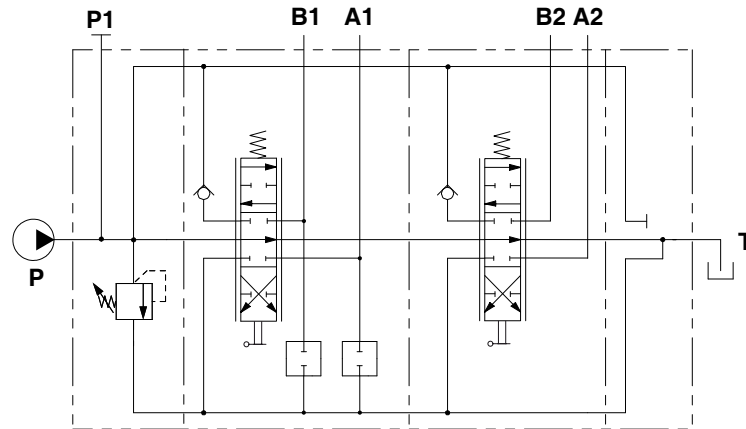
025030103251000 - Product code  
 Q50/2-F7S(N150)- Customer reference  
 2X103/A1/M1.VC- or code description  
 F3D  
 MD1600464-001 - Product allotment

 - Datamatrix with product allotment

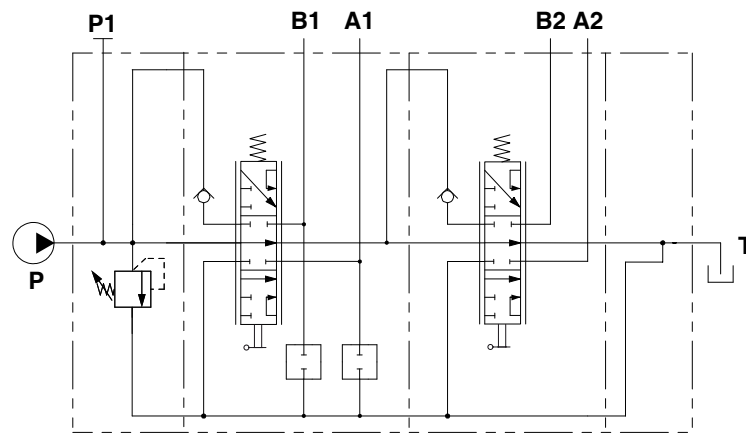
NOTE: Drawings and dimensions are referred to a UN-UNF threading configuration.

(\*): For other configurations, see page 135

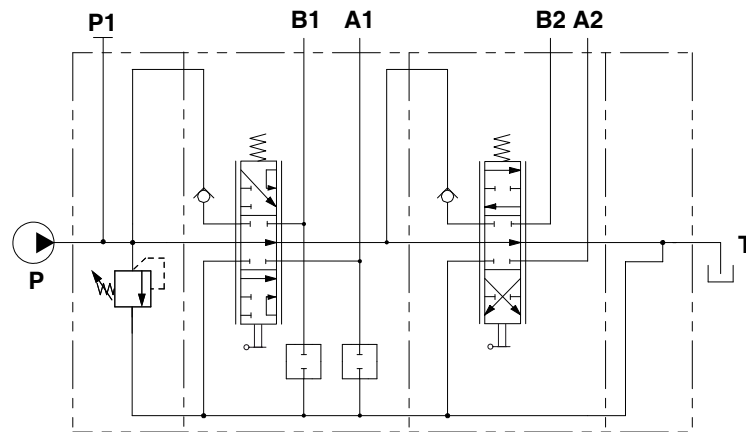
**Hydraulic circuits**



Description example (parallel circuit):  
 Q30/2/F7S(N150)/103-A1-M1.VC/103-A1-M1/F3D-S-SAE  
 Q50/2/F7S(N150)/103-A1-M1.VC/103-A1-M1/F3D-S-SAE



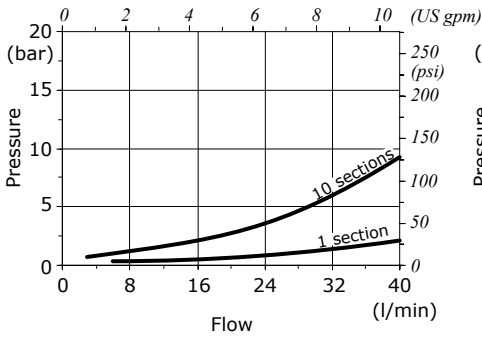
Description example (series circuit):  
 Q30/2/F7S(N150)/403-A1-M1.VC/403-A1-M1/F3D-S-SAE  
 Q50/2/F7S(N150)/403-A1-M1.VC/403-A1-M1/F3D-S-SAE



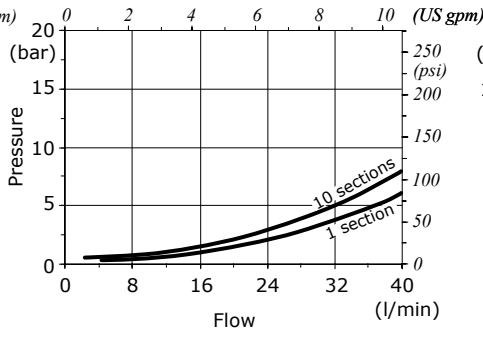
Description example (serie/parallel circuit):  
 Q30/2/F7S(N150)/403-A1-M1.VC/103-A1-M1/F3D-S-SAE  
 Q50/2/F7S(N150)/403-A1-M1.VC/103-A1-M1/F3D-S-SAE

**Q30**

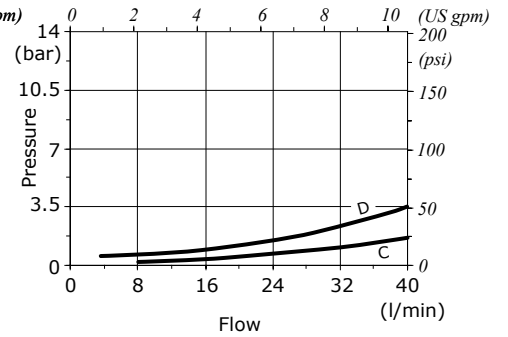
**P⇒T pressure drops**



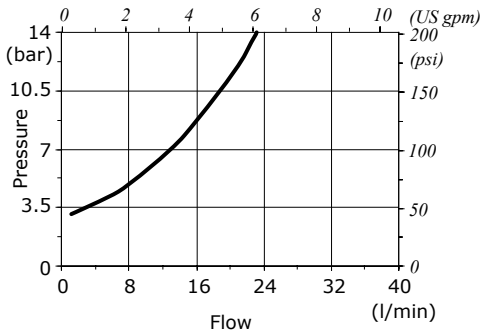
**P⇒A(B) pressure drops**



**A(B)⇒T pressure drops**



**A1(B1)⇒A2(B2) pressure drops (with series circuit)**

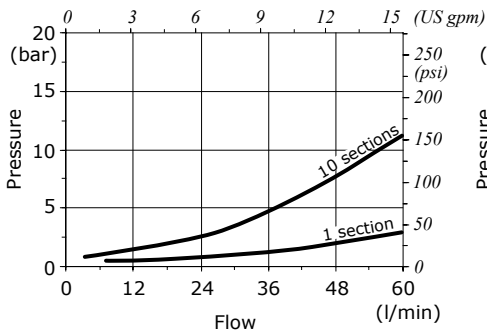


**Legenda**

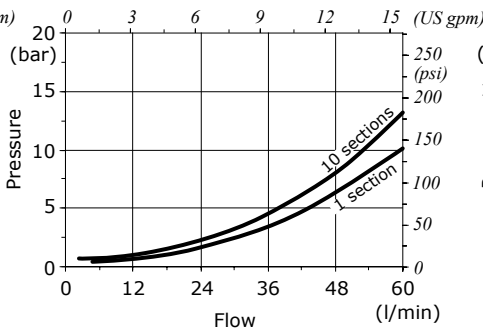
- C = 10<sup>th</sup> section
- D = 1<sup>st</sup> section

**Q50**

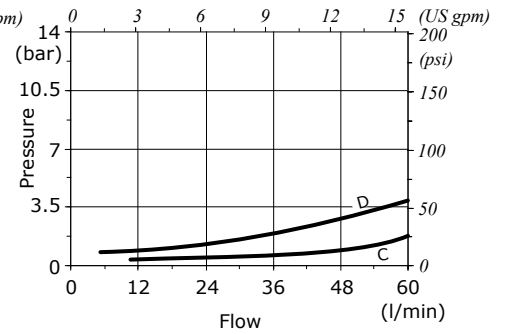
**P⇒T pressure drops**



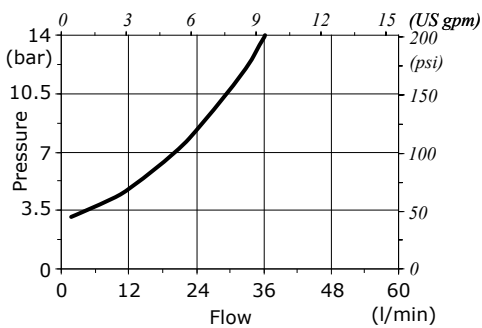
**P⇒A(B) pressure drops**



**A(B)⇒T pressure drops**



**A1(B1)⇒A2(B2) pressure drops (with series circuit)**



**Legenda**

- C = 10<sup>th</sup> section
- D = 1<sup>st</sup> section

### Complete section ordering codes

Drawings are referred to a Q30 sectional valve.

#### Valve with mechanical and hydraulic controls configuration example

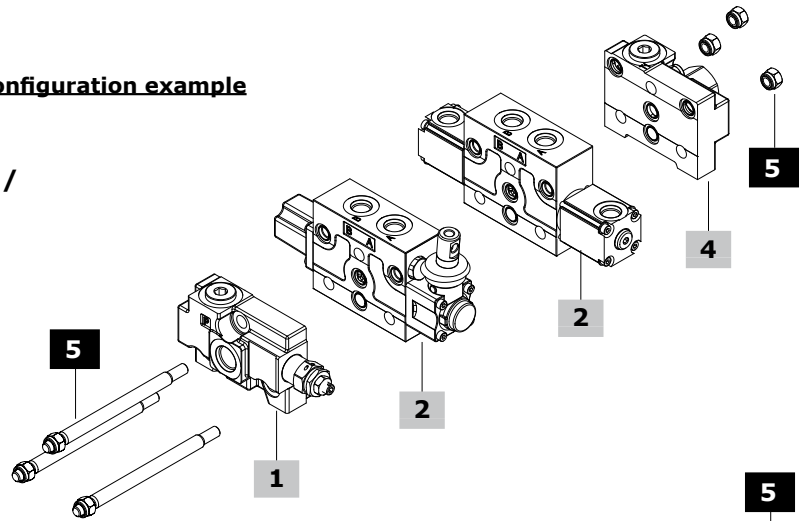
valve setting (bar)

**Q30 / 2 / F7S(N150) / 103 - A1 - M1 . VC /**

N. of section **1** **2**

**/ 103 - H1 / F6D - S - SAE**

**2** **4** aluminium controls



#### Valve with intermediate section and mechanical control configuration example

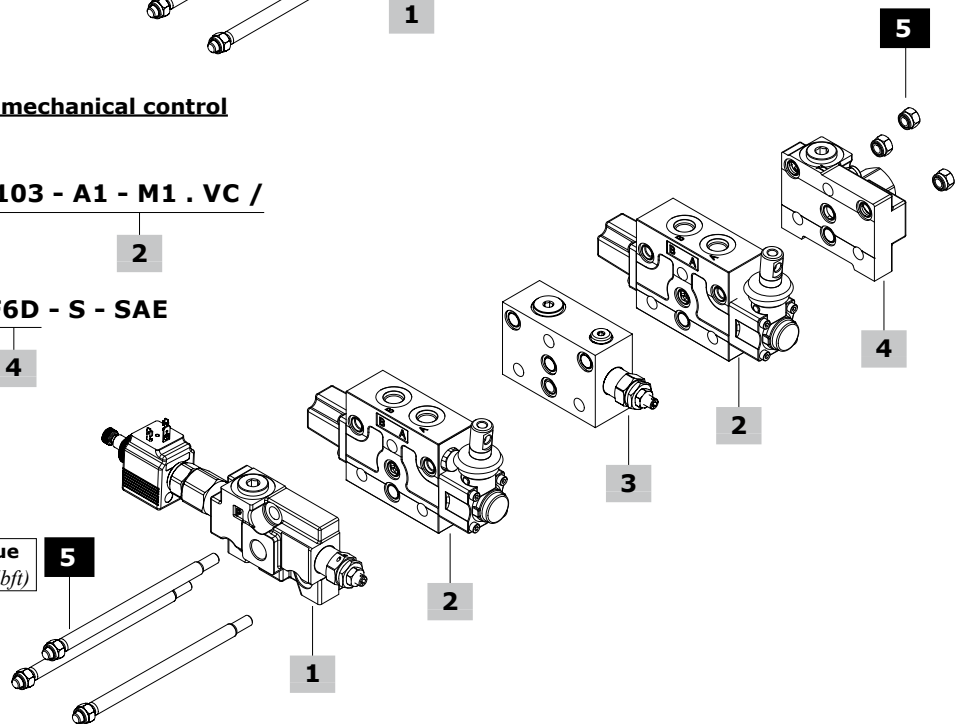
valve setting (bar)

**Q30 / 2 / F7SMSE(NA)-N150 / 103 - A1 - M1 . VC /**

**E50(N150) / 103 - A1 - M1 / F6D - S - SAE**

**3** **2** **4**

**Tie rod tightening torque**  
wrench 13 - 24 Nm (17.7 lbf ft)



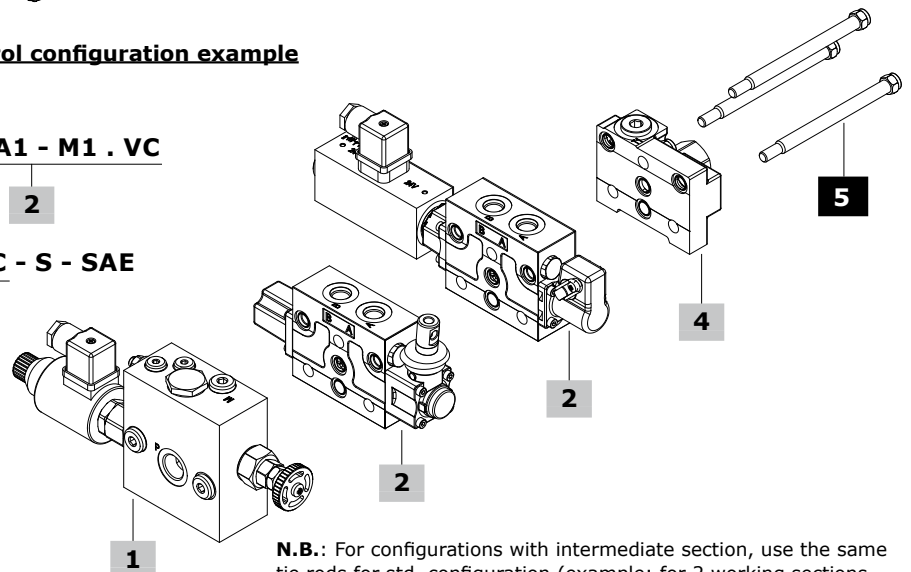
#### Valve with mechanical and electric control configuration example (with inlet flow regulation)

**Q30 / 2 / F7SPR3M(N150) / 103 - A1 - M1 . VC**

**1** **2**

**/ 103 - A1 - D41 . VC / F6D - 12VDC - S - SAE**

**2** **4** **2**



**N.B.:** For configurations with intermediate section, use the same tie rods for std. configuration (example: for 2 working sections + 1 intermediate section, use tie rods for 3 working sections)

**1 Inlet section\* page 97****Standard inlet section**

TYPE	CODE
<b>FE-Q30/F7S(N150)-SAE</b>	03000F7S/D/04N
<b>FE-Q50/F7S(N150)-SAE</b>	03000F7S/D/04N
DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve, setting range 101-200 bar (1460-2900 psi)	
TYPE	CODE
<b>FE-Q30/F8S-SAE</b>	03003F8S/D/04
<b>FE-Q50/F8S-SAE</b>	03003F8S/D/04
DESCRIPTION: As previous one, without valves (pressure relief valve plugged port)	
TYPE	CODE
<b>FE-Q30/F7SMSE(NA)</b>	03000F7SDMS1-N
<b>FE-Q50/F7SMSE(NA)</b>	05000F7SDMS1-N
DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve setting range 101-200 bar (1460-2900 psi), 12VDC normally open unloader valve	
TYPE	CODE
<b>FE-Q30/F7SMSE(NC)</b>	03000F7SDMS7-N
<b>FE-Q50/F7SMSE(NC)</b>	05000F7SDMS7-N
DESCRIPTION: As previous one, with normally closed unloader valve	
TYPE	CODE
<b>FE-Q30/F7SMSI</b>	03000F7SDMSI-N
<b>FE-Q50/F7SMSI</b>	05000F7SDMSI-N
DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve setting range 101-200 bar (1460-2900 psi), and hydraulic unloader valve	
<b>Inlet section with flow regulator</b>	
TYPE	CODE
<b>FE-Q30/F7SPR3M(N150)</b>	03000F7SDPRN3M
<b>FE-Q50/F7SPR3M(N150)</b>	05000F7SDPRN3M
DESCRIPTION: Side inlet open, 12 VDC proportional flow control valve, pressure relief valve setting range 101-200 bar (1460-2900 psi), manual unloader valve	
TYPE	CODE
<b>FE-Q30/F7SPR3E(N150)-12VDC</b>	03000F7SDPRN3E
<b>FE-Q50/F7SPR3E(N150)-12VDC</b>	05000F7SDPRN3E
DESCRIPTION: As previous one, with 12VDC unloader valve	

**2 Working section\* page 106****With mechanical controls**

TYPE	CODE
<b>EL-Q30/103-A1-M1.VC-S-SAE</b>	SGL300006
<b>EL-Q50/103-A1-M1.VC-S-SAE</b>	SGL500016
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, lever control and spring return to neutral position	

TYPE	CODE
<b>EL-Q30/103-A1-M1-S-SAE</b>	SGL300005
<b>EL-Q50/103-A1-M1-S-SAE</b>	SGL500014
DESCRIPTION: As previous one, without valve arrangement	

**With proportional hydraulic controls**

TYPE	CODE
<b>EL-Q30/103-H5.VC-S-SAE</b>	SGL300014
<b>EL-Q50/103-H5.VC-S-SAE</b>	SGL500017
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, low pressure hydraulic controls, spring return to neutral position	

TYPE	CODE
<b>EL-Q30/103-H5-S-SAE</b>	SGL300015
<b>EL-Q50/103-H5-S-SAE</b>	SGL500018
DESCRIPTION: As previous one, without valve arrangement	

**With electric solenoid controls - one side type**

TYPE	CODE
<b>EL-Q30/103-A1-D41.VC-12VDC-S-SAE</b>	SGL300020
<b>EL-Q50/103-A1-D41.VC-12VDC-S-SAE</b>	SGL500019
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct ON/OFF control with lever	

TYPE	CODE
<b>EL-Q30/103-A1-D41-12VDC-S-SAE</b>	030000103098200
<b>EL-Q50/103-A1-D41-12VDC-S-SAE</b>	SGL500020
DESCRIPTION: As previous one, without valve arrangement	

**With electric solenoid controls - two side type**

TYPE	CODE
<b>EL-Q30/103-D9.VC-12VDC-S-SAE</b>	SGL300017
<b>EL-Q50/103-D9.VC-12VDC-S-SAE</b>	SGL500021
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct ON/OFF control	

TYPE	CODE
<b>EL-Q30/103-D9-12VDC-S-SAE</b>	SGL300018
<b>EL-Q50/103-D9-12VDC-S-SAE</b>	SGL500022
DESCRIPTION: As previous one, without valve arrangement	

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

**Complete section ordering codes**

**3 Intermediate section page 135**

TYPE	CODE	DESCRIPTION
<b>E50</b>	03850E50-B	With pressure relief valve, setting range 10-100 bar (145-1450 psi)
	03850E50-N	As previous one, setting range 101-200 bar (1460-2900 psi)
	03850E50-R	As previous one, setting range 201-380 bar (2910-5500 psi)
<b>E53</b>	03854E53-B	With pressure relief valve, setting range 10-100 bar (145-1450 psi) and P2 port open for 2 <sup>nd</sup> pump
	03854E53-N	As previous one, setting range 101-200 bar (1460-2900 psi)
	03854E53-R	As previous one, setting range 201-380 bar (2910-5500 psi)
<b>E51</b>	03853E51SAE	Intermediate outlet section, T2 port open
<b>E61</b>	03885E61	Intermediate spacer section

**4 Outlet section\* page 137**

TYPE	CODE
<b>FS-Q30/Q50-F3D-SAE</b>	03012F3D/04
DESCRIPTION: T port open, T1 port plugged. For open center circuit	
TYPE	CODE
<b>FS-Q30/Q50-F16D-SAE</b>	03016F16D/04
DESCRIPTION: T port open, T1 port plugged. For closed center circuit	
TYPE	CODE
<b>FS-Q30/Q50-F6D-SAE</b>	03014F6D/03
DESCRIPTION: Lc port and T1 port open. With joint for carry-over (HPCO) circuit	

**5 Tie rod kit**

CODE	DESCRIPTION
<b>For standard configuration</b>	
<b>Q30:</b>	<b>Q50:</b>
03901TX1	05901TX1 For 1 section valve
03902TX2	05902TX2 For 2 sections valve
03903TX3	05903TX3 For 3 sections valve
03904TX4	05904TX4 For 4 sections valve
03905TX5	05905TX5 For 5 sections valve
03906TX6	05906TX6 For 6 sections valve
03907TX7	05907TX7 For 7 sections valve
03908TX8	05908TX8 For 8 sections valve
03909TX9	05909TX9 For 9 sections valve
03910TX10	05910TX10 For 10 sections valve
<b>For flow regulator configuration</b>	
<b>Q30:</b>	<b>Q50:</b>
03901TX1	05931TX1 For 1 section valve
03902TX2	05932TX2 For 2 sections valve
03903TX3	05933TX3 For 3 sections valve
03904TX4	05934TX4 For 4 sections valve
03905TX5	05935TX5 For 5 sections valve
03906TX6	05936TX6 For 6 sections valve
03907TX7	05937TX7 For 7 sections valve
03908TX8	05938TX8 For 8 sections valve
03909TX9	05939TX9 For 9 sections valve
03910TX10	05940TX10 For 10 sections valve

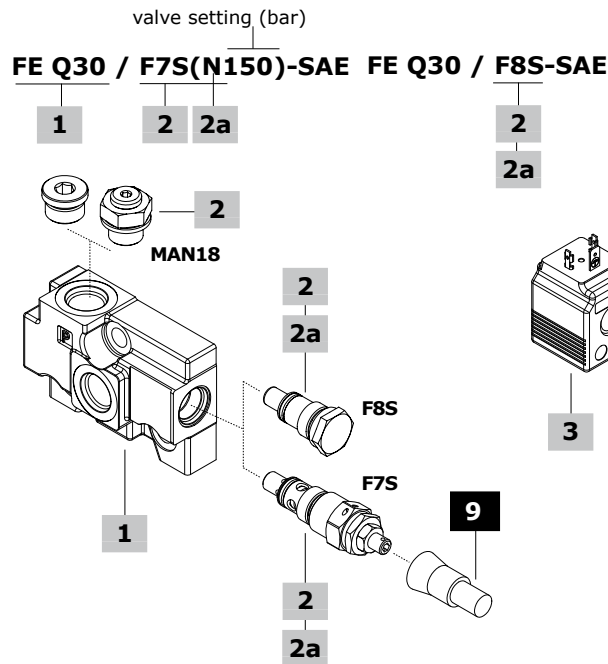
(\*): Codes are referred to **UN-UNF** thread



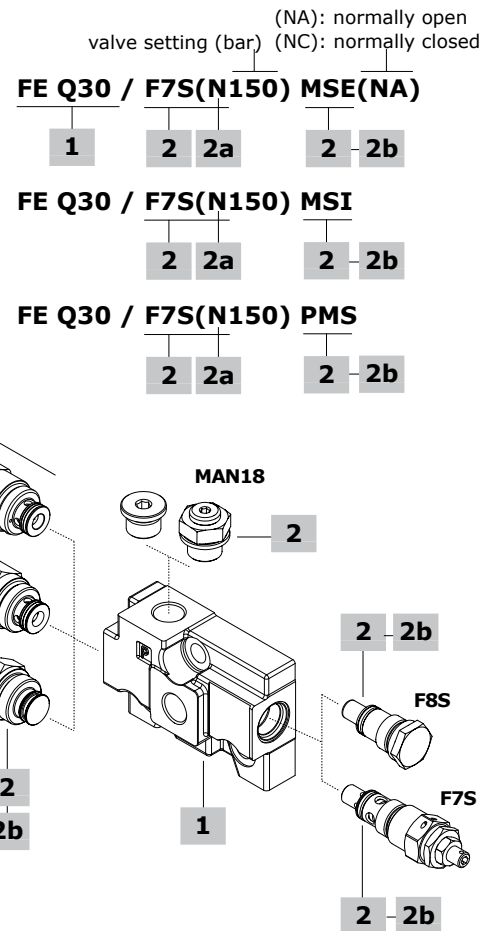
Inlet section - parts ordering codes

Standard section

With relief valve:



With relief and unloader valves:



**1 Inlet body section** page 99

TYPE CODE  
**FE-Q30/Q50-SAE\*** 060013083499  
 DESCRIPTION: Side inlet port, upper inlet plugged, pressure relief valve arrangement  
 TYPE CODE  
**FE-Q30** 060012979299  
**FE-Q50** 060012998499  
 DESCRIPTION: As previous one, with unloader valve arrangement

**2 Configuration coding** page 100

TYPE DESCRIPTION  
**F7S-SAE\*** With pressure relief valve  
**F8S-SAE\*** Without valves (pressure relief valve plugged port)  
**F7S-MSE** With pressure relief valve and electric unloader valve  
**F7S-MSI** With pressure relief valve and hydraulic unloader valve  
**F7S-PMS** With pressure relief valve and PMS valve blanking plug  
**F8S-MSE** With electric unloader valve and pressure relief valve blanking plug  
**F8S-MSI** With hydraulic unloader valve and pressure relief valve blanking plug  
**F8S-PMS** Without valves (plugged ports)  
**Note:** Inlet configuration with relief valve, require upper P port: for Q30/Q50 n. 1 SAE8 plug code 255008, or n. 1 pressure gauge arrangement code 5MAN624202;  
 Inlet configurations with relief and unloader valves, require upper P port: for Q30 n. 1 G3/8 plug code 060002792199, or n. 1 pressure gauge arrangement code 5MAN621200; for Q50 n. 1 G1/2 plug code 060002792099, or n. 1 pressure gauge arrangement code 5MAN625220

**2a Main pressure relief valve** page 101

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

**2b Unloader inlet valve** page 102

TYPE	CODE	DESCRIPTION
<b>MSE(NA)</b>	0EF08002003	Electric unloader valve, normally open, screw type emergency. It requires MSE assembly joint
<b>MSE(NC)</b>	0EF08002006	Electric unloader valve, normally closed, screw type emergency. It requires MSE assembly joint
-	060002997299	Assembling joint for MSE valves
<b>MSI</b>	03839MSI	Hydraulic unloader valve
<b>PMS</b>	060002978899	Valve blanking plug

**3 Coil**

TYPE	CODE	DESCRIPTION
<b>For MSE valves</b>		
<b>BER</b>	4SLE001200A	12 VDC ISO4400 coil
	4SLE002400A	24 VDC ISO4400 coil

**Note:** For **BER** type coils, see page 257

**9 Accessory**

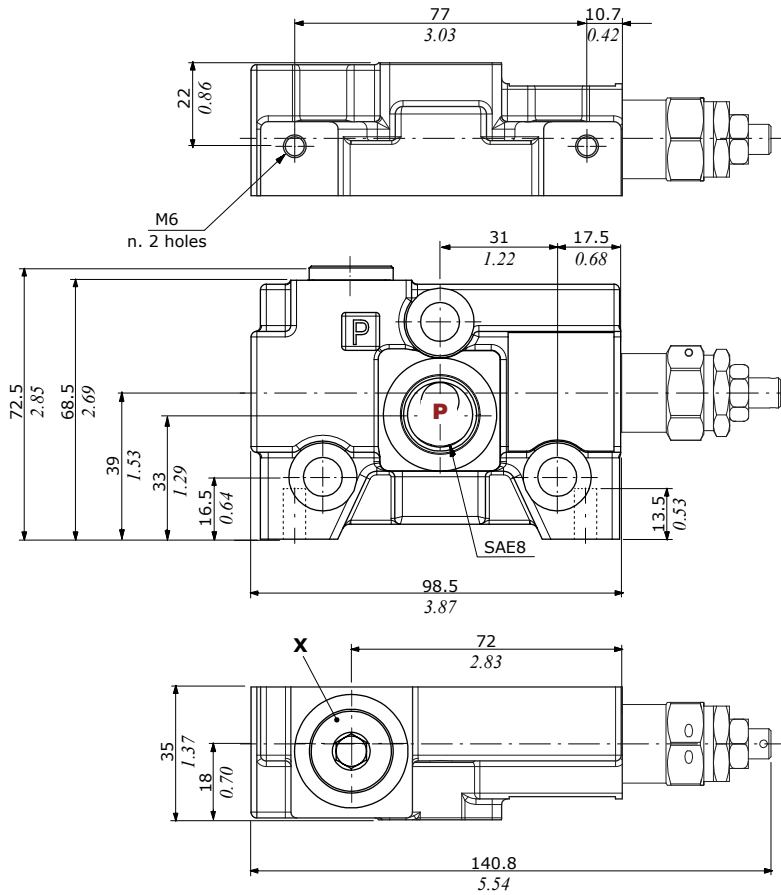
TYPE	CODE	DESCRIPTION
-	4COP120420	Antitamper cap for pressure relief valve

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

### Inlet section - parts ordering codes

#### Dimensional data

##### With pressure relief valve

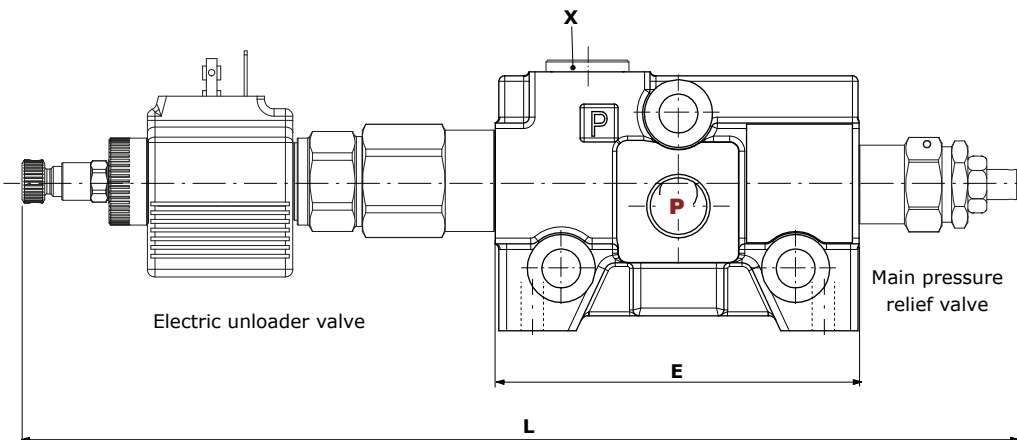


**Wrenches and tightening torques**  
X = allen wrench 8 - 42 Nm (31 lbft)

**Note:** For valves wrench and torque, see related pages

##### With relief and unloader valves

Drawings are referred to a Q30 sectional valve.



Type	Q30 mm - in	Q50 mm - in
E	96.3 - 3.79	97 - 3.81
L	263.7 - 10.3	264.4 - 10.4
X	allen wrench 6 - 24 Nm (17.7 lbft)	allen wrench 8 - 42 Nm (31 lbft)

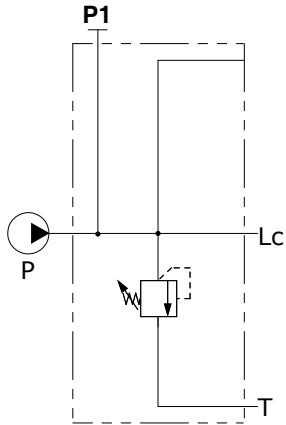
**Note:** For valves wrench and torque, see related pages

For other configurations, see page 102

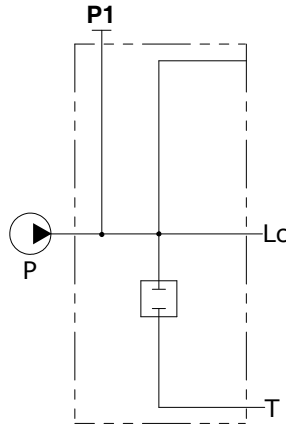
For other dimensions, see previous configuration

Hydraulic circuits

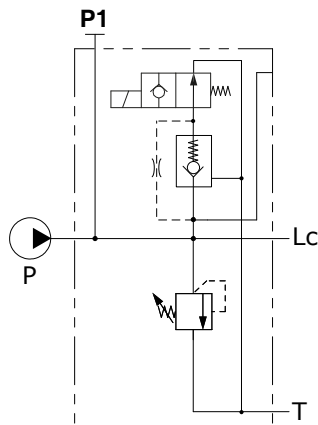
**F7S-SAE configuration**  
With pressure relief valve



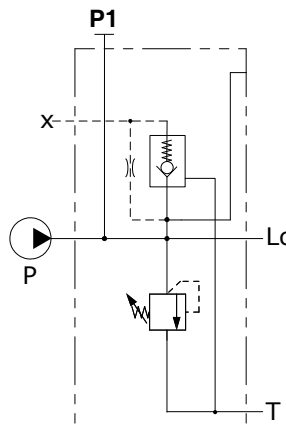
**F8S-SAE configuration**  
Without valves  
(pressure relief valve plugged port)



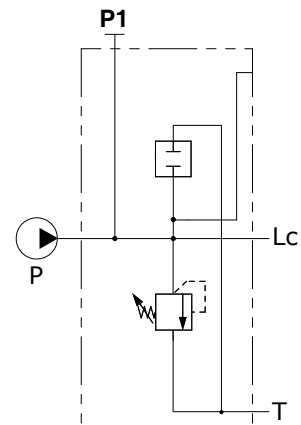
**F7S-MSE(NA/NC) configuration**  
With pressure relief valve  
and electric unloader valve



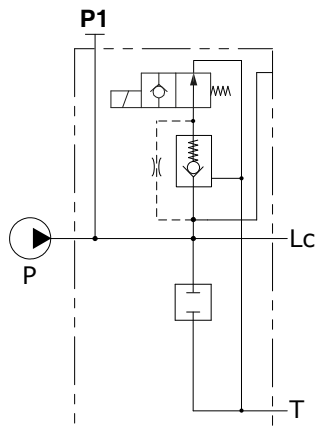
**F7S-MSI configuration**  
With pressure relief valve  
and hydraulic unloader valve



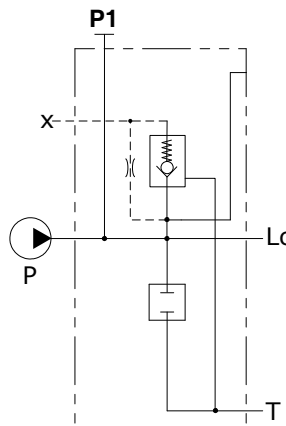
**F7S-PMS configuration**  
With pressure relief valve  
and unloader valve blanking plug



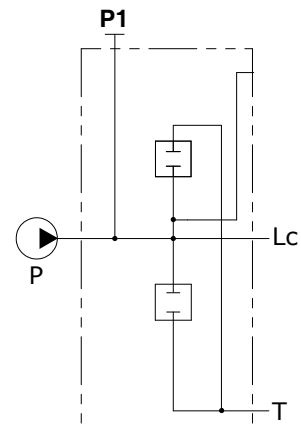
**F8S-MSE(NA/NC) configuration**  
Without pressure relief valve  
and electric unloader valve



**F8S-MSI configuration**  
Without pressure relief valve  
and hydraulic unloader valve



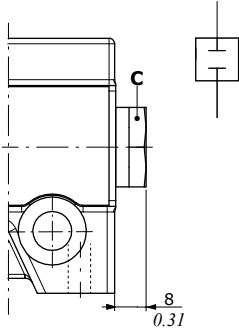
**F8S-PMS configuration**  
Without valves (plugged ports)



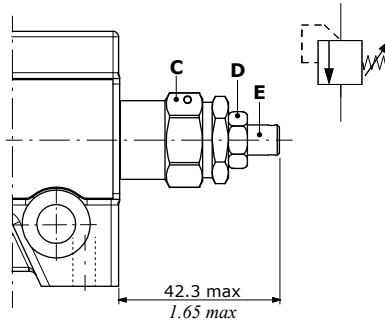
**Standard inlet section**

**Main pressure relief valve**

**Relief valve blanking plug**



**Main pressure relief valve**

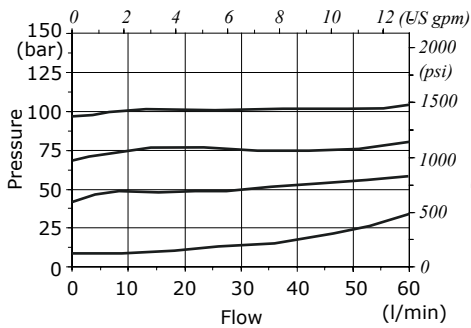


**Wrenches and tightening torques**

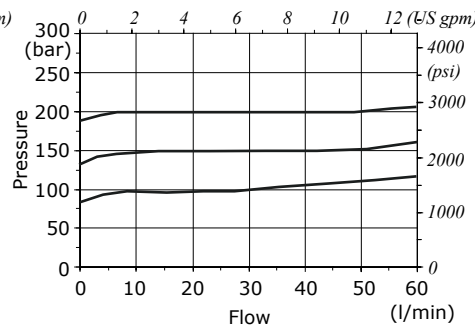
- C = wrench 22 - 42 Nm (31 lbft)
- D = wrench 13 - 24 Nm (17.7 lbft)
- E = allen wrench 4

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

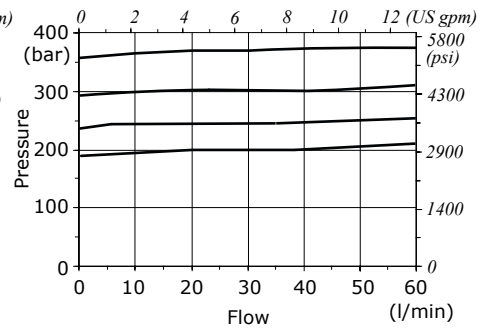
**Setting example (B type spring)**



**Setting example (N type spring)**



**Setting example (R type spring)**

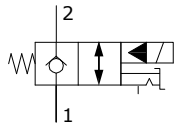


**Unloader valve**

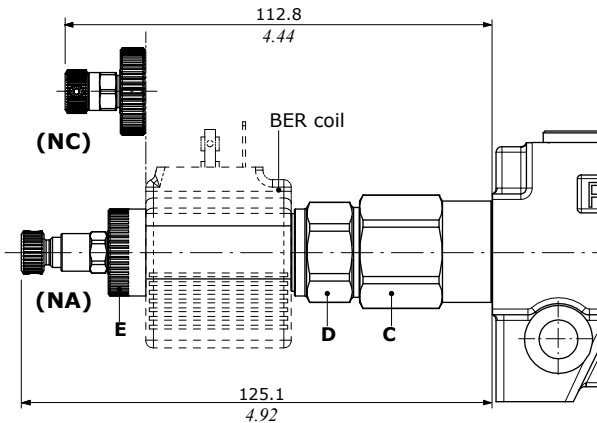
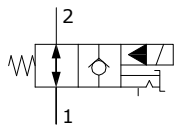
**MSE type: electric control**

**Screw type emergency**

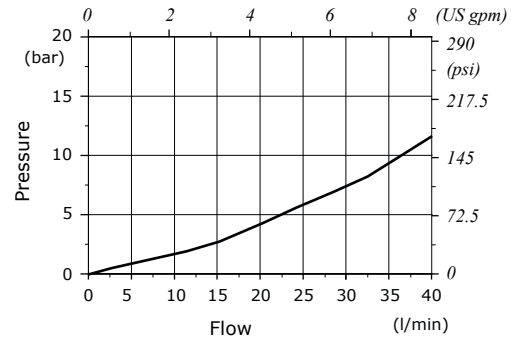
**MSE(NC) type**  
Normally closed



**MSE(NA) type**  
Normally open



**Pressure drops**

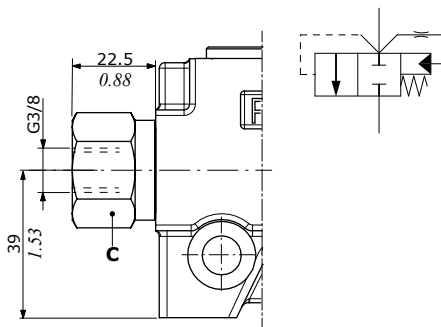


**Valve features**

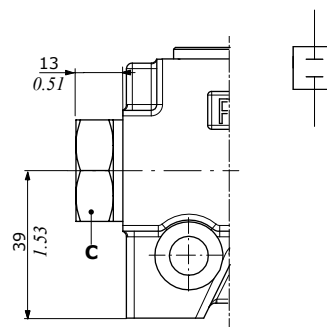
- Nominal flow.....: 40 l/min (10.5 US gpm)
- Max. pressure .....: 380 bar (5500 psi)
- Max. internal leakage...: 0,50 cm<sup>3</sup>/min @ 210 bar (0.030 in<sup>3</sup>/min @ 3050 psi)

For **BER** type coils see page 257

**MSI type: hydraulic control**



**PMS type: valve blanking plug**



**Wrenches and tightening torques**

- C = wrench 27 - 42 Nm (30.9 lbft)
- D = wrench 24 - 30 Nm (22.1 lbft)
- E = manual tightening

### Inlet section - parts ordering codes

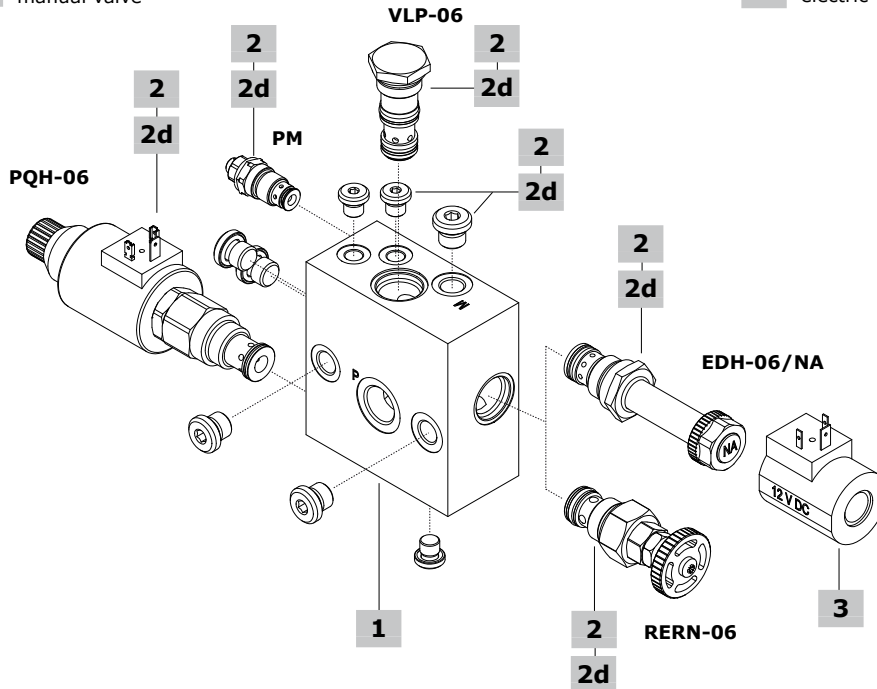
#### Section with flow regulator

With manual unloader valve:

valve setting (bar)  
**FE Q30 / F7SPR3M(N150)**  
 1  
 2  
 2d manual valve

With electric unloader valve:

valve setting (bar)  
**FE Q30 / F7SPR3E(N150)-12VDC**  
 2  
 2d electric valve  
 3



#### 1 Inlet body section\* page 103

TYPE: **FE-Q30/Q50** CODE: 060013195499  
 DESCRIPTION: Side inlet port, arrangement for flow control, unloader and pressure relief valve

#### 2 Configuration coding\* page 103

TYPE	DESCRIPTION
<b>F7S-PR3M</b>	With pressure relief valve, proportional flow control valve and manual unloader valve
<b>F7S-PR3E</b>	With pressure relief valve, proportional flow control valve and electric unloader valve, normally open

**Note:** Inlet configurations require:  
 n. 5 G1/4 plugs code 3XTAP719150  
 n. 3 G1/8 plugs code 3TP5110900

#### 2d Inlet valves page 104

TYPE	CODE	DESCRIPTION
<b>PQH-06</b>	950208506010000	Flow control pressure compensated proportional valve, 12 VDC, coil included
	950208506010001	Flow control pressure compensated proportional valve, 24 VDC, coil included
<b>PM</b>	03800V30PM-N	Antishock valve
<b>VLP-06</b>	950209906010000	Pressure relief valve
<b>RERN-06</b>	955845060010000	Manual unloader valve
<b>EDH-06/NA</b>	950210600000000	Electric unloader valve, normally open

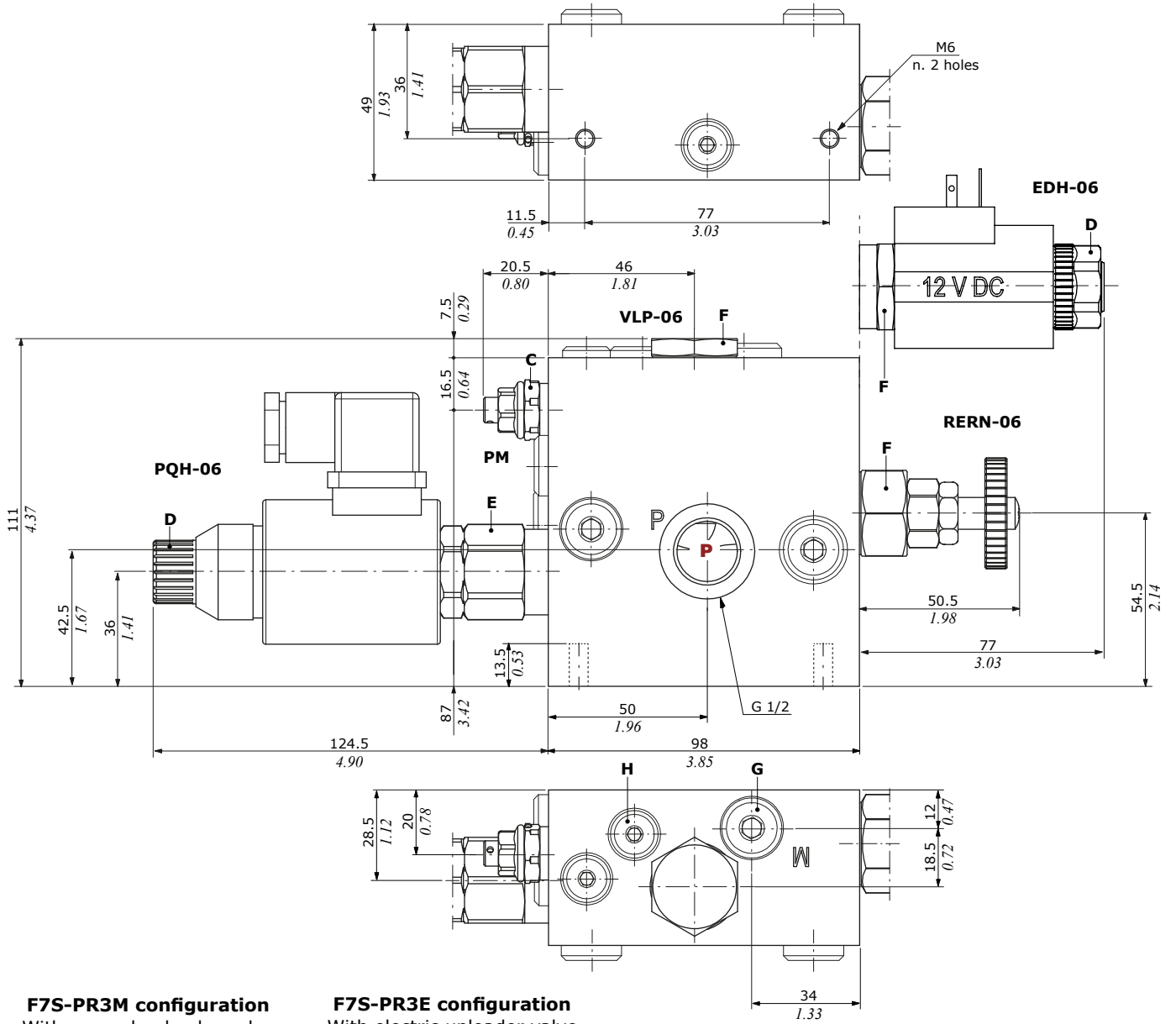
#### 3 Coil

TYPE	CODE	DESCRIPTION
<b>For EDH-06 valve</b>		
<b>A</b>	954250000601200	12 VDC ISO4400 coil
	954250000602400	24 VDC ISO4400 coil

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

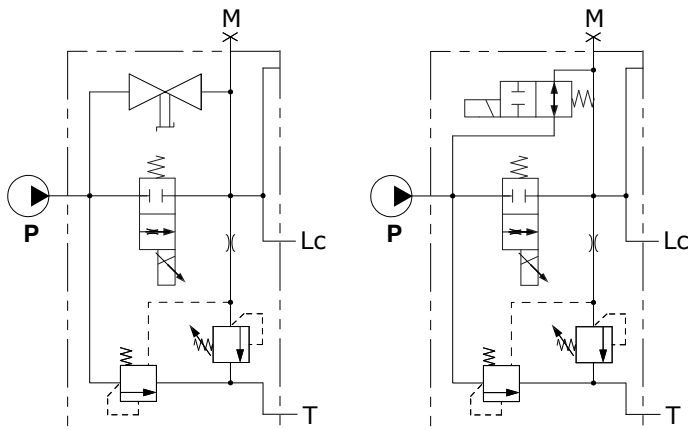
**Inlet section with flow regulator**

**Dimensional data and hydraulic circuits**



**F7S-PR3M configuration**  
With manual unloader valve

**F7S-PR3E configuration**  
With electric unloader valve



**Wrenches and tightening torques**

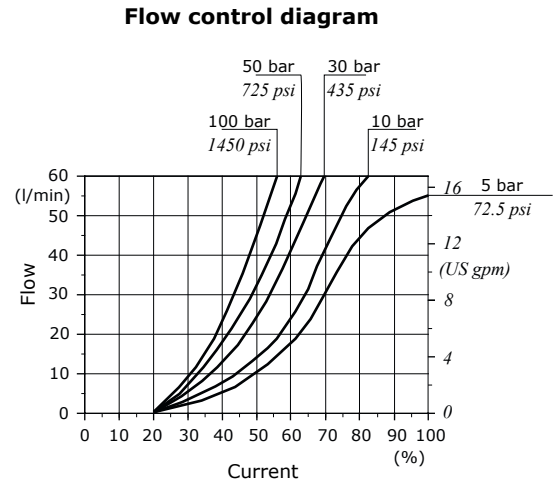
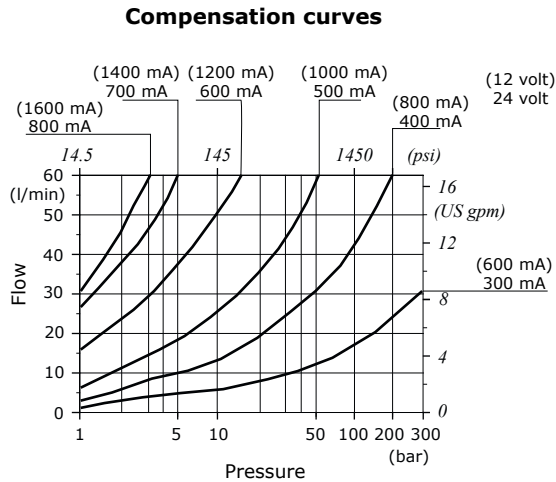
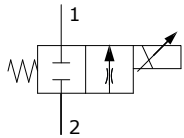
- C = wrench 17 - 30 Nm (22 lbf<sub>t</sub>)
- D = manual tightening
- E = wrench 27 - 30 Nm (22 lbf<sub>t</sub>)
- F = wrench 27 - 60 Nm (44.2 lbf<sub>t</sub>)
- G = allen wrench 27 - 60 Nm (44.2 lbf<sub>t</sub>)
- H = allen wrench 6 - 24 Nm (17.7 lbf<sub>t</sub>)

**Inlet section with flow regulator**

**Inlet valves**

**PQH-06 type**

Flow control proportional pressure compensated valve, 12/24 VDC



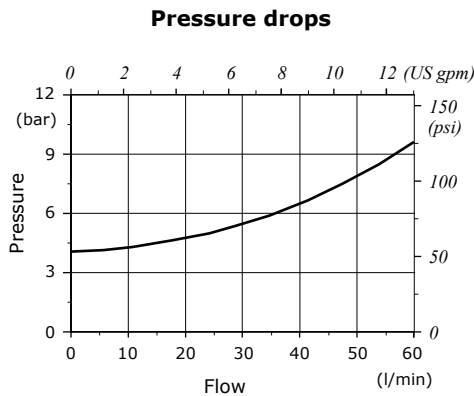
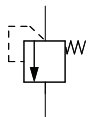
**Valve features**

- Nominal flow.....: 60 l/min (15.8 US gpm)
- Max. pressure .....: 310 bar (4500 psi)
- Power rating.....: 22 W
- Max. internal leakage...: 100 cm<sup>3</sup>/min @ 210 bar (6.10 in<sup>3</sup>/min @ 3050 psi)
- Coil insulation.....: Class F
- Voltage.....: 12/24 VDC

**Note:** The coil and connector is included

**VLP-06 type**

Pressure relief valve

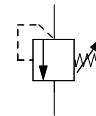


**Valve features**

- Nominal flow.....: 60 l/min (15.8 US gpm)
- Max. pressure .....: 350 bar (5070 psi)
- Opening start pressure.....: 4 bar (58 psi)

**PM type**

Antishock valve



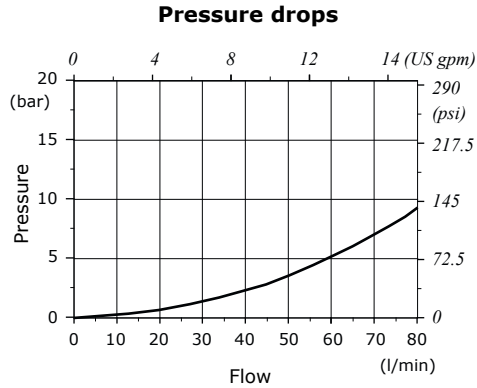
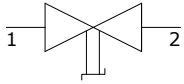


Inlet section with flow regulator

**Inlet valves**

**RERN-06 type**

Manual unloader valve

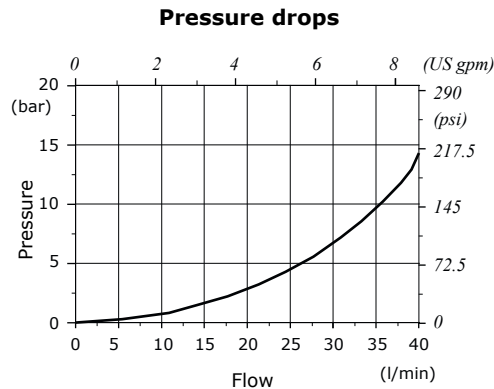
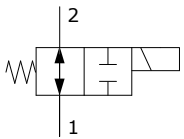


**Valve features**

Nominal flow.....: 70 l/min (18.5 US gpm)  
 Max. pressure .....: 315 bar (4600 psi)  
 Closed valve leakage.....: 0

**EDH-06 type**

Electric unloader valve, normally open

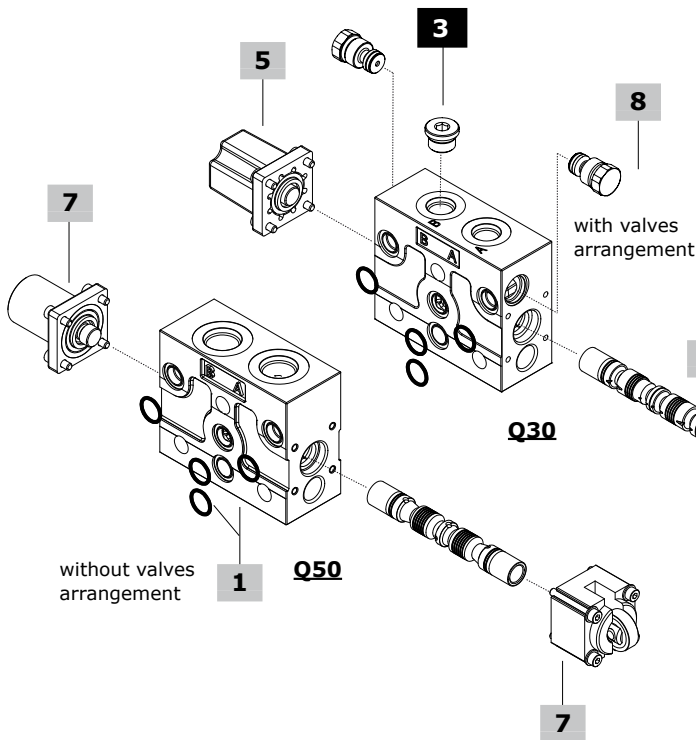


**Valve features**

Nominal flow.....: 35 l/min (9.24 US gpm)  
 Max. pressure .....: 310 bar (4500 psi)  
 Max. internal leakage....: 50 cm<sup>3</sup>/min @ 210 bar  
 (3.05 in<sup>3</sup>/min @ 3050 psi)

Coil **A** type: To be order separately, see #3 page 102

### Working section - parts ordering codes



#### Mechanical control valve configuration example

spring type and valve setting (bar)

**EL Q30 / 102 - A1 - M1 . V40(N)120 - S - SAE**

1 2 4 5 8 aluminium controls

#### C2/C3 complete mechanical control configuration example

**EL Q50 / 103 - C3 . V40(N)120 - S - SAE**

7

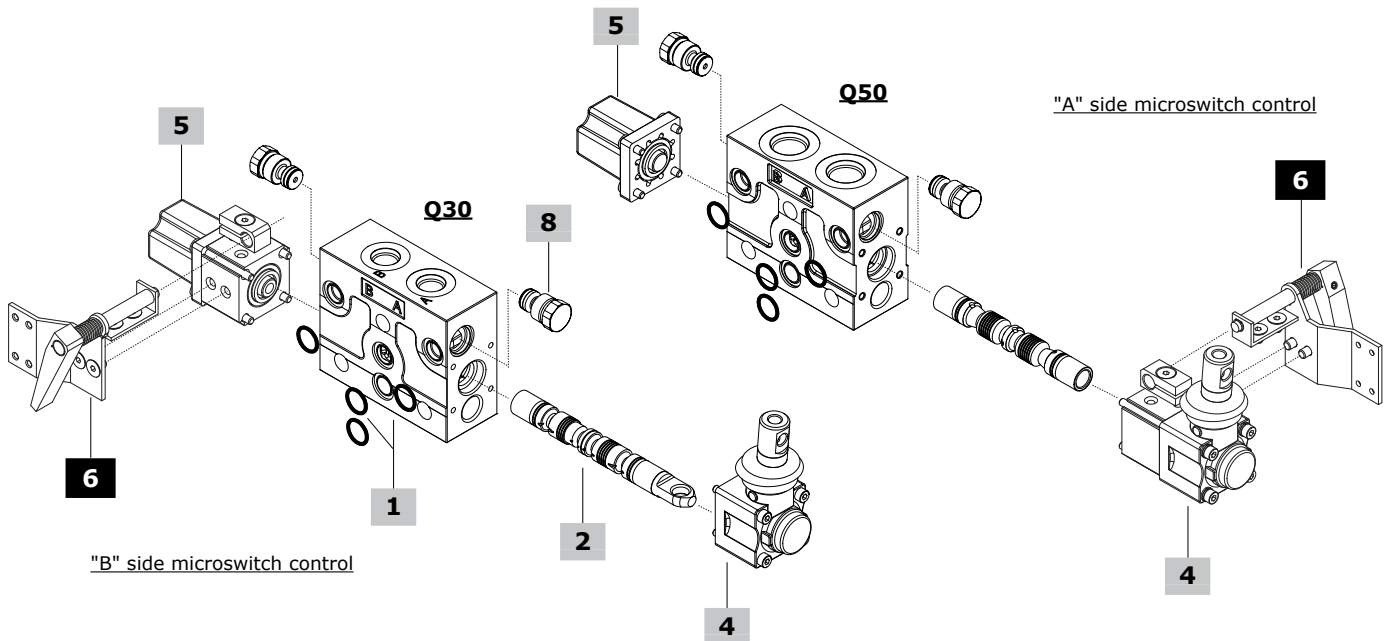
#### Microswitch control valve configurations example

**EL Q30 / 103 - A1 - M1-N1 . V40(N)120 - S - SAE**

1 2 4 5 8 aluminium controls

**EL Q50 / 103 - N1-A1 - M1 . V40(N)120 - S - SAE**

4 5



## Working section - parts ordering codes

**1 Working section body kit\* page 111**

TYPE	CODE	DESCRIPTION
<b>EL-Q30.VC-SAE</b>	5EL0600128433	
<b>EL-Q50.VC-SAE</b>	5EL0600130179	
DESCRIPTION: Parallel circuit, with port valves arrangement		
TYPE	CODE	DESCRIPTION
<b>EL-Q30-SAE</b>	5EL0600128107	
<b>EL-Q50-SAE</b>	5EL0600130178	
DESCRIPTION: Parallel circuit, without port valves arrangement		
TYPE	CODE	DESCRIPTION
<b>EL-Q30.VC-SAE</b>	5EL0600128435	
<b>EL-Q50.VC-SAE</b>	5EL0600130181	
DESCRIPTION: Series circuit, with port valves arrangement		

**2 Spool page 112**

TYPE	CODE	DESCRIPTION
<b>Standard spools</b>		
<b>103</b>	060103179499	Double acting, A and B closed in neutral position
	3CUG3197800	As previous one, for <b>kick-out</b> control
<b>106</b>	KR30106	Double acting for closed circuit
<b>107</b>	KR80107-108	Double acting, A to tank and B closed in neutral position
<b>108</b>	KR80107-108	Double acting, B to tank and A closed in neutral position
<b>111</b>	060103179599	Double acting, A and B to tank in neutral position
	KR30111K	As previous one, for <b>kick-out</b> control
<b>114</b>	KR30114	Double acting, A and B to tank in neutral position, for closed circuit
<b>101</b>	3CUG32188000	Single acting on port A (3)
<b>102</b>	3CUG3218002	Single acting on port B (3)
<b>116</b>	3CUG3179200	Double acting, with floating in the 4 <sup>th</sup> position (spool in): requires dedicated spool control
<b>126</b>	3CUG3179201	Double acting, with floating in the 4 <sup>th</sup> position (spool out): requires dedicated spool control
<b>403</b>	5CUG2895202	Double acting, A and B closed in neutral position, for series circuit
<b>411</b>	5CUG2895402	Double acting, A and B to tank in neutral position, for series circuit
<b>Note (3):</b> Q30 valve required SAE6 plug, see #3 Q50 valve required SAE8 plug, see #3		
<b>Special spools for cam, microswitch controls and other leverless controls</b>		
<b>103</b>	060103179099	Double acting, A and B closed in neutral position
<b>111</b>	060103179199	Double acting, A and B to tank in neutral position
<b>403</b>	5CUG2895203	Double acting, A and B closed in neutral position, for series circuit
<b>411</b>	5CUG2895403	Double acting, A and B to tank in neutral position, for series circuit

**3 Plug for single acting spool\***

TYPE	CODE	DESCRIPTION
-	060002792199	SAE6 plug for Q30 body section
-	060002792099	SAE8 plug for Q50 body section

**4 A side control page 113**

TYPE	CODE	DESCRIPTION
<b>For standard spools</b>		
<u>With lever control:</u>		
<b>A1</b>	03600A1-A2	M8 thread plastic lever box
<b>A2</b>	03600A1-A2	As A1 type, with lever box rotated 180°
<b>A1/10</b>	03610A1-A2/10	M8 thread aluminium lever box
<b>A2/10</b>	03610A1-A2/10	As A1/10 type, with lever box rotated 180°
<b>A1/06</b>	03606A1-A2/06	Aluminium lever box, with stroke limiter
<b>A2/06</b>	03606A1-A2/06	As A1/06 type, with lever box rotated 180°
<b>A1/PM</b>	03610A1-A2/PM	M10 thread aluminium lever box
<b>A2/PM</b>	03610A1-A2/PM	As A1/PM type, with lever box rotated 180°
<b>A1/PMP</b>	03610A1-A2/PMP	M10 thread plastic lever box
<b>A2/PMP</b>	03610A1-A2/PMP	As A1/PMP type, with lever box rotated 180°
<b>A1/Z1</b>	03610A1-A2/Z1	Plastic lever box, for <b>116</b> spool type
<b>A2/Z1</b>	03610A1-A2/Z1	As A1/Z1 type, with lever box rotated 180°
<b>A1/Z1/10</b>	03610A1-2/10Z1	As A1/Z1 type, with aluminium lever box
<u>With safety lever control:</u>		
<b>A1/S<sup>(1)</sup></b>	03624A1-A2/S	M8 thread aluminium lever box
<b>A2/S<sup>(1)</sup></b>	03624A1-A2/S	As A1/S type, with lever box rotated 180°
<u>Without lever control:</u>		
<b>A4/Z1</b>	03617A4/Z1	As A4 type, for <b>116</b> spool type
<b>A6</b>	03620A6	With flange
<b>A6-H/Z1</b>	03620A6-H/Z1SI	As A6 type, for <b>116</b> spool type
<b>A8</b>	03622A8	Arrangement for flexible cable control
	03622A8/03	As previous one, with aluminium cap
<b>A8/Z1</b>	03622A8/Z1	As A8 type, for <b>116</b> spool type
	03622A8/Z1/10	As previous one, with aluminium cap
<u>With joystick controls for 2 section operation:</u>		
<b>A35/1</b>	03640A35-12	Joystick 1 type
<b>A35/2</b>	03640A35-12	Joystick 2 type
<b>A35/3</b>	03640A35-34	Joystick 3 type
<b>A35/4</b>	03640A35-34	Joystick 4 type
<b>For types 103, 111, 403 e 411 special spools</b>		
<u>With spool position microswitch:</u>		
<b>N1-A1</b>	03641N1-A1/A2	Micro operation in pos. 1 and 2, with lever box
	03641N1-A1/10	As previous one, with aluminium lever box
<b>N1A-A1</b>	03642N1A-A1/A2	Micro operation in pos. 1, with lever box
<b>N1B-A1</b>	03643N1BA1/A2L	Micro operation in pos. 2, with lever box
<b>N1-A3</b>	03648N1-A3L	Micro operation in pos. 1 and 2, without lever with cap
<b>N1A-A3</b>	03648N1A-A3L	Micro operation in pos. 1, without lever with cap
<b>N1B-A3</b>	03648N1B-A3L	Micro operation in pos. 2, without lever with cap
<u>Without lever control:</u>		
<b>A3</b>	03614A3	Without lever, with cap
	03614A3/03	As previous one, with aluminium cap
<b>A4</b>	03617A4	M8 thread male external pin with flange
	03617A4/03	As previous one, with aluminium flange
<b>A5<sup>(2)</sup></b>	03619A5	Flange with spherical spool end
	03619A5/10	As previous one, with aluminium flange

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

(1) Always complete with lever knob

(2) To be assembled only with M4 control

**Working section - parts ordering codes**

**5 B side control page 122**

TYPE	CODE	DESCRIPTION
<u>With spring return:</u>		
<b>M1</b>	03730M1	3 pos., spring return in neutral position
	03730M1/03	As previous one, with aluminium cap
<b>M1/01</b>	03730M1/01	As M1 type, for joystick control
	03730M1/01/03	As previous one, with aluminium cap
<b>M1/02</b>	03730M1/02	As M1 type, with stroke limiter
<b>M1/05</b>	03730M1/05	As M1 type, for series spool
<b>M1/06</b>	03730M1/06	As M1/05 type, with aluminium cap
<b>M1/07</b>	03730M1/07	As M1 type, for joystick control with series spool
	03730M1/07/03	As previous one, with aluminium cap
<b>M1-B1</b>	03753M1-B1	As M1 type, with microswitch arrangement
	03753M1-B1/03	As previous one, with aluminium cap
<b>M1-U1</b>	03701M1-U1	As M1 type, with M8 thread male external pin
<b>M2</b>	03732M2	2 pos. (0-1), spring return in neutral position
	03732M2/03	As previous one, with aluminium cap
<b>M2-U1</b>	03702M2-U1	As M2 type, with M8 thread male external pin
<b>M3</b>	03733M3	2 pos. (0-2), spring return in neutral position
	03733M3/03	As previous one, with aluminium cap
<b>M3-U1</b>	03703M3-U1	As M3 type, with M8 thread male external pin
<b>M4</b>	03734M41-2	2 pos. (1-2), spring return in position 1
	03735M42-1	2 pos. (2-1), spring return in position 2
<b>M4-U1</b>	03704M4-U11-2	As M4 type (1-2), with M8 thread male external pin
<u>With flexible cable control arrangement:</u>		
<b>M1-U2</b>	03715M1-U2	3 pos., spring return in neutral position
<b>M2-U2</b>	03716M2-U2	2 pos. (0-1), spring return in neutral position
<b>M3-U2</b>	03717M3-U2	2 pos. (0-2), spring return in neutral position
<u>With detent:</u>		
<b>R1</b>	03741R1	3 pos., detent in position 1
	03741R1/03	As previous one, with aluminium cap
<b>R2</b>	03742R2	3 pos., detent in position 2
	03742R2/03	As previous one, with aluminium cap
<b>R3</b>	03743R3	3 pos., detent in all position
	03743R3/03	As previous one, with aluminium cap
<b>R4</b>	03744R4	2 pos., detent in position 0-1
	03744R4/03	As previous one, with aluminium cap
<b>R5</b>	03745R5	2 pos., detent in position 0-2
	03745R5/03	As previous one, with aluminium cap
<b>R6</b>	03746R6	2 pos., detent in position 1-2
	03746R6/03	As previous one, with aluminium cap
<b>R8</b>	03748R8	4 pos., detent in 4 <sup>th</sup> pos., for <b>116</b> spool type
	03748R8/03	As previous one, with aluminium cap
<b>R10/Z1</b>	03750R10/Z1	4 pos., detent in 4 <sup>th</sup> pos., for <b>126</b> spool type
	03750R10/Z1/03	As previous one, with aluminium cap
<u>With detent and kick out function:</u>		
<b>R1K</b>	03741R1K	3 pos., detent in position 1
	03741R1K/03	As previous one, with aluminium cap
<b>R2K</b>	03742R2K	3 pos., detent in position 2
	03742R2K/03	As previous one, with aluminium cap
<b>R3K</b>	03743R3K	3 pos., detent in all position
	03743R3K/03	As previous one, with aluminium cap

**5 B side control (cont.) page 122**

TYPE	CODE	DESCRIPTION
<u>With spool position microswitch:</u>		
<b>Note:</b>	To complete the control you must use the assembly kit at #6	
<b>M1-N1</b>	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
<b>M1-N1A</b>	03767M1-N1AL	As M1-N1 type, micro operation in pos. 1
	03767M1-N1AL/3	As previous one, with aluminium cap
<b>M1-N1B</b>	03768M1-N1BL	As M1-N1 type, micro operation in pos. 2
	03768M1-N1BL/3	As previous one, with aluminium cap
<b>M2-N1</b>	03769M2-N1L	2 pos. (0-1), spring return in neutral pos.
<b>M3-N1</b>	03772M3-N1L	2 pos. (0-2), spring return in neutral pos.
<u>With pneumatic and electropneumatic controls:</u>		
<b>P1NW</b>	03661P1-NW	ON/OFF pneumatic control
<b>P1NPW</b>	03661P1-NPW	Proportional pneumatic control
<b>D3W</b>	03691D3-F-12DC	12 VDC, ON/OFF electropneumatic control
	03692D3-F-24DC	24 VDC, ON/OFF electropneumatic control

**6 Microswitch assembly 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
03650N1-09	Kit for 9 sections
03650N1-10	Kit for 10 sections

**7 Complete controls A+B sides page 129**

TYPE	CODE	DESCRIPTION
<u>For types 103, 111, 403, 411 special spools</u>		
<b>C2</b>	03792C2-C3	Cam control from position 1 to 2
<b>C3</b>	03792C2-C3	Cam control from position 2 to 1

**8 Auxiliary port valve page 133**

TYPE	CODE	DESCRIPTION
<u>Antishock valve:</u>		
<b>V30-B</b>	0380FV30-B	Setting range: from 50 to 80 bar (from 725 to 1150 psi)
<b>V30-N</b>	0380FV30-N	Setting range: from 81 to 200 bar (from 1170 to 2900 psi)
<b>V30-R</b>	0380FV30-R	Setting range: from 201 to 350 bar (from 2910 to 5100 psi)
<u>Antishock/anticavitation valve:</u>		
<b>V33-B</b>	0380FV33-B	Setting range: from 50 to 80 bar (from 145 to 1150 psi)
<b>V33-N</b>	0380FV33-N	Setting range: from 81 to 200 bar (from 1170 to 2900 psi)
<b>V33-R</b>	0380FV33-R	Setting range: from 201 to 350 bar (from 2910 to 5100 psi)
<u>Anticavitation valve:</u>		
<b>V04</b>	03808V04	Anticavitation valve
<u>Plug:</u>		
<b>VC</b>	060002846099	Valve blanking plug

For other configurations and positions, see page 133

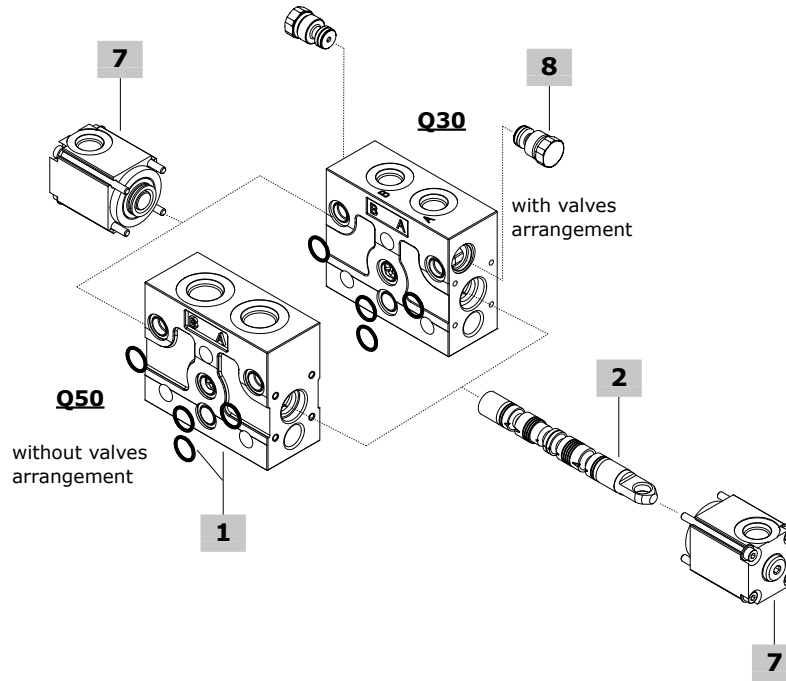
**Working section - parts ordering codes**

**Proportional hydraulic control valve configuration example**

spring type and valve setting (bar)

**EL Q30 / 103 - H5 . V40(N)120 - S - SAE**

aluminium controls



**1 Working section body kit\* page 111**

TYPE	CODE	
<b>EL-Q30-H5.VC-SAE</b>	5EL0600128433H5	
<b>EL-Q50-H5.VC-SAE</b>	5EL0600130179H5	
DESCRIPTION: Parallel circuit, with port valves arrangement		
TYPE	CODE	
<b>EL-Q30-H5-SAE</b>	5EL0600128107H5	
<b>EL-Q50-H5-SAE</b>	5EL0600130178H5	
DESCRIPTION: Parallel circuit, without port valves arrangement		

**2 Spool page 112**

TYPE	CODE	DESCRIPTION
<b>103</b>	060103179499	Double acting, A and B closed in neutral position

**7 Hydraulic controls A+B sides\* page 130**

TYPE	CODE	DESCRIPTION
<b>H5</b>	03785H5/SAE	Low pressure proportional type, upper ports

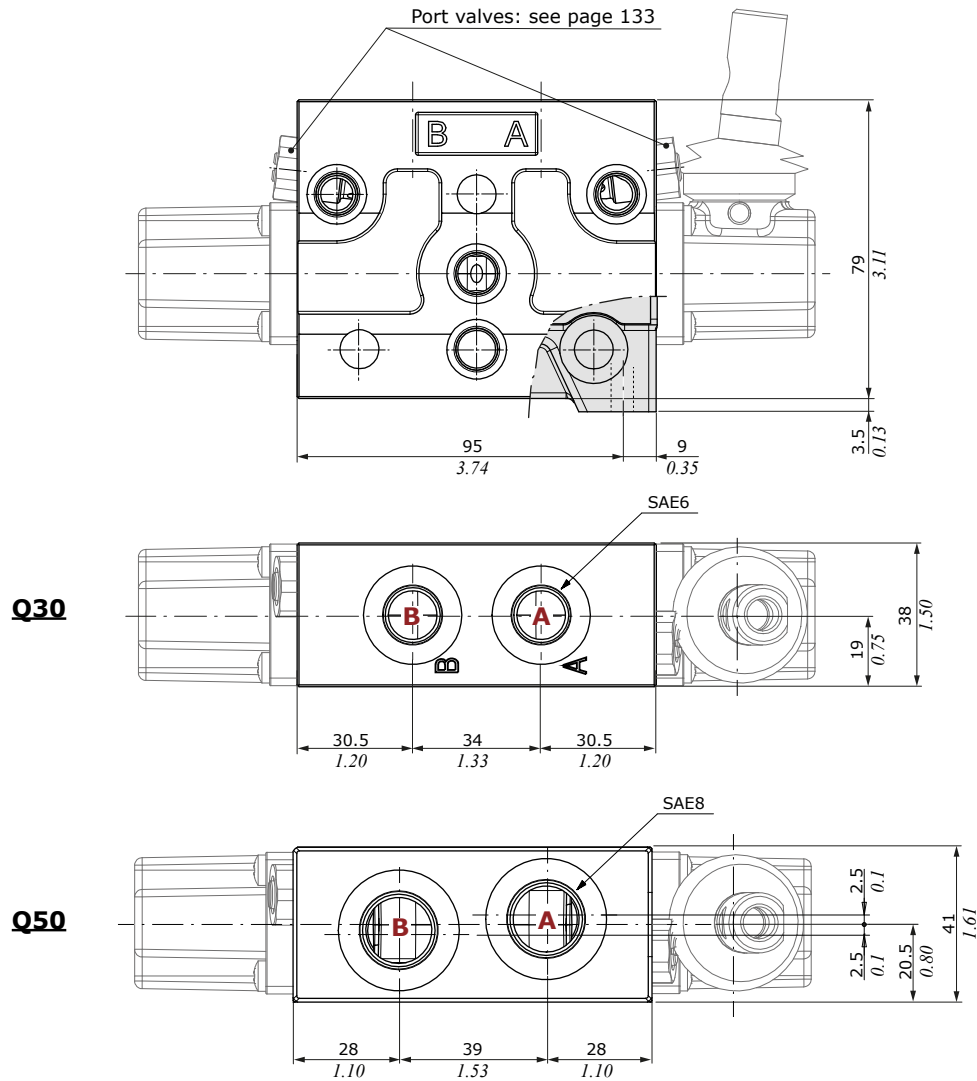
**8 Auxiliary port valve page 133**

See #8, page 108

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



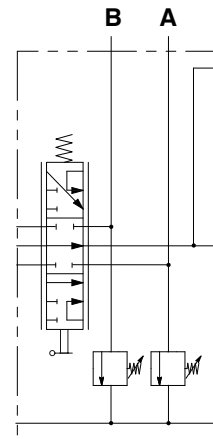
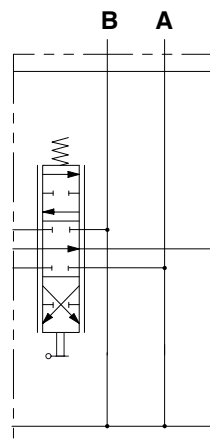
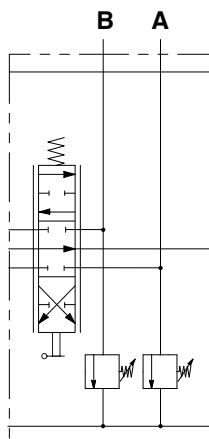
**Dimensional data and hydraulic circuits**



**Q30/Q50.V40(N)120-SAE configuration**  
Parallel circuit,  
mechanical control with aux valves

**Q30/Q50-SAE configuration**  
Parallel circuit,  
mechanical control without aux valves

**Q30/Q50.V40(N)120-SAE configuration**  
Series circuit,  
mechanical control with aux valves



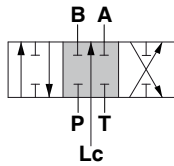
**Working section**

**Spool**

**103 type**

A and B closed in neutral position

2 0 1



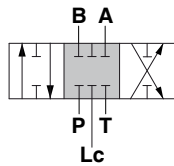
**Stroke**

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

**106 type**

A, B and Lc closed in neutral position. For closed center

2 0 1



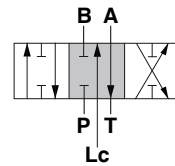
**Stroke**

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

**107 type**

A to tank, B closed in neutral position

2 0 1



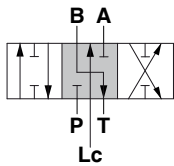
**Stroke**

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

**108 type**

B to tank, A closed in neutral position

2 0 1



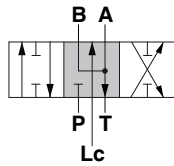
**Stroke**

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

**111 type**

A and B to tank in neutral position

2 0 1



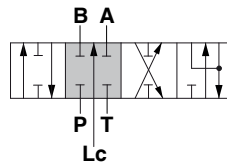
**Stroke**

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

**116 type**

With floating in the 4<sup>th</sup> position (spool in)

2 0 1 3



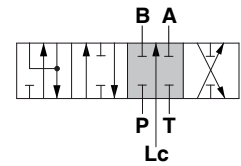
**Stroke**

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 4<sup>th</sup> position (spool out)

3 2 0 1



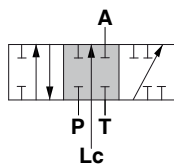
**Stroke**

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

2 0 1



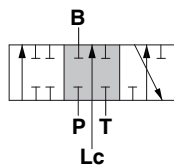
**Stroke**

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

**102 type**

Single acting on B, A plugged

2 0 1



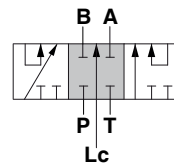
**Stroke**

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

**403 type**

A and B closed in neutral position for serie circuit

2 0 1



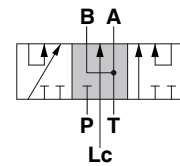
**Stroke**

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

**411 type**

A and B to tank in neutral position for serie circuit

2 0 1



**Stroke**

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

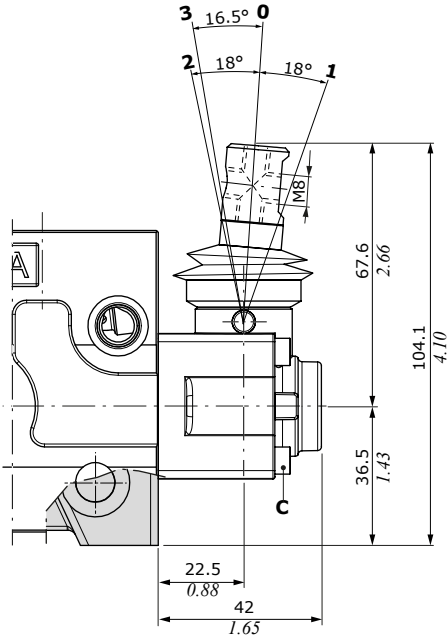
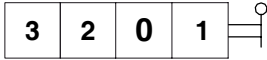


**A side controls**

**With lever control**

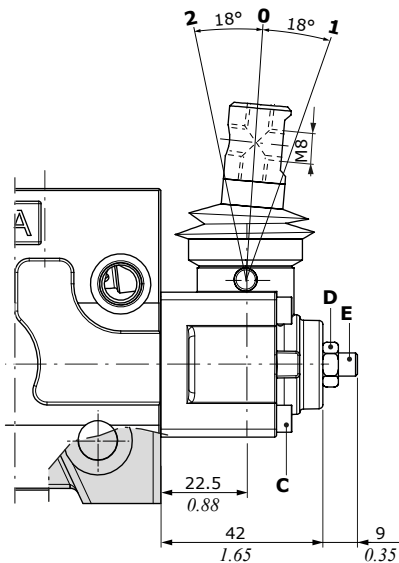
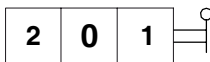
**A1 type**

M8 thread plastic lever box



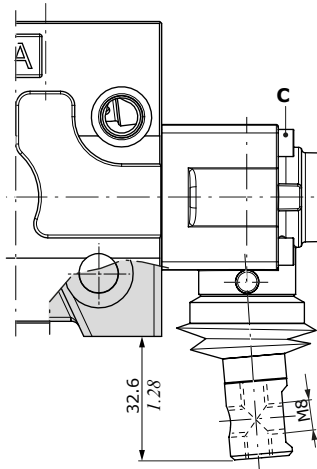
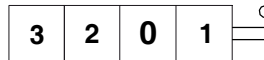
**A1/06 type**

M8 thread, with stroke limiter



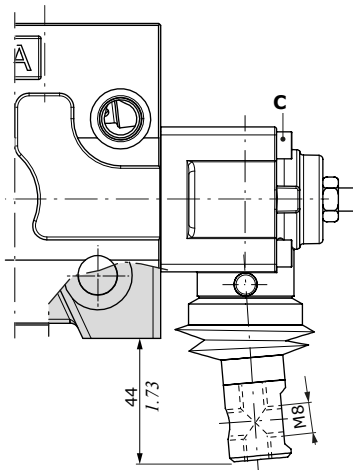
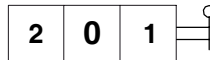
**A2 type**

As A1 type, rotated 180°



**A2/06 type**

As A1/06 type, rotated 180°



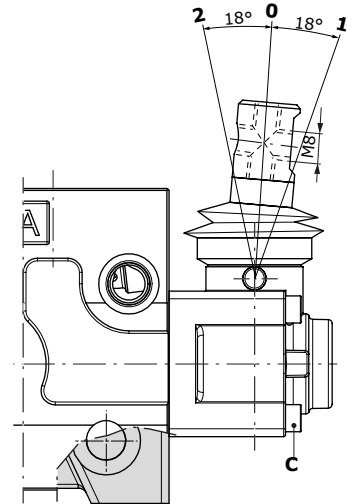
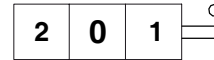
**A1/10 type**

M8 thread aluminium lever box.

Dimensions are the same of A1 type

**A2/10 type**

As A1/10 type, rotated 180°



**Wrenches and tightening torques**

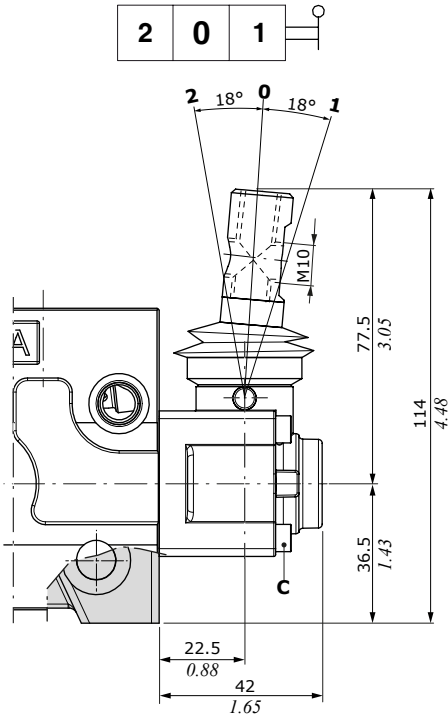
- C = allen wrench 3 - 3 Nm (2.2 lbft)
- D = wrench 10 - 9.8 Nm (7.2 lbft)
- E = allen wrench 4 - 9.8 Nm (7.2 lbft)

Working section

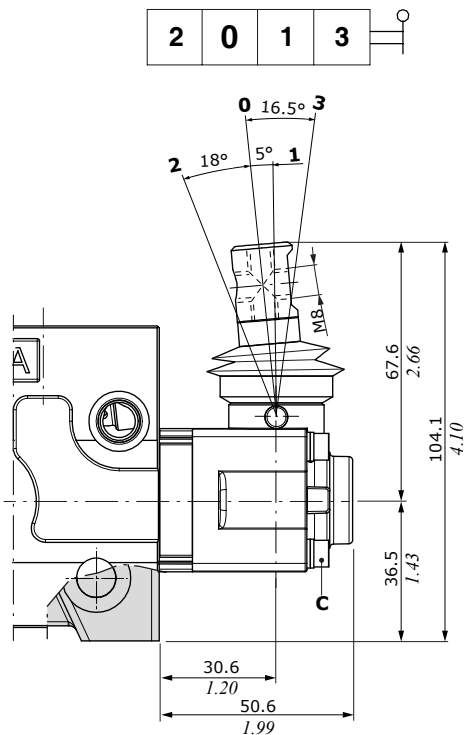
A side controls

With lever control

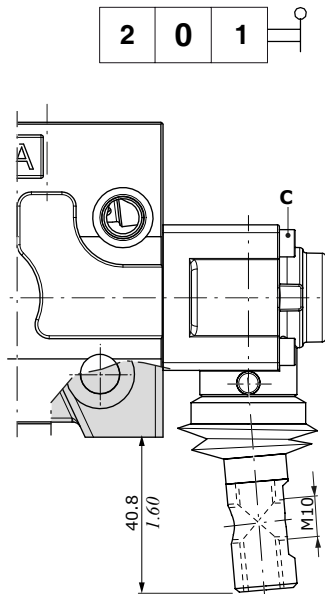
**A1/PM type**  
M10 thread aluminium lever box



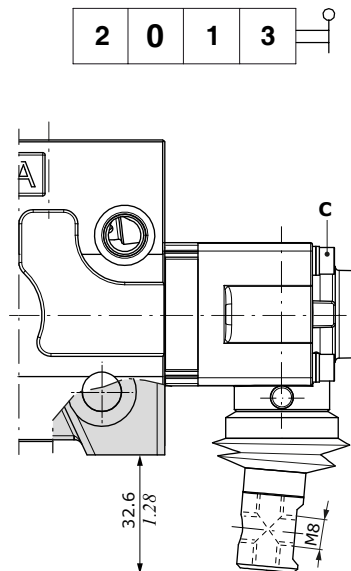
**A1/Z1 type**  
M8 thread, for 116 floating spool type



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



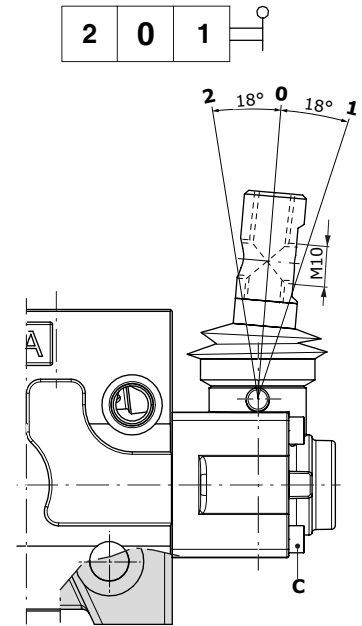
**A2/Z1 type**  
As A1/Z1 type, rotated 180°



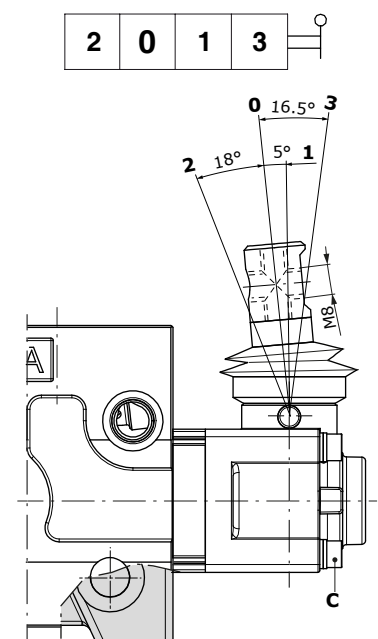
**A1/PMP type**

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

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



**A1/Z1/10 type**  
As A1/Z1 type, with aluminium lever box



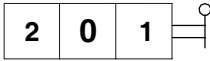
**Wrenches and tightening torques**  
C = allen wrench 3 - 3 Nm (2.2 lbf·ft)

**A side controls**

**With safety lever control**

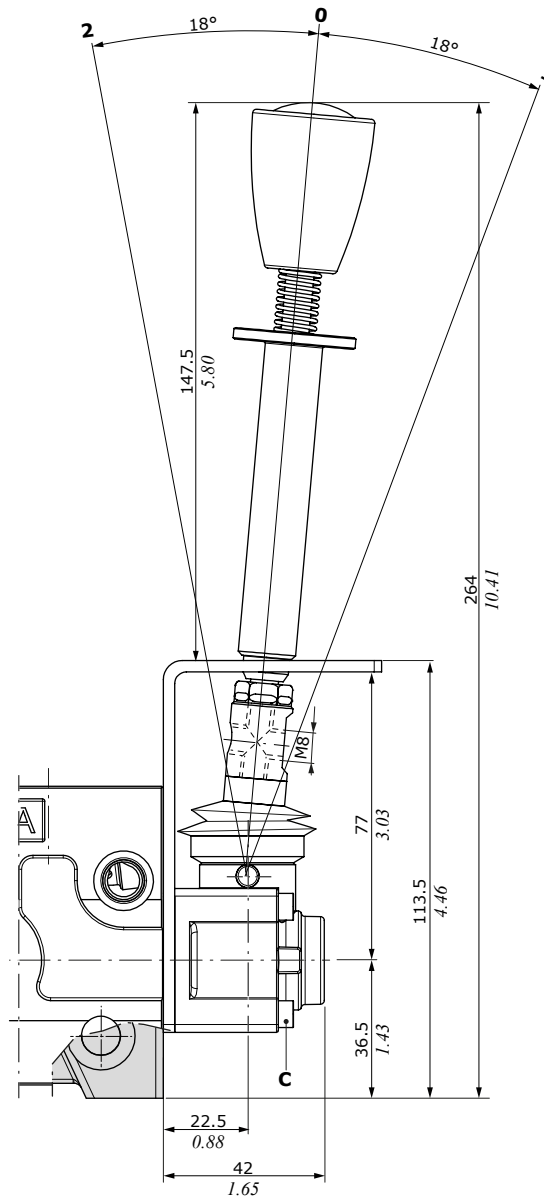
**A1/S type**

M8 thread, aluminium lever box



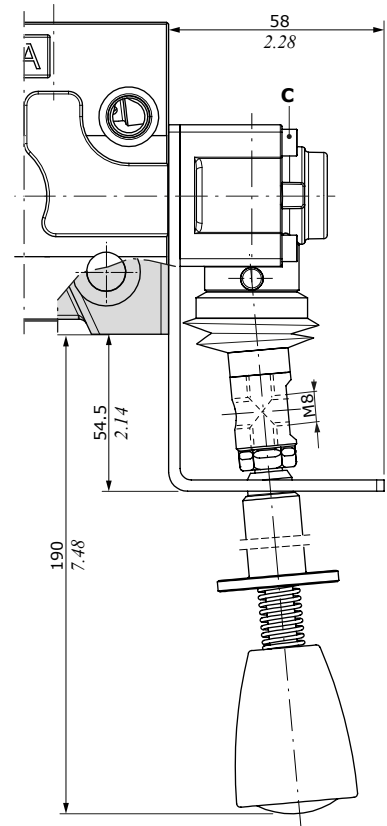
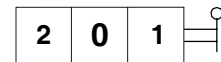
**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)



**A2/S type**

As A1/S type, rotated 180°



**Working section**

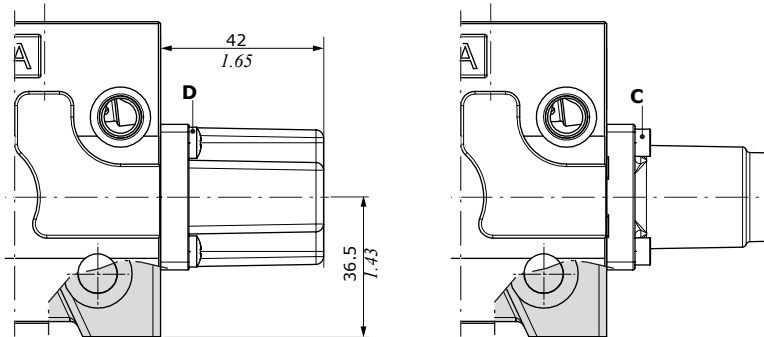
**A side controls**

**Without lever control**

**A3 type**

With cap.

Available with aluminium cap

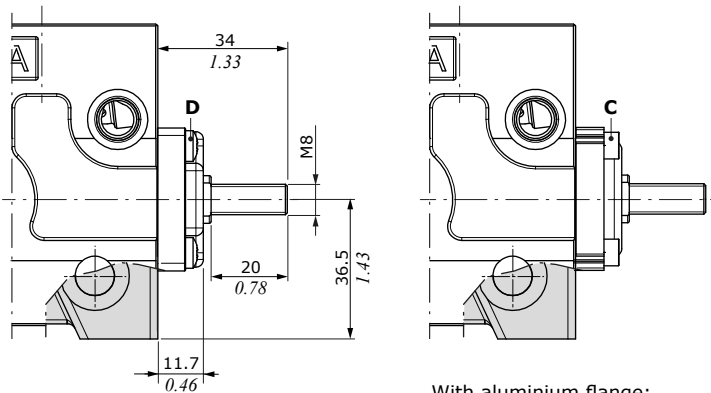
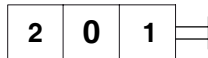


With aluminium cap;  
dimensions are the same of standard type

**A4 type**

M8 male thread external pin with flange.

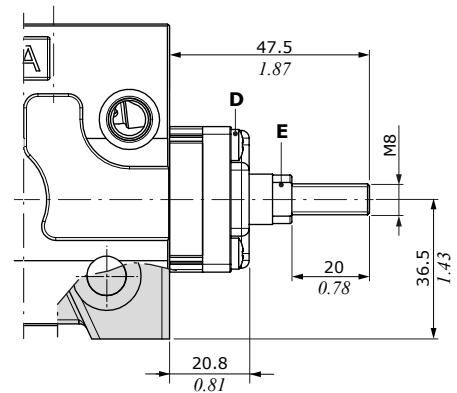
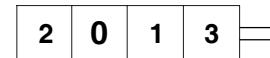
Available with aluminium flange



With aluminium flange;  
dimensions are the same of  
standard type

**A4/Z1 type**

As A4 type,  
for 116 floating spool type



**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)

D = cross-head - 3 Nm (2.2 lbf<sup>t</sup>)

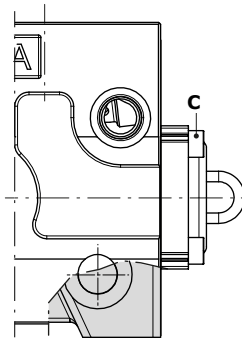
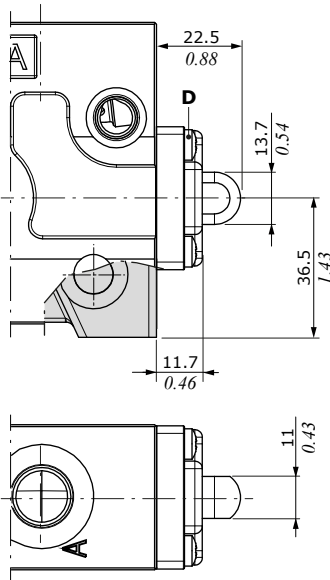
E = wrench 9 - 9.8 Nm (7.2 lbf<sup>t</sup>)

**A side controls**

**Without lever control**

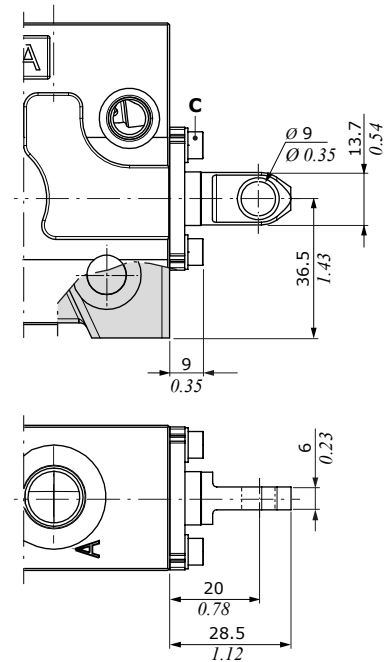
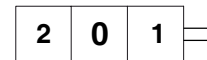
**A5 type**

Flange with spherical spool end.  
Available with aluminium flange

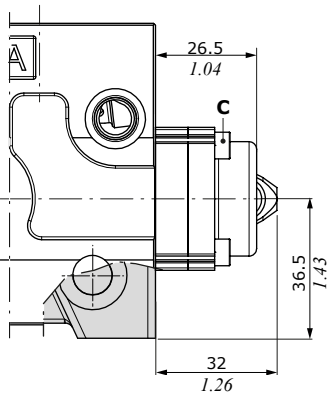
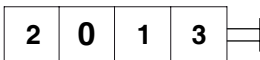


With aluminium flange;  
dimensions are the same of  
standard type

**A6 type**  
With flange



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



**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbf)  
D = cross-head - 3 Nm (2.2 lbf)

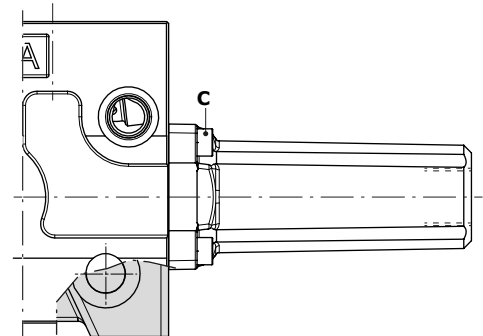
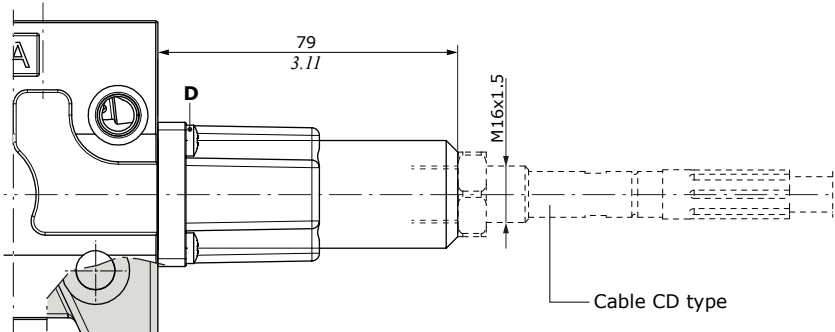
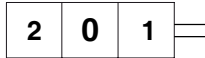
Working section

A side controls

With flexible cable control arrangement

**A8 type**

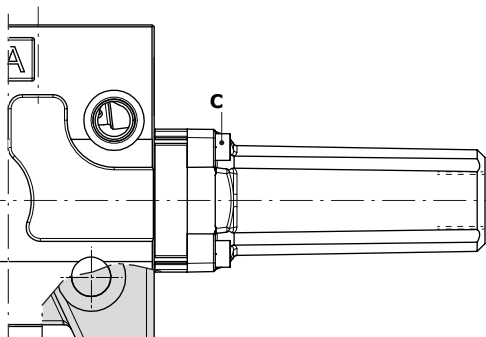
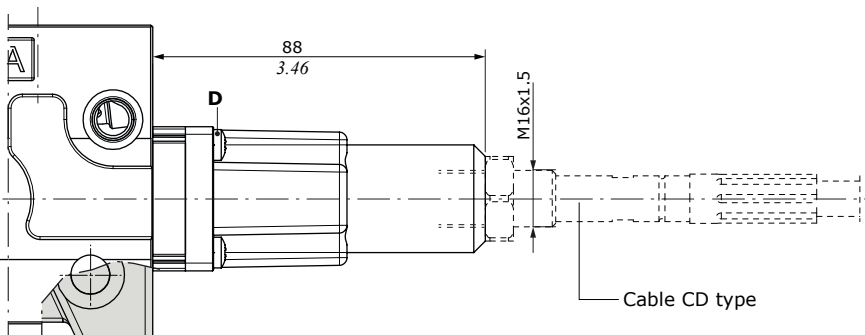
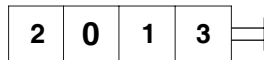
Flexible cable control arrangement.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

**A8/Z1 type**

As A8 type, for 116 floating spool type.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

**Wrenches and tightening torques**

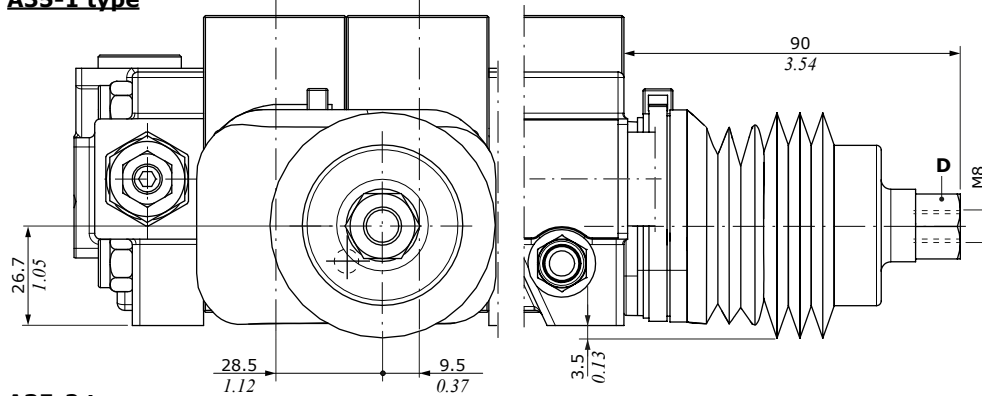
C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)  
D = cross-head - 3 Nm (2.2 lbf<sup>t</sup>)

**A side controls**

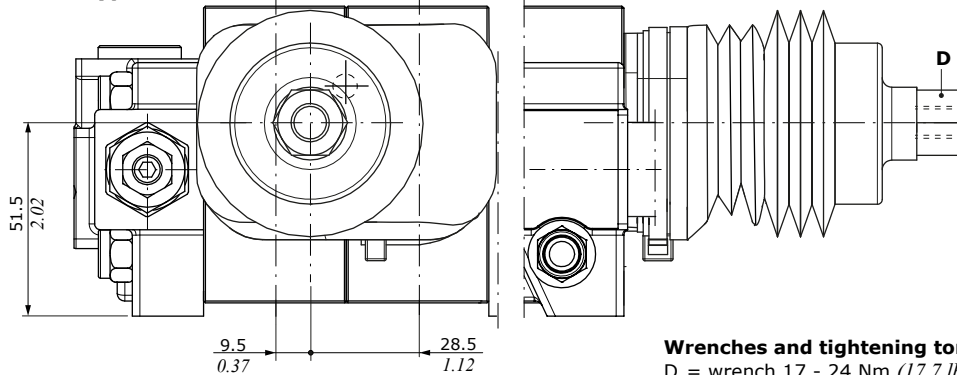
**Joystick control**

For operating the joystick control in the floating position, contact Sales Department.  
 Drawings are referred to a Q30 sectional valve.

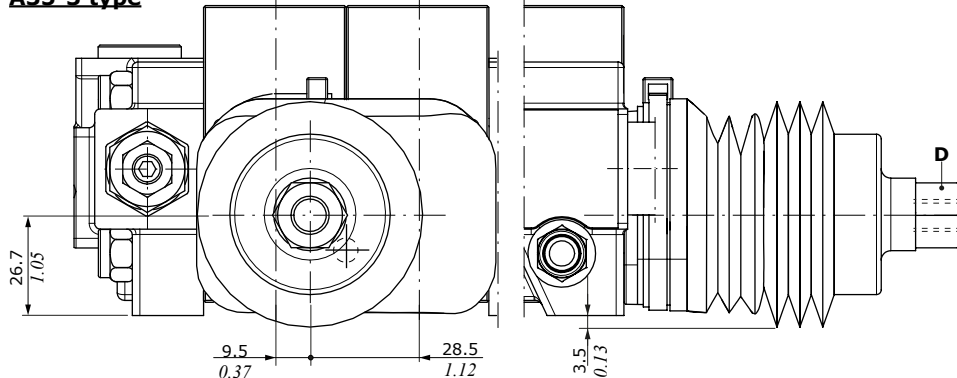
**A35-1 type**



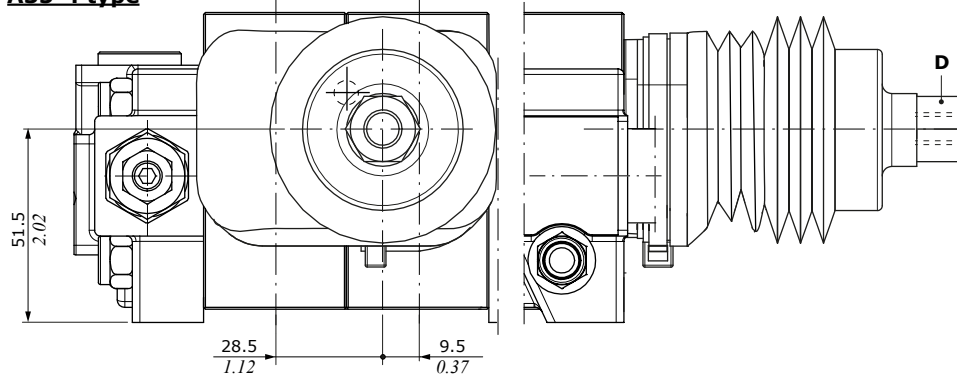
**A35-2 type**



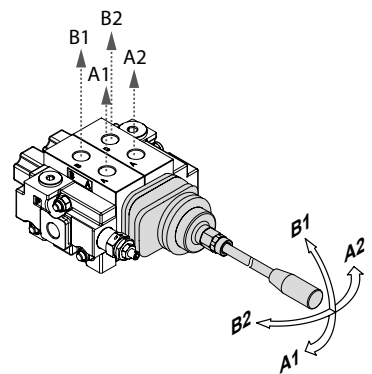
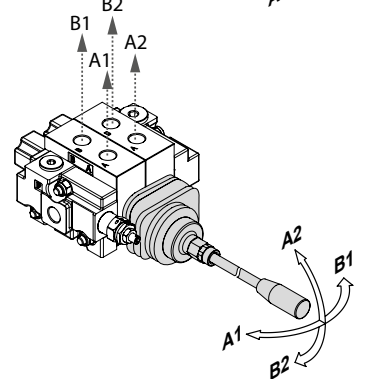
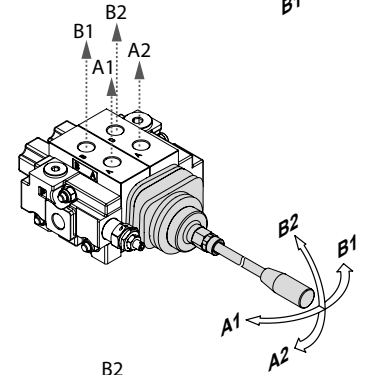
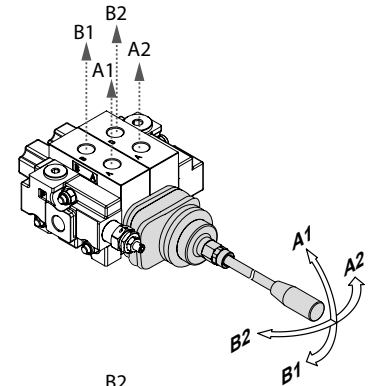
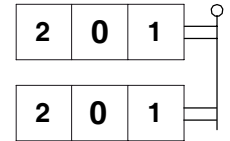
**A35-3 type**



**A35-4 type**



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



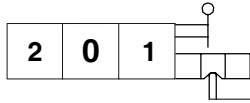
**Working section**

**A side controls**

**With spool position microswitch, with lever**

**N1-A1 type**

Micro operation in position 1 and 2.  
Available with aluminium lever box



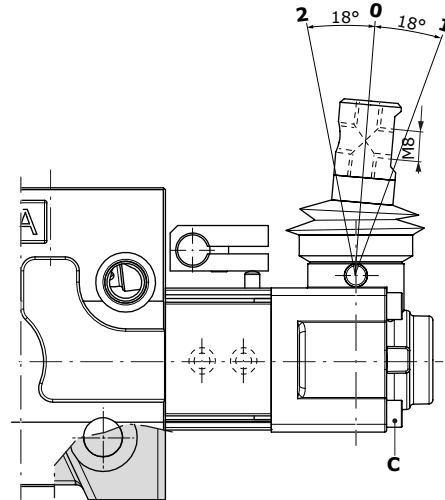
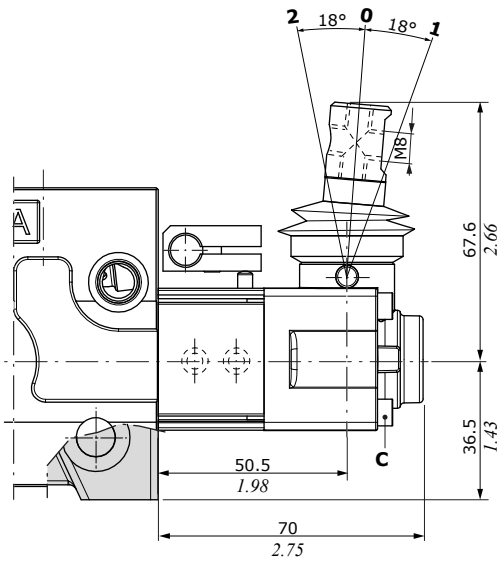
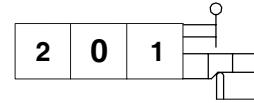
**N1A-A1 type**

Micro operation in position 1



**N1B-A1 type**

Micro operation in position 2

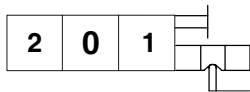


With aluminium lever box;  
dimensions are the same of standard type

**With spool position microswitch, with cap**

**N1-A3 type**

Micro operation in position 1 and 2



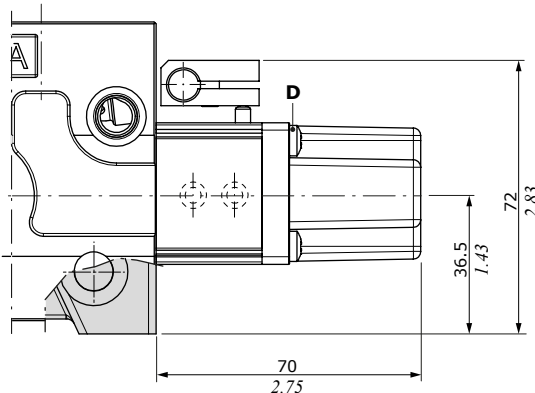
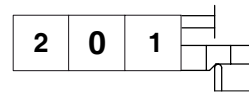
**N1A-A3 type**

Micro operation in position 1



**N1B-A3 type**

Micro operation in position 2



**Wrenches and tightening torques**

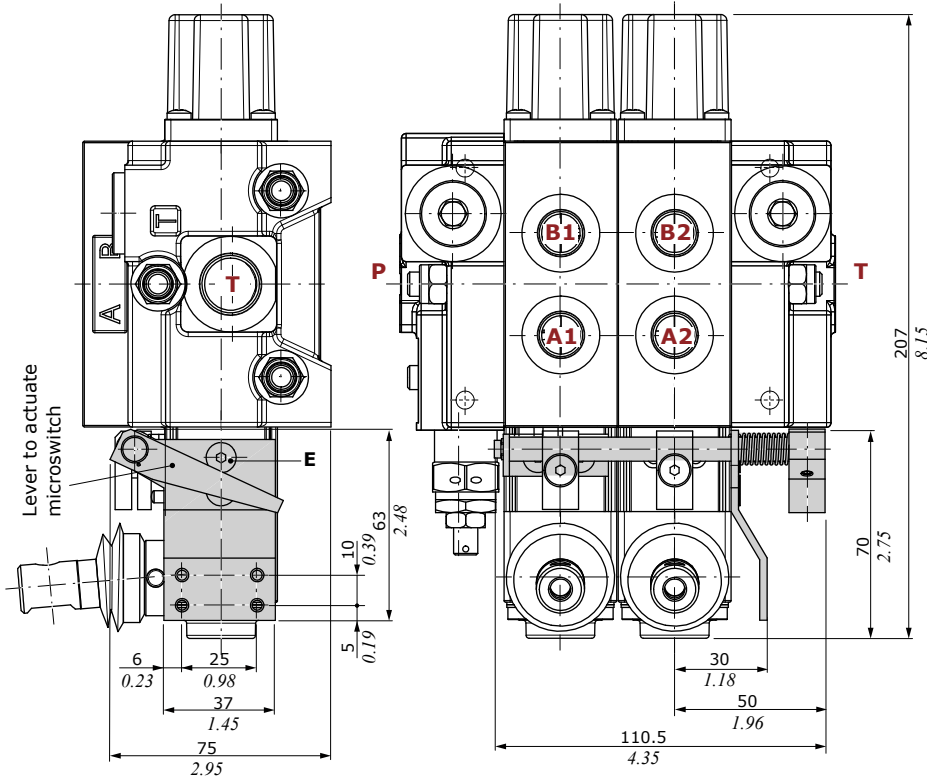
C = allen wrench 3 - 3 Nm (2.2 lbf<sub>t</sub>)  
D = cross-head - 3 Nm (2.2 lbf<sub>t</sub>)



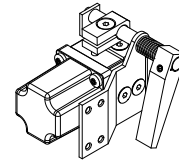
**A side controls**

**With spool position microswitch**

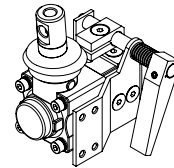
**Microswitch assembly kit for 2 working section (N1-A1 type)**



with cap



with lever box



**Wrenches and tightening torques**  
E = allen wrench 3 - 6.6 Nm (4.8 lbf<sup>t</sup>)

Drawings is referred to a Q30 sectional valve.

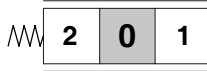
**Working section**

**B side controls**

**With spring return control**

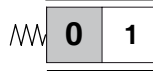
**M1 type**

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



**M2 type**

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



**M3 type**

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



**M1/01 type**

As M1 type, for joystick control.  
Available with aluminium cap

**M1/05 type**

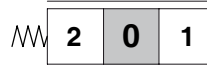
As M1 type, for series spool

**M1/06 type**

As M1/05 type, with aluminium cap

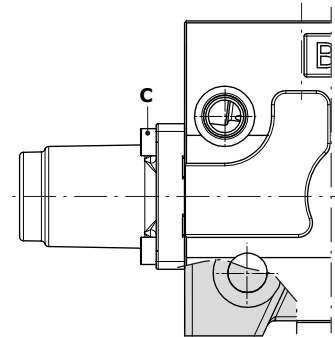
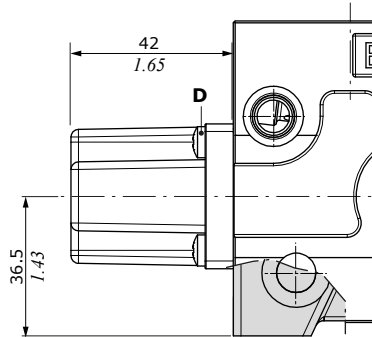
**M1/07 type**

As M1 type, for joystick series spool.  
Available with aluminium cap



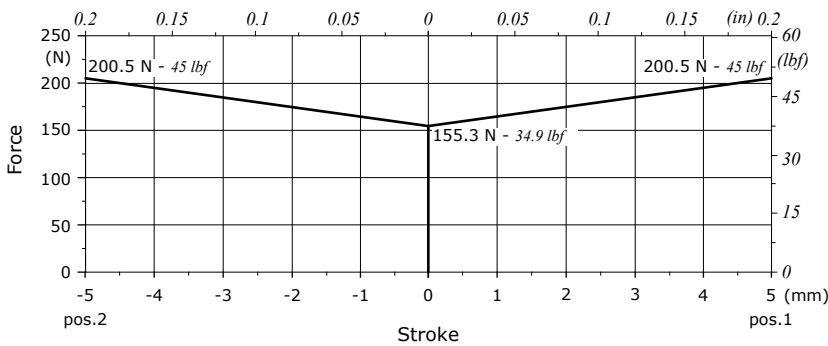
**Wrenches and tightening torques**

- C = allen wrench 3 - 3 Nm (2.2 lbf<sub>t</sub>)
- D = cross-head - 3 Nm (2.2 lbf<sub>t</sub>)
- E = wrench 10 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- F = allen wrench 4 - 9.8 Nm (7.2 lbf<sub>t</sub>)



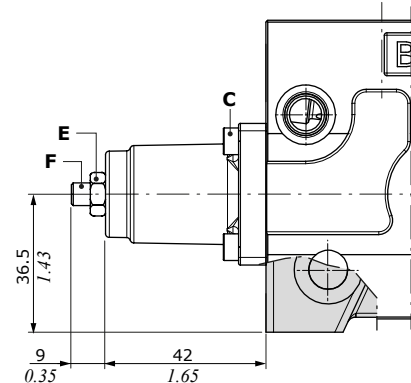
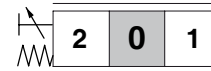
With aluminium cap; dimensions are the same of standard type

**M1 control type - Force vs. Stroke diagram**



**M1/02 type**

As M1 type, with stroke limiter



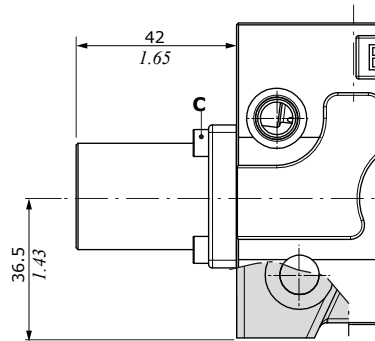
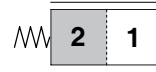
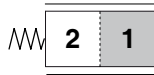
**B side controls**

**With spring return control**

**M4 types**

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

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



**Wrenches and tightening torques**

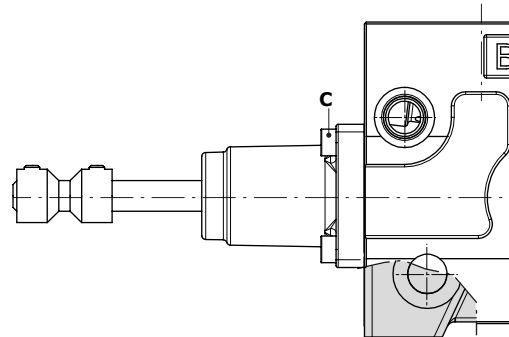
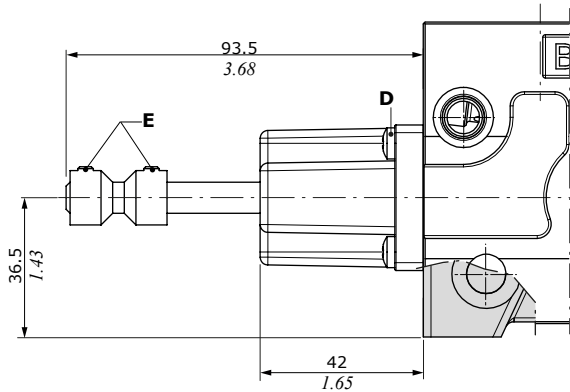
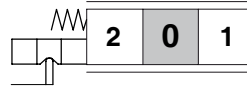
C = allen wrench 3 - 3 Nm (2.2 lbf<sub>t</sub>)

D = cross-head - 3 Nm (2.2 lbf<sub>t</sub>)

E = allen wrench 3 - 5 Nm (3.68 lbf<sub>t</sub>)

**M1-B1 type**

3 position, microswitch arrangement.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

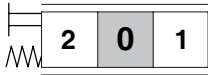
**Working section**

**B side controls**

**With spring return control**

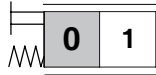
**M1-U1 type**

3 position, with M8 male thread external pin



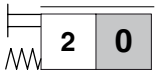
**M2-U1 type**

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



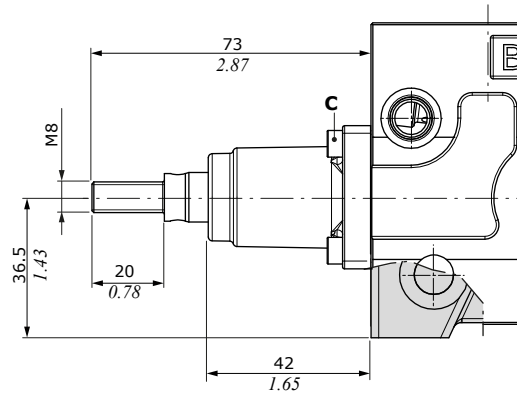
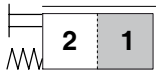
**M3-U1 type**

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



**M4-U1 type**

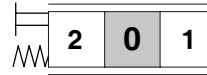
2 position (1-2), with M8 male thread external pin



**With flexible cable control arrangement**

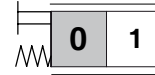
**M1-U2 type**

3 position, spring return in neutral position



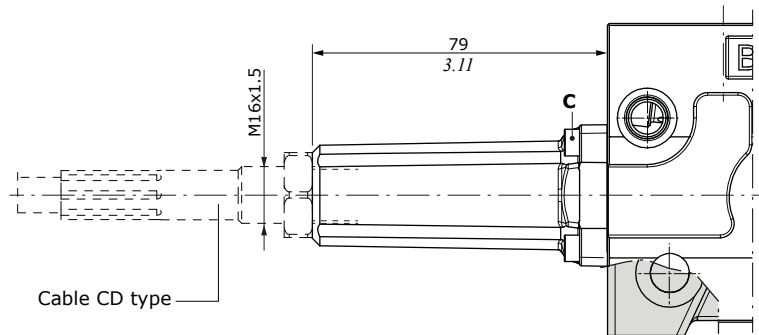
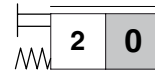
**M2-U2 type**

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



**M3-U2 type**

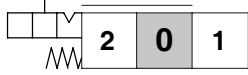
2 position (0-2), spring return in neutral position



**With detent control**

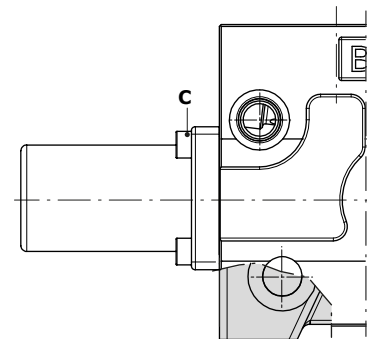
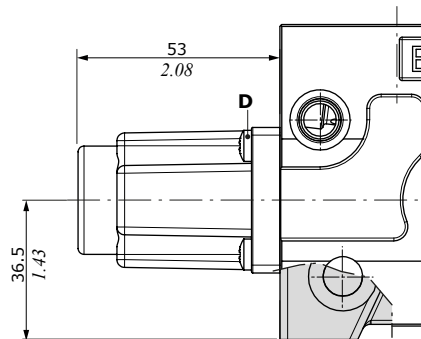
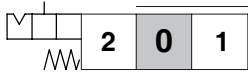
**R1 type**

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

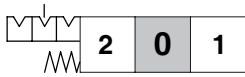
**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)  
D = cross-head - 3 Nm (2.2 lbf<sup>t</sup>)

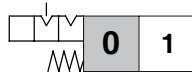
**B side controls**

**With detent control**

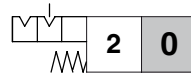
**R3 type**  
3 position,  
detent in all position.  
Available with aluminium cap



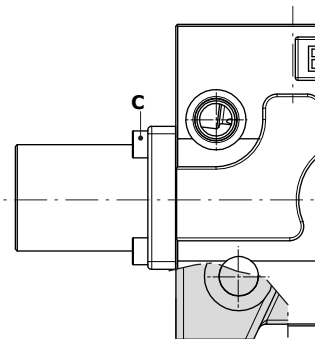
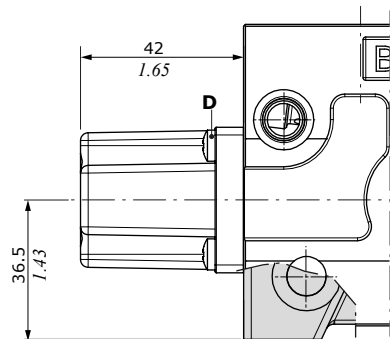
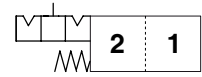
**R4 type**  
2 position,  
detent in position 0-1.  
Available with aluminium cap



**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

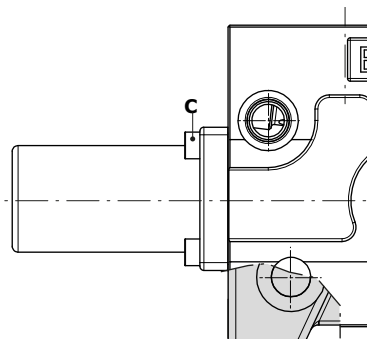
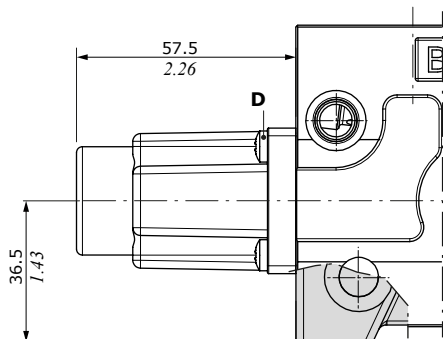
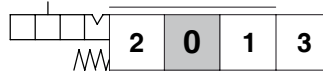


With aluminium cap;  
dimensions are the same of standard type

**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbf)  
D = cross-head - 3 Nm (2.2 lbf)

**R8 type**  
4 position, detent in 4<sup>th</sup> position, for 116 floating spool type.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

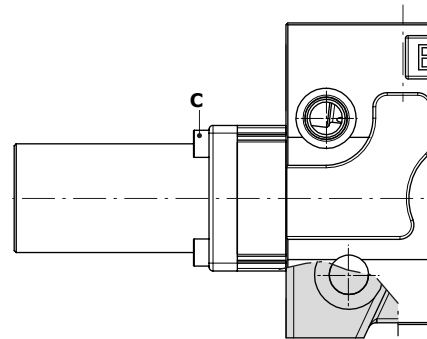
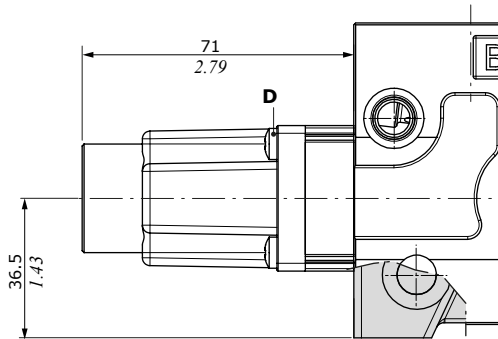
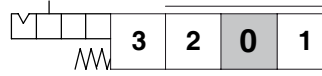
**Working section**

**B side controls**

**With detent control**

**R10/Z1 type**

4 position, detent in 4<sup>th</sup> position, for 126 floating spool type.  
Available with aluminium cap

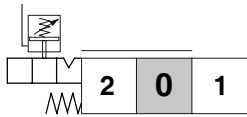


With aluminium cap;  
dimensions are the same of standard type

**With detent control and kick out function**

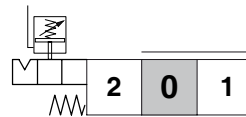
**R1K type**

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



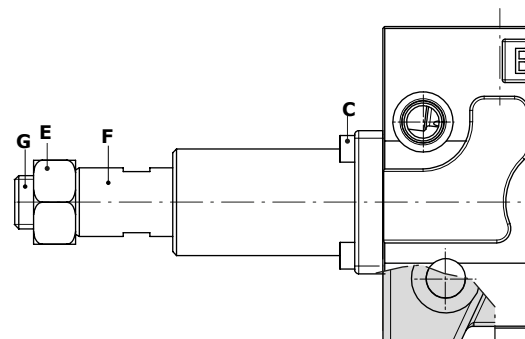
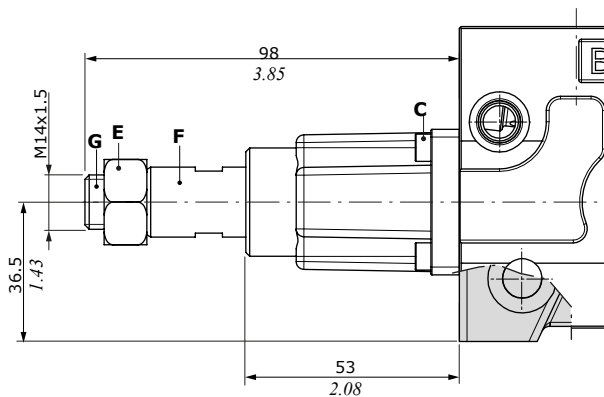
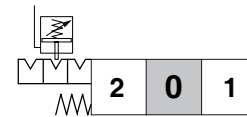
**R2K type**

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

**Wrenches and tightening torques**

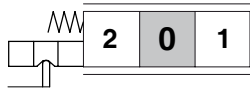
- C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)
- D = cross-head - 3 Nm (2.2 lbf<sup>t</sup>)
- E = wrench 22 - 32 Nm (23.6 lbf<sup>t</sup>)
- F = wrench 16
- G = allen wrench 10 - 32 Nm (23.6 lbf<sup>t</sup>)

**B side controls**

**With spool position microswitch**

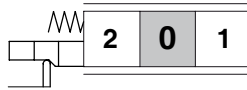
**M1-N1 type**

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



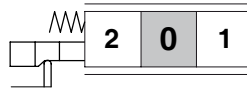
**M1-N1A type**

3 position, micro operation in position 1.  
Available with aluminium cap



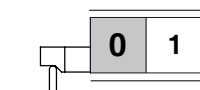
**M1-N1B type**

3 position, micro operation in position 2.  
Available with aluminium cap



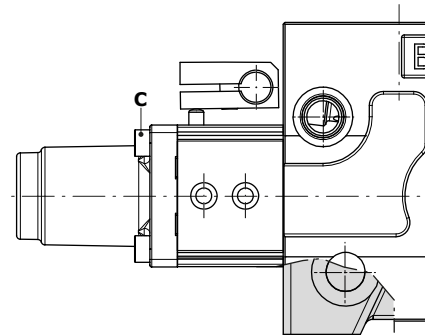
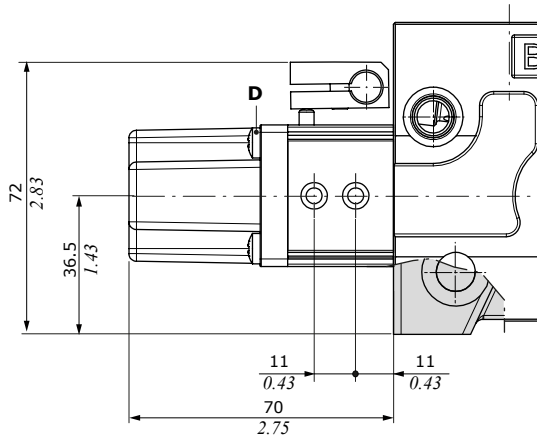
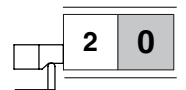
**M2-N1 type**

2 position (0-1) spring return in neutral position



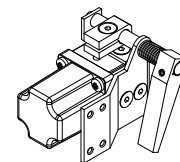
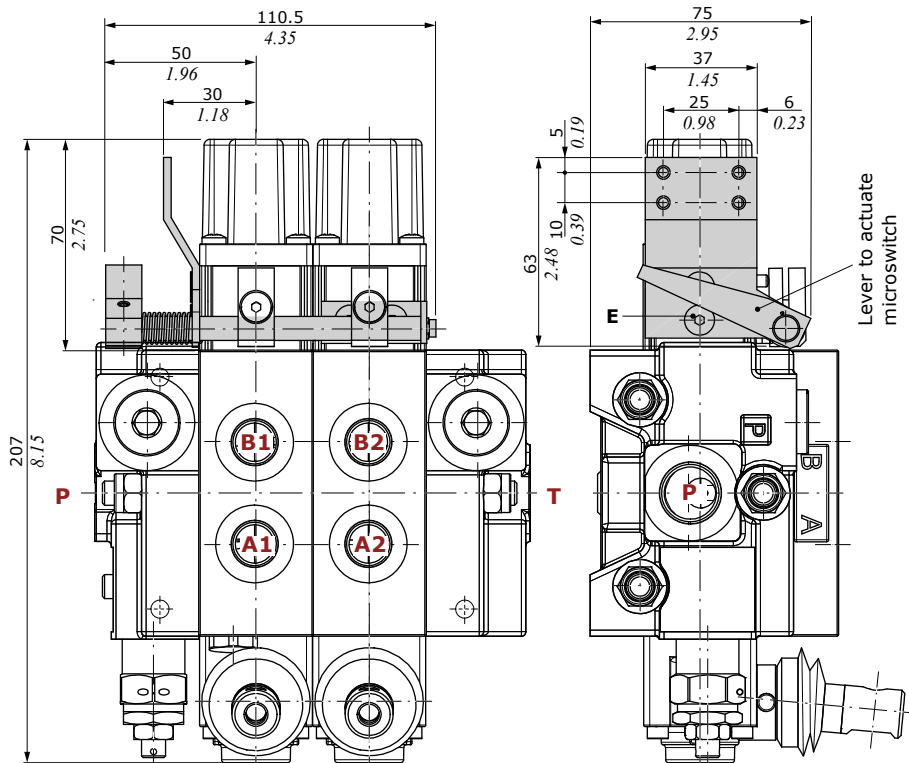
**M3-N1 type**

2 pos. (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**

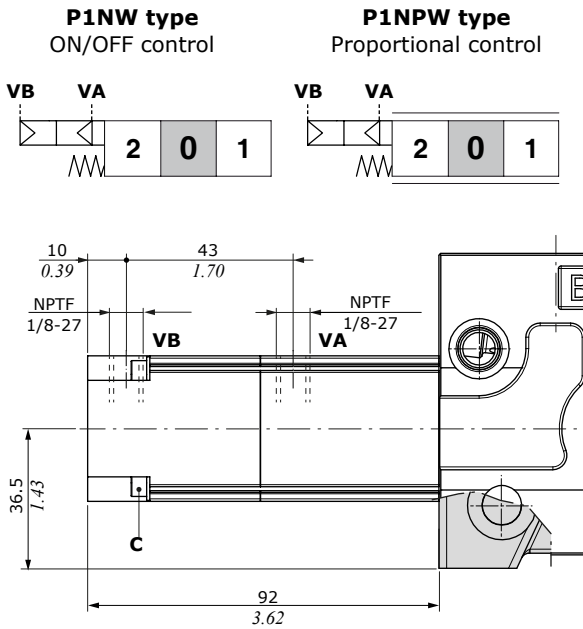
- C = allen wrench 3 - 3 Nm (2.2 lbf·ft)
- D = cross-head - 3 Nm (2.2 lbf·ft)
- E = allen wrench 3 - 6.6 Nm (4.8 lbf·ft)

Drawings is referred to a Q30 sectional valve.

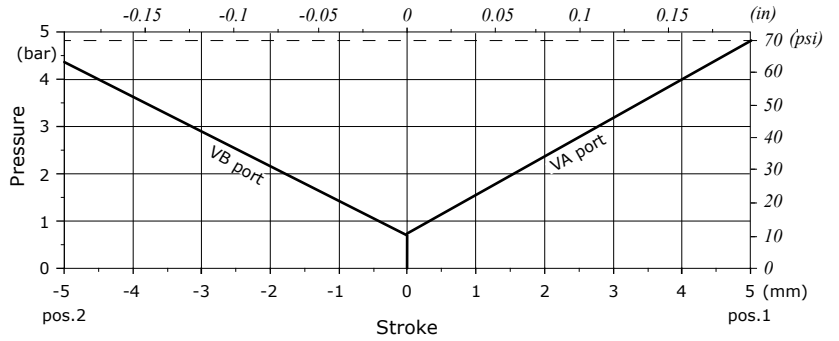
### Working section

#### B side controls

#### With pneumatic control



#### Proportional pilot pressure curves



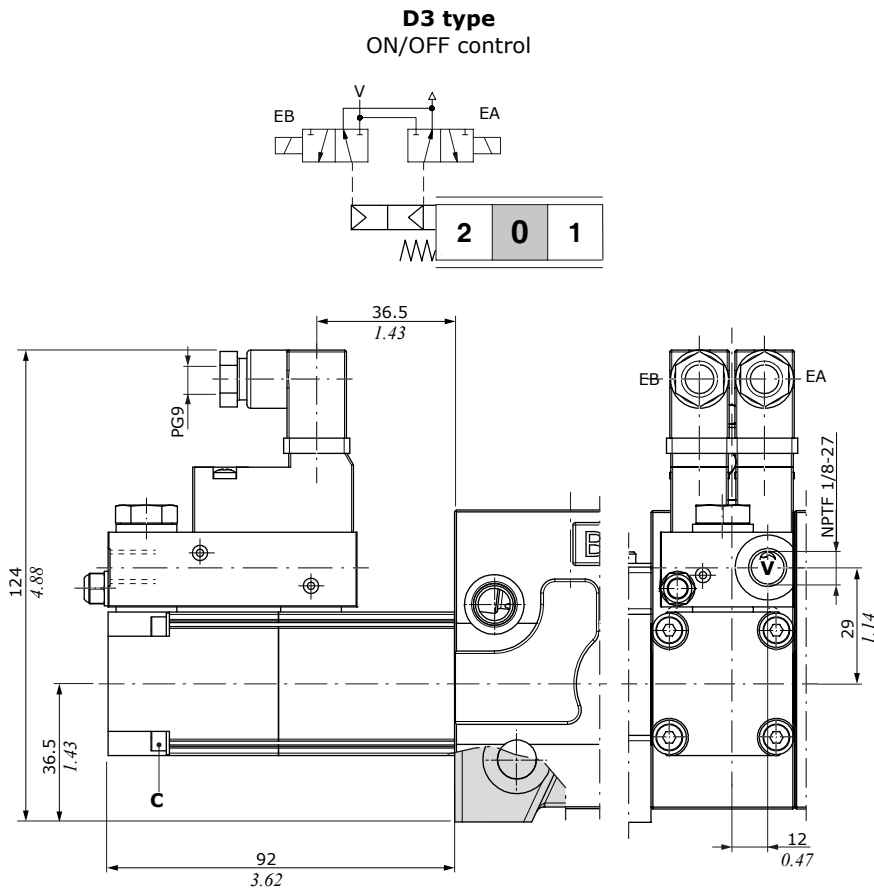
#### Operating features

Pilot pressure..... : min. 5 bar (72.5 psi) - max. 30 bar (435 psi)  
 Pilot volume..... : 4 cm<sup>3</sup>/min (0.24 in<sup>3</sup>/min)

#### Wrenches and tightening torques

C = allen wrench 3 - 3 Nm (2.2 lbft)

#### With ON/OFF electropneumatic control



#### Operating features

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

#### COILS

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

#### Wrenches and tightening torques

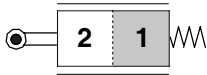
C = allen wrench 3 - 3 Nm (2.2 lbft)



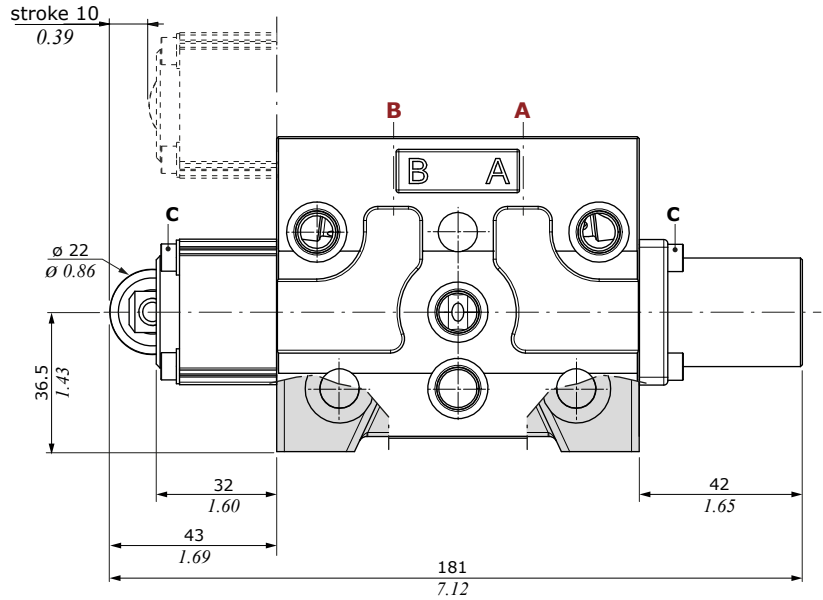
A+B side controls

Whit cam control

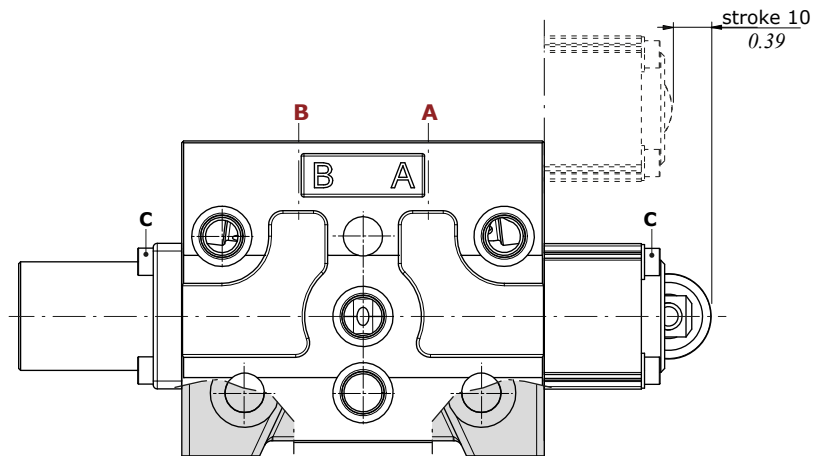
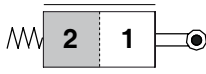
**C2 type**  
From position 1 to position 2,  
spring return in position 1



**Wrenches and tightening torques**  
C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)



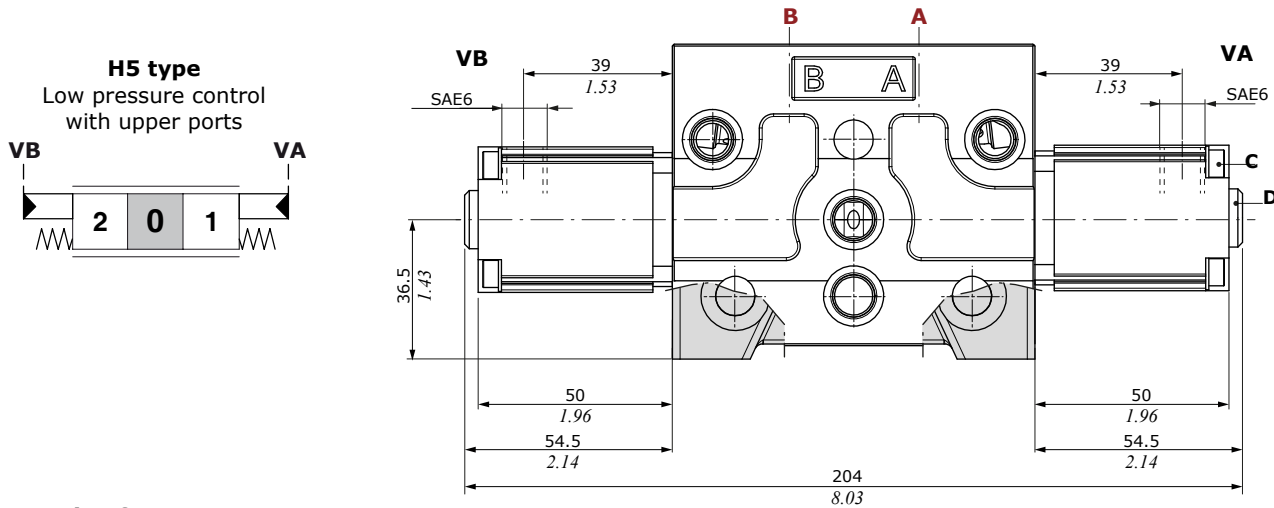
**C3 type**  
From position 2 to position 1,  
spring return in position 2.  
Dimensions are the same of C2 type



### Working section

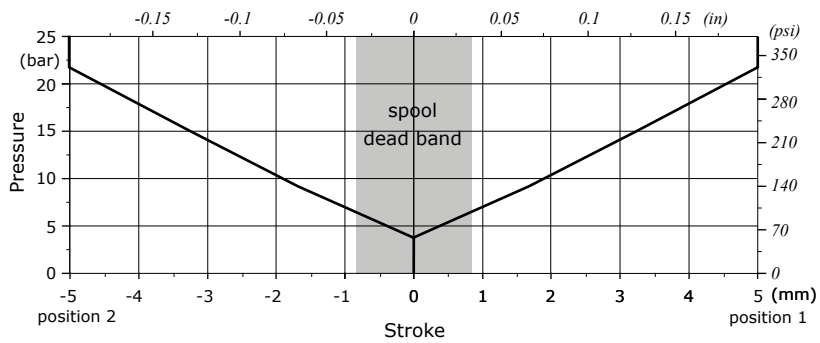
#### A+B side controls

#### Proportional hydraulic control



#### Operating features

Pilot pressure..... : max. 100 bar (1450 psi)



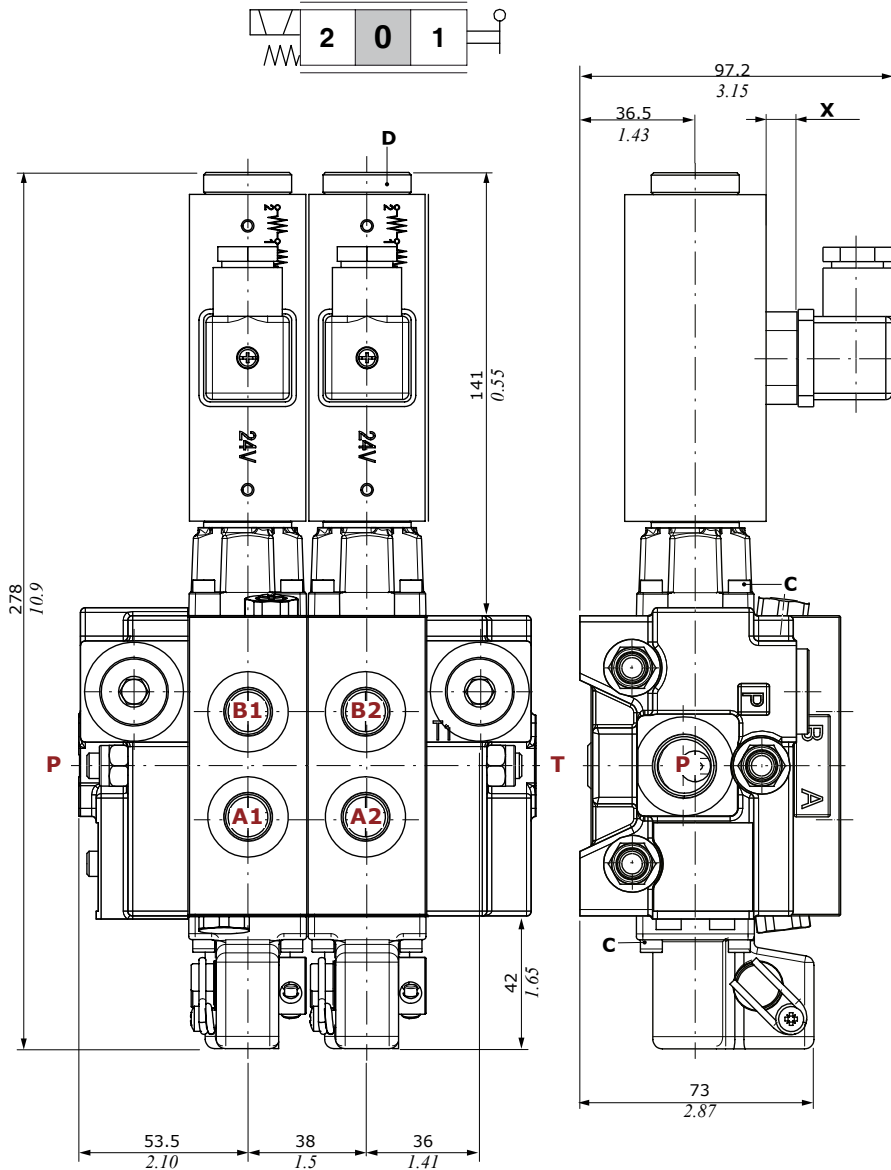
#### Wrenches and tightening torques

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

Drawings is referred to a Q30 sectional valve.



D41 coil	
	Q30 Q50
Nominal voltage	12 VDC 24 VDC
Nominal voltage tolerance	±10%
Power rating	58 W 52 W
Insulance	Class H
Weather protection	IP65

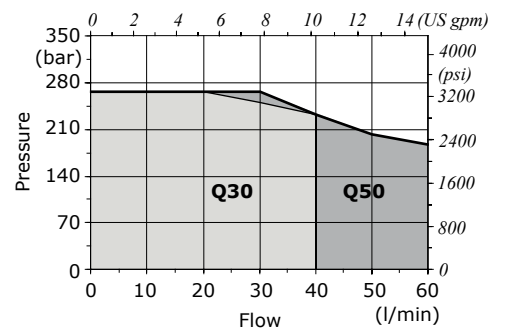
Connector type: ISO4400 3P+T-PG11

X	
	coil type mm - in
Q30	ZEB012 coil 10 - 0.39
	ZEB024 coil 10 - 0.39
Q50	4SLG111200 coil 8 - 0.31
	4SLG111200 coil 8 - 0.31

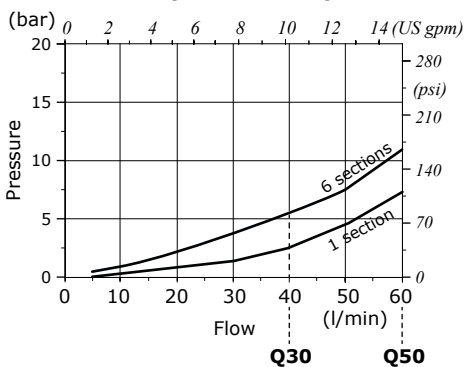
Wrenches and tightening torques

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

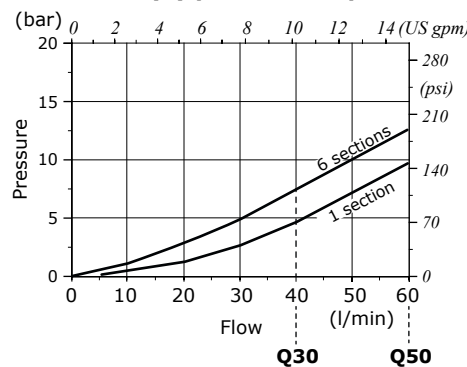
Dynamic conditions



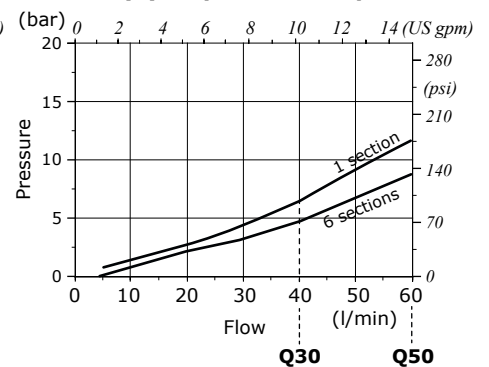
P→T pressure drops



P→A(B) pressure drops



A(B)→T pressure drops

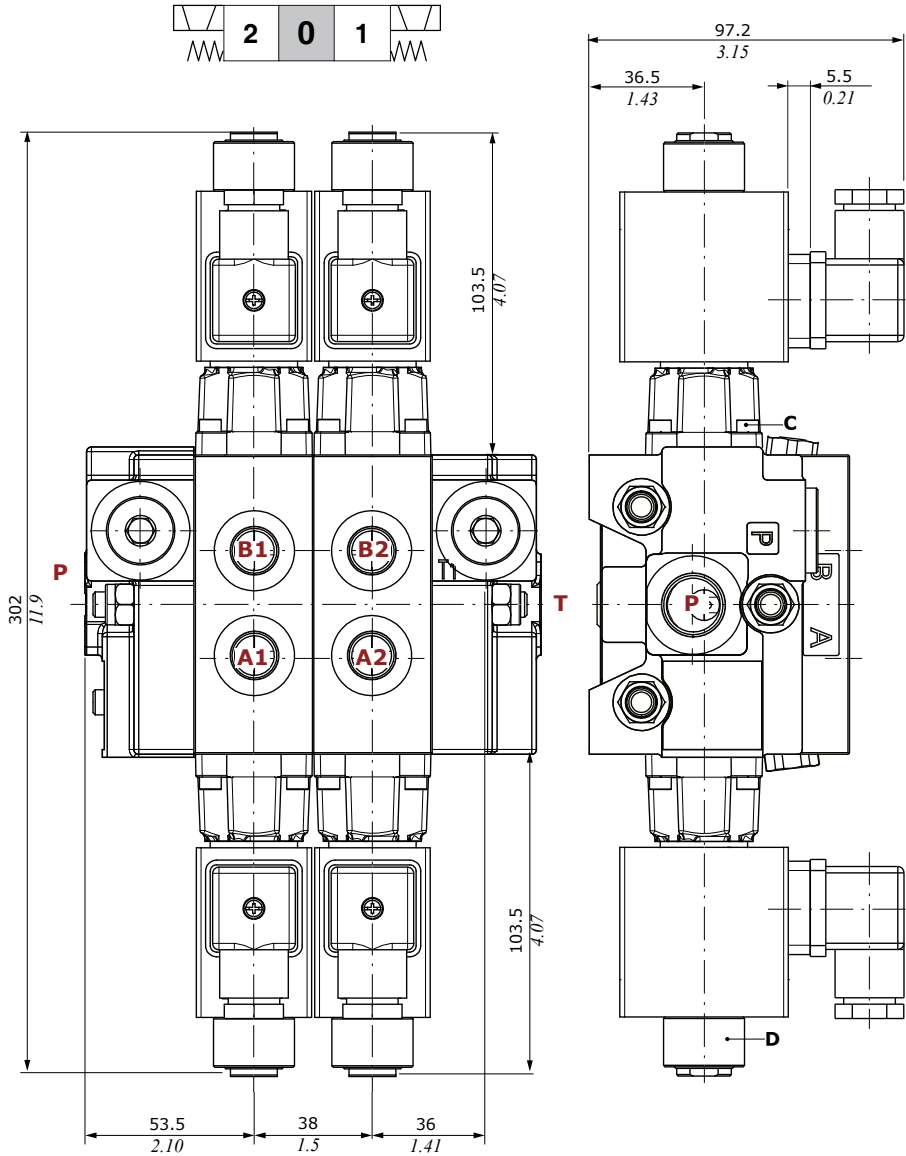


### Working section

#### Direct solenoid control

#### D9 type: ON/OFF two side

Drawings is referred to a Q30 sectional valve.

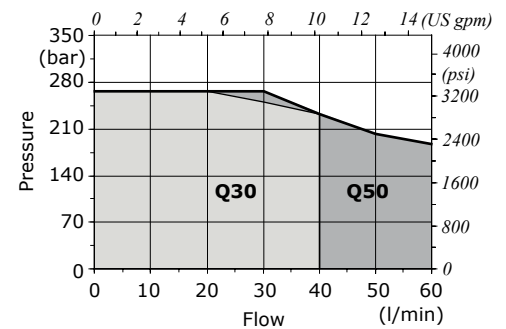


#### D9 coil

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

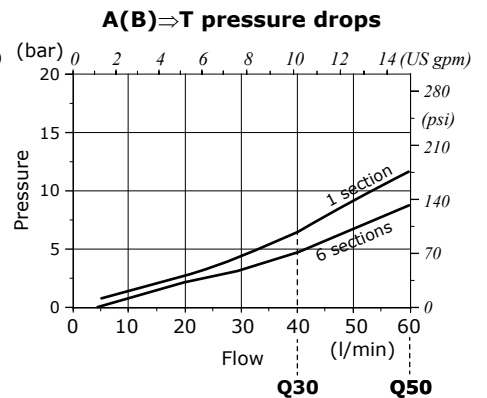
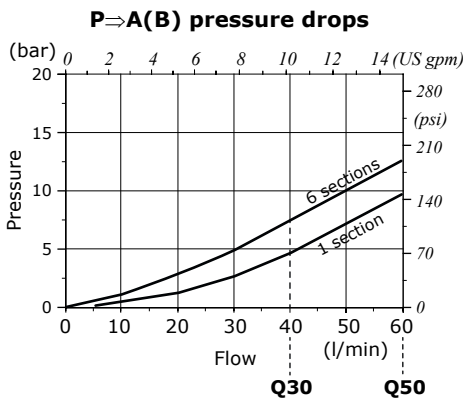
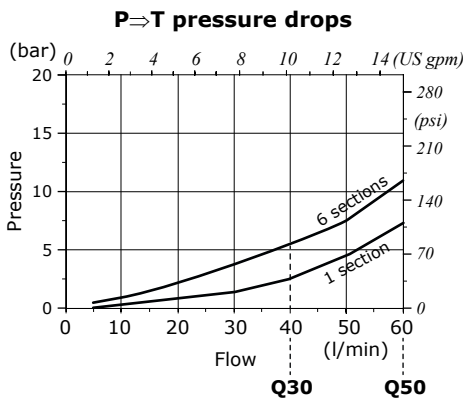
Connector type: ISO4400 3P+T-PG11

#### Dynamic conditions



#### Wrenches and tightening torques

- C = allen wrench 3 - 3 Nm (2.2 lbf<sub>t</sub>)
- D = manual tightening - 6.6 Nm (4.8 lbf<sub>t</sub>)



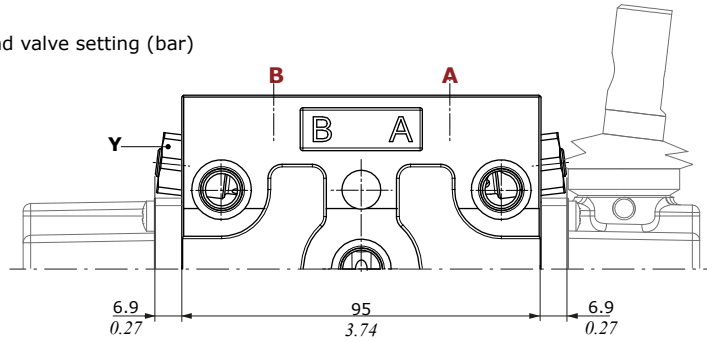
Auxiliary valve configuration

Dimensional data, hydraulic circuits and performance data

Description example

Q30 / 1 / ... / 103 - A1 - M1 - **V32(N)120** / ...

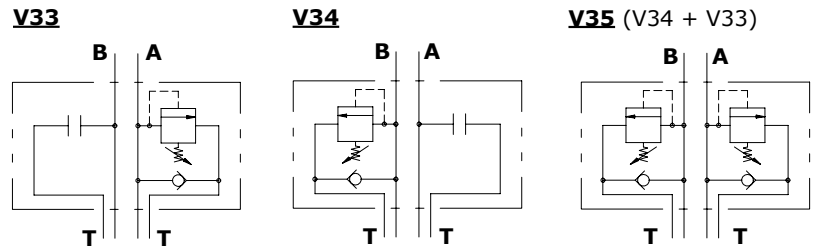
aux valve    spring type and valve setting (bar)



**Wrenches and tightening torques**  
 Y = wrench 16 - 20 Nm (14.7 lbf ft)

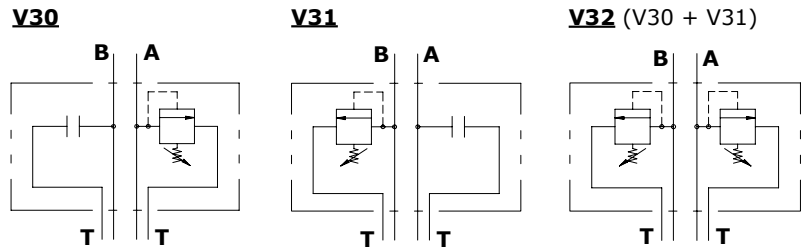
Antishock/anticavitation valve example

A side configuration:    B side configuration:    A+B side configuration:



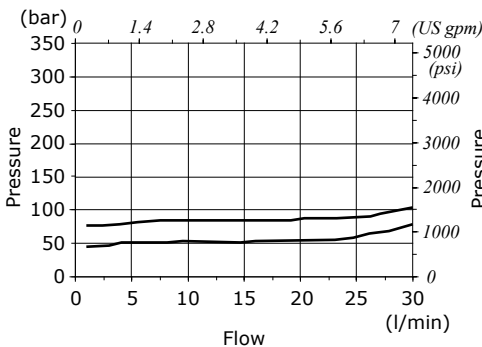
Antishock valve example

A side configuration:    B side configuration:    A+B side configuration:

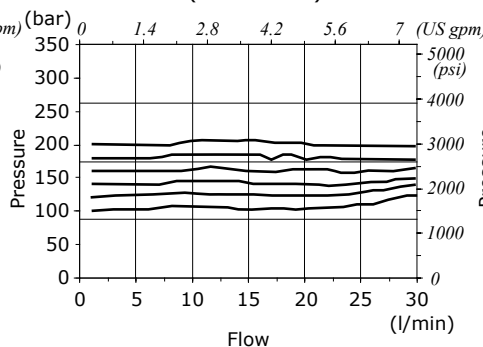


Spring type	Setting ranges (bar - psi)
B (white)	From 50 to 80 - from 725 to 1150
N (black)	From 81 to 200 - from 1170 to 2900
R (red)	From 201 to 350 - from 2910 to 5100

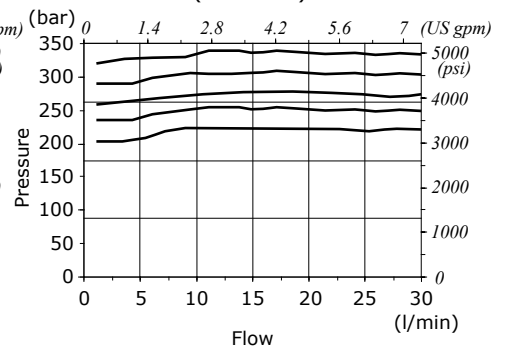
Setting range example (white band)



Setting range example (black band)



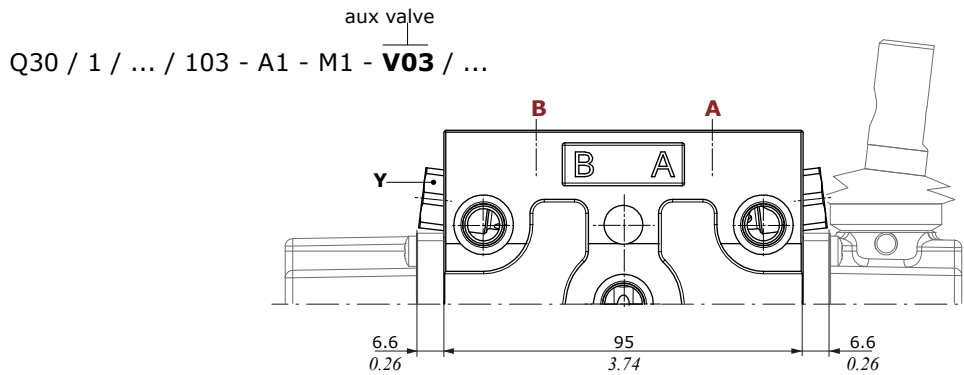
Setting range example (red band)



### Auxiliary valve configuration

#### Dimensional data and hydraulic circuits

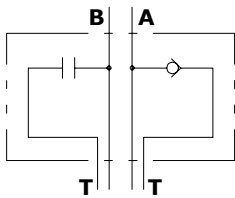
##### Anticavitation valve example



**Wrenches and tightening torques**  
 Y = wrench 16 - 20 Nm (14.7 lbf ft)

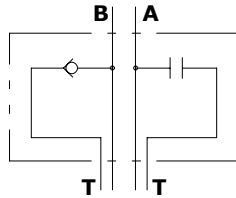
**A side configuration:**

**V04**



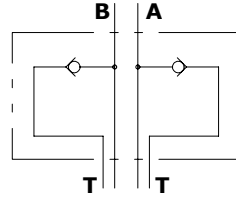
**B side configuration:**

**V05**



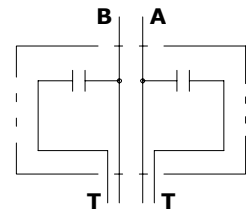
**A+B side configuration:**

**V03 (V04 + V05)**

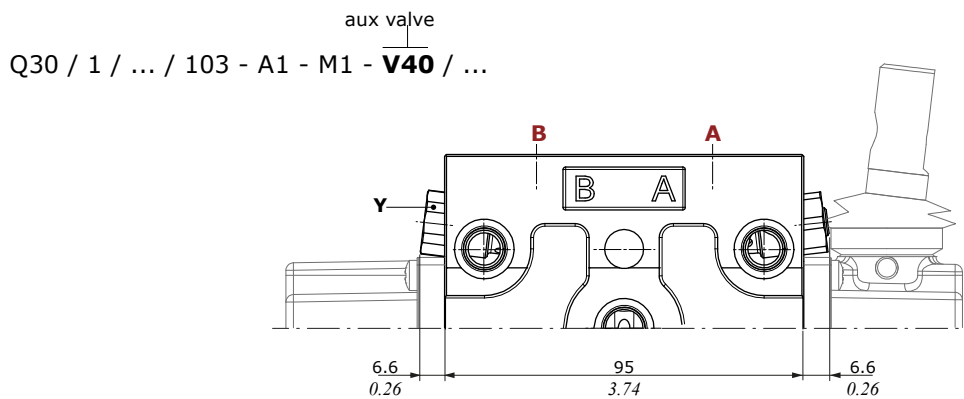


**Plug valve:**

**VC**

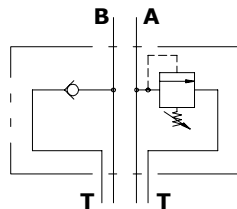


##### Antishock and anticavitation combining valves example



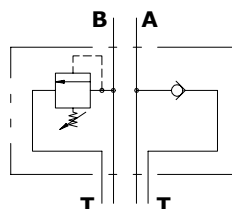
**A side configuration:**

**V40 (V30 + V05)**



**B side configuration:**

**V41 (V31 + V04)**

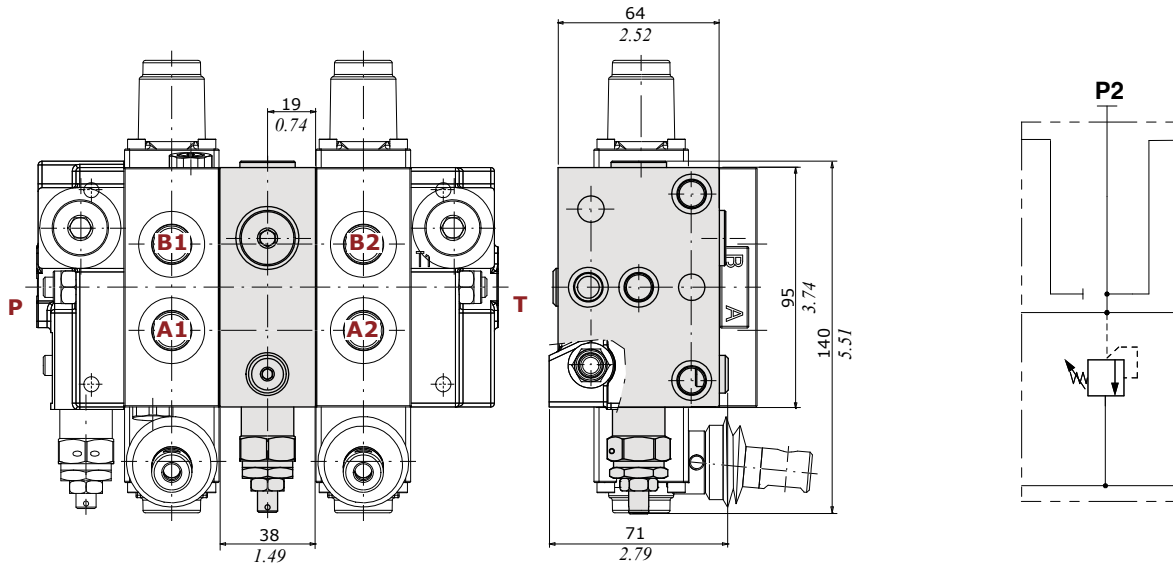


**Dimensional data and hydraulic circuit**

Drawings is referred to a Q30 sectional valve.

**E50 type**

Intermediate inlet section with pressure relief valve

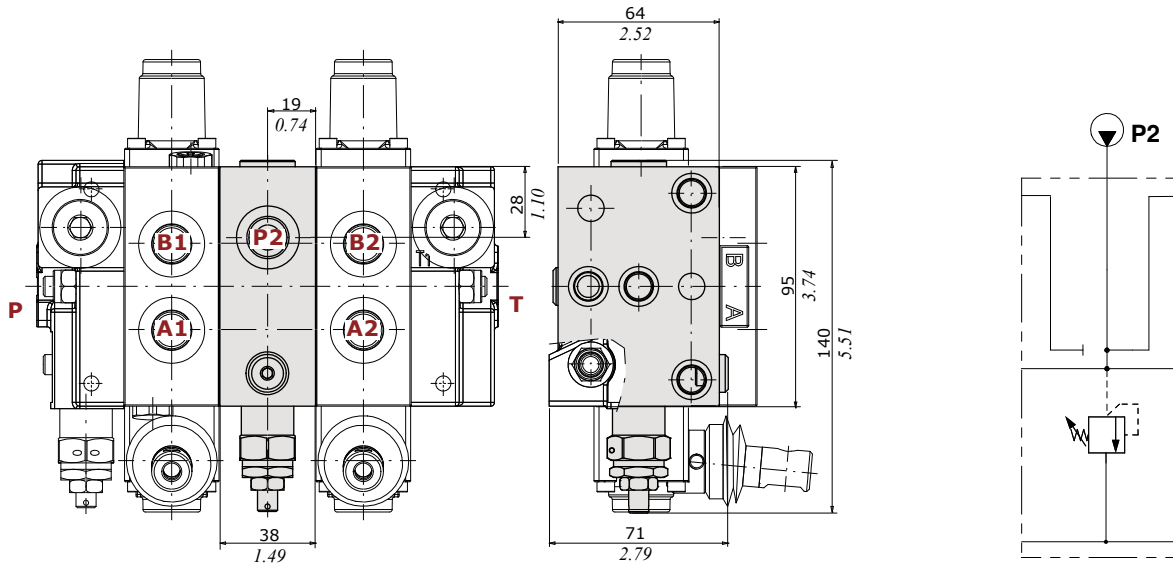


Description example: Q30/2/F7S(N150)/103-A1-M1.VC/**E50(N150)**/103-A1-M1/F3D-S-SAE

intermediate section spring type and valve setting (bar)

**E53 type**

Intermediate inlet section with pressure relief valve and P2 port open



Description example: Q30/2/F7S(N150)/103-A1-M1.VC/**E53(N150)**/103-A1-M1/F3D-S-SAE

intermediate section spring type and valve setting (bar)

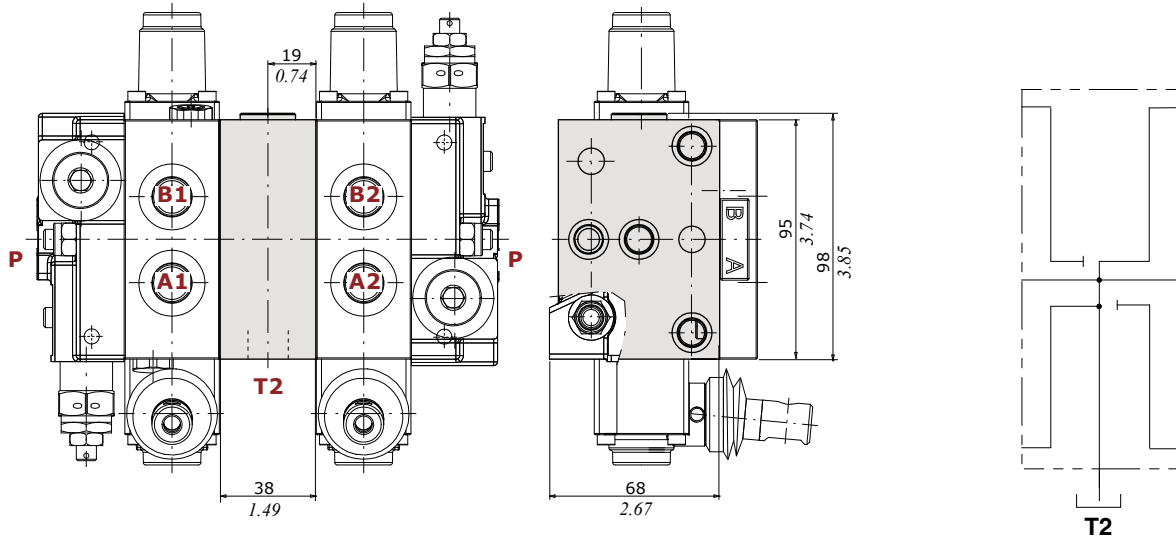
Intermediate section

Dimensional data and hydraulic circuit

Drawings is referred to a Q30 sectional valve.

**E51 type**

Intermediate outlet section, T2 port open

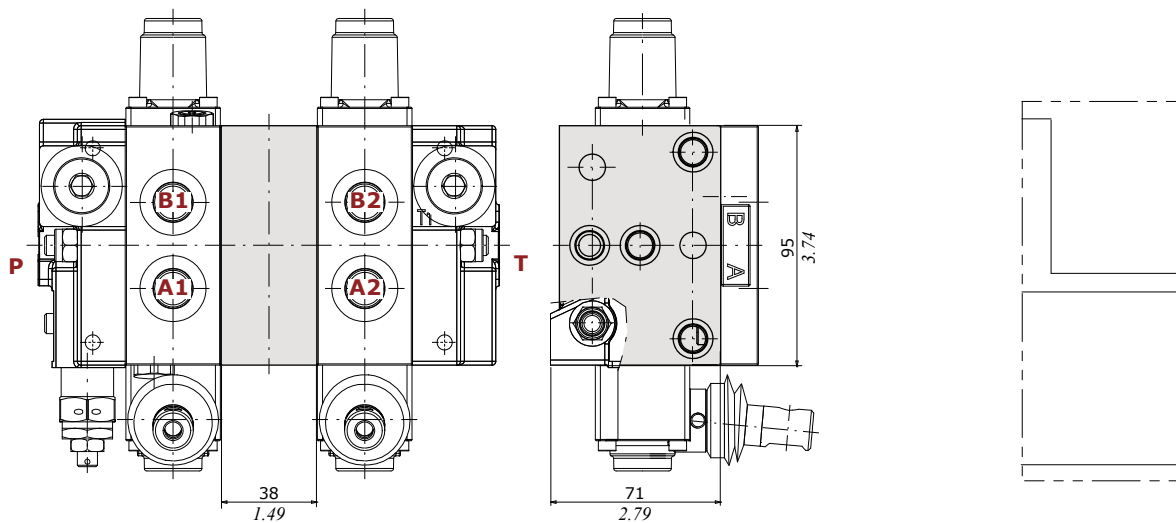


Description example: Q30/2/F7S(N150)/103-A1-M1.VC/**E51**/103-A1-M1/F3D-S-SAE

intermediate section

**E61 type**

Intermediate spacer section

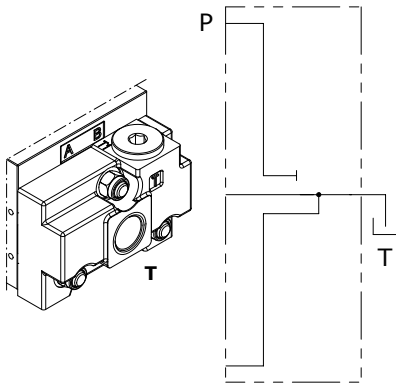


Description example: Q30/2/F7S(N150)/103-A1-M1.VC/**E61**/103-A1-M1/F3D-S-SAE

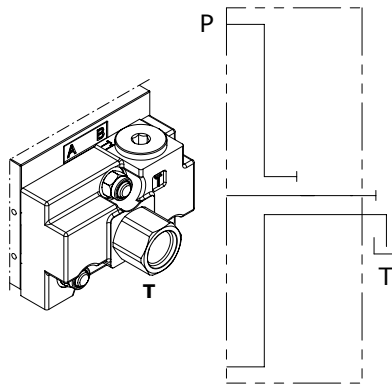
intermediate section



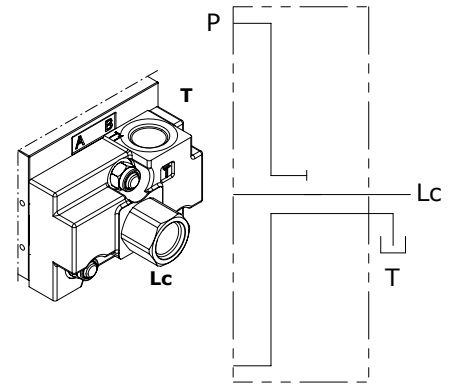
**F3D-SAE configuration**  
Open center configuration



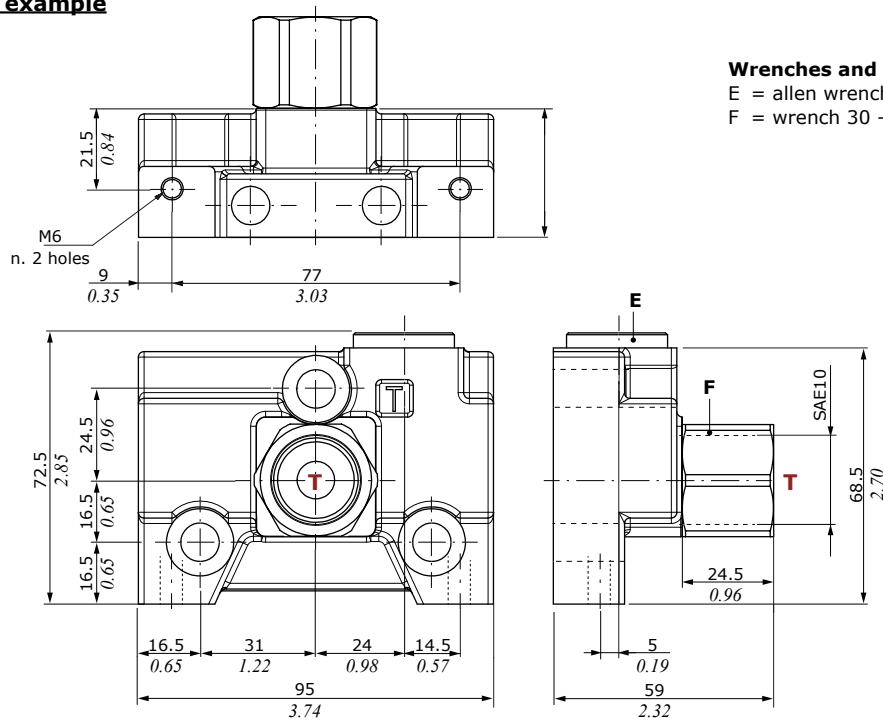
**F16D-SAE configuration**  
Closed center configuration



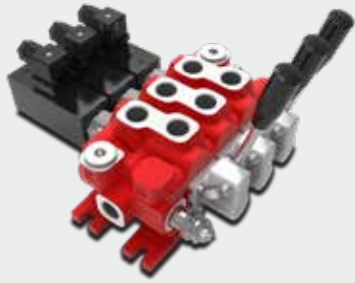
**F6D-SAE configuration**  
Carry-over configuration



**F16D configuration example**







## GSV50

### Sectional directional control valve

- Available with parallel circuit
- Optional carry over port
- A wide range of antishock + anticavitation port valves
- Mechanical, pneumatic, electropneumatic, hydraulic and direct solenoid controls

#### Working conditions

This catalogue shows technical specifications and diagrams measured through mineral oil of 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

Nominal flow rating		50 l/min - (13.2 Us gpm)
Max. pressure		315 bar (4550 psi)
Max. back pressure on outlet <b>T</b> port		25 bar (360 psi)
Number sections		from 1 to 10
Internal leakage A(B)⇒T	Δp = 100 bar (1450 psi)	5 cm <sup>3</sup> /min (0.30 in <sup>3</sup> /min)
Fluid		Mineral oil
Fluid temperature	with NBR (BUNA-N) seals	from -20°C to 80°C - from -4 °F to 176 °F
Viscosity	operating range	from 12 to 400 mm <sup>2</sup> /s - from 12 to 400 cSt
Max. contamination level		-/19/16 - ISO 4406 - NAS1638 class 6
Ambient temperature	with pneumatic and hydraulic devices	from -30°C to 60°C - from -22 °F to 140 °F
	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.

#### REFERENCE STANDARD

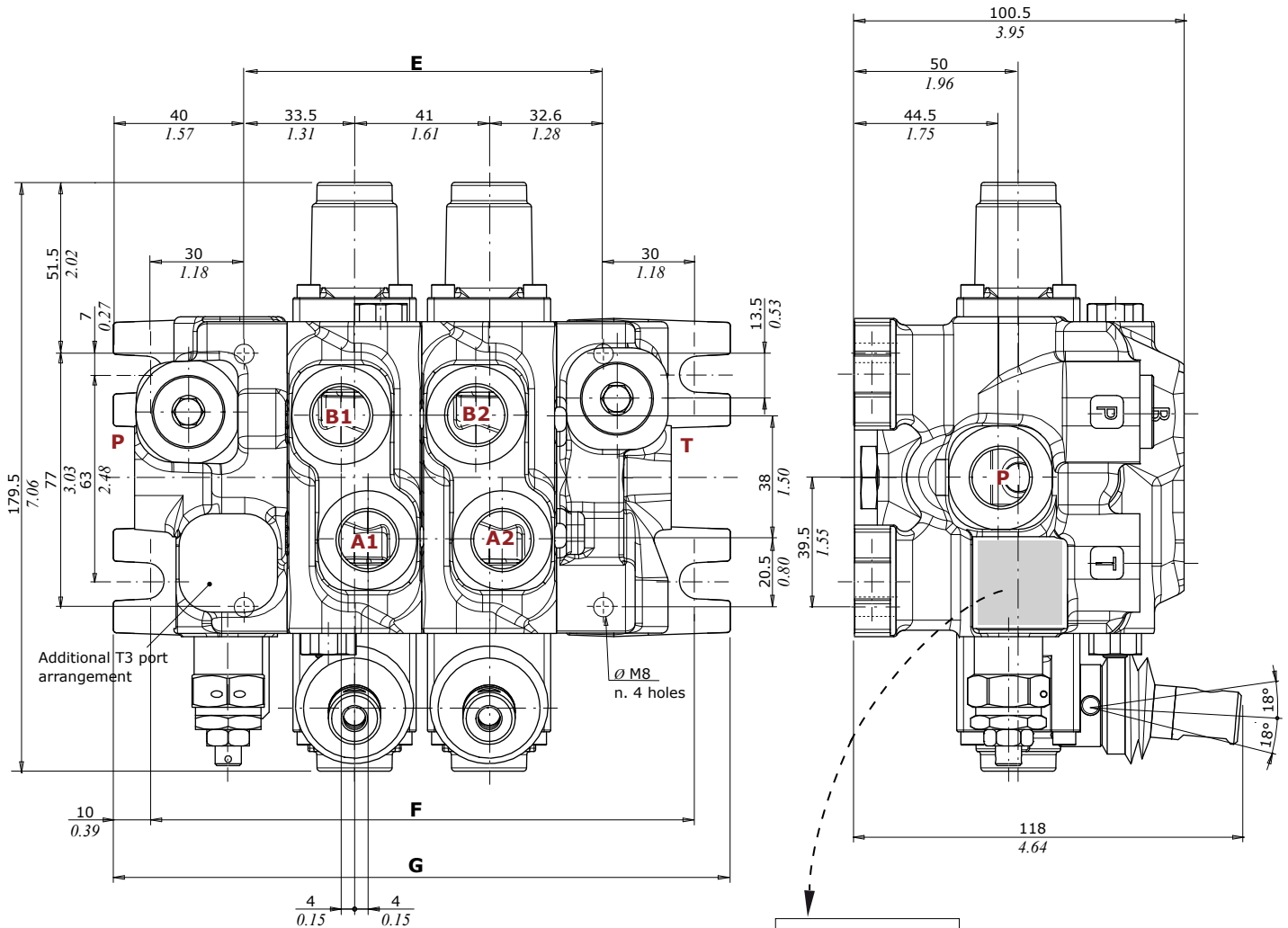
		BSP	UN-UNF
THREAD ACCORDING TO		ISO 228/1	ISO 263
		BS 2779	ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO	1179	11926
	SAE		J11926
	DIN	3852-2 shape X or Y	

#### PORT THREADING

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

### Dimensional data

#### Standard configuration\*



Type	E		F		G	
	mm	in	mm	in	mm	in
<b>GSV50/1</b>	66.1	2.60	126	4.96	146	5.74
<b>GSV50/2</b>	107.1	4.21	167	6.57	187	7.36
<b>GSV50/3</b>	148.1	5.83	208	8.18	228	8.97
<b>GSV50/4</b>	189.1	7.44	249	9.80	269	10.60
<b>GSV50/5</b>	230.1	9.06	290	11.41	310	12.20
<b>GSV50/6</b>	271.1	10.67	331	13.03	351	13.81
<b>GSV50/7</b>	312.1	12.28	372	14.64	392	15.43
<b>GSV50/8</b>	353.1	13.90	413	16.25	433	17.04
<b>GSV50/9</b>	394.1	15.51	454	18.87	474	18.66
<b>GSV50/10</b>	435.1	17.12	495	19.48	515	20.27

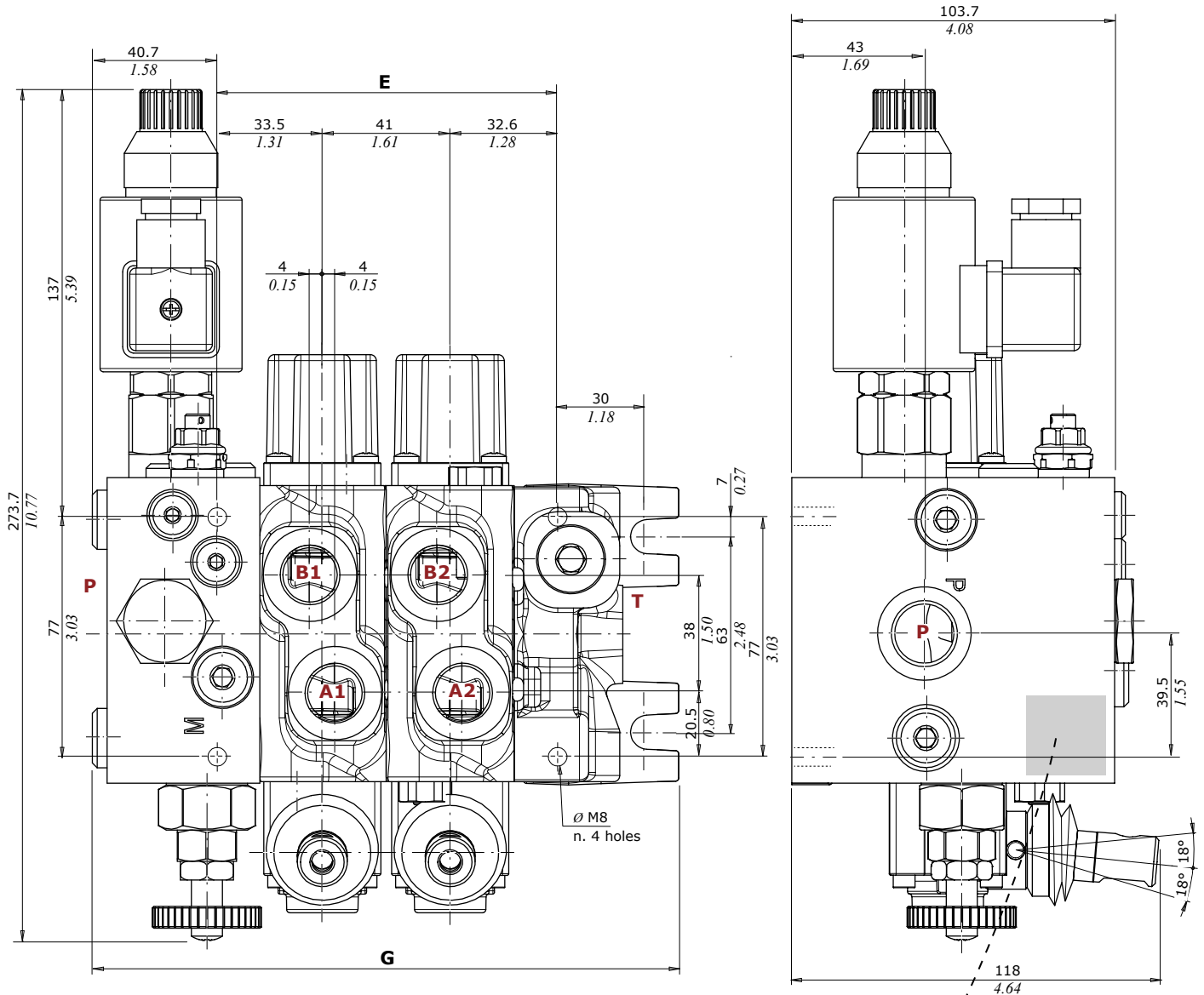
**Galtech**  
 MADE IN ITALY  
 025030103251000  
 GSV50/2-F7S(N150)  
 2X103/A1/M1.VC-  
 F3D  
 MD1600464-001

- Product code
- Customer reference or code description
- Product allotment
- Datamatrix with product allotment

NOTE: Drawings and dimensions are referred to a **UN-UNF** threading configuration.


(\*): For other configurations, see page 179

Proportional inlet section configuration\*



Type	E		G	
	mm	in	mm	in
GSV50/1	66.1	2.60	146.7	5.77
GSV50/2	107.1	4.21	187.7	7.38
GSV50/3	148.1	5.83	228.7	9
GSV50/4	189.1	7.44	269.7	10.61
GSV50/5	230.1	9.06	310.7	12.21
GSV50/6	271.1	10.67	351.7	13.84
GSV50/7	312.1	12.28	392.7	15.46
GSV50/8	353.1	13.90	433.7	17.07
GSV50/9	394.1	15.51	474.7	18.68
GSV50/10	435.1	17.12	515.7	20.30

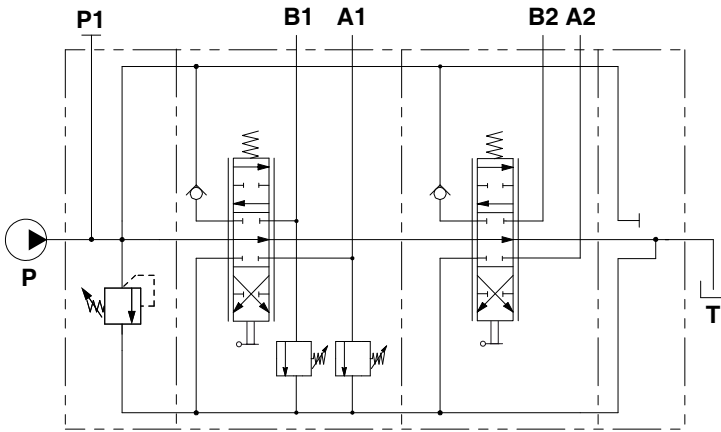
**Galtech**  
 MADE IN ITALY  
 025030103251000 - Product code  
 GSV50/2-F7SPRN3M - Customer reference  
 (N150)-12VDC- or code description  
 2X103/A1/M1.VC-F3D  
 MD1600464-001 - Product allotment



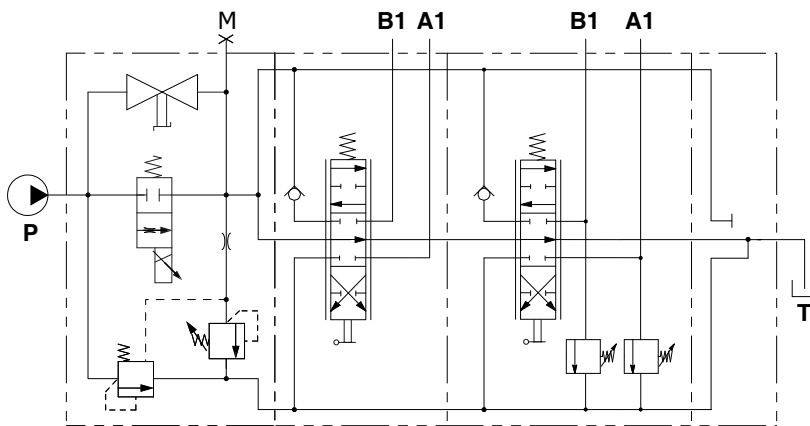
- Datamatrix with product allotment

NOTE: Drawings and dimensions are referred to a **UN-UNF** threading configuration.  
 (\*): For other configurations, see page 179

**Hydraulic circuits**



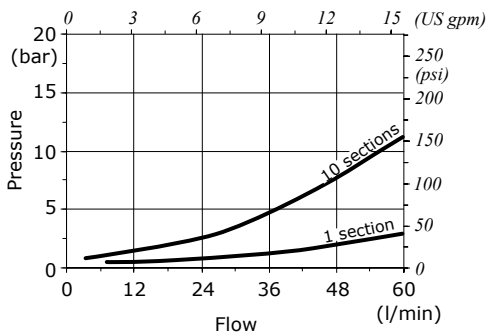
Description example (parallel circuit):  
 GSV50/2/F7S(N150)/  
 103-A1-M1.V32(N105\N105)/103-A1-M1/F3D-S-SAE



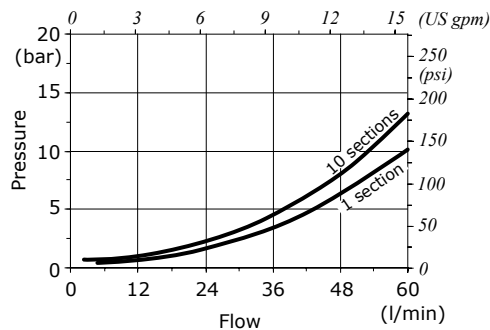
Description example (parallel circuit):  
 GSV50/2/F7SPRN3M(N150)-12VDC/  
 103-A1-M1/103-A1-M1.V32(N105\N105)/F3D-S-SAE

**Performance data**

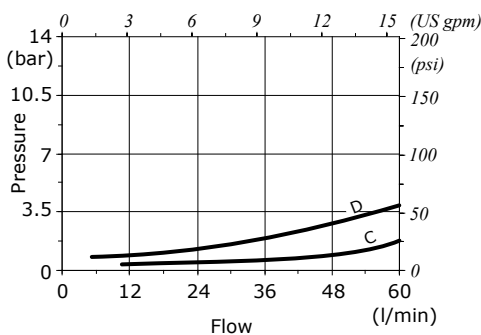
**P⇒T pressure drops**



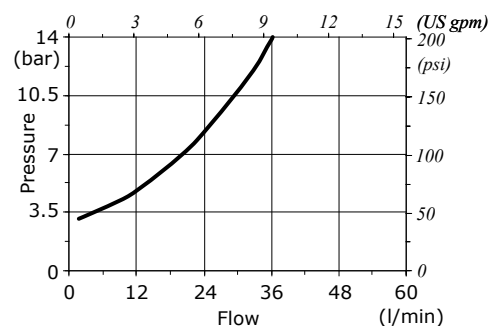
**P⇒A(B) pressure drops**



**A(B)⇒T pressure drops**



**A1(B1)⇒A2(B2) pressure drops (with series circuit)**



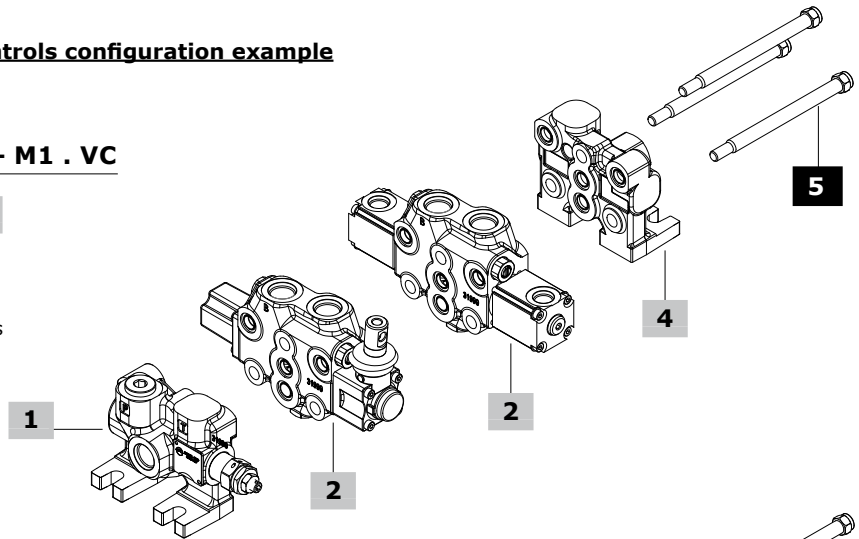
**Legenda**

C= 10<sup>th</sup> section  
 D= 1<sup>st</sup> section

**Complete section ordering codes**

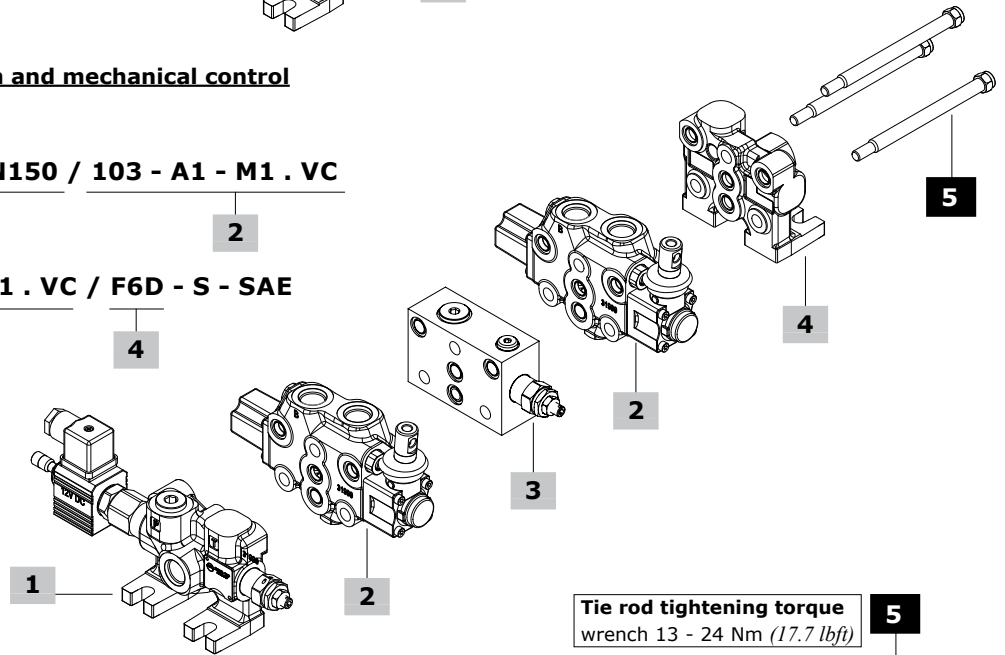
**Valve with mechanical and hydraulic controls configuration example**

valve setting (bar)  
**GSV50 / 2 / F7S(N150) / 103 - A1 - M1 . VC**  
 N. of section      **1**                      **2**  
**/ 103 - H5 . VC / F6D - S - SAE**  
                          **2**                      **4**      aluminium controls



**Valve with intermediate section and mechanical control configuration example**

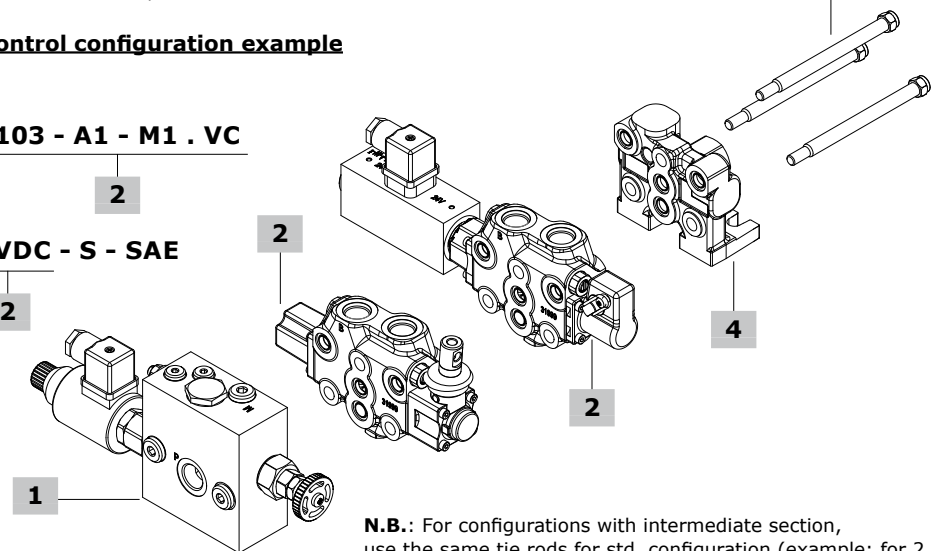
**GSV50 / 2 / F7SMSE(NA)-N150 / 103 - A1 - M1 . VC**  
 valve setting (bar)      **1**                      **2**  
**/ E50(N150) / 103 - A1 - M1 . VC / F6D - S - SAE**  
                          **3**                      **2**                      **4**



**Tie rod tightening torque** **5**  
 wrench 13 - 24 Nm (17.7 lbft)

**Valve with mechanical and electric control configuration example (with inlet flow regulation)**

**GSV50 / 2 / F7SPR3M(N150) / 103 - A1 - M1 . VC**  
                          **1**                      **2**  
**/ 103 - A1 - D41 . VC / F6D - 12VDC - S - SAE**  
                          **2**                      **4**                      **2**



**N.B.:** For configurations with intermediate section, use the same tie rods for std. configuration (example: for 2 working sections + 1 intermediate section, use tie rods for 3 working sections)

**Complete section ordering codes**

**1 Inlet section\* page 145**

**Standard inlet sections**

TYPE: **FE-GSV50/F7S(N150)-SAE** CODE: 05100F7SD/04N  
 DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve, setting range 101-200 bar (1460-2900 psi)  
 TYPE: **FE-GSV50/F8S-SAE** CODE: 05100F8S/04  
 DESCRIPTION: As previous one, without valves (pressure relief valve plugged port)  
 TYPE: **FE-GSV50/F7SMSE(NA)** CODE: 05100F7SDMS1-N  
 DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve setting range 101-200 bar (1460-2900 psi), 12VDC normally open unloader valve  
 TYPE: **FE-GSV50/F7SMSE(NC)** CODE: 05100F7SDMS7-N  
 DESCRIPTION: As previous one, with normally closed unloader valve  
**Inlet section with flow regulator**  
 TYPE: **FE-GSV50/F7SPR3M(N150)** CODE: 05100F7SDPRN3M  
 DESCRIPTION: Side inlet open, 12 VDC proportional flow control valve, pressure relief valve setting range 101-200 bar (1460-2900 psi), manual unloader valve  
 TYPE: **FE-GSV50/F7SPR3E(N150)-12VDC** CODE: 05100F7SDPRN3E  
 DESCRIPTION: As previous one, with 12VDC unloader valve

**2 Working section\* page 154**

**With mechanical controls**

TYPE: **EL-GSV50/103-A1-M1.VC-S-SAE** CODE: 051000103001500  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, lever control and spring return to neutral position  
 TYPE: **EL-GSV50/103-A1-M1-S-SAE** CODE: 051000103001300  
 DESCRIPTION: As previous one, without valve arrangement

**With proportional hydraulic controls**

TYPE: **EL-GSV50/103-H5.VC-S-SAE** CODE: SGLS50012  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, low pressure hydraulic controls, spring return to neutral position  
 TYPE: **EL-GSV50/103-H5-S-SAE** CODE: SGLS50013  
 DESCRIPTION: As previous one, without valve arrangement

**With electric direct controls - one side type**

TYPE: **EL-GSV50/103-A1-D41.VC-12VDC-S-SAE**  
 CODE: 051000103012500  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct ON/OFF control with lever  
 TYPE: **EL-GSV50/103-A1-D41-12VDC-S-SAE**  
 CODE: SGLS50014  
 DESCRIPTION: As previous one, without valve arrangement

**With electric direct controls - two side type**

TYPE: **EL-GSV50/103-D9.VC-12VDC-S-SAE**  
 CODE: SGLS50015  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct ON/OFF control  
 TYPE: **EL-Q30/103-D9-12VDC-S-SAE** CODE: SGLS50016  
 DESCRIPTION: As previous one, without valve arrangement

**3 Intermediate section page 179**

TYPE	CODE	DESCRIPTION
<b>E50</b>	03850E50-B	With pressure relief valve, setting range 10-100 bar (145-1450 psi)
	03850E50-N	As previous one, setting range 101-200 bar (1460-2900 psi)
	03850E50-R	As previous one, setting range 201-380 bar (2910-5500 psi)
<b>E53</b>	03854E53-B	With pressure relief valve, setting range 10-100 bar (145-1450 psi) and P2 port open for 2 <sup>nd</sup> pump
	03854E53-N	As previous one, setting range 101-200 bar (1460-2900 psi)
	03854E53-R	As previous one, setting range 201-380 bar (2910-5500 psi)
<b>E51</b>	03853E51SAE	Intermediate outlet section, T2 port open
<b>E61</b>	03885E61	Intermediate spacer section

**4 Outlet section\* page 181**

TYPE: **FS-GSV50-F3D-SAE** CODE: 05112F3D-SAE  
 DESCRIPTION: T port open, T1 port plugged. For open center circuit  
 TYPE: **FS-GSV50-F16D-SAE** CODE: 05116F16DSAE  
 DESCRIPTION: T port open, T1 port plugged. For closed center circuit  
 TYPE: **FS-GSV50-F6D-SAE** CODE: 05114F6D/SAE  
 DESCRIPTION: Lc port and T1 port open. With joint for carry-over (HPCO) circuit

**5 Tie rod kit**

CODE	DESCRIPTION
05931TX1	For 1 section valve
05932TX2	For 2 sections valve
05933TX3	For 3 sections valve
05934TX4	For 4 sections valve
05935TX5	For 5 sections valve
05936TX6	For 6 sections valve
05937TX7	For 7 sections valve
05938TX8	For 8 sections valve
05939TX9	For 9 sections valve
05940TX10	For 10 sections valve

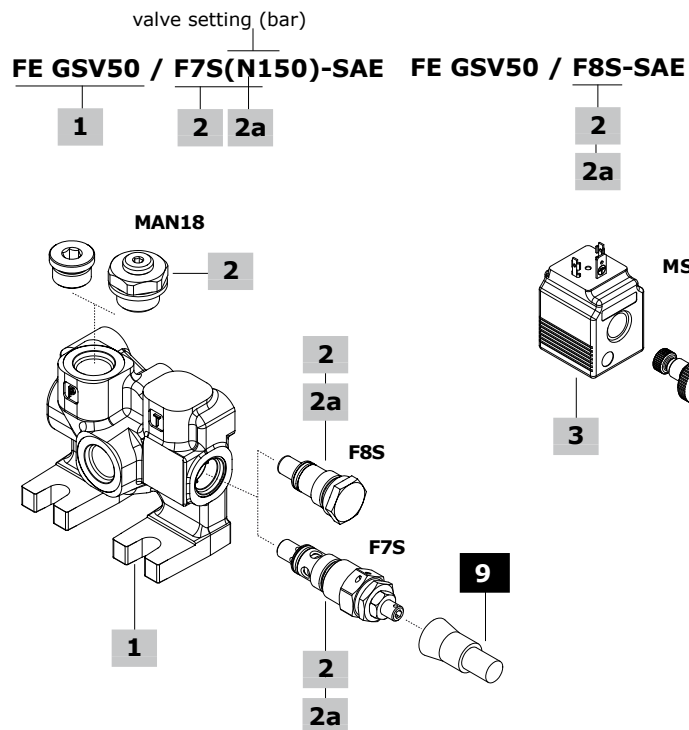
(\*): Codes are referred to **UN-UNF** thread



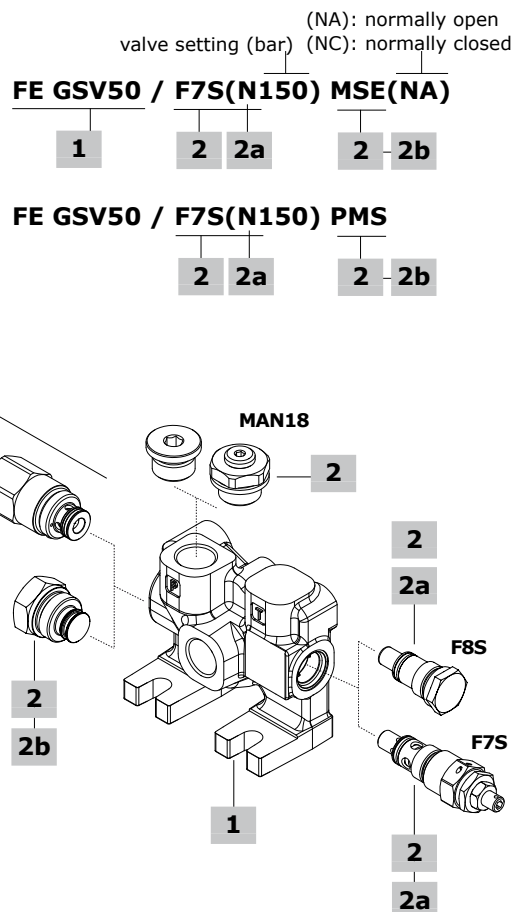
Inlet section - parts ordering codes

Standard section

With relief valve:



With relief and unloader valves:



**1 Inlet body section** page 146

TYPE: **FE-GSV50-SAE\*** CODE: 060013190899  
 DESCRIPTION: Side inlet port, upper inlet plugged, pressure relief valve arrangement  
 TYPE: **FE-GSV50** CODE: 060013198199  
 DESCRIPTION: As previous one, with unloader valve arrangement

**2 Configuration coding** page 147

TYPE	DESCRIPTION
<b>F7S-SAE*</b>	With pressure relief valve
<b>F8S-SAE*</b>	Without valves (pressure relief valve plugged port)
<b>F7S-MSE</b>	With pressure relief valve and electric unloader valve
<b>F7S-PMS</b>	With pressure relief valve and PMS valve blanking plug
<b>F8S-MSE</b>	With electric unloader valve and pressure relief valve blanking plug
<b>F8S-PMS</b>	Without valves (plugged ports)

**Note:** Inlet configuration with relief valve, require upper P port: n. 1 SAE8 plug code 255008, or n. 1 pressure gauge arrangement code 5MAN624202;  
 Inlet configuration with relief and unloader valves, require upper P port: n. 1 G1/2 plug code 060002792099, or n. 1 pressure gauge arrangement code 5MAN625220

**2a Main pressure relief valve** page 148

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

**2b Unloader inlet valve** page 149

TYPE	CODE	DESCRIPTION
<b>MSE(NA)</b>	0EF08002003	Electric unloader valve, normally open, screw type emergency. It requires MSE assembly joint
<b>MSE(NC)</b>	0EF08002006	Electric unloader valve, normally closed, screw type emergency. It requires MSE assembly joint
<b>-</b>	060002997299	Assembling joint for MSE valves
<b>PMS</b>	060002978899	Valve blanking plug

**3 Coil**

TYPE	CODE	DESCRIPTION
<b>For MSE valves</b>		
<b>BER</b>	4SLE001200A	12 VDC ISO4400 coil
	4SLE002400A	24 VDC ISO4400 coil

**Note:** For **BER** type coils see page 257

**9 Accessory**

TYPE	CODE	DESCRIPTION
<b>-</b>	4COP120420	Antitamper cap for pressure relief valve

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

### Standard inlet section

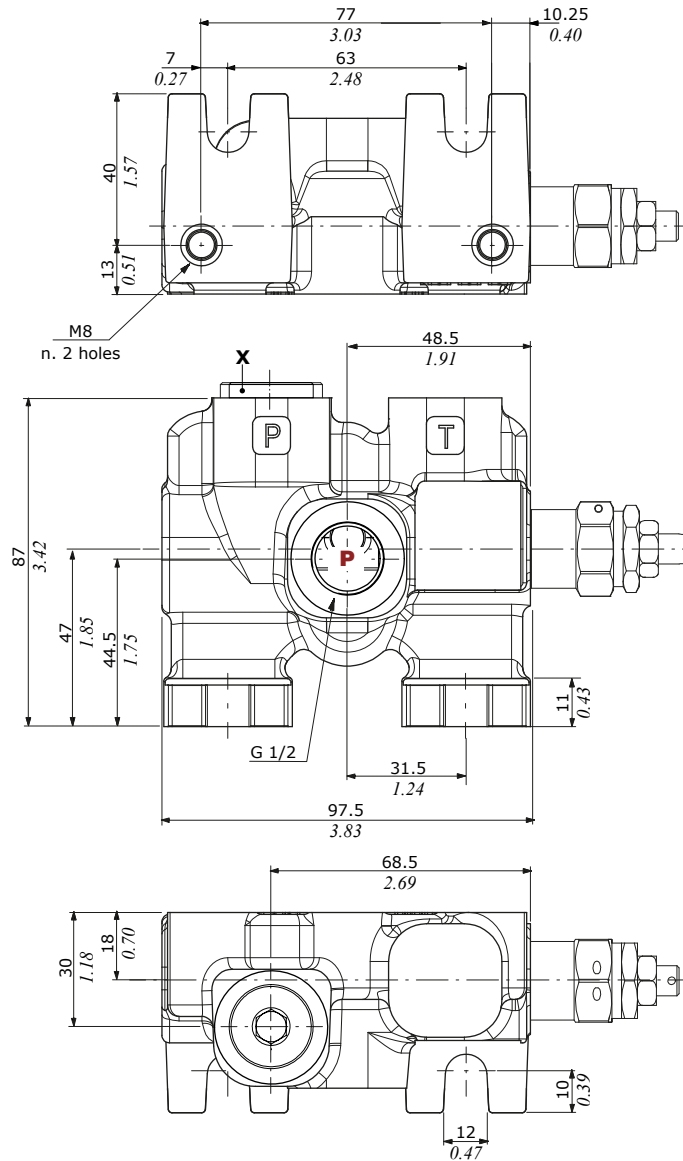
#### Dimensional data

##### With pressure relief valve

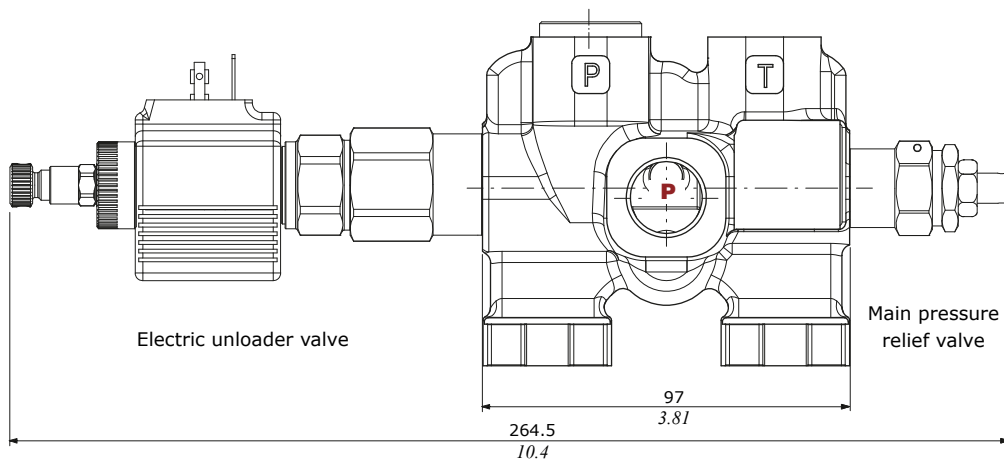
##### Wrenches and tightening torques

X = allen wrench 8 - 42 Nm (31 lbf<sup>t</sup>)

**Note:** For valves wrench and torque, see related pages



##### With relief and unloader valves

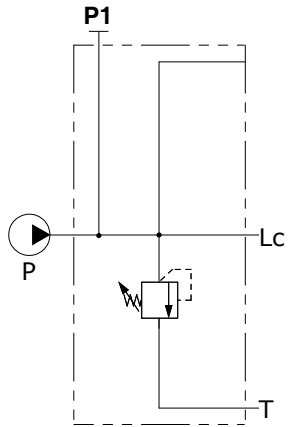


For other configurations, see page 149

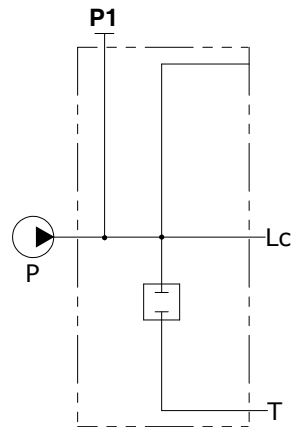
For other dimensions, see previous configuration

Hydraulic circuits

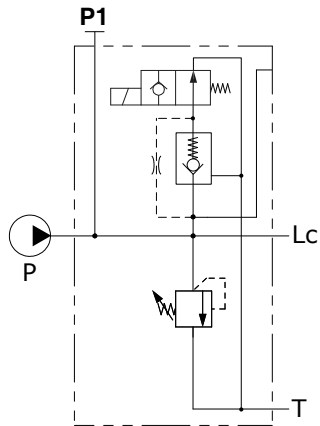
**F7S-SAE configuration**  
With pressure relief valve



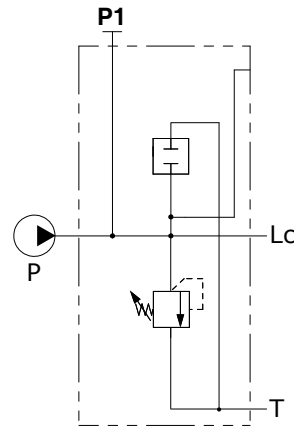
**F8S-SAE configuration**  
Without valves  
(pressure relief valve plugged port)



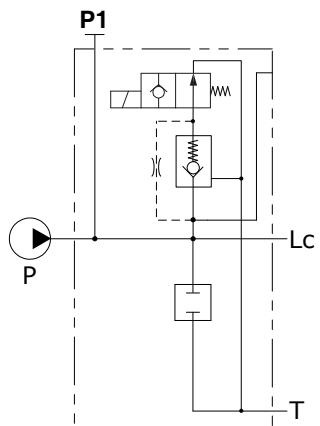
**F7S-MSE(NA/NC) configuration**  
With pressure relief valve  
and electric unloader valve



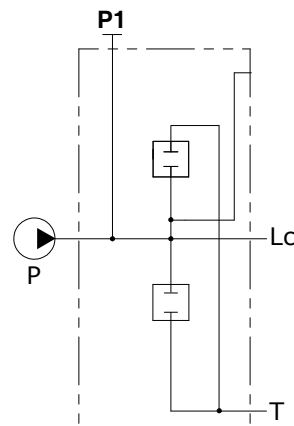
**F7S-PMS configuration**  
With pressure relief valve  
and unloader valve blanking plug



**F8S-MSE(NA/NC) configuration**  
Without pressure relief valve  
and electric unloader valve



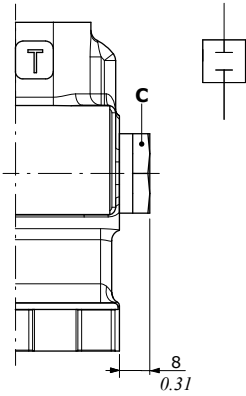
**F8S-PMS configuration**  
Without valves (plugged ports)



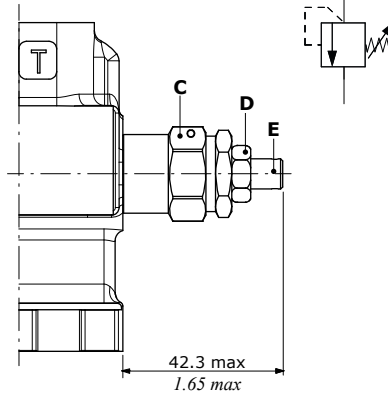
**Standard inlet section**

**Main pressure relief valve**

**Relief valve blanking plug**



**Main pressure relief valve**

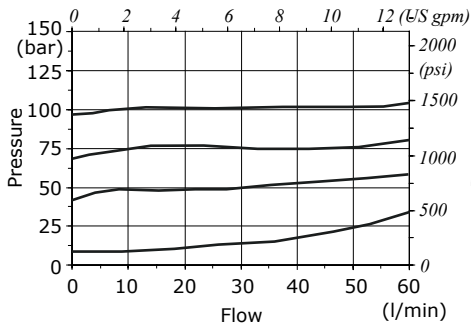


**Wrenches and tightening torques**

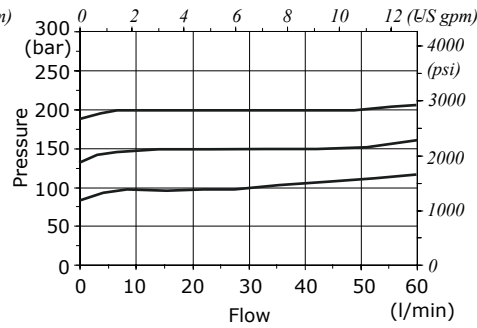
- C = wrench 22 - 42 Nm (31 lbft)
- D = wrench 13 - 24 Nm (17.7 lbft)
- E = allen wrench 4

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

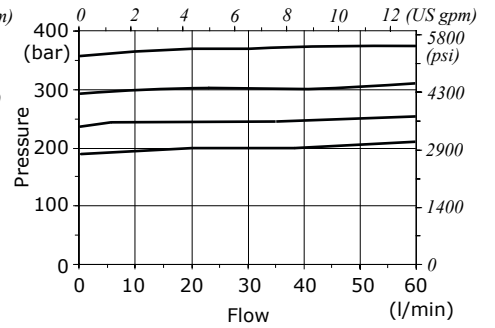
**Setting example (B type spring)**



**Setting example (N type spring)**

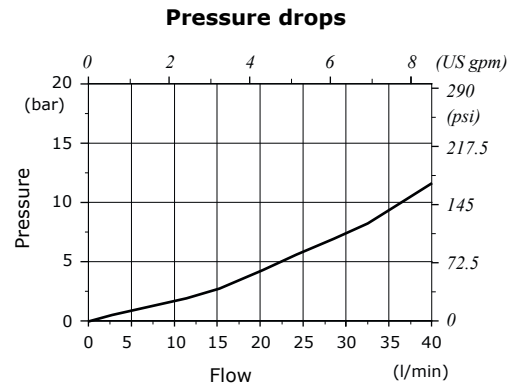
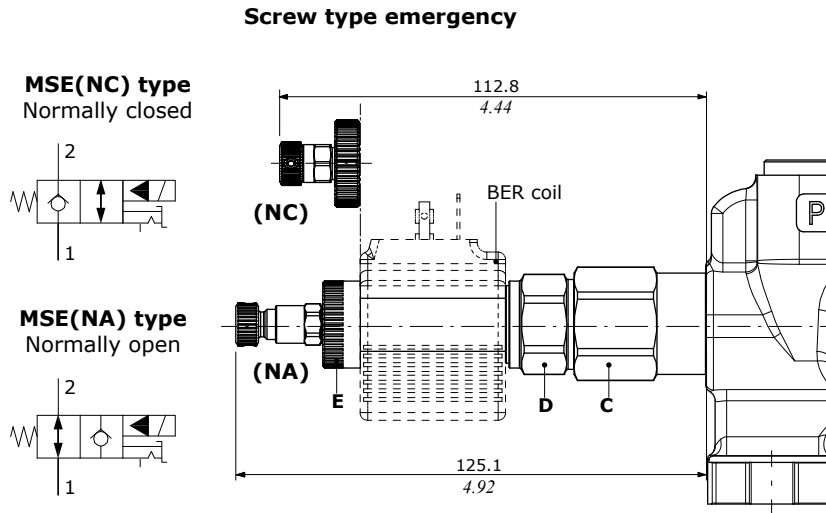


**Setting example (R type spring)**



**Unloader valve**

**MSE type: electric control**

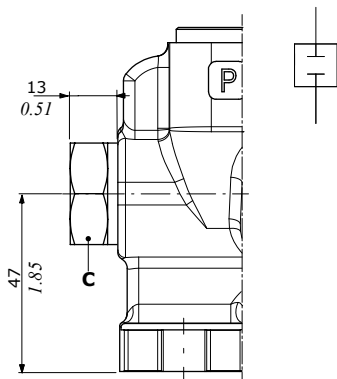


**Valve features**

- Nominal flow.....: 40 l/min (10.5 US gpm)
- Max. pressure .....: 380 bar (5500 psi)
- Max. internal leakage...: 0,50 cm<sup>3</sup>/min @ 210 bar (0.030 in<sup>3</sup>/min @ 3050 psi)

For **BER** type coils see page 257

**PMS type: valve blanking plug**



**Wrenches and tightening torques**

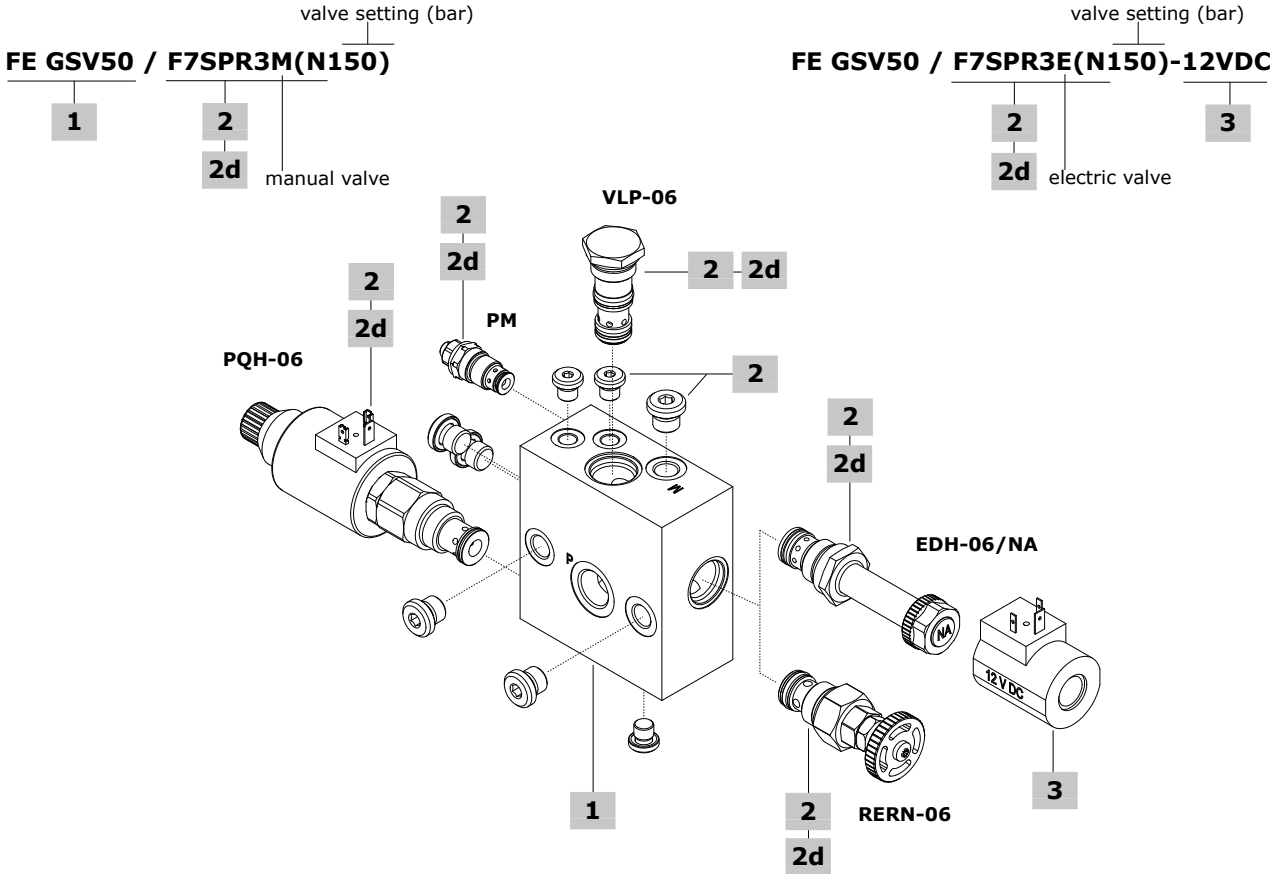
- C = wrench 27 - 42 Nm (30.9 lbft)
- D = wrench 24 - 30 Nm (22.1 lbft)
- E = manual tightening

**Inlet section - parts ordering codes**

**Section with flow regulator**

With manual unloader valve:

With electric unloader valve:



**1 Inlet body section\* page 151**

TYPE: **FE-GSV50** CODE: 060013195499  
 DESCRIPTION: Side inlet port, arrangement for flow control, unloader and pressure relief valve

**2 Configuration coding\* page 151**

TYPE	DESCRIPTION
<b>F7S-PR3M</b>	With pressure relief valve, proportional flow control valve and manual unloader valve
<b>F7S-PR3E</b>	With pressure relief valve, proportional flow control valve and electric unloader valve, normally open

**Note:** Inlet configurations require:  
 n. 5 G1/4 plugs code 3XTAP719150  
 n. 3 G1/8 plugs code 3TP5110900

**2d Inlet valves page 152**

TYPE	CODE	DESCRIPTION
<b>PQH-06</b>	950208506010000	Flow control pressure compensated proportional valve, 12 VDC, coil included
	950208506010001	Flow control pressure compensated proportional valve, 24 VDC, coil included
<b>PM</b>	03800V30PM-N	Antishock valve
<b>VLP-06</b>	950209906010000	Pressure relief valve
<b>RERN-06</b>	955845060010000	Manual unloader valve
<b>EDH-06/NA</b>	950210600000000	Electric unloader valve, normally open

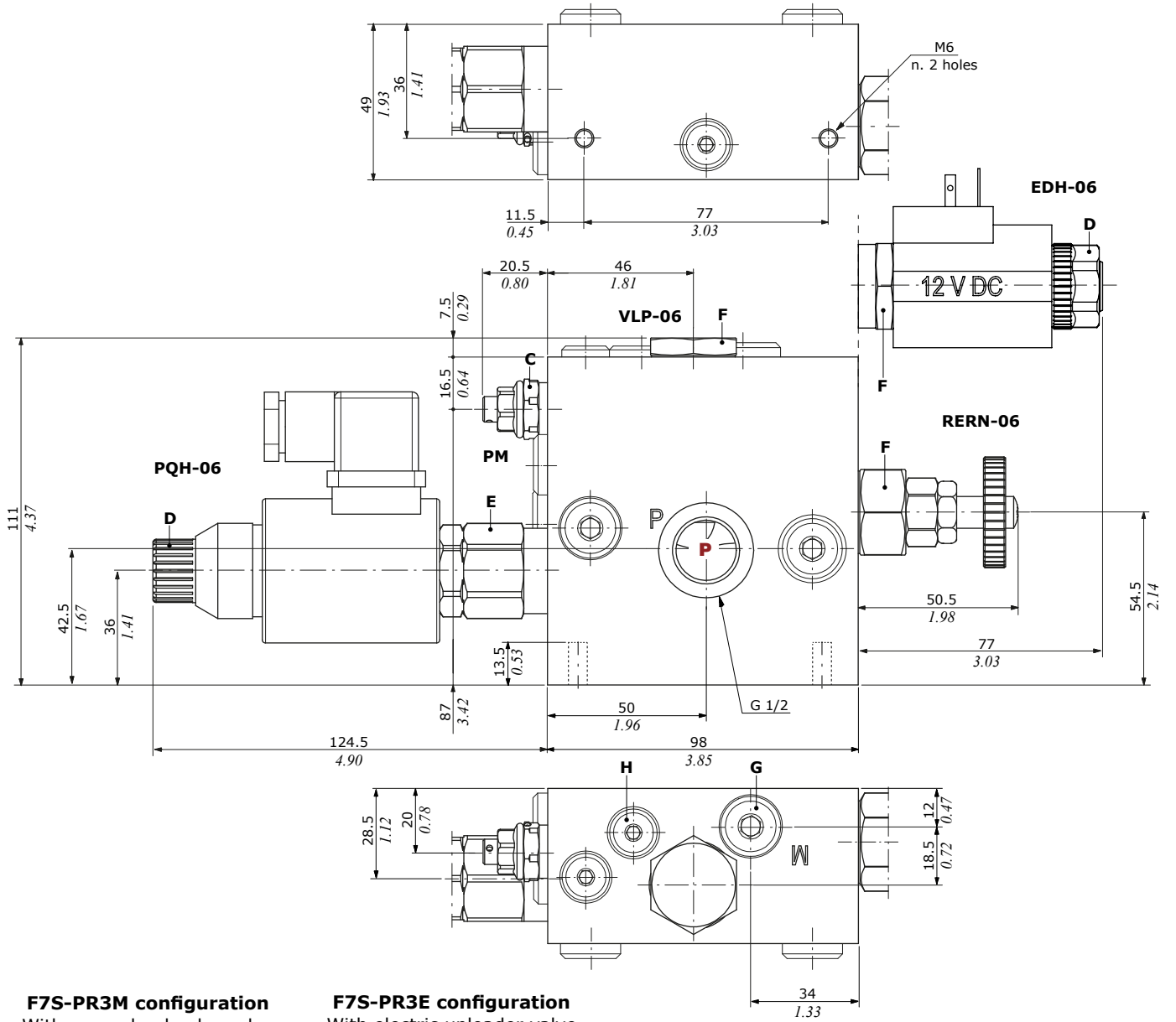
**3 Coil**

TYPE	CODE	DESCRIPTION
<b>For EDH-06 valve</b>		
<b>A</b>	954250000601200	12 VDC ISO4400 coil
	954250000602400	24 VDC ISO4400 coil

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

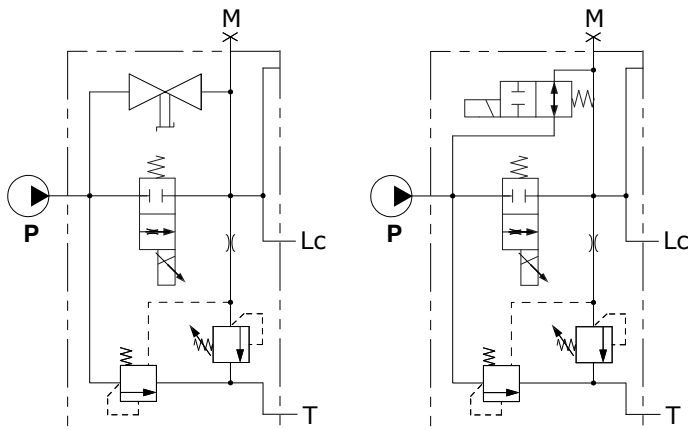
Inlet section with flow regulator

Dimensional data and hydraulic circuits



**F7S-PR3M configuration**  
With manual unloader valve

**F7S-PR3E configuration**  
With electric unloader valve



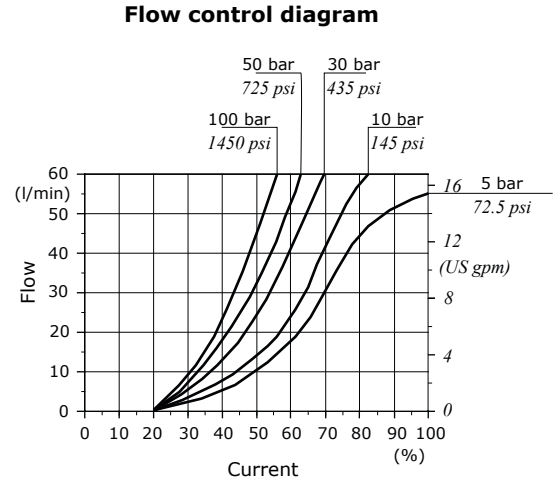
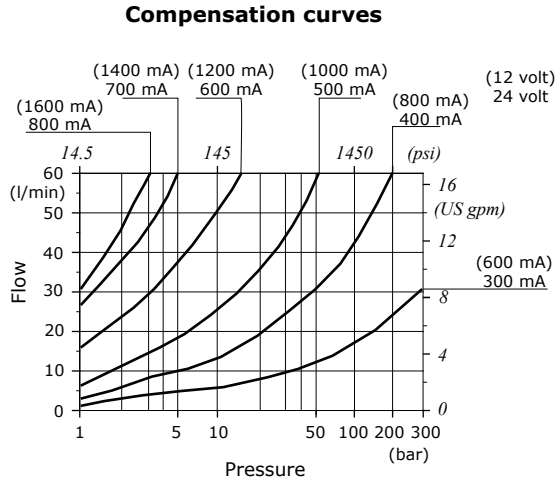
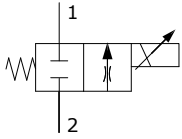
**Wrenches and tightening torques**  
 C = wrench 17 - 30 Nm (22 lbf)  
 D = manual tightening  
 E = wrench 27 - 30 Nm (22 lbf)  
 F = wrench 27 - 60 Nm (44.2 lbf)  
 G = allen wrench 27 - 60 Nm (44.2 lbf)  
 H = allen wrench 6 - 24 Nm (17.7 lbf)

**Inlet section with flow regulator**

**Inlet valves**

**PQH-06 type**

Flow control proportional pressure compensated valve, 12/24 VDC



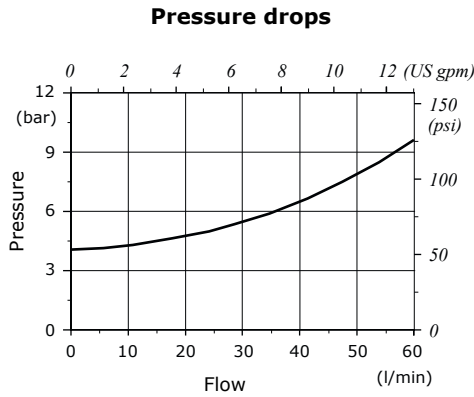
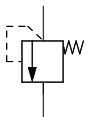
**Valve features**

- Nominal flow.....: 60 l/min (15.8 US gpm)
- Max. pressure .....: 310 bar (4500 psi)
- Power rating.....: 22 W
- Max. internal leakage...: 100 cm<sup>3</sup>/min @ 210 bar (6.10 in<sup>3</sup>/min @ 3050 psi)
- Coil insulation.....: Class F
- Voltage.....: 12/24 VDC

**Note:** The coil and connector is included

**VLP-06 type**

Pressure relief valve

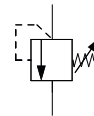


**Valve features**

- Nominal flow.....: 60 l/min (15.8 US gpm)
- Max. pressure .....: 350 bar (5070 psi)
- Opening start pressure.....: 4 bar (58 psi)

**PM type**

Antishock valve

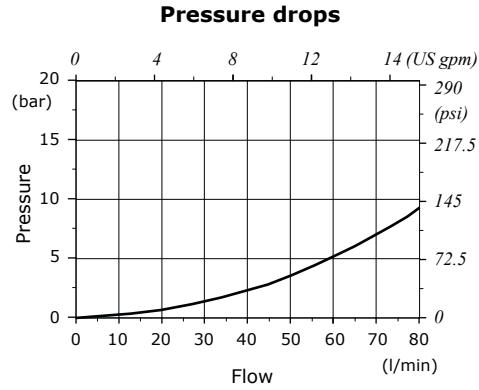
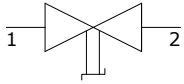




**Inlet valves**

**RERN-06 type**

Manual unloader valve

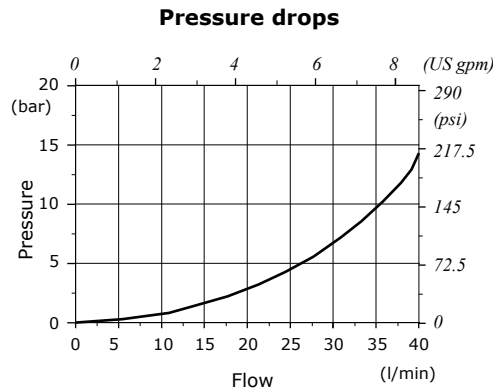
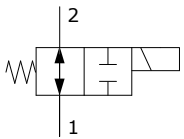


**Valve features**

Nominal flow.....: 70 l/min (18.5 US gpm)  
 Max. pressure .....: 315 bar (4600 psi)  
 Closed valve leakage.....: 0

**EDH-06 type**

Electric unloader valve, normally open



**Valve features**

Nominal flow.....: 35 l/min (9.24 US gpm)  
 Max. pressure .....: 310 bar (4500 psi)  
 Max. internal leakage....: 50 cm<sup>3</sup>/min @ 210 bar  
 (3.05 in<sup>3</sup>/min @ 3050 psi)

Coil **A** type: To be order separately, see #3 page 150

**Working section - parts ordering codes**

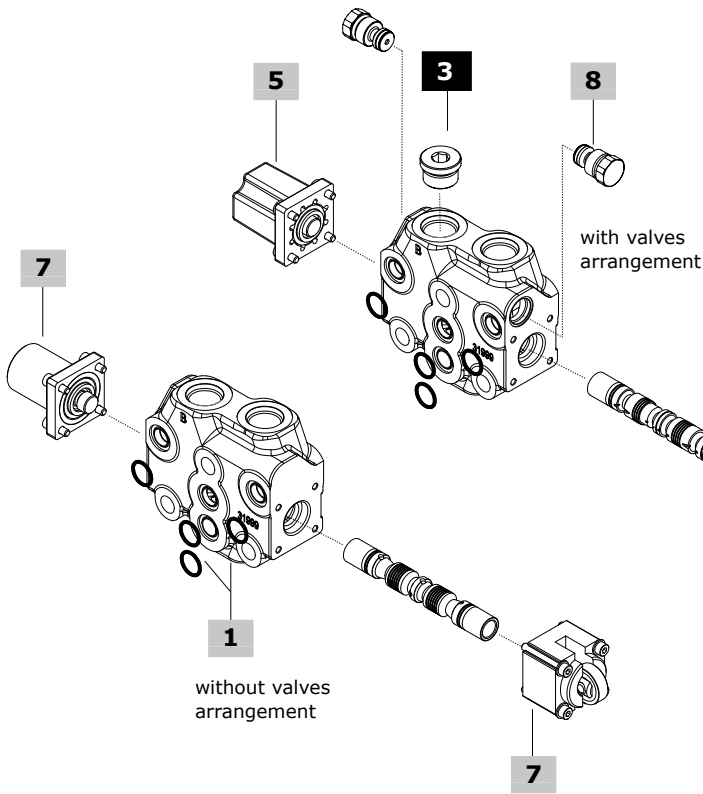
**Mechanical control valve configuration example**

spring type and setting valve (bar)

**EL GSV50 / 102 - A1 - M1 . V40(N)120 - S - SAE**  
 1 2 4 5 8 aluminium controls

**C2/C3 complete mechanical control configuration example**

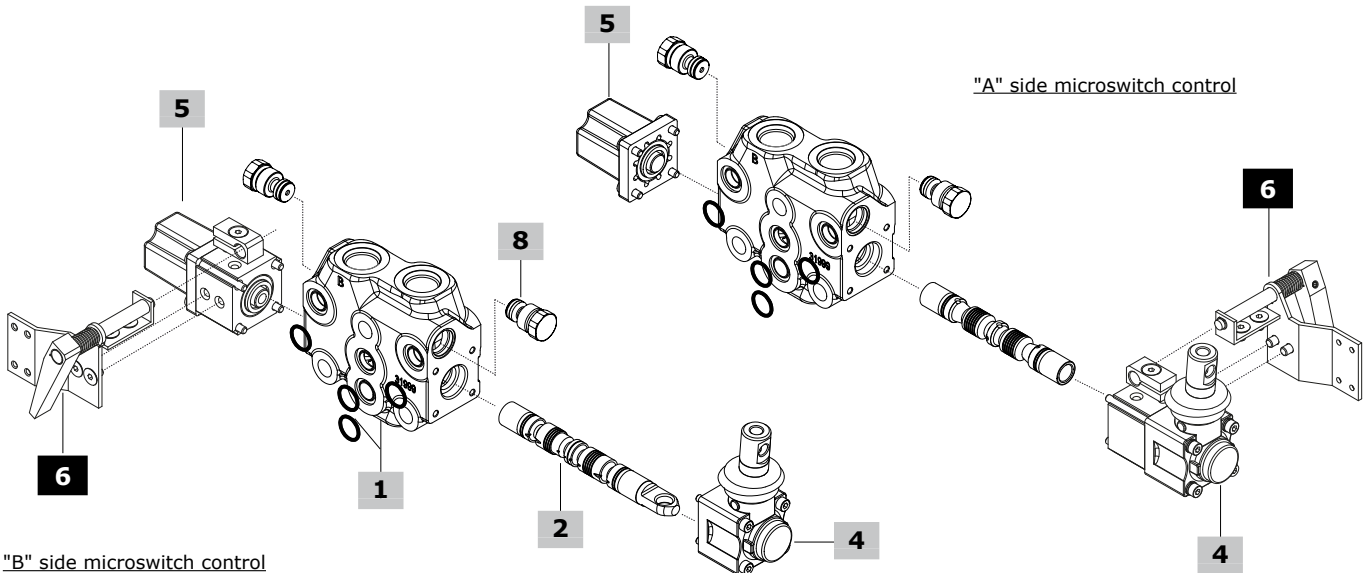
**EL GSV50 / 103 - C3 . V40(N)120 - S - SAE**  
 7



**Microswitch control valve configurations example**

**EL GSV50 / 103 - A1 - M1-N1 . V40(N)120 - S - SAE**  
 1 2 4 5 8 aluminium controls

**EL GSV50 / 103 - N1-A1 - M1 . V40(N)120 - S - SAE**  
 4 5



## Working section - parts ordering codes

**1 Working section body kit\* page 159**

TYPE: **EL-GSV50.VC-SAE** CODE: 5EL0600131747  
 DESCRIPTION: Parallel circuit, with port valves arrangement  
 TYPE: **EL-GSV50-SAE** CODE: 5EL0600131746  
 DESCRIPTION: Parallel circuit, without port valves arrangement

**2 Spool page 160**

TYPE	CODE	DESCRIPTION
<b>Standard spools</b>		
<b>103</b>	060103179499	Double acting, A and B closed in neutral position
	3CUG3197800	As previous one, for <b>kick-out</b> control
<b>106</b>	KR30106	Double acting for closed circuit
<b>107</b>	KR30107-108	Double acting, A to tank and B closed in neutral position
<b>108</b>	KR30107-108	Double acting, B to tank and A closed in neutral position
<b>111</b>	060103179599	Double acting, A and B to tank in neutral position
	KR30111K	As previous one, for <b>kick-out</b> control
<b>101</b>	3CUG3218000	Single acting on port A. SAE8 plug is required, see #3
<b>102</b>	3CUG3218002	Single acting on port B. SAE8 plug is required, see #3
<b>116</b>	3CUG3179200	Double acting, with floating in the 4 <sup>th</sup> position (spool in): requires dedicated spool control
<b>126</b>	3CUG3179201	Double acting, with floating in the 4 <sup>th</sup> position (spool out): requires dedicated spool control

**Special spools for cam, microswitch controls and other leverless controls**

<b>103</b>	060103179099	Double acting, A and B closed in neutral position
<b>111</b>	060103179199	Double acting, A and B to tank in neutral position

**3 Plug for single acting spool\***

TYPE	CODE	DESCRIPTION
-	255008	SAE8 plug

**4 A side control page 161**

**Note:** For other control type, see Q30/Q50 valves

TYPE	CODE	DESCRIPTION
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**For standard spools****With lever control:**

<b>A1</b>	03600A1-A2	M8 thread plastic lever box
<b>A2</b>	03600A1-A2	As A1 type, with lever box rotated 180°
<b>A1/10</b>	03610A1-A2/10	M8 thread aluminium lever box
<b>A2/10</b>	03610A1-A2/10	As A1/10 type, with lever box rotated 180°
<b>A1/PM</b>	03610A1-A2/PM	M10 thread aluminium lever box
<b>A2/PM</b>	03610A1-A2/PM	As A1/PM type, with lever box rotated 180°
<b>A1/PMP</b>	03610A1-A2/PMP	M10 thread plastic lever box
<b>A2/PMP</b>	03610A1-A2/PMP	As A1/PMP type, with lever box rotated 180°
<b>A1/Z1</b>	03610A1-A2/Z1	Plastic lever box, for <b>116</b> spool type
<b>A2/Z1</b>	03610A1-A2/Z1	As A1/Z1 type, with lever box rotated 180°

**With safety lever control:**

<b>A1/S<sup>(1)</sup></b>	03624A1-A2/S	M8 thread aluminium lever box
<b>A2/S<sup>(1)</sup></b>	03624A1-A2/S	As A1/S type, with lever box rotated 180°

**Without lever control:**

<b>A4/Z1</b>	03617A4/Z1	As A4 type, for <b>116</b> spool type
<b>A6</b>	03620A6	With flange
<b>A6-H/Z1</b>	03620A6-H/Z1SI	As A6 type, for <b>116</b> spool type
<b>A8</b>	03622A8/03	Arrangement for flexible cable control
<b>A8/Z1</b>	03622A8/Z1	As A8 type, for <b>116</b> spool type

**4 A side control (cont.) page 161**

**Note:** For other control type, see Q30/Q50 valves

TYPE	CODE	DESCRIPTION
------	------	-------------

**With joystick controls for 2 section operation:**

<b>A35/1</b>	03640A35-12	Joystick 1 type
<b>A35/2</b>	03640A35-12	Joystick 2 type
<b>A35/3</b>	03640A35-34	Joystick 3 type
<b>A35/4</b>	03640A35-34	Joystick 4 type

**For types 103 and 111 special spools****With spool position microswitch:**

<b>Note:</b> To complete the control you must use the assembly kit at #6		
<b>N1-A1</b>	03641N1-A1/A2	Micro operation in pos. 1 and 2, with lever box
<b>N1A-A1</b>	03642N1A-A1/A2	Micro operation in pos. 1, with lever box
<b>N1B-A1</b>	03643N1BA1/A2L	Micro operation in pos. 2, with lever box
<b>N1-A3</b>	03648N1-A3L	Micro operation in pos. 1 and 2, without lever with cap
<b>N1A-A3</b>	03648N1A-A3L	Micro operation in pos. 1, without lever with cap
<b>N1B-A3</b>	03648N1B-A3L	Micro operation in pos. 2, without lever with cap

**Without lever control:**

<b>A3</b>	03614A3	Without lever, with cap
<b>A4</b>	03617A4	M8 thread male external pin with flange
<b>A5<sup>(2)</sup></b>	03619A5	Flange with spherical spool end

**5 B side control page 168**

**Note:** For other control type, see Q30/Q50 valves

TYPE	CODE	DESCRIPTION
------	------	-------------

**With spring return:**

<b>M1</b>	03730M1	3 pos., spring return in neutral position
<b>M1/01</b>	03730M1/01	As M1 type, for joystick control
<b>M1-B1</b>	03753M1-B1	As M1 type, with microswitch arrangement
<b>M1-U1</b>	03701M1-U1	As M1 type, with M8 male thread external pin
<b>M2</b>	03732M2	2 pos. (0-1), spring return in neutral position
<b>M2-U1</b>	03702M2-U1	As M2 type, with M8 male thread external pin
<b>M3</b>	03733M3	2 pos. (0-2), spring return in neutral position
<b>M3-U1</b>	03703M3-U1	As M3 type, with M8 male thread external pin
<b>M4</b>	03734M41-2	2 pos. (1-2), spring return in position 1
	03735M42-1	2 pos. (2-1), spring return in position 2
<b>M4-U1</b>	03704M4-U11-2	As M4 type (1-2), with M8 male thread external pin

**With flexible cable control arrangement:**

<b>M1-U2</b>	03715M1-U2	3 pos., spring return in neutral position
<b>M2-U2</b>	03716M2-U2	2 pos. (0-1), spring return in neutral position
<b>M3-U2</b>	03717M3-U2	2 pos. (0-2), spring return in neutral position

**With detent:**

<b>R1</b>	03741R1	3 pos., detent in position 1
<b>R2</b>	03742R2	3 pos., detent in position 2
<b>R3</b>	03743R3	3 pos., detent in all position
<b>R4</b>	03744R4	2 pos., detent in position 0-1
<b>R5</b>	03745R5	2 pos., detent in position 0-2
<b>R6</b>	03746R6	2 pos., detent in position 1-2
<b>R8</b>	03748R8	4 pos., detent in 4 <sup>th</sup> pos., for <b>116</b> spool type

<b>R10/Z1</b>	03750R10/Z1	4 pos., detent in 4 <sup>th</sup> pos., for <b>126</b> spool type
---------------	-------------	---

**With detent and kick out function:**

<b>R1K</b>	03741R1K	3 pos., detent in position 1
<b>R2K</b>	03742R2K	3 pos., detent in position 2
<b>R3K</b>	03743R3K	3 pos., detent in all position

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

(<sup>1</sup>): Always complete with lever knob

(<sup>2</sup>): To be assembled only with M4 control

**Working section - parts ordering codes**

**5 B side control (cont.) page 168**

**Note:** For other control type, see Q30/Q50 valves

With spool position microswitch:

**Note:** To complete the control you must use the assembly kit at #6

<b>M1-N1</b>	03766M1-N1	3 pos., micro operation in pos. 1 and 2, spring return in neutral position
<b>M1-N1A</b>	03767M1-N1AL	As M1-N1 type, micro operation in pos. 1
<b>M1-N1B</b>	03768M1-N1BL	As M1-N1 type, micro operation in pos. 2
<b>M2-N1</b>	03769M2-N1L	2 pos. (0-1), spring return in neutral position
<b>M3-N1</b>	03772M3-N1L	2 pos. (0-2), spring return in neutral position

With pneumatic and electropneumatic controls:

<b>P1NW</b>	03661P1-NW	ON/OFF pneumatic control
<b>P1NPW</b>	03661P1-NPW	Proportional pneumatic control
<b>D3W</b>	03691D3-F-12DC	12 VDC, ON/OFF electropneumatic control
	03692D3-F-24DC	24 VDC, ON/OFF electropneumatic control

**6 Microswitch assembly 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
03650N1-09	Kit for 9 sections
03650N1-10	Kit for 10 sections

**7 Complete controls A+B sides page 173**

TYPE	CODE	DESCRIPTION
<b>For types 103 and 111 special spools</b>		
<b>C2</b>	03792C2-C3	Cam control from pos. 1 to 2
<b>C3</b>	03792C2-C3	Cam control from pos. 2 to 1

**8 Auxiliary port valve page 177**

TYPE	CODE	DESCRIPTION
<u>Antishock valve:</u>		
<b>V30-B</b>	0380FV30-B	Setting range: from 50 to 80 bar <i>(from 725 to 1150 psi)</i>
<b>V30-N</b>	0380FV30-N	Setting range: from 81 to 200 bar <i>(from 1170 to 2900 psi)</i>
<b>V30-R</b>	0380FV30-R	Setting range: from 201 to 350 bar <i>(from 2910 to 5100 psi)</i>
<u>Antishock/anticavitation valve:</u>		
<b>V33-B</b>	0380FV33-B	Setting range: from 50 to 80 bar <i>(from 725 to 1150 psi)</i>
<b>V33-N</b>	0380FV33-N	Setting range: from 81 to 200 bar <i>(from 1170 to 2900 psi)</i>
<b>V33-R</b>	0380FV33-R	Setting range: from 201 to 350 bar <i>(from 2910 to 5100 psi)</i>
<u>Anticavitation valve:</u>		
<b>V04</b>	03808V04	Anticavitation valve
<u>Plug:</u>		
<b>VC</b>	060002846099	Valve blanking plug

For other configurations and positions, see page 177

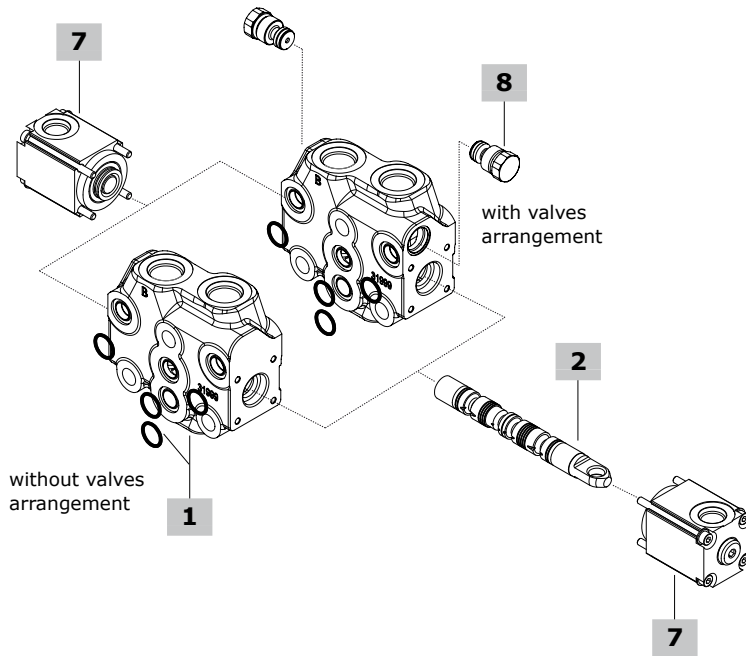
**Working section - parts ordering codes**

**Proportional hydraulic controls valve configuration example**

spring type and valve setting (bar)

**EL GSV50 / 103 - H5 . V40(N)120 - S - SAE**

aluminium controls



**1 Working section body kit\* page 159**

TYPE: **EL-GSV50-H5.VC-SAE** CODE: 5EL0600131747H5  
 DESCRIPTION: Parallel circuit, with port valves arrangement  
 TYPE: **EL-GSV50-H5-SAE** CODE: 5EL0600131746H5  
 DESCRIPTION: Parallel circuit, without port valves arrangement

**2 Spool page 160**

TYPE CODE DESCRIPTION  
**103** 060103179499 Double acting, A and B closed in neutral position

**7 Hydraulic controls A+B sides\* page 174**

TYPE CODE DESCRIPTION  
**H5** 03785H5/SAE Low pressure proportional type, upper ports

**8 Auxiliary port valve page 177**

See #8, page 156

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

### Working section - parts ordering codes

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

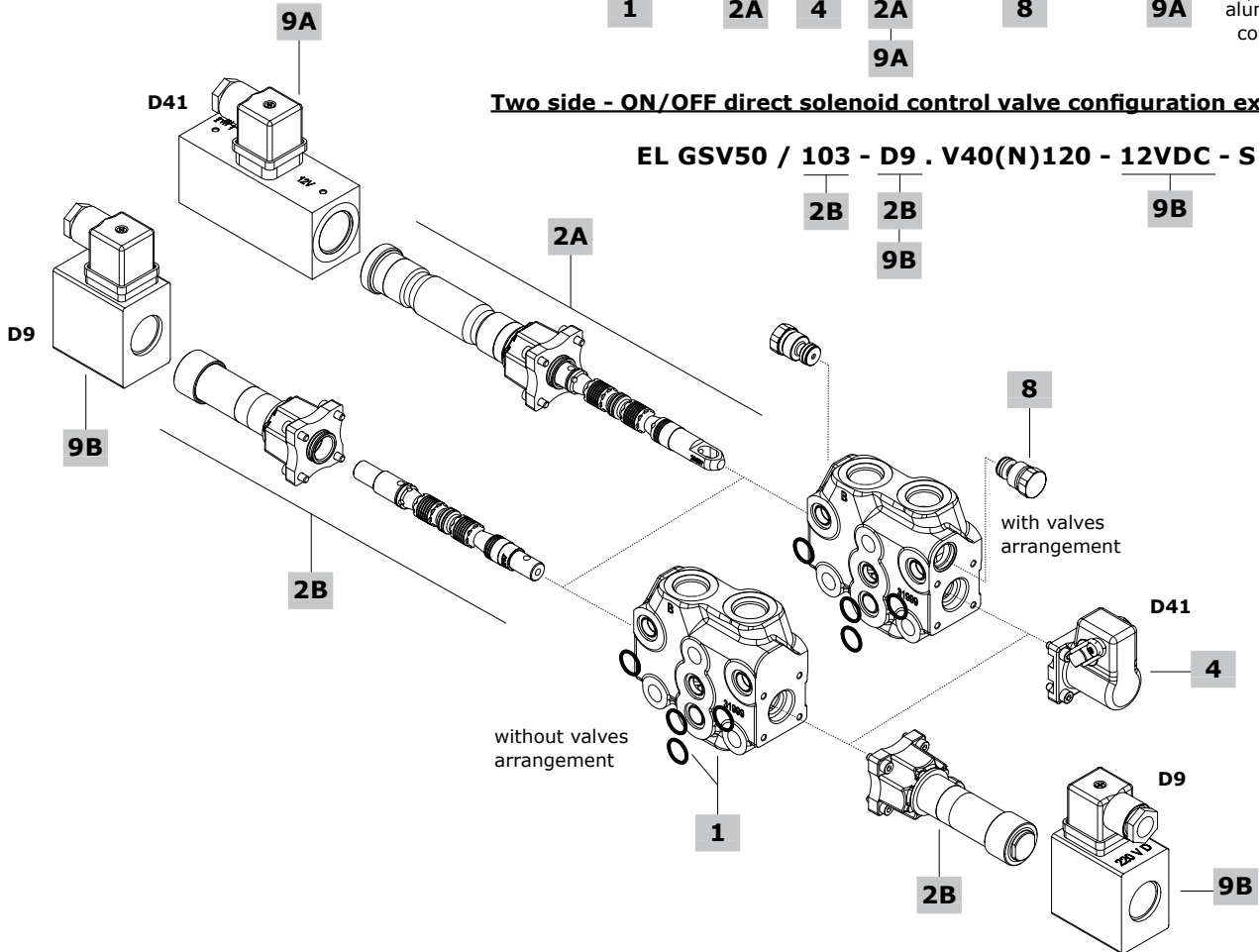
spring type and valve setting (bar)

**EL GSV50 / 103 - A1 - D41 . V40(N)120 - 12VDC - S - SAE**



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

**EL GSV50 / 103 - D9 . V40(N)120 - 12VDC - S - SAE**



#### 1 Working section body kit\* page 159

See #1, page 157

#### 2A D41 solenoid control page 174

##### One side solenoid control

TYPE	CODE	DESCRIPTION
103	X060102889799	Double acting, A and B closed in neutral position
107	X060102938199	Double acting, A to tank and B closed in neutral position
111	X060102894299	Double acting, A and B to tank in neutral position

#### 2B D9 solenoid control page 176

##### Two side solenoid control

TYPE	CODE	DESCRIPTION
103	X060102998299	Double acting, A and B closed in neutral position
111	X060103000499	Double acting, A and B to tank in neutral position

#### 4 A side control for D41 page 175

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

#### 8 Auxiliary port valve page 177

See #8, page 156

#### 9A/B Coil page 175

##### D41 coil

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

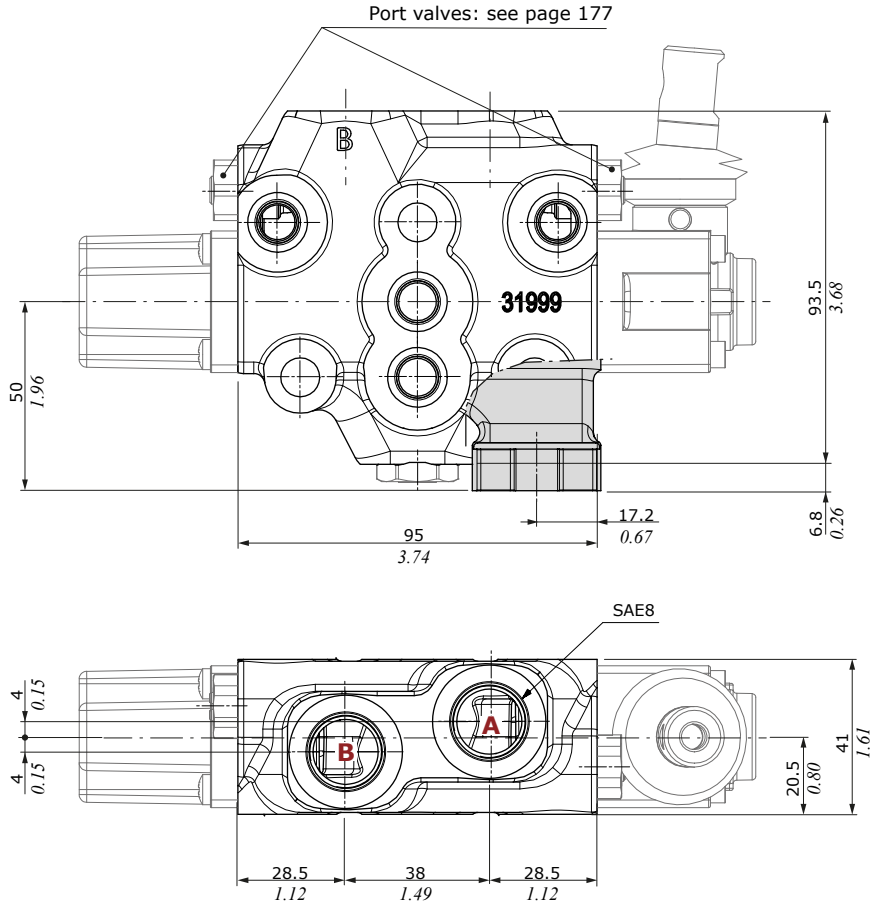
##### D9 coil

TYPE	CODE	DESCRIPTION
-	ZDB212	12 VDC ISO4400 coil
-	ZDB224	24 VDC ISO4400 coil

**Note:** The connector is included

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

**Dimensional data and hydraulic circuits**

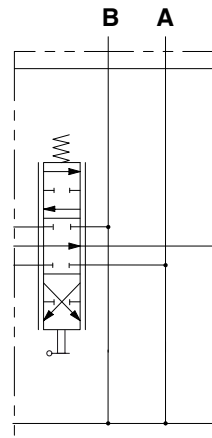
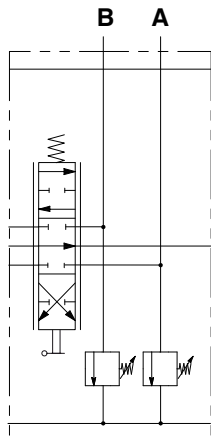


**GSV50.V40(N)120-SAE configuration**

Parallel circuit, mechanical control with aux valves

**GSV50-SAE configuration**

Parallel circuit, mechanical control without aux valves



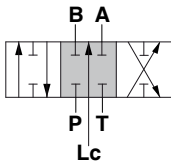
**Working section**

**Spool**

**103 type**

A and B closed in neutral position

2 0 1



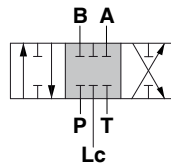
**Stroke**

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

**106 type**

A, B and Lc closed in neutral position. For closed center

2 0 1



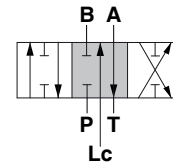
**Stroke**

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

**107 type**

A to tank, B closed in neutral position

2 0 1



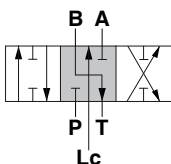
**Stroke**

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

**108 type**

B to tank, A closed in neutral position

2 0 1



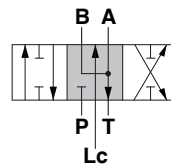
**Stroke**

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

**111 type**

A and B to tank in neutral position

2 0 1



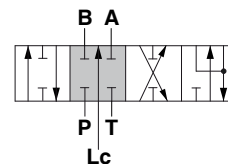
**Stroke**

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

**116 type**

With floating in the 4<sup>th</sup> position (spool in)

2 0 1 3



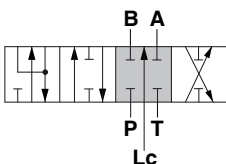
**Stroke**

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 4<sup>th</sup> position (spool out)

3 2 0 1



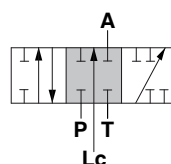
**Stroke**

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

2 0 1



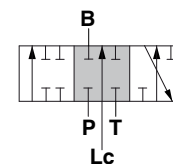
**Stroke**

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

**102 type**

Single acting on B, A plugged

2 0 1



**Stroke**

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

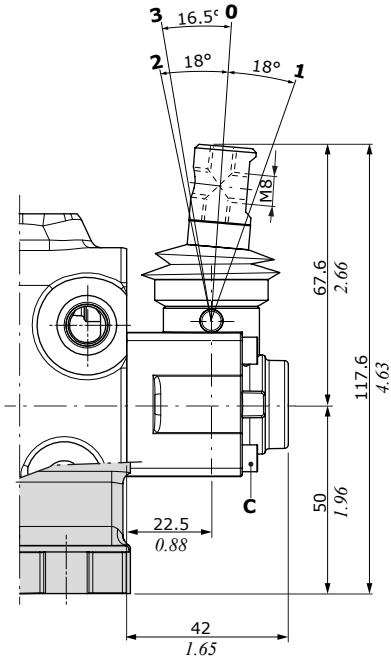
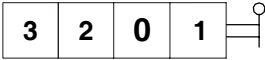


**A side controls**

**With lever control**

**A1 type**

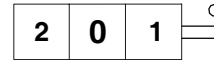
M8 thread plastic lever box



**A1/10 type**

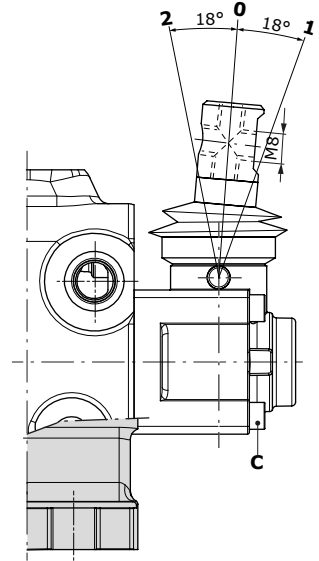
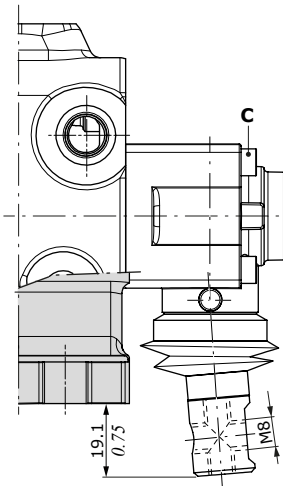
M8 thread aluminium lever box.  
Dimensions are the same of A1 type

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



**A2 type**

As A1 type, rotated 180°



**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbf<sub>t</sub>)

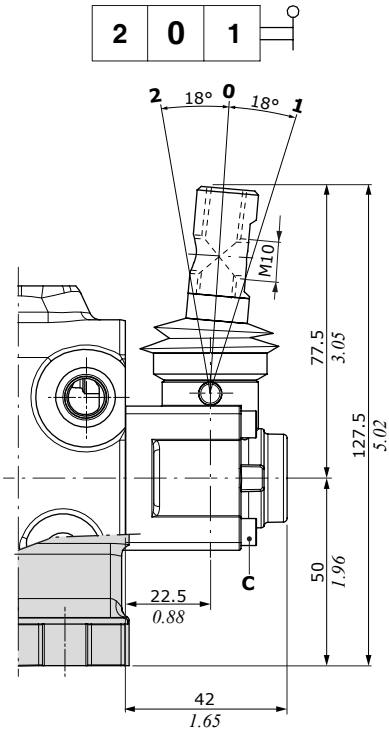
**Working section**

**A side controls**

**With lever control**

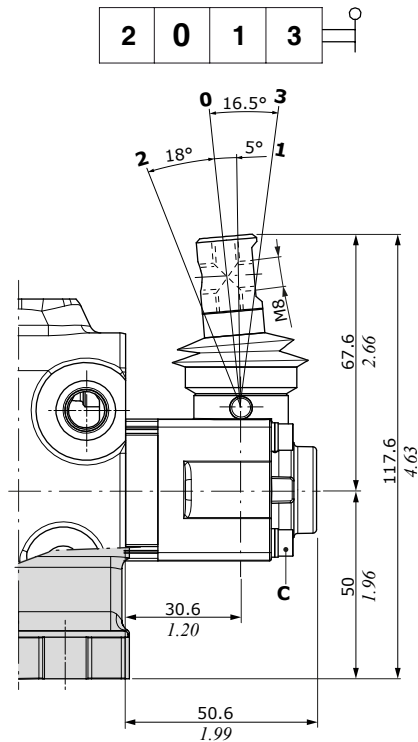
**A1/PM type**

M10 thread aluminium lever box



**A1/Z1 type**

M8 thread, for 116 floating spool type



**A1/PMP type**

M10 thread plastic lever box.

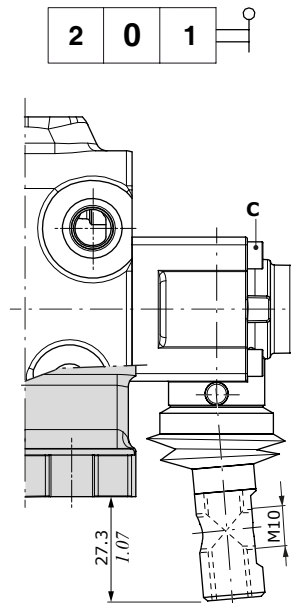
Dimensions are the same of A1/PM type

**A2/PMP type**

As A1/PMP type, rotated 180°

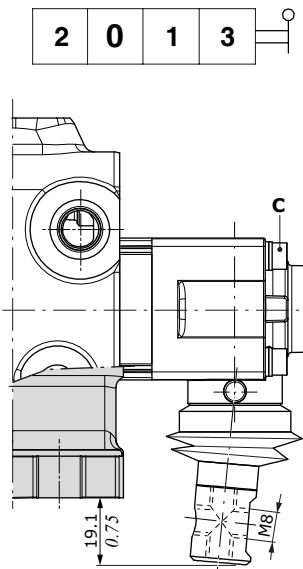
**A2/PM type**

As A1/PM type, rotated 180°



**A2/Z1 type**

As A1/Z1 type, rotated 180°



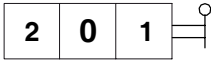
**Wrenches and tightening torques**  
C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)

**A side controls**

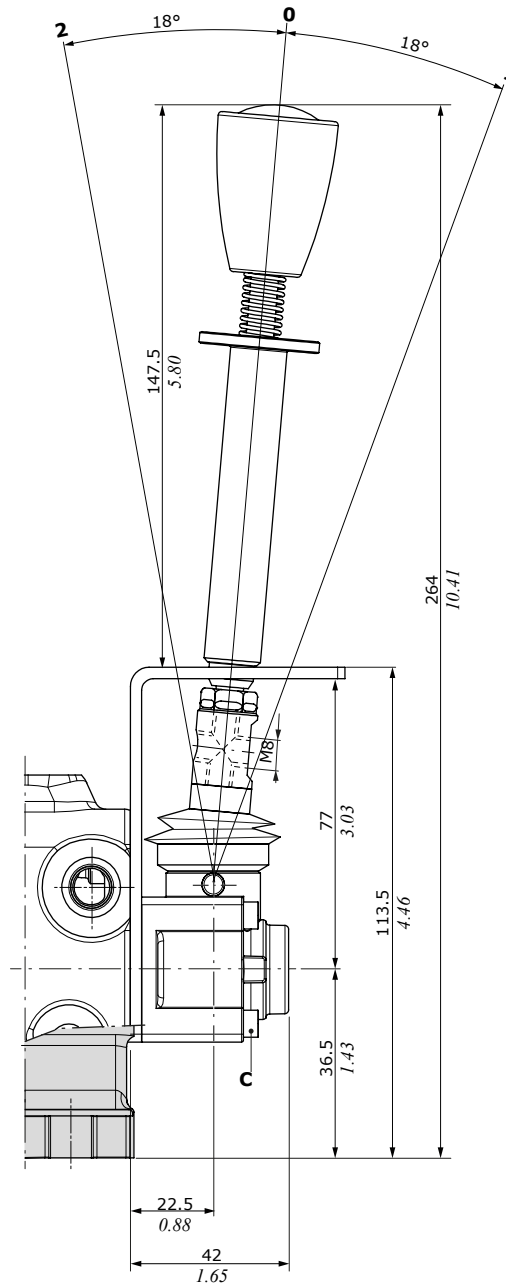
**With safety lever control**

**A1/S type**

M8 thread, aluminium lever box

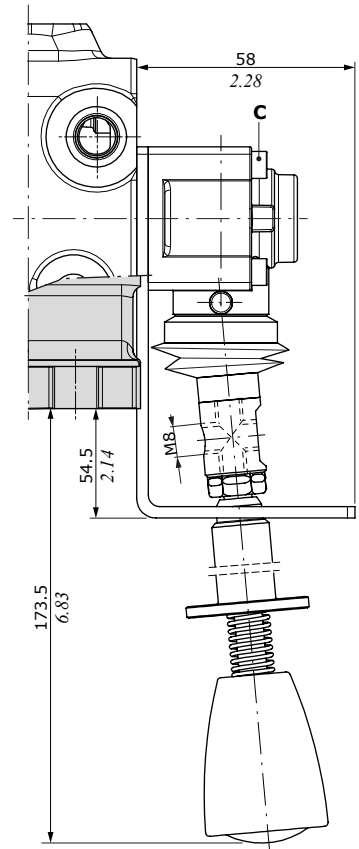
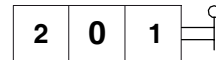


**Wrenches and tightening torques**  
 C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)



**A2/S type**

As A1/S type, rotated 180°

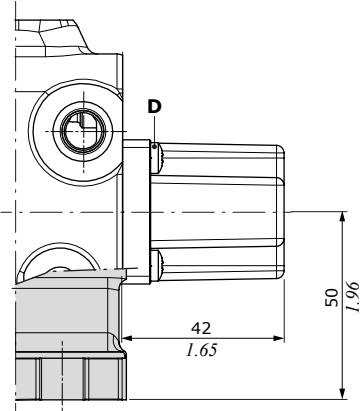
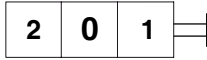


**Working section**

**A side controls**

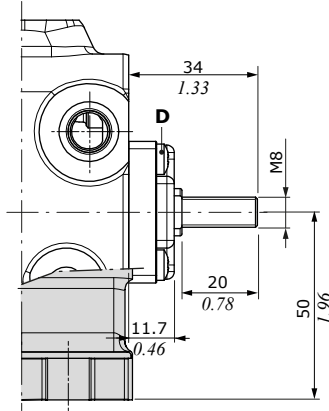
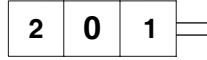
**Without lever control**

**A3 type**  
With cap



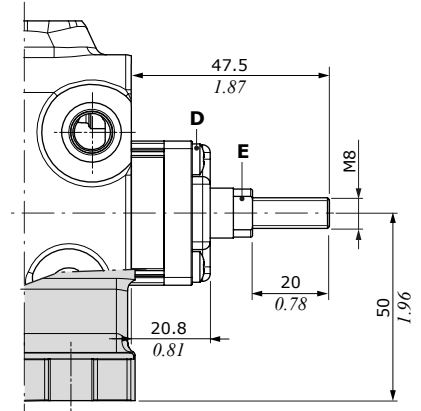
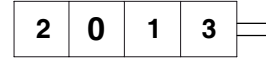
**A4 type**

M8 thread male external pin with flange



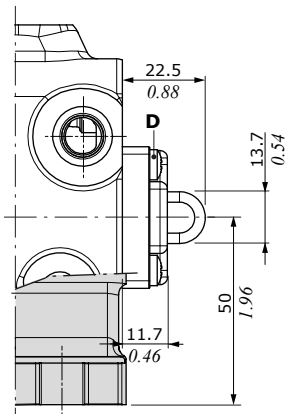
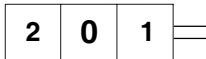
**A4/Z1 type**

As A4 type,  
for 116 floating spool type



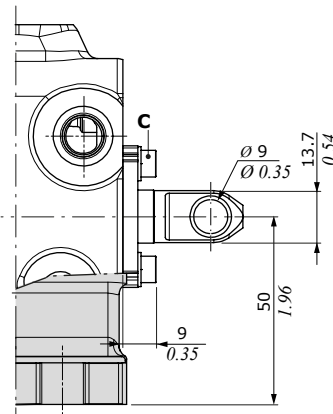
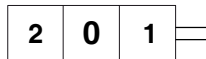
**A5 type**

Flange with spherical spool end



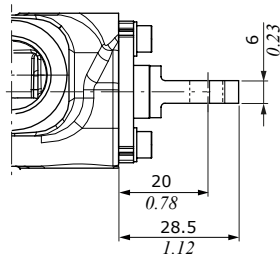
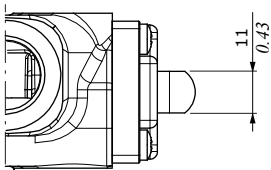
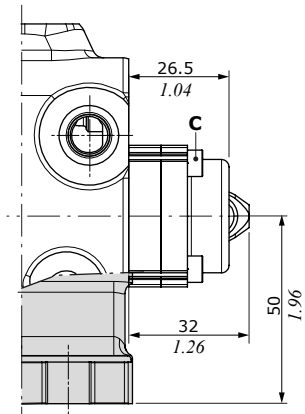
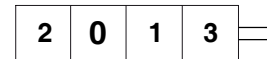
**A6 type**

Flange with spool eye end



**A6-H/Z1 type**

As A6 type, for 116 floating spool type



**Wrenches and tightening torques**

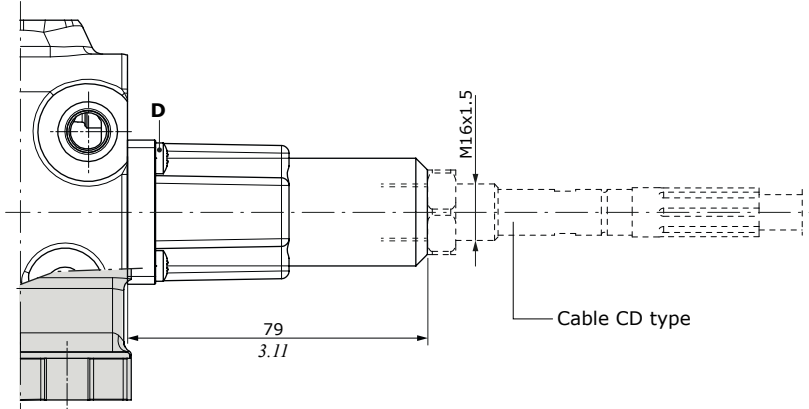
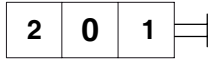
- C = allen wrench 3 - 3 Nm (2.2 lbft)
- D = cross-head - 3 Nm (2.2 lbft)
- E = wrench 9 - 9.8 Nm (7.2 lbft)

**A side controls**

**With flexible cable control arrangement**

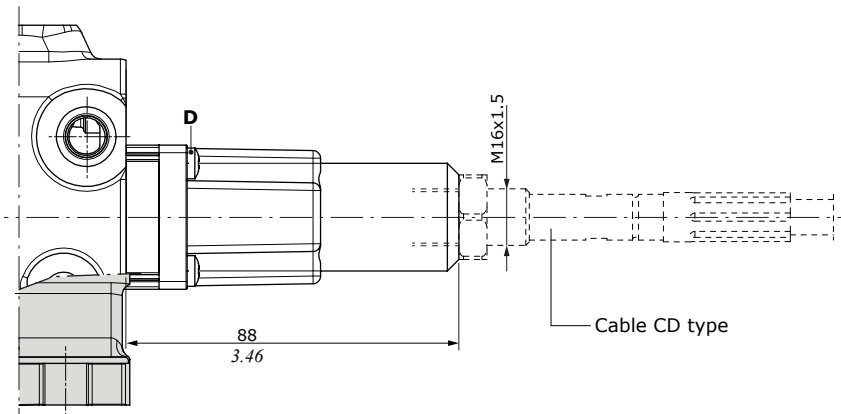
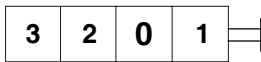
**A8 type**

Flexible cable control arrangement



**A8/Z1 type**

As A8 type, for 116 floating spool type



**Wrenches and tightening torques**

D = cross-head - 3 Nm (2.2 lbf<sup>t</sup>)

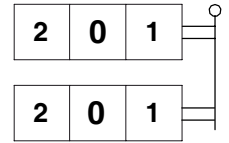
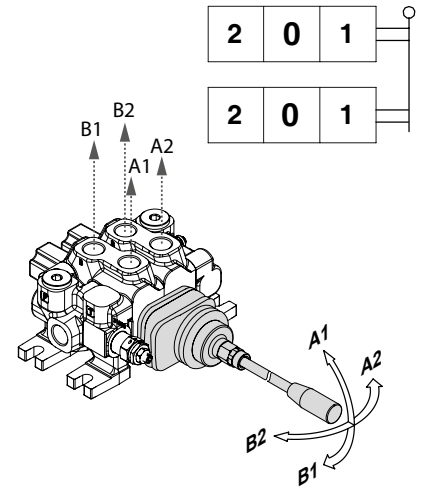
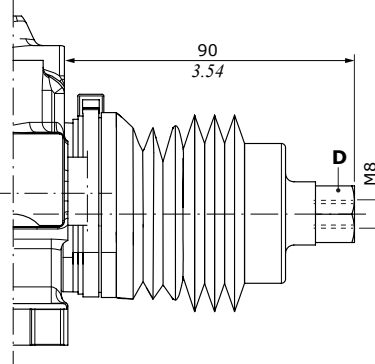
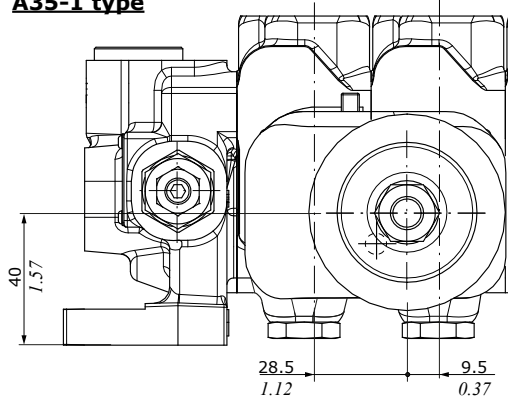
### Working section

#### A side controls

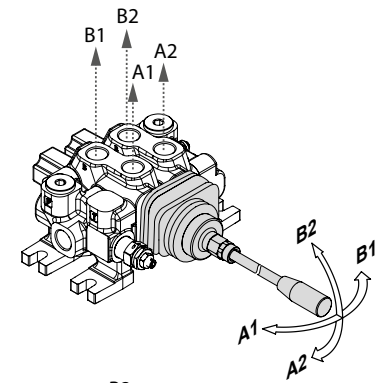
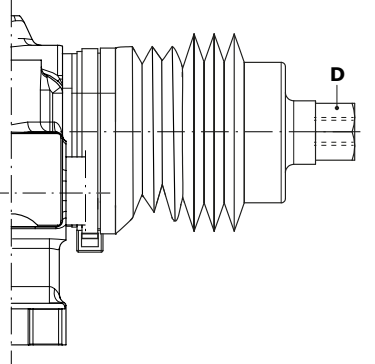
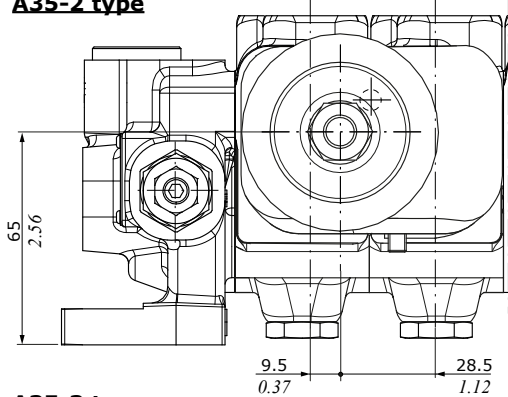
##### Joystick control

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

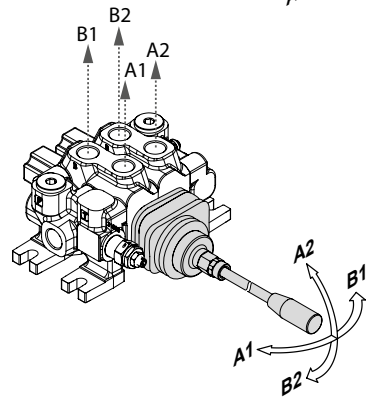
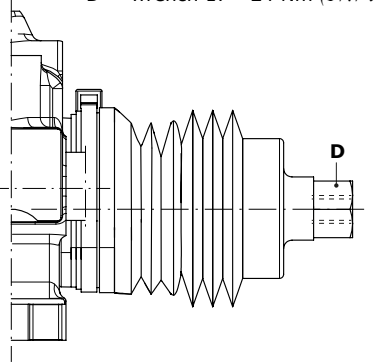
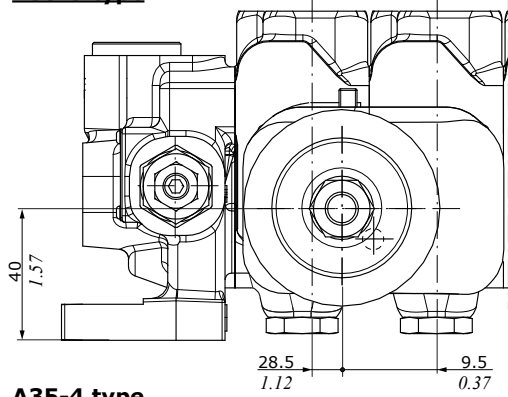
##### A35-1 type



##### A35-2 type

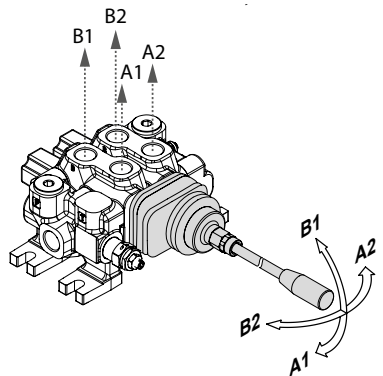
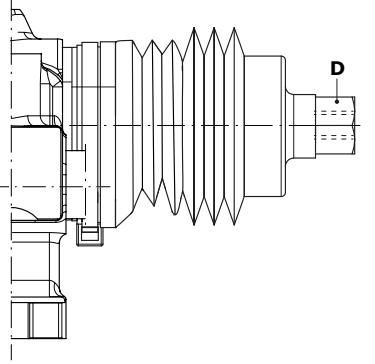
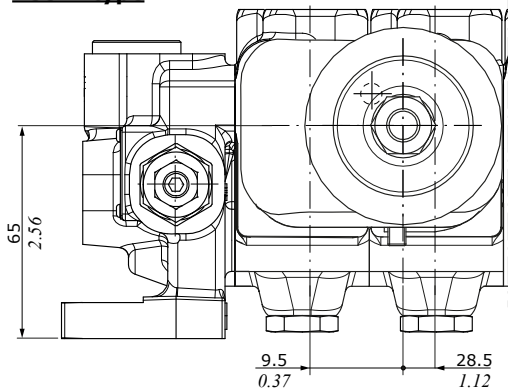


##### A35-3 type



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

##### A35-4 type



**A side controls**

**With spool position microswitch, with lever**

**With spool position microswitch, with cap**

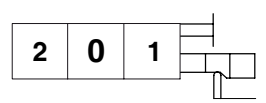
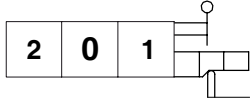
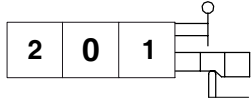
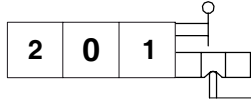
**N1-A1 type**  
Micro operation  
in position 1 and 2

**N1A-A1 type**  
Micro operation in  
position 1

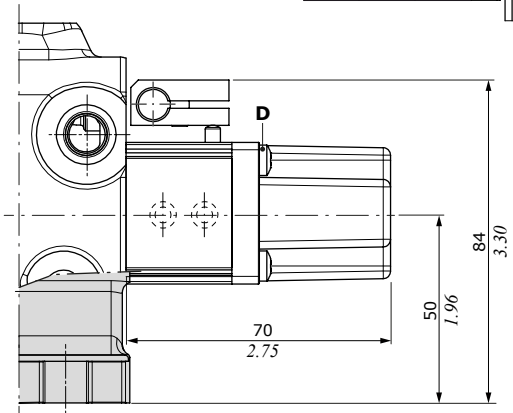
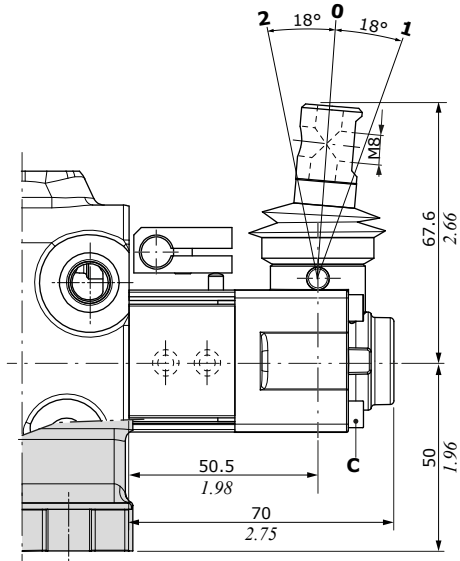
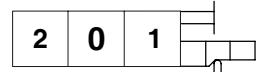
**N1B-A1 type**  
Micro operation in  
position 2

**N1-A3 type**  
Micro operation  
in position 1 and 2

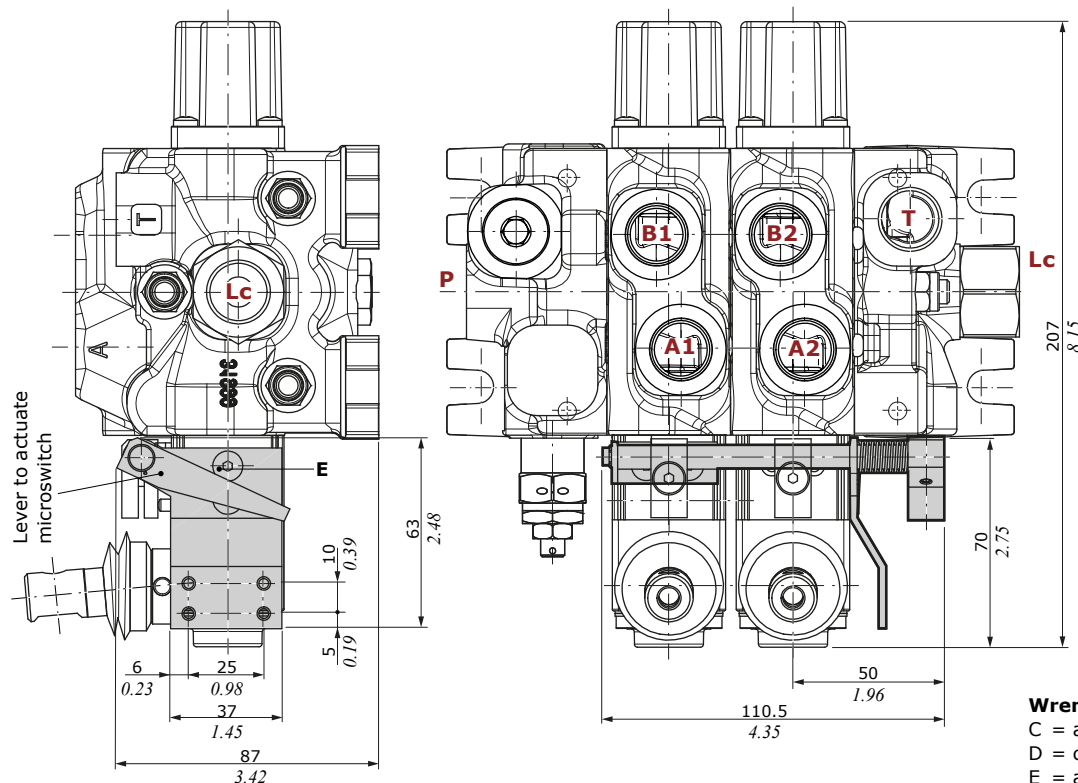
**N1A-A3 type**  
Micro operation in  
position 1



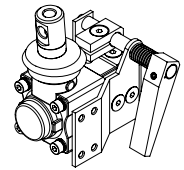
**N1B-A3 type**  
Micro operation in  
position 2



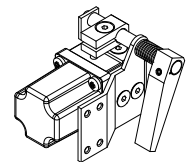
**Microswitch assembly kit for 2 working section (N1-A1 type)**



with lever box



with cap



**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)

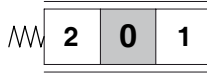
**Working section**

**B side controls**

**With spring return control**

**M1 type**

3 position, spring return in neutral position

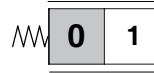


**M1/01 type**

As M1 type, for joystick control

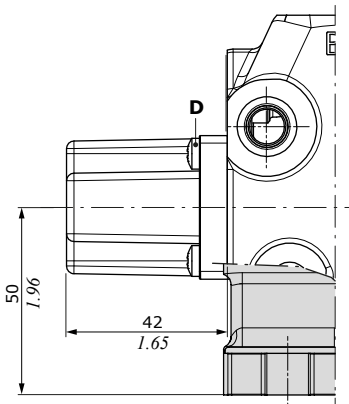
**M2 type**

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

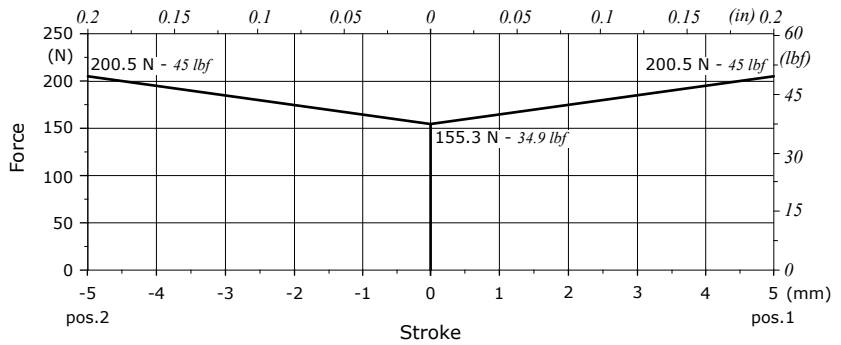


**M3 type**

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

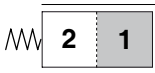


**M1 control type - Force vs. Stroke diagram**

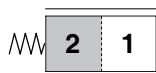


**M4 types**

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

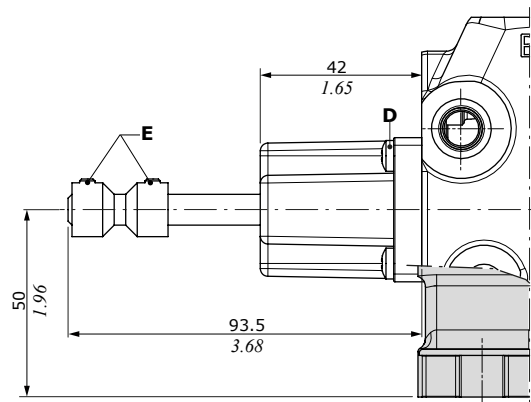
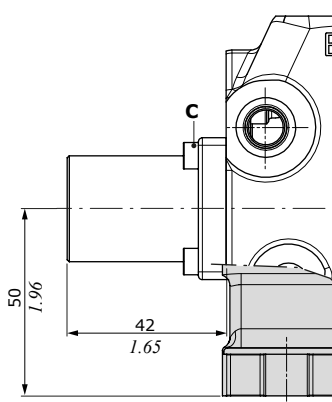
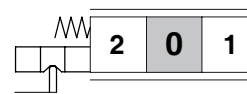


2 position (2-1), spring return in position 2



**M1-B1 type**

3 position, microswitch arrangement



**Wrenches and tightening torques**

- C = allen wrench 3 - 3 Nm (2.2 lbf<sub>t</sub>)
- D = cross-head - 3 Nm (2.2 lbf<sub>t</sub>)
- E = allen wrench 3 - 5 Nm (3.68 lbf<sub>t</sub>)

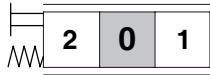


**B side controls**

**With spring return control**

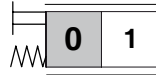
**M1-U1 type**

3 position, with M8 male thread external pin



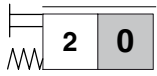
**M2-U1 type**

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



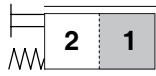
**M3-U1 type**

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



**M4-U1 type**

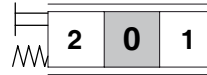
2 position (1-2), with M8 male thread external pin



**With flexible cable control arrangement**

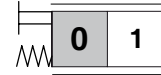
**M1-U2 type**

3 position, spring return in neutral position



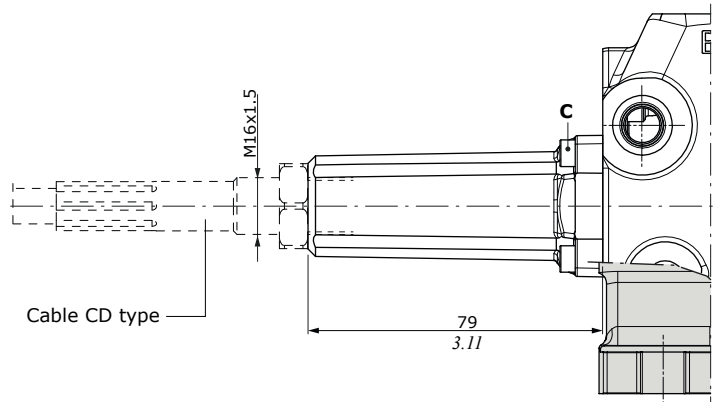
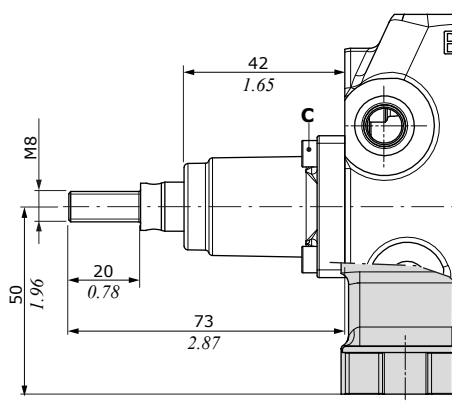
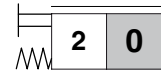
**M2-U2 type**

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



**M3-U2 type**

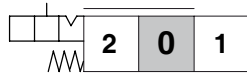
2 position (0-2), spring return in neutral position



**With detent control**

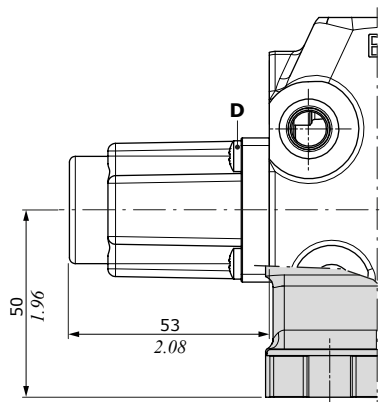
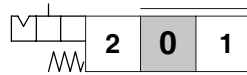
**R1 type**

3 position, detent in position 1



**R2 type**

3 position, detent in position 2



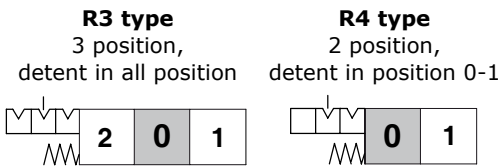
**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbf)  
D = cross-head - 3 Nm (2.2 lbf)

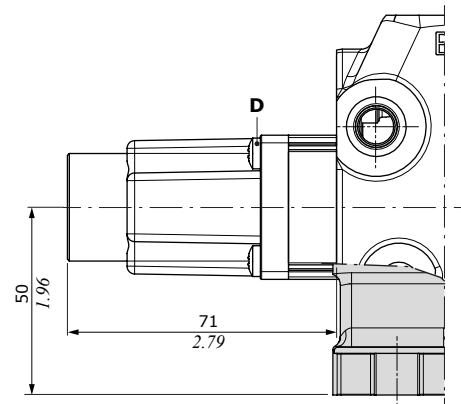
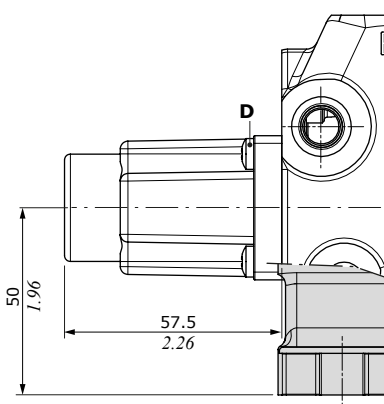
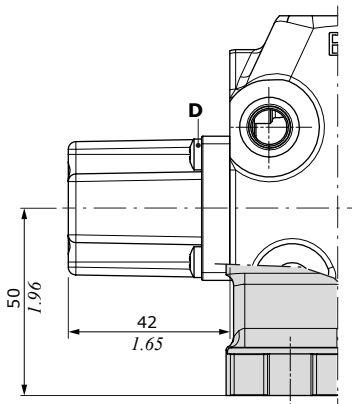
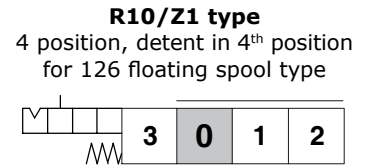
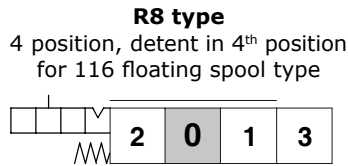
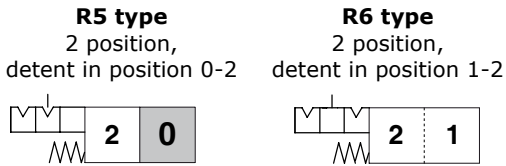
**Working section**

**B side controls**

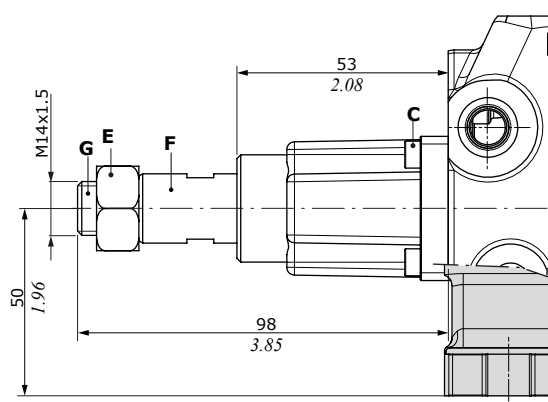
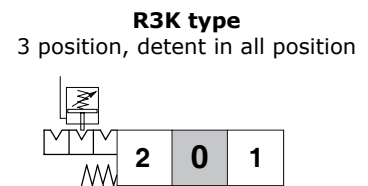
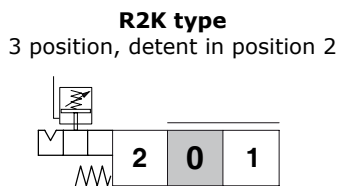
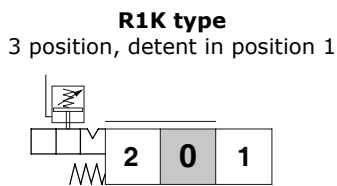
**With detent control**



**Wrenches and tightening torques**  
 C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)  
 D = cross-head - 3 Nm (2.2 lbf<sup>t</sup>)  
 E = wrench 22 - 32 Nm (23.6 lbf<sup>t</sup>)  
 F = wrench 16  
 G = allen wrench 10 - 32 Nm (23.6 lbf<sup>t</sup>)



**With detent control and kick out function**

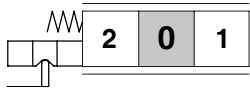


**B side controls**

**With spool position microswitch**

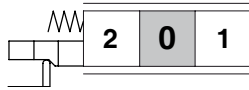
**M1-N1 type**

3 position, micro operation in position 1 and 2, spring return in neutral position



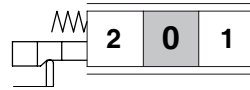
**M1-N1A type**

3 position, micro operation in position 1



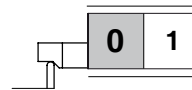
**M1-N1B type**

3 position, micro operation in position 2



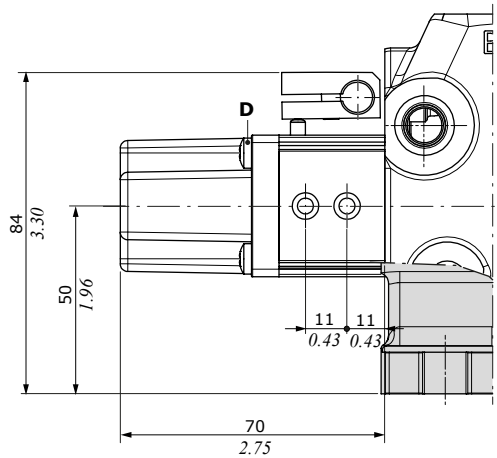
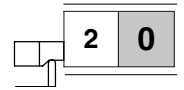
**M2-N1 type**

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



**M3-N1 type**

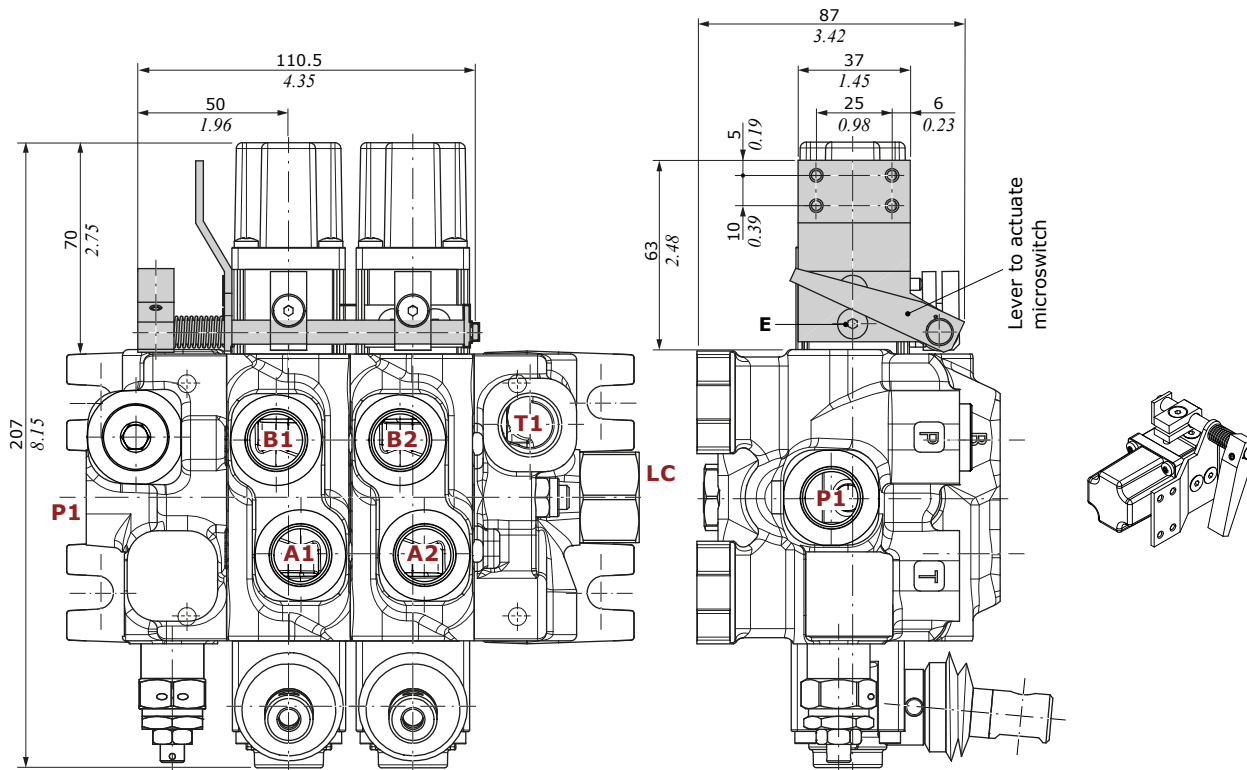
2 position (0-2), spring return in neutral position



**Wrenches and tightening torques**

D = cross-head - 3 Nm (2.2 lbft)  
E = allen wrench 3 - 6.6 Nm (4.8 lbft)

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



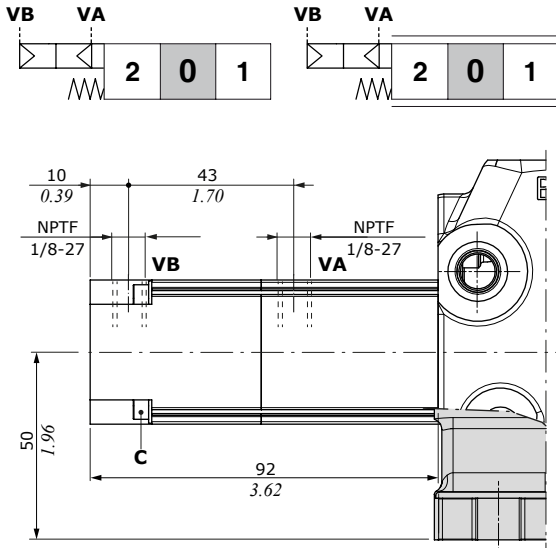
**Working section**

**B side controls**

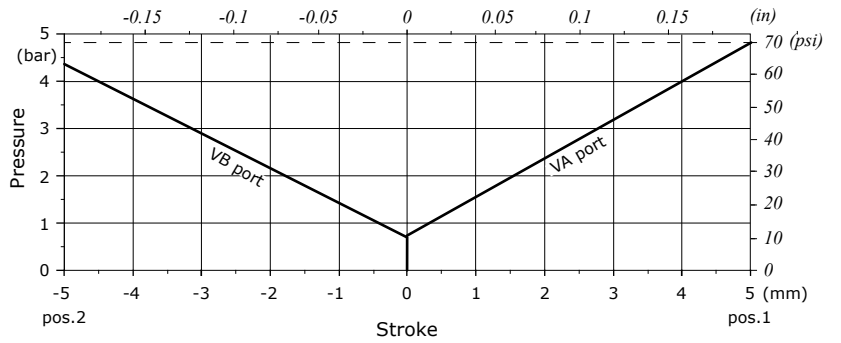
**With pneumatic control**

**P1NW type**  
ON/OFF control

**P1NPW type**  
Proportional control



**Proportional pilot pressure curves**



**Operating features**

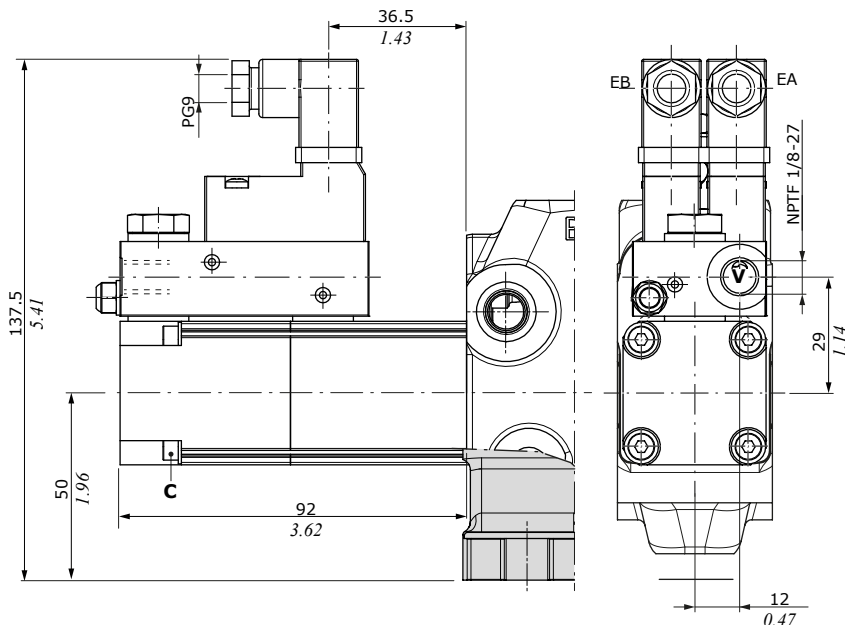
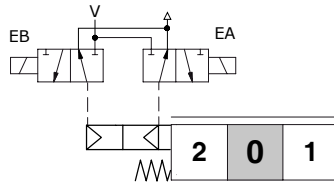
Pilot pressure..... : min. 5 bar (72.5 psi) - max. 30 bar (435 psi)  
 Pilot volume..... : 4 cm<sup>3</sup>/min (0.24 in<sup>3</sup>/min)

**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbft)

**With ON/OFF electropneumatic control**

**D3W type**  
ON/OFF control



**Operating features**

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

**COILS**

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

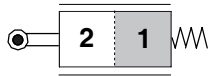
**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbft)

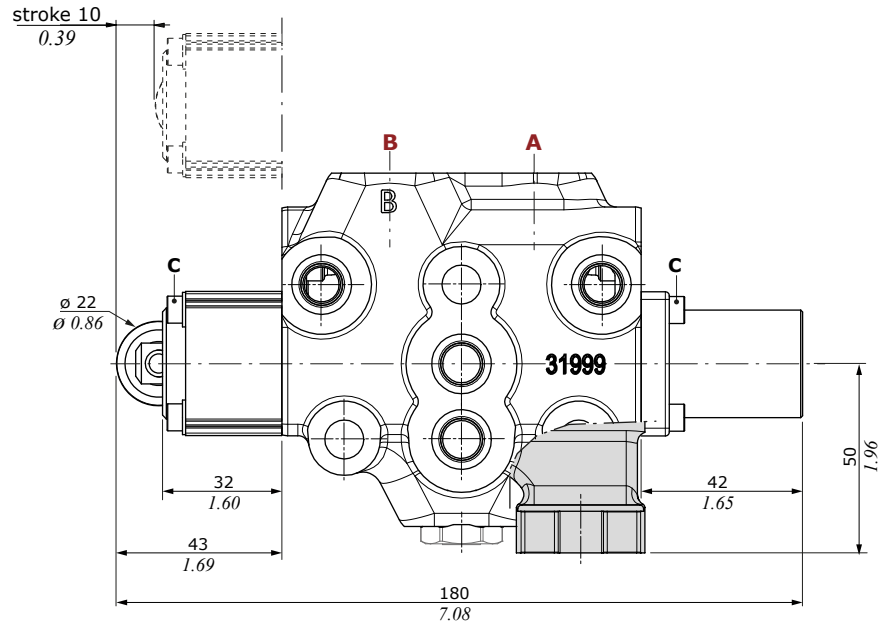
A+B side controls

With cam control

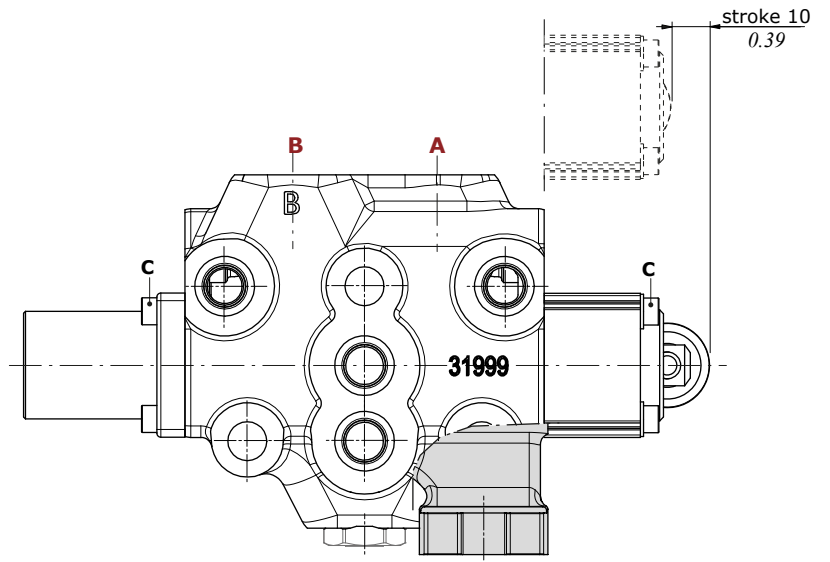
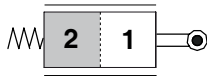
**C2 type**  
From position 1 to position 2,  
spring return in position 1



**Wrenches and tightening torques**  
C = allen wrench 3 - 3 Nm (2.2 lbf<sub>t</sub>)



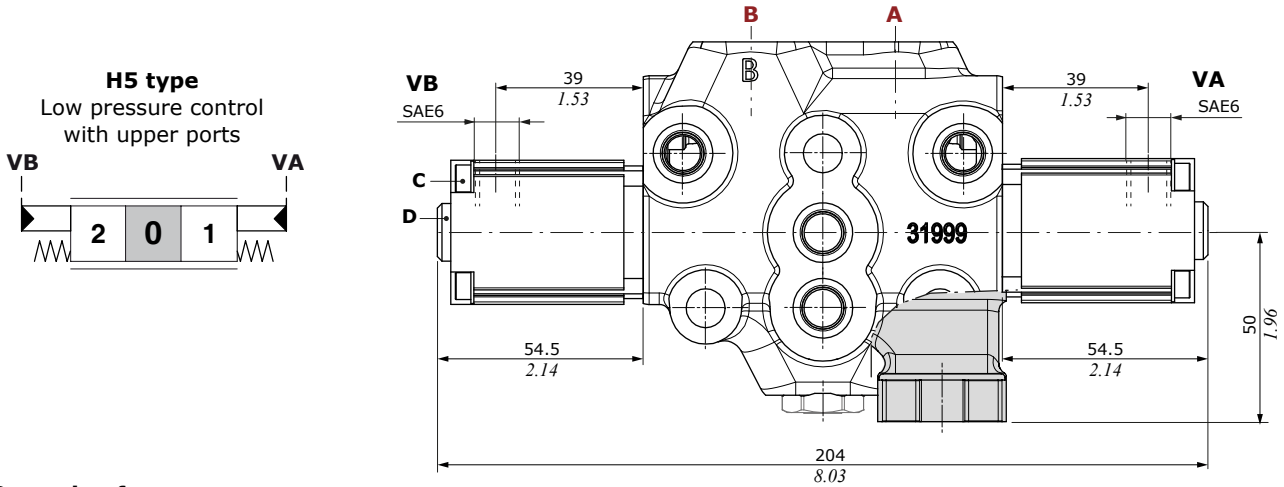
**C3 type**  
From position 2 to position 1,  
spring return in position 2.  
Dimensions are the same of C2 type



**Working section**

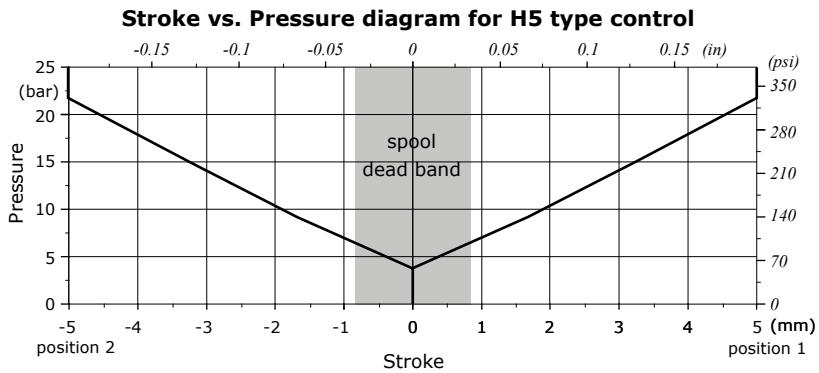
**A+B side controls**

**With proportional hydraulic control**



**Operating features**

Pilot pressure..... : max. 100 bar (1450 psi)

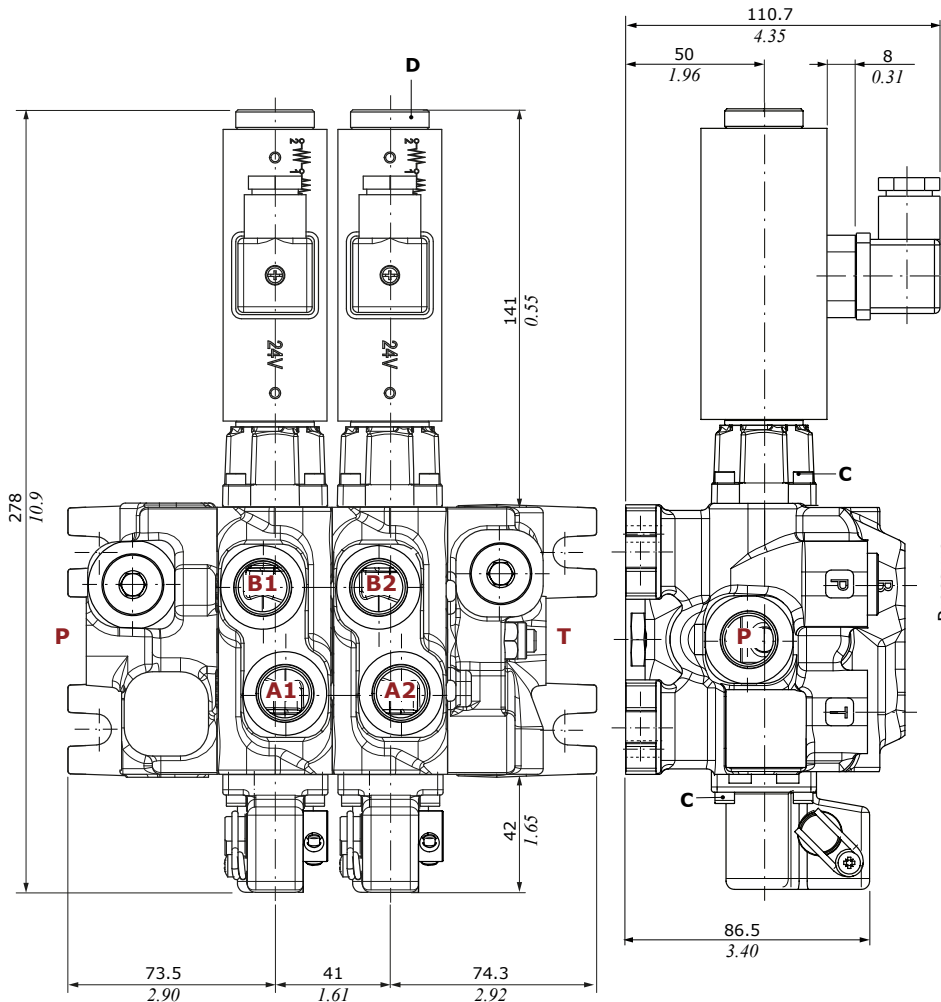
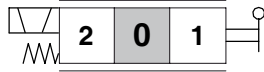


**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbf<sup>t</sup>)  
D = allen wrench 4 - 9.8 Nm (7.2 lbf<sup>t</sup>)

Direct solenoid control

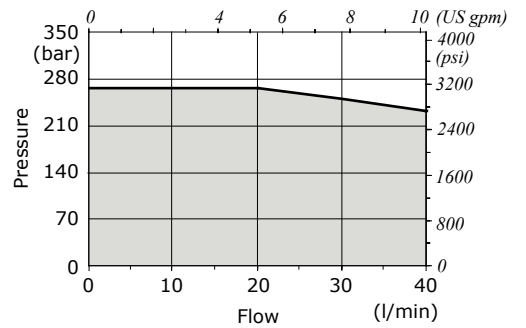
D41 type: ON/OFF one side



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

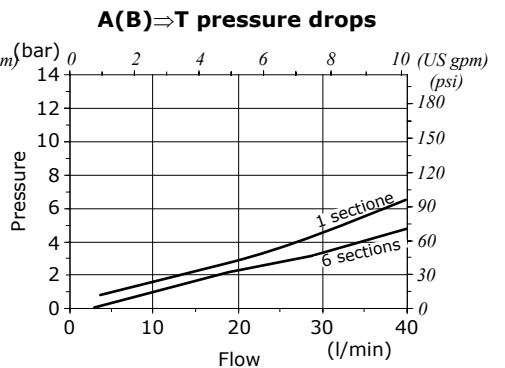
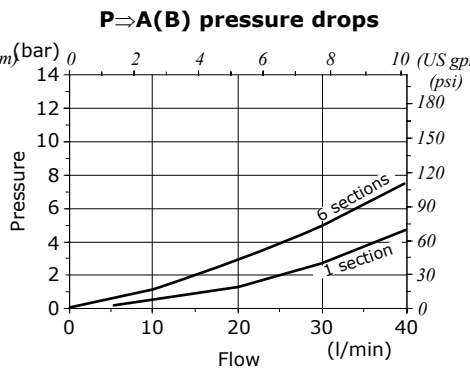
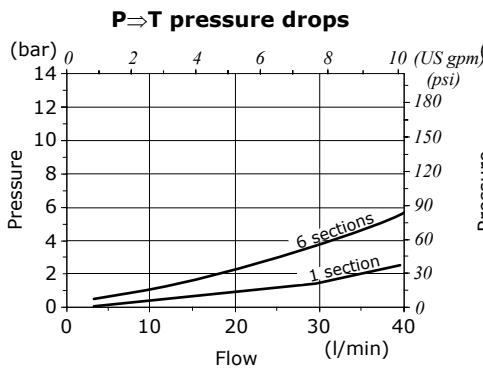
Connector type: ISO4400 3P+T-PG11

Dynamic conditions



Wrenches and tightening torques

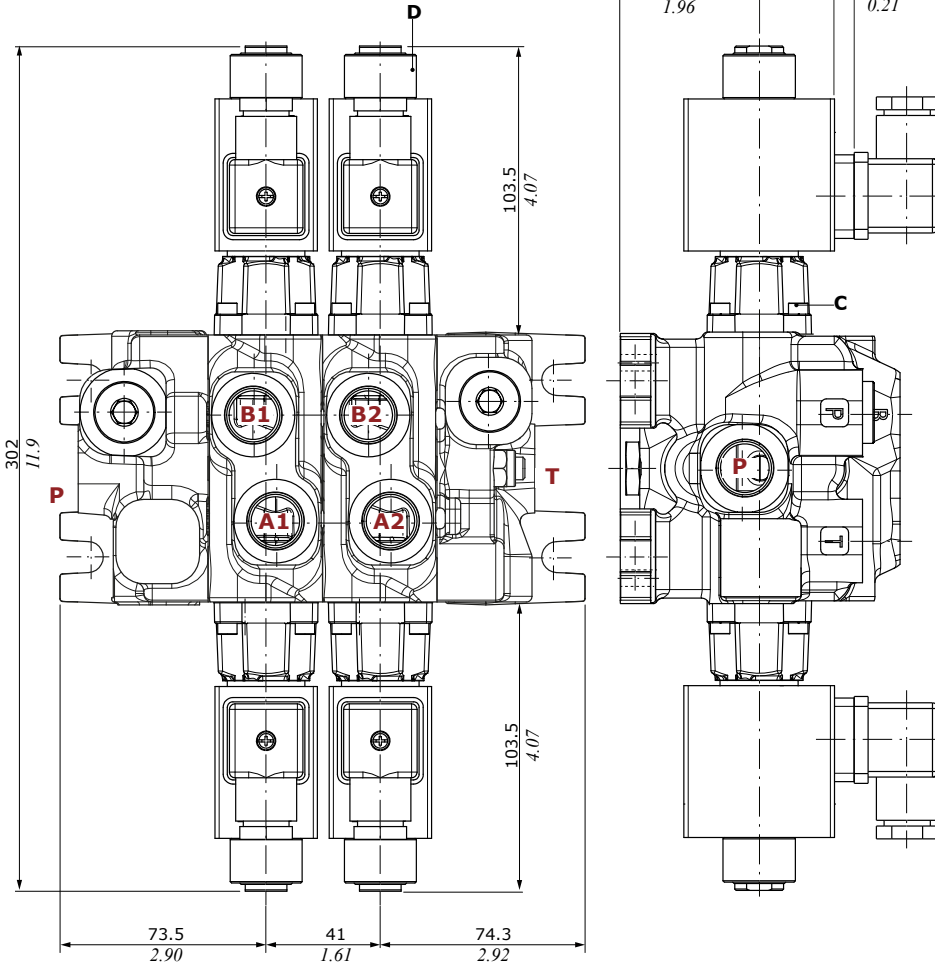
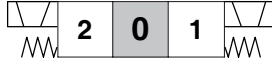
- C = allen wrench 3 - 3 Nm (2.2 lbft)
- D = manual tightening - 6.6 Nm (4.8 lbft)



**Working section**

**Direct solenoid control**

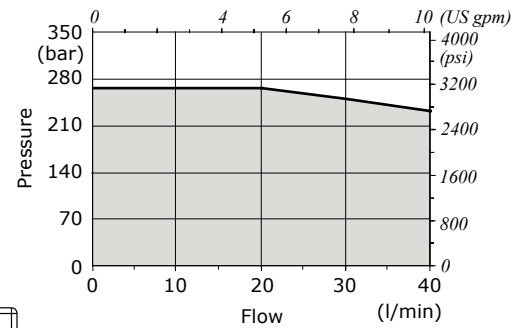
**D9 type: ON/OFF two side**



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

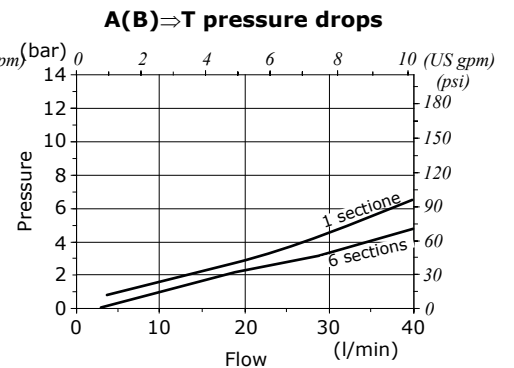
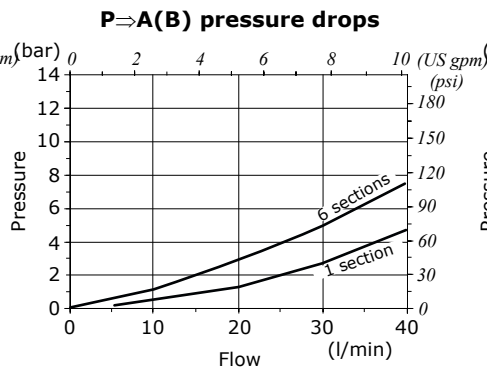
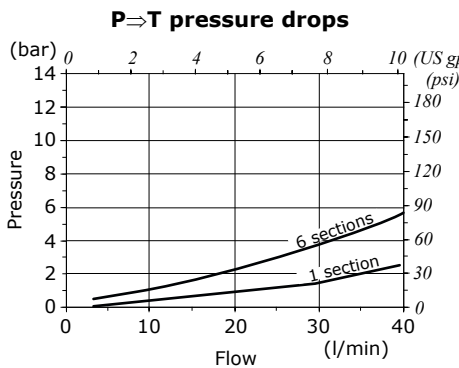
Connector type: ISO4400 3P+T-PG11

**Dynamic conditions**



**Wrenches and tightening torques**

- C = allen wrench 3 - 3 Nm (2.2 lbf<sub>t</sub>)
- D = manual tightening - 6.6 Nm (4.8 lbf<sub>t</sub>)





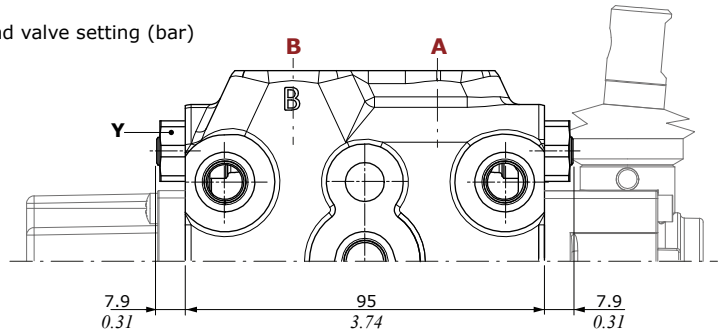
Auxiliary valve configuration

Dimensional data, hydraulic circuits and performance data

Description example

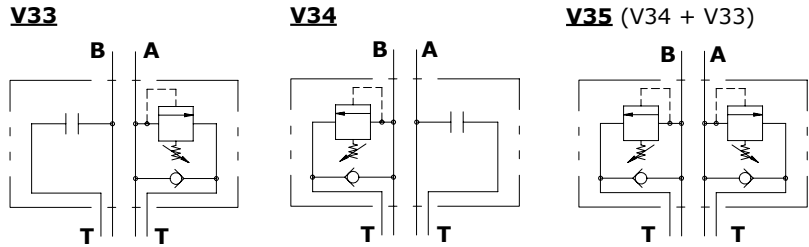
GSV50 / 1 / ... / 103 - A1 - M1 - <sup>aux valve</sup> **V32(N)** <sup>spring type and valve setting (bar)</sup> **120** / ...

**Wrenches and tightening torques**  
 Y = wrench 16 - 20 Nm (14.7 lbf ft)



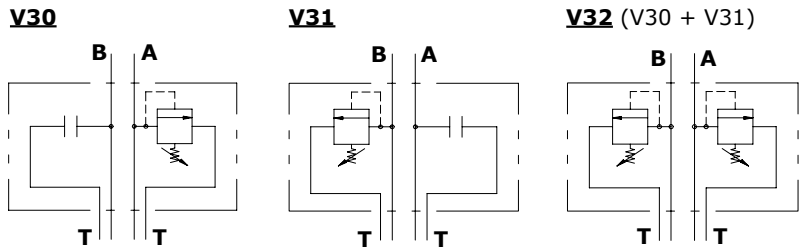
Antishock/anticavitation valve example

A side configuration: B side configuration: A+B side configuration:



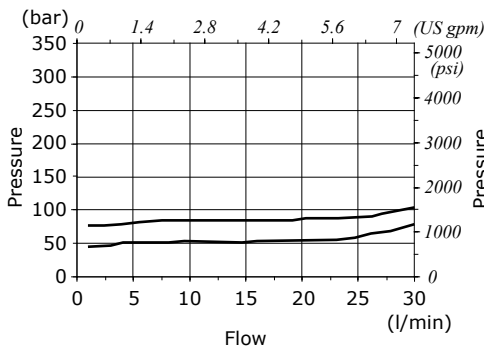
Antishock valve example

A side configuration: B side configuration: A+B side configuration:

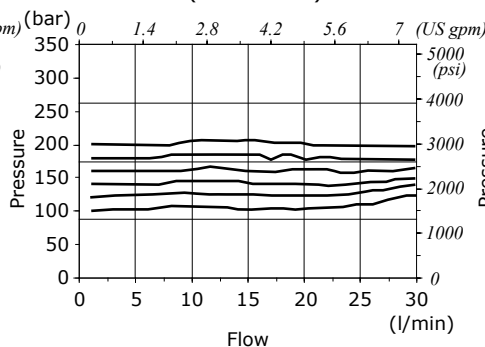


Spring type	Setting ranges (bar - psi)
B (white)	From 50 to 80 - from 725 to 1150
N (black)	From 81 to 200 - from 1170 to 2900
R (red)	From 201 to 350 - from 2910 to 5100

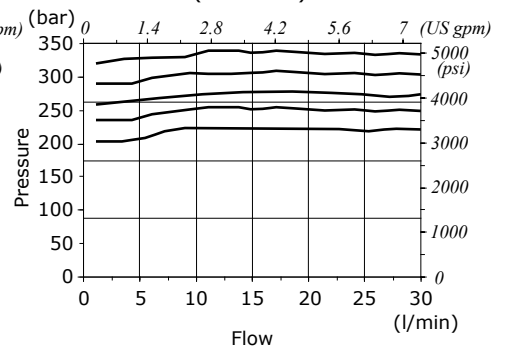
Setting range example (white band)



Setting range example (black band)



Setting range example (red band)

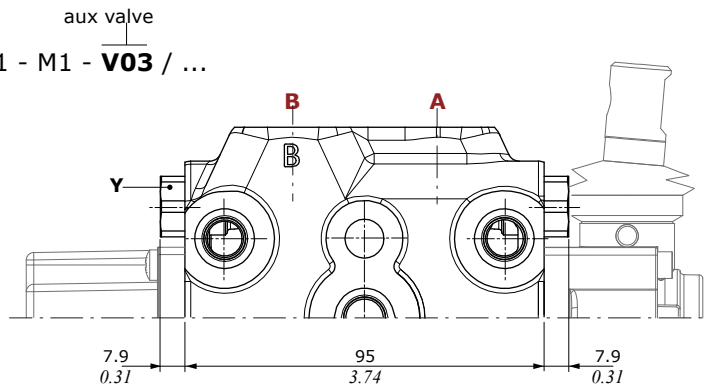


**Auxiliary valve configuration**

**Dimensional data and hydraulic circuits**

**Anticavitation valve example**

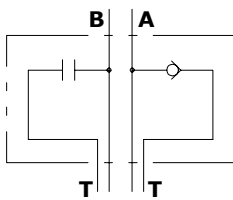
Q30 / 1 / ... / 103 - A1 - M1 -  $\overline{\text{V03}}$  / ...



**Wrenches and tightening torques**  
 Y = wrench 16 - 20 Nm (14.7 lbf)

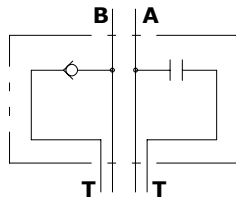
**A side configuration:**

**V04**



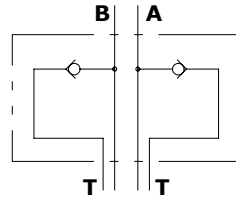
**B side configuration:**

**V05**



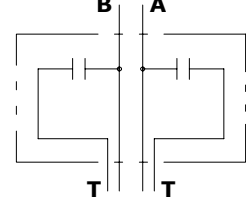
**A+B side configuration:**

**V03 (V04 + V05)**



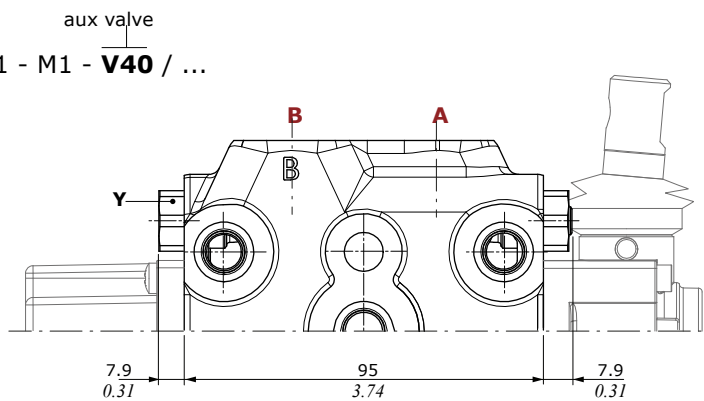
**Plug valve:**

**VC**



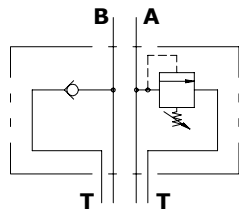
**Antishock and anticavitation combining valves example**

Q30 / 1 / ... / 103 - A1 - M1 -  $\overline{\text{V40}}$  / ...



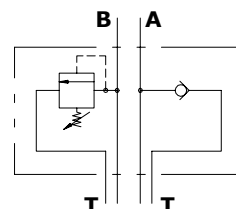
**A side configuration:**

**V40 (V30 + V05)**



**B side configuration:**

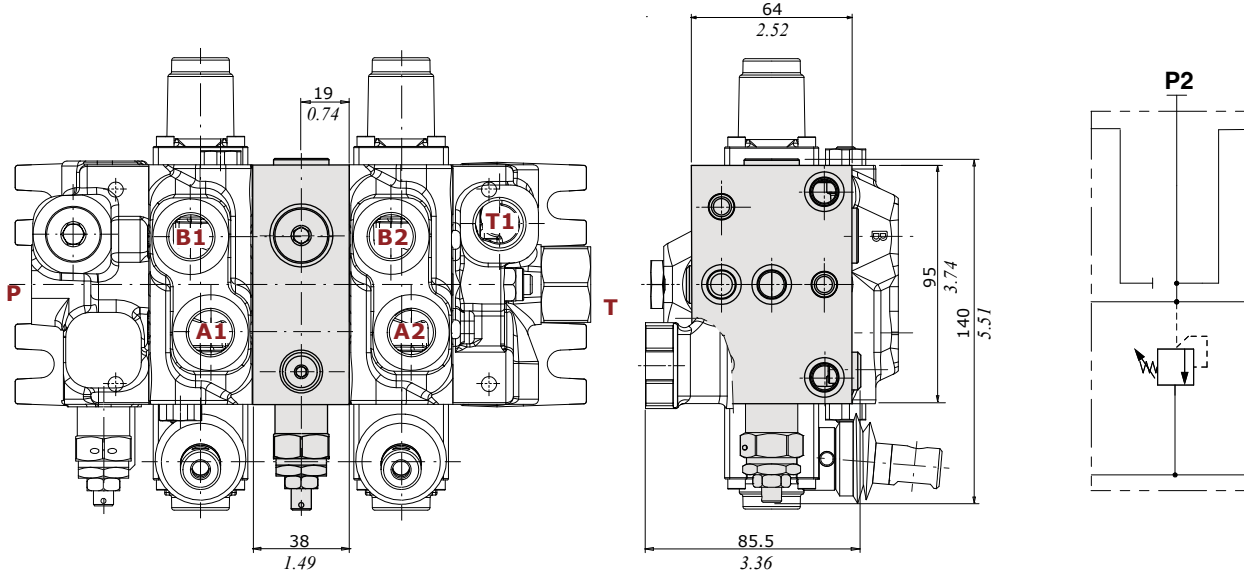
**V41 (V31 + V04)**



Dimensional data and hydraulic circuit

**E50 type**

Intermediate inlet section with pressure relief valve

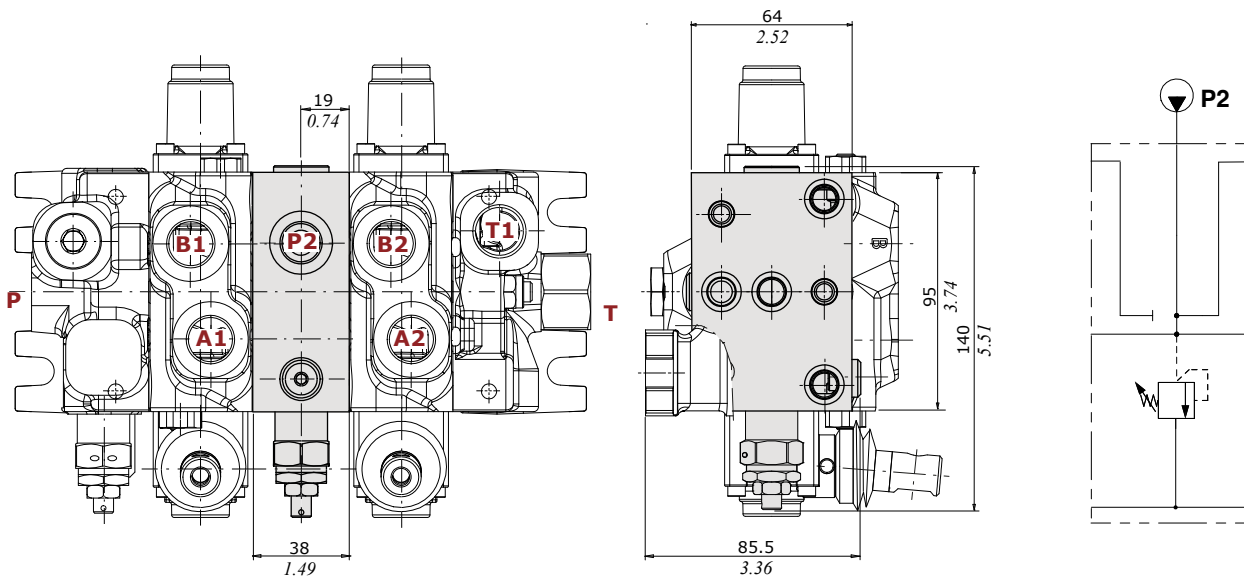


Description example: GSV50/2/F7S(N150)/103-A1-M1.VC/**E50(N150)**/103-A1-M1/F3D-S-SAE

intermediate section spring type and valve setting (bar)

**E53 type**

Intermediate inlet section with pressure relief valve and P2 port open



Description example: GSV50/2/F7S(N150)/103-A1-M1.VC/**E53(N150)**/103-A1-M1/F3D-S-SAE

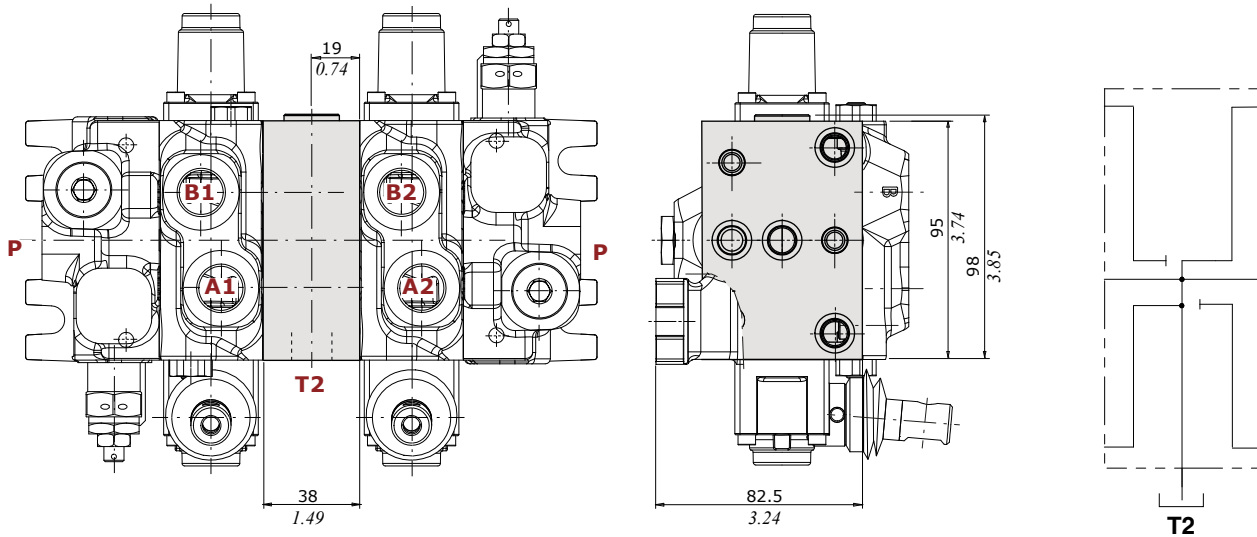
intermediate section spring type and valve setting (bar)

**Intermediate section**

**Dimensional data and hydraulic circuit**

**E51 type**

Intermediate outlet section, T2 port open

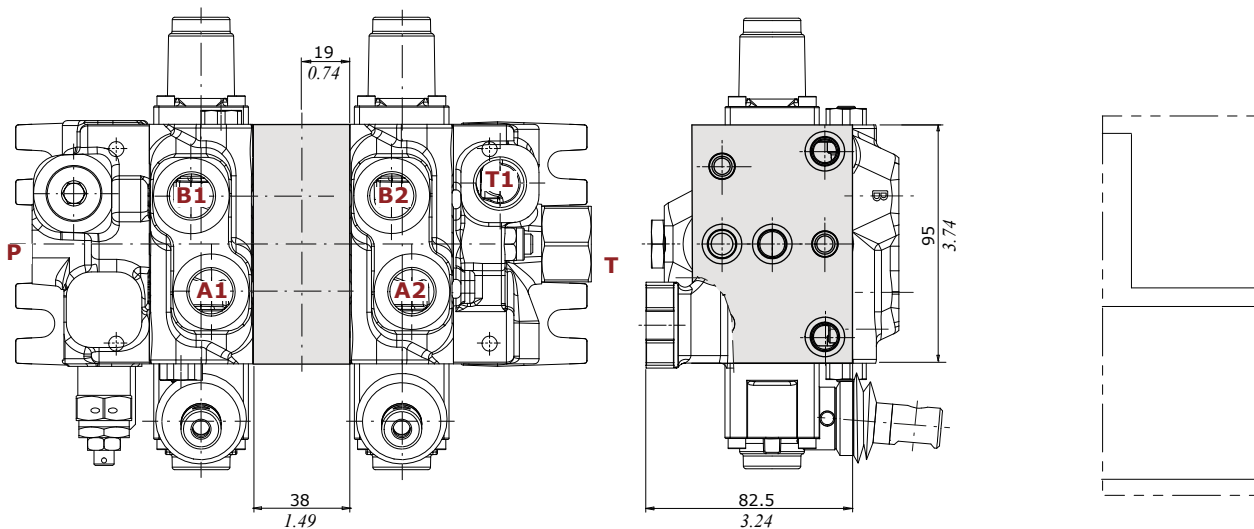


Description example: GSV50/2/F7S(N150)/103-A1-M1.VC/**E51**/103-A1-M1/F3D-S-SAE

intermediate section

**E61 type**

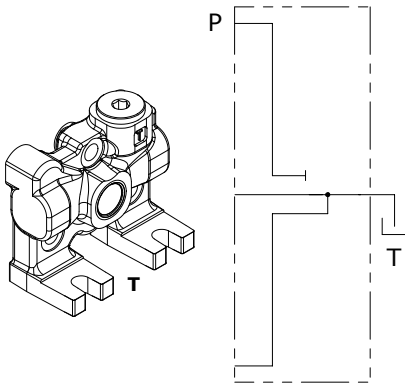
Intermediate spacer section



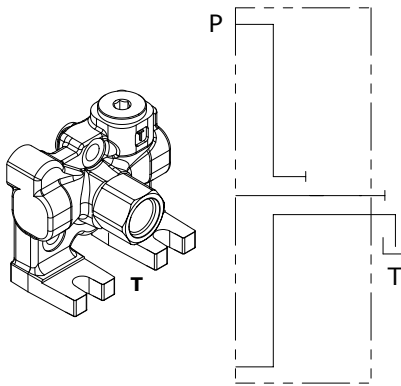
Description example: GSV50/2/F7S(N150)/103-A1-M1.VC/**E61**/103-A1-M1/F3D-S-SAE

intermediate section

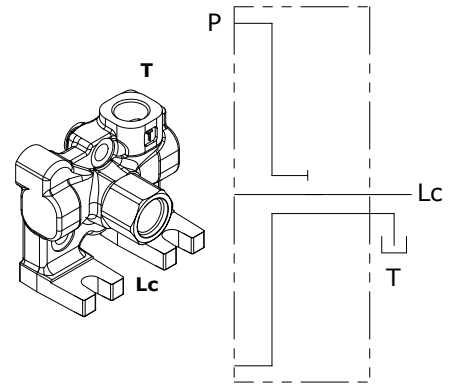
**F3D-SAE configuration**  
Open center configuration



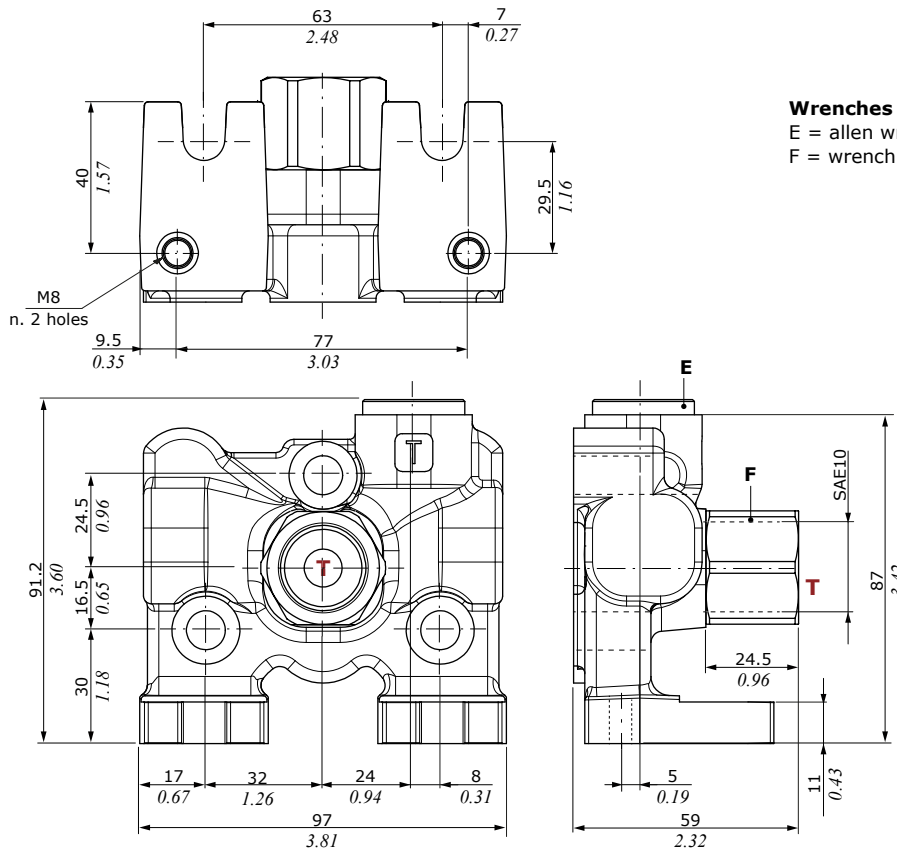
**F16D-SAE configuration**  
Closed center configuration



**F6D-SAE configuration**  
Carry-over configuration



**F16D configuration example**



**Wrenches and tightening torques**  
E = allen wrench 8 - 42 Nm (30.9 lbf<sup>t</sup>)  
F = wrench 30 - 42 Nm (30.9 lbf<sup>t</sup>)





## Q80

### Sectional directional control valve

- Available with parallel, tandem or series circuit
- Optional carry over port
- A wide range of antishock + anticavitation port valves
- Intermediate sections for several types of circuit
- Manual, pneumatic, electropneumatic, hydraulic, direct solenoid and electrohydraulic on-off controls

#### Working conditions

This catalogue shows technical specifications and diagrams measured through mineral oil of 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

Nominal flow rating		80 l/min - (21.1 Us gpm)
Max. pressure	from 1 up to 3 sections	350 bar (5070 psi)
	from 4 up to 6 sections	320 bar (4650 psi)
	from 7 up to 10 sections	300 bar (4350 psi)
Max. back pressure on outlet <b>T</b> port		25 bar (360 psi)
Number sections		from 1 to 10
Internal leakage A(B)⇒T	Δp = 100 bar (1450 psi)	6 cm <sup>3</sup> /min (0.36 in <sup>3</sup> /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 mm <sup>2</sup> /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.

#### REFERENCE STANDARD

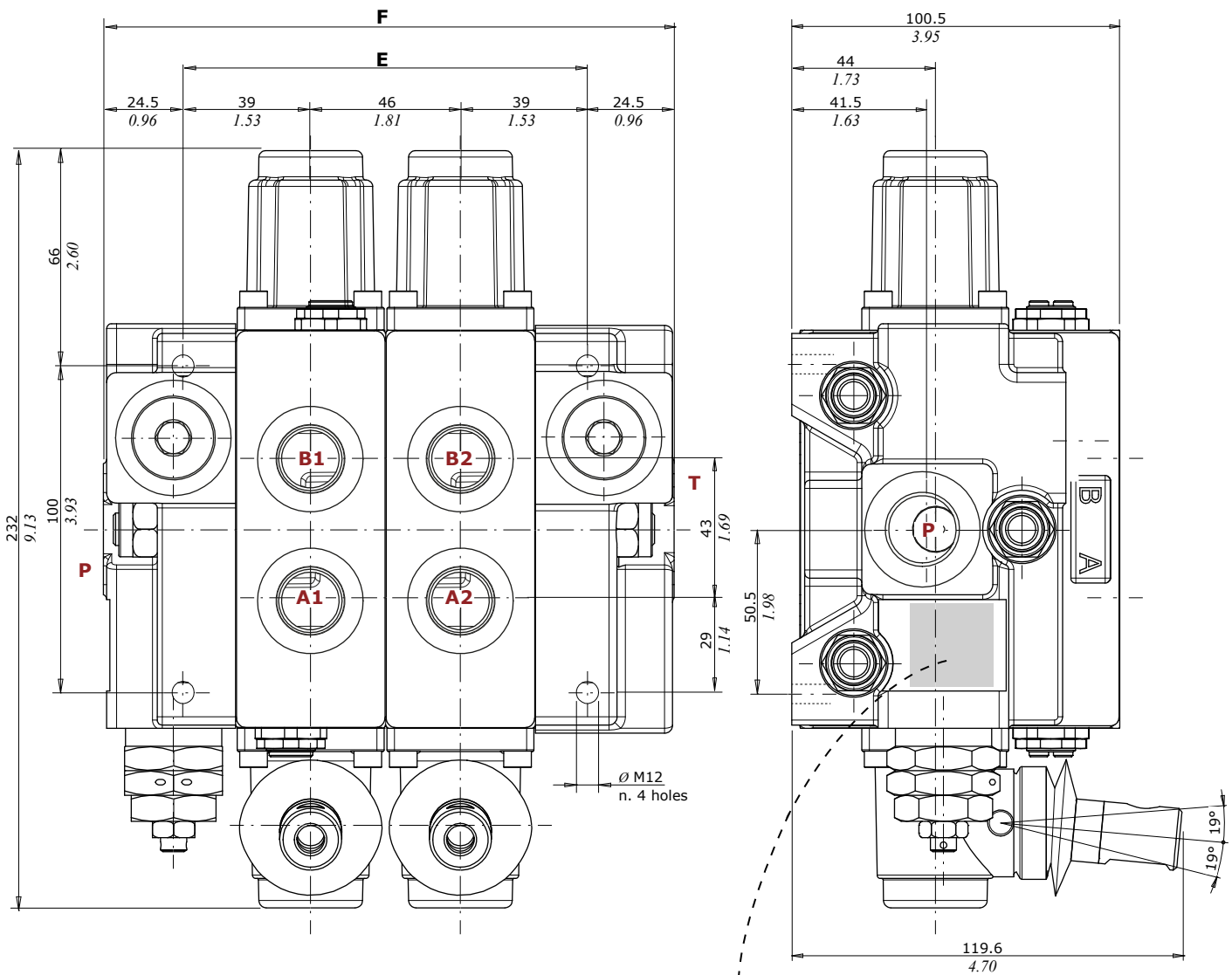
		BSP	UN-UNF
THREAD ACCORDING TO		ISO 228/1	ISO 263
		BS 2779	ANSI B1.1 unified
	ISO	1179	11926
CAVITY DIMENSION ACCORDING TO	SAE		J11926
	DIN	3852-2 shape X or Y	

#### PORT THREADING

PORTS	BSP (standard)	BSP (G 3/4)	UN-UNF
<b>P</b> Inlet	G 1/2	G 3/4	7/8-14 (SAE 10)
<b>P1</b> Inlet	G 1/2	G 3/4	7/8-14 (SAE 10)
<b>A</b> and <b>B</b> ports	G 1/2	G 3/4	3/4-16 (SAE 8)
<b>T</b> Outlet	G 3/4	G 3/4	1" 1/16-12 (SAE12)
<b>T1</b> Outlet	G 3/4	G 3/4	7/8-14 (SAE 10)
<b>Lc</b> port (Carry-over plug - T port)	G 1/2-G 3/4	G 3/4	7/8-14 (SAE 10)
Hydraulic controls	G 1/4	G 3/4	9/16-18 (SAE 6)
Pneumatic controls	NPTF 1/8-27	NPTF 1/8-27	NPTF 1/8-27

### Dimensional data

#### Standard configuration\*



Type	E		F	
	mm	in	mm	in
Q80/1	78	3.07	127	5
Q80/2	124	4.88	173	6.81
Q80/3	170	6.69	219	8.62
Q80/4	216	8.50	265	10.43
Q80/5	262	10.31	311	12.24
Q80/6	308	12.12	357	14.05
Q80/7	354	13.93	403	15.86
Q80/8	400	15.74	449	17.67
Q80/9	446	17.56	495	19.48
Q80/10	492	19.37	541	21.3

**Galtech**

MADE IN ITALY

025030103251000

Q80/2-F75(N150)-

2X103/A1/M1.VC-

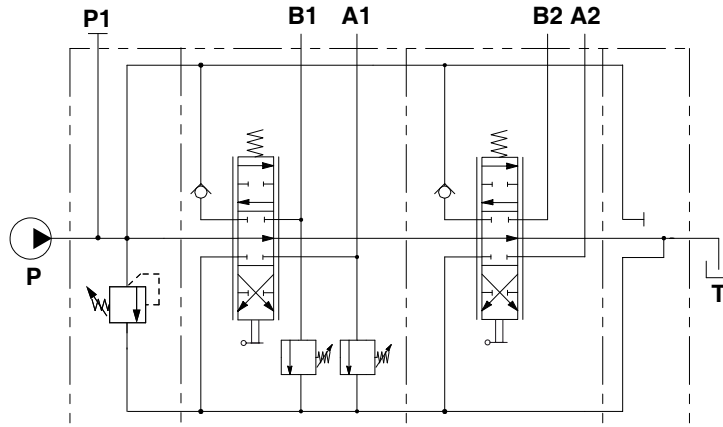
F3D

MD1600464-001

- Product code
- Customer reference or code description
- Product allotment
- Datamatrix with product allotment

NOTE: Drawings and dimensions are referred to a **UN-UNF** threading configuration.  
 (\*): For other configurations, see page 217

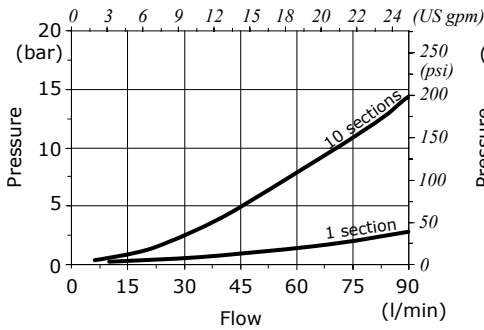




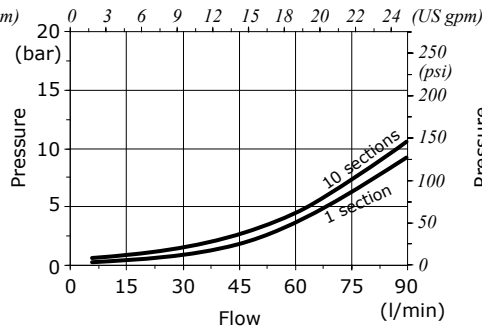
Description example (parallel circuit):  
Q80/2/F7S(N150)/103-A1-M1.V32(N105\N105)/103-A1-M1/F3D-SAE

Performance data

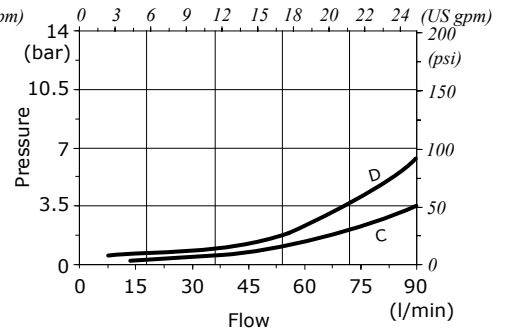
P⇒T pressure drops



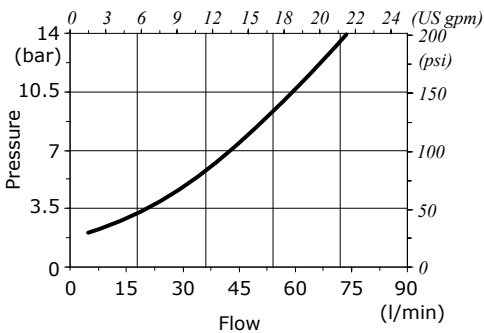
P⇒A(B) pressure drops



A(B)⇒T pressure drops



A1(B1)⇒A2(B2) pressure drops  
(with series circuit)



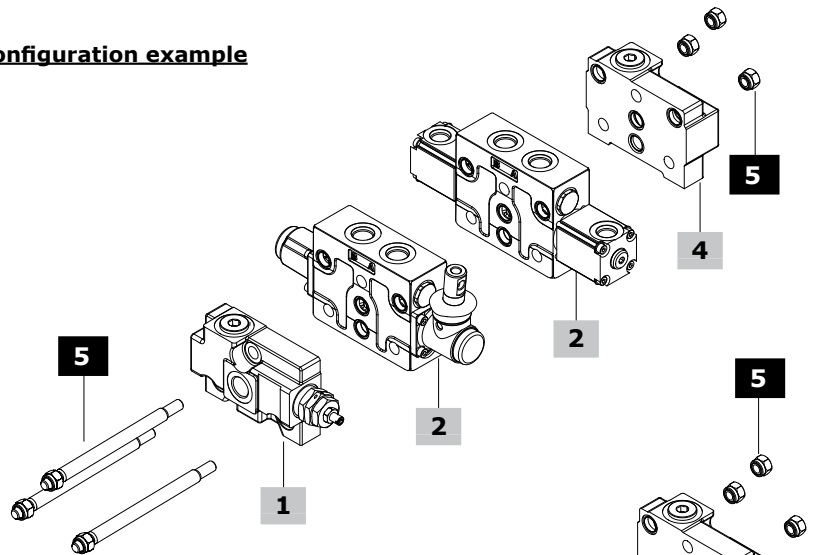
Legenda

- C= 10<sup>th</sup> section
- D= 1<sup>st</sup> section

### Complete section ordering codes

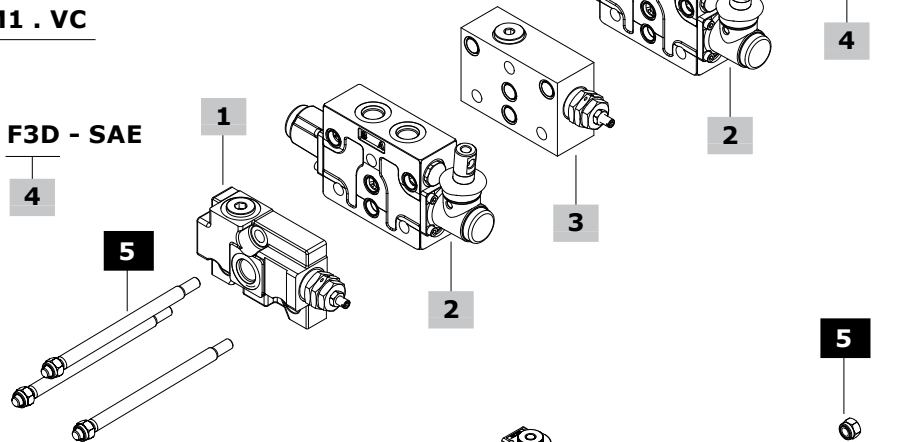
#### Valve with mechanical and hydraulic controls configuration example

valve setting (bar)  
**Q80 / 2 / F7S(N150) / 103 - A1 - M1 . VC**  
 N. of section    **1**                      **2**  
 / 103 - H5 . VC / F3D - SAE  
                                  **2**                      **4**



#### Valve with intermediate section and mechanical control configuration example

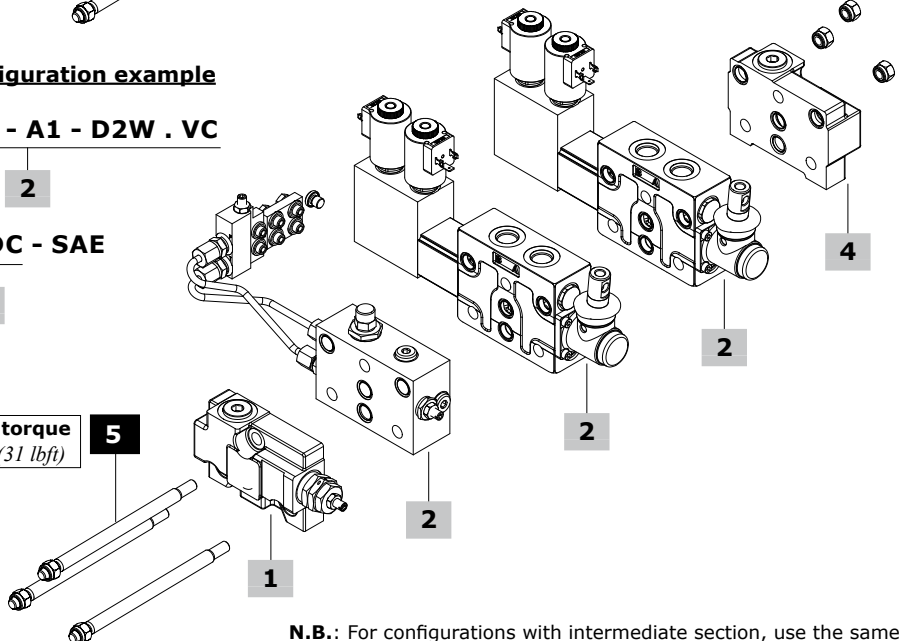
**Q80 / 2 / F7S(N150) / 103 - A1 - M1 . VC**  
 valve setting (bar)    **1**                      **2**  
 / E50(N150) / 103 - A1 - M1 . VC / F3D - SAE  
                                  **3**                      **2**                      **4**



#### Valve with electrohydraulic control configuration example

**Q80 / 2 / F7S(N150) / KE2R / 103 - A1 - D2W . VC**  
                                  **1**                      **2**  
 / 103 - A1 - D2W . VC / F3D - 12VDC - SAE  
                                  **2**                      **4**                      **2**

**Tie rod tightening torque**  
 wrench 17 - 42 Nm (31 lbf ft)



**N.B.:** For configurations with intermediate section, use the same tie rods for std. configuration (example: for 2 working sections + 1 intermediate section, use tie rods for 3 working sections)

**1 Inlet section\* page 188**

TYPE: **FE-Q80/F7S(N150)-SAE** CODE: 08000F7S/D/04N  
 DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve, setting range 101-200 bar (1460-2900 psi)  
 TYPE: **FE-Q80/F8S-SAE** CODE: 08003F8S/D/04  
 DESCRIPTION: As previous one, without valves (pressure relief valve plugged port)

**2 Working section\* page 190****With mechanical controls**

TYPE: **EL-Q80/103-A1-M1.VC-SAE** CODE: SGL800020  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, lever control and spring return to neutral position

TYPE: **EL-Q80/103-A1-M1-SAE** CODE: 080000103001200  
 DESCRIPTION: As previous one, without valve arrangement

**With proportional hydraulic controls**

TYPE: **EL-Q80/103-H5.VC-SAE** CODE: SGL800021  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, low pressure hydraulic controls, spring return to neutral position

TYPE: **EL-Q80/103-H5-SAE** CODE: SGL800022  
 DESCRIPTION: As previous one, without valve arrangement

**With electric solenoid controls - one side type**

TYPE: **EL-Q80/103-A1-D41.VC-12VDC-SAE**  
 CODE: SGL800023  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct ON/OFF control with lever

TYPE: **EL-Q80/103-A1-D41-12VDC-SAE**  
 CODE: SGL800024

DESCRIPTION: As previous one, without valve arrangement

**With electrohydraulic ON/OFF controls - one side type**

TYPE: **EL-Q80/KE1S/103-A1-D2W.VC-12VDC-SAE**  
 CODE: SGL800025  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC one-side electrohydraulic ON/OFF control, internal pilot and drain, lever control and spring return to neutral position

TYPE: **EL-Q80/KE1S/103-A1-D2W-12VDC-SAE**  
 CODE: SGL800026

DESCRIPTION: As previous one, without valve arrangement

**3 Intermediate section page 217**

TYPE	CODE	DESCRIPTION
<b>E50</b>	08850E50-B	With pressure relief valve setting range 10-100 bar (145-1450 psi)
	08850E50-N	As previous one, setting range 101-200 bar (1460-2900 psi)
	08850E50-R	As previous one, setting range 201-380 bar (2910-5500 psi)
<b>E53</b>	08854E53-B	With pressure relief valve setting range 10-100 bar (145-1450 psi) and P2 port open for 2 <sup>nd</sup> pump
	08854E53-N	As previous one, setting range 101-200 bar (1460-2900 psi)
	08854E53-R	As previous one, setting range 201-380 bar (2910-5500 psi)
<b>E51</b>	08853E51	Intermediate outlet section, T2 port open
<b>E61</b>	08877E61	Intermediate spacer section

**4 Outlet section\* page 219**

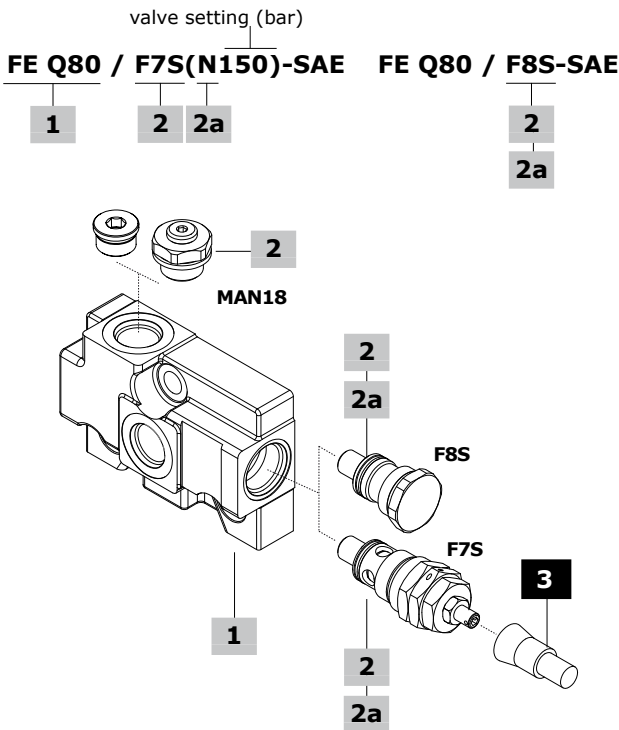
TYPE	CODE	DESCRIPTION
<b>FS-Q80-F3D-SAE</b>	08012F3D/04	T port open, T1 port plugged. For open center circuit
<b>FS-Q80-F16D-SAE</b>	08016F16D/04	T port open, T1 port plugged. For closed center circuit
<b>FS-Q80-F6D-SAE</b>	08014F6D/04	Lc port and T1 port open. With joint for carry-over (HPCO) circuit

**5 Tie rod kit**

CODE	DESCRIPTION
08901TX1	For 1 section valve
08902TX2	For 2 sections valve
08903TX3	For 3 sections valve
08904TX4	For 4 sections valve
08905TX5	For 5 sections valve
08906TX6	For 6 sections valve
08907TX7	For 7 sections valve
08908TX8	For 8 sections valve
08909TX9	For 9 sections valve
08910TX10	For 10 sections valve

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

### Inlet section - parts ordering codes



#### 1 Inlet body section\* page 188

TYPE: **FE-Q80-SAE**    CODE: 060013083699  
 DESCRIPTION: Side inlet port, upper inlet plugged, pressure relief valve arrangement

#### 2 Configuration coding\* page 188

TYPE    DESCRIPTION  
**F7S-SAE**    With pressure relief valve  
**F8S-SAE**    Without valves (pressure relief valve plugged port)  
**Note:** Inlet configurations require upper P port:  
 n. 1 SAE10 plug code 255010, or n. 1 pressure gauge arrangement code 5MAN627210

#### 2a Main pressure relief valve page 189

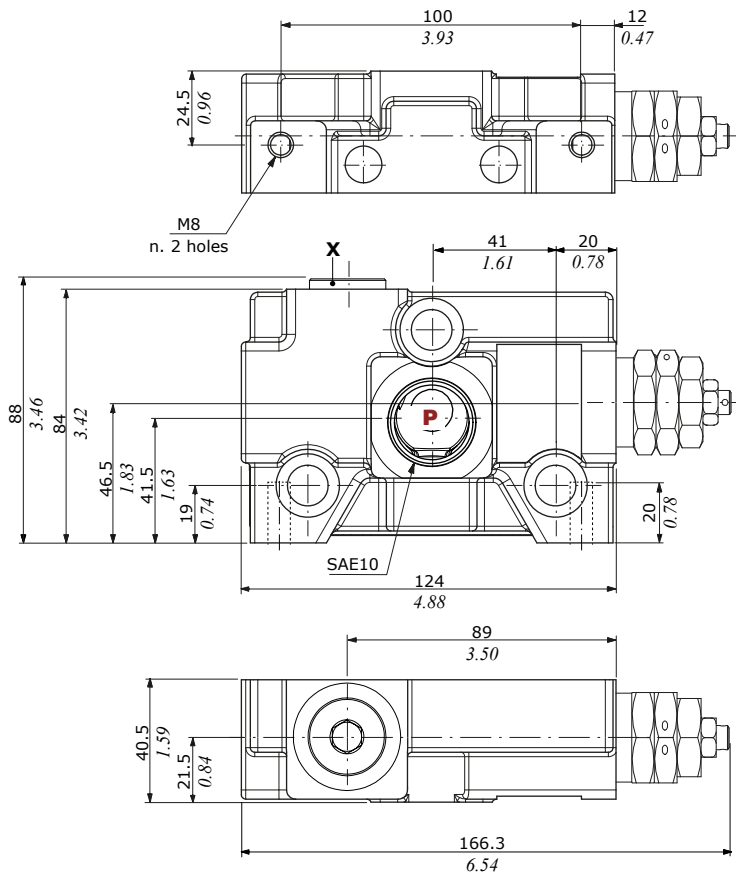
TYPE: **B**    CODE: 700065205000000  
 DESCRIPTION: VLP65S valve, setting range 10-100 bar (145-1450 psi)  
 TYPE: **N**    CODE: 700065105000000  
 DESCRIPTION: VLP65S valve, setting range 101-200 bar (1460-2900 psi)  
 TYPE: **R**    CODE: 700065305000000  
 DESCRIPTION: VLP65S valve, setting range 201-380 bar (2910-5500 psi)  
 TYPE: **-**    CODE: 060002788999  
 DESCRIPTION: Relief valve blanking plug

#### 3 Accessory

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

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

### Dimensional data and hydraulic circuits



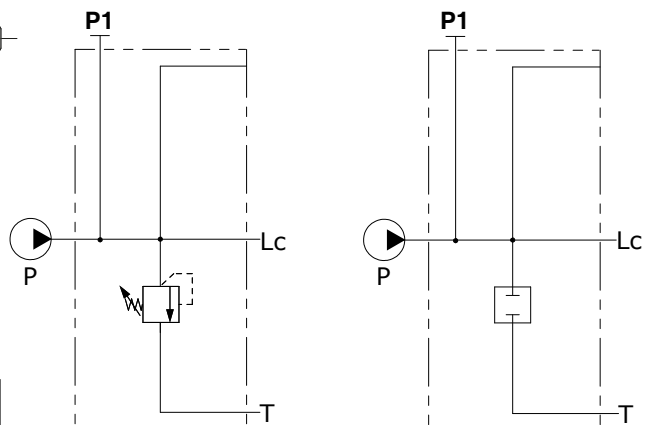
#### Wrenches and tightening torques

X = allen wrench 10 - 42 Nm (31 lbft)

**Note:** For valves wrench and torque, see related pages

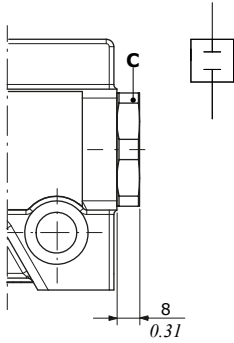
**F7S-SAE configuration**  
 With pressure relief valve

**F8S-SAE configuration**  
 Without valves  
 (pressure relief valve plugged port)

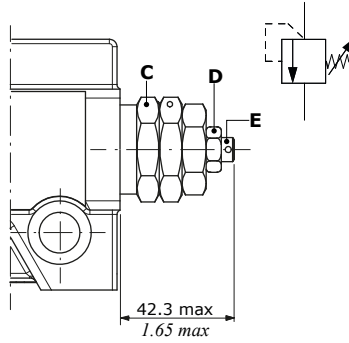


Main pressure relief valve

Relief valve blanking plug



Main pressure relief valve

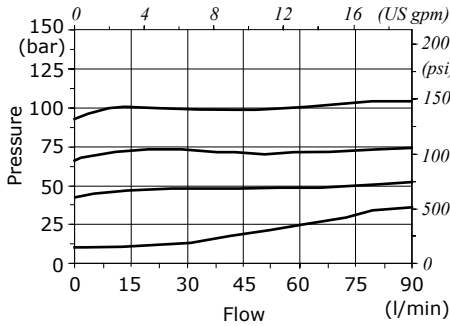


Wrenches and tightening torques

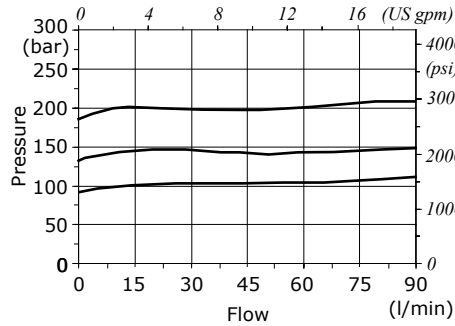
- C = wrench 30 - 80 Nm (59 lbf)
- D = wrench 13 - 24 Nm (17.7 lbf)
- E = allen wrench 4

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

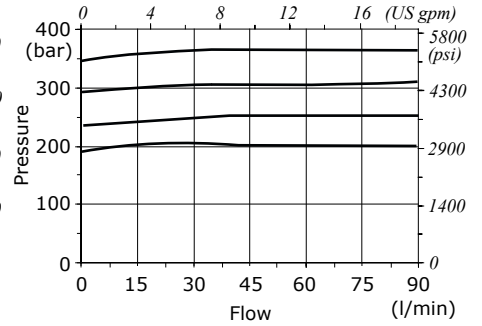
Setting example (B type spring)



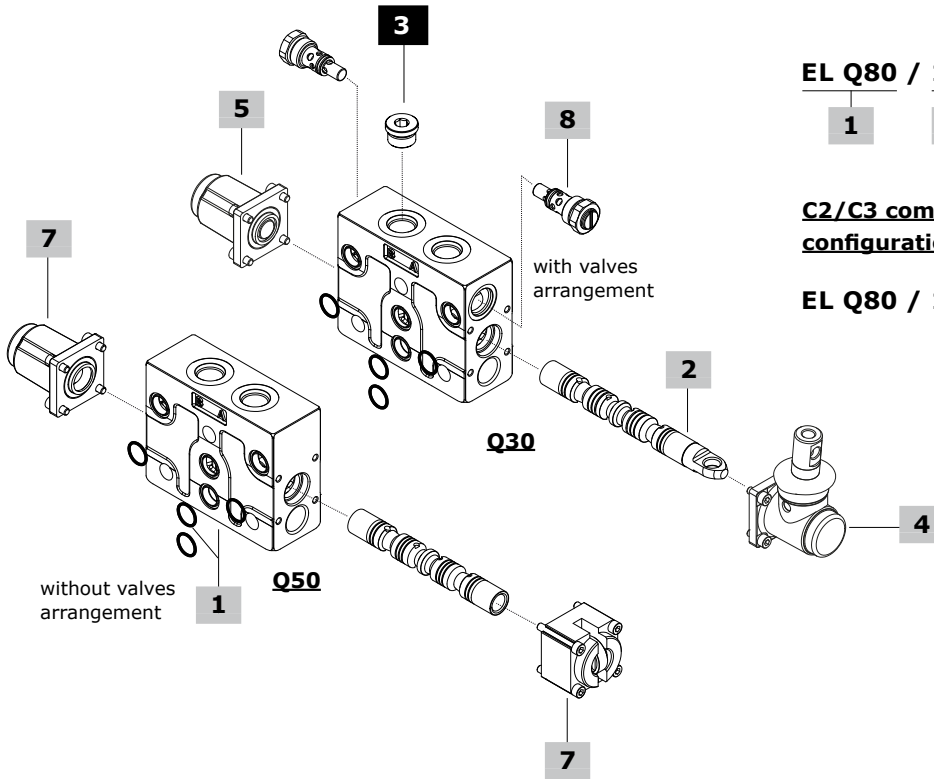
Setting example (N type spring)



Setting example (R type spring)



**Working section - parts ordering codes**



**Mechanical control valve configuration example**

spring type and valve setting (bar)

**EL Q80 / 102 - A1 - M1 . V40(N)120 - SAE**

1  
 2  
 4  
 5  
 8

**C2/C3 complete mechanical control configuration example**

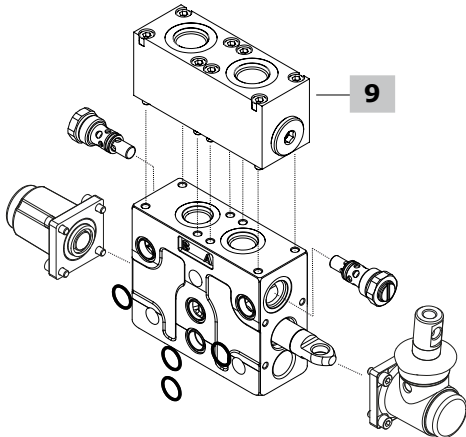
**EL Q80 / 103 - C3 . V40(N)120 - SAE**

7

**Mechanical control valve with arrangement for secondary aux valves block: configuration example**

**EL Q80 / 103 - A1 - M1 . V40(N)120 / VC03 - SAE**

9



## Working section - parts ordering codes

**1 Working section body kit\* page 196**

TYPE: <b>EL-Q80.VC-SAE</b>	CODE: 5EL0600127877
DESCRIPTION: Parallel circuit, with port valves arrangement	
TYPE: <b>EL-Q80-SAE</b>	CODE: 5EL0600127854
DESCRIPTION: Parallel circuit, without port valves arrangement	
TYPE: <b>EL-Q80.VC.VPC-SAE</b>	CODE: 5EL0600132355
DESCRIPTION: Parallel circuit with port valves arrangement, for secondary aux valves block	
TYPE: <b>EL-Q80.VC-SAE</b>	CODE: 5EL0600127884
DESCRIPTION: Series circuit, with port valves arrangement	

**2 Spool page 197**

TYPE	CODE	DESCRIPTION
<b>Standard spools</b>		
<b>103</b>	060102894999	Double acting, A and B closed in neutral position
	3CUG3051600	As previous one, for <b>kick-out</b> control
<b>106</b>	KR80106	Double acting for closed circuit
<b>107</b>	KR80107-108	Double acting, A to tank and B closed in neutral position
<b>108</b>	KR80107-108	Double acting, B to tank and A closed in neutral position
<b>111</b>	060102996799	Double acting, A and B to tank in neutral position
<b>114</b>	KR80114	Double acting, A and B to tank in neutral position, for closed circuit
<b>101</b>	3CUG2891900	Single acting on port A. SAE8 plug is required, see #3
<b>102</b>	3CUG2891901	Single acting on port B. SAE8 plug is required, see #3
<b>116</b>	3CUG2897800	Double acting, with floating in the 4 <sup>th</sup> position (spool in): requires dedicated spool control
<b>126</b>	3CUG2897801	Double acting, with floating in the 4 <sup>th</sup> position (spool out): requires dedicated spool control
<b>403</b>	KR80403	Double acting, A and B closed in neutral position, for series circuit
<b>411</b>	KR80411	Double acting, A and B to tank in neutral position, for series circuit
<b>Special spools for cam, microswitch controls and other leverless controls</b>		
<b>103</b>	060102879199	Double acting, A and B closed in neutral position
<b>111</b>	060102864199	Double acting, A and B to tank in neutral position

**3 Plug for single acting spool\***

TYPE	CODE	DESCRIPTION
-	255008	SAE8 plug

**4 A side control page 198**

TYPE	CODE	DESCRIPTION
<b>For standard spools</b>		
<u>With lever control:</u>		
<b>A1</b>	08600A1-A2	M10 thread aluminium lever box
<b>A2</b>	08600A1-A2	As A1 type, with lever box rotated 180°
<b>A1/06</b>	08606A1-A2/06	Aluminium lever box with stroke limiter
<b>A2/06</b>	08606A1-A2/06	As A1/06 type, with lever box rotated 180°
<b>A1/Z1</b>	08610A1-A2/Z1	Aluminium lever box for <b>116</b> spool type
<b>A2/Z1</b>	08610A1-A2/Z1	As A1/Z1 type, with lever box rotated 180°
<u>With safety lever control:</u>		
<b>A1/S<sup>(1)</sup></b>	08624A1-A2/S	M10 thread aluminium lever box
<b>A2/S<sup>(1)</sup></b>	08624A1-A2/S	As A1/S type, with lever box rotated 180°
<u>Without lever control:</u>		
<b>A6</b>	08620A6	With flange
<b>A8</b>	08622A8	Arrangement for flexible cable control
<b>A8/Z1</b>	08622A8/Z1	As A8 type, for <b>116</b> spool type

**4 A side control (cont.) page 198**

TYPE	CODE	DESCRIPTION
<u>With joystick controls for 2 section operation:</u>		
<b>A35/1</b>	08637A35-12	Joystick 1 type
<b>A35/2</b>	08637A35-12	Joystick 2 type
<b>A35/3</b>	08637A35-34	Joystick 3 type
<b>A35/4</b>	08637A35-34	Joystick 4 type
<b>For types 103 and 111 special spools</b>		
<u>With spool position microswitch:</u>		
<b>Note:</b> To complete the control you must use the assembly kit at #6		
<b>N1-A1</b>	08641N1-A1/A2	Micro operation in pos. 1 and 2, with lever box
<b>N1A-A1</b>	08642N1A-A1/A2	Micro operation in pos. 1, with lever box
<b>N1B-A1</b>	08643N1B-A1/A2	Micro operation in pos. 2, with lever box
<b>N1-A3</b>	08648N1-A3	Micro operation in pos. 1 and 2, without lever with cap
<b>N1A-A3</b>	08648N1A-A3	Micro operation in pos. 1, without lever with cap
<b>N1B-A3</b>	08648N1B-A3	Micro operation in pos. 2, without lever with cap
<u>Without lever control:</u>		
<b>A3</b>	08614A3	Without lever, with cap
<b>A4</b>	08617A4	M10 thread male external pin with flange
<b>A5<sup>(2)</sup></b>	08619A5	Flange with spherical spool end

**5 B side control page 203**

TYPE	CODE	DESCRIPTION
<u>With spring return:</u>		
<b>M1</b>	08730M1	3 pos., spring return in neutral position
<b>M1/01</b>	08730M1/01	As M1 type, for joystick control
<b>M1/02</b>	08730M1/02	As M1 type, with stroke limiter
<b>M1/05</b>	08730M1/05	As M1 type, for series spool
<b>M1/07</b>	08730M1/07	As M1 type, for joystick control with series spool
<b>M1-B1</b>	08753M1-B1	As M1 type, with microswitch arrangement
<b>M1-U1</b>	08701M1-U1	As M1 type, with M10 male thread external pin
<b>M2</b>	08732M2	2 pos. (0-1), spring return in neutral position
<b>M2-U1</b>	08702M2-U1	As M2 type, with M10 male thread external pin
<b>M3</b>	08733M3	2 pos. (0-2), spring return in neutral position
<b>M3-U1</b>	08703M3-U1	As M3 type, with M10 male thread external pin
<b>M4</b>	08734M41-2	2 pos. (1-2), spring return in position 1
	08735M42-1	2 pos. (2-1), spring return in position 2
<b>M4-U1</b>	08734M4-U11-2	As M4 type (1-2), with M10 male thread external pin
<u>With flexible cable control arrangement:</u>		
<b>M1-U2</b>	08715M1-U2	3 pos., spring return in neutral position
<b>M2-U2</b>	08716M2-U2	2 pos. (0-1), spring return in neutral position
<b>M3-U2</b>	08717M3-U2	2 pos. (0-2), spring return in neutral position
<u>With friction:</u>		
<b>R0</b>	08740R0	Adjustable friction control
<u>With detent:</u>		
<b>R1</b>	08741R1	3 pos., detent in position 1
<b>R2</b>	08742R2	3 pos., detent in position 2
<b>R3</b>	08743R3	3 pos., detent in all position
<b>R4</b>	08744R4	2 pos., detent in position 0-1
<b>R5</b>	08745R5	2 pos., detent in position 0-2
<b>R6</b>	08746R6	2 pos., detent in position 1-2
<b>R8</b>	08748R8	4 pos., detent in 4 <sup>th</sup> pos., for <b>116</b> spool type
<b>R10/Z1</b>	08750R10/Z1	4 pos., detent in 4 <sup>th</sup> pos., for <b>126</b> spool type

(\*) Codes are referred to **UN-UNF** thread(<sup>1</sup>): Always complete with lever knob(<sup>2</sup>): To be assembled only with M4 control

**Working section - parts ordering codes**

**5 B side control (cont.) page 203**

TYPE	CODE	DESCRIPTION
<u>With detent and kick out function:</u>		
<b>R1K</b>	08741R1K	3 pos., detent in position 1
<b>R2K</b>	08742R2K	3 pos., detent in position 2
<b>R3K</b>	08743R3K	3 pos., detent in all position
<u>With spool position microswitch:</u>		
<b>Note:</b> To complete the control is necessary to combine at #6 the assembly kit		
<b>M1-N1</b>	08766M1-N1	3 pos., micro operation in pos. 1 and 2, spring return in neutral position
<b>M1-N1A</b>	08767M1-N1A	As M1-N1 type, micro operation in pos. 1
<b>M1-N1B</b>	08768M1-N1B	As M1-N1 type, micro operation in pos. 2
<b>M2-N1</b>	08769M2-N1	2 pos. (0-1), spring return in neutral position
<b>M3-N1</b>	08772M3-N1	2 pos. (0-2), spring return in neutral position
<u>With pneumatic and electropneumatic controls:</u>		
<b>P1N</b>	08561P1-N	ON/OFF pneumatic control
<b>P1NP</b>	08561P1-NP	Proportional pneumatic control
<b>D3</b>	08591D3-V-12DC	12 VDC, ON/OFF electropneumatic control
	08592D3-V-24DC	24 VDC, ON/OFF electropneumatic control

**6 Microswitch assembly kit**

CODE	DESCRIPTION
08650N1-01	Kit for 1 section
08650N1-02	Kit for 2 sections
08650N1-03	Kit for 3 sections
08650N1-04	Kit for 4 sections
08650N1-05	Kit for 5 sections
08650N1-06	Kit for 6 sections
08650N1-07	Kit for 7 sections
08650N1-08	Kit for 8 sections
08650N1-09	Kit for 9 sections
08650N1-10	Kit for 10 sections

**7 Complete controls A+B sides page 209**

TYPE	CODE	DESCRIPTION
<b>For types 10 and 111 special spools</b>		
<b>C2</b>	08792C2-C3	Cam control from pos. 1 to 2
<b>C3</b>	08792C2-C3	Cam control from pos. 2 to 1

**8 Auxiliary port valve page 214**

TYPE	CODE	DESCRIPTION
<u>Antishock valve:</u>		
<b>V30-B</b>	08800V30-B	Setting range: from 30 to 80 bar (from 435 to 1150 psi)
<b>V30-N</b>	08800V30-N	Setting range: from 81 to 200 bar (from 1170 to 2900 psi)
<b>V30-R</b>	08800V30-R	Setting range: from 201 to 370 bar (from 2910 to 5400 psi)
<u>Antishock/anticavitation valve:</u>		
<b>V33-B</b>	08803V33-B	Setting range: from 30 to 80 bar (from 435 to 1150 psi)
<b>V33-N</b>	08803V33-N	Setting range: from 81 to 200 bar (from 1170 to 2900 psi)
<b>V33-R</b>	08803V33-R	Setting range: from 201 to 370 bar (from 2910 to 5400 psi)
<u>Anticavitation valve:</u>		
<b>V04</b>	08808V04	Anticavitation valve
<u>Plug:</u>		
<b>VC</b>	060002758699	Valve blanking plug

**9 Secondary aux valves\* page 216**

TYPE	CODE	DESCRIPTION
<b>VRP-VC01-SAE</b>	08835V01CSAE12	DESCRIPTION: Single piloted check valve on A port, 250 bar (3600 psi)
TYPE	CODE	
<b>VRP-VC03-SAE</b>	08837V03CSAE12	DESCRIPTION: Double piloted check valve on A and B ports, 250 bar (3600 psi)

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



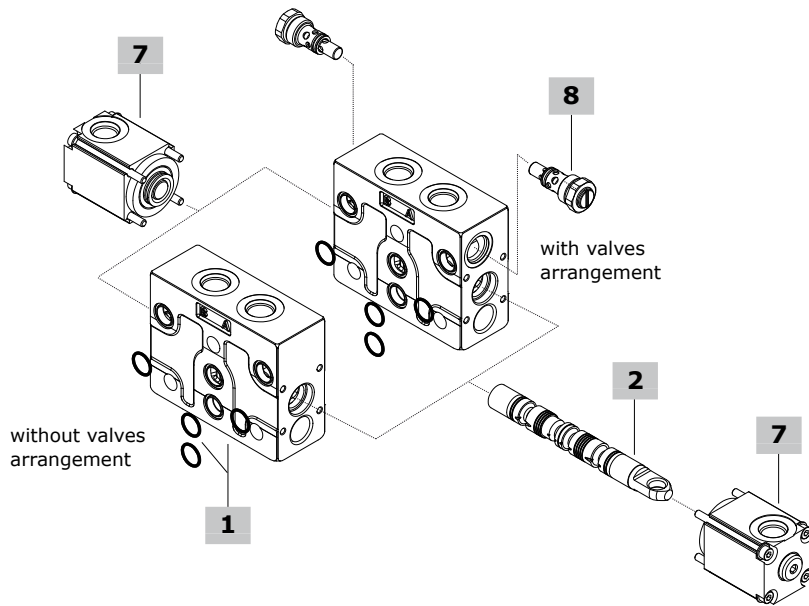
**Working section - parts ordering codes**

**Proportional hydraulic controls valve configuration example**

spring type and valve setting (bar)

**EL Q80 / 103 - H5 . V40(N)120 - SAE**

**1      2      7      8**



**1 Working section body kit\* page 196**

TYPE: **EL-Q80-H5.VC-SAE** CODE: 5EL0600127877H5  
 DESCRIPTION: Parallel circuit, with port valves arrangement  
 TYPE: **EL-Q80-H5-SAE** CODE: 5EL0600127854H5  
 DESCRIPTION: Parallel circuit, without port valves arrangement

**2 Spool page 197**

TYPE	CODE	DESCRIPTION
<b>103</b>	060102894999	Double acting, A and B closed in neutral position

**7 Hydraulic controls A+B sides page 210**

TYPE	CODE	DESCRIPTION
<b>H5</b>	08785H5/SAE	Low pressure proportional type, upper ports

**8 Auxiliary port valve page 214**

See #8, page 192

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

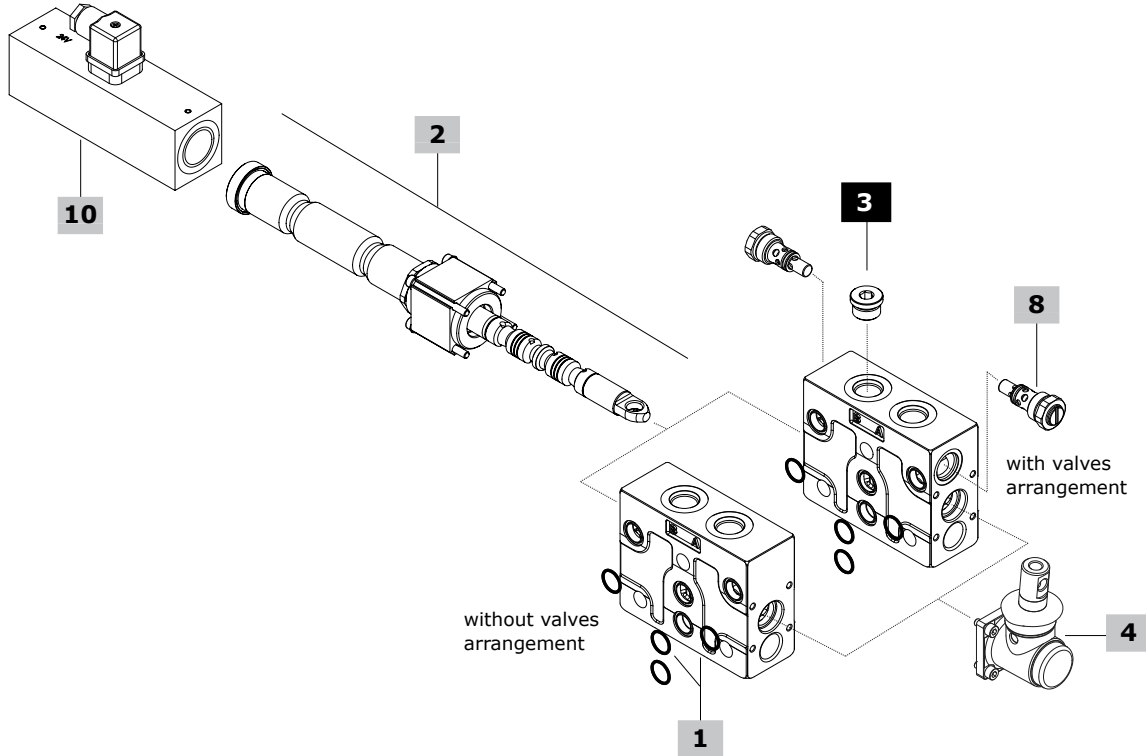
**Working section - parts ordering codes**

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

spring type and valve setting (bar)

**EL Q80 / 103 - A1 - D41 . V40(N)120 - 12VDC - SAE**

**1      2      4      2      8      10**



**1 Working section body kit\* page 196**

TYPE: **EL-Q80.VC-SAE** CODE: 5EL0600127877D41  
 DESCRIPTION: Parallel circuit, with port valves arrangement  
 TYPE: **EL-Q80-SAE** CODE: 5EL0600127854D41  
 DESCRIPTION: Parallel circuit, without port valves arrangement

**2 Solenoid control page 211**

TYPE	CODE	DESCRIPTION
<b>103</b>	X0601030059	Double acting, A and B closed in neutral position
<b>111</b>	X0601030043	Double acting, A and B to tank in neutral position
<b>101</b>	X0601030060A	Single acting on port A. SAE8 plug is required, see #3.
<b>102</b>	X0601030060B	Single acting on port B. SAE8 plug is required, see #3.

**3 Plug for single acting spool\***

See #3, page 191

**4 A side control page 211**

TYPE	CODE	DESCRIPTION
<b>A1</b>	08600A1-A2	M10 thread aluminium lever box
<b>A2</b>	08600A1-A2	As A1 type, with lever box rotated 180°

**8 Auxiliary port valve page 214**

See #8, page 192

**10 Coil**

TYPE	CODE	DESCRIPTION
-	ZEB112	12 VDC ISO4400 coil
-	ZEB124	24 VDC ISO4400 coil

**Note:** The connector is included

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

Working section - parts ordering codes

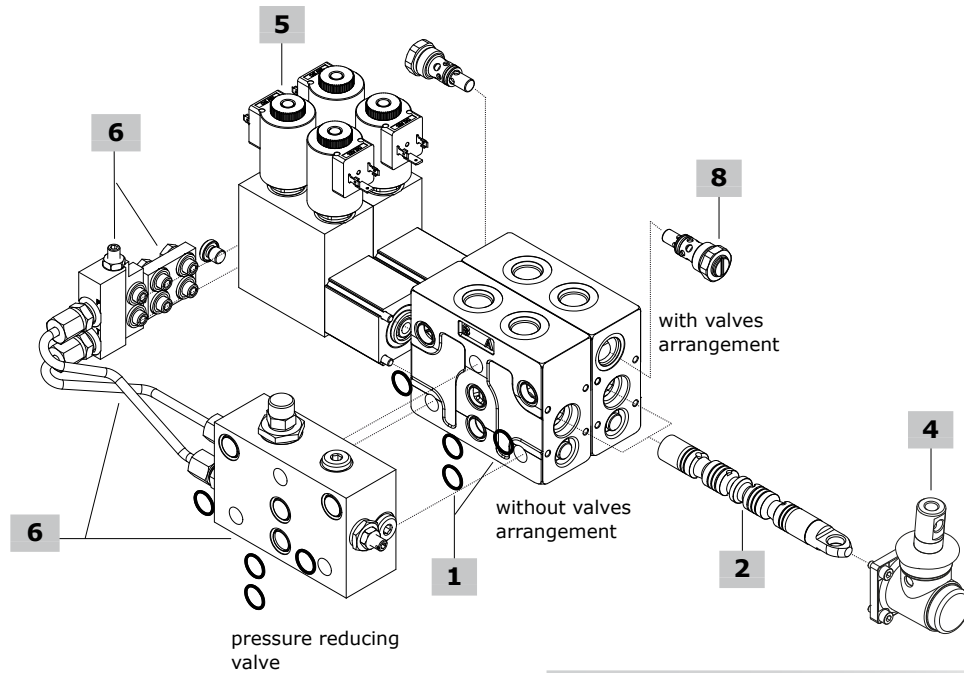
One side - ON/OFF electrohydraulic control valve configuration example

R = with pressure reducing valve  
 S = without pressure reducing valve

spring type and valve setting (bar)

**EL Q80 / KE2R / 103 - A1 - D2W . V40(N)120 - 12VDC - SAE**

1   
 6   
 2   
 4   
 5   
 8   
 5



**1 Working section body kit\* page 196**

See #1, page 191

**2 Spool page 197**

See #2, page 191

**4 A side control page 198**

See #4, page 191

**5 B side electrohydraulic control page 212**

TYPE	CODE	DESCRIPTION
<b>D2W-12VDC</b>	08681D2W1200	3 pos., 12VDC ON/OFF electrohydraulic control
<b>D2W-24VDC</b>	08681D2W2400	3 pos., 24VDC ON/OFF electrohydraulic control

**Note:** For BT type coils, see page 257

**6 Connector kit page 213**

TYPE	CODE	DESCRIPTION
<b>Without pressure reducing valve</b>		
<b>KE1S</b>	5GKE08S010	Kit for 1 section
<b>KE2S</b>	5GKE08S020	Kit for 2 sections
<b>KE3S</b>	5GKE08S030	Kit for 3 sections
<b>KE4S</b>	5GKE08S040	Kit for 4 sections
<b>KE5S</b>	5GKE08S050	Kit for 5 sections
<b>KE6S</b>	5GKE08S060	Kit for 6 sections
<b>KE7S</b>	5GKE08S070	Kit for 7 sections
<b>KE8S</b>	5GKE08S080	Kit for 8 sections
<b>KE9S</b>	5GKE08S090	Kit for 9 sections
<b>KE10S</b>	5GKE08S100	Kit for 10 sections

**Note:** Connector kit are included collector and feeding block

**With pressure reducing valve**

<b>KE1R</b>	5GKE08R010	Kit for 1 section
<b>KE2R</b>	5GKE08R020	Kit for 2 sections
<b>KE3R</b>	5GKE08R030	Kit for 3 sections
<b>KE4R</b>	5GKE08R040	Kit for 4 sections
<b>KE5R</b>	5GKE08R050	Kit for 5 sections
<b>KE6R</b>	5GKE08R060	Kit for 6 sections
<b>KE7R</b>	5GKE08R070	Kit for 7 sections
<b>KE8R</b>	5GKE08R080	Kit for 8 sections
<b>KE9R</b>	5GKE08R090	Kit for 9 sections
<b>KE10R</b>	5GKE08R100	Kit for 10 sections

**Note:** Connector kit are included collector and feeding block, drain lines and pressure reducing valve

**8 Auxiliary port valve page 214**

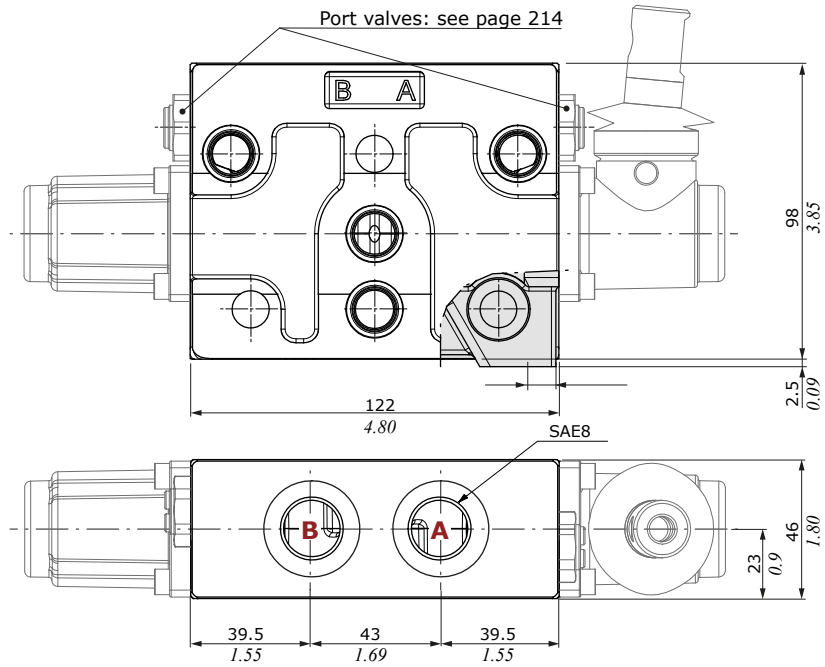
See #8, page 192

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

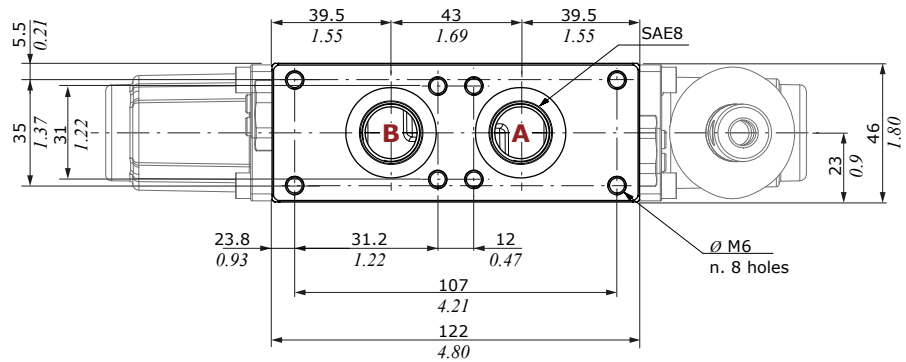
**Working section**

**Dimensional data and hydraulic circuits**

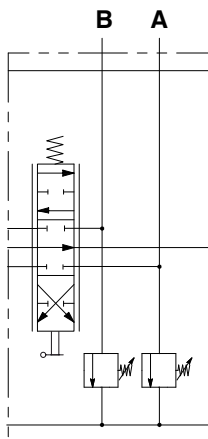
**Standard working section**



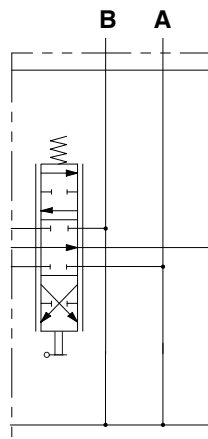
**Working section for secondary aux valves block**



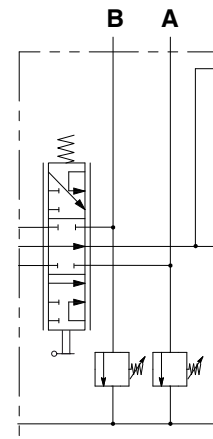
**Q80.V40(N)120-SAE configuration**  
Parallel circuit,  
mechanical control with aux valves



**Q80-SAE configuration**  
Parallel circuit,  
mechanical control without aux valves



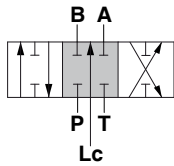
**Q80.V40(N)120-SAE configuration**  
Series circuit,  
mechanical control with aux valves



Spool

**103 type**  
A and B closed  
in neutral position

2 0 1

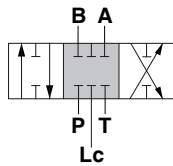


**Stroke**

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

**106 type**  
A, B and Lc closed in  
neutral position. For closed center

2 0 1

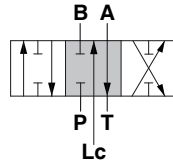


**Stroke**

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

**107 type**  
A to tank, B closed  
in neutral position

2 0 1

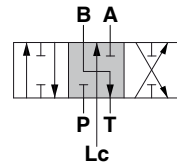


**Stroke**

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

**108 type**  
B to tank, A closed  
in neutral position

2 0 1

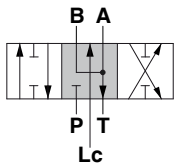


**Stroke**

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

**111 type**  
A and B to tank  
in neutral position

2 0 1

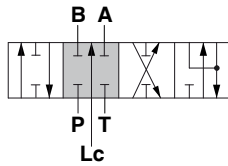


**Stroke**

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

**116 type**  
With floating in the 4<sup>th</sup> position  
(spool in)

2 0 1 3

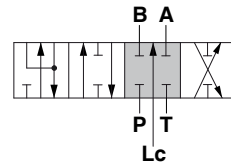


**Stroke**

Position 1: - 4.5 mm (- 0.17 in)  
Position 2: + 7 mm (+ 0.27 in)  
Position 3: - 10.25 mm (- 0.40 in)

**126 type**  
With floating in the 4<sup>th</sup> position  
(spool out)

3 2 0 1

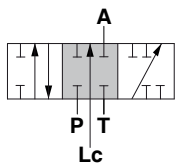


**Stroke**

Position 1: + 4.5 mm (+ 0.17 in)  
Position 2: - 7 mm (- 0.27 in)  
Position 3: + 10.25 mm (+ 0.40 in)

**101 type**  
Single acting on A,  
B plugged

2 0 1

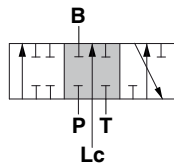


**Stroke**

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

**102 type**  
Single acting on B,  
A plugged

2 0 1

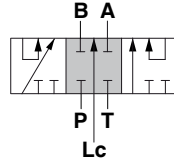


**Stroke**

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

**403 type**  
A and B closed in neutral  
position. For series circuit

2 0 1

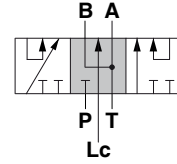


**Stroke**

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

**411 type**  
A and B to tank in neutral  
position. For series circuit

2 0 1



**Stroke**

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

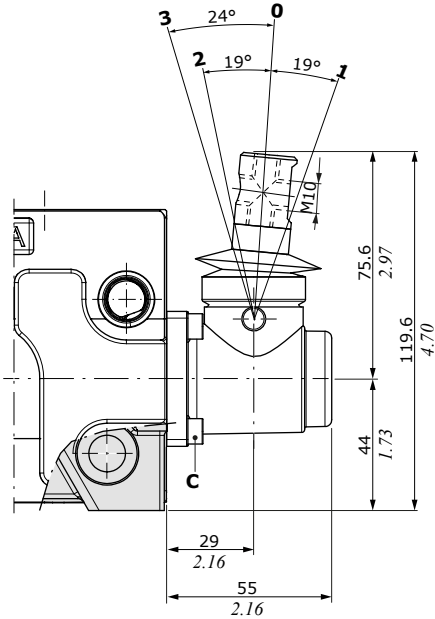
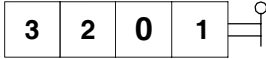
Working section

A side controls

With lever control

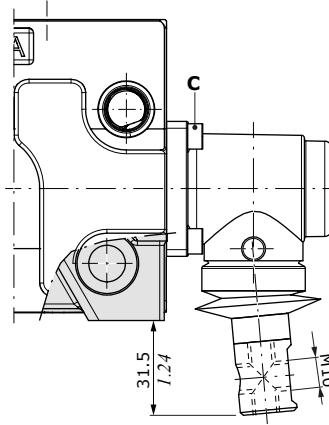
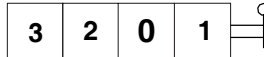
**A1 type**

M10 thread aluminium lever box



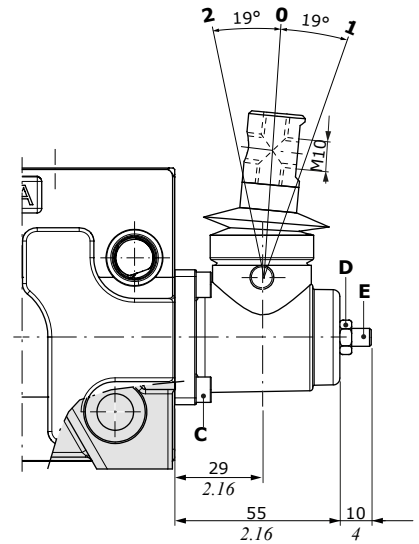
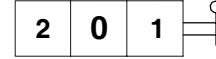
**A2 type**

As A1 type, rotated 180°



**A1/06 type**

M10 thread, with stroke limiter



**A1/Z1 type**

M10 thread, for 116 floating spool type



**Wrenches and tightening torques**

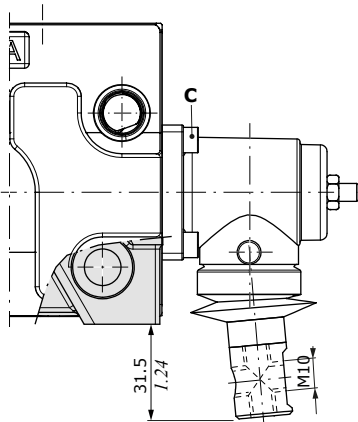
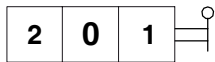
C = allen wrench 4 - 6.6 Nm (4.8 lbf<sub>t</sub>)

D = wrench 10 - 9.8 Nm (7.2 lbf<sub>t</sub>)

E = allen wrench 4 - 9.8 Nm (7.2 lbf<sub>t</sub>)

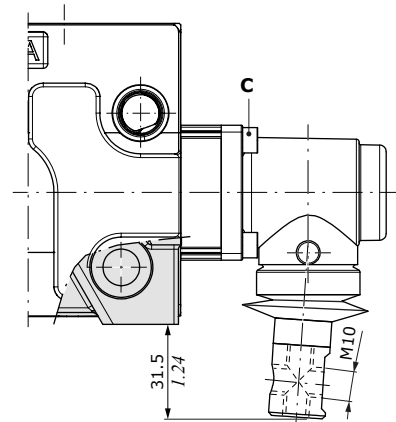
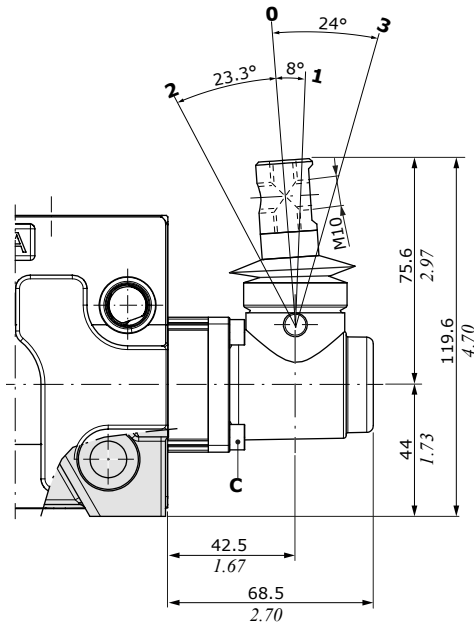
**A2/06 type**

As A1/06 type, rotated 180°



**A2/Z1 type**

As A1/Z1 type, rotated 180°

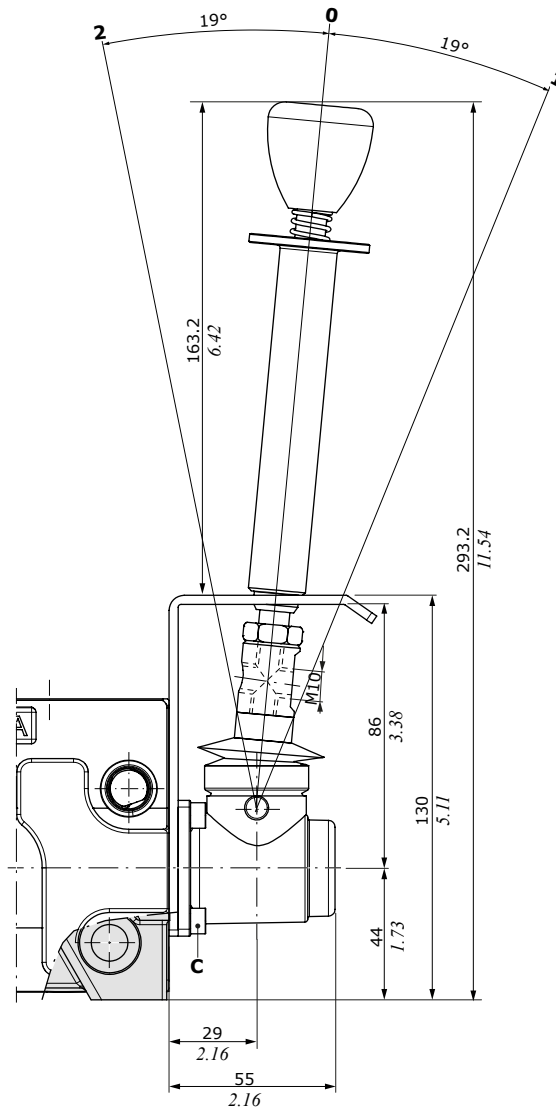
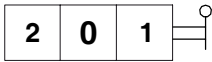


**A side controls**

**With safety lever control**

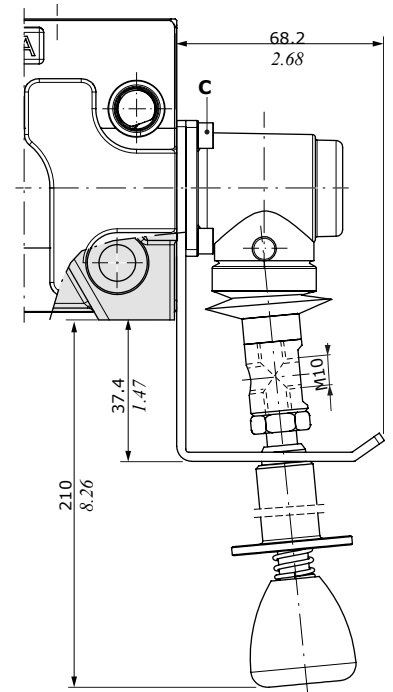
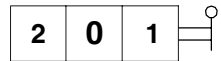
**A1/S type**

M10 thread, aluminium lever box



**A2/S type**

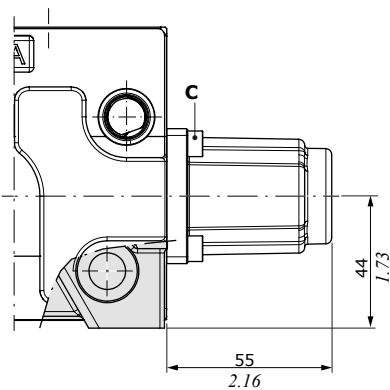
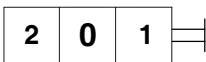
As A1/S type, rotated 180°



**Without lever control**

**A3 type**

With cap



**Wrenches and tightening torques**

C = allen wrench 4 - 6.6 Nm (4.8 lbf<sub>t</sub>)

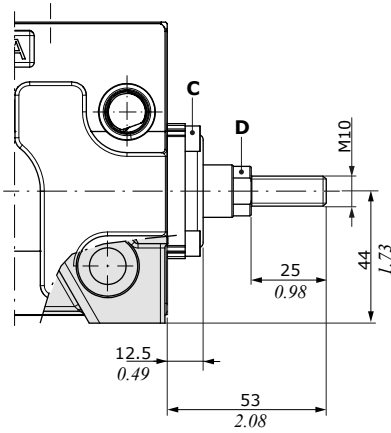
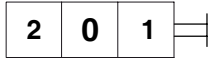
**Working section**

**A side controls**

**Without lever control**

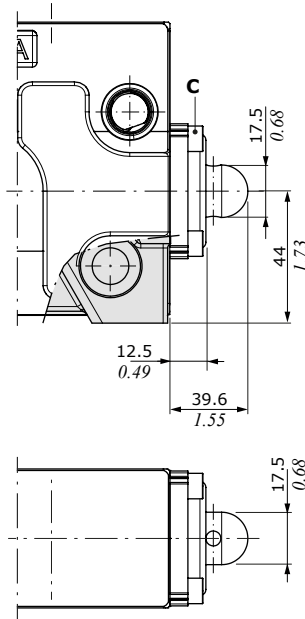
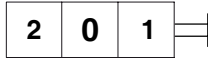
**A4 type**

M10 male thread external pin with flange



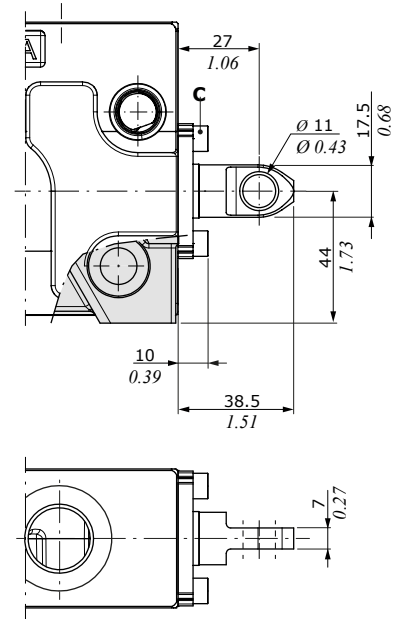
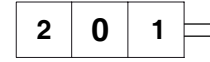
**A5 type**

Flange with spherical spool end



**A6 type**

With flange



**Wrenches and tightening torques**

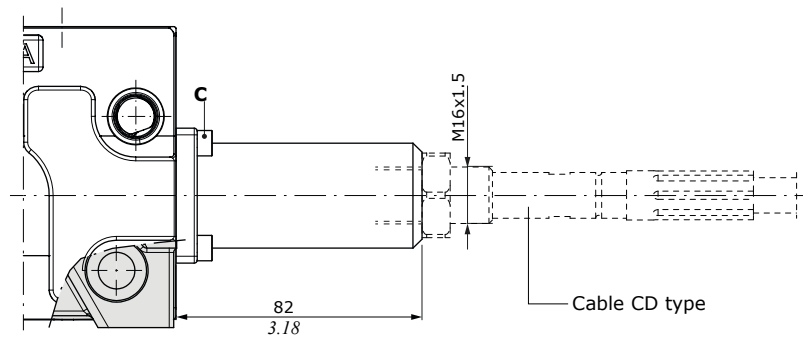
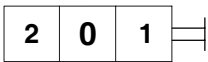
C = allen wrench 4 - 6.6 Nm (4.8 lbf)

D = wrench 13 - 9.8 Nm (7.2 lbf)

**With flexible cable control arrangement**

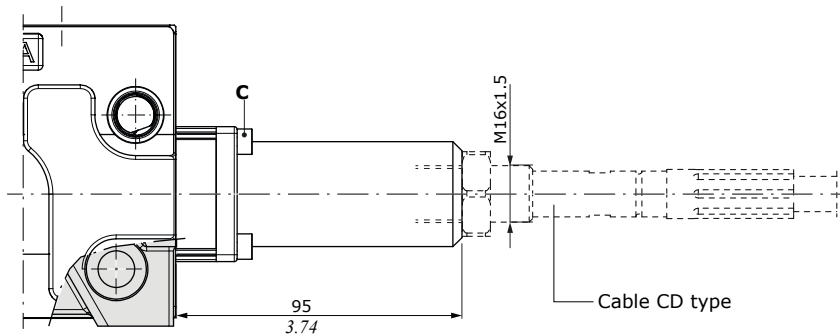
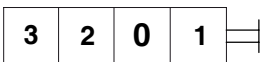
**A8 type**

Flexible cable control arrangement



**A8/Z1 type**

As A8 type, for 116 floating spool type

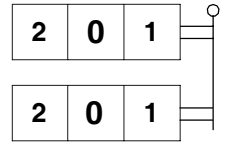




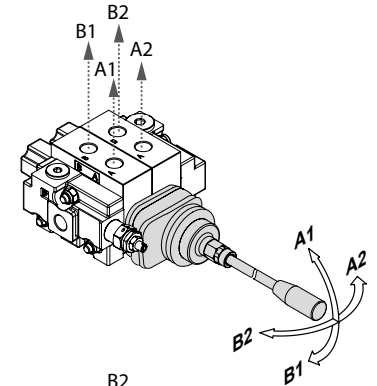
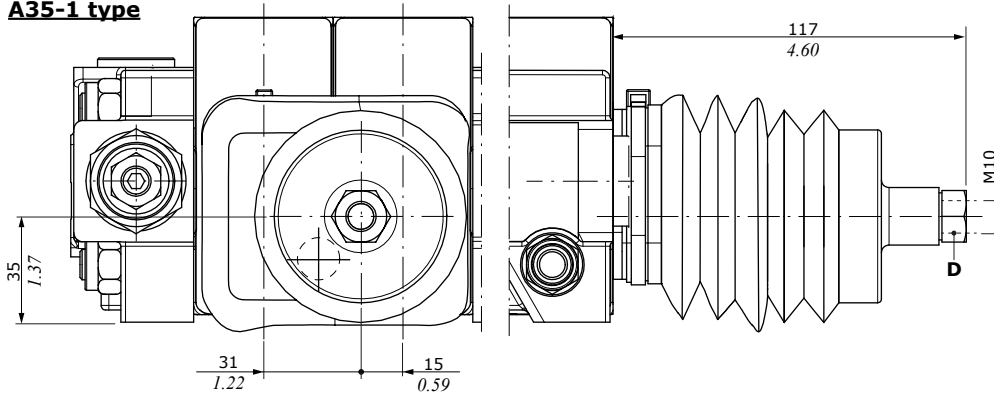
**A side controls**

**Joystick control**

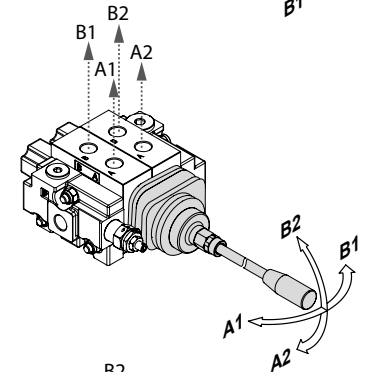
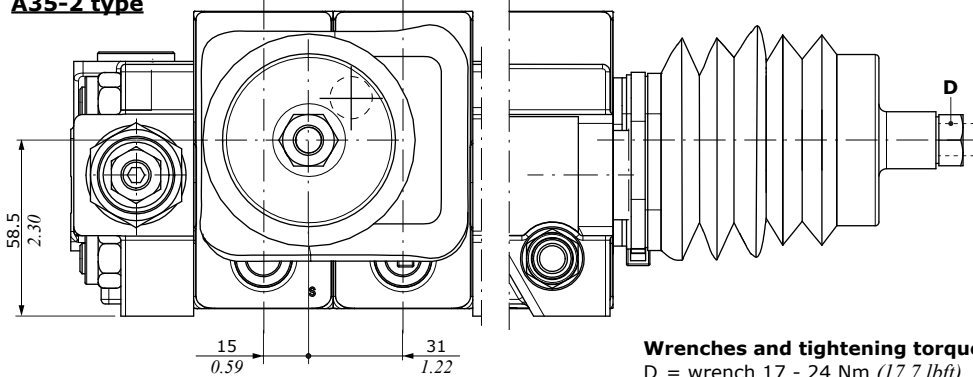
For operating the joystick control in the floating position, contact Sales Department.



**A35-1 type**

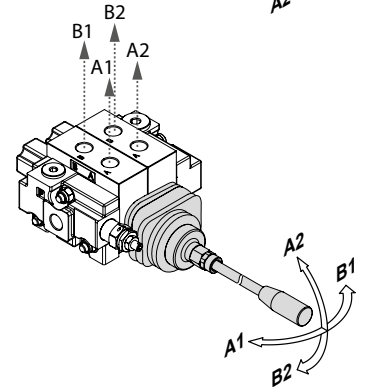
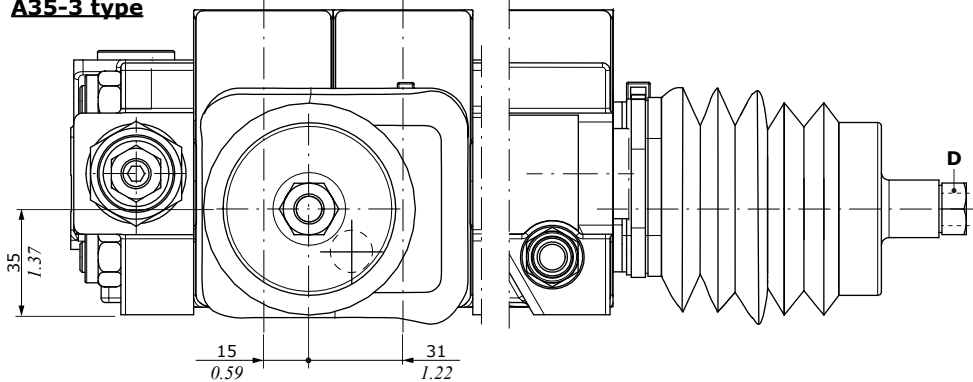


**A35-2 type**

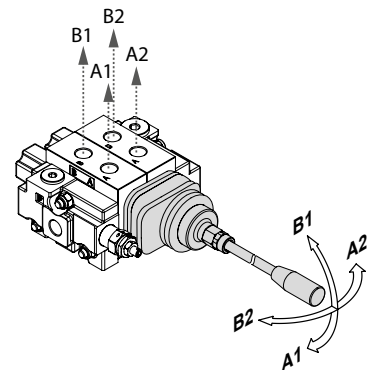
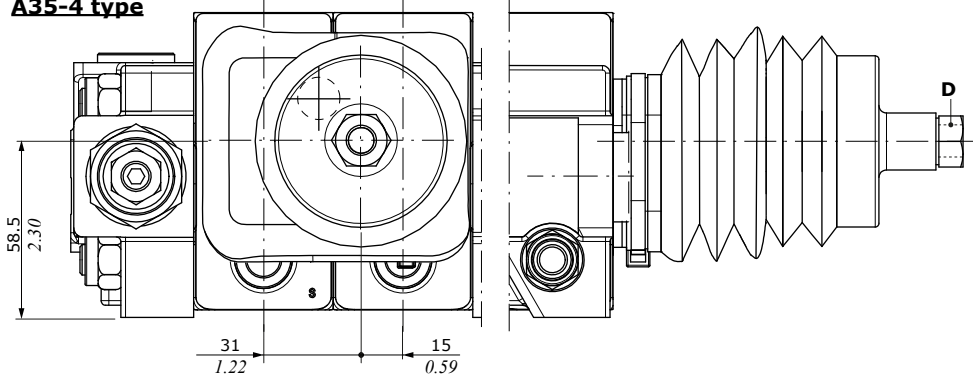


**Wrenches and tightening torques**  
D = wrench 17 - 24 Nm (17.7 lbf<sub>t</sub>)

**A35-3 type**



**A35-4 type**

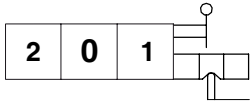


**Working section**

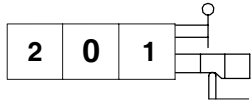
**A side controls**

**With spool position microswitch, with lever**

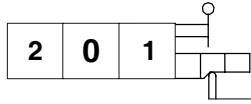
**N1-A1 type**  
Micro operation  
in position 1 and 2



**N1A-A1 type**  
Micro operation in  
position 1

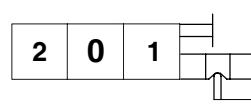


**N1B-A1 type**  
Micro operation in  
position 2

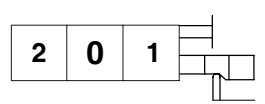


**With spool position microswitch, with cap**

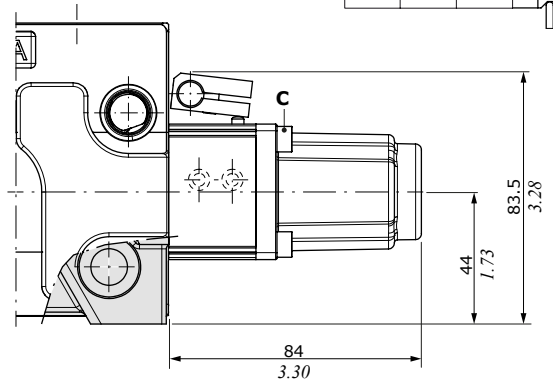
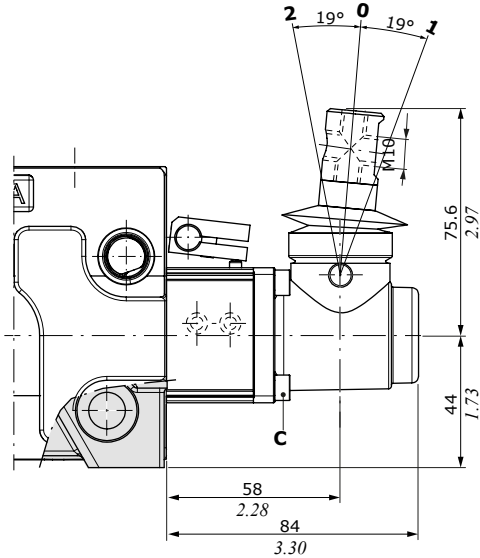
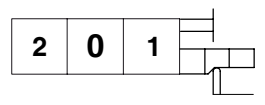
**N1-A3 type**  
Micro operation  
in position 1 and 2



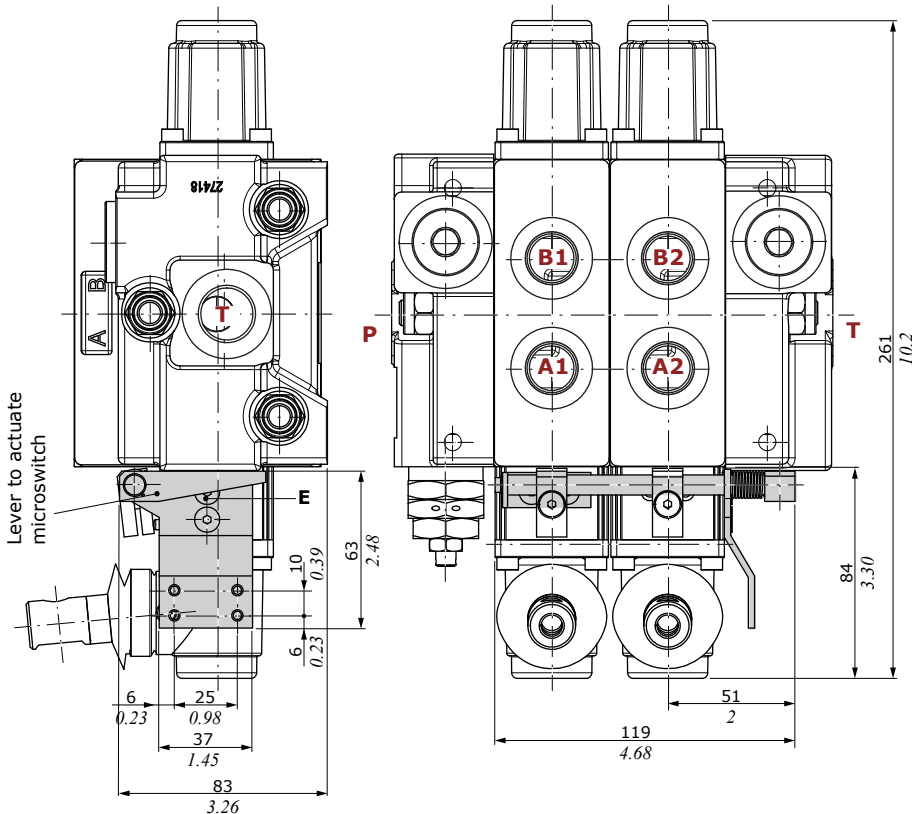
**N1A-A3 type**  
Micro operation in  
position 1



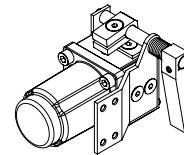
**N1B-A3 type**  
Micro operation in  
position 2



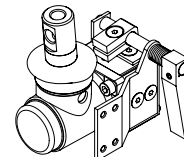
**Microswitch assembly kit for 2 working section (N1-A1 type)**



**with cap**



**with lever box**



**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbf<sub>t</sub>)  
E = allen wrench 3 - 6.6 Nm (4.8 lbf<sub>t</sub>)

**B side controls**

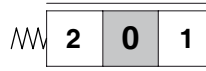
**With spring return control**

**M1 type**  
3 position, spring return  
in neutral position

**M1/01 type**  
As M1 type,  
for joystick control

**M1/05 type**  
As M1 type,  
for series spool

**M1/07 type**  
As M1 type, for  
joystick series spool

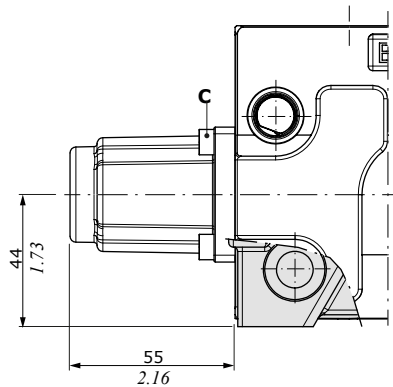
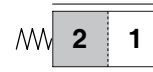
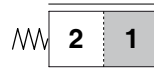
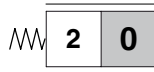
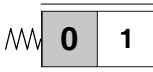


**M2 type**  
2 position (0-1), spring return  
in neutral position

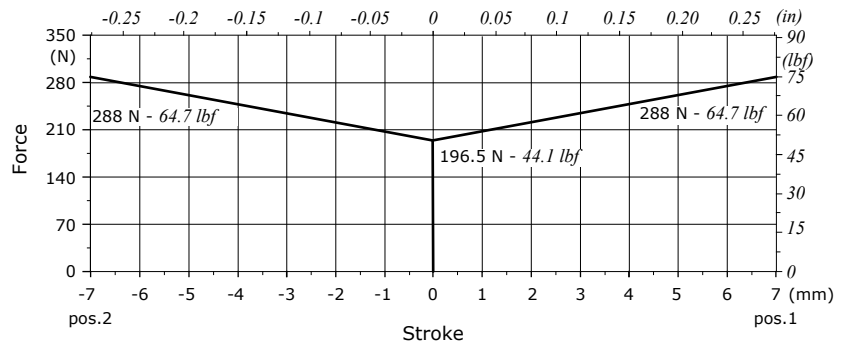
**M3 type**  
2 position (0-2), spring return  
in neutral position

**M4 types**  
2 position (1-2),  
spring return in position 1

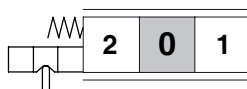
2 position (2-1),  
spring return in position 2



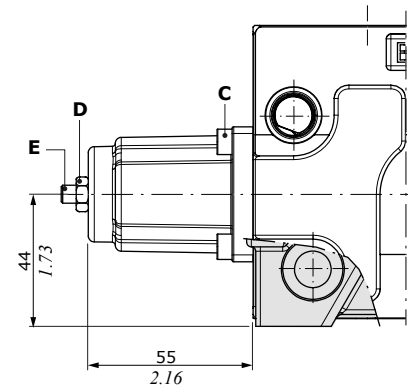
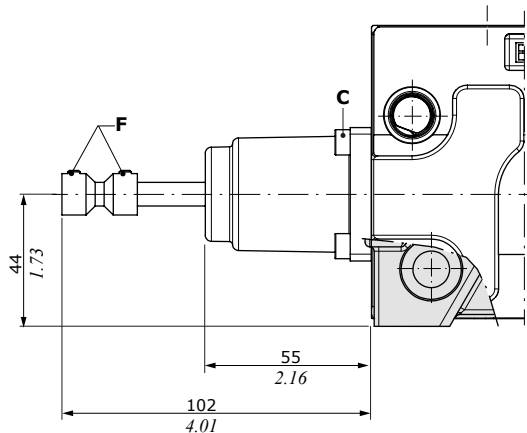
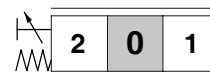
**M1 control type - Force vs. Stroke diagram**



**M1-B1 type**  
3 position, microswitch arrangement



**M1/02 type**  
As M1 type, with stroke limiter



**Wrenches and tightening torques**

- C = allen wrench 4 - 6.6 Nm (4.8 lbf<sub>t</sub>)
- D = wrench 10 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- E = allen wrench 4 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- F = allen wrench 3 - 5 Nm (3.68 lbf<sub>t</sub>)

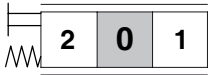
**Working section**

**B side controls**

**With spring return control**

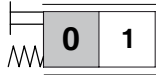
**M1-U1 type**

3 position, with M10 male thread external pin



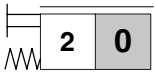
**M2-U1 type**

2 position (0-1), with M10 male thread external pin



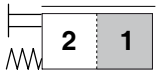
**M3-U1 type**

2 position (0-2), with M10 male thread external pin



**M4-U1 type**

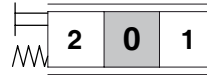
2 position (1-2), with M10 male thread external pin



**With flexible cable control arrangement**

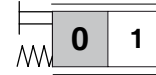
**M1-U2 type**

3 position, spring return in neutral position



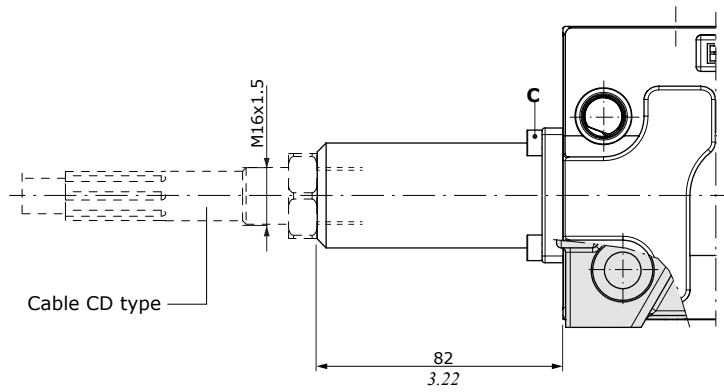
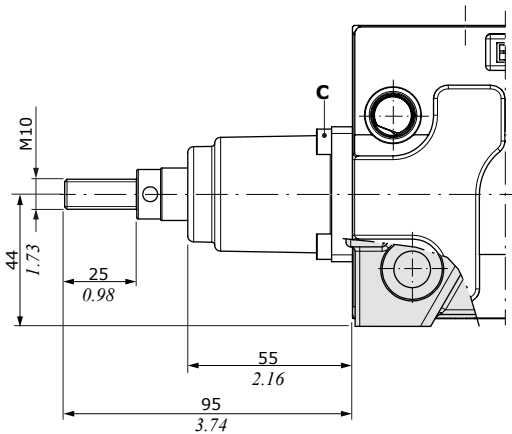
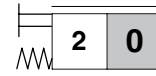
**M2-U2 type**

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



**M3-U2 type**

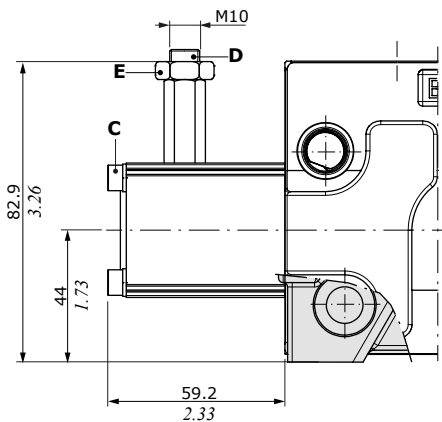
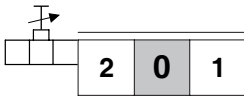
2 position (0-2), spring return in neutral position



**With friction control**

**R0 type**

Adjustable friction control



**Wrenches and tightening torques**

C = allen wrench 4 - 6.6 Nm (4.8 lbf<sup>t</sup>)

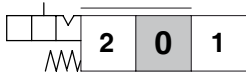
D = allen wrench 5 - 15 Nm (11.1 lbf<sup>t</sup>)

E = wrench 17 - 9.8 Nm (7.2 lbf<sup>t</sup>)

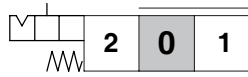
**B side controls**

**With detent control**

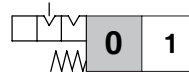
**R1 type**  
3 position,  
detent in position 1



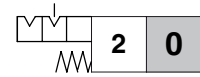
**R2 type**  
3 position,  
detent in position 2



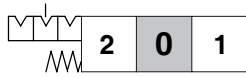
**R4 type**  
2 position,  
detent in position 0-1



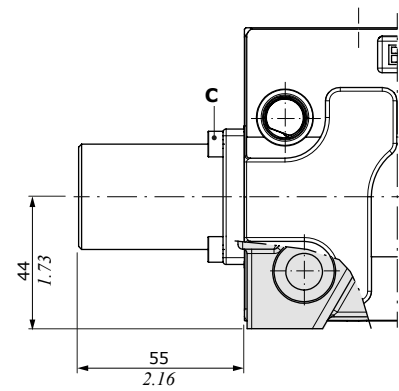
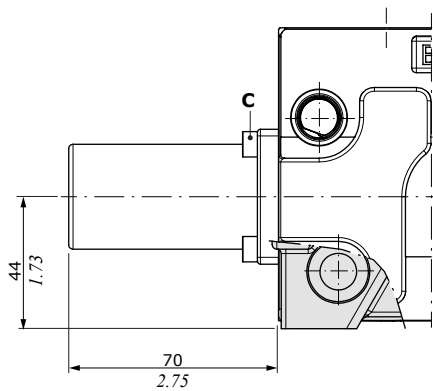
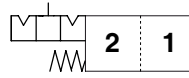
**R5 type**  
2 position,  
detent in position 0-2



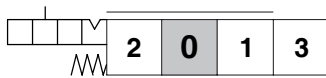
**R3 type**  
3 position,  
detent in all position



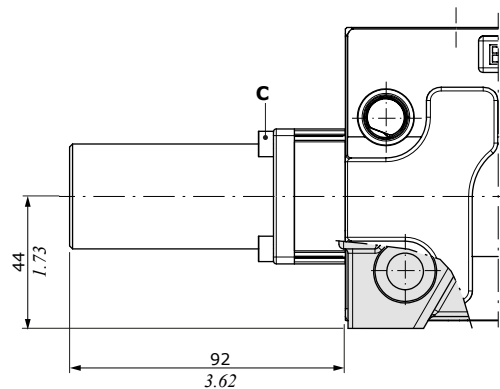
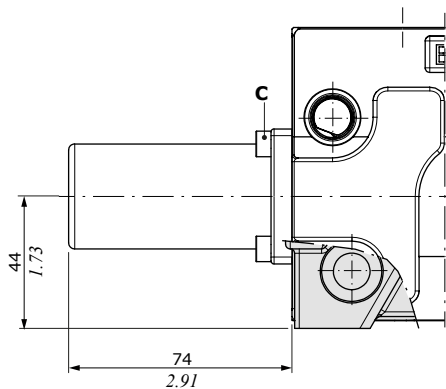
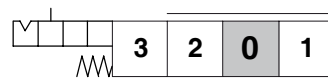
**R6 type**  
2 position,  
detent in position 1-2



**R8 type**  
4 position, detent in 4<sup>th</sup> position,  
for 116 floating spool type



**R10/Z1 type**  
4 position, detent in 4<sup>th</sup> position,  
for 126 floating spool type



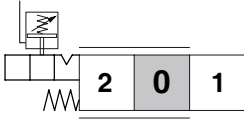
**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbf<sup>t</sup>)

Working section

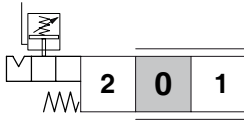
B side controls

With detent control and kick out function

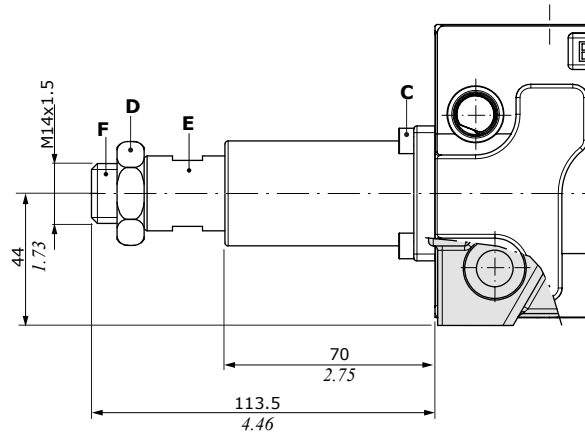
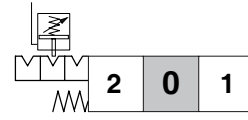
**R1K type**  
3 position, detent in position 1



**R2K type**  
3 position, detent in position 2



**R3K type**  
3 position, detent in all position



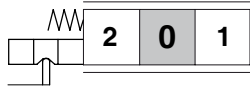
- Wrenches and tightening torques**  
 C = allen wrench 4 - 6.6 Nm (4.8 lbft)  
 D = wrench 30 - 42 Nm (30.9 lbft)  
 E = wrench 22  
 F = allen wrench 10 - 42 Nm (30.9 lbft)

**B side controls**

**With spool position microswitch**

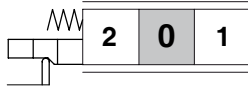
**M1-N1 type**

3 position, micro operation in position 1 and 2, spring return in neutral position



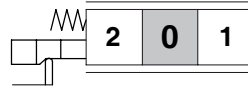
**M1-N1A type**

3 position, micro operation in position 1



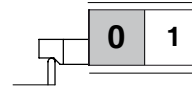
**M1-N1B type**

3 position, micro operation in position 2



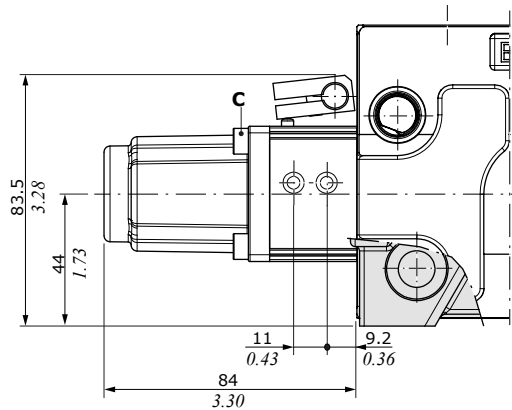
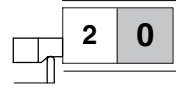
**M2-N1 type**

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

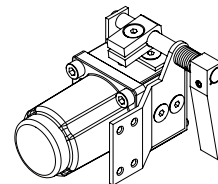
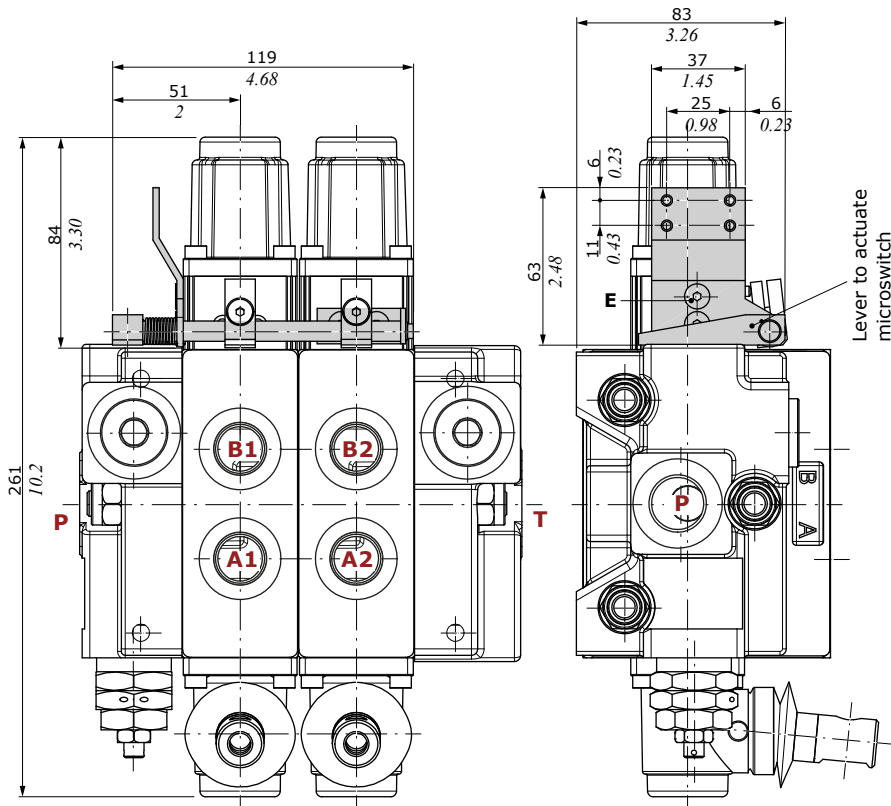


**M3-N1 type**

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



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



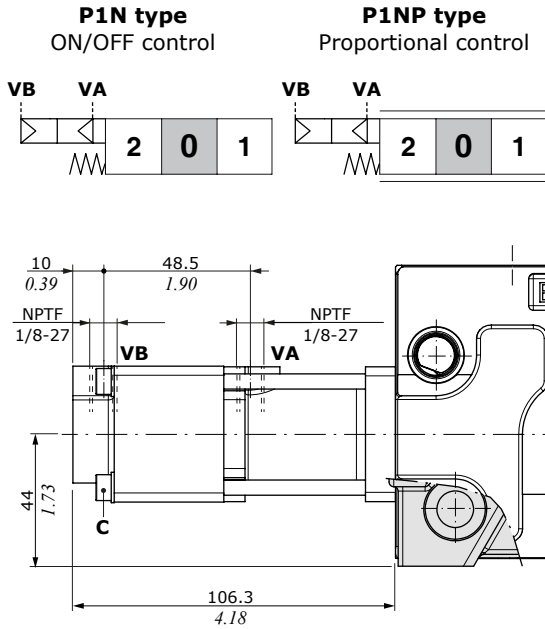
**Wrenches and tightening torques**

C = allen wrench 4 - 6.6 Nm (4.8 lbf<sup>t</sup>)  
E = allen wrench 3 - 6.6 Nm (4.8 lbf<sup>t</sup>)

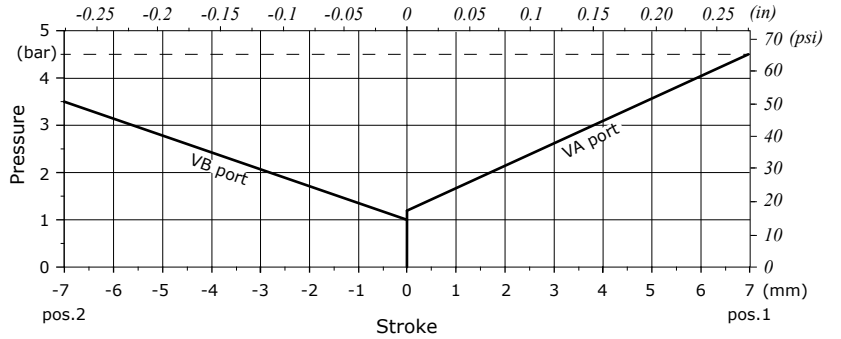
**Working section**

**B side controls**

**With pneumatic control**



**Proportional pilot pressure curves**



**Operating features**

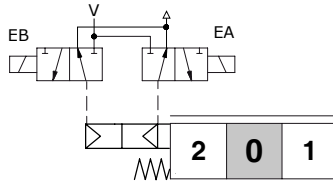
Pilot pressure.....: min. 5 bar (72.5 psi) - max. 30 bar (435 psi)  
Pilot volume.....: 9 cm<sup>3</sup>/min (0.54 in<sup>3</sup>/min)

**Wrenches and tightening torques**

C = wrench 4 - 6.6 Nm (4.8 lbft)

**With ON/OFF electropneumatic control**

**D3W type**  
ON/OFF control

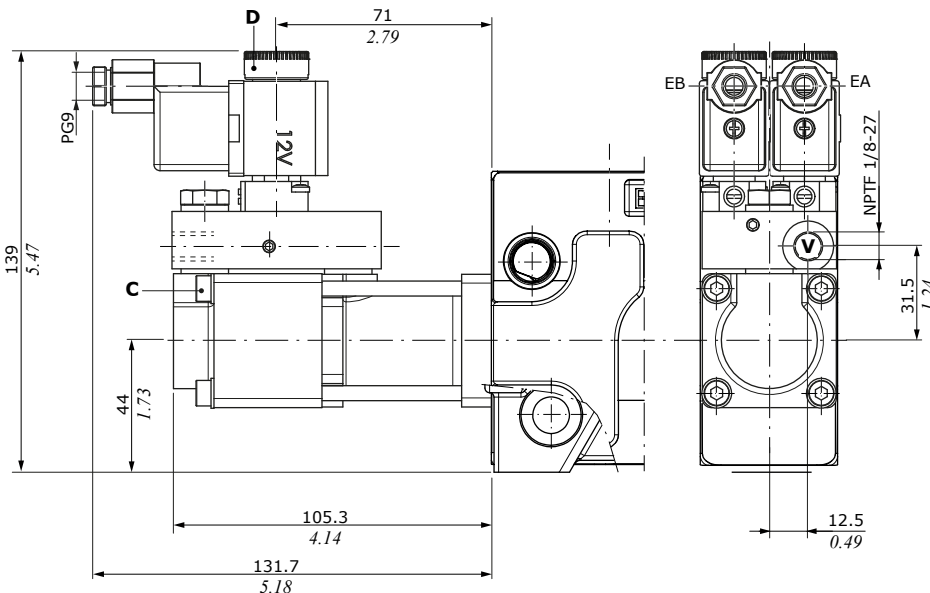


**Operating features**

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

**COILS**

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



**Wrenches and tightening torques**

C = allen wrench 4 - 6.6 Nm (4.8 lbft)  
D = manual tightening - 6.6 Nm (4.8 lbft)

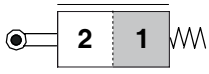


**A+B side controls**

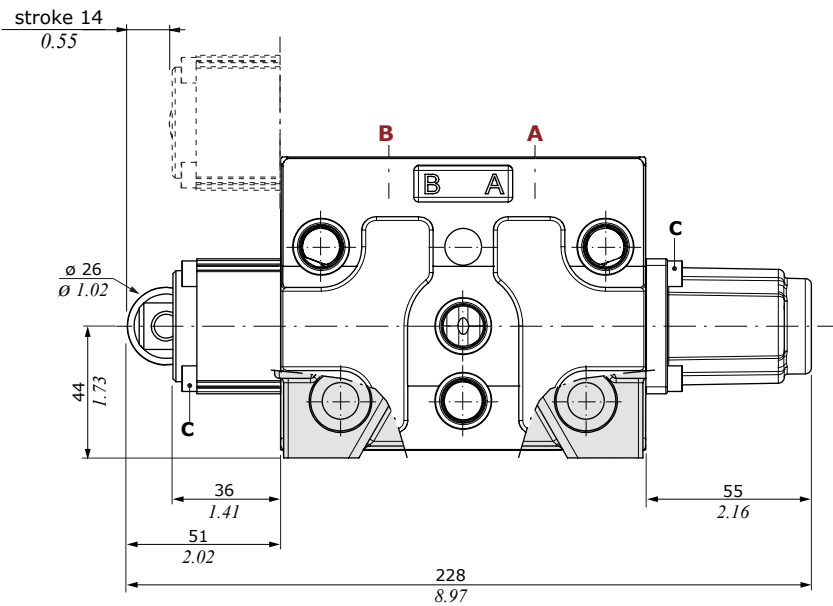
**With cam control**

**C2 type**

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

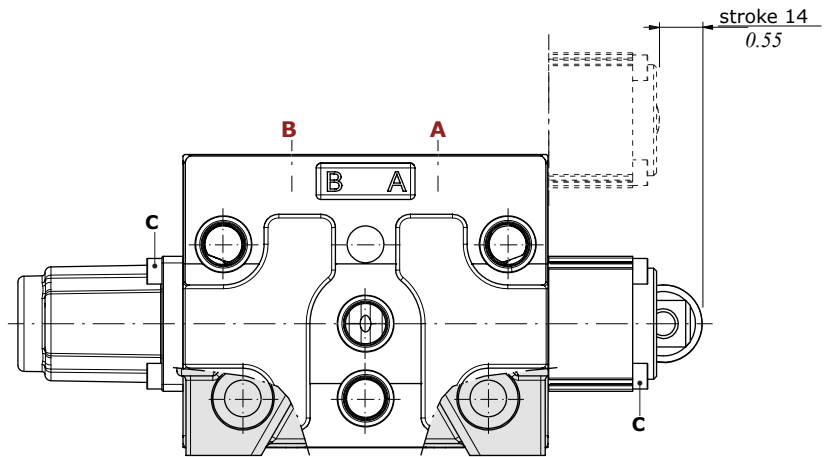
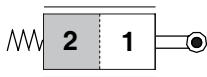


**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbf)



**C3 type**

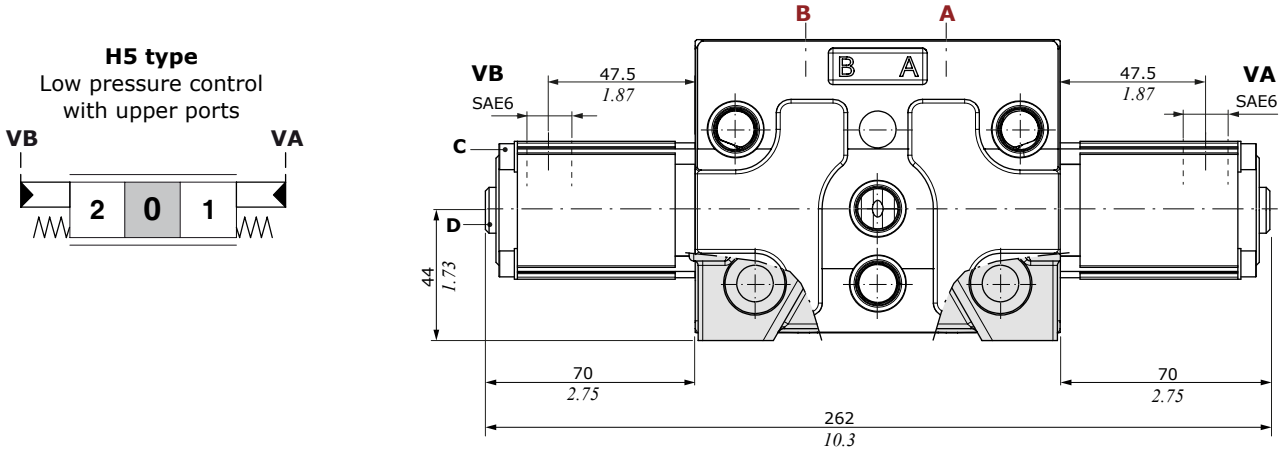
From position 2 to position 1,  
spring return in position 2.  
Dimensions are the same of C2 type



Working section

A+B side controls

With proportional hydraulic control



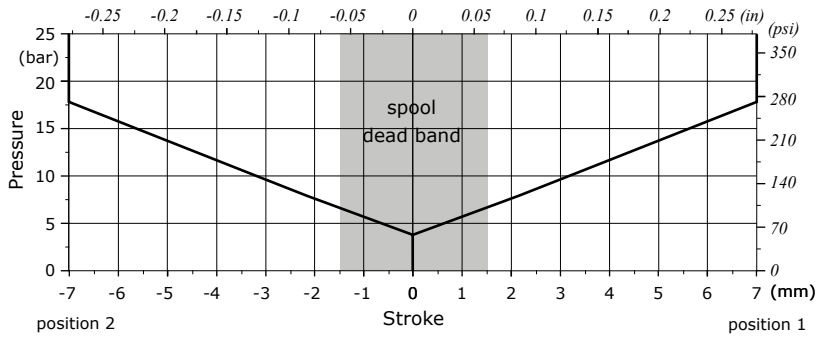
Operating features

Pilot pressure..... : max. 100 bar (1450 psi)

Wrenches and tightening torques

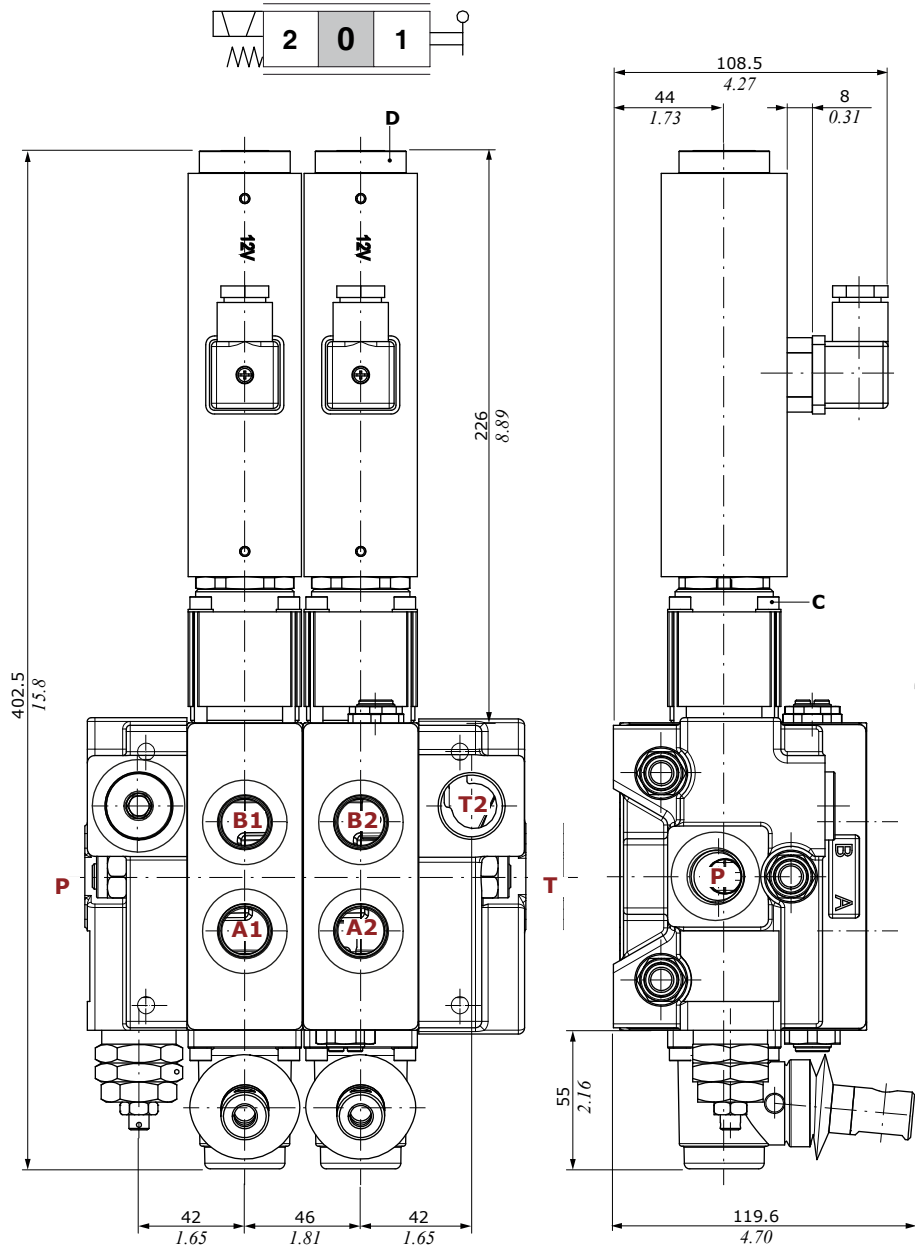
C = allen wrench 4 - 6.6 Nm (4.8 lbf)  
 D = allen wrench 4 - 9.8 Nm (7.2 lbf)

Stroke vs. Pressure diagram for H5 type control



**Direct solenoid control**

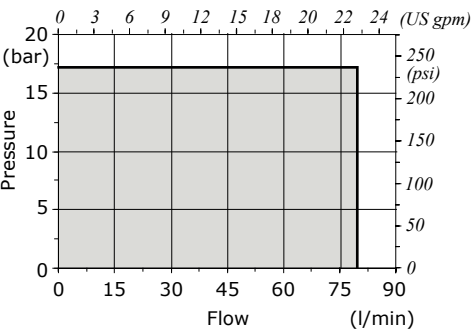
**D41 type: ON/OFF one side**



D41 coil	
Nominal voltage	12 VDC 24 VDC
Nominal voltage tolerance	±10%
Power rating	80 W
Insulation	Class H
Weather protection	IP65

Connector type: ISO4400 3P+T-PG11

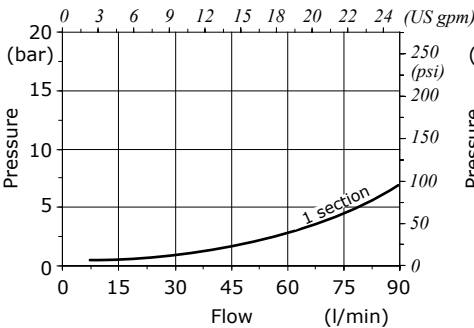
**Dynamic conditions**



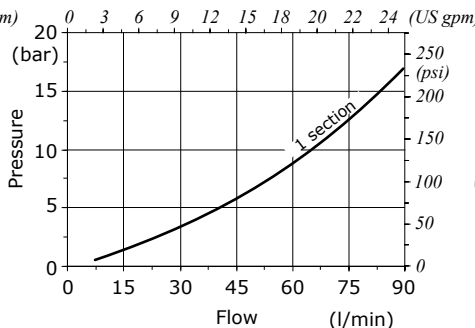
**Wrenches and tightening torques**

- C = allen wrench 4 - 6.6 Nm (4.8 lbf<sup>t</sup>)
- D = manual tightening - 6.6 Nm (4.8 lbf<sup>t</sup>)

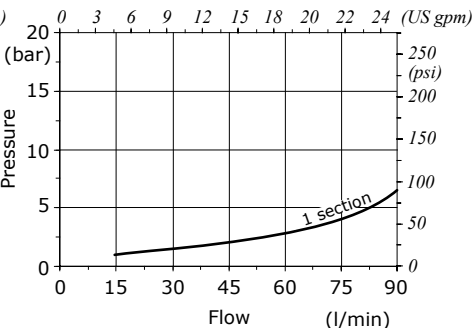
**P⇒T pressure drops**



**P⇒A(B) pressure drops**



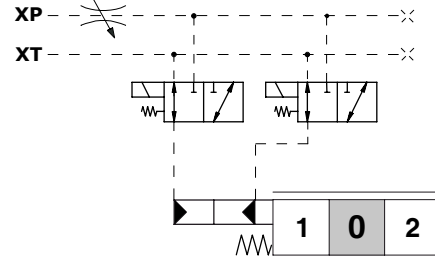
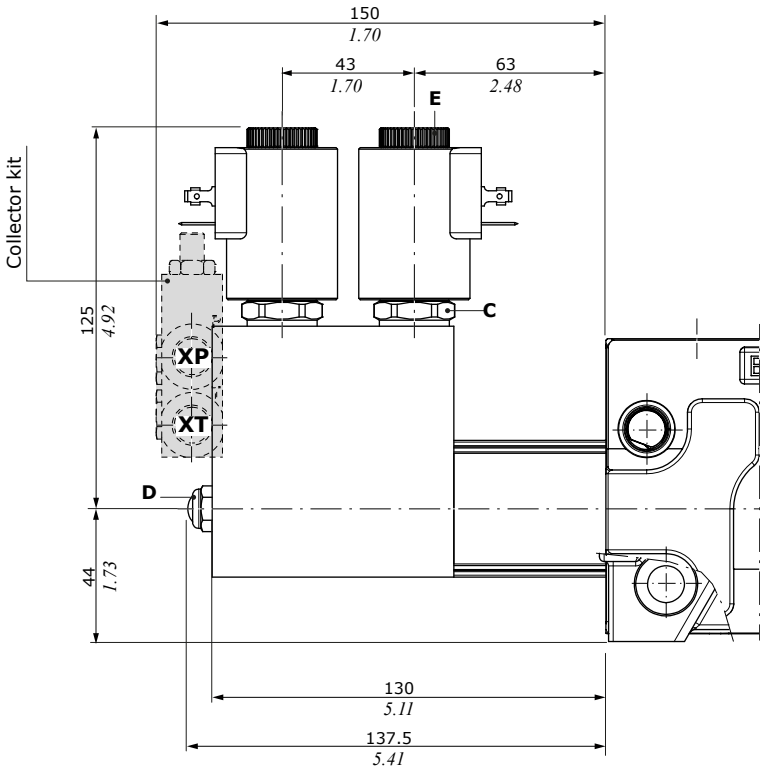
**A(B)⇒T pressure drops**



**Working section**

**Electrohydraulic control**

**D2W type: ON/OFF one side**

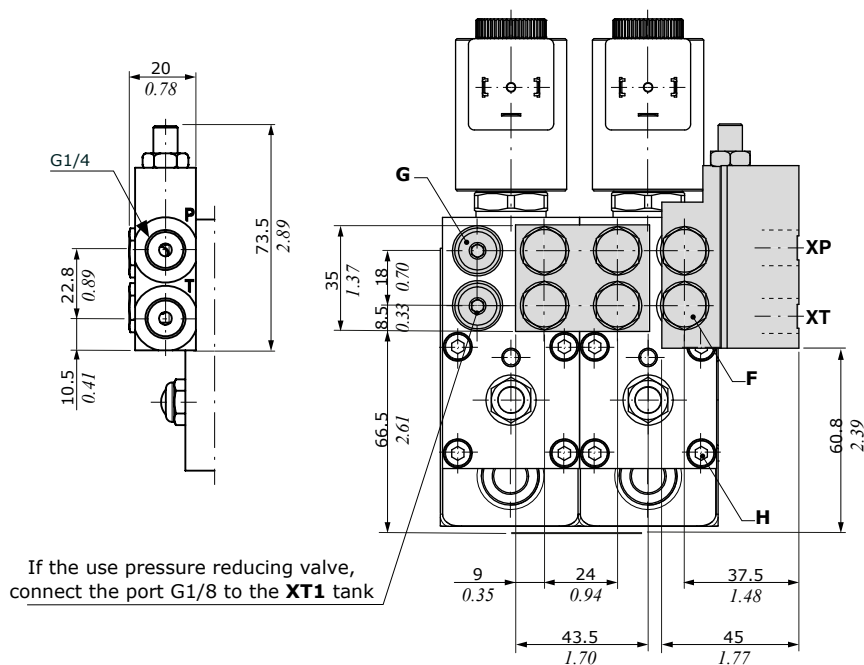


**Features**

- Pilot pressure on XP..... : min. 20 bar (290 psi)
- : max. 35 bar (500 psi)
- Max backpressure on XT..... : 4 bar (58 psi)

For **BT** type coils and mating connectors, see page 257

**KE2S connector kit**



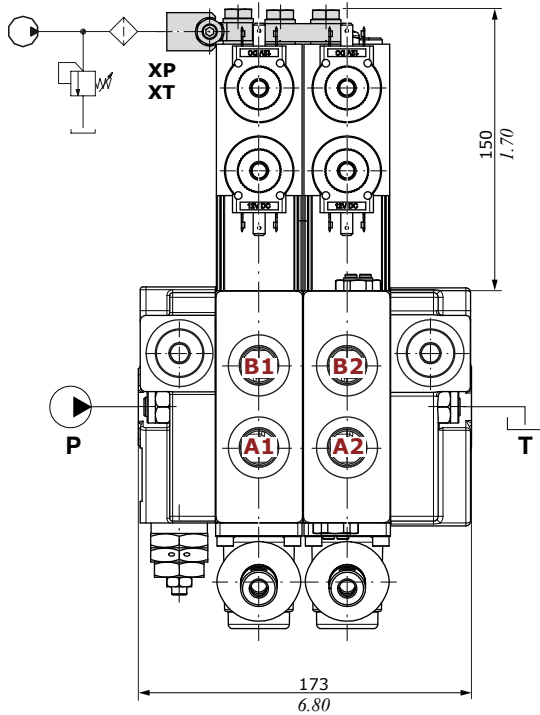
If the use pressure reducing valve, connect the port G1/8 to the **XT1** tank

**Wrenches and tightening torques**

- C = wrench 24 - 30 Nm (22.1 lbft)
- D = wrench 13 - 9 Nm (6.6 lbft)
- E = wrench 6.6 - 9.8 Nm (7.2 lbft)
- F = wrench 14 - 24 Nm (17.7 lbft)
- G = allen wrench 4 - 9.8 Nm (6.6 lbft)
- H = allen wrench 4 - 3 Nm (2.2 lbft)

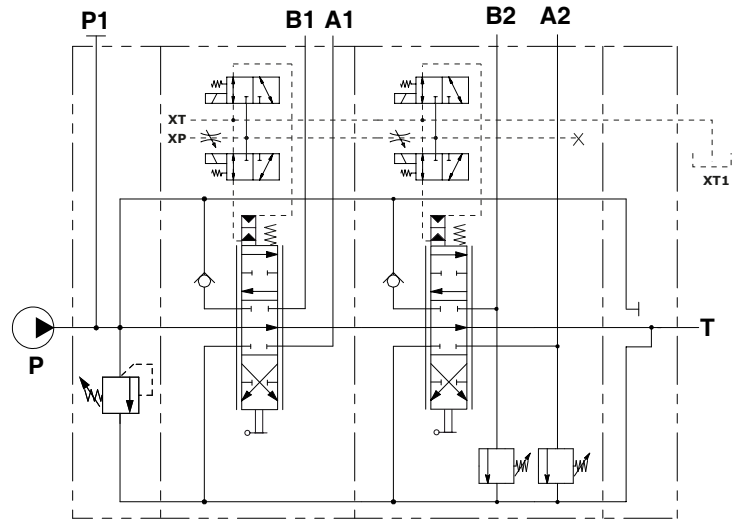
Electrohydraulic control

Connector kit for external pilot and drain



CONNECTOR KIT CODES		
Type	Code*	Description
KE2S	5GKE08S020	Kit for 2 section

For other connector kit codes, see page 195

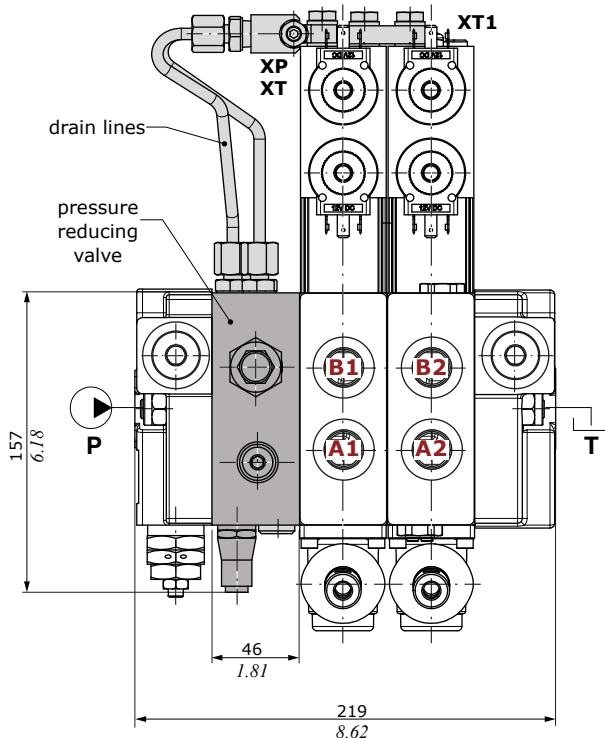


Description example:

Q80/2/F7S(N120)/KE2S/103-A1-D2W.V40(N)120/  
103-A1-D2W.V40(N)120/F3D-12VDC-S-SAE

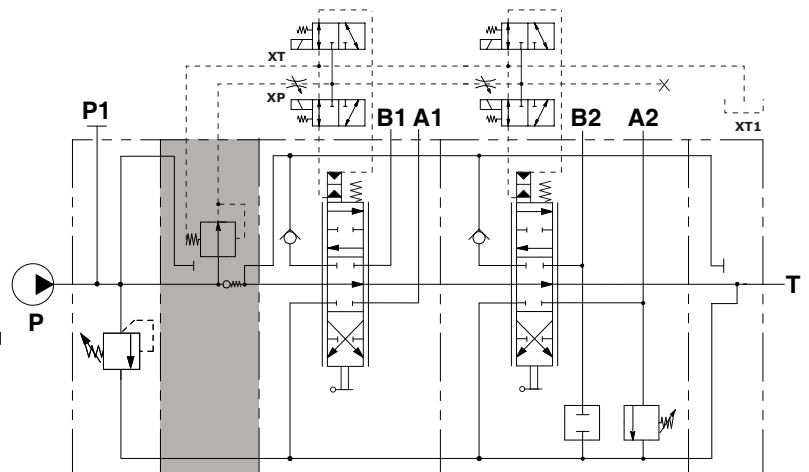
Connector kit for internal pilot and drain

The kit is made of collector, pressure reducing valve and drain lines.



CONNECTOR KIT CODES		
Type	Code*	Description
KE2R	5GKE08R020	Kit for 2 section

For other connector kit codes, see page 195



Description example:

Q80/2/F7S(N120)/KE2R/103-A1-D2W.V40(N)120/  
103-A1-D2W.V40(N)120/F3D-12VDC-S-SAE

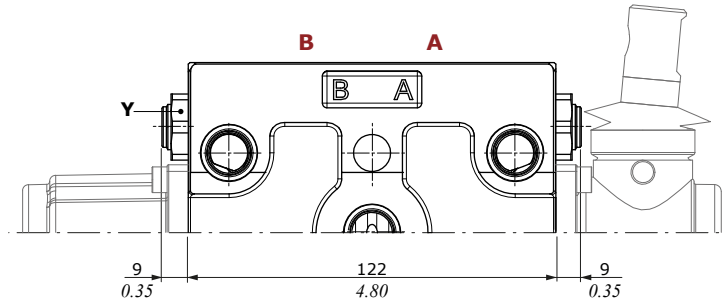
Pressure reducing valve

**Auxiliary valve configuration**

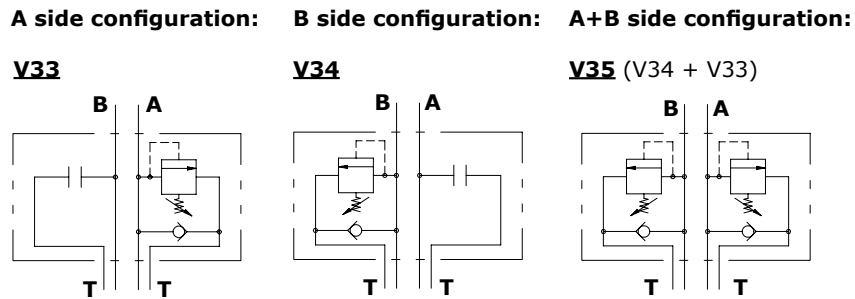
**Dimensional data and hydraulic circuits**

**Description example**

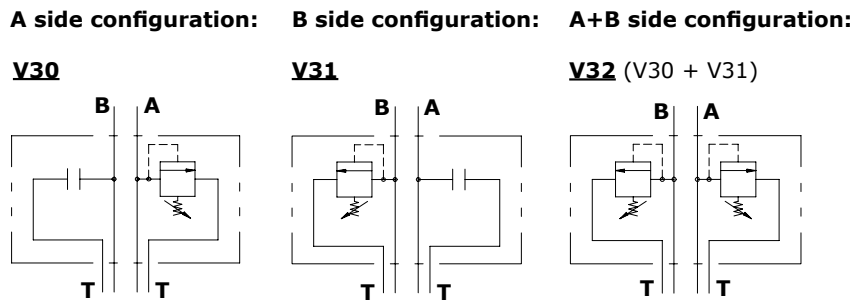
aux valve spring type and valve setting (bar)  
 Q80 / 1 / ... / 103 - A1 - M1 - **V32(N)120** / ...



**Antishock/anticavitation valve example**



**Antishock valve example**



Spring type	Setting ranges (bar - psi)
<b>B</b> (white)	From 30 to 80 - from 435 to 1150
<b>N</b> (black)	From 81 to 200 - from 1170 to 2900
<b>R</b> (red)	From 201 to 370 - from 2910 to 5400

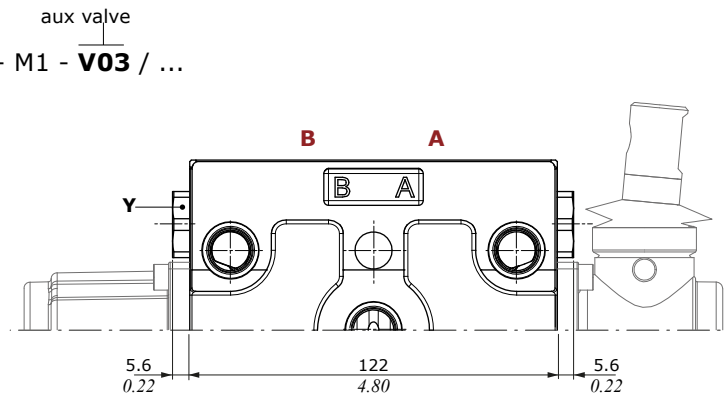
**Wrenches and tightening torques**

Y = wrench 22 - 42 Nm (30.9 lbf<sub>t</sub>)

Dimensional data and hydraulic circuits

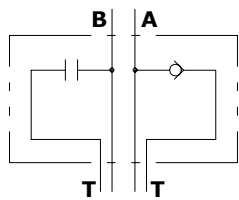
Anticavitation valve example

Q80 / 1 / ... / 103 - A1 - M1 - **V03** / ...



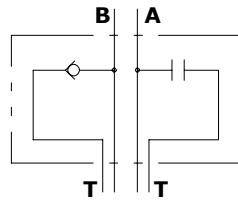
**A side configuration:**

**V04**



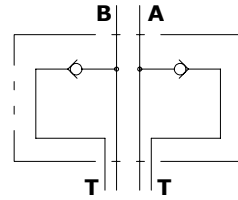
**B side configuration:**

**V05**



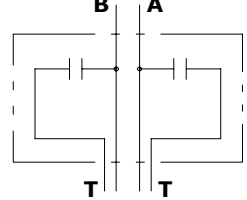
**A+B side configuration:**

**V03 (V04 + V05)**



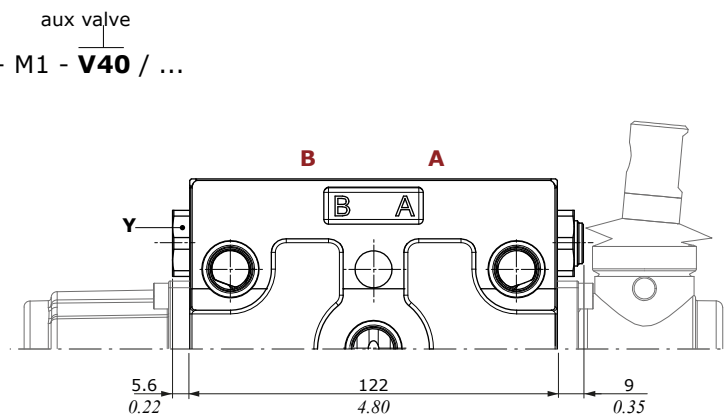
**Plug valve:**

**VC**



Antishock and anticavitation combining valves example

Q80 / 1 / ... / 103 - A1 - M1 - **V40** / ...

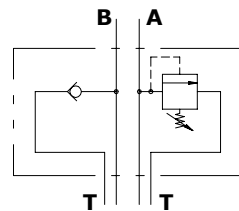


**Wrenches and tightening torques**

Y = wrench 22 - 42 Nm (30.9 lbf)

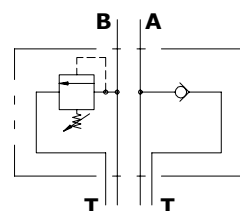
**A side configuration:**

**V40 (V30 + V05)**



**B side configuration:**

**V41 (V31 + V04)**

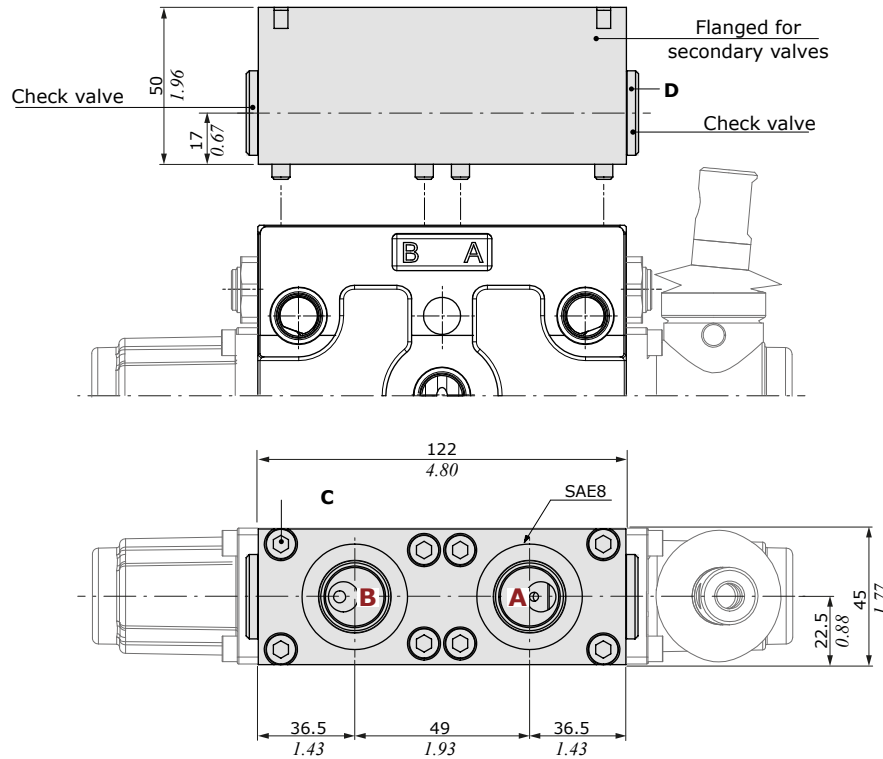


**Secondary valve configuration**

**Dimensional data and hydraulic circuits**

**Description example**

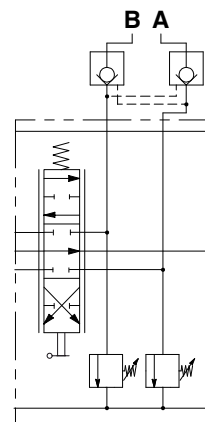
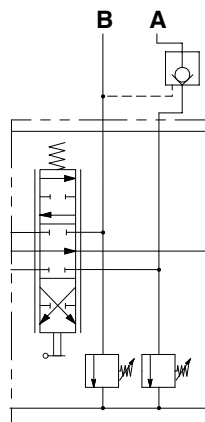
secondary aux valve valves block  
 Q80 / 1 / ... / 103 - A1 - M1 - V32(N)120 / **VC03** - SAE



**Wrenches and tightening torques**  
 C = allen wrench 5 - 9.8 Nm (7.2 lbf<sup>t</sup>)  
 D = allen wrench 8 - 60 Nm (44.2 lbf<sup>t</sup>)

**Q80.V40(N)120/VC01-SAE configuration**  
 Parallel circuit, mechanical control with aux valves and flanged for single piloted check valve on A port

**Q80.V40(N)120/VC03-SAE configuration**  
 Parallel circuit, mechanical control with aux valves and flanged for double piloted check valve on A and B ports

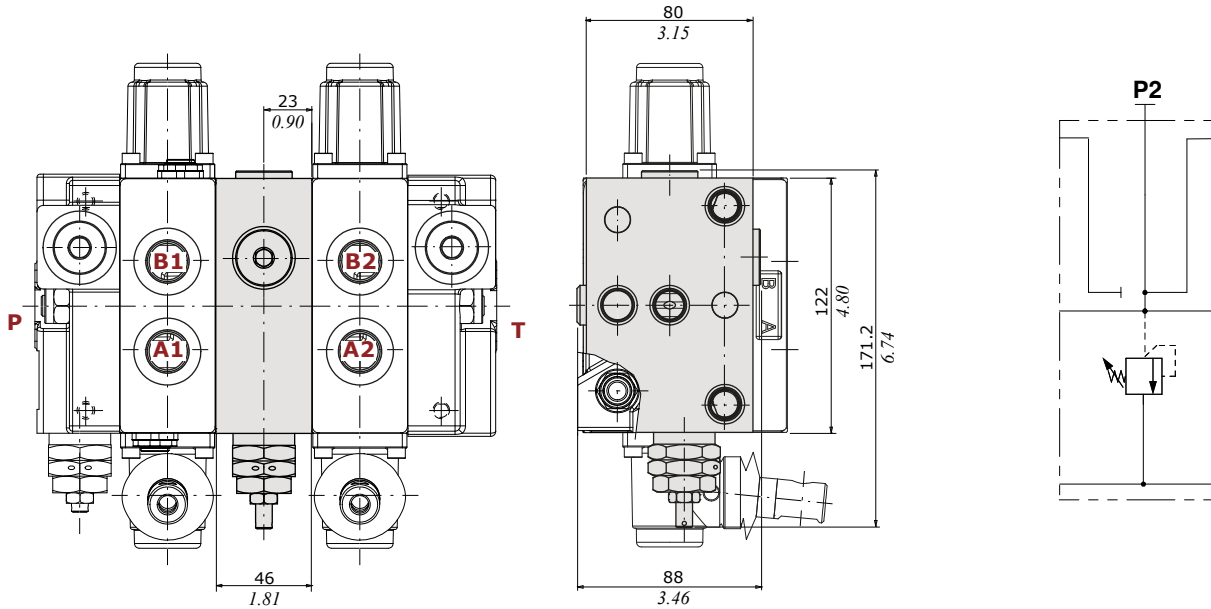




Dimensional data and hydraulic circuit

**E50 type**

Intermediate inlet section with pressure relief valve

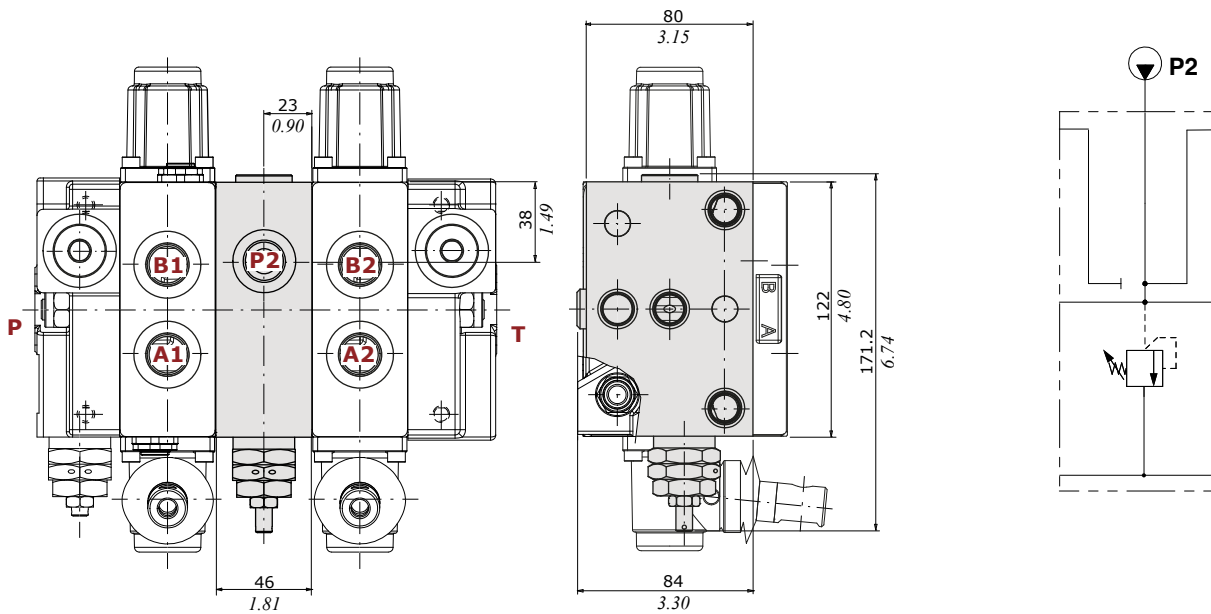


Description example: Q80/2/F7S(N150)/103-A1-M1.VC/**E50(N150)**/103-A1-M1/F3D-SAE

intermediate section | spring type and valve setting (bar)

**E53 type**

Intermediate inlet section with pressure relief valve and P2 port open



Description example: Q80/2/F7S(N150)/103-A1-M1.VC/**E53(N150)**/103-A1-M1/F3D-SAE

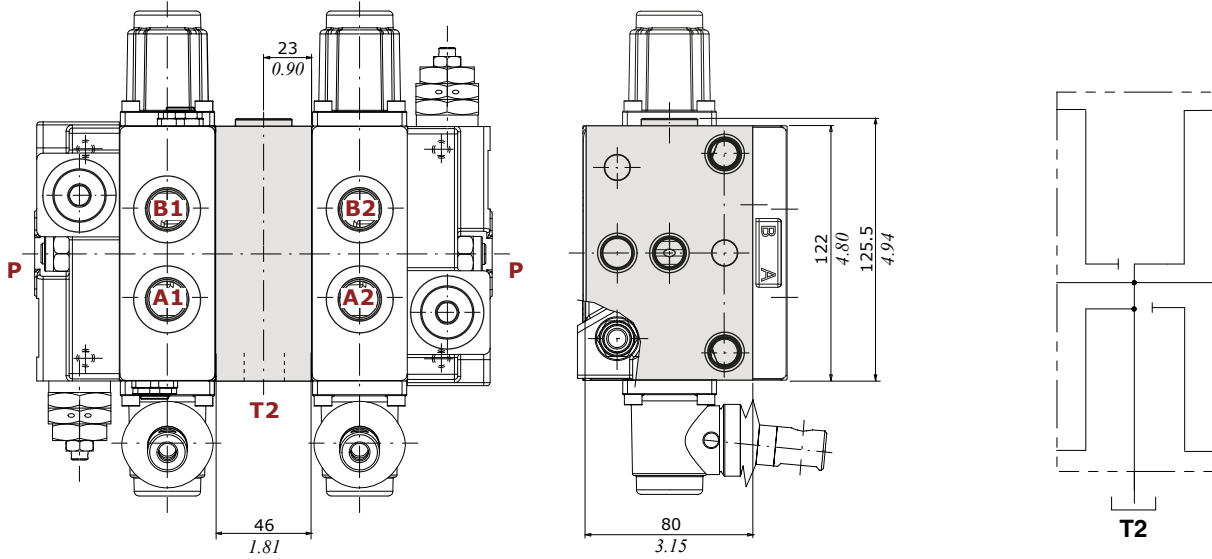
intermediate section | spring type and valve setting (bar)

Intermediate section

Dimensional data and hydraulic circuit

**E51 type**

Intermediate outlet section, T2 port open

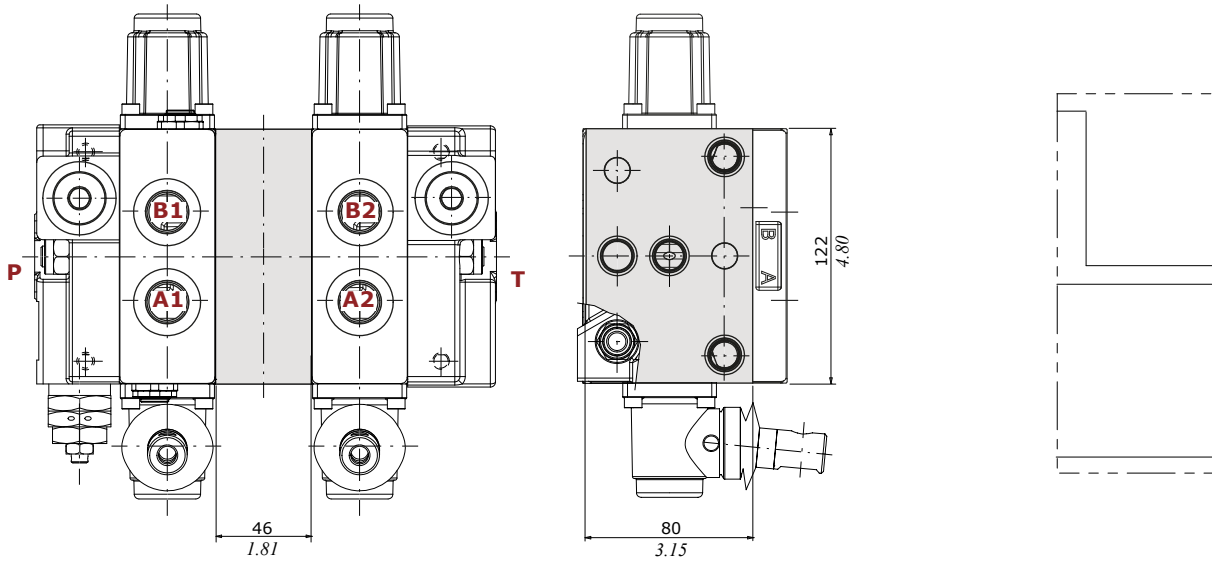


Description example: Q80/2/F7S(N150)/103-A1-M1.VC/**E51**/103-A1-M1/F3D-SAE

intermediate section

**E61 type**

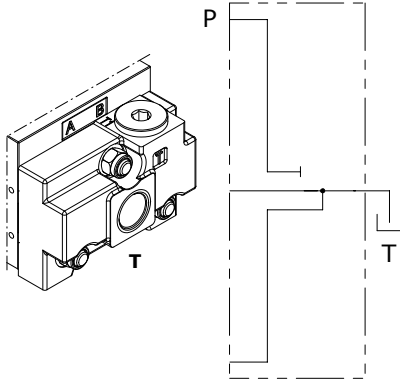
Intermediate spacer section



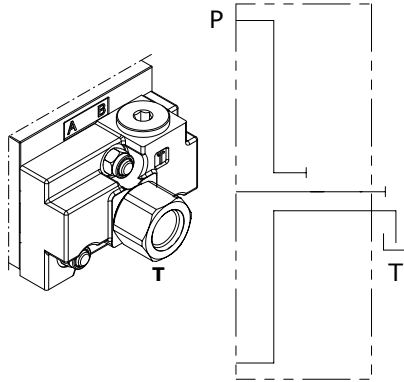
Description example: Q80/2/F7S(N150)/103-A1-M1.VC/**E61**/103-A1-M1/F3D-SAE

intermediate section

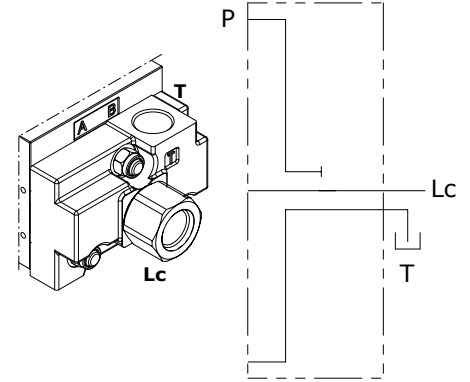
**F3D-SAE configuration**  
Open center configuration



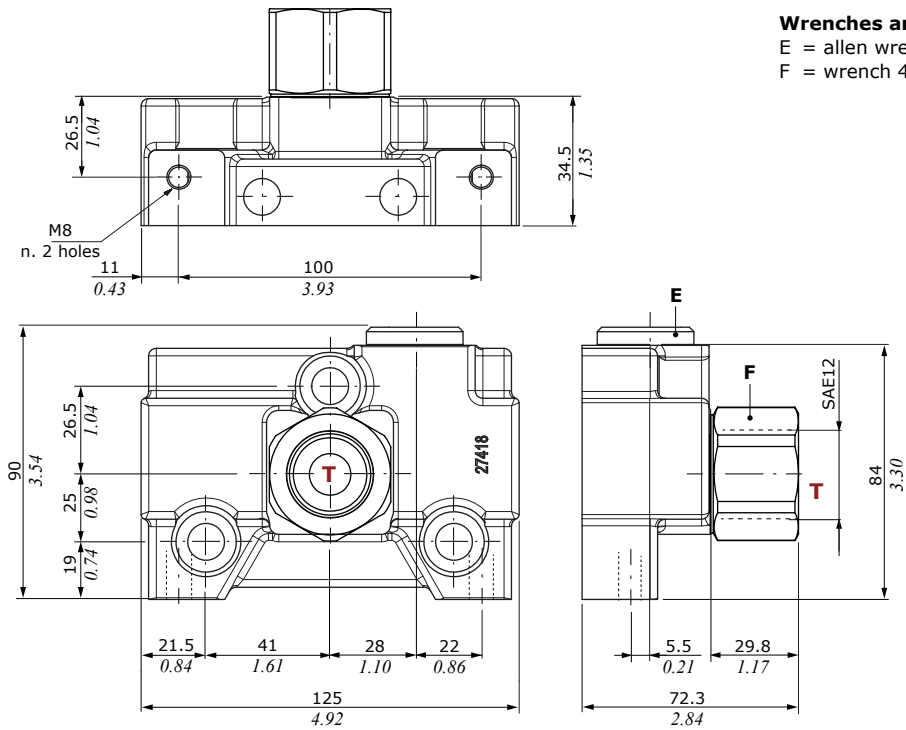
**F16D-SAE configuration**  
Closed center configuration



**F6D-SAE configuration**  
Carry-over configuration



**F16D configuration example**



**Wrenches and tightening torques**  
E = allen wrench 12 - 42 Nm (30.9 lbft)  
F = wrench 41 - 80 Nm (59 lbft)





## Q130

### Sectional directional control valve

- Available with parallel, tandem or series circuit
- Optional carry over port
- A wide range of antishock + anticavitation port valves
- Intermediate sections for several types of circuit
- Manual, pneumatic, electropneumatic, hydraulic, direct solenoid and electrohydraulic on-off controls

#### Working conditions

This catalogue shows technical specifications and diagrams measured through mineral oil of 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

Nominal flow rating		130 l/min - (34.3 Us gpm)
	from 1 up to 3 sections	370 bar (5450 psi)
Max. pressure	from 4 up to 6 sections	350 bar (5070 psi)
	from 7 up to 10 sections	325 bar (4710 psi)
Max. back pressure on outlet <b>T</b> port		25 bar (360 psi)
Number sections		from 1 to 10
Internal leakage A(B)⇒T	$\Delta p = 100 \text{ bar (1450 psi)}$	10 cm <sup>3</sup> /min (0.61 in <sup>3</sup> /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 mm <sup>2</sup> /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.

#### REFERENCE STANDARD

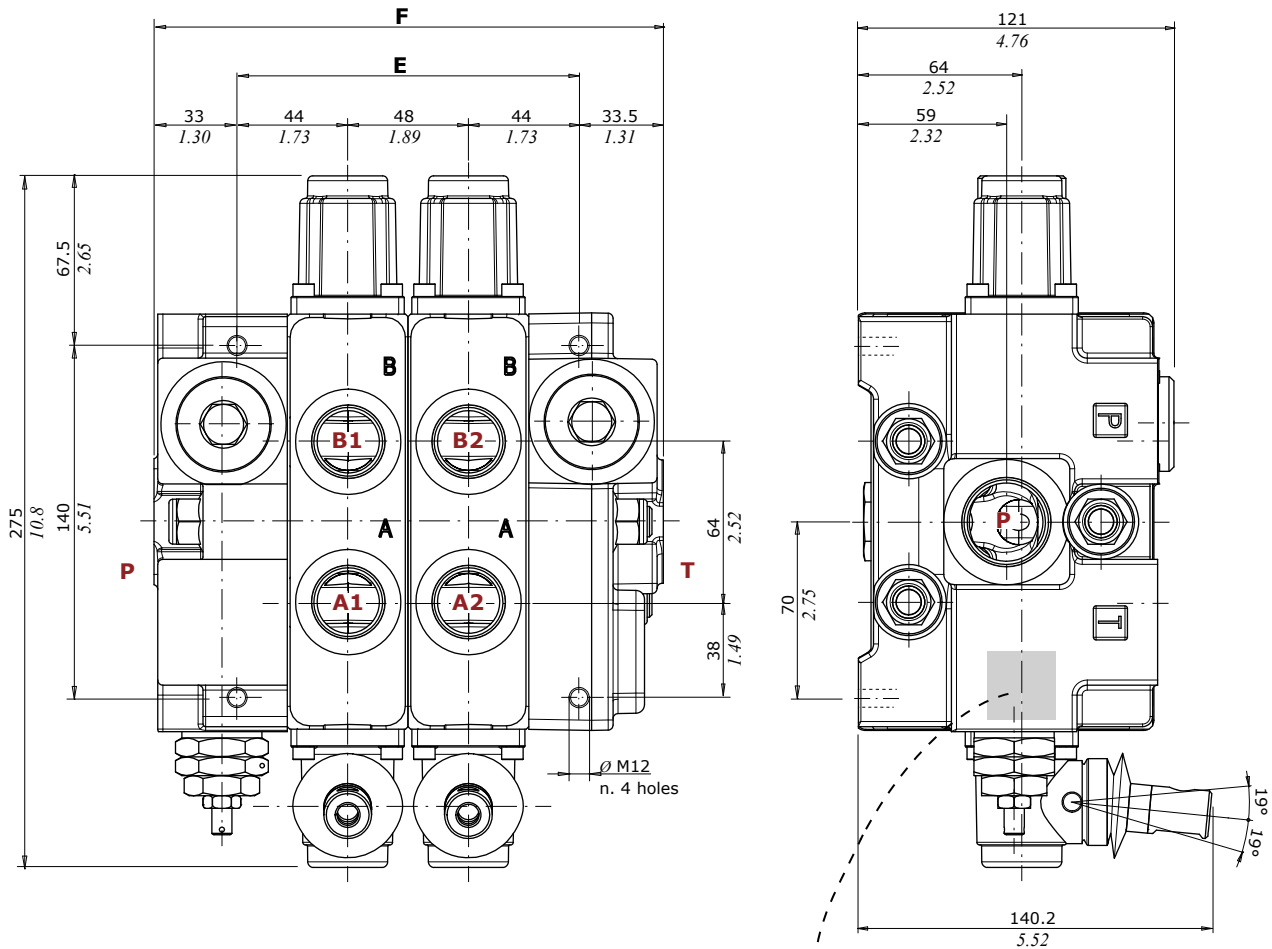
	BSP	UN-UNF
THREAD ACCORDING TO	ISO 228/1	ISO 263
	BS 2779	ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO 1179	11926
	SAE	J11926
	DIN 3852-2 shape X or Y	

#### PORT THREADING

PORTS	BSP (standard)	BSP (G 1")	UN-UNF
<b>P</b> Inlet	G 3/4	G 1"	1" 5/16-12 (SAE16)
<b>P1</b> Inlet	G 3/4	G 1"	1" 5/16-12 (SAE16)
<b>A</b> and <b>B</b> ports	G 3/4	G 1"	1" 5/16-12 (SAE16)
<b>T</b> Outlet	G 1"	G 1"	1" 5/16-12 (SAE16)
<b>T1</b> Outlet	G 1"	G 1"	1" 5/16-12 (SAE16)
<b>Lc</b> port (Carry-over plug - T port)	G 3/4-G 1"	G 1"	1" 1/16-12 (SAE12)
Hydraulic controls	G 1/4	G 3/4	9/16-18 (SAE 6)
Pneumatic controls	NPTF 1/8-27	NPTF 1/8-27	NPTF 1/8-27

### Dimensional data

#### Standard configuration\*



Type	E		F	
	mm	in	mm	in
Q130/1	88	3.46	154.5	6.08
Q130/2	136	5.35	202.5	7.97
Q130/3	184	7.24	250.5	9.86
Q130/4	232	9.13	298.5	11.75
Q130/5	280	11	346.5	13.64
Q130/6	328	12.91	394.5	15.53
Q130/7	376	14.80	442.5	17.42
Q130/8	424	16.70	490.5	19.31
Q130/9	472	18.58	538.5	21.20
Q130/10	520	20.47	586.5	23.09

**Galtech**

MADE IN ITALY

025030103251000 Product code

Q130/2-F7S(N150) Customer reference

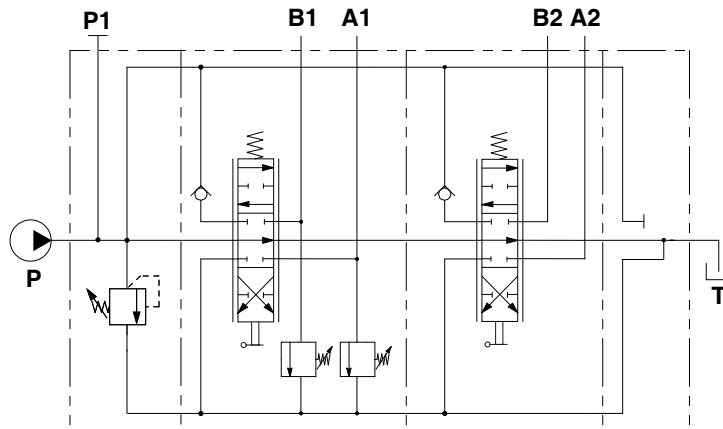
2X103/A1/M1.VC- or code description

F3D Product allotment

MD1600464-001 Datamatrix with product allotment

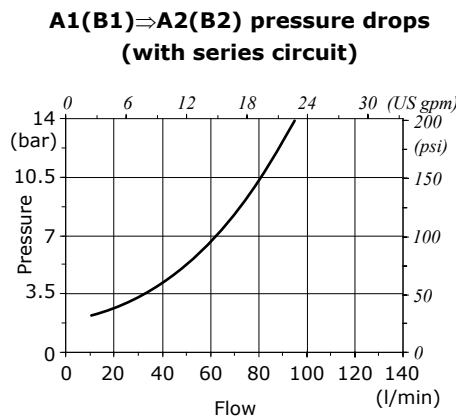
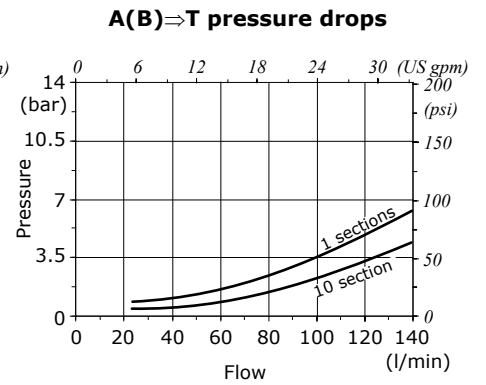
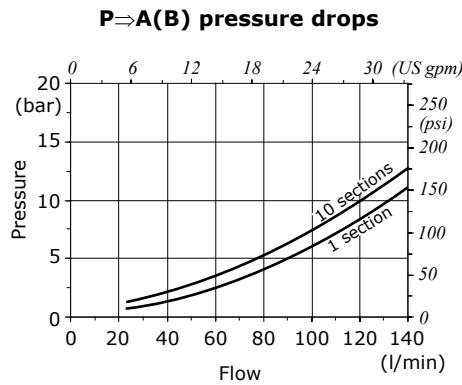
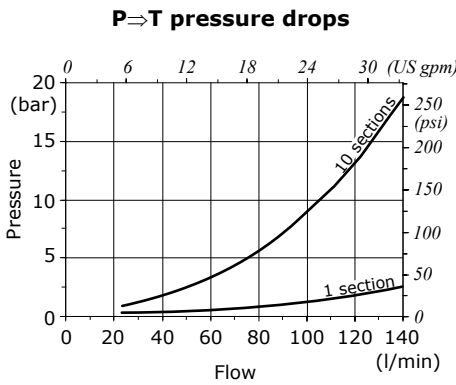
NOTE: Drawings and dimensions are referred to a **UN-UNF** threading configuration.

(\*): For other configurations, see page 254



Description example (parallel circuit):  
 Q130/2/F7S(N150)/103-A1-M1.V32(N105\N105)/103-A1-M1/F3D-SAE

Performance data



### Complete section ordering codes

#### Valve with mechanical and hydraulic controls configuration example

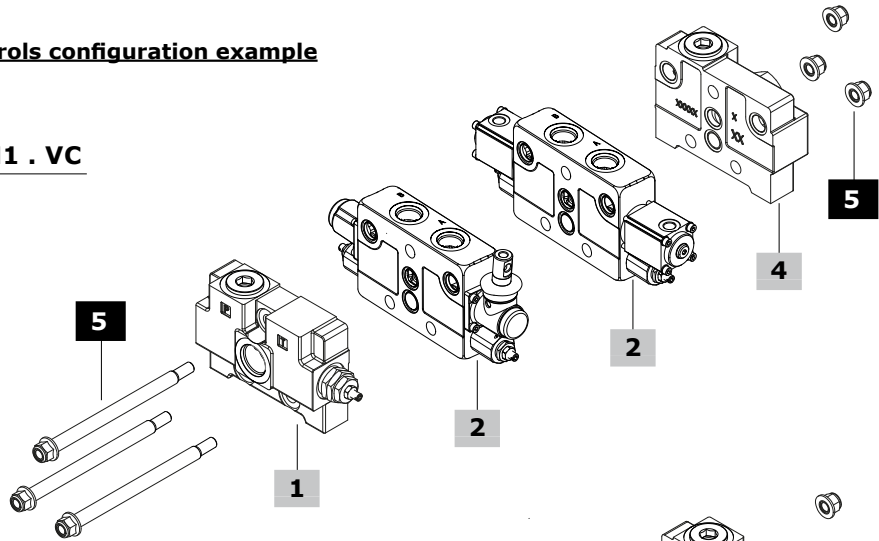
valve setting (bar)

**Q130 / 2 / F7S(N150) / 103 - A1 - M1 . VC**

N. of section      **1**                      **2**

**/ 103 - H5 . VC / F6D - SAE**

**2**                      **4**                      **5**



#### Valve with intermediate section and mechanical control configuration example

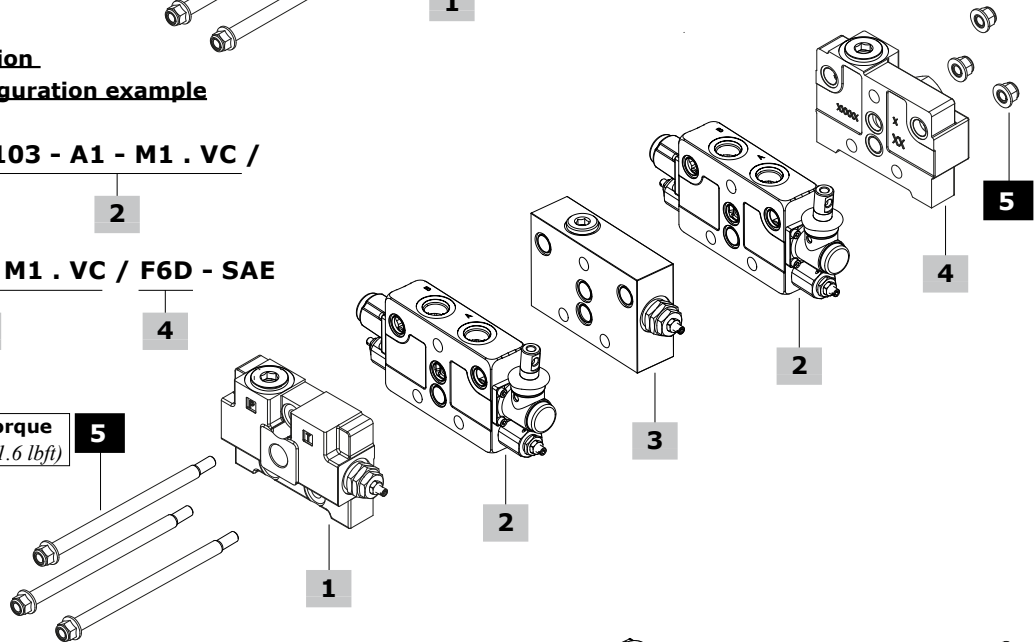
**Q130 / 2 / F7S(N150) / 103 - A1 - M1 . VC /**

valve setting (bar)      **1**                      **2**

**/ E50(N150) / 103 - A1 - M1 . VC / F6D - SAE**

**3**                      **2**                      **4**

**Tie rod tightening torque**  
wrench 18 - 70 Nm (51.6 lbf·ft)



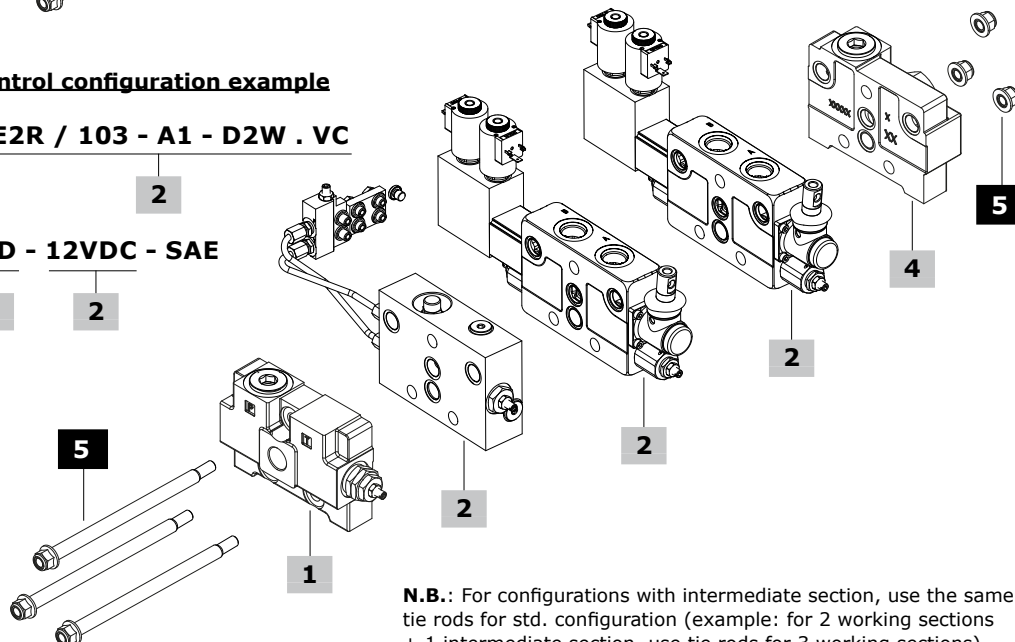
#### Valve with electrohydraulic control configuration example

**Q130 / 2 / F7S(N150) / KE2R / 103 - A1 - D2W . VC**

**1**                      **2**

**/ 103 - A1 - D2W . VC / F6D - 12VDC - SAE**

**2**                      **4**                      **2**



**N.B.:** For configurations with intermediate section, use the same tie rods for std. configuration (example: for 2 working sections + 1 intermediate section, use tie rods for 3 working sections)



**1 Inlet section\* page 226**

TYPE: **FE-Q130/F7S(N150)-SAE** CODE: 10000F7S/D/03N  
 DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve, setting range 101-200 bar (1460-2900 psi)  
 TYPE: **FE-Q130/F8S-SAE** CODE: 10003F8S/D/03  
 DESCRIPTION: As previous one, without valves (pressure relief valve plugged port)

**2 Working section\* page 229****With mechanical controls**

TYPE: **EL-Q130/103-A1-M1.VC-SAE** CODE: 100000103001500  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, lever control and spring return to neutral position

TYPE: **EL-Q130/103-A1-M1-SAE** CODE: 100000103001100  
 DESCRIPTION: As previous one, without valve arrangement

**With proportional hydraulic controls**

TYPE: **EL-Q130/103-H5.VC-SAE** CODE: SGL130015  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, low pressure hydraulic controls, spring return to neutral position

TYPE: **EL-Q130/103-H5-SAE** CODE: SGL130016  
 DESCRIPTION: As previous one, without valve arrangement

**With electrohydraulic ON/OFF controls - one side type**

TYPE: **EL-Q130/KE1S/103-A1-D2W.VC -12VDC-SAE**  
 CODE: SGL130017  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC one-side electrohydraulic ON/OFF control, internal pilot and drain, lever control and spring return to neutral position

TYPE: **EL-Q130/KE1S/103-A1-D2W-12VDC-SAE**

CODE: SGL130018  
 DESCRIPTION: As previous one, without valve arrangement

**3 Intermediate section page 254**

TYPE	CODE	DESCRIPTION
<b>E50</b>	10850E50-B	With pressure relief valve setting range 10-100 bar (145-1450 psi)
	10850E50-N	As previous one, setting range 101-200 bar (1460-2900 psi)
	10850E50-R	As previous one, setting range 201-380 bar (2910-5500 psi)
<b>E53</b>	10854E53-BSAE	With pressure relief valve setting range 10-100 bar (145-1450 psi) and P2 port open for 2 <sup>nd</sup> pump
	10854E53-NSAE	As previous one, setting range 101-200 bar (1460-2900 psi)
	10854E53-RSAE	As previous one, setting range 201-380 bar (2910-5500 psi)
<b>E51</b>	10853E51SAE	Intermediate outlet section, T2 port open
<b>E61</b>	10877E61	Intermediate spacer section

**4 Outlet section\* page 256**

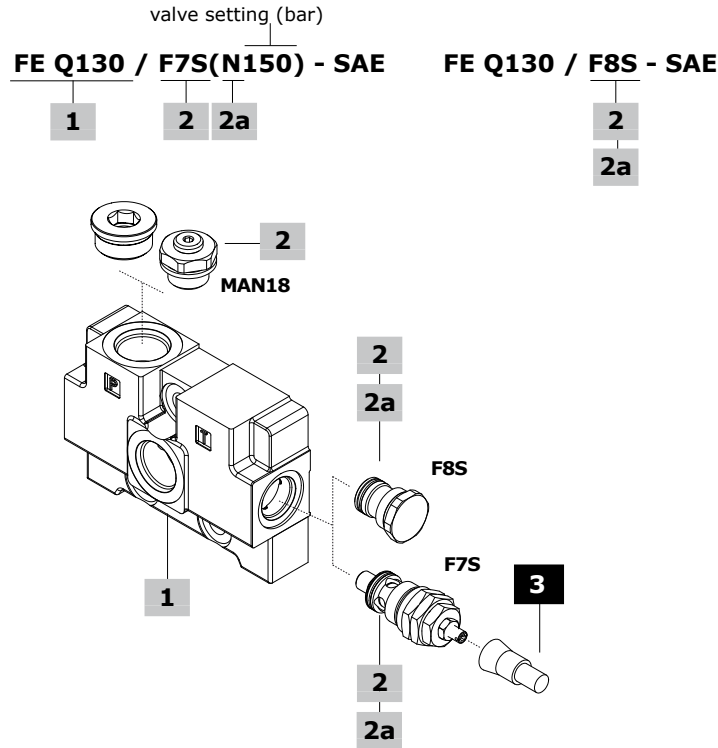
TYPE	CODE	DESCRIPTION
TYPE: <b>FS-Q130-F3D-SAE</b>	CODE: 10012F3D/02/04	DESCRIPTION: T port open, T1 port plugged. For open center circuit
TYPE: <b>FS-Q130-F16D-SAE</b>	CODE: 10016F16D/02/04	DESCRIPTION: T port open, T1 port plugged. For closed center circuit
TYPE: <b>FS-Q130-F6D-SAE</b>	CODE: 10014F6D/02/04	DESCRIPTION: Lc port and T1 port open. With joint for carry-over (HPCO) circuit

**5 Tie rods kit**

CODE	DESCRIPTION
10901TX1	For 1 section valve
10902TX2	For 2 sections valve
10903TX3	For 3 sections valve
10904TX4	For 4 sections valve
10905TX5	For 5 sections valve
10906TX6	For 6 sections valve
10907TX7	For 7 sections valve
10908TX8	For 8 sections valve
10909TX9	For 9 sections valve
10910TX10	For 10 sections valve

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

### Inlet section - parts ordering codes



#### 1 Inlet body section\* page 227

TYPE: **FE-Q130-SAE**      CODE: 060013083899  
 DESCRIPTION: Side inlet port, upper inlet plugged, for pressure relief valve arrangement

#### 2 Configuration coding\* page 227

TYPE	DESCRIPTION
<b>F7S-SAE</b>	With pressure relief valve
<b>F8S-SAE</b>	Without valves (pressure relief valve plugged port)

**Note:** Inlet configurations require upper P port:  
 n. 1 SAE16 plug code 255016, or n. 1 pressure gauge arrangement code 5MAN641250

#### 2a Main pressure relief valve page 228

TYPE: <b>B</b>	CODE: 700105205000000
DESCRIPTION: VLP105S valve, setting range 10-100 bar (145-1450 psi)	
TYPE: <b>N</b>	CODE: 700105105000000
DESCRIPTION: VLP105S valve, setting range 101-200 bar (1460-2900 psi)	
TYPE: <b>R</b>	CODE: 700105305000000
DESCRIPTION: VLP105S valve, setting range 201-380 bar (2910-5500 psi)	
TYPE: -	CODE: 06000468999
DESCRIPTION: Relief valve blanking plug	

#### 3 Accessory

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

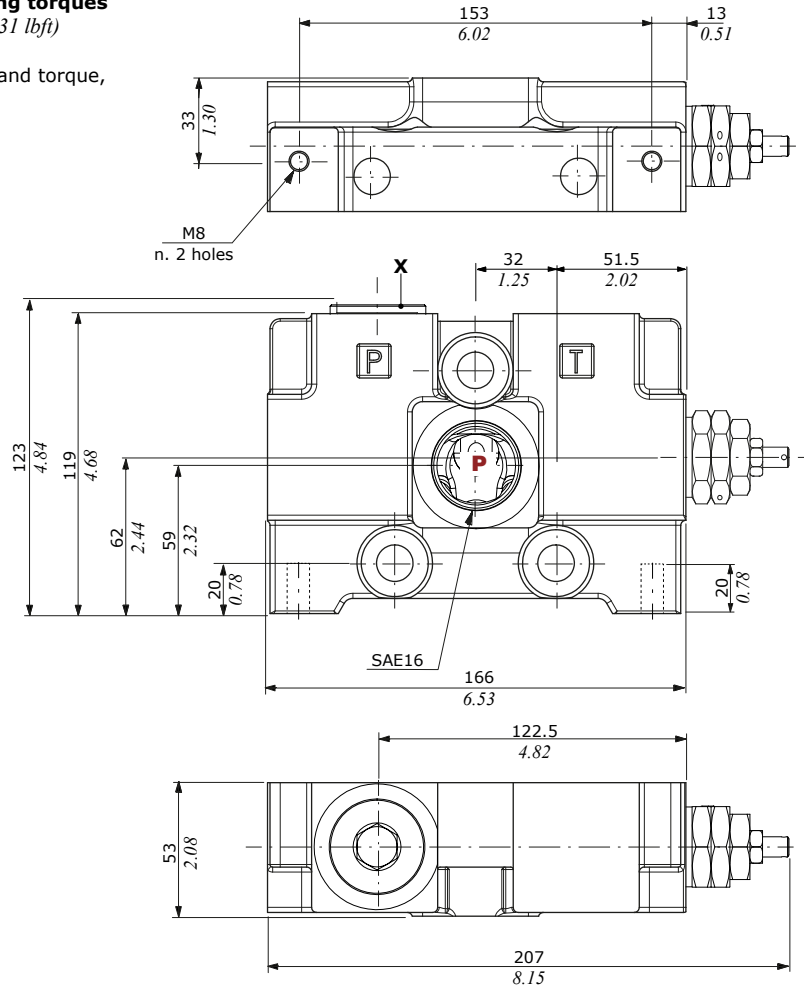
(\*): Codes are referred to **UN-UNF** thread

Dimensional data and hydraulic circuits

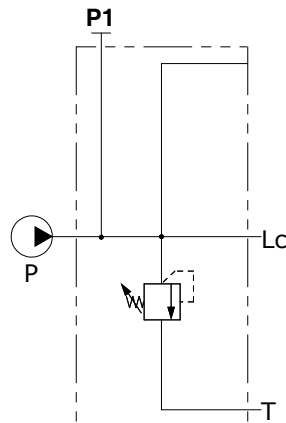
Wrenches and tightening torques

X = wrench 12 - 42 Nm (31 lbf<sup>t</sup>)

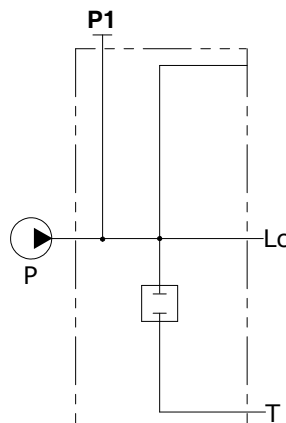
**Note:** For valves wrench and torque, see related pages



**F7S-SAE configuration**  
With pressure relief valve



**F8S-SAE configuration**  
Without valves  
(pressure relief valve plugged port)



### Inlet section

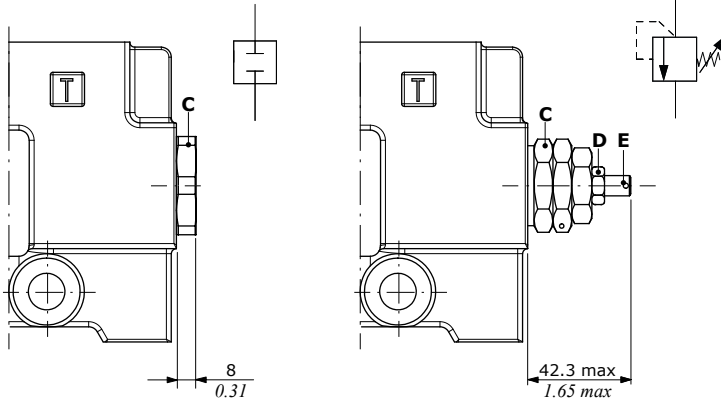
#### Main pressure relief valve

Relief valve blanking plug

Main pressure relief valve

**Wrenches and tightening torques**

- C = wrench 32 - 80 Nm (59 lbf<sup>t</sup>)
- D = wrench 13 - 24 Nm (17.7 lbf<sup>t</sup>)
- E = allen wrench 4

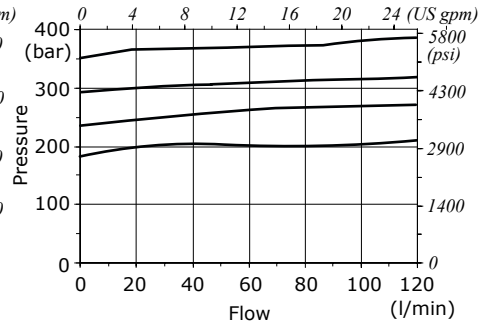
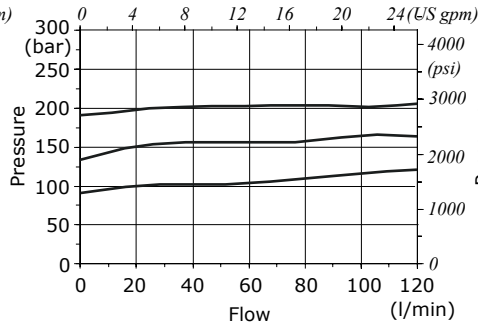
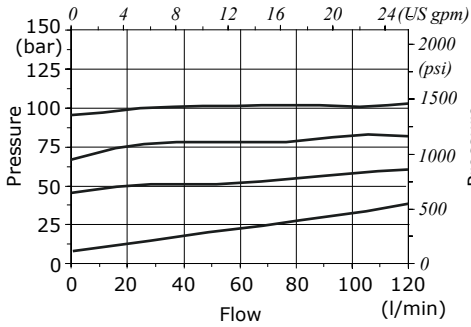


Spring type	Setting ranges (bar - psi)
<b>B</b> (white)	From 10 to 100 - from 145 to 1450
<b>N</b> (black)	From 101 to 200 - from 1460 to 2900
<b>R</b> (red)	From 201 to 380 - from 2910 to 5500

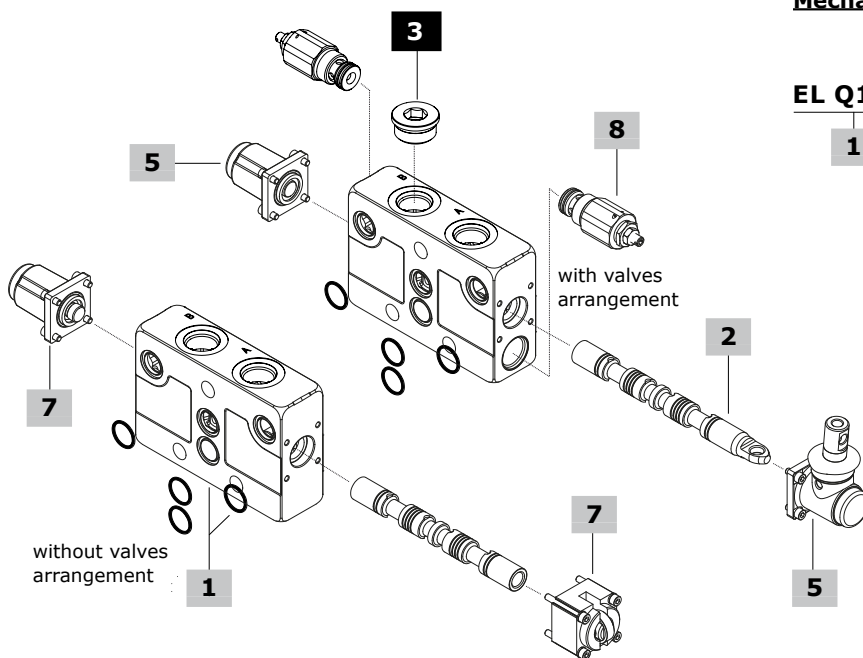
Setting example (B type spring)

Setting example (N type spring)

Setting example (R type spring)



**Working section - parts ordering codes**



**Mechanical control valve configuration example**

spring type and valve setting (bar)

**EL Q130 / 102 - A1 - M1 . V40(N)120 - SAE**

1 2 4 5 8

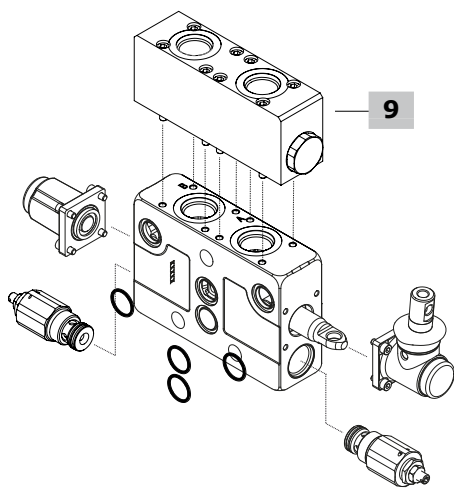
**C2/C3 complete mechanical control configuration example**

**EL Q130 / 103 - C3 . V40(N)120 - SAE**

7

**Mechanical control valve with arrangement for secondary aux valves block: configuration example**

**EL Q130 / 103 - A1 - M1 . V40(N)120 / VC03 - SAE**



**1 Working section body kit\* page 233**

- TYPE: **EL-Q130.VC-SAE** CODE: 5EL0600127990
- DESCRIPTION: Parallel circuit, with port valves arrangement
- TYPE: **EL-Q130.VC-SAE** CODE: 5EL0600132356
- DESCRIPTION: Parallel circuit with port valves arrangement, for secondary aux valves block
- TYPE: **EL-Q130-SAE** CODE: 5EL0600127985
- DESCRIPTION: Parallel circuit, without port valves arrangement
- TYPE: **EL-Q130.VC-SAE** CODE: 5EL0600127987
- DESCRIPTION: Series circuit, with port valves arrangement

**2 Spool page 234**

TYPE	CODE	DESCRIPTION
<b>Standard spools</b>		
<b>103</b>	060102983699	Double acting, A and B closed in neutral position
	KR130103K	As previous one, for <b>kick-out</b> control
<b>106</b>	KR130106	Double acting for closed circuit
<b>107</b>	KR130107-108	Double acting, A to tank and B closed in neutral position
<b>108</b>	KR130107-108	Double acting, B to tank and A closed in neutral position
<b>111</b>	060102996399	Double acting, A and B to tank in neutral position
	KR103111K	As previous one, for <b>kick-out</b> control
<b>101</b>	3CUG2996000	Single acting on port A. SAE12 plug is required, see #3
<b>102</b>	3CUG2996001	Single acting on port B. SAE12 plug is required, see #3
<b>116</b>	KR130116	Double acting, with floating in the 4 <sup>th</sup> position (spool in): requires dedicated spool control
<b>603</b>	060103218199	Double acting, A and B closed in neutral position, for series circuit
<b>Special spools for cam, microswitch controls and other leverless controls</b>		
<b>103</b>	060102996199	Double acting, A and B closed in neutral position
<b>111</b>	060102996299	Double acting, A and B to tank in neutral position
<b>603</b>	060103236499	Double acting, A and B to tank in neutral position, for series circuit

**3 Plug for single acting spool\***

TYPE	CODE	DESCRIPTION
-	255012	SAE12 plug

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

**Working section - parts ordering codes**

**4 A side control page 235**

TYPE	CODE	DESCRIPTION
<b>For standard spools</b>		
<u>With lever control:</u>		
<b>A1</b>	10600A1-A2	M10 thread aluminium lever box
<b>A2</b>	10600A1-A2	As A1 type, with lever box rotated 180°
<b>A1/Z1</b>	10610A1-A2/Z1	Aluminium lever box for <b>116</b> spool type
<b>A2/Z1</b>	10610A1-A2/Z1	As A1/Z1 type, with lever box rotated 180°
<u>With safety lever control:</u>		
<b>A1/S<sup>(1)</sup></b>	10624A1-A2/S	M10 thread aluminium lever box
<b>A2/S<sup>(1)</sup></b>	10624A1-A2/S	As A1/S type, with lever box rotated 180°
<u>Without lever control:</u>		
<b>A6</b>	10620A6	With flange
<b>A6/Z1</b>	10620A6/Z1	As A6 type, for <b>116</b> spool type
<b>A6H</b>	10620A6HH	As A6 type, with scraper
<b>A8</b>	10622A8	Arrangement for flexible cable control
<b>A8/Z1</b>	10622A8/Z1	As A8 type, for <b>116</b> spool type
<u>With joystick controls for 2 section operation:</u>		
<b>A35/1</b>	10637A35-12	Joystick 1 type
<b>A35/2</b>	10637A35-12	Joystick 2 type
<b>A35/3</b>	10637A35-34	Joystick 3 type
<b>A35/4</b>	10637A35-34	Joystick 4 type
<b>For types 103, 111 and 603 special spools</b>		
<u>With spool position microswitch:</u>		
<b>Note:</b> to complete the control you must use the assembly kit at #6		
<b>N1-A1</b>	10641N1-A1/A2	Micro operation in pos. 1 and 2, with lever box
<b>N1A-A1</b>	10642N1A-A1/A2	Micro operation in pos. 1, with lever box
<b>N1B-A1</b>	10643N1B-A1/A2	Micro operation in pos. 2, with lever box
<b>N1-A3</b>	10648N1-A3	Micro operation in pos. 1 and 2, without lever with cap
<b>N1A-A3</b>	10648N1A-A3	Micro operation in pos. 1, without lever with cap
<b>N1B-A3</b>	10648N1B-A3	Micro operation in pos. 2, without lever with cap
<u>Without lever control:</u>		
<b>A3</b>	10614A3	Without lever, with cap
<b>A4</b>	10617A4	M10 thread male external pin with flange
<b>A5<sup>(2)</sup></b>	10619A5	Flange with spherical spool end

**5 B side control page 242**

TYPE	CODE	DESCRIPTION
<u>With spring return:</u>		
<b>M1</b>	10730M1	3 pos., spring return in neutral position
<b>M1/01</b>	10730M1/01	As M1 type, for joystick control
<b>M1/B1</b>	10753M1-B1	As M1 type, with microswitch arrangement
<b>M1-U1</b>	10701M1-U1	As M1 type, with M10 male thread external pin
<b>M2</b>	10732M2	2 pos. (0-1), spring return in neutral position
<b>M2-U1</b>	10702M2-U1	As M2 type, with M10 male thread external pin
<b>M3</b>	10733M3	2 pos. (0-2), spring return in neutral position
<b>M3-U1</b>	10702M3-U1	As M3 type, with M10 male thread external pin
<b>M4</b>	10735M42-1	2 pos. (2-1), spring return in position 2
<u>With flexible cable control arrangement:</u>		
<b>M1-U2</b>	10715M1-U2	3 pos., spring return in neutral position
<b>M2-U2</b>	10716M2-U2	2 pos. (0-1), spring return in neutral position
<b>M3-U2</b>	10717M3-U2	2 pos. (0-2), spring return in neutral position
<u>With friction:</u>		
<b>R0</b>	10740R0	Adjustable friction control
<u>With detent:</u>		
<b>R1</b>	10741R1	3 pos., detent in position 1
<b>R2</b>	10742R2	3 pos., detent in position 2
<b>R3</b>	10743R3	3 pos., detent in all position
<b>R4</b>	10744R4	2 pos., detent in position 0-1
<b>R5</b>	10745R5	2 pos., detent in position 0-2
<b>R6</b>	10746R6	2 pos., detent in position 1-2
<b>R8</b>	10748R8	4 pos., detent in 4 <sup>th</sup> pos., for <b>116</b> spool type

**5 B side controls (cont.) page 242**

TYPE	CODE	DESCRIPTION
<u>With detent and kick out function:</u>		
<b>R1K</b>	10741R1K	3 pos., detent in position 1
<b>R2K</b>	10742R2K	3 pos., detent in position 2
<b>R3K</b>	10743R3K	3 pos., detent in all position
<u>With spool position microswitch:</u>		
<b>Note:</b> To complete the control you must use the assembly kit at #6		
<b>M1-N1</b>	10766M1-N1	3 pos., micro operation in pos. 1 and 2, spring return in neutral position
<b>M1-N1A</b>	10767M1-N1A	As M1-N1 type, micro operation in pos. 1
<b>M1-N1B</b>	10768M1-N1B	As M1-N1 type, micro operation in pos. 2
<b>M2-N1</b>	10769M2-N1	2 pos. (0-1), spring return in neutral position
<b>M3-N1</b>	10772M3-N1	2 pos. (0-2), spring return in neutral position
<u>With pneumatic and electropneumatic controls:</u>		
<b>P1N</b>	10561P1-N	ON/OFF pneumatic control
<b>P1NP</b>	10561P1-NP	Proportional pneumatic control
<b>D3</b>	10591D3-O-12DC	12 VDC, ON/OFF electropneumatic control
	10592D3-O-24DC	24 VDC, ON/OFF electropneumatic control

**6 Microswitch assembly kit**

CODE	DESCRIPTION
10650N1-01	Kit for 1 section
10650N1-02	Kit for 2 sections
10650N1-03	Kit for 3 sections
10650N1-04	Kit for 4 sections
10650N1-05	Kit for 5 sections
10650N1-06	Kit for 6 sections
10650N1-07	Kit for 7 sections
10650N1-08	Kit for 8 sections
10650N1-09	Kit for 9 sections
10650N1-10	Kit for 10 sections

**7 Complete controls A+B sides page 247**

TYPE	CODE	DESCRIPTION
<b>For types 103, 111 and 603 special spools</b>		
<b>C2</b>	10792C2-C3	Cam control from pos. 1 to 2
<b>C3</b>	10792C2-C3	Cam control from pos. 2 to 1

**8 Auxiliary port valve page 251**

TYPE	CODE	DESCRIPTION
<u>Antishock valve:</u>		
<b>V30-B</b>	10800V30-B	Setting range: from 30 to 80 bar (from 435 to 1150 psi)
<b>V30-N</b>	10800V30-N	Setting range: from 81 to 200 bar (from 1170 to 2900 psi)
<b>V30-R</b>	10800V30-R	Setting range: from 201 to 350 bar (from 2910 to 5100 psi)
<u>Antishock/anticavitation valve:</u>		
<b>V33-B</b>	10803V33-B	Setting range: from 30 to 80 bar (from 435 to 1150 psi)
<b>V33-N</b>	10803V33-N	Setting range: from 81 to 200 bar (from 1170 to 2900 psi)
<b>V33-R</b>	10803V33-R	Setting range: from 201 to 350 bar (from 2910 to 5100 psi)
<u>Anticavitation valve:</u>		
<b>V04</b>	10808V04	Anticavitation valve
<u>Plug:</u>		
<b>VC</b>	060002798999	Valve blanking plug
For other configurations and positions, see page 251		

**9 Secondary aux valves\* page 253**

TYPE	CODE	DESCRIPTION
<b>VRP-VC01-SAE</b>	10835V01/SAE	Single piloted check valve on A port, 250 bar (3600 psi)
<b>VRP-VC03-SAE</b>	10837V03/SAE	Double piloted check valve on A and B ports, 250 bar (3600 psi)

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

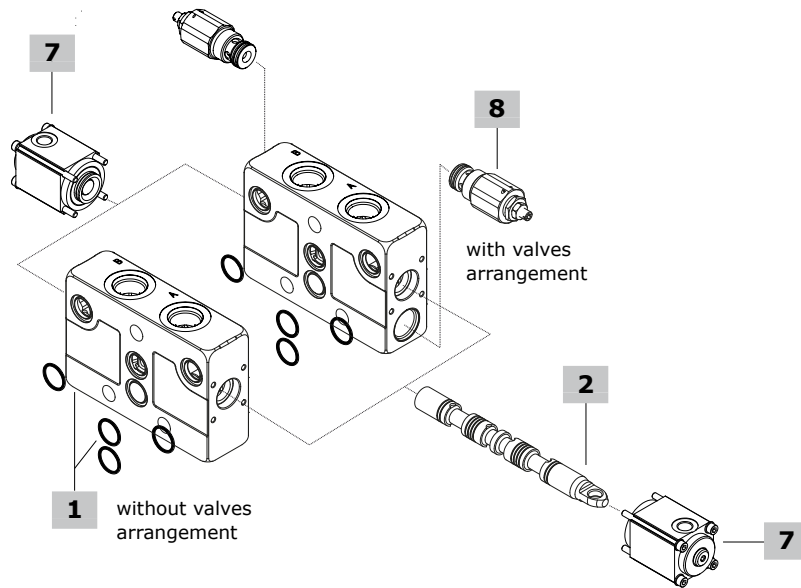
**Working section - parts ordering codes**

**Proportional hydraulic controls valve configuration example**

spring type and valve setting (bar)

**EL Q130 / 103 - H5 . V40(N)120 - SAE**

1   
 2   
 7   
 8



**1 Working section body kit\* page 233**

TYPE: **EL-Q130-H5.VC-SAE**    CODE: 5EL0600127990H5  
 DESCRIPTION: Parallel circuit, with port valves arrangement  
 TYPE: **EL-Q130-H5-SAE**    CODE: 5EL0600127985H5  
 DESCRIPTION: Parallel circuit, without port valves arrangement

**2 Spool page 234**

TYPE	CODE	DESCRIPTION
<b>103</b>	060102983699	Double acting, A and B closed in neutral position

**7 Hydraulic controls A+B sides\* page 248**

TYPE	CODE	DESCRIPTION
<b>H5</b>	10785H5/SAE	Low pressure proportional type, upper ports

**8 Auxiliary port valve page 251**

See #8, page 230

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

### Working section - parts ordering codes

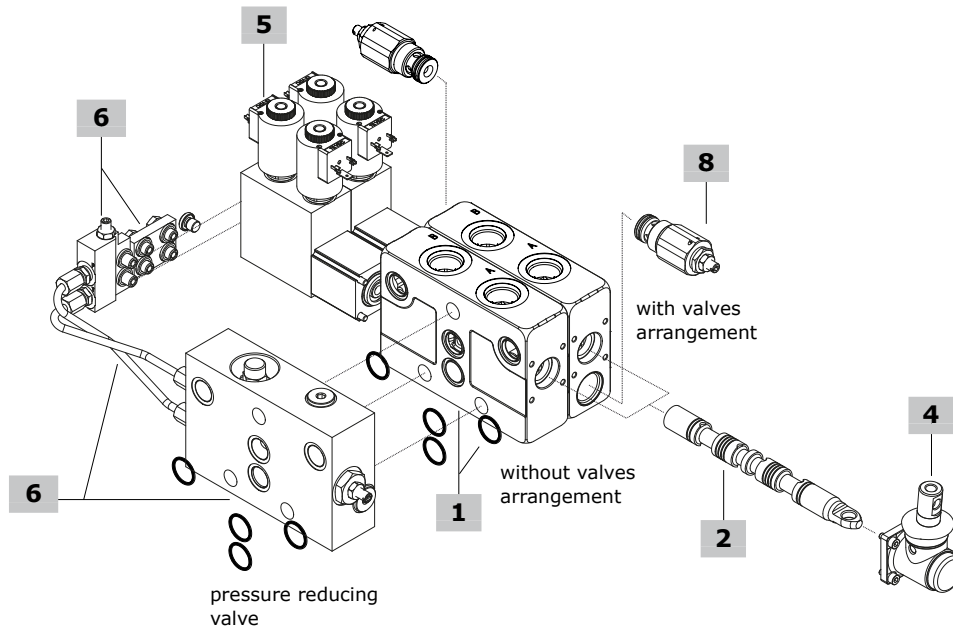
#### One side - ON/OFF electrohydraulic control valve configuration example

R = with pressure reducing valve  
S = without pressure reducing valve

spring type and valve setting (bar)

**EL Q130 / KE1R / 103 - A1 - D2W . V40(N)120 - 12VDC - SAE**

1   
 6   
 2   
 4   
 5   
 8   
 5



#### **1 Working section body kit\*** page 233

See #1, page 229

#### **2 Spool** page 234

See #2, page 229

#### **4 A side control** page 235

See #4, page 230

#### **5 B side electrohydraulic control** page 249

TYPE	CODE	DESCRIPTION
<b>D2W-12VDC</b>	10681D2W1200	3 pos., 12VDC ON/OFF electrohydraulic control
<b>D2W-24VDC</b>	10681D2W2400	3 pos., 24VDC ON/OFF electrohydraulic control

**Note:** For BT type coils, see page 257

#### **6 Connector kit** page 250

TYPE	CODE	DESCRIPTION
<b>Without pressure reducing valve</b>		
<b>KE1S</b>	5GKE13S010	Kit for 1 section
<b>KE2S</b>	5GKE13S020	Kit for 2 sections
<b>KE3S</b>	5GKE13S030	Kit for 3 sections
<b>KE4S</b>	5GKE13S040	Kit for 4 sections
<b>KE5S</b>	5GKE13S050	Kit for 5 sections
<b>KE6S</b>	5GKE13S060	Kit for 6 sections
<b>KE7S</b>	5GKE13S070	Kit for 7 sections
<b>KE8S</b>	5GKE13S080	Kit for 8 sections
<b>KE9S</b>	5GKE13S090	Kit for 9 sections
<b>KE10S</b>	5GKE13S100	Kit for 10 sections

**Note:** Connector kit are included collector and feeding block

#### **With pressure reducing valve**

<b>KE1R</b>	5GKE13R010	Kit for 1 section
<b>KE2R</b>	5GKE13R020	Kit for 2 sections
<b>KE3R</b>	5GKE13R030	Kit for 3 sections
<b>KE4R</b>	5GKE13R040	Kit for 4 sections
<b>KE5R</b>	5GKE13R050	Kit for 5 sections
<b>KE6R</b>	5GKE13R060	Kit for 6 sections
<b>KE7R</b>	5GKE13R070	Kit for 7 sections
<b>KE8R</b>	5GKE13R080	Kit for 8 sections
<b>KE9R</b>	5GKE13R090	Kit for 9 sections
<b>KE10R</b>	5GKE13R100	Kit for 10 sections

**Note:** Connector kit are included collector and feeding block, drain lines and pressure reducing valve

#### **7 Auxiliary port valve** page 251

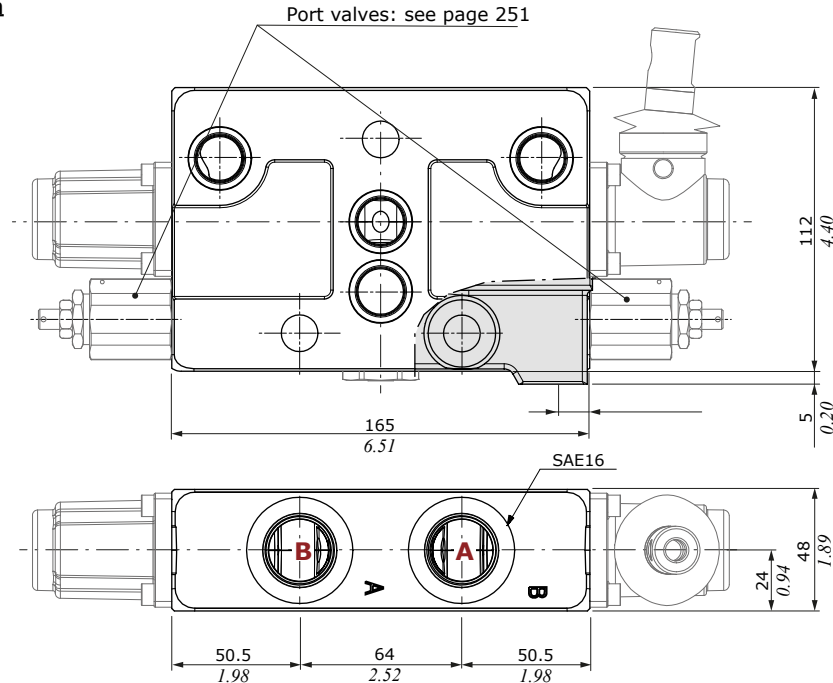
See #8, page 230

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

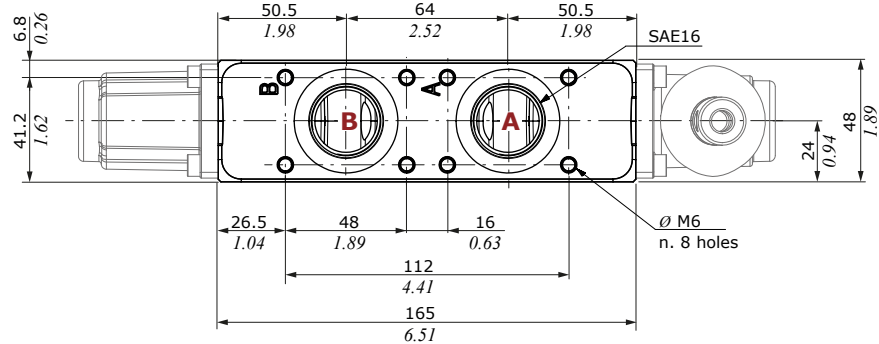


Dimensional data and hydraulic circuits

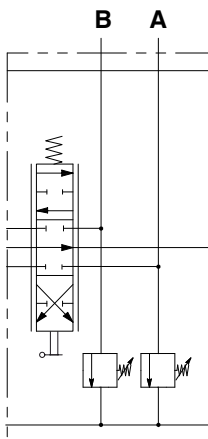
Standard working section



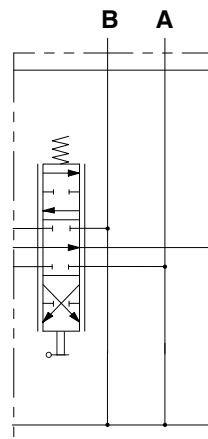
Working section for secondary aux valves block



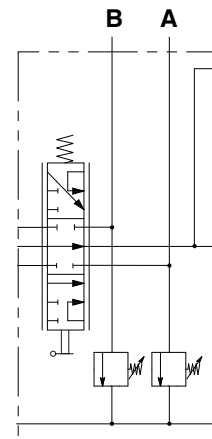
Q130.V40(N)120-SAE configuration  
Parallel circuit,  
mechanical control with aux valves



Q130-SAE configuration  
Parallel circuit,  
mechanical control without aux valves



Q130.V40(N)120-SAE configuration  
Series circuit,  
mechanical control with aux valves



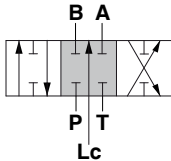
### Working section

#### Spool

##### 103 type

A and B closed in neutral position

2 0 1



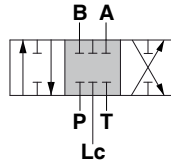
##### Stroke

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

##### 106 type

A, B and Lc closed in neutral position. For closed center

2 0 1



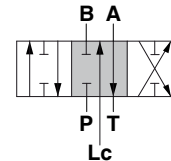
##### Stroke

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

##### 107 type

A to tank, B closed in neutral position

2 0 1



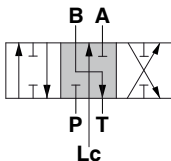
##### Stroke

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

##### 108 type

B to tank, A closed in neutral position

2 0 1



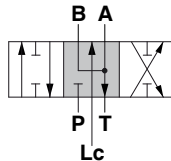
##### Stroke

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

##### 111 type

A and B to tank in neutral position

2 0 1



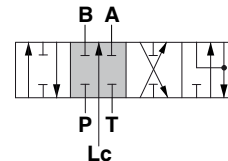
##### Stroke

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

##### 116 type

With floating in the 4<sup>th</sup> position (spool in)

2 0 1 3



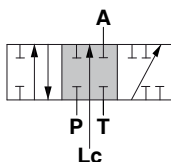
##### Stroke

Position 1: - 4.5 mm (- 0.17 in)  
Position 2: + 7 mm (+ 0.27 in)  
Position 3: - 10.25 mm (- 0.40 in)

##### 101 type

Single acting on A, B plugged

2 0 1



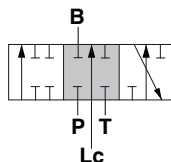
##### Stroke

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

##### 102 type

Single acting on B, A plugged

2 0 1



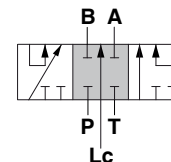
##### Stroke

Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

##### 603 type

A and B closed in neutral position. For series circuit

2 0 1



##### Stroke

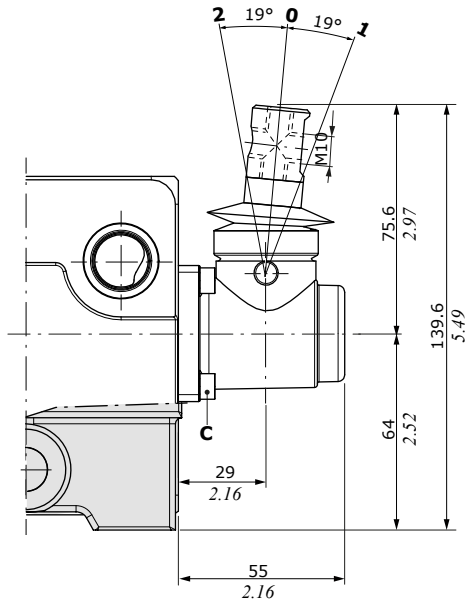
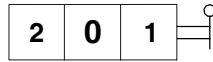
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

A side controls

With lever control

**A1 type**

M10 thread aluminium lever box

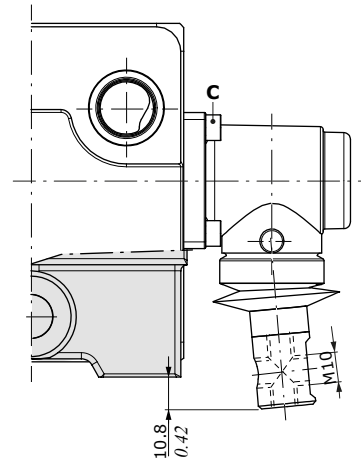


**Wrenches and tightening torques**

C = allen wrench 4 - 6.6 Nm (4.8 lbf<sup>t</sup>)

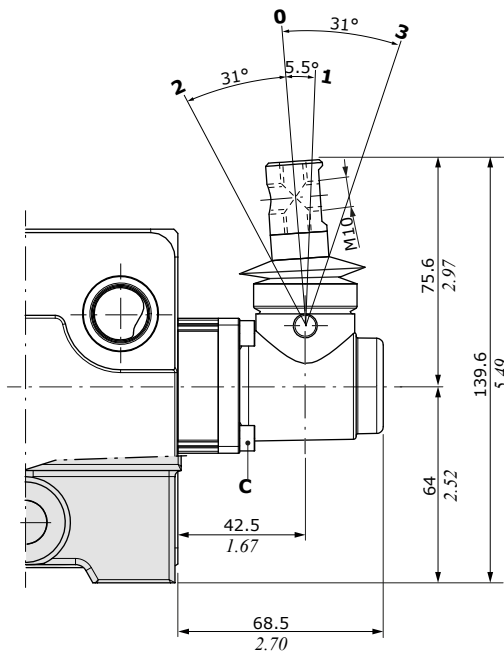
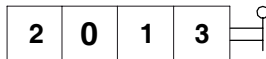
**A2 type**

As A1 type, rotated 180°



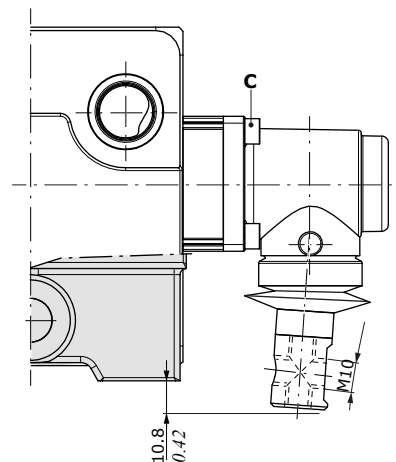
**A1/Z1 type**

M10 thread, for 116 floating spool type



**A2/Z1 type**

As A1/Z1 type, rotated 180°



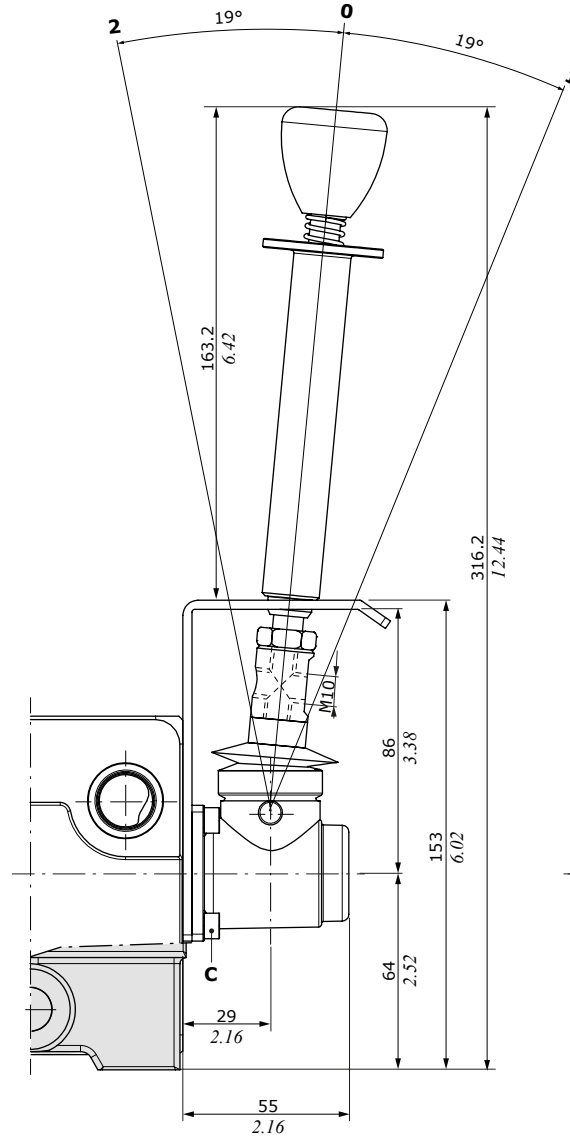
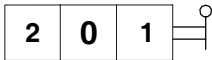
### Working section

#### A side controls

#### With safety lever control

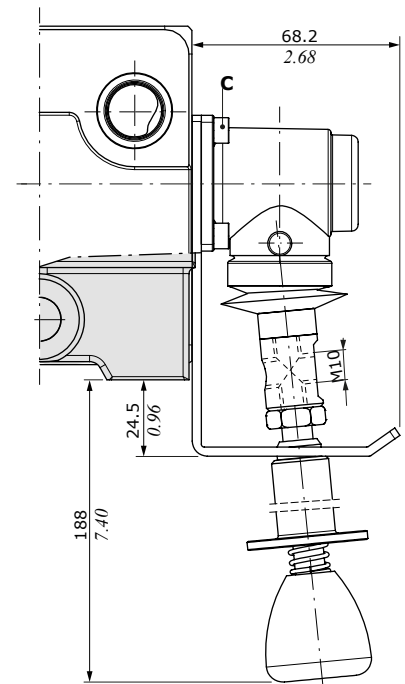
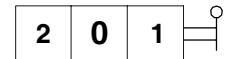
##### A1/S type

M10 thread, aluminium lever box



##### A2/S type

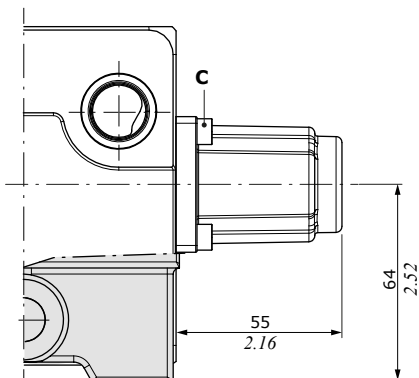
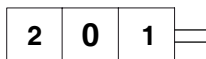
As A1/S type, rotated 180°



#### Without lever control

##### A3 type

With cap



#### Wrenches and tightening torques

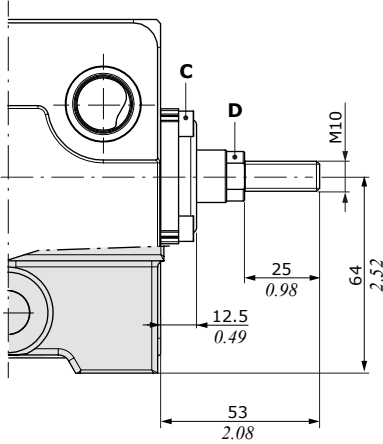
C = allen wrench 4 - 6.6 Nm (4.8 lbf<sup>t</sup>)

**A side controls**

**Without lever control**

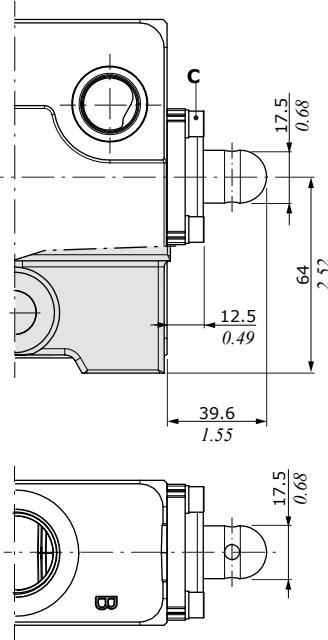
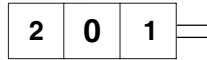
**A4 type**

M8 male thread external pin with flange



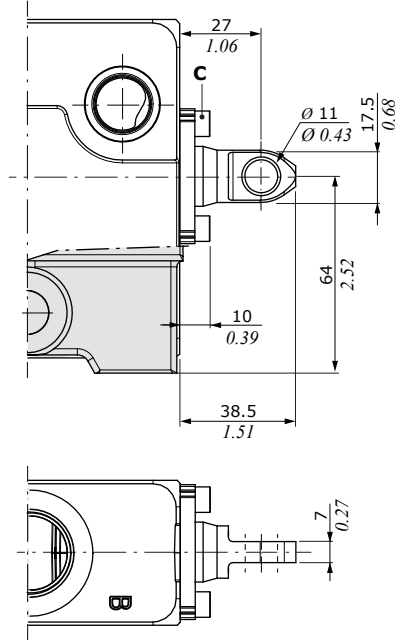
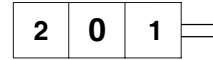
**A5 type**

Flange with spherical spool end



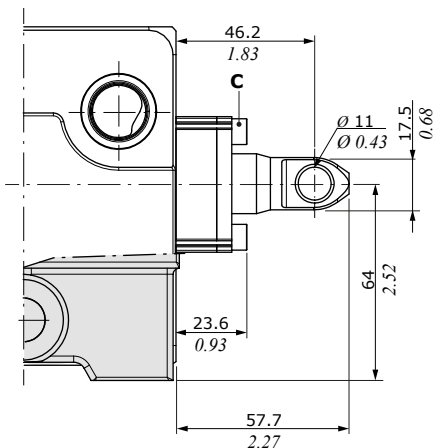
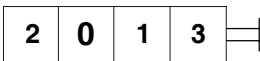
**A6 type**

With flange



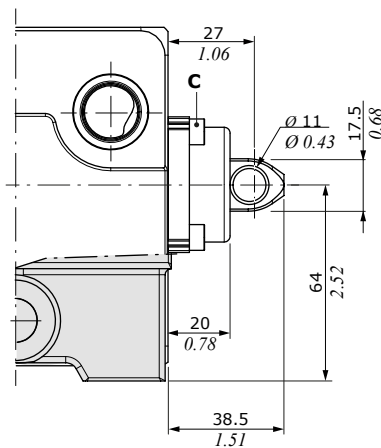
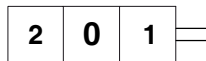
**A6/Z1 type**

As A6 type,  
for 116 floating spool type



**A6H type**

As A6 type, with scraper



**Wrenches and tightening torques**

C = allen wrench 4 - 6.6 Nm (4.8 lbft)  
D = wrench 13 - 9.8 Nm (7.2 lbft)

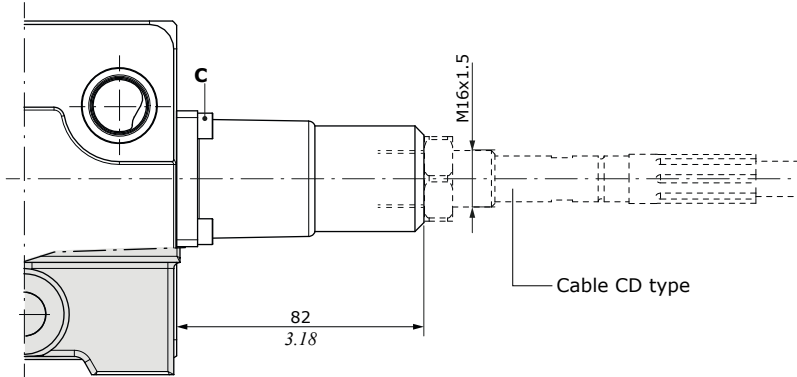
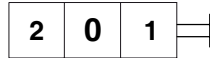
**Working section**

**A side controls**

**With flexible cable control arrangement**

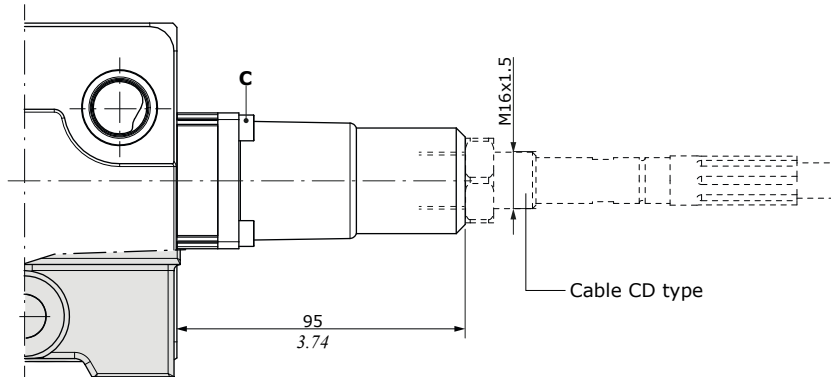
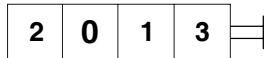
**A8 type**

Flexible cable control arrangement



**A8/Z1 type**

As A8 type,  
for 116 floating spool type



**Wrenches and tightening torques**

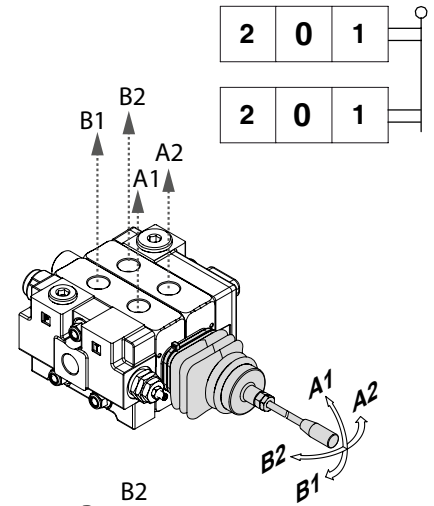
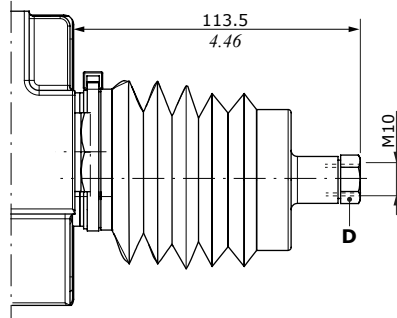
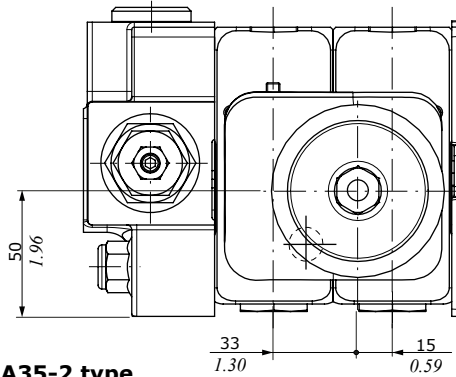
C = allen wrench 4 - 6.6 Nm (4.8 lbf<sup>t</sup>)

**A side controls**

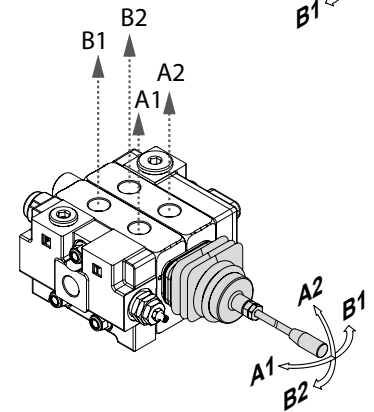
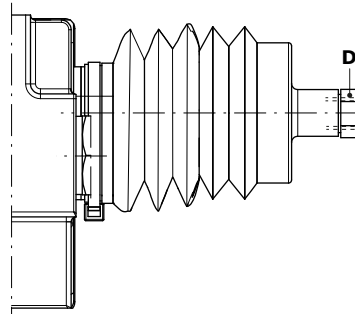
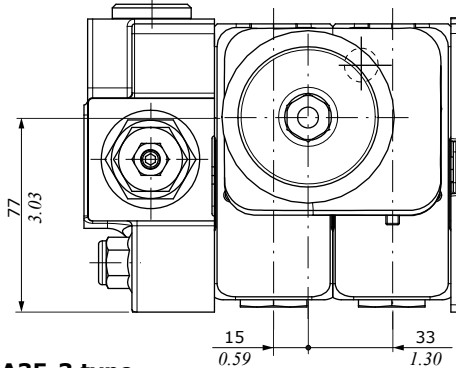
**Joystick control**

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

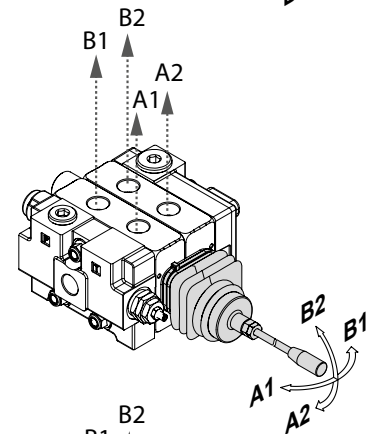
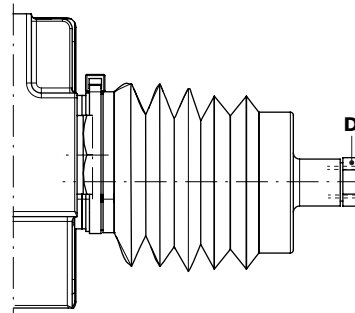
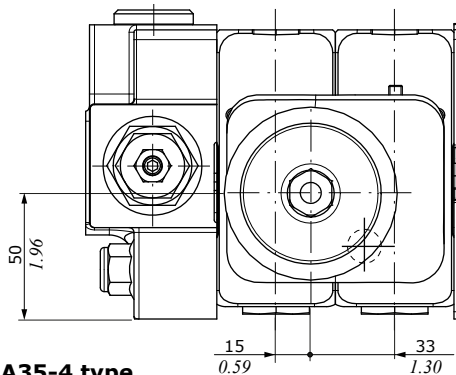
**A35-1 type**



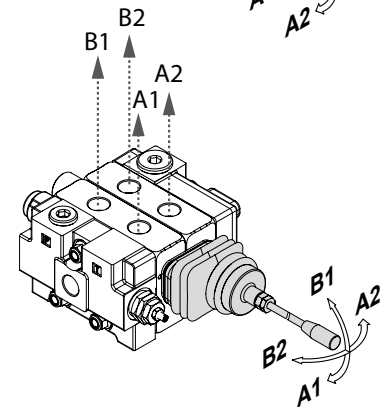
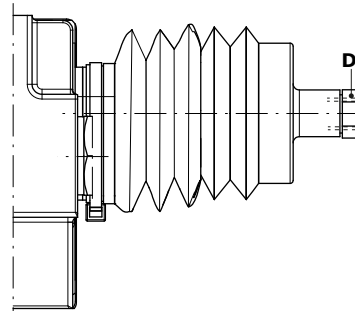
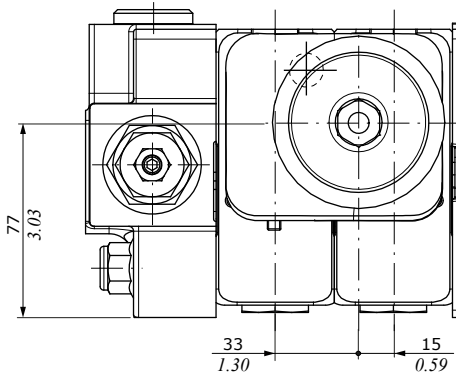
**A35-2 type**



**A35-3 type**



**A35-4 type**



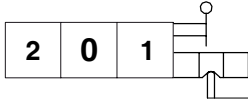
**Wrenches and tightening torques**  
D = wrench 17 - 24 Nm (17.7 lbf)

**Working section**

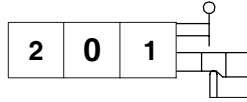
**A side controls**

**With spool position microswitch, with lever**

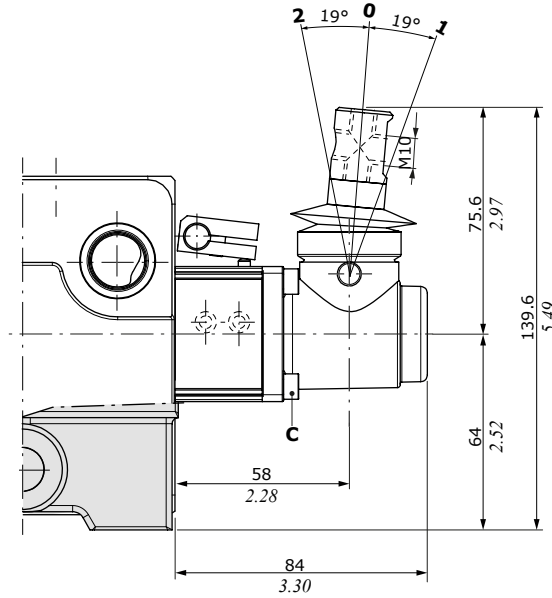
**N1-A1 type**  
Micro operation  
in position 1 and 2



**N1A-A1 type**  
Micro operation in  
position 1

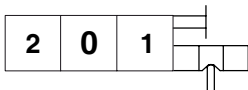


**N1B-A1 type**  
Micro operation in  
position 2



**With spool position microswitch, with cap**

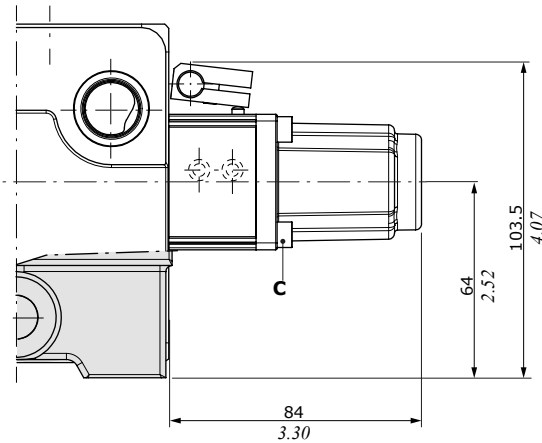
**N1-A3 type**  
Micro operation  
in position 1 and 2



**N1A-A3 type**  
Micro operation in  
position 1



**N1B-A3 type**  
Micro operation in  
position 2



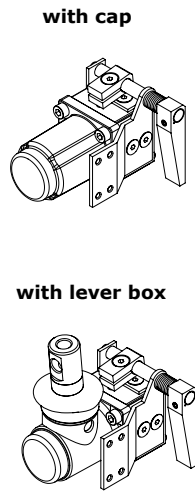
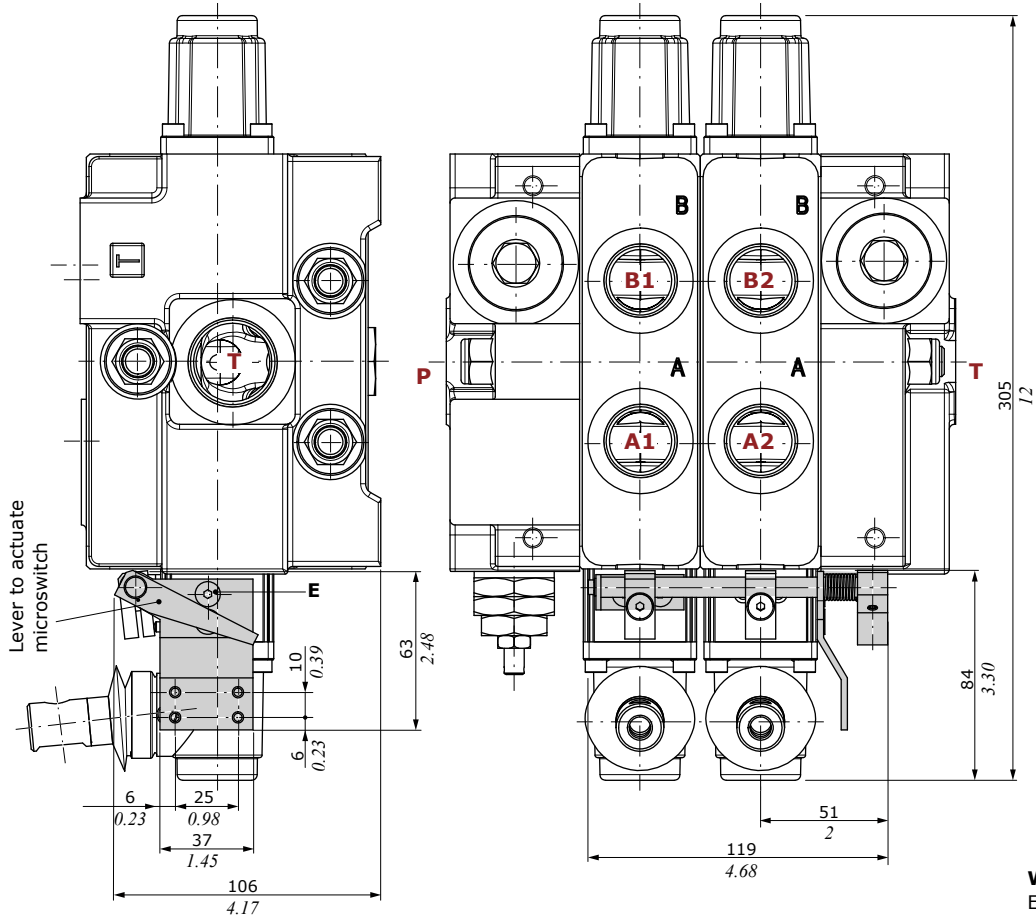
**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbf<sup>t</sup>)



**A side controls**

**With spool position microswitch**

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



**Wrenches and tightening torques**  
E = allen wrench 3 - 6.6 Nm (4.8 lbf<sup>t</sup>)

**Working section**

**B side controls**

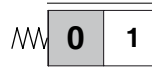
**With spring return**

**M1 type**  
3 position, spring return  
in neutral position

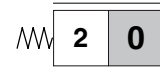


**M1/01 type**  
As M1 type,  
for joystick control

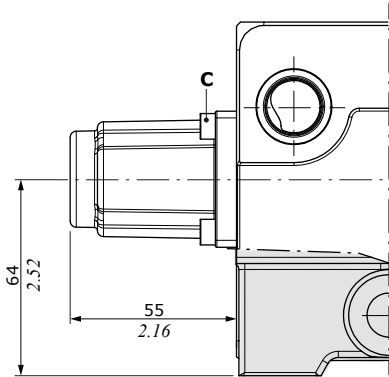
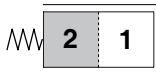
**M2 type**  
2 position (0-1), spring return  
in neutral position



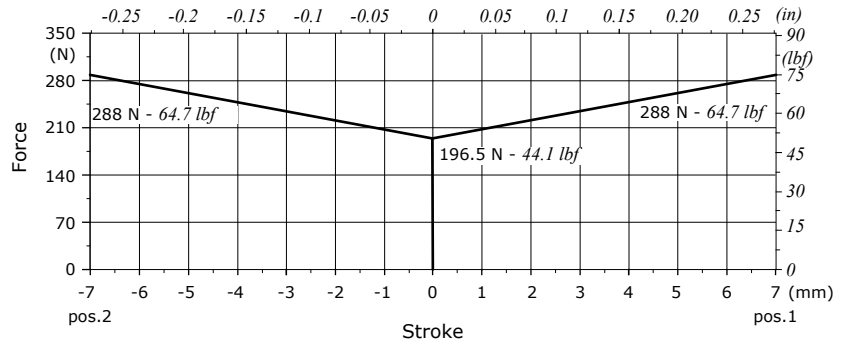
**M3 type**  
2 position (0-2), spring return  
in neutral position



**M4 type**  
2 position (2-1), spring return  
in position 2



**M1 control type - Force vs. Stroke diagram**

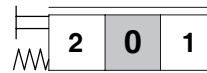


**Wrenches and tightening torques**

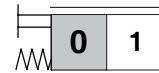
C = allen wrench 4 - 6.6 Nm (4.8 lbf<sup>t</sup>)

D = allen wrench 3 - 5 Nm (3.68 lbf<sup>t</sup>)

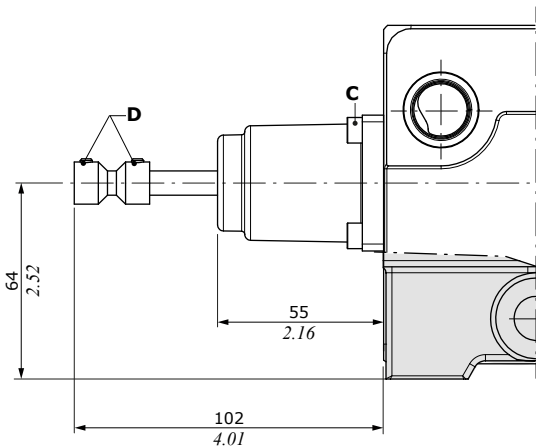
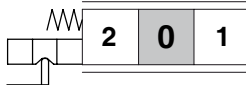
**M1-U1 type**  
3 position, with M10 male  
thread external pin



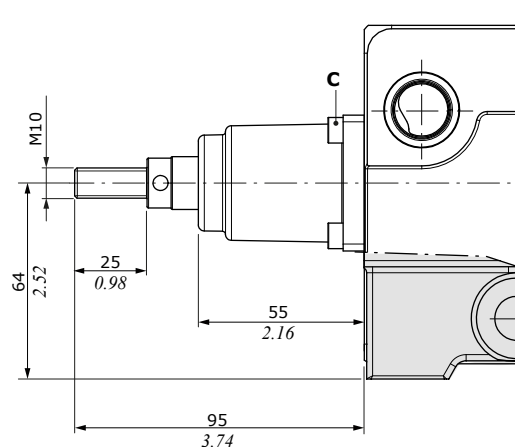
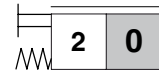
**M2-U1 type**  
2 position (0-1), with M10 male  
thread external pin



**M1-B1 type**  
3 position, microswitch arrangement



**M3-U1 type**  
2 position (0-2), with M10  
male thread external pin

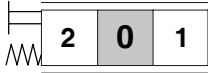


**B side controls**

**With flexible cable control arrangement**

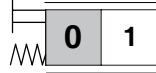
**M1-U2 type**

3 position, spring return in neutral position



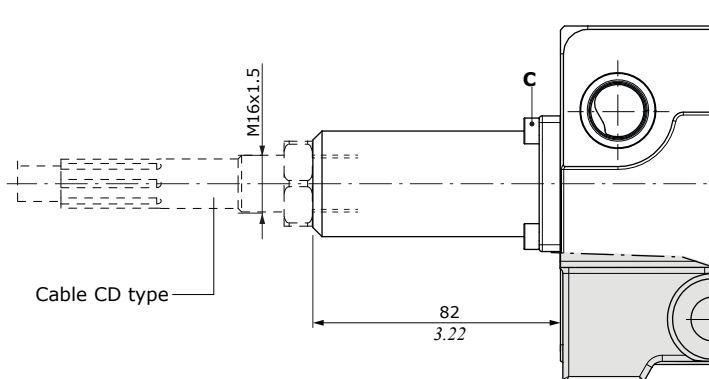
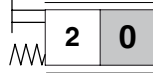
**M2-U2 type**

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



**M3-U2 type**

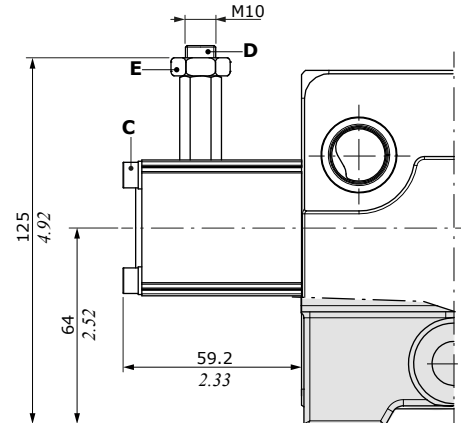
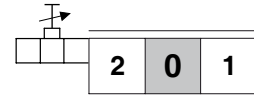
2 position (0-2), spring return in neutral position



**With friction control**

**R0 type**

Adjustable friction control



**Wrenches and tightening torques**

C = allen wrench 4 - 6.6 Nm (4.8 lbft)

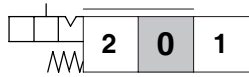
D = allen wrench 5 - 15 Nm (11.1 lbft)

E = wrench 17 - 9.8 Nm (7.2 lbft)

**With detent control**

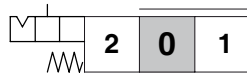
**R1 type**

3 position, detent in position 1



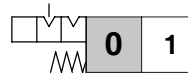
**R2 type**

3 position, detent in position 2



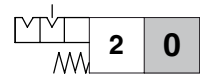
**R4 type**

2 position, detent in position 0-1



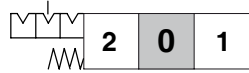
**R5 type**

2 position, detent in position 0-2



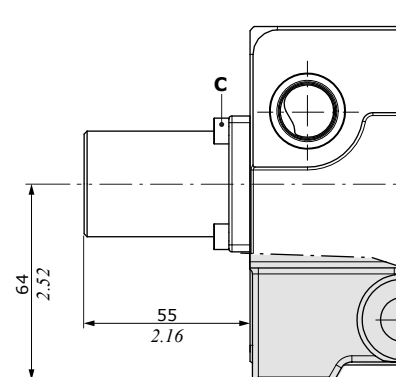
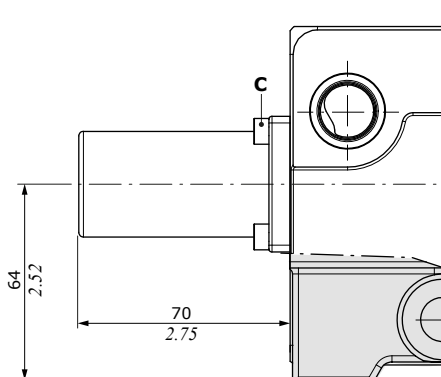
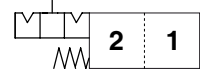
**R3 type**

3 position, detent in all position



**R6 type**

2 position, detent in position 1-2



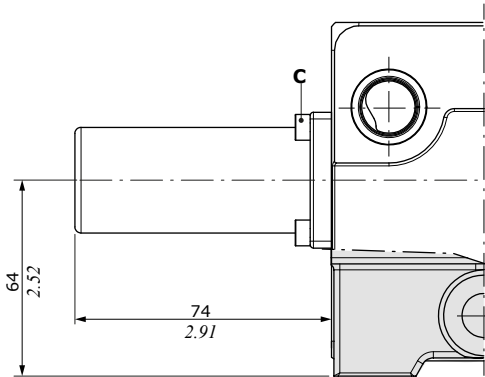
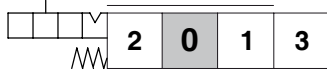
Working section

B side controls

With detent control

**R8 type**

4 position, detent in 4<sup>th</sup> position,  
for 116 floating spool type



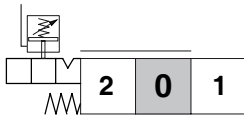
**Wrenches and tightening torques**

- C = allen wrench 4 - 6.6 Nm (4.8 lbf<sup>t</sup>)
- D = wrench 30 - 42 Nm (30.9 lbf<sup>t</sup>)
- E = wrench 22
- F = allen wrench 10 - 42 Nm (30.9 lbf<sup>t</sup>)

With detent and kick out function

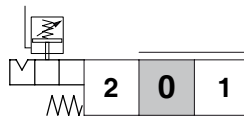
**R1K type**

3 position, detent in position 1



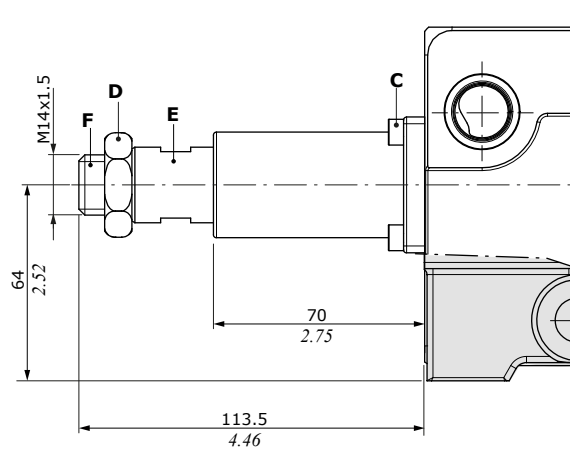
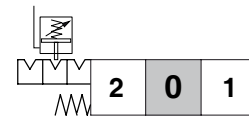
**R2K type**

3 position, detent in position 2



**R3K type**

3 position, detent in all position

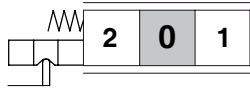


**B side controls**

**With spool position microswitch**

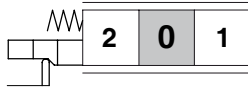
**M1-N1 type**

3 position, micro operation in position 1 and 2, spring return in neutral position



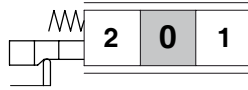
**M1-N1A type**

3 position, micro operation in position 1



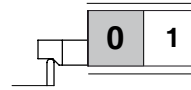
**M1-N1B type**

3 position, micro operation in position 2



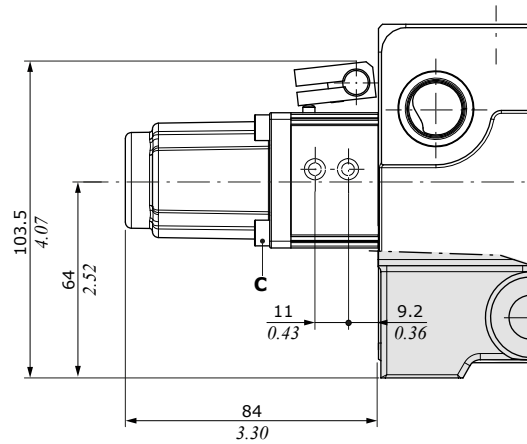
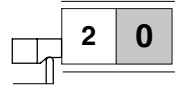
**M2-N1 type**

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



**M3-N1 type**

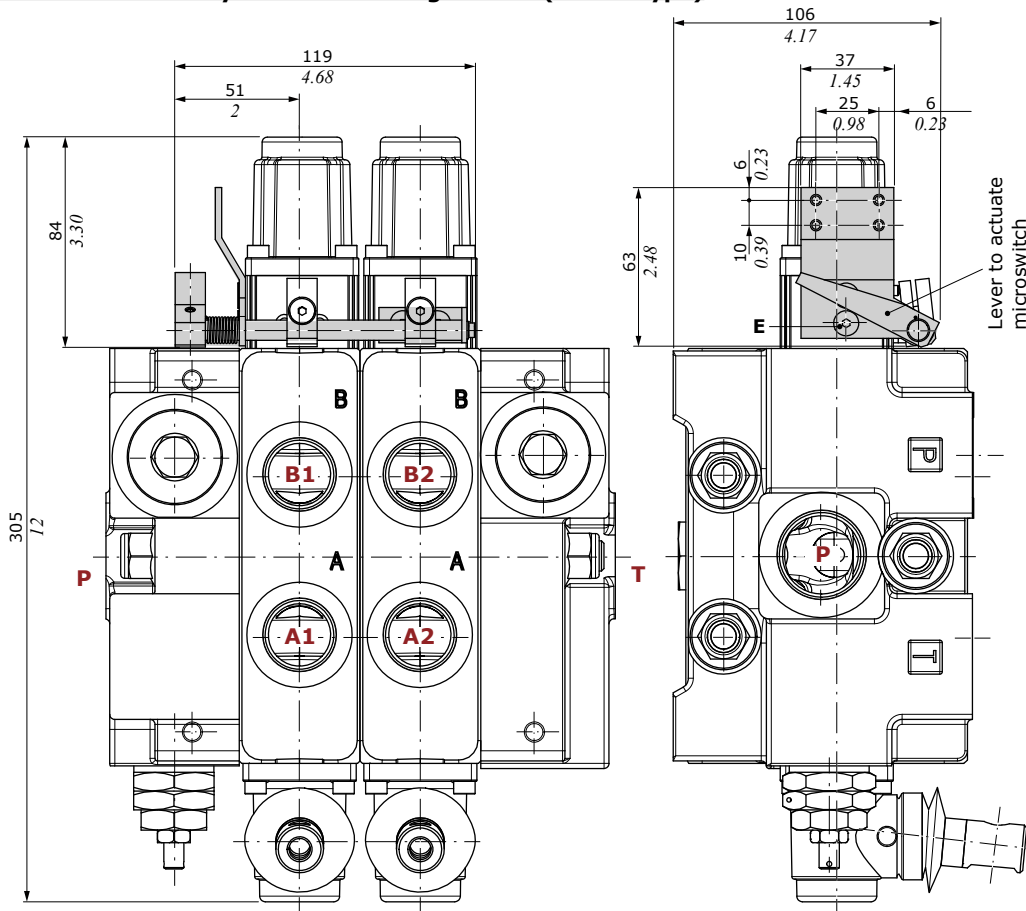
2 position (0-2), spring return in neutral position



**Wrenches and tightening torques**

- C = allen wrench 4 - 6.6 Nm (4.8 lbft)
- E = allen wrench 3 - 6.6 Nm (4.8 lbft)

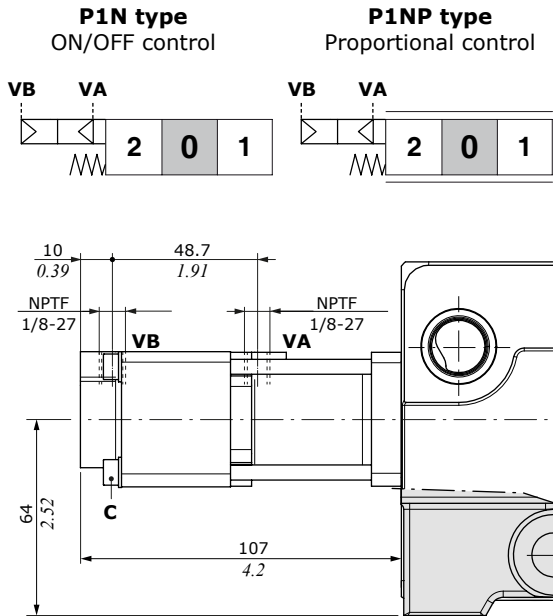
**Microswitch assembly kit for 2 working section (M1-N1 type)**



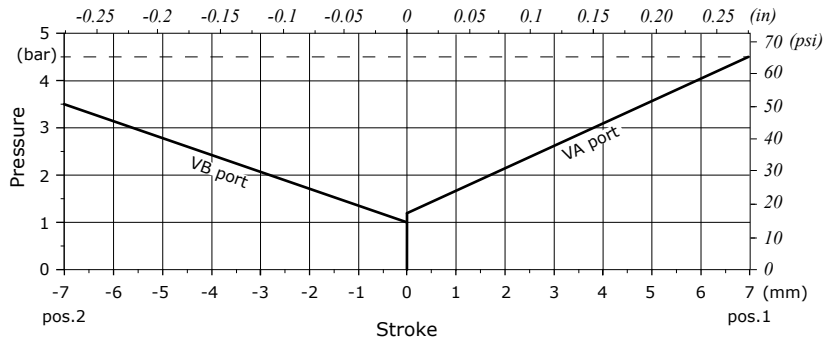
### Working section

#### B side controls

#### With pneumatic control



#### Proportional pilot pressure curves



#### Operating features

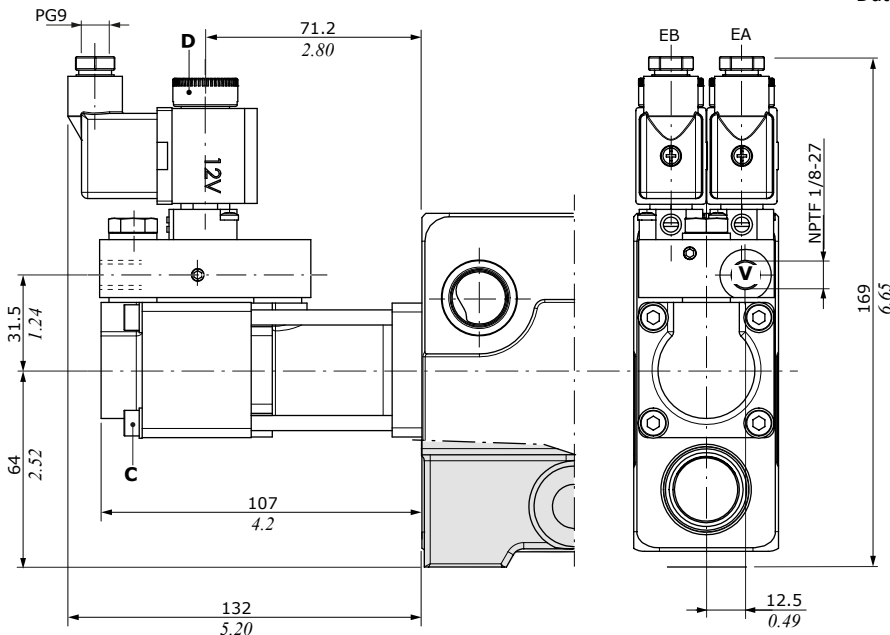
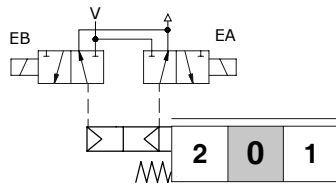
Pilot pressure.....: min. 5 bar (72.5 psi) - max. 30 bar (435 psi)  
 Pilot volume.....: 9 cm<sup>3</sup>/min (0.54 in<sup>3</sup>/min)

#### Wrenches and tightening torques

C = wrench 4 - 6.6 Nm (4.8 lbft)

#### With 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 tolerance.....: -5% +10%  
 Power rating.....: 5 W  
 Nominal current.....: 12 VDC - 24VDC  
 Coil insulation.....: Class F  
 Weather protection.....: IP65  
 Duty cycle.....: 100%

#### Wrenches and tightening torques

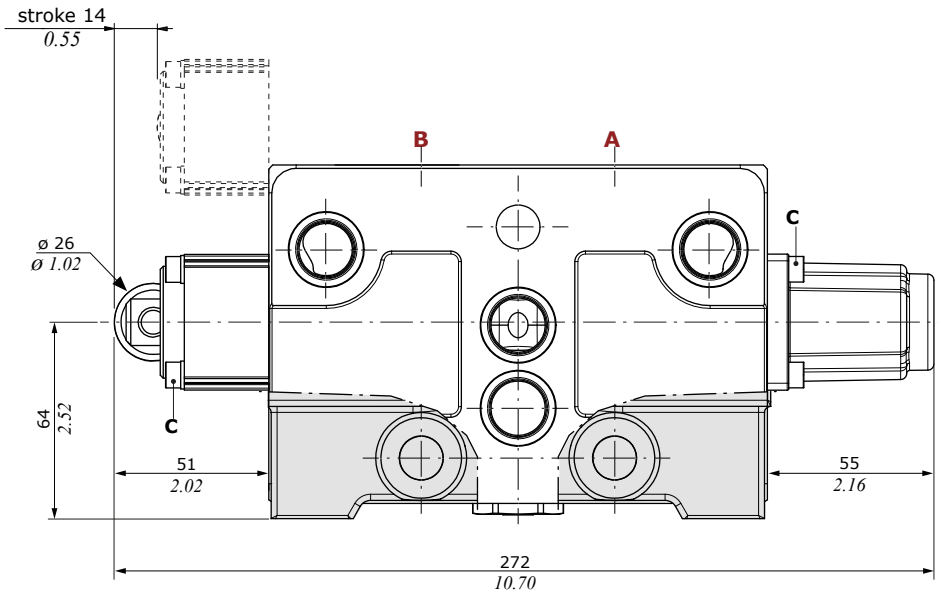
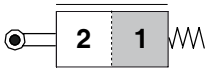
C = allen wrench 4 - 6.6 Nm (4.8 lbft)  
 D = manual tightening - 6.6 Nm (4.8 lbft)

**A+B side controls**

**With cam control**

**C2 type**

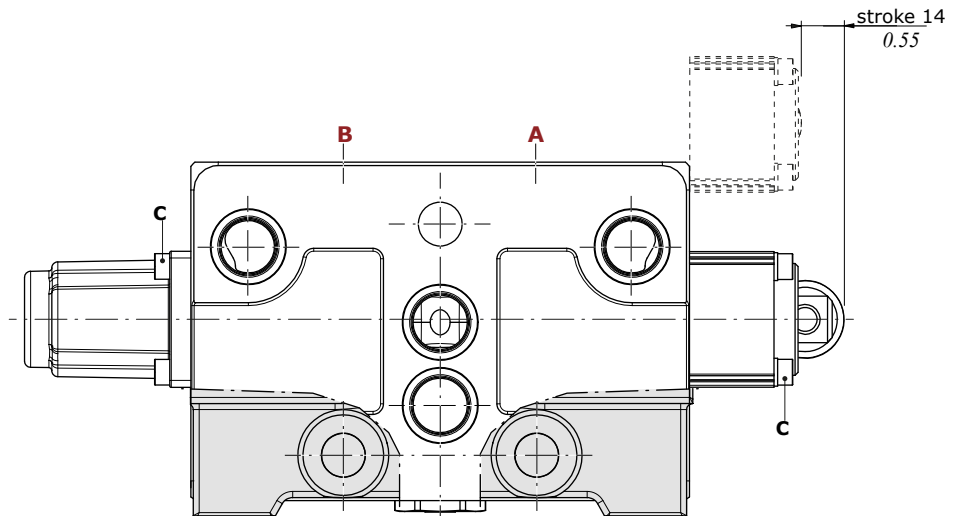
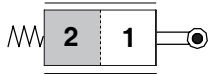
From position 1 to position 2,  
spring return in position 1



**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbf<sup>t</sup>)

**C3 type**

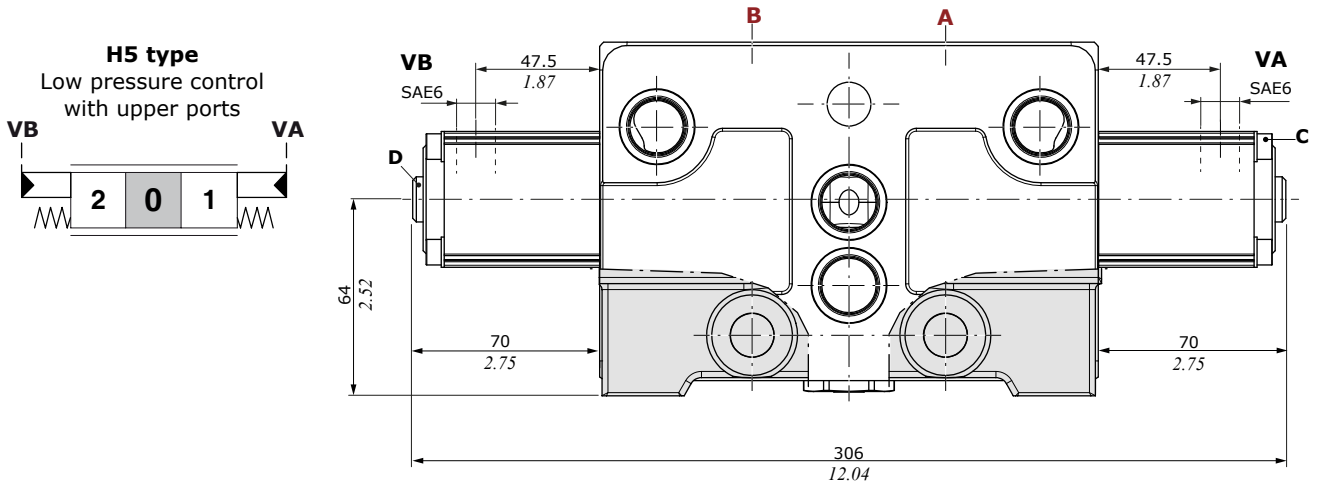
From position 2 to position 1,  
spring return in position 2.  
Dimensions are the same of C2 type



**Working section**

**A+B side controls**

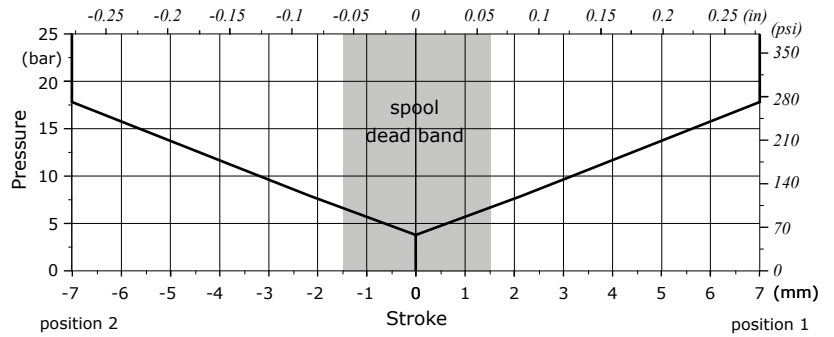
**With proportional hydraulic control**



**Operating features**

Pilot pressure..... : max. 100 bar (1450 psi)

**Stroke vs. Pressure diagram for H5 type control**



**Wrenches and tightening torques**

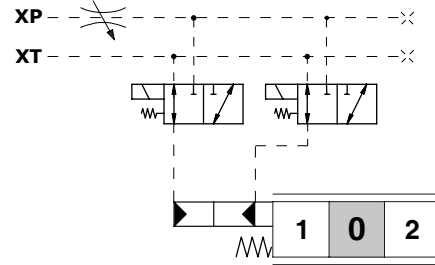
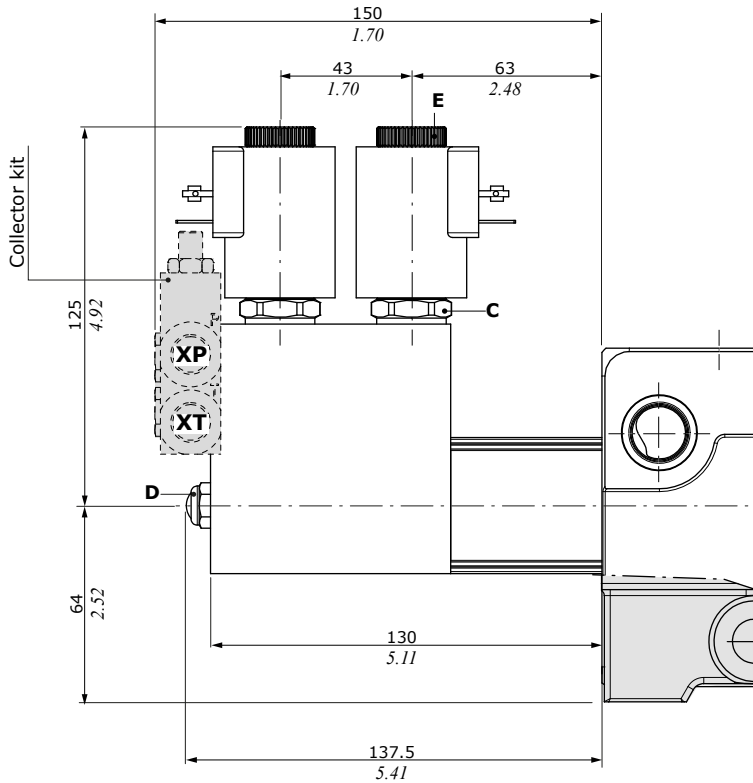
C = allen wrench 4 - 6.6 Nm (4.8 lbf<sub>t</sub>)

D = allen wrench 4 - 9.8 Nm (7.2 lbf<sub>t</sub>)



**Electrohydraulic control**

**D2W type: ON/OFF one side**

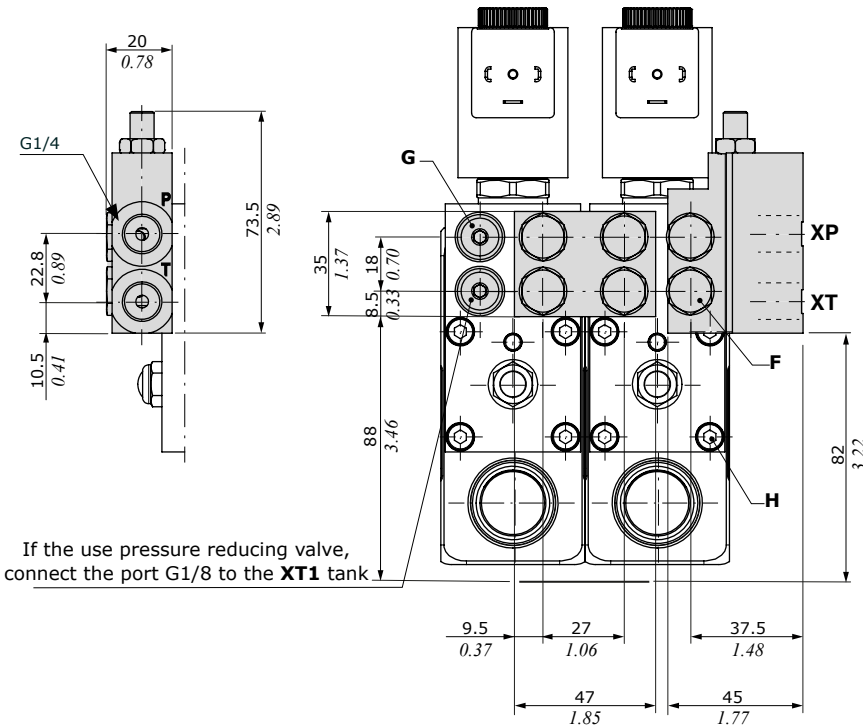


**Features**

- Pilot pressure on XP..... : min. 20 bar (290 psi)
- : max. 35 bar (500 psi)
- Max backpressure on XT..... : 4 bar (58 psi)

For **BT** type coils and mating connectors see page 257

**KE2S connector kit**



If the use pressure reducing valve, connect the port G1/8 to the **XT1** tank

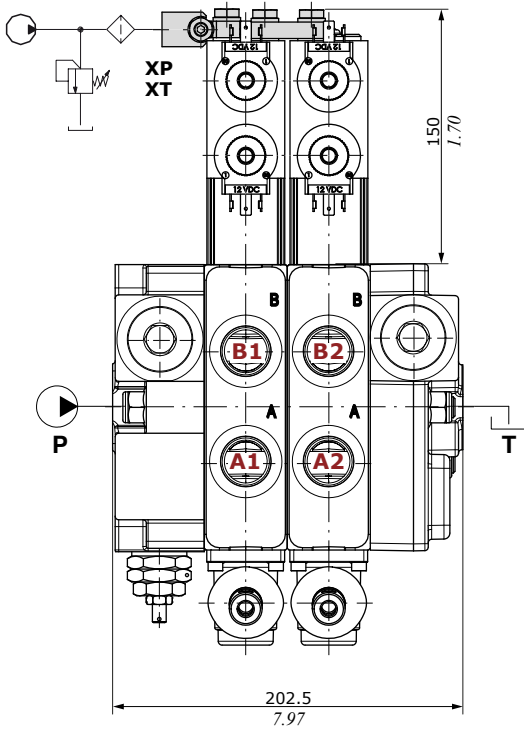
**Wrenches and tightening torques**

- C = wrench 24 - 30 Nm (22 lbf<sup>t</sup>)
- D = wrench 13 - 9 Nm (6.6 lbf<sup>t</sup>)
- E = wrench 6.6 - 9.8 Nm (7.2 lbf<sup>t</sup>)
- F = wrench 14 - 24 Nm (17.7 lbf<sup>t</sup>)
- G = allen wrench 4 - 9.8 Nm (6.6 lbf<sup>t</sup>)
- H = allen wrench 4 - 3 Nm (2.2 lbf<sup>t</sup>)

### Working section

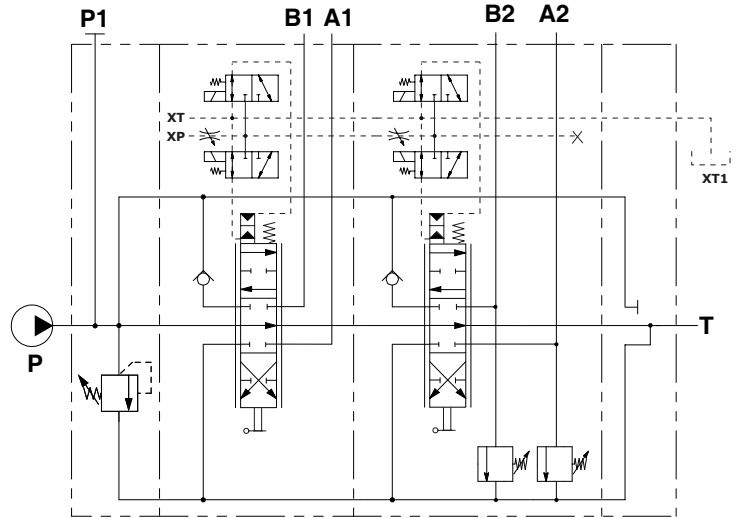
#### Electrohydraulic control

##### Connector kit for external pilot and drain



CONNECTOR KIT CODES		
Type	Code*	Description
KE2S	5GKE13S020	Kit for 2 section

For other connector kit codes, see page 232



Description example:

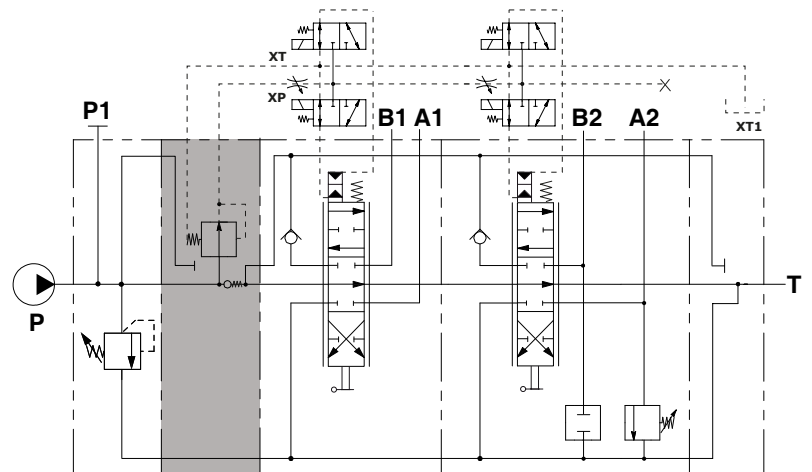
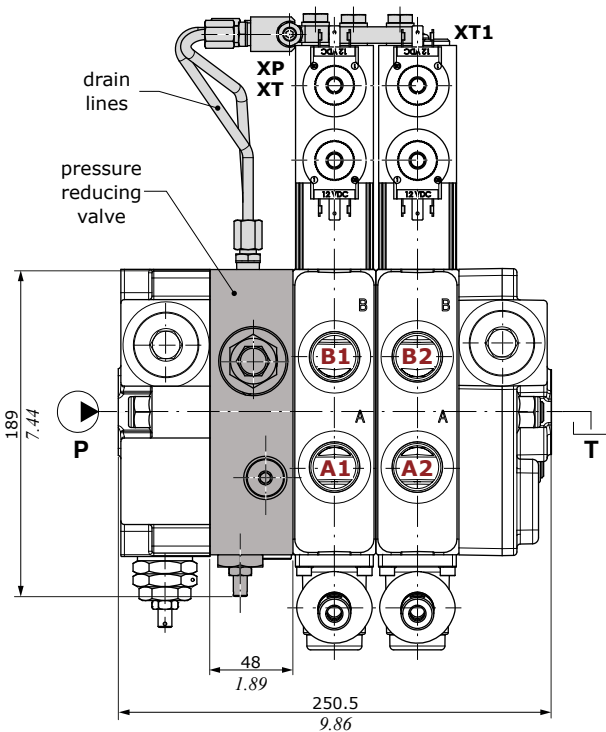
Q130/2/F7S(N120)/**KE2S**/103-A1-**D2W**.V40(N)120/  
103-A1-**D2W**.V40(N)120/F3D-12VDC-S-SAE

##### Connector kit for internal pilot and drain

The kit is made of collector, pressure reducing valve and drain lines.

CONNECTOR KIT CODES		
Type	Code*	Description
KE2R	5GKE13R020	Kit for 2 section

For other connector kit codes, see page 232



Description example:

Q130/2/F7S(N120)/**KE2R**/103-A1-**D2W**.V40(N)120/  
103-A1-**D2W**.V40(N)120/F3D-12VDC-S-SAE

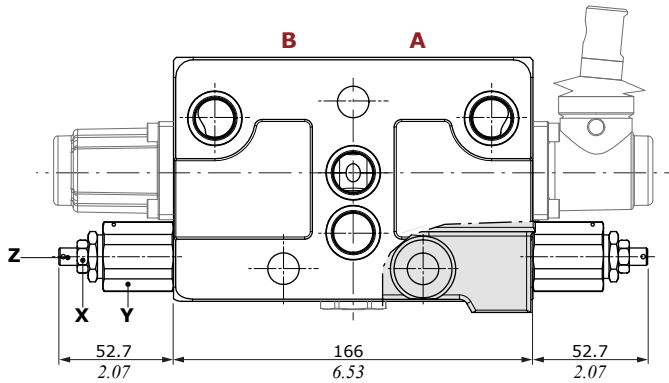
VRP pressure reducing valve

Auxiliary valve configuration

Dimensional data and hydraulic circuits

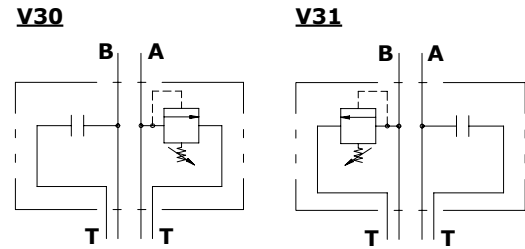
Antishock valve example

Q130 / 1 / ... / 103 - A1 - M1 - **V32(N)120** / ...  
 aux valve and valve setting (bar) spring type



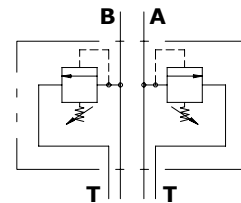
Spring type	Setting ranges (bar - psi)
B (white)	From 30 to 80 - from 435 to 1150
N (black)	From 81 to 200 - from 1170 to 2900
R (red)	From 201 to 350 - from 2910 to 5100

A side configuration: B side configuration:



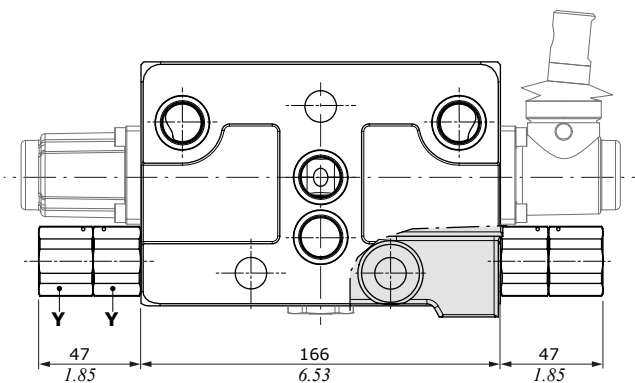
A+B side configuration:

V32 (V30 + V31)

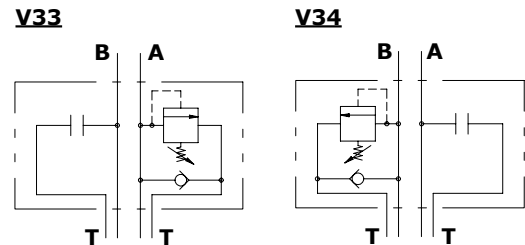


Antishock/anticavitation valve example

Q130 / 1 / ... / 103 - A1 - M1 - **V33(N)120** / ...  
 aux valve and valve setting (bar) spring type

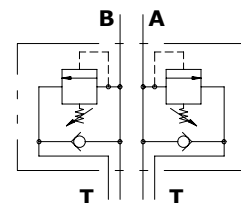


A side configuration: B side configuration:



A+B side configuration:

V35 (V34 + V33)



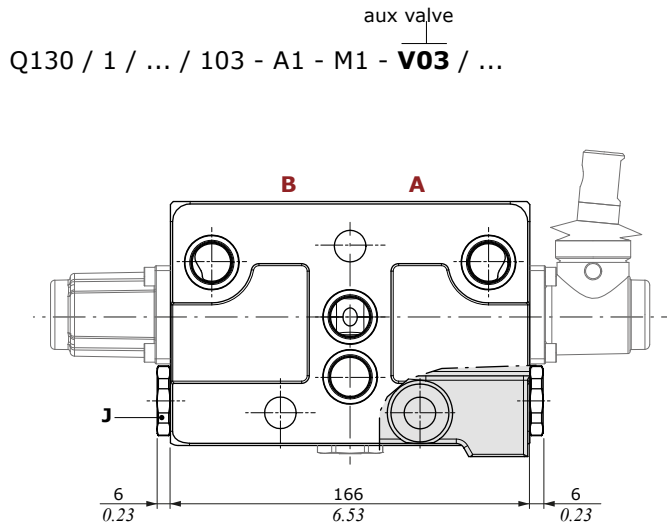
Wrenches and tightening torques

Y = wrench 30 - 80 Nm (59 lbf)  
 X = wrench 20 - 24 Nm (17.7 lbf)  
 Z = allen wrench 4

### Auxiliary valve configuration

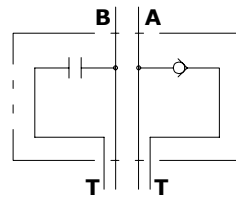
#### Dimensional data and hydraulic circuits

##### Anticavitation valve example



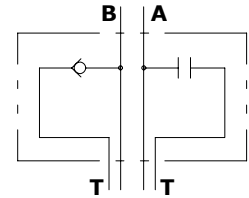
##### A side configuration:

###### V04



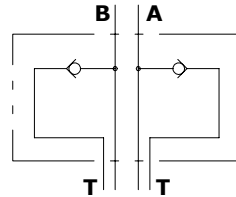
##### B side configuration:

###### V05



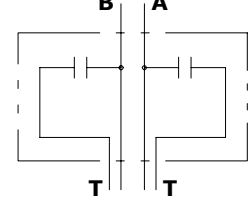
##### A+B side configuration:

###### V03 (V04 + V05)



##### Plug valve:

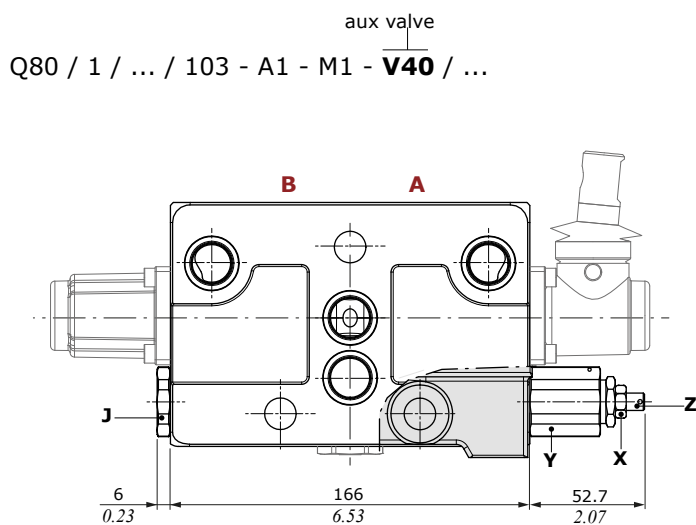
###### VC



#### Wrenches and tightening torques

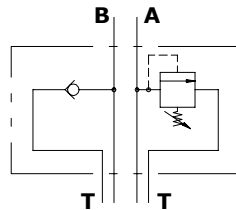
- J = wrench 30 - 42 Nm (30.9 lbf<sup>t</sup>)
- Y = wrench 30 - 80 Nm (59 lbf<sup>t</sup>)
- X = wrench 20 - 24 Nm (17.7 lbf<sup>t</sup>)
- Z = allen wrench 4

##### Antishock and anticavitation combining valves example



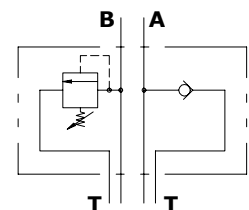
##### A side configuration:

###### V40 (V30 + V05)



##### B side configuration:

###### V41 (V31 + V04)



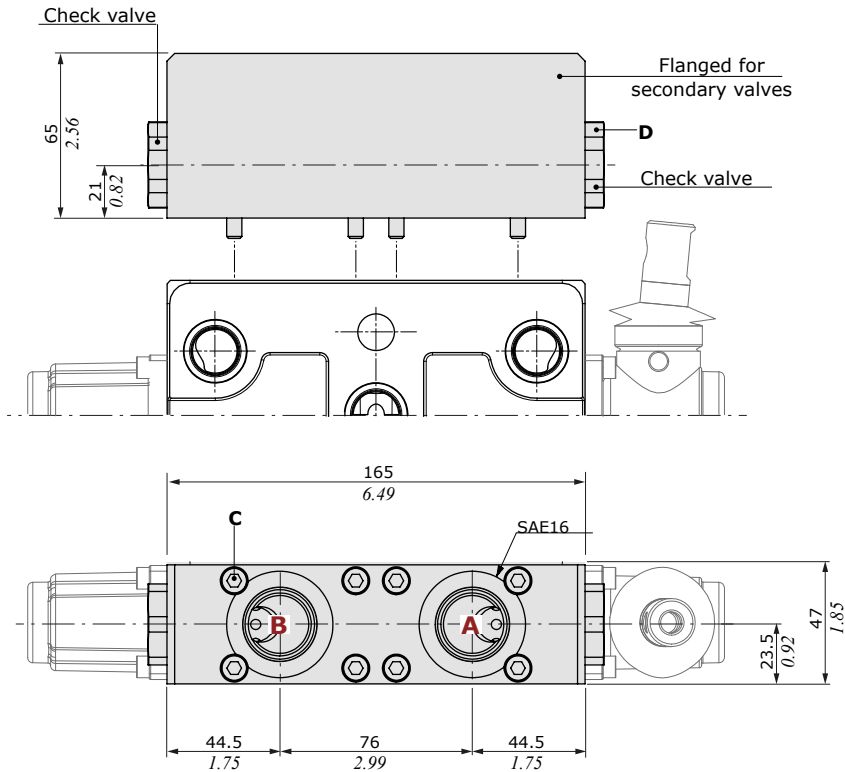
Secondary valve configuration

Dimensional data and hydraulic circuits

Description example

secondary aux valve valves block

Q130 / 1 / ... / 103 - A1 - M1 - V32(N)120 / **VC03** - SAE

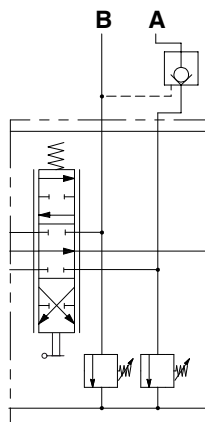


Wrenches and tightening torques

C = allen wrench 5 - 9.8 Nm (7.2 lbft)  
 D = wrench 12 - 42 Nm (31 lbft)

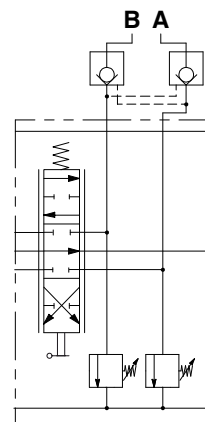
Q130.V40(N)120/VC01-SAE configuration

Parallel circuit, mechanical control with aux valves and flanged for single piloted check valve on A port



Q130.V40(N)120/VC03-SAE configuration

Parallel circuit, mechanical control with aux valves and flanged for double piloted check valve on A and B ports

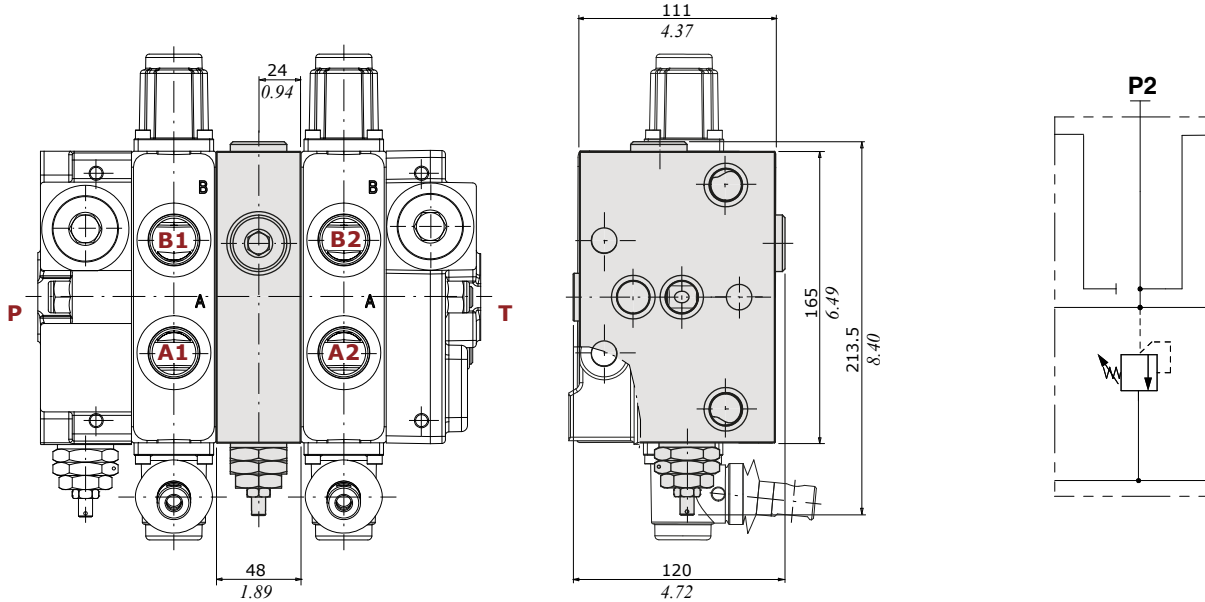


Intermediate section

Dimensional data and hydraulic circuit

**E50 type**

Intermediate inlet section with pressure relief valve

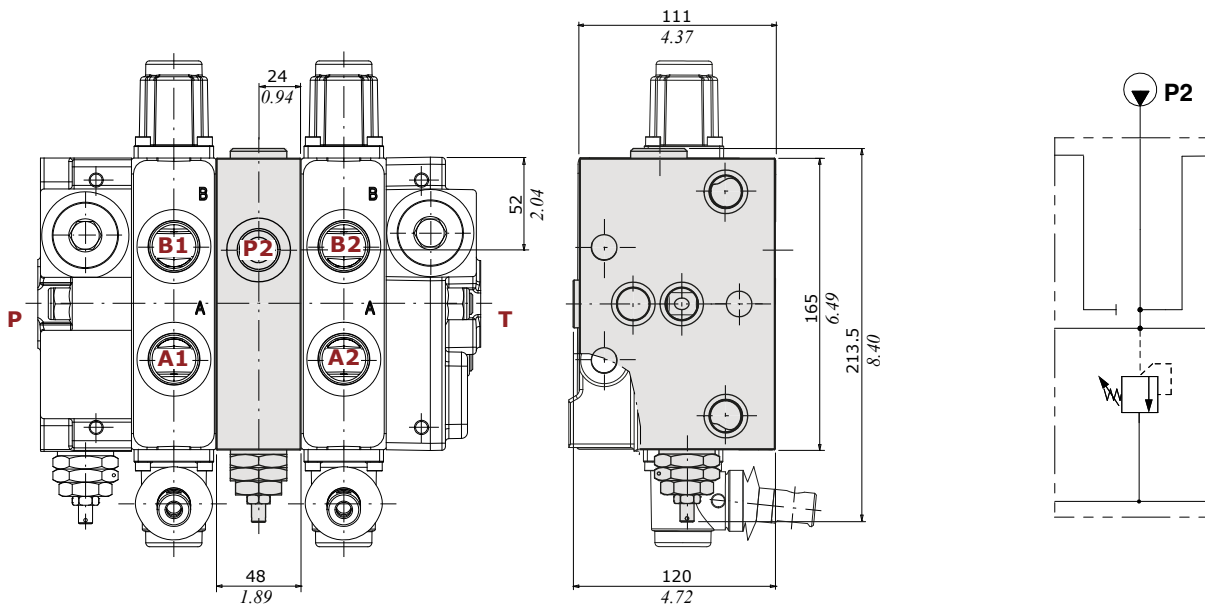


Description example: Q130/2/F7S(N150)/103-A1-M1/**E50(N150)**/103-A1-M1/F3D-SAE

intermediate section spring type and valve setting (bar)

**E53 type**

Intermediate inlet section with pressure relief valve and P2 port open



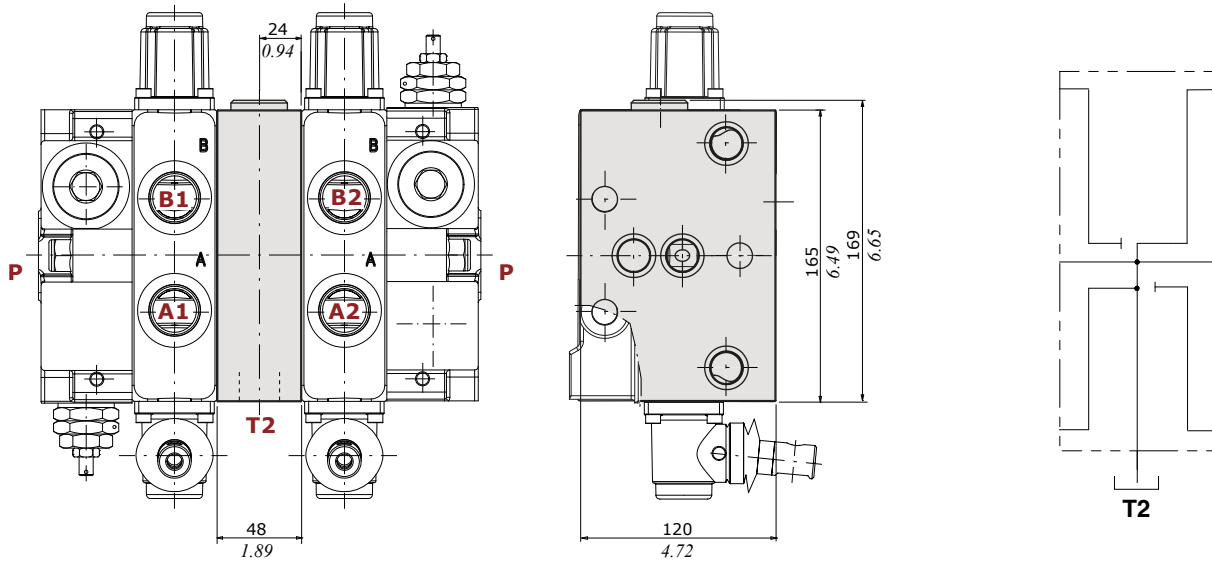
Description example: Q130/2/F7S(N150)/103-A1-M1/**E53(N150)**/103-A1-M1/F3D-SAE

intermediate section spring type and valve setting (bar)

Dimensional data and hydraulic circuit

**E51 type**

Intermediate outlet section, T2 port open

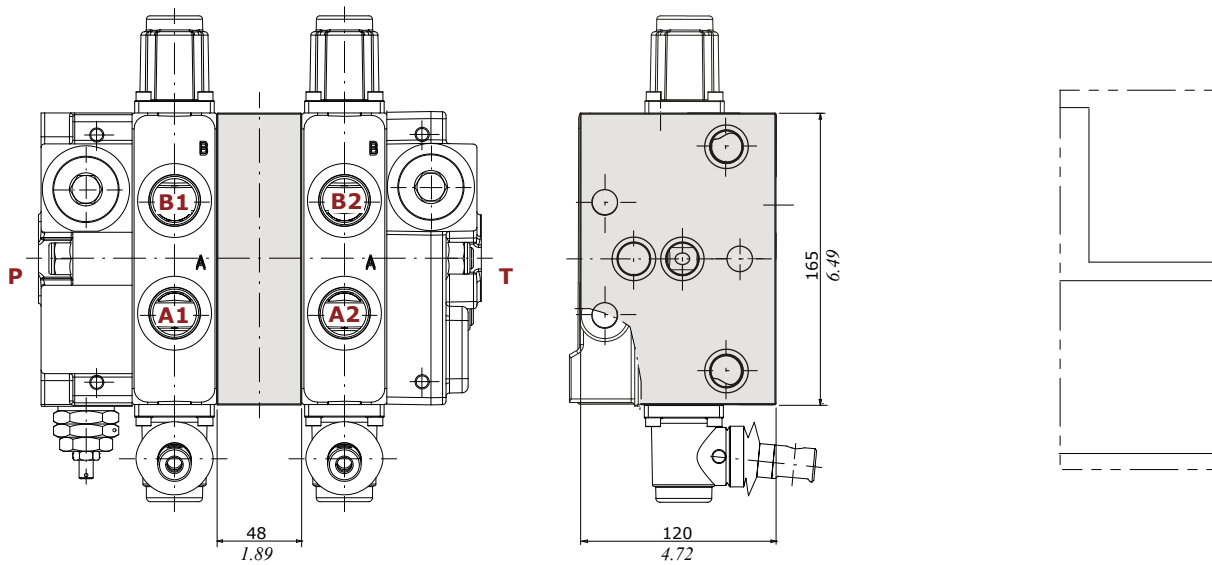


Description example: Q130/2/F7S(N150)/103-A1-M1/**E51**/103-A1-M1/F3D-SAE

intermediate section

**E61 type**

Intermediate spacer section

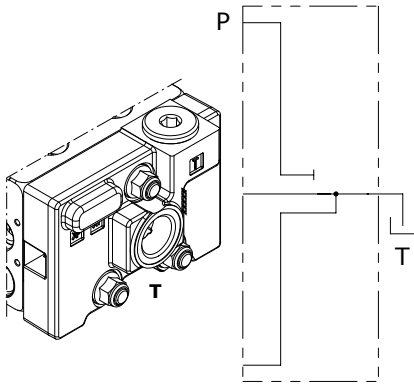


Description example: Q130/2/F7S(N150)/103-A1-M1/**E61**/103-A1-M1/F3D-SAE

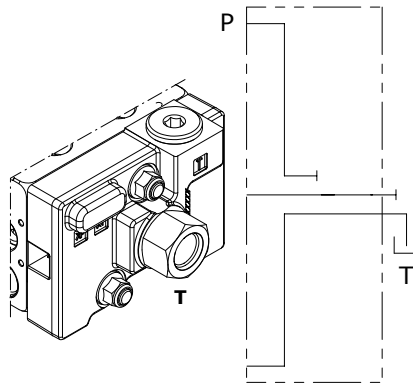
intermediate section

### Outlet section

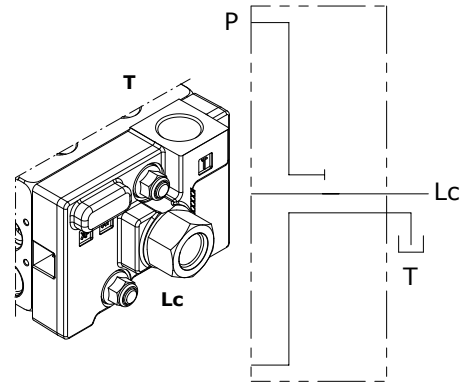
**F3D-SAE configuration**  
Open center configuration



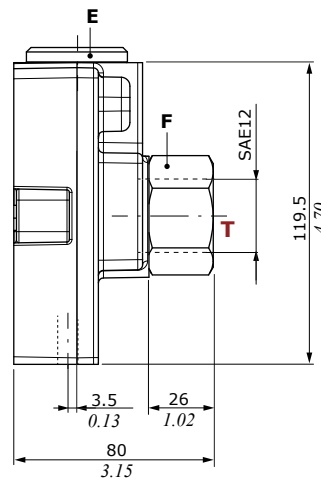
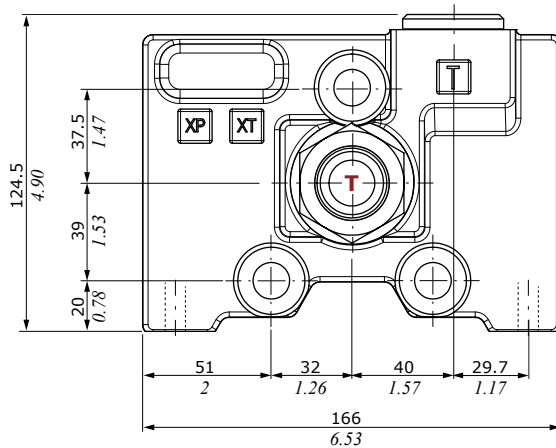
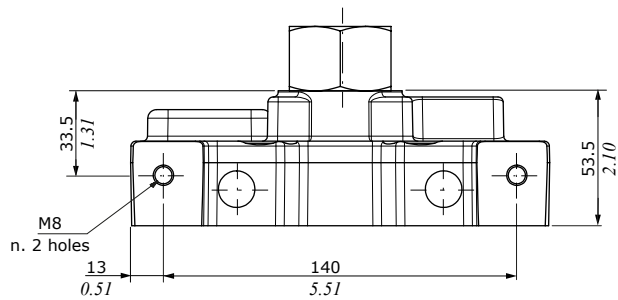
**F16D-SAE configuration**  
Closed center configuration



**F6D-SAE configuration**  
Carry-over configuration



### F16D configuration example



**Wrenches and tightening torques**  
E = allen wrench 12 - 42 Nm (30.9 lbf)  
F = wrench 41 - 80 Nm (59 lbf)



**Dimensional data and features**

Coil type	Voltage	Connectors					
		ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads (without conn.)
BER	10 VDC	4SLE001000A	-	-	-	-	-
	12 VDC	4SLE001200A	4SLE001201A <sup>(5)</sup>	4SLE001203A <sup>(5)</sup>	4SLE001210A <sup>(2)</sup>	4SLE001214A <sup>(2)</sup>	4SLE001207A
		4SLE001217A <sup>(3)</sup>	4SLE001209A <sup>(3-5)</sup>	4SLE001211A <sup>(3-5)</sup>	-	-	-
		-	4SLE001202A <sup>(6)</sup>	4SLE001216A <sup>(3-6)</sup>	4SLE001206A <sup>(2)</sup>	-	-
	14 VDC	-	4SLE001400A <sup>(6)</sup>	4SLE001403A <sup>(3-5)</sup>	-	-	-
		-	4SLE001401A <sup>(3-6)</sup>	4SLE001402A <sup>(3-5)</sup>	-	-	-
	24 VDC	4SLE002400A	4SLE002401A <sup>(5)</sup>	4SLE002403A <sup>(5)</sup>	-	-	4SLE002404A
		4SLE002408A <sup>(3)</sup>	4SLE002407A <sup>(3-5)</sup>	-	-	-	-
	28 VDC	4SLE002400A <sup>(1)</sup>	4SLE002402A <sup>(6)</sup>	4SLE002800A <sup>(5)</sup>	-	-	-
	48 VDC	4SLE004800A	-	-	-	-	-
4SLE304800A <sup>(1)</sup>		-	-	-	-	-	
110VDC	4SLE011000A	-	-	-	-	-	
220 VDC	4SLE311000A <sup>(1)</sup>	-	-	-	-	-	
	4SLE022000A	-	-	-	-	-	
Mating connectors (For connector with rectifier see last table)	4SLE322000A <sup>(1)</sup>	4CN1009995	5CON140031	5CON003	5CON001	5CON017	-

Coil type	Voltage	Connectors					
		ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads (without conn.)
BT	10 VDC	4SL3000100	-	-	-	-	-
	12 VDC	4SL3000120	4SL3000130 <sup>(6)</sup>	4SL3000122 <sup>(5)</sup>	4SL3000124 <sup>(2)</sup>	4SL3000127 <sup>(2)</sup>	4SL300012C
		4SL3000126 <sup>(4)</sup>	4SL3000134 <sup>(3-6)</sup>	4SL3001200 <sup>(3-5)</sup>	-	-	-
		-	4SL3000128 <sup>(2)</sup>	-	-	-	-
	24 VDC	4SL3000240	4SL3000249 <sup>(6)</sup>	4SL3000248 <sup>(5)</sup>	-	-	4SL3000246
		4SL3030240 <sup>(1)</sup>	4SL300024C <sup>(3-6)</sup>	-	-	-	-
	26 VDC	4SL3000260	-	-	-	-	-
	48 VDC	4SL3000480	-	-	-	-	-
		4SL3030480 <sup>(1)</sup>	-	-	-	-	-
	110VDC	4SL3001100	-	-	-	-	-
4SL3031100 <sup>(1)</sup>		-	-	-	-	-	
220 VDC	4SLE022000A	-	-	-	-	-	
	4SLE322000A <sup>(1)</sup>	-	-	-	-	-	
Mating connectors (For connector with rectifier see last table)	4SLE322000A <sup>(1)</sup>	4CN1009995	5CON140031	5CON003	5CON001	5CON017	-

Notes: <sup>(1)</sup> supply with AC and use only with rectifier connector - <sup>(2)</sup> with flying leads - <sup>(3)</sup> with bidirectional diode  
<sup>(4)</sup> with unidirectional diode - <sup>(5)</sup> integrated perpendicular type - <sup>(6)</sup> integrated parallel type

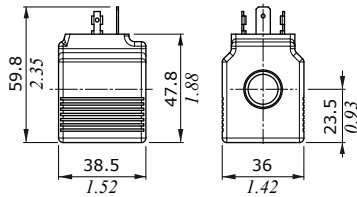
Voltage	ISO 4400 mating connector with rectifier
	BER type coil
24 VDC	4CN1010240
48 VDC	4CN1010480
110 VDC	4CN1011100
220 VDC	4CN1012200

Coils and connectors

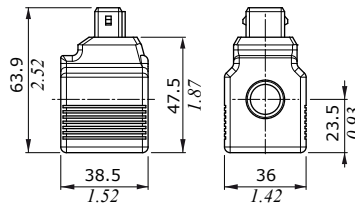
Dimensional data and features

**BER type**

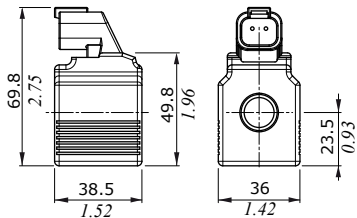
**ISO4400 connector**



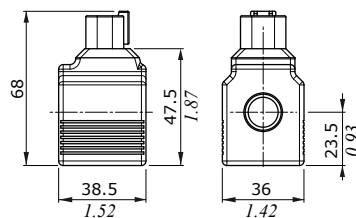
**AMP JPT connector**



**DEUTSCH DT04 connector**  
(parallel type)



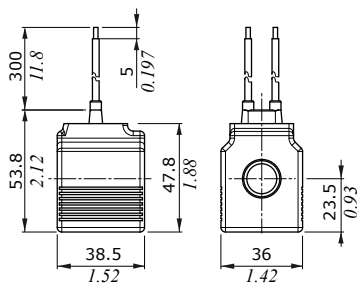
**DEUTSCH DT04 connector**  
(perpendicular type)



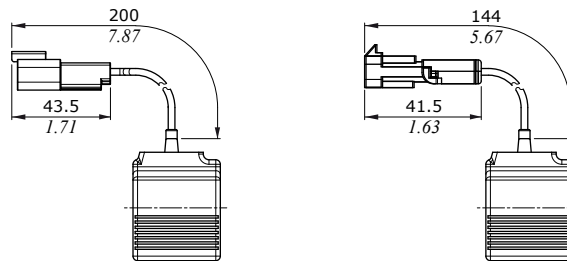
**Features**

- Nominal voltage tolerance :  $\pm 10\%$
- Power rating . . . . . : 19.2 W - 12/24 VDC - 48 RAC  
: 19.1 W - 28 VDC  
: 19 W - 10/14/48/110/220 VDC  
: 24/110/220 RAC
- Max. operating current . . . : 1.90 A - 10 VDC  
: 1.60 A - 12 VDC  
: 1.36 A - 14 VDC  
: 0.80 A - 24 VDC  
: 0.68 A - 28 VDC  
: 0.40 A - 48 VDC  
: 0.17 A - 110 VDC  
: 0.09 A - 220 VDC
- Coil insulation . . . . . : Class H (180°C - 356°F)
- Weather protection . . . . . : IP65 - ISO4400  
: IP69K - Deusch DT  
: IP65 - AMP JPT  
: IP67 - Weatherpack  
: IP67 - Metri-pack
- Insertion . . . . . : 100%

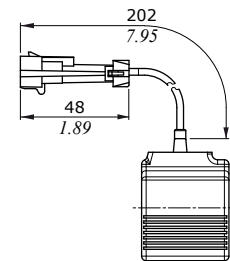
**Flying leads with DEUTSCH DT04 connector**



**Flying leads with PACKARD WEATHER-PACK connector**



**Flying leads with PACKARD METRI-PACK connector**





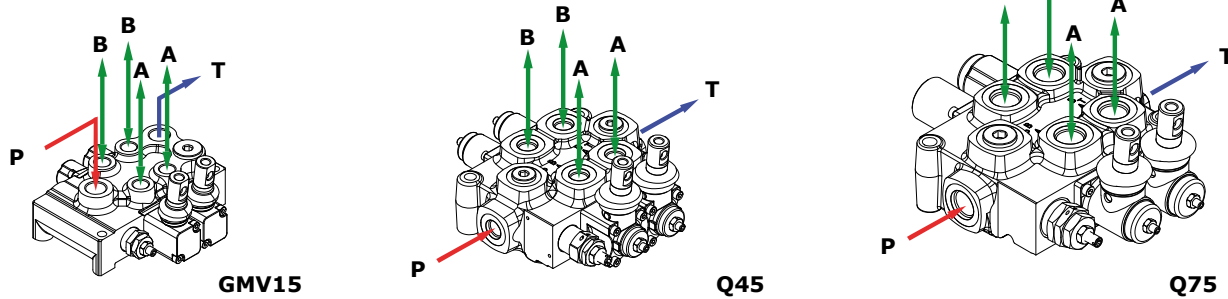
## Main rules

The directional control valves range are assembled and tested as per the technical specifications of this catalogue.

Before the final installation on your equipment, please follow the recommendations below:

- the valve can be assembled in any position; in order to prevent body deformation and spool sticking mount the product on a flat surface;
- In order to prevent the possibility of water entering the spool control kit, do not use high pressure washdown directly on the valve;
- before painting, ensure plugs on normally open ports are tightly in place.

### Monoblock valves

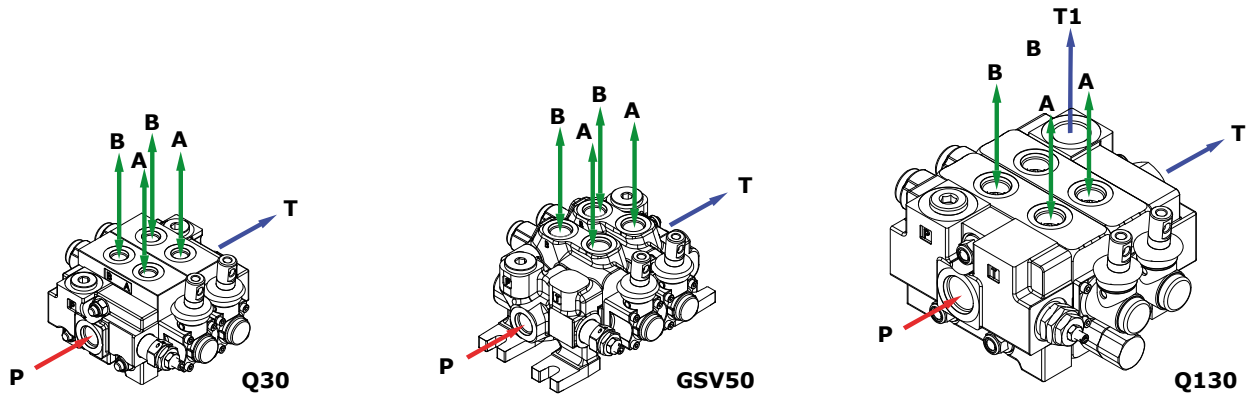


FITTING TIGHTENING TORQUE - Nm / lbft					
THREAD TYPE	P port	A and B ports	T port	Lc port	
<b>Q35</b>	BSP	G 3/8	G 3/8	-	
	With O-Ring seal	35 / 25.8	35 / 25.8	-	
	With copper washer	40 / 29.5	40 / 29.5	-	
	With steel and rubber washer	30 / 22.1	30 / 22.1	-	
	UN-UNF	3/4-16 (SAE 8)	3/4-16 (SAE 8)	3/4-16 (SAE 8)	-
<b>GMV15</b>	With O-Ring seal	50 / 36.9	50 / 36.9	-	
	BSP	G 3/8	G 1/4	G 3/8	G 3/8
	With O-Ring seal	35 / 25.8	25 / 18.4	35 / 25.8	35 / 25.8
	With copper washer	40 / 29.5	30 / 22.1	40 / 29.5	40 / 29.5
	With steel and rubber washer	30 / 22.1	16 / 11.8	30 / 22.1	30 / 22.1
UN-UNF	3/4-16 (SAE 8)	9/16-18 (SAE 6)	3/4-16 (SAE 8)	3/4-16 (SAE 8)	
With O-Ring seal	35 / 25.8	30 / 22.1	35 / 25.8	35 / 25.8	

THREAD TYPE	P and P1 ports		A and B ports		T port	T1 and Lc ports		
	Q25	Q45	Q25	Q45	Q25/Q45	Q25	Q45	
<b>Q25 - Q45</b>	BSP	G 3/8	G 1/2	G 3/8	G 1/2	G 3/8	G 1/2	
	With O-Ring seal	35 / 25.8	50 / 36.9	35 / 25.8	50 / 36.9	50 / 36.9	35 / 25.8	50 / 36.9
	With copper washer	40 / 29.5	60 / 44.3	40 / 29.5	60 / 44.3	60 / 44.3	40 / 29.5	60 / 44.3
	With steel and rubber washer	30 / 22.1	60 / 44.3	30 / 22.1	60 / 44.3	60 / 44.3	30 / 22.1	60 / 44.3
	UN-UNF	9/16-18 (SAE 6)	3/4-16 (SAE 8)	9/16-18 (SAE 6)	3/4-16 (SAE 8)	7/8-14 (SAE 10)	3/4-16 (SAE 8)	3/4-16 (SAE 8)
With O-Ring seal	30 / 22.1	35 / 25.8	30 / 22.1	35 / 25.8	90 / 66.4	35 / 25.8	35 / 25.8	
<b>Q75 - Q95</b>	Q75	Q95	Q75	Q95	Q75/Q95	Q75	Q95	
	BSP	G 1/2	G 3/4	G 1/2	G 3/4	G 1/2	G 3/4	
	With O-Ring seal	50 / 36.9	90 / 66.4	50 / 36.9	90 / 66.4	90 / 66.4	50 / 36.9	90 / 66.4
	With copper washer	60 / 44.3	90 / 66.4	60 / 44.3	90 / 66.4	90 / 66.4	60 / 44.3	90 / 66.4
	With steel and rubber washer	60 / 44.3	70 / 51.6	60 / 44.3	70 / 51.6	70 / 51.6	60 / 44.3	70 / 51.6
UN-UNF	7/8-14 (SAE 10)	1" 1/16-12 (SAE 12)	7/8-14 (SAE 10)	1" 1/16-12 (SAE 12)	1" 1/16-12 (SAE 12)	7/8-14 (SAE 10)	1" 1/16-12 (SAE 12)	
With O-Ring seal	90 / 66.4	95 / 70.1	90 / 66.4	95 / 70.1	95 / 70.1	90 / 66.4	95 / 70.1	

NOTE - These torques are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finish.

Sectional valves



FITTING TIGHTENING TORQUE - Nm / lbft						
THREAD TYPE	P and P1 ports		A and B ports		T port	T1 and Lc ports
	Q30	Q50	Q30	Q50	Q30/Q50	Q30/ Q50
<b>Q30 - Q50</b>	BSP	G 3/8	G 1/2	G 3/8	G 1/2	G 1/2
	With O-Ring seal	35 / 25.8	50 / 36.9	35 / 25.8	50 / 36.9	50 / 36.9
	With copper washer	40 / 29.5	60 / 44.3	40 / 29.5	60 / 44.3	60 / 44.3
	With steel and rubber washer	30 / 22.1	60 / 44.3	30 / 22.1	60 / 44.3	60 / 44.3
	UN-UNF	3/4-16 (SAE 8)	3/4-16 (SAE 8)	9/16-18 (SAE 6)	3/4-16 (SAE 8)	7/8-14 (SAE 10)
With O-Ring seal	35 / 25.8	35 / 25.8	30 / 22.1	35 / 25.8	90 / 66.4	35 / 25.8
<b>GSV50</b>	BSP	G 1/2		G 1/2		G 1/2
	With O-Ring seal	50 / 36.9		50 / 36.9		50 / 36.9
	With copper washer	60 / 44.3		60 / 44.3		60 / 44.3
	With steel and rubber washer	60 / 44.3		60 / 44.3		60 / 44.3
	UN-UNF	3/4-16 (SAE 8)		3/4-16 (SAE 8)		7/8-14 (SAE 10)
With O-Ring seal	35 / 25.8		35 / 25.8		90 / 66.4	35 / 25.8
<b>Q80</b>	BSP	G 1/2 - G 3/4		G 1/2 - G 3/4		G 3/4
	With O-Ring seal	50 / 36.9 - 90 / 66.4		50 / 36.9 - 90 / 66.4		90 / 66.4
	With copper washer	60 / 44.3 - 90 / 66.4		60 / 44.3 - 90 / 66.4		90 / 66.4
	With steel and rubber washer	60 / 44.3 - 70 / 51.6		60 / 44.3 - 70 / 51.6		70 / 51.6
	UN-UNF	7/8-14 (SAE 10)		3/4-16 (SAE 8)		1" 1/16-12 (SAE 12)
With O-Ring seal	90 / 66.4		35 / 25.8		95 / 70.1	90 / 66.4
<b>Q130</b>	BSP	G 3/4 - G 1"		G 3/4 - G 1"		G 1"
	With O-Ring seal	90 / 66.4 - 100 / 73.8		90 / 66.4 - 100 / 73.8		100 / 73.8
	With copper washer	90 / 66.4 - 90 / 66.4		90 / 66.4 - 90 / 66.4		90 / 66.4
	With steel and rubber washer	70 / 51.6 - 100 / 73.8		70 / 51.6 - 100 / 73.8		100 / 73.8
	UN-UNF	1" 5/16-12 (SAE 16)		1" 5/16-12 (SAE 16)		1" 5/16-12 (SAE 16)
With O-Ring seal	150 / 100.6		150 / 100.6		150 / 100.6	150 / 100.6

NOTE - These torques are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finish.







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