



## 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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## 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)

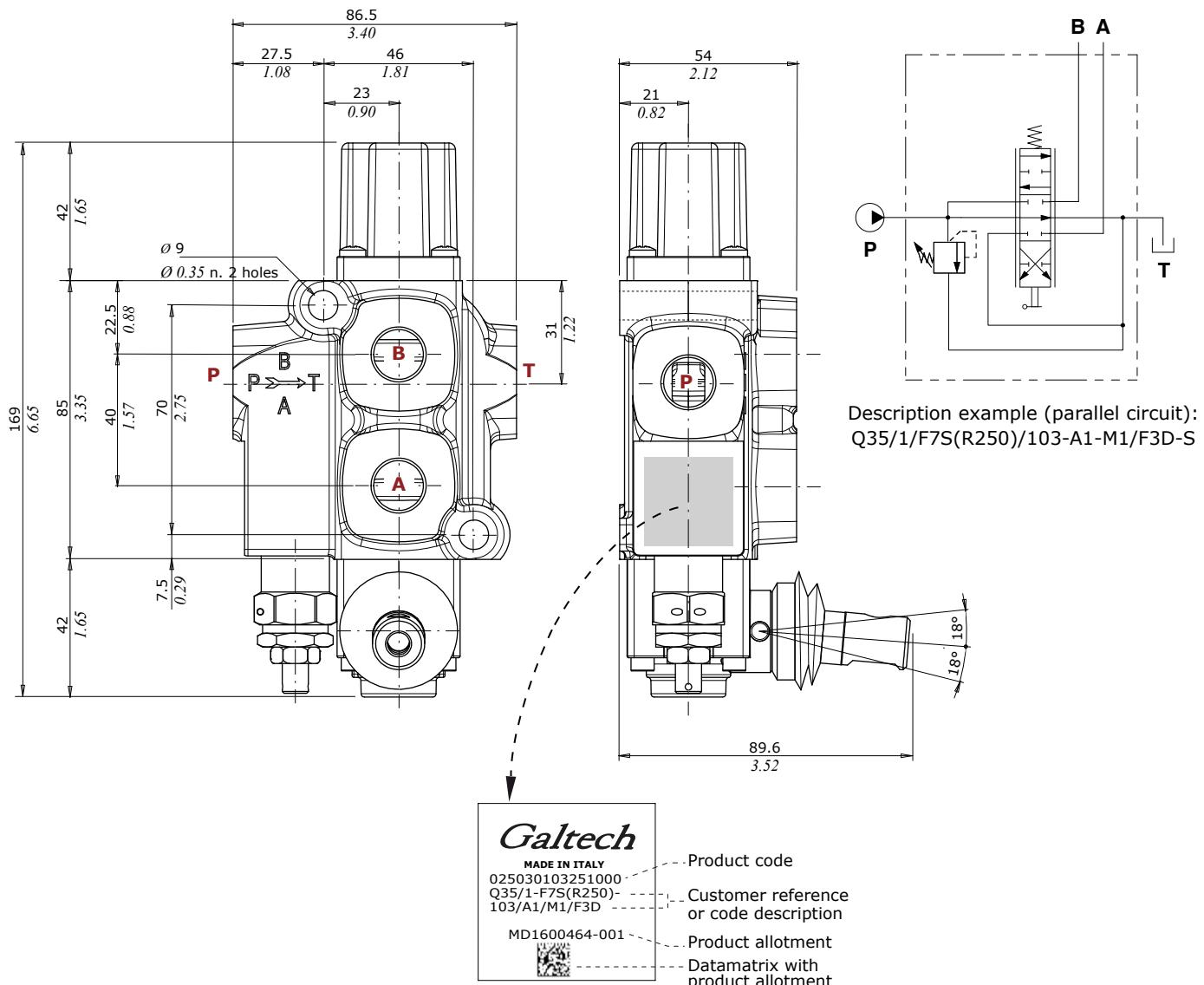
#### REFERENCE STANDARD

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

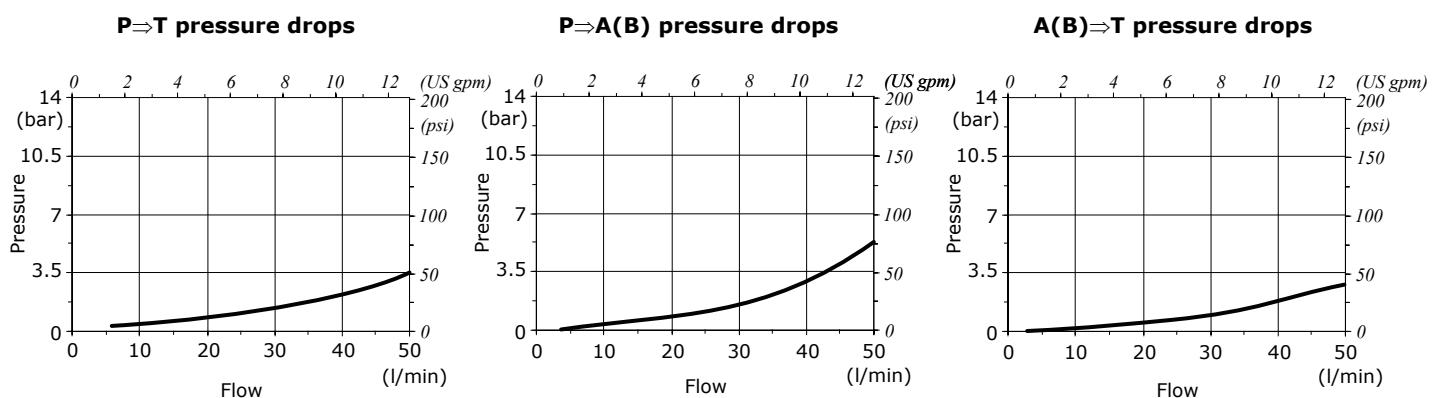
#### PORT THREADING

POR TS	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



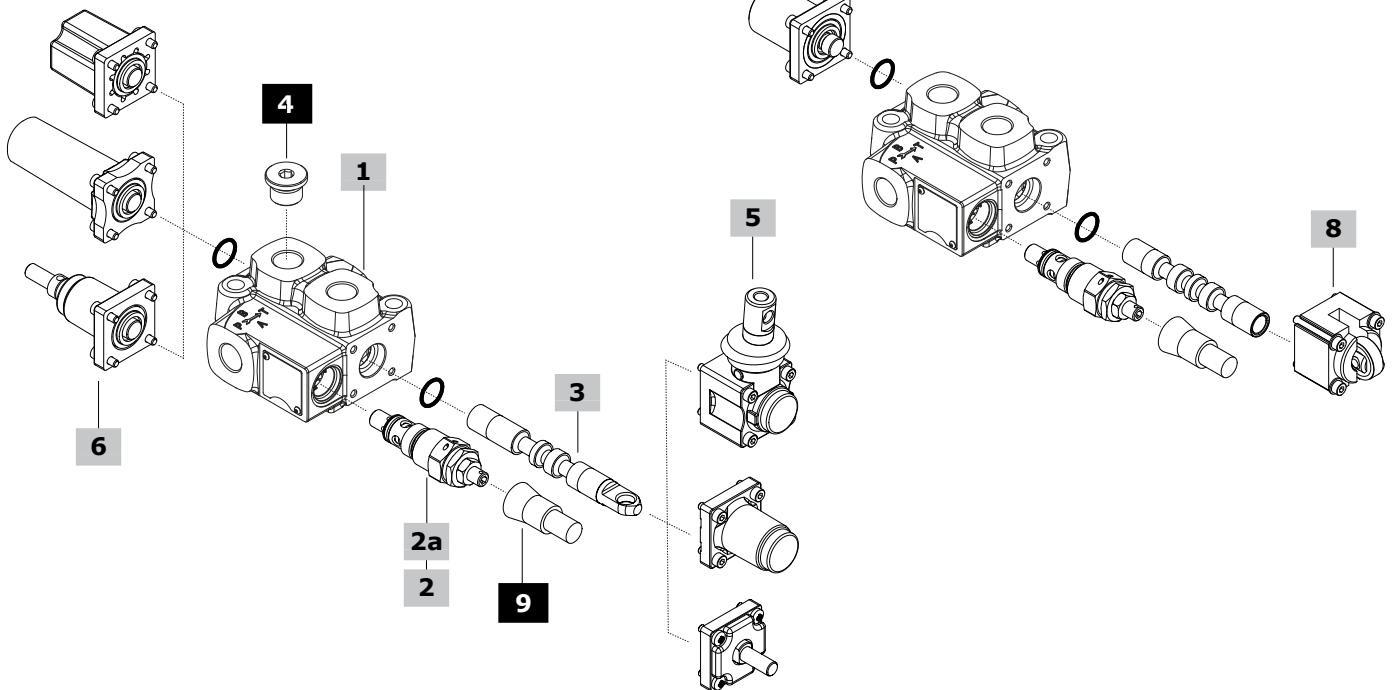
NOTE: Drawings and dimensions are referred to a **BSP** threading configuration.

**Parts ordering codes****Mechanical control valve configuration example**

valve setting (bar)

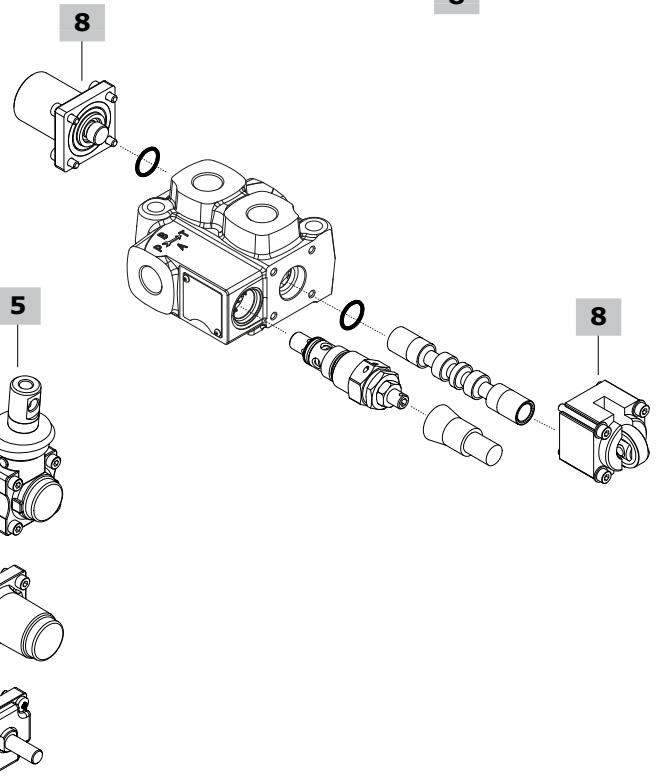
**Q35 / 1 / F7S (R250) / 103 - A1 - M1 / F3D - S**

<b>1</b>	<b>2</b>	<b>2a</b>	<b>3</b>	<b>5</b>	<b>6</b>	open center	aluminium controls
N. of section							

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

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

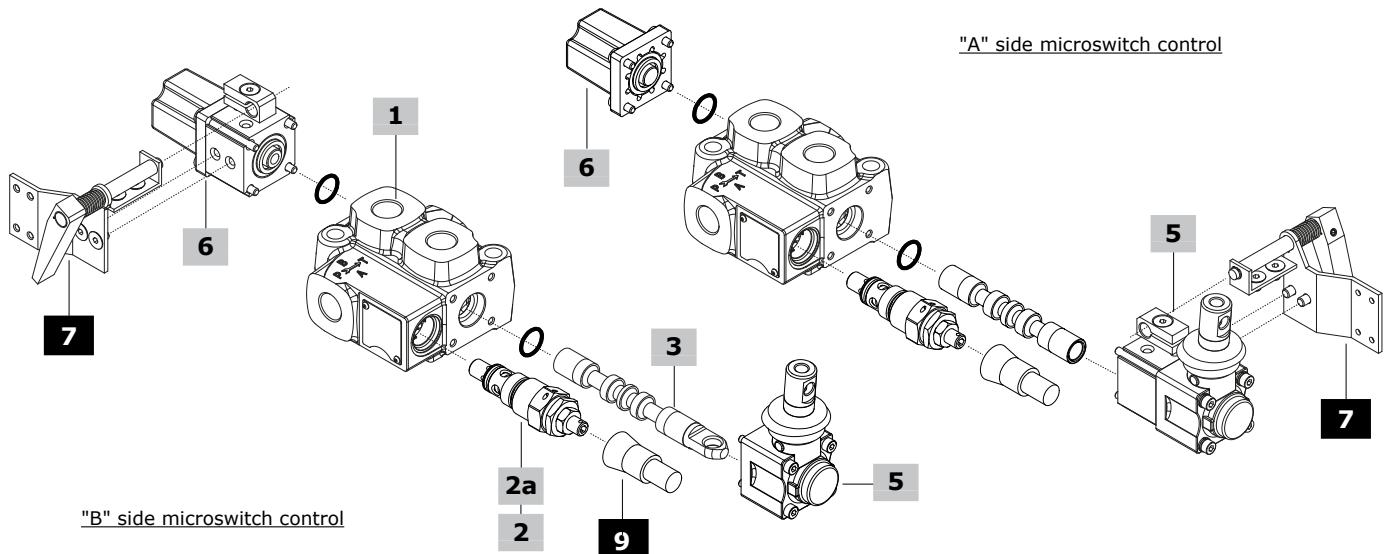
<b>8</b>
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**Microswitch control valve configuration example**

valve setting (bar)

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

<b>1</b>	<b>2</b>	<b>2a</b>	<b>3</b>	<b>5</b>	<b>6</b>	open center	aluminium controls
N. of section							



## Parts ordering codes

### 1 Body kit\*

The code are referred to sections with O-ring seals

TYPE CODE DESCRIPTION

**Q35/1** 5KC0600127954 1 section

### 2 Inlet configuration

page 9

TYPE DESCRIPTION

**F7S** With pressure relief valve

**F8S** Without valves (pressure relief valve plugged port)

### 2a Main pressure relief valve

page 9

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: Without valves (pressure relief valve plugged port)

### 3 Spool

page 10

TYPE CODE DESCRIPTION

#### Standard spools

**103** KR35103 Double acting, A and B closed in neutral pos.

KR35103N As previous one, negative overlap

**111** KR35111 Double acting, A and B to tank in neutral pos.

**101** KR35101-102 Single acting on port A.

G3/8 plug is required, see #4

**102** KR35101-102 Single acting on port B.

G3/8 plug is required, see #4

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

**103** 3CUG2800600 Double acting, A and B closed in neutral pos.

**111** 3CUG2807300 Double acting, A and B to tank in neutral pos.

### 4 Plug for single acting spool\*

TYPE CODE DESCRIPTION

- 060002792199 G3/8 plug

### 5 A side control

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TYPE CODE DESCRIPTION

#### For standard spools

##### With lever control:

**A1** 03600A1-A2 M8 thread plastic lever box

**A2** 03600A1-A2 As A1 type, with lever box rotated 180°

**A1/10** 03610A1-A2/10 M8 thread aluminium lever box

**A2/10** 03610A1-A2/10 As A1/10 type, with lever box rotated 180°

**A1/PM** 03610A1-A2/PM M10 thread aluminium lever box

**A2/PM** 03610A1-A2/PM As A1/PM type, with lever box rotated 180°

**A1/PMP** 03610A1-A2/PMP M10 thread plastic lever box

**A2/PMP** 03610A1-A2/PMP As A1/PMP type, with lever box rotated 180°

##### With safety lever control:

**A1/S<sup>(1)</sup>** 03624A1-A2/S M8 thread aluminium lever box

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

##### Without lever control:

**A8** 03622A8/03 Flexible cable control arrangement

#### For types 103 and 111 special spools

##### With spool position microswitch:

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

**N1-A1** 03641N1-A1/A2 Micro operation in pos. 1 and 2, with lever box

**N1A-A1** 03642N1A-A1/A2 Micro operation in pos. 1, with lever box

**N1B-A1** 03643N1BA1/A2L Micro operation in pos. 2, with lever box

**N1-A3** 03648N1-A3L Micro operation in pos. 1 and 2, without lever with cap

**N1A-A3** 03648N1A-A3L Micro operation in pos. 1, without lever with cap

**N1B-A3** 03648N1B-A3L Micro operation in pos. 2, without lever with cap

### 5 A side control (cont.)

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TYPE CODE DESCRIPTION

#### For types 103 and 111 special spools

##### Without lever control:

**A3** 03614A3 Without lever, with cap

03614A3/03 As previous one, with aluminium cap

**A4** 03617A4 M8 male thread external pin with flange

03617A4/03 As previous one, with aluminium flange

**A5<sup>(2)</sup>** 03619A5 Flange with spherical spool end

### 6 B side control

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TYPE CODE DESCRIPTION

#### With spring return:

**M1** 03730M1 3 pos., spring return in neutral position

03730M1/03 As previous one, with aluminium cap

**M1-U1** 03701M1-U1 As M1 type, with M8 male thread

external pin

**M2** 03732M2 2 pos. (0-1), spring return in neutral position

03732M2/03 As previous one, with aluminium cap

**M2-U1** 03702M2-U1 As M2 type, with M8 male thread

external pin

**M3** 03733M3 2 pos. (0-2), spring return in neutral position

03733M3/03 As previous one, with aluminium cap

**M3-U1** 03703M3-U1 As M3 type, with M8 male thread

external pin

**M4-U1** 03704M4-U11-2 2 pos. (1-2), spring return in pos. 1, with M8 male thread external pin

#### With flexible cable control arrangement:

**M1-U2** 03715M1-U2 3 pos., spring return in neutral position

**M2-U2** 03716M2-U2 2 pos. (0-1), spring return in neutral position

#### With detent:

**R1** 03741R1 3 pos., detent in position 1

03741R1/03 As previous one, with aluminium cap

**R2** 03742R2 3 pos., detent in position 2

03742R2/03 As previous one, with aluminium cap

**R3** 03743R3 3 pos., detent in all position

03743R3/03 As previous one, with aluminium cap

#### With spool position microswitch:

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

**M1-N1** 03766M1-N1 3 pos., micro operation in pos. 1 and 2, spring return in neutral position

**M1-N1A** 03767M1-N1AL As M1-N1 type, micro operation in pos. 1

**M1-N1B** 03768M1-N1BL As M1-N1 type, micro operation in pos. 2

**M2-N1** 03769M2-N1L 2 pos. (0-1), spring return in neutral position

**M3-N1** 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

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TYPE CODE DESCRIPTION

#### For types 103 and 111 special spools

**C2** 03792C2-C3 Cam control from position 1 to 2

**C3** 03792C2-C3 Cam control from position 2 to 1

### 9 Accessory

TYPE CODE DESCRIPTION

- 4COP120420 Antitamper cap for pressure relief valve

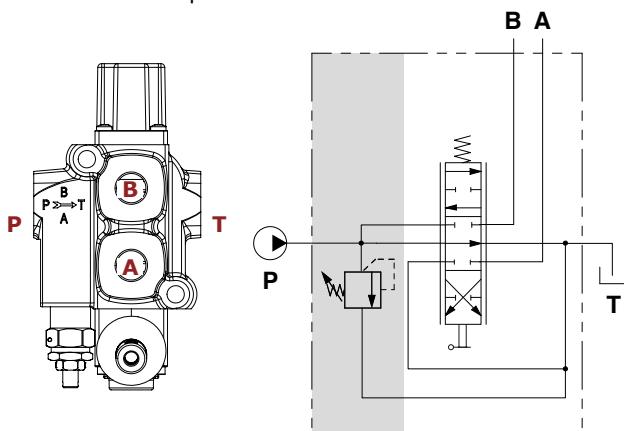
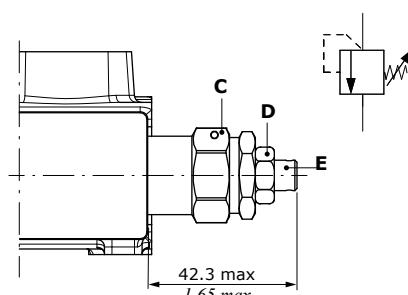
(\*): Codes are referred to **BSP** thread

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

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

**Main pressure relief valve****F7S configuration**

With pressure relief valve

**Main pressure relief valve****Wrenches and tightening torques**

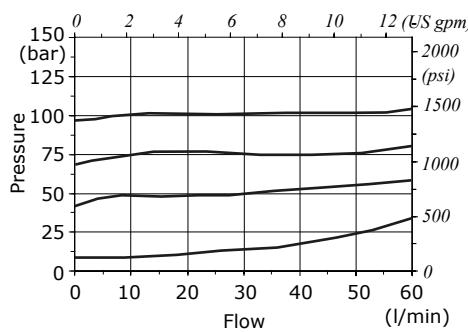
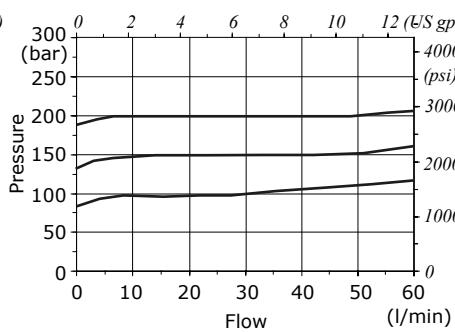
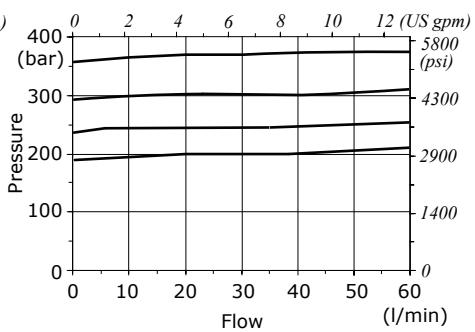
C = wrench 22 - 42 Nm (30.9 lbf)

D = wrench 13 - 24 Nm (17.7 lbf)

E = allen wrench 4

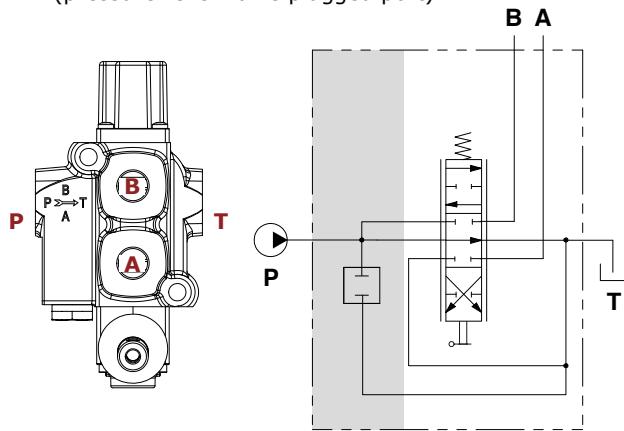
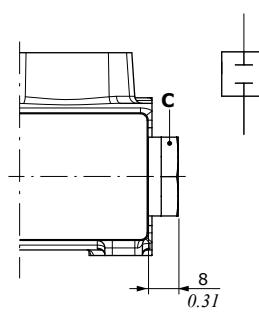
**Spring type      Setting ranges (bar - psi)**

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

**Setting example (B type spring)****Setting example (N type spring)****Setting example (R type spring)****F8S configuration**

Without valves

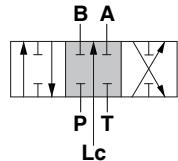
(pressure relief valve plugged port)

**Relief valve blanking plug**

## Spool

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

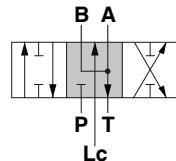
2 0 1



**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

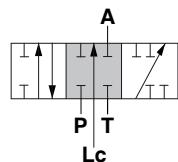
2 0 1



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

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

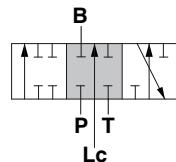
2 0 1



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

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

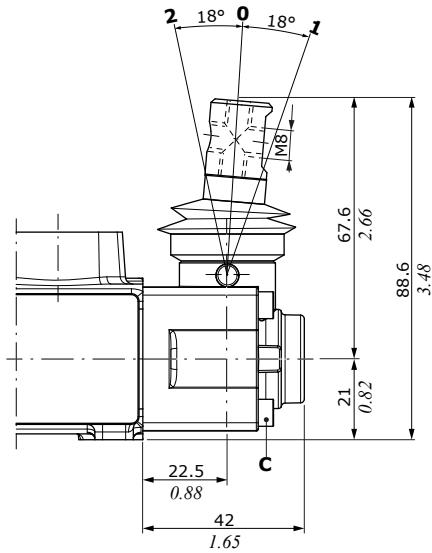
2 0 1



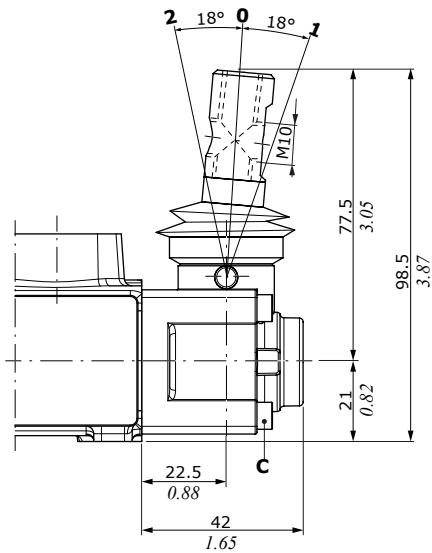
**Stroke**  
Position 1: + 5 mm (+ 0.19 in)  
Position 2: - 5 mm (- 0.19 in)

**A side controls****Mechanical controls****With lever control****A1 type**

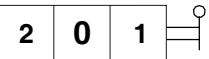
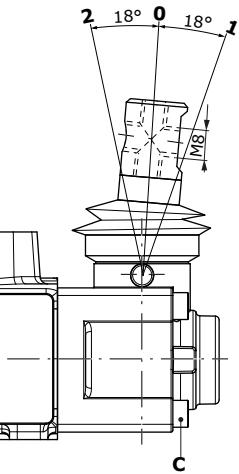
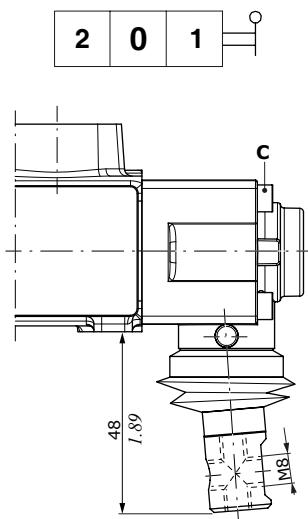
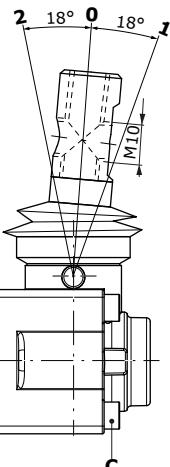
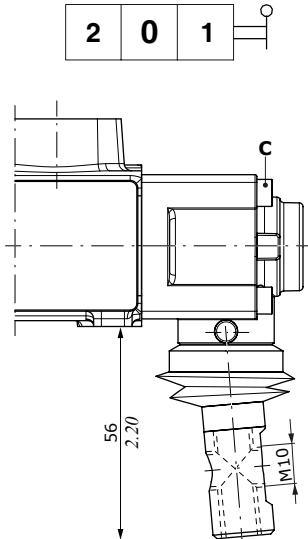
M8 thread plastic lever box

**A1/PM type**

M10 thread aluminium lever box

**A1/10 type**

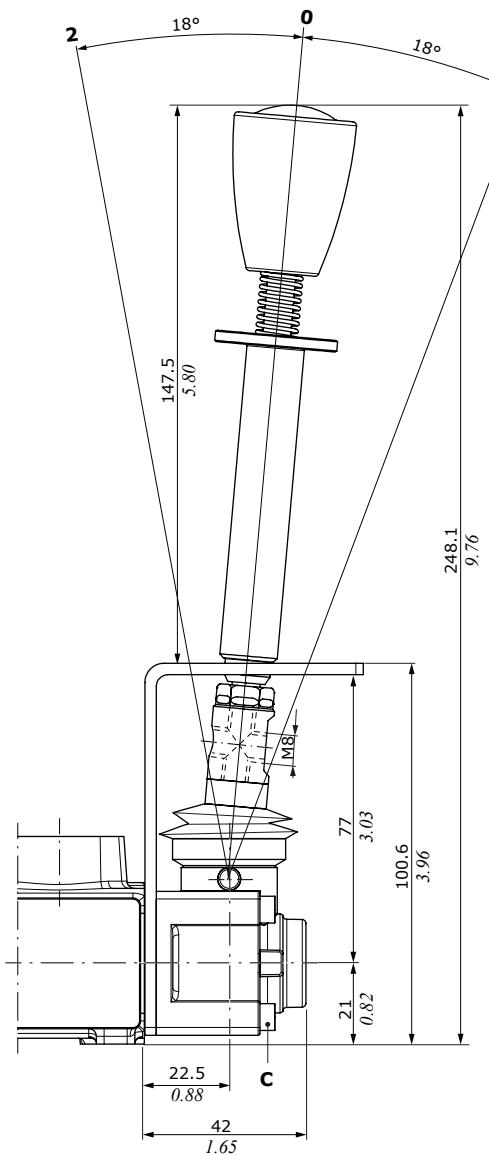
M8 thread aluminium lever box.

Dimensions are the same  
of A1 type**A2/10 type**As A1/10 type,  
rotated 180°**A2 type**  
As A1 type, rotated 180°**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°

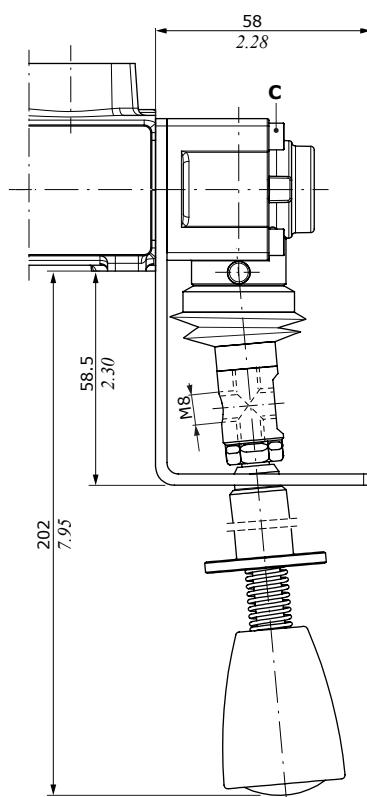
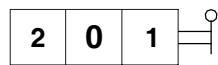
**Wrenches and tightening torques**  
C = allen wrench 3 - 3 Nm (2.2 lbft)

**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°

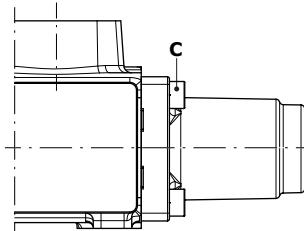
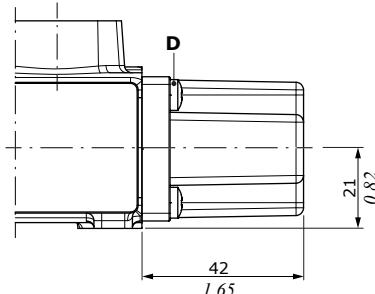
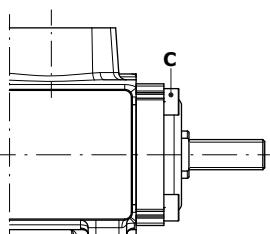
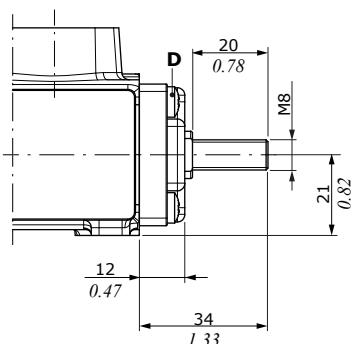
**Wrenches and tightening torques**

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

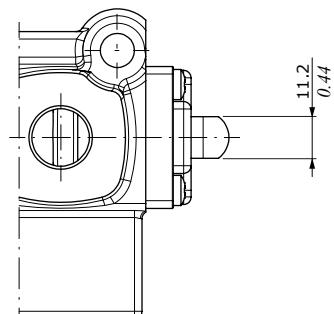
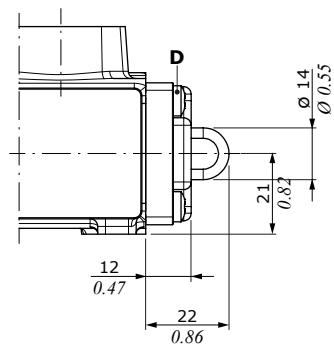
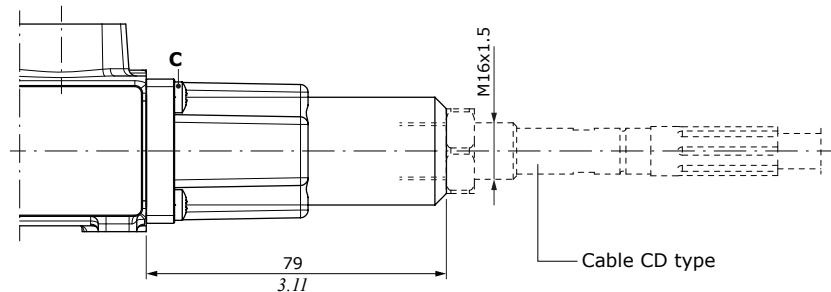
**A side controls****Mechanical controls****Without lever control****A3 type**

With cap.

Available with aluminium cap

**A4 type**M8 male thread external pin with flange.  
Available with aluminium flange**A5 type**

Flange with spherical spool end

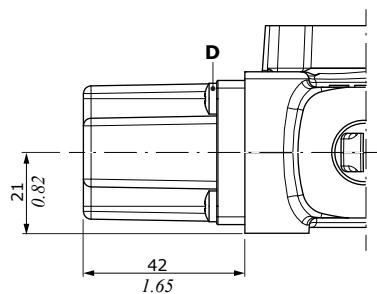
**With flexible cable control arrangement****A8 type**With flexible cable control  
arrangement

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

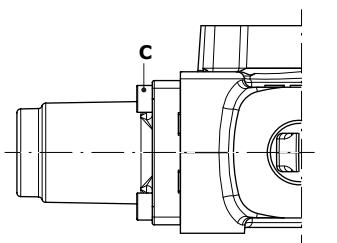
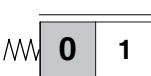


**B side controls****Mechanical controls****With spring return control****M1 type**

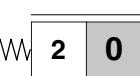
3 position, spring return in neutral position.  
Available with aluminium cap

**M2 type**

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

**M3 type**

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

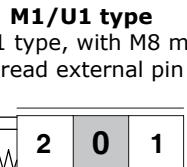


With aluminium cap;  
dimensions are the same of standard type

**Wrenches and tightening torques**

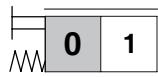
C = allen wrench 3 - 3 Nm (2.2 lbft)

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



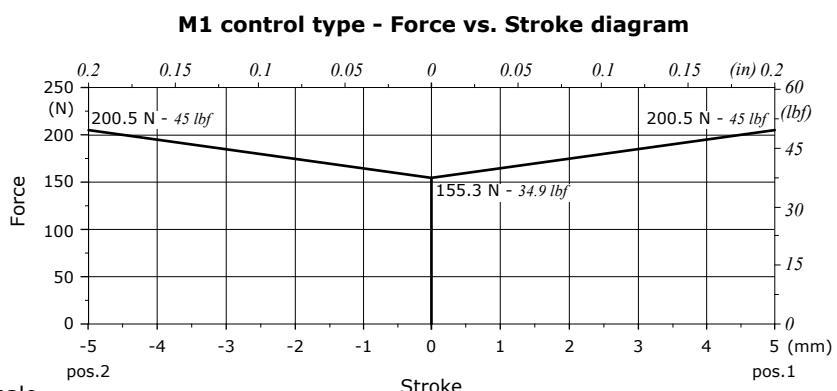
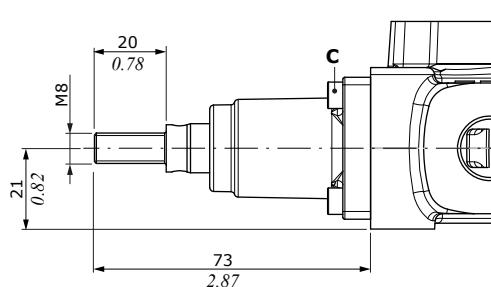
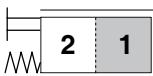
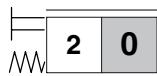
**M1/U1 type**  
As M1 type, with M8 male thread external pin

**M2/U1 type**  
As M2 type, with M8 male thread external pin

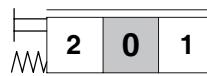


**M3/U1 type**  
As M3 type, with M8 male thread external pin

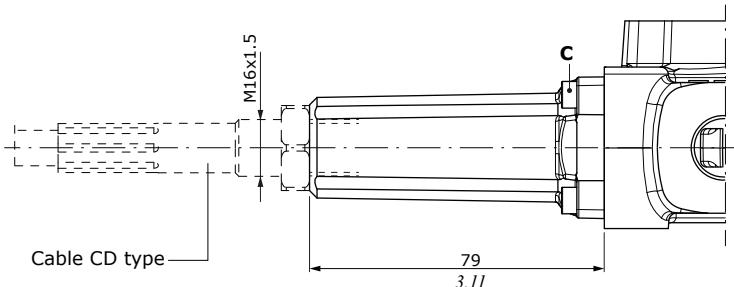
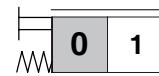
**M4/U1 type**  
2 position (1-2), spring return in pos. 1, with M8 male thread external pin

**With flexible cable control arrangement****M1/U2 type**

3 position, spring return in neutral position

**M2/U2 type**

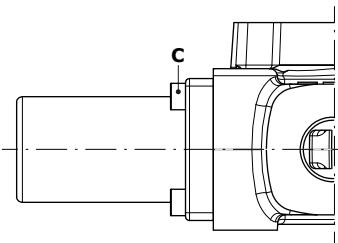
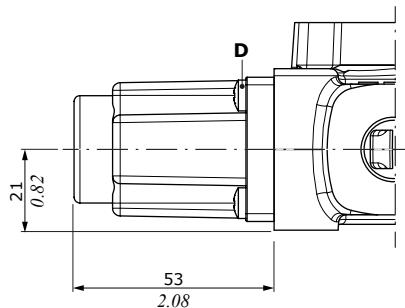
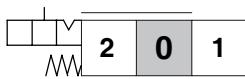
2 position (0-1), spring return in neutral position



**B side controls****Mechanical controls****With detent control****R1 type**

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

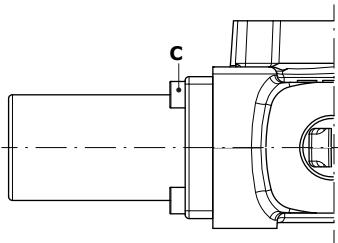
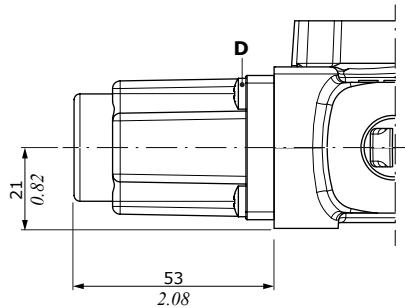
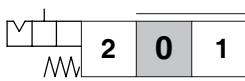
**Wrenches and tightening torques**  
C = allen wrench 3 - 3 Nm (2.2 lbf)  
D = cross-head - 3 Nm (2.2 lbf)



With aluminium cap;  
dimensions are the same of standard type

**R2 type**

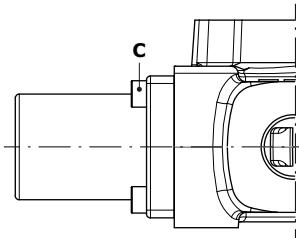
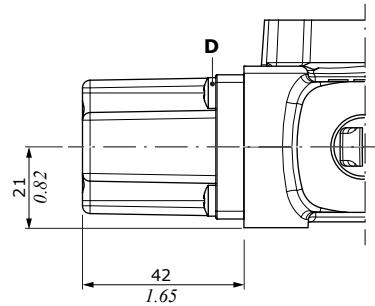
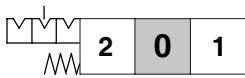
3 position, detent in position 2.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

**R3 type**

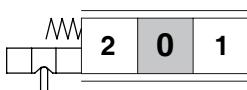
3 position, detent in all position.  
Available with aluminium cap



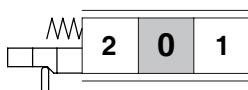
With aluminium cap;  
dimensions are the same of standard type

**B side controls****Spool position microswitch****M1-N1 type**

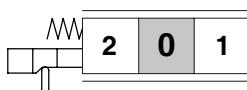
3 position, micro operation  
in position 1 and 2,  
spring return in neutral  
position

**M1-N1A type**

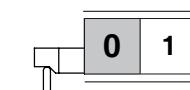
3 position, micro operation  
in position 1

**M1-N1B type**

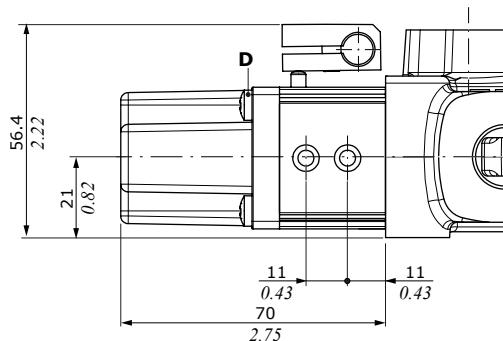
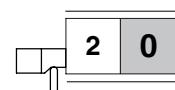
3 position, micro operation  
in position 2

**M2-N1 type**

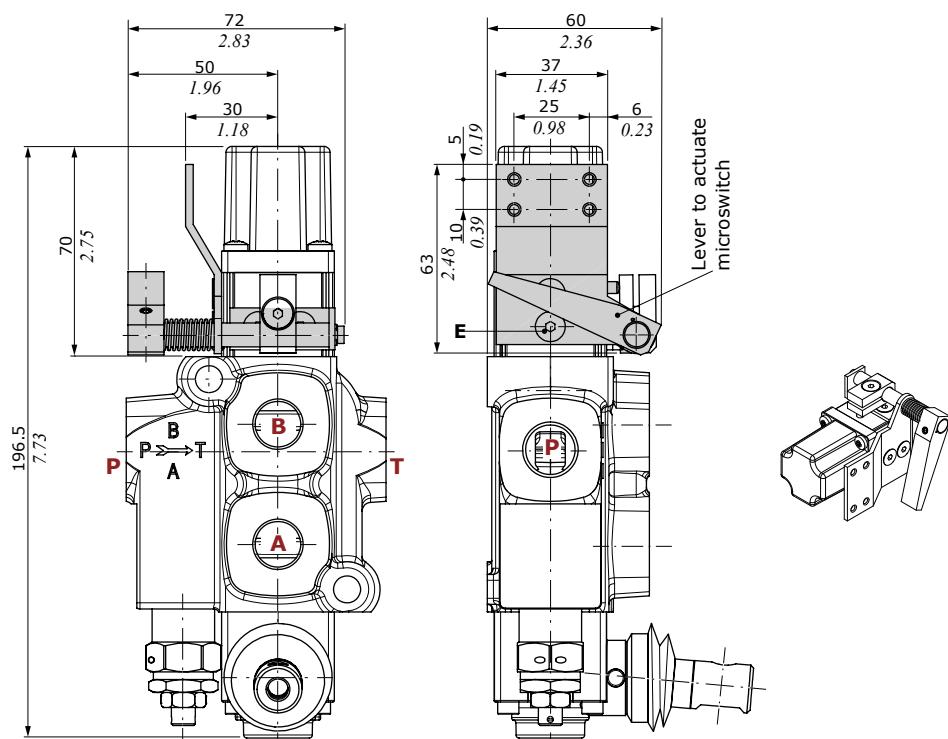
2 position (0-1),  
spring return in  
neutral position

**M3-N1 type**

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

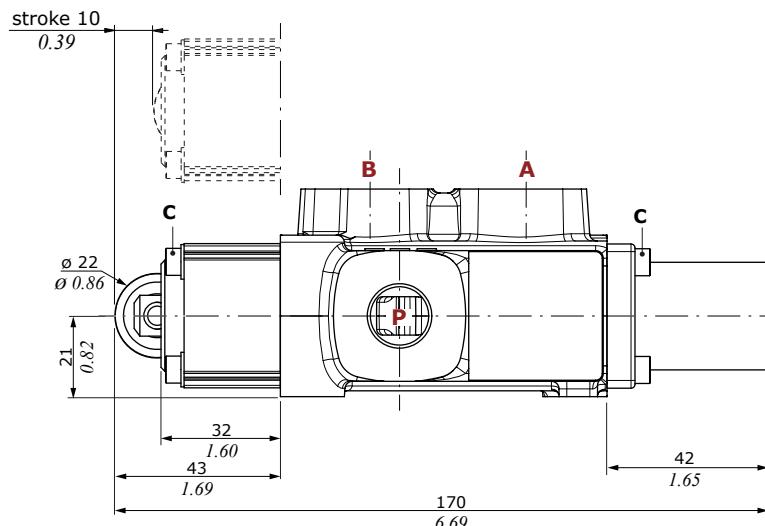
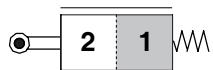


**Wrenches and tightening torques**  
D = cross-head - 3 Nm (2.2 lbf)  
E = allen wrench 3 - 6.6 Nm (4.8 lbf)

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

**A+B side controls****With cam control**

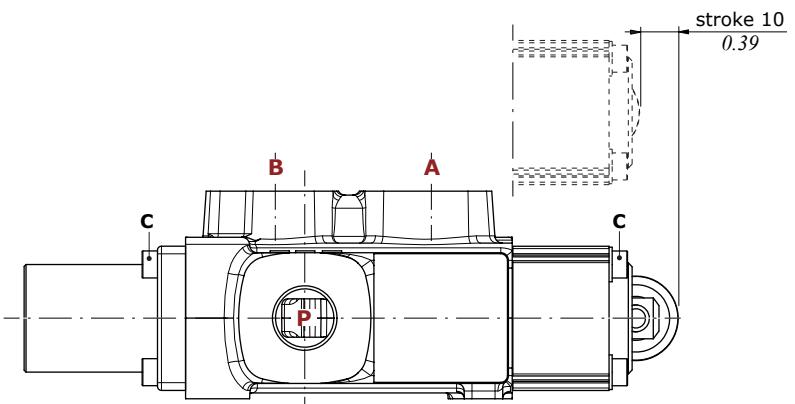
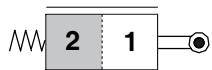
**C2 type**  
From position 1 to position 2,  
spring return in position 1



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

**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  $46 \text{ mm}^2/\text{s}$  -  $46 \text{ cSt}$  viscosity at  $40^\circ\text{C}$  -  $104^\circ\text{F}$  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. $5 \text{ cm}^3/\text{min}$ (0.30 in <sup>3</sup> /min)
Fluid	Mineral oil	
Fluid temperature	with NBR (BUNA-N) seals	from $-30^\circ\text{C}$ to $80^\circ\text{C}$ - from $-22^\circ\text{F}$ to $176^\circ\text{F}$
Viscosity	operating range	from 10 to $400 \text{ mm}^2/\text{s}$ - from 10 to $400 \text{ cSt}$
Max. contamination level	16/14/12 - ISO 4406 - NAS 1638 class 6	
Ambient temperature	without electric devices	from $-40^\circ\text{C}$ to $60^\circ\text{C}$ - from $40^\circ\text{F}$ to $140^\circ\text{F}$
	with electric devices	from $-20^\circ\text{C}$ to $50^\circ\text{C}$ - from $-4^\circ\text{F}$ to $122^\circ\text{F}$

NOTE - For different conditions please contact our Sales Department.

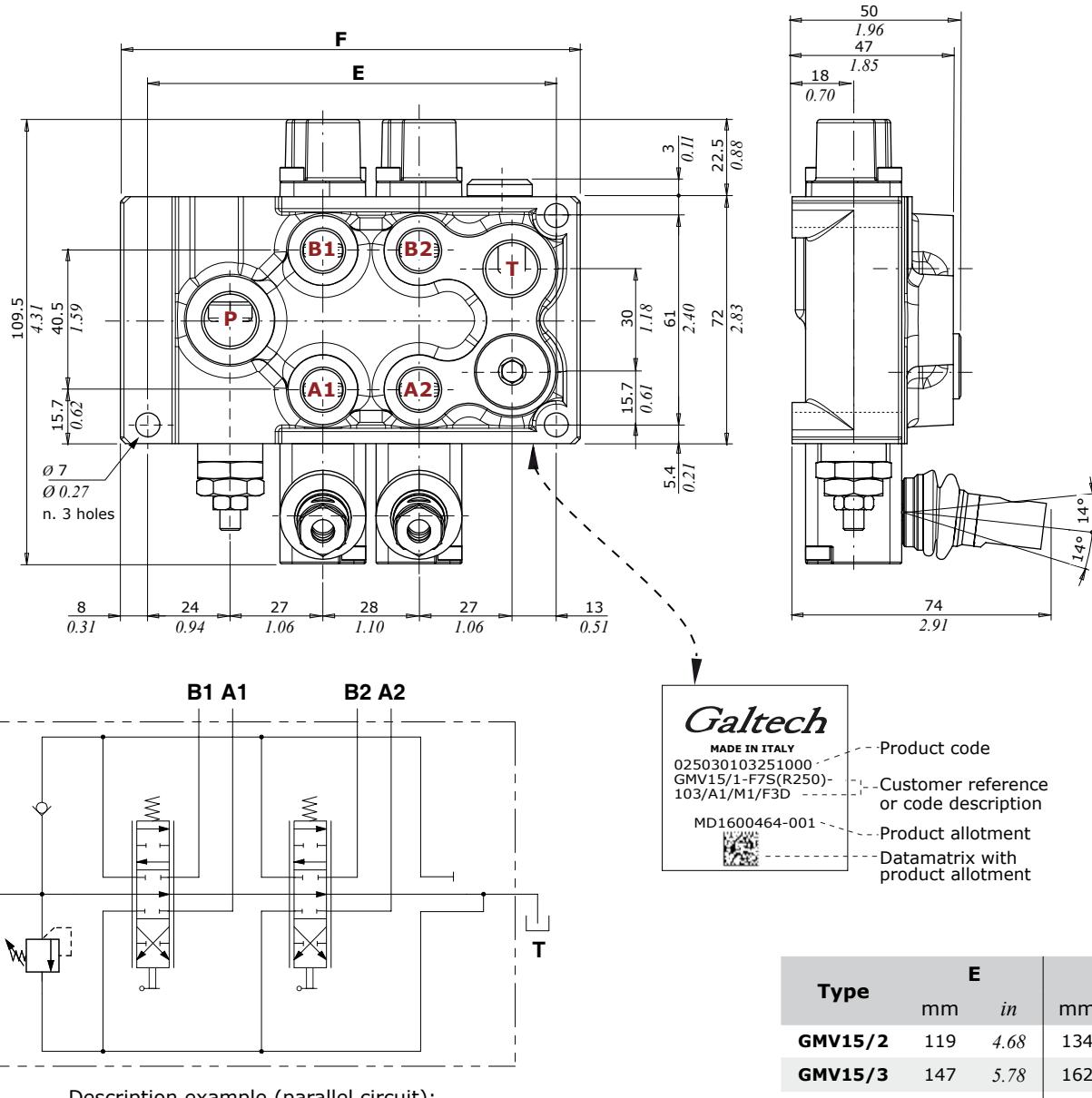
#### REFERENCE STANDARD

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

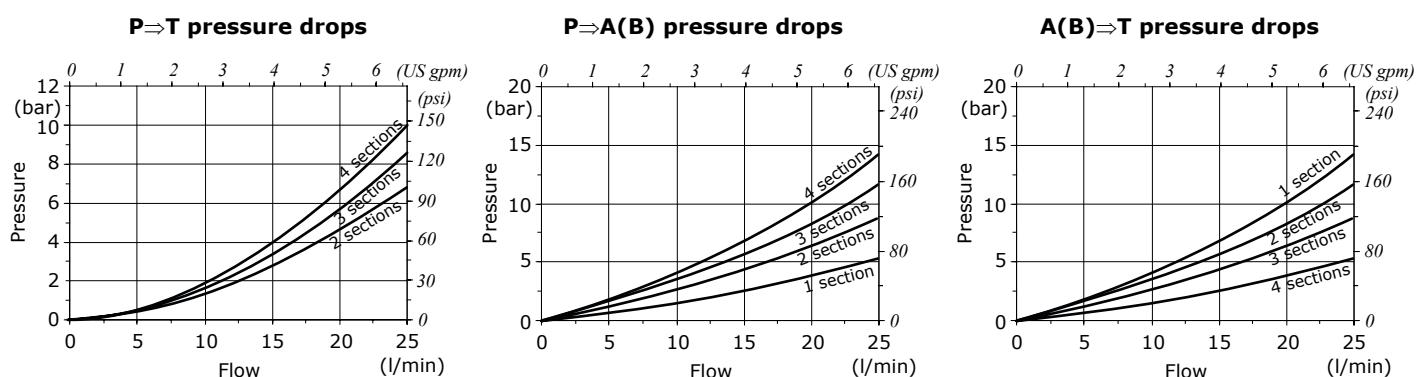
#### PORT THREADING

POR TS	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 (Carry-over)	G 3/8	3/4-16 (SAE 8)

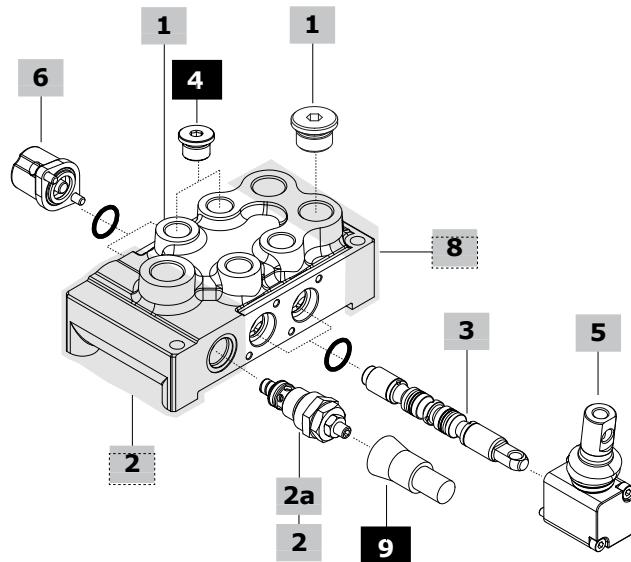
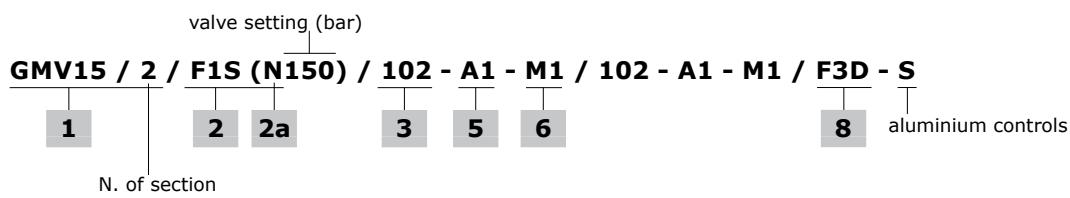
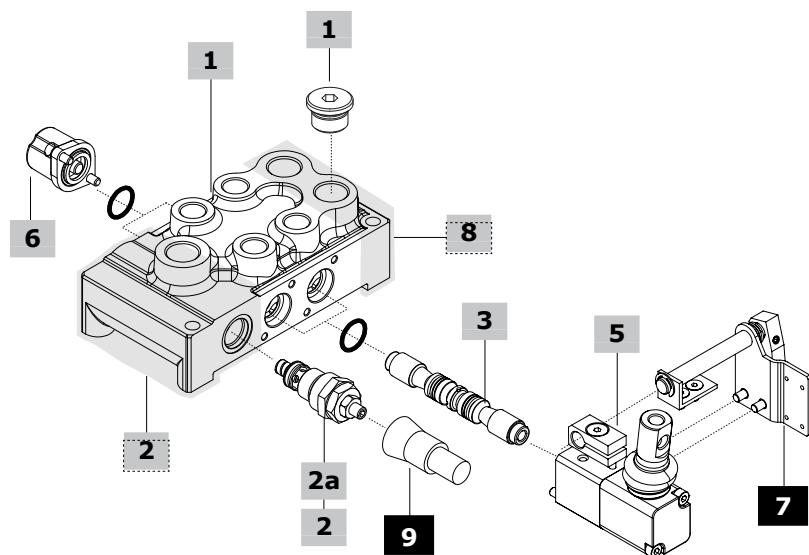
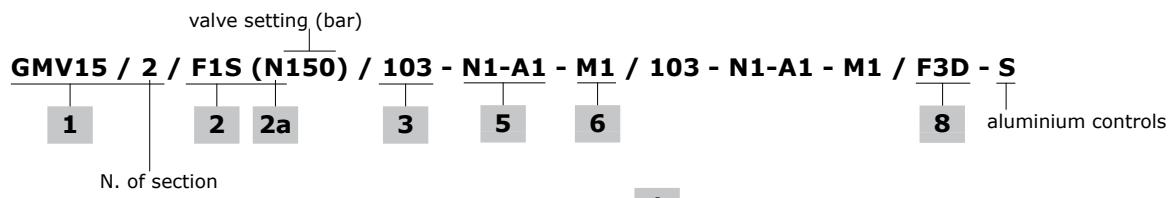
## Dimensional data and hydraulic circuit



## Performance data



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

**Parts ordering codes****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</b>	5KC0600131995	2 sections
<b>GMV15/3</b>	5KC0600132000	3 sections
<b>GMV15/4</b>	5KC0600132004	4 sections

**2 Inlet configuration**

page 24

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

**2a Main pressure relief valve**

page 24

TYPE: B	CODE	DESCRIPTION
DESCRIPTION: VLP15S valve, setting range 10-100 bar (145-1450 psi)		
TYPE: N	CODE: 7000151000000000	
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. G1/4 plug is required, see #4
<b>102</b>	KR15101-102	Single acting on port B. G1/4 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
<b>Special spool for microswitch control</b>		
<b>111</b>	060103286899	Double acting, A and B to tank in neutral position

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

TYPE	CODE	DESCRIPTION
-	060002930399	G1/4 plug

**5 A side control**

page 26

TYPE	CODE	DESCRIPTION
<b>For standard spools</b>		
With lever control:		
<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>		
With spool position microswitch:		
<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
With spring return:		
<b>M1</b>	01530M1	3 pos., spring return in neutral position
With detent:		
<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

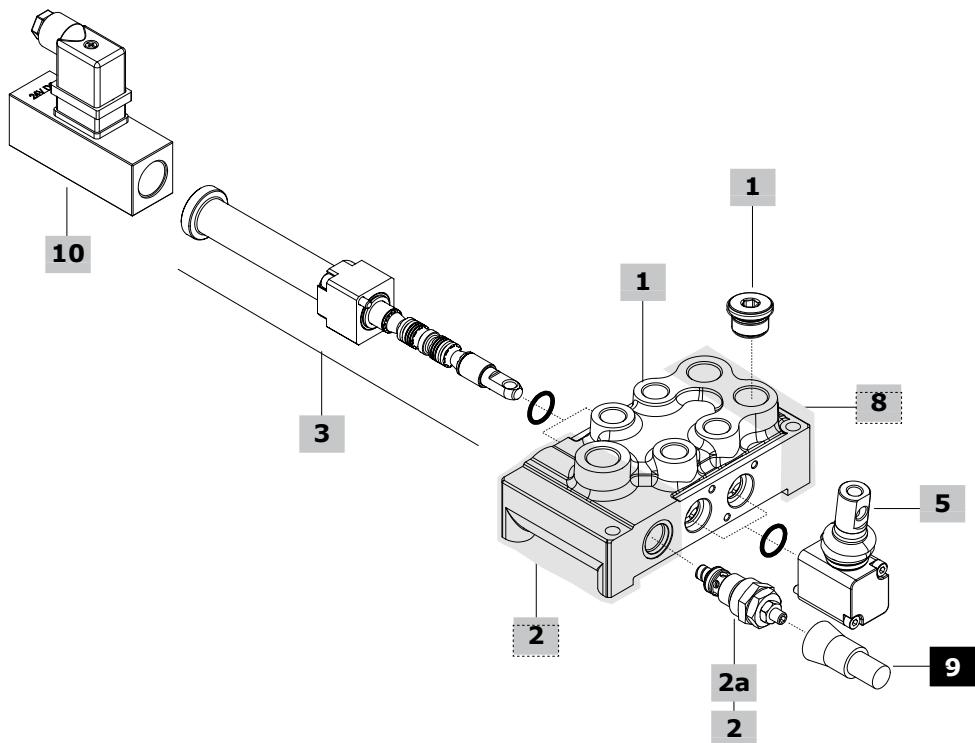
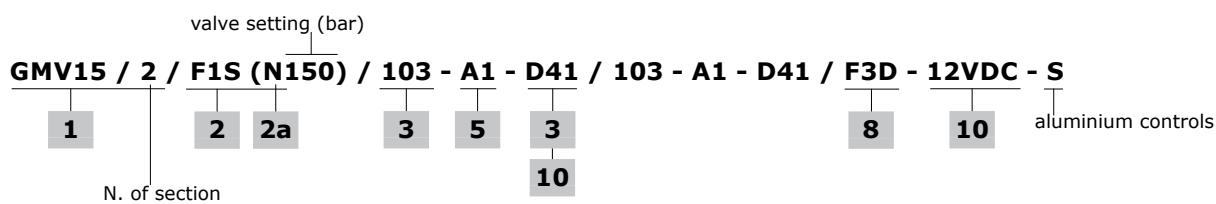
TYPE	DESCRIPTION
<b>F3D</b>	
<b>F3D</b>	Open center configuration: n. 1 G3/8 plug code 060002792199; n. 1 G1/4 plug code 060002930399
<b>F6D</b>	
<b>F6D</b>	Closed center configuration: n. 1 G1/8 conical plug code 251001; n. 1 G1/4 plug code 060002930399
<b>F16D</b>	
<b>F16D</b>	Carry-over configuration: n. 1 G1/8 conical plug code 251001; n. 1 G3/8 plug code 060002792199; n. 1 G1/4 plug code 060002930399

**9 Accessory**

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

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

## Parts ordering codes

**One side - ON/OFF direct solenoid control valve configuration example****1 Body kit\***

The codes are referred to sections with O-ring seals

TYPE	CODE	DESCRIPTION
<b>GMV15/2</b>	5KC0600131995D41	2 sections
<b>GMV15/3</b>	5KC0600132000D41	3 sections
<b>GMV15/4</b>	5KC0600132004D41	4 sections

**2 Inlet configuration**

**page 24**

See #2, page 22

**2a Main pressure relief valve**

**page 24**

See #2a, page 22

**3 Solenoid control**

**page 29**

TYPE	CODE	DESCRIPTION
<b>103</b>	X0601032073	Tube assembly with double acting spool, A and B closed in neutral position
<b>111</b>	X0601032168	Tube assembly with double acting spool, A and B to tank in neutral position, negative overlap

**5 A side control**

**page 29**

TYPE	CODE	DESCRIPTION
<b>A1</b>	060003160199	M8 thread cast iron lever box
<b>A2</b>	060003160199	As A1 type, with lever box rotated 180°
-	100004035	M4 screws for A1/A2 lever boxes assembling: n. 2 pcs required

**8 Outlet configuration\***

**page 30**

See #8, page 22

**9 Accessory**

See #9, page 22

**10 Coil**

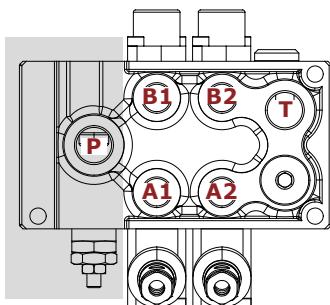
**page 29**

TYPE	CODE	DESCRIPTION
-	ZEB212	12 VDC ISO4400 coil
-	ZEB224	24 VDC ISO4400 coil

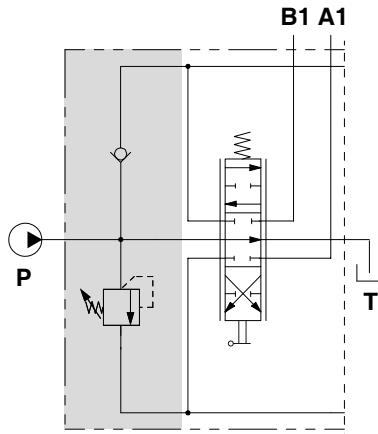
**Note:** The connector is included

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

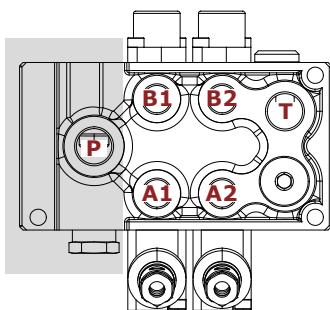
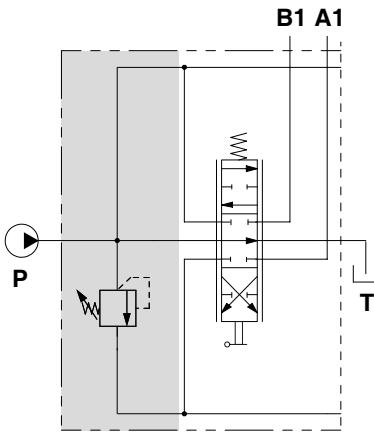
## Inlet configuration



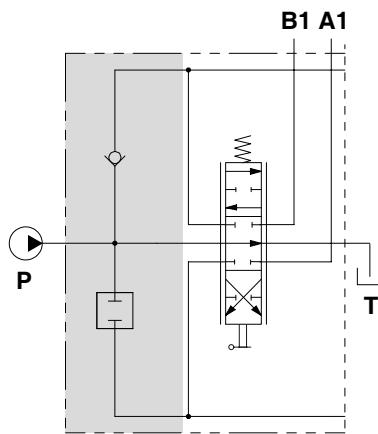
**F1S configuration**  
With load check and pressure relief valve



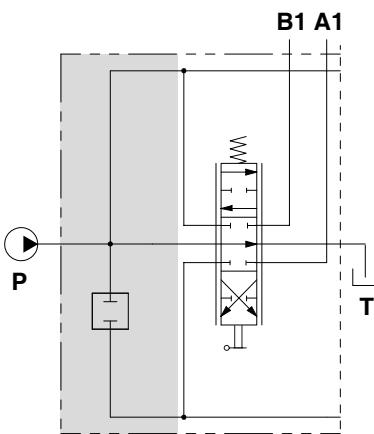
**F7S configuration**  
With pressure relief valve



**F2S configuration**  
With load check valve

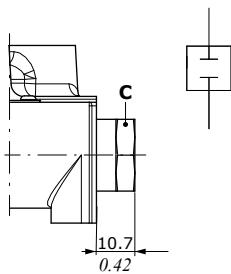


**F8S configuration**  
Without valves  
(pressure relief valve plugged port)

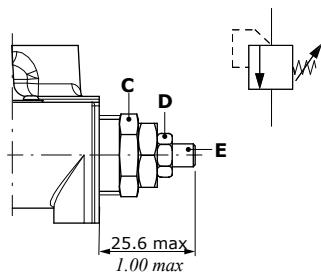


## Main pressure relief valve

Relief valve blanking plug



Main pressure relief valve



## Wrenches and tightening torques

C = wrench 19 - 24 Nm (17.7 lbf ft)

D = wrench 10 - 6 Nm (4.42 lbf ft)

E = allen wrench 3

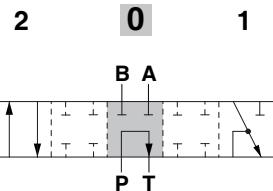
## Spring type      Setting ranges (bar - psi)

B (white)      From 10 to 100 - from 145 to 1450

N (black)      From 101 to 280 - from 1460 to 4050

**Spool****103 type**

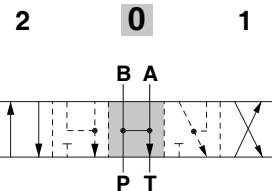
A and B closed in neutral position

**Stroke**

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

**111 type**

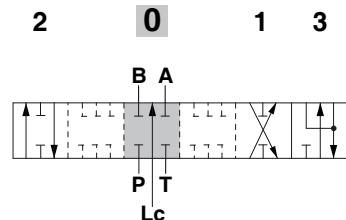
A and B to tank in neutral position

**Stroke**

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

**116 type**

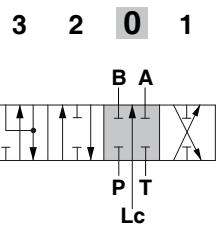
With floating in the 4<sup>th</sup> position (spool in)

**Stroke**

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

**126 type**

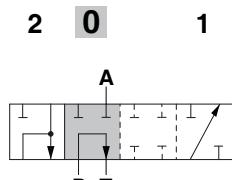
With floating in the 4<sup>th</sup> position (spool out)

**Stroke**

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

**101 type**

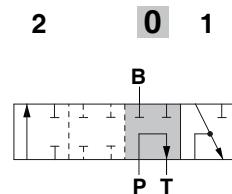
Single acting on A, B plugged

**Stroke**

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

**102 type**

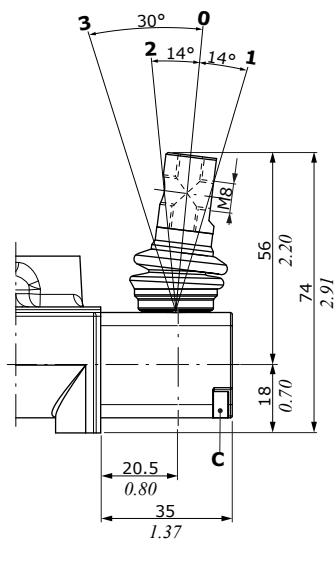
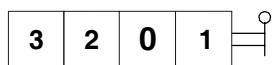
Single acting on B, A plugged

**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**

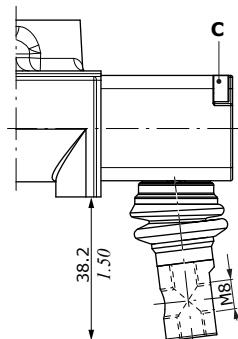
M8 thread aluminium  
lever box

**Wrenches and tightening torques**

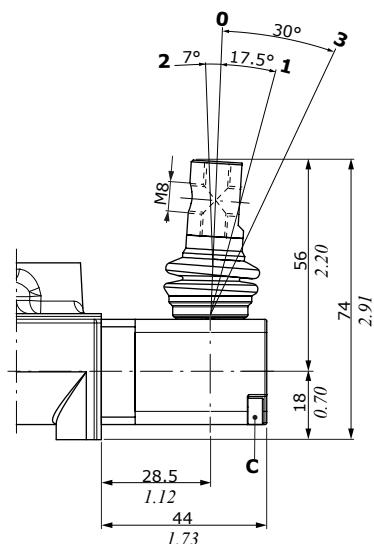
C = allen wrench 3 - 3 Nm (2.2 lbft)

**A2 type**

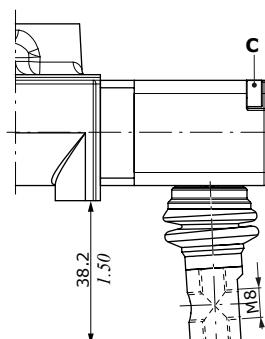
As A1 type, rotated 180°

**A1/Z1 type**

M8 thread,  
for 116 floating spool type

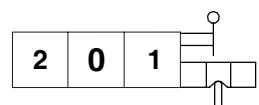
**A2/Z1 type**

As A1/Z1 type, rotated 180°



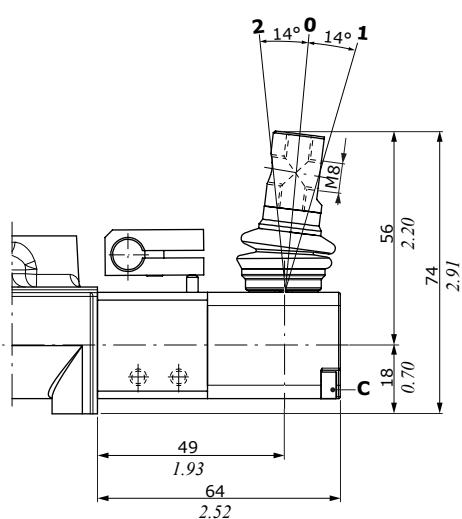
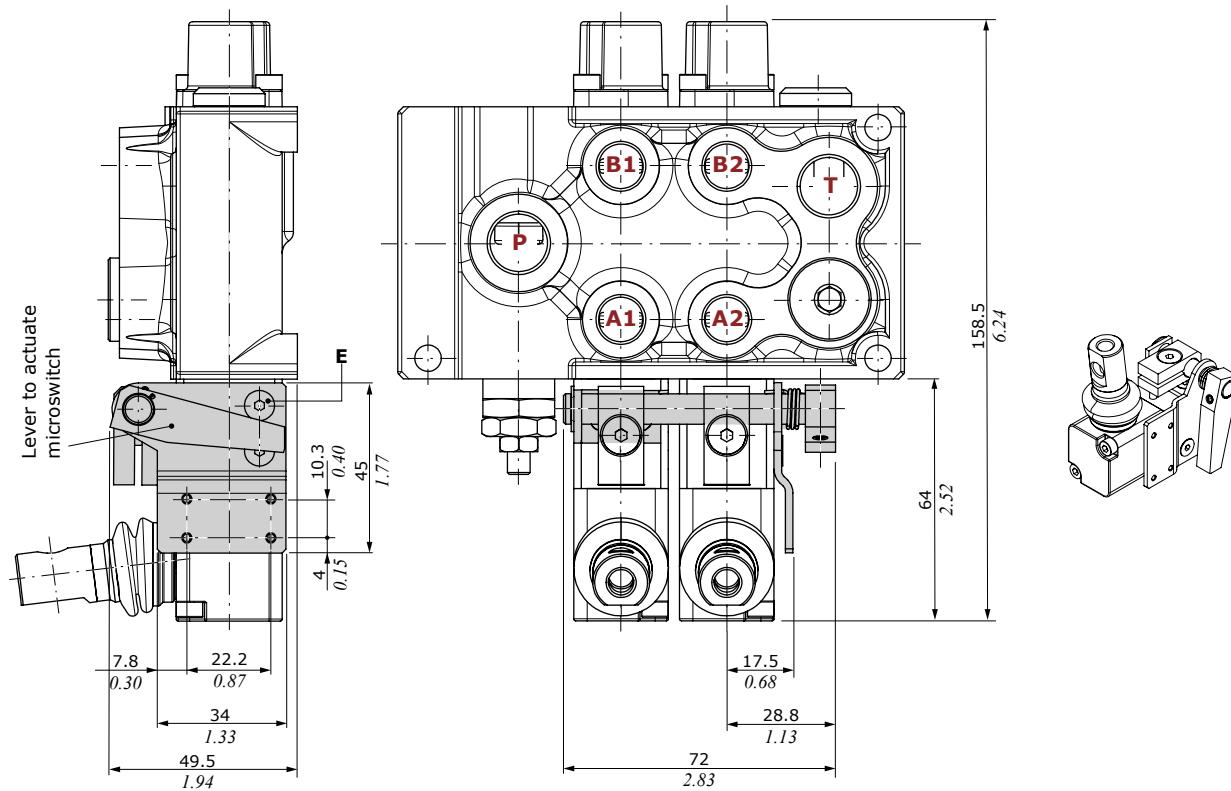
**A side controls****Spool position microswitch****N1-A1 type**

Micro operation in position 1 and 2

**Wrenches and tightening torques**

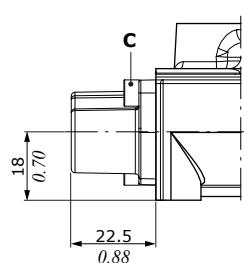
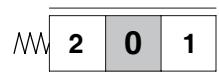
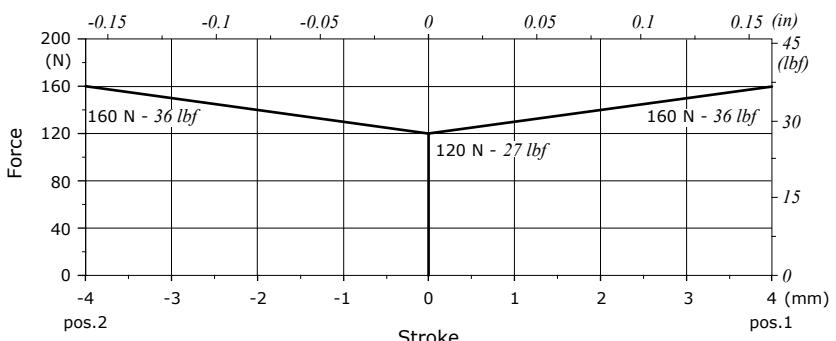
C = allen wrench 3 - 3 Nm (2.2 lbf)

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

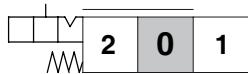
**Microswitch assembly kit for 2 working sections (N1-A1 type)**

**B side controls****Mechanical controls****With spring return control****M1 type**

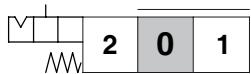
3 position, spring return  
in neutral position

**M1 control type - Force vs. Stroke diagram****With detent control****R1 type**

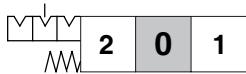
3 position,  
detent in position 1

**R2 type**

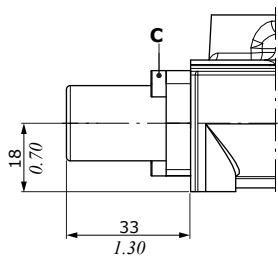
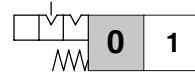
3 position,  
detent in position 2

**R3 type**

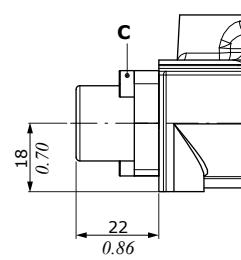
3 position,  
detent in all position

**R4 type**

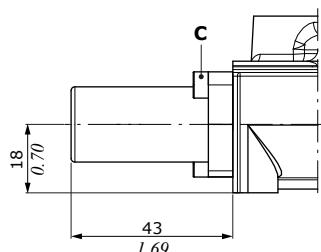
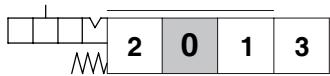
2 position,  
detent in position 0-1

**R5 type**

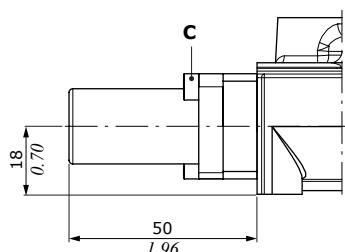
2 position,  
detent in position 0-2

**R8 type**

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

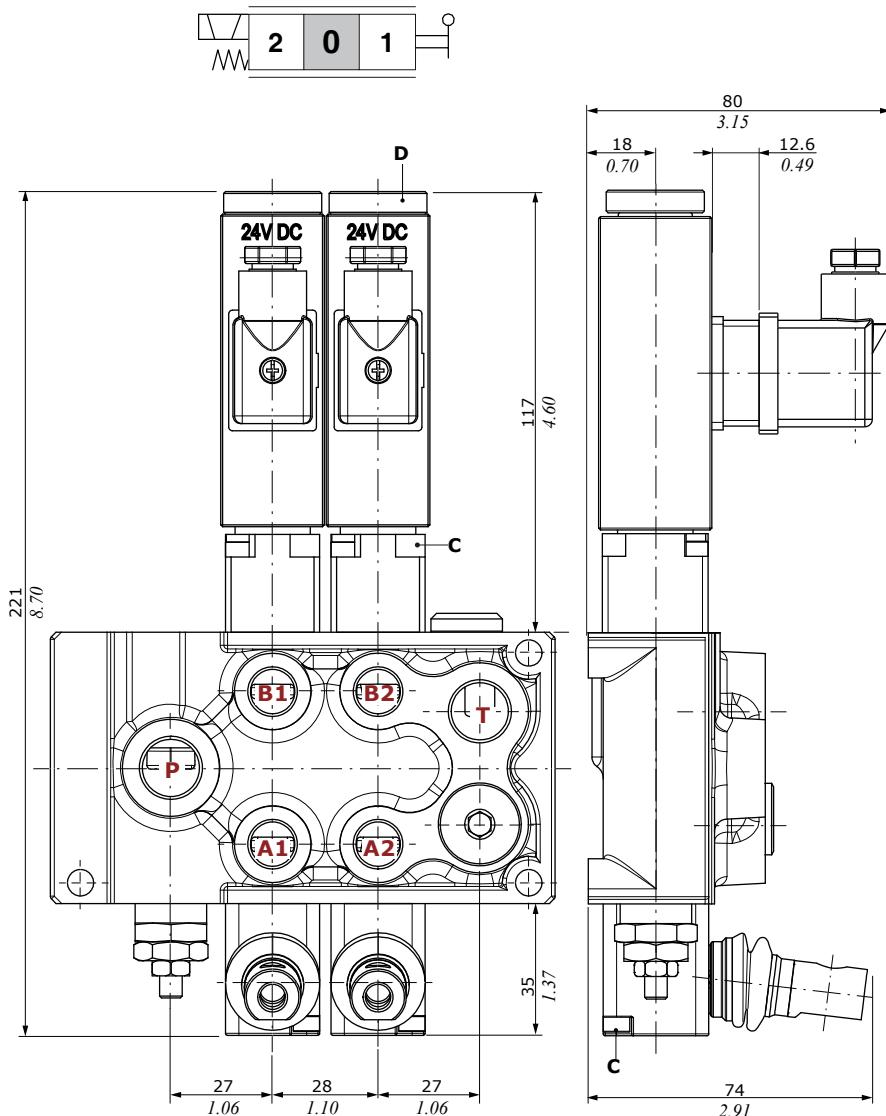
**R10/Z1 type**

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



## Direct solenoid control

## D41 type: ON/OFF one side

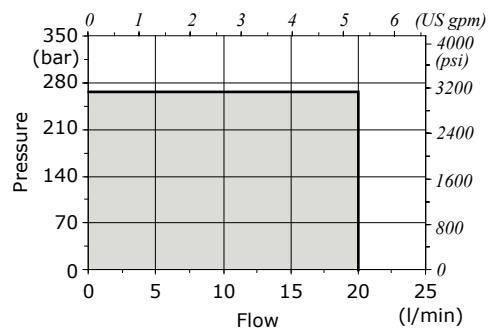


## D41 coil

Nominal voltage	12 VDC 24 VDC
Nominal voltage tolerance	$\pm 10\%$
Power rating	33 W
Insulation	Class H
Weather protection	IP65

Connector type: ISO4400 2P+T-PG9

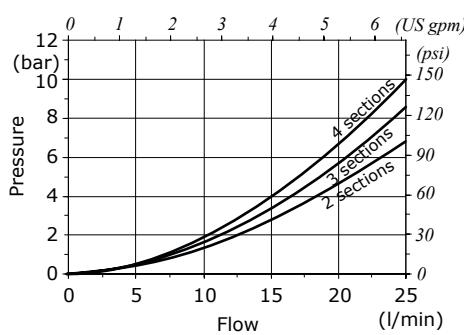
## Dynamic conditions



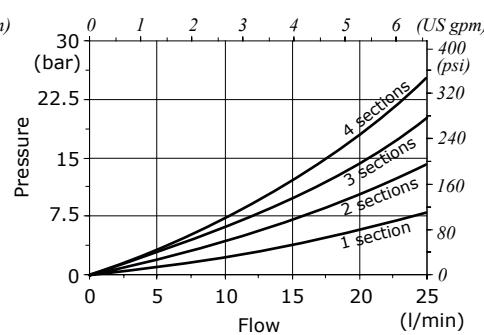
## Wrenches and tightening torques

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

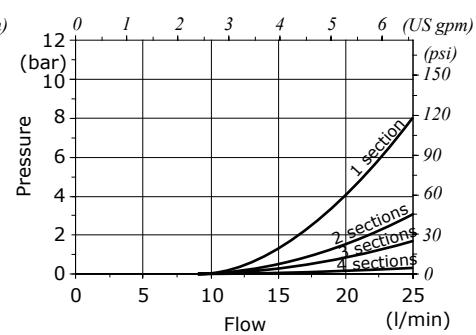
## P⇒T pressure drops



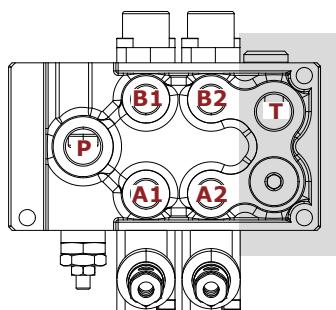
## P⇒A(B) pressure drops



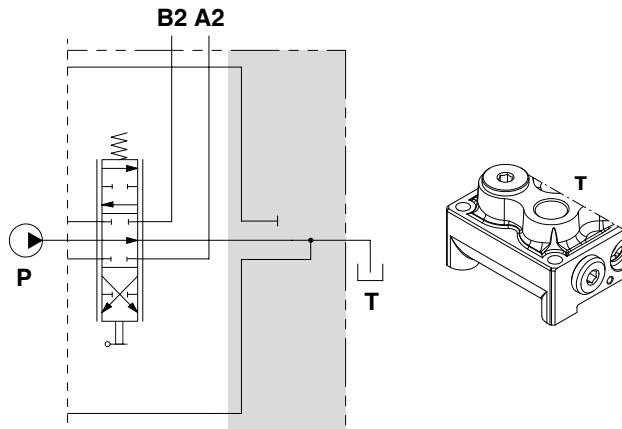
## A(B)⇒T pressure drops



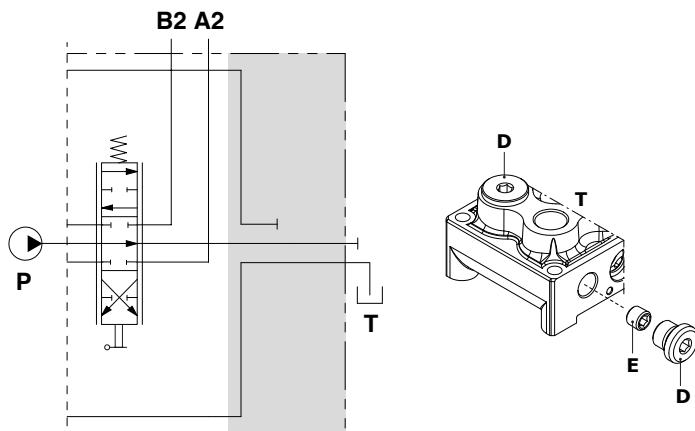
## Outlet configuration



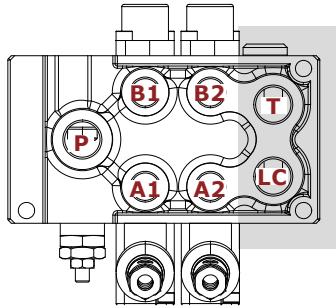
**F3D configuration**  
Open center configuration



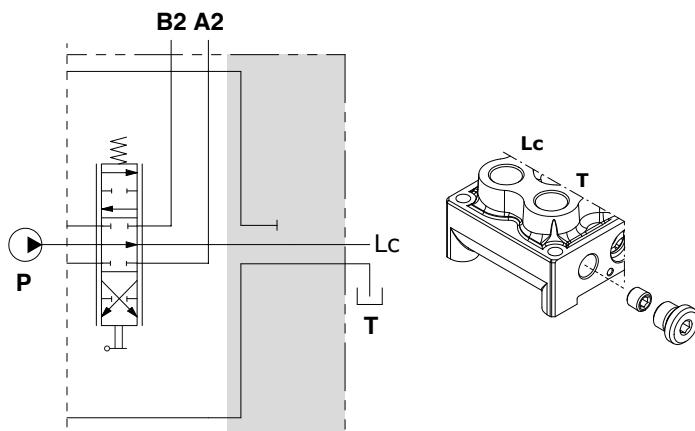
**F16D configuration**  
Closed center configuration



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



**F6D configuration**  
Carry-over configuration





## 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  $46\text{mm}^2/\text{s}$  -  $46\text{ cSt}$  viscosity at  $40^\circ\text{C}$  -  $104^\circ\text{F}$  temperature.

	<b>Q25</b>	<b>Q45</b>
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 from 4 up to 8 sections	max. 300 bar (4350 psi)
Max. back pressure on outlet <b>T</b> port (*)	25 bar (360 psi)	
Number sections	from 1 to 8	
Internal leakage A(B)⇒T	$\Delta p = 100 \text{ bar (1450 psi)}$	4 $\text{cm}^3/\text{min (0.24 in}^3/\text{min)}$
Fluid	Mineral oil	
Fluid temperature	with NBR (BUNA-N) seals	from $-30^\circ\text{C}$ to $80^\circ\text{C}$ - from $-22^\circ\text{F}$ to $176^\circ\text{F}$
Viscosity	operating range	from 10 to 400 $\text{mm}^2/\text{s}$ - from 10 to 400 $\text{cSt}$
Max. contamination level	16/14/12 - ISO 4406 - NAS1638 class 6	
Ambient temperature	without electric devices with electric devices	from $-40^\circ\text{C}$ to $60^\circ\text{C}$ - from $40^\circ\text{F}$ to $140^\circ\text{F}$ from $-20^\circ\text{C}$ to $50^\circ\text{C}$ - from $-4^\circ\text{F}$ to $122^\circ\text{F}$

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

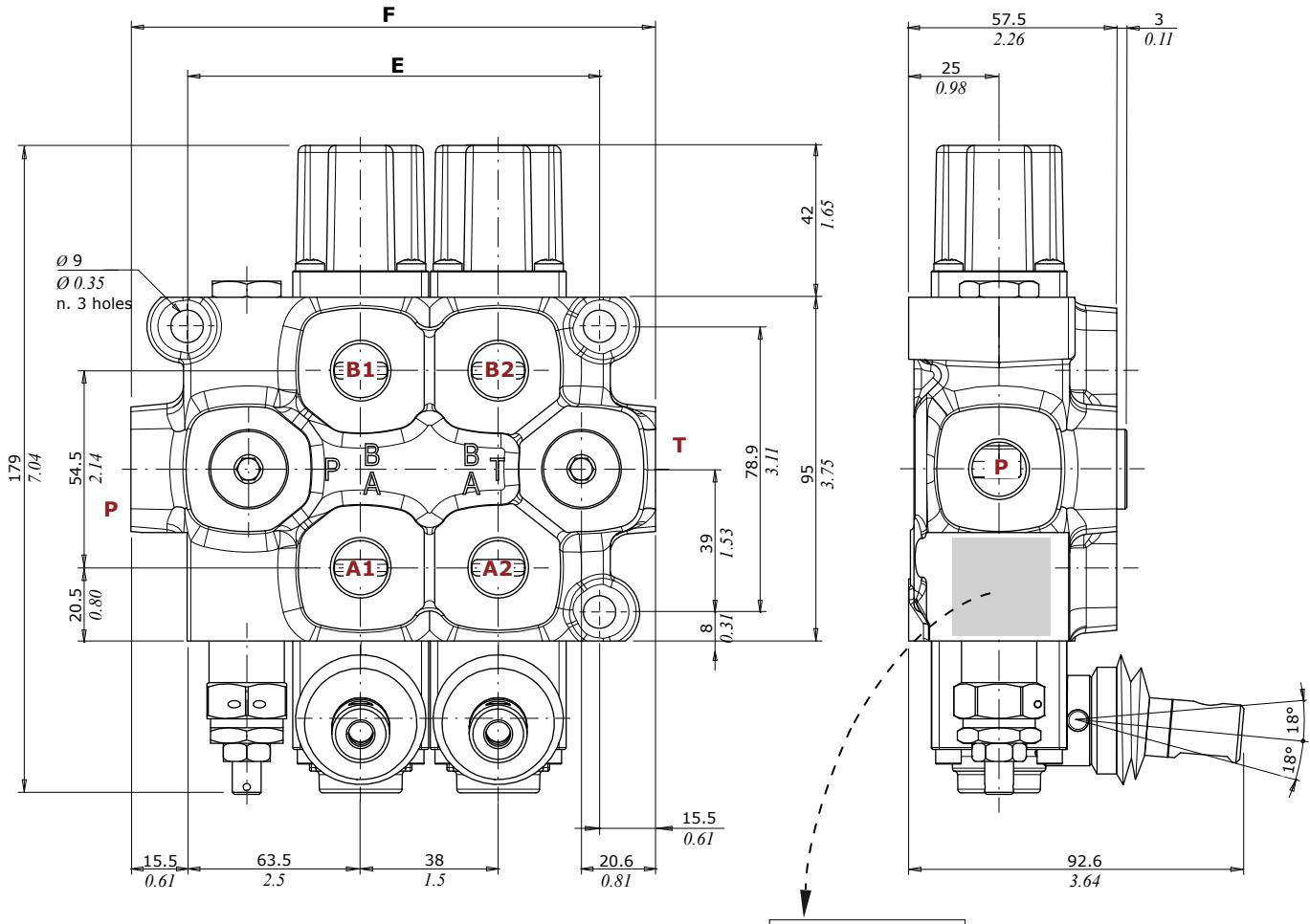
	<b>BSP</b>	<b>UN-UNF</b>
THREAD ACCORDING TO	ISO 228/1	ISO 263
	BS 2779	ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO SAE DIN	1179 J11926 3852-2 shape X or Y

#### PORT THREADING

<b>PORTS</b>	<b>Q25</b>		<b>Q45</b>	
	<b>BSP</b>	<b>UN-UNF</b>	<b>BSP</b>	<b>UN-UNF</b>
<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 - <b>T</b> 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.



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

**Galtech**

MADE IN ITALY

025030103251000

Q25/2-F1S(N250)-

2x103/A1/M1/F3D

MD1600464-001



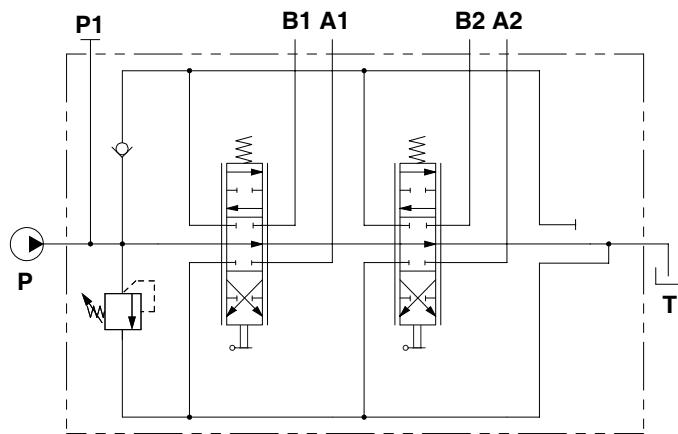
Product code

Customer reference or code description

Product allotment  
Datamatrix with product allotment

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

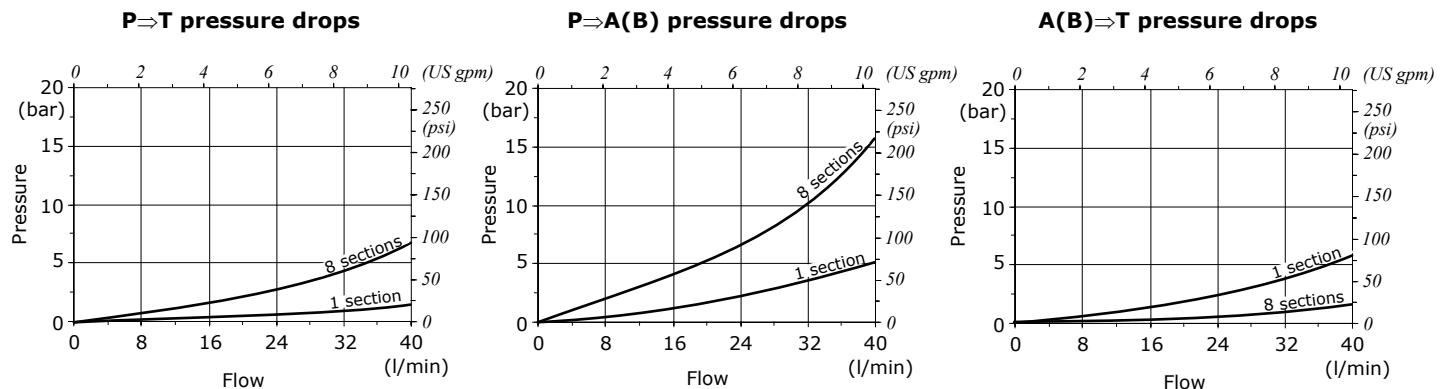
## Hydraulic circuit



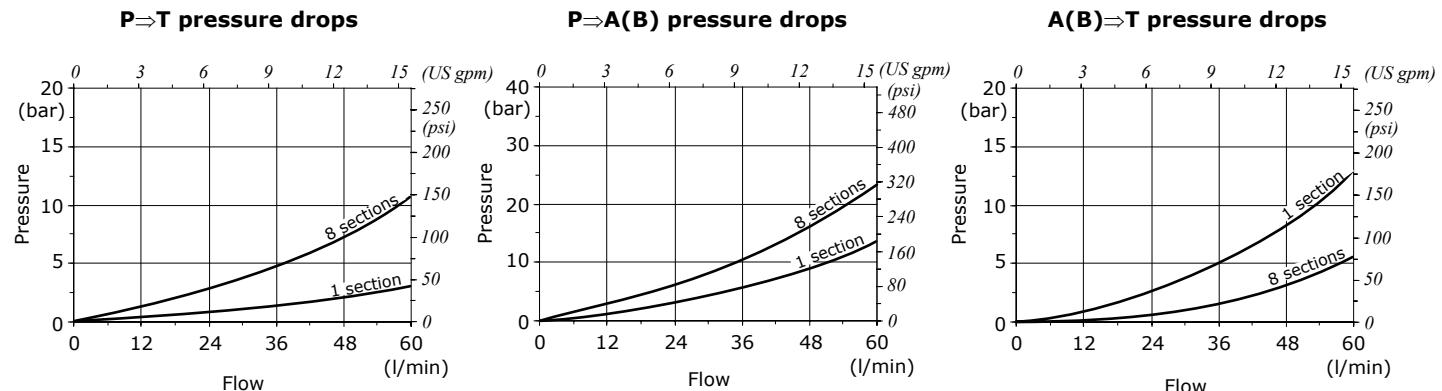
Description example (parallel circuit):  
 Q25/2/F1S(N250)/103-A1-M1/103-A1-M1/F3D-S  
 Q45/2/F1S(N250)/103-A1-M1/103-A1-M1/F3D-S

## Performance data

## Q25



## Q45



### Parts ordering codes

#### Mechanical control valve configuration example

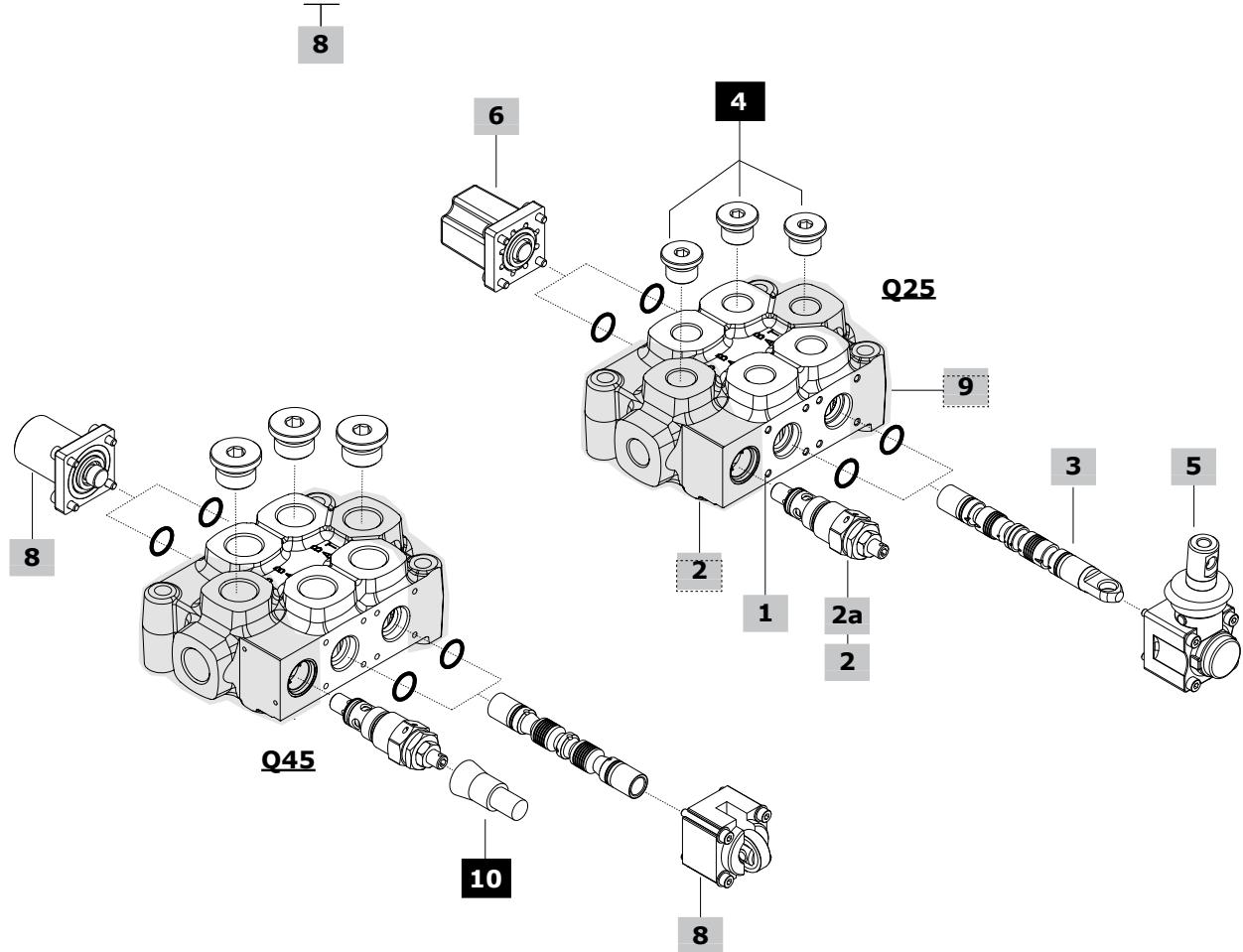
valve setting (bar)

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

1 N. of section  
2 valve setting (bar)  
2a F1S (N150)  
3 102  
5 A1  
6 M1  
9 aluminium controls

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

**Q45 / 2 / F1S (N150) / 103 - C3 / 103 - C3 / F3D - S**



## Parts ordering codes

**1 Body kit\***

The codes are referred to sections with O-ring seals

TYPE	CODE	DESCRIPTION
<b>Q25/1</b>	5KC0600127574	1 section
<b>Q25/2</b>	5KC0600127673	2 sections
<b>Q25/3</b>	5KC0600129552	3 sections
<b>Q25/4</b>	5KC0600129550	4 sections
<b>Q25/5</b>	5KC0600129551	5 sections
<b>Q25/6</b>	5KC0600129715	6 sections
<b>Q25/7</b>	5KC0600130905	7 sections
<b>Q25/8</b>	5KC0600131361	8 sections

TYPE	CODE	DESCRIPTION
<b>Q45/1</b>	5KC0600127973	1 section
<b>Q45/2</b>	5KC0600128051	2 sections
<b>Q45/3</b>	5KC0600129676	3 sections
<b>Q45/4</b>	5KC0600129677	4 sections
<b>Q45/5</b>	5KC0600129678	5 sections
<b>Q45/6</b>	5KC0600129876	6 sections
<b>Q45/7</b>	5KC0600131148	7 sections
<b>Q45/8</b>	5KC0600131620	8 sections

**2 Inlet configuration\***

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

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

**2a Main pressure relief valve**

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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: Relief valve blanking plug

**3 Spool**

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TYPE	CODE	DESCRIPTION
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**Standard spools**

<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 G3/8 plug, see #4  
Q45 valve required G1/2 plug, see #4

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

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

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

**5 A side control**

page 43

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>A1/06</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°

**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	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/Z1S1	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

**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>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>N1B-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, 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
	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>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** page 57

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
<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 Outlet configuration\*** page 61

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

**10 Accessory** page 61

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

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

## Parts ordering codes

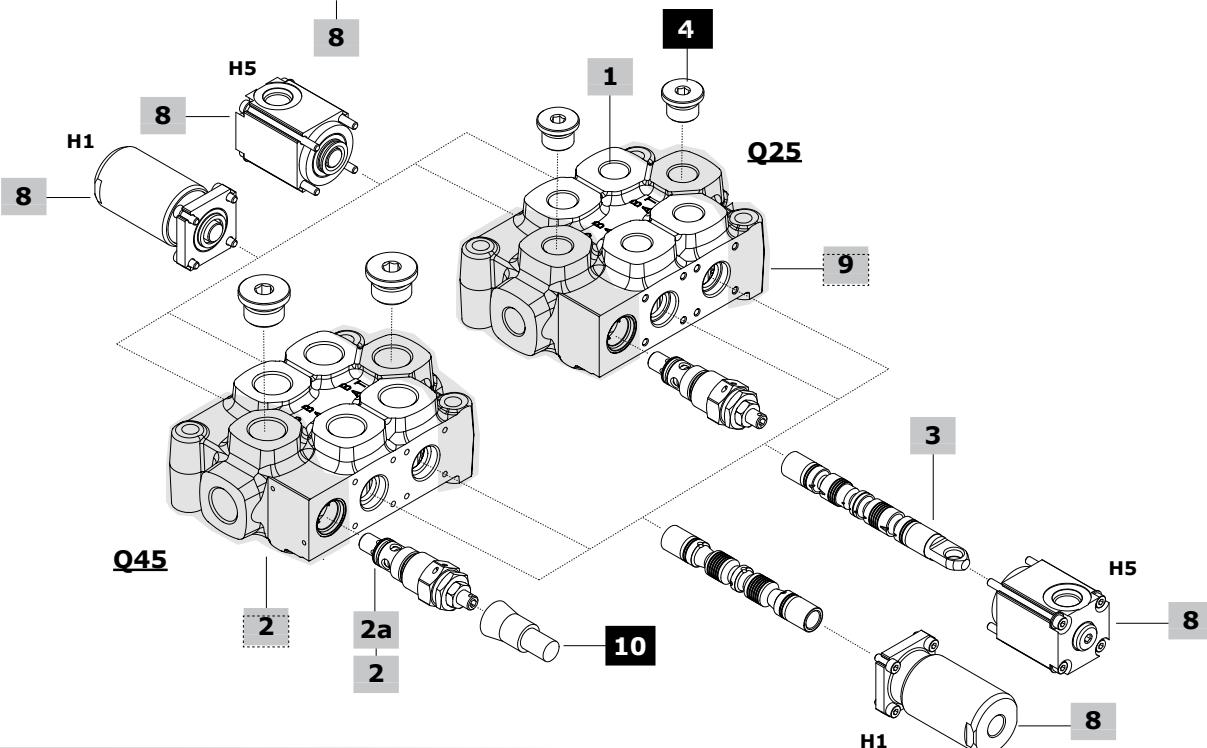
Proportional hydraulic controls valve configuration example

valve setting (bar)

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

1 N. of section  
2 valve setting (bar)  
2a main pressure relief valve  
3 8 9  
aluminium controls

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

**1 Body kit\***

The body kits listed below are for **H5** hydraulic control.  
**H1** hydraulic control requires standard body: see #1, page 35

TYPE	CODE	DESCRIPTION
<b>Q25/1</b>	5KC0600127574A	1 section
<b>Q25/2</b>	5KC0600127673A	2 sections
<b>Q25/3</b>	5KC0600129552A	3 sections
<b>Q25/4</b>	5KC0600129550A	4 sections
<b>Q25/5</b>	5KC0600129551A	5 sections
<b>Q25/6</b>	5KC0600129715A	6 sections
<b>Q25/7</b>	5KC0600130905A	7 sections
<b>Q25/8</b>	5KC0600131361A	8 sections

TYPE	CODE	DESCRIPTION
<b>Q45/1</b>	5KC0600127973A	1 section
<b>Q45/2</b>	5KC0600128051A	2 sections
<b>Q45/3</b>	5KC0600129676A	3 sections
<b>Q45/4</b>	5KC0600129677A	4 sections
<b>Q45/5</b>	5KC0600129678A	5 sections
<b>Q45/6</b>	5KC0600129876A	6 sections
<b>Q45/7</b>	5KC0600131148A	7 sections
<b>Q45/8</b>	5KC0600131620A	8 sections

**2 Inlet configuration\***

page 40

See #2, page 35

**2a Main pressure relief valve**

page 41

See #2a, page 35

(\*): Codes are referred to **BSP** thread**3 Spool**

page 42

TYPE	CODE	DESCRIPTION
<b>For H5 hydraulic control</b>		
<b>103</b>	060103179499	Double acting, A and B closed in neutral position
<b>For H1 hydraulic control</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 P-T ports\***

See #4, page 35

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

page 58

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

**9 Outlet configuration\***

page 61

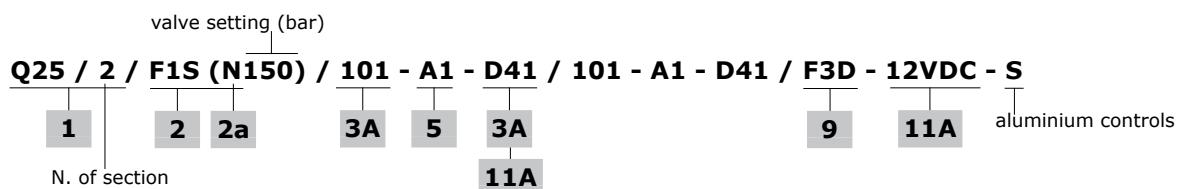
See #9, page 36

**10 Accessory**

See #10, page 36

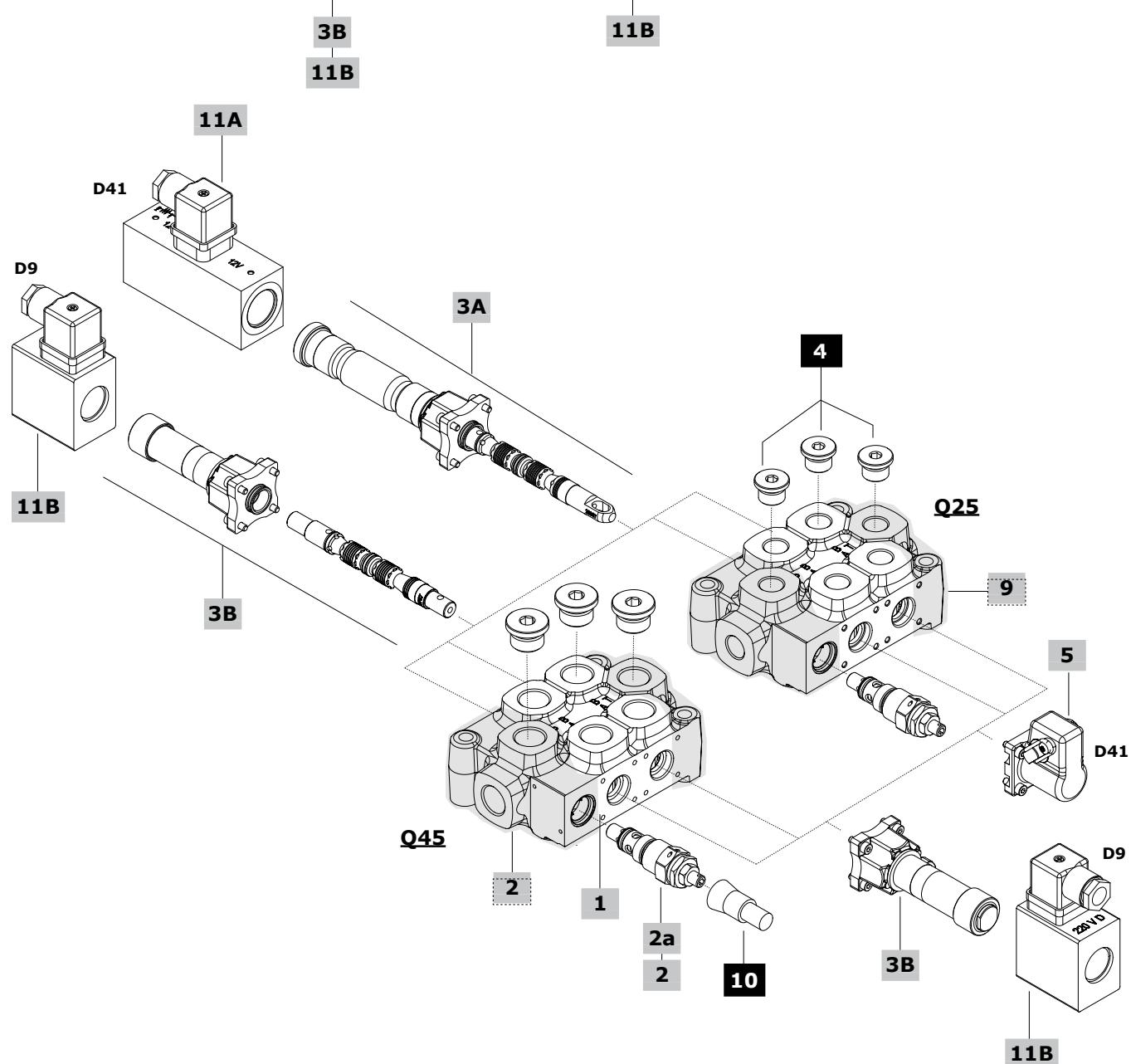
### Parts ordering codes

#### 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**



## Parts ordering codes

**1 Body kit\***

TYPE	CODE	DESCRIPTION
<b>Q25/1</b>	5KC0600127574A	1 section
<b>Q25/2</b>	5KC0600127673A	2 sections
<b>Q25/3</b>	5KC0600129552A	3 sections
<b>Q25/4</b>	5KC0600129550A	4 sections
<b>Q25/5</b>	5KC0600129551A	5 sections
<b>Q25/6</b>	5KC0600129715A	6 sections
<b>Q25/7</b>	5KC0600130905A	7 sections
<b>Q25/8</b>	5KC0600131361A	8 sections
<b>Q45/1</b>	5KC0600127973A	1 section
<b>Q45/2</b>	5KC0600128051A	2 sections
<b>Q45/3</b>	5KC0600129676A	3 sections
<b>Q45/4</b>	5KC0600129677A	4 sections
<b>Q45/5</b>	5KC0600129678A	5 sections
<b>Q45/6</b>	5KC0600129876A	6 sections
<b>Q45/7</b>	5KC0600131148A	7 sections
<b>Q45/8</b>	5KC0600131620A	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. G3/8 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. G3/8 plug is required, see #4
<b>102</b>	X060102894199	Tube assembly with single acting spool on port B. G3/8 plug is required, see #4

For Q45 valve:

TYPE	CODE	DESCRIPTION
<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. G1/2 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. G1/2 plug is required, see #4
<b>102</b>	X060102894100	Tube assembly with single acting spool on port B. G1/2 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 G3/8 plug, see #4  
Q45 valve required G1/2 plug, see #4

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

See #4, page 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

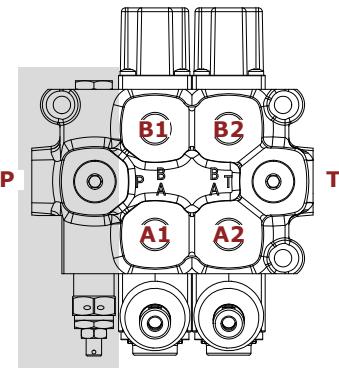
**D9 coil**

For Q25/Q45 valves:

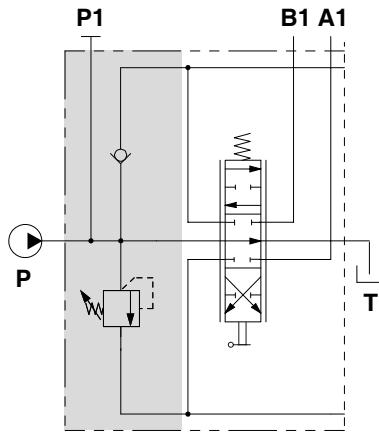
-	ZDB212	12 VDC ISO4400 coil
-	ZDB224	24 VDC ISO4400 coil

**Note:** The connector is included(\*): Codes are referred to **BSP** thread

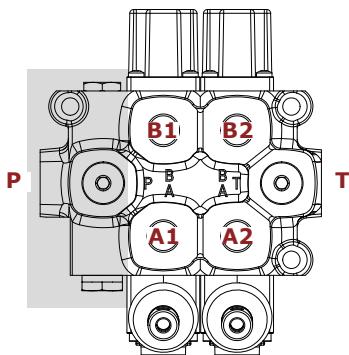
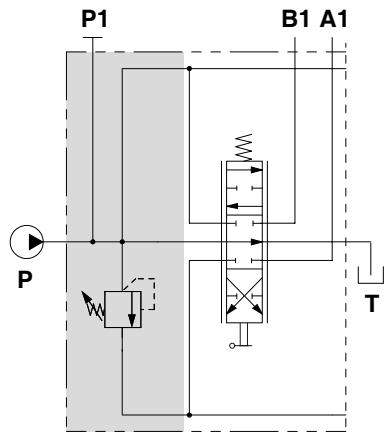
**Inlet configuration**



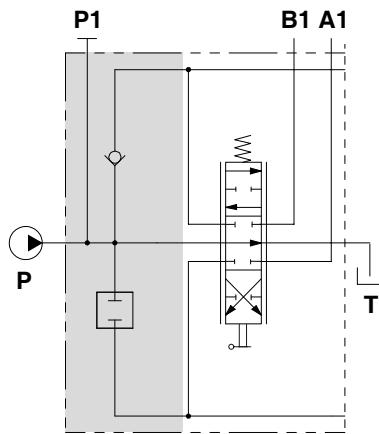
**F1S configuration**  
With load check and pressure relief valve



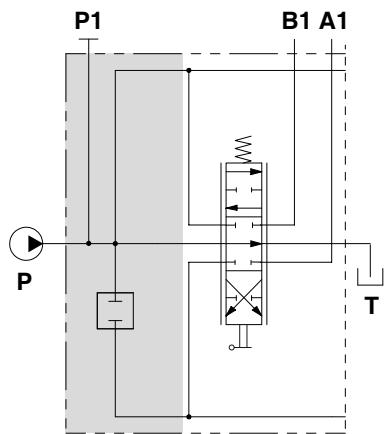
**F7S configuration**  
With pressure relief valve

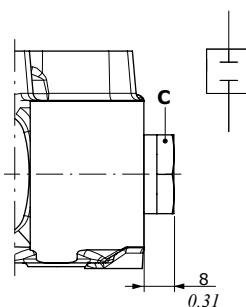
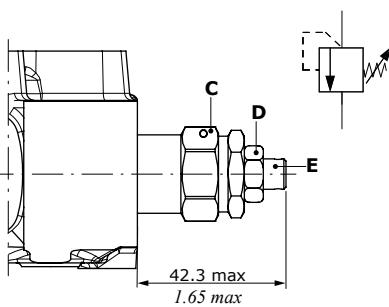


**F2S configuration**  
With load check valve

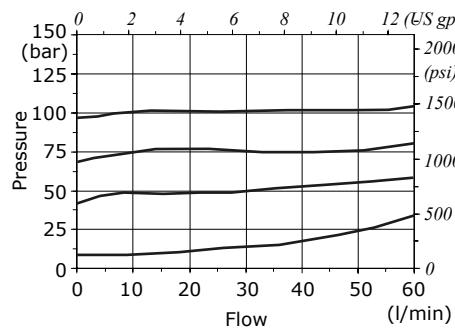
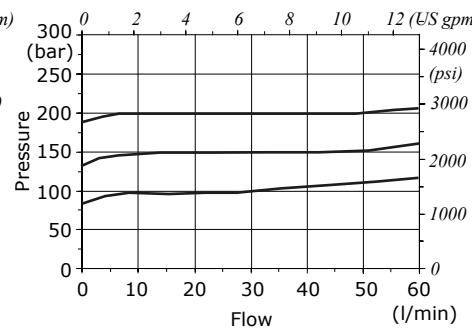
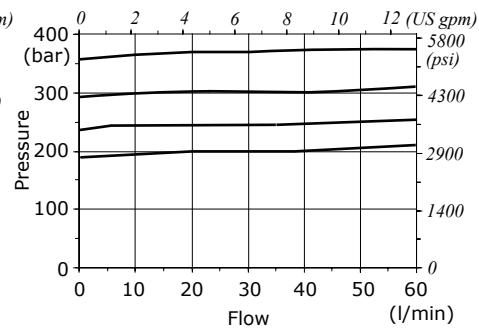


**F8S configuration**  
Without valves  
(pressure relief valve plugged port)



**Main pressure relief valve****Relief valve blanking plug****Main pressure relief valve**

<b>Spring type</b>	<b>Setting ranges (bar - psi)</b>
<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**

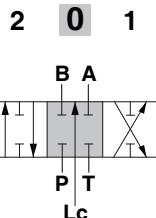
C = wrench 22 - 42 Nm (30.9 lbf ft)

D = wrench 13 - 24 Nm (17.7 lbf ft)

E = allen wrench 4

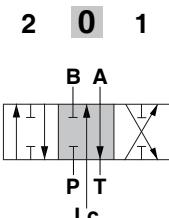
### Spool

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



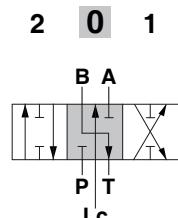
**Stroke**  
Position 1: + 5 mm (+ 0.19 in)  
Position 2: - 5 mm (- 0.19 in)

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



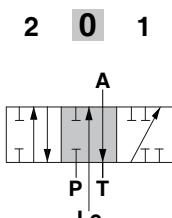
**Stroke**  
Position 1: + 5 mm (+ 0.19 in)  
Position 2: - 5 mm (- 0.19 in)

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



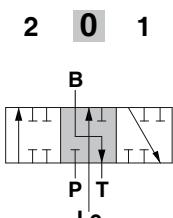
**Stroke**  
Position 1: + 5 mm (+ 0.19 in)  
Position 2: - 5 mm (- 0.19 in)

**109 type**  
A to tank in neutral position,  
B plugged



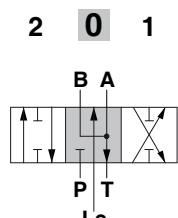
**Stroke**  
Position 1: + 5 mm (+ 0.19 in)  
Position 2: - 5 mm (- 0.19 in)

**110 type**  
B to tank in neutral position,  
A plugged



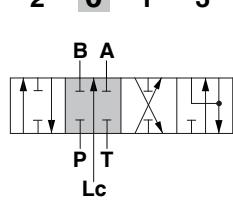
**Stroke**  
Position 1: + 5 mm (+ 0.19 in)  
Position 2: - 5 mm (- 0.19 in)

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



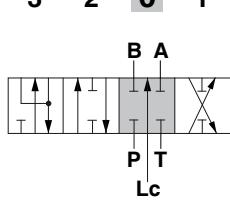
**Stroke**  
Position 1: + 5 mm (+ 0.19 in)  
Position 2: - 5 mm (- 0.19 in)

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



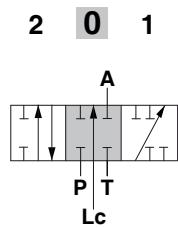
**Stroke**  
Position 1: - 4 mm (- 0.15 in)  
Position 2: + 5 mm (+ 0.19 in)  
Position 3: - 8.6 mm (- 0.33 in)

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



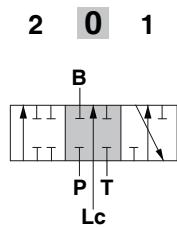
**Stroke**  
Position 1: + 4 mm (+ 0.15 in)  
Position 2: - 5 mm (- 0.19 in)  
Position 3: + 8.6 mm (- 0.33 in)

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



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

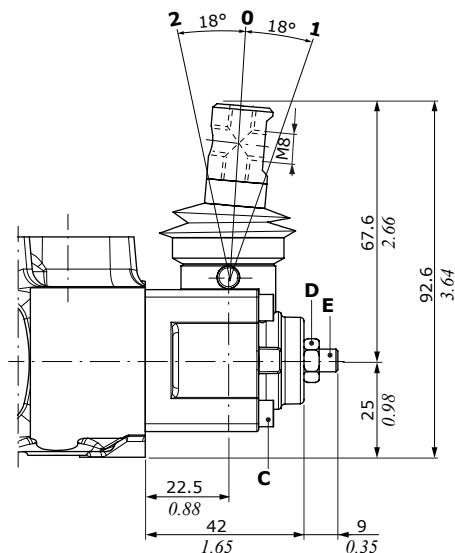
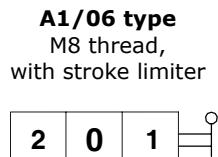
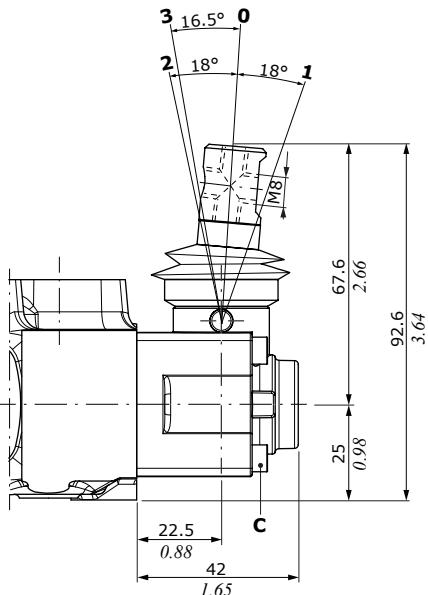
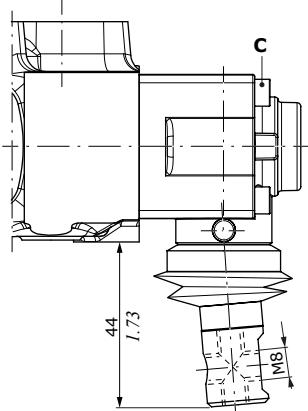
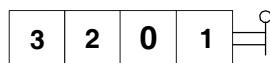
**102 type**  
Single acting on B,  
A plugged



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

**A side controls****Mechanical controls****With lever control****A1 type**

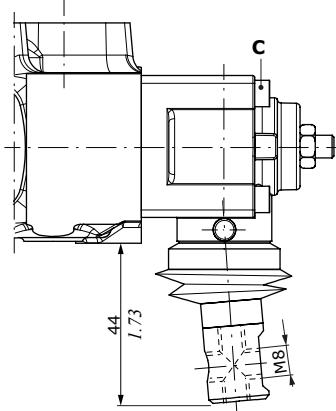
M8 thread plastic lever box

**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)  
D = wrench 10 - 9.8 Nm (7.2 lbf)  
E = allen wrench 4 - 9.8 Nm (7.2 lbf)

**A2/06 type**

As A1/06 type, rotated 180°



### A side controls

#### Mechanical controls

##### With lever control

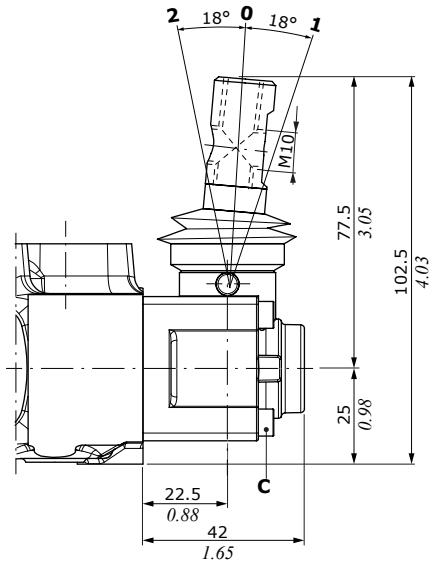
###### **A1/PM type**

M10 thread aluminium lever box



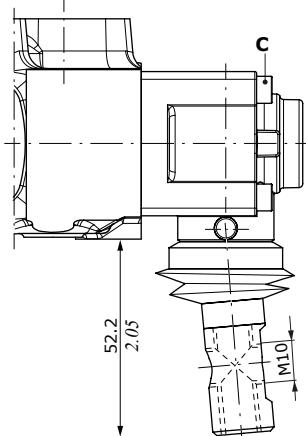
##### Wrenches and tightening torques

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



###### **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°



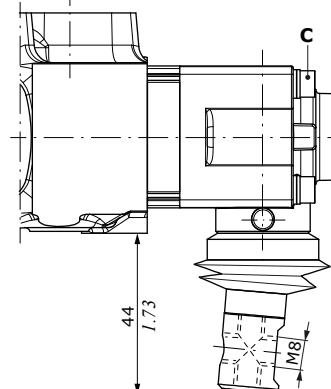
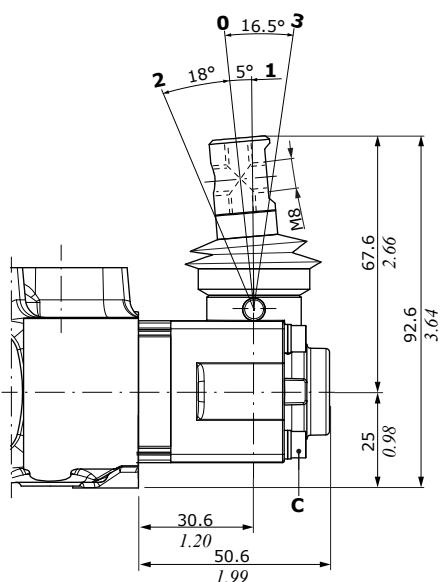
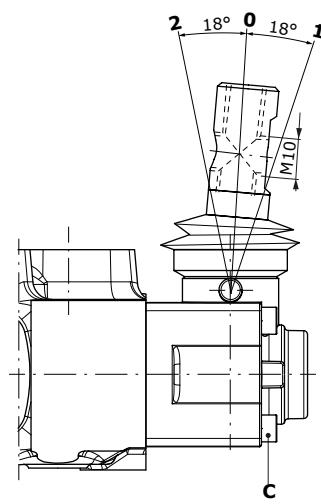
###### **A1/Z1 type**

M8 thread,  
for 116 floating spool type



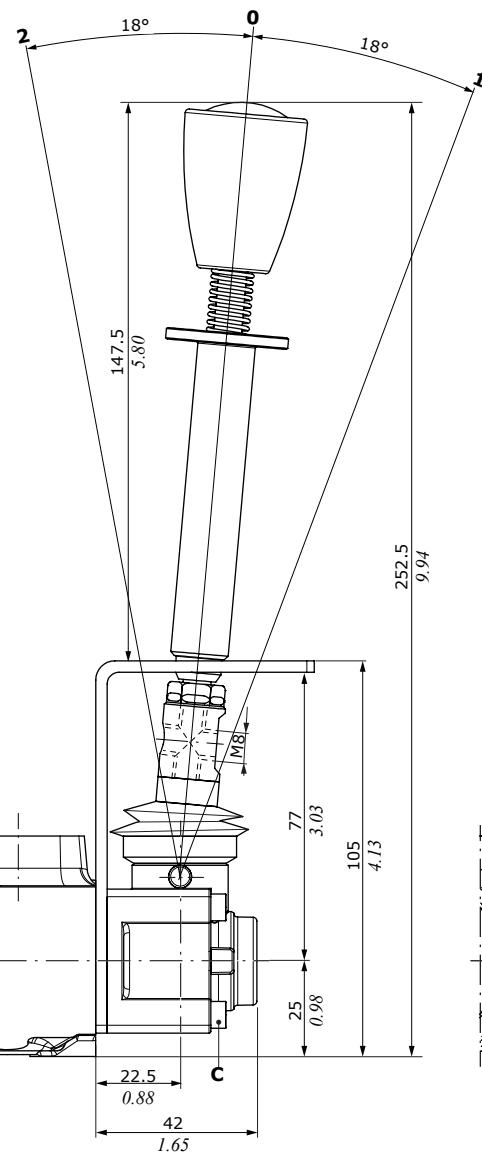
###### **A2/Z1 type**

As A1/Z1 type, rotated 180°

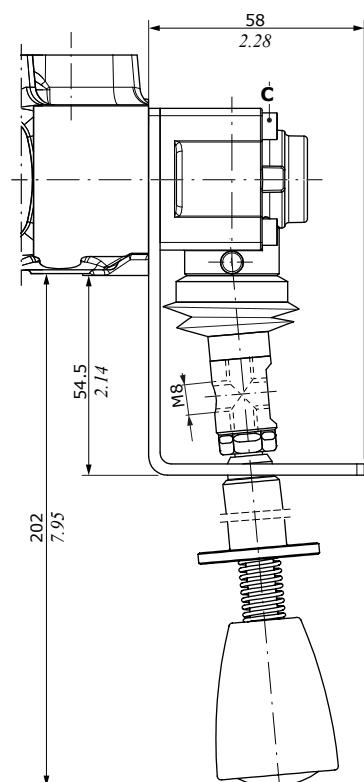


**A side controls****Mechanical controls****With safety lever control****A1/S type**

M8 thread, aluminium lever box

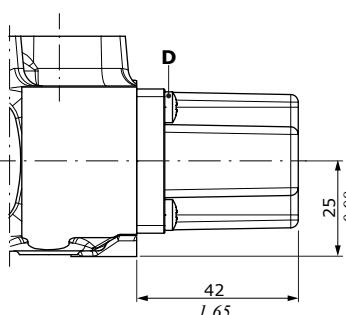
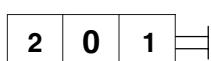
**A2/S type**

As A1/S type, rotated 180°

**Without lever control****A3 type**

With cap.

Available with aluminium cap

With aluminium cap;  
dimensions are the same of standard type

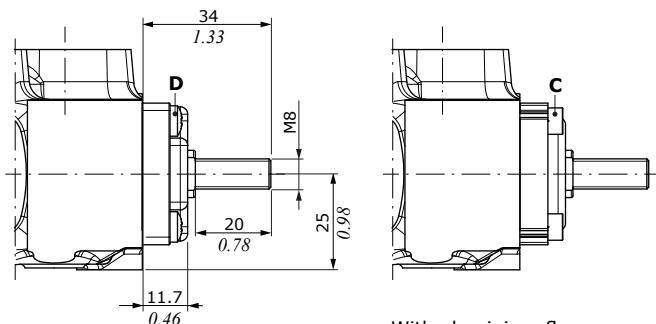
### A side controls

#### Mechanical controls

##### Without lever control

###### **A4 type**

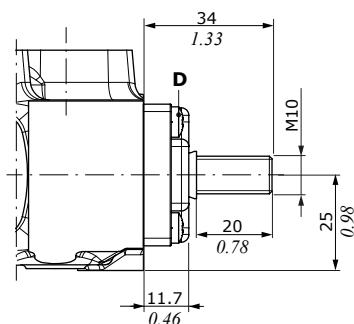
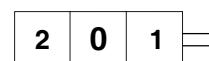
M8 male thread external pin with flange.  
Available with aluminium flange



With aluminium flange;  
dimensions are the same of standard type

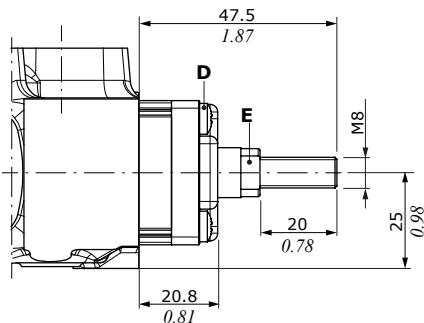
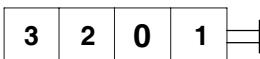
###### **A4/01 type**

M10 male thread external pin with flange



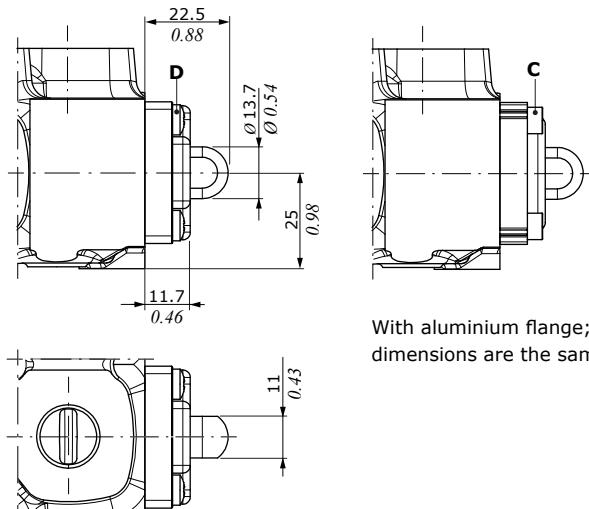
###### **A4/Z1 type**

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

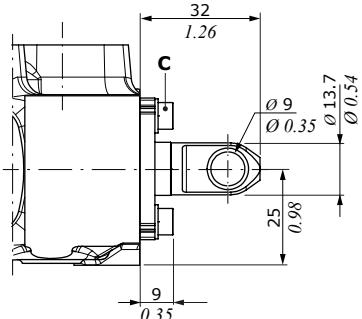
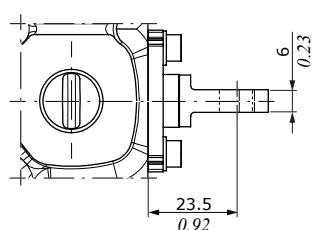
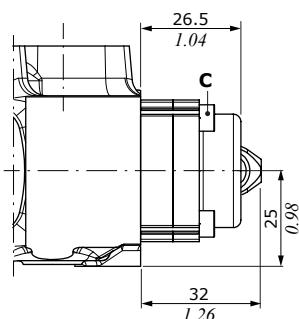
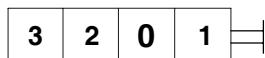
C = allen wrench 3 - 3 Nm (2.2 lbf ft)

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

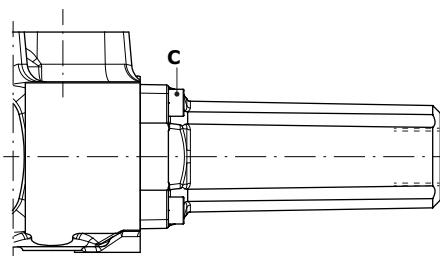
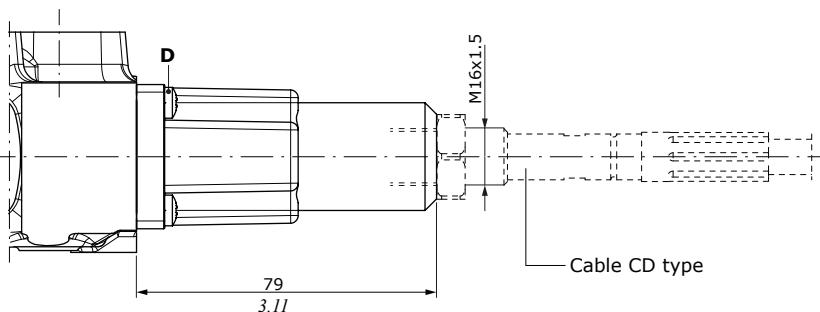
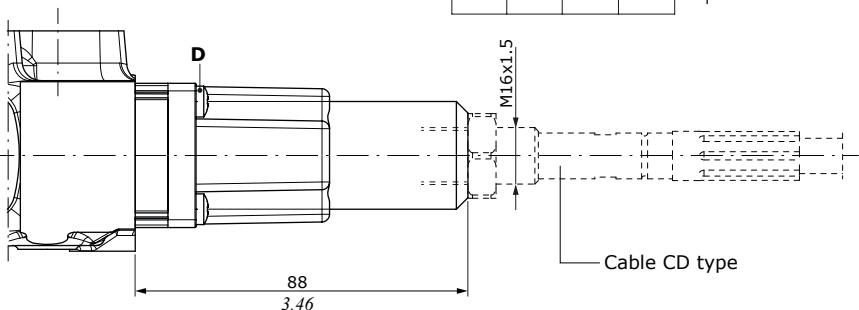
E = wrench 9 - 9.8 Nm (7.2 lbf ft)

**A side controls****Mechanical controls****Without lever control****A6 type**

With flange

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

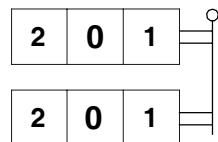
**Wrenches and tightening torques**  
C = allen wrench 3 - 3 Nm (2.2 lbf/in)  
D = cross-head - 3 Nm (2.2 lbf/in)

**A8 type**Flexible cable control arrangement.  
Available with aluminium cap**With flexible cable control arrangement****A8/Z1 type**  
As A8 type,  
for 116 floating spool type

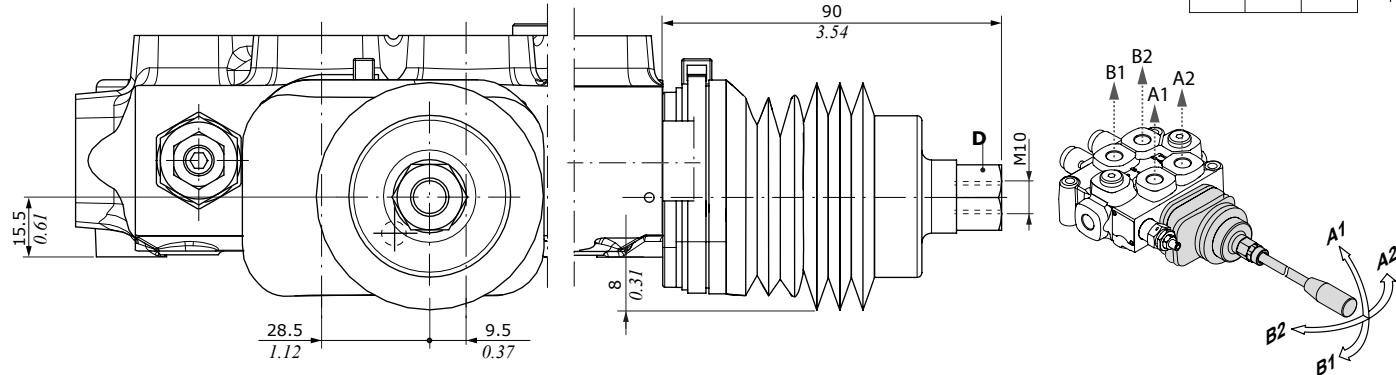
### A side controls

#### Joystick controls

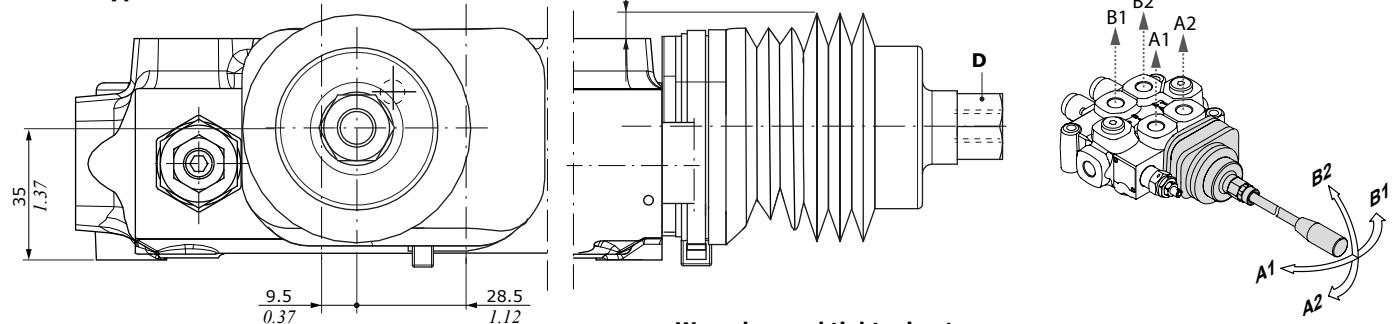
For operating the joystick control in the floating position, contact Sales Department.



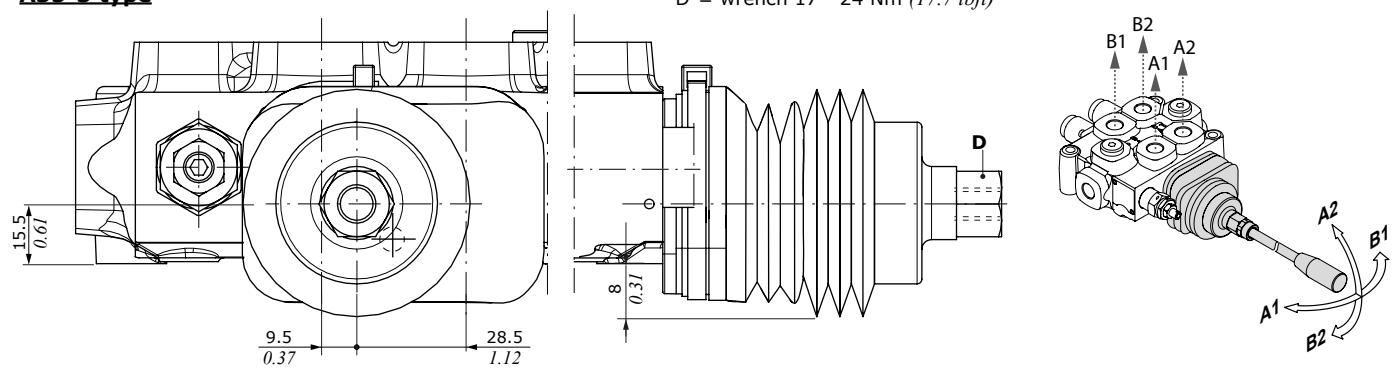
#### A35-1 type



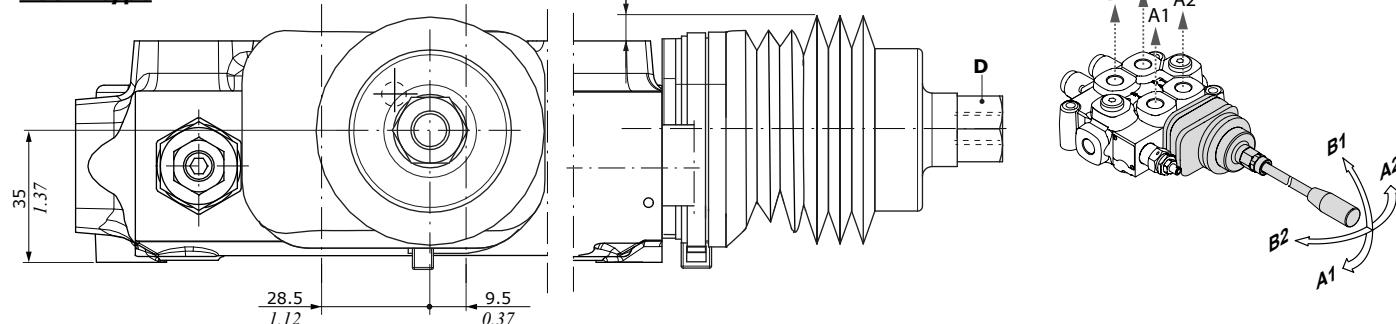
#### A35-2 type



#### A35-3 type



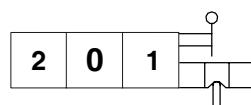
#### A35-4 type



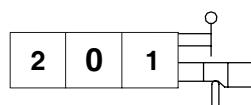
**Wrenches and tightening torques**  
D = wrench 17 - 24 Nm (17.7 lbft)

**A side controls****Spool position microswitch****With lever control****N1-A1 type**

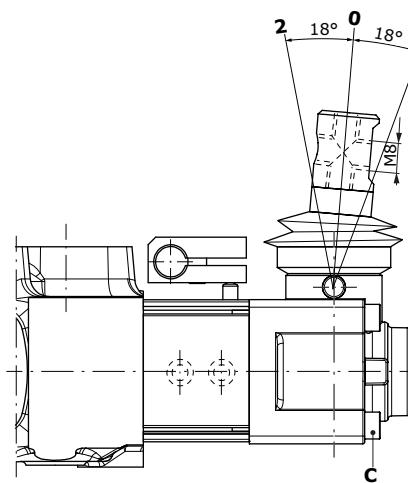
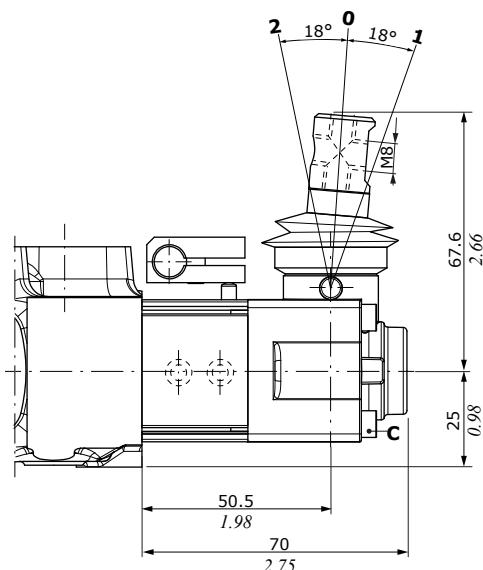
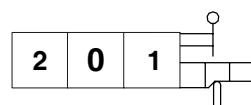
Micro operation in position 1 and 2.  
Available with aluminium lever box

**N1A-A1 type**

Micro operation in position 1

**N1B-A1 type**

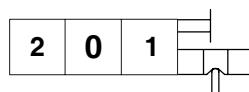
Micro operation in position 2



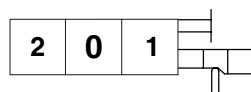
With aluminium lever box;  
dimensions are the same of standard type

**Without lever control, with cap****N1-A3 type**

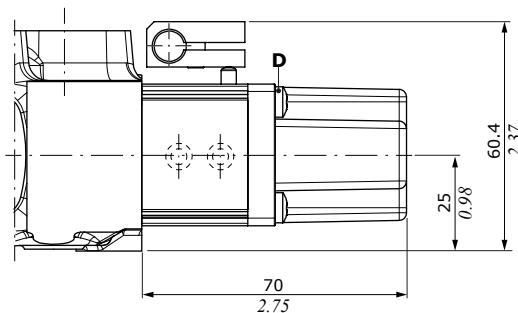
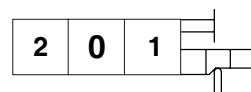
Micro operation in position  
1 and 2

**N1A-A3 type**

Micro operation in  
position 1

**N1B-A3 type**

Micro operation in  
position 2

**Wrenches and tightening torques**

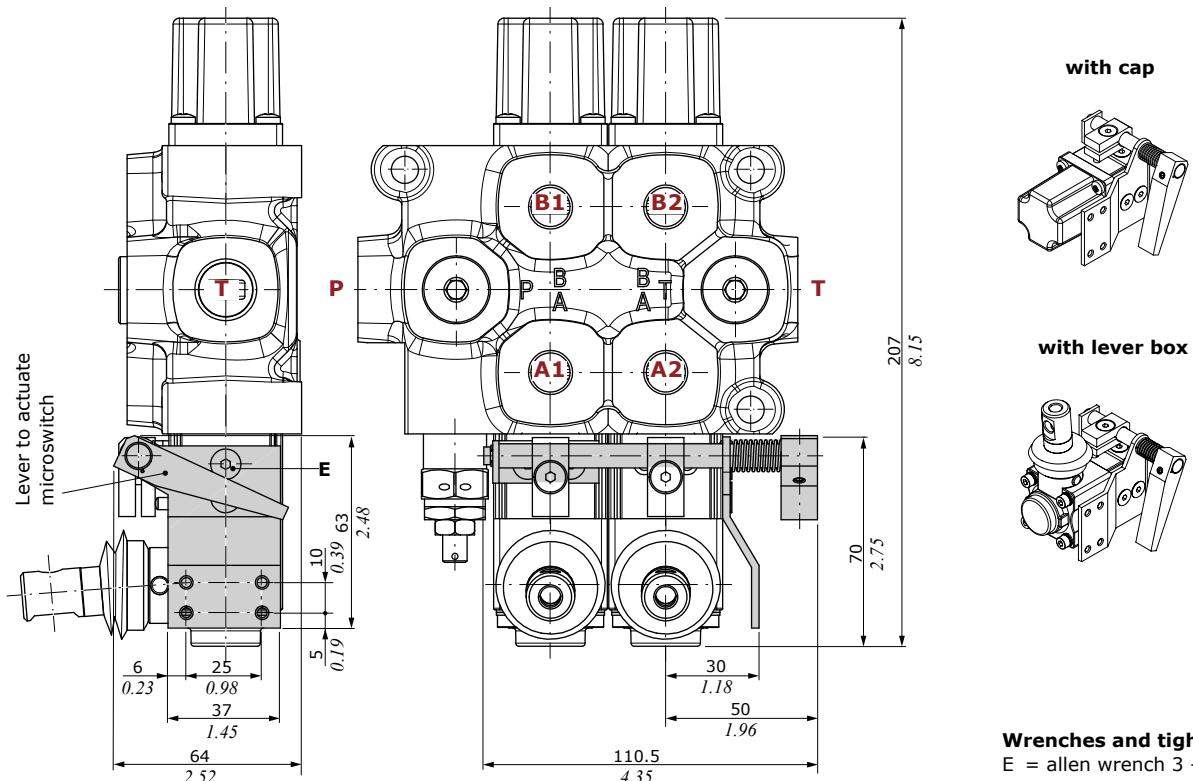
C = allen wrench 3 - 3 Nm (2.2 lbf ft)

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

### A side controls

#### Spool position microswitch

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



Drawing is referred to a Q25 monoblock valve.

**B side controls****Mechanical controls****With spring return control****M1 type**

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

**M1/01 type**

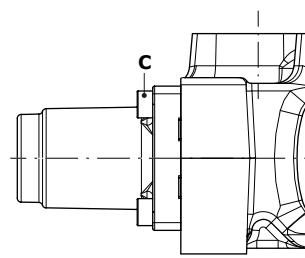
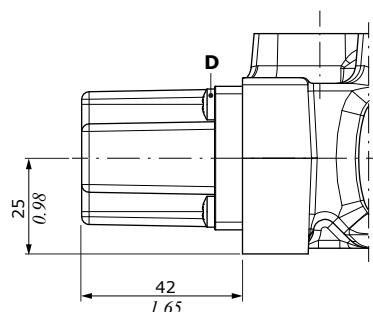
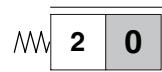
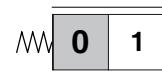
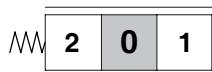
3 position,  
for joystick control.  
Available with aluminium cap

**M2 type**

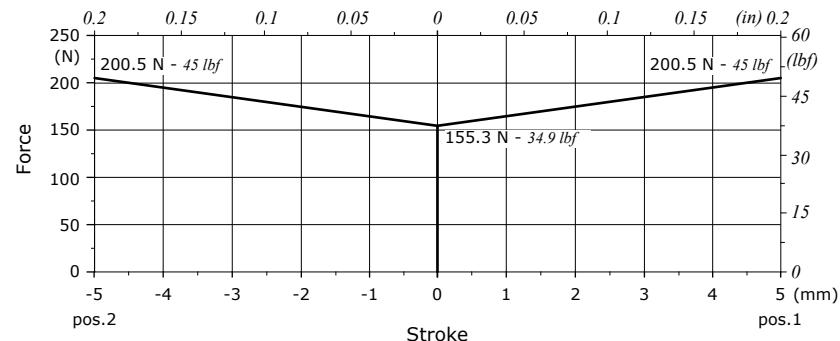
2 position (0-1), spring return  
in neutral position.  
Available with aluminium cap

**M3 type**

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



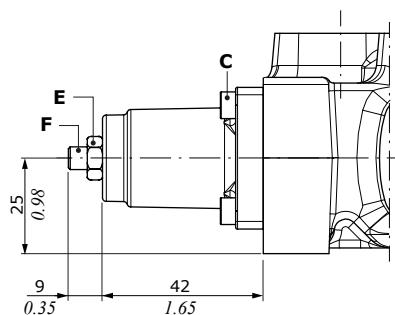
With aluminium cap;  
dimensions are the same of standard type

**M1 control type - Force vs. Stroke diagram****Wrenches and tightening torques**

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

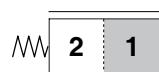
**M1/02 type**

As M1 type, with stroke limiter

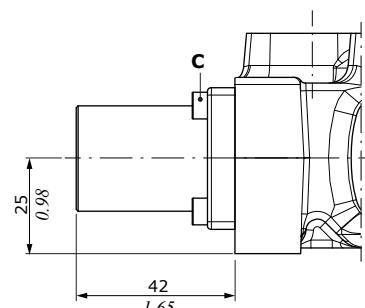
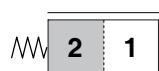
**M4 types**

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



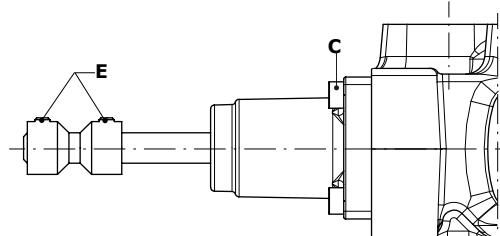
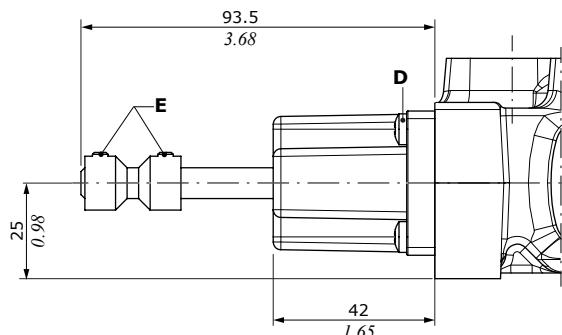
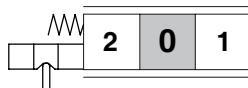
### B side controls

#### Mechanical controls

##### With spring return control

###### **M1-B1 type**

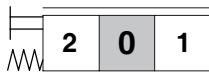
3 position, microswitch arrangement.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

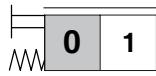
###### **M1-U1 type**

3 position, with M8 male thread external pin



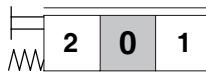
###### **M2-U1 type**

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



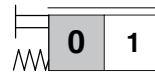
###### **M1-U2 type**

3 position, spring return in neutral position



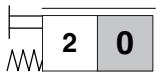
###### **M2-U2 type**

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



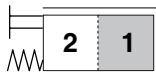
###### **M3-U1 type**

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



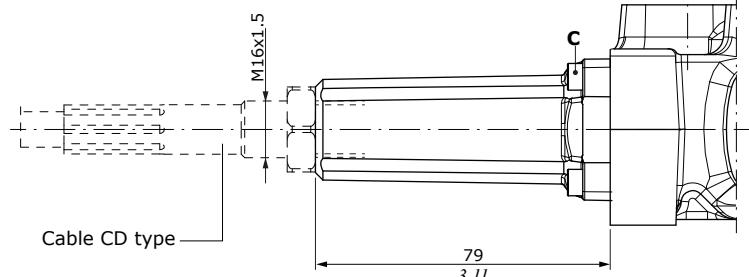
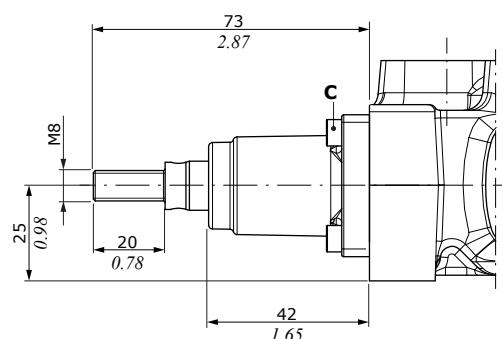
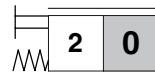
###### **M4-U1 type**

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



###### **M3-U2 type**

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



#### Wrenches and tightening torques

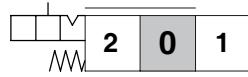
C = allen wrench 3 - 3 Nm (2.2 lbft)

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

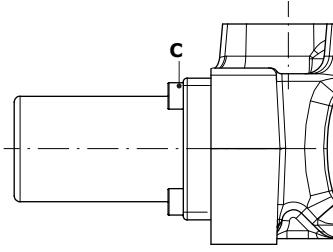
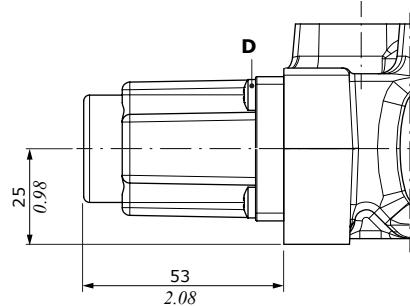
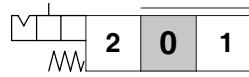
E = allen wrench 3 - 5 Nm (3.68 lbft)

**B side controls****Mechanical controls****With detent control****R1 type**

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

**R2 type**

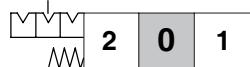
3 position, detent in position 2.  
Available with aluminium cap



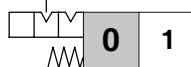
With aluminium cap;  
dimensions are the same of standard type

**R3 type**

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

**R4 type**

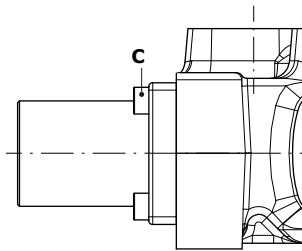
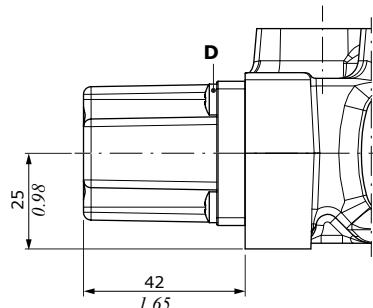
2 position,  
detent in position 0-1.  
Available with aluminium cap

**R5 type**

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

**R6 type**

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



With aluminium cap;  
dimensions are the same of standard type

**Wrenches and tightening torques**

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

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

### B side controls

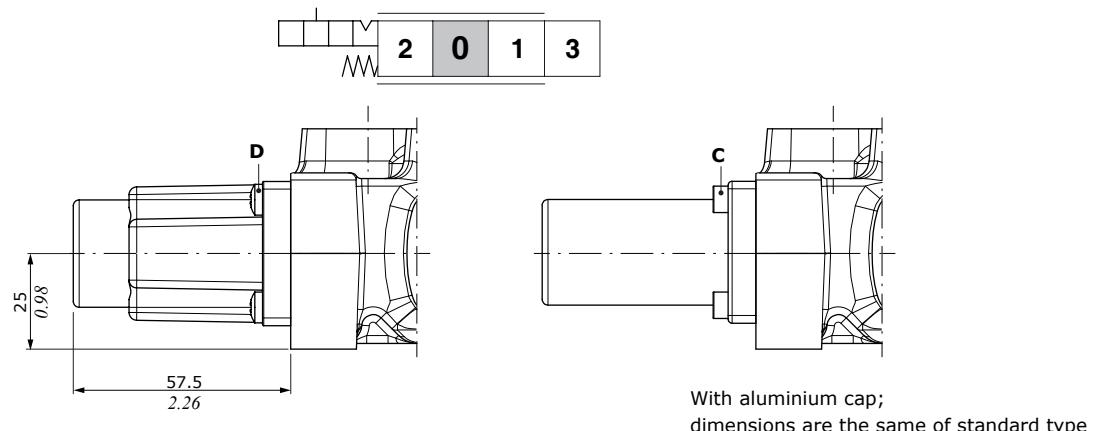
#### Mechanical controls

##### With detent control

###### R8 type

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

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)

E = wrench 22 - 32 Nm (23.6 lbft)

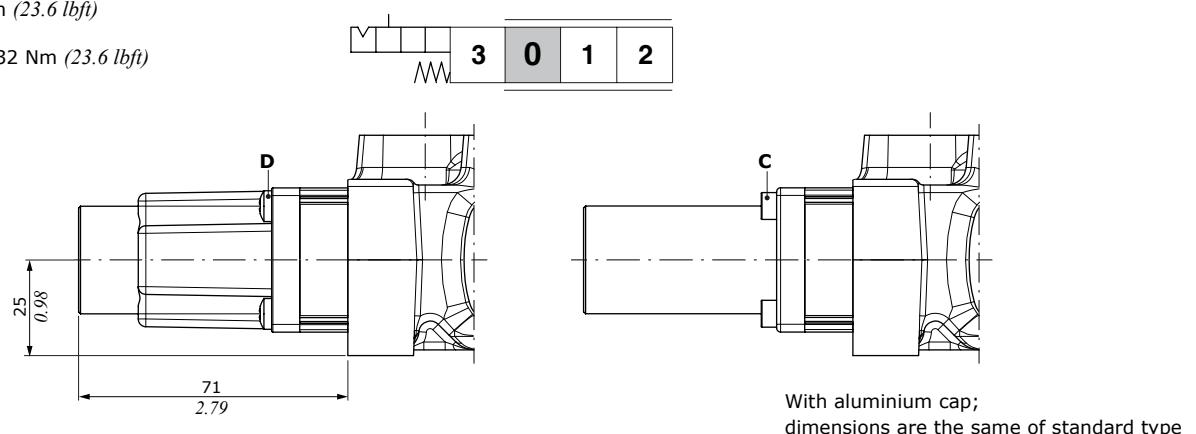
F = wrench 16

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 detent control and kick out function

###### R1K type

3 position, detent in position 1.

Available with aluminium cap

###### R2K type

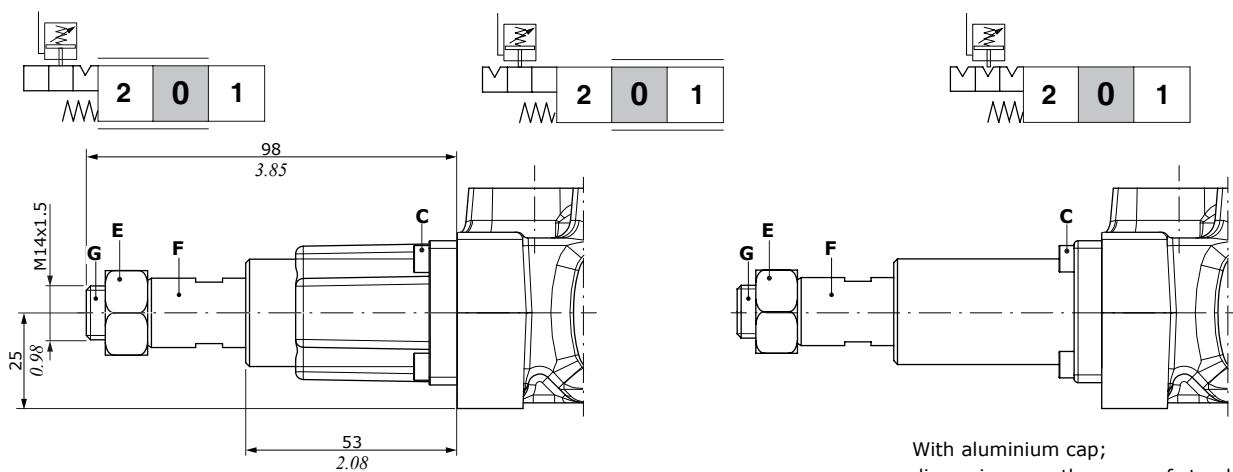
3 position, detent in position 2.

Available with aluminium cap

###### R3K type

3 position, detent in all position.

Available with aluminium cap



**B side controls****Spool position microswitch****M1-N1 type**

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

Available with aluminium cap

**M1-N1A type**

3 position, micro operation in position 1.

Available with aluminium cap

**M1-N1B type**

3 position, micro operation in position 2.

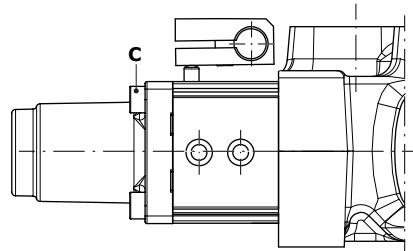
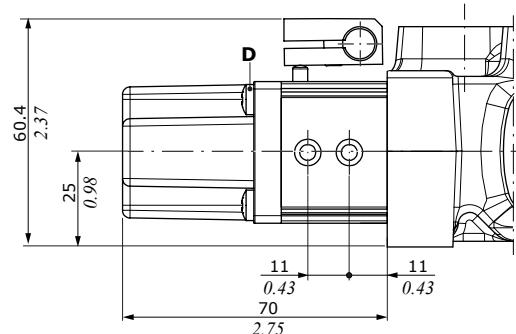
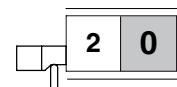
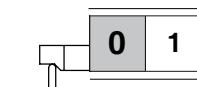
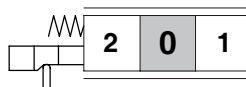
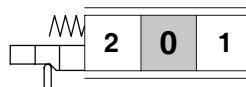
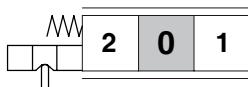
Available with aluminium cap

**M2-N1 type**

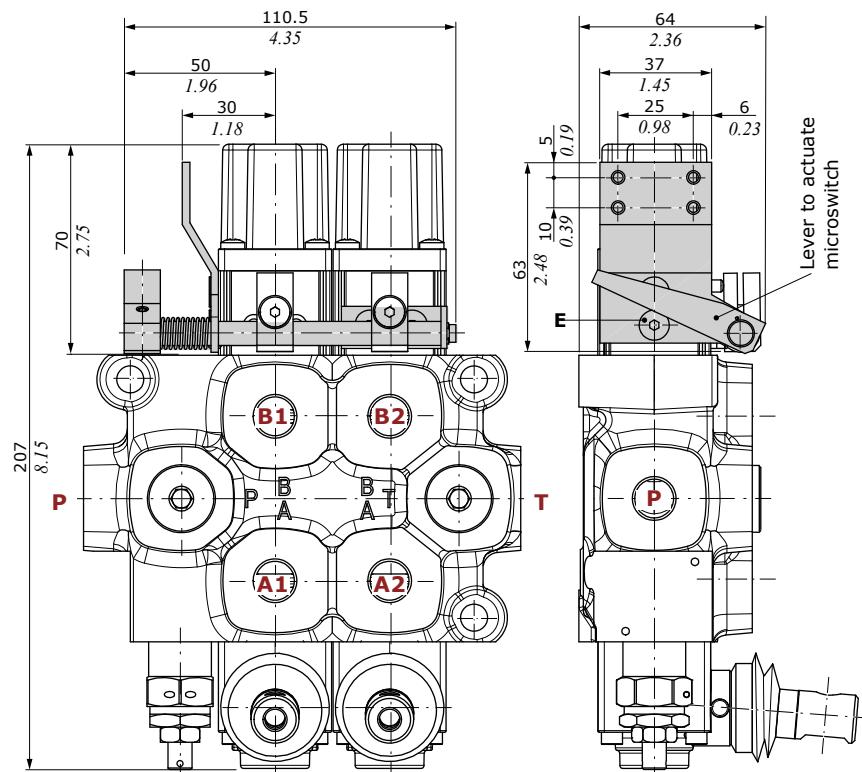
2 position (0-1) spring return in neutral position

**M3-N1 type**

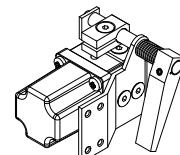
2 position (0-2) spring return in neutral position



With aluminium cap;  
dimensions are the same of standard type

**Microswitch assembly kit for 2 working section (M1-N1 type)****Wrenches and tightening torques**

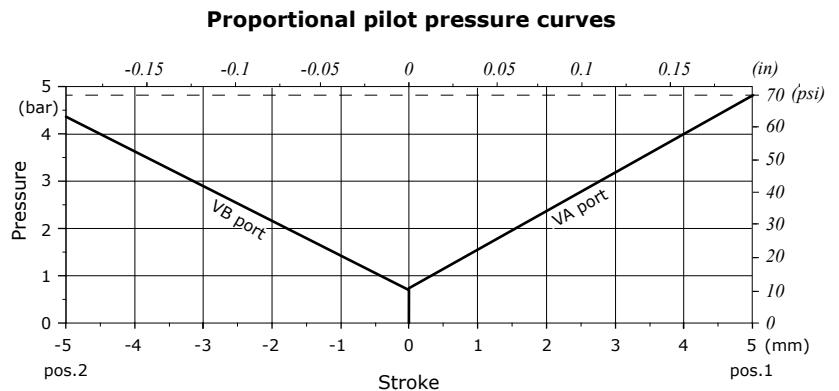
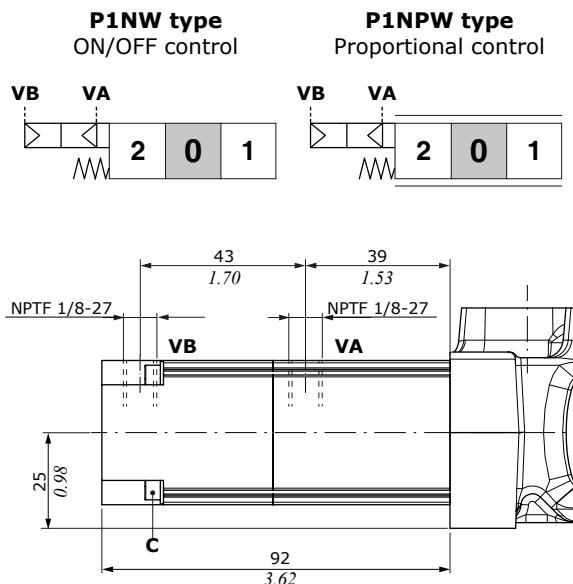
C = allen wrench 3 - 3 Nm (2.2 lbft)  
D = cross-head - 3 Nm (2.2 lbft)  
E = allen wrench 3 - 6.6 Nm (4.8 lbft)



Drawing is referred to a Q25 monoblock valve.

### B side controls

#### Pneumatic control

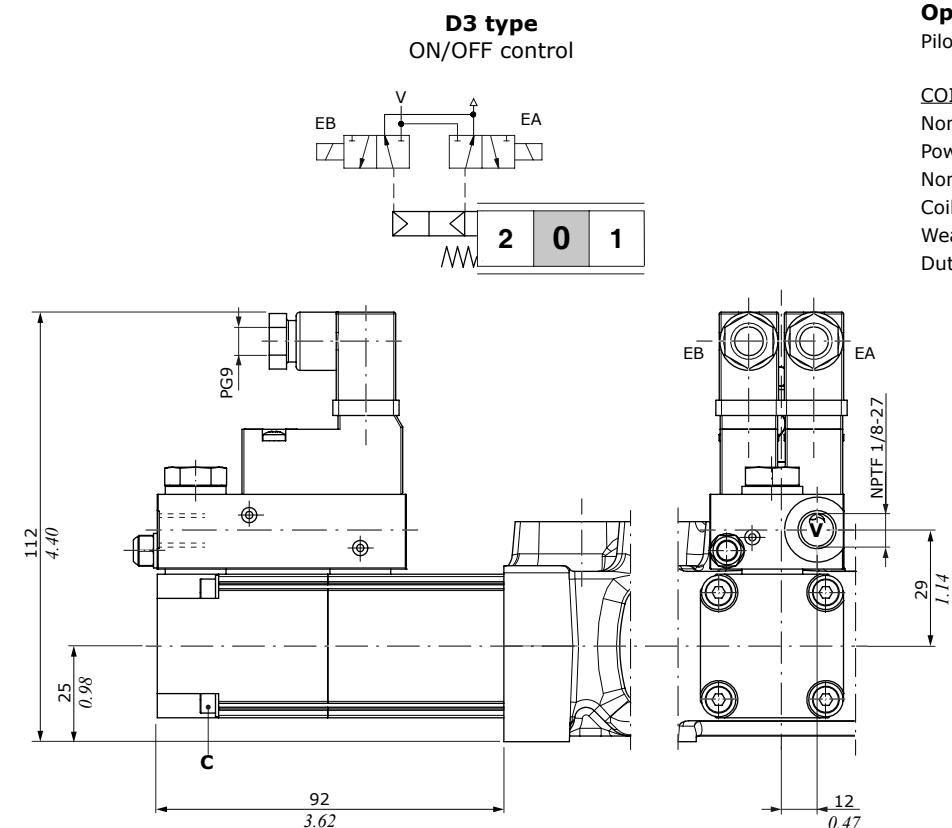


#### Operating features

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



#### Operating features

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

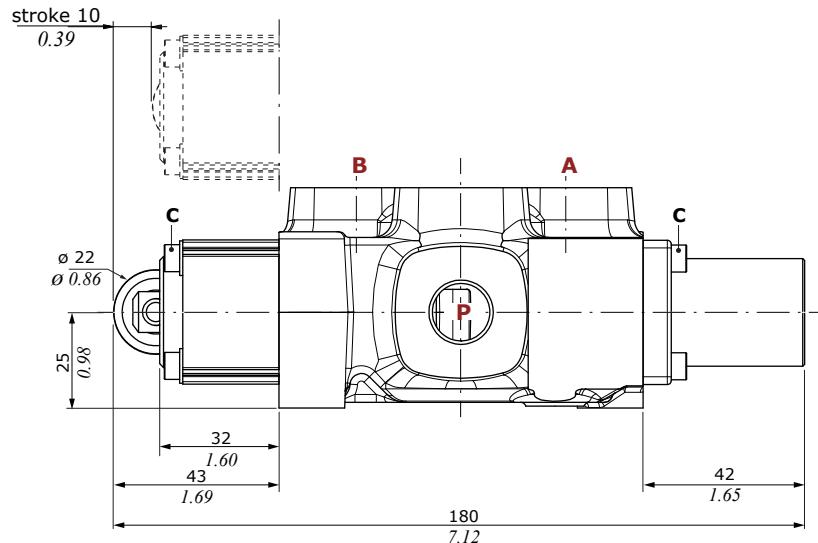
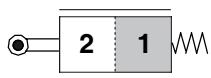
#### COILS

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%

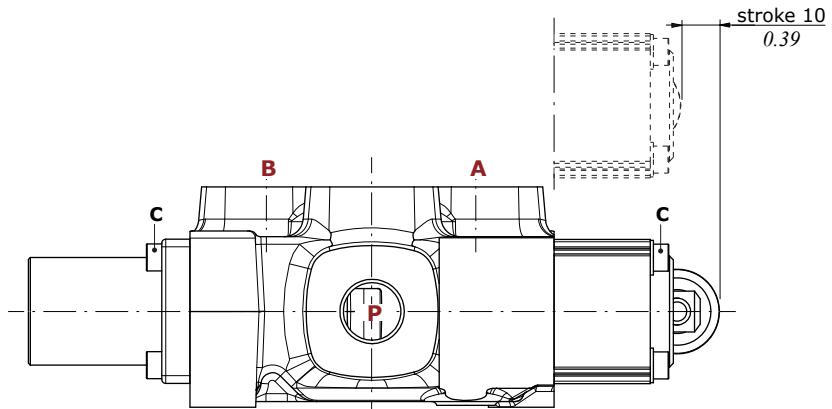
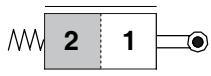
**Wrenches and tightening torques**  
C = allen wrench 3 - 3 Nm (2.2 lbft)

**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/in)**C3 type**

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

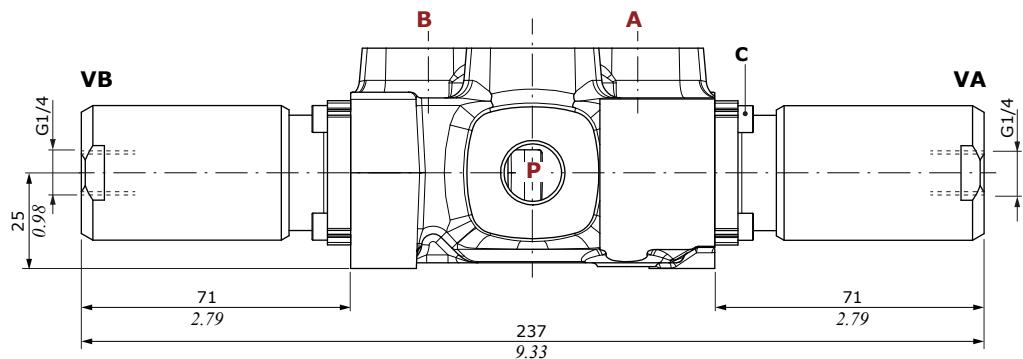
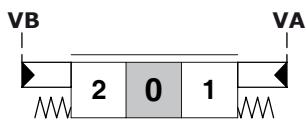


### A+B side controls

#### Proportional hydraulic controls

##### H1 type

High pressure control  
with side ports

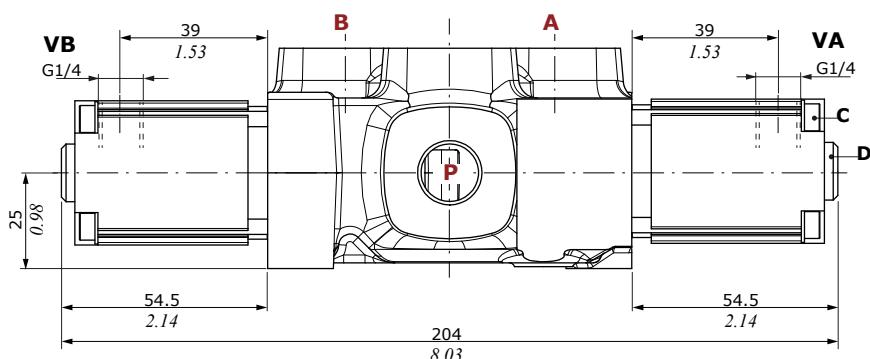
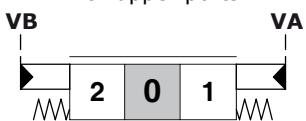


#### Operating features

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

##### H5 type

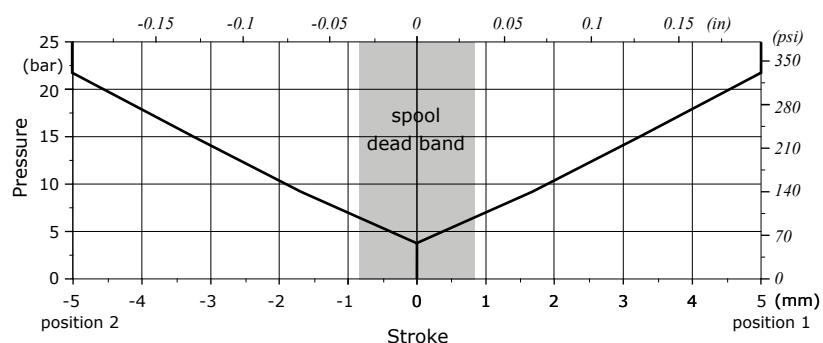
Low pressure control  
with upper ports



#### Operating features

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

**Stroke vs. Pressure diagram for H5 type control**



#### Wrenches and tightening torques

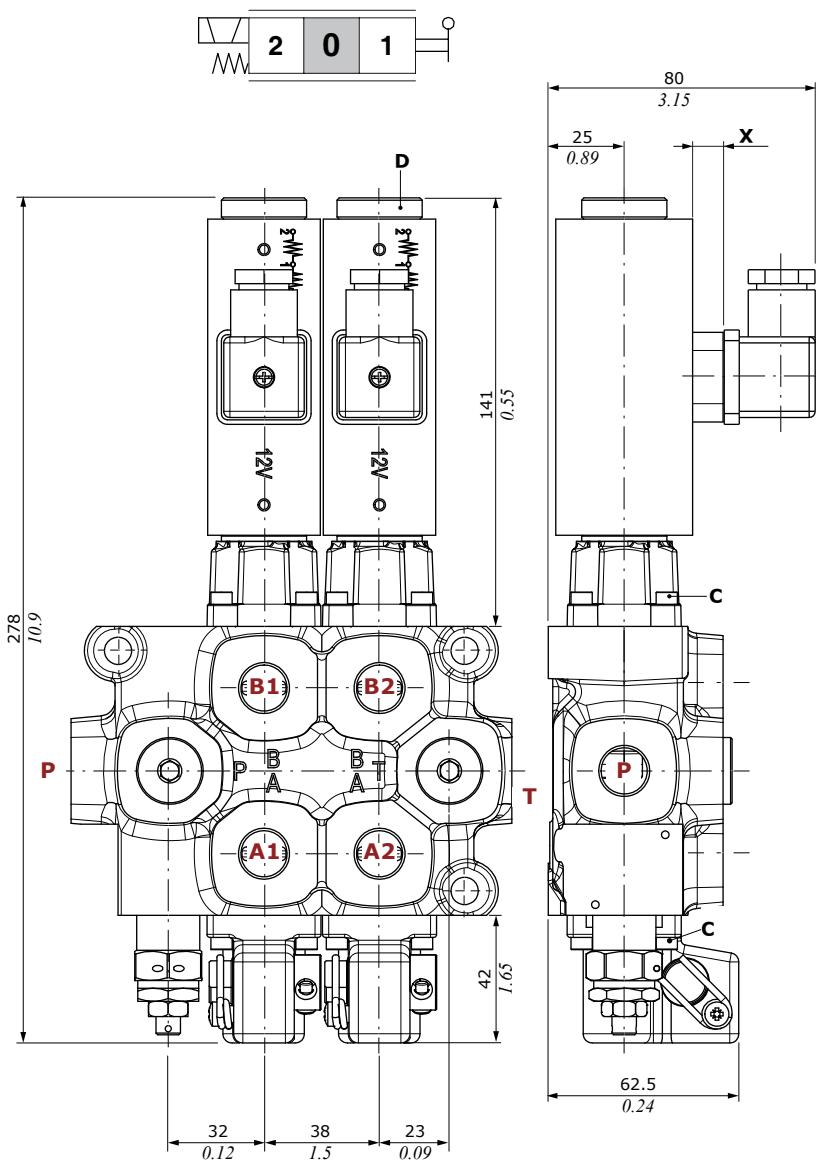
C = allen wrench 3 - 3 Nm (2.2 lbft)

D = allen wrench 4 - 9.8 Nm (7.2 lbft)

## Direct solenoid control

## D41 type: ON/OFF one side

Drawing is referred to a Q25 monoblock valve.



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

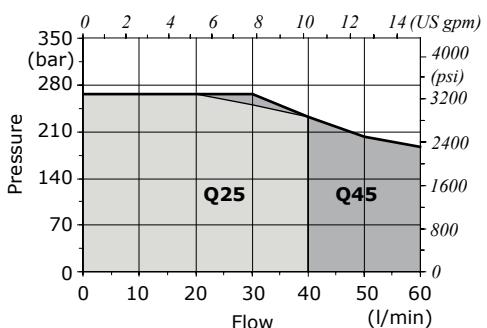
Connector type: ISO4400 3P+T-PG11

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

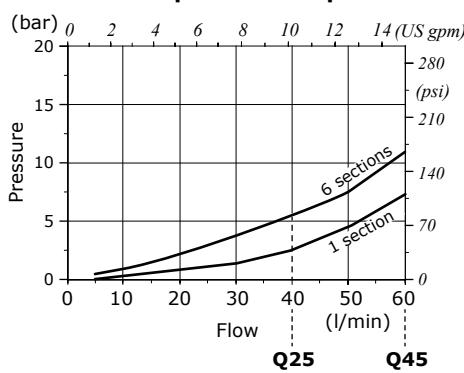
## Wrenches and tightening torques

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

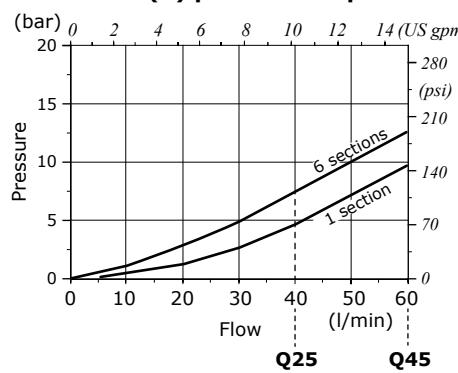
## Dynamic conditions



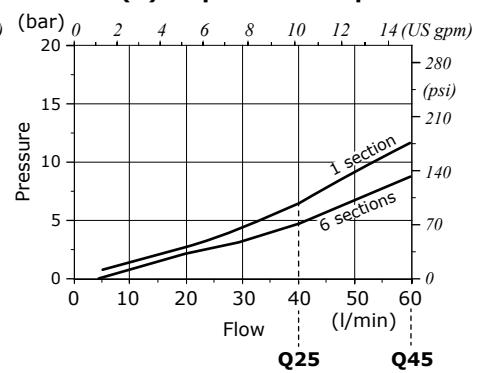
## P⇒T pressure drops



## P⇒A(B) pressure drops



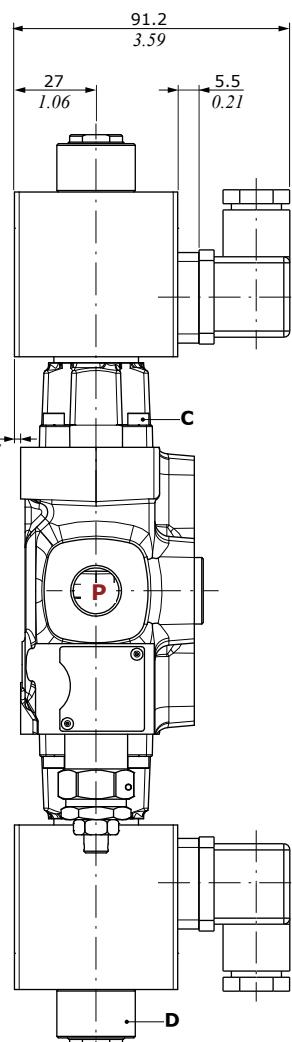
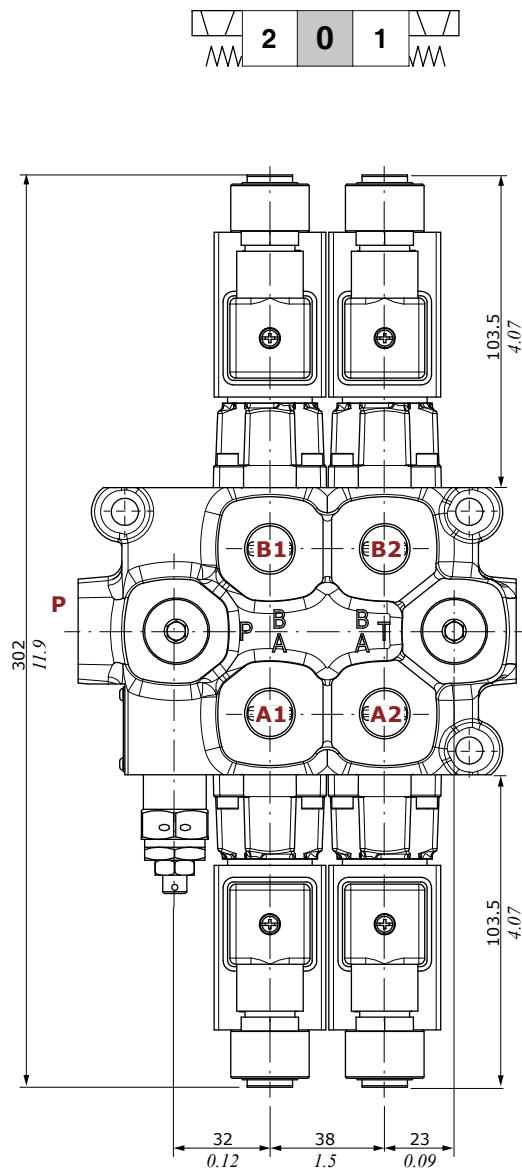
## A(B)⇒T pressure drops



### Direct solenoid control

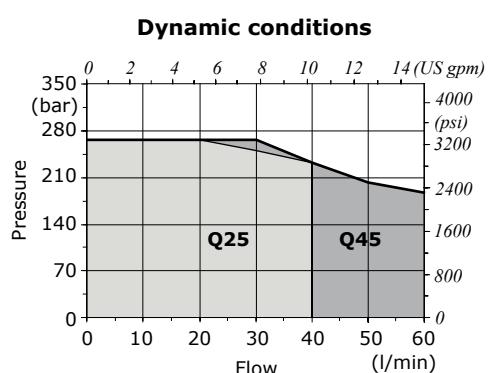
#### D9 type: ON/OFF two side

Drawing is referred to a Q25 monoblock valve.

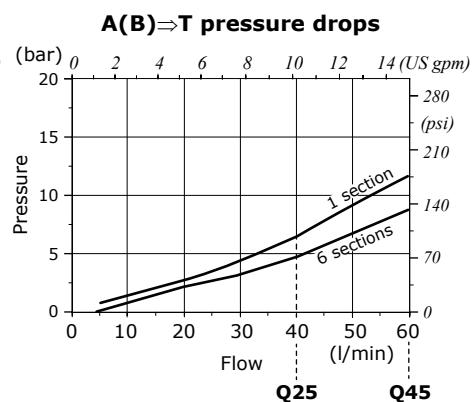
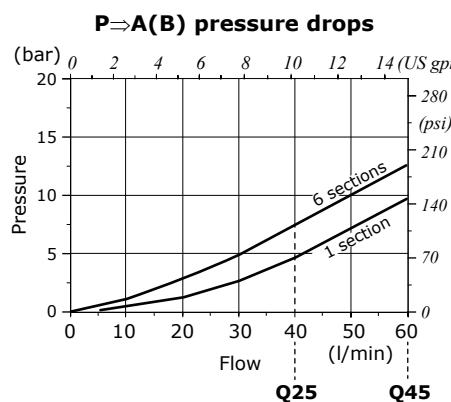
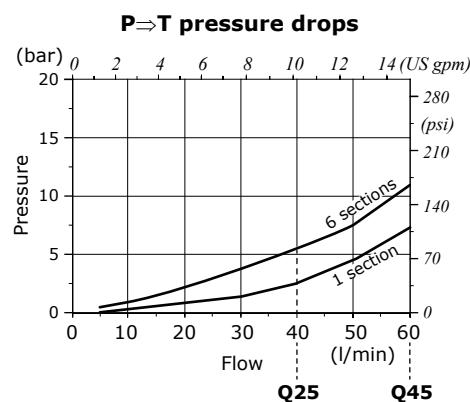


D9 coil	
Nominal voltage	12 VDC 24 VDC
Nominal voltage tolerance	±10%
Power rating	58 W
Insulation	Class H
Weather protection	IP65

Connector type: ISO4400 3P+T-PG11

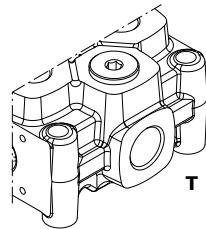
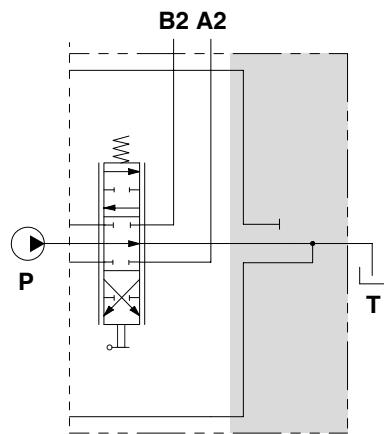
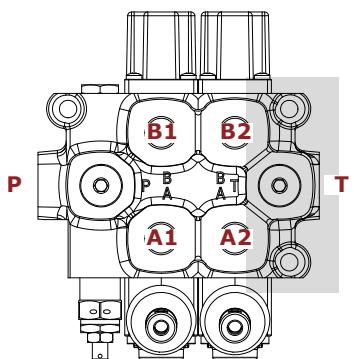


**Wrenches and tightening torques**  
 C = allen wrench 3 - 3 Nm (2.2 lbft)  
 D = manual tightening - 6.6 Nm (4.8 lbft)

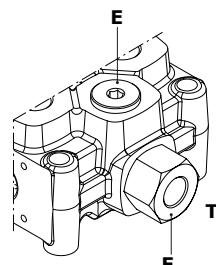
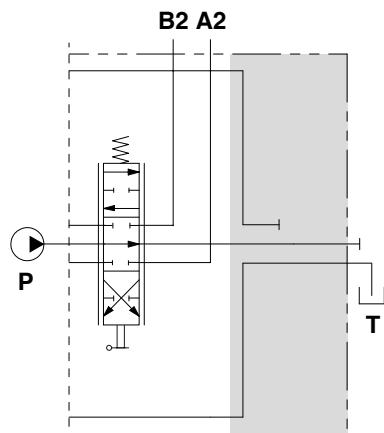
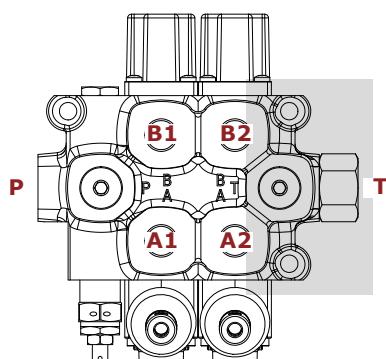


## Outlet configuration

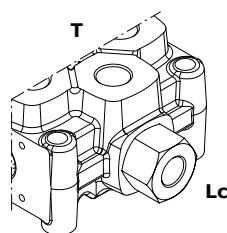
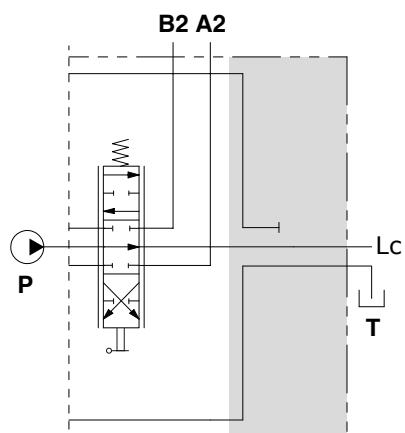
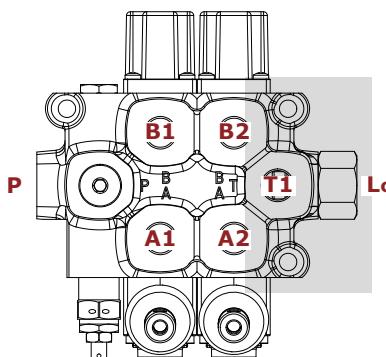
**F3D configuration**  
Open center configuration



**F16D configuration**  
Closed center configuration



**F6D configuration**  
Carry-over configuration

**Wrenches and tightening torques**

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

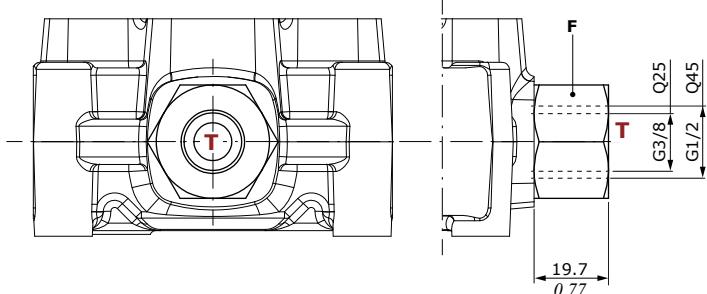
(Q45) = allen wrench 8 - 42 Nm (22 lbft)

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  $46 \text{ mm}^2/\text{s}$  -  $46 \text{ cSt}$  viscosity at  $40^\circ\text{C}$  -  $104^\circ\text{F}$  temperature.

	<b>Q75</b>	<b>Q95</b>
Nominal flow rating	80 l/min - (22 Us gpm)	100 l/min - (27 Us gpm)
Max. pressure	from 1 up to 2 sections 3 sections from 4 up to 6 sections	350 bar (5070 psi) 300 bar (4350 psi) 270 bar (3900 psi)
Max. back pressure on outlet T port		25 bar (360 psi)
Number sections		from 1 to 6
Internal leakage A(B)⇒T	$\Delta p = 100 \text{ bar (1450 psi)}$	6 $\text{cm}^3/\text{min}$ (0.36 $\text{in}^3/\text{min}$ )
Fluid		Mineral oil
Fluid temperature	with NBR (BUNA-N) seals	from $-30^\circ\text{C}$ to $80^\circ\text{C}$ - from $-22^\circ\text{F}$ to $176^\circ\text{F}$
Viscosity	operating range	from 10 to 400 $\text{mm}^2/\text{s}$ - from 10 to 400 $\text{cSt}$
Max. contamination level		16/14/12 - ISO 4406 - NAS1638 class 6
Ambient temperature	without electric devices with electric devices	from $-40^\circ\text{C}$ to $60^\circ\text{C}$ - from $40^\circ\text{F}$ to $140^\circ\text{F}$ from $-20^\circ\text{C}$ to $50^\circ\text{C}$ - from $-4^\circ\text{F}$ to $122^\circ\text{F}$

NOTES - For different conditions please contact our Sales Department.

#### REFERENCE STANDARD

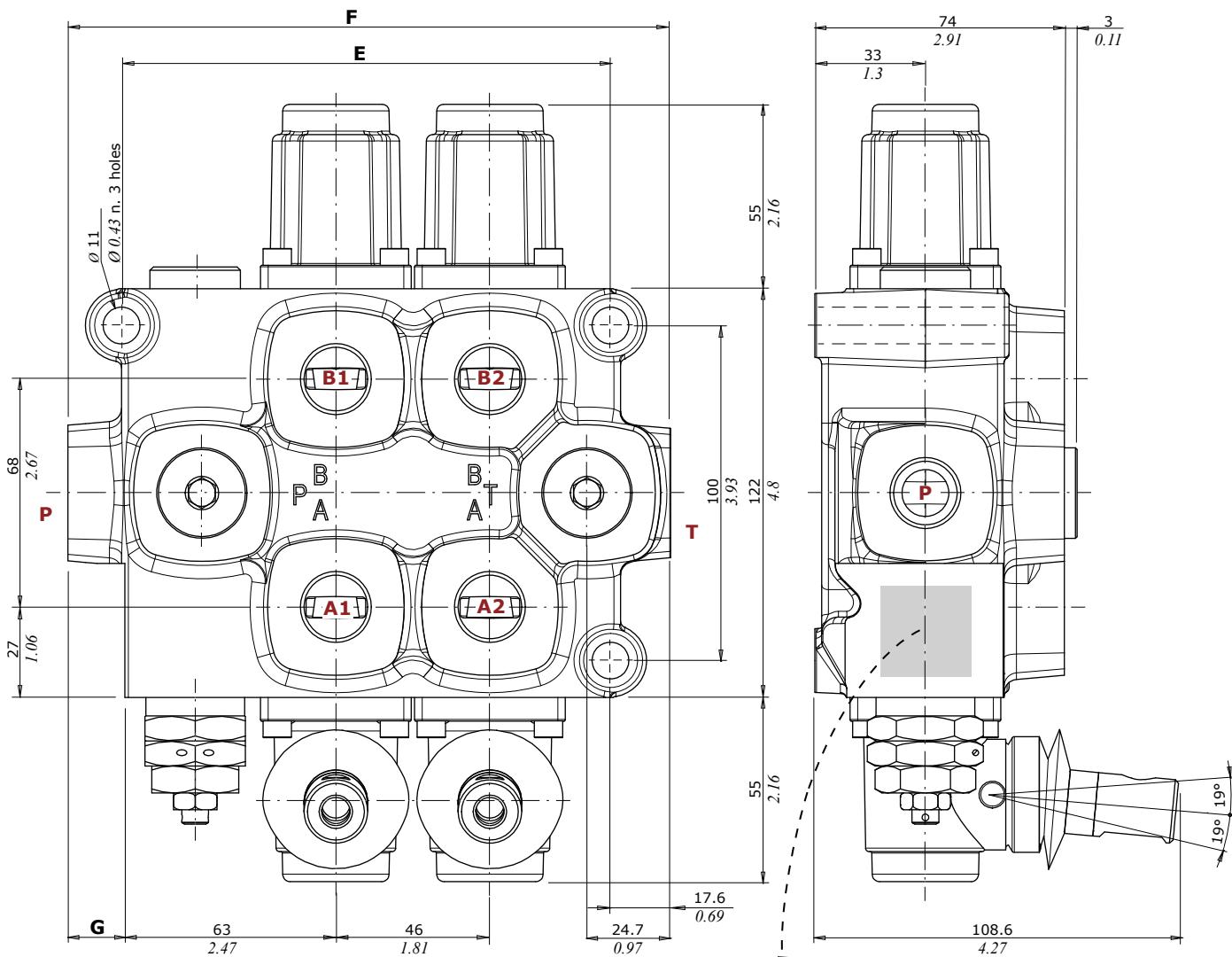
	<b>BSP</b>	<b>UN-UNF</b>
THREAD ACCORDING TO	ISO 228/1 BS 2779	ISO 263 ANSI B.1 unified
CAVITY DIMENSION ACCORDING TO	ISO SAE DIN	1179 11926 J11926 3852-2 shape X or Y

#### PORT THREADING

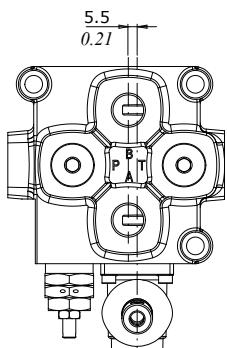
<b>PORTS</b>	<b>Q75</b>		<b>Q95</b>	
	<b>BSP</b>	<b>UN-UNF</b>	<b>BSP</b>	<b>UN-UNF</b>
<b>P</b> Inlet	G 1/2	7/8-14 (SAE 10)	G 3/4	1" 1/16-12 (SAE 12)
<b>P1</b> Inlet	G 1/2	7/8-14 (SAE 10)	G 3/4	1" 1/16-12 (SAE 12)
<b>A</b> and <b>B</b> ports	G 1/2	7/8-14 (SAE 10)	G 3/4	1" 1/16-12 (SAE 12)
<b>T</b> Outlet	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

**Galtech**

MADE IN ITALY

025030103251000

Q75/1-F75(R250)-

103/A1/M1/F3D

MD1600464-001

Product code

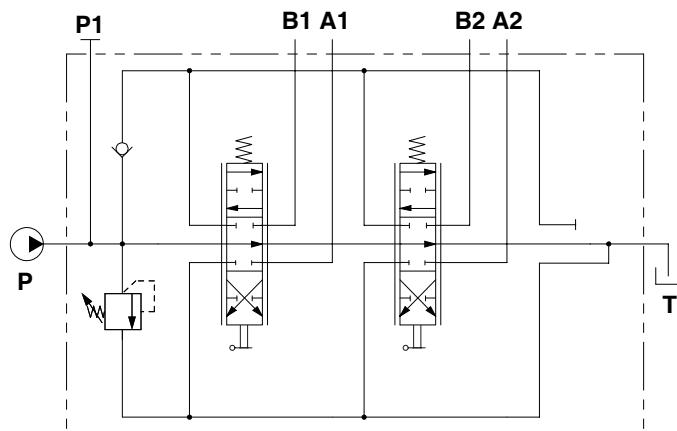
Customer reference or code description

Product allotment

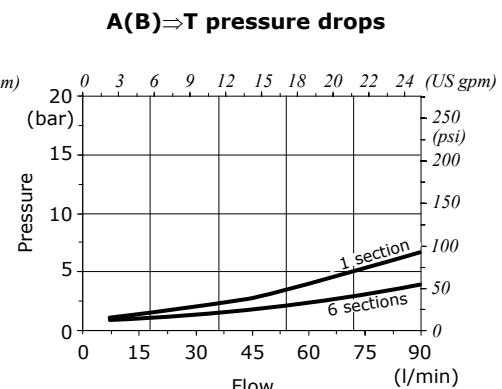
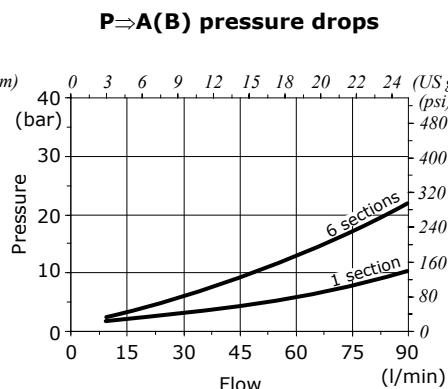
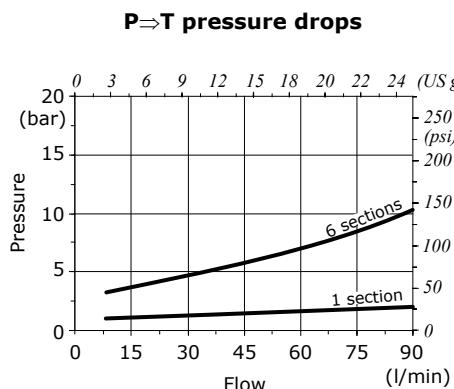
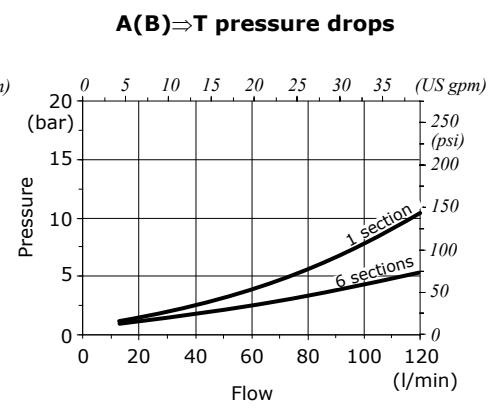
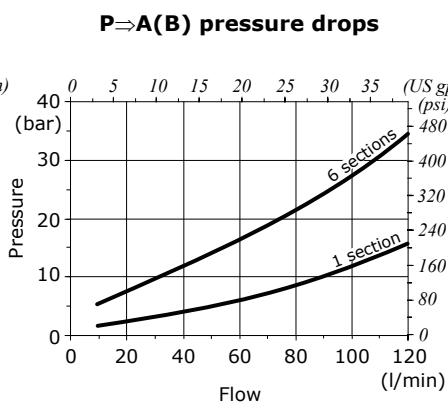
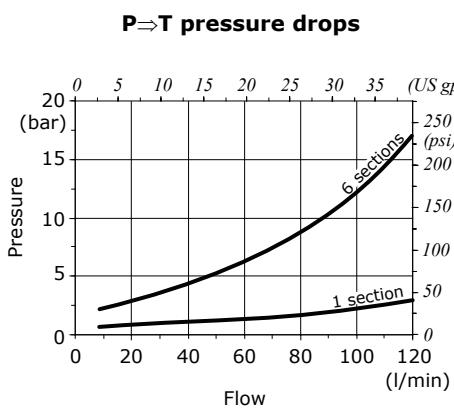
Datamatrix with product allotment

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

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

**Hydraulic circuit**

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

**Performance data****Q75****Q95**

### Parts ordering codes

#### Mechanical control valve configuration example

valve setting (bar)

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

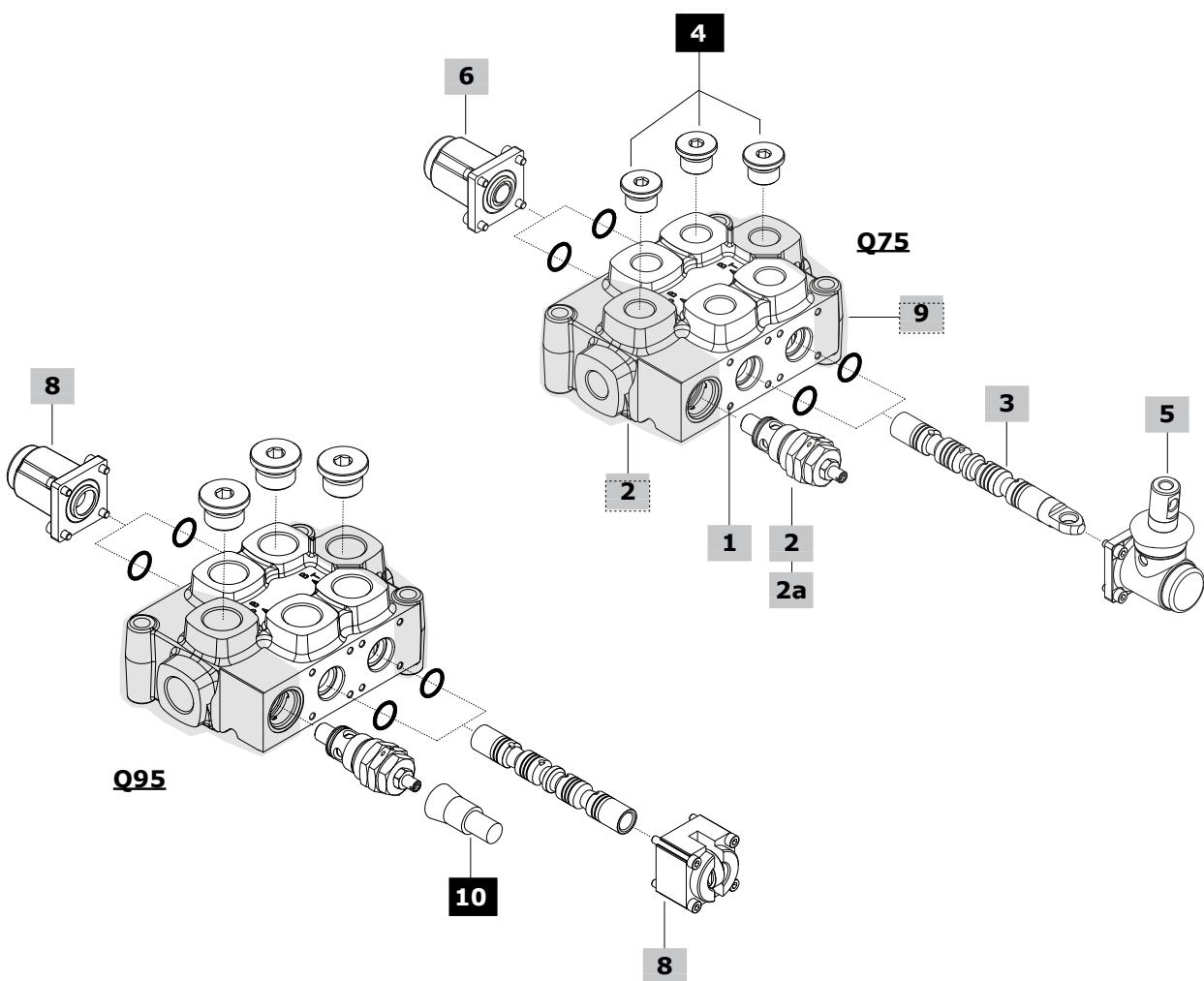
1      2      2a      3      5      6      9

N. of section

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

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

8



**Parts ordering codes****1 Body kit\***

The codes are referred to sections with O-ring seals

TYPE	CODE	DESCRIPTION
<b>Q75/1</b>	5KC0600129549	1 section
<b>Q75/2</b>	5KC0600127951	2 sections
<b>Q75/3</b>	5KC0600127952	3 sections
<b>Q75/4</b>	5KC0600127953	4 sections
<b>Q75/5</b>	5KC0600127513	5 sections
<b>Q75/6</b>	5KC0600131252	6 sections

TYPE	CODE	DESCRIPTION
<b>Q95/1</b>	5KC0600129646	1 section
<b>Q95/2</b>	5KC0600130377	2 sections
<b>Q95/3</b>	5KC0600130378	3 sections
<b>Q95/4</b>	5KC0600132067	4 sections
<b>Q95/5</b>	5KC0600131717	5 sections
<b>Q95/6</b>	5KC0600131453	6 sections

**2 Inlet configuration\*****page 71**

TYPE	DESCRIPTION
<b>F1S</b>	With load check and pressure relief valves
<b>F2S</b>	With load check valve
<b>F7S</b>	With pressure relief valve
<b>F8S</b>	Without valves (pressure relief valve plugged port)
<b>Note:</b>	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 G1/2 plug, see #4

Q95 valve required G3/4 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	G1/2 plug for Q75 body kit
-	3XTAP732200	G3/4 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>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>		

With spool position microswitch:

<b>Note:</b>	To complete the control you must use the assembly kit at #7
<b>N1-A1</b>	08641N1-A1/A2
<b>N1A-A1</b>	08642N1A-A1/A2
<b>N1B-A1</b>	08643N1B-A1/A2
<b>N1-A3</b>	08648N1-A3L
<b>N1A-A3</b>	08648N1A-A3
<b>N1B-A3</b>	08648N1B-A3
<u>Without lever control:</u>	
<b>A3</b>	08614A3
<b>A4</b>	08617A4
<b>A5<sup>(2)</sup></b>	08619A5

(\*): Codes are referred to **BSP** 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>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
<b>For types 103 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

**9 Outlet configuration\*****page 87**

TYPE	DESCRIPTION
<b>F3D</b>	Open center configuration: for Q75 n. 1 G1/2 plug code 060002792099, on T1 port; for Q95 n. 1 G3/4 plug code 3XTAP732200, on T1 port
<b>F6D</b>	Closed center configuration: for Q75 n. 1 G1/2 joint code 060002315899, on T port; for Q95 n. 1 G3/4 joint code 060002790899, on T port
<b>F16D</b>	Carry-over configuration: for Q75 n. 1 G1/2 plug code 060002792099, on T1 port; for Q75 n. 1 G1/2 joint code 060002530199, on T port; for Q95 n. 1 G3/4 plug code 3XTAP732200, on T1 port; for Q95 n. 1 G3/4 joint code 060003016499, on T port

**10 Accessory**

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

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

## Parts ordering codes

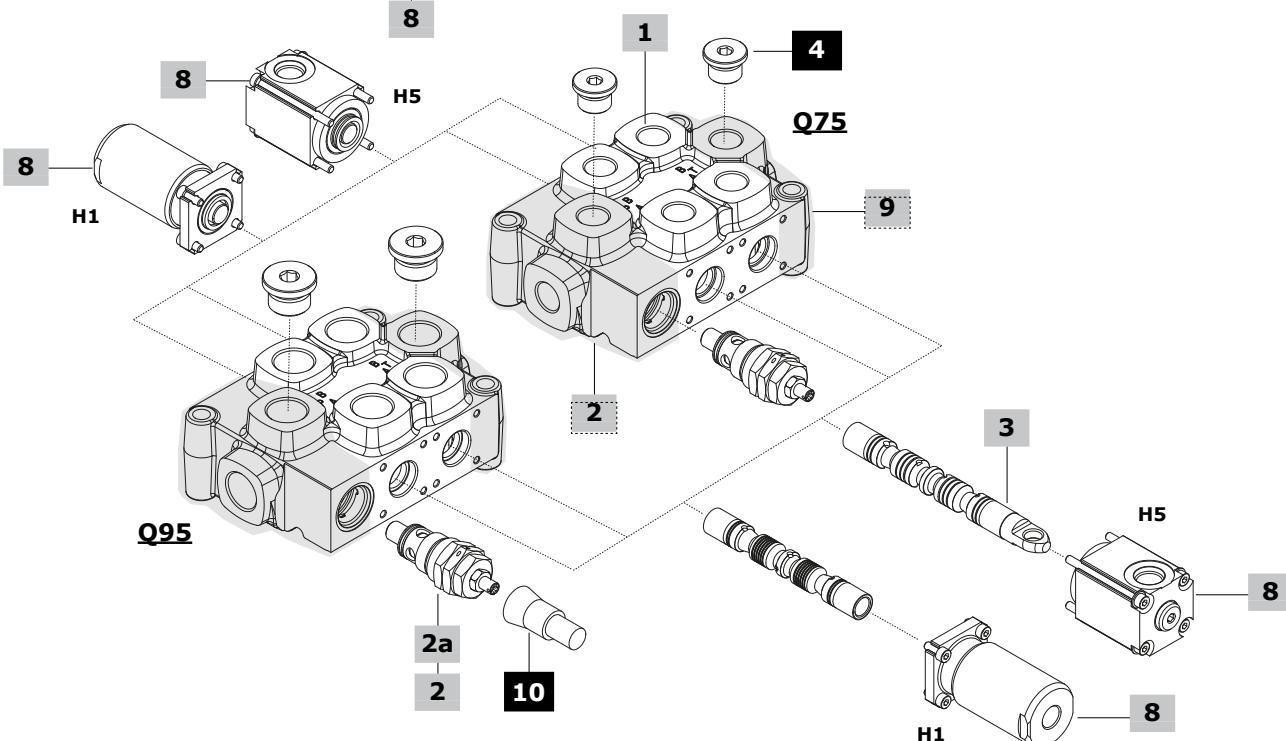
Proportional hydraulic controls valve configuration example

N. of section      valve setting (bar)

**Q75 / 2 / F1S (N150) / 103 - H5 / 103 - H5 / F3D**

1      2      2a      3      8      9

**Q95 / 2 / F1S (N150) / 103 - H1 / 103 - H1 / F3D**

**1 Body kit\***

TYPE	CODE	DESCRIPTION
<b>Q75/1</b>	5KC0600129549A	1 section
<b>Q75/2</b>	5KC0600127951A	2 sections
<b>Q75/3</b>	5KC0600127952A	3 sections
<b>Q75/4</b>	5KC0600127953A	4 sections
<b>Q75/5</b>	5KC0600127513A	5 sections
<b>Q75/6</b>	5KC0600131252A	6 sections

TYPE	CODE	DESCRIPTION
<b>Q95/1</b>	5KC0600129646A	1 section
<b>Q95/2</b>	5KC0600130377A	2 sections
<b>Q95/3</b>	5KC0600130378A	3 sections
<b>Q95/4</b>	5KC0600132067A	4 sections
<b>Q95/5</b>	5KC0600131717A	5 sections
<b>Q95/6</b>	5KC0600131453A	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>For H5 hydraulic control</b>		
<b>103</b>	060102894999	Double acting, A and B closed in neutral position
<b>For H1 hydraulic control</b>		
<b>103</b>	060102879099	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 P-T ports\***

See #4, page 67

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

page 85

TYPE	CODE	DESCRIPTION
<b>H5</b>	08785H5	Low pressure proportional type, upper ports
<b>H1</b>	08779H1	High pressure proportional type, side ports

**9 Outlet configuration\***

page 87

See #9, page 68

**10 Accessory**

See #10, page 68

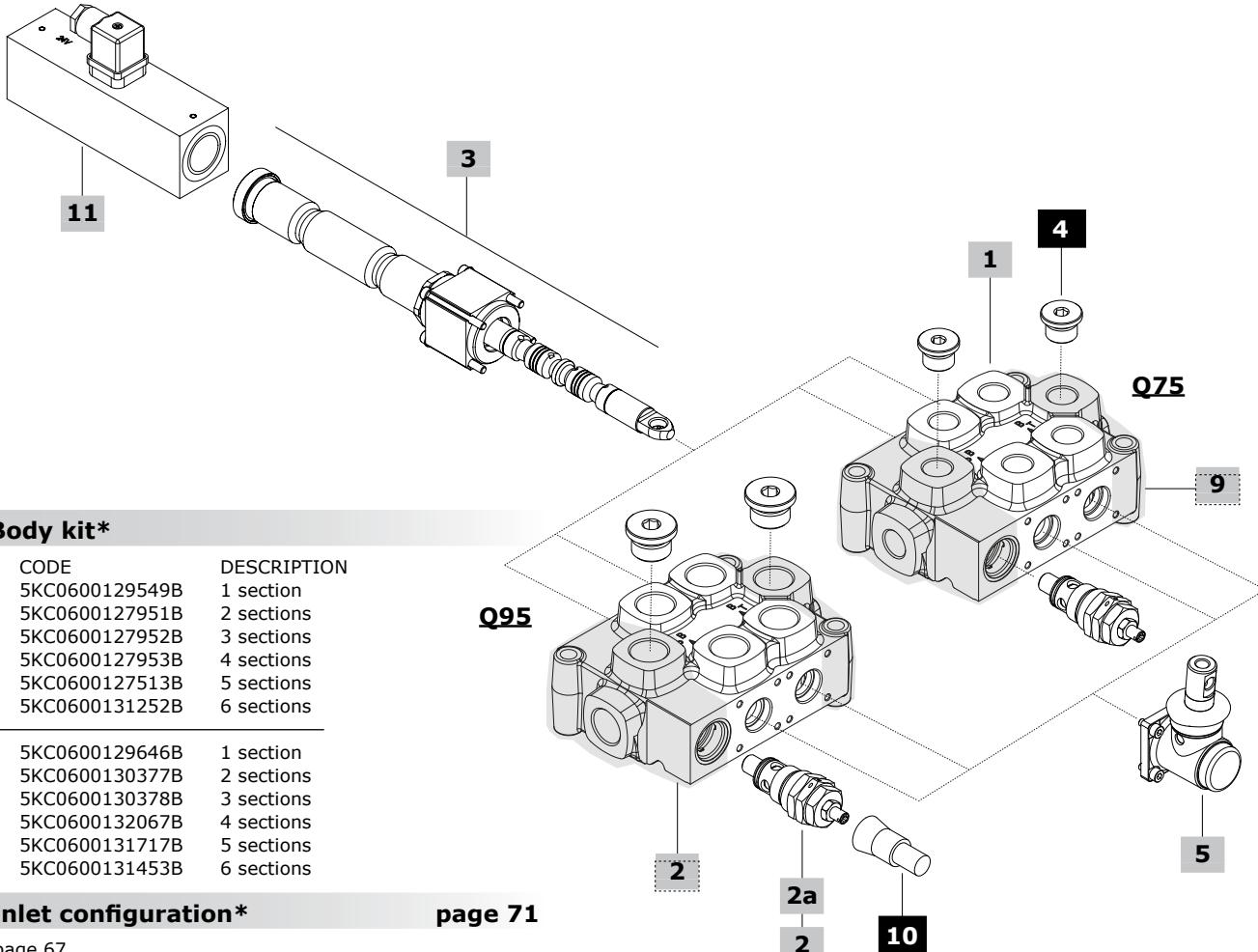
(\*): Codes are referred to **BSP** thread

**Parts ordering codes****One side - ON/OFF direct solenoid control valve configuration example**

valve setting (bar)

**Q75 / 2 / F1S (N150) / 102 - A1 - D41 / 103 - A1 - D41 / F3D - 12VDC**

N. of section

**1 Body kit\***

TYPE	CODE	DESCRIPTION
<b>Q75/1</b>	5KC0600129549B	1 section
<b>Q75/2</b>	5KC0600127951B	2 sections
<b>Q75/3</b>	5KC0600127952B	3 sections
<b>Q75/4</b>	5KC0600127953B	4 sections
<b>Q75/5</b>	5KC0600127513B	5 sections
<b>Q75/6</b>	5KC0600131252B	6 sections

TYPE	CODE	DESCRIPTION
<b>Q95/1</b>	5KC0600129646B	1 section
<b>Q95/2</b>	5KC0600130377B	2 sections
<b>Q95/3</b>	5KC0600130378B	3 sections
<b>Q95/4</b>	5KC0600132067B	4 sections
<b>Q95/5</b>	5KC0600131717B	5 sections
<b>Q95/6</b>	5KC0600131453B	6 sections

**2 Inlet configuration\***

page 71

See #2, page 67

**2a Main pressure relief valve**

page 72

See #2a, page 67

**3 Solenoid control**

page 86

TYPE	CODE	DESCRIPTION
<b>103</b>	X0601030059	Tube assembly with double acting spool, A and B closed in neutral position
<b>111</b>	X0601030043	Tube assembly with double acting spool, A and B to tank in neutral position
<b>101</b>	X0601030060A	Tube assembly with single acting spool on port A (1)
<b>102</b>	X0601030060B	Tube assembly with single acting spool on port B (1)

**Note (1):** Q75 valve required G1/2 plug, see #4  
Q95 valve required G3/4 plug, see #4

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

See #4, page 67

**5 A side control**

page 86

TYPE	CODE	DESCRIPTION
<b>A1</b>	08600A1-A2	M10 thread cast iron lever box
<b>A2</b>	08600A1-A2	As A1 type, with lever box rotated 180°

**9 Outlet configuration\***

page 87

See #9, page 68

**10 Accessory**

See #10, page 68

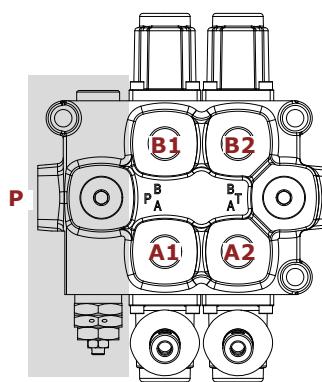
**11 Coil**

page 86

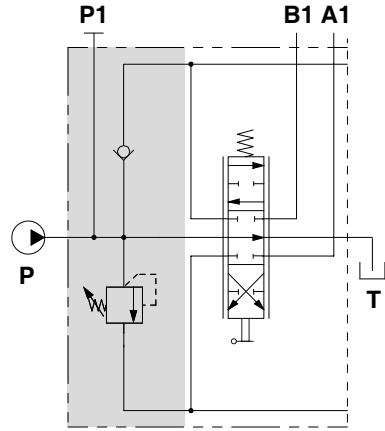
TYPE	CODE	DESCRIPTION
-	ZEB112	12 VDC ISO4400 coil
-	ZEB124	24 VDC ISO4400 coil

**Note:** The connector is included

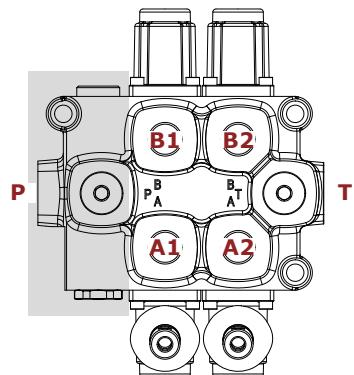
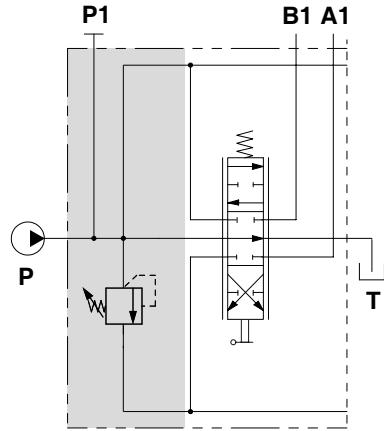
(\*) Codes are referred to **BSP** thread

**Inlet configuration**

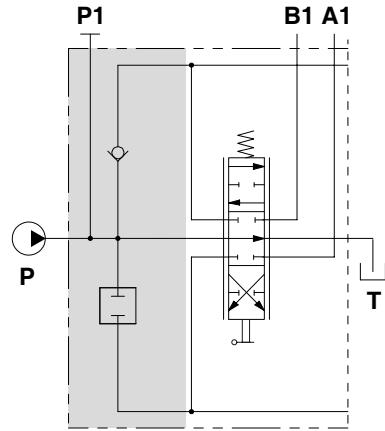
**F1S configuration**  
With load check and pressure relief valve



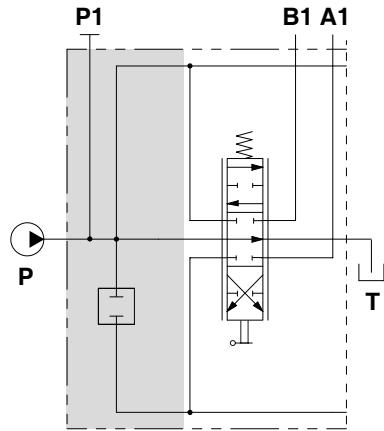
**F7S configuration**  
With pressure relief valve

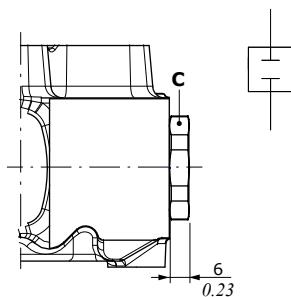
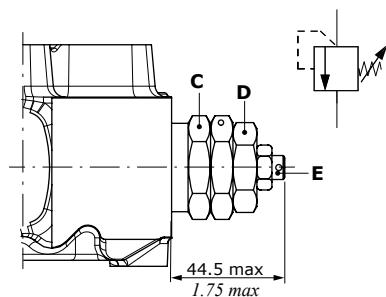


**F2S configuration**  
With load check valve

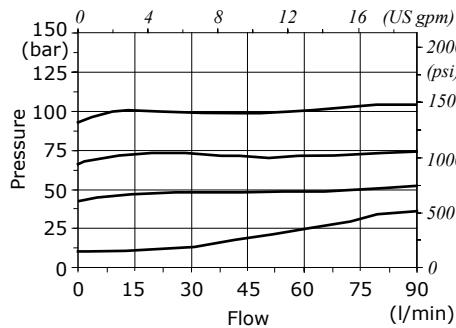
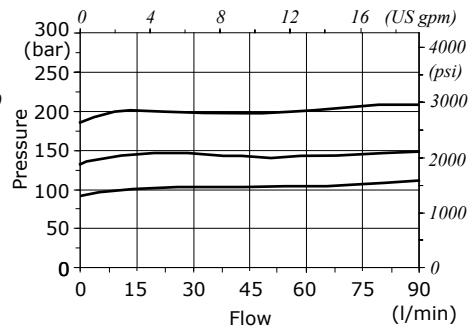
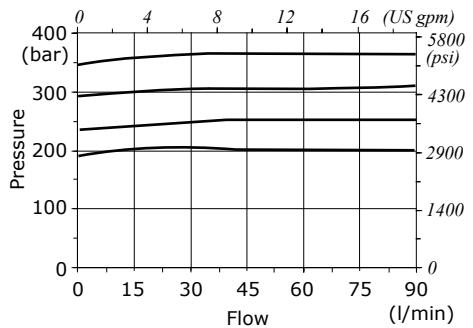


**F8S configuration**  
Without valves  
(pressure relief valve plugged port)



**Main pressure relief valve****Relief valve blanking plug****Main pressure relief valve****Spring type      Setting ranges (bar - psi)**

<b>B (white)</b>	From 10 to 100 - from 145 to 1450
<b>N (black)</b>	From 101 to 200 - from 1460 to 2900
<b>R (red)</b>	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)

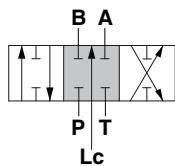
D = wrench 26 - 42 Nm (35.2 lbf)

E = allen wrench 4

**Spool****103 type**

A and B closed  
in neutral position

2 0 1

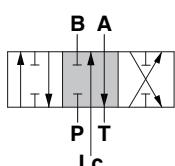
**Stroke**

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

**107 type**

A to tank, B closed  
in neutral position

2 0 1

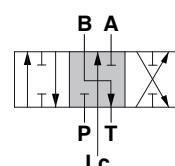
**Stroke**

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

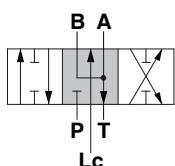
**Stroke**

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

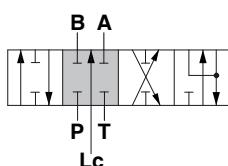
**Stroke**

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

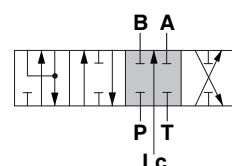
**Stroke**

Position 1: - 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)

3 2 0 1

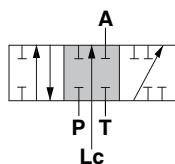
**Stroke**

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

2 0 1

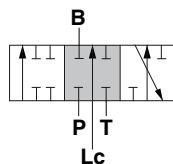
**Stroke**

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)

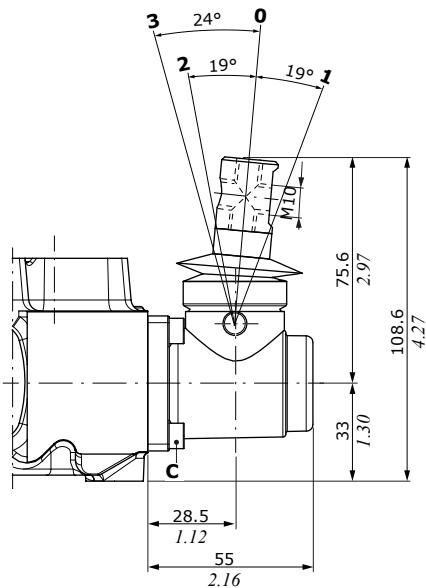
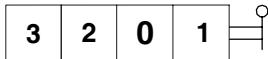
### A side controls

#### Mechanical controls

##### With lever control

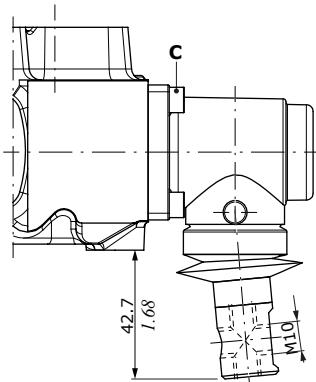
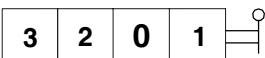
###### **A1 type**

M10 thread aluminium lever box



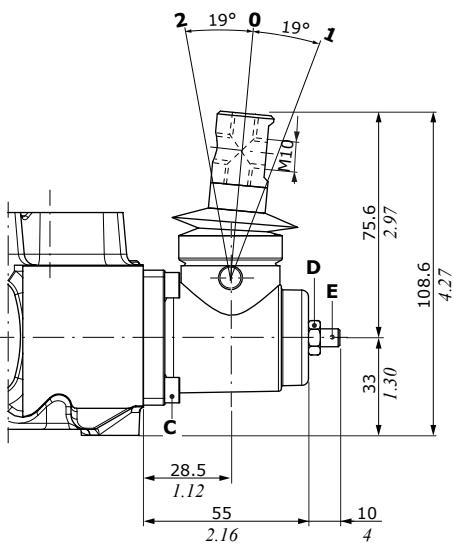
###### **A2 type**

As A1 type, rotated 180°



###### **A1/06 type**

M10 thread,  
with stroke limiter



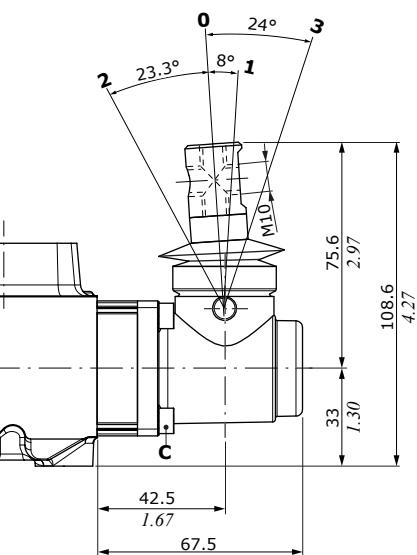
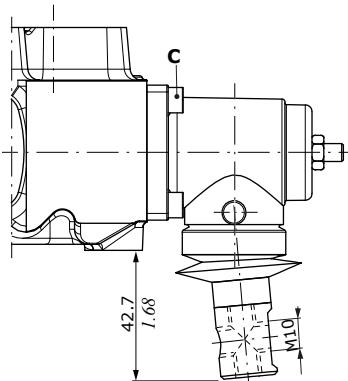
###### **A1/Z1 type**

M10 thread,  
for 116 floating spool type



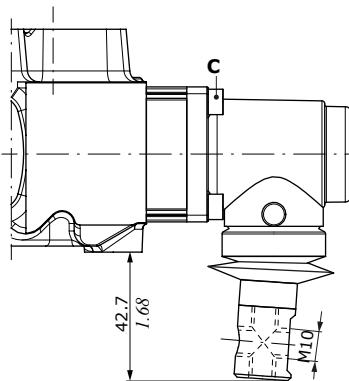
###### **A2/06 type**

As A1/06 type, rotated 180°



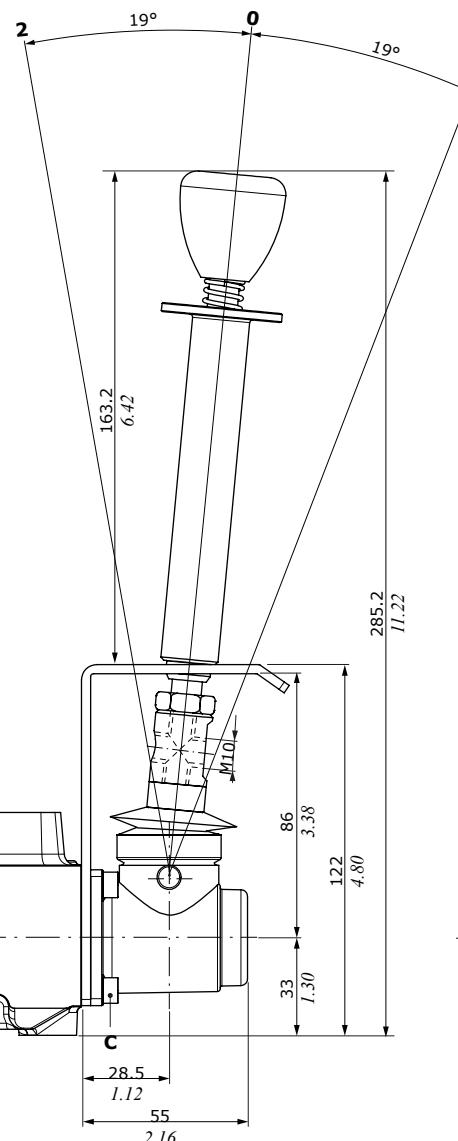
###### **A2/Z1 type**

As A1/Z1 type, rotated 180°

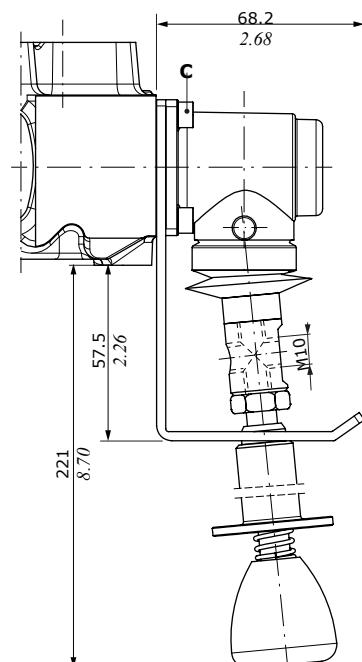


**A side controls****Mechanical controls****With safety lever control****A1/S type**

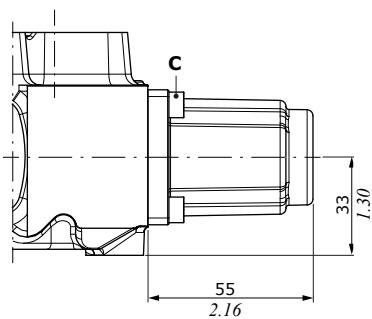
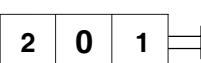
M10 thread, aluminium lever box



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

**Without lever control****A3 type**

With cap



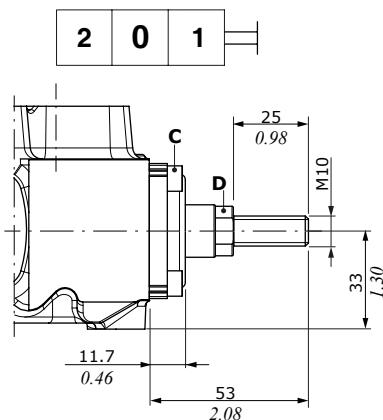
### A side controls

#### Mechanical controls

##### Without lever control

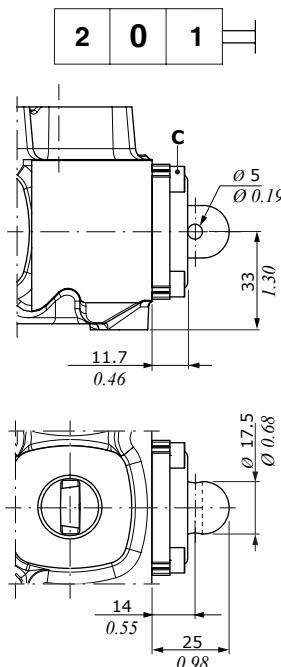
###### **A4 type**

M10 male thread  
external pin with flange



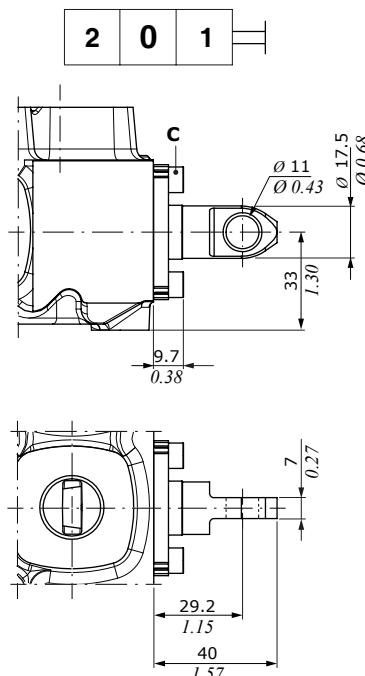
###### **A5 type**

Flange with spherical spool end



###### **A6 type**

With flange



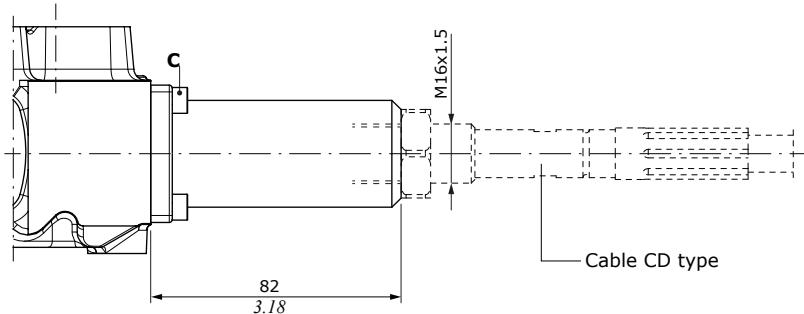
##### With flexible cable control arrangement

###### **Wrenches and tightening torques**

C = allen wrench 4 - 6.6 Nm (4.8 lbft)  
D = wrench 13 - 9.8 Nm (7.2 lbft)

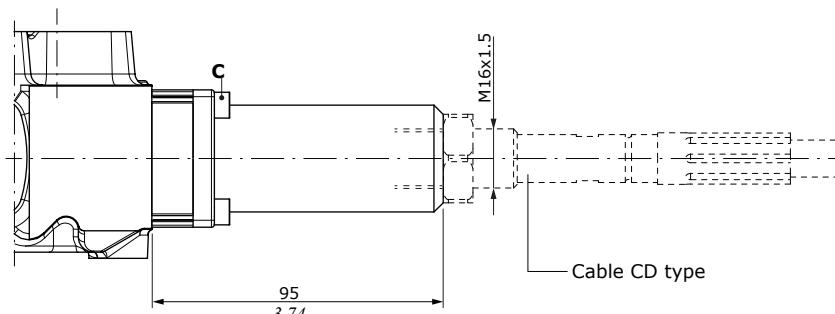
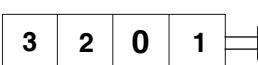
###### **A8 type**

Flexible cable control arrangement



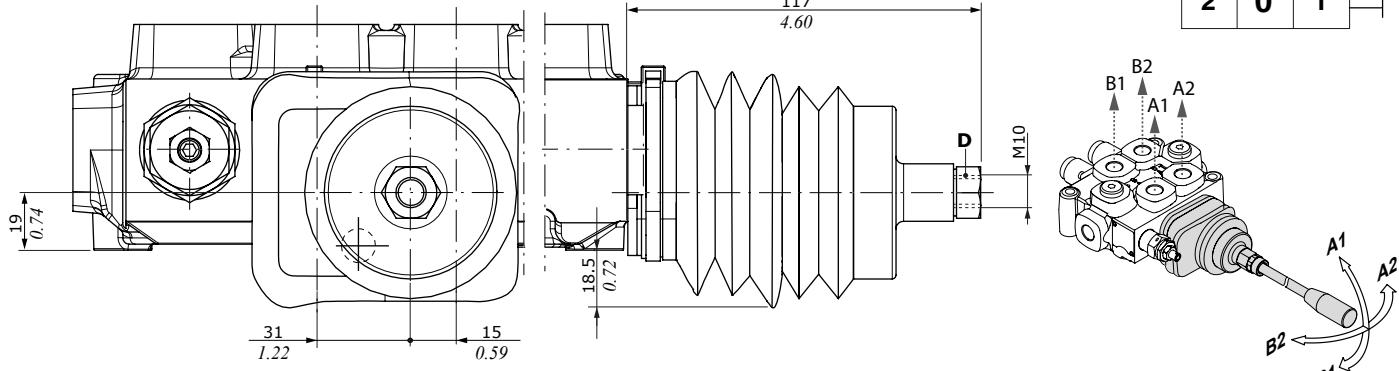
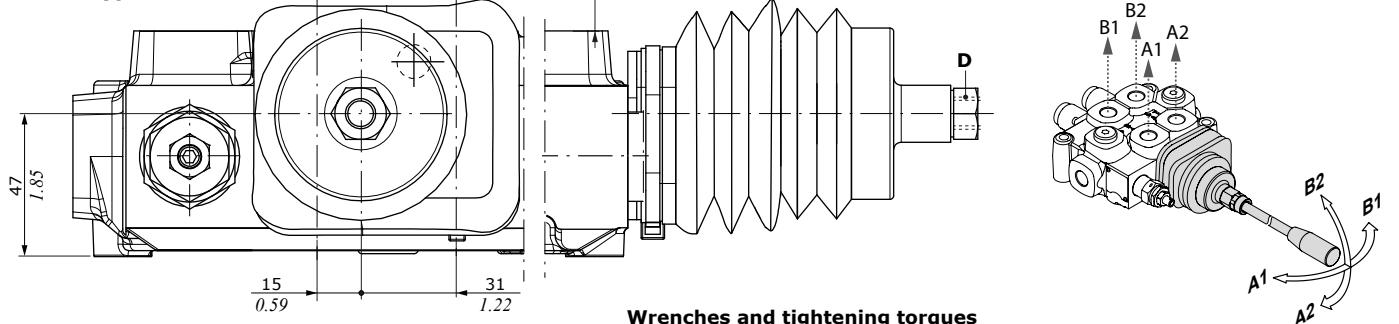
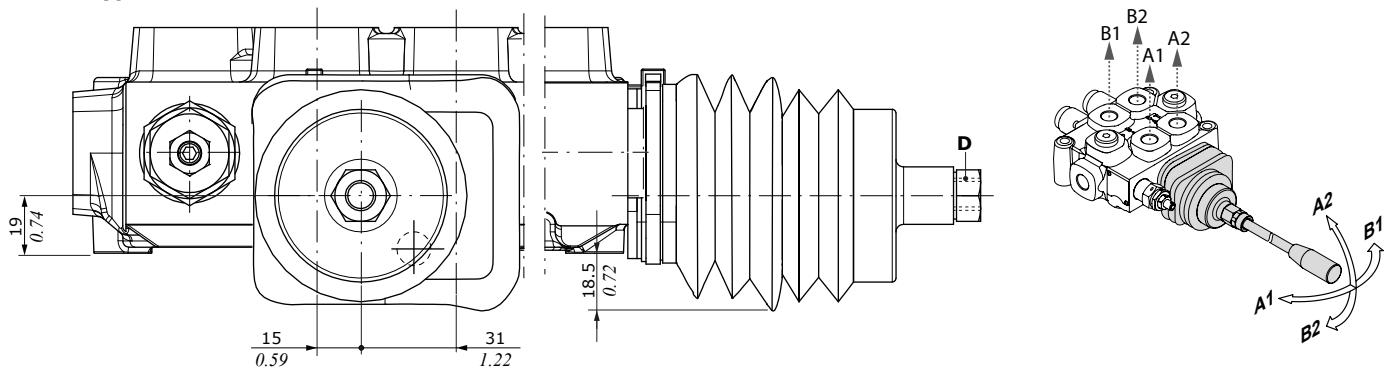
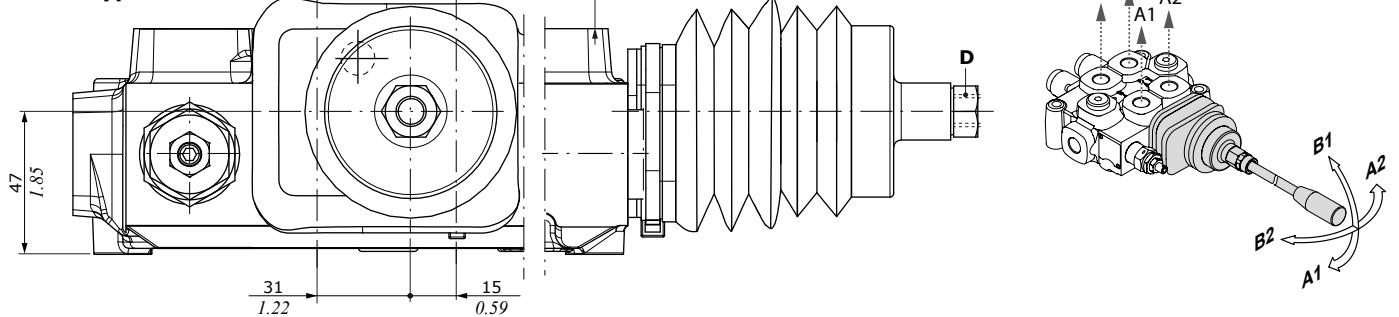
###### **A8/Z1 type**

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.

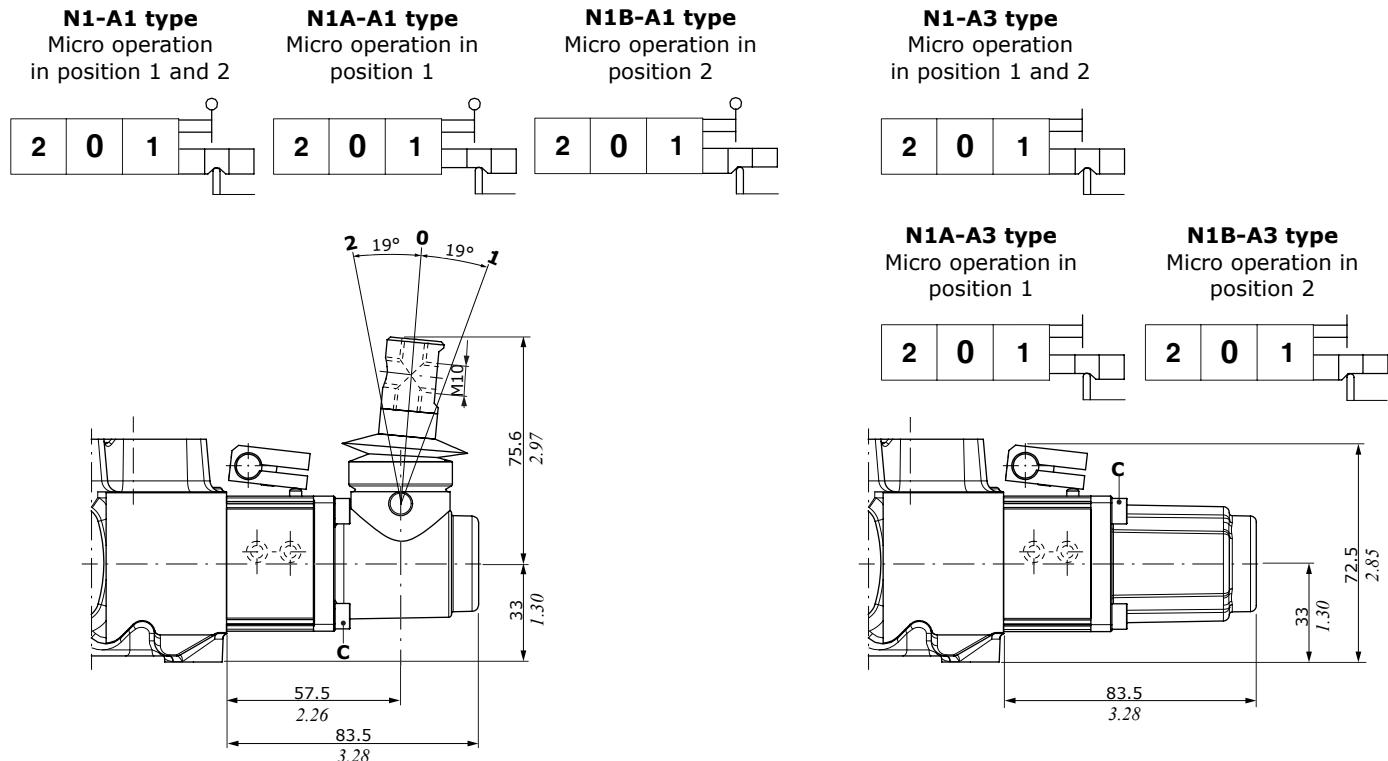
**A35-1 type****A35-2 type****A35-3 type****A35-4 type****Wrenches and tightening torques**

D = wrench 17 - 24 Nm (17.7 lbf ft)

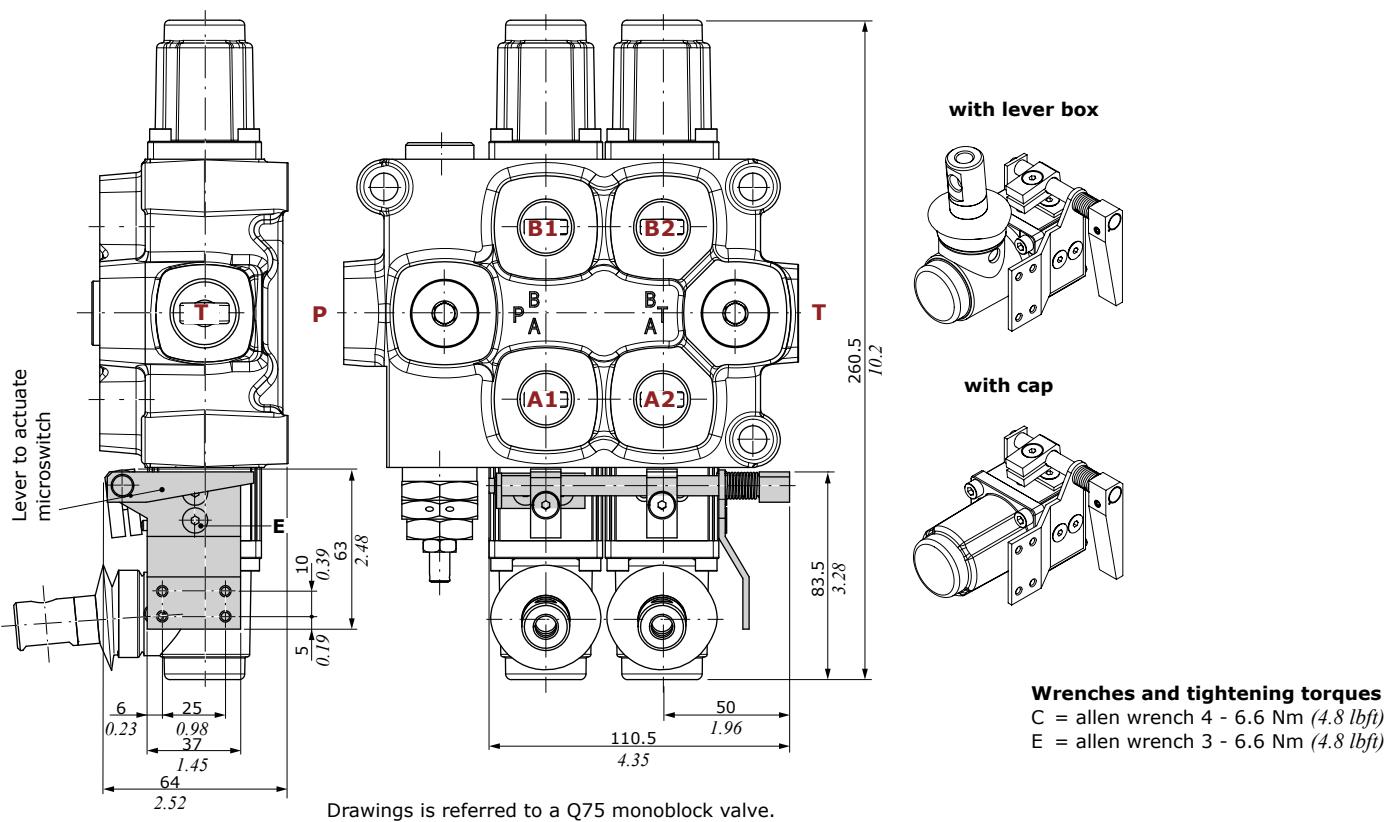
### A side controls

#### Spool position microswitch

##### With lever control



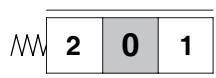
#### Microswitch assembly kit for 2 working section (N1-A1 type)



Drawings is referred to a Q75 monoblock valve.

**B side controls****Mechanical controls****With spring return control****M1 type**

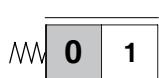
3 position, spring return  
in neutral position

**M1/01 type**

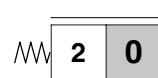
3 position,  
for joystick control

**M2 type**

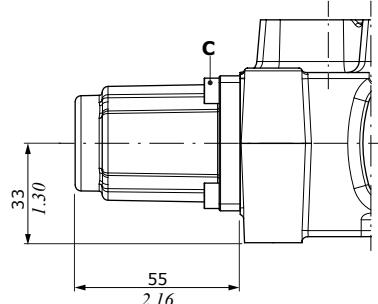
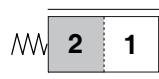
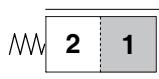
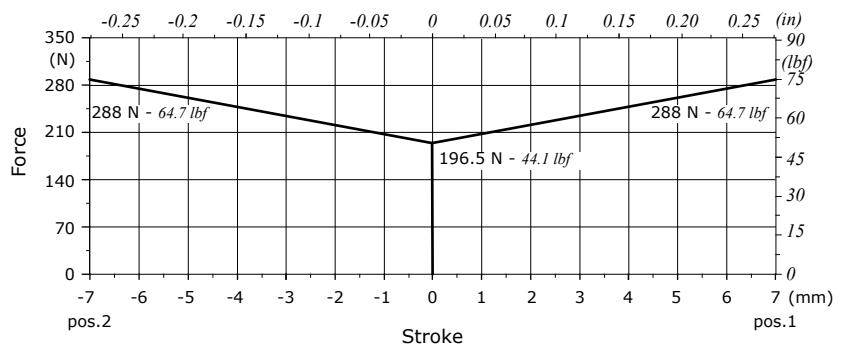
2 position (0-1), spring return  
in neutral position

**M3 type**

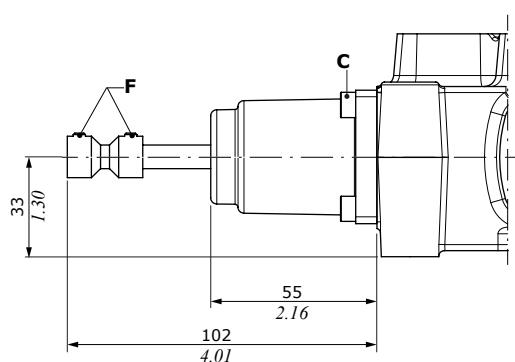
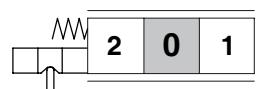
2 position (0-2), spring return  
in neutral position

**M4 types**

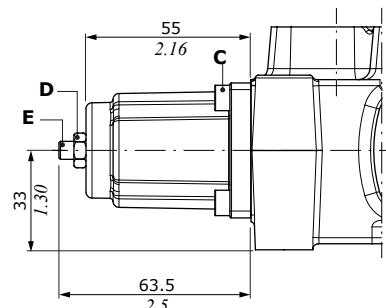
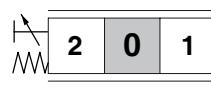
2 position (1-2),  
spring return in position 1      2 position (2-1),  
spring return in position 2

**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 lbft)

D = wrench 10 - 9.8 Nm (7.2 lbft)

E = allen wrench 4 - 9.8 Nm (7.2 lbft)

F = allen wrench 3 - 5 Nm (3.68 lbft)

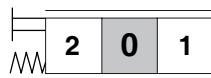
### B side controls

#### Mechanical controls

##### With spring return control

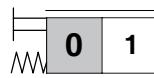
###### **M1-U1 type**

3 position, with M10 male thread external pin



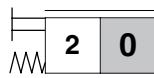
###### **M2-U1 type**

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



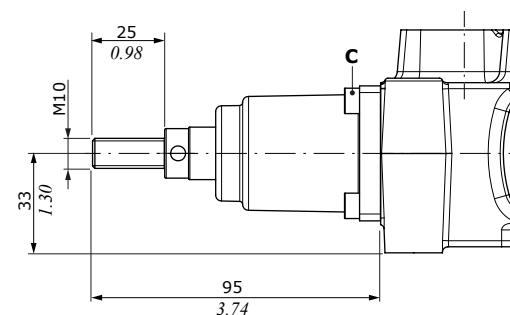
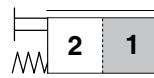
###### **M3-U1 type**

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



###### **M4-U1 type**

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

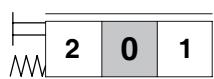


**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbft)

##### With flexible cable control arrangement

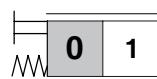
###### **M1-U2 type**

3 position, spring return in neutral position



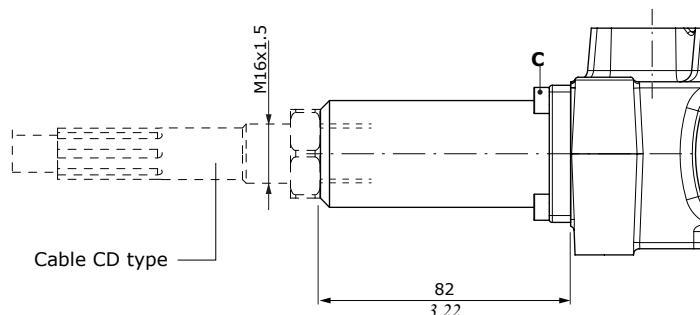
###### **M2-U2 type**

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



###### **M3-U2 type**

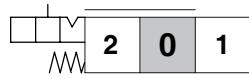
2 position (0-2), spring return in neutral position



##### With detent control

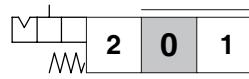
###### **R1 type**

3 position,  
detent in position 1



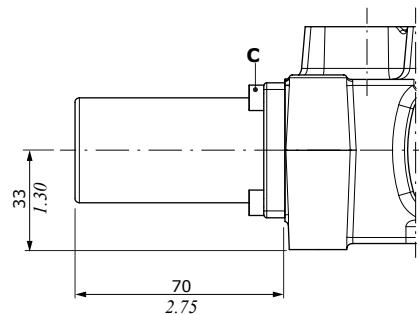
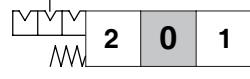
###### **R2 type**

3 position,  
detent in position 2



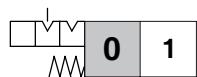
###### **R3 type**

3 position,  
detent in all position

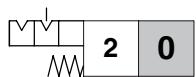


**Mechanical controls****With detent control**

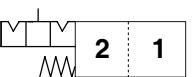
**R4 type**  
2 position,  
detent in position 0-1



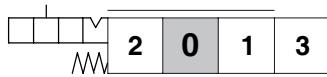
**R5 type**  
2 position,  
detent in position 0-2



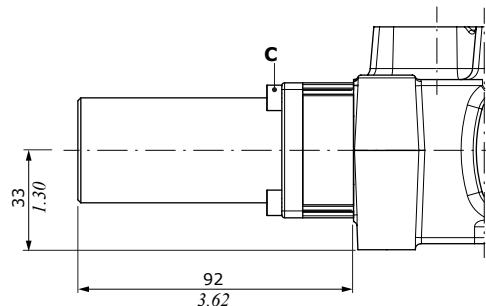
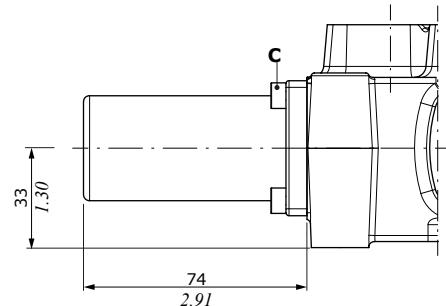
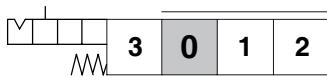
**R6 type**  
2 position,  
detent in position 1-2



**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 lbft)

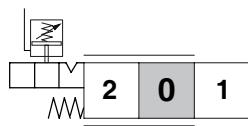
D = wrench 30 - 42 Nm (30.9 lbft)

E = wrench 22

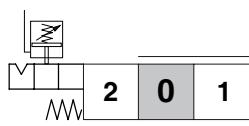
F = allen wrench 10 - 42 Nm (30.9 lbft)

**With detent control and kick out function****R1K type**

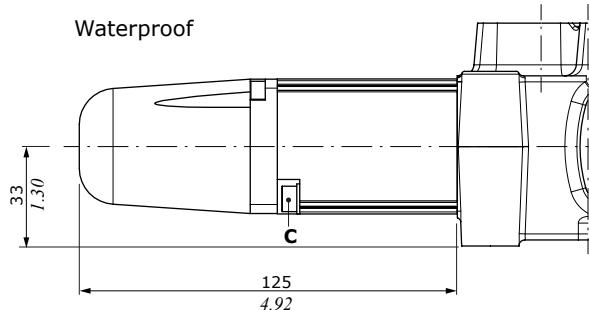
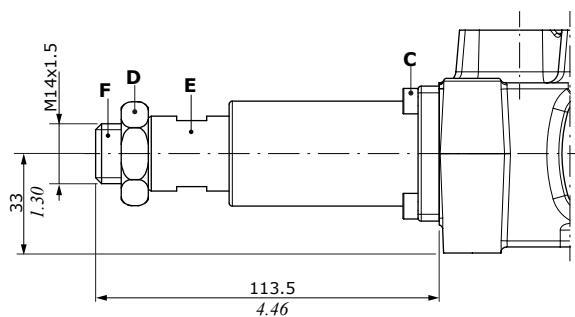
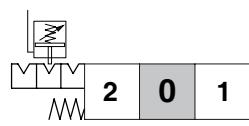
3 position, detent in position 1.  
Available with waterproof configuration

**R2K type**

3 position, detent in position 2.  
Available with waterproof configuration

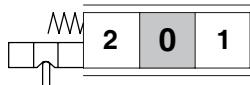
**R3K type**

3 position, detent in all position.  
Available with waterproof configuration

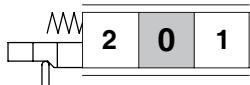


**B side controls****Spool position microswitch****M1-N1 type**

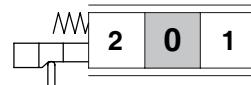
3 position, micro operation in position 1 and 2, spring return in neutral position

**M1-N1A type**

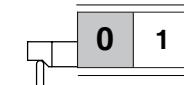
3 position, micro operation in position 1

**M1-N1B type**

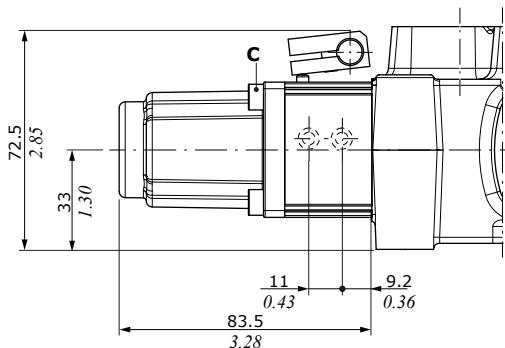
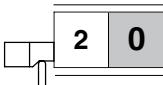
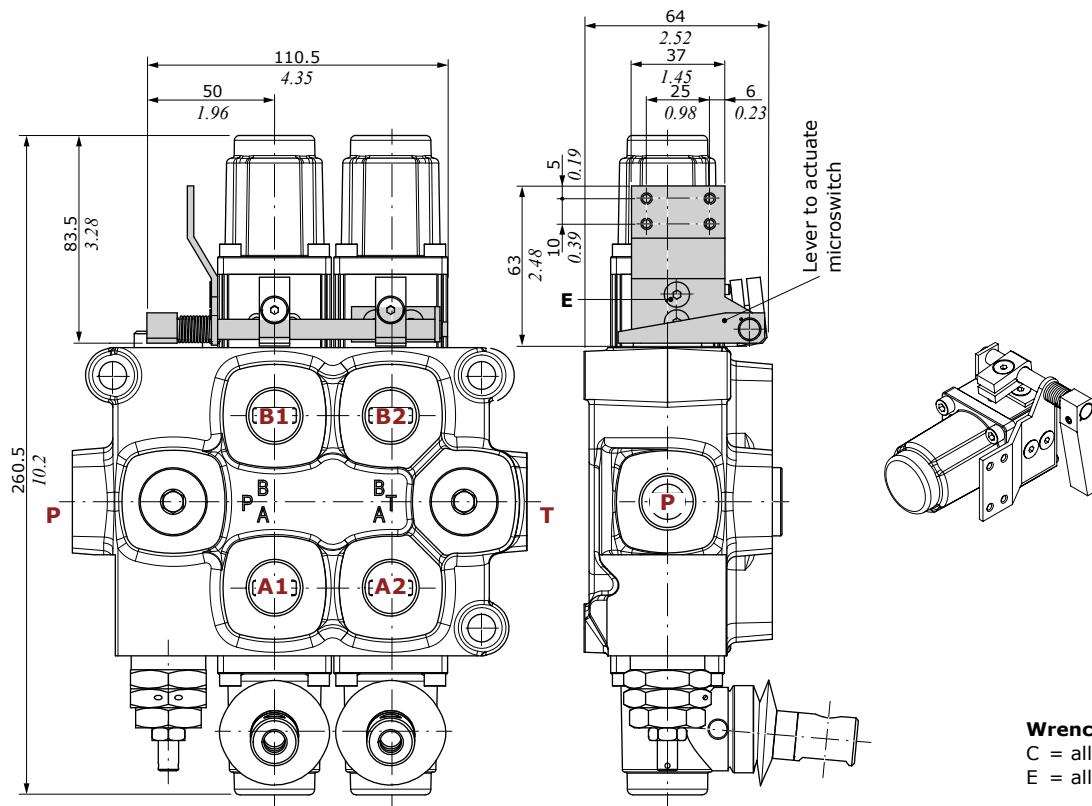
3 position, micro operation in pos. 2

**M2-N1 type**

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

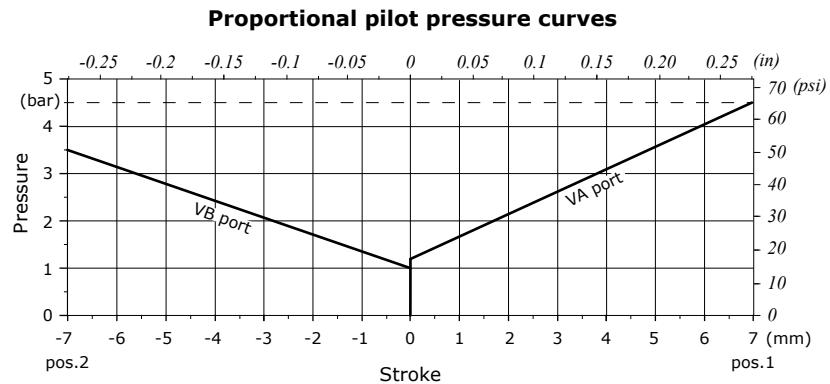
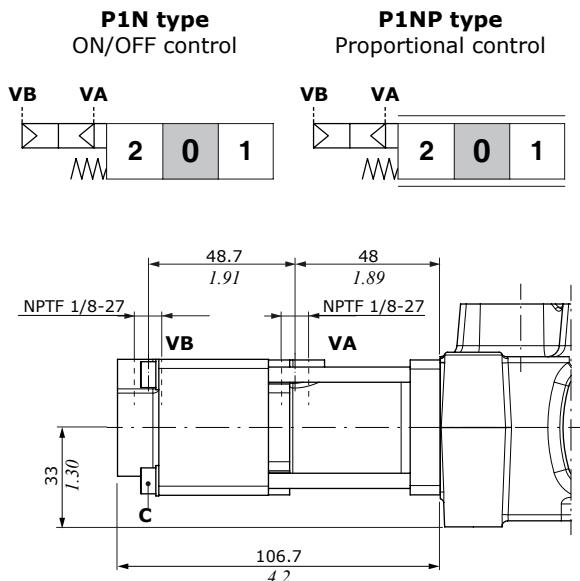
**M3-N1 type**

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

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

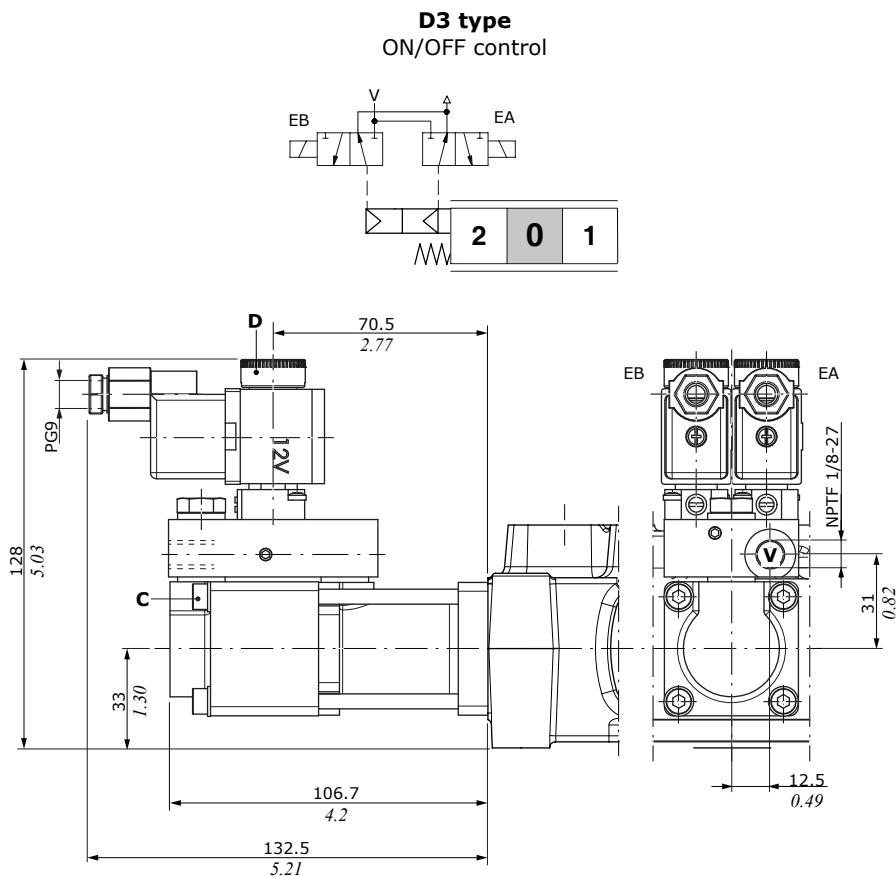
**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbf)  
E = allen wrench 3 - 6.6 Nm (4.8 lbf)

Drawing is referred to a Q75 monoblock valve.

**B side controls****Pneumatic control****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)

**ON/OFF electropneumatic control****Operating features**

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

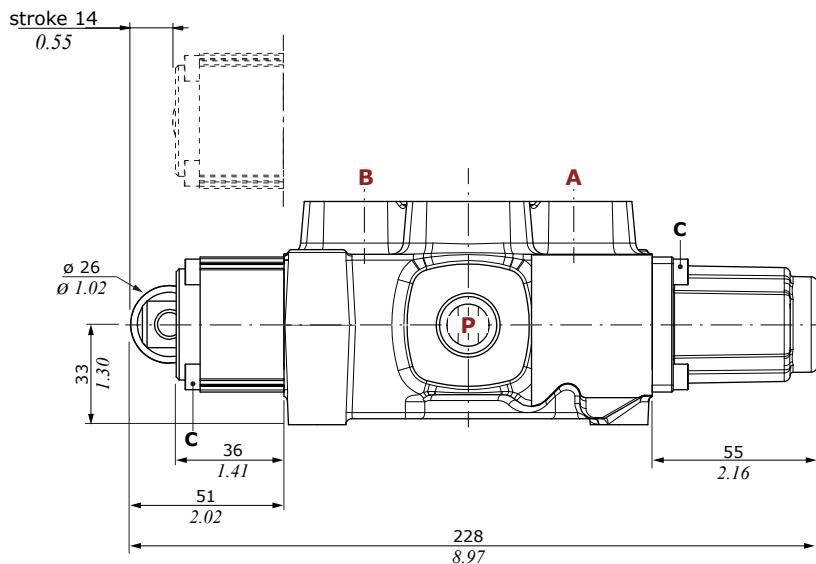
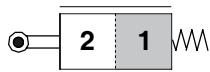
**COILS**

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

**A+B side controls****Cam control****C2 type**

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

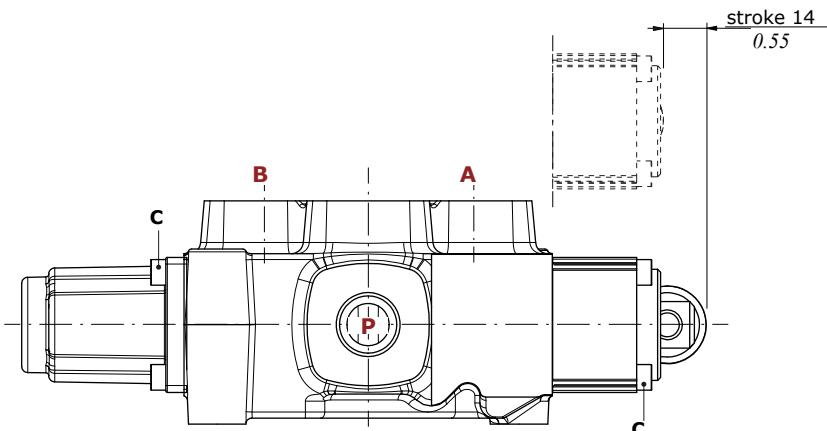
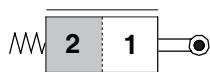
**Wrenches and tightening torques**

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

**C3 type**

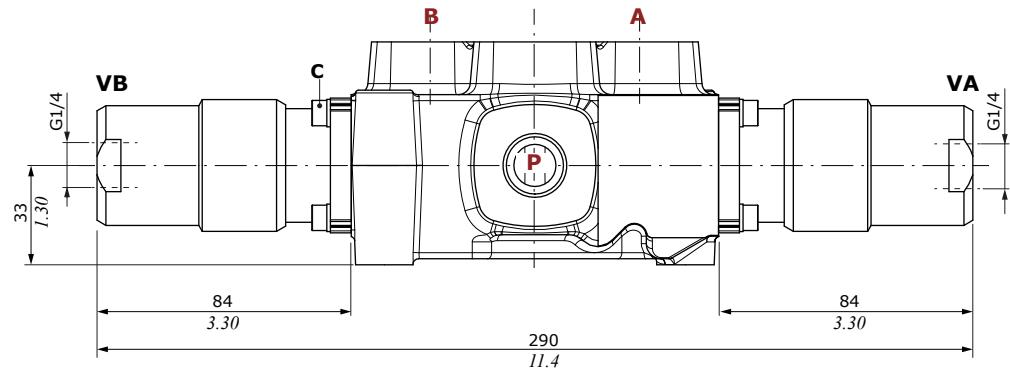
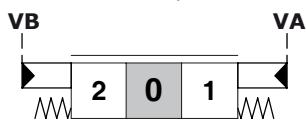
From position 2 to position 1,  
spring return in position 2.

Dimensions are the same of C2 type



**A+B side controls****Proportional hydraulic controls****H1 type**

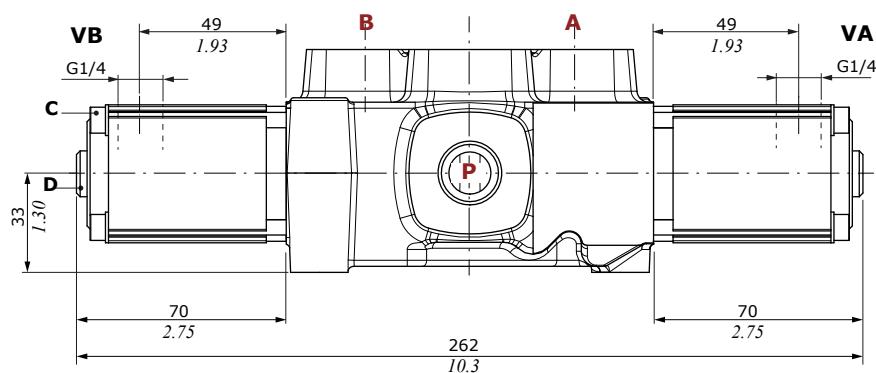
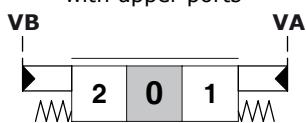
High pressure control  
with side ports

**Operating features**

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

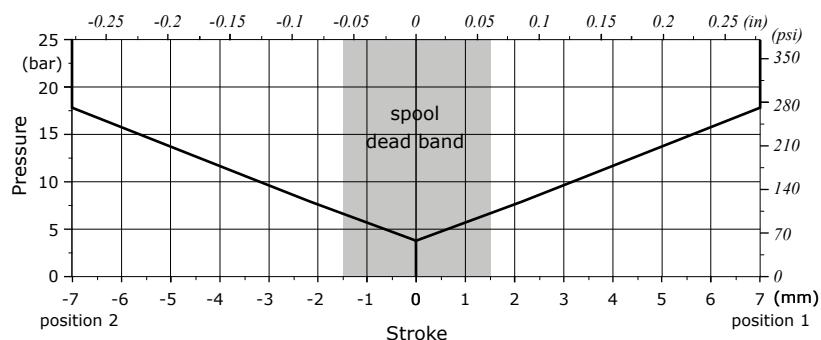
**H5 type**

Low pressure control  
with upper ports

**Operating features**

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

**Stroke vs. Pressure diagram for H5 type control**

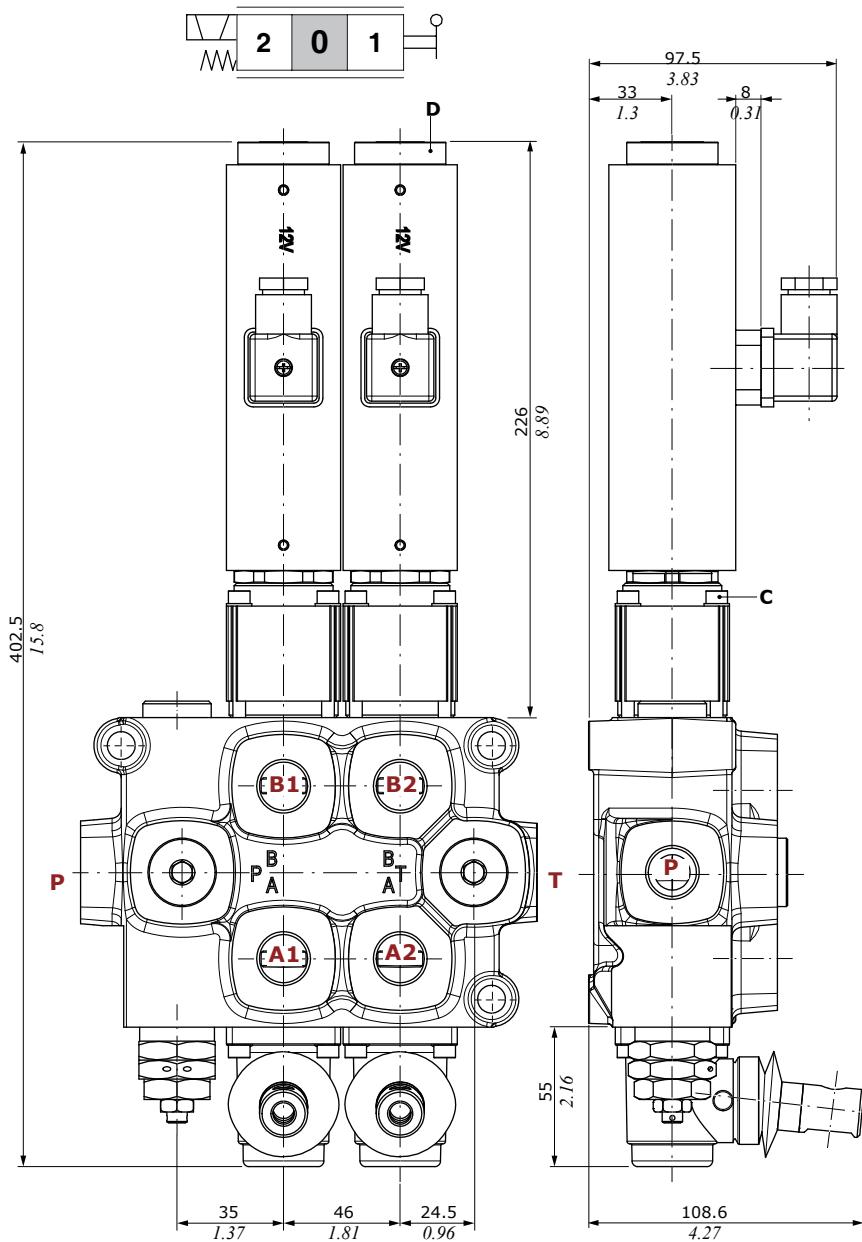
**Wrenches and tightening torques**

C = allen wrench 4 - 6.6 Nm (4.8 lbft)  
D = allen wrench 4 - 9.8 Nm (7.2 lbft)

### Direct solenoid control

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

Drawing is referred to a Q75 monoblock valve.

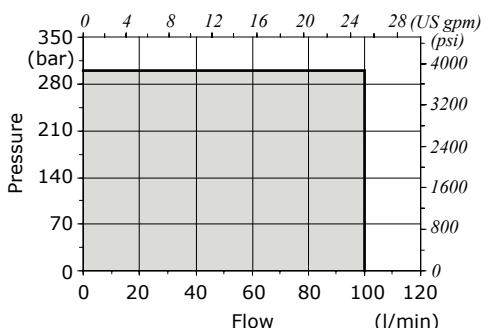


#### D41 coil

Nominal voltage	12 VDC 24 VDC
Nominal voltage tolerance	$\pm 10\%$
Power rating	80 W
Insulation	Class H
Weather protection	IP65

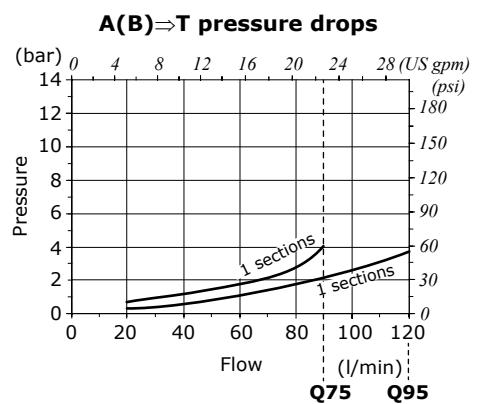
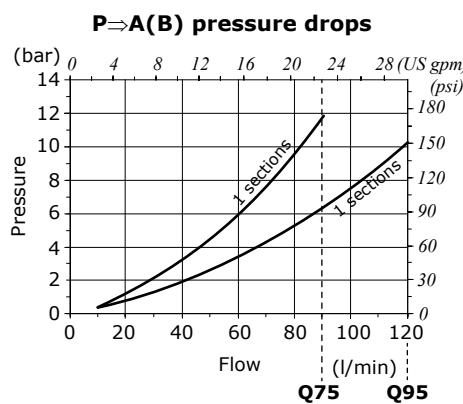
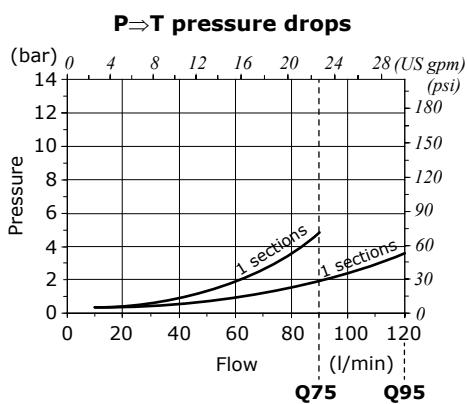
Connector type: ISO4400 3P+T-PG11

#### Dynamic conditions



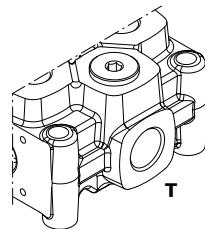
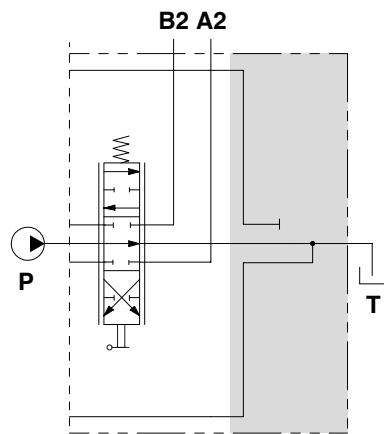
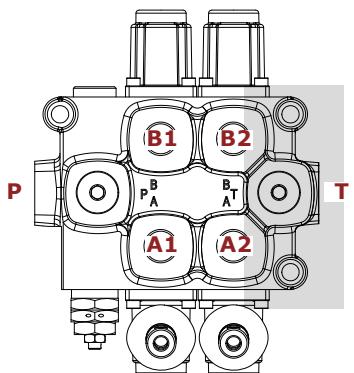
#### Wrenches and tightening torques

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

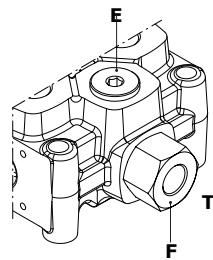
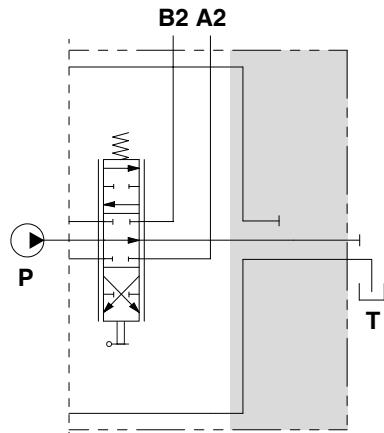
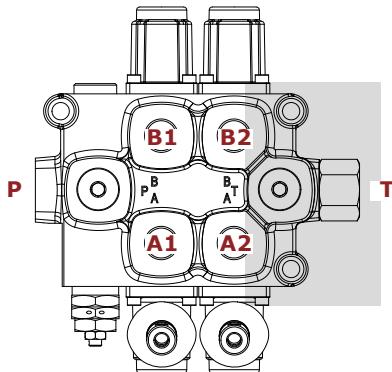


## Outlet configuration

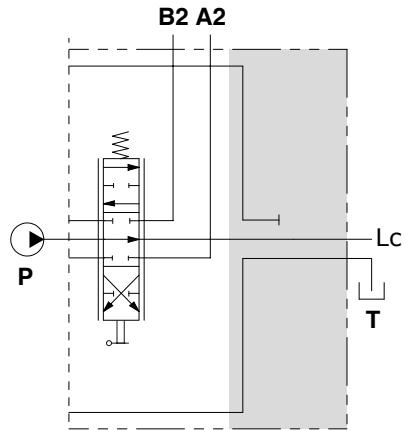
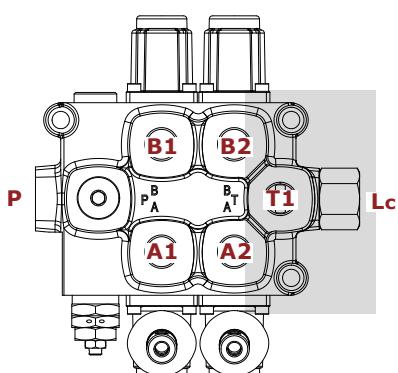
**F3D configuration**  
Open center configuration



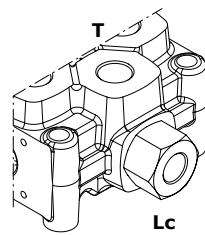
**F16D configuration**  
Closed center configuration



**F6D configuration**  
Carry-over configuration

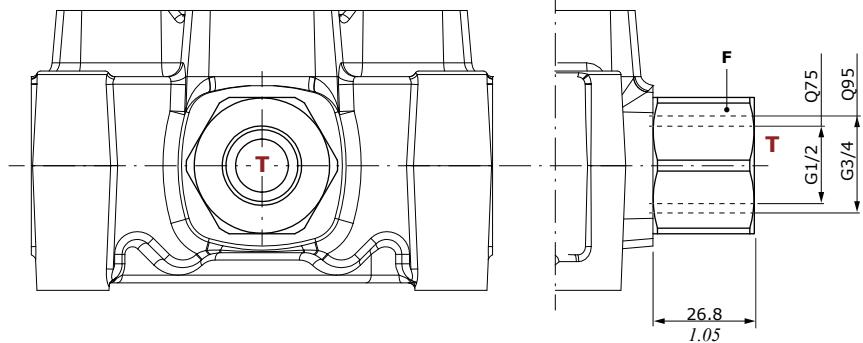


**Wrenches and tightening torques**  
E (Q75) = allen wrench 6 - 24 Nm (17.7 lbft)  
(Q95) = allen wrench 8 - 42 Nm (22 lbft)  
F = wrench 36 - 80 Nm (59 lbft)



**Outlet configuration****F6D - F16D joint dimension**

Drawing is referred to a Q75 monoblock valve.

**Wrenches and tightening torques**

F = wrench 36 - 80 Nm (59 lbft)



## 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.

	<b>Q30</b>	<b>Q50</b>
Nominal flow rating	30 l/min - (8 Us gpm)	50 l/min - (13.2 Us gpm)
Max. pressure	parallel circuit series circuit	315 bar (4600 psi) 210 bar (3050 psi)
Max. back pressure on outlet T port		25 bar (360 psi)
Number sections		from 1 to 10
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 -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 without electric devices with electric devices	from -30°C to 60°C - from -22 °F to 140 °F from -40°C to 60°C - from 40 °F to 140 °F from -20°C to 50°C - from -4 °F to 122 °F

NOTE - For different conditions please contact our Sales Department.

#### REFERENCE STANDARD

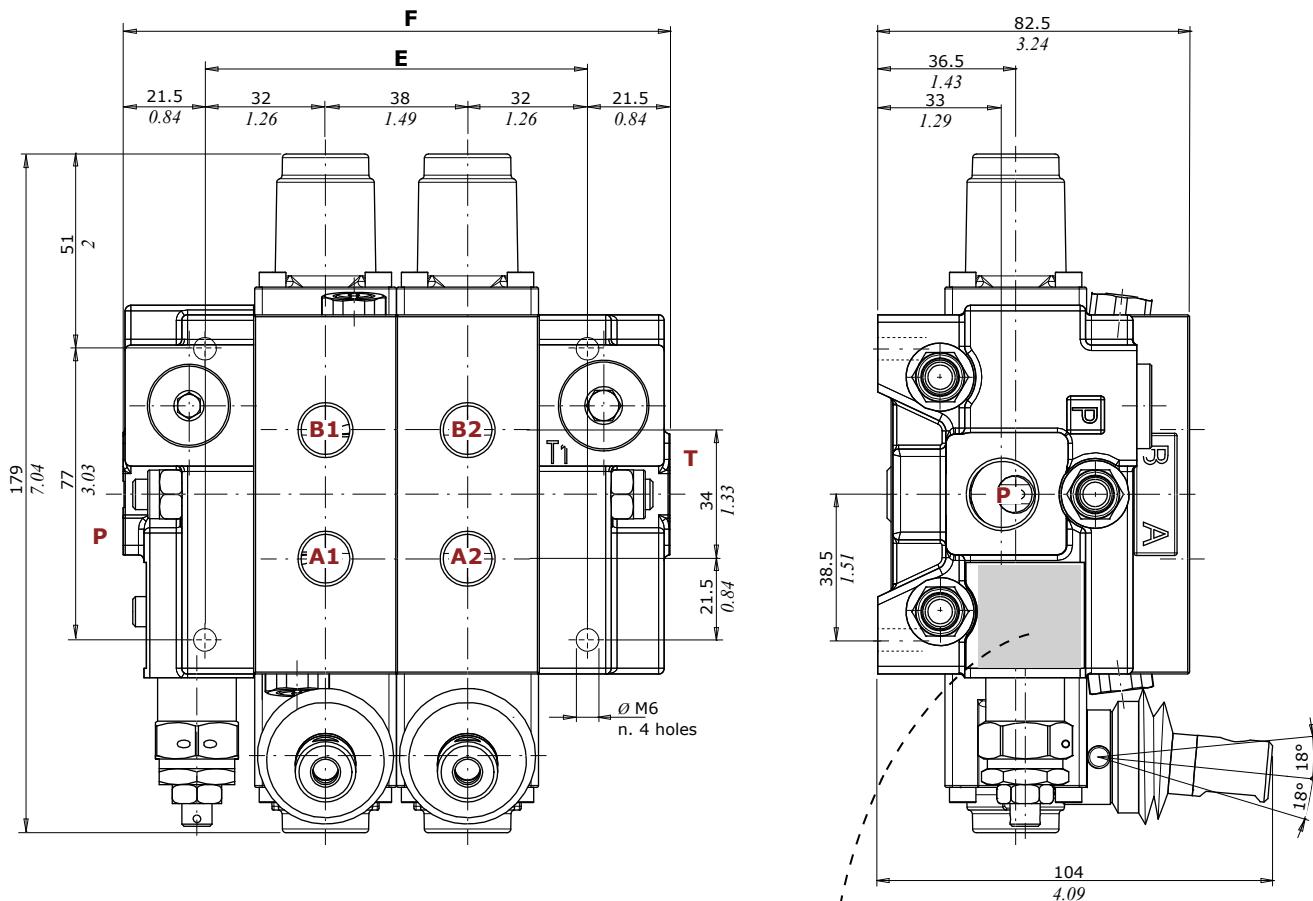
	<b>BSP</b>	<b>UN-UNF</b>
THREAD ACCORDING TO	ISO 228/1 BS 2779	ISO 263 ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO SAE DIN	11926 J11926 3852-2 shape X or Y

#### PORT THREADING

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

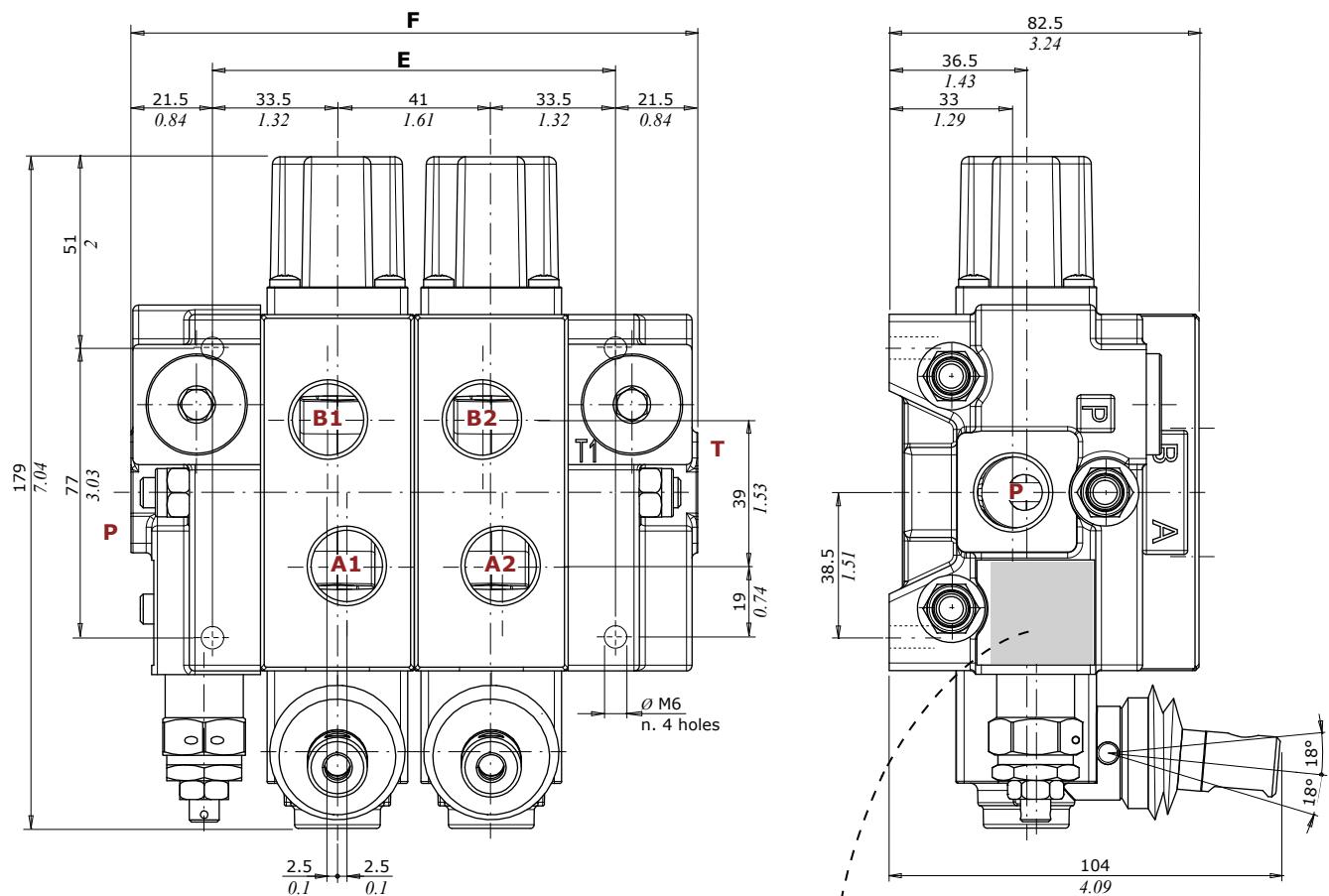
Product code  
Customer reference  
or code description  
Product allotment  
Datamatrix with  
product allotment

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

(\*) For other configurations, see page 135

## Dimensional data

## Q50 - standard configuration\*



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

**Galtech**

MADE IN ITALY

025030103251000

Q50/2-F7S(N150)-

2X103/A1/M1.VC-

F3D

MD1600464-001



Product code

Customer reference or code description

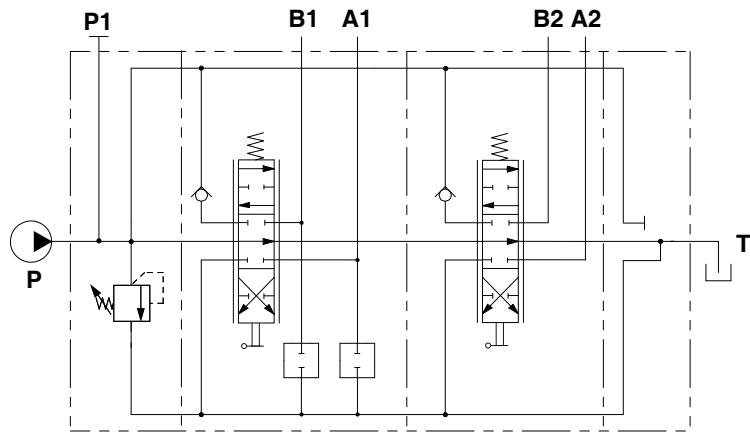
Product allotment

Datamatrix with product allotment

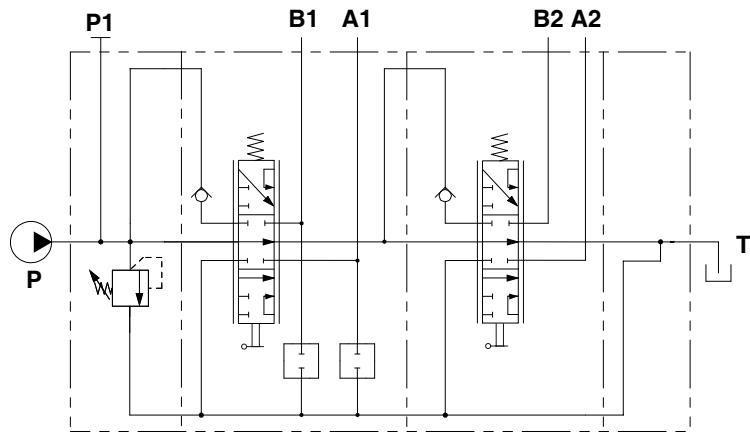
NOTE: Drawings and dimensions are referred to a **BSP** threading configuration.

(\*) For other configurations, see page 135

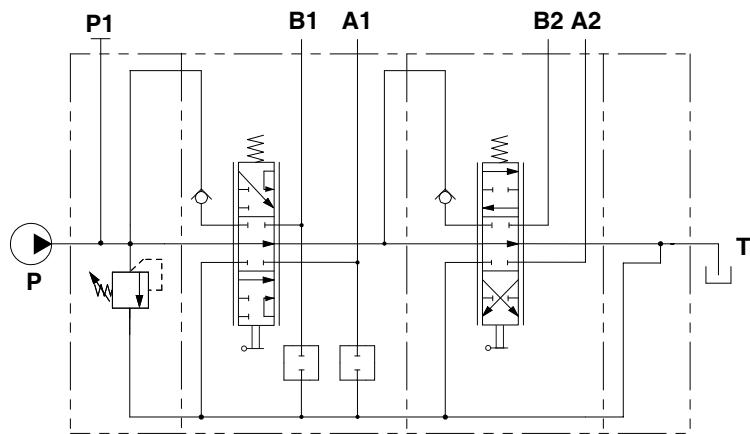
**Hydraulic circuits**



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

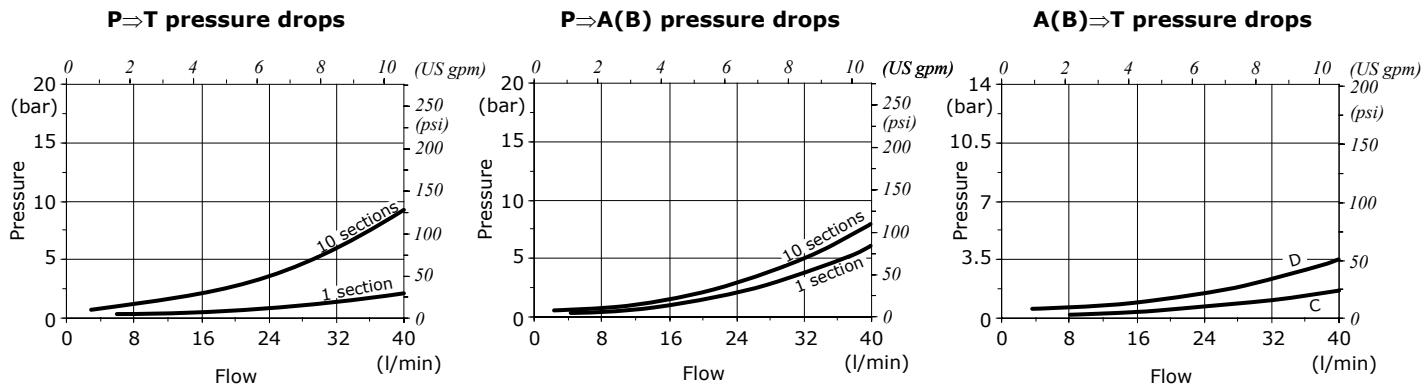


Description example (series circuit):  
 Q30/2/F7S(N150)/403-A1-M1.VC/403-A1-M1/F3D-S  
 Q50/2/F7S(N150)/403-A1-M1.VC/403-A1-M1/F3D-S

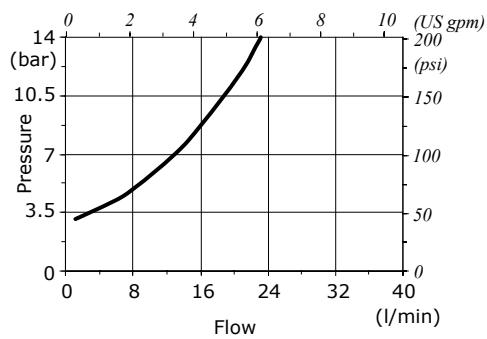


Description example (serie/parallel circuit):  
 Q30/2/F7S(N150)/403-A1-M1.VC/103-A1-M1/F3D-S  
 Q50/2/F7S(N150)/403-A1-M1.VC/103-A1-M1/F3D-S

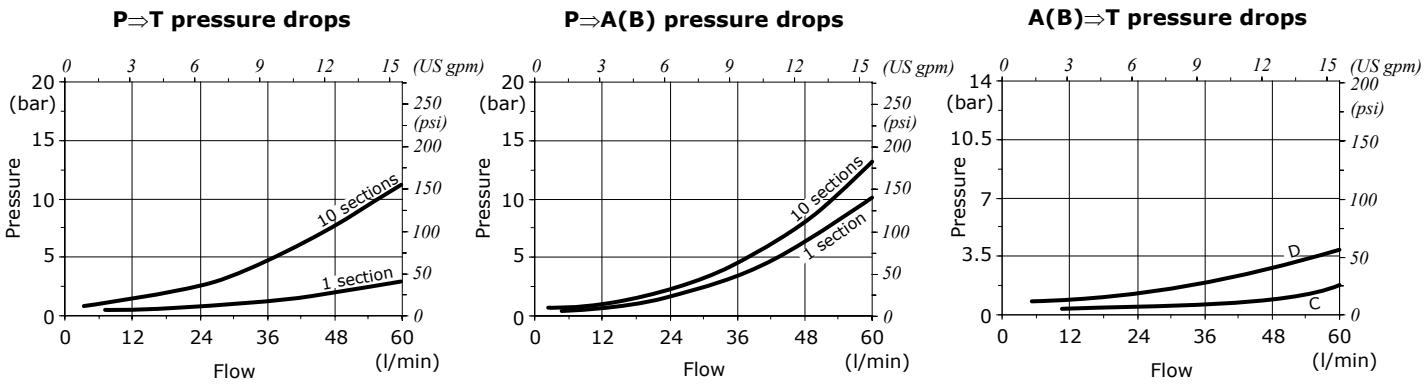
## Performance data

**Q30**

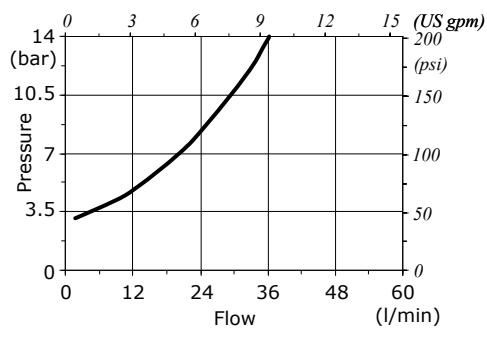
**A1(B1)⇒A2(B2) pressure drops  
(with series circuit)**

**Legenda**

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

**Q50**

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

**Legenda**

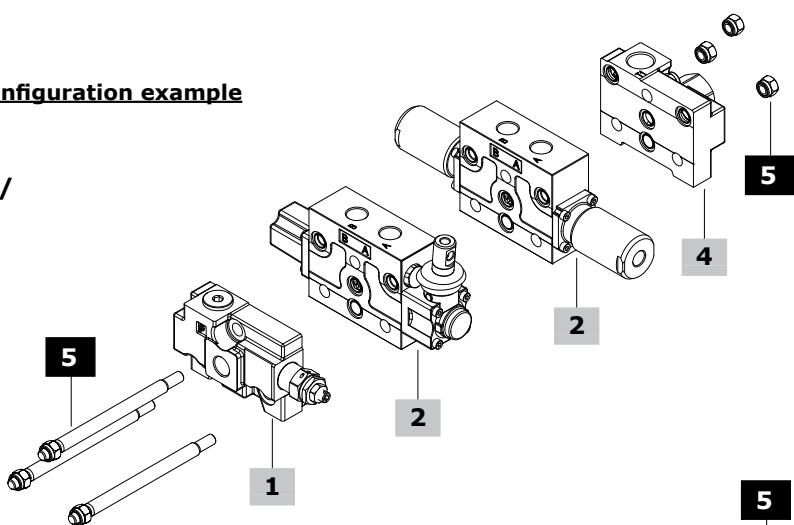
C = 10<sup>th</sup> section  
D = 1<sup>st</sup> section

### Complete section ordering codes

Drawings are referred to a Q30 sectional valve.

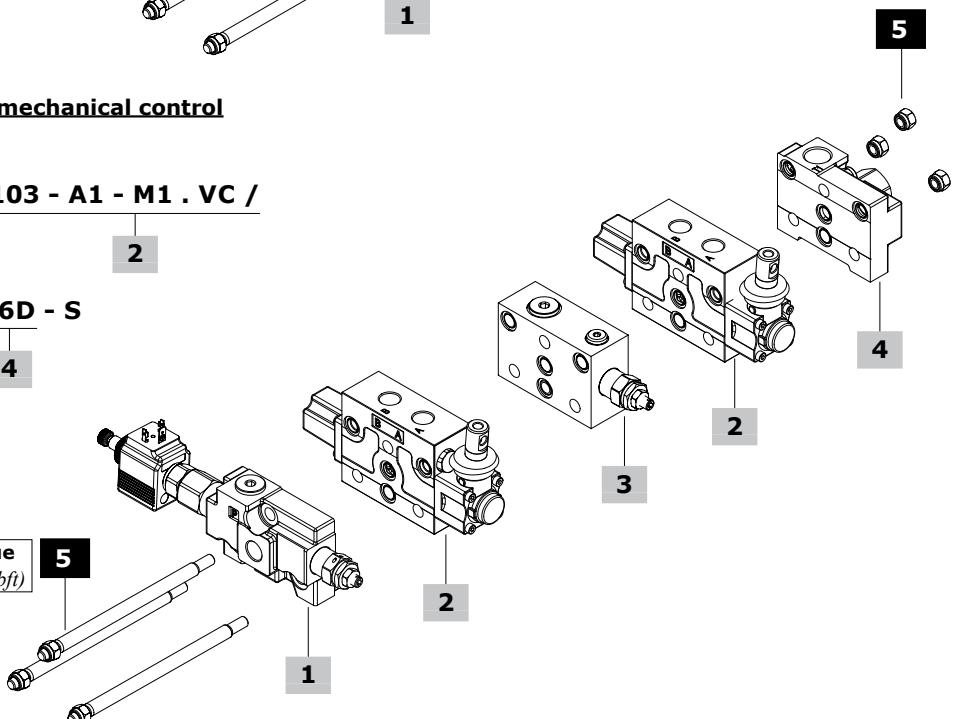
#### Valve with mechanical and hydraulic controls configuration example

valve setting (bar)  
**Q30 / 2 / F7S(N150) / 103 - A1 - M1 . VC /**  
 N. of section      1      2  
 / 103 - H1 / F6D - S  
 2      4      aluminium controls



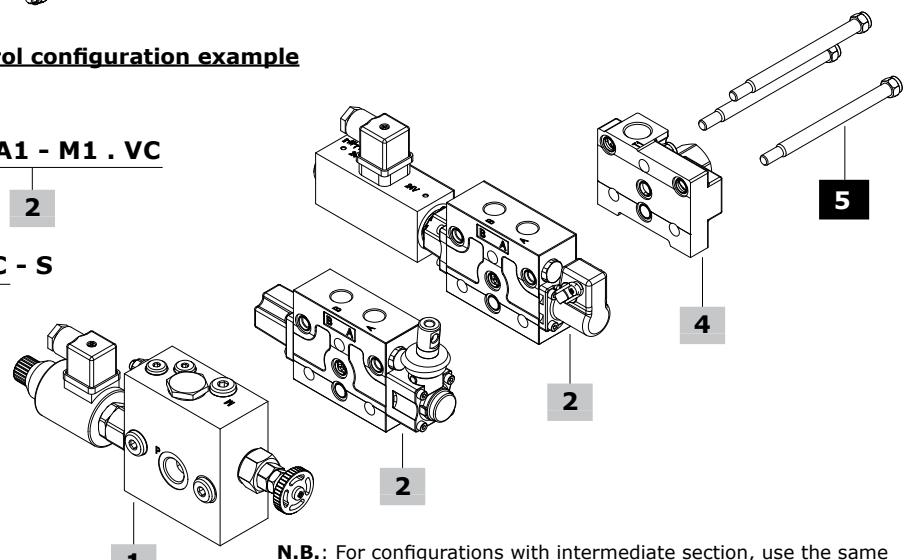
#### Valve with intermediate section and mechanical control configuration example

valve setting (bar)  
**Q30 / 2 / F7SMSE(NA)-N150 / 103 - A1 - M1 . VC /**  
 / E50(N150) / 103 - A1 - M1 / F6D - S  
 1      2  
 3      2      4



#### 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  
 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

<b>1 Inlet section*</b>	<b>page 97</b>	<b>2 Working section*</b>	<b>page 106</b>
<b>Standard inlet section</b>			
TYPE	CODE	TYPE	CODE
<b>FE-Q30/F7S(N150)</b>	03000F7S/D-N	<b>EL-Q30/103-A1-M1.VC-S</b>	SGL300025
<b>FE-Q50/F7S(N150)</b>	05000F7S/D-N	<b>EL-Q50/103-A1-M1.VC-S</b>	SGL500005
DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve, setting range 101-200 bar (1460-2900 psi)		DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, lever control and spring return to neutral position	
TYPE	CODE	TYPE	CODE
<b>FE-Q30/F8S</b>	03003F8S/D	<b>EL-Q30/103-A1-M1-S</b>	030000103001000
<b>FE-Q50/F8S</b>	05003F8S/D	<b>EL-Q50/103-A1-M1-S</b>	050000103001000
DESCRIPTION: As previous one, without valves (pressure relief valve plugged port)		DESCRIPTION: As previous one, without valve arrangement	
TYPE	CODE	<b>With proportional hydraulic controls</b>	
<b>FE-Q30/F7SMSE(NA)</b>	03000F7SDMS1-N	TYPE	CODE
<b>FE-Q50/F7SMSE(NA)</b>	05000F7SDMS1-N	<b>EL-Q30/103-H1.VC-S</b>	SGL300008
DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve setting range 101-200 bar (1460-2900 psi), 12VDC normally open unloader valve		<b>EL-Q50/103-H1.VC-S</b>	SGL500006
TYPE	CODE	DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, high pressure hydraulic controls, spring return to neutral position	
<b>FE-Q30/F7SMSE(NC)</b>	03000F7SDMS7-N	TYPE	CODE
<b>FE-Q50/F7SMSE(NC)</b>	05000F7SDMS7-N	<b>EL-Q30/103-H1-S</b>	SGL300009
DESCRIPTION: As previous one, with normally closed unloader valve		<b>EL-Q50/103-H1-S</b>	SGL500007
TYPE	CODE	DESCRIPTION: As previous one, without valve arrangement	
<b>FE-Q30/F7SMSI</b>	03000F7SDMSI-N	TYPE	CODE
<b>FE-Q50/F7SMSI</b>	05000F7SDMSI-N	<b>EL-Q30/103-H5.VC-S</b>	SGL300012
DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve setting range 101-200 bar (1460-2900 psi), and hydraulic unloader valve		<b>EL-Q50/103-H5.VC-S</b>	SGL500008
<b>Inlet section with flow regulator</b>			
TYPE	CODE	DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, low pressure hydraulic controls, spring return to neutral position	
<b>FE-Q30/F7SPR3M(N150)</b>	03000F7SDPRN3M	TYPE	CODE
<b>FE-Q50/F7SPR3M(N150)</b>	05000F7SDPRN3M	<b>EL-Q30/103-H5-S</b>	SGL300013
DESCRIPTION: Side inlet open, 12 VDC proportional flow control valve, pressure relief valve setting range 101-200 bar (1460-2900 psi), manual unloader valve		<b>EL-Q50/103-H5-S</b>	SGL500009
TYPE	CODE	DESCRIPTION: As previous one, without valve arrangement	
<b>FE-Q30/F7SPR3E(N150)-12VDC</b>	03000F7SDPRN3E	<b>With electric solenoid controls - one side type</b>	
<b>FE-Q50/F7SPR3E(N150)-12VDC</b>	05000F7SDPRN3E	TYPE	CODE
DESCRIPTION: As previous one, with 12VDC unloader valve		<b>EL-Q30/103-A1-D41.VC-12VDC-S</b>	SGL300019
<b>With electric solenoid controls - two side type</b>			
TYPE	CODE	<b>EL-Q50/103-A1-D41.VC-12VDC-S</b>	SGL500010
<b>EL-Q30/103-D9.VC-12VDC-S</b>		DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct ON/OFF control with lever	
<b>EL-Q50/103-D9.VC-12VDC-S</b>		TYPE	CODE
DESCRIPTION: As previous one, without valve arrangement		<b>EL-Q30/103-A1-D41-12VDC-S</b>	030000103098000
<b>With electric solenoid controls - two side type</b>			
TYPE	CODE	<b>EL-Q50/103-A1-D41-12VDC-S</b>	SGL500011
<b>EL-Q30/103-D9.VC-12VDC-S</b>		DESCRIPTION: As previous one, without valve arrangement	
<b>EL-Q50/103-D9.VC-12VDC-S</b>		TYPE	CODE
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct ON/OFF control		<b>EL-Q30/103-D9-12VDC-S</b>	SGL300024
TYPE	CODE	<b>EL-Q50/103-D9-12VDC-S</b>	SGL500012
<b>EL-Q30/103-D9-12VDC-S</b>		DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct ON/OFF control	
<b>EL-Q50/103-D9-12VDC-S</b>		TYPE	CODE
DESCRIPTION: As previous one, without valve arrangement		<b>EL-Q30/103-D9-12VDC-S</b>	SGL300016
<b>(*)</b> : Codes are referred to <b>BSP</b> 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 ( <i>145-1450 psi</i> )
	03850E50-N	As previous one, setting range 101-200 bar ( <i>1460-2900 psi</i> )
	03850E50-R	As previous one, setting range 201-380 bar ( <i>2910-5500 psi</i> )
<b>E53</b>	03854E53-B	With pressure relief valve, setting range 10-100 bar ( <i>145-1450 psi</i> ) and P2 port open for 2 <sup>nd</sup> pump
	03854E53-N	As previous one, setting range 101-200 bar ( <i>1460-2900 psi</i> )
	03854E53-R	As previous one, setting range 201-380 bar ( <i>2910-5500 psi</i> )
<b>E51</b>	03853E51	Intermediate outlet section, T2 port open
<b>E61</b>	03885E61	Intermediate spacer section

**4 Outlet section\*** page 137

TYPE	CODE	DESCRIPTION
<b>FS-Q30/Q50-F3D</b>	03012F3D	
TYPE	CODE	
<b>FS-Q30-F16D</b>	03016F16D	
<b>FS-Q50-F16D</b>	05016F16D	
DESCRIPTION:	T port open, T1 port plugged.	For open center circuit
TYPE	CODE	
<b>FS-Q30-F6D</b>	03014F6D	
<b>FS-Q50-F6D</b>	05014F6D	
DESCRIPTION:	Lc port and T1 port open.	With joint for carry-over (HPCO) circuit

**5 Tie rod kit**

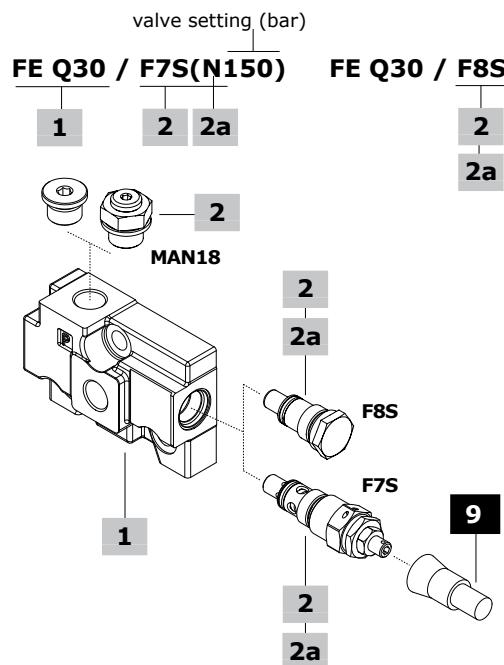
CODE	DESCRIPTION
<b>For standard configuration</b>	
<b>Q30:</b>	<b>Q50:</b>
03901TX1	05901TX1 For 1 section valve
03902TX2	05902TX2 For 2 sections valve
03903TX3	05903TX3 For 3 sections valve
03904TX4	05904TX4 For 4 sections valve
03905TX5	05905TX5 For 5 sections valve
03906TX6	05906TX6 For 6 sections 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 **BSP** thread

## Inlet section - parts ordering codes

Standard section

With relief valve:

**1 Inlet body section\***

page 98

TYPE	CODE
<b>FE-Q30</b>	060012741599
<b>FE-Q50</b>	060012823599

DESCRIPTION: Side inlet port, upper inlet plugged, pressure relief valve arrangement

TYPE	CODE
<b>FE-Q30</b>	060012979299
<b>FE-Q50</b>	060012998499

DESCRIPTION: As previous one, with unloader valve arrangement

**2 Configuration coding\***

page 99

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

**Note:** Inlet configurations require upper P port:

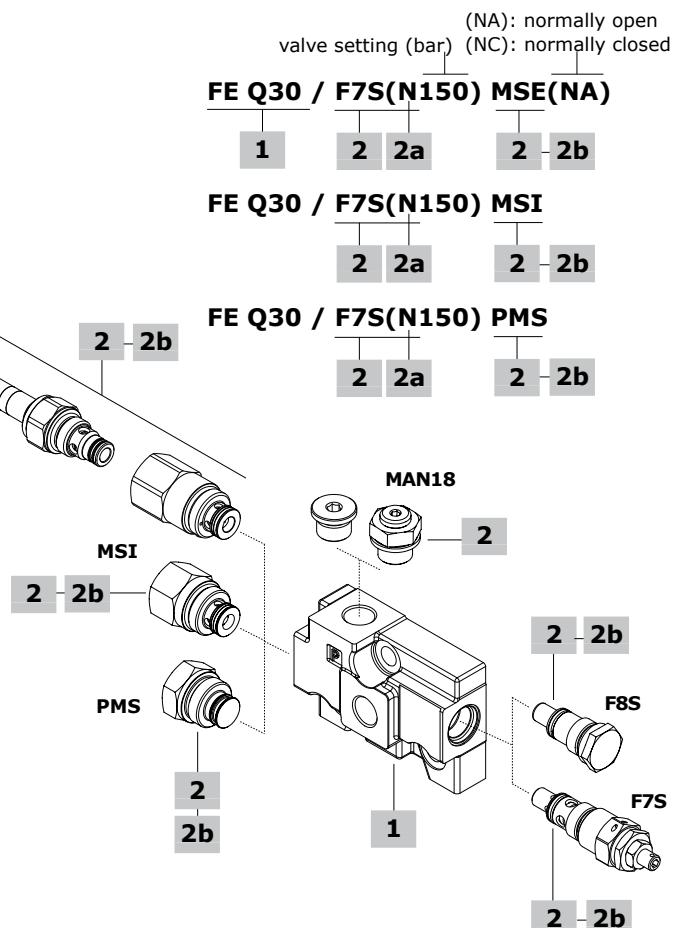
for Q30 n. 1 G3/8 plug code 060002792199, or n. 1 pressure gauge arrangement code 5MAN621200;  
for Q50 n. 1 G1/2 plug code 060002792099, or n. 1 pressure gauge arrangement code 5MAN625220

**2a Main pressure relief valve**

page 100

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: Relief valve blanking plug	

With relief and unloader valves:

**2b Unloader inlet valve**

page 101

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

**3 Coil**

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

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

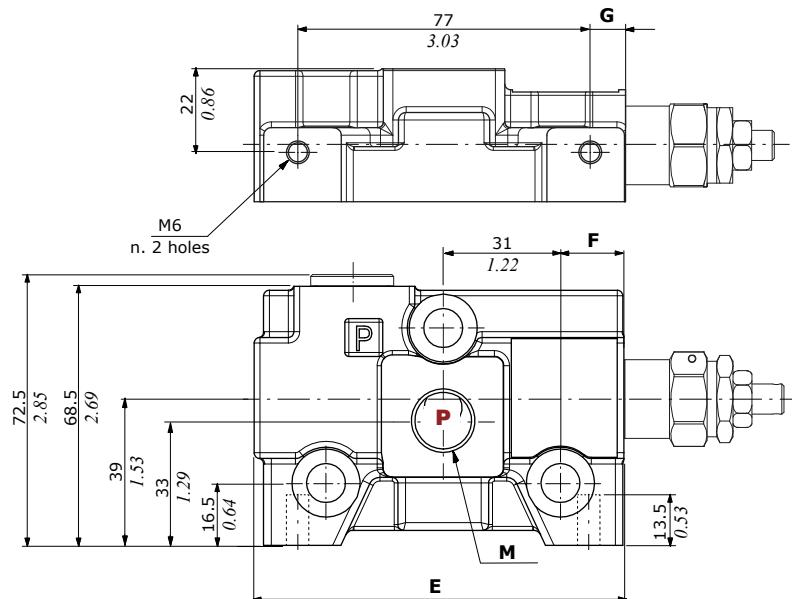
**9 Accessory**

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

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

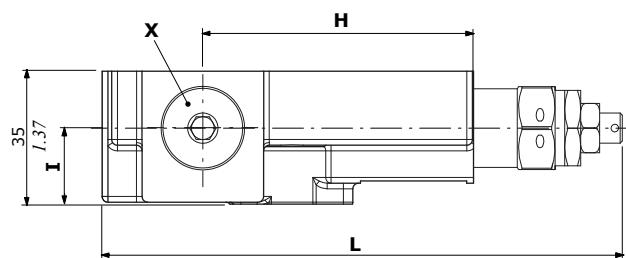
**Standard inlet section****Dimensional data****With pressure relief valve**

Drawings are referred to a Q30 sectional valve.

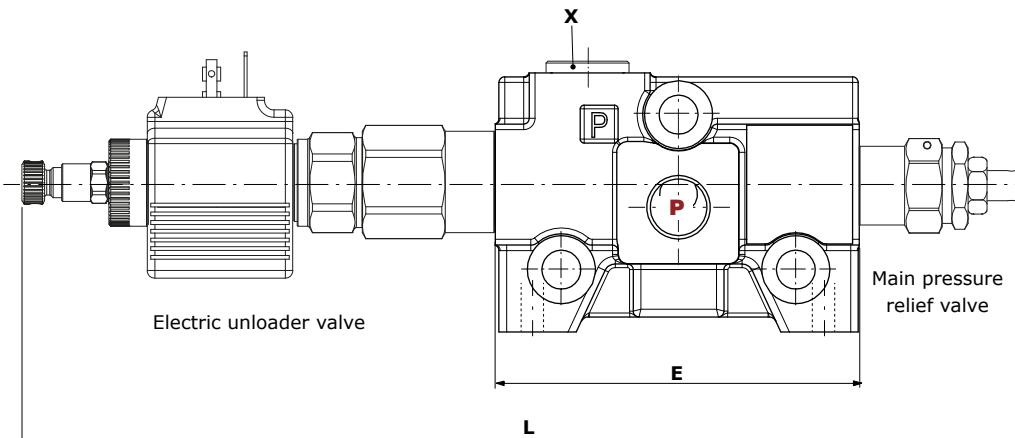


Type	Q30 mm - in	Q50 mm - in
E	97.8 - 3.85	98.5 - 3.87
F	16.8 - 0.66	17.5 - 0.68
G	10.4 - 0.41	10.7 - 0.42
H	71.3 - 2.80	72 - 2.83
I	20 - 0.78	18 - 0.70
L	140.1 - 5.51	140.8 - 5.54
M	G1/8	G1/2
X	allen wrench 6 - 24 Nm (17.7 lbft)	allen wrench 8 - 42 Nm (31 lbft)

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

**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)

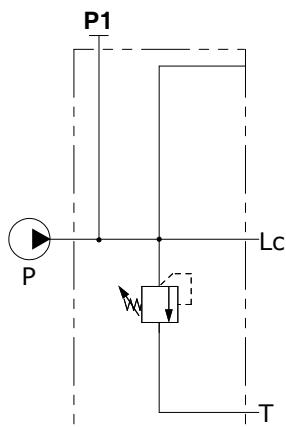
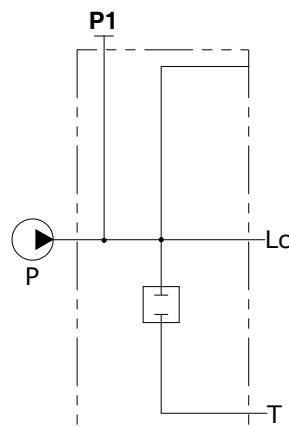
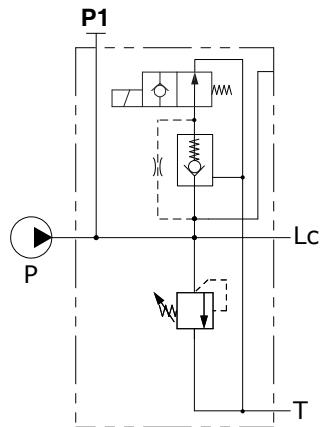
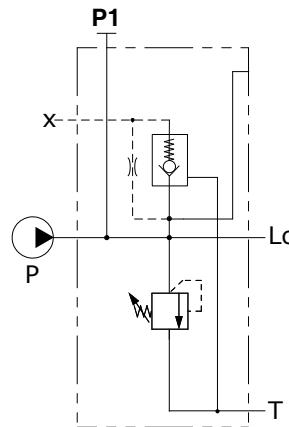
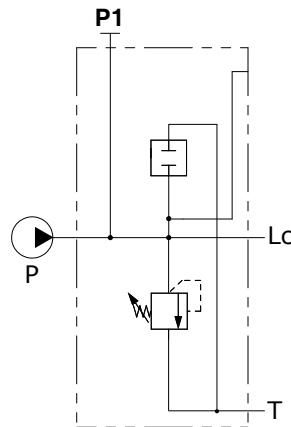
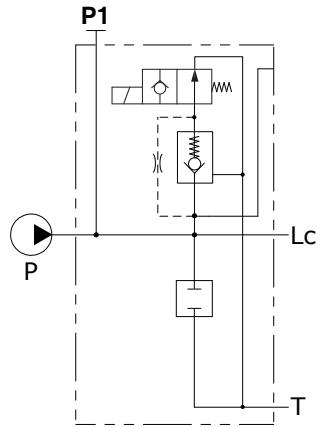
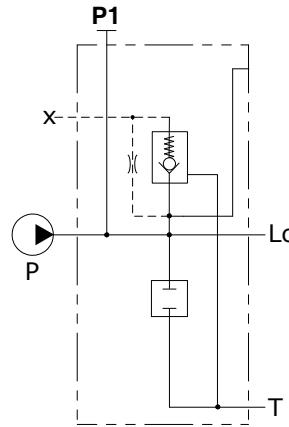
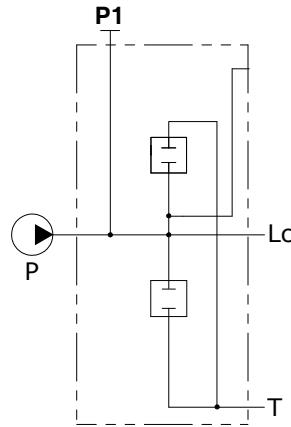
**Note:** For valves wrench and torque, see related pages

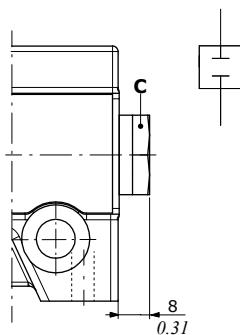
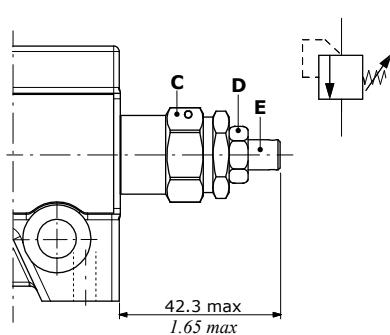
For other configurations, see page 101

For other dimensions, see previous configuration

## Standard inlet section

## Hydraulic circuits

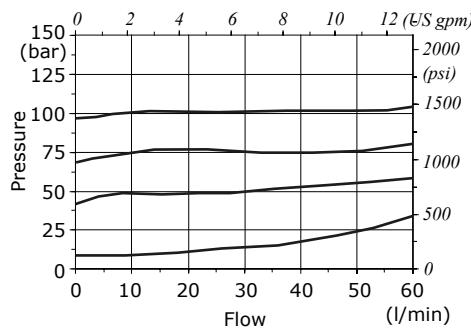
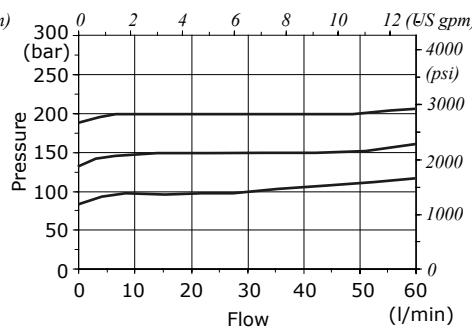
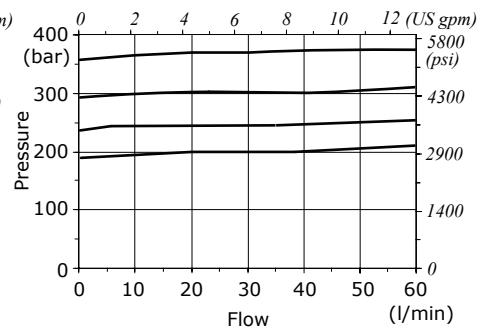
**F7S configuration**  
With pressure relief valve**F8S configuration**  
Without valves  
(pressure relief valve plugged port)**F7S-MSE(NA/NC) configuration**  
With pressure relief valve  
and electric unloader valve**F7S-MSI configuration**  
With pressure relief valve  
and hydraulic unloader valve**F7S-PMS 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 lbf)  
 D = wrench 13 - 24 Nm (17.7 lbf)  
 E = allen wrench 4

**Spring type      Setting ranges (bar - psi)**

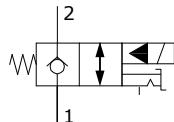
Spring type	Setting ranges (bar - psi)
B (white)	From 10 to 100 - from 145 to 1450
N (black)	From 101 to 200 - from 1460 to 2900
R (red)	From 201 to 380 - from 2910 to 5500

**Setting example (B type spring)****Setting example (N type spring)****Setting example (R type spring)**

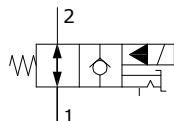
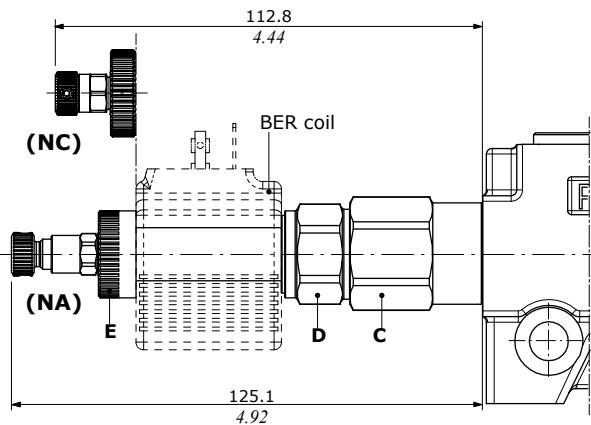
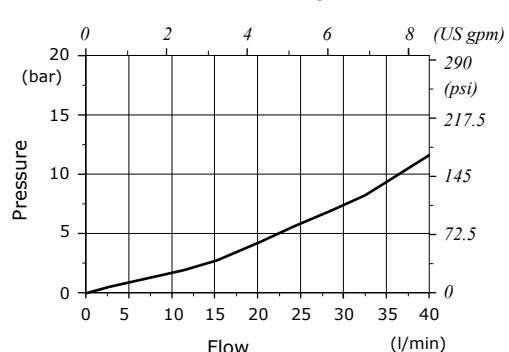
## Standard inlet section

**Unloader valve****MSE type: electric control**

**MSE(NC) type**  
Normally closed

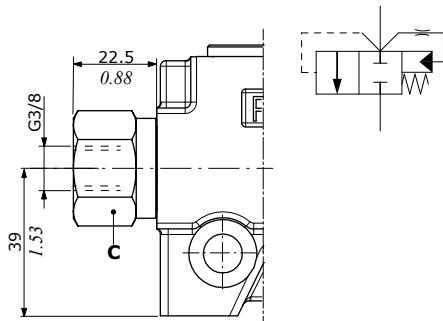
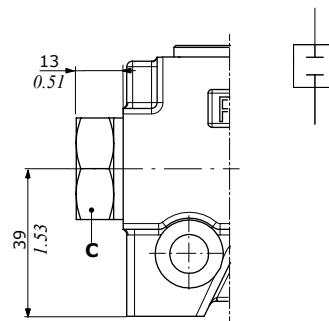


**MSE(NA) type**  
Normally open

**Screw type emergency****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

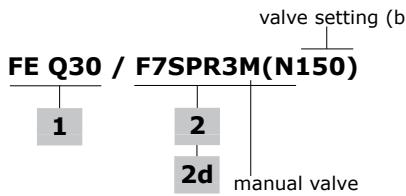
**MSI type: hydraulic control****PMS type: valve blanking plug****Wrenches and tightening torques**

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

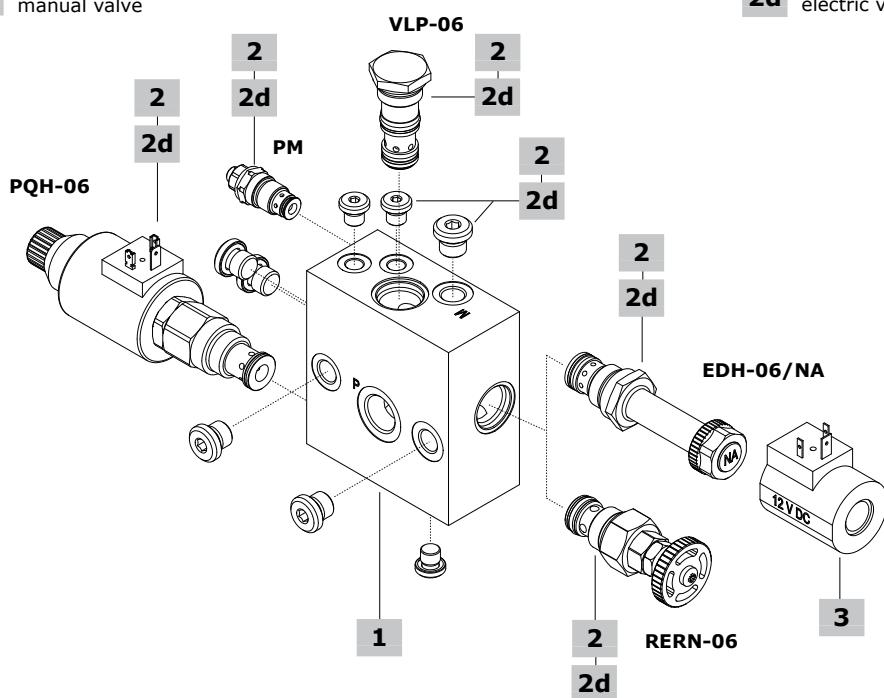
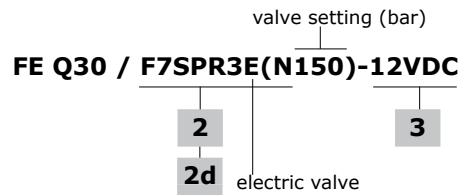
## Inlet section - parts ordering codes

Section with flow regulator

With manual unloader valve:



With electric unloader valve:

**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

**F7S-PR3M**

With pressure relief valve, proportional flow control valve and manual unloader valve

**F7S-PR3E**

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

**PQH-06**

CODE

950208506010000

DESCRIPTION

Flow control pressure compensated proportional valve, 12 VDC, coil included

950208506010001

Flow control pressure compensated proportional valve, 24 VDC, coil included

**PM**

03800V30PM-N

Antishock valve

**VLP-06**

950209906010000

Pressure relief valve

**RERN-06**

955845060010000

Manual unloader valve

**EDH-06/NA**

950210600000000

Electric unloader valve, normally open

**3 Coil**

TYPE

**For EDH-06 valve**

CODE

DESCRIPTION

**A**

954250000601200

12 VDC ISO4400 coil

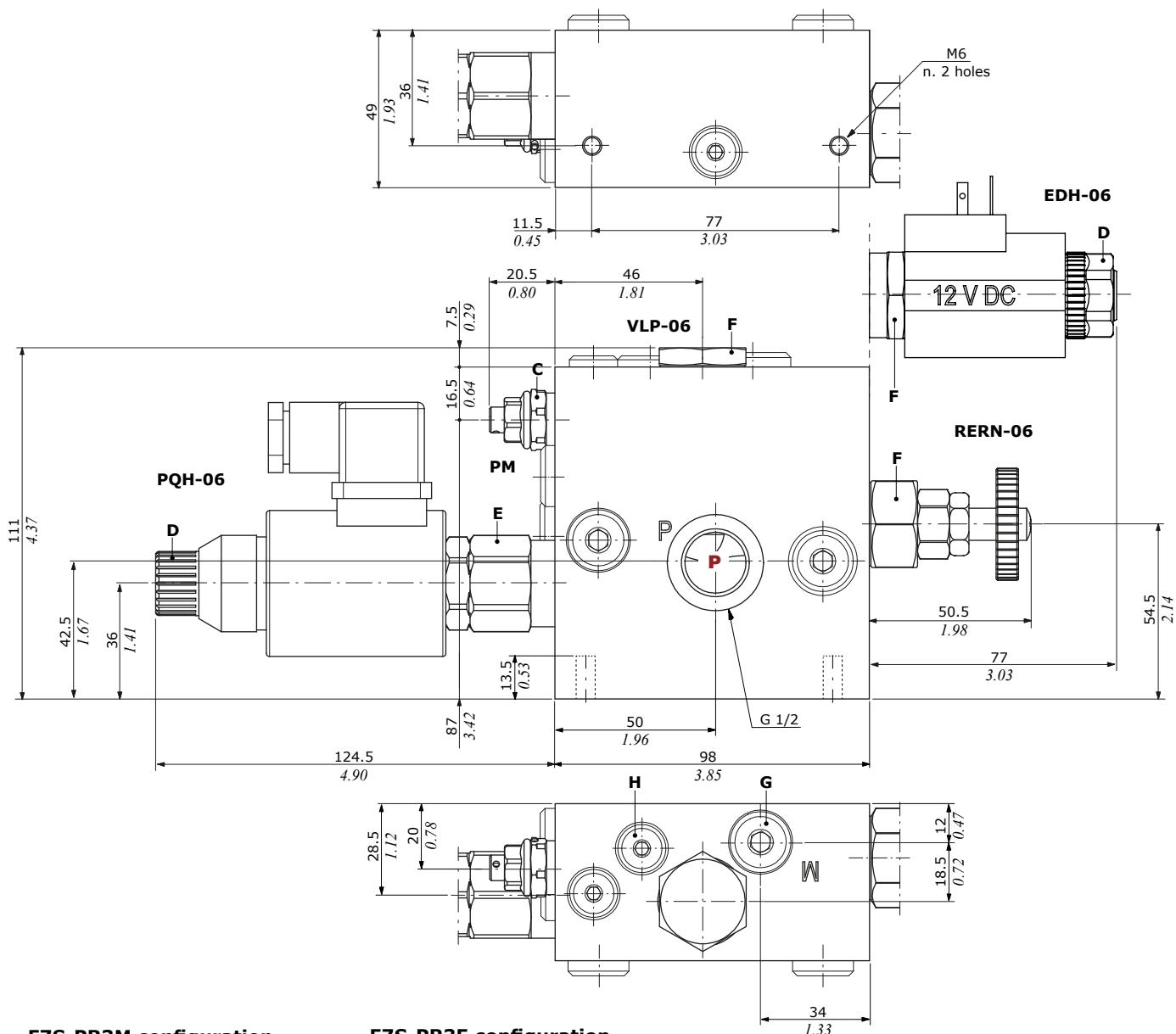
954250000602400

24 VDC ISO4400 coil

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

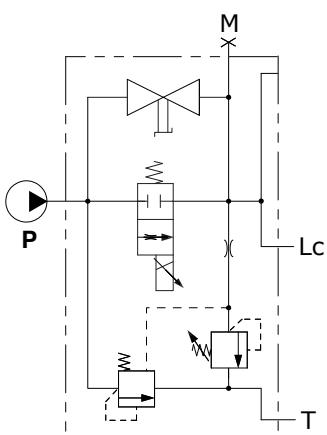
## Inlet section with flow regulator

## Dimensional data and hydraulic circuit



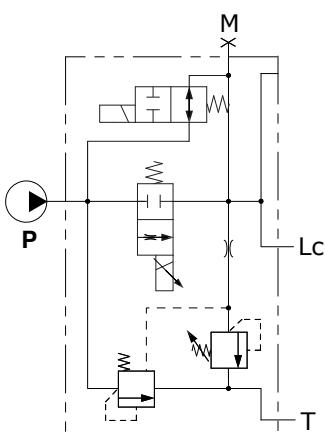
F7S-PR3M configuration

With manual unloader valve



F7S-PR3E configuration

With electric unloader valve

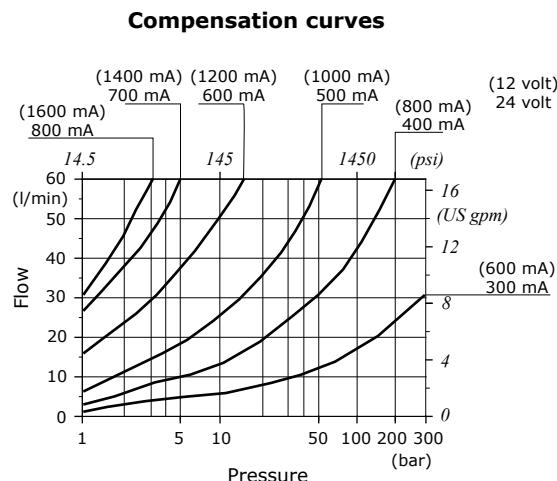
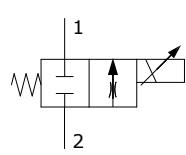
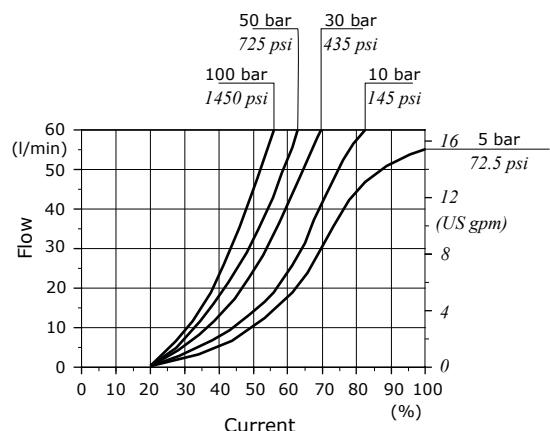


## Wrenches and tightening torques

- 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

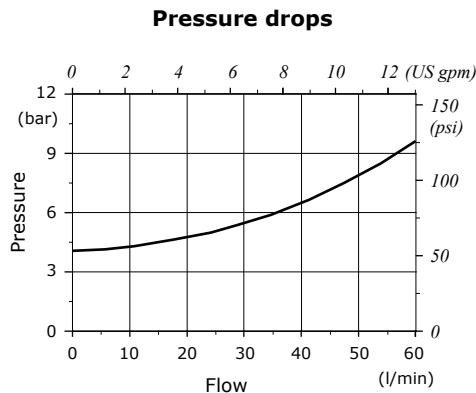
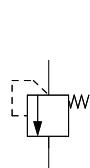
**Flow control diagram****Valve features**

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

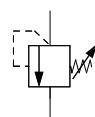
**Note:** The coil and connector is included

**VLP-06 type**

Pressure relief valve

**PM type**

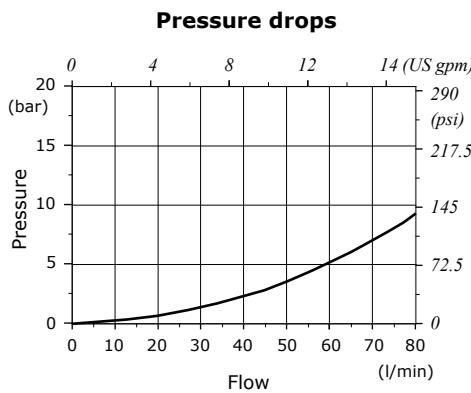
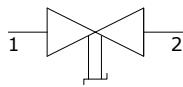
Antishock valve

**Valve features**

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

**Inlet section with flow regulator****Inlet valves****RERN-06 type**

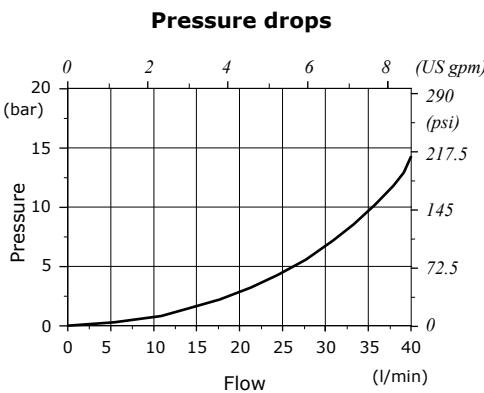
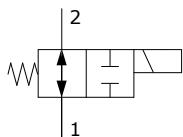
Manual unloader valve

**Valve features**

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

**EDH-06 type**

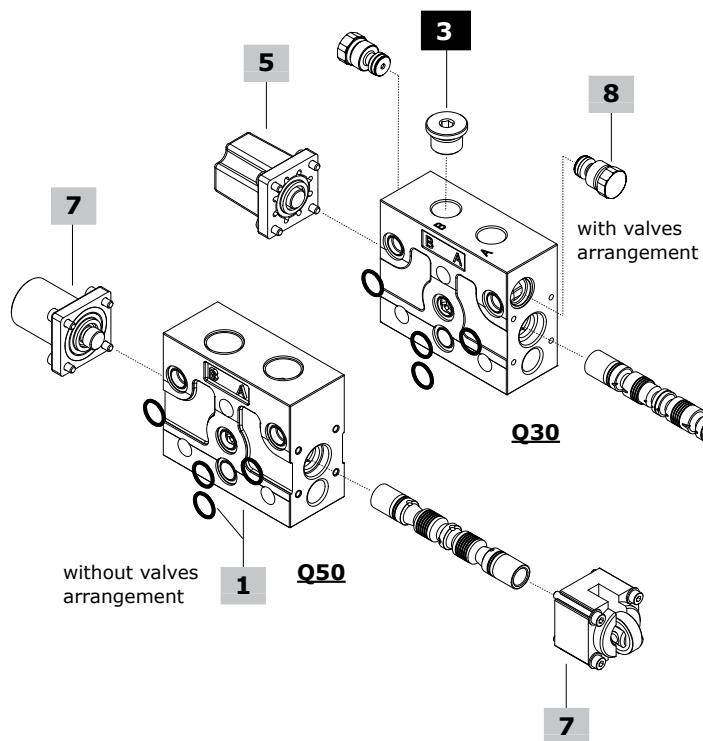
Electric unloader valve, normally open

**Valve features**

Nominal flow.....: 35 l/min (9.24 US gpm)  
 Max. pressure .....: 310 bar (4500 psi)  
 Max. internal leakage...: 50 cm³/min @ 210 bar  
 (3.05 in³/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**  
 1 2 4 5 8  
 aluminium controls

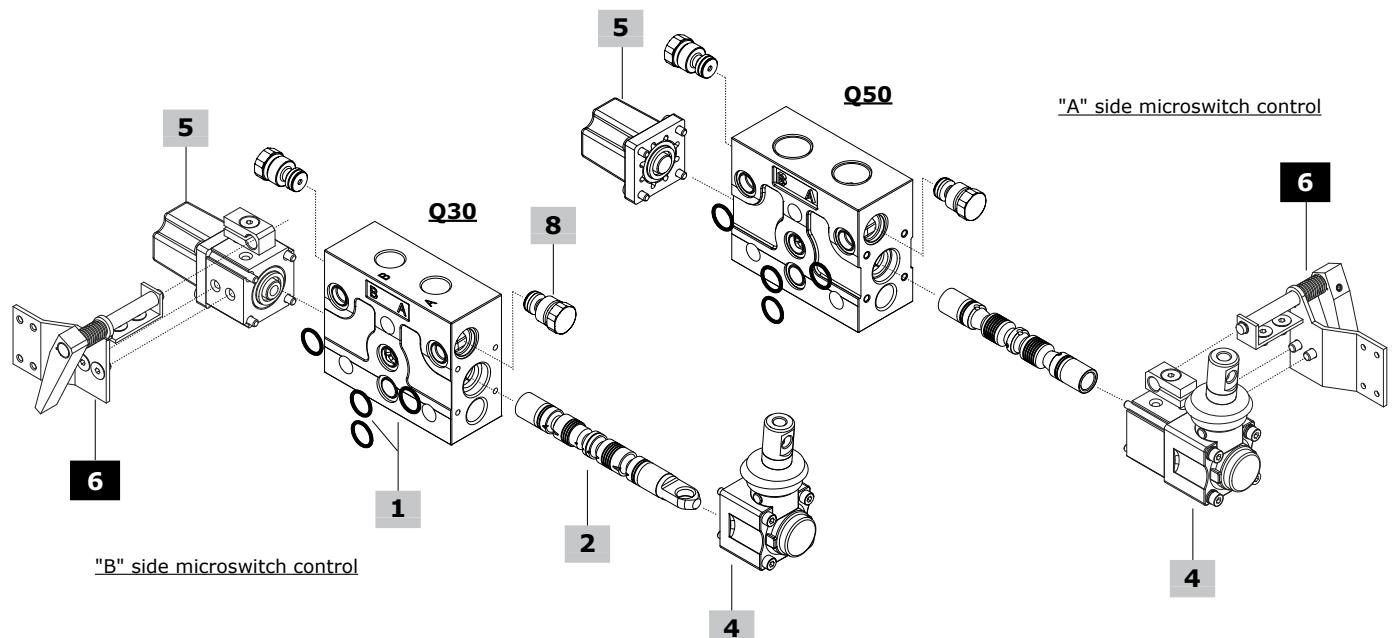
#### C2/C3 complete mechanical control configuration example:

**EL Q50 / 103 - C3 . V40(N)120 - S**  
 7

#### Microswitch control valve configurations example

**EL Q30 / 103 - A1 - M1-N1 . V40(N)120 - S**  
 1 2 4 5 8  
 aluminium controls

**EL Q50 / 103 - N1-A1 - M1 . V40(N)120 - S**  
 4 5



## Working section - parts ordering codes

<b>1 Working section body kit*</b>	<b>page 111</b>	<b>4 A side control</b>	<b>page 113</b>	
TYPE	CODE	TYPE	CODE	
<b>EL-Q30.VC</b>	5EL0600128432	<b>For standard spools</b>	<b>DESCRIPTION</b>	
<b>EL-Q50.VC</b>	5EL0600128226	<u>With lever control:</u>		
DESCRIPTION: Parallel circuit, with port valves arrangement		<b>A1</b> 03600A1-A2	M8 thread plastic lever box	
TYPE	CODE	<b>A2</b> 03600A1-A2	As A1 type, with lever box rotated 180°	
<b>EL-Q30</b>	5EL0600127900	<b>A1/10</b> 03610A1-A2/10	M8 thread aluminium lever box	
<b>EL-Q50</b>	5EL0600128225	<b>A2/10</b> 03610A1-A2/10	As A1/10 type, with lever box rotated 180°	
DESCRIPTION: Parallel circuit, without port valves arrangement		<b>A1/06</b> 03606A1-A2/06	Aluminium lever box, with stroke limiter	
TYPE	CODE	<b>A2/06</b> 03606A1-A2/06	As A1/06 type, with lever box rotated 180°	
<b>EL-Q30.VC</b>	5EL0600128434	<b>A1/PM</b> 03610A1-A2/PM	M10 thread aluminium lever box	
<b>EL-Q50.VC</b>	5EL0600128786	<b>A2/PM</b> 03610A1-A2/PM	As A1/PM type, with lever box rotated 180°	
DESCRIPTION: Series circuit, with port valves arrangement		<b>A1/PMP</b> 03610A1-A2/PMP	M10 thread plastic lever box	
<b>2 Spool</b>	<b>page 112</b>	<b>A2/PMP</b> 03610A1-A2/PMP	As A1/PMP type, with lever box rotated 180°	
TYPE	CODE	<b>A1/Z1</b> 03610A1-A2/Z1	Plastic lever box, for <b>116</b> spool type	
<b>Standard spools</b>		<b>A2/Z1</b> 03610A1-A2/Z1	As A1/Z1 type, with lever box rotated 180°	
<b>103</b>	060103179499	<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	
		<b>A8/Z1</b> 03622A8/03	As previous one, with aluminium cap	
		<b>A8/Z1</b> 03622A8/Z1	As A8 type, for <b>116</b> spool type	
		<b>A8/Z1</b> 03622A8/Z1/10	As previous one, with aluminium cap	
		<u>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>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	
			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
<b>3 Plug for single acting spool*</b>				
TYPE	CODE	DESCRIPTION		
-	060002792199	G3/8 plug for Q30 body section		
-	060002792099	G1/2 plug for Q50 body section		

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

(¹): Always complete with lever knob

(²): To be assembled only with M4 control

## Working section - parts ordering codes

<b>5 B side control</b>			<b>page 122</b>	<b>5 B side control (cont.)</b>			<b>page 122</b>		
TYPE	CODE	DESCRIPTION		TYPE	CODE	DESCRIPTION			
<u>With spring return:</u>									
<b>M1</b>	03730M1	3 pos., spring return in neutral position		<b>M1-N1</b>	03766M1-N1	3 pos., micro operation in pos. 1 and 2, spring return in neutral position			
	03730M1/03	As previous one, with aluminium cap			03766M1-N1/03	As previous one, with aluminium lever box			
<b>M1/01</b>	03730M1/01	As M1 type, for joystick control		<b>M1-N1A</b>	03767M1-N1AL	As M1-N1 type, micro operation in pos. 1			
	03730M1/01/03	As previous one, with aluminium cap			03767M1-N1AL/3	As previous one, with aluminium cap			
<b>M1/02</b>	03730M1/02	As M1 type, with stroke limiter		<b>M1-N1B</b>	03768M1-N1BL	As M1-N1 type, micro operation in pos. 2			
<b>M1/05</b>	03730M1/05	As M1 type, for series spool			03768M1-N1BL/3	As previous one, with aluminium cap			
<b>M1/06</b>	03730M1/06	As M1/05 type, with aluminium cap		<b>M2-N1</b>	03769M2-N1L	2 pos. (0-1), spring return in neutral pos.			
<b>M1/07</b>	03730M1/07	As M1 type, for joystick control with series spool		<b>M3-N1</b>	03772M3-N1L	2 pos. (0-2), spring return in neutral pos.			
	03730M1/07/03	As previous one, with aluminium cap		<u>Pneumatic and electropneumatic controls:</u>					
<b>M1-B1</b>	03753M1-B1	As M1 type, with microswitch arrangement		<b>P1NW</b>	03661P1-NW	ON/OFF pneumatic control			
	03753M1-B1/03	As previous one, with aluminium cap		<b>P1NPW</b>	03661P1-NPW	Proportional pneumatic control			
<b>M1-U1</b>	03701M1-U1	As M1 type, with M8 thread male external pin		<b>D3W</b>	03691D3-F-12DC	12 VDC, ON/OFF electropneumatic control			
<b>M2</b>	03732M2	2 pos. (0-1), spring return in neutral position			03692D3-F-24DC	24 VDC, ON/OFF electropneumatic control			
	03732M2/03	As previous one, with aluminium cap		<b>6 Microswitch assembly kit</b>					
<b>M2-U1</b>	03702M2-U1	As M2 type, with M8 thread male external pin		CODE		DESCRIPTION			
<b>M3</b>	03733M3	2 pos. (0-2), spring return in neutral position		03650N1-01		Kit for 1 section			
	03733M3/03	As previous one, with aluminium cap		03650N1-02		Kit for 2 sections			
<b>M3-U1</b>	03703M3-U1	As M3 type, with M8 thread male external pin		03650N1-03		Kit for 3 sections			
<b>M4</b>	03734M41-2	2 pos. (1-2), spring return in position 1		03650N1-04		Kit for 4 sections			
	03735M42-1	2 pos. (2-1), spring return in position 2		03650N1-05		Kit for 5 sections			
<b>M4-U1</b>	03704M4-U11-2	As M4 type (1-2), with M8 thread male external pin		03650N1-06		Kit for 6 sections			
<u>With flexible cable control arrangement:</u>									
<b>M1-U2</b>	03715M1-U2	3 pos., spring return in neutral position		03650N1-07		Kit for 7 sections			
<b>M2-U2</b>	03716M2-U2	2 pos. (0-1), spring return in neutral position		03650N1-08		Kit for 8 sections			
<b>M3-U2</b>	03717M3-U2	2 pos. (0-2), spring return in neutral position		03650N1-09		Kit for 9 sections			
<u>With detent:</u>									
<b>R1</b>	03741R1	3 pos., detent in position 1		03650N1-10		Kit for 10 sections			
	03741R1/03	As previous one, with aluminium cap		<b>7 Complete controls A+B sides</b>					
<b>R2</b>	03742R2	3 pos., detent in position 2		TYPE	CODE	DESCRIPTION			
	03742R2/03	As previous one, with aluminium cap		<b>For types 103, 111, 403, 411 special spools</b>					
<b>R3</b>	03743R3	3 pos., detent in all position		<b>C2</b>	03792C2-C3	Cam control from position 1 to 2			
	03743R3/03	As previous one, with aluminium cap		<b>C3</b>	03792C2-C3	Cam control from position 2 to 1			
<b>R4</b>	03744R4	2 pos., detent in position 0-1		<b>8 Auxiliary port valve</b>					
	03744R4/03	As previous one, with aluminium cap		TYPE	CODE	DESCRIPTION			
<b>R5</b>	03745R5	2 pos., detent in position 0-2		<b>Antishock valve:</b>					
	03745R5/03	As previous one, with aluminium cap		<b>V30-B</b>	0380FV30-B	Setting range: from 50 to 80 bar (from 725 to 1150 psi)			
<b>R6</b>	03746R6	2 pos., detent in position 1-2		<b>V30-N</b>	0380FV30-N	Setting range: from 81 to 200 bar (from 1170 to 2900 psi)			
	03746R6/03	As previous one, with aluminium cap		<b>V30-R</b>	0380FV30-R	Setting range: from 201 to 350 bar (from 2910 to 5100 psi)			
<b>R8</b>	03748R8	4 pos., detent in 4 <sup>th</sup> pos., for <b>116</b> spool type		<b>Antishock/anticavitation valve:</b>					
	03748R8/03	As previous one, with aluminium cap		<b>V33-B</b>	0380FV33-B	Setting range: from 50 to 80 bar (from 145 to 1150 psi)			
<b>R10/Z1</b>	03750R10/Z1	4 pos., detent in 4 <sup>th</sup> pos., for <b>126</b> spool type		<b>V33-N</b>	0380FV33-N	Setting range: from 81 to 200 bar (from 1170 to 2900 psi)			
	03750R10/Z1/03	As previous one, with aluminium cap		<b>V33-R</b>	0380FV33-R	Setting range: from 201 to 350 bar (from 2910 to 5100 psi)			
<u>With detent and kick out function:</u>				<b>Anticavitation valve:</b>					
<b>R1K</b>	03741R1K	3 pos., detent in position 1		<b>V04</b>	03808V04	Anticavitation valve			
	03741R1K/03	As previous one, with aluminium cap		<b>Plug:</b>					
<b>R2K</b>	03742R2K	3 pos., detent in position 2		<b>VC</b>	060002846099	Valve blanking plug			
	03742R2K/03	As previous one, with aluminium cap		For other configurations and positions, see page 133					
<b>R3K</b>	03743R3K	3 pos., detent in all position							
	03743R3K/03	As previous one, with aluminium cap							

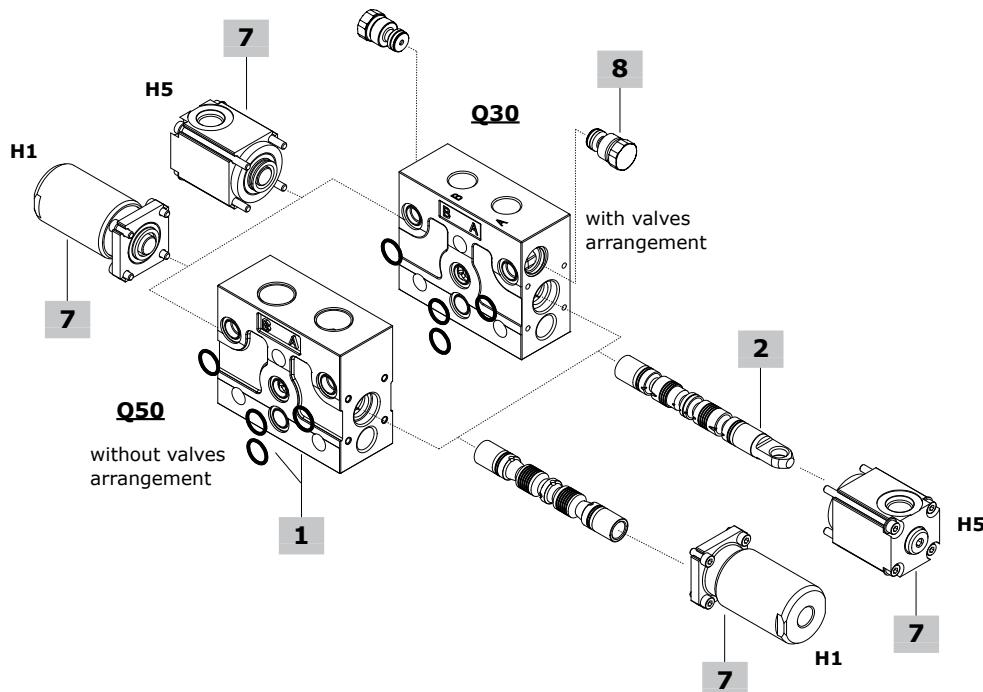
(\*): Codes are referred to **BSP** thread

## Working section - parts ordering codes

Proportional hydraulic controls valve configuration example

spring type and valve setting (bar)  
**EL Q30 / 103 - H5 . V40(N)120 - S**  
 1      2      7      8      aluminium controls

**EL Q50 / 103 - H1 . V40(N)120 - S**  
 7

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

The body kits listed below are for **H5** hydraulic control.

**H1** hydraulic control requires standard body: see #1, page 107

TYPE CODE

**EL-Q30-H5.VC** 5EL0600128432H5

**EL-Q50-H5.VC** 5EL0600128226H5

DESCRIPTION: Parallel circuit, with port valves arrangement

TYPE CODE

**EL-Q30-H5** 5EL0600127900H5

**EL-Q50-H5** 5EL0600128225H5

DESCRIPTION: Parallel circuit, without port valves arrangement

**2 Spool** **page 112**

TYPE CODE DESCRIPTION

**For H5 hydraulic control**  
**103** 060103179499 Double acting, A and B closed in neutral position

**For H1 hydraulic control**  
**103** 060103179099 Double acting, A and B closed in neutral position

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

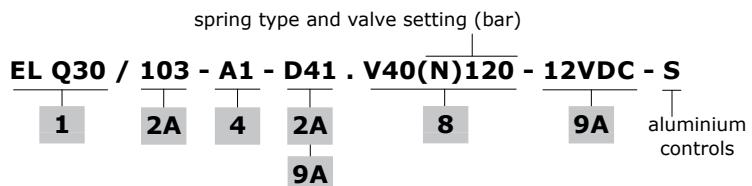
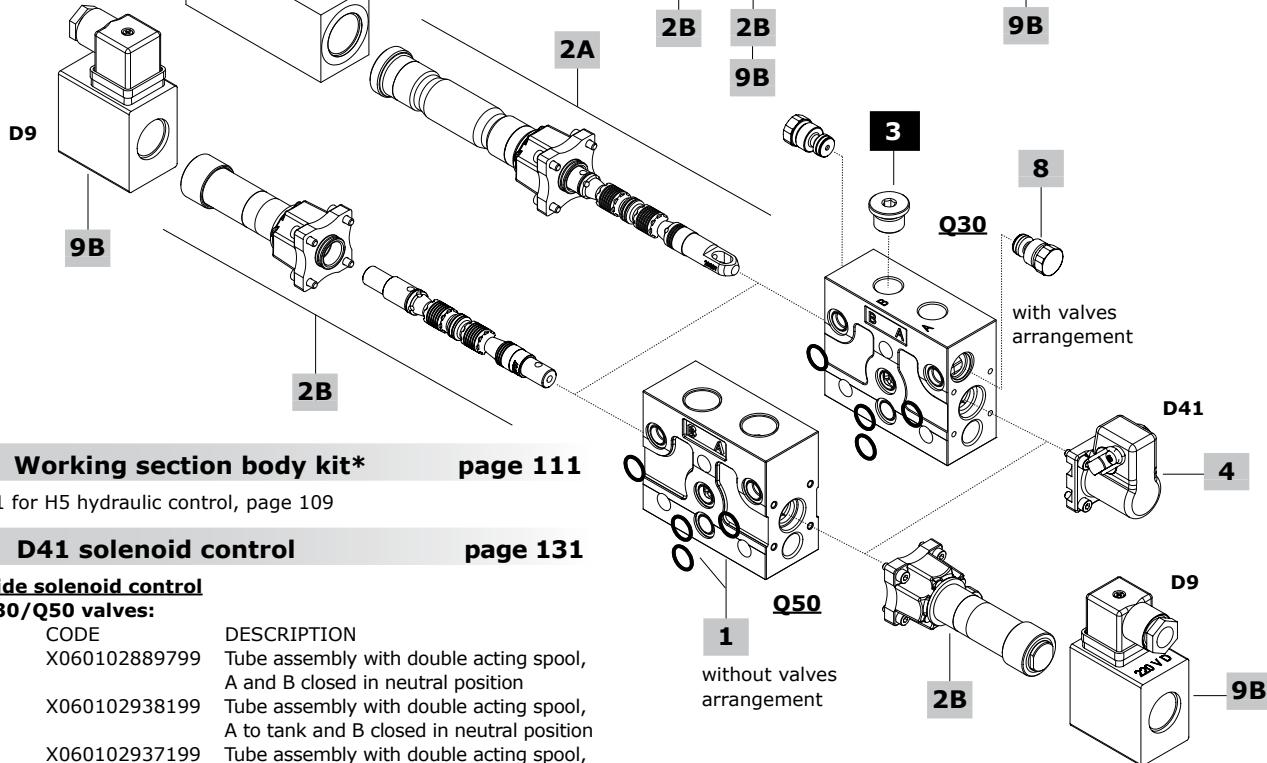
TYPE	CODE	DESCRIPTION
<b>H5</b>	03785H5	Low pressure proportional type, upper ports
<b>H1</b>	03779H1	High pressure proportional type, side ports

**8 Auxiliary port valve** **page 133**

See #8, page 108

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

## Working section - parts ordering codes

One side - ON/OFF direct solenoid control valve configuration exampleTwo side - ON/OFF direct solenoid control valve configuration example**EL Q50 / 103 - D9 . V40(N)120 - 12VDC - S****1 Working section body kit\***

page 111

See #1 for H5 hydraulic control, page 109

**2A D41 solenoid control**

page 131

One side solenoid controlFor Q30/Q50 valves:

TYPE	CODE	DESCRIPTION
103	X060102889799	Tube assembly with double acting spool, A and B closed in neutral position
107	X060102938199	Tube assembly with double acting spool, A to tank and B closed in neutral position
108	X060102937199	Tube assembly with double acting spool, B to tank and A closed in neutral position
109	X060102952699	Tube assembly with single acting spool on port A, A to tank in neutral position (1)
111	X060102894299	Tube assembly with double acting spool, A and B to tank in neutral position
101	X060102905099	Tube assembly with single acting spool on port A (1)
102	X060102894199	Tube assembly with single acting spool on port B (1)

**2B D9 solenoid control**

page 132

Two side solenoid controlFor Q30/Q50 valves:

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

**Note (1):** Q30 valve required G3/8 plug, see #3  
Q50 valve required G1/2 plug, see #3

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

page 107

**4 A side control for D41**

page 131

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 133

page 108

**9A/B Coil**

page 131

D41 coilFor Q30/Q50 valves:

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

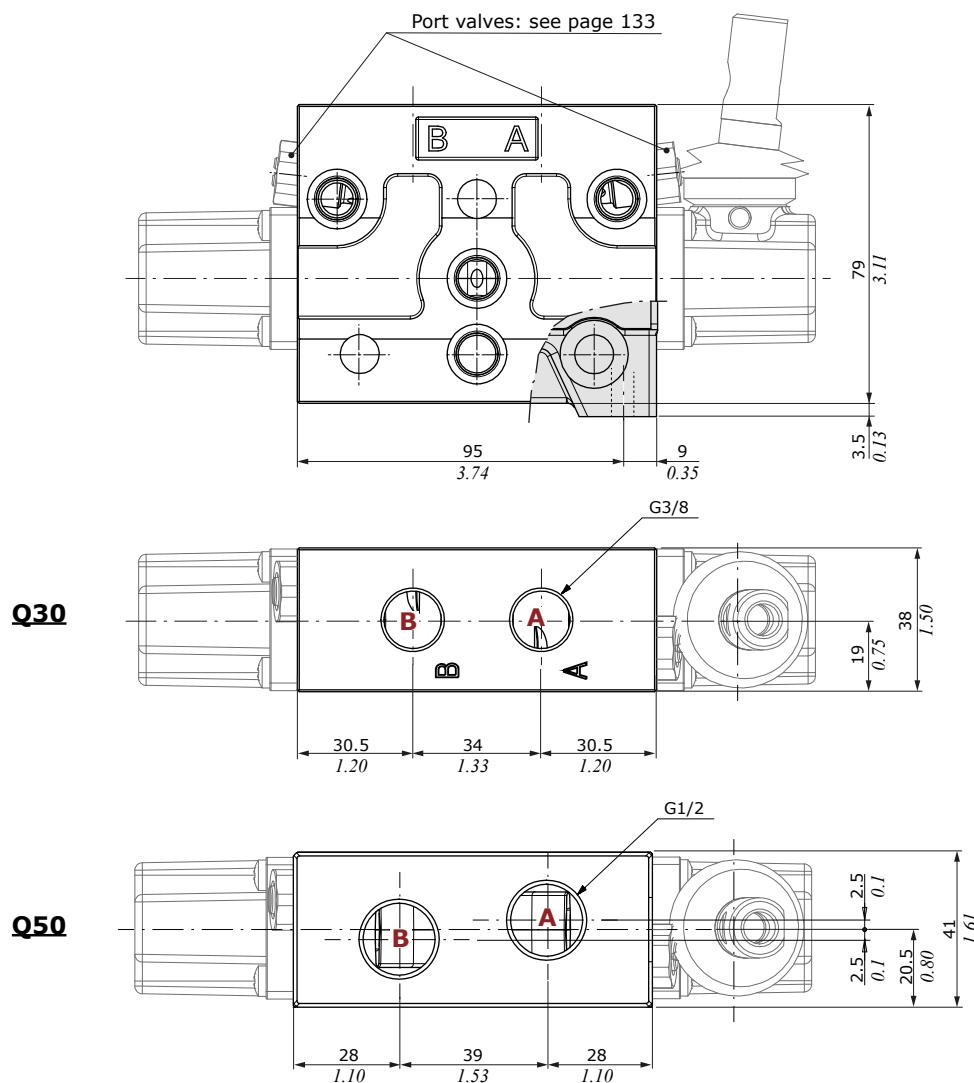
D9 coilFor Q30/Q50 valves:

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

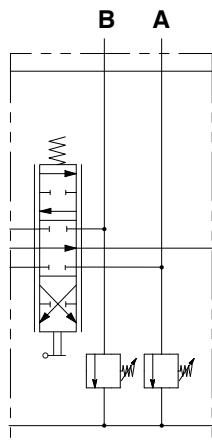
**Note:** The connector is included(\*): Codes are referred to **BSP** thread

## Working section

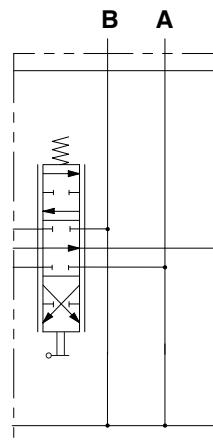
## Dimensional data and hydraulic circuits

**Q30/Q50.V40(N)120 configuration**

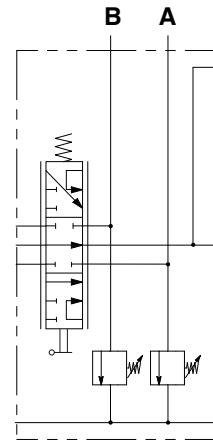
Parallel circuit,  
mechanical control with aux valves

**Q30/Q50 configuration**

Parallel circuit,  
mechanical control without aux valves

**Q30/Q50.V40(N)120 configuration**

Series circuit,  
mechanical control with aux valves



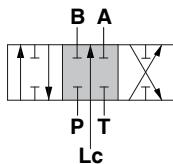
### Working section

#### Spool

##### 103 type

A and B closed  
in neutral position

**2 0 1**



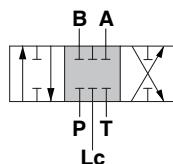
##### Stroke

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**



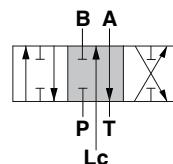
##### Stroke

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**



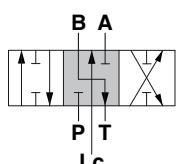
##### Stroke

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**



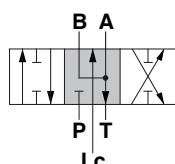
##### Stroke

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**



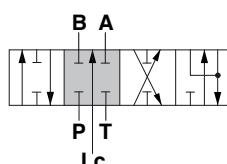
##### Stroke

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**



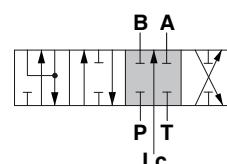
##### Stroke

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**



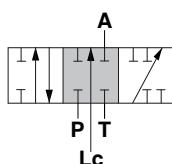
##### Stroke

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**



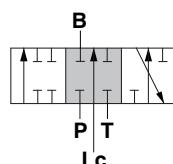
##### Stroke

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**



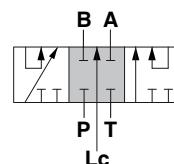
##### Stroke

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**



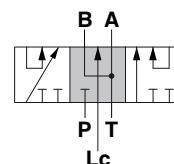
##### Stroke

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**



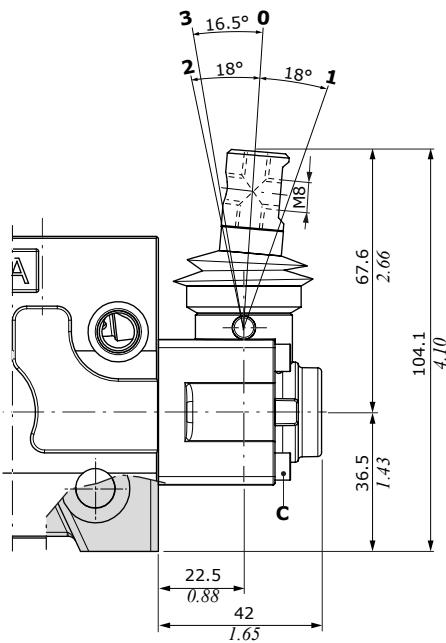
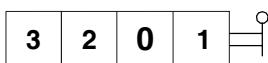
##### Stroke

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

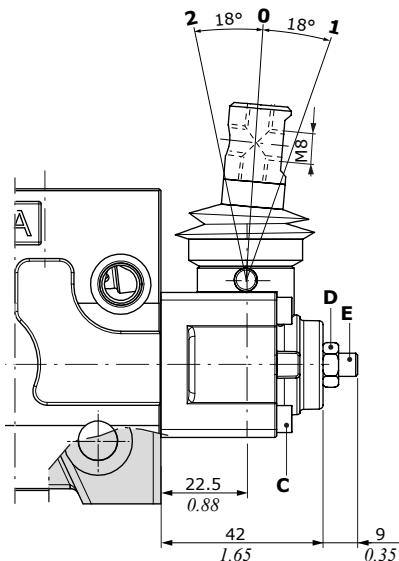
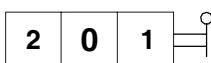
## Working section

**A side controls****With lever control****A1 type**

M8 thread plastic lever box

**A1/06 type**

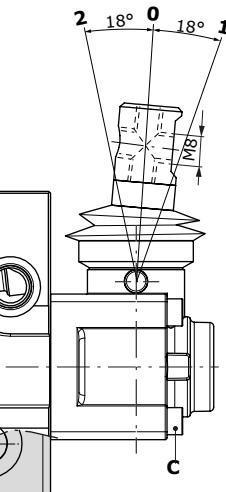
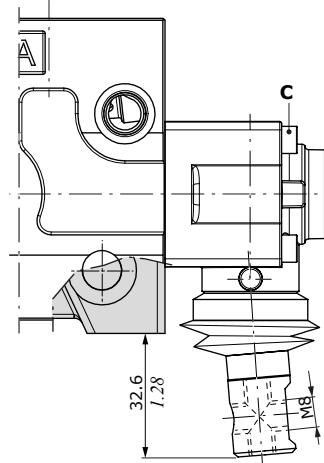
M8 thread, with stroke limiter

**A1/10 type**

M8 thread aluminium lever box.

Dimensions are the same  
of A1 type**A2/10 type**As A1/10 type,  
rotated 180°**A2 type**

As A1 type, rotated 180°

**Wrenches and tightening torques**

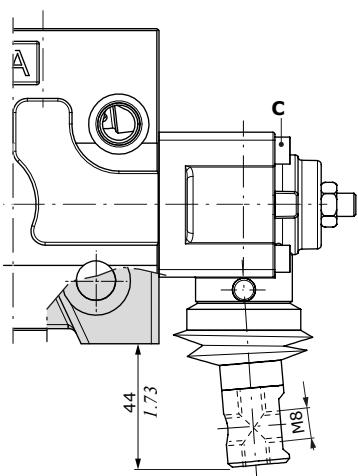
C = allen wrench 3 - 3 Nm (2.2 lbf)

D = wrench 10 - 9.8 Nm (7.2 lbf)

E = allen wrench 4 - 9.8 Nm (7.2 lbf)

**A2/06 type**

As A1/06 type, rotated 180°

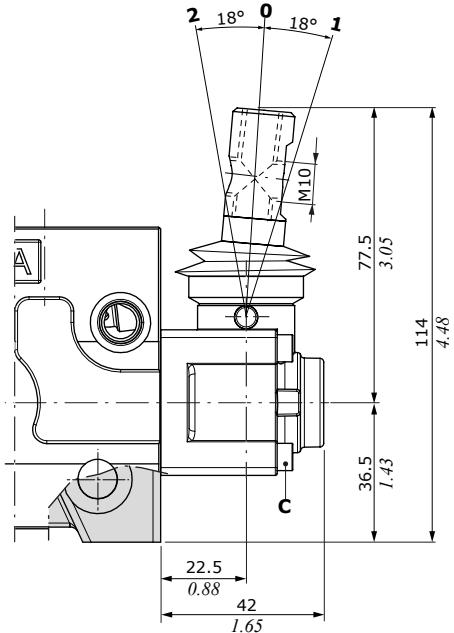
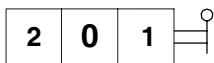


## **Working section-**

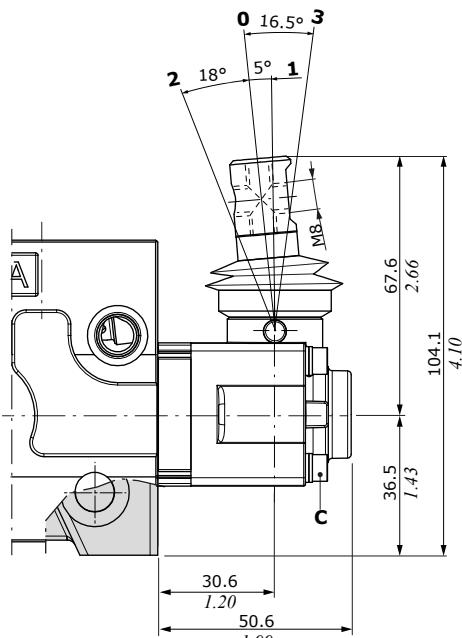
## A side controls

#### **With lever control**

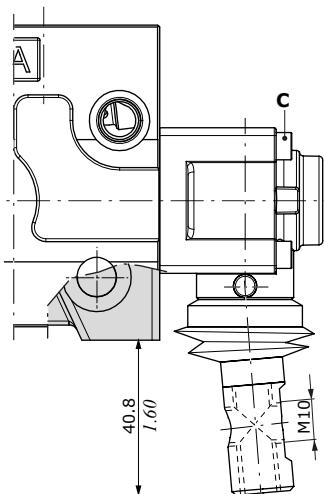
**A1/PM type**  
M10 thread aluminium lever box



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



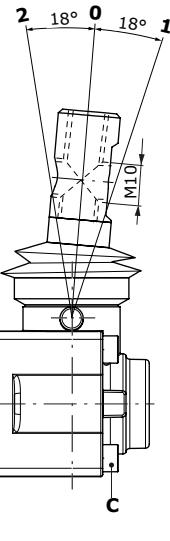
**A2/PM type**  
As A1/PM type, rotated 180°



2 0 1

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

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

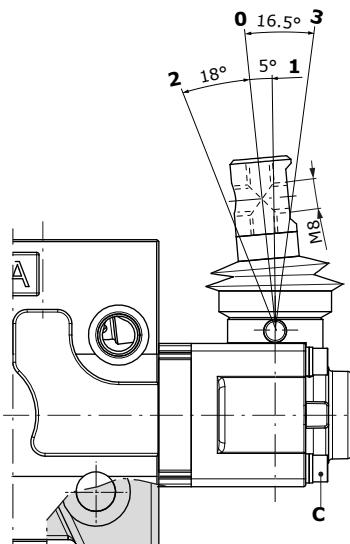
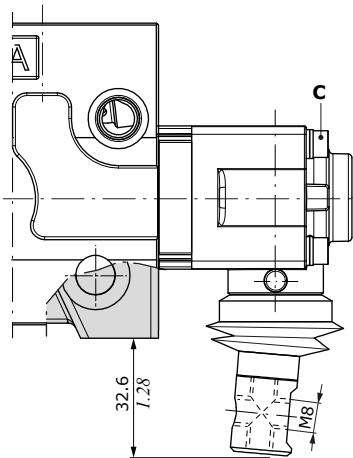


A1/Z1/10 type

As A1/Z1 type, with aluminium lever box



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



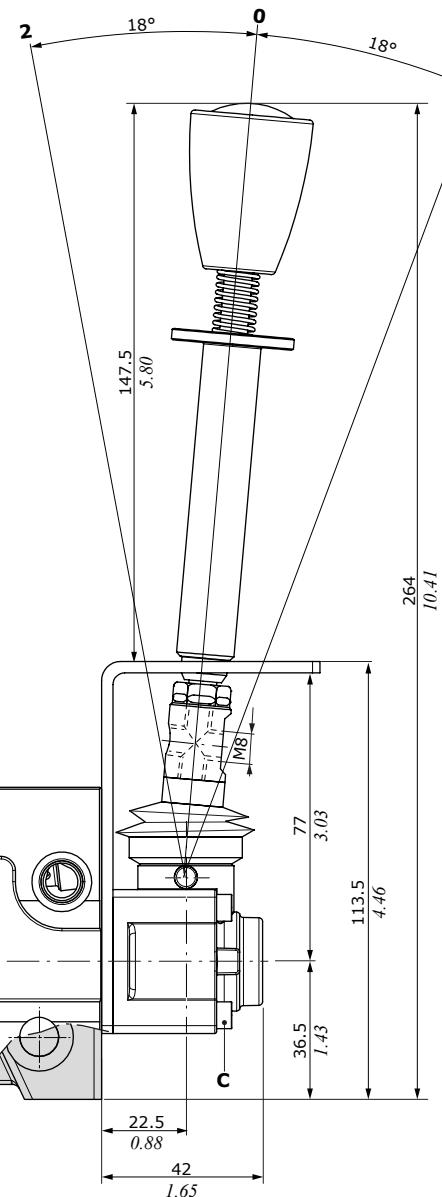
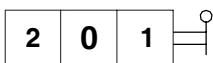
## **Wrenches and tightening torques**

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

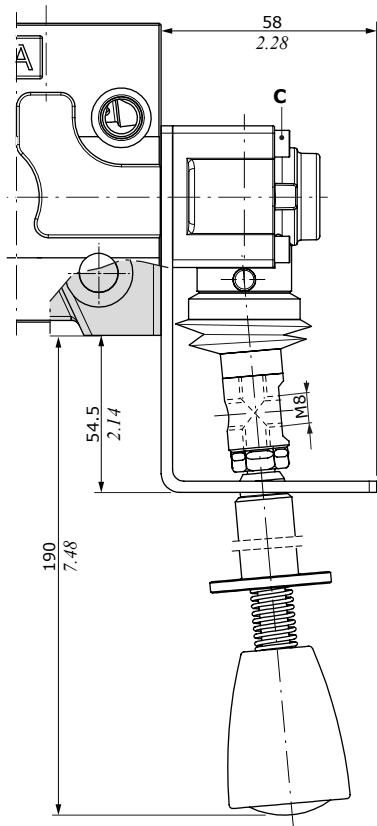
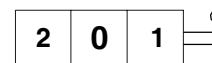
## Working section

**A side controls****With safety lever control**

**A1/S type**  
M8 thread, aluminium lever box



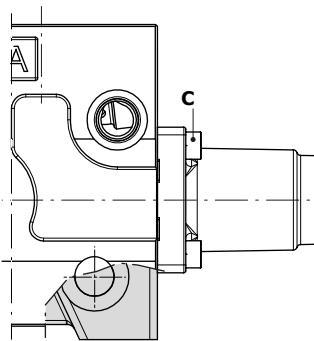
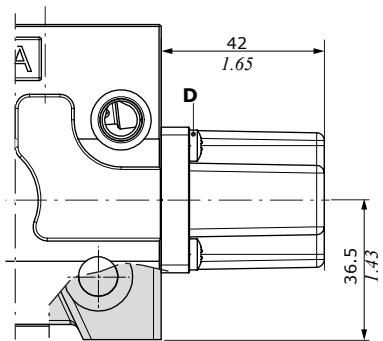
**A2/S type**  
As A1/S type, rotated 180°



**Working section****A side controls****Without lever control****A3 type**

With cap.

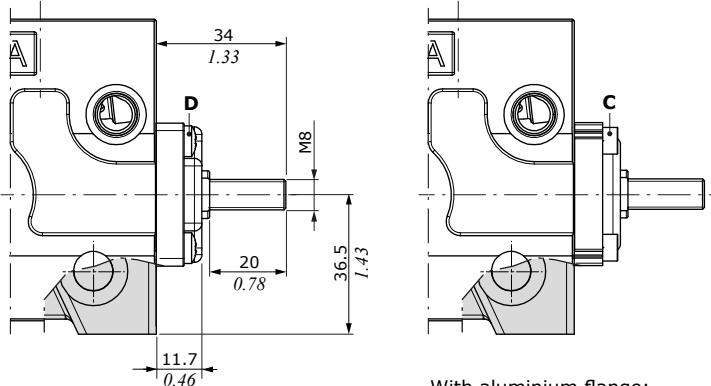
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

**A4 type**

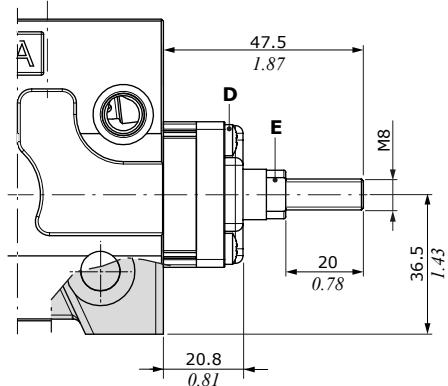
M8 male thread external pin with flange.  
Available with aluminium flange



With aluminium flange;  
dimensions are the same of  
standard type

**A4/Z1 type**

As A4 type,  
for 116 floating spool type

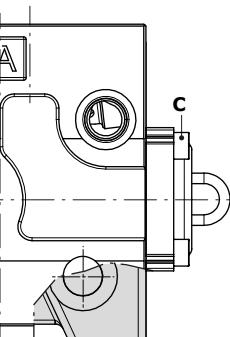
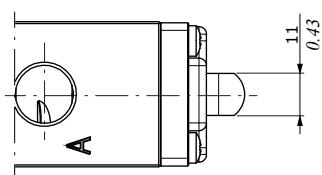
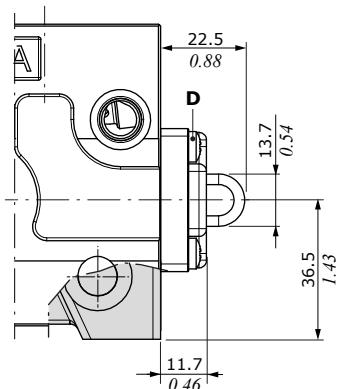
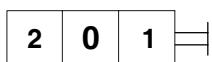
**Wrenches and tightening torques**

C = allen wrench 3 - 3 Nm (2.2 lbf $\cdot$ ft)  
D = cross-head - 3 Nm (2.2 lbf $\cdot$ ft)  
E = wrench 9 - 9.8 Nm (7.2 lbf $\cdot$ ft)

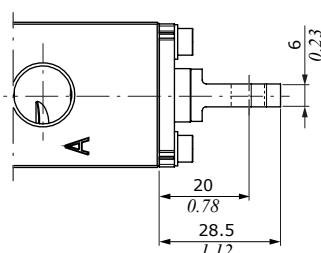
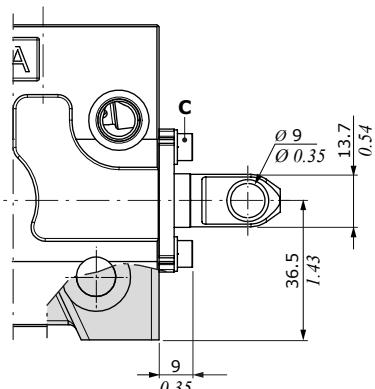
## Working section

**A side controls****Without lever control****A5 type**

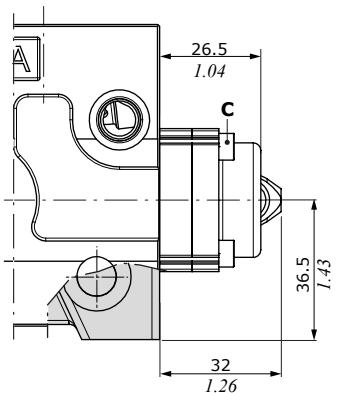
Flange with spherical spool end.  
Available with aluminium flange



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

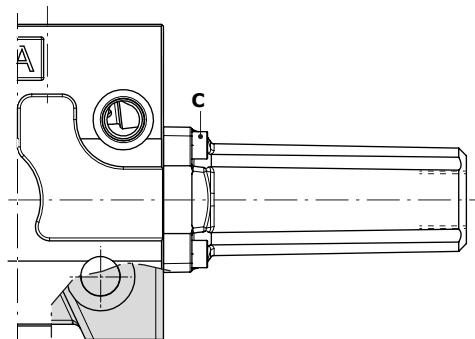
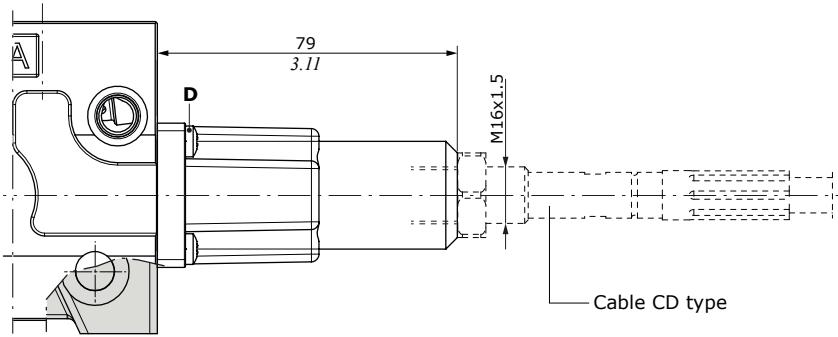
**Wrenches and tightening torques**

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

**Working section****A side controls****With flexible cable control arrangement****A8 type**

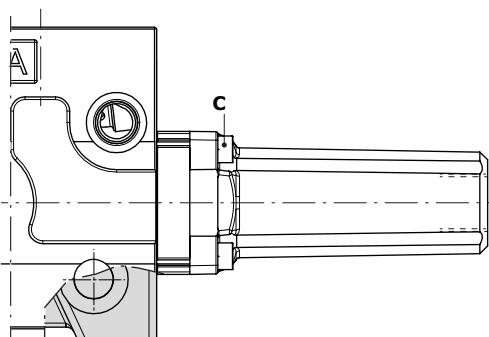
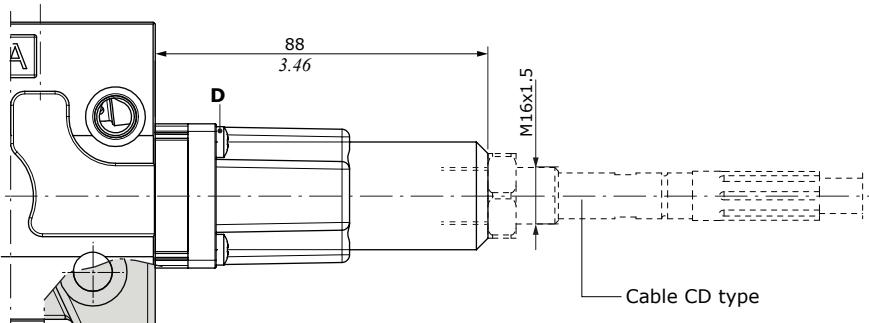
Flexible cable control arrangement.  
Available with aluminium cap

2	0	1	
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**A8/Z1 type**

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

2	0	1	3	
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With aluminium cap;  
dimensions are the same of standard type

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

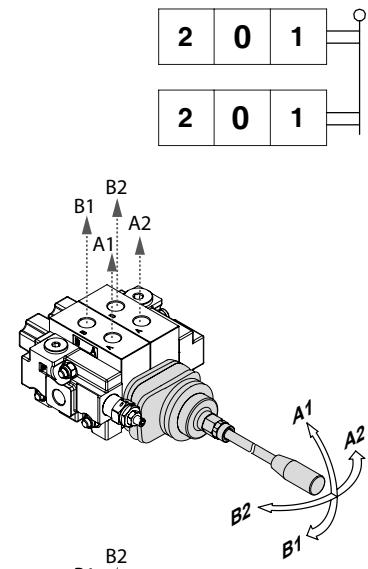
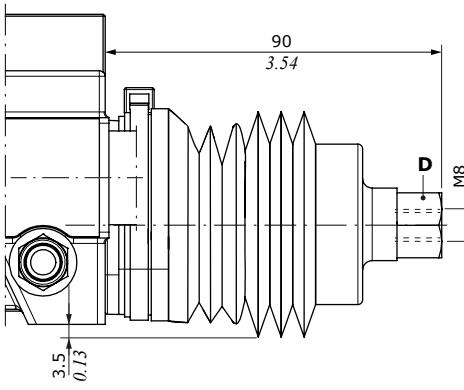
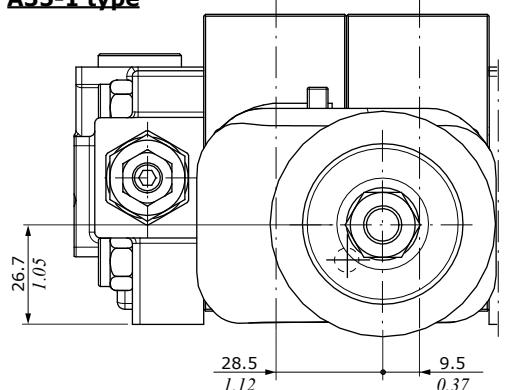
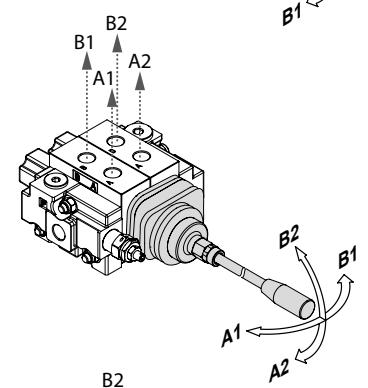
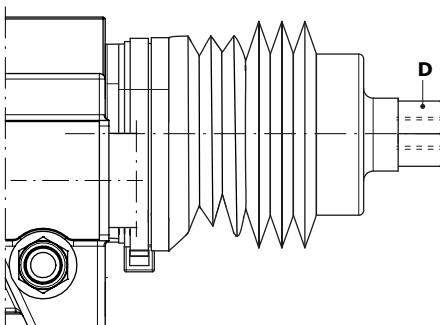
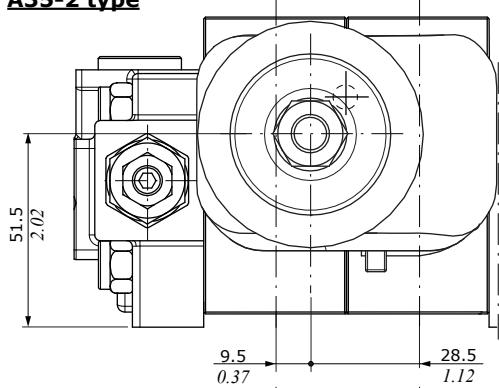
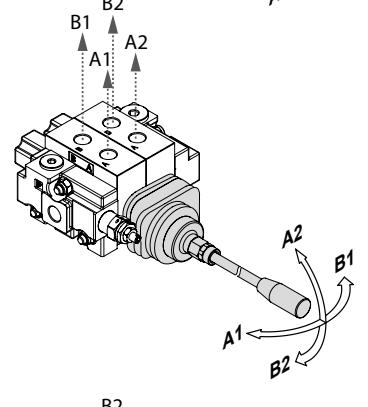
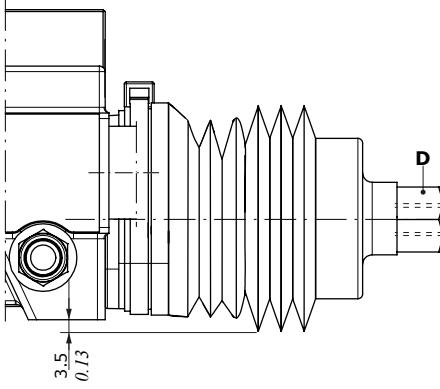
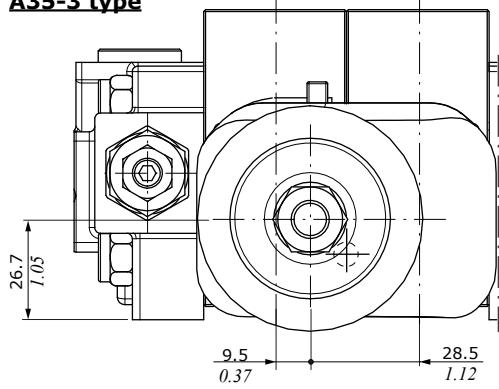
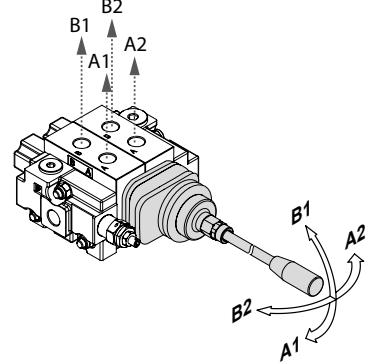
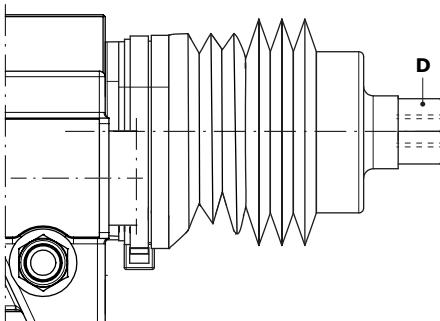
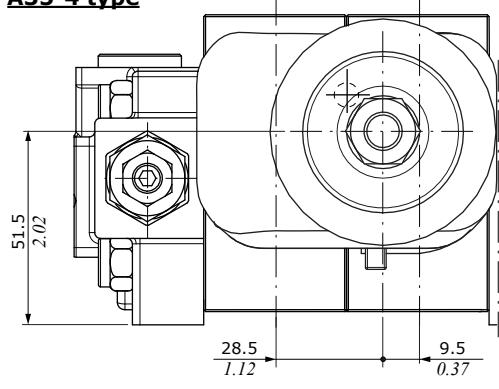
With aluminium cap;  
dimensions are the same of standard type

## Working section

**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)

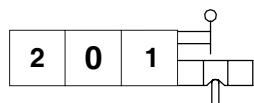
### Working section

#### A side controls

##### With spool position microswitch, with lever

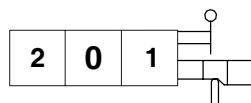
**N1-A1 type**

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



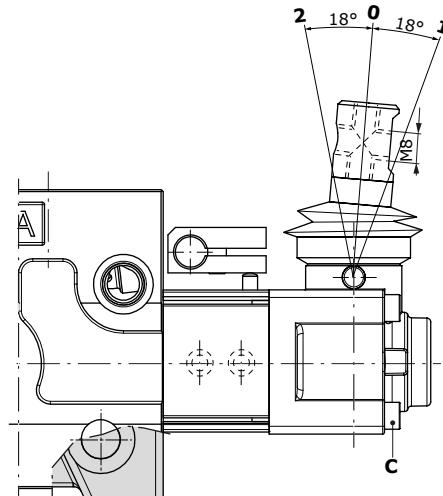
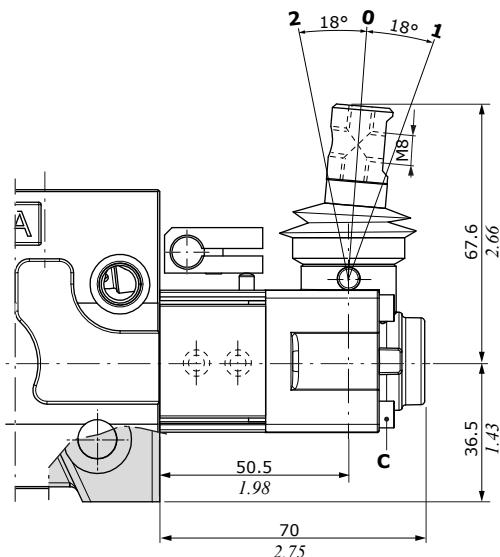
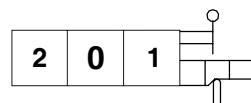
**N1A-A1 type**

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



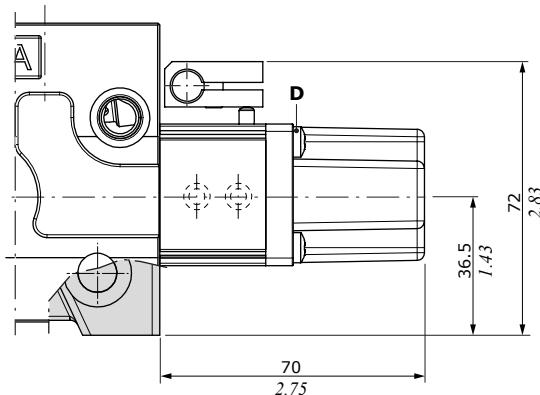
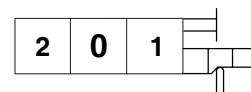
**N1A-A3 type**

Micro operation in position 1

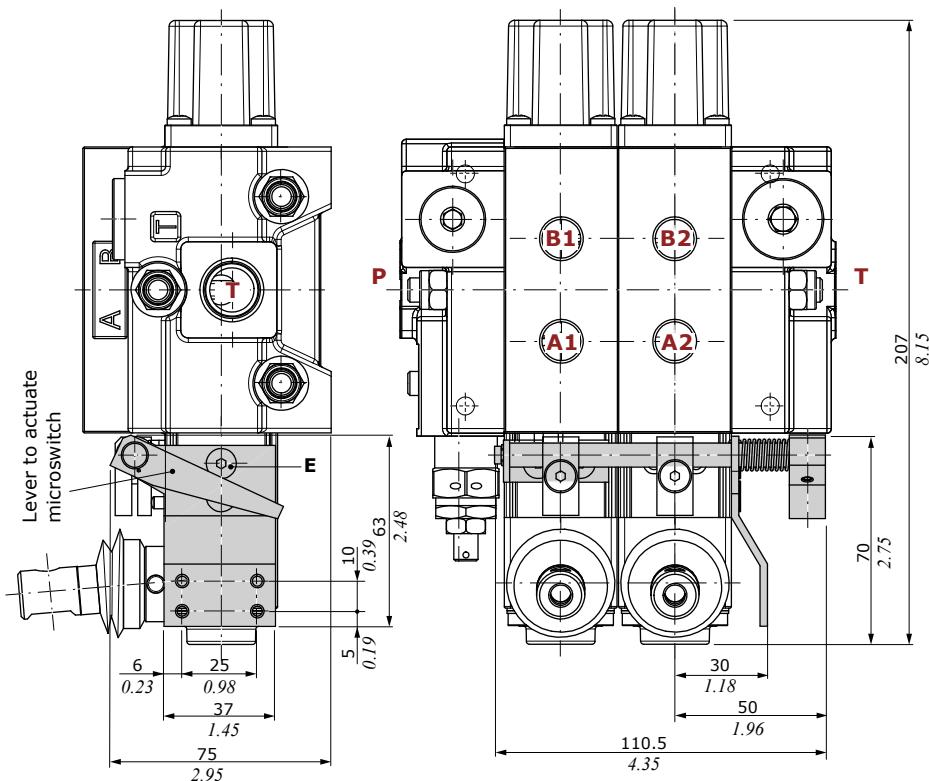
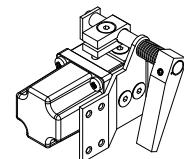
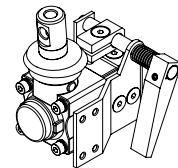


**N1B-A3 type**

Micro operation in position 2



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

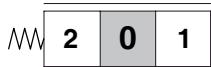
**Working section****A side controls****With spool position microswitch****Microswitch assembly kit for 2 working section (N1-A1 type)****with cap****with lever box**

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

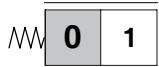
Drawings is referred to a Q30 sectional valve.

**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  
with aluminium cap

**M1/06 type**

As M1/05 type,  
with aluminium cap

**M1/07 type**

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

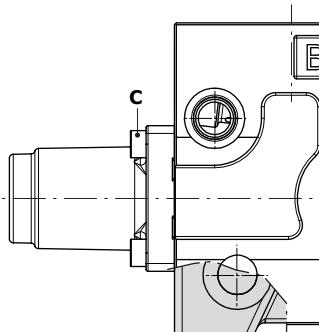
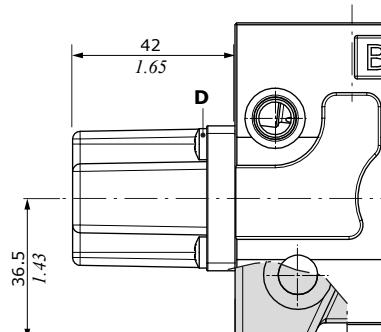
**Wrenches and tightening torques**

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

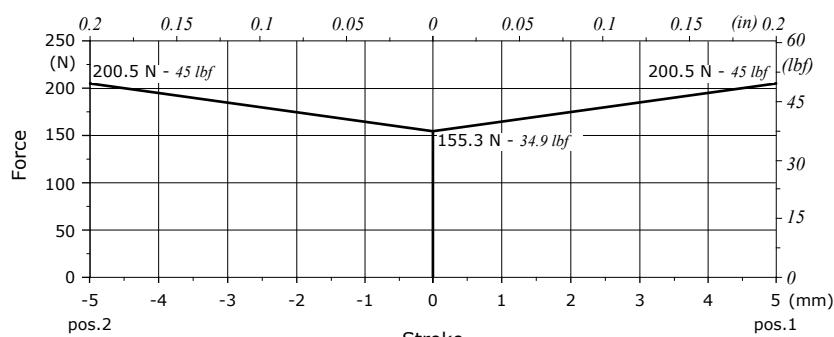
D = cross-head - 3 Nm (2.2 lbf)

E = wrench 10 - 9.8 Nm (7.2 lbf)

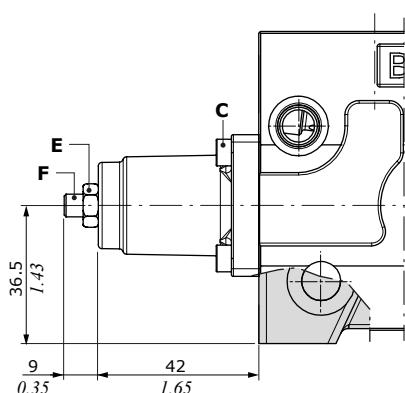
F = allen wrench 4 - 9.8 Nm (7.2 lbf)



With aluminium cap;  
dimensions are the same of standard type

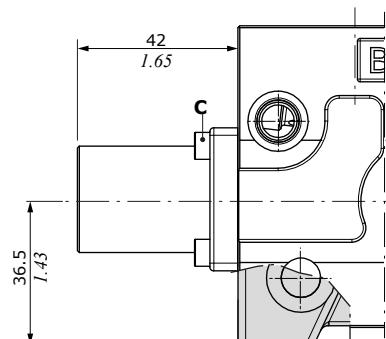
**M1 control type - Force vs. Stroke diagram****M1/02 type**

As M1 type, with stroke limiter



**Working section****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**

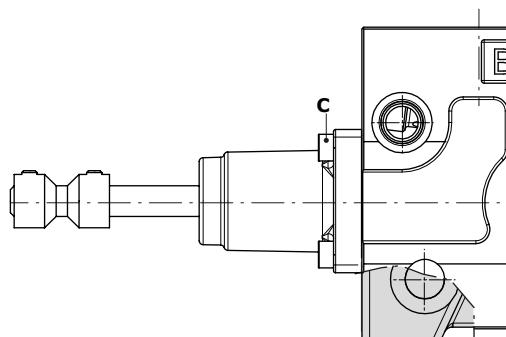
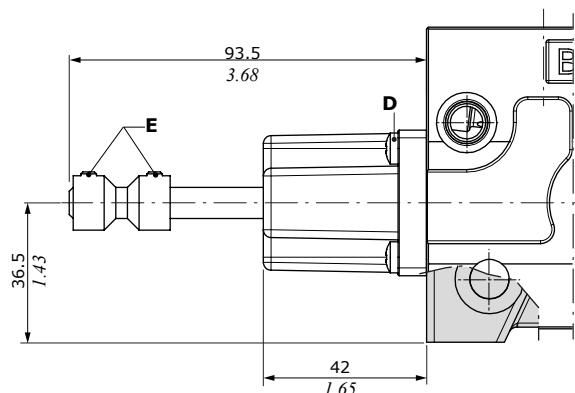
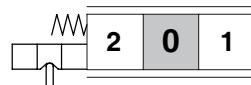
C = allen wrench 3 - 3 Nm (2.2 lbf ft)

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

E = allen wrench 3 - 5 Nm (3.68 lbf ft)

**M1-B1 type**

3 position, microswitch arrangement.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

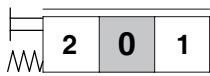
### Working section

#### B side controls

##### With spring return control

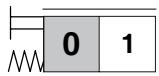
###### **M1-U1 type**

3 position, with M8 male thread external pin



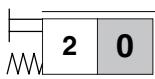
###### **M2-U1 type**

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



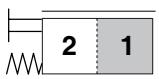
###### **M3-U1 type**

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



###### **M4-U1 type**

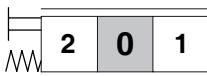
2 position (1-2), with M8 male thread external pin



##### With flexible cable control arrangement

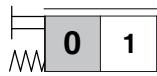
###### **M1-U2 type**

3 position, spring return in neutral position



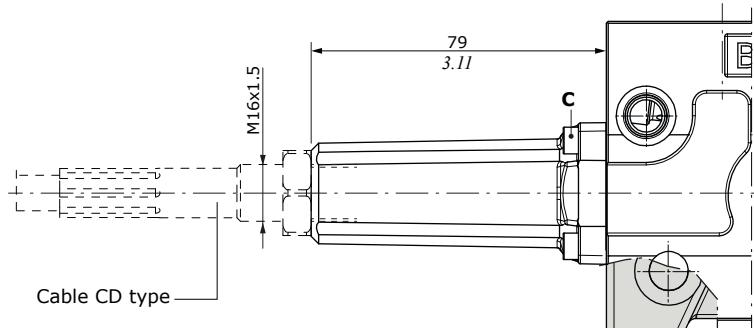
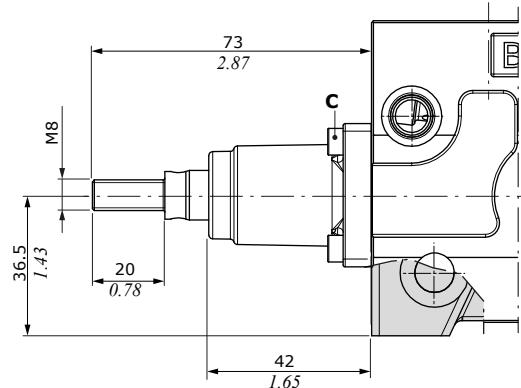
###### **M2-U2 type**

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



###### **M3-U2 type**

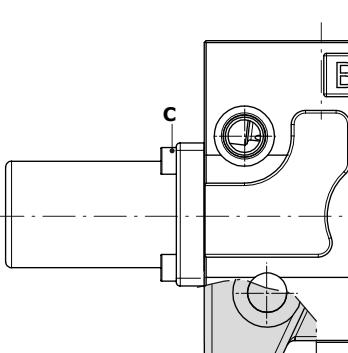
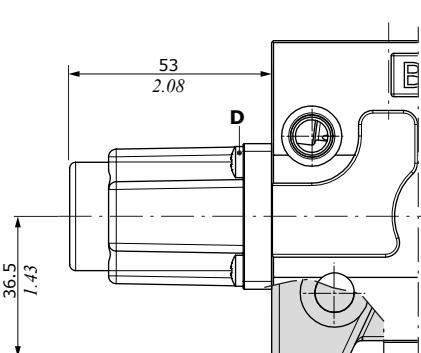
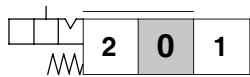
2 position (0-2), spring return in neutral position



##### With detent control

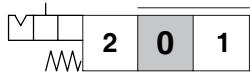
###### **R1 type**

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

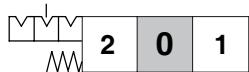
##### **Wrenches and tightening torques**

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

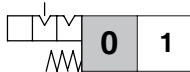
D = cross-head - 3 Nm (2.2 lbf ft)

**Working section****B side controls****With detent control****R3 type**

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

**R4 type**

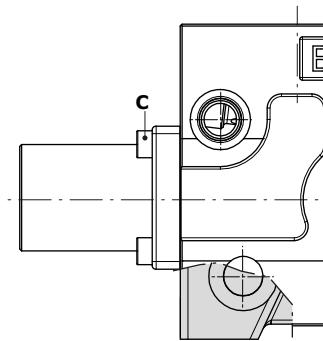
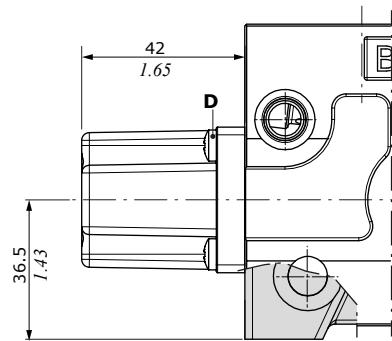
2 position,  
detent in position 0-1.  
Available with aluminium cap

**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

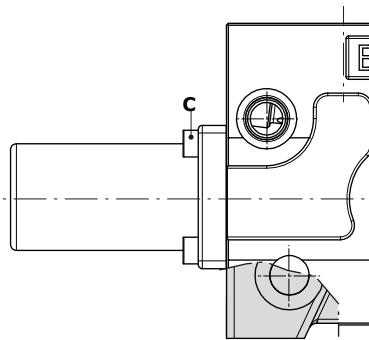
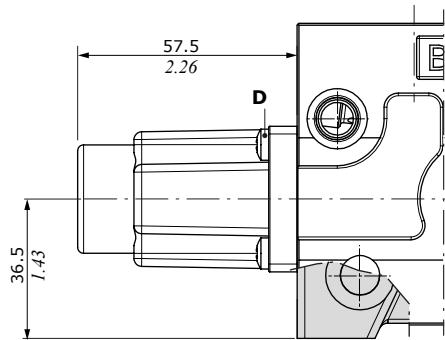
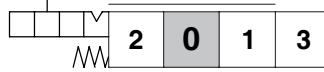
**Wrenches and tightening torques**

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

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

**R8 type**

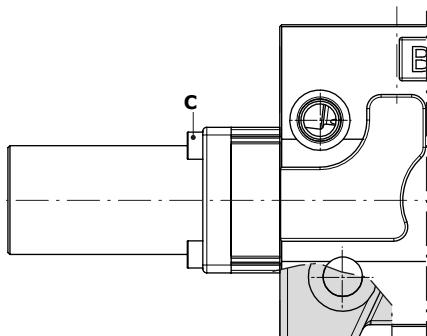
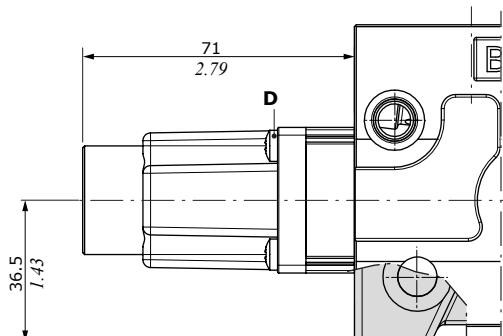
4 position, detent in 4<sup>th</sup> position, for 116 floating spool type.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

**Working section****B side controls****With detent control****R10/Z1 type**

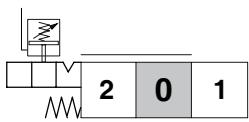
4 position, detent in 4<sup>th</sup> position, for 126 floating spool type.  
Available with aluminium cap



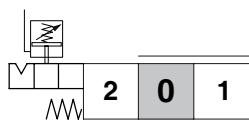
With aluminium cap;  
dimensions are the same of standard type

**With detent control and kick out function****R1K type**

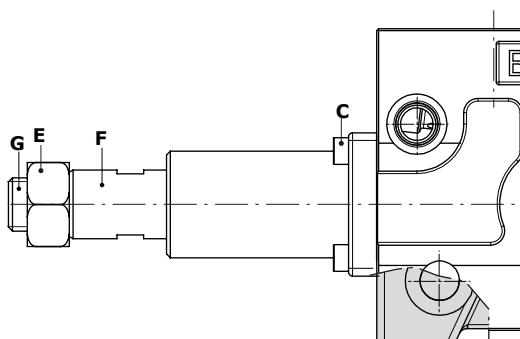
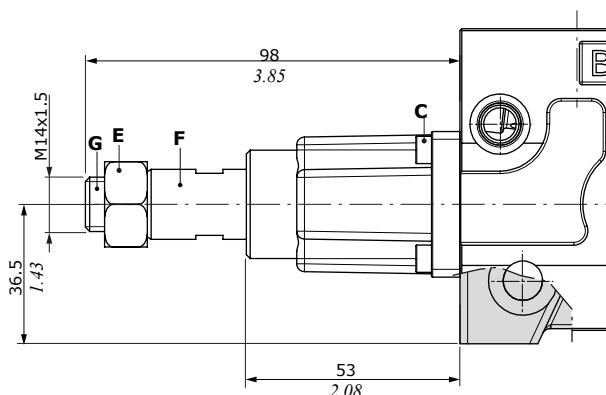
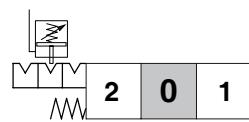
3 position, detent in position 1.  
Available with aluminium cap

**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)

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

E = wrench 22 - 32 Nm (23.6 lbf)

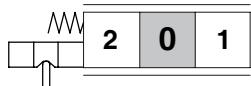
F = wrench 16

G = allen wrench 10 - 32 Nm (23.6 lbf)

**Working section****B side controls****With spool position microswitch****M1-N1 type**

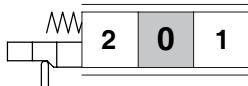
3 position, micro operation in position 1 and 2, spring return in neutral position.

Available with aluminium cap

**M1-N1A type**

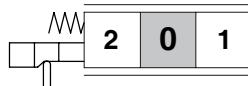
3 position, micro operation in position 1.

Available with aluminium cap

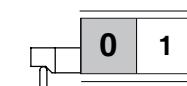
**M1-N1B type**

3 position, micro operation in position 2.

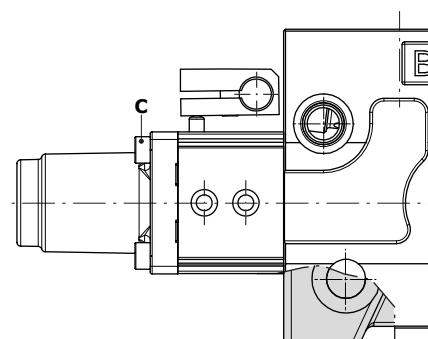
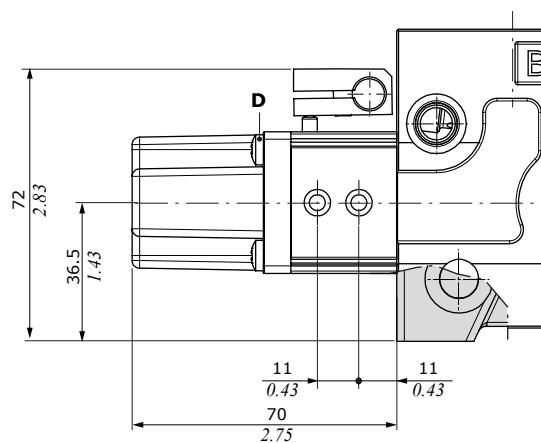
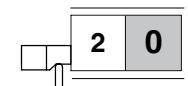
Available with aluminium cap

**M2-N1 type**

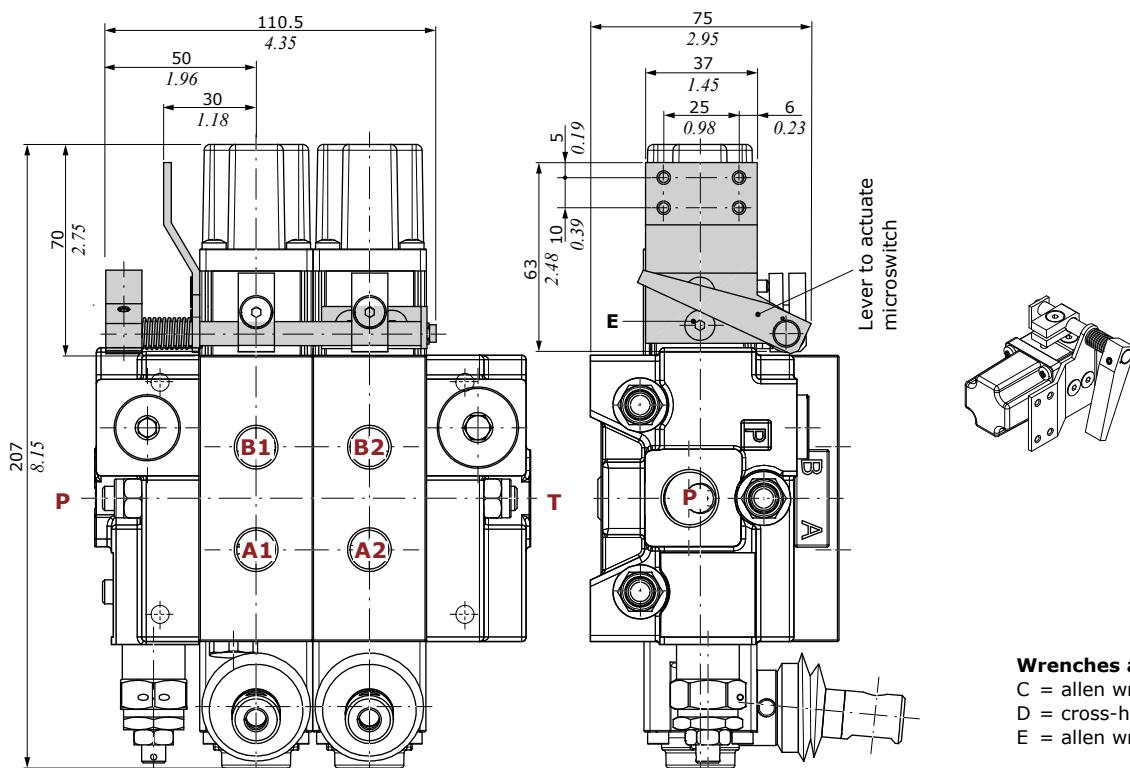
2 position (0-1) spring return in neutral position

**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 lbft)

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

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

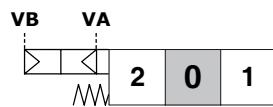
Drawings is referred to a Q30 sectional valve.

### Working section

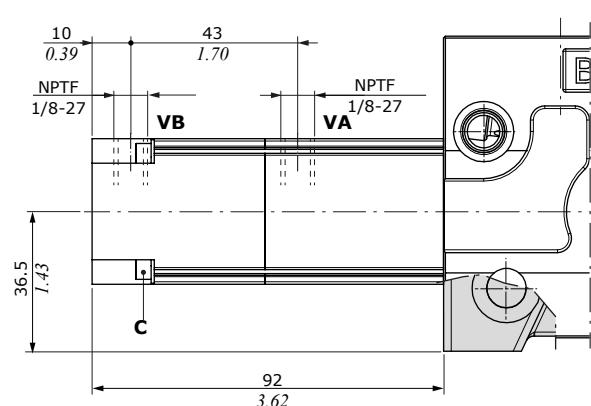
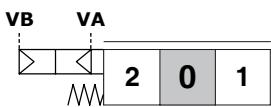
#### B side controls

##### With pneumatic control

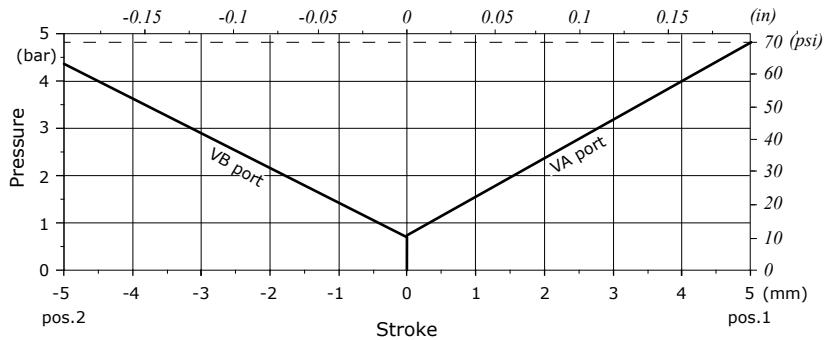
**P1NW type**  
ON/OFF control



**P1NPW type**  
Proportional control



#### Proportional pilot pressure curves



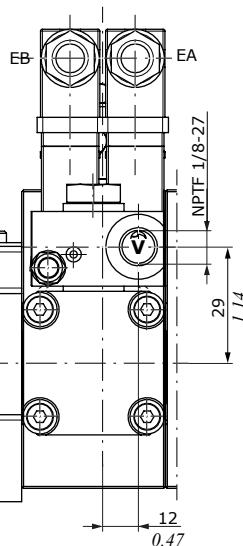
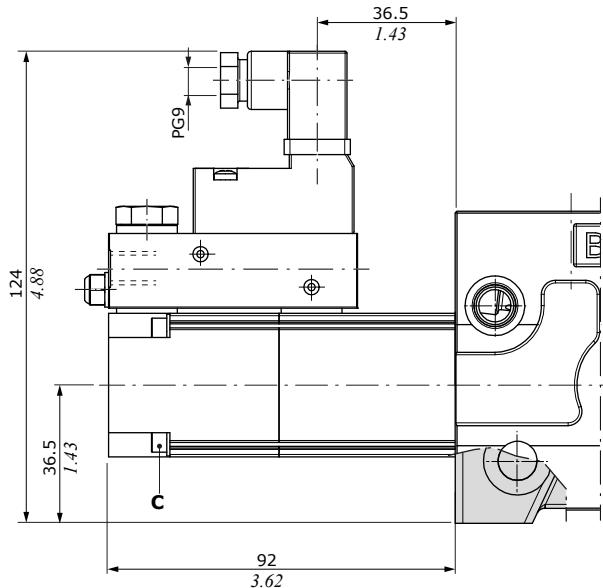
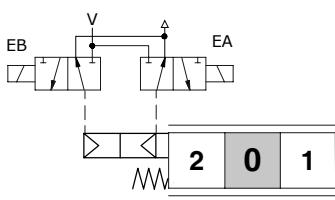
#### Operating features

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

**D3 type**  
ON/OFF control



#### Operating features

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

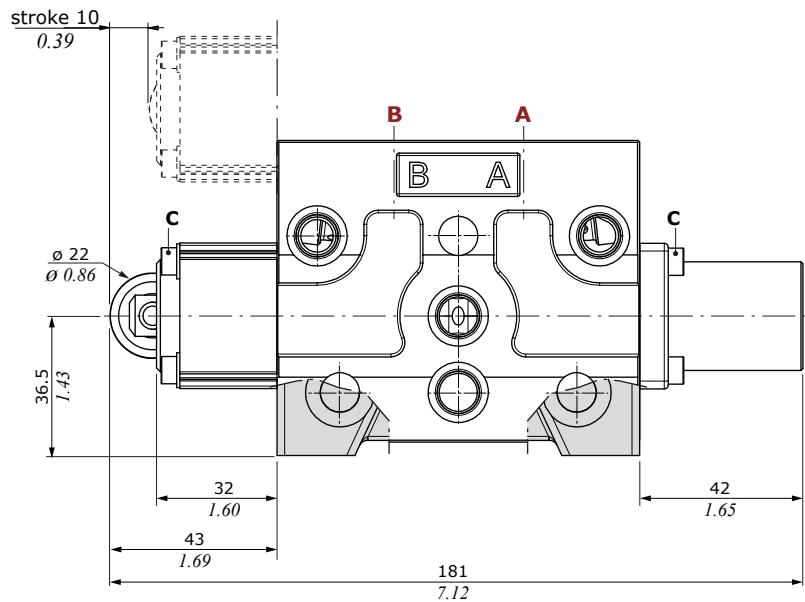
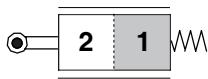
#### COILS

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)

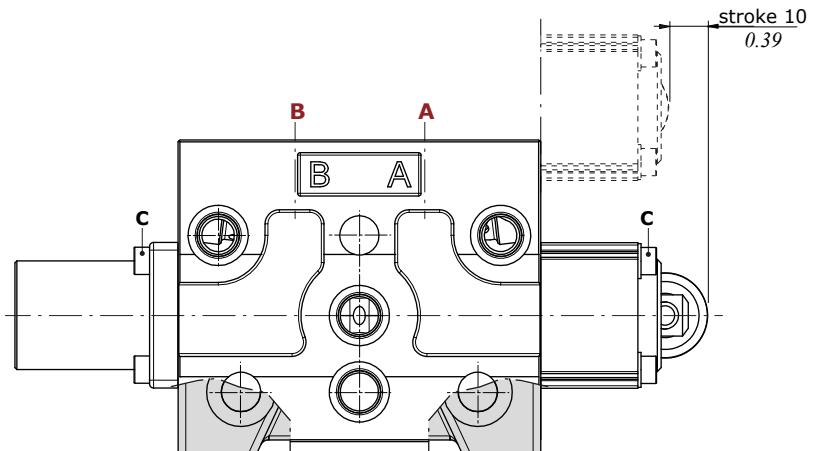
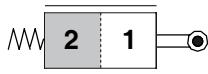
**Working section****A+B side controls****With cam control**

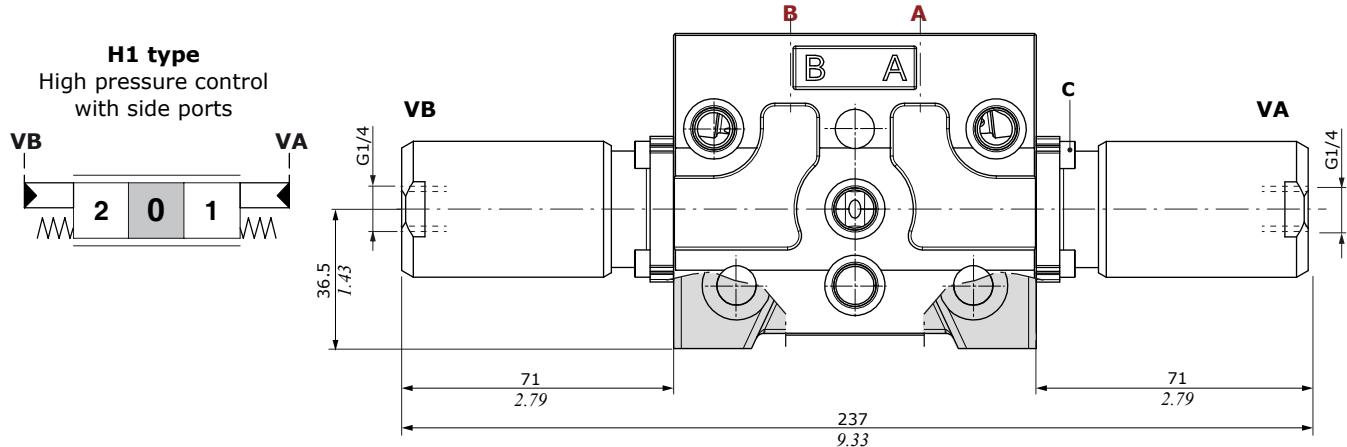
**C2 type**  
From position 1 to position 2,  
spring return in position 1



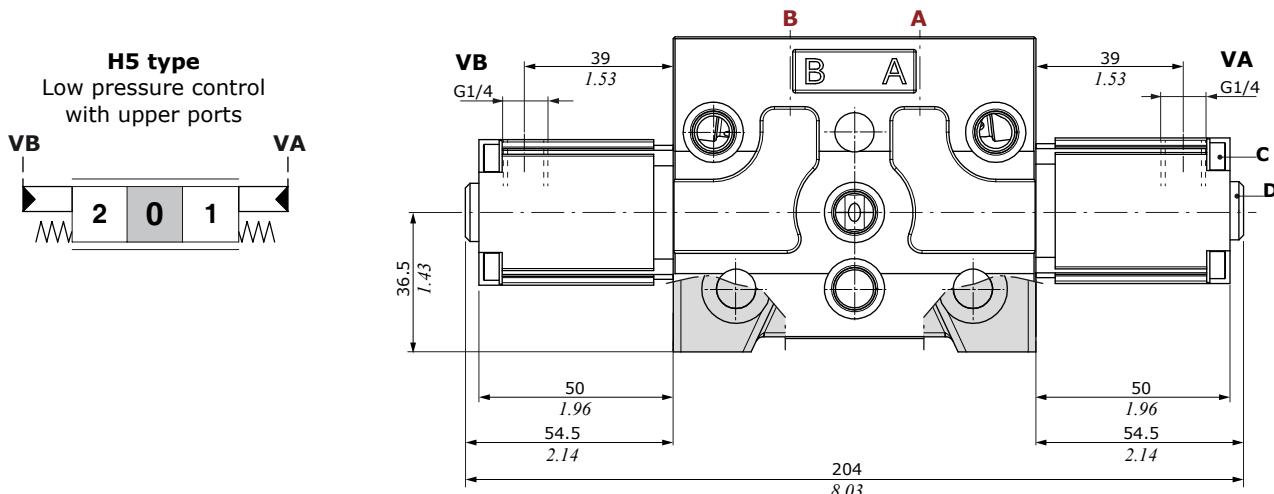
**Wrenches and tightening torques**  
C = allen wrench 3 - 3 Nm (2.2 lbf)

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

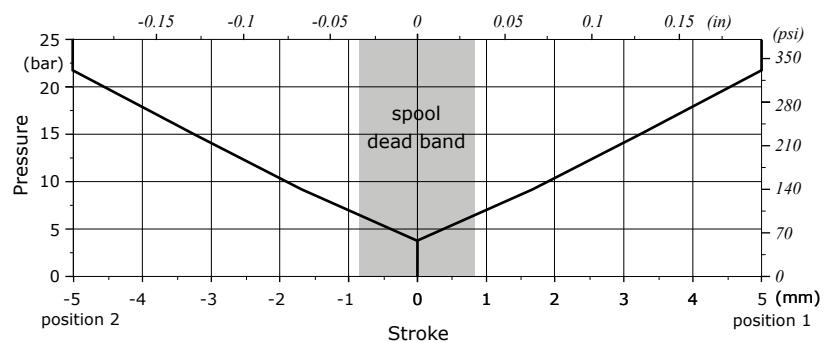


**Working section****A+B side controls****With proportional hydraulic controls****Operating features**

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

**Operating features**

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

**Stroke vs. Pressure diagram for H5 type control**

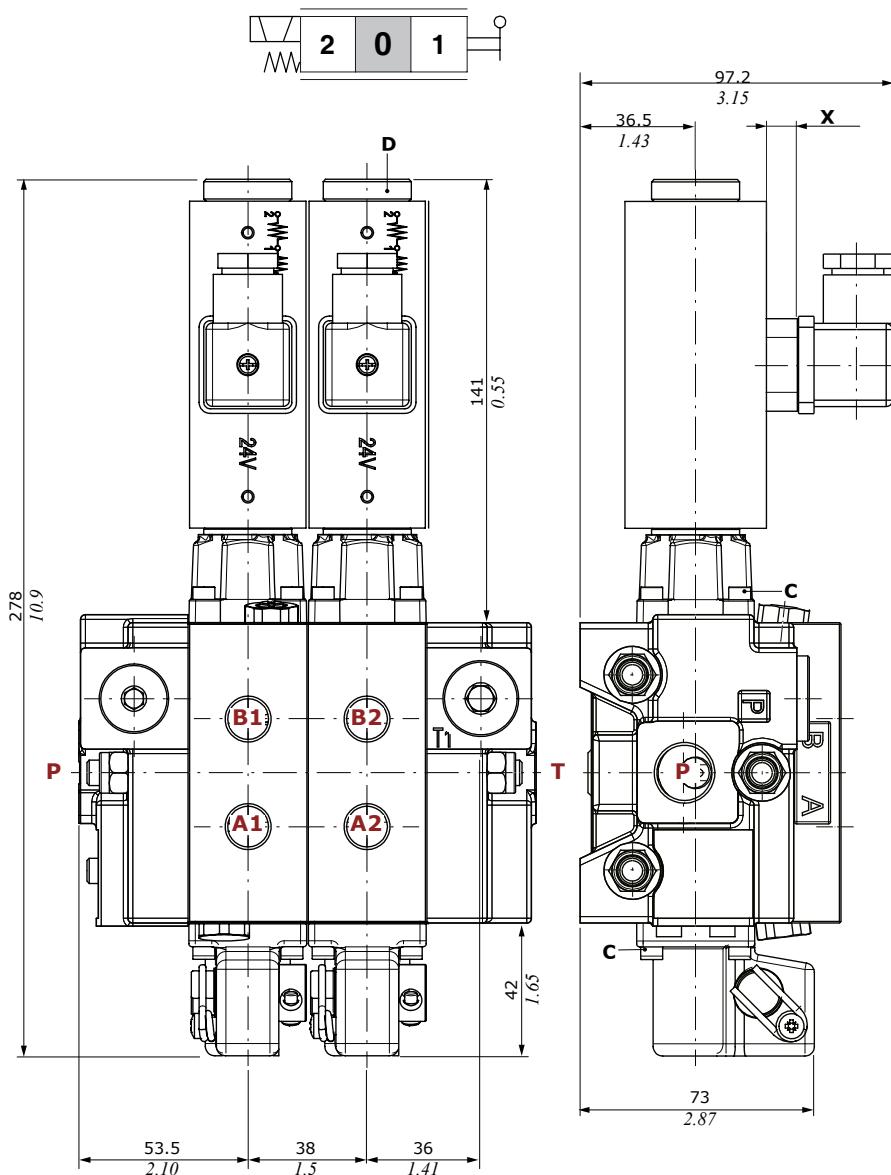
**Wrenches and tightening torques**  
C = allen wrench 3 - 3 Nm (2.2 lbft)  
D = allen wrench 4 - 9.8 Nm (7.2 lbft)

## Working section

## Direct solenoid control

D41 type: ON/OFF one side

Drawings is referred to a Q30 sectional valve.



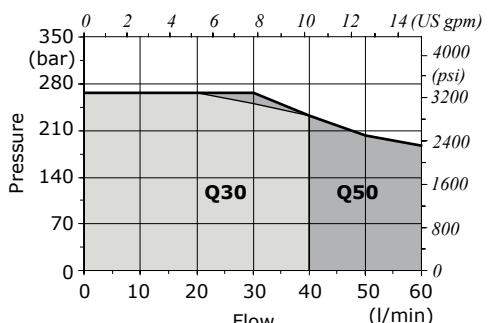
D41 coil	
	Q30    Q50
Nominal voltage	12 VDC 24 VDC
Nominal voltage tolerance	±10%
Power rating	58 W    52 W
Insulation	Class H
Weather protection	IP65

Connector type: ISO4400 3P+T-PG11

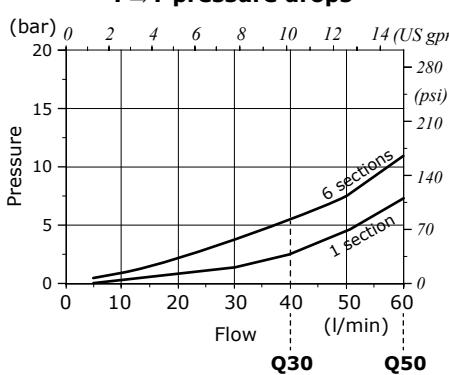
X	
	coil type                  mm - in
Q30	ZEB012 coil ZEB024 coil
Q50	4SLG111200 coil 4SLG111200 coil

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

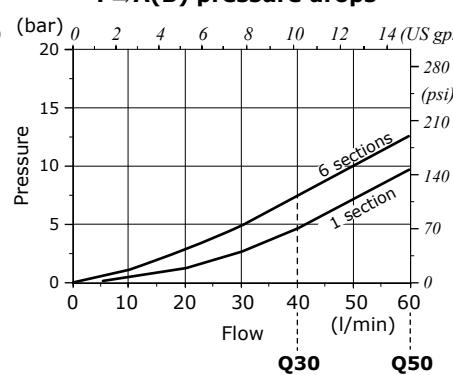
## Dynamic conditions



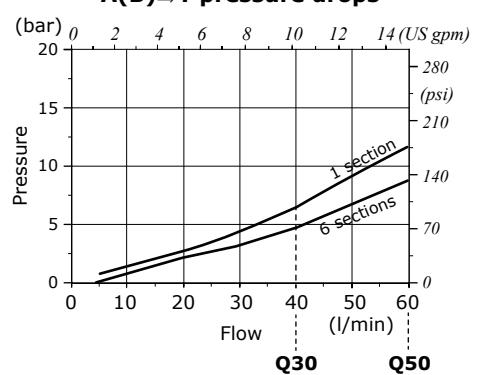
## P⇒T pressure drops



## P⇒A(B) pressure drops



## A(B)⇒T pressure drops

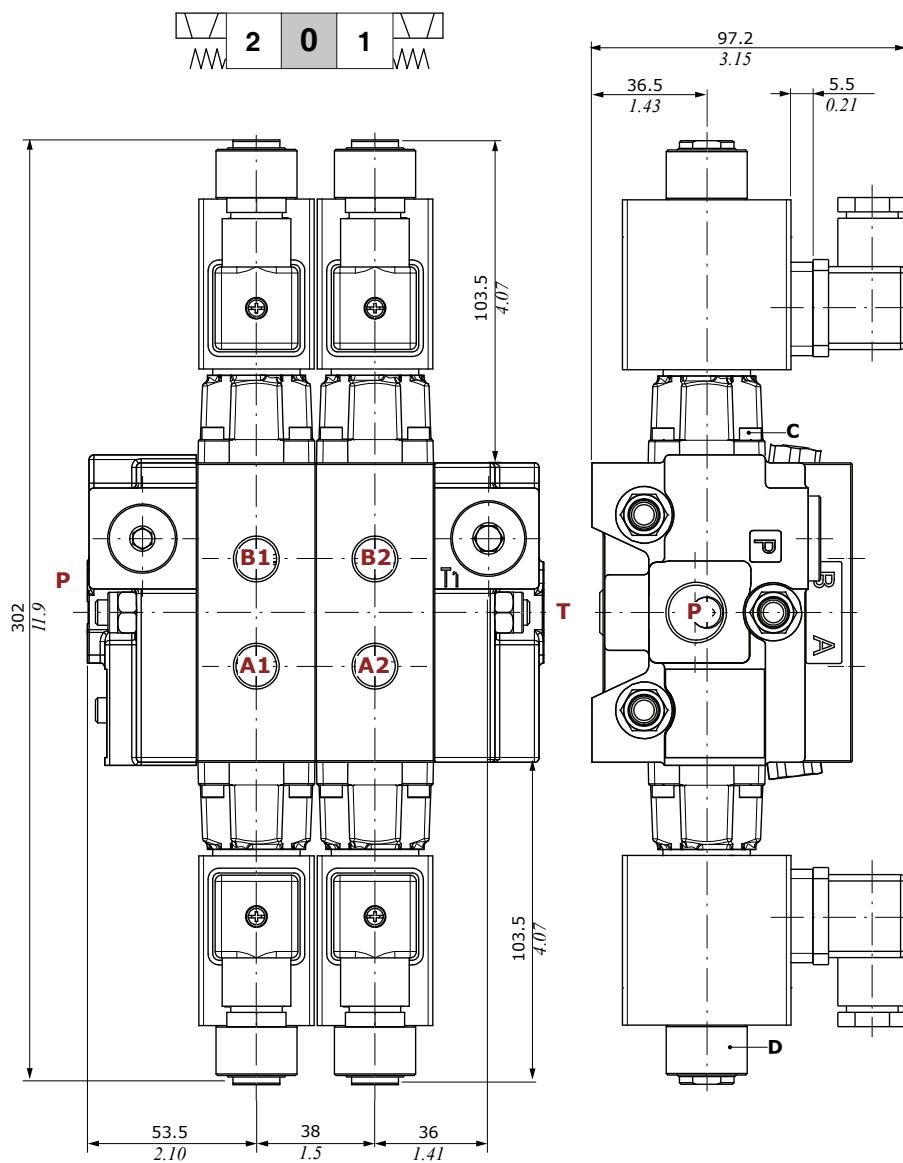


### Working section

#### Direct solenoid control

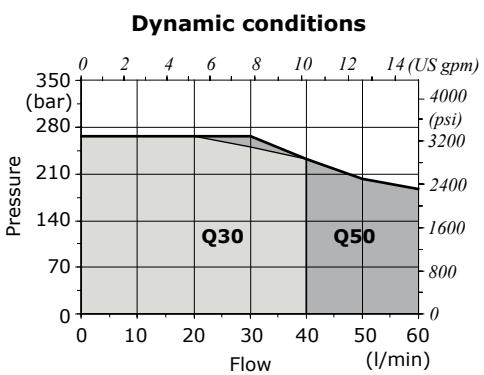
##### D9 type: ON/OFF two side

Drawings is referred to a Q30 sectional valve.

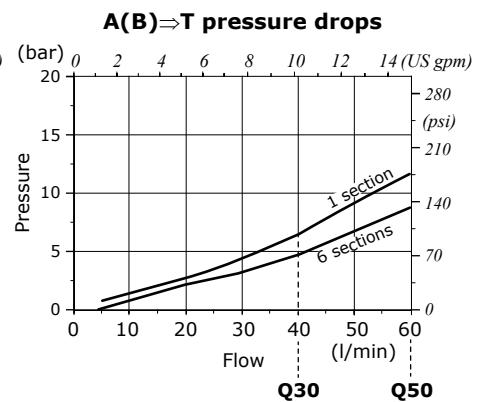
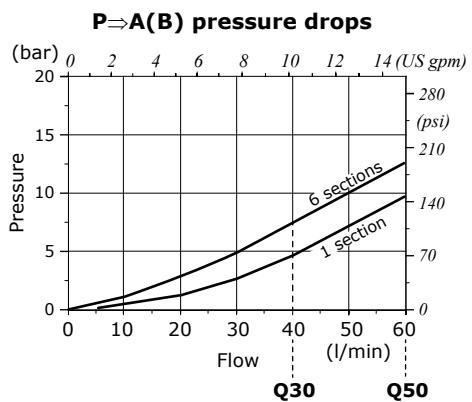
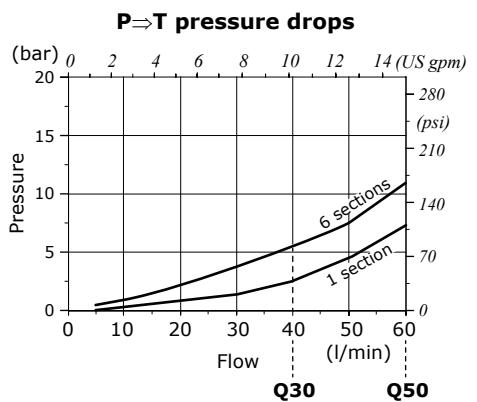


D9 coil	
Nominal voltage	12 VDC 24 VDC
Nominal voltage tolerance	±10%
Power rating	58 W
Insulation	Class H
Weather protection	IP65

Connector type: ISO4400 3P+T-PG11



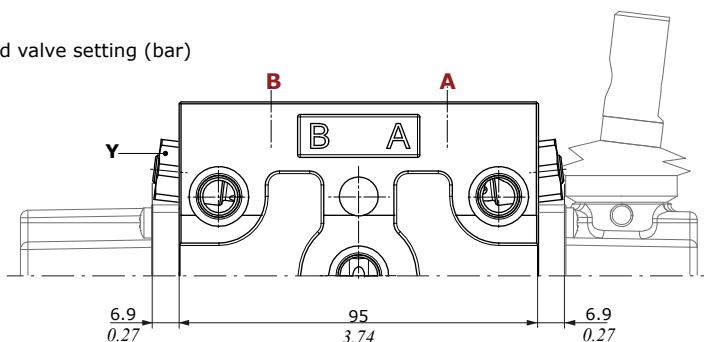
**Wrenches and tightening torques**  
 C = allen wrench 3 - 3 Nm (2.2 lbft)  
 D = manual tightening - 6.6 Nm (4.8 lbft)



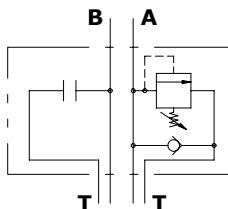
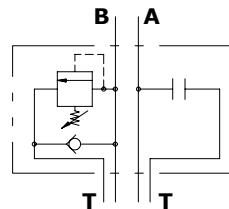
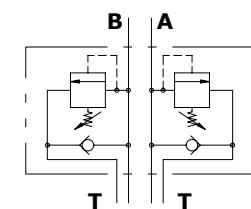
**Auxiliary valve configuration****Dimensional data, hydraulic circuits and performance data****Description example**

aux valve      spring type and valve setting (bar)  
 Q30 / 1 / ... / 103 - A1 - M1 - **V32(N)120** / ...

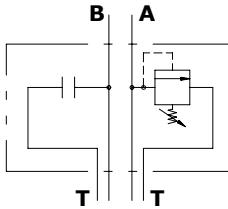
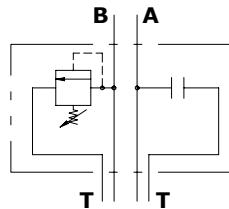
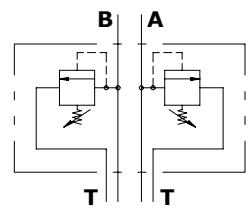
**Wrenches and tightening torques**  
 Y = wrench 16 - 20 Nm (14.7 lbf ft)

**Antishock/anticavitation valve example**

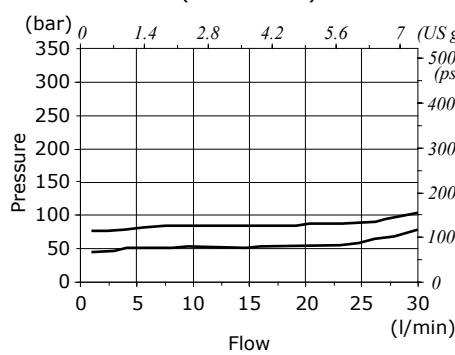
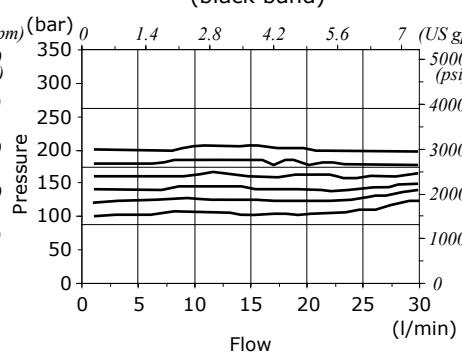
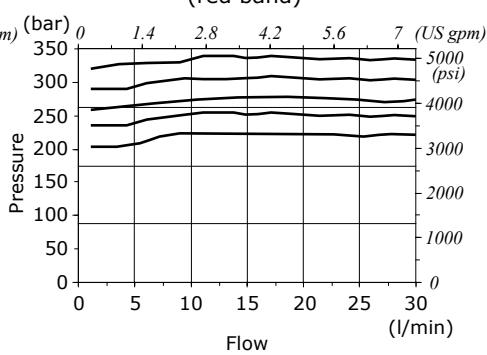
**A side configuration:**    **B side configuration:**    **A+B side configuration:**

**V33****V34****V35 (V34 + V33)****Antishock valve example**

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

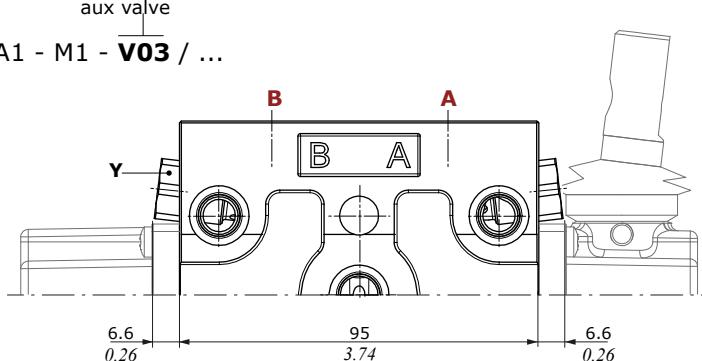
**V30****V31****V32 (V30 + V31)****Spring type****Setting ranges (bar - psi)**

<b>B</b> (white)	From 50 to 80 - from 725 to 1150
<b>N</b> (black)	From 81 to 200 - from 1170 to 2900
<b>R</b> (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**

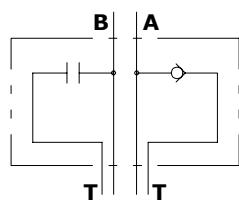
aux valve  
Q30 / 1 / ... / 103 - A1 - M1 - **V03** / ...



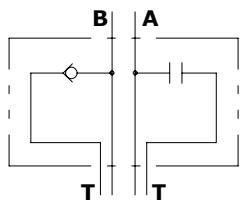
**Wrenches and tightening torques**  
Y = wrench 16 - 20 Nm (14.7 lbf)

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

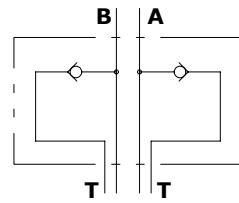
**V04**



**V05**

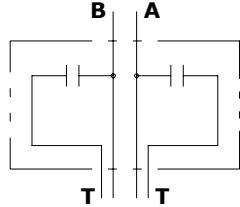


**V03 (V04 + V05)**

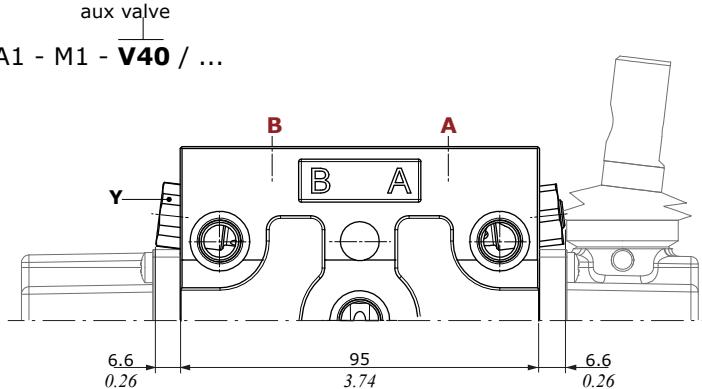


**Plug valve:**

**VC**

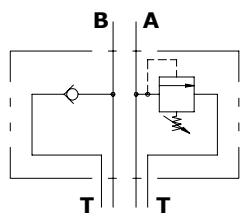
**Antishock and anticavitation combining valves example**

aux valve  
Q30 / 1 / ... / 103 - A1 - M1 - **V40** / ...



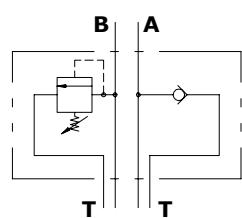
**A side configuration:**

**V40 (V30 + V05)**



**B side configuration:**

**V41 (V31 + V04)**



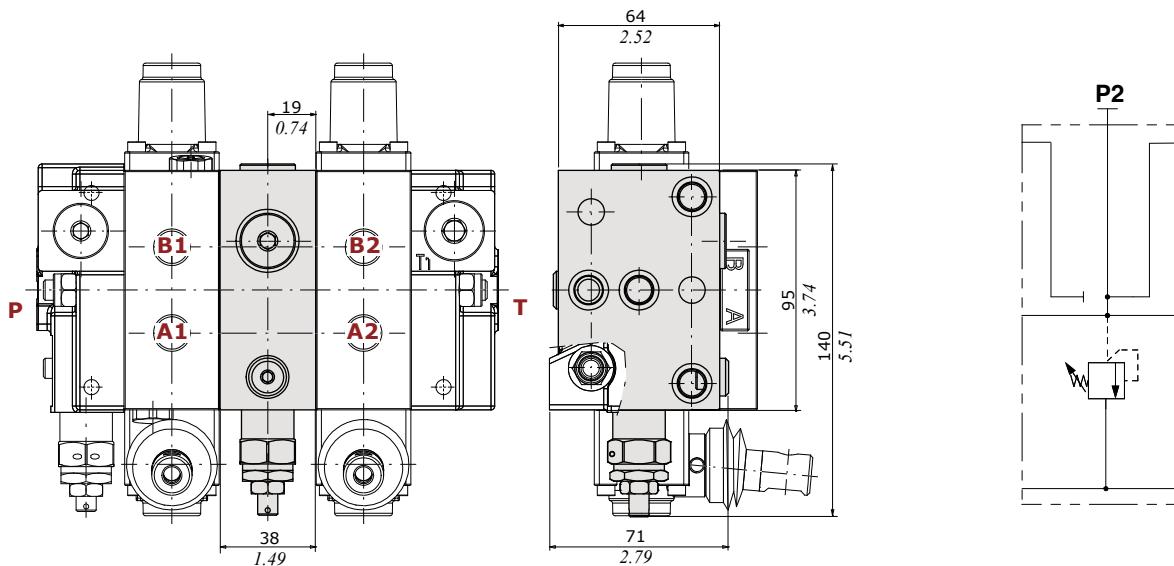
## Intermediate section

## Dimensional data and hydraulic circuit

Drawings is referred to a Q30 sectional valve.

**E50 type**

Intermediate inlet section with pressure relief valve

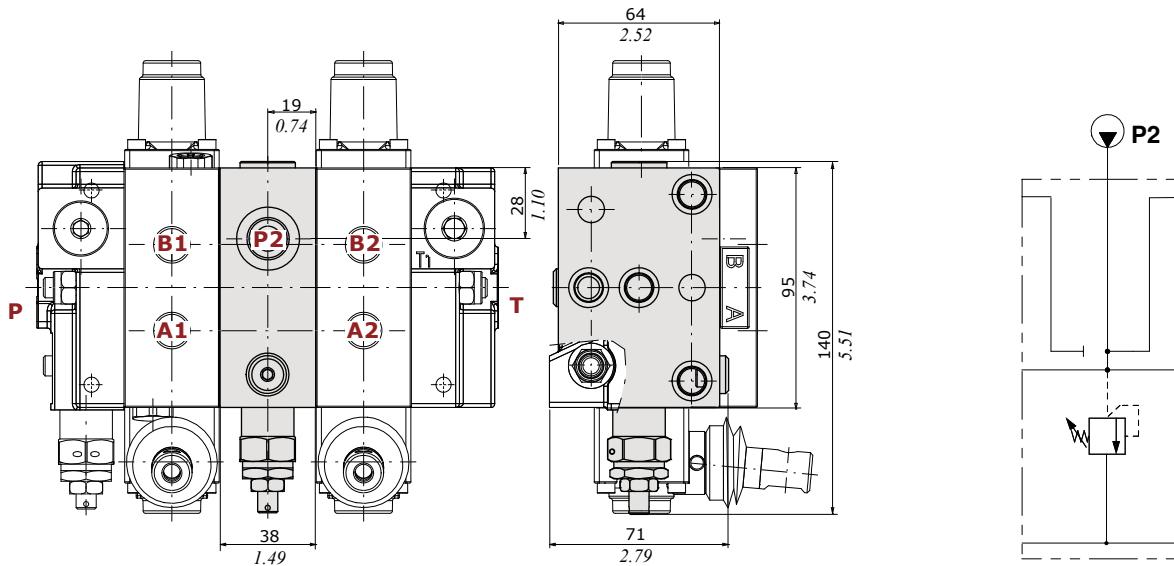


Description example: Q30/2/F7S(N150)/103-A1-M1.VC/**E50(N150)**/103-A1-M1/F3D-S

intermediate spring type and valve setting (bar)  
section

**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

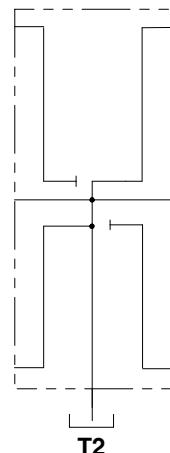
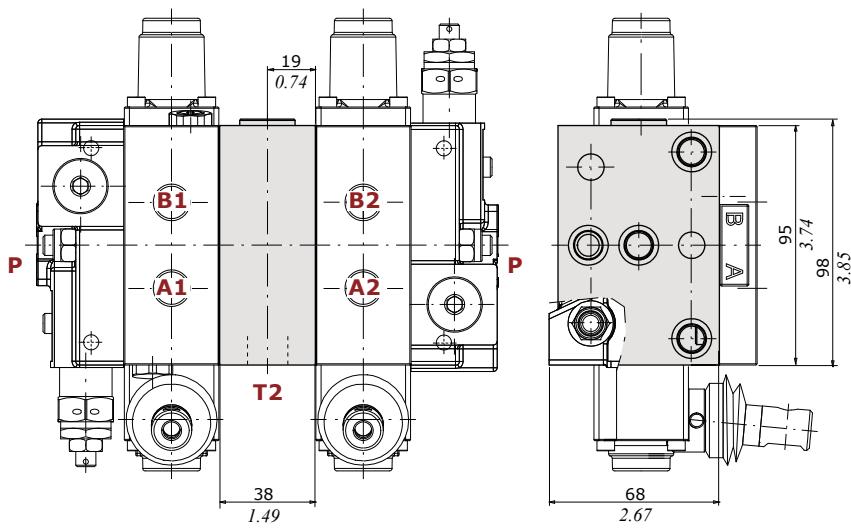
intermediate spring type and valve setting (bar)  
section

**Intermediate section****Dimensional data and hydraulic circuit**

Drawings is referred to a Q30 sectional valve.

**E51 type**

Intermediate outlet section, T2 port open

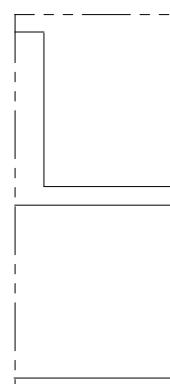
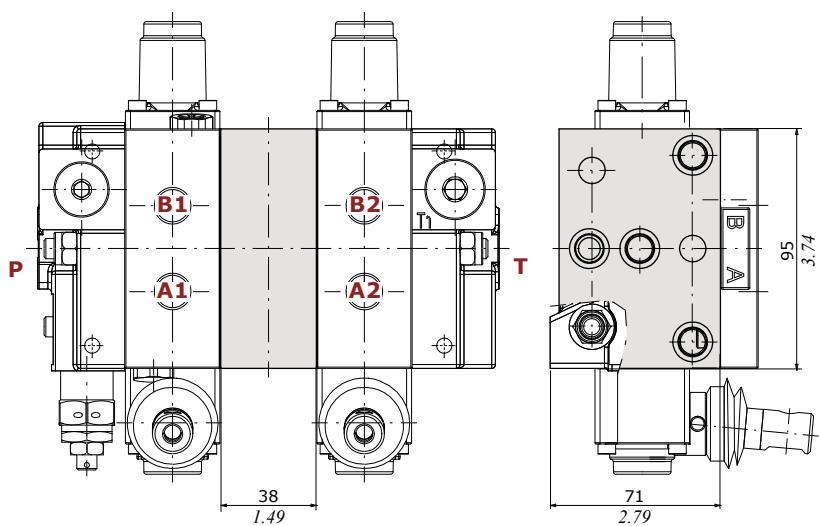


Description example: Q30/2/F7S(N150)/103-A1-M1.VC/**E51**/103-A1-M1/F3D-S

intermediate  
section

**E61 type**

Intermediate spacer section



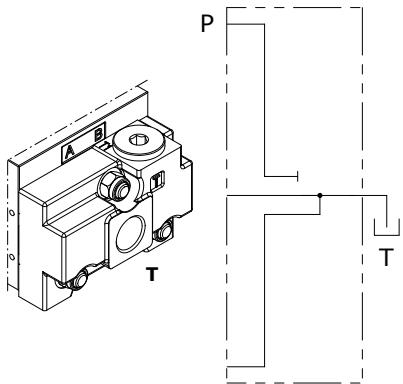
Description example: Q30/2/F7S(N150)/103-A1-M1.VC/**E61**/103-A1-M1/F3D-S

intermediate  
section

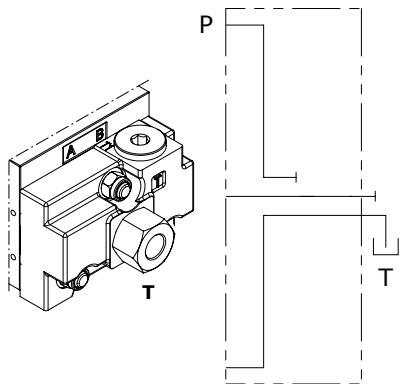
## Outlet section

**F3D configuration**

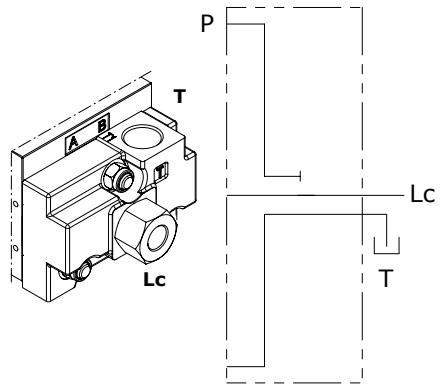
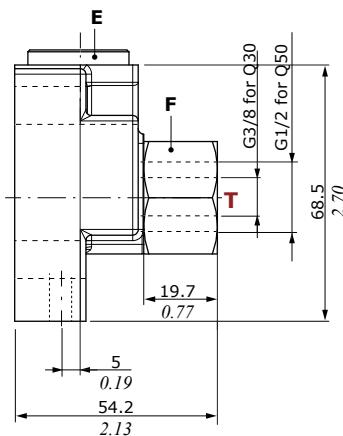
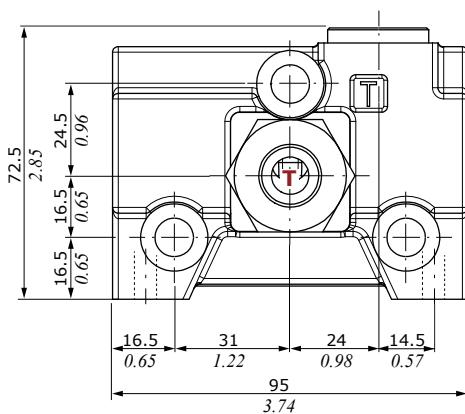
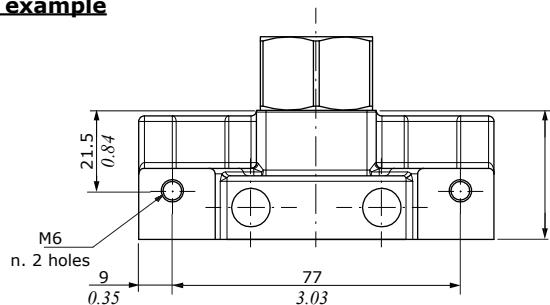
Open center configuration

**F16D configuration**

Closed center configuration

**F6D configuration**

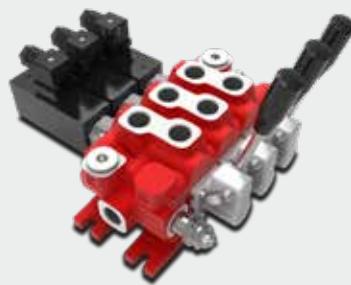
Carry-over configuration

**F16D configuration example****Wrenches and tightening torques**

E = allen wrench 8 - 42 Nm (30.9 lbf ft)

F = wrench 30 - 42 Nm (30.9 lbf ft)





## 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  $46 \text{ mm}^2/\text{s}$  -  $46 \text{ cSt}$  viscosity at  $40^\circ\text{C}$  -  $104^\circ\text{F}$  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 $A(B) \Rightarrow T$	$\Delta p = 100 \text{ bar (1450 psi)}$	5 $\text{cm}^3/\text{min (0.30 in}^3/\text{min)}$
Fluid	Mineral oil	
Fluid temperature	with NBR (BUNA-N) seals from $-20^\circ\text{C}$ to $80^\circ\text{C}$ - from $-4^\circ\text{F}$ to $176^\circ\text{F}$	
Viscosity	operating range from 12 to 400 $\text{mm}^2/\text{s}$ - from 12 to 400 cSt	
Max. contamination level	-/19/16 - ISO 4406 - NAS1638 class 6	
Ambient temperature	with pneumatic and hydraulic devices without electric devices with electric devices	from $-30^\circ\text{C}$ to $60^\circ\text{C}$ - from $-22^\circ\text{F}$ to $140^\circ\text{F}$ from $-40^\circ\text{C}$ to $60^\circ\text{C}$ - from $40^\circ\text{F}$ to $140^\circ\text{F}$ from $-20^\circ\text{C}$ to $50^\circ\text{C}$ - from $-4^\circ\text{F}$ to $122^\circ\text{F}$

NOTE - For different conditions please contact our Sales Department.

#### REFERENCE STANDARD

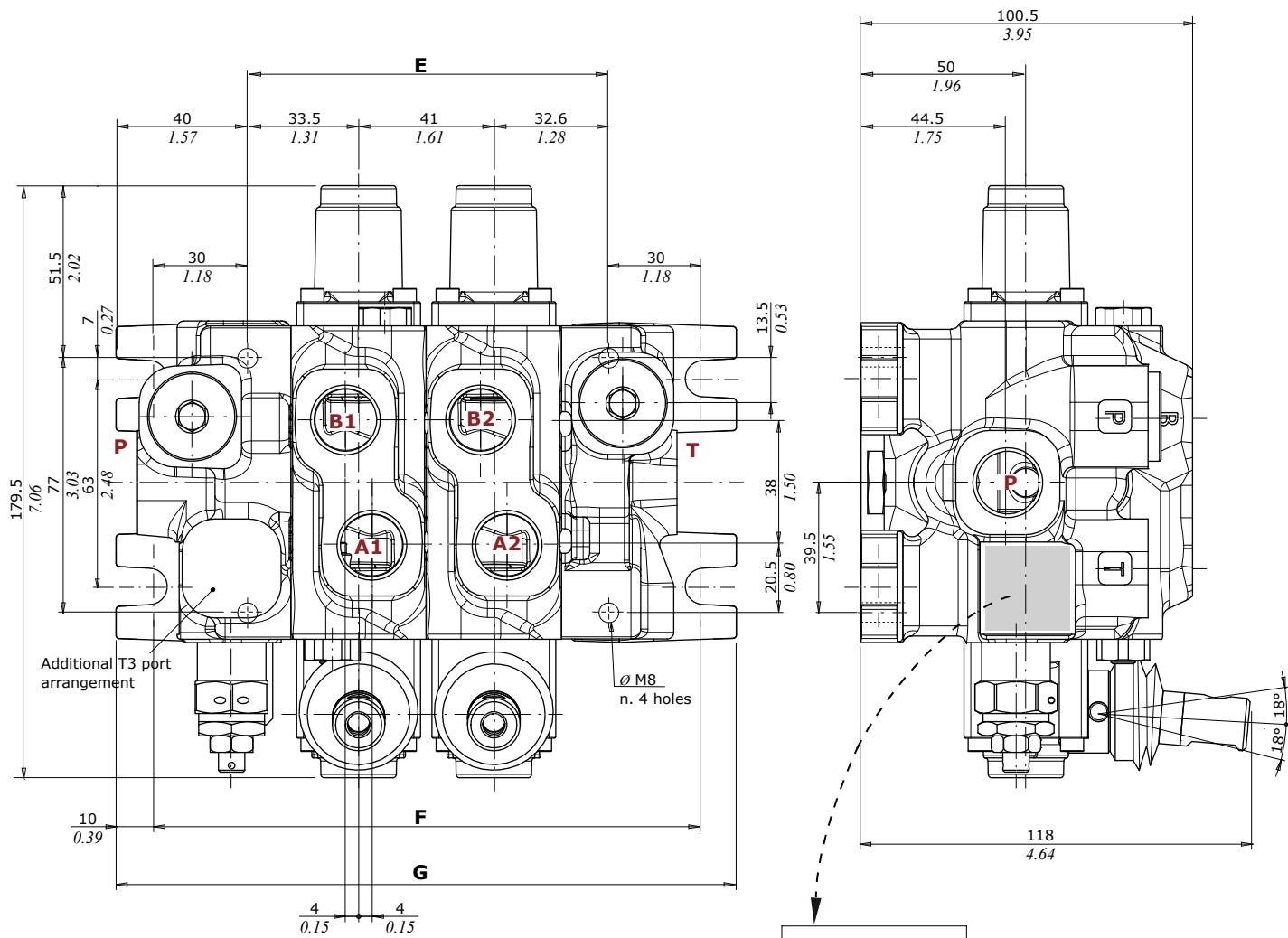
	BSP	UN-UNF
THREAD ACCORDING TO	ISO 228/1 BS 2779	ISO 263 ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO SAE DIN	11926 J11926 3852-2 shape X or Y

#### 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 - <b>T</b> 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 mm	E in	F mm	F in	G mm	G 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

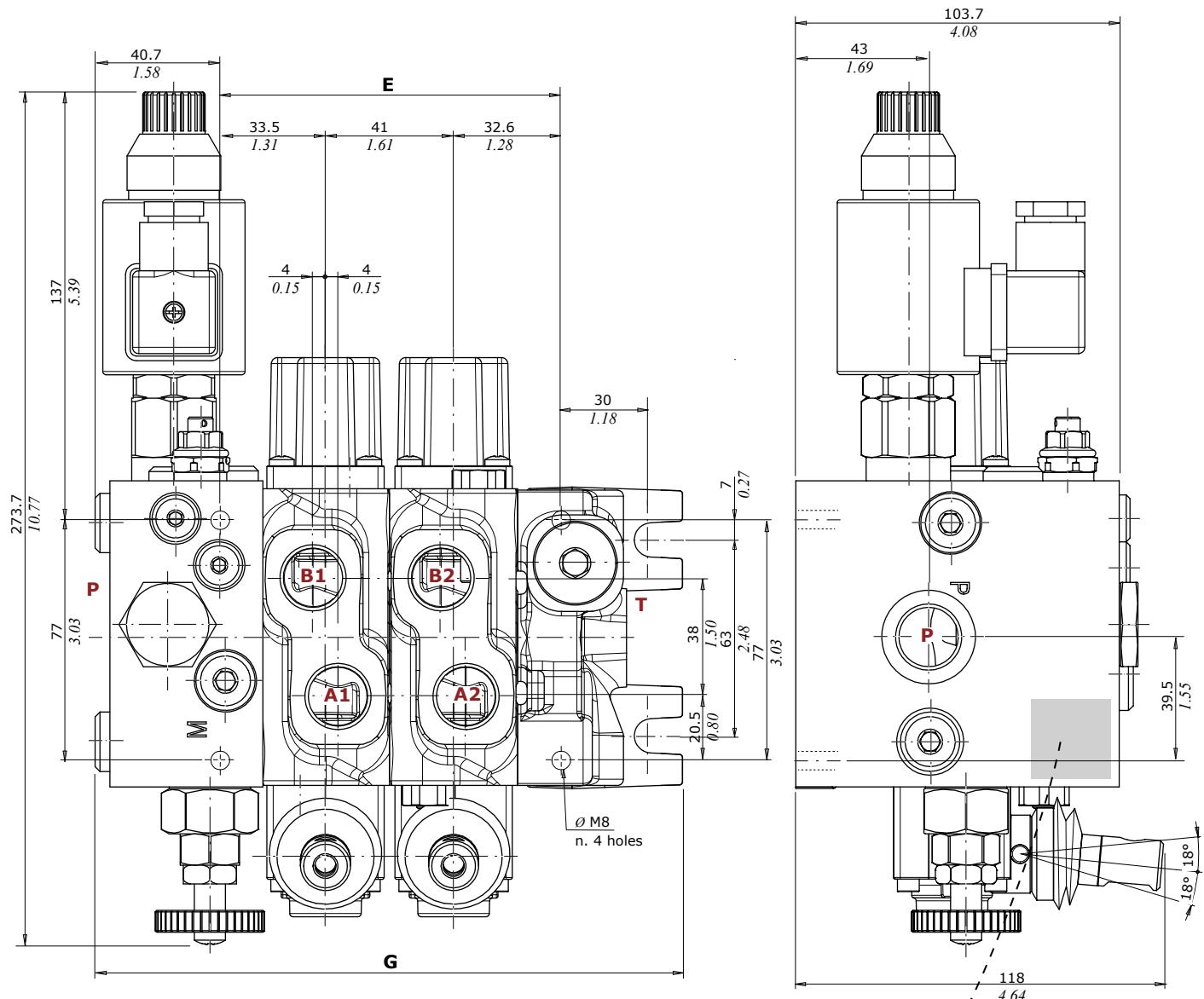
product allotment

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

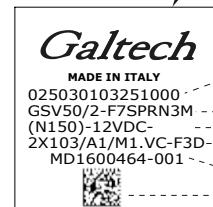
(\*): For other configurations, see page 179

## Dimensional data

## Proportional inlet section configuration\*

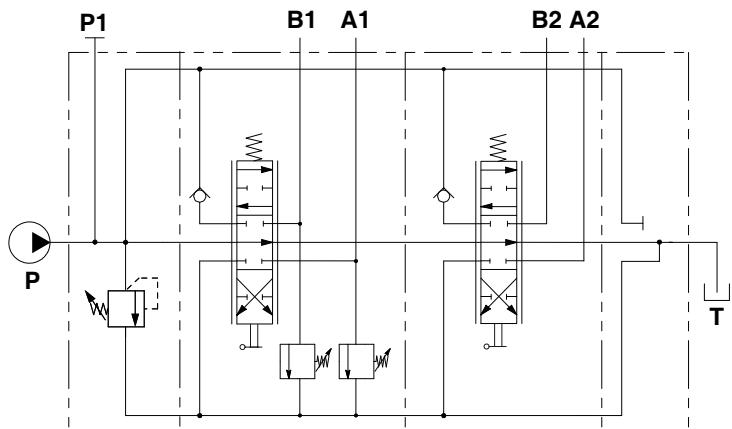


Type	E mm	E in	G mm	G in
<b>GSV50/1</b>	66.1	2.60	146.7	5.77
<b>GSV50/2</b>	107.1	4.21	187.7	7.38
<b>GSV50/3</b>	148.1	5.83	228.7	9
<b>GSV50/4</b>	189.1	7.44	269.7	10.61
<b>GSV50/5</b>	230.1	9.06	310.7	12.21
<b>GSV50/6</b>	271.1	10.67	351.7	13.84
<b>GSV50/7</b>	312.1	12.28	392.7	15.46
<b>GSV50/8</b>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

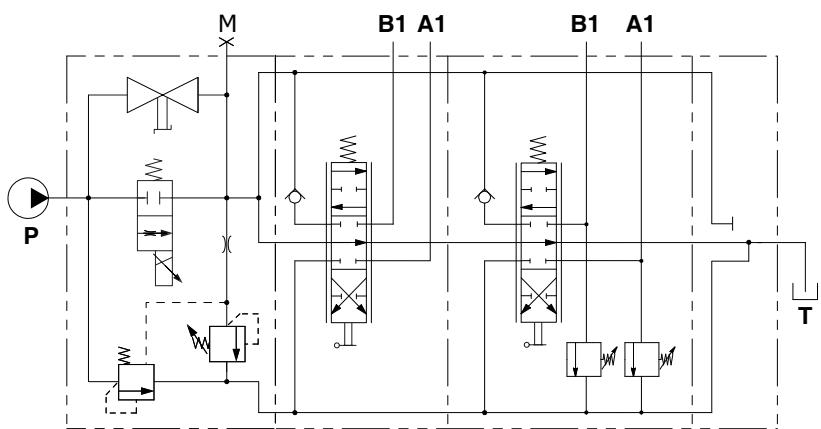


- Product code  
 - Customer reference or code description  
 - Product allotment  
 - Datamatrix with product allotment

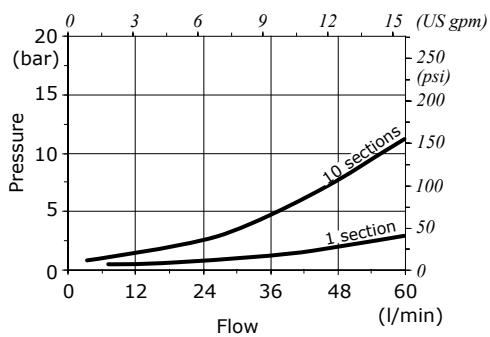
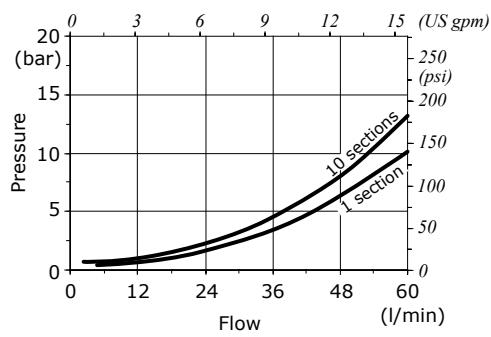
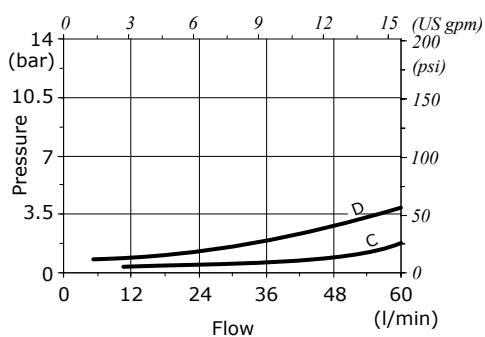
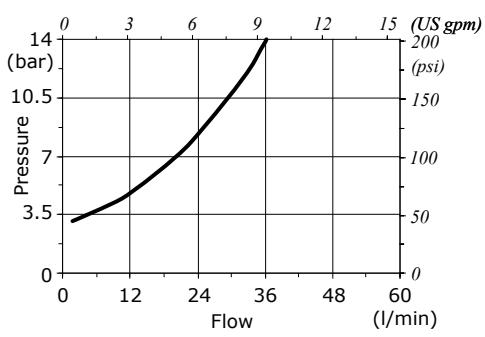
NOTE: Drawings and dimensions are referred to a **BSP** threading configuration.  
 (\*): For other configurations, see page 179

**Hydraulic circuits**

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



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

**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

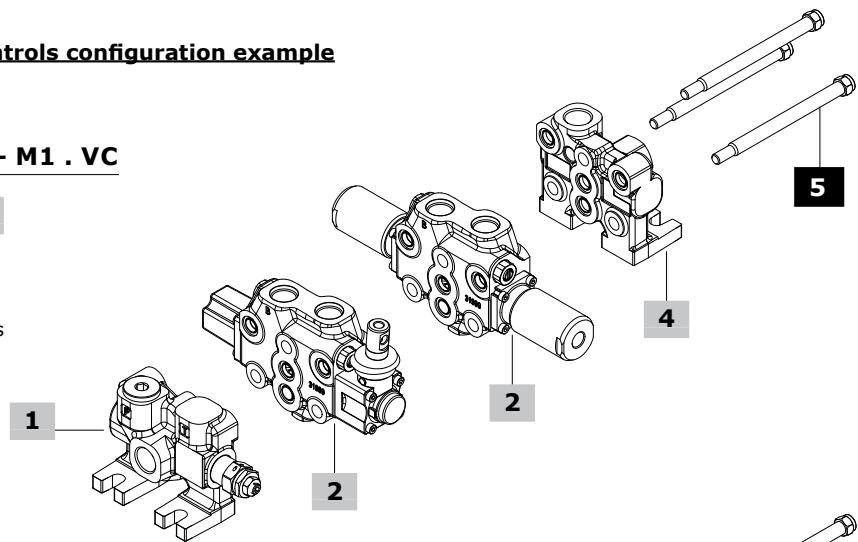
valve setting (bar)

**GSV50 / 2 / F7S(N150) / 103 - A1 - M1 . VC**

N. of section      1      2

/ 103 - H1 . VC / F6D - S

2      4      aluminium controls

Valve with intermediate section and mechanical control configuration example

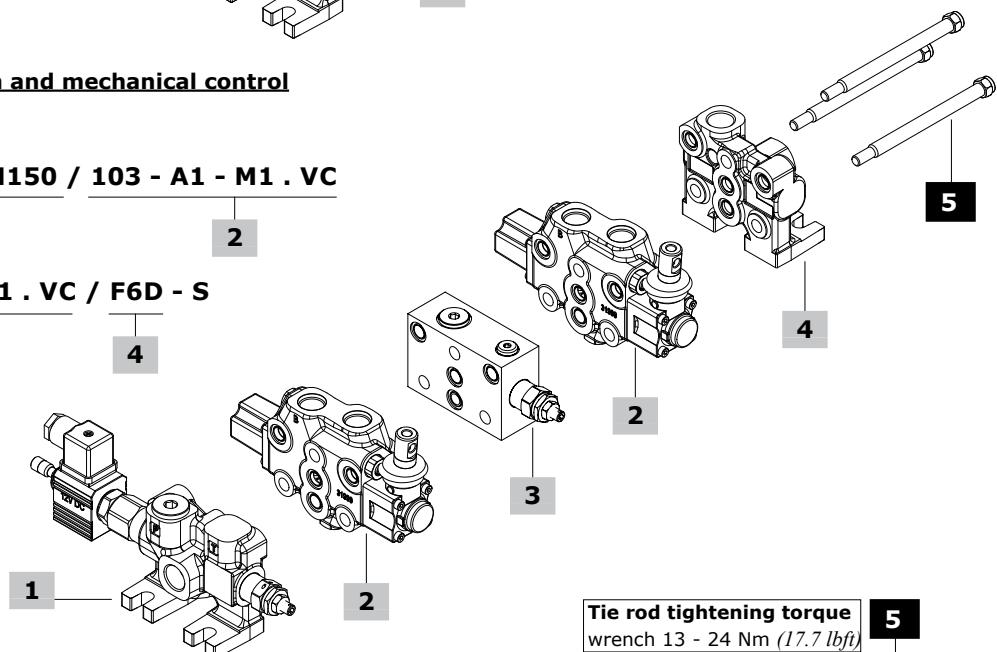
valve setting (bar)

**GSV50 / 2 / F7SMSE(NA)-N150 / 103 - A1 - M1 . VC**

1      2

/ E50(N150) / 103 - A1 - M1 . VC / F6D - S

3      2      4

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

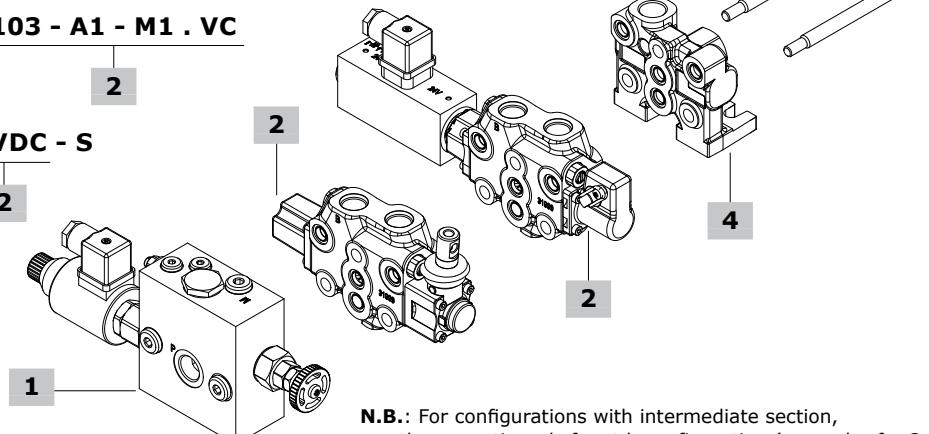
valve setting (bar)

**GSV50 / 2 / F7SPR3M(N150) / 103 - A1 - M1 . VC**

1      2

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

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

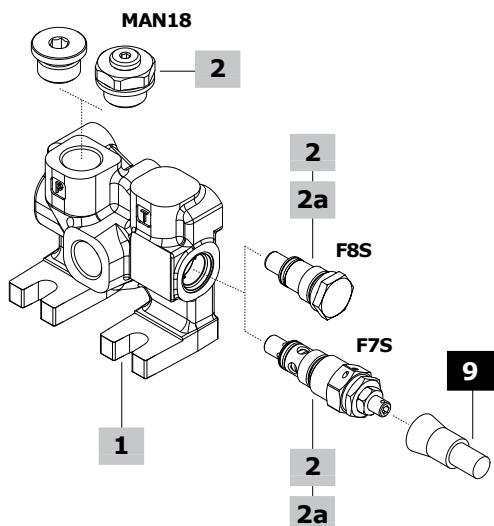
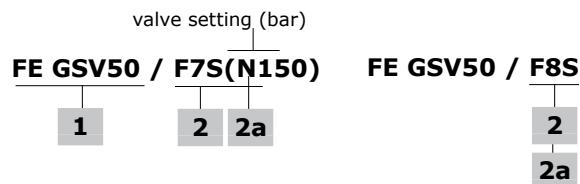
1 Inlet section*	page 145	3 Intermediate section	page 179
<b>Standard inlet sections</b>			
TYPE: <b>FE-QGSV50/F7S(N150)</b> CODE: 05100F7S/D-N			
DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve, setting range 101-200 bar (1460-2900 psi)			
TYPE: <b>FE-GSV50/F8S</b> CODE: 05103F8S/D			
DESCRIPTION: As previous one, without valves (pressure relief valve plugged port)			
TYPE: <b>FE-GSV50/F7SMSE(NA)</b> 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: <b>FE-GSV50/F7SMSE(NC)</b> CODE: 05100F7SDMS7-N			
DESCRIPTION: As previous one, with normally closed unloader valve			
<b>Inlet section with flow regulator</b>			
TYPE: <b>FE-GSV50/F7SPR3M(N150)</b> 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: <b>FE-GSV50/F7SPR3E(N150)-12VDC</b> CODE: 05100F7SDPRN3E			
DESCRIPTION: As previous one, with 12VDC unloader valve			
<b>2 Working section*</b>	<b>page 154</b>	<b>4 Outlet section*</b>	<b>page 181</b>
<b>With mechanical controls</b>			
TYPE: <b>EL-GSV50/103-A1-M1.VC-S</b> CODE: SGLS50000			
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, lever control and spring return to neutral position			
TYPE: <b>EL-GSV50/103-A1-M1-S</b> CODE: SGLS50001			
DESCRIPTION: As previous one, without valve arrangement			
<b>With proportional hydraulic controls</b>			
TYPE: <b>EL-GSV50/103-H1.VC-S</b> CODE: SGLS50002			
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, high pressure hydraulic controls, spring return to neutral position			
TYPE: <b>EL-GSV50/103-H1-S</b> CODE: SGLS50003			
DESCRIPTION: As previous one, without valve arrangement			
TYPE: <b>EL-GSV50/103-H5.VC-S</b> CODE: SGLS50004			
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, low pressure hydraulic controls, spring return to neutral position			
TYPE: <b>EL-GSV50/103-H5-S</b> CODE: SGLS50005			
DESCRIPTION: As previous one, without valve arrangement			
<b>With electric solenoid controls - one side type</b>			
TYPE: <b>EL-GSV50/103-A1-D41.VC-12VDC-S</b>			
CODE: SGLS50006			
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct			
ON/OFF control with lever			
TYPE: <b>EL-GSV50/103-A1-D41-12VDC-S</b>			
CODE: SGLS50007			
DESCRIPTION: As previous one, without valve arrangement			
<b>With electric solenoid controls - two side type</b>			
TYPE: <b>EL-GSV50/103-D9.VC-12VDC-S</b> CODE: SGLS50008			
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct			
ON/OFF control			
TYPE: <b>EL-Q30/103-D9-12VDC-S</b> CODE: SGLS50009			
DESCRIPTION: As previous one, without valve arrangement			
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 **BSP** thread

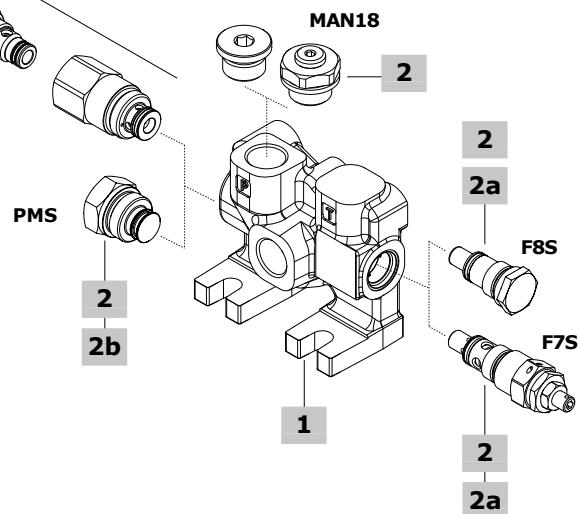
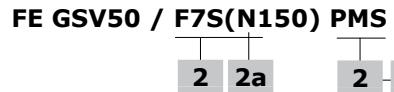
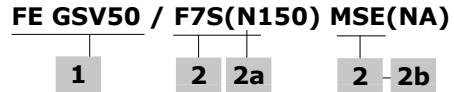
## Inlet section - parts ordering codes

**Standard section**

With relief valve:



(NA): normally open  
valve setting (bar)      (NC): normally closed

**1 Inlet body section\***

page 146

TYPE: **FE-GSV50**

CODE: 060013190799

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

**F7S** With pressure relief valve**F8S** Without valves (pressure relief valve plugged port)**F7S-MSE** With pressure relief valve and electric 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-PMS** Without valves (plugged ports)**Note:** Inlet configurations 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.
<b>MSE(NC)</b>	0EF08002006	It requires MSE assembly joint
		Electric unloader valve, normally closed, screw type emergency.
-	060002997299	It requires MSE assembly joint
<b>PMS</b>	060002978899	Assembling joint for MSE valves
	060002978899	Valve blanking plug

**3 Coil**

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

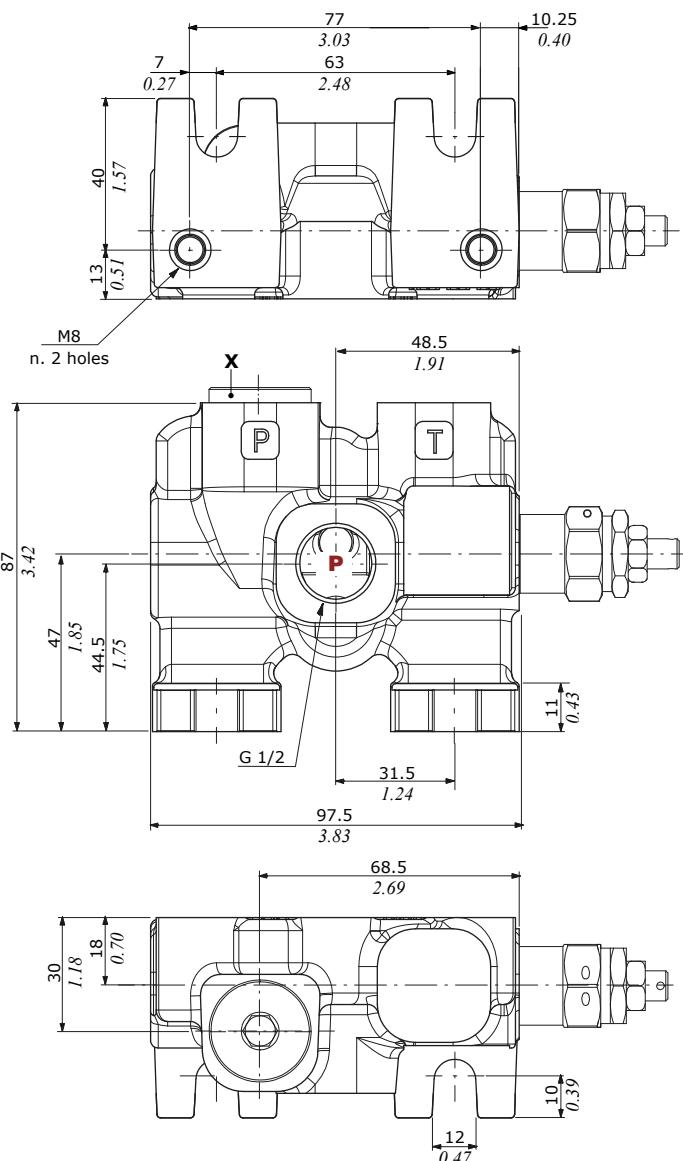
## **Standard inlet section-**

## Dimensional data

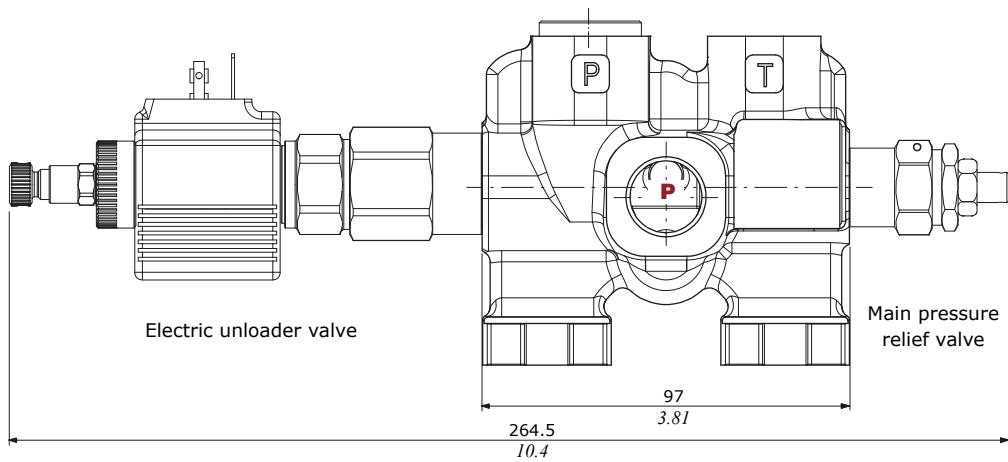
#### With pressure relief valve

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

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



#### **With relief and unloader valves**



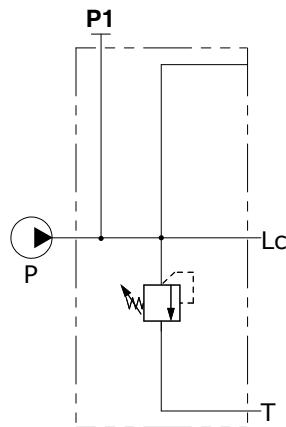
For other configurations, see page 149

For other dimensions, see previous configuration

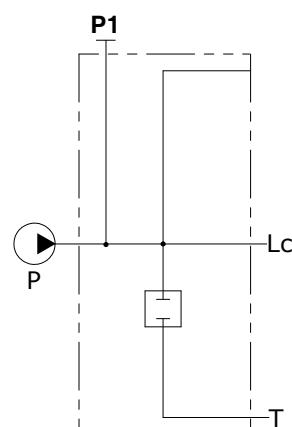
## Standard inlet section

## Hydraulic circuits

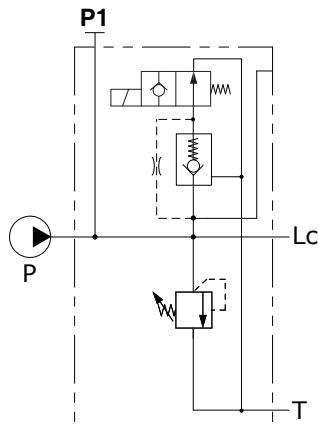
**F7S configuration**  
With pressure relief valve



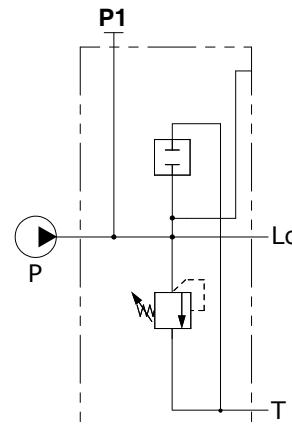
**F8S configuration**  
Without valves  
(pressure relief valve plugged port)



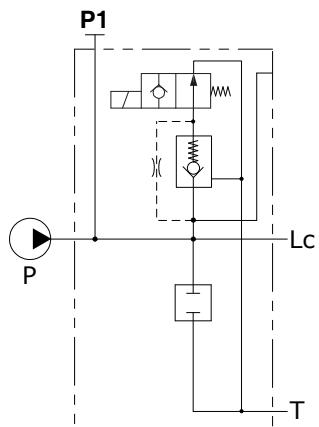
**F7S-MSE(NA/NC) configuration**  
With pressure relief valve  
and electric unloader valve



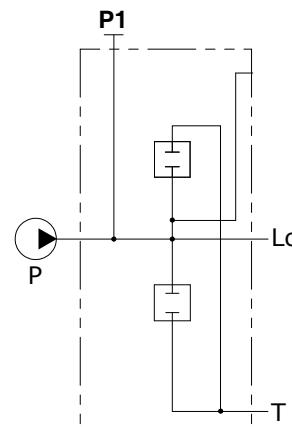
**F7S-PMS configuration**  
With pressure relief valve  
and unloader valve blanking plug

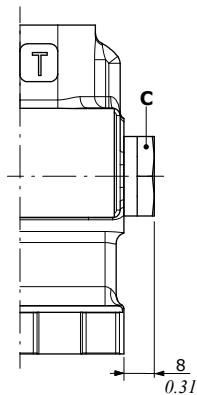
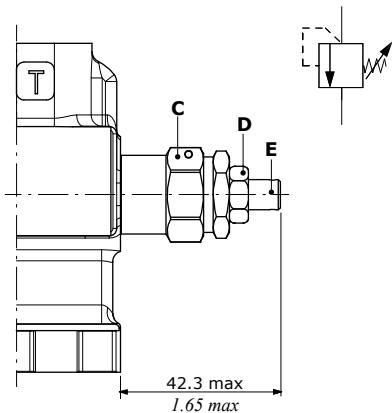


**F8S-MSE(NA/NC) configuration**  
Without pressure relief valve  
and electric unloader valve



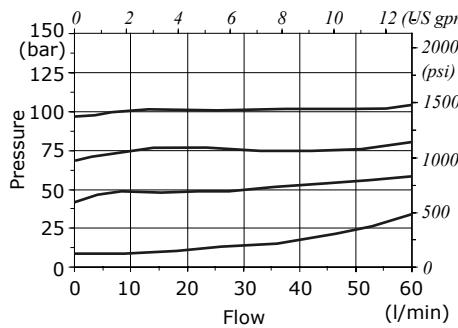
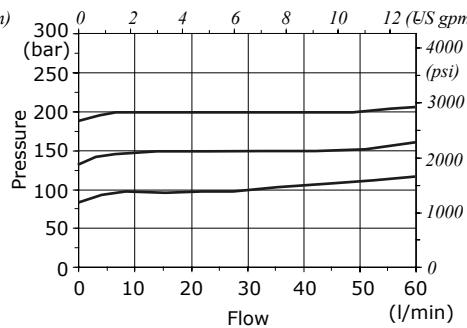
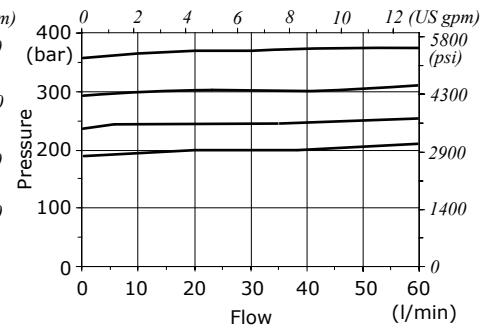
**F8S-PMS configuration**  
Without valves (plugged ports)



**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 lbf)  
 D = wrench 13 - 24 Nm (17.7 lbf)  
 E = allen wrench 4

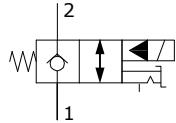
Spring type	Setting ranges (bar - psi)
B (white)	From 10 to 100 - from 145 to 1450
N (black)	From 101 to 200 - from 1460 to 2900
R (red)	From 201 to 380 - from 2910 to 5500

**Setting example (B type spring)****Setting example (N type spring)****Setting example (R type spring)**

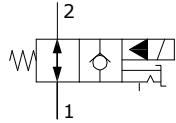
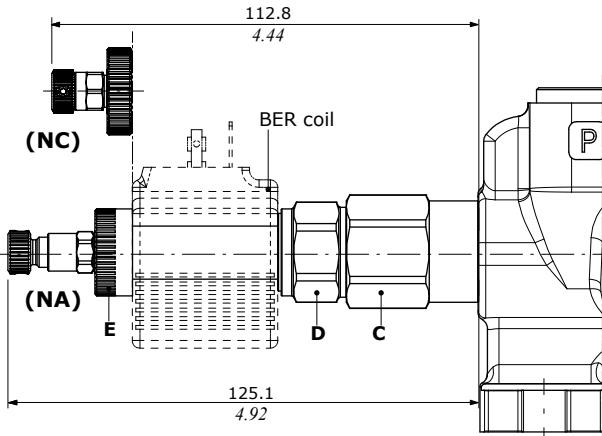
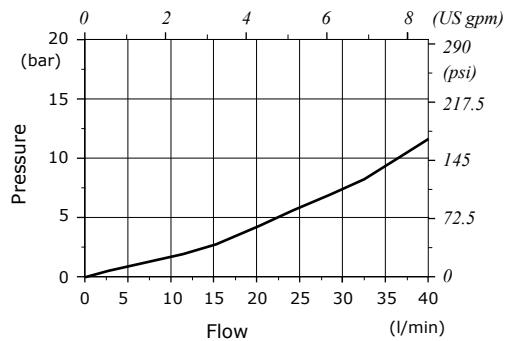
## Standard inlet section

**Unloader valve****MSE type: electric control**

**MSE(NC) type**  
Normally closed

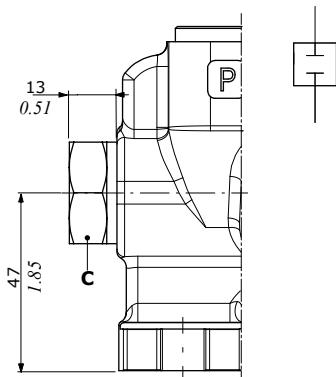


**MSE(NA) type**  
Normally open

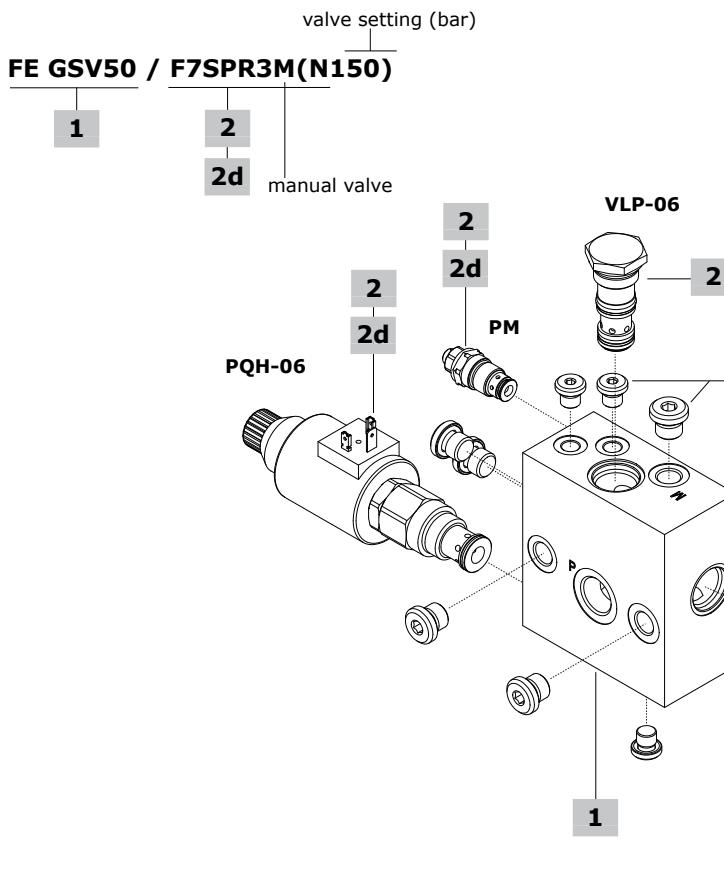
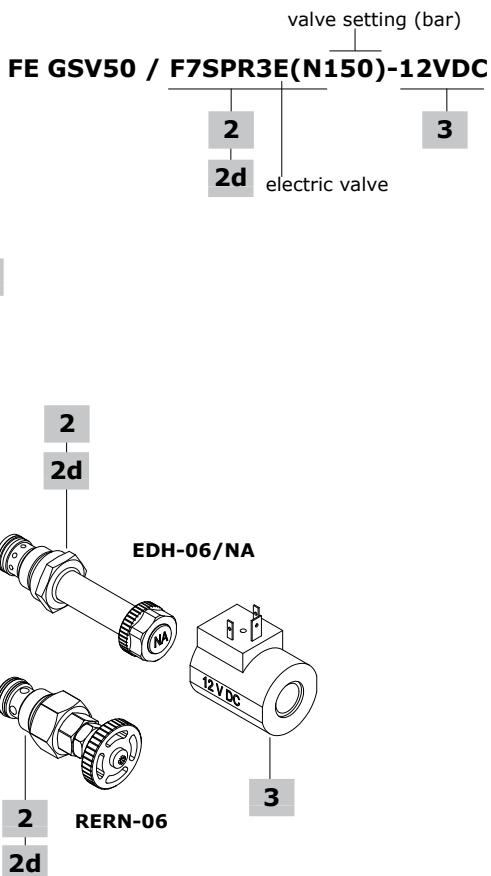
**Screw type emergency****Pressure drops****Valve features**

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

**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 **F7S-PR3M** DESCRIPTION

With pressure relief valve, proportional flow control valve and manual unloader valve

TYPE **F7S-PR3E** DESCRIPTION

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

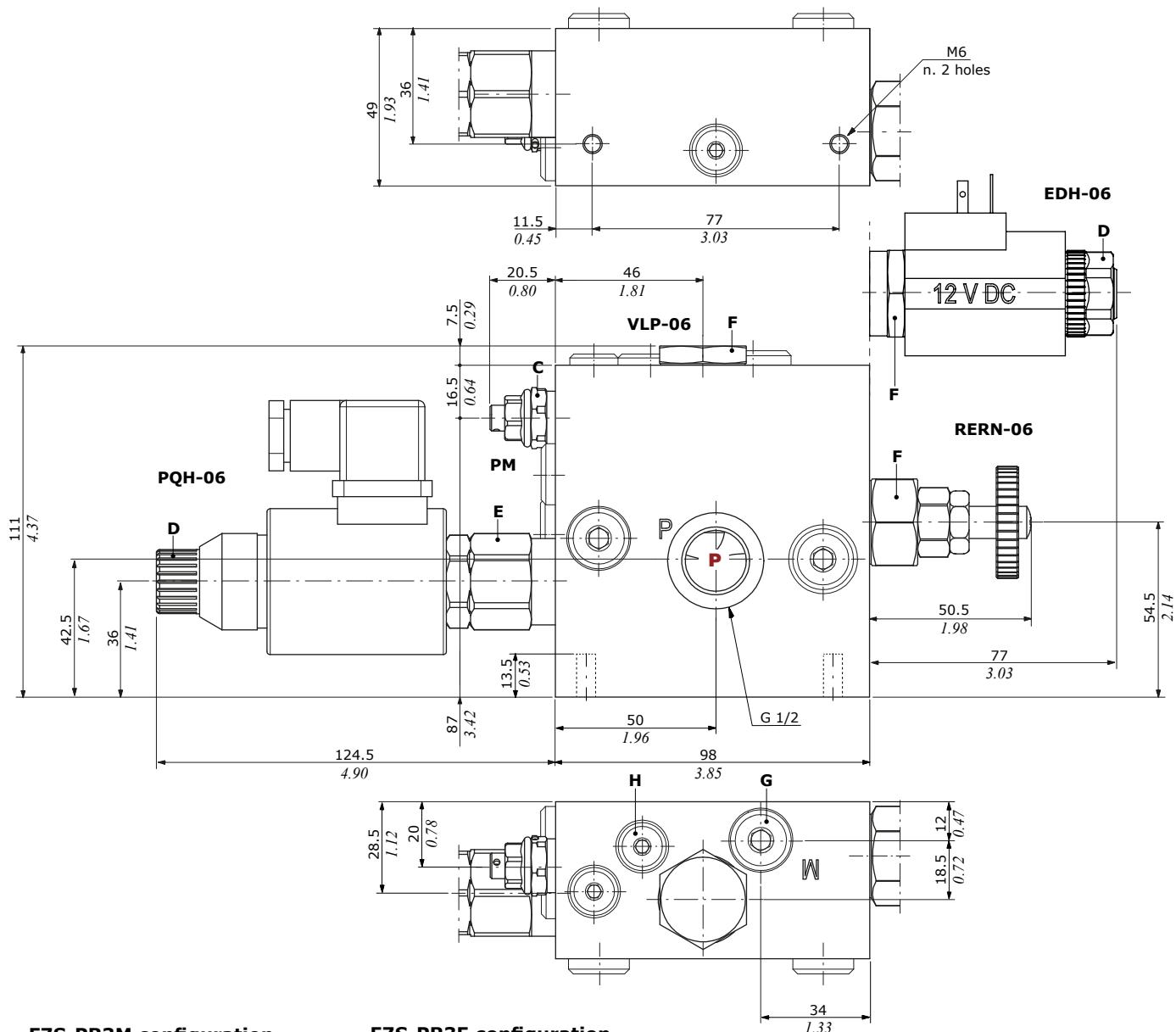
**3 Coil**

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

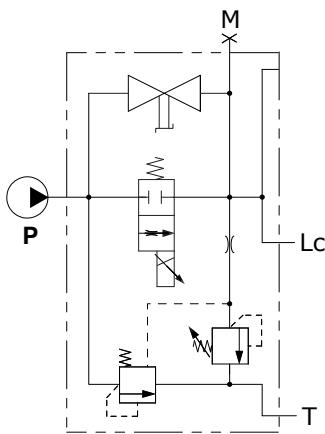
(\*): Codes are referred to **BSP** thread

## Inlet section with flow regulator

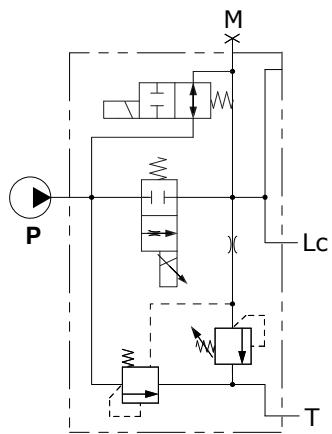
## Dimensional data and hydraulic circuits



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



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



**Wrenches and tightening torques**

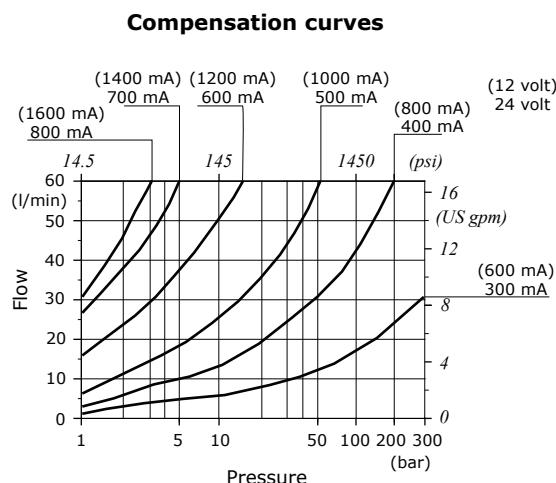
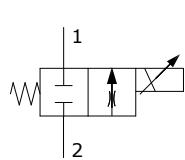
- C = wrench 17 - 30 Nm (22 lbf)
- D = manual tightening
- E = wrench 27 - 30 Nm (22 lbf)
- F = wrench 27 - 60 Nm (44.2 lbf)
- G = allen wrench 27 - 60 Nm (44.2 lbf)
- H = allen wrench 6 - 24 Nm (17.7 lbf)

## Inlet section with flow regulator

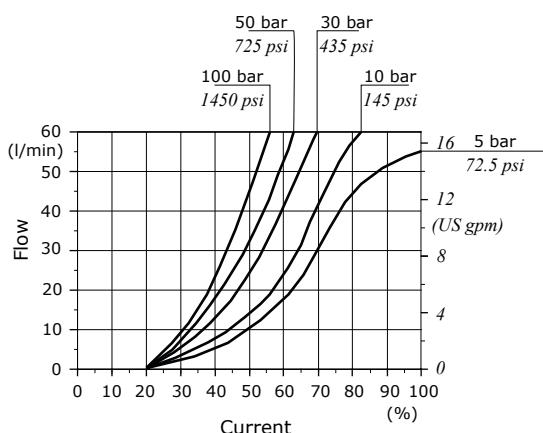
### Inlet valves

#### PQH-06 type

Flow control proportional pressure compensated valve, 12/24 VDC



#### Flow control diagram



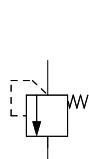
#### Valve features

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

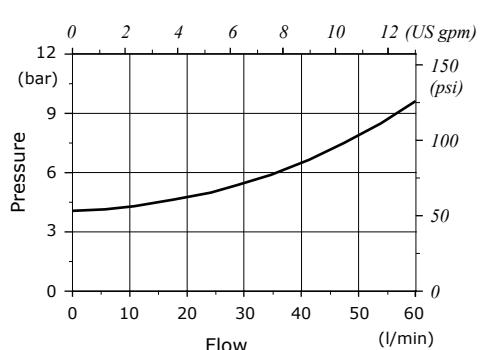
**Note:** The coil and connector is included

#### VLP-06 type

Pressure relief valve

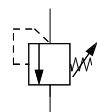


#### Pressure drops



#### PM type

Antishock valve

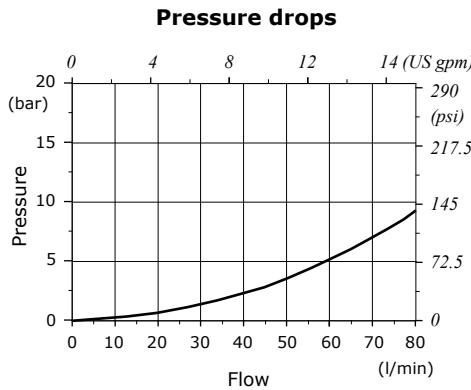
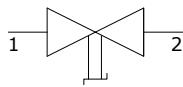


#### Valve features

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

**Inlet section with flow regulator****Inlet valves****RERN-06 type**

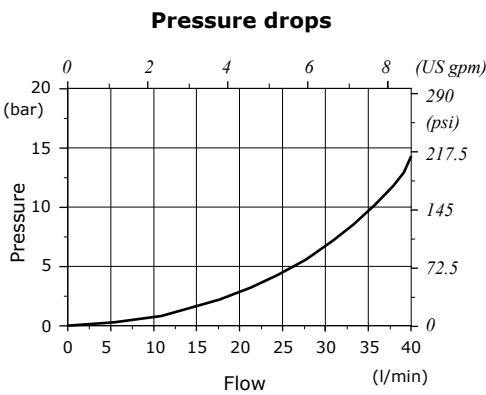
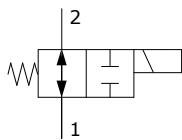
Manual unloader valve

**Valve features**

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

**EDH-06 type**

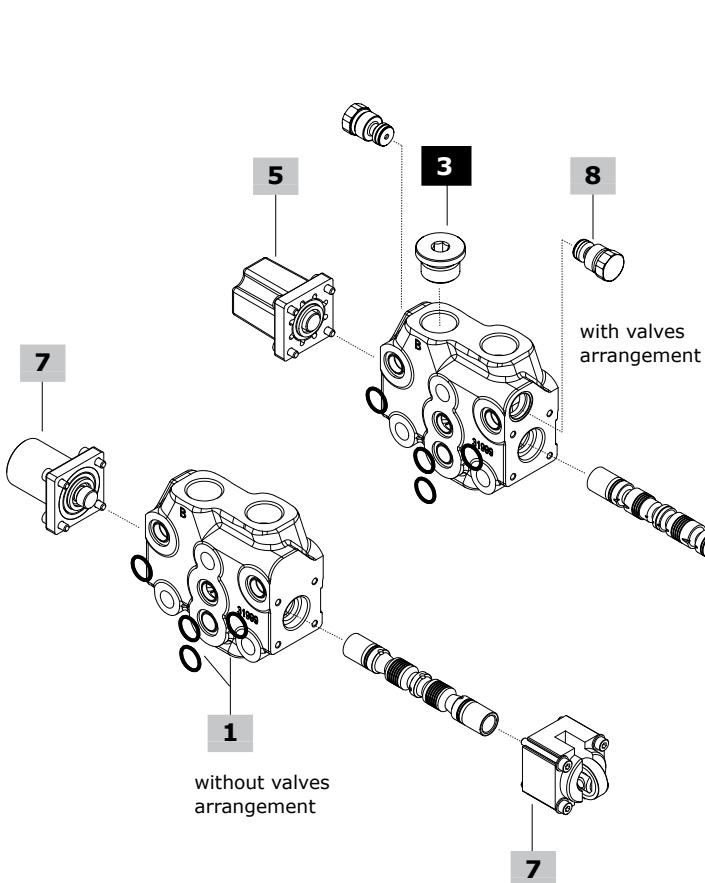
Electric unloader valve, normally open

**Valve features**

Nominal flow.....: 35 l/min (9.24 US gpm)  
 Max. pressure .....: 310 bar (4500 psi)  
 Max. internal leakage...: 50 cm³/min @ 210 bar  
 (3.05 in³/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**

1	2	4	5	8
---	---	---	---	---

aluminium controls

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

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

7
---

#### Microswitch control valve configurations example

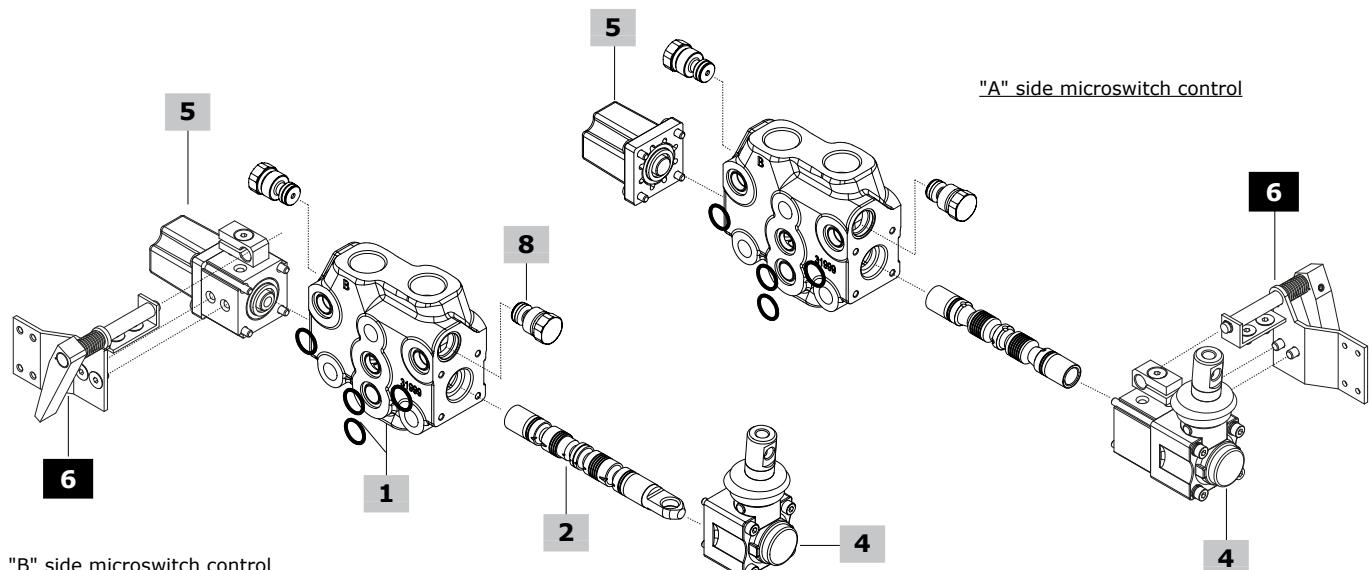
**EL GSV50 / 103 - A1 - M1-N1 . V40(N)120 - S**

1	2	4	5	8
---	---	---	---	---

aluminium controls

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

4	5
---	---



## Working section - parts ordering codes

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

TYPE: <b>EL-GSV50.VC</b>	CODE: 5EL0600131743
DESCRIPTION: Parallel circuit, with port valves arrangement	
TYPE: <b>EL-GSV50</b>	CODE: 5EL0600131742
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. G1/2 plug is required, see #3
<b>102</b>	3CUG3218002	Single acting on port B. G1/2 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
<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

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

TYPE	CODE	DESCRIPTION
-	060002792099	G1/2 plug

**4 A side control** page 161

<b>Note:</b> For other control type, see Q30/Q50 valves		
TYPE	CODE	DESCRIPTION
<b>For standard spools</b>		
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
<u>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
<u>With types 103 and 111 special spools</u>		
<u>With spool position microswitch:</u>		
<u>Note:</u> 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
<u>Without lever control:</u>		
<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
<u>With spring return:</u>		
<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
<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
<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
<u>With detent and kick out function:</u>		
<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 **BSP** 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

**M1-N1** 03766M1-N1 3 pos., micro operation in pos. 1 and 2, spring return in neutral position

**M1-N1A** 03767M1-N1AL As M1-N1 type, micro operation in pos. 1

**M1-N1B** 03768M1-N1BL As M1-N1 type, micro operation in pos. 2

**M2-N1** 03769M2-N1L 2 pos. (0-1), spring return in neutral position

**M3-N1** 03772M3-N1L 2 pos. (0-2), spring return in neutral position

Pneumatic and electropneumatic controls:

**P1NW** 03661P1-NW ON/OFF pneumatic control

**P1NPW** 03661P1-NPW Proportional pneumatic control

**D3W** 03691D3-F-12DC 12 VDC, ON/OFF electropneumatic control

03692D3-F-24DC 24 VDC, ON/OFF electropneumatic control

**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

**For types 103 and 111 special spools**

**C2** 03792C2-C3 Cam control from pos. 1 to 2

**C3** 03792C2-C3 Cam control from pos. 2 to 1

**8 Auxiliary port valve** page 177

TYPE CODE DESCRIPTION

Antishock valve:

**V30-B** 0380FV30-B Setting range: from 50 to 80 bar  
(from 725 to 1150 psi)

**V30-N** 0380FV30-N Setting range: from 81 to 200 bar  
(from 1170 to 2900 psi)

**V30-R** 0380FV30-R Setting range: from 201 to 350 bar  
(from 2910 to 5100 psi)

Antishock/anticavitation valve:

**V33-B** 0380FV33-B Setting range: from 50 to 80 bar  
(from 725 to 1150 psi)

**V33-N** 0380FV33-N Setting range: from 81 to 200 bar  
(from 1170 to 2900 psi)

**V33-R** 0380FV33-R Setting range: from 201 to 350 bar  
(from 2910 to 5100 psi)

Anticavitation valve:

**V04** 03808V04 Anticavitation valve

Plug:

**VC** 060002846099 Valve blanking plug  
For other configurations and positions, see page 177

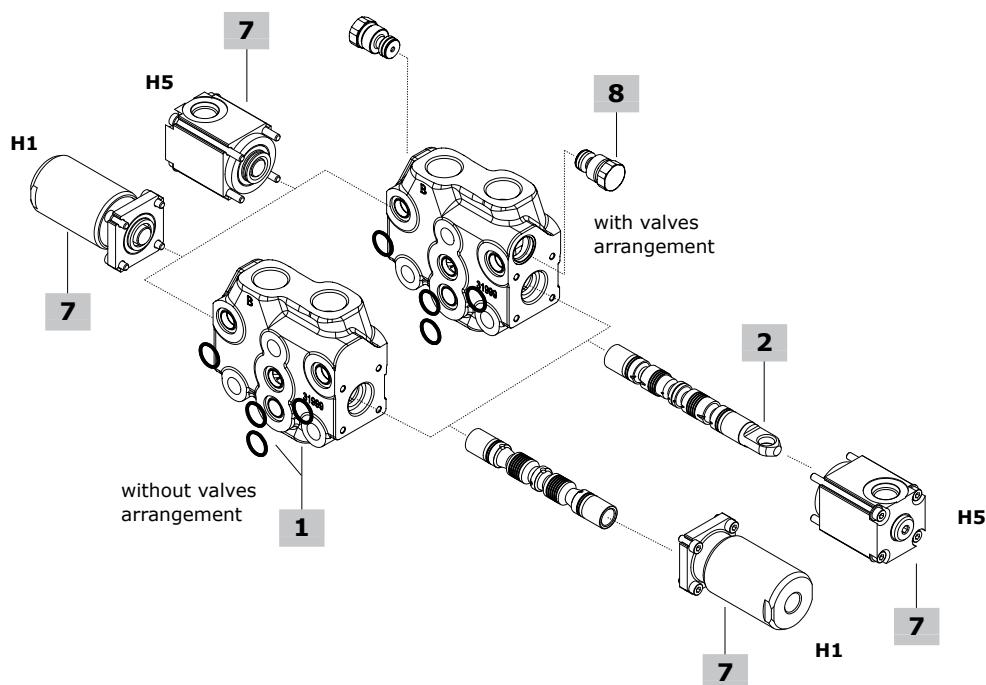
## Working section - parts ordering codes

Proportional hydraulic controls valve configuration example

spring type and valve setting (bar)

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

**EL GSV50 / 103 - H1 . V40(N)120 - S**

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

The body kits listed below are for **H5** hydraulic control.

**H1** hydraulic control requires standard body: see #1, page 155

TYPE: **EL-GSV50-H5.VC** CODE: 5EL0600131743H5

DESCRIPTION: Parallel circuit, with port valves arrangement

TYPE: **EL-GSV50-H5** CODE: 5EL0600131742H5

DESCRIPTION: Parallel circuit, without port valves arrangement

**2 Spool page 160**

TYPE	CODE	DESCRIPTION
<b>For H5 hydraulic control</b>		
<b>103</b>	060103179499	Double acting, A and B closed in neutral position
<b>For H1 hydraulic control</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

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

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

**8 Auxiliary port valve page 177**

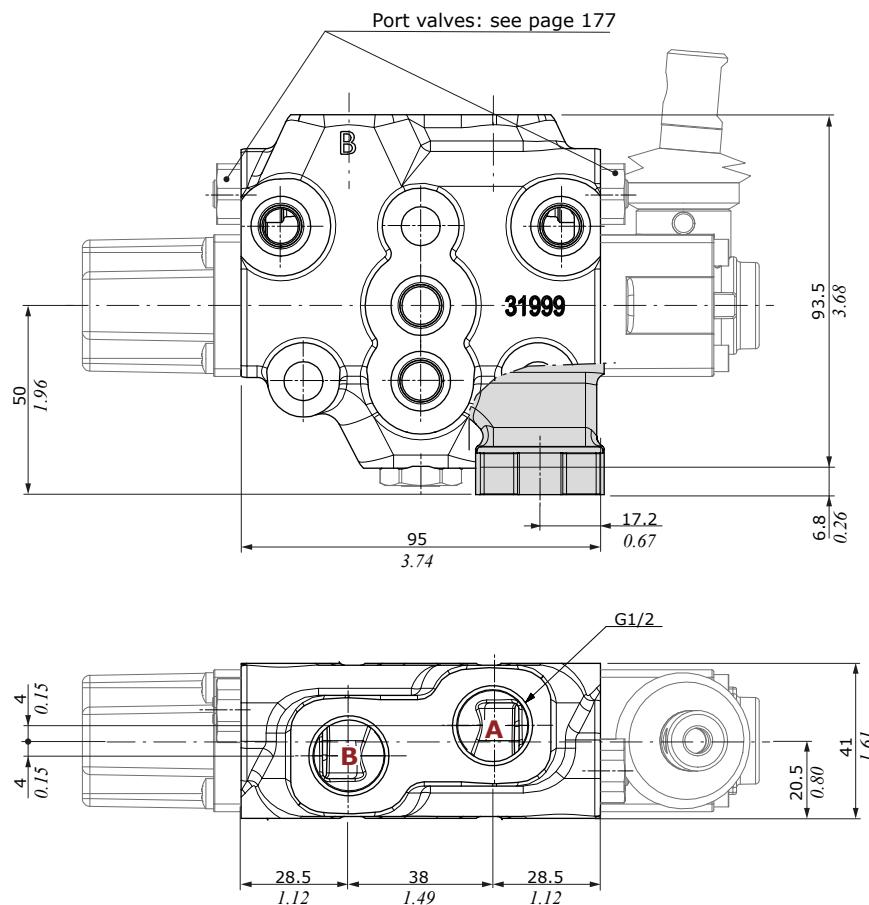
See #8, page 156

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

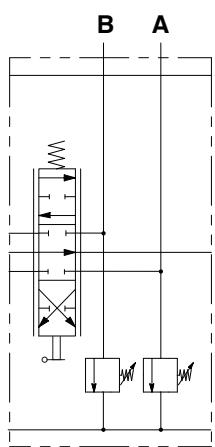


## Working section

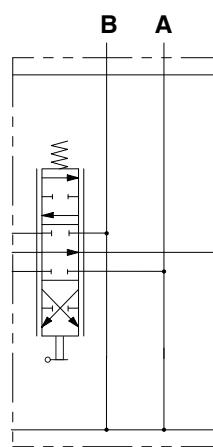
## Dimensional data and hydraulic circuits



**GSV50.V40(N)120 configuration**  
Parallel circuit, mechanical control  
with aux valves



**GSV50 configuration**  
Parallel circuit, mechanical control  
without aux valves



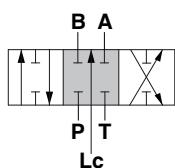
## Working section

## Spool

**103 type**

A and B closed  
in neutral position

2 0 1

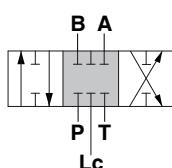
**Stroke**

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

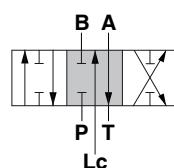
**Stroke**

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

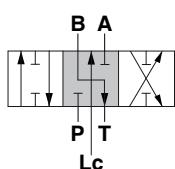
**Stroke**

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

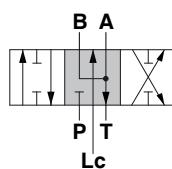
**Stroke**

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

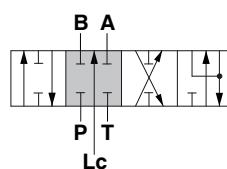
**Stroke**

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

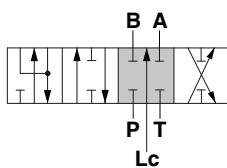
**Stroke**

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

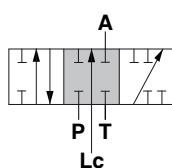
**Stroke**

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

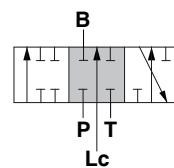
**Stroke**

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

**102 type**

Single acting on B,  
A plugged

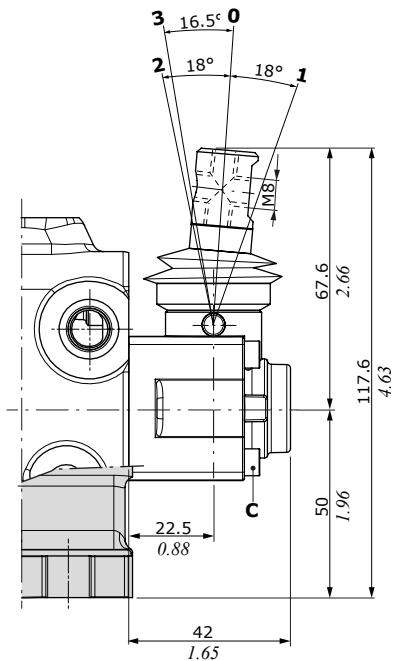
2 0 1

**Stroke**

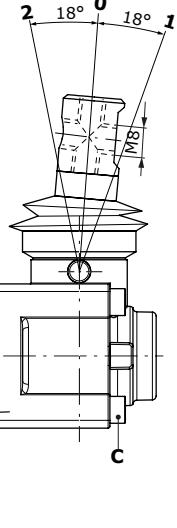
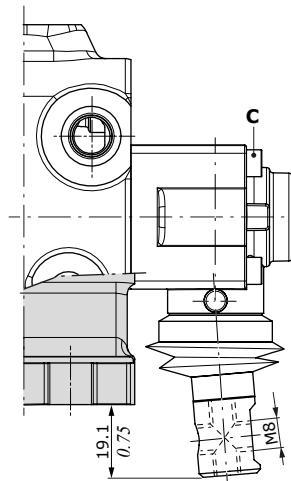
Position 1: + 5 mm (+ 0.19 in)  
Position 2: - 5 mm (- 0.19 in)

**Working section****A side controls****With lever control****A1 type**

M8 thread plastic lever box

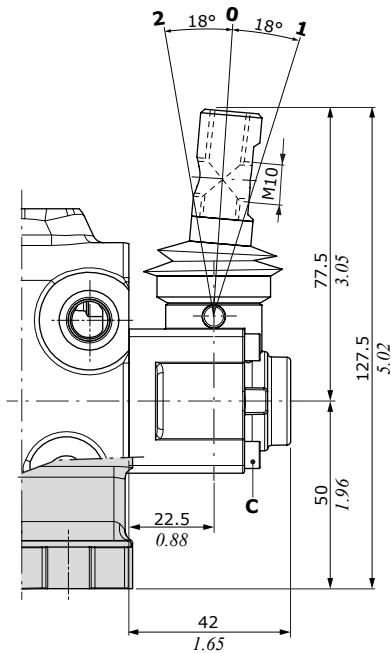
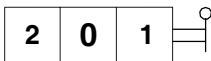
**A1/10 type**M8 thread aluminium lever box.  
Dimensions are the same  
of A1 type**A2/10 type**  
As A1/10 type,  
rotated 180°**A2 type**

As A1 type, rotated 180°

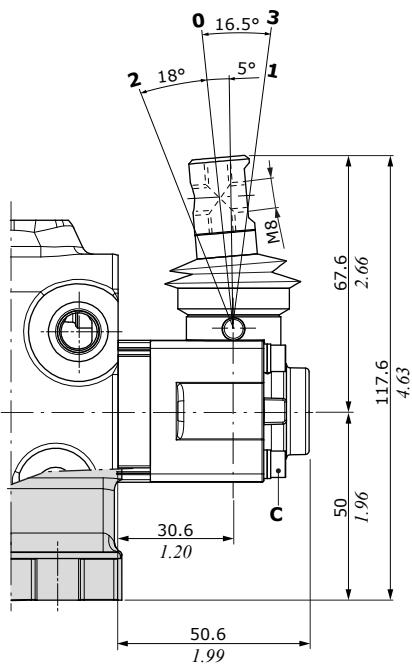
**Wrenches and tightening torques**  
C = allen wrench 3 - 3 Nm (2.2 lbft)

**Working section****A side controls****With lever control****A1/PM type**

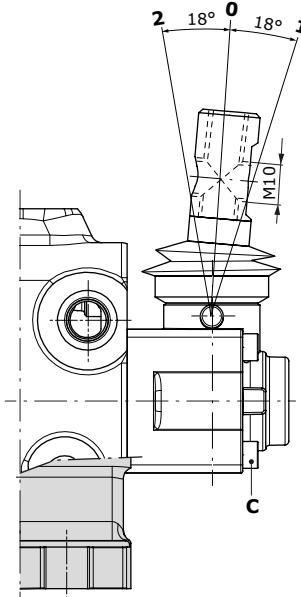
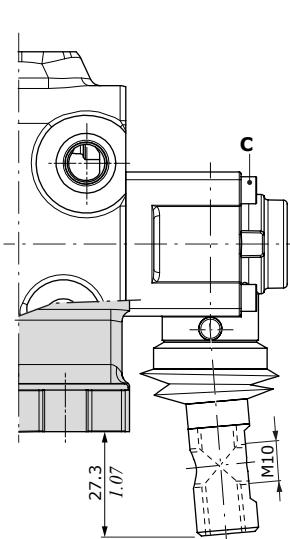
M10 thread aluminium lever box

**A1/Z1 type**

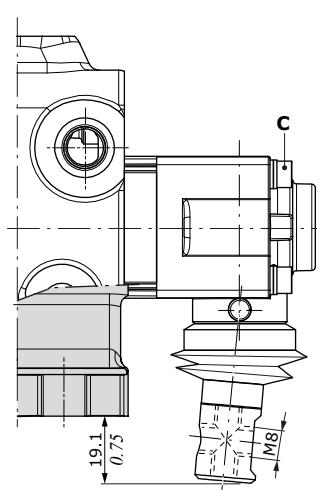
M8 thread, for 116 floating spool type

**A1/PMP type**

M10 thread plastic lever box.

Dimensions are the same  
of A1/PM type**A2/PMP type**As A1/PM type,  
rotated 180°**A2/PM type**  
As A1/PM type, rotated 180°**A2/Z1 type**

As A1/Z1 type, rotated 180°

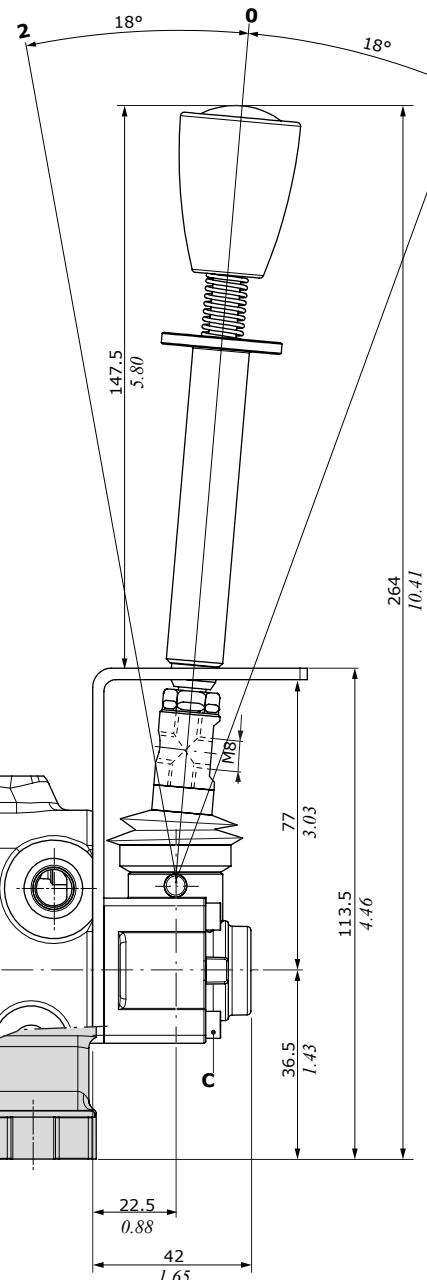
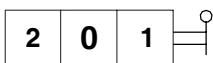


**Wrenches and tightening torques**  
C = allen wrench 3 - 3 Nm (2.2 lbf)

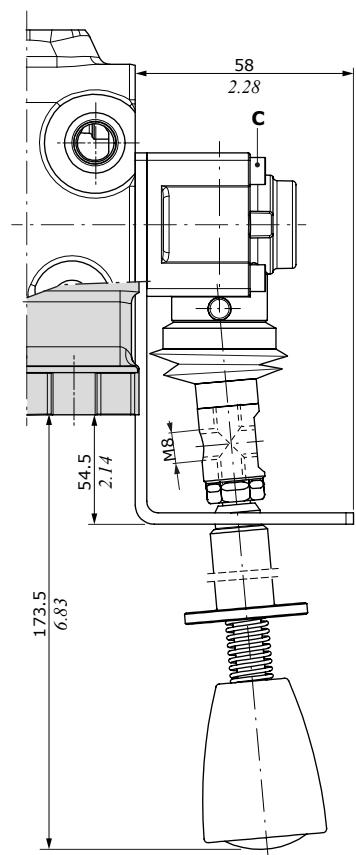
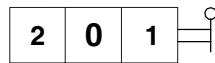
## Working section

**A side controls****With safety lever control**

**A1/S type**  
M8 thread, aluminium lever box

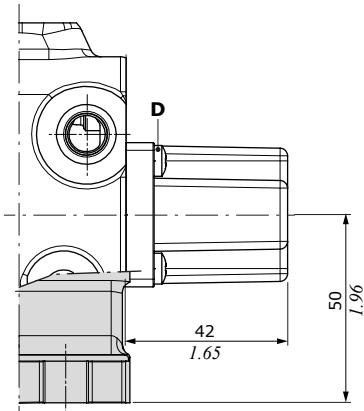


**A2/S type**  
As A1/S type, rotated 180°

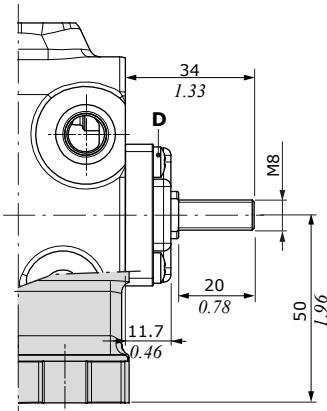
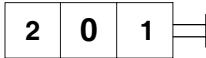
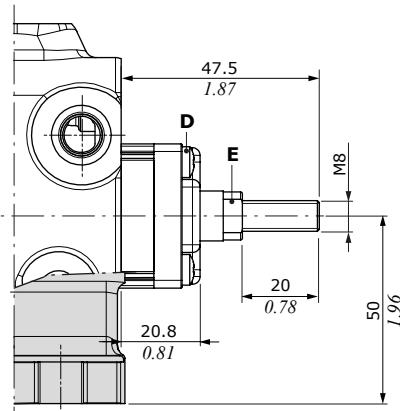


**Working section****A side controls****Without lever control****A3 type**

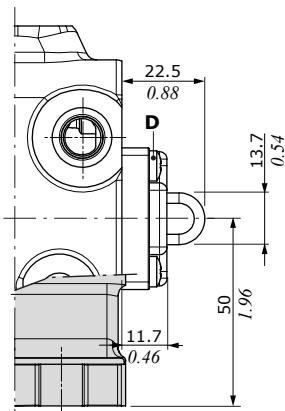
With cap

**A4 type**

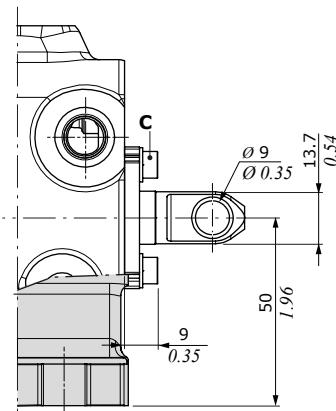
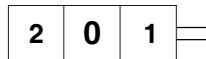
M8 thread male external pin with flange

**A4/Z1 type**As A4 type,  
for 116 floating spool type**A5 type**

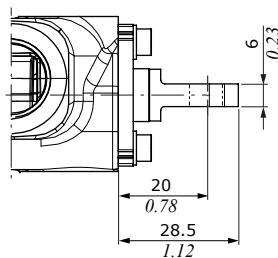
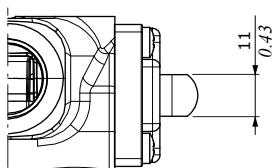
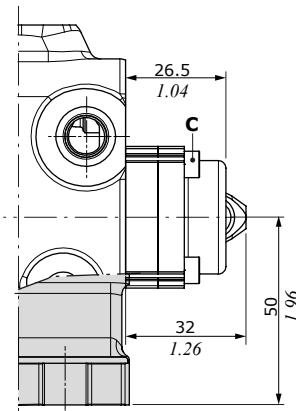
Flange with spherical spool end

**A6 type**

Flange with spool eye end

**A6-H/Z1 type**

As A6 type, for 116 floating spool type

**Wrenches and tightening torques**

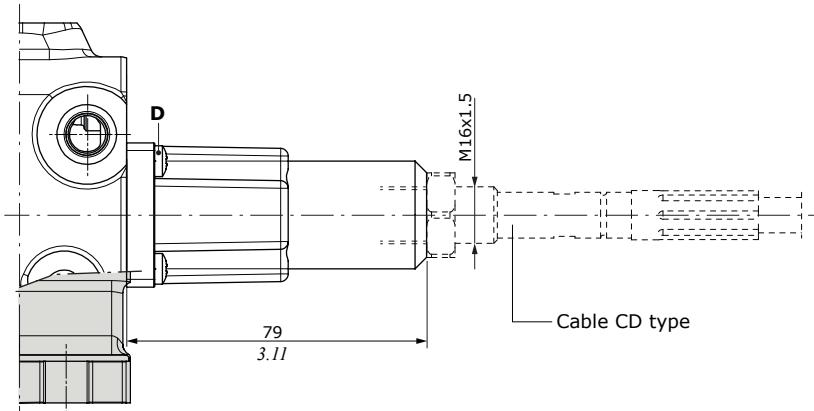
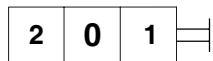
C = allen wrench 3 - 3 Nm (2.2 lbf)

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

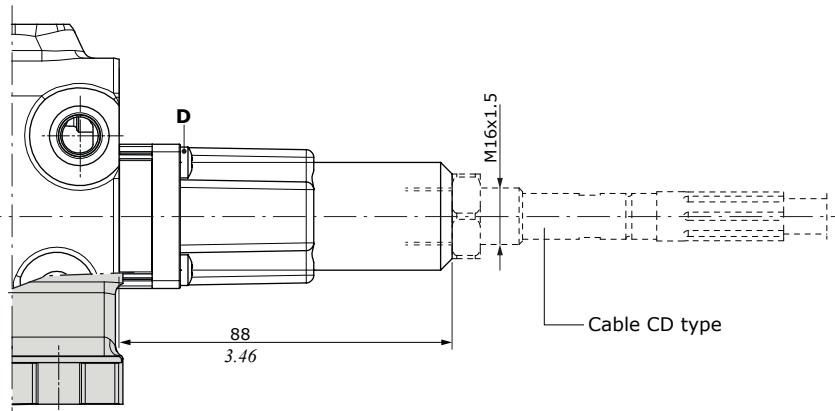
E = wrench 9 - 9.8 Nm (7.2 lbf)

**Working section****A side controls****With flexible cable control arrangement****A8 type**

Flexible cable control arrangement

**A8/Z1 type**

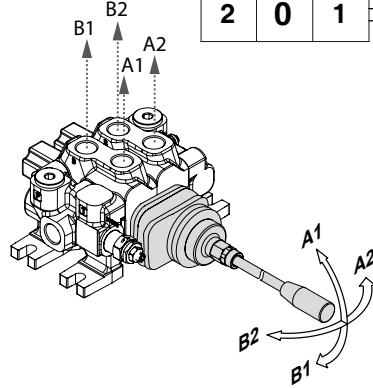
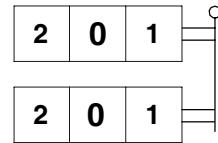
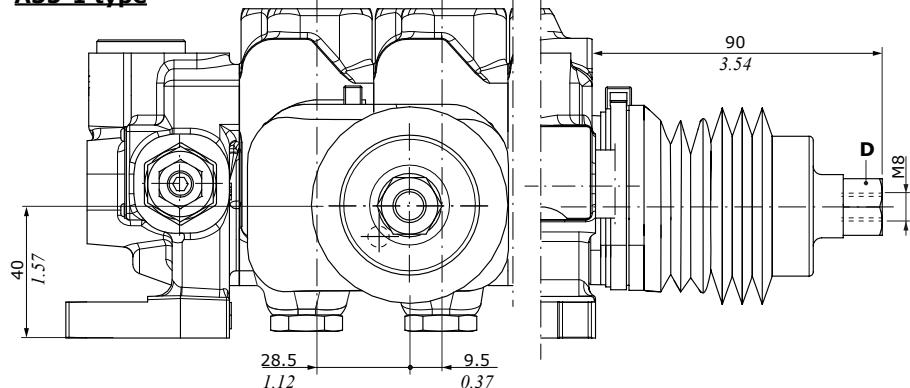
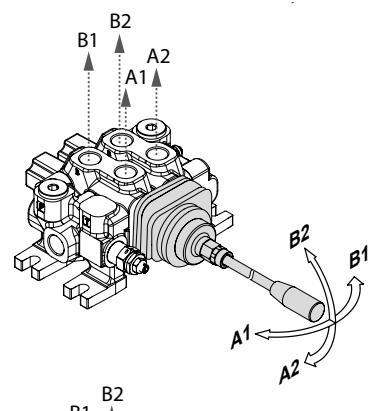
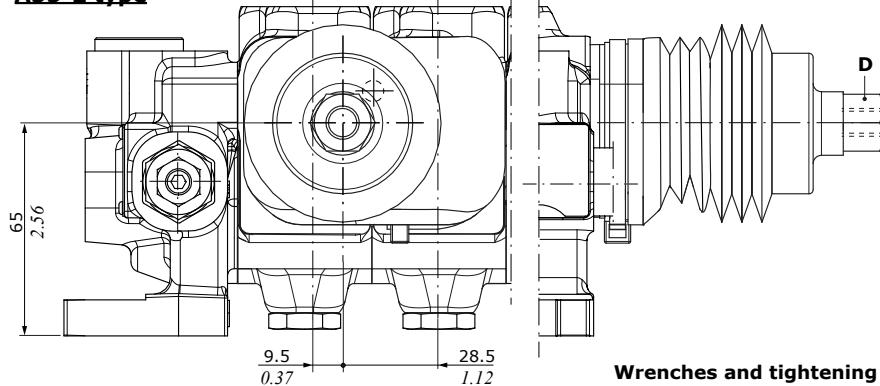
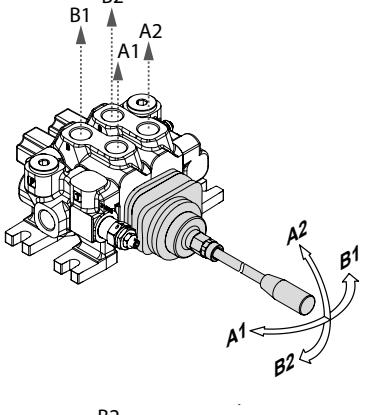
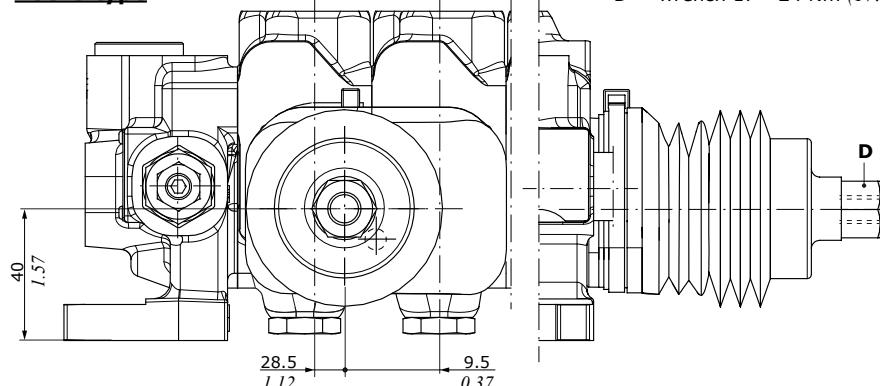
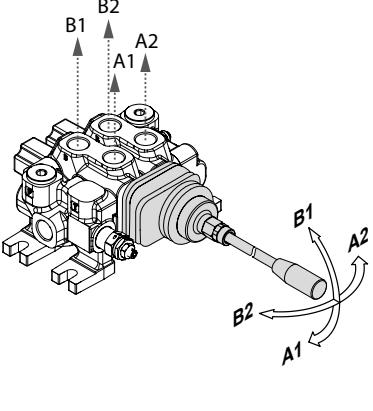
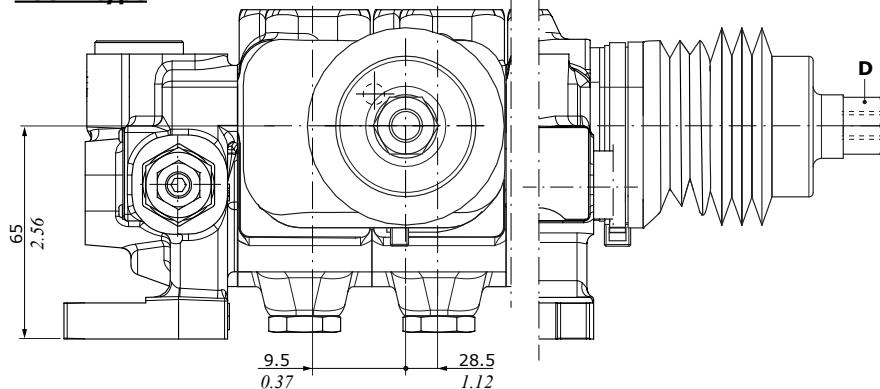
As A8 type, for 116 floating spool type

**Wrenches and tightening torques**

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

**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****A35-4 type**

## **–Working section**

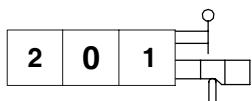
### **A side controls**

#### 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



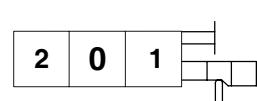
### **With spool position microswitch, with cap**

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



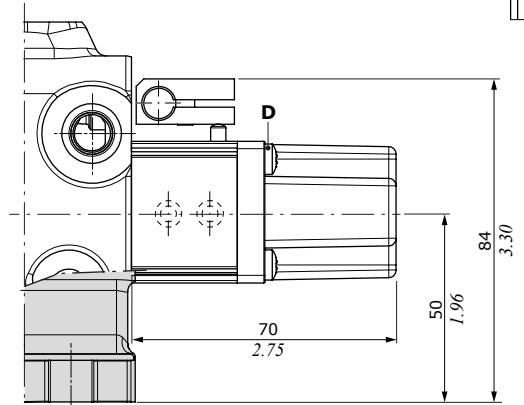
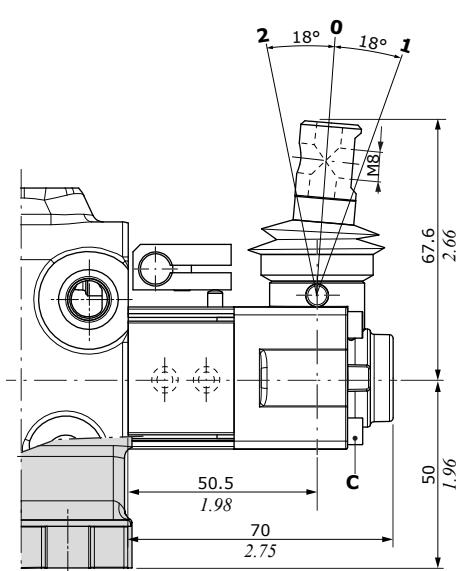
## **N1A-A3 type**

Micro operation in position 1

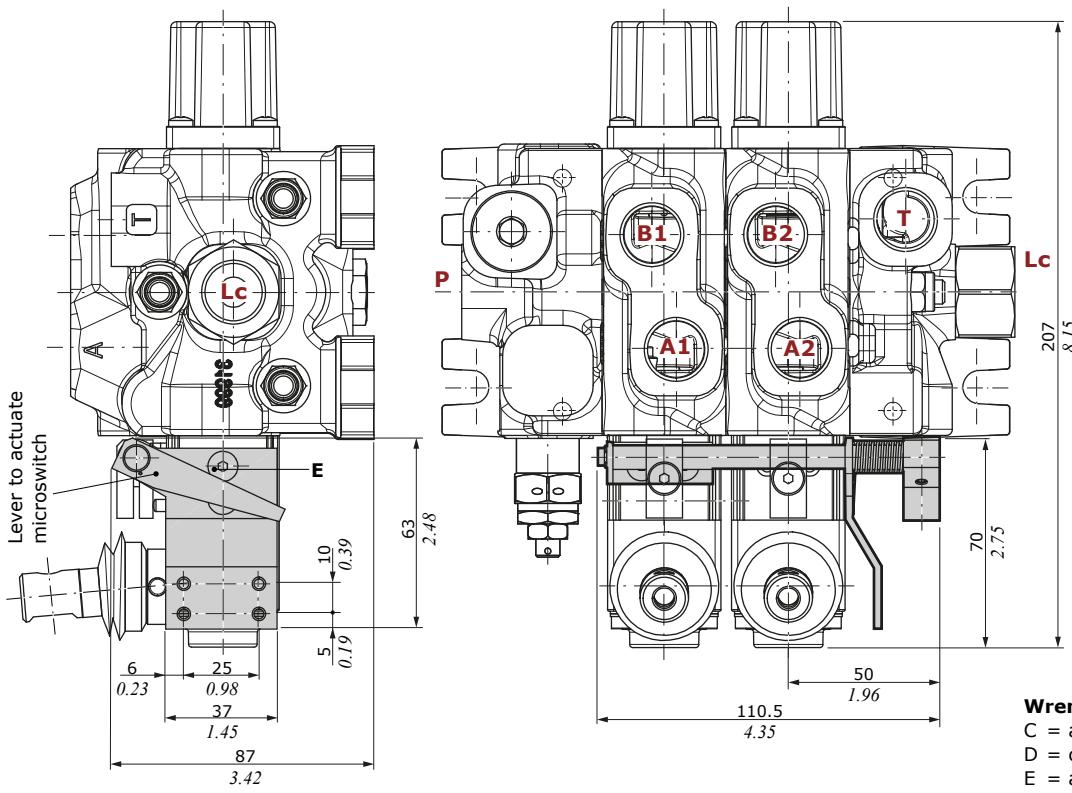


## **N1B-A3 type**

Micro operation in position 2



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

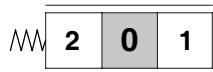


**Wrenches and tightening torques**

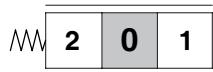
C = allen wrench 3 - 3 Nm (2.2 lbft)  
D = cross-head - 3 Nm (2.2 lbft)  
E = allen wrench 3 - 6.6 Nm (4.8 lbft)

**Working section****B side controls****With spring return control****M1 type**

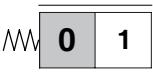
3 position, spring return  
in neutral position

**M1/01 type**

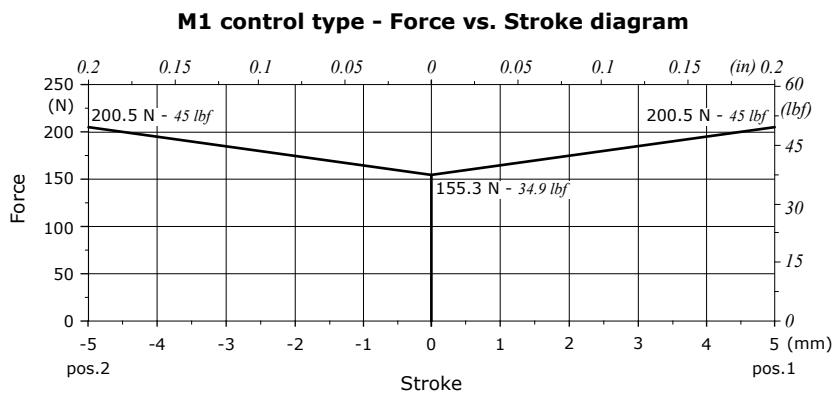
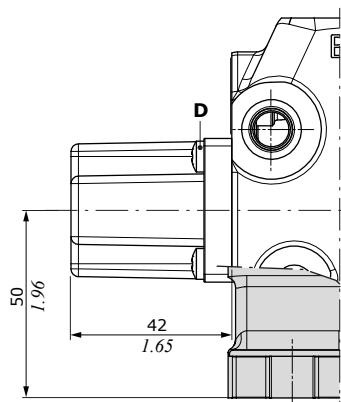
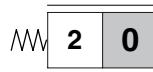
As M1 type,  
for joystick control

**M2 type**

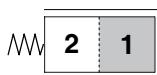
2 position (0-1), spring return  
in neutral position

**M3 type**

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

**M4 types**

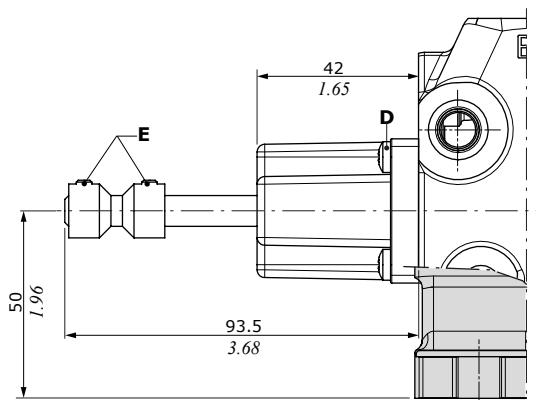
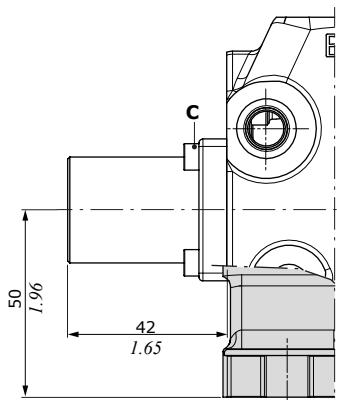
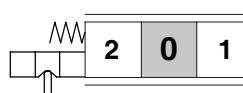
2 position (1-2),  
spring return in position 1



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

**M1-B1 type**

3 position, microswitch arrangement

**Wrenches and tightening torques**

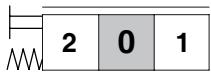
C = allen wrench 3 - 3 Nm (2.2 lbf)

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

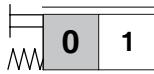
E = allen wrench 3 - 5 Nm (3.68 lbf)

**Working section****B side controls****With spring return control****M1-U1 type**

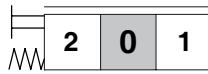
3 position, with M8 male thread external pin

**M2-U1 type**

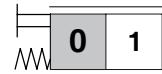
2 position (0-1), with M8 male thread external pin

**With flexible cable control arrangement****M1-U2 type**

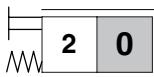
3 position, spring return in neutral position

**M2-U2 type**

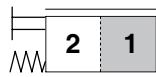
2 position (0-1), spring return in neutral position

**M3-U1 type**

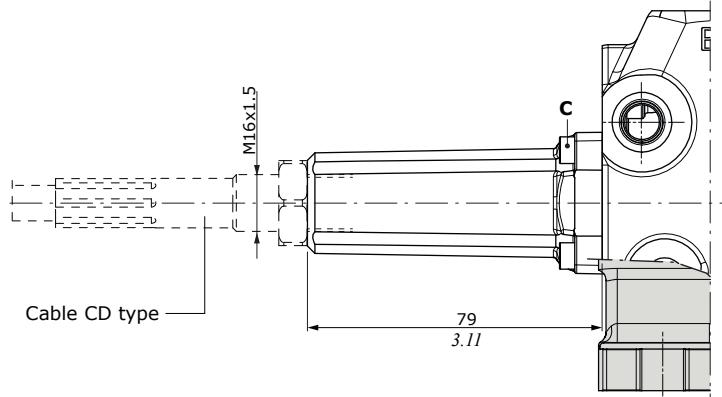
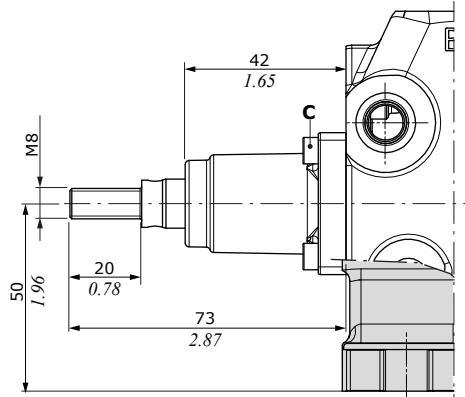
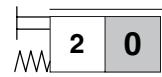
2 position (0-2), with M8 male thread external pin

**M4-U1 type**

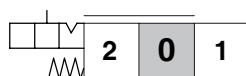
2 position (1-2), with M8 male thread external pin

**M3-U2 type**

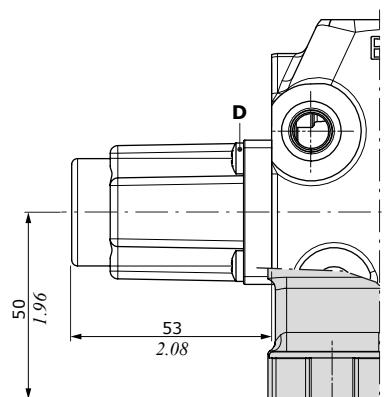
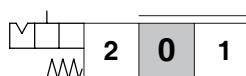
2 position (0-2), spring return in neutral position

**With detent control****R1 type**

3 position, detent in position 1

**R2 type**

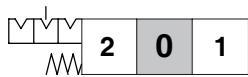
3 position, detent in position 2



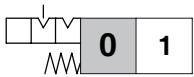
**Wrenches and tightening torques**  
 C = allen wrench 3 - 3 Nm (2.2 lbft)  
 D = cross-head - 3 Nm (2.2 lbft)

**Working section****B side controls****With detent control****R3 type**

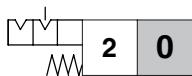
3 position,  
detent in all position

**R4 type**

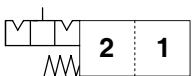
2 position,  
detent in position 0-1

**R5 type**

2 position,  
detent in position 0-2

**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

**Wrenches and tightening torques**

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

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

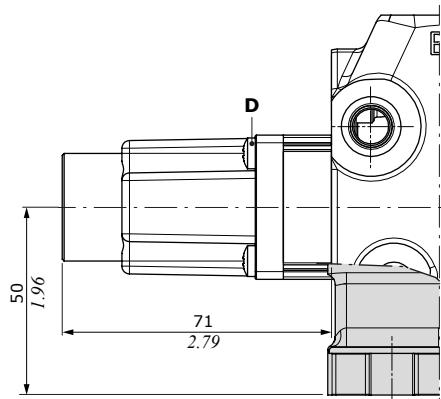
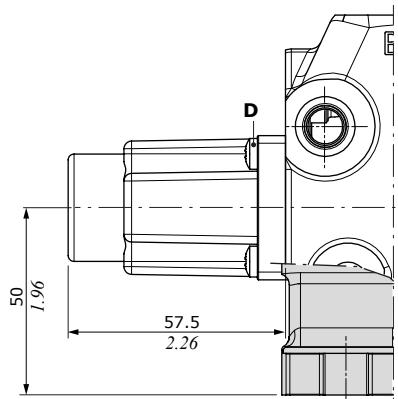
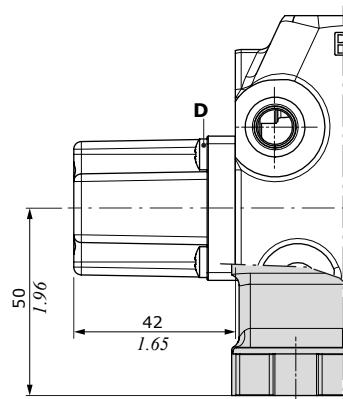
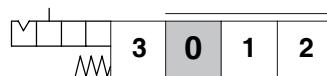
E = wrench 22 - 32 Nm (23.6 lbft)

F = wrench 16

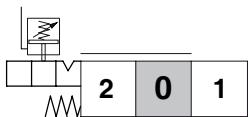
G = allen wrench 10 - 32 Nm (23.6 lbft)

**R10/Z1 type**

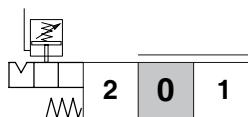
4 position, detent in 4<sup>th</sup> position  
for 126 floating spool type

**With detent control and kick out function****R1K type**

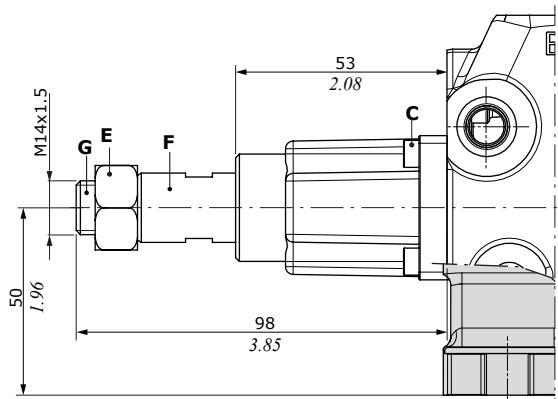
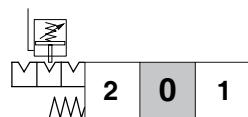
3 position, detent in position 1

**R2K type**

3 position, detent in position 2

**R3K type**

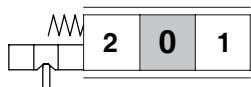
3 position, detent in all position



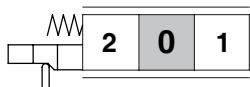
## Working section

**B side controls****With spool position microswitch****M1-N1 type**

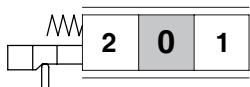
3 position, micro operation in position 1 and 2, spring return in neutral position

**M1-N1A type**

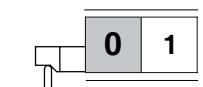
3 position, micro operation in position 1

**M1-N1B type**

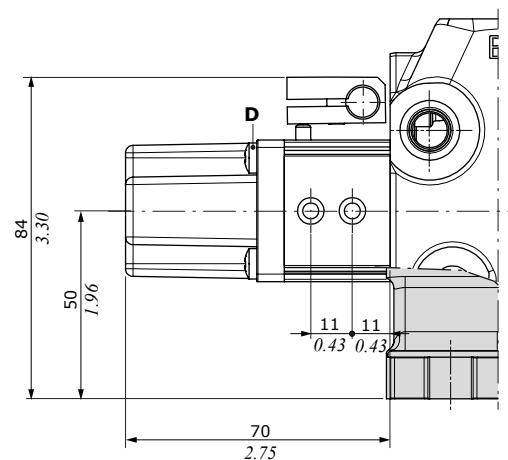
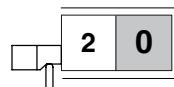
3 position, micro operation in position 2

**M2-N1 type**

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

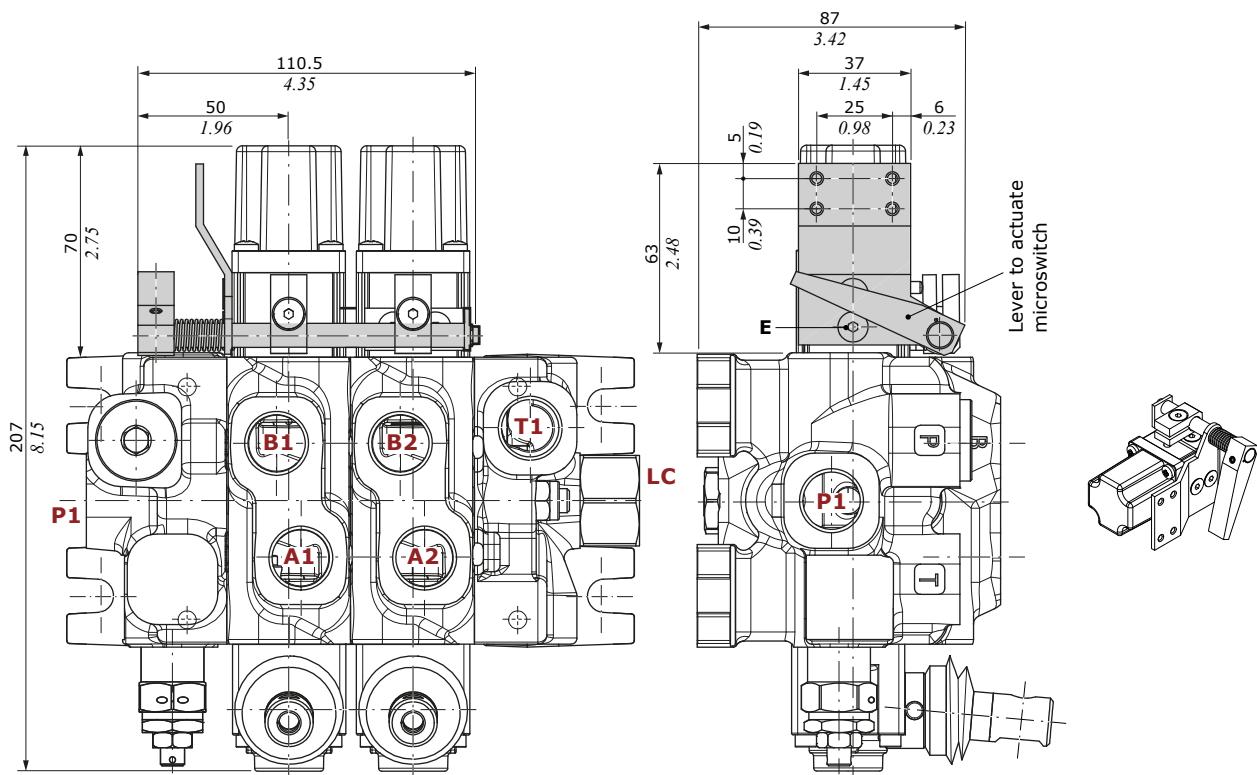
**M3-N1 type**

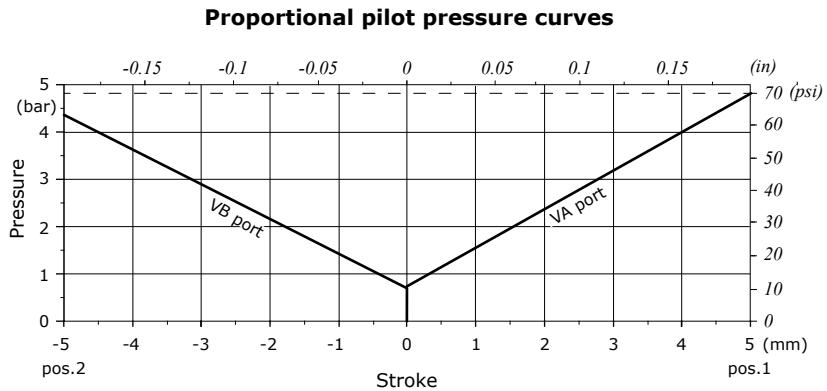
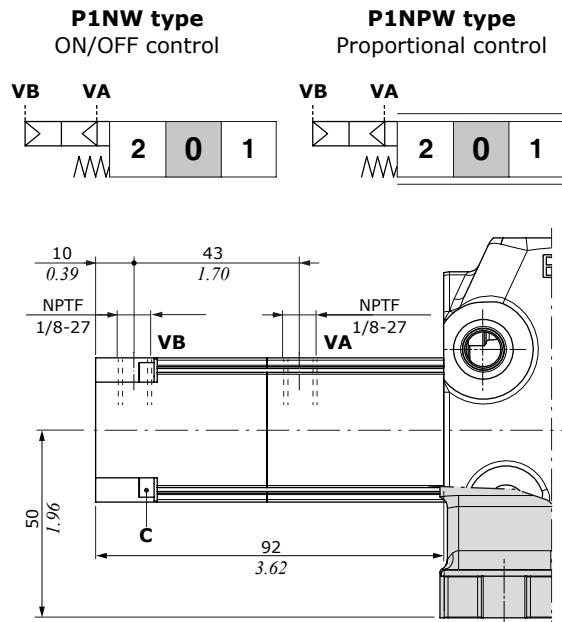
2 position (0-2), spring return in neutral position

**Wrenches and tightening torques**

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

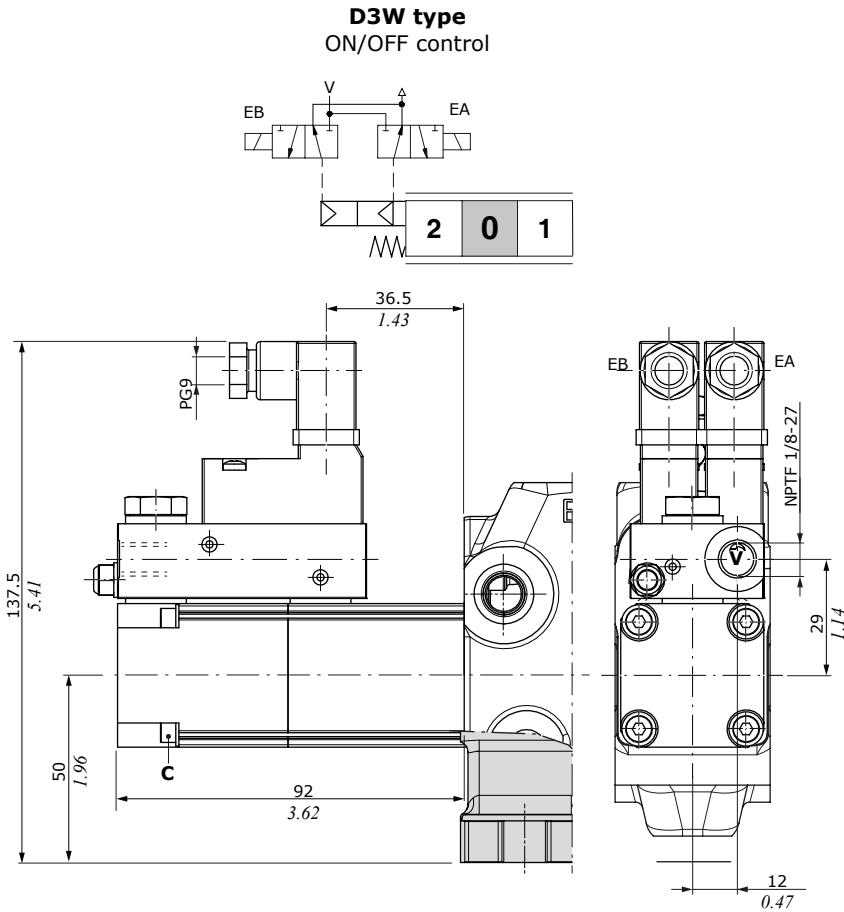
E = allen wrench 3 - 6.6 Nm (4.8 lbf ft)

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

**Working section****B side controls****With pneumatic control****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**

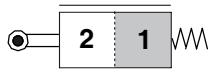
Nominal voltage tolerance....: -5% +10%  
Power rating..... : 2.3 W  
Nominal current..... : 12 VDC - 24VDC  
Coil insulation..... : Class F  
Weather protection..... : IP65  
Duty cycle..... : 100%

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

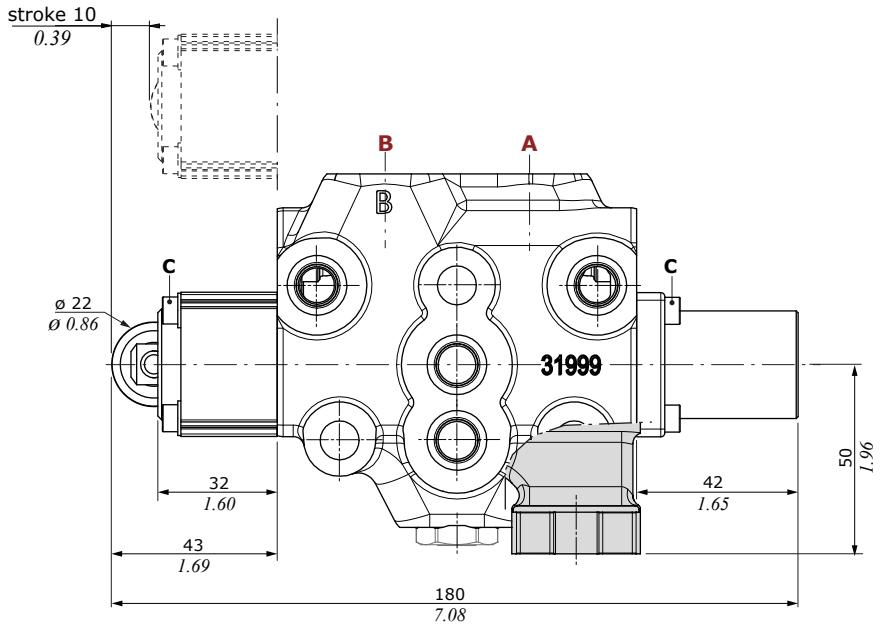
## Working section

**A+B side controls****With cam control**

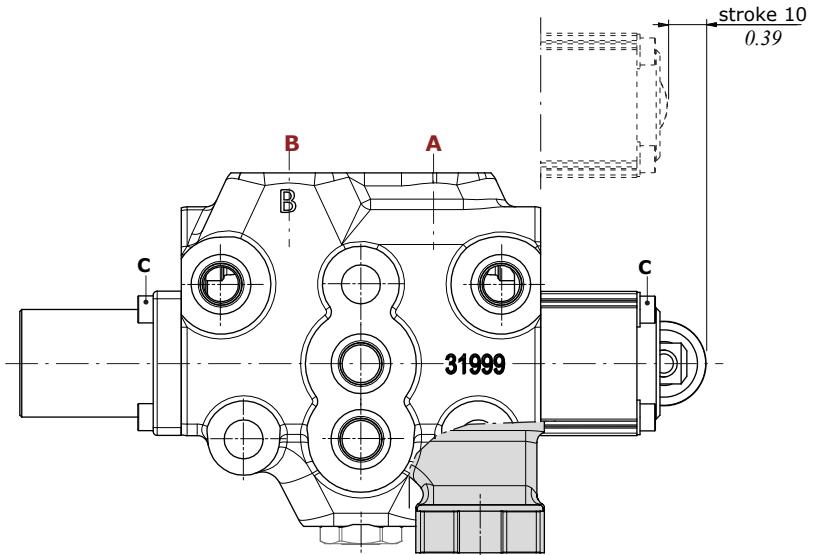
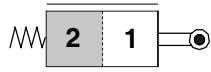
**C2 type**  
From position 1 to position 2,  
spring return in position 1



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

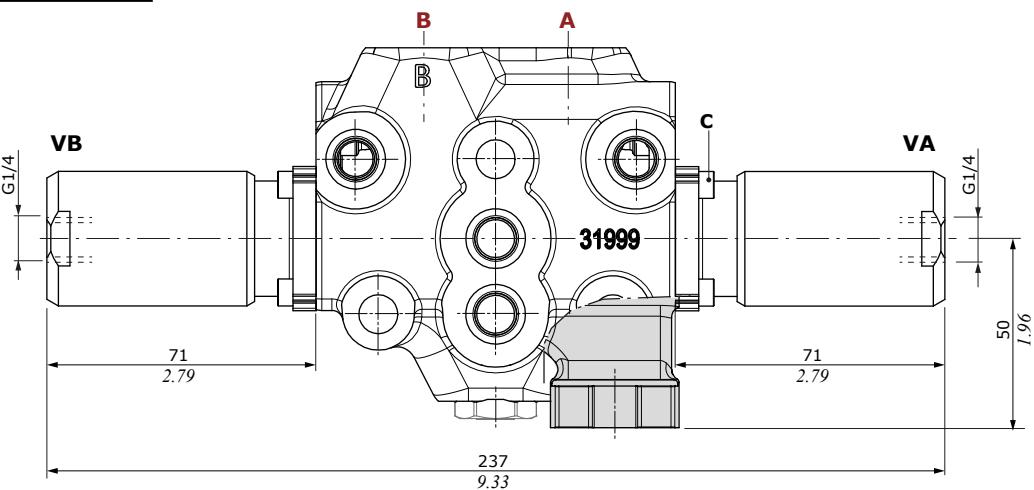
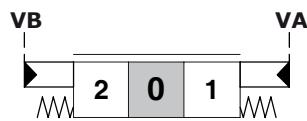


**C3 type**  
From position 2 to position 1,  
spring return in position 2.  
Dimensions are the same of C2 type



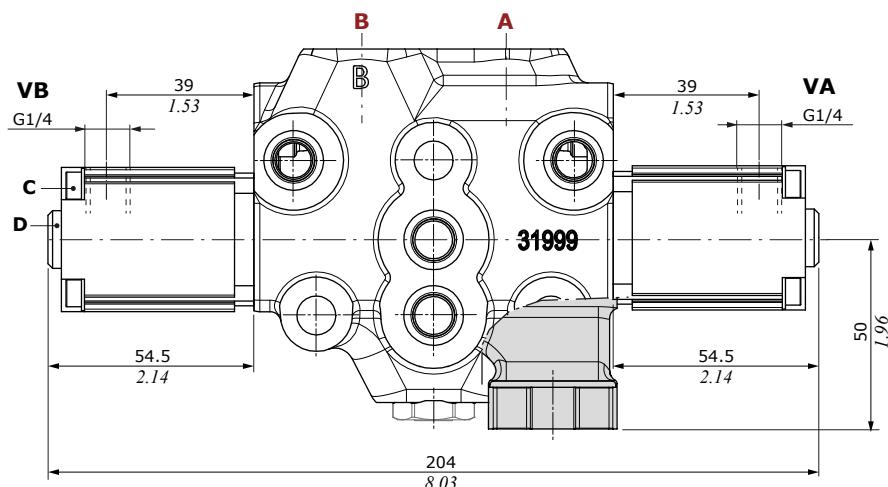
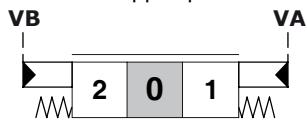
**Working section****A+B side controls****With proportional hydraulic controls**

**H1 type**  
High pressure control  
with side ports

**Operating features**

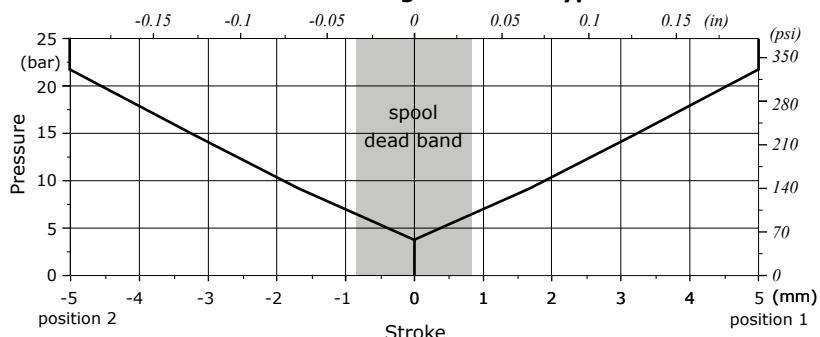
Pilot pressure..... : min. 16 bar (232 psi) - max. 350 bar (5070 psi)

**H5 type**  
Low pressure control  
with upper ports

**Operating features**

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

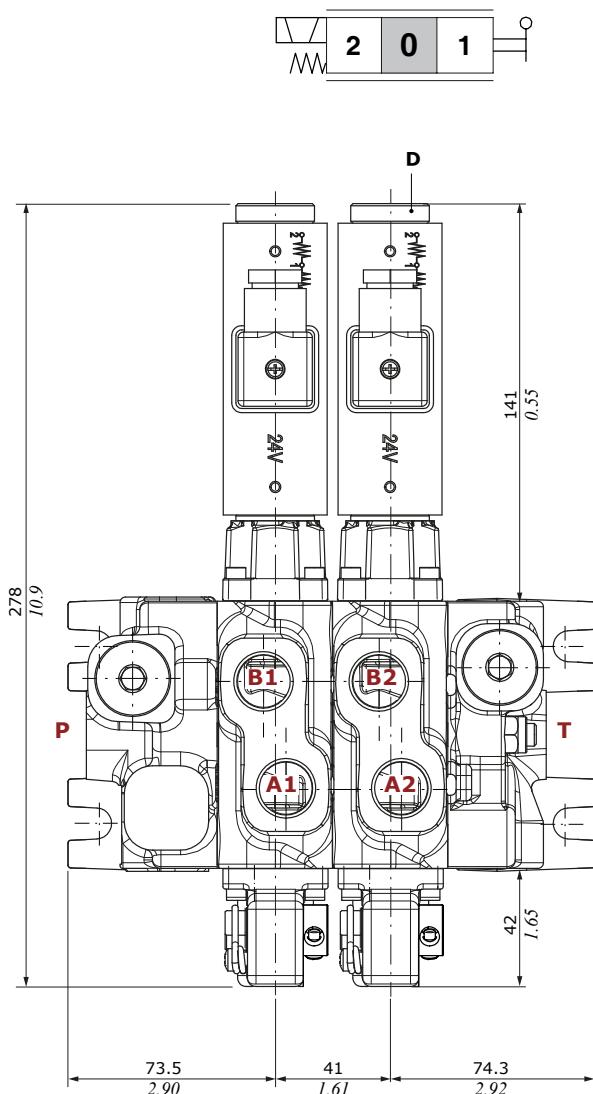
**Stroke vs. Pressure diagram for H5 type control**



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

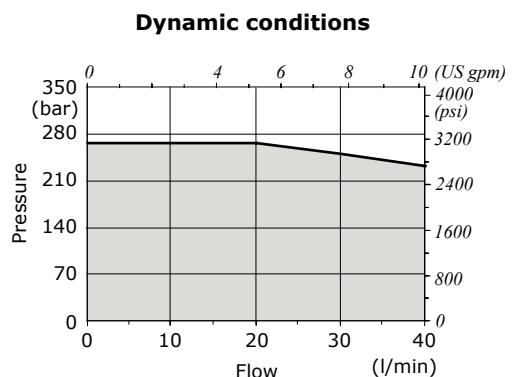
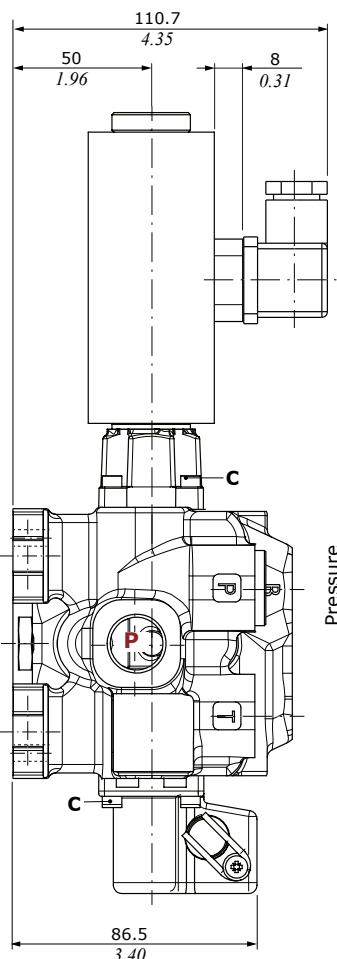
## Working section

## Direct solenoid control

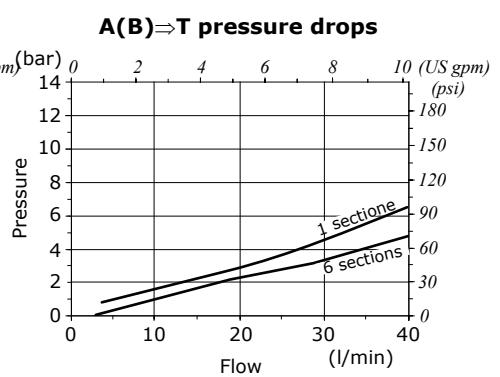
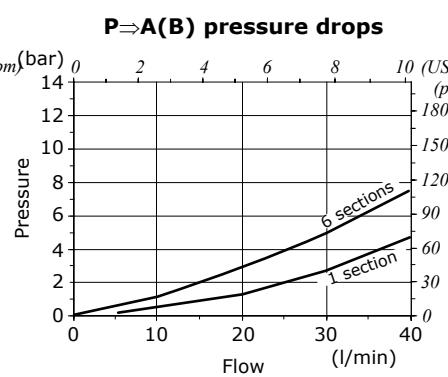
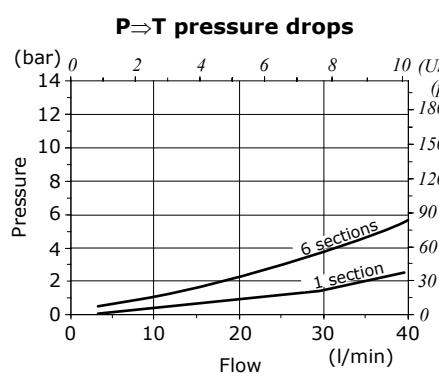
D41 type: ON/OFF one side

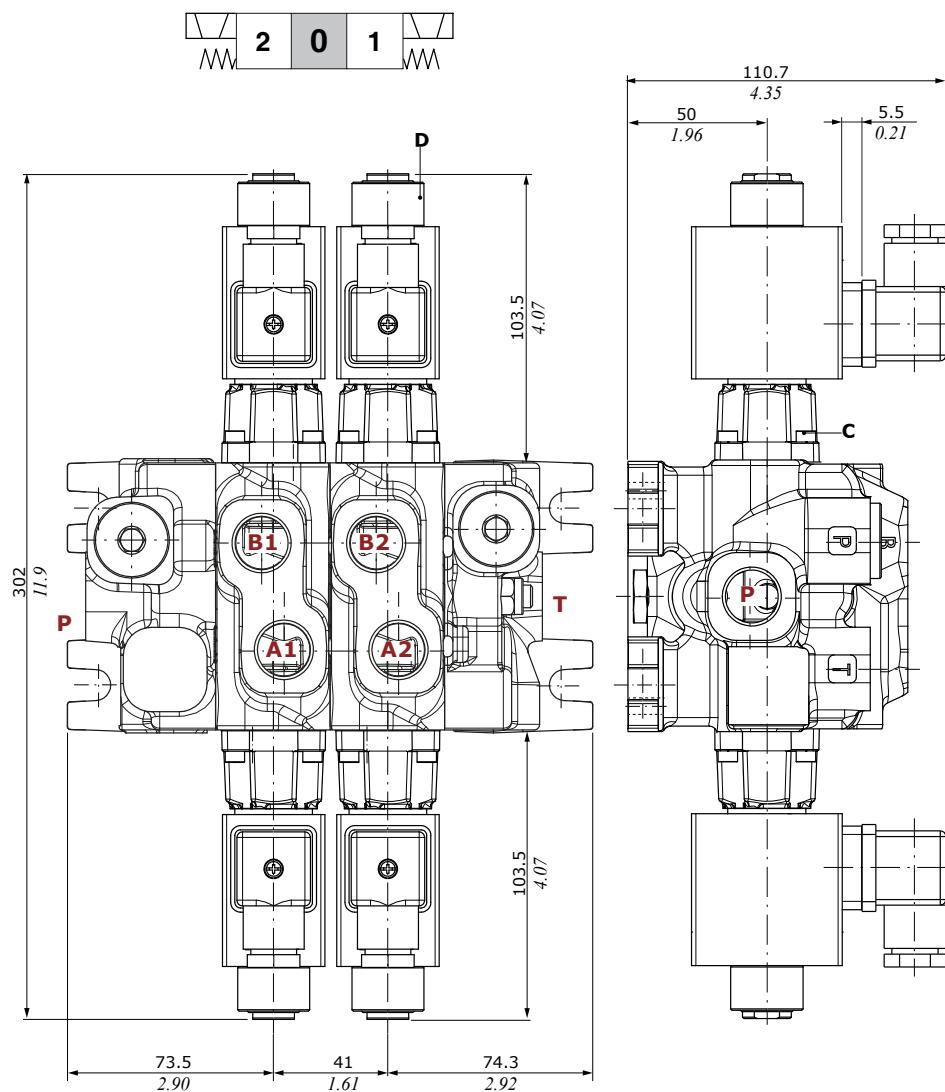
D41 coil	
Nominal voltage	12 VDC 24 VDC
Nominal voltage tolerance	$\pm 10\%$
Power rating	52 W
Insulation	Class H
Weather protection	IP65

Connector type: ISO4400 3P+T-PG11



**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
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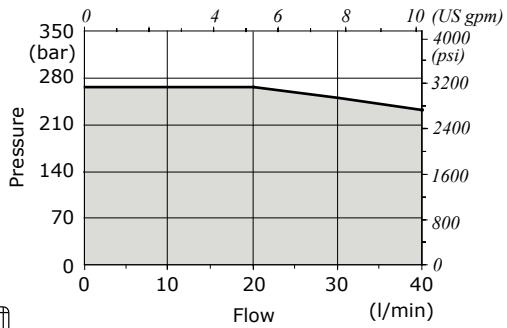
Nominal voltage tolerance	$\pm 10\%$
---------------------------	------------

Power rating	58 W
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Insulation	Class H
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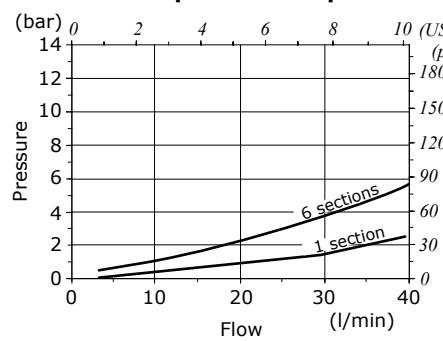
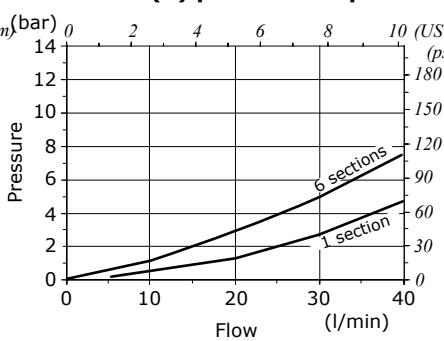
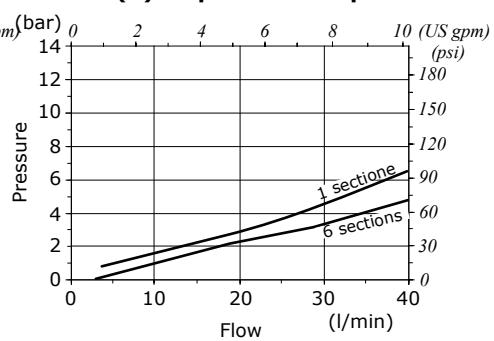
Weather protection	IP65
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Connector type: ISO4400 3P+T-PG11

**Dynamic conditions****Wrenches and tightening torques**

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

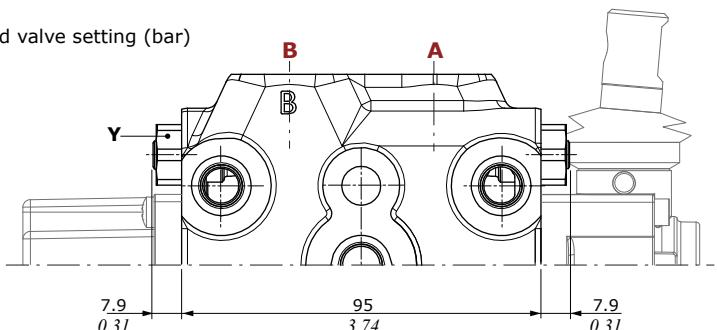
D = manual tightening - 6.6 Nm (4.8 lbft)

**P⇒T pressure drops****P⇒A(B) pressure drops****A(B)⇒T pressure drops**

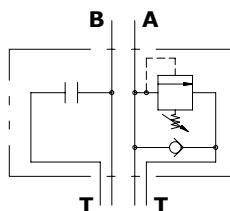
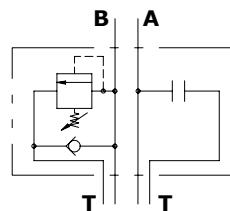
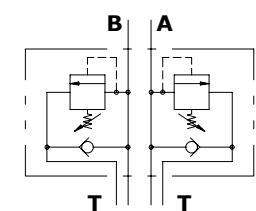
**Auxiliary valve configuration****Dimensional data, hydraulic circuits and performance data****Description example**

aux valve      spring type and valve setting (bar)  
 GSV50 / 1 / ... / 103 - A1 - M1 - **V32(N)120** / ...

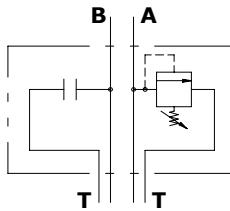
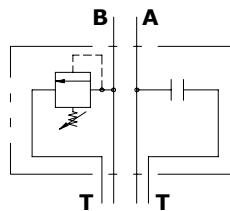
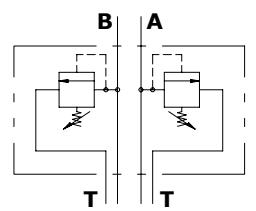
**Wrenches and tightening torques**  
 Y = wrench 16 - 20 Nm (14.7 lbf ft)

**Antishock/anticavitation valve example**

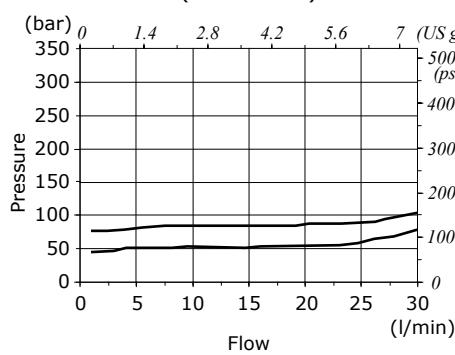
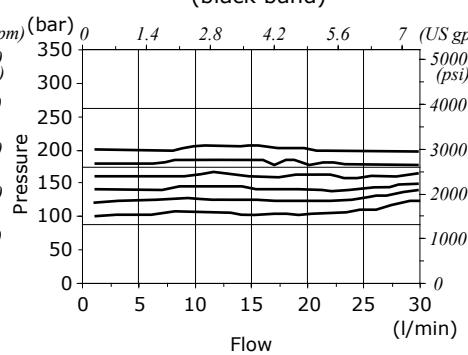
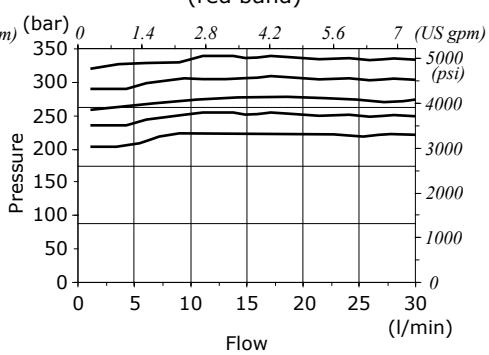
**A side configuration:**    **B side configuration:**    **A+B side configuration:**

**V33****V34****V35 (V34 + V33)****Antishock valve example**

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

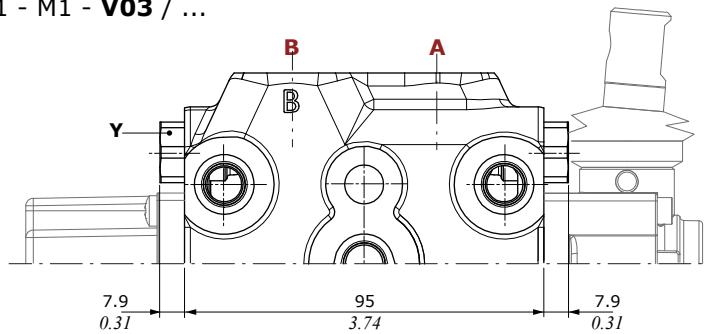
**V30****V31****V32 (V30 + V31)****Spring type      Setting ranges (bar - psi)**

<b>B</b> (white)	From 50 to 80 - from 725 to 1150
<b>N</b> (black)	From 81 to 200 - from 1170 to 2900
<b>R</b> (red)	From 201 to 350 - from 2910 to 5100

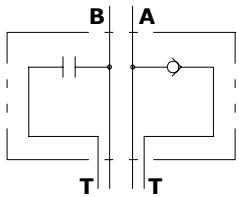
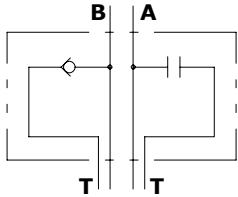
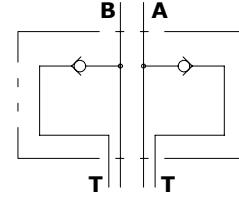
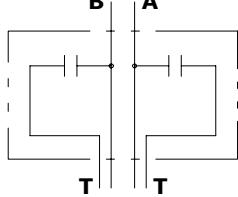
**Setting range example  
(white band)****Setting range example  
(black band)****Setting range example  
(red band)**

**Auxiliary valve configuration****Dimensional data and hydraulic circuits****Anticavitation valve example**

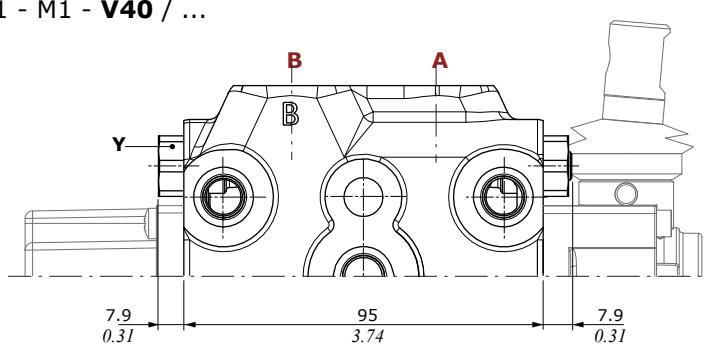
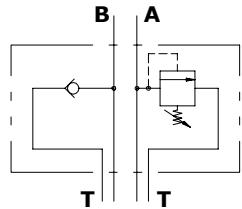
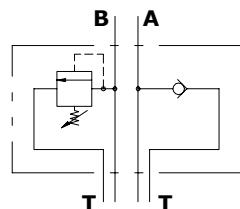
aux valve  
Q30 / 1 / ... / 103 - A1 - M1 - **V03** / ...



**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 valves:****VC****Antishock and anticavitation combining valves example**

aux valve  
Q30 / 1 / ... / 103 - A1 - M1 - **V40** / ...

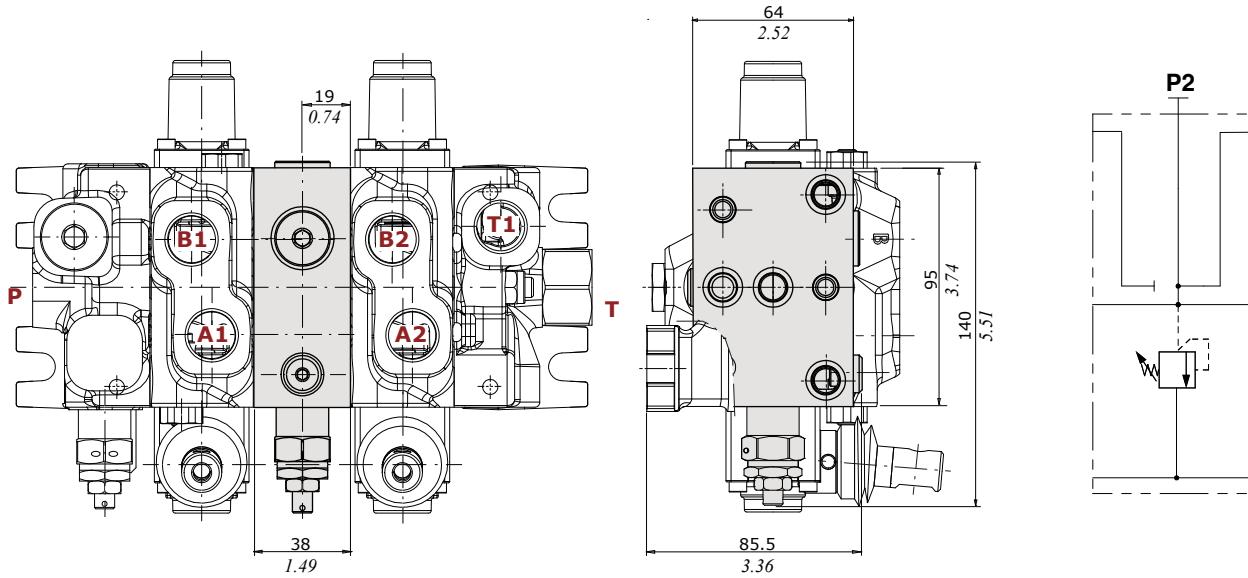
**A side configuration:****V40 (V30 + V05)****B side configuration:****V41 (V31 + V04)**

## Intermediate section

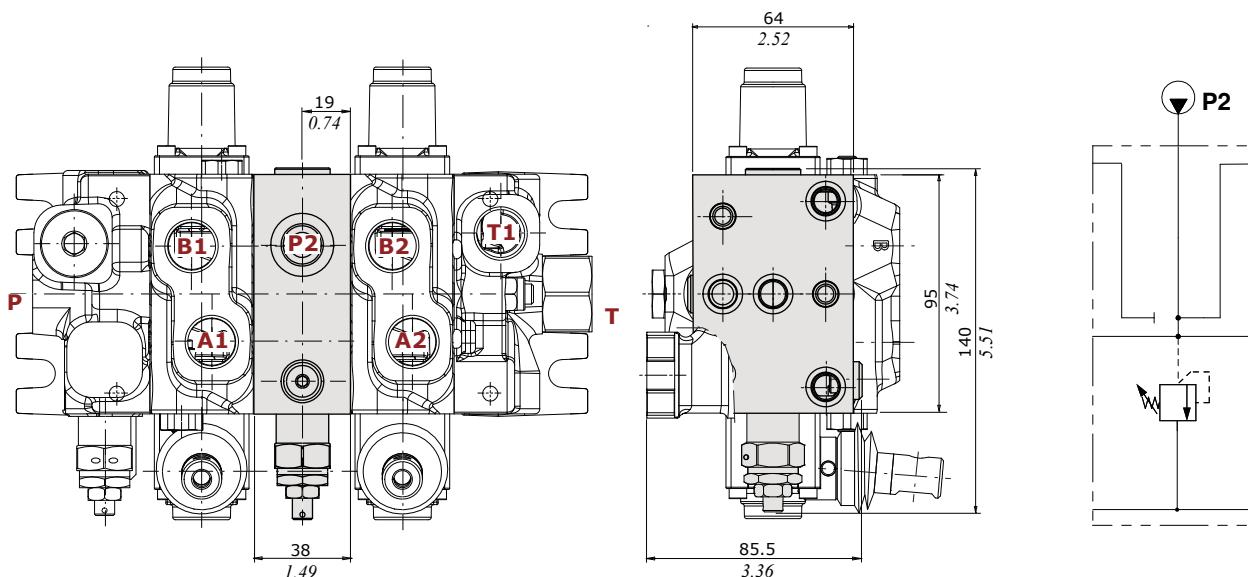
## Dimensional data and hydraulic circuit

**E50 type**

Intermediate inlet section with pressure relief valve

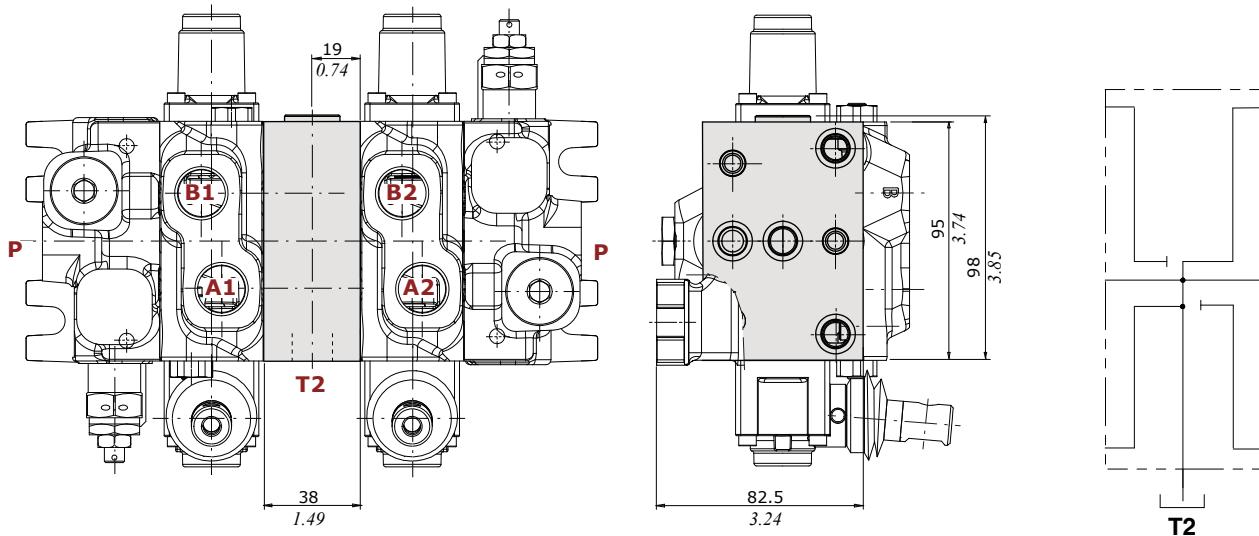
Description example: GSV50/2/F7S(N150)/103-A1-M1.VC/**E50(N150)**/103-A1-M1/F3D-Sintermediate spring type and valve setting (bar)  
section**E53 type**

Intermediate inlet section with pressure relief valve and P2 port open

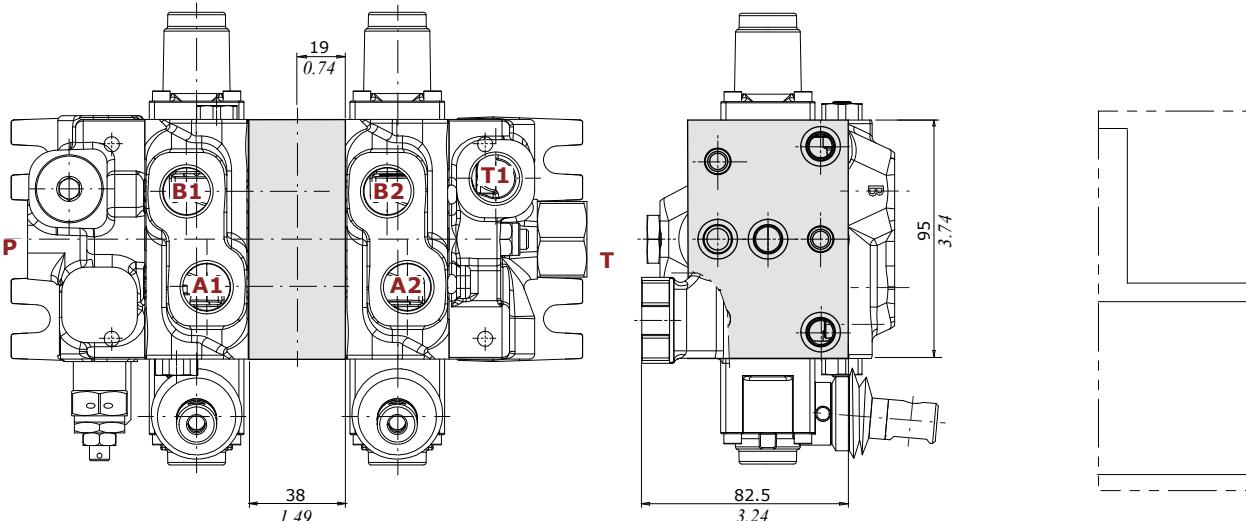
Description example: GSV50/2/F7S(N150)/103-A1-M1.VC/**E53(N150)**/103-A1-M1/F3D-Sintermediate spring type and valve setting (bar)  
section

**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-Sintermediate  
section**E61 type**

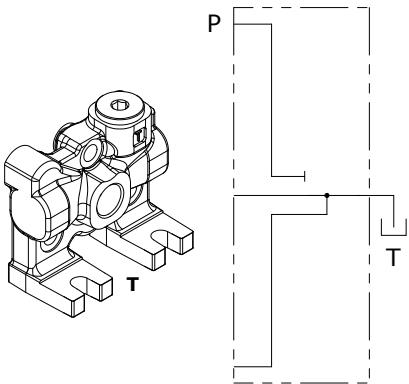
Intermediate spacer section

Description example: GSV50/2/F7S(N150)/103-A1-M1.VC/**E61**/103-A1-M1/F3D-Sintermediate  
section

## **-Outlet section**

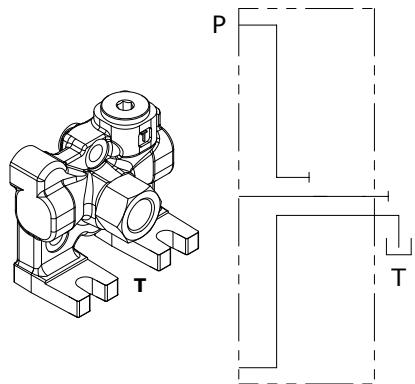
## **F3D configuration**

Open center configuration

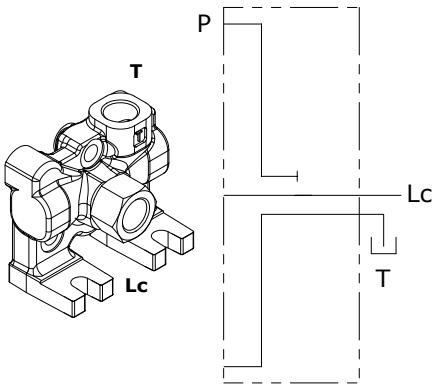


## **F16D configuration**

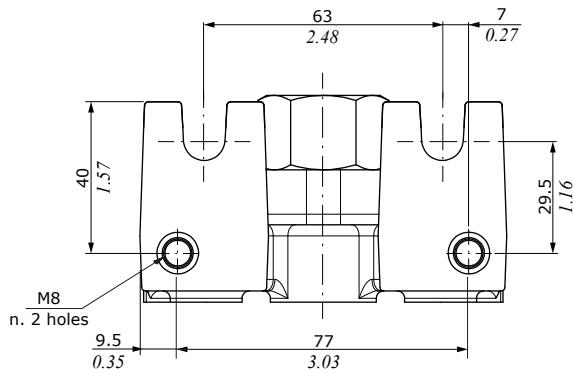
Closed center configuration



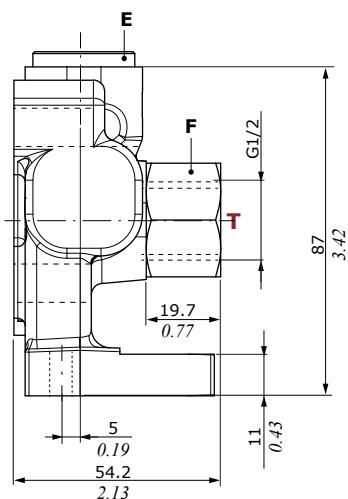
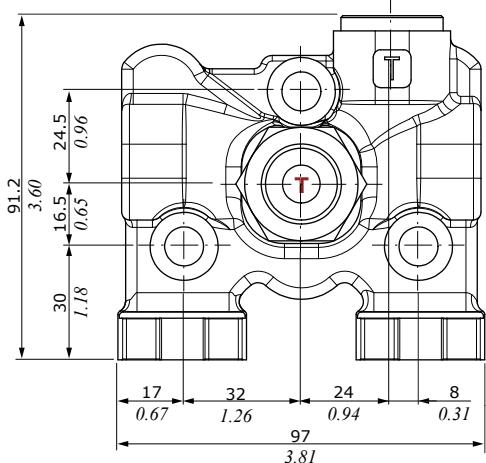
**F6D configuration**  
Carry-over configuration



## F16D configuration example



**Wrenches and tightening torques**  
E = allen wrench 8 - 42 Nm (30.9 lbft)  
F = wrench 30 - 42 Nm (30.9 lbft)







## 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  $46 \text{ mm}^2/\text{s}$  -  $46 \text{ cSt}$  viscosity at  $40^\circ\text{C}$  -  $104^\circ\text{F}$  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 <b>A(B)⇒T</b>	$\Delta p = 100 \text{ bar}$ (1450 psi)	6 $\text{cm}^3/\text{min}$ (0.36 $\text{in}^3/\text{min}$ )
Fluid		Mineral oil
Fluid temperature	with NBR (BUNA-N) seals	from $-30^\circ\text{C}$ to $80^\circ\text{C}$ - from $-22^\circ\text{F}$ to $176^\circ\text{F}$
Viscosity	operating range	from 10 to 400 $\text{mm}^2/\text{s}$ - from 10 to 400 $\text{cSt}$
Max. contamination level		16/14/12 - ISO 4406 - NAS1638 class 6
Ambient temperature	without electric devices	from $-40^\circ\text{C}$ to $60^\circ\text{C}$ - from $40^\circ\text{F}$ to $140^\circ\text{F}$
	with electric devices	from $-20^\circ\text{C}$ to $50^\circ\text{C}$ - from $-4^\circ\text{F}$ to $122^\circ\text{F}$

NOTE - For different conditions please contact our Sales Department.

#### REFERENCE STANDARD

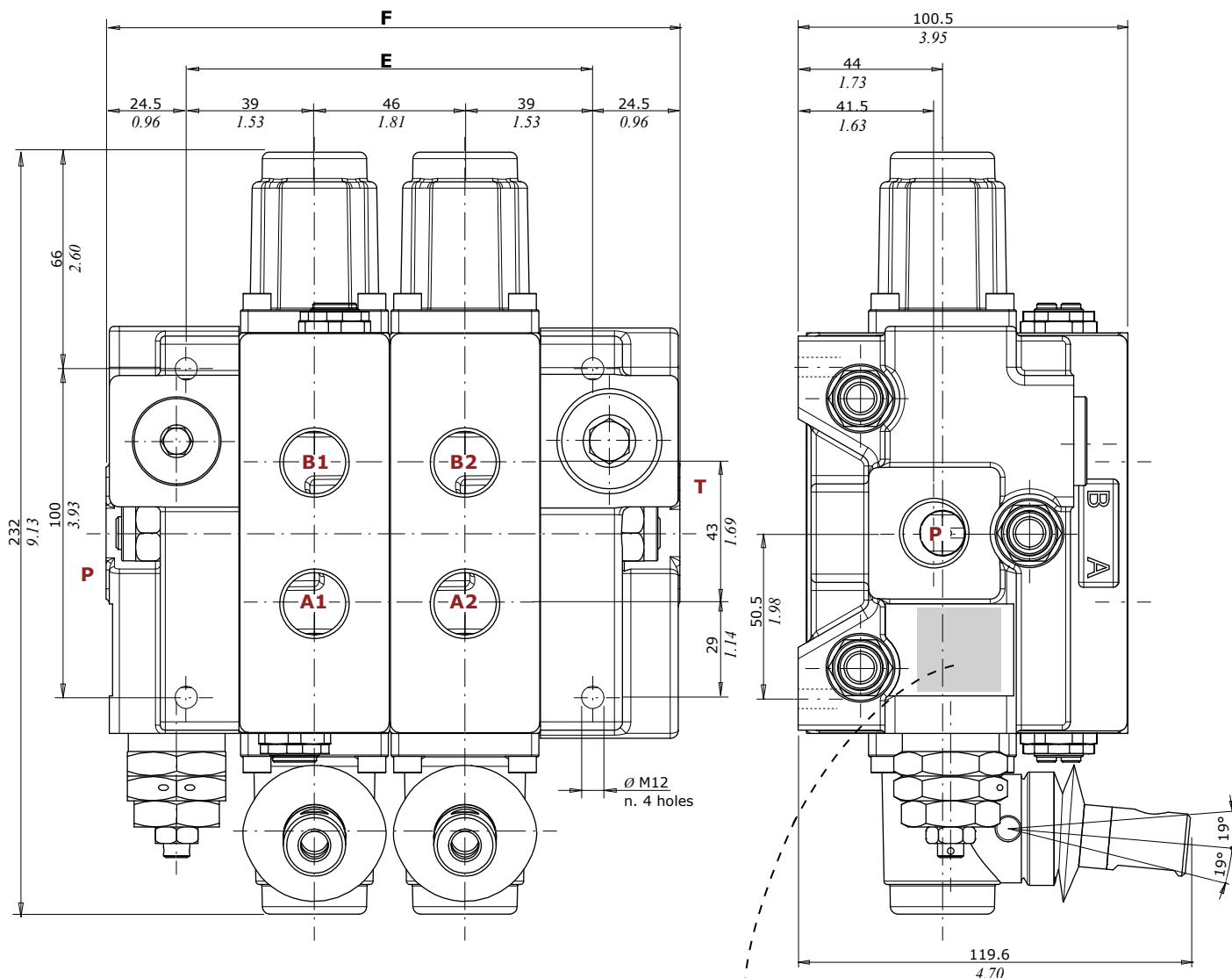
	BSP	UN-UNF
THREAD ACCORDING TO	ISO 228/1 BS 2779	ISO 263 ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO SAE DIN	11926 J11926 3852-2 shape X or Y

#### PORT THREADING

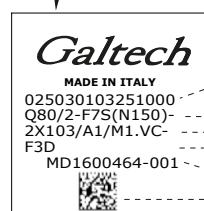
POR TS	BSP (standard)	BSP (G 3/4)	UN-UNF
<b>P</b> Inlet	G 1/2	G 3/4	7/8-14 (SAE 10)
<b>P1</b> Inlet	G 1/2	G 3/4	7/8-14 (SAE 10)
<b>A</b> and <b>B</b> ports	G 1/2	G 3/4	3/4-16 (SAE 8)
<b>T</b> Outlet	G 3/4	G 3/4	1" 1/16-12 (SAE12)
<b>T1</b> Outlet	G 3/4	G 3/4	7/8-14 (SAE 10)
<b>Lc</b> port (Carry-over plug - <b>T</b> 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 mm	E in	F mm	F in
<b>Q80/1</b>	78	3.07	127	5
<b>Q80/2</b>	124	4.88	173	6.81
<b>Q80/3</b>	170	6.69	219	8.62
<b>Q80/4</b>	216	8.50	265	10.43
<b>Q80/5</b>	262	10.31	311	12.24
<b>Q80/6</b>	308	12.12	357	14.05
<b>Q80/7</b>	354	13.93	403	15.86
<b>Q80/8</b>	400	15.74	449	17.67
<b>Q80/9</b>	446	17.56	495	19.48
<b>Q80/10</b>	492	19.37	541	21.3



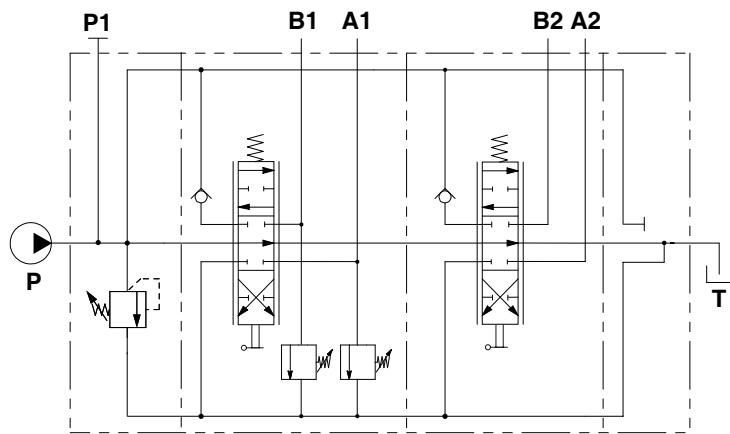
Product code

Customer reference or code description

Product allotment

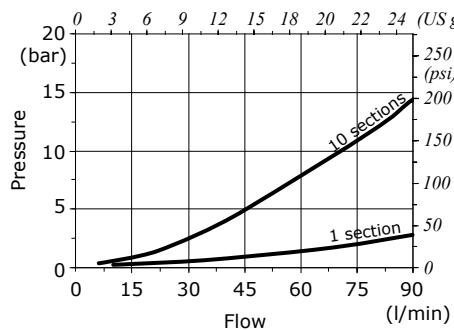
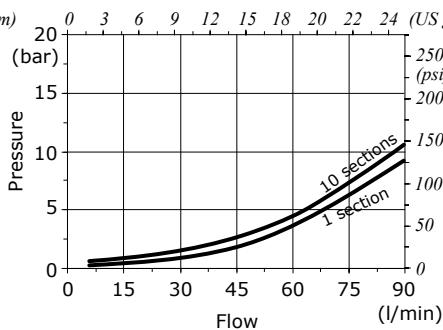
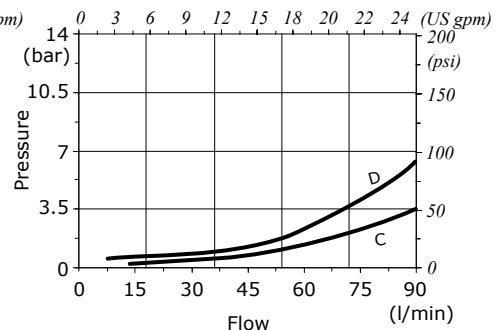
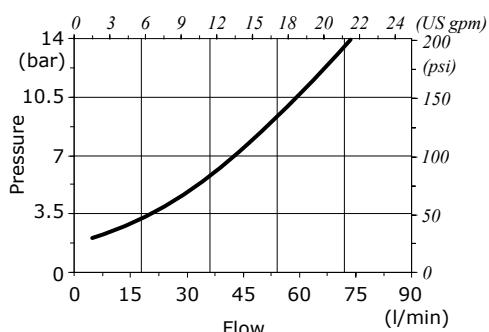
Datamatrix with product allotment

NOTE: Drawings and dimensions are referred to a **BSP** 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

## 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

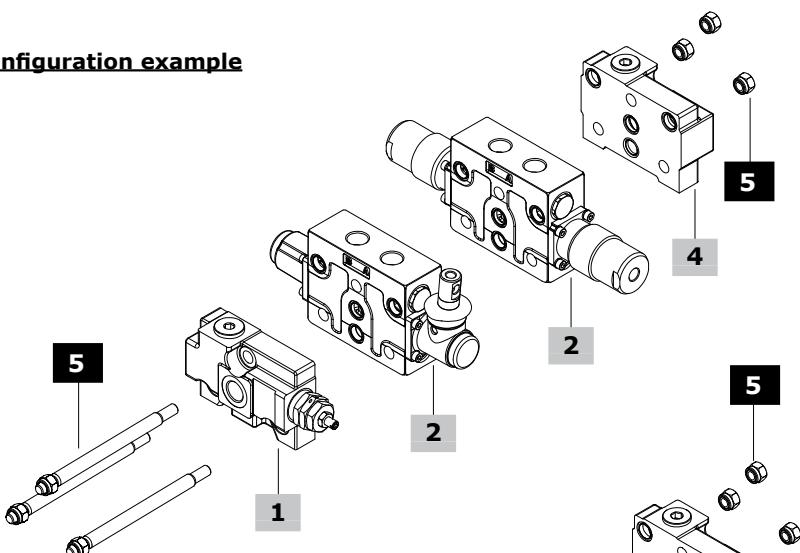
valve setting (bar)

**Q80 / 2 / F7S(N150) / 103 - A1 - M1 . VC**

N. of section      1      2

**/ 103 - H1 . VC / F3D**

2      4

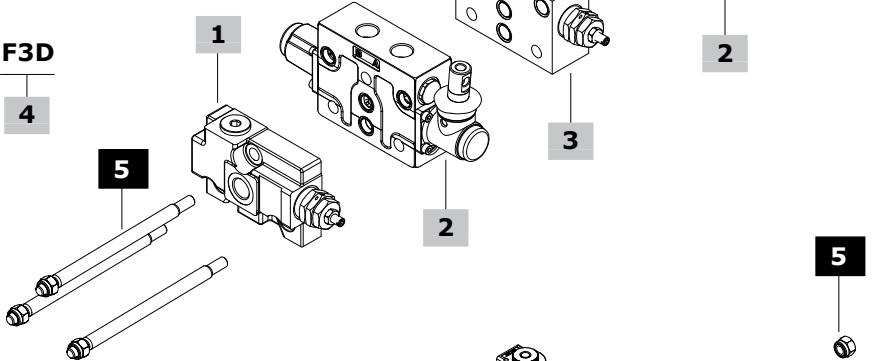
Valve with intermediate section and mechanical control configuration example

valve setting (bar)      1      2

**Q80 / 2 / F7S(N150) / 103 - A1 - M1 . VC**

**/ E50(N150) / 103 - A1 - M1 . VC / F3D**

3      2      4

Valve with electrohydraulic control configuration example

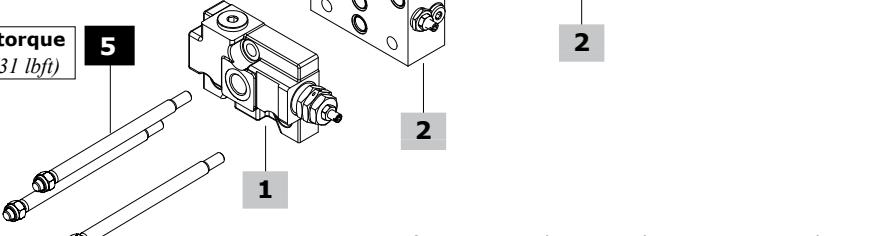
**Q80 / 2 / F7S(N150) / KE2R / 103 - A1 - D2W . VC**

1      2

**/ 103 - A1 - D2W . VC / F3D - 12VDC**

2      4      2

Tie rod tightening torque  
wrench 17 - 42 Nm (31 lbf ft)



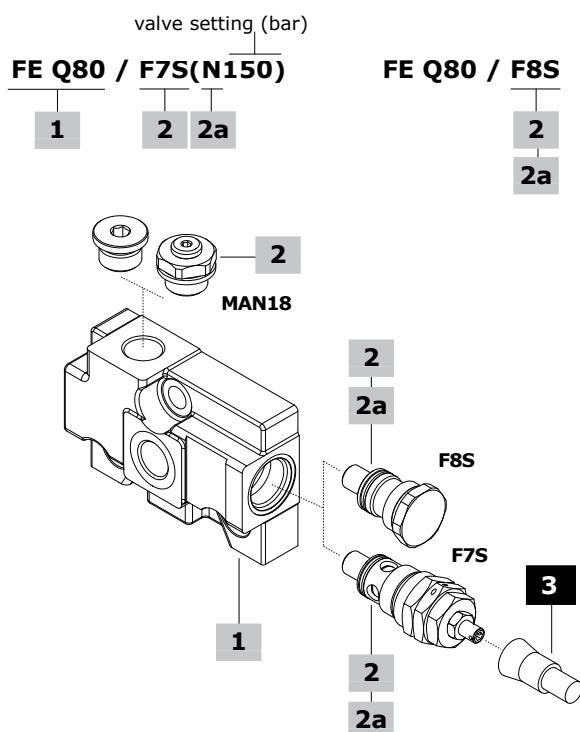
**N.B.:** For configurations with intermediate section, use the same tie rods for std. configuration (example: for 2 working sections + 1 intermediate section, use tie rods for 3 working sections)

## Complete section ordering codes

<b>1 Inlet section*</b>	<b>page 188</b>	<b>3 Intermediate section*</b>	<b>page 217</b>
TYPE: <b>FE-Q80/F7S(N150)</b>	CODE: 08000F7S/D-N		
DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve, setting range 101-200 bar (1460-2900 psi)			
TYPE: <b>FE-Q80/F8S</b>	CODE: 08003F8S/D		
DESCRIPTION: As previous one, without valves (pressure relief valve plugged port)			
<b>2 Working section*</b>	<b>page 190</b>	<b>4 Outlet section*</b>	<b>page 219</b>
<b>With mechanical controls</b>		<b>With proportional hydraulic controls</b>	
TYPE: <b>EL-Q80/103-A1-M1.VC</b>	CODE: SGL800007	TYPE: <b>FS-Q80-F3D</b>	CODE: 08012F3D
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, lever control and spring return to neutral position		DESCRIPTION: T port open, T1 port plugged. For open center circuit	
TYPE: <b>EL-Q80/103-A1-M1</b>	CODE: 080000103001000	TYPE: <b>FS-Q80-F16D</b>	CODE: 08016F16D
DESCRIPTION: As previous one, without valve arrangement		DESCRIPTION: T port open, T1 port plugged. For closed center circuit	
<b>With proportional hydraulic controls</b>		TYPE: <b>FS-Q80-F6D</b>	CODE: 08014F6D
TYPE: <b>EL-Q80/103-H1.VC</b>	CODE: SGL800008	DESCRIPTION: Lc port and T1 port open. With joint for carry-over (HPCO) circuit	
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, high pressure hydraulic controls, spring return to neutral position			
TYPE: <b>EL-Q80/103-H1</b>	CODE: SGL800009		
DESCRIPTION: As previous one, without valve arrangement			
TYPE: <b>EL-Q80/103-H5.VC</b>	CODE: SGL800011		
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, low pressure hydraulic controls, spring return to neutral position			
TYPE: <b>EL-Q80/103-H5</b>	CODE: SGL800012		
DESCRIPTION: As previous one, without valve arrangement			
<b>With electric solenoid controls - one side type</b>		<b>5 Tie rod kit</b>	
TYPE: <b>EL-Q80/103-A1-D41.VC-12VDC</b>	CODE: SGL800010	CODE	DESCRIPTION
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct ON/OFF control with lever		08901TX1	For 1 section valve
TYPE: <b>EL-Q80/103-A1-D41-12VDC</b>	CODE: SGL800013	08902TX2	For 2 sections valve
DESCRIPTION: As previous one, without valve arrangement		08903TX3	For 3 sections valve
<b>With electrohydraulic ON/OFF controls - one side type</b>		08904TX4	For 4 sections valve
TYPE: <b>EL-Q80/KE1S/103-A1-D2W.VC -12VDC</b>	CODE: SGL800014	08905TX5	For 5 sections valve
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		08906TX6	For 6 sections valve
TYPE: <b>EL-Q80/KE1S/103-A1-D2W-12VDC</b>	CODE: SGL800015	08907TX7	For 7 sections valve
DESCRIPTION: As previous one, without valve arrangement		08908TX8	For 8 sections valve
		08909TX9	For 9 sections valve
		08910TX10	For 10 sections valve

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

## Inlet section - parts ordering codes



## 1 Inlet body section\*

page 188

TYPE: **FE-Q80**

CODE: 060012741799

DESCRIPTION: Side inlet port, upper inlet plugged, pressure relief valve arrangement

## 2 Configuration coding\*

page 188

TYPE DESCRIPTION

**F7S** With pressure relief valve**F8S** Without valves (pressure relief valve plugged port)**Note:** Inlet configurations require upper P port:

n. 1 G1/2 plug code 060002792099, or n. 1 pressure gauge arrangement code 5MAN627240

## 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)

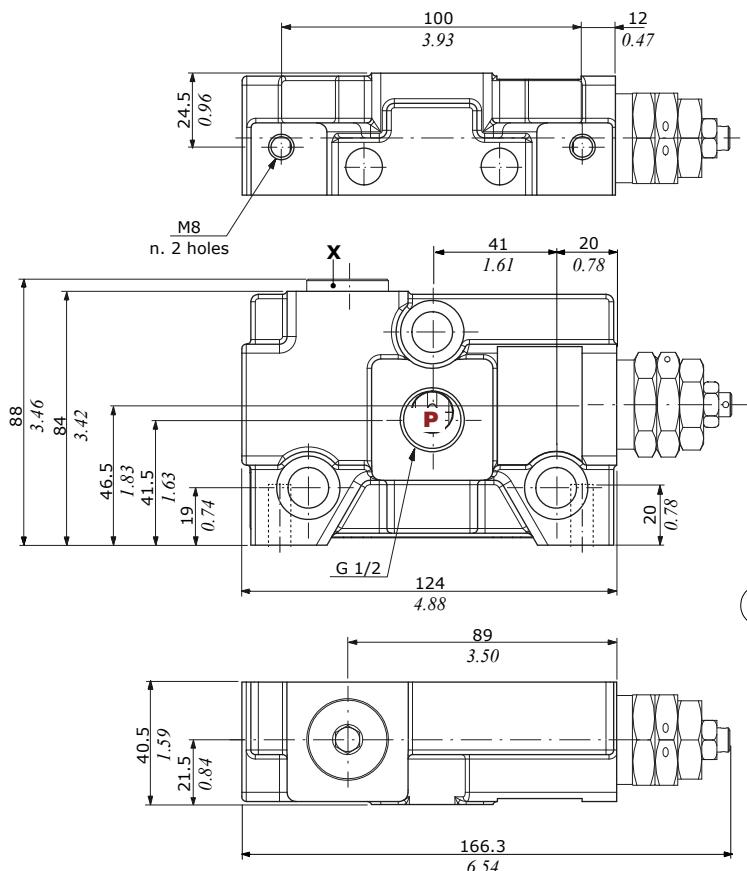
TYPE: - CODE: 060002788999

DESCRIPTION: Relief valve blanking plug

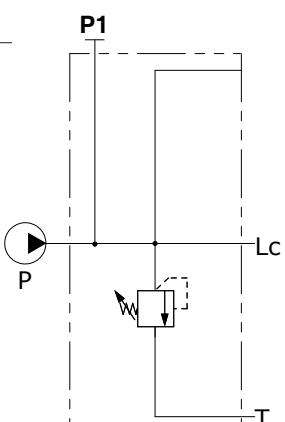
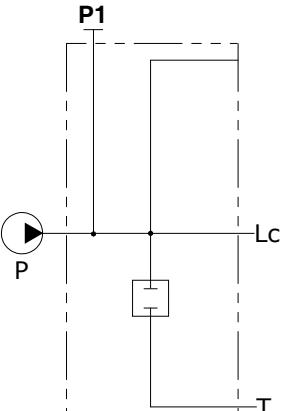
## 3 Accessory

TYPE CODE DESCRIPTION  
- 4COP120420 Antitamper cap for pressure relief valve(\*): Codes are referred to **BSP** thread

## Dimensional data and hydraulic circuits


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

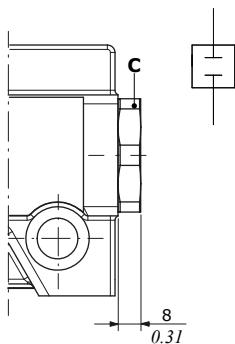
**Note:** For valves wrench and torque, see related pages

**F7S configuration**  
With pressure relief valve (pressure relief valve plugged port)

**F8S configuration**  
Without valves


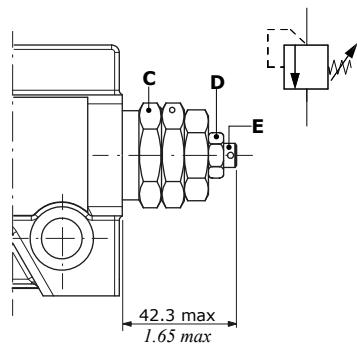
## Inlet section

## Main pressure relief valve

Relief valve blanking plug



Main pressure relief valve



## Wrenches and tightening torques

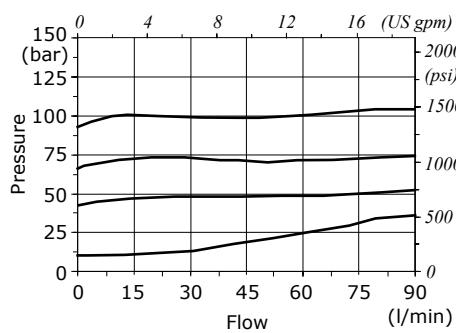
C = wrench 30 - 80 Nm (59 lbft)

D = wrench 13 - 24 Nm (17.7 lbft)

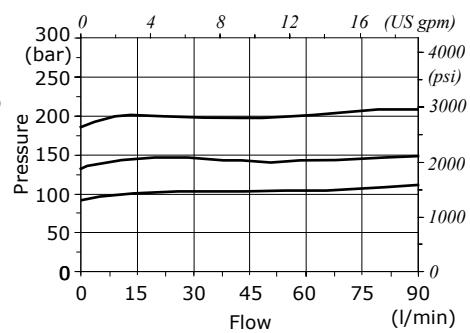
E = allen wrench 4

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

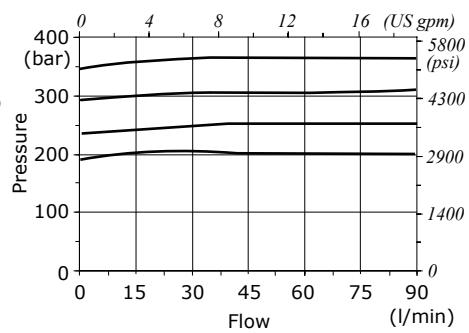
Setting example (B type spring)



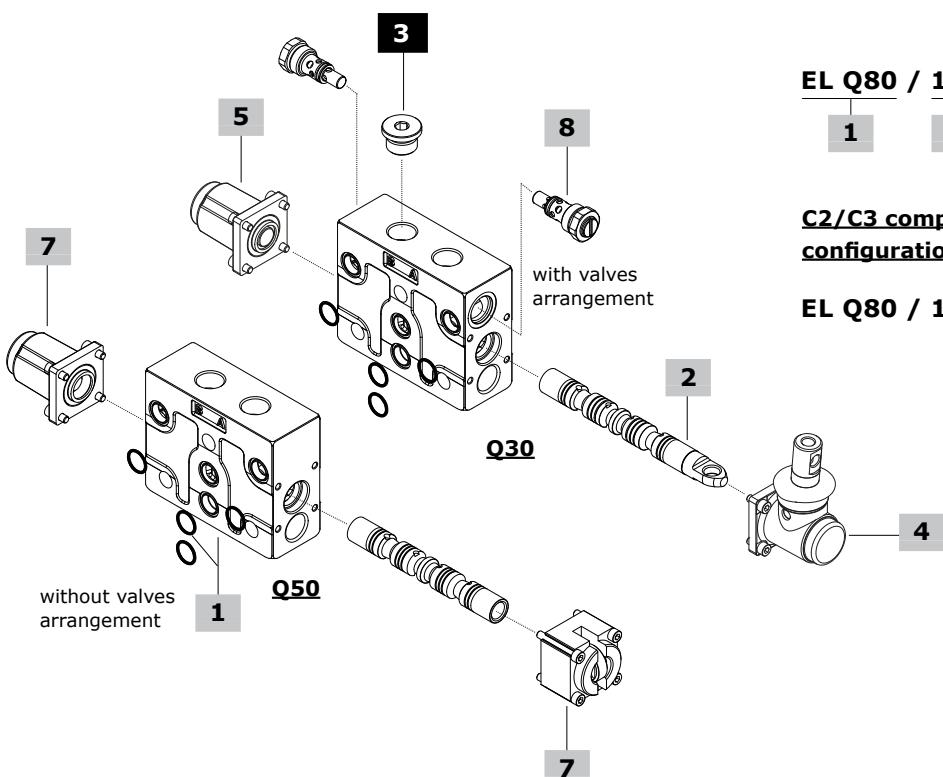
Setting example (N type spring)



Setting example (R type spring)



## Working section - parts ordering codes

Mechanical control valve configuration example

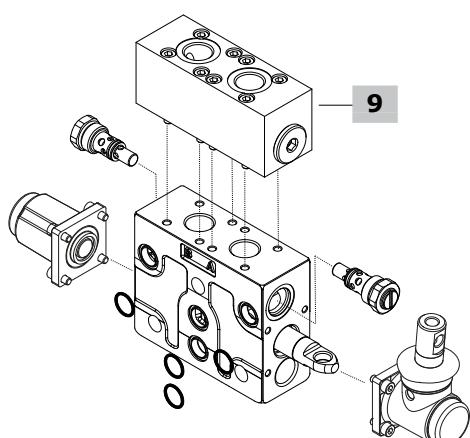
spring type and valve setting (bar)  
**EL Q80 / 102 - A1 - M1 . V40(N)120**  
 1      2      4      5      8

C2/C3 complete mechanical control configuration example

**EL Q80 / 103 - C3 . V40(N)120 8**  
 7

Mechanical control valve with arrangement for secondary aux valves block: configuration example

**EL Q80 / 103 - A1 - M1 . V40(N)120 / VC03**  
 9



## Working section - parts ordering codes

**1 Working section body kit\*** page 196

TYPE: <b>EL-Q80.VC</b>	CODE: 5EL0600127860
DESCRIPTION: Parallel circuit, with port valves arrangement	
TYPE: <b>EL-Q80</b>	CODE: 5EL0600127723
DESCRIPTION: Parallel circuit, without port valves arrangement	
TYPE: <b>EL-Q80.VC.VPC</b>	CODE: 5EL0600128363
DESCRIPTION: Parallel circuit with port valves arrangement, for secondary aux valves block	
TYPE: <b>EL-Q80.VC</b>	CODE: 5EL0600127563
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. G1/2 plug is required, see #3
<b>102</b>	3CUG2891901	Single acting on port B. G1/2 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
-	060002792099	G1/2 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>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
<u>For types 103 and 111 special spools</u>		
<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 **BSP** thread

(¹): Always complete with lever knob

(²): To be assembled only with M4 control

**Working section - parts ordering codes**

<b>5</b>	<b>B side control (cont.)</b>	<b>page 203</b>	<b>8</b>	<b>Auxiliary port valve</b>	<b>page 214</b>
TYPE	CODE	DESCRIPTION	TYPE	CODE	DESCRIPTION
<u>With detent and kick out function:</u>			<u>Antishock valve:</u>		
<b>R1K</b>	08741R1K	3 pos., detent in position 1	<b>V30-B</b>	08800V30-B	Setting range: from 30 to 80 bar (from 435 to 1150 psi)
<b>R2K</b>	08742R2K	3 pos., detent in position 2	<b>V30-N</b>	08800V30-N	Setting range: from 81 to 200 bar (from 1170 to 2900 psi)
<b>R3K</b>	08743R3K	3 pos., detent in all position	<b>V30-R</b>	08800V30-R	Setting range: from 201 to 370 bar (from 2910 to 5400 psi)
<u>With spool position microswitch:</u>			<u>Antishock/anticavitation valve:</u>		
<b>Note:</b> To complete the control you must use the assembly kit at #6					
<b>M1-N1</b>	08766M1-N1	3 pos., micro operation in pos. 1 and 2, spring return in neutral position	<b>V33-B</b>	08803V33-B	Setting range: from 30 to 80 bar (from 435 to 1150 psi)
<b>M1-N1A</b>	08767M1-N1A	As M1-N1 type, micro operation in pos. 1	<b>V33-N</b>	08803V33-N	Setting range: from 81 to 200 bar (from 1170 to 2900 psi)
<b>M1-N1B</b>	08768M1-N1B	As M1-N1 type, micro operation in pos. 2	<b>V33-R</b>	08803V33-R	Setting range: from 201 to 370 bar (from 2910 to 5400 psi)
<b>M2-N1</b>	08769M2-N1	2 pos. (0-1), spring return in neutral position	<u>Anticavitation valve:</u>		
<b>M3-N1</b>	08772M3-N1	2 pos. (0-2), spring return in neutral position	<b>V04</b>	08808V04	Anticavitation valve
<u>Pneumatic and electropneumatic controls:</u>			<b>Plug:</b>		
<b>P1N</b>	08561P1-N	ON/OFF pneumatic control	<b>VC</b>	060002758699	Valve blanking plug
<b>P1NP</b>	08561P1-NP	Proportional pneumatic control	For other configurations and positions, see page 215		
<b>D3</b>	08591D3-V-12DC	12 VDC, ON/OFF electropneumatic control			
	08592D3-V-24DC	24 VDC, ON/OFF electropneumatic control			
<b>6</b>	<b>Microswitch assembly kit</b>		<b>9</b>	<b>Secondary aux valves*</b>	<b>page 216</b>
CODE		DESCRIPTION	TYPE	CODE	DESCRIPTION
08650N1-01		Kit for 1 section	<b>VRP-VC01</b>	08835V01C	Single piloted check valve on A port, 250 bar (3600 psi)
08650N1-02		Kit for 2 sections	<b>VRP-VC03</b>	08837V03C	Double piloted check valve on A and B ports, 250 bar (3600 psi)
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			
<b>7</b>	<b>Complete controls A+B sides</b>	<b>page 209</b>			
TYPE	CODE	DESCRIPTION			
<u>For types 103 and 111 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			

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

## Working section - parts ordering codes

Proportional hydraulic controls valve configuration example

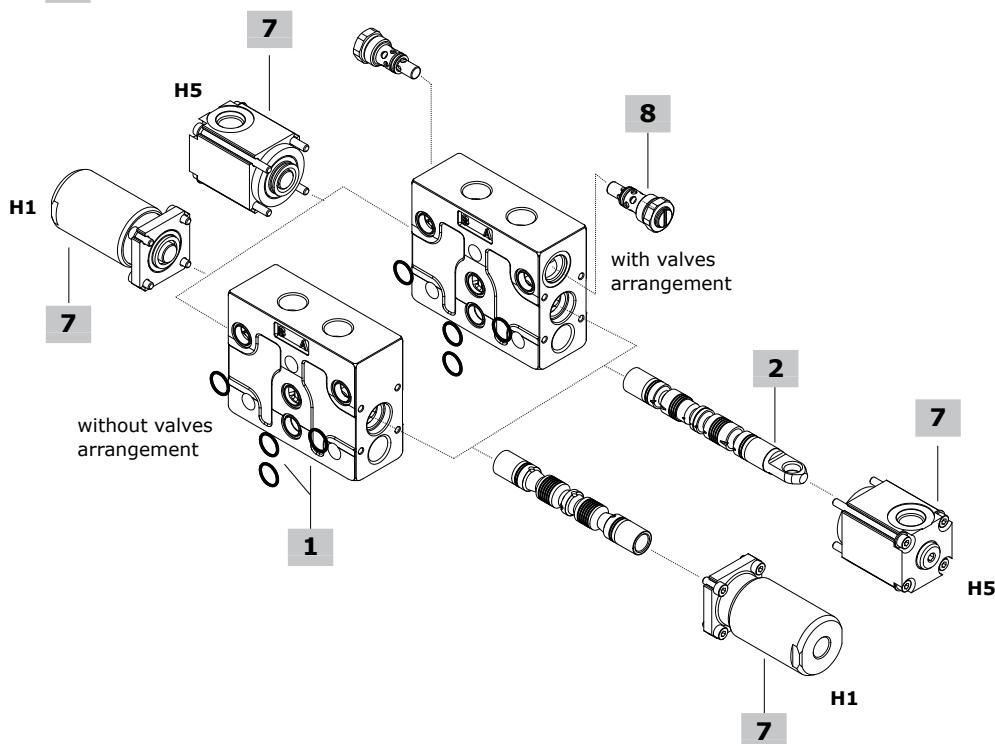
spring type and valve setting (bar)

**EL Q80 / 103 - H5 . V40(N)120**

1      2      7      8

**EL Q80 / 103 - H1 . V40(N)120**

7

**1 Working section body kit\*** **page 196**

The body kits listed below are for **H5** hydraulic control.

**H1** hydraulic control requires standard body: see #1, page 191

TYPE: **EL-Q80-H5.VC** CODE: 5EL0600127860H5

DESCRIPTION: Parallel circuit, with port valves arrangement

TYPE: **EL-Q80-H5** CODE: 5EL0600127723H5

DESCRIPTION: Parallel circuit, without port valves arrangement

**2 Spool** **page 197**

TYPE	CODE	DESCRIPTION
<b>For H5 hydraulic control</b>		
<b>103</b>	060102894999	Double acting, A and B closed in neutral position

TYPE	CODE	DESCRIPTION
<b>For H1 hydraulic control</b>		
<b>103</b>	060102879199	Double acting, A and B closed in neutral position

**7 Hydraulic controls A+B sides** **page 210**

TYPE	CODE	DESCRIPTION
<b>H5</b>	08785H5	Low pressure proportional type, upper ports
<b>H1</b>	08779H1	High pressure proportional type, side ports

**8 Auxiliary port valve** **page 214**

See #8, page 192

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

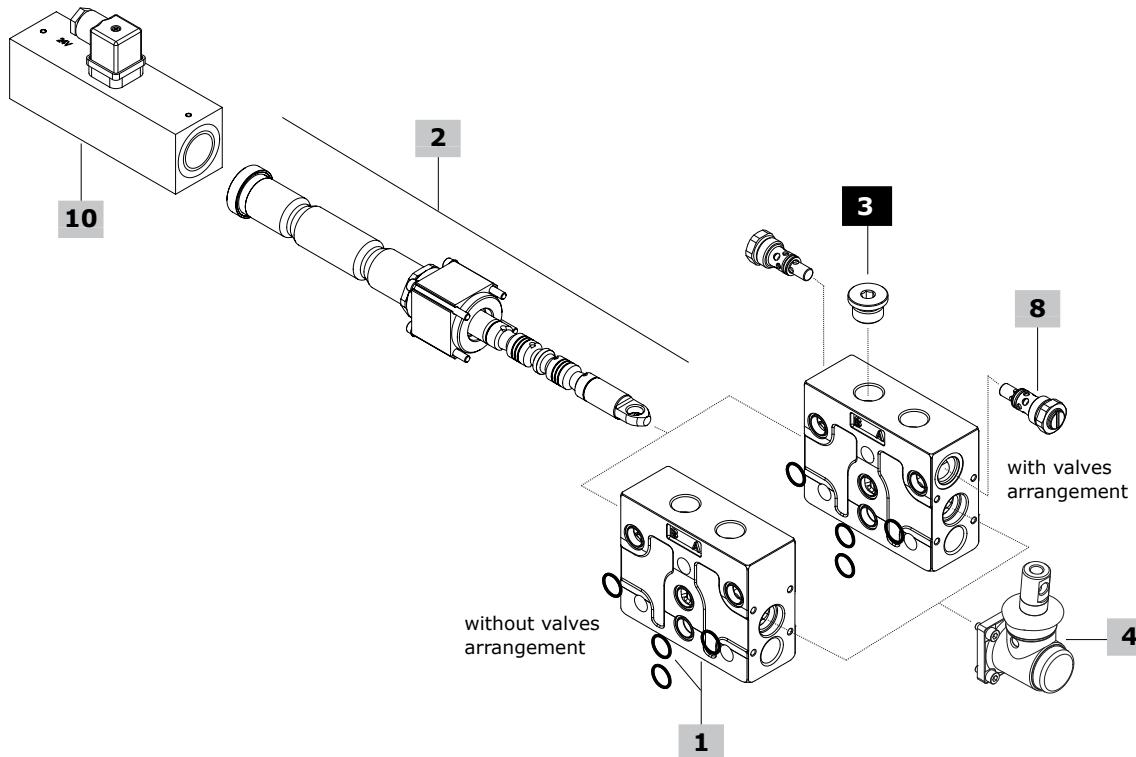
## Working section - parts ordering codes

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**

1	2	4	2	8	10

**1 Working section body kit\*** **page 196**

TYPE: **EL-Q80.VC** CODE: 5EL0600127860D41  
 DESCRIPTION: Parallel circuit, with port valves arrangement  
 TYPE: **EL-Q80** CODE: 5EL0600127723D41  
 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. G1/2 plug is required, see #3
<b>102</b>	X0601030060B	Single acting on port B. G1/2 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 **BSP** thread

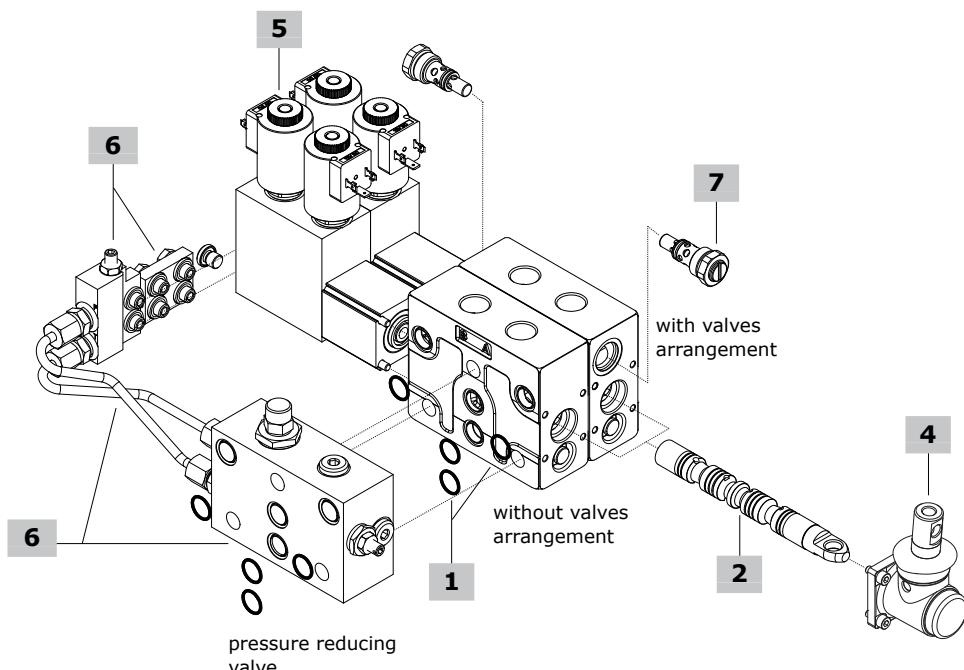
## Working section - parts ordering codes

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**

1      6      2      4      5      7      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**7 Auxiliary port valve**page 214

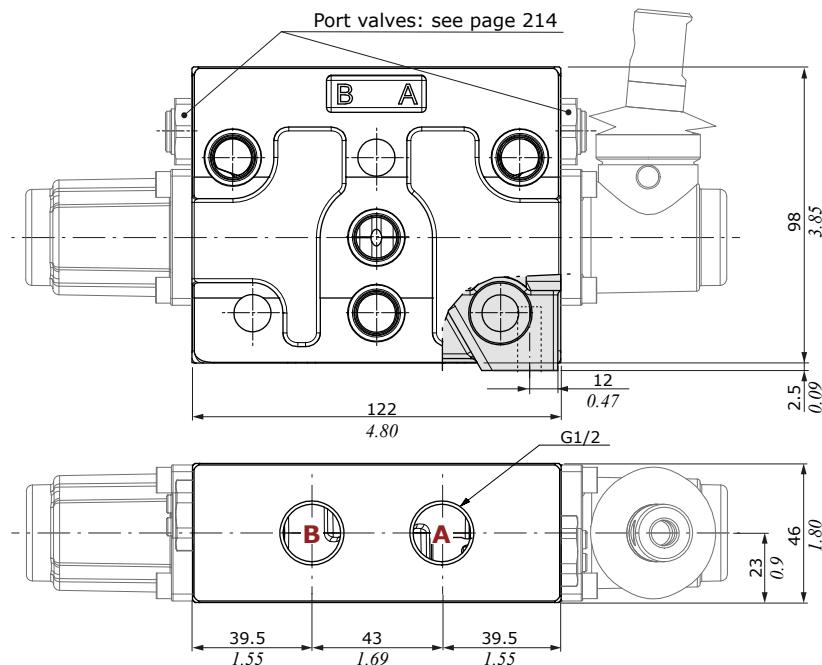
See #8, page 192

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

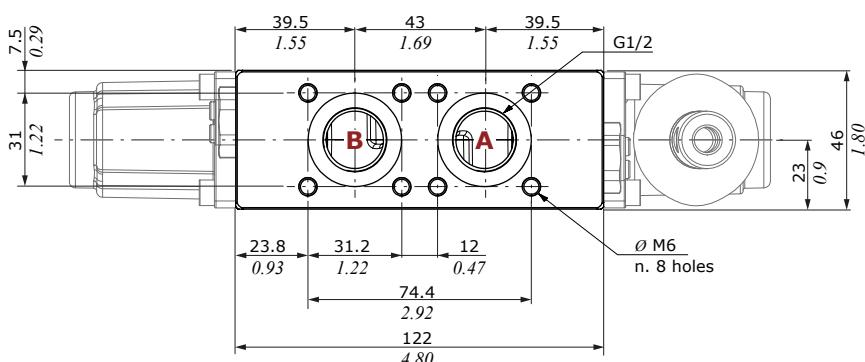
## **Working section**

## **Dimensional data and hydraulic circuits**

## **Standard working section**

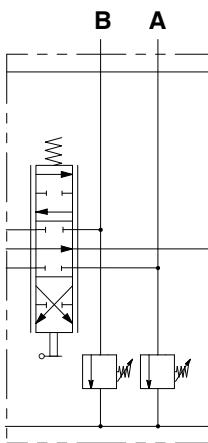


### **Working section for secondary aux valves block**



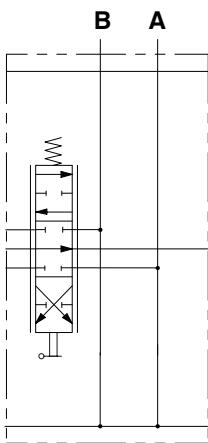
## **Q80.V40(N)120 configuration**

Parallel circuit,  
mechanical control with aux valves



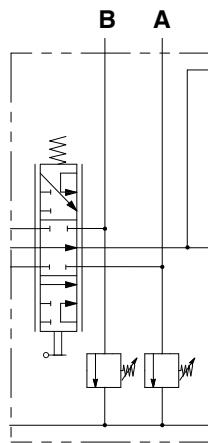
## **Q80 configuration**

**QSC configuration**  
Parallel circuit,  
mechanical control without aux valves



**Q80.V40(N)120 configuration**

**Q&T 16(1)110 configuration**  
Series circuit,  
mechanical control with aux valves



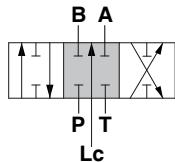
## Working section

## Spool

**103 type**

A and B closed  
in neutral position

2 0 1



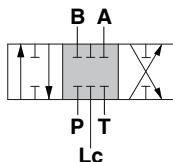
## Stroke

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



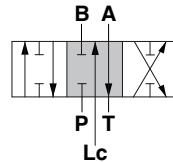
## Stroke

Position 1: + 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



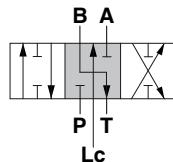
## Stroke

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



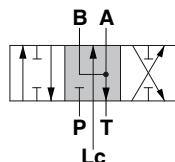
## Stroke

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



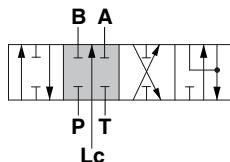
## Stroke

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



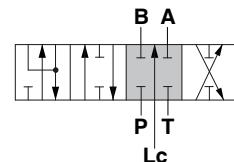
## Stroke

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



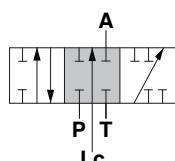
## Stroke

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



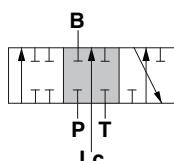
## Stroke

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



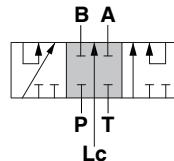
## Stroke

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



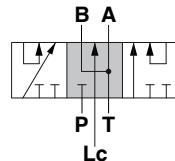
## Stroke

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

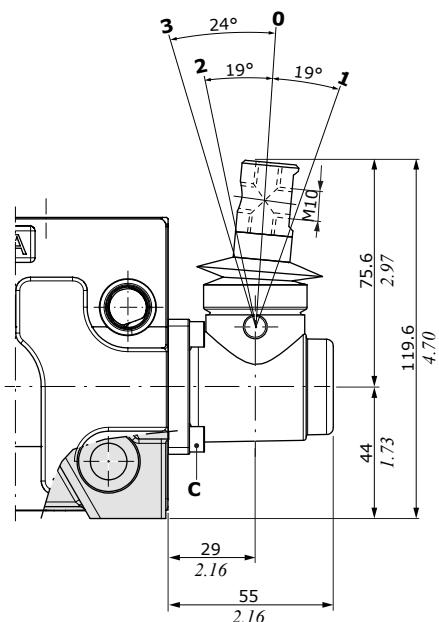
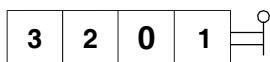


## Stroke

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

**Working section****A side controls****With lever control****A1 type**

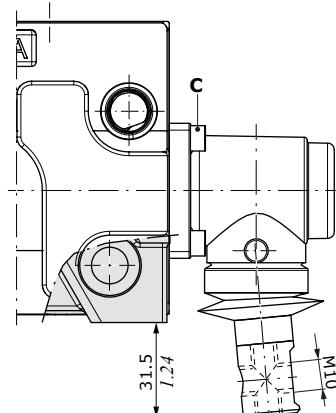
M10 thread aluminium  
lever box

**A1/06 type**

M10 thread, with stroke limiter

**A2 type**

As A1 type, rotated 180°

**A1/Z1 type**

M10 thread, for 116 floating spool type

**Wrenches and tightening torques**

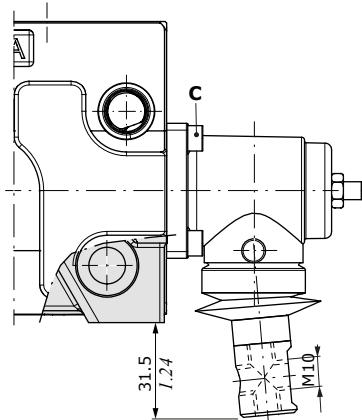
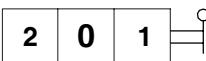
C = allen wrench 4 - 6.6 Nm (4.8 lbf ft)

D = wrench 10 - 9.8 Nm (7.2 lbf ft)

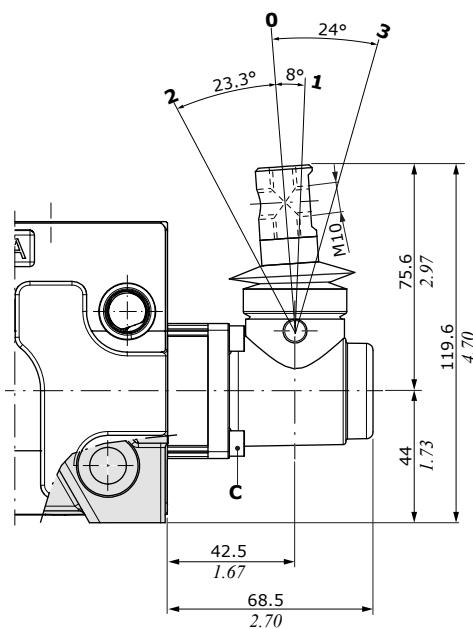
E = allen wrench 4 - 9.8 Nm (7.2 lbf ft)

**A2/06 type**

As A1/06 type, rotated 180°

**A2/Z1 type**

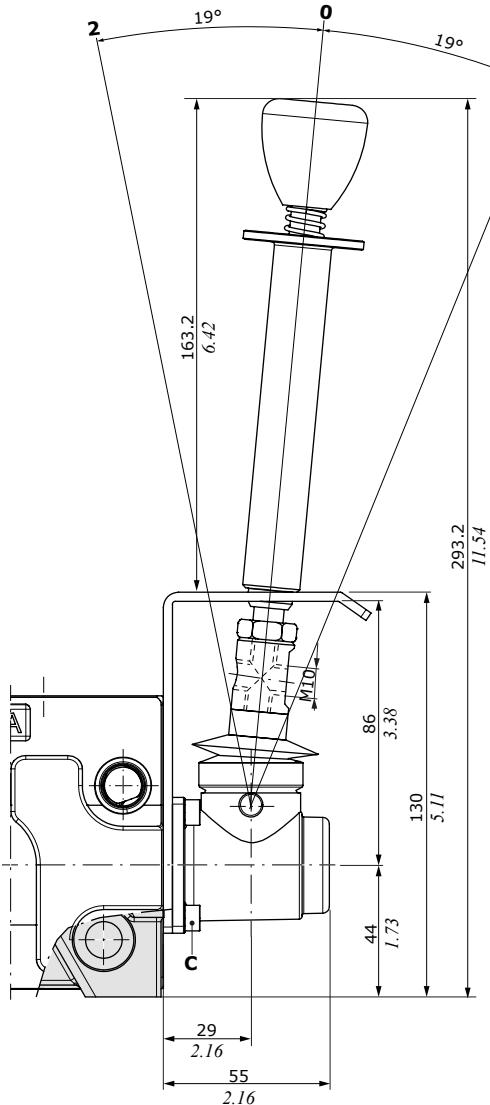
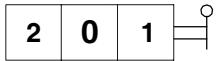
As A1/Z1 type, rotated 180°



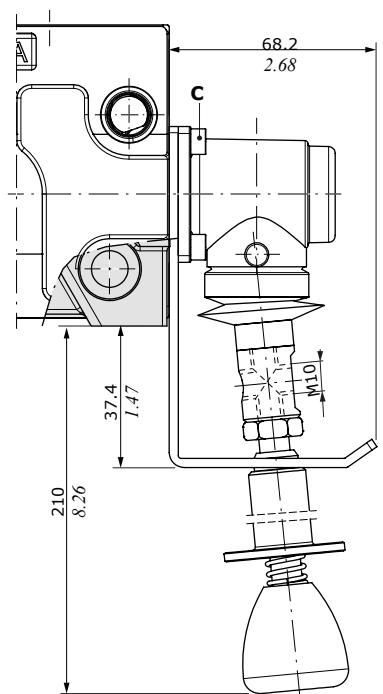
## Working section

**A side controls****With safety lever control**

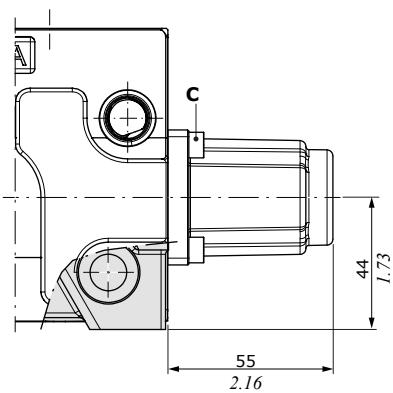
**A1/S type**  
M10 thread, aluminium lever box



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

**Without lever control**

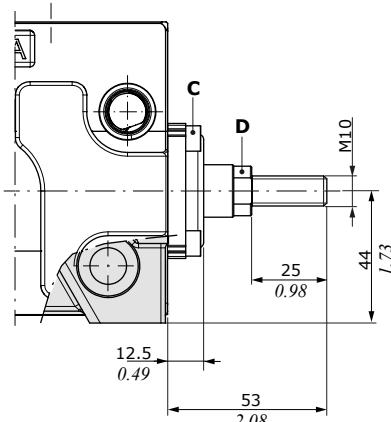
**A3 type**  
With cap



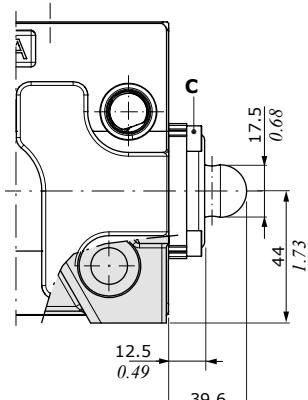
**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbft)

**Working section****A side controls****Without lever control****A4 type**

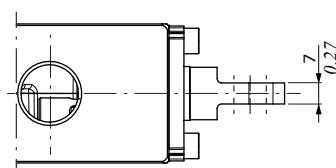
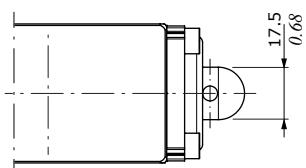
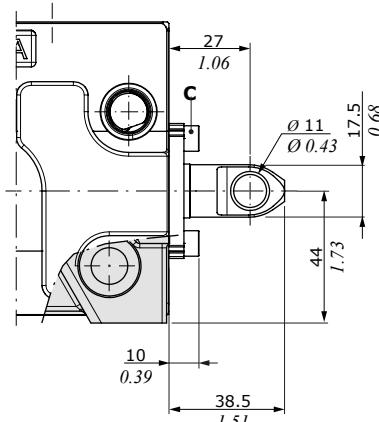
M10 male thread external pin with flange

**A5 type**

Flange with spherical spool end

**A6 type**

With flange

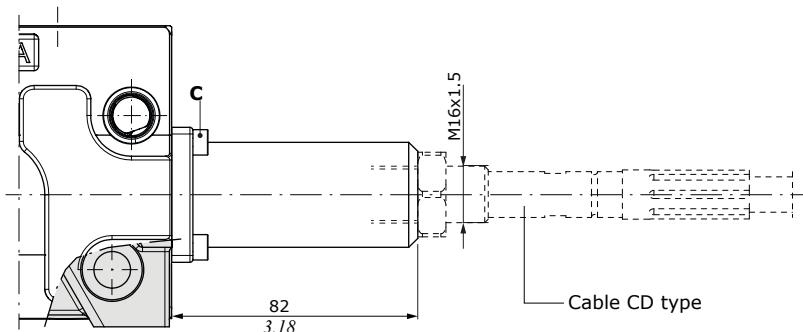
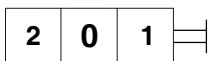
**Wrenches and tightening torques**

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

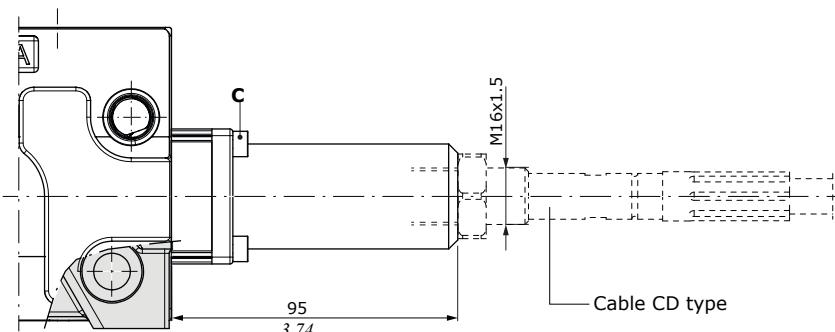
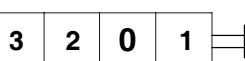
D = wrench 13 - 9.8 Nm (7.2 lbf ft)

**With flexible cable control arrangement****A8 type**

Flexible cable control arrangement

**A8/Z1 type**

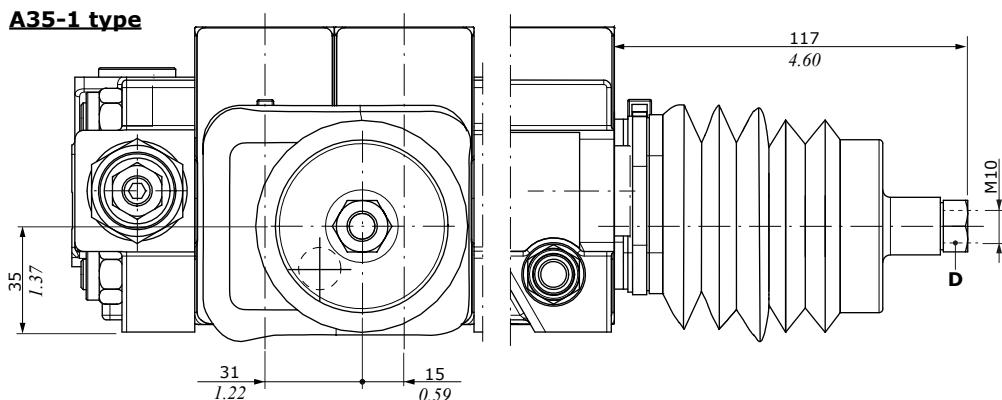
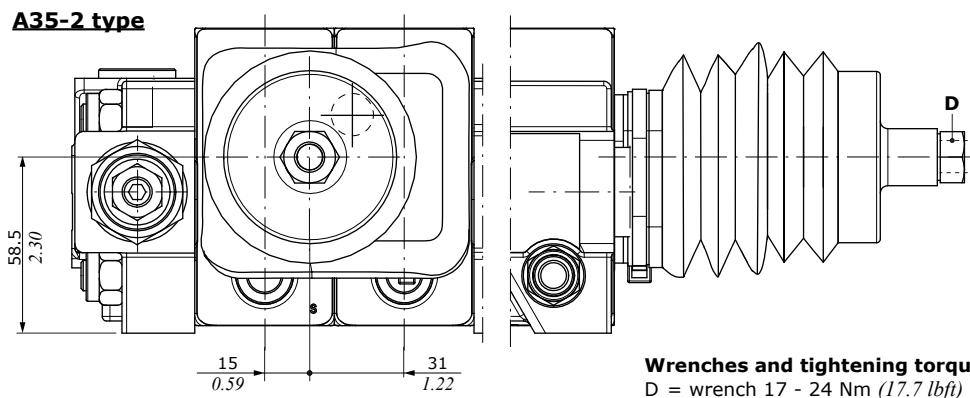
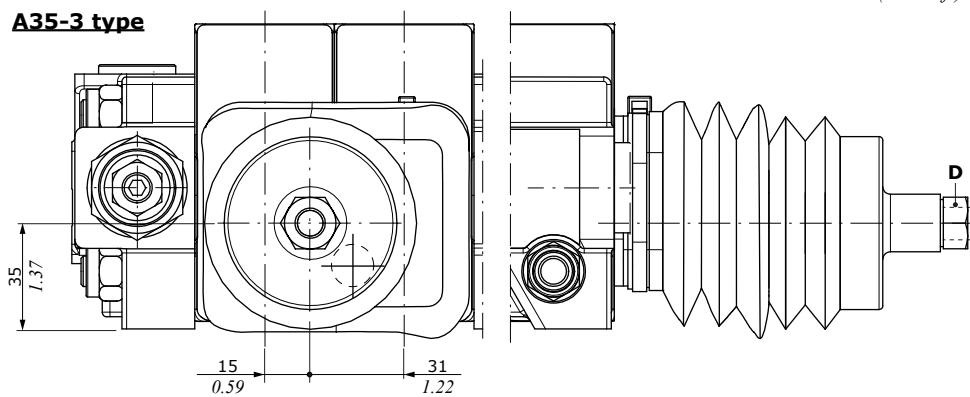
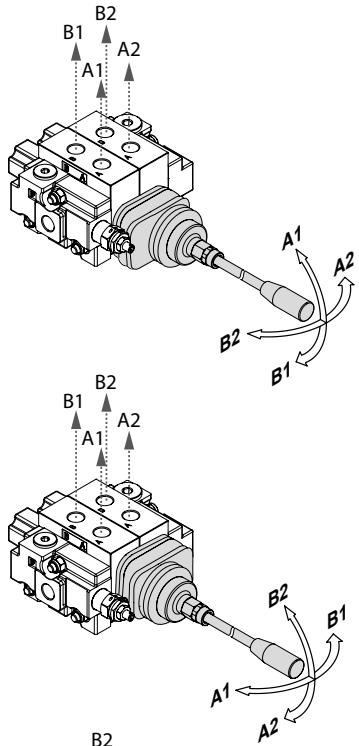
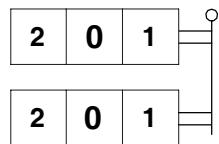
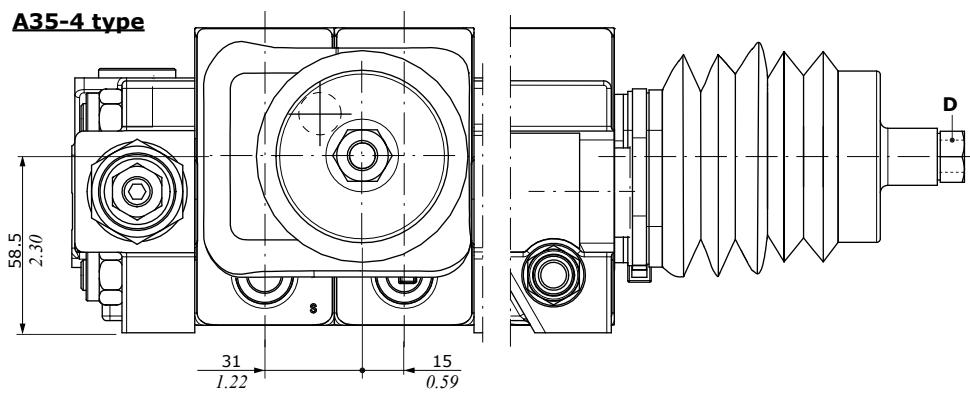
As A8 type, for 116 floating spool type



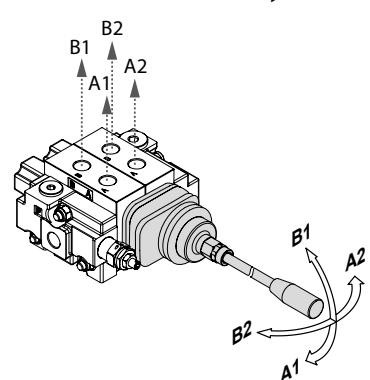
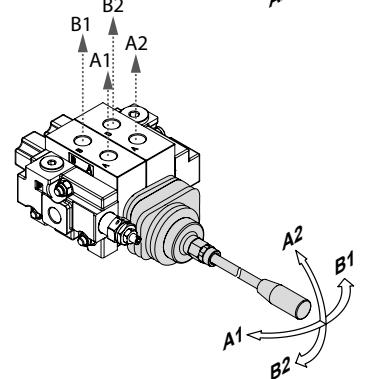
## Working section

**A side controls****Joystick control**

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

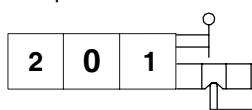
**A35-1 type****A35-2 type****A35-3 type****A35-4 type**

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

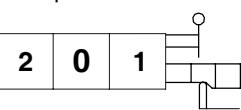


**Working section****A side controls****With spool position microswitch, with lever**

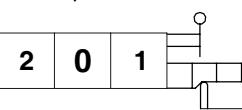
**N1-A1 type**  
Micro operation  
in position 1 and 2



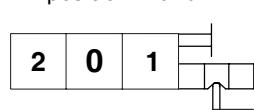
**N1A-A1 type**  
Micro operation in  
position 1



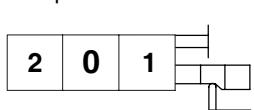
**N1B-A1 type**  
Micro operation in  
position 2

**With spool position microswitch, with cap**

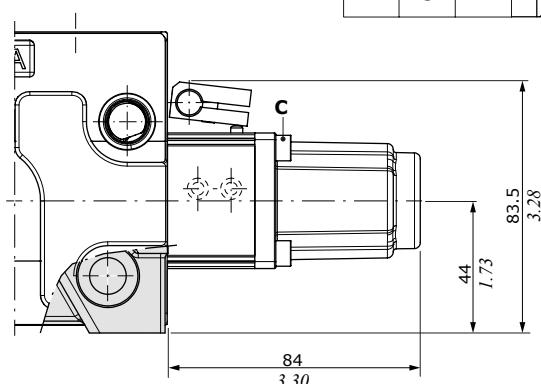
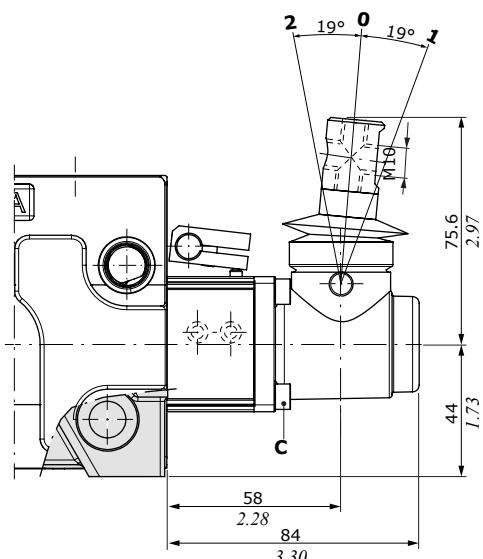
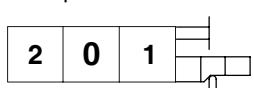
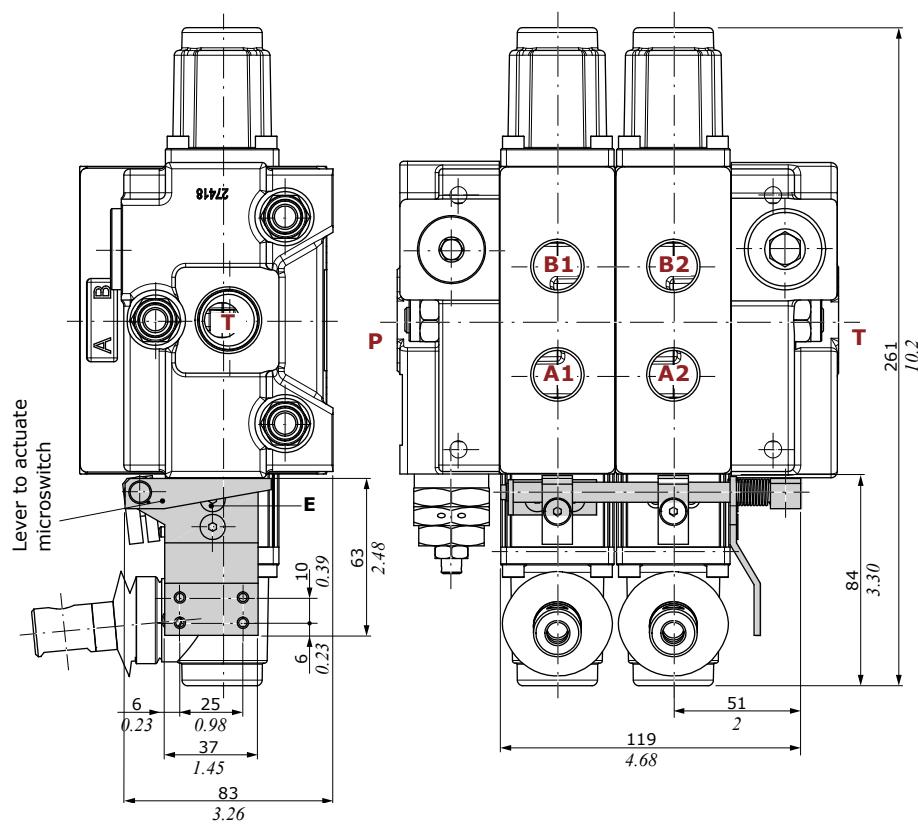
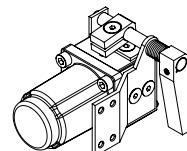
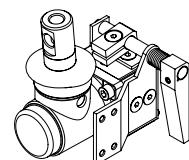
**N1-A3 type**  
Micro operation  
in position 1 and 2



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

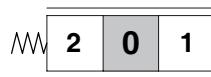
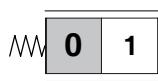
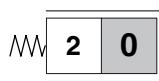
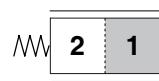
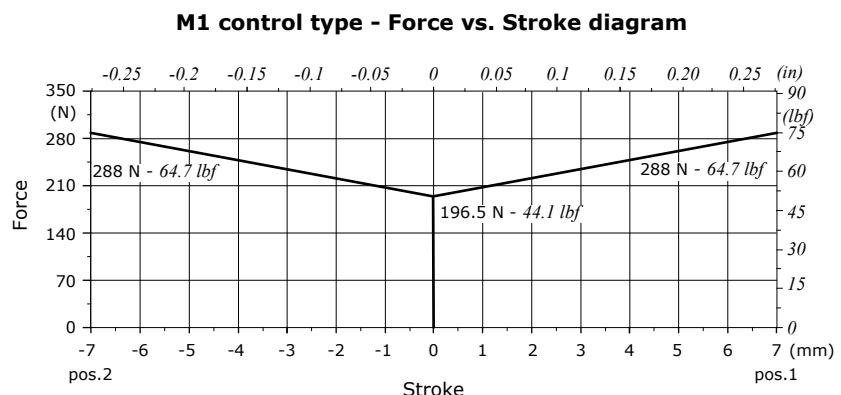
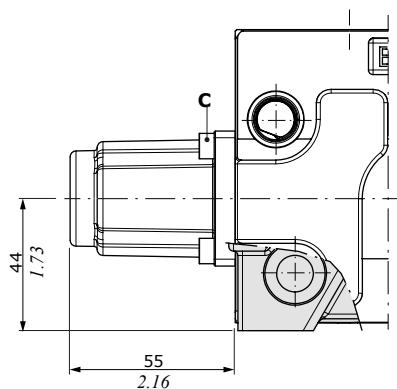
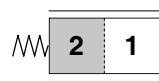


**N1B-A3 type**  
Micro operation in  
position 2

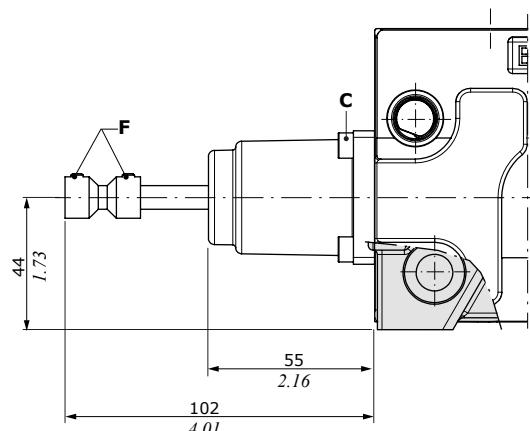
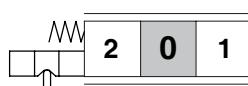
**Microswitch assembly kit for 2 working section (N1-A1 type)****with cap****with lever box****Wrenches and tightening torques**

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

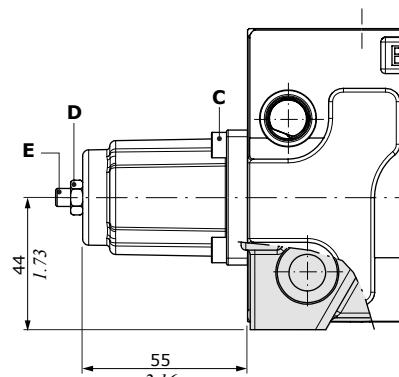
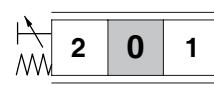
## Working section

**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**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 12 position (2-1),  
spring return in position 2**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 lbft)

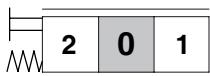
D = wrench 10 - 9.8 Nm (7.2 lbft)

E = allen wrench 4 - 9.8 Nm (7.2 lbft)

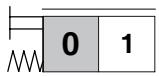
F = allen wrench 3 - 5 Nm (3.68 lbft)

**Working section****B side controls****With spring return control****M1-U1 type**

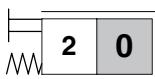
3 position, with M10 male thread external pin      2 position (0-1), with M10 male thread external pin

**M2-U1 type**

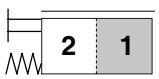
2 position (0-1), with M10 male thread external pin

**M3-U1 type**

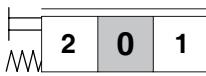
2 position (0-2), with M10 male thread external pin

**M4-U1 type**

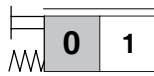
2 position (1-2), with M10 male thread external pin

**With flexible cable control arrangement****M1-U2 type**

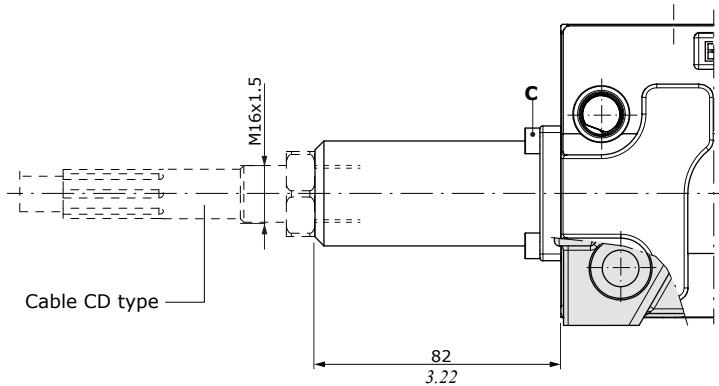
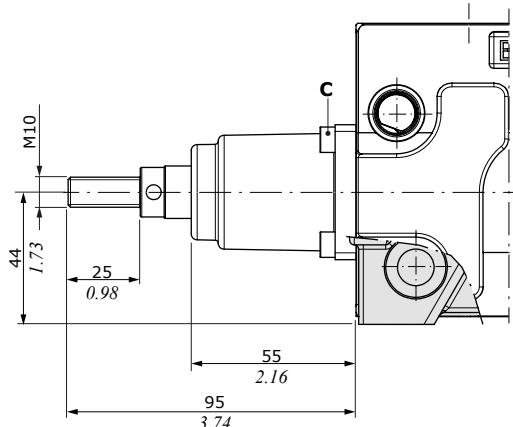
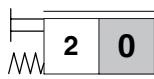
3 position, spring return in neutral position

**M2-U2 type**

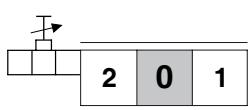
2 position (0-1), spring return in neutral position

**M3-U2 type**

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

**With friction control****R0 type**

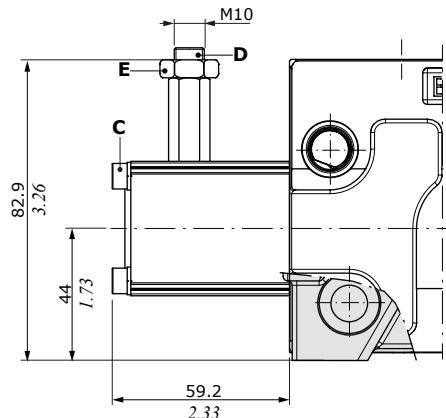
Adjustable friction control

**Wrenches and tightening torques**

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

D = allen wrench 5 - 15 Nm (11.1 lbft)

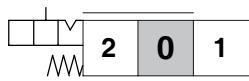
E = wrench 17 - 9.8 Nm (7.2 lbft)



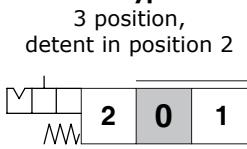
## Working section

**B side controls****With detent control****R1 type**

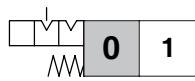
3 position,  
detent in position 1

**R2 type**

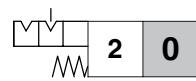
3 position,  
detent in position 2

**R4 type**

2 position,  
detent in position 0-1

**R5 type**

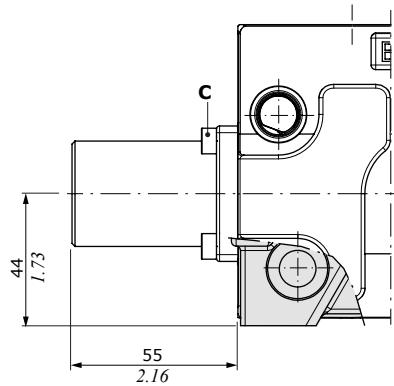
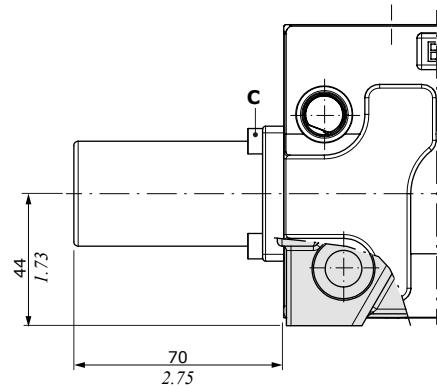
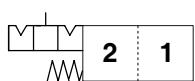
2 position,  
detent in position 0-2

**R3 type**

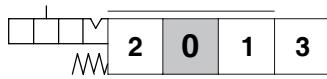
3 position,  
detent in all position

**R6 type**

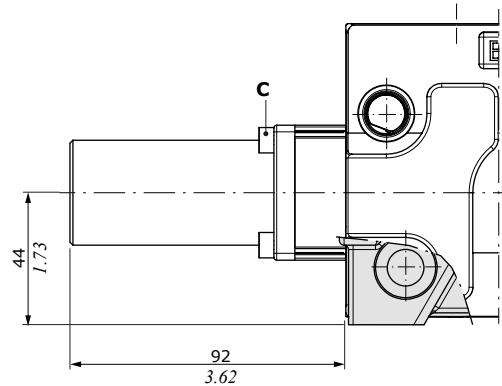
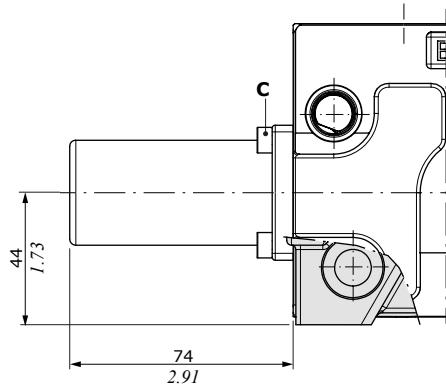
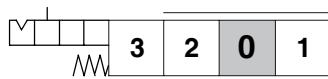
2 position,  
detent in position 1-2

**R8 type**

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

**R10/Z1 type**

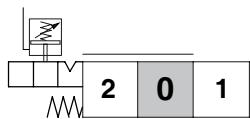
4 position, detent in 4<sup>th</sup> position,  
for 126 floating spool type

**Wrenches and tightening torques**

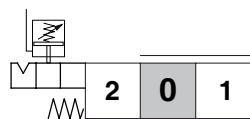
C = allen wrench 4 - 6.6 Nm (4.8 lbft)

**Working section****B side controls****With detent control and kick out function****R1K type**

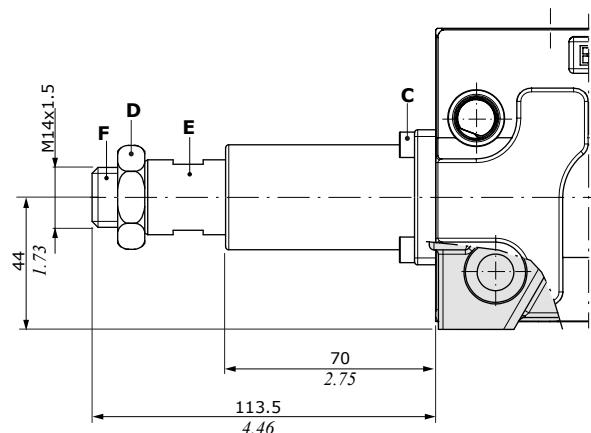
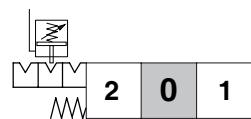
3 position, detent in position 1

**R2K type**

3 position, detent in position 2

**R3K type**

3 position, detent in all position

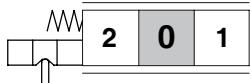
**Wrenches and tightening torques**

- 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)

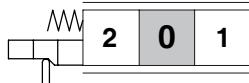
## Working section

**B side controls****With spool position microswitch****M1-N1 type**

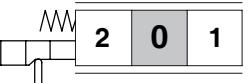
3 position, micro operation in position 1 and 2, spring return in neutral position

**M1-N1A type**

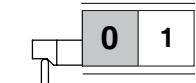
3 position, micro operation in position 1

**M1-N1B type**

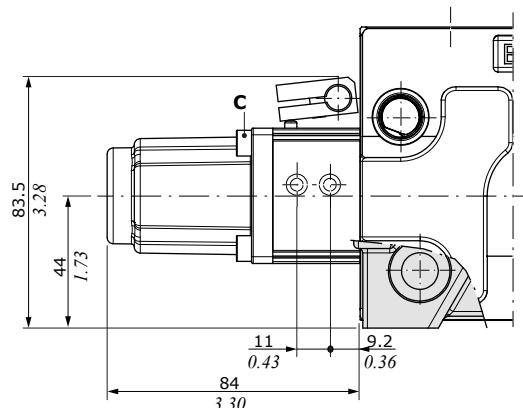
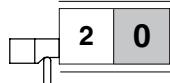
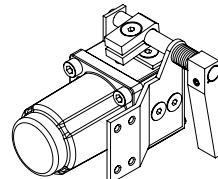
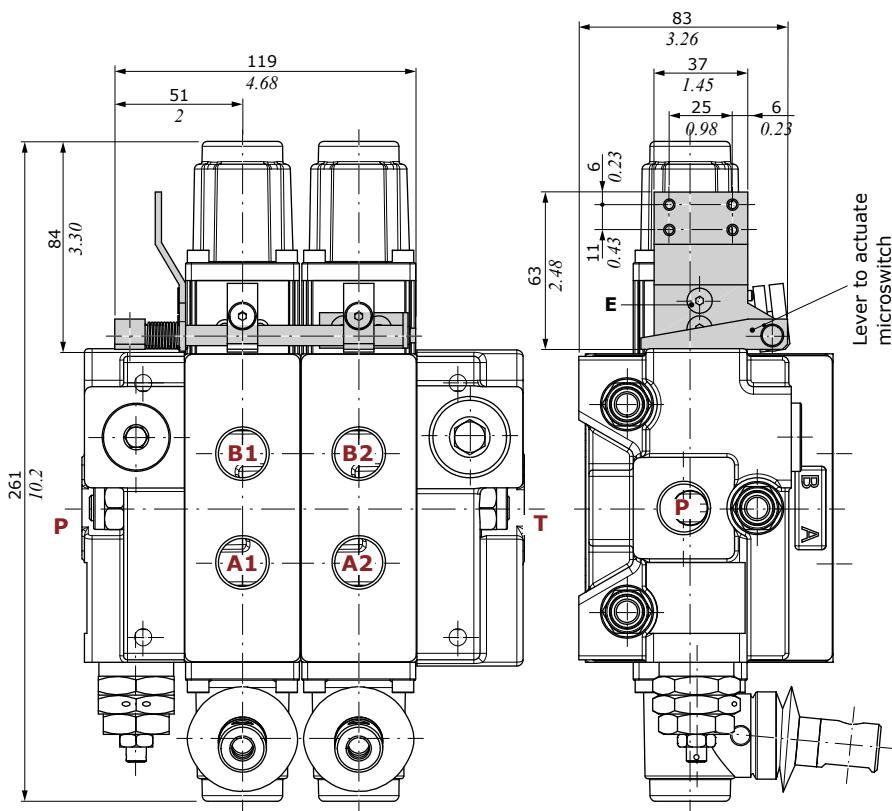
3 position, micro operation in position 2

**M2-N1 type**

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

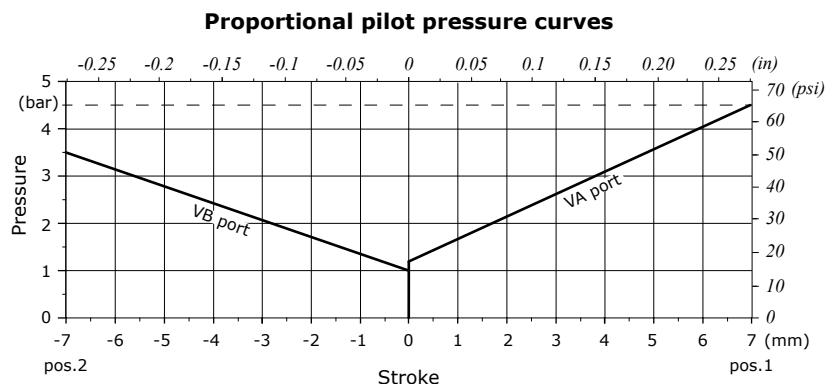
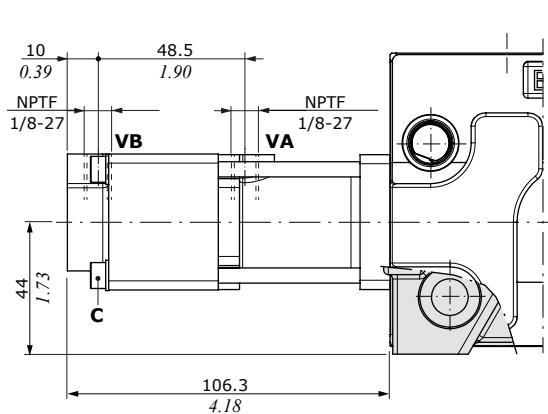
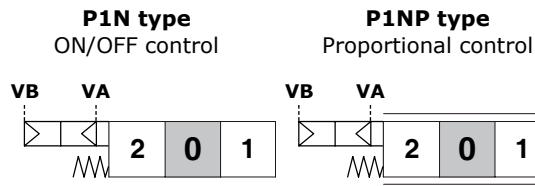
**M3-N1 type**

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 ft)

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

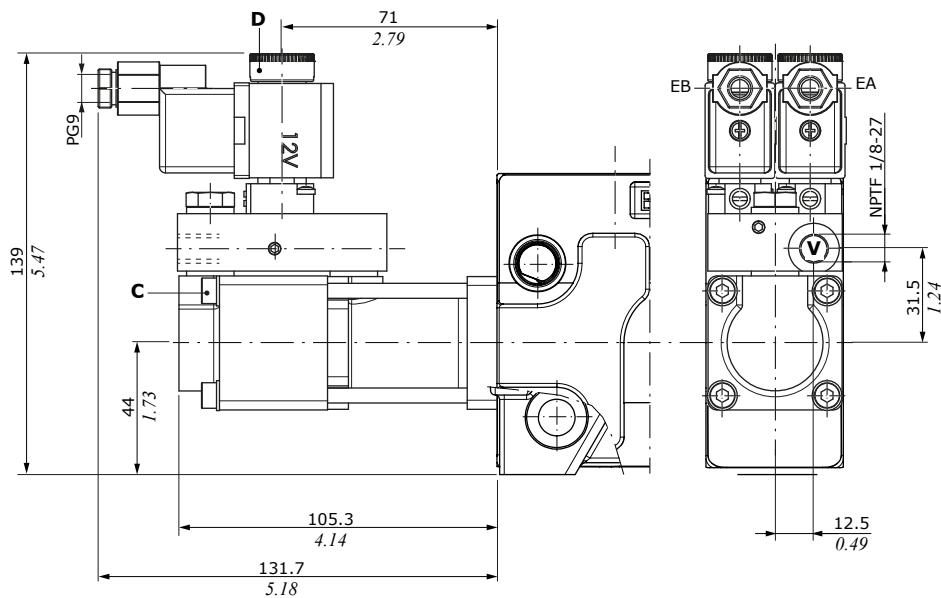
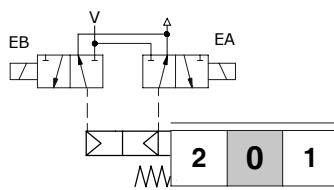
**Working section****B side controls****With pneumatic control****Operating features**

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**

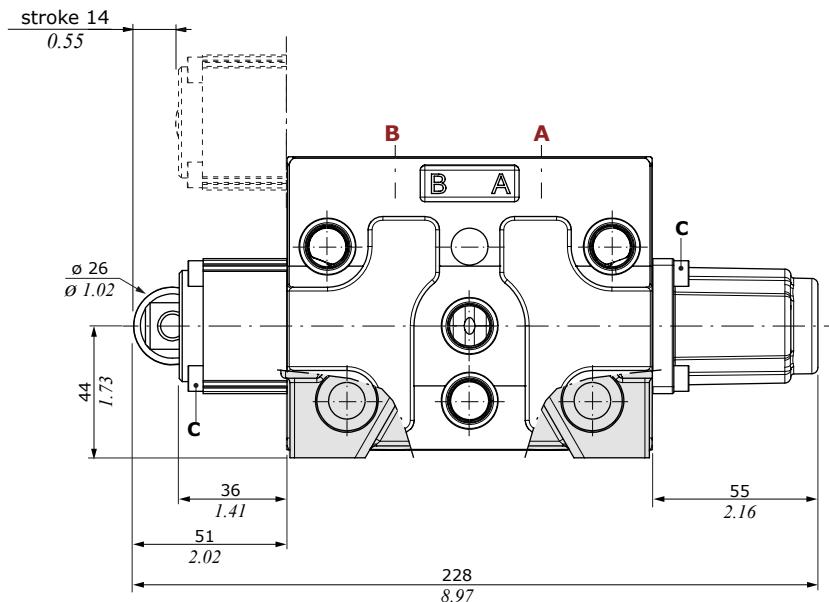
Nominal voltage tolerance....: -5% +10%  
Power rating.....: 5 W  
Nominal current.....: 12 VDC - 24VDC  
Coil insulation.....: Class F  
Weather protection.....: IP65  
Duty cycle.....: 100%

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

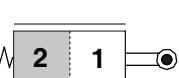
## Working section

**A+B side controls****With cam control**

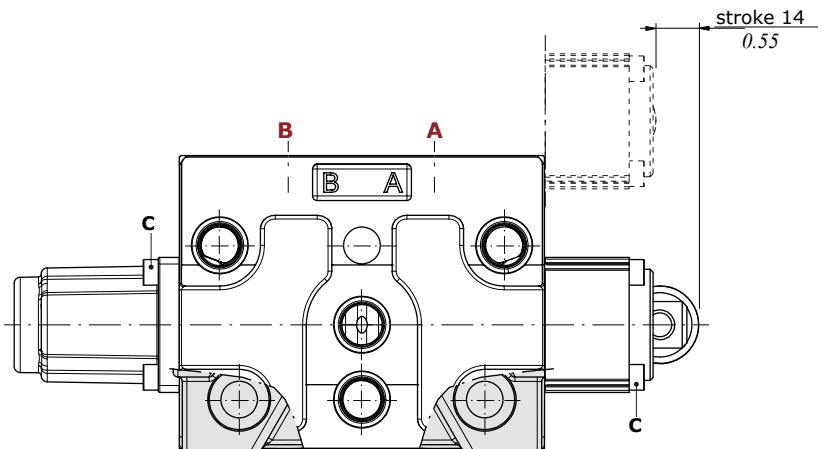
**C2 type**  
From position 1 to position 2,  
spring return in position 1



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

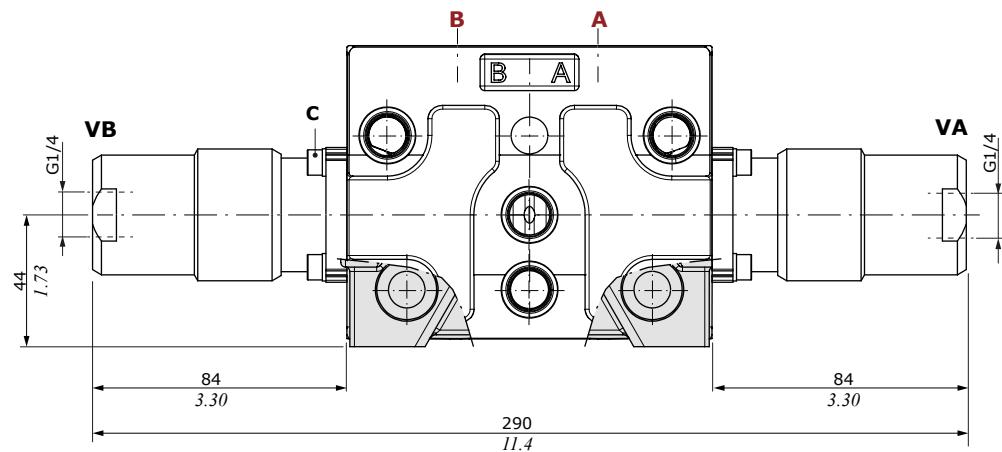
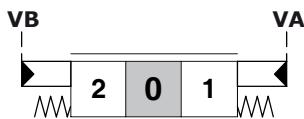


**C3 type**  
From position 2 to position 1,  
spring return in position 2.  
Dimensions are the same of C2 type



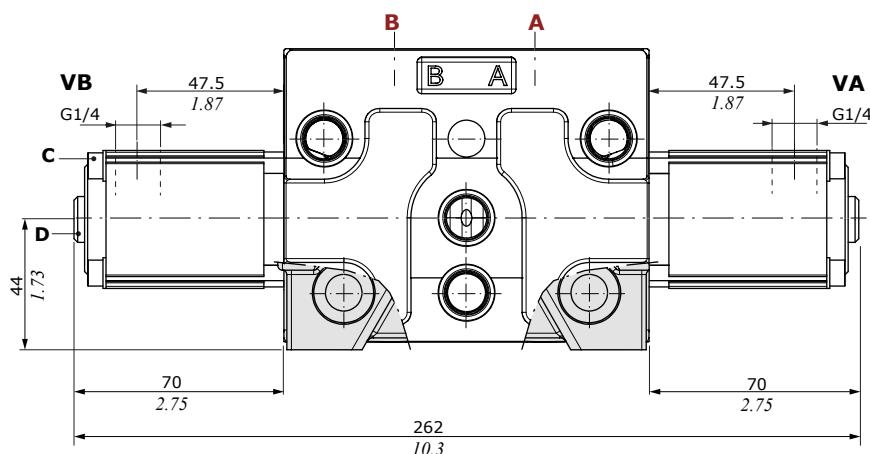
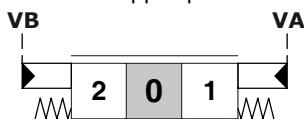
**Working section****A+B side controls****With proportional hydraulic controls**

**H1 type**  
High pressure control  
with side ports

**Operating features**

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

**H5 type**  
Low pressure control  
with upper ports

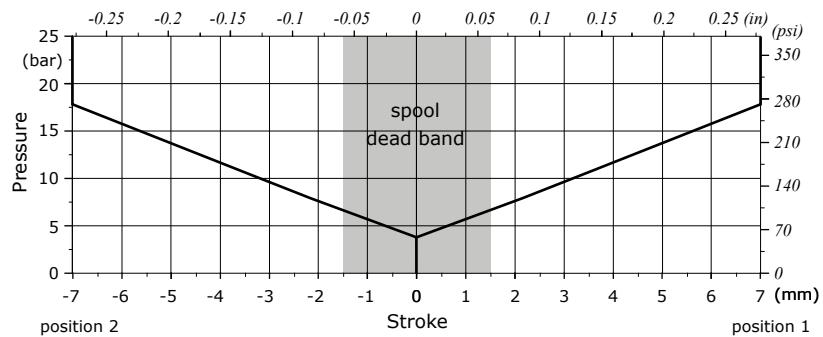
**Operating features**

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

**Wrenches and tightening torques**

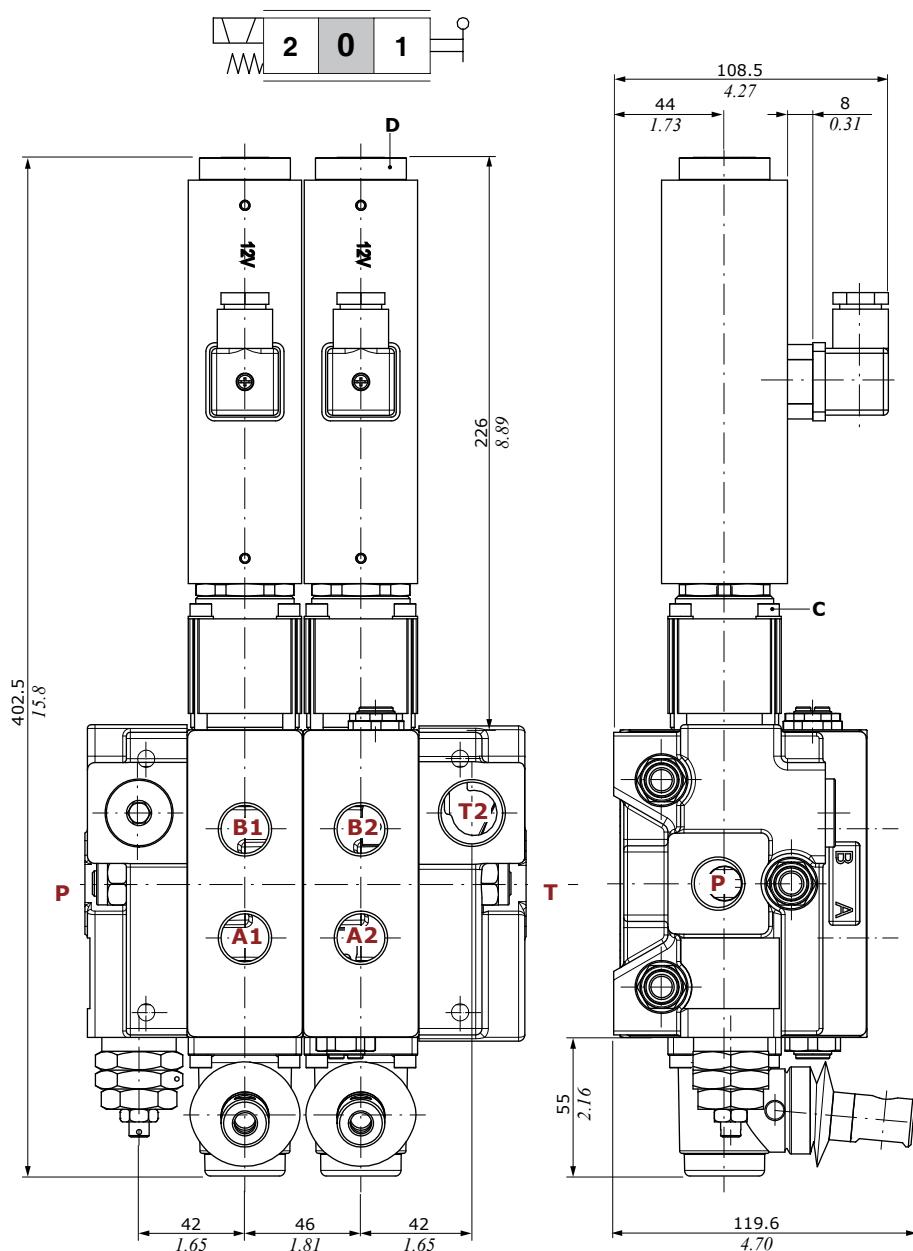
C = allen wrench 4 - 6.6 Nm (4.8 lbf)

D = allen wrench 4 - 9.8 Nm (7.2 lbf)

**Stroke vs. Pressure diagram for H5 type control**

## Working section

## Direct solenoid control

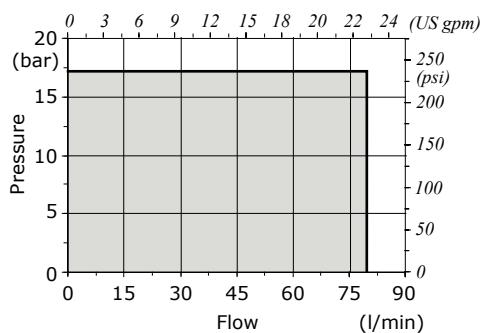
D41 type: ON/OFF one side

## D41 coil

Nominal voltage	12 VDC 24 VDC
Nominal voltage tolerance	$\pm 10\%$
Power rating	80 W
Insulation	Class H
Weather protection	IP65

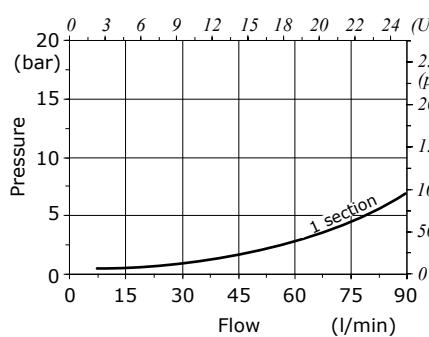
Connector type: ISO4400 3P+T-PG11

## Dynamic conditions

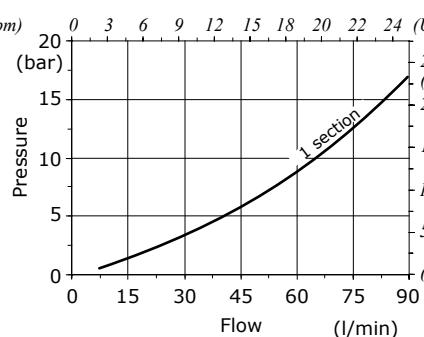


**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbft)  
D = manual tightening - 6.6 Nm (4.8 lbft)

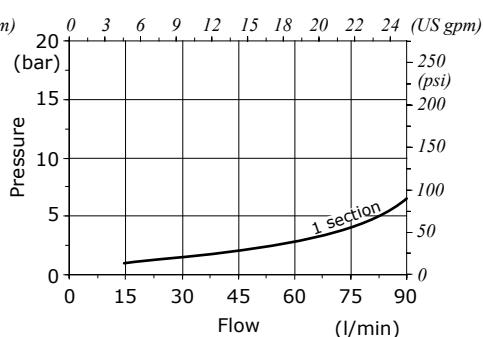
## P⇒T pressure drops

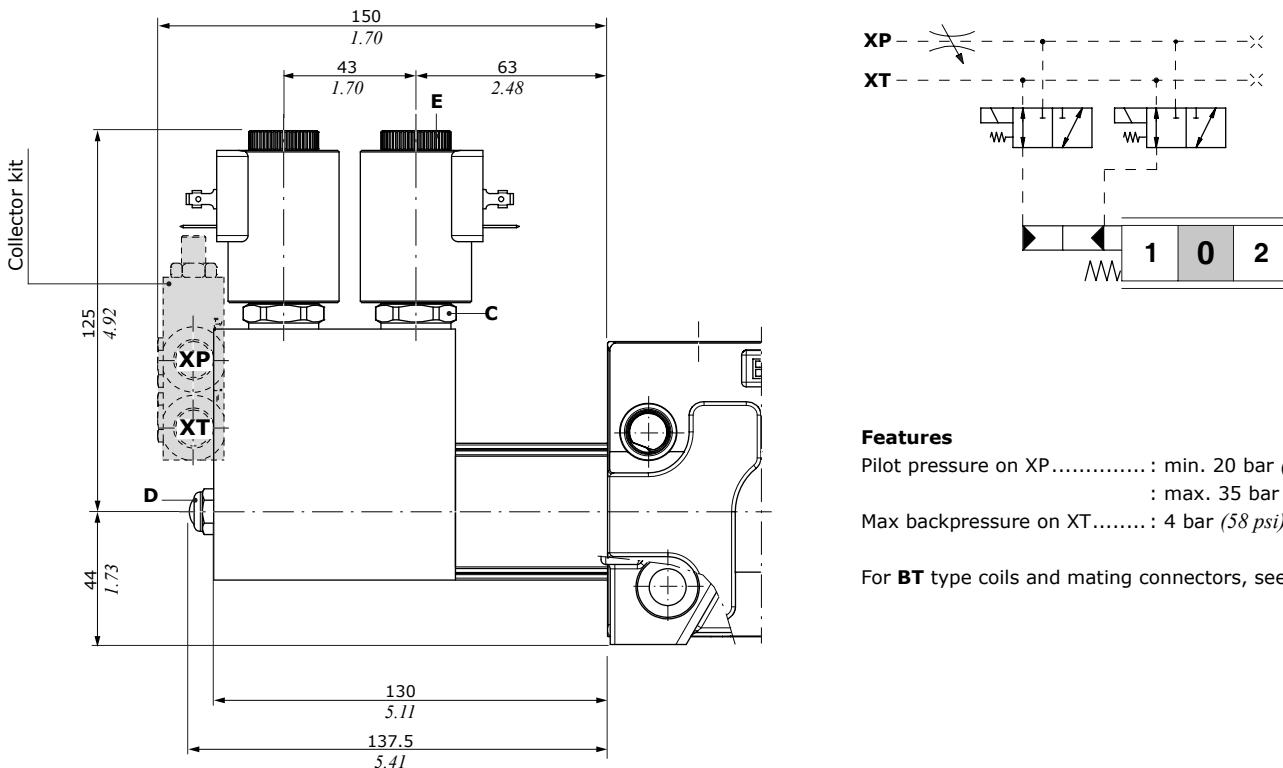


## P⇒A(B) pressure drops



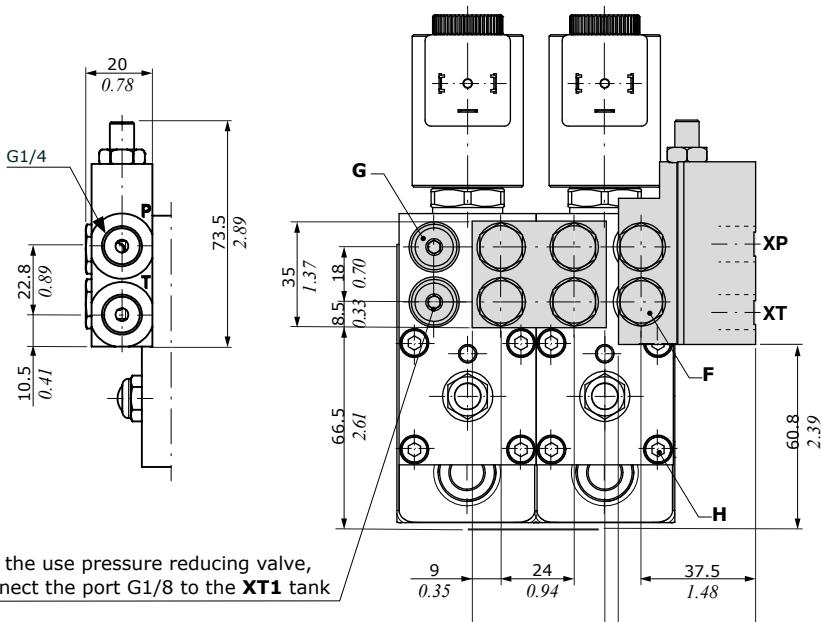
## A(B)⇒T pressure drops



**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**

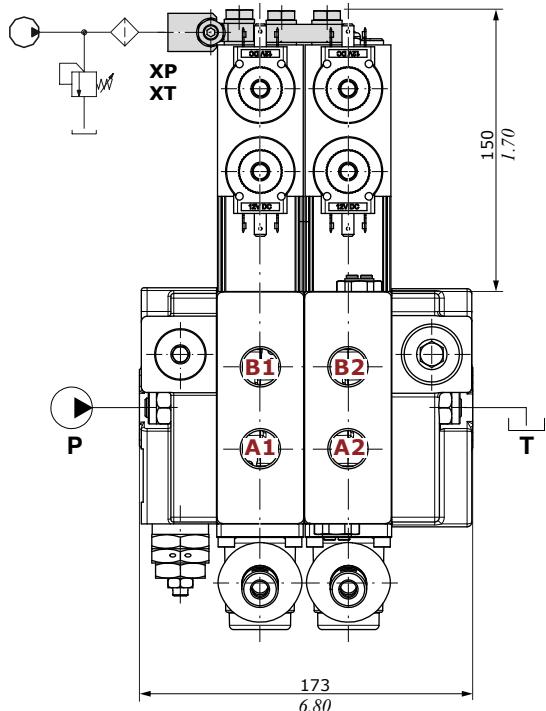
If the use pressure reducing valve,  
connect the port G1/8 to the XT1 tank

**Wrenches and tightening torques**

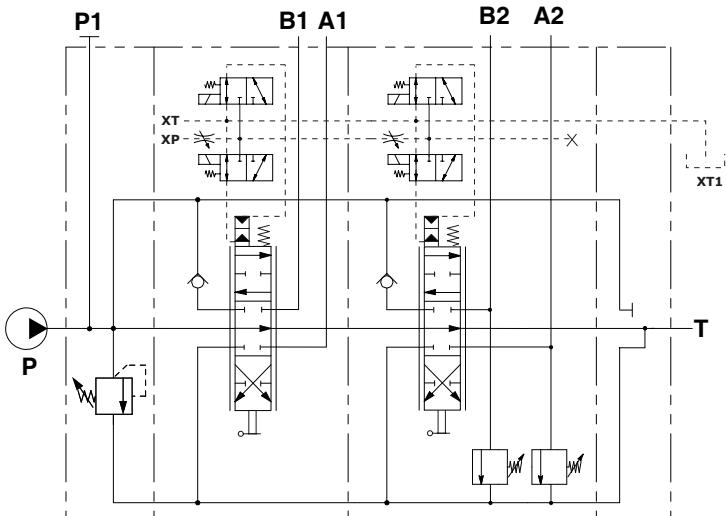
- C = wrench 24 - 30 Nm (22.1 lbf ft)
- D = wrench 13 - 9 Nm (6.6 lbf ft)
- E = wrench 6.6 - 9.8 Nm (7.2 lbf ft)
- F = wrench 14 - 24 Nm (17.7 lbf ft)
- G = allen wrench 4 - 9.8 Nm (6.6 lbf ft)
- H = allen wrench 4 - 3 Nm (2.2 lbf ft)

## Working section

## 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		

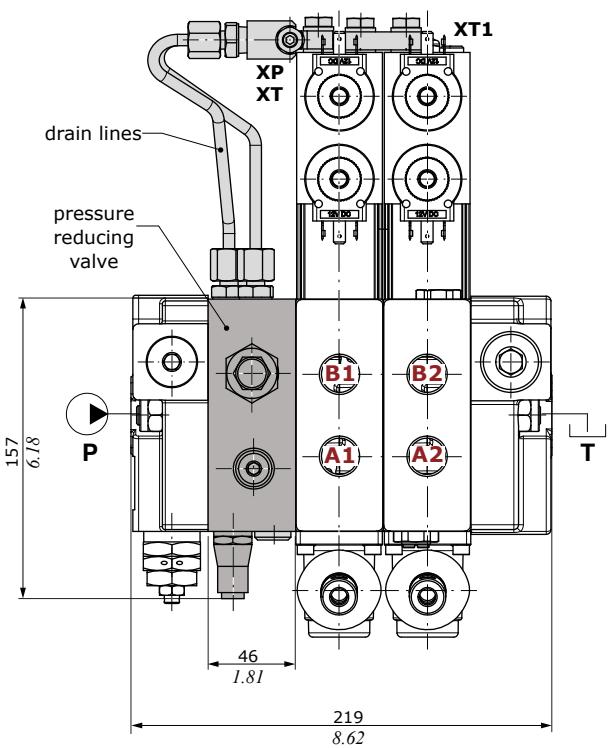


Description example:

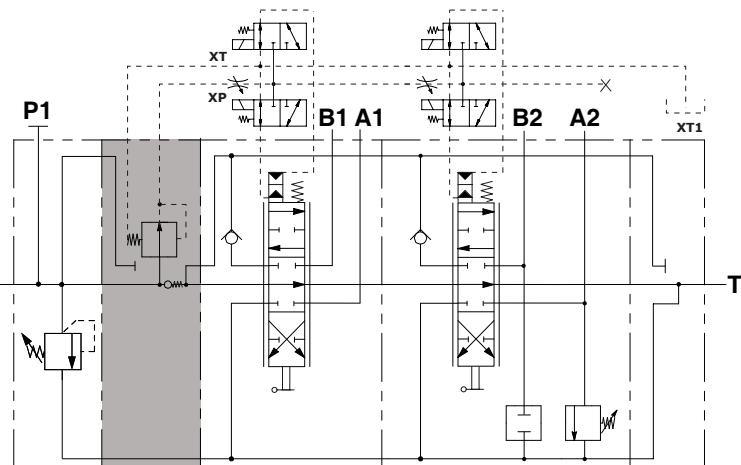
Q80/2/F7S(N120)/**KE2S**/103-A1-**D2W**.V40(N)120/  
103-A1-**D2W**.V40(N)120/F3D-12VDC-S

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

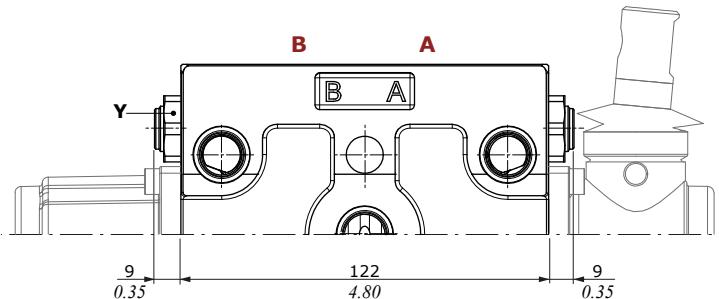
Pressure reducing valve

## Auxiliary valve configuration

### Dimensional data and hydraulic circuits

#### Description example

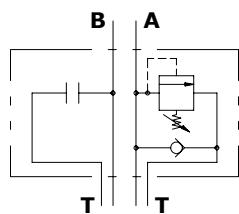
aux valve      spring type and valve setting (bar)  
 Q80 / 1 / ... / 103 - A1 - M1 - **V32(N)120** / ...



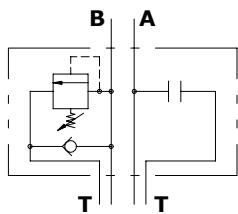
#### Antishock/anticavitation valve example

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

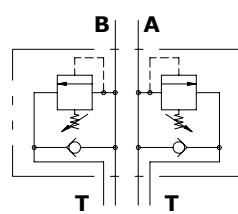
**V33**



**V34**



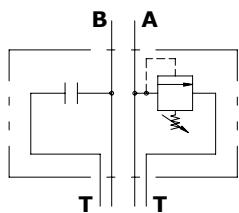
**V35 (V34 + V33)**



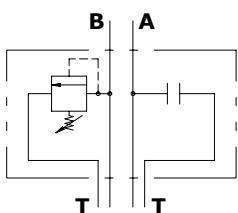
#### Antishock valve example

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

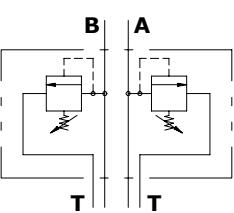
**V30**



**V31**



**V32 (V30 + V31)**



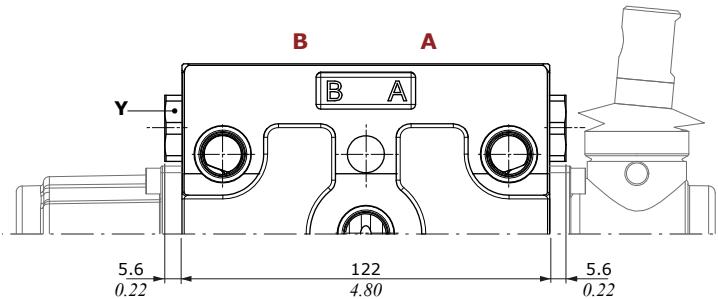
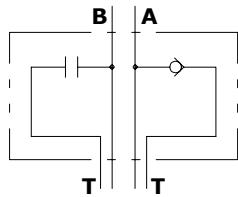
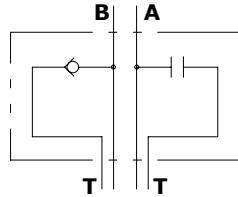
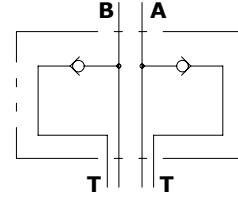
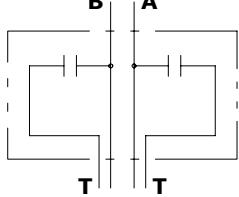
Spring type	Setting ranges (bar - psi)
<b>B</b> (white)	From 30 to 80 - from 435 to 1150
<b>N</b> (black)	From 81 to 200 - from 1170 to 2900
<b>R</b> (red)	From 201 to 370 - from 2910 to 5400

#### Wrenches and tightening torques

Y = wrench 22 - 42 Nm (30.9 lbf ft)

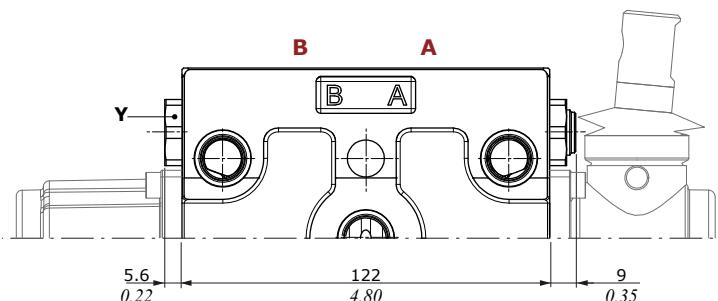
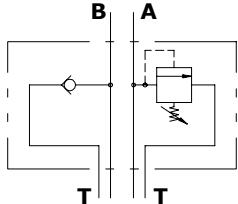
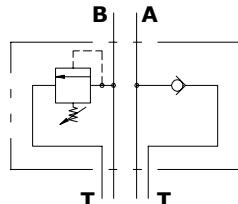
**Auxiliary valve configuration****Dimensional data and hydraulic circuits****Anticavitation valve example**

aux valve  
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**

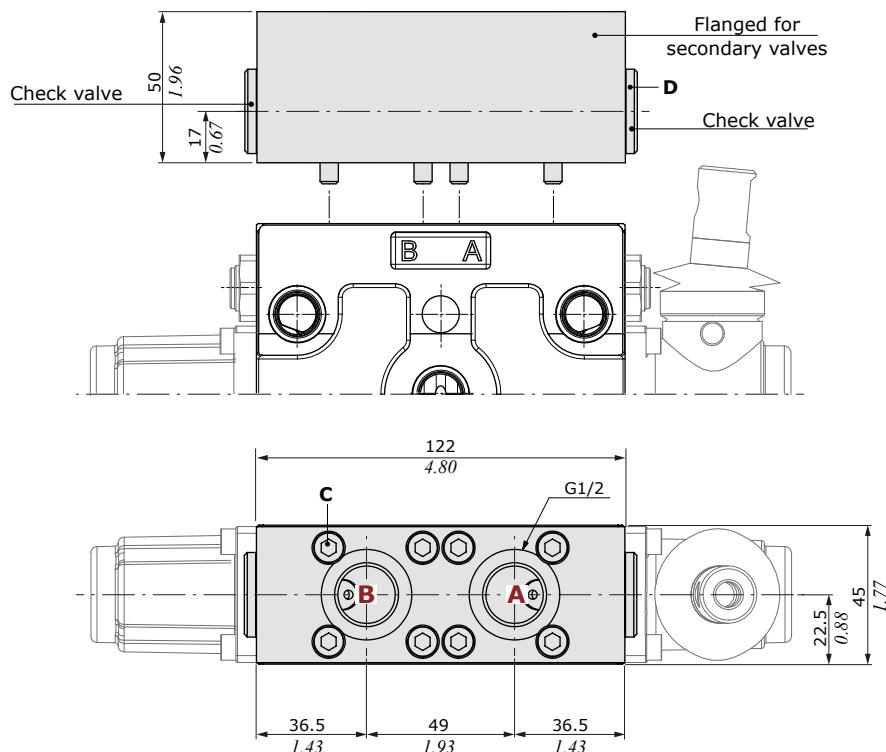
aux valve  
Q80 / 1 / ... / 103 - A1 - M1 - **V40** / ...

**Wrenches and tightening torques**  
Y = wrench 22 - 42 Nm (30.9 lbf ft)

**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**

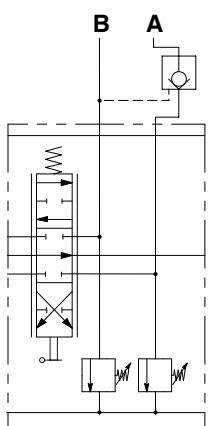
**Wrenches and tightening torques**

C = allen wrench 5 - 9.8 Nm (7.2 lbft)

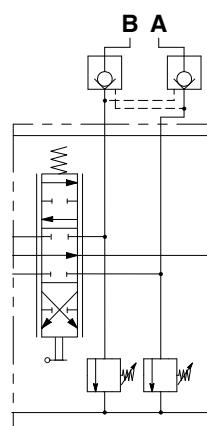
D = allen wrench 8 - 60 Nm (44.2 lbft)

**Q80.V40(N)120/VC01 configuration**

Parallel circuit, mechanical control with aux valves and flanged for single piloted check valve on A port

**Q80.V40(N)120/VC03 configuration**

Parallel circuit, mechanical control with aux valves and flanged for double piloted check valve on A and B ports

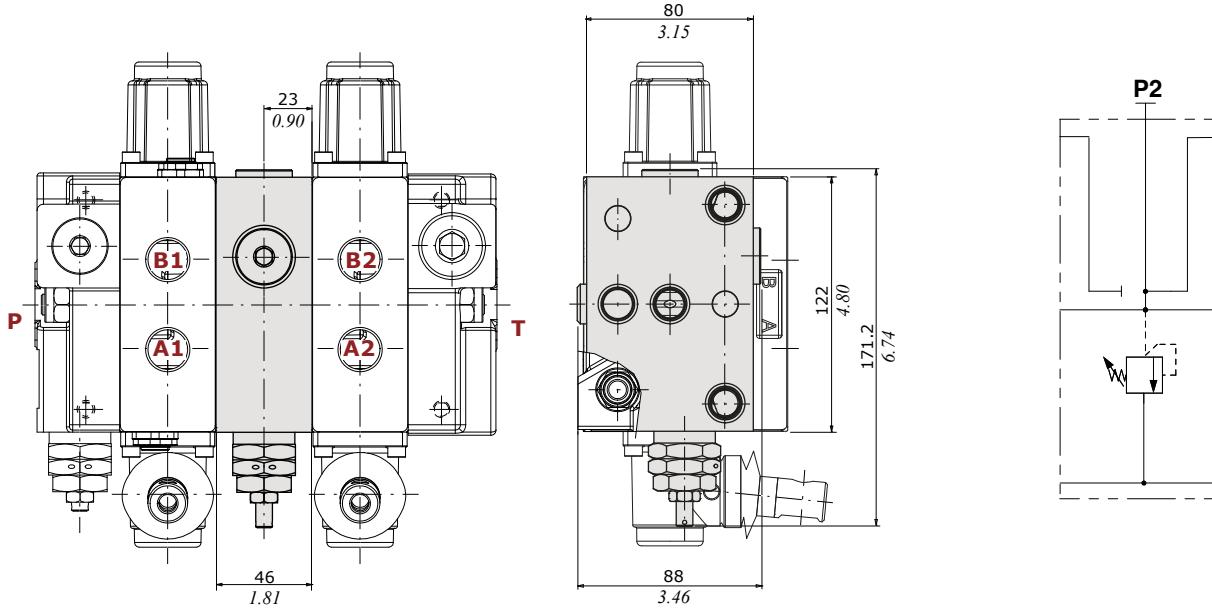


## Intermediate section

## Dimensional data and hydraulic circuit

**E50 type**

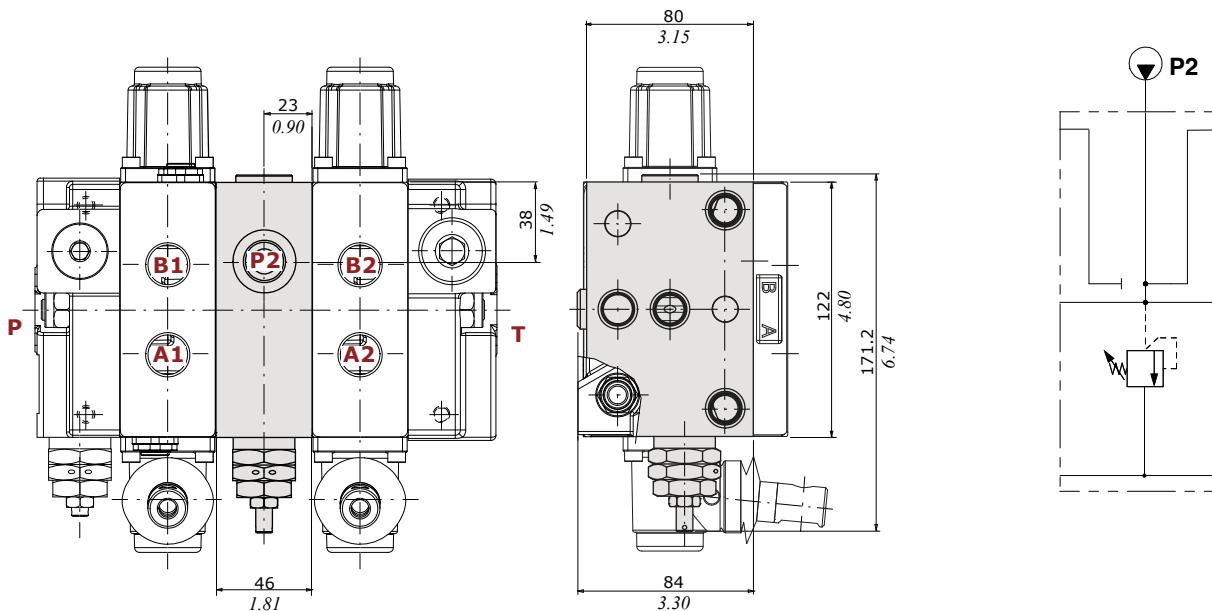
Intermediate inlet section with pressure relief valve

Description example: Q80/2/F7S(N150)/103-A1-M1.VC/**E50(N150)**/103-A1-M1/F3D

intermediate section      spring type and valve setting (bar)

**E53 type**

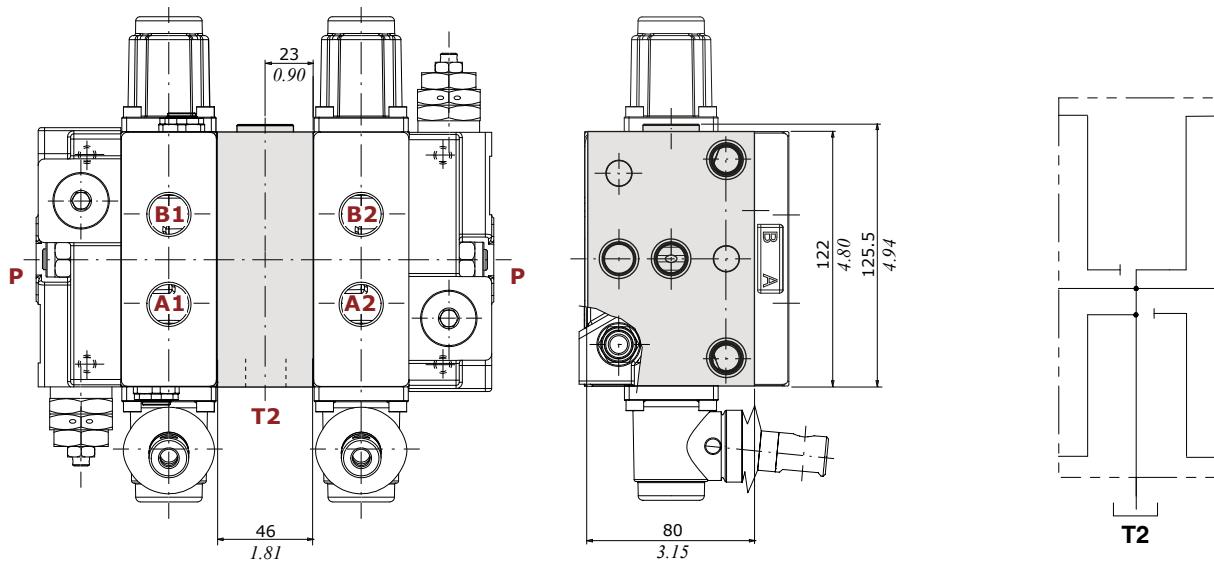
Intermediate inlet section with pressure relief valve and P2 port open

Description example: Q80/2/F7S(N150)/103-A1-M1.VC/**E53(N150)**/103-A1-M1/F3D

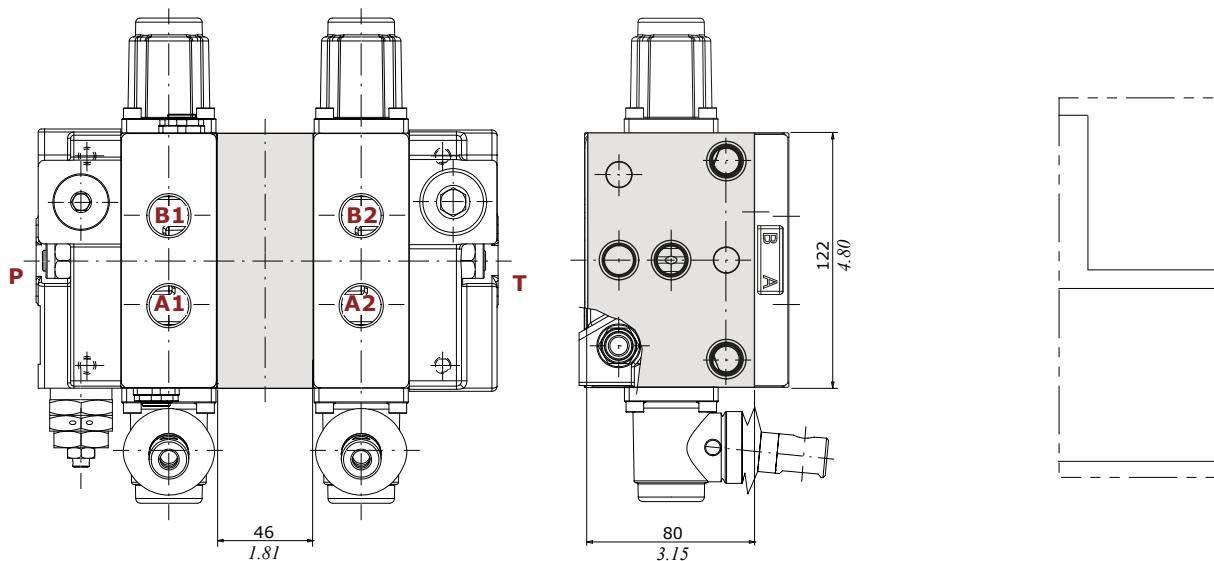
intermediate section      spring type and valve setting (bar)

**Intermediate section****Dimensional data and hydraulic circuit****E51 type**

Intermediate outlet section, T2 port open

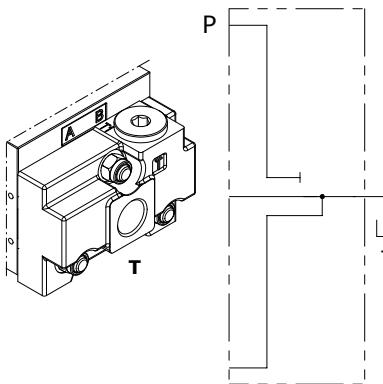
Description example: Q80/2/F7S(N150)/103-A1-M1.VC/**E51**/103-A1-M1/F3Dintermediate  
section**E61 type**

Intermediate spacer section

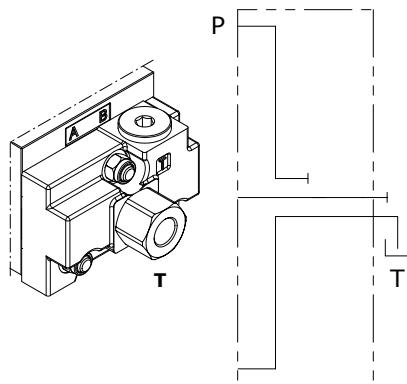
Description example: Q80/2/F7S(N150)/103-A1-M1.VC/**E61**/103-A1-M1/F3Dintermediate  
section

**Outlet section****F3D configuration**

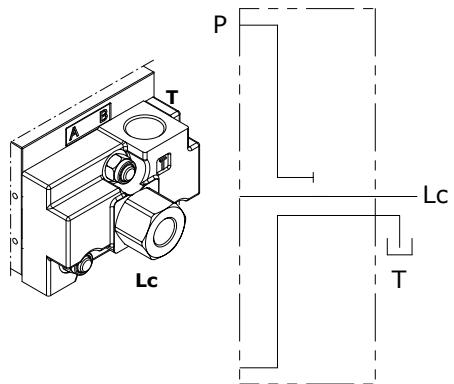
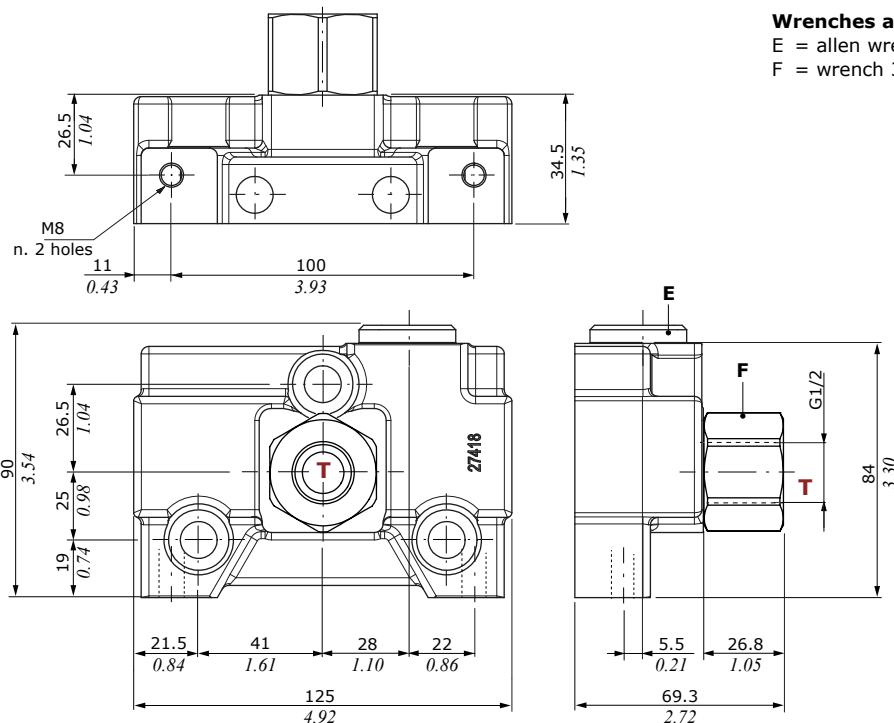
Open center configuration

**F16D configuration**

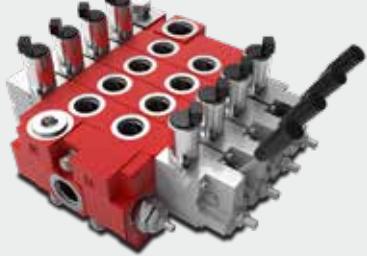
Closed center configuration

**F6D configuration**

Carry-over configuration

**F16D configuration example**





## 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  $46 \text{ mm}^2/\text{s}$  -  $46 \text{ cSt}$  viscosity at  $40^\circ\text{C}$  -  $104^\circ\text{F}$  temperature.

Nominal flow rating	130 l/min - (34.3 Us gpm)	
Max. pressure	from 1 up to 3 sections	370 bar (5450 psi)
	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 T 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 $-30^\circ\text{C}$ to $80^\circ\text{C}$ - from $-22^\circ\text{F}$ to $176^\circ\text{F}$
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 $-40^\circ\text{C}$ to $60^\circ\text{C}$ - from $40^\circ\text{F}$ to $140^\circ\text{F}$
	with electric devices	from $-20^\circ\text{C}$ to $50^\circ\text{C}$ - from $-4^\circ\text{F}$ to $122^\circ\text{F}$

NOTE - For different conditions please contact our Sales Department.

#### REFERENCE STANDARD

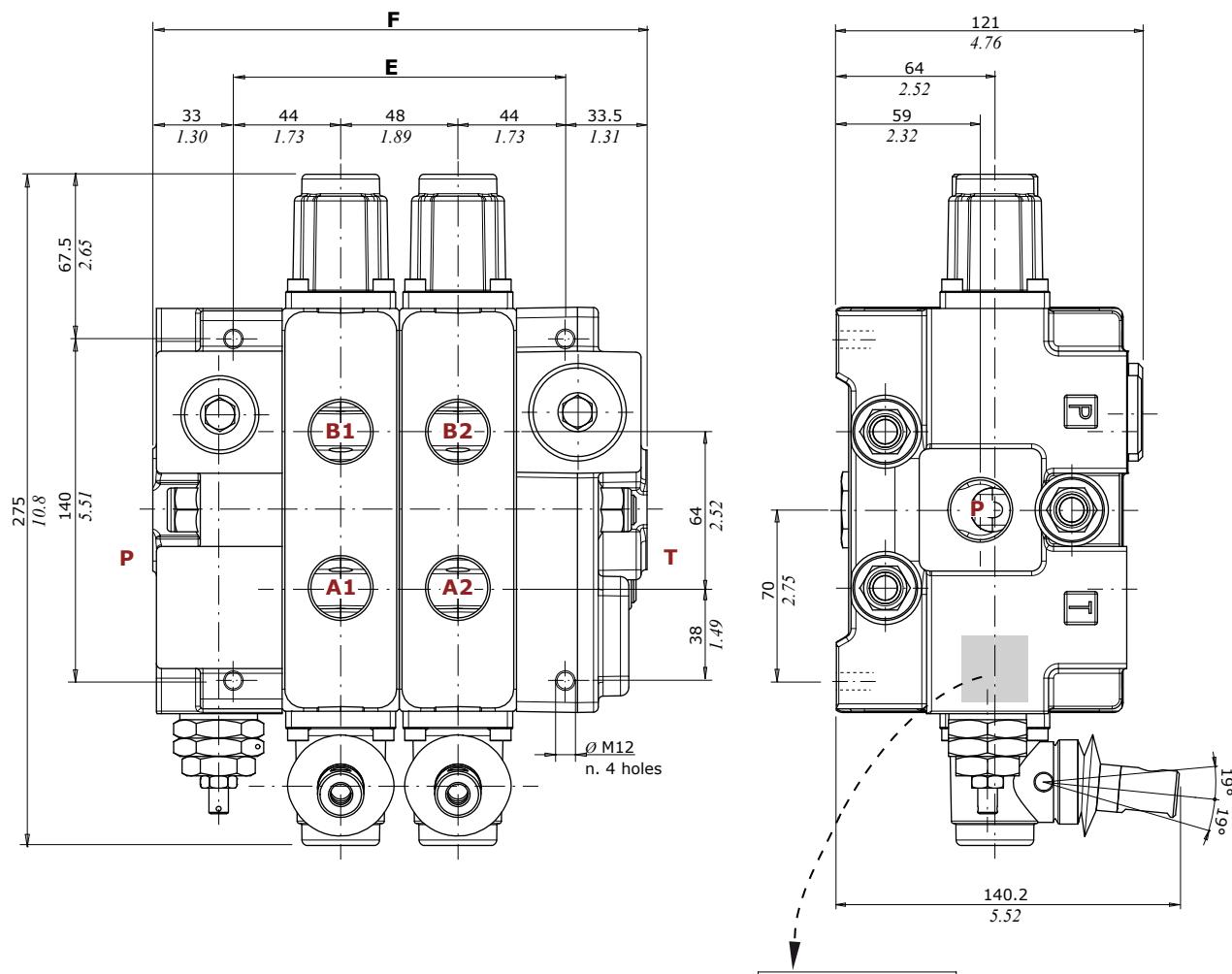
	BSP	UN-UNF
THREAD ACCORDING TO	ISO 228/1 BS 2779	ISO 263 ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO 1179 SAE DIN 3852-2 shape X or Y	11926 J11926

#### PORT THREADING

PORTS	BSP (standard)	BSP (G 1")	UN-UNF
P Inlet	G 3/4	G 1"	1" 5/16-12 (SAE16)
P1 Inlet	G 3/4	G 1"	1" 5/16-12 (SAE16)
A and B ports	G 3/4	G 1"	1" 5/16-12 (SAE16)
T Outlet	G 1"	G 1"	1" 5/16-12 (SAE16)
T1 Outlet	G 1"	G 1"	1" 5/16-12 (SAE16)
Lc 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\*



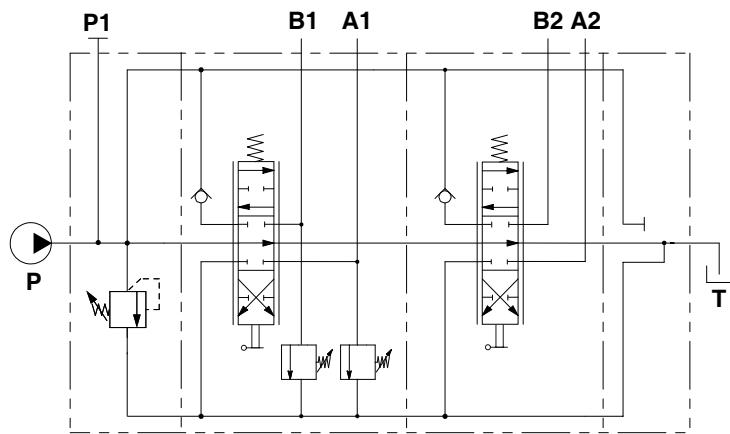
Type	E mm	E in	F mm	F in
<b>Q130/1</b>	88	3.46	154.5	6.08
<b>Q130/2</b>	136	5.35	202.5	7.97
<b>Q130/3</b>	184	7.24	250.5	9.86
<b>Q130/4</b>	232	9.13	298.5	11.75
<b>Q130/5</b>	280	11	346.5	13.64
<b>Q130/6</b>	328	12.91	394.5	15.53
<b>Q130/7</b>	376	14.80	442.5	17.42
<b>Q130/8</b>	424	16.70	490.5	19.31
<b>Q130/9</b>	472	18.58	538.5	21.20
<b>Q130/10</b>	520	20.47	586.5	23.09



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

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

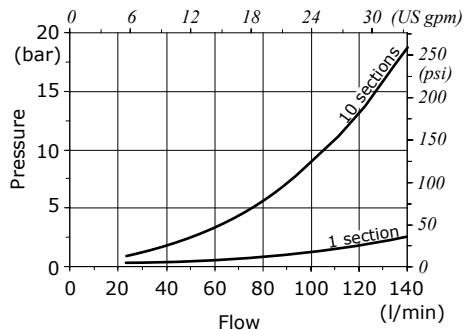
(\*): For other configurations, see page 254



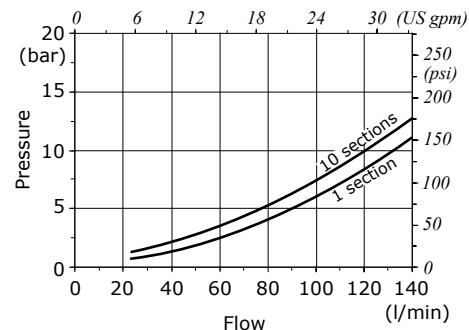
Description example (parallel circuit):  
Q130/2/F7S(N150)/103-A1-M1.V32(N105\N105)/103-A1-M1/F3D

### Performance data

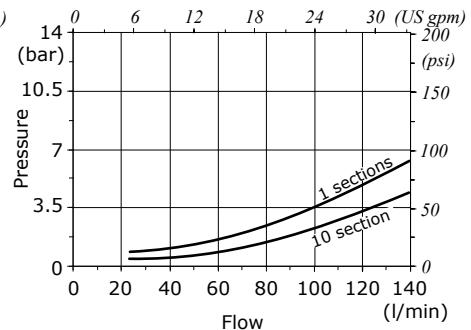
**P⇒T pressure drops**



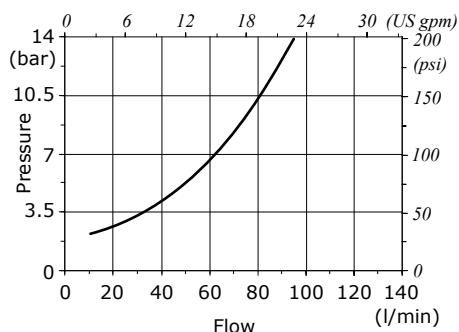
**P⇒A(B) pressure drops**



**A(B)⇒T pressure drops**



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



## Complete section ordering codes

Valve with mechanical and hydraulic controls configuration example

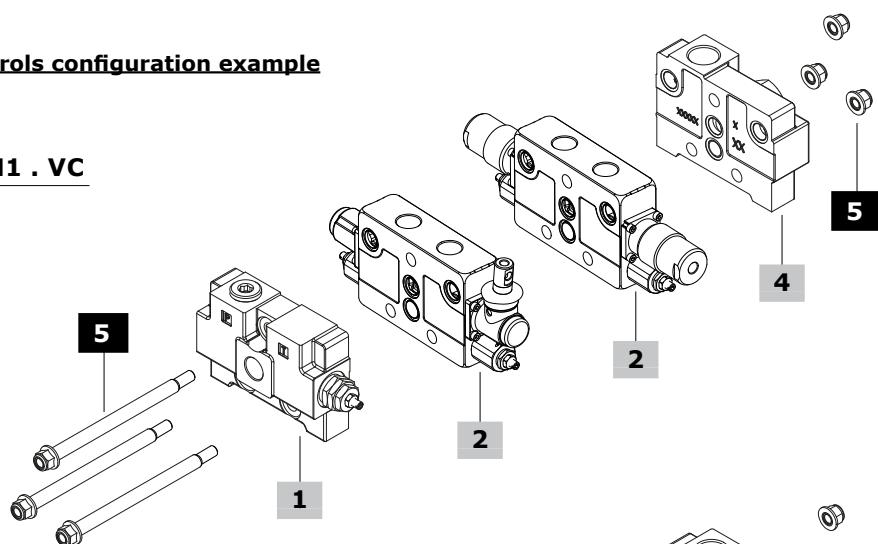
valve setting (bar)

**Q130 / 2 / F7S(N150) / 103 - A1 - M1 . VC**

N. of section      1      2

**/ 103 - H1 . VC / F6D**

2      4

Valve with intermediate section and mechanical control configuration example

valve setting (bar)

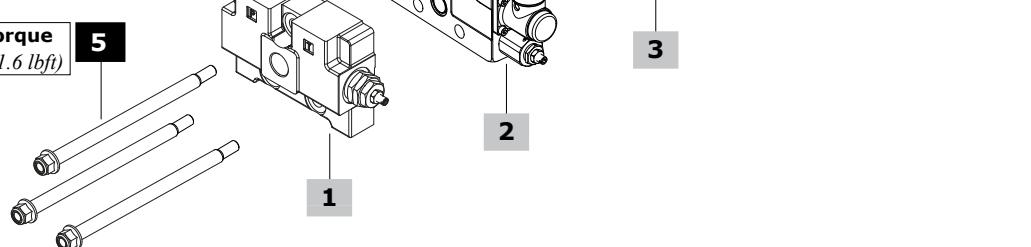
**Q130 / 2 / F7S(N150) / 103 - A1 - M1 . VC /**

1      2

**/ E50(N150) / 103 - A1 - M1 . VC / F6D**

3      2      4

Tie rod tightening torque  
wrench 18 - 70 Nm (51.6 lbf)

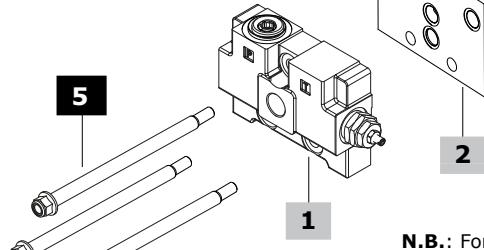
Valve with electrohydraulic control configuration example

**Q130 / 2 / F7S(N150) / KE2R / 103 - A1 - D2W . VC**

1      2

**/ 103 - A1 - D2W . VC / F6D - 12VDC**

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 226**

TYPE: <b>FE-Q130/F7S(N150)</b>	CODE: 10000F7S/D-N
DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve, setting range 101-200 bar ( <i>1460-2900 psi</i> )	
TYPE: <b>FE-Q130/F8S</b>	CODE: 10003F8S/D
DESCRIPTION: As previous one, without valves (pressure relief valve plugged port)	

**2 Working section\*****page 229**With mechanical controls

TYPE: <b>EL-Q130/103-A1-M1.VC</b>	CODE: SGL130004
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, lever control and spring return to neutral position	
TYPE: <b>EL-Q130/103-A1-M1</b>	CODE: 100000103001000
DESCRIPTION: As previous one, without valve arrangement	

With proportional hydraulic controls

TYPE: <b>EL-Q130/103-H1.VC</b>	CODE: SGL130005
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, high pressure hydraulic controls, spring return to neutral position	
TYPE: <b>EL-Q130/103-H1</b>	CODE: SGL130006
DESCRIPTION: As previous one, without valve arrangement	
TYPE: <b>EL-Q130/103-H5.VC</b>	CODE: SGL130007
DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, low pressure hydraulic controls, spring return to neutral position	
TYPE: <b>EL-Q130/103-H5</b>	CODE: SGL130008
DESCRIPTION: As previous one, without valve arrangement	
<u>With electrohydraulic ON/OFF controls - one side type</u>	
TYPE: <b>EL-Q130/KE1S/103-A1-D2W.VC -12VDC</b>	CODE: SGL130011
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: <b>EL-Q130/KE1S/103-A1-D2W-12VDC</b>	CODE: SGL130012
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 ( <i>145-1450 psi</i> )
	10850E50-N	As previous one, setting range 101-200 bar ( <i>1460-2900 psi</i> )
	10850E50-R	As previous one, setting range 201-380 bar ( <i>2910-5500 psi</i> )
<b>E53</b>	10854E53-B	With pressure relief valve setting range 10-100 bar ( <i>145-1450 psi</i> ) and P2 port open for 2 <sup>nd</sup> pump
	10854E53-N	As previous one, setting range 101-200 bar ( <i>1460-2900 psi</i> )
	10854E53-R	As previous one, setting range 201-380 bar ( <i>2910-5500 psi</i> )
<b>E51</b>	10853E51	Intermediate outlet section, T2 port open
<b>E61</b>	10877E61	Intermediate spacer section

**4 Outlet section\*****page 256**

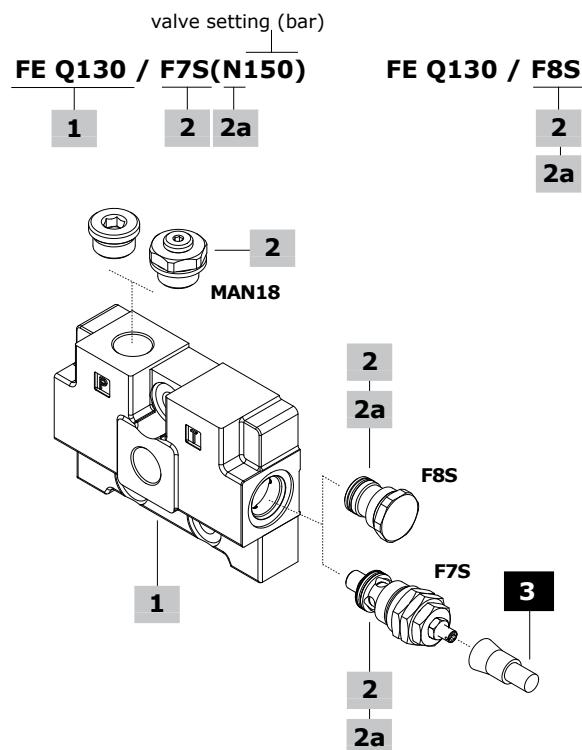
TYPE: <b>FS-Q130-F3D</b>	CODE: 10012F3D
DESCRIPTION: T port open, T1 port plugged. For open center circuit	
TYPE: <b>FS-Q130-F16D</b>	CODE: 10016F16D
DESCRIPTION: T port open, T1 port plugged. For closed center circuit	
TYPE: <b>FS-Q130-F6D</b>	CODE: 10014F6D
DESCRIPTION: Lc port and T1 port open. With 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 **BSP** thread

## Inlet section - parts ordering codes

**1 Inlet body section\*** page 227TYPE: **FE-Q130** CODE: 060012839699

DESCRIPTION: Side inlet port, upper inlet plugged, for pressure relief valve arrangement

**2 Configuration coding\*** page 227

TYPE DESCRIPTION

**F7S** With pressure relief valve**F8S** Without valves (pressure relief valve plugged port)**Note:** Inlet configurations require upper P port:

n. 1 G3/4 plug code 3XTAP732200, or n. 1 pressure gauge arrangement code 5MAN632231

**2a Main pressure relief valve** page 228TYPE: **B** CODE: 700105205000000

DESCRIPTION: VLP105S valve, setting range 10-100 bar (145-1450 psi)

TYPE: **N** CODE: 700105105000000

DESCRIPTION: VLP105S valve, setting range 101-200 bar (1460-2900 psi)

TYPE: **R** 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 **BSP** thread

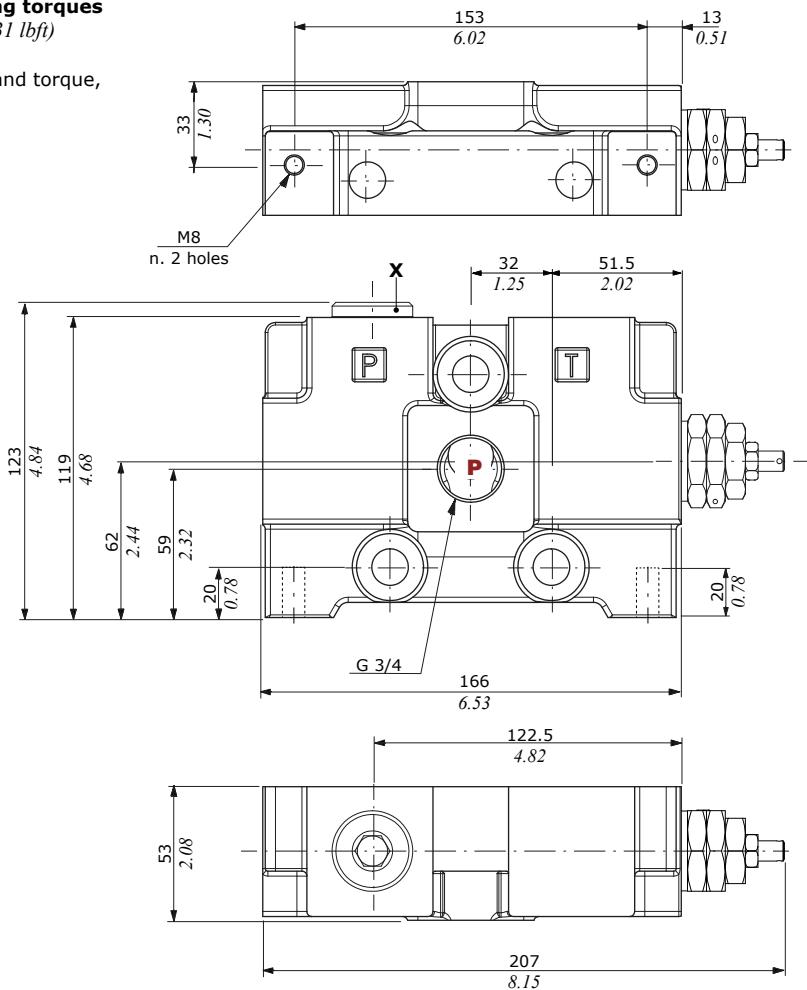
## Inlet section

## Dimensional data and hydraulic circuits

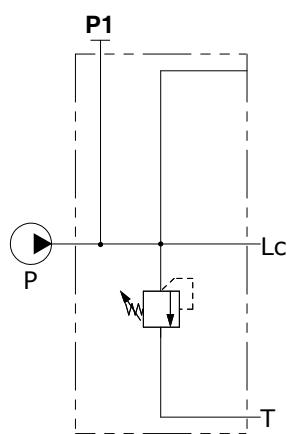
## Wrenches and tightening torques

X = wrench 12 - 42 Nm (31 lbf ft)

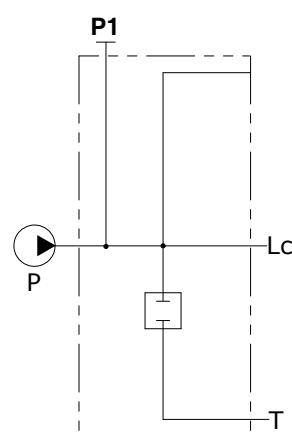
**Note:** For valves wrench and torque,  
see related pages

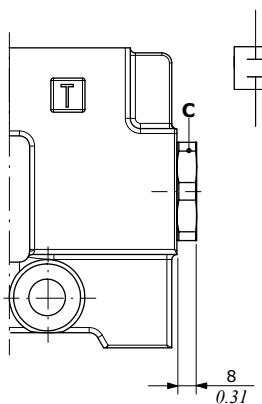
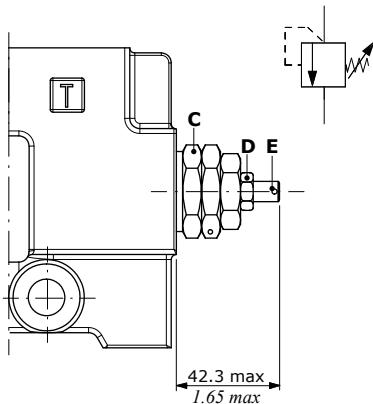


**F7S configuration**  
With pressure relief valve



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

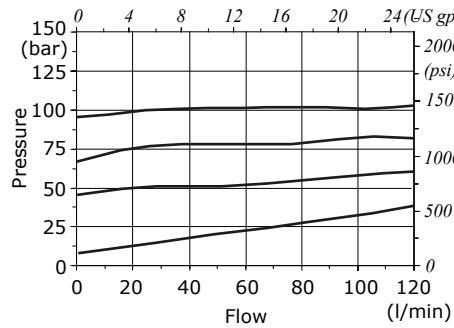
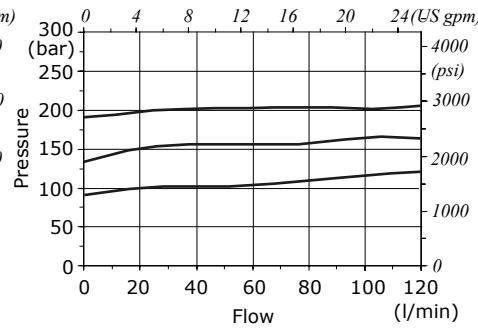
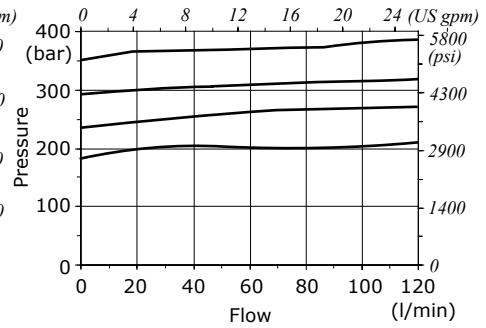


**Inlet section****Main pressure relief valve****Relief valve blanking plug****Main pressure relief valve****Wrenches and tightening torques**

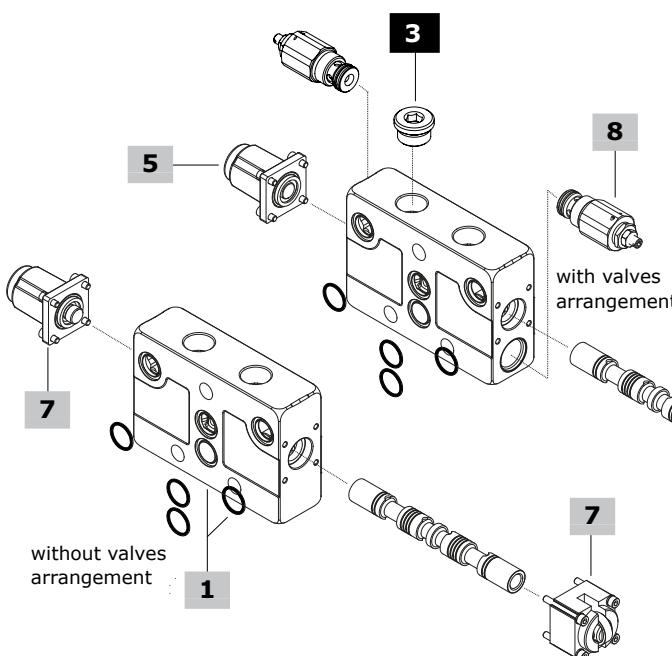
C = wrench 32 - 80 Nm (59 lbft)

D = wrench 13 - 24 Nm (17.7 lbft)

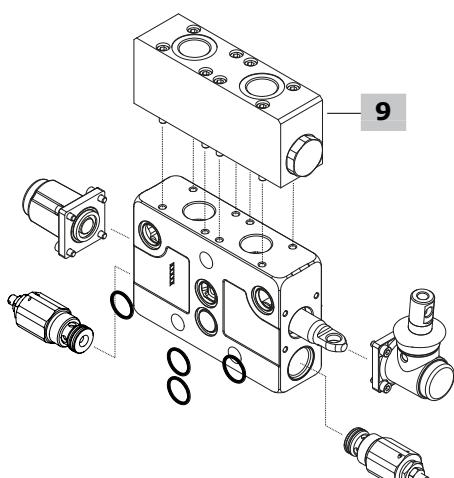
E = allen wrench 4

**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 Q130 / 102 - A1 - M1 . V40(N)120  
1 2 4 5 8C2/C3 complete mechanical control configuration exampleEL Q130 / 103 - C3 . V40(N)120  
7Mechanical control valve with arrangement for secondary aux valves block: configuration exampleEL Q130 / 103 - A1 - M1 . V40(N)120 / VC03  
9**1 Working section body kit\*** page 233

- TYPE: **EL-Q130.VC** CODE: 5EL0600127898  
 DESCRIPTION: Parallel circuit, with port valves arrangement
- TYPE: **EL-Q130.VC.VPC** CODE: 5EL0600128894  
 DESCRIPTION: Parallel circuit with port valves arrangement, for secondary aux valves block
- TYPE: **EL-Q130** CODE: 5EL0600127893  
 DESCRIPTION: Parallel circuit, without port valves arrangement
- TYPE: **EL-Q130.VC** CODE: 5EL0600127896  
 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
	KR130111K	As previous one, for <b>kick-out</b> control
<b>101</b>	3CUG2996000	Single acting on port A. G3/4 plug is required, see #3
<b>102</b>	3CUG2996001	Single acting on port B. G3/4 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

Special spools for cam, microswitch controls and other leverless controls

<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
-	060002800899	G3/4 plug

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

## Working section - parts ordering codes

<b>4 A side control</b>			<b>page 235</b>	<b>5 B side controls (cont.)</b>			<b>page 242</b>	
TYPE	CODE	DESCRIPTION		TYPE	CODE	DESCRIPTION		
<b>For standard spools</b>								
<u>With lever control:</u>								
<b>A1</b>	10600A1-A2	M10 thread aluminium lever box	<b>R1K</b>	10741R1K	3 pos.,	detent in position 1		
<b>A2</b>	10600A1-A2	As A1 type, with lever box rotated 180°	<b>R2K</b>	10742R2K	3 pos.,	detent in position 2		
<b>A1/Z1</b>	10610A1-A2/Z1	Aluminium lever box for <b>116</b> spool type	<b>R3K</b>	10743R3K	3 pos.,	detent in all position		
<b>A2/Z1</b>	10610A1-A2/Z1	As A1/Z1 type, with lever box rotated 180°	<u>With spool position microswitch:</u>					
<u>With safety lever control:</u>								
<b>A1/S<sup>(1)</sup></b>	10624A1-A2/S	M10 thread aluminium lever box	<b>Note:</b> To complete the control you must use the assembly kit at #6					
<b>A2/S<sup>(1)</sup></b>	10624A1-A2/S	As A1/S type, with lever box rotated 180°	<b>M1-N1</b>	10766M1-N1	3 pos.,	micro operation in pos. 1 and 2,		
<u>Without lever control:</u>								
<b>A6</b>	10620A6	With flange	spring return in neutral position					
<b>A6/Z1</b>	10620A6/Z1	As A6 type, for <b>116</b> spool type	<b>M1-N1A</b>	10767M1-N1A	As M1-N1 type,	micro operation in pos. 1		
<b>A6H</b>	10620A6HH	As A6 type, with scraper	<b>M1-N1B</b>	10768M1-N1B	As M1-N1 type,	micro operation in pos. 2		
<b>A8</b>	10622A8	Arrangement for flexible cable control	<b>M2-N1</b>	10769M2-N1	2 pos. (0-1),	spring return in neutral position		
<b>A8/Z1</b>	10622A8/Z1	As A8 type, for <b>116</b> spool type	<b>M3-N1</b>	10772M3-N1	2 pos. (0-2),	spring return in neutral position		
<u>Joystick controls for 2 section operation:</u>			<u>Pneumatic and electropneumatic controls:</u>					
<b>A35/1</b>	10637A35-12	Joystick 1 type	<b>P1N</b>	10561P1-N	ON/OFF pneumatic control			
<b>A35/2</b>	10637A35-12	Joystick 2 type	<b>P1NP</b>	10561P1-NP	Proportional pneumatic control			
<b>A35/3</b>	10637A35-34	Joystick 3 type	<b>D3</b>	10591D3-O-12DC	12 VDC, ON/OFF electropneumatic control			
<b>A35/4</b>	10637A35-34	Joystick 4 type		10592D3-O-24DC	24 VDC, ON/OFF electropneumatic control			
<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>6 Microswitch assembly kit</b>					
<b>N1A-A1</b>	10642N1A-A1/A2	Micro operation in pos. 1, with lever box	CODE	DESCRIPTION				
<b>N1B-A1</b>	10643N1B-A1/A2	Micro operation in pos. 2, with lever box	10650N1-01	Kit for 1 section				
<b>N1-A3</b>	10648N1-A3	Micro operation in pos. 1 and 2, without lever with cap	10650N1-02	Kit for 2 sections				
<b>N1A-A3</b>	10648N1A-A3	Micro operation in pos. 1, without lever with cap	10650N1-03	Kit for 3 sections				
<b>N1B-A3</b>	10648N1B-A3	Micro operation in pos. 2, without lever with cap	10650N1-04	Kit for 4 sections				
<u>Without lever control:</u>			10650N1-05	Kit for 5 sections				
<b>A3</b>	10614A3	Without lever, with cap	10650N1-06	Kit for 6 sections				
<b>A4</b>	10617A4	M10 thread male external pin with flange	10650N1-07	Kit for 7 sections				
<b>A5<sup>(2)</sup></b>	10619A5	Flange with spherical spool end	10650N1-08	Kit for 8 sections				
<b>5 B side control</b>			10650N1-09	Kit for 9 sections				
<b>page 242</b>			10650N1-10	Kit for 10 sections				
<b>7 Complete controls A+B sides</b>			<b>7 Complete controls A+B sides</b>					
TYPE	CODE	DESCRIPTION	<b>page 247</b>					
<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						
<b>8 Auxiliary port valve</b>								<b>page 251</b>
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>VO4</b>	10808V04	Anticavitation valve						
<u>Plug:</u>								
<b>VC</b>	060002798999	Valve blanking plug						
For other configurations and positions, see page 251								
<b>9 Secondary aux valves*</b>								<b>page 253</b>
TYPE	CODE	DESCRIPTION						
<b>VRP-VC01</b>	10835V01	Single piloted check valve on A port, 250 bar (3600 psi)						
<b>VRP-VC03</b>	10837V03	Double piloted check valve on A and B ports, 250 bar (3600 psi)						

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

(¹): Always complete with lever knob

(²): To be assembled only with M4 control

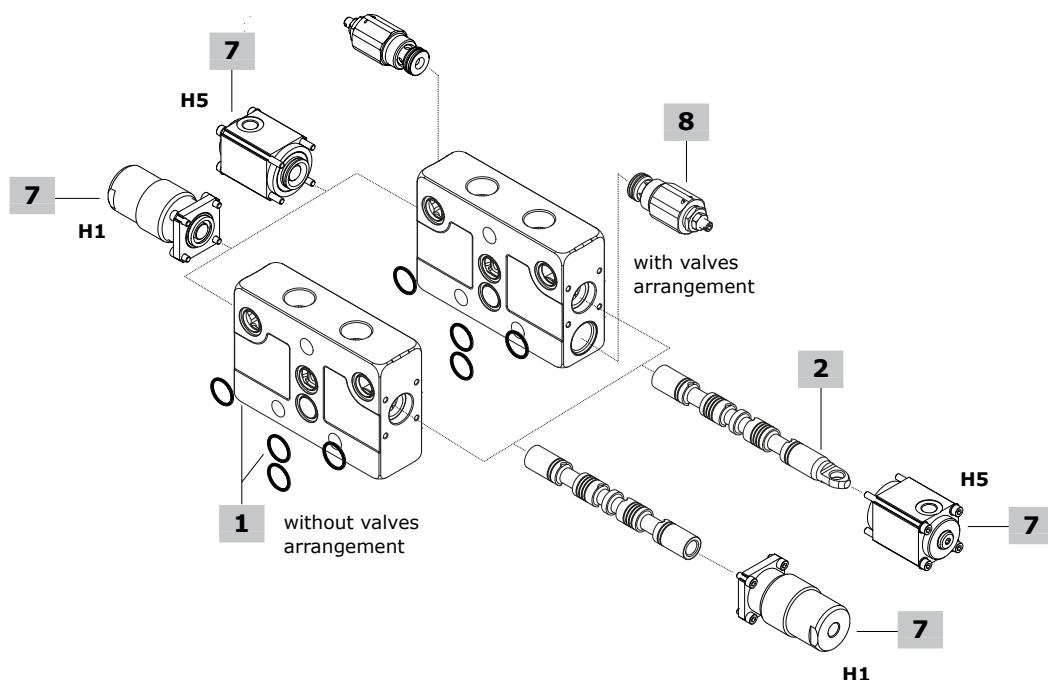
## Working section - parts ordering codes

Proportional hydraulic controls valve configuration example

spring type and valve setting (bar)

**EL Q130 / 103 - H5 . V40(N)120**

**EL Q130 / 103 - H1 . V40(N)120**

**1 Working section body kit\*** page 233

The body kits listed below are for **H5** hydraulic control.  
**H1** hydraulic control requires standard body: see #1, page 229  
 TYPE: **EL-Q130-H5.VC** CODE: 5ELO600127898H5  
 DESCRIPTION: Parallel circuit, with port valves arrangement  
 TYPE: **EL-Q130-H5** CODE: 5ELO600127893H5  
 DESCRIPTION: Parallel circuit, without port valves arrangement

**2 Spool** page 234

TYPE	CODE	DESCRIPTION
<b>For H5 hydraulic control</b>		
<b>103</b>	060102983699	Double acting, A and B closed in neutral position
<b>For H1 hydraulic control</b>		
<b>103</b>	060102996199	Double acting, A and B closed in neutral position

**7 Hydraulic controls A+B sides\*** page 248

TYPE	CODE	DESCRIPTION
<b>H5</b>	10785H5	Low pressure proportional type, upper ports
<b>H1</b>	10779H1	High pressure proportional type, side ports

**8 Auxiliary port valve** page 251

See #8, page 230

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

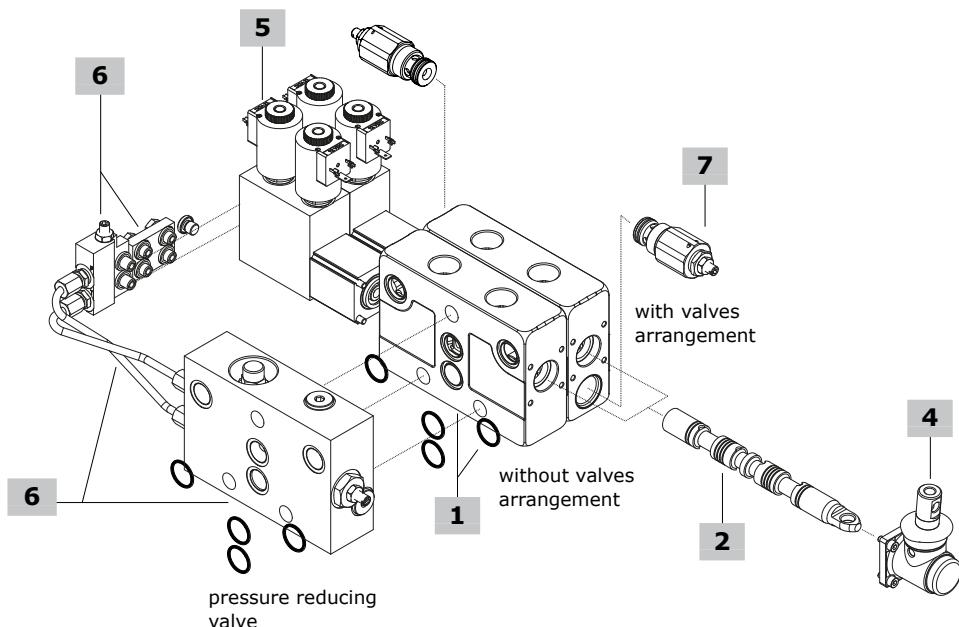
## Working section - parts ordering codes

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**

1 6 2 4 5 7 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(\*): Codes are referred to **BSP** thread**6 Connector kit**[page 250](#)

## TYPE CODE DESCRIPTION

**Without pressure reducing valve**

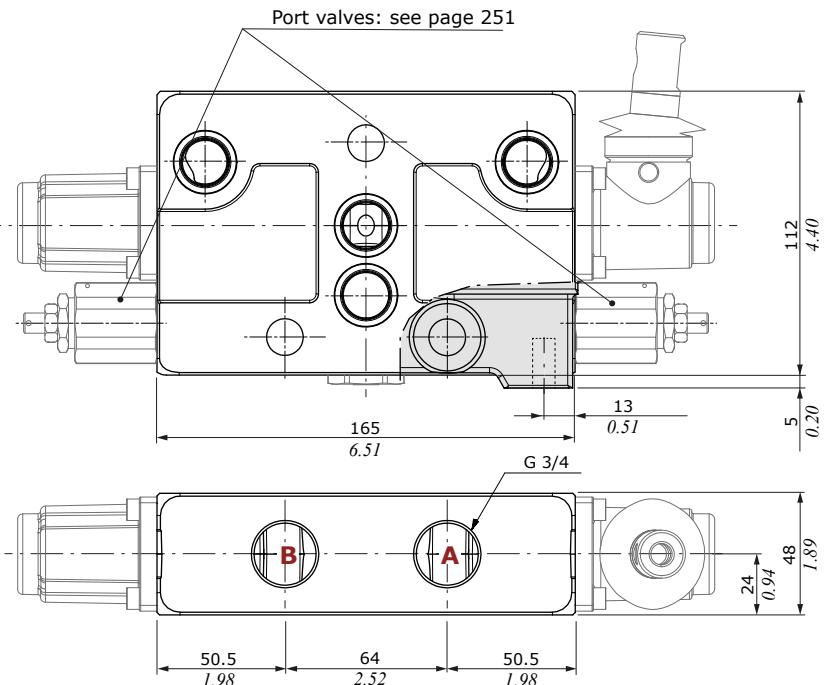
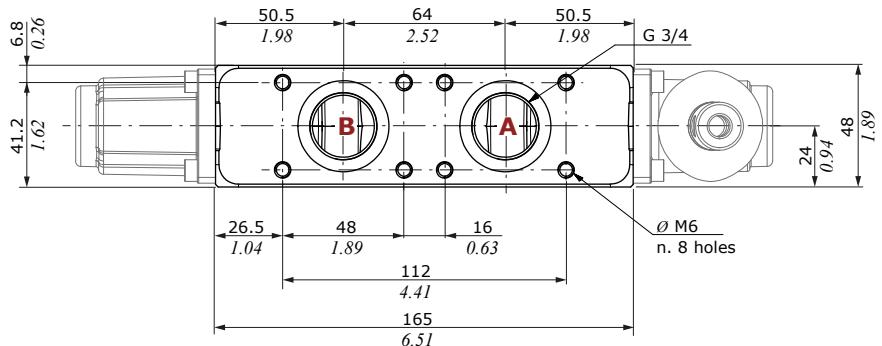
<b>KE1S</b>	5GKE13S010	Kit for 1 section
<b>KE2S</b>	5GKE13S020	Kit for 2 sections
<b>KE3S</b>	5GKE13S030	Kit for 3 sections
<b>KE4S</b>	5GKE13S040	Kit for 4 sections
<b>KE5S</b>	5GKE13S050	Kit for 5 sections
<b>KE6S</b>	5GKE13S060	Kit for 6 sections
<b>KE7S</b>	5GKE13S070	Kit for 7 sections
<b>KE8S</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**

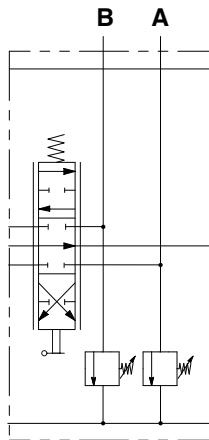
<b>KE1R</b>	5GKE13R010	Kit for 1 section
<b>KE2R</b>	5GKE13R020	Kit for 2 sections
<b>KE3R</b>	5GKE13R030	Kit for 3 sections
<b>KE4R</b>	5GKE13R040	Kit for 4 sections
<b>KE5R</b>	5GKE13R050	Kit for 5 sections
<b>KE6R</b>	5GKE13R060	Kit for 6 sections
<b>KE7R</b>	5GKE13R070	Kit for 7 sections
<b>KE8R</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](#)

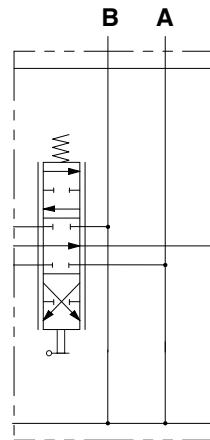
See #8, page 230

**Working section****Dimensional data and hydraulic circuits****Standard working section****Working section for secondary aux valves block****Q130.V40(N)120 configuration**

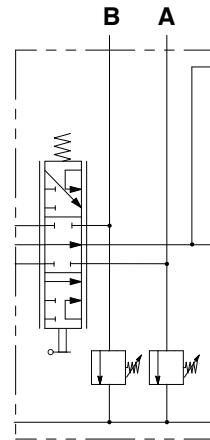
Parallel circuit,  
mechanical control with aux valves

**Q130 configuration**

Parallel circuit,  
mechanical control without aux valves

**Q130.V40(N)120 configuration**

Series circuit,  
mechanical control with aux valves



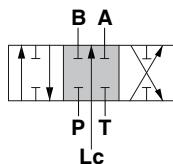
## Working section

## Spool

**103 type**

A and B closed  
in neutral position

2 0 1

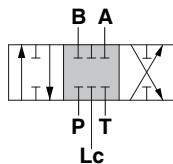
**Stroke**

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

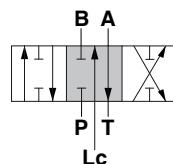
**Stroke**

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

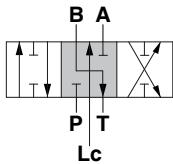
**Stroke**

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

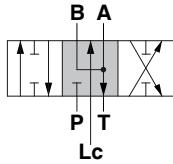
**Stroke**

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

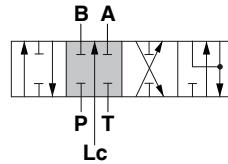
**Stroke**

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

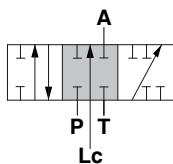
**Stroke**

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

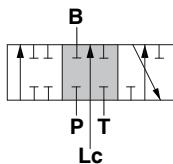
**Stroke**

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

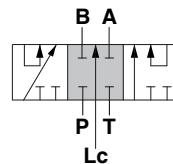
**Stroke**

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)

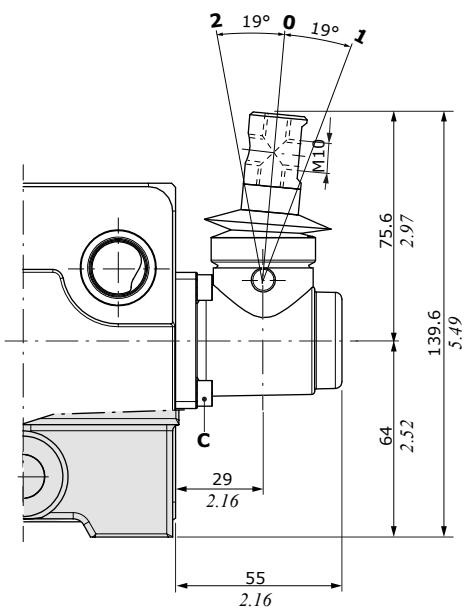
## Working section

**A side controls****With lever control****A1 type**

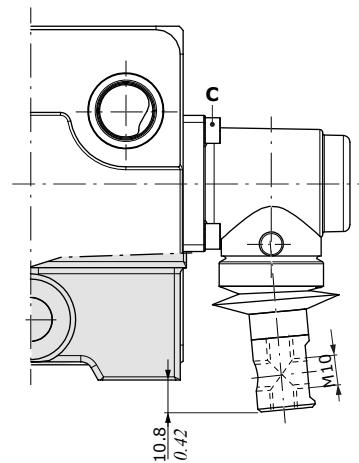
M10 thread aluminium lever box

**Wrenches and tightening torques**

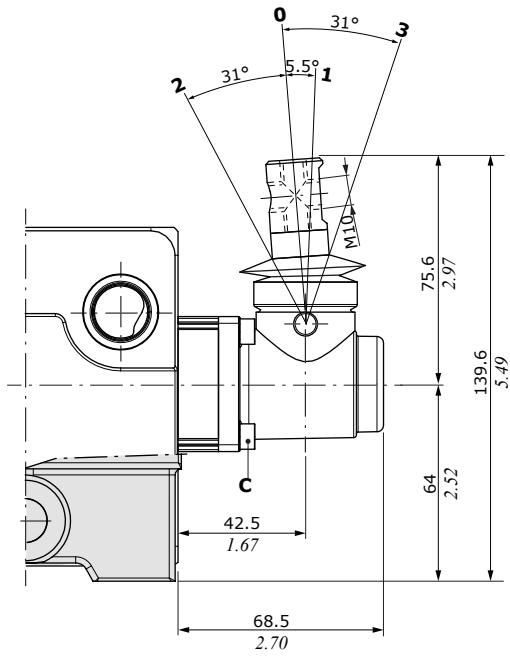
C = allen wrench 4 - 6.6 Nm (4.8 lbf)

**A2 type**

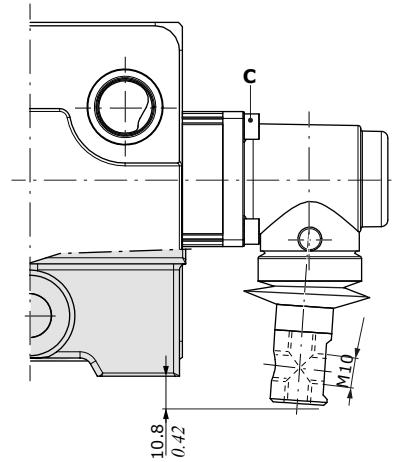
As A1 type, rotated 180°

**A1/Z1 type**

M10 thread, for 116 floating spool type

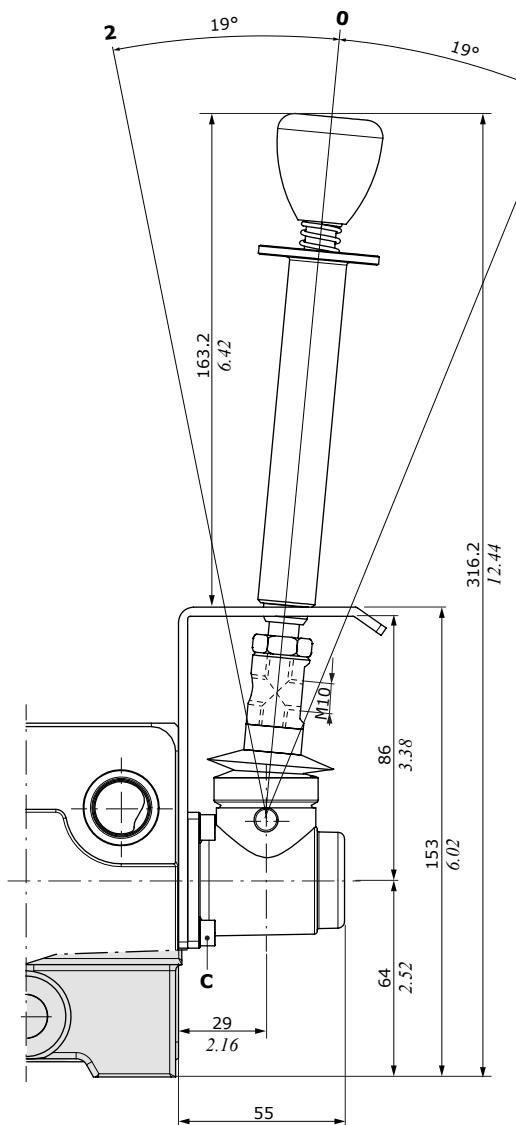
**A2/Z1 type**

As A1/Z1 type, rotated 180°

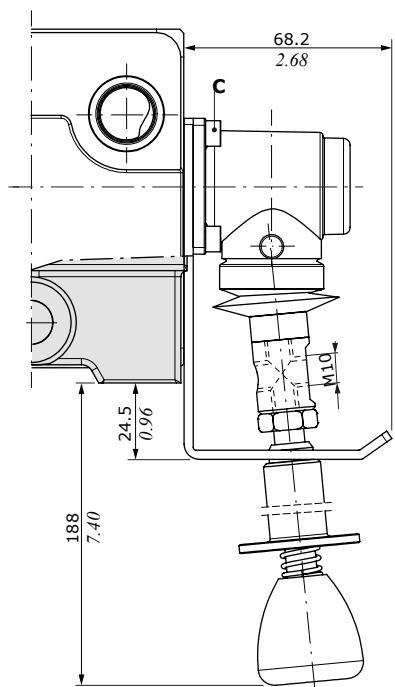


**Working section****A side controls****With safety lever control****A1/S type**

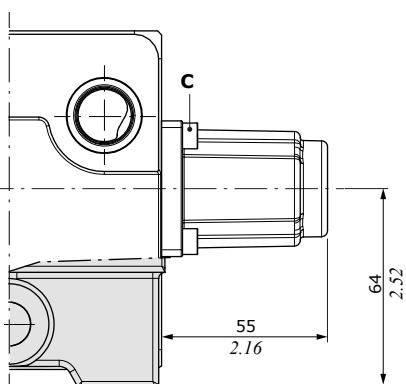
M10 thread, aluminium lever box

**A2/S type**

As A1/S type, rotated 180°

**Without lever control****A3 type**

With cap

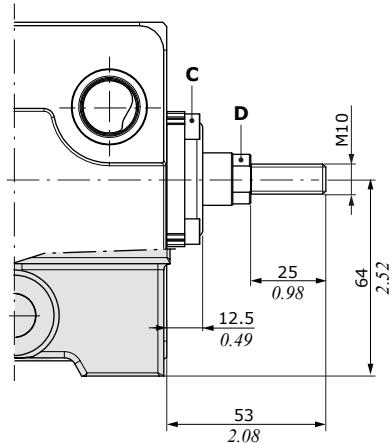
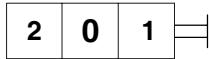


**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbf)

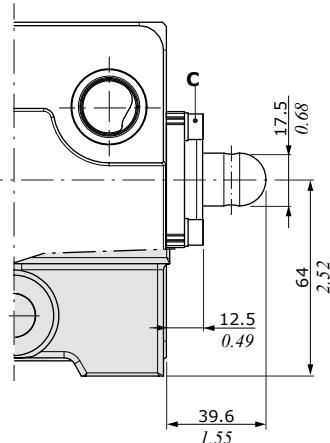
## Working section

**A side controls****Without lever control****A4 type**

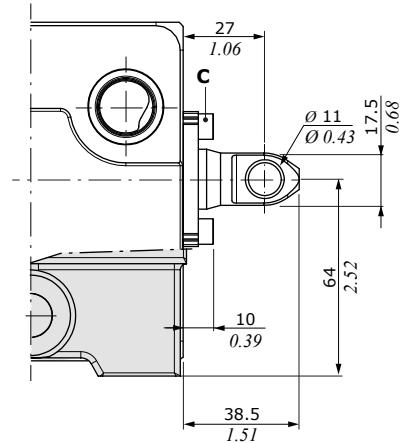
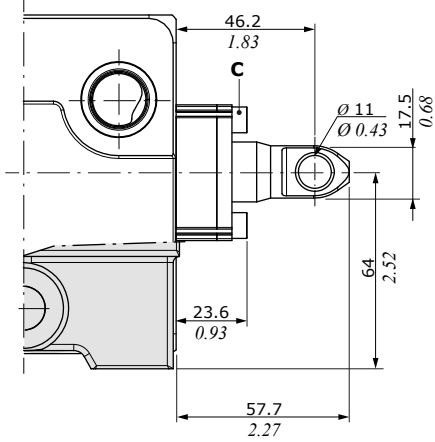
M8 male thread external pin with flange

**A5 type**

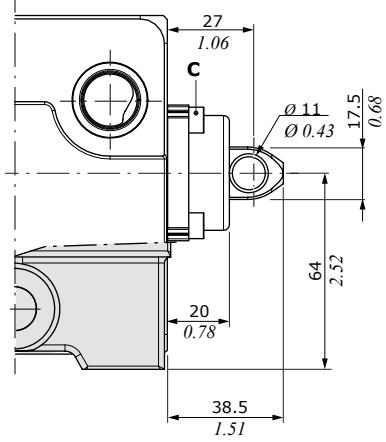
Flange with spherical spool end

**A6 type**

With flange

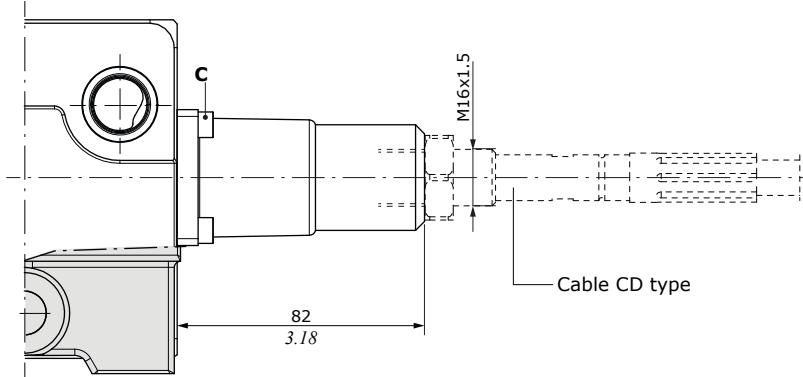
**A6/Z1 type**As A6 type,  
for 116 floating spool type**A6H type**

As A6 type, with scraper

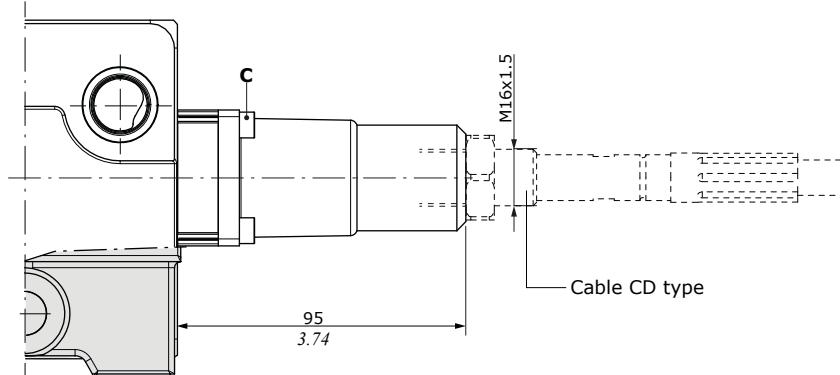
**Wrenches and tightening torques**C = allen wrench 4 - 6.6 Nm (4.8 lbf ft)  
D = wrench 13 - 9.8 Nm (7.2 lbf ft)

**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**

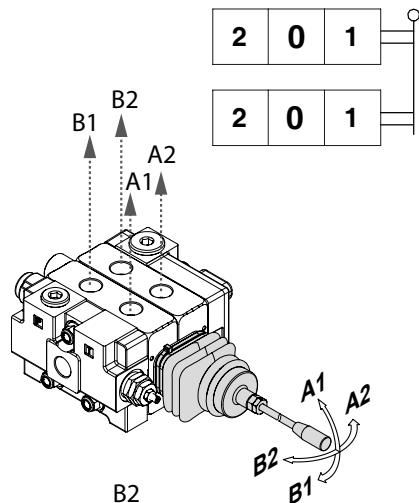
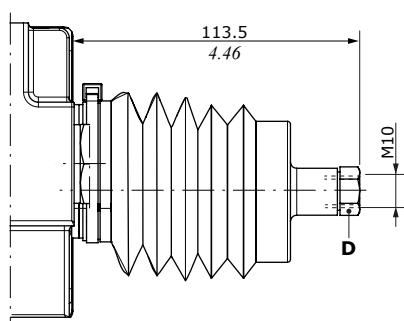
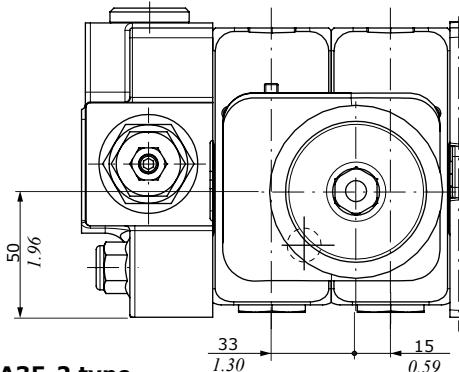
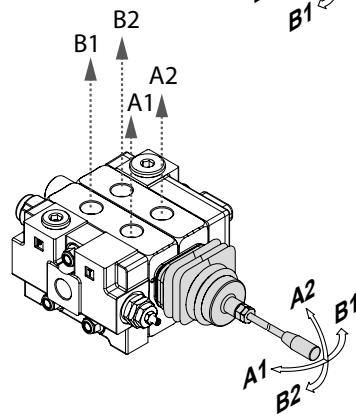
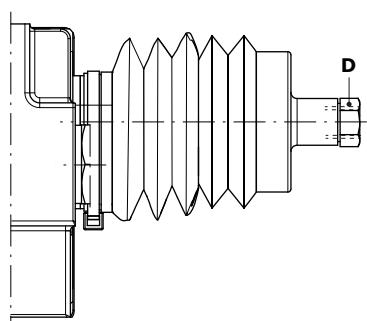
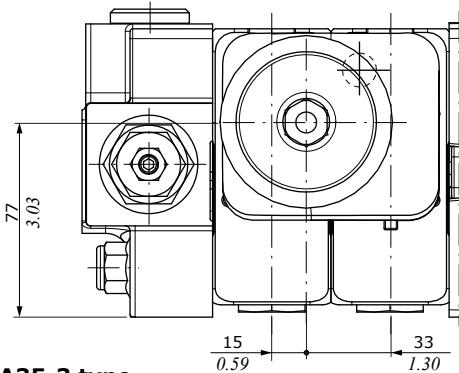
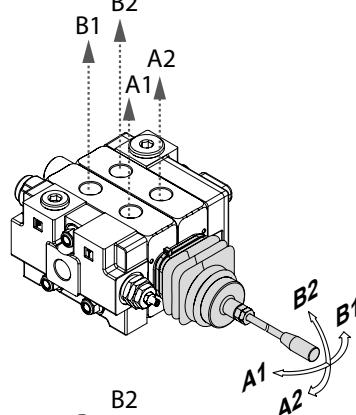
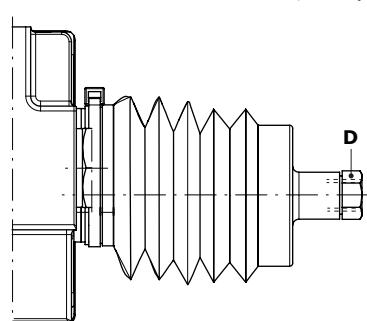
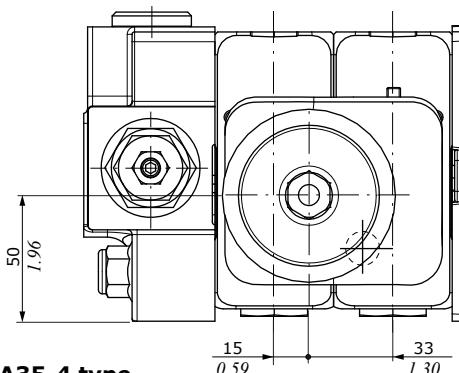
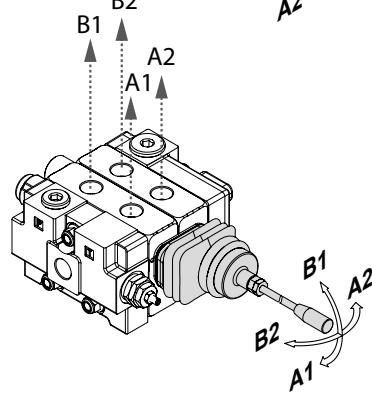
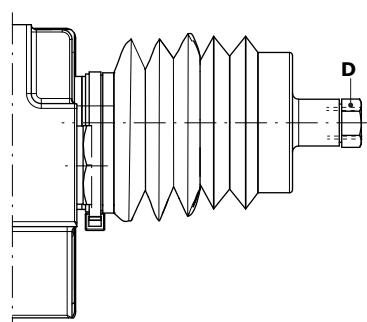
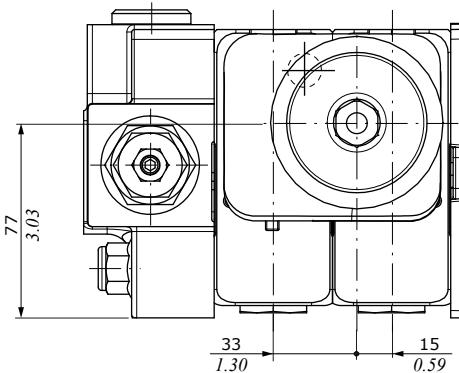
C = allen wrench 4 - 6.6 Nm (4.8 lbf ft)

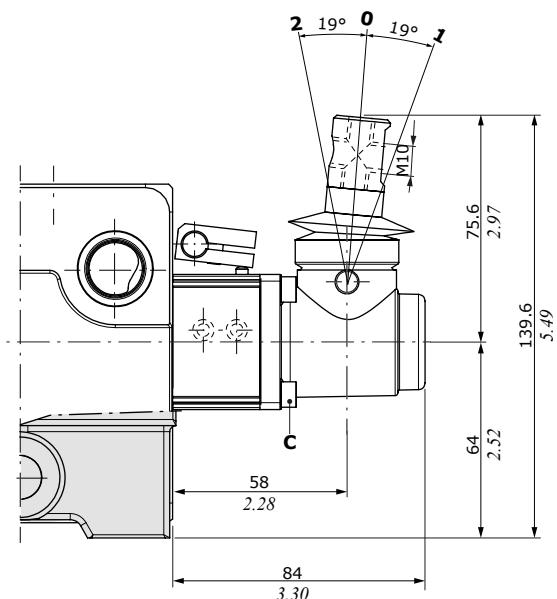
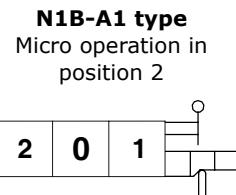
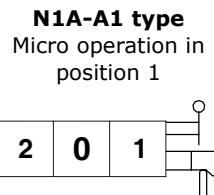
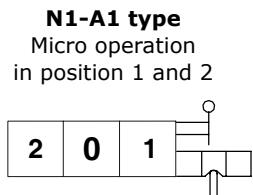
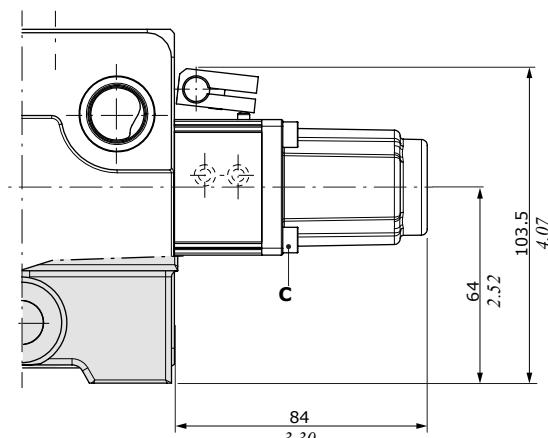
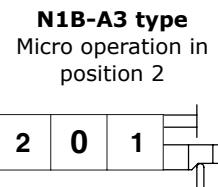
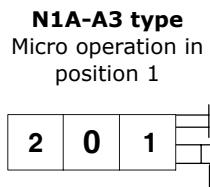
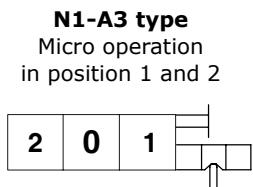


## Working section

**A side controls****Joystick control**

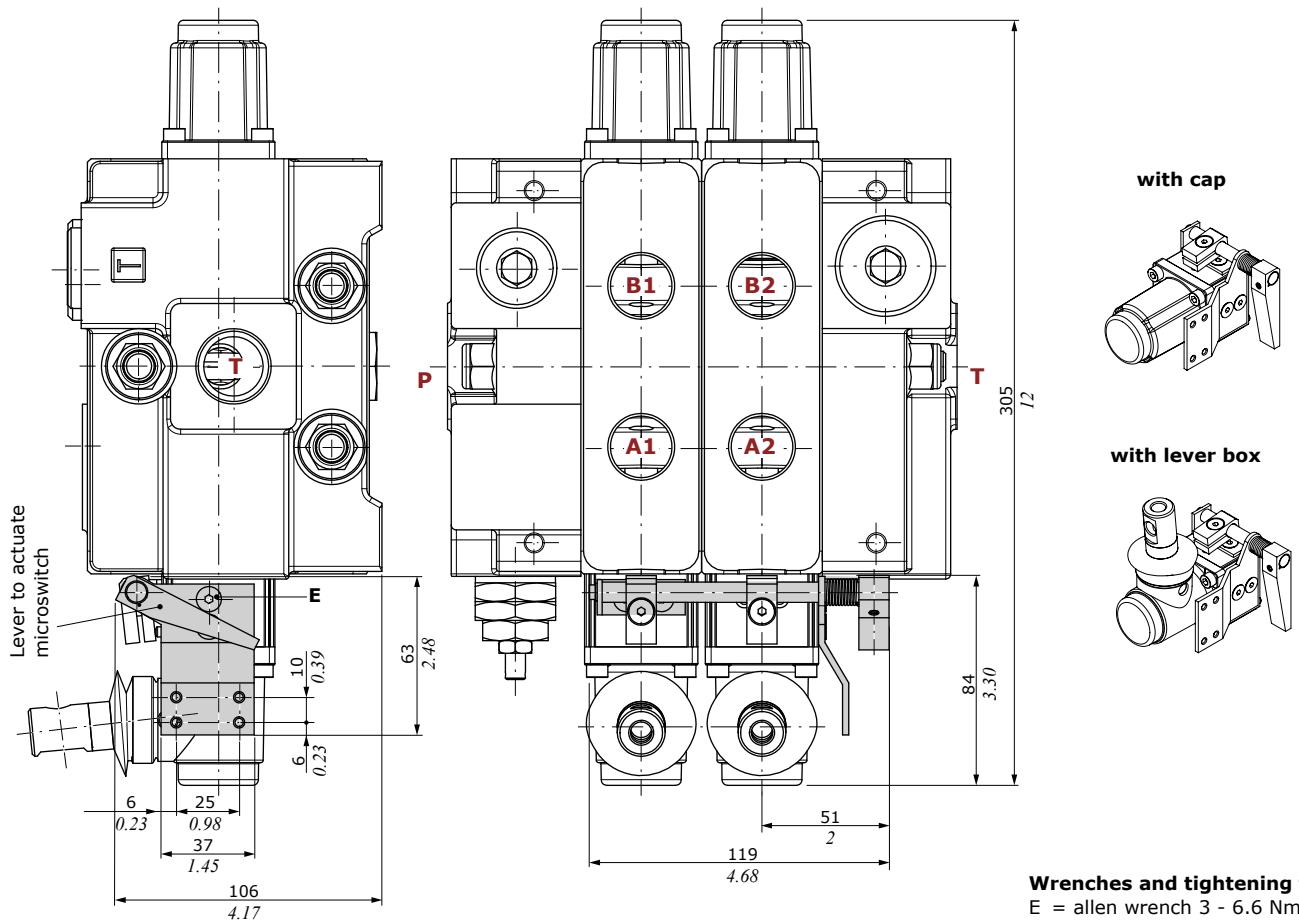
For operating the joystick control in the floating position, contact Sales Department.

**A35-1 type****A35-2 type****A35-3 type****A35-4 type**

**Working section****A side controls****With spool position microswitch, with lever****With spool position microswitch, with cap**

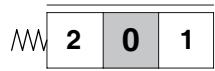
**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbft)

## Working section

**A side controls****With spool position microswitch****Microswitch assembly kit for 2 working section (N1-A1 type)**

**Working section****B side controls****With spring return****M1 type**

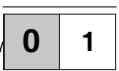
3 position, spring return  
in neutral position

**M1/01 type**

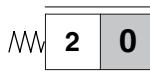
As M1 type,  
for joystick control

**M2 type**

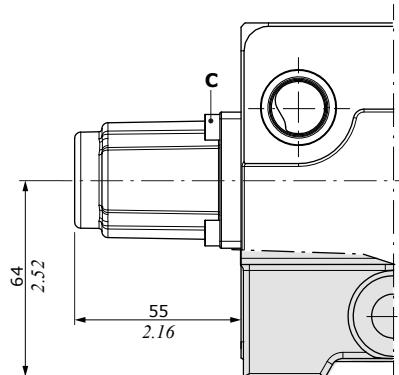
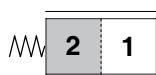
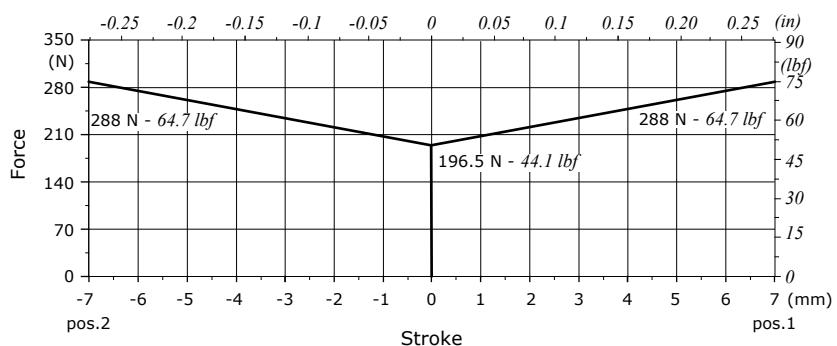
2 position (0-1), spring return  
in neutral position

**M3 type**

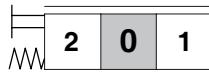
2 position (0-2), spring return  
in neutral position

**M4 type**

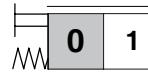
2 position (2-1), spring return  
in position 2

**M1 control type - Force vs. Stroke diagram****M1-U1 type**

3 position, with M10 male  
thread external pin

**M2-U1 type**

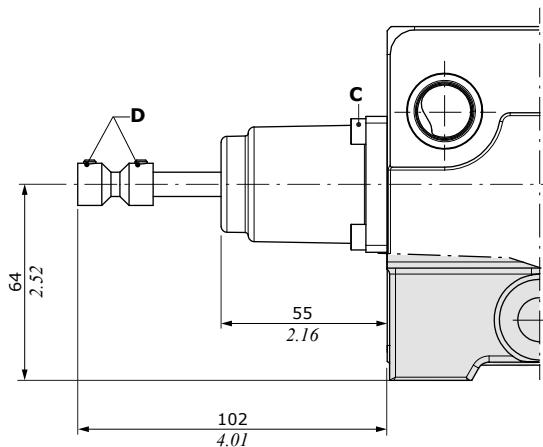
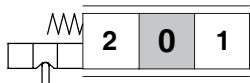
2 position (0-1), with M10 male  
thread external pin

**Wrenches and tightening torques**

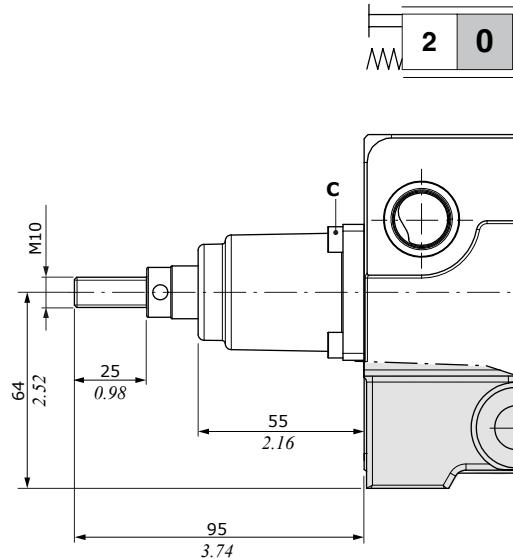
C = allen wrench 4 - 6.6 Nm (4.8 lbf)  
D = allen wrench 3 - 5 Nm (3.68 lbf)

**M1-B1 type**

3 position, microswitch arrangement

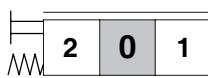
**M3-U1 type**

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

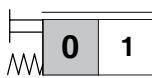


**Working section****B side controls****With flexible cable control arrangement****M1-U2 type**

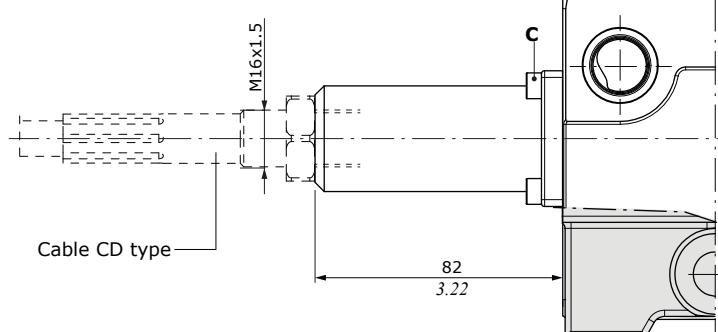
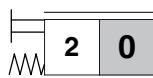
3 position, spring return  
in neutral position

**M2-U2 type**

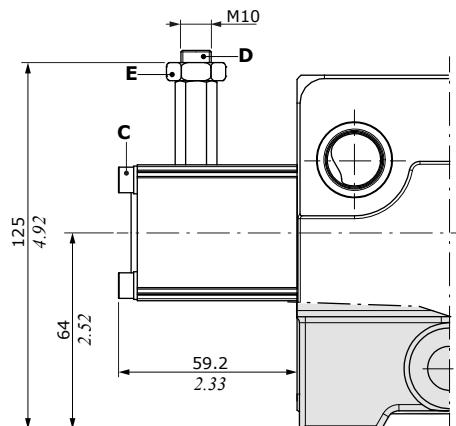
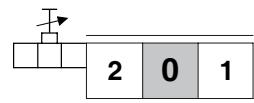
2 position (0-1), spring return  
in neutral position

**M3-U2 type**

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

**With friction control****R0 type**

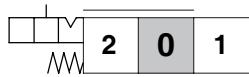
Adjustable friction control

**Wrenches and tightening torques**

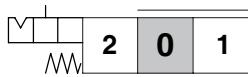
C = allen wrench 4 - 6.6 Nm (4.8 lbf ft)  
D = allen wrench 5 - 15 Nm (11.1 lbf ft)  
E = wrench 17 - 9.8 Nm (7.2 lbf ft)

**With detent control****R1 type**

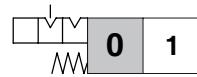
3 position,  
detent in position 1

**R2 type**

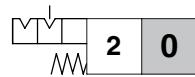
3 position,  
detent in position 2

**R4 type**

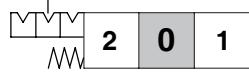
2 position,  
detent in position 0-1

**R5 type**

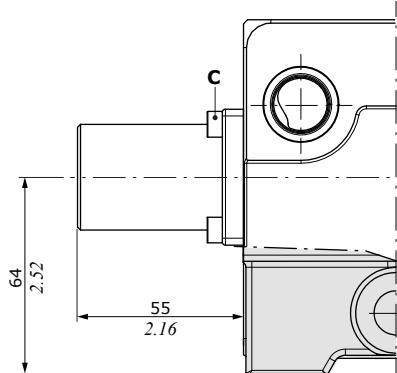
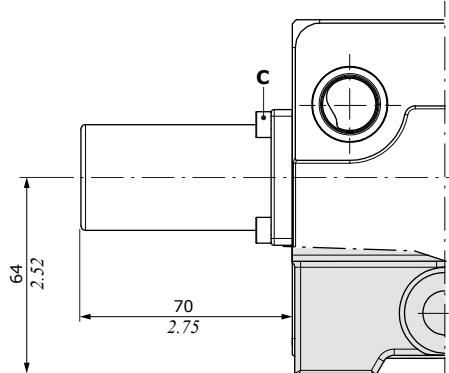
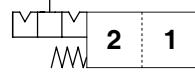
2 position,  
detent in position 0-2

**R3 type**

3 position,  
detent in all position

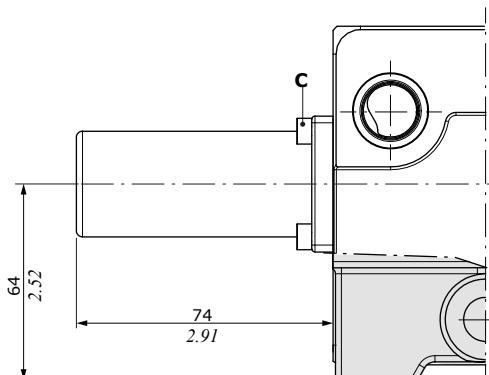
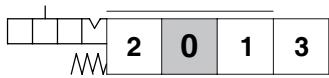
**R6 type**

2 position,  
detent in position 1-2



**Working section****B side controls****With detent control**

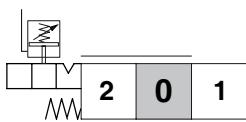
**R8 type**  
4 position, detent in 4<sup>th</sup> position,  
for 116 floating spool type



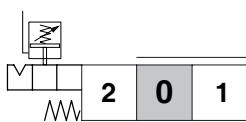
**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbf ft)  
D = wrench 30 - 42 Nm (30.9 lbf ft)  
E = wrench 22  
F = allen wrench 10 - 42 Nm (30.9 lbf ft)

**With detent and kick out function**

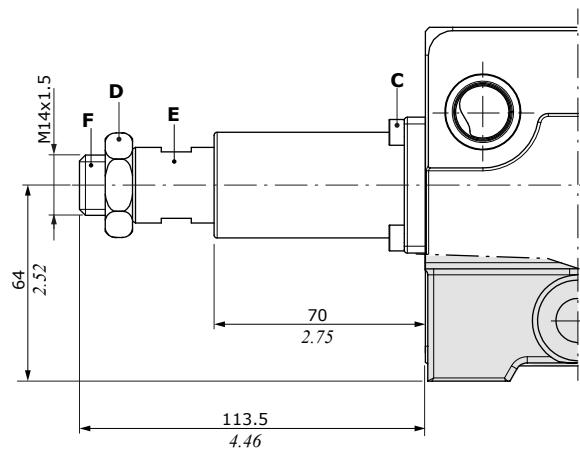
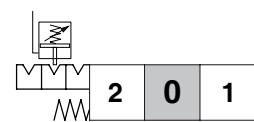
**R1K type**  
3 position, detent in position 1



**R2K type**  
3 position, detent in position 2

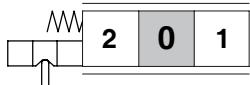


**R3K type**  
3 position, detent in all position

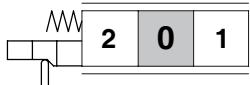


**Working section****B side controls****With spool position microswitch****M1-N1 type**

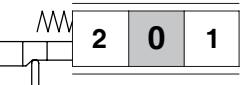
3 position, micro operation in position 1 and 2, spring return in neutral position

**M1-N1A type**

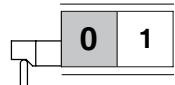
3 position, micro operation in position 1

**M1-N1B type**

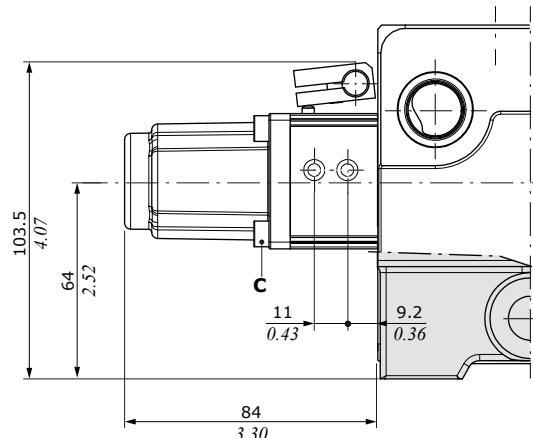
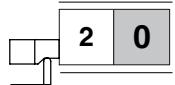
3 position, micro operation in position 2

**M2-N1 type**

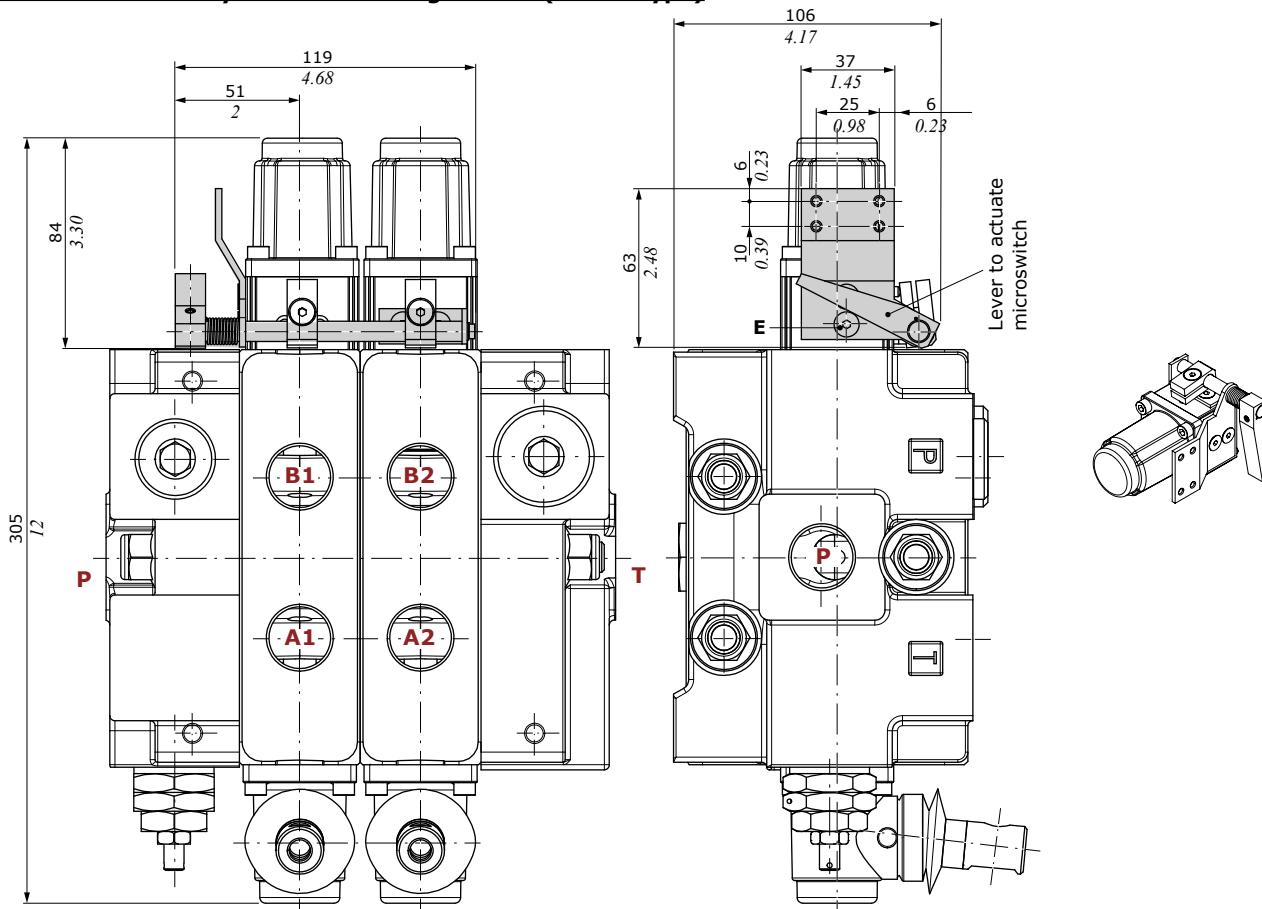
2 position (0-1), spring return in neutral position

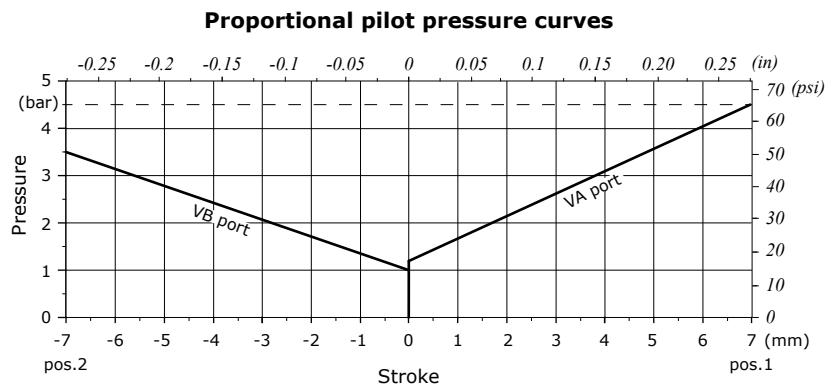
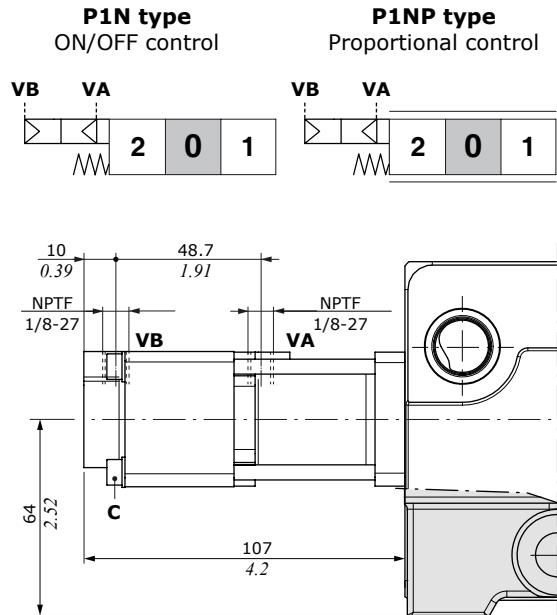
**M3-N1 type**

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



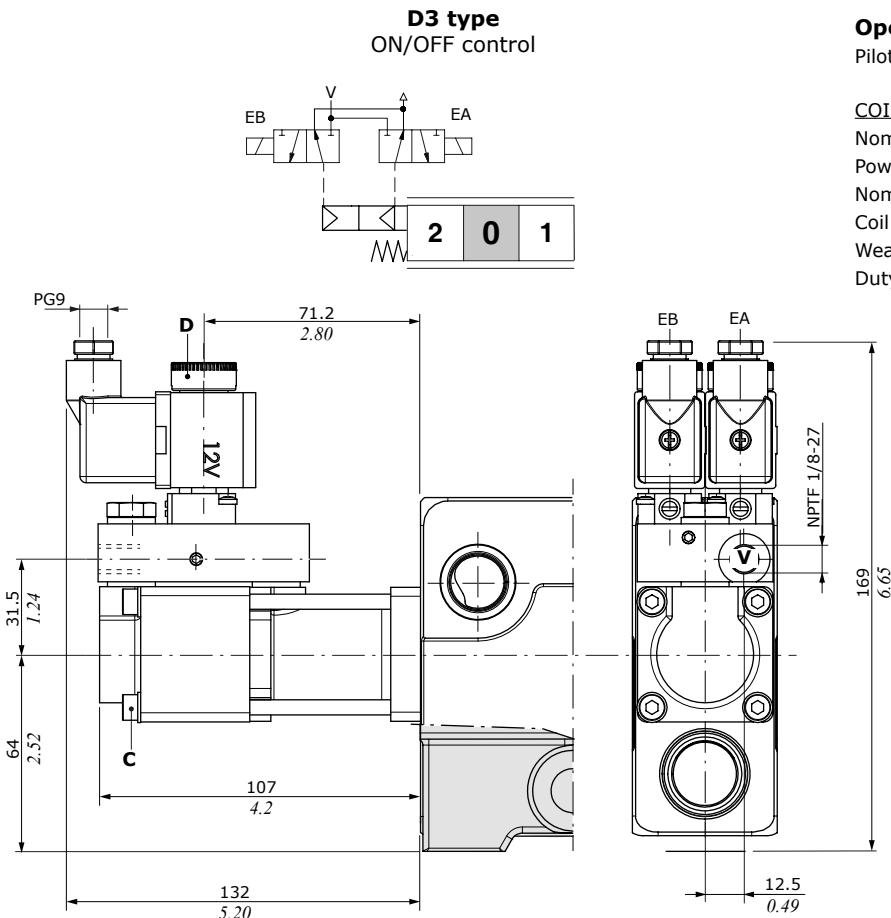
**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbf)  
E = allen wrench 3 - 6.6 Nm (4.8 lbf)

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

**Working section****B side controls****With pneumatic control****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****Operating features**

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

**COILS**

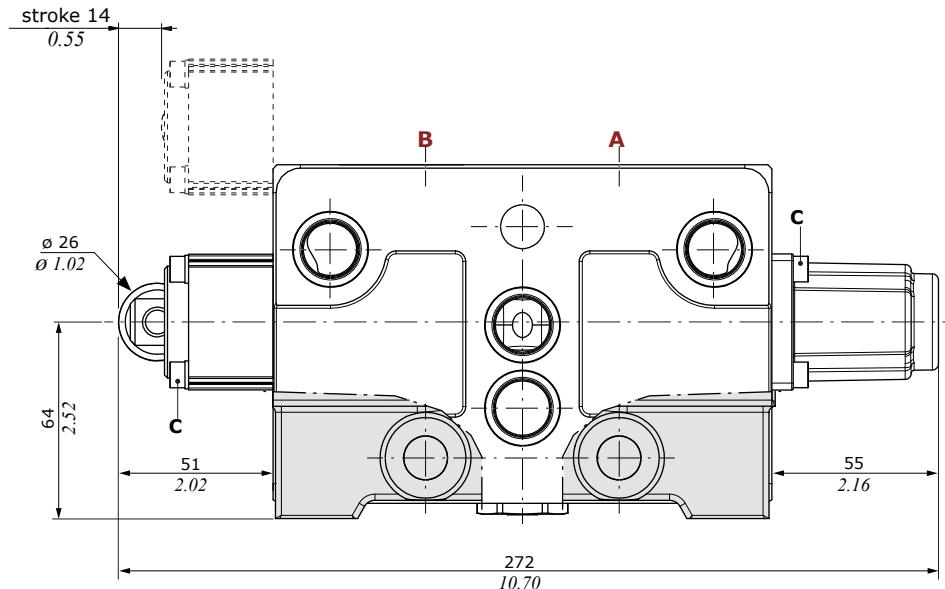
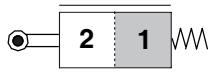
Nominal voltage tolerance....: -5% +10%  
 Power rating.....: 5 W  
 Nominal current.....: 12 VDC - 24VDC  
 Coil insulation.....: Class F  
 Weather protection.....: IP65  
 Duty cycle.....: 100%

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

## Working section

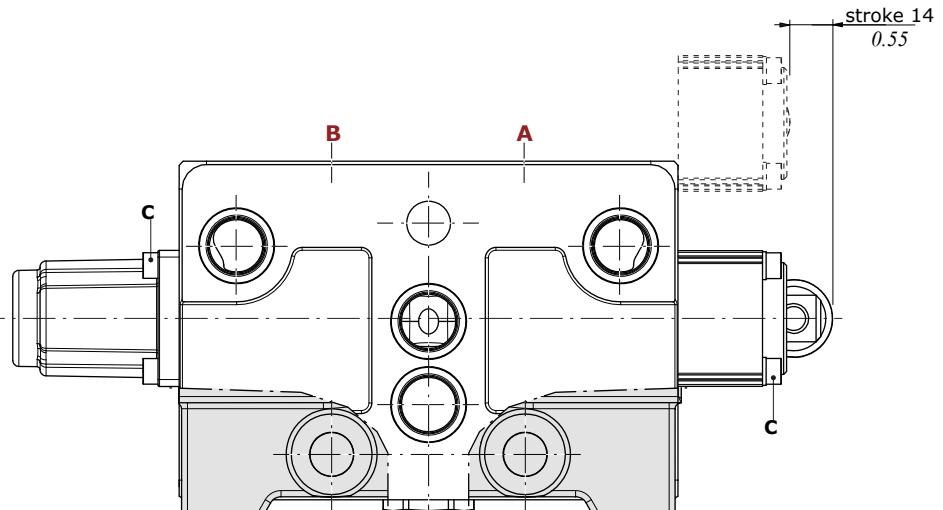
**A+B side controls****With cam control**

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



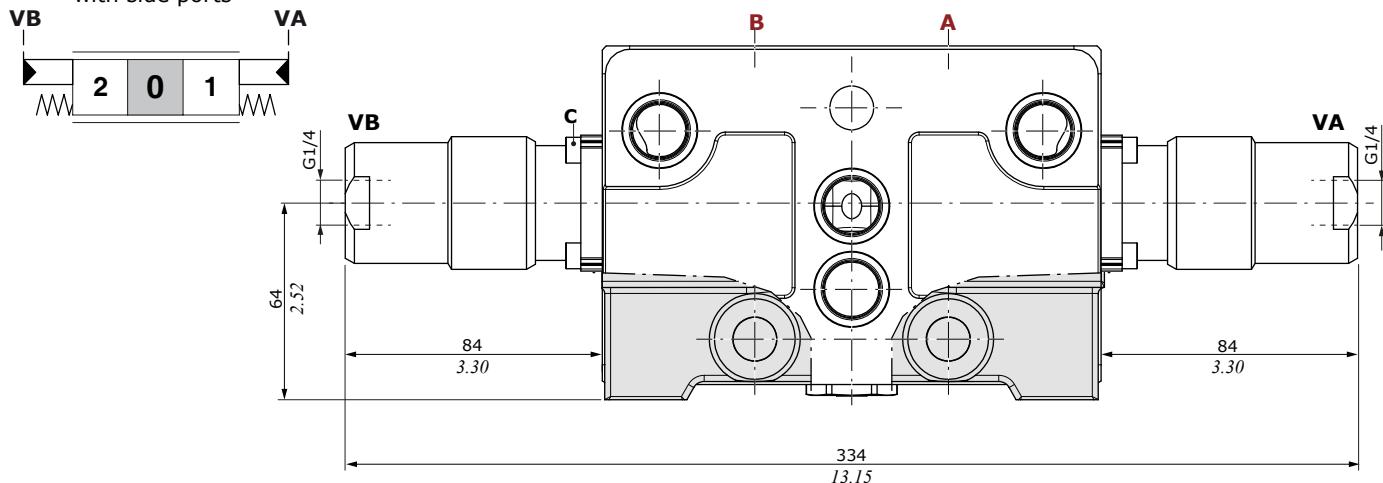
**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbf ft)

**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 controls****H1 type**

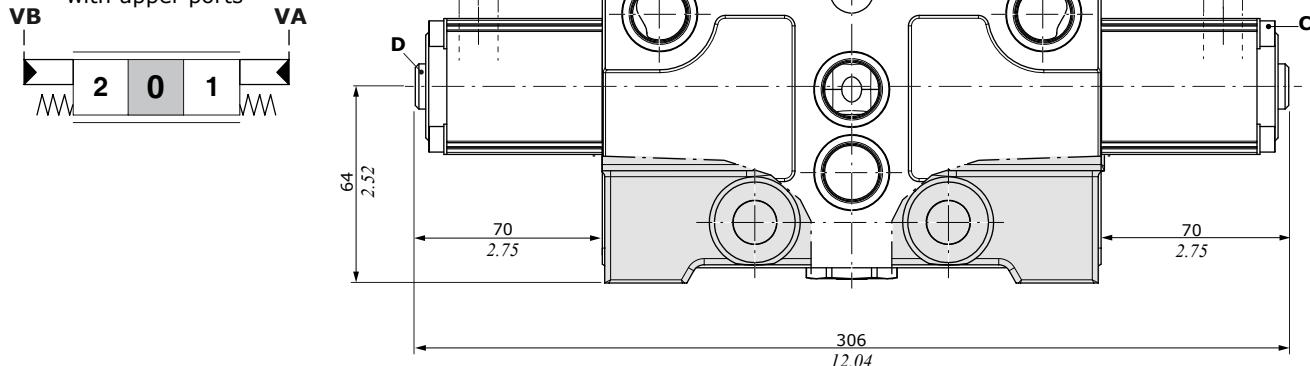
High pressure control  
with side ports

**Operating features**

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

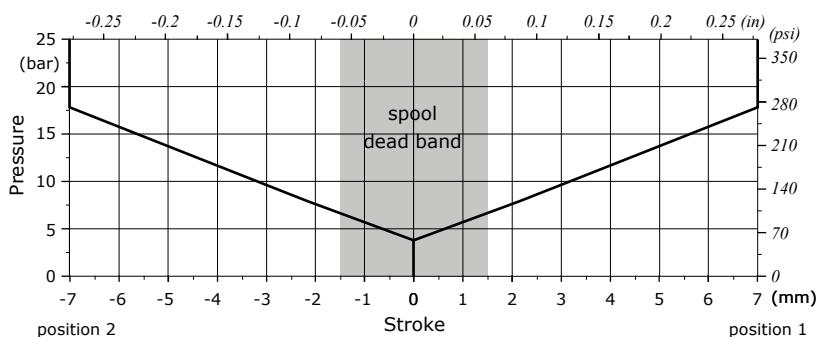
**H5 type**

Low pressure control  
with upper ports

**Operating features**

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

**Stroke vs. Pressure diagram for H5 type control**

**Wrenches and tightening torques**

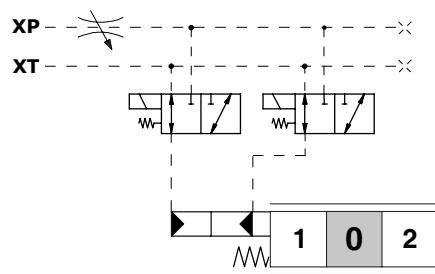
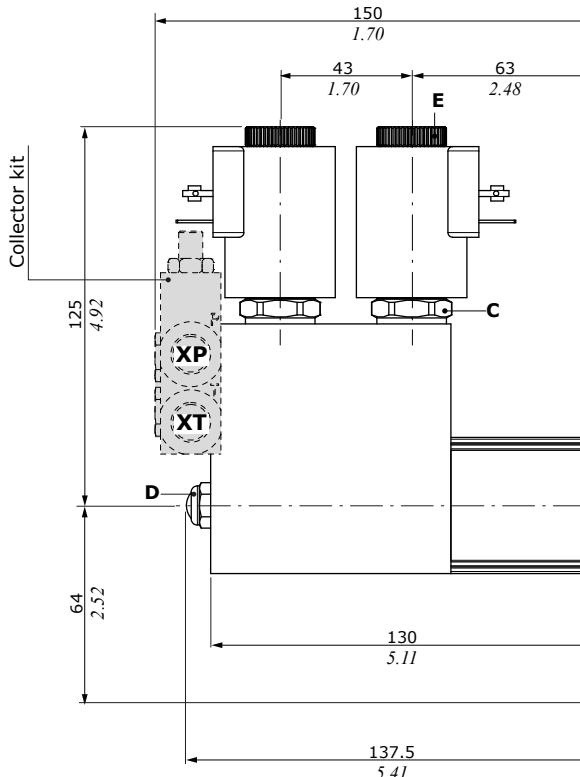
C = allen wrench 4 - 6.6 Nm (4.8 lbft)

D = allen wrench 4 - 9.8 Nm (7.2 lbft)

## Working section

## Electrohydraulic control

## D2W type: ON/OFF one side

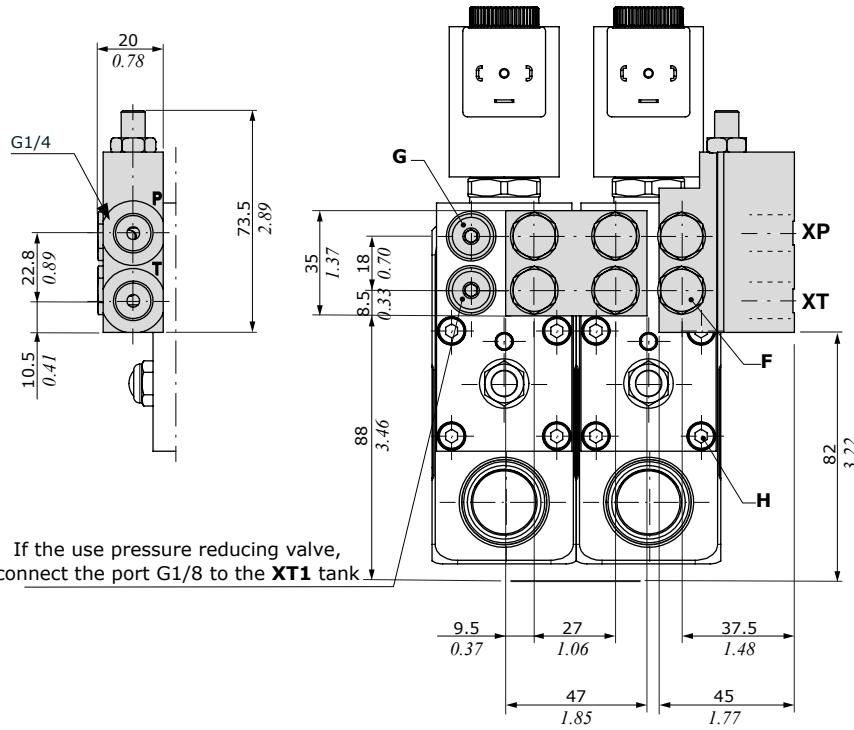


## Features

Pilot pressure on XP..... : min. 20 bar (290 psi)  
..... : max. 35 bar (500 psi)  
Max backpressure on XT..... : 4 bar (58 psi)

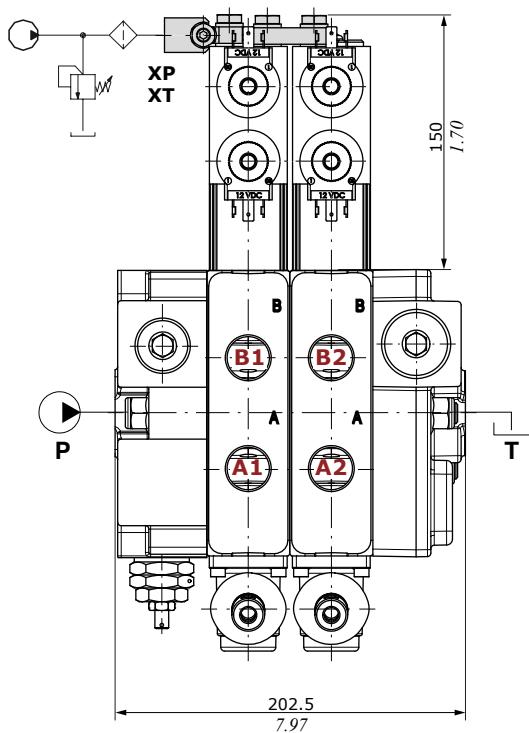
For BT type coils and mating connectors see page 257

## KE2S connector kit



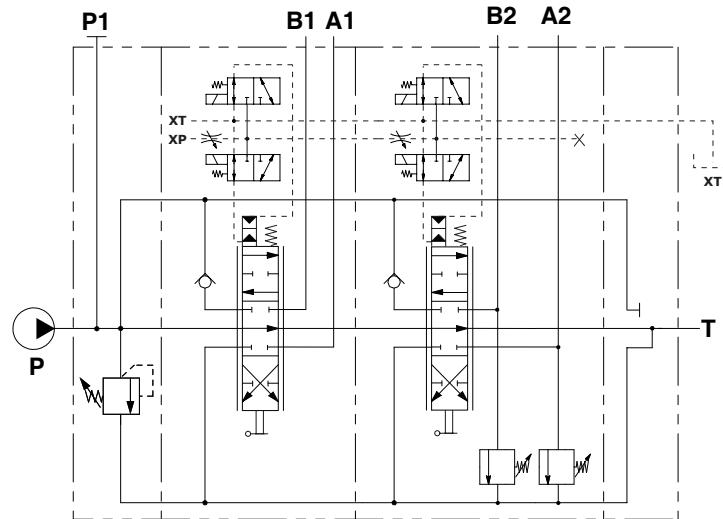
## Wrenches and tightening torques

- C = wrench 24 - 30 Nm (22 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)

**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

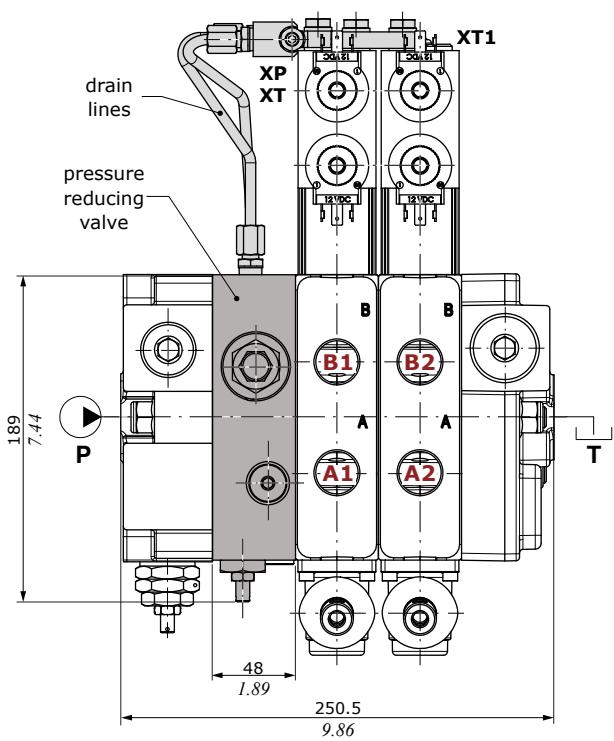


Description example:

Q130/2/F7S(N120)/KE2S/103-A1-D2W.V40(N)120/  
103-A1-D2W.V40(N)120/F3D-12VDC-S

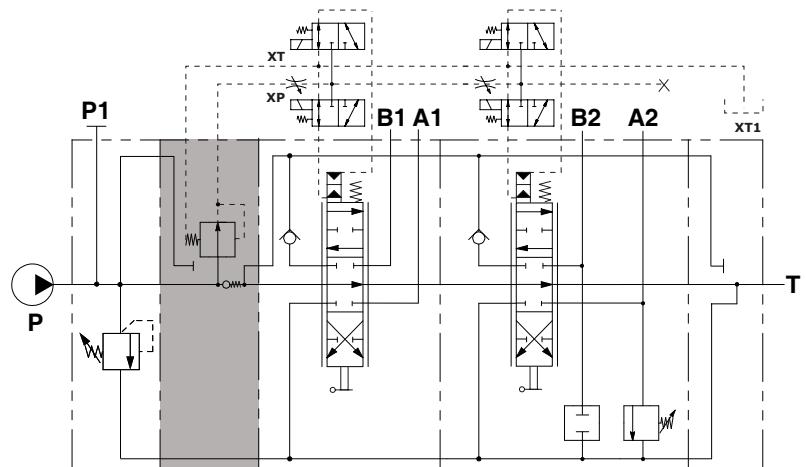
**Connector kit for internal pilot and drain**

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



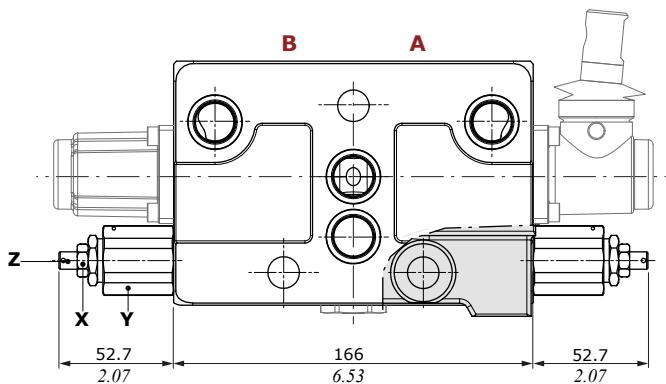
Description example:

Q130/2/F7S(N120)/KE2R/103-A1-D2W.V40(N)120/  
103-A1-D2W.V40(N)120/F3D-12VDC-S

VRP pressure reducing valve

**Auxiliary valve configuration****Dimensional data and hydraulic circuits****Antishock valve example**

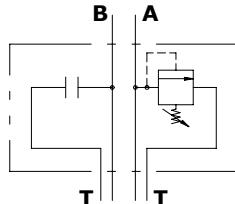
spring type  
aux valve and valve setting (bar)  
Q130 / 1 / ... / 103 - A1 - M1 - **V32(N)120** / ...



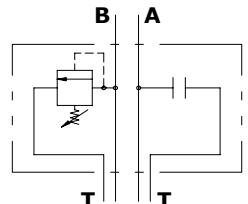
Spring type	Setting ranges (bar - psi)
B (white)	From 30 to 80 - from 435 to 1150
N (black)	From 81 to 200 - from 1170 to 2900
R (red)	From 201 to 350 - from 2910 to 5100

**A side configuration:** **B side configuration:**

**V30**

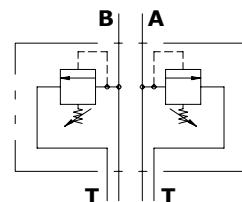


**V31**

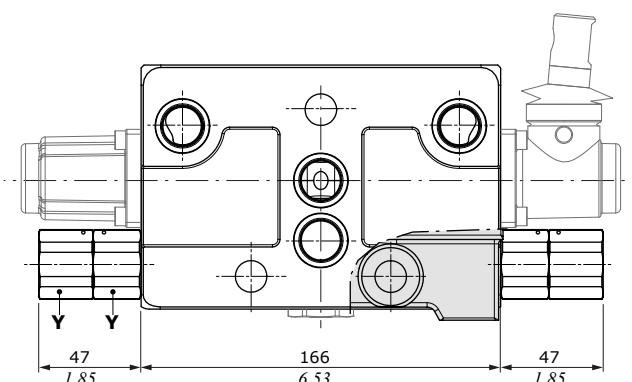


**A+B side configuration:**

**V32 (V30 + V31)**

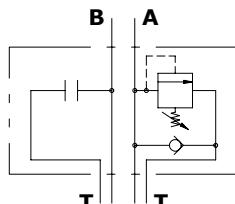
**Antishock/anticavitation valve example**

spring type  
aux valve and valve setting (bar)  
Q130 / 1 / ... / 103 - A1 - M1 - **V32(N)120** / ...

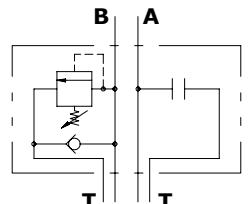


**A side configuration:** **B side configuration:**

**V33**

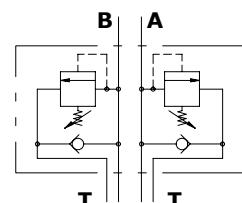


**V34**



**A+B side configuration:**

**V35 (V34 + V33)**

**Wrenches and tightening torques**

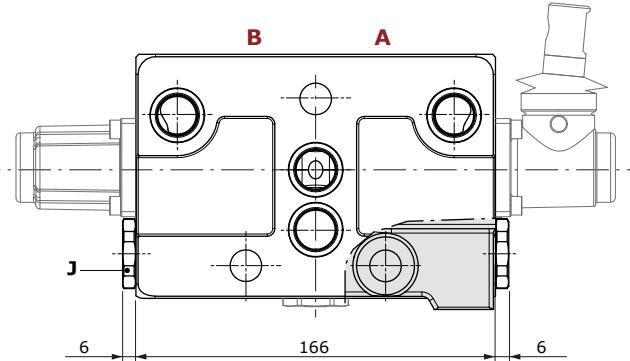
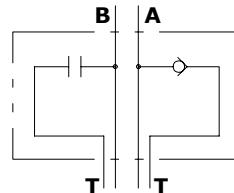
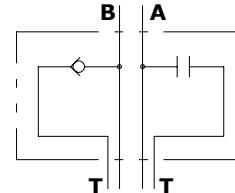
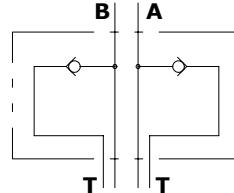
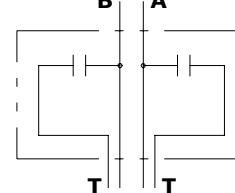
Y = wrench 30 - 80 Nm (59 lbf ft)

X = wrench 20 - 24 Nm (17.7 lbf ft)

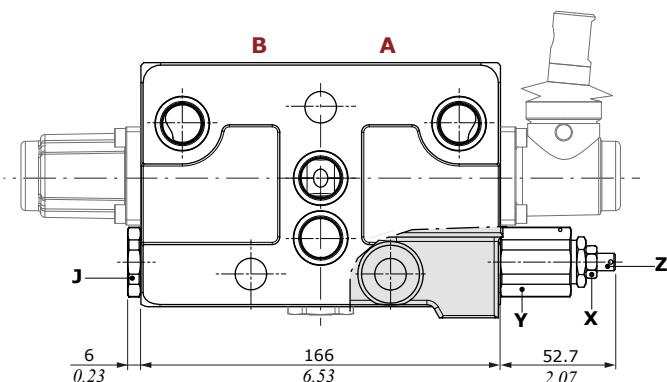
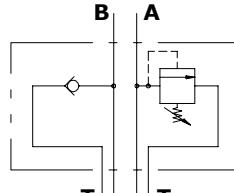
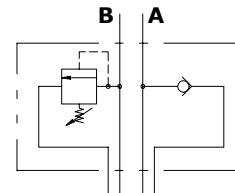
Z = allen wrench 4

**Auxiliary valve configuration****Dimensional data and hydraulic circuits****Anticavitation valve example**

aux valve  
Q130 / 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**

aux valve  
Q80 / 1 / ... / 103 - A1 - M1 - **V40** / ...

**A side configuration:****V40 (V30 + V05)****B side configuration:****V41 (V31 + V04)****Wrenches and tightening torques**

J = wrench 30 - 42 Nm (30.9 lbf ft)

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

X = wrench 20 - 24 Nm (17.7 lbf ft)

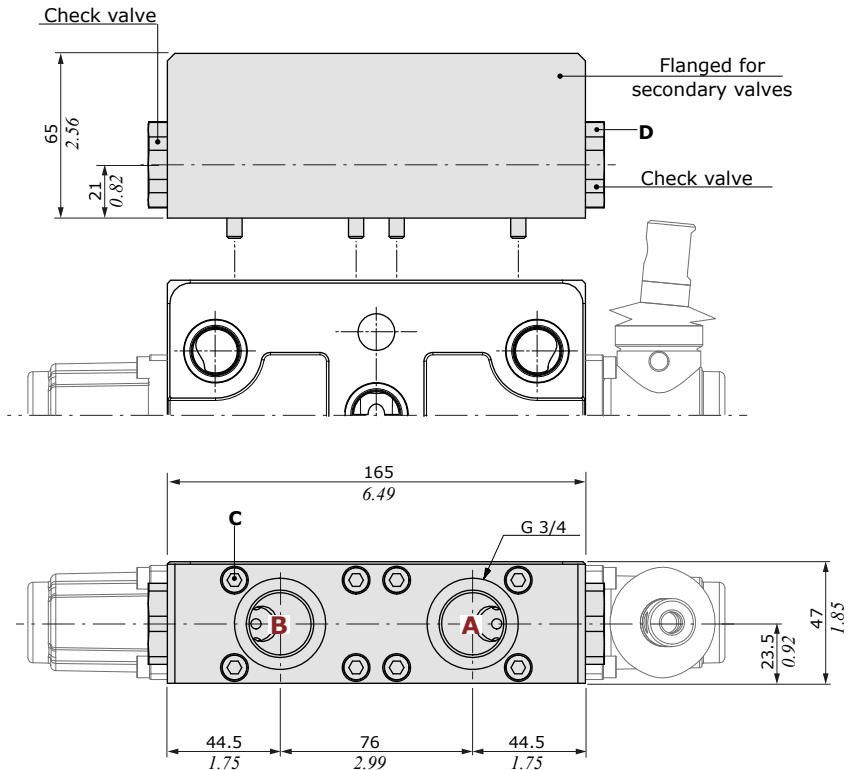
Z = allen wrench 4

## Secondary valve configuration

## Dimensional data and hydraulic circuits

Description example

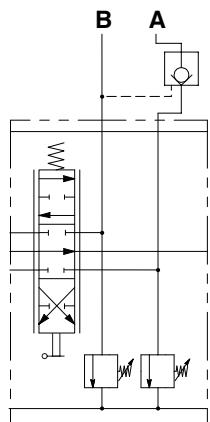
secondary aux valve valves block  
 Q130 / 1 / ... / 103 - A1 - M1 - V32(N)120 / **VC03**

**Wrenches and tightening torques**

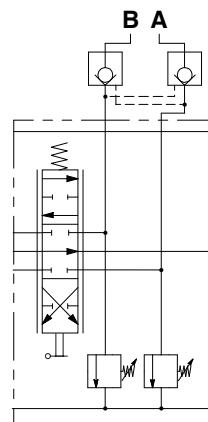
C = allen wrench 5 - 9.8 Nm (7.2 lbf ft)

D = wrench 12 - 42 Nm (31 lbf ft)

**Q130.V40(N)120/VC01 configuration**  
 Parallel circuit, mechanical control with aux valves  
 and flanged for single piloted check valve on A port

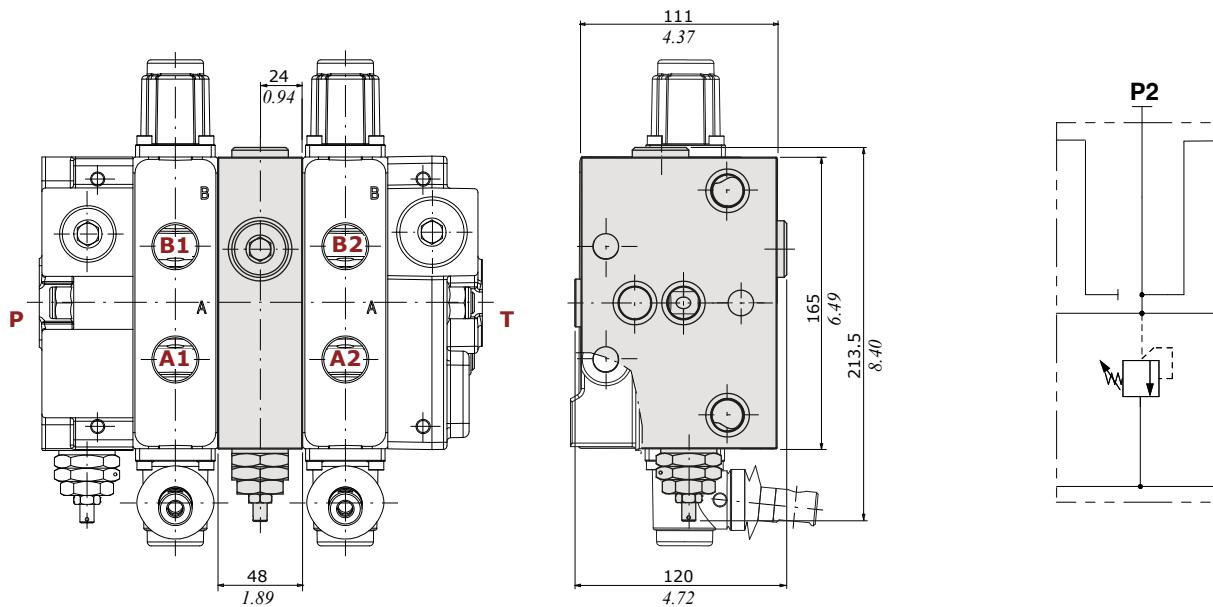


**Q130.V40(N)120/VC03 configuration**  
 Parallel circuit, mechanical control with aux valves  
 and flanged for double piloted check valve on  
 A and B ports

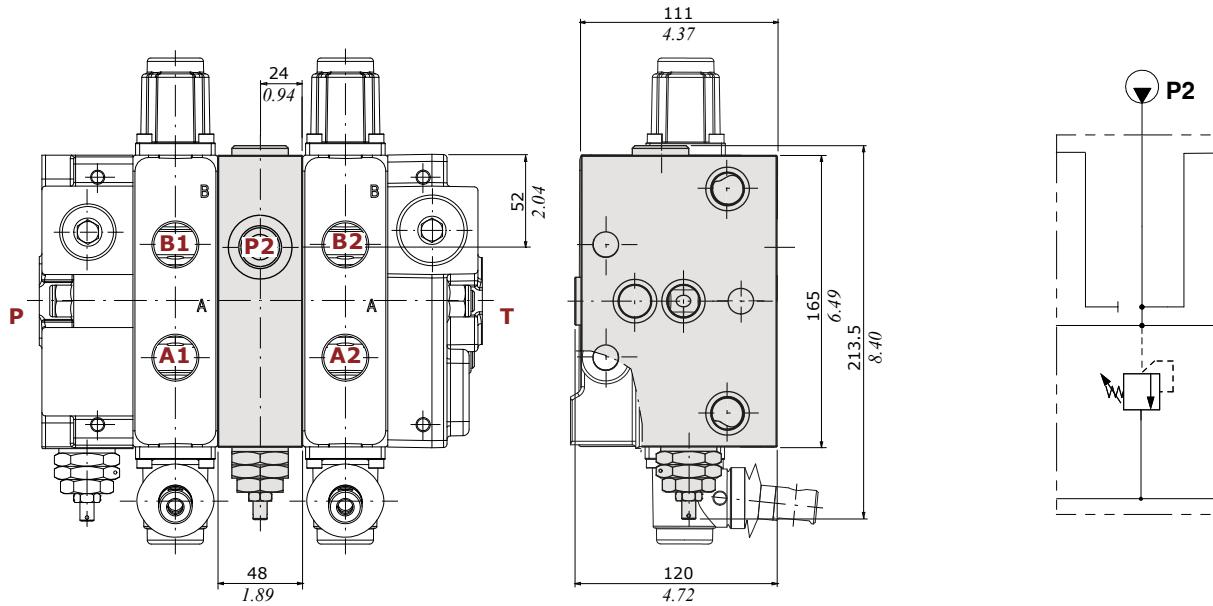


**Intermediate section****Dimensional data and hydraulic circuit****E50 type**

Intermediate inlet section with pressure relief valve

Description example: Q130/2/F7S(N150)/103-A1-M1/**E50(N150)**/103-A1-M1/F3Dintermediate spring type and valve setting (bar)  
section**E53 type**

Intermediate inlet section with pressure relief valve and P2 port open

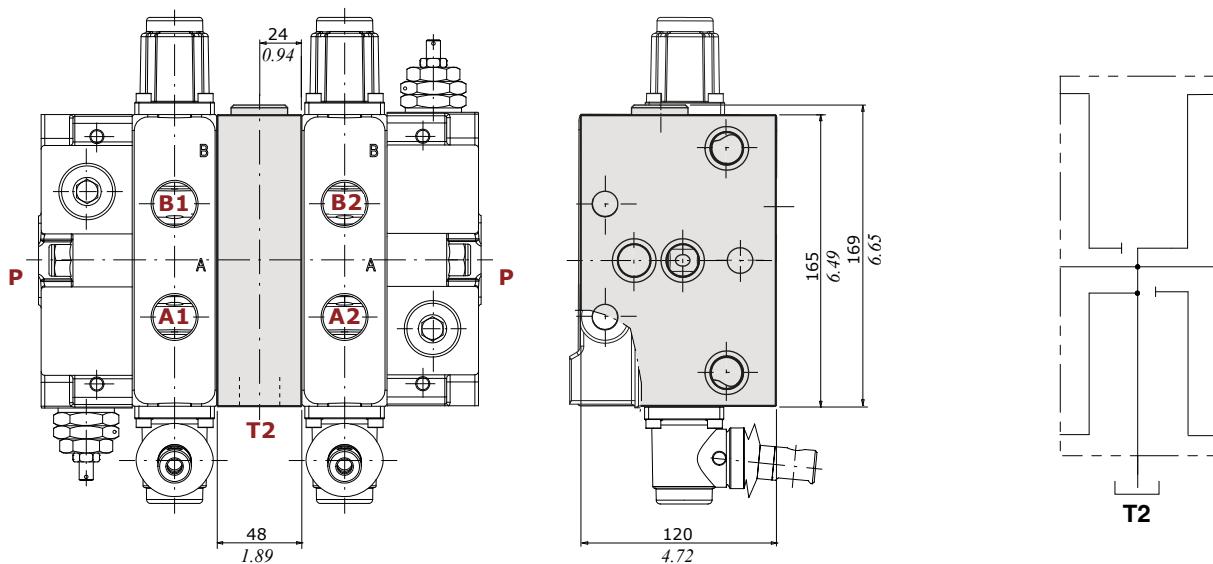
Description example: Q130/2/F7S(N150)/103-A1-M1/**E53(N150)**/103-A1-M1/F3Dintermediate spring type and valve setting (bar)  
section

## Intermediate section

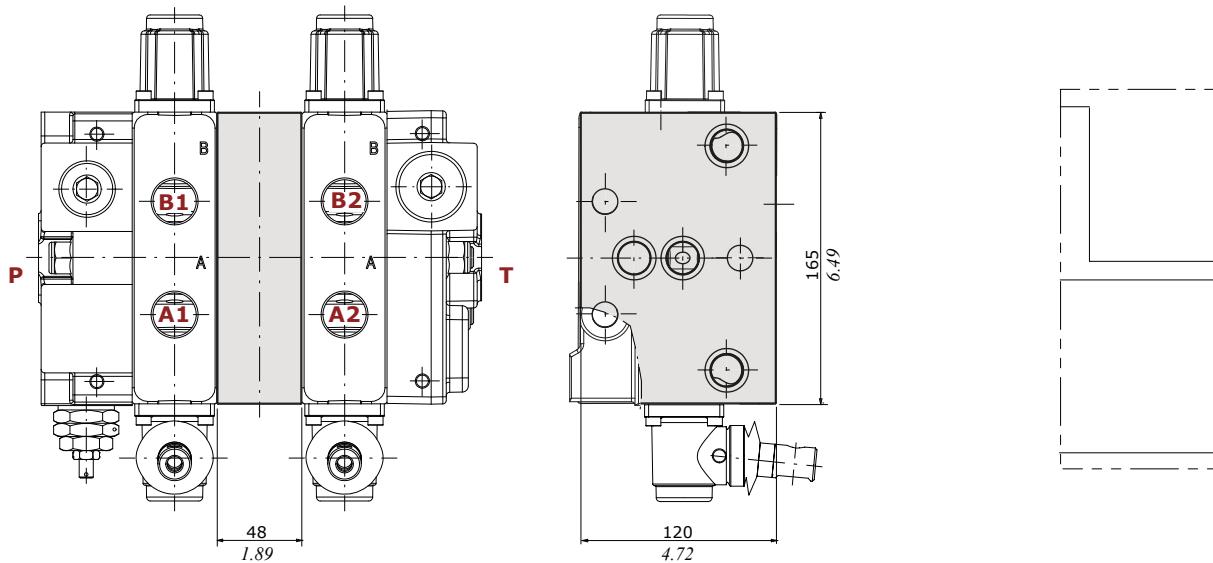
## Dimensional data and hydraulic circuit

**E51 type**

Intermediate outlet section, T2 port open

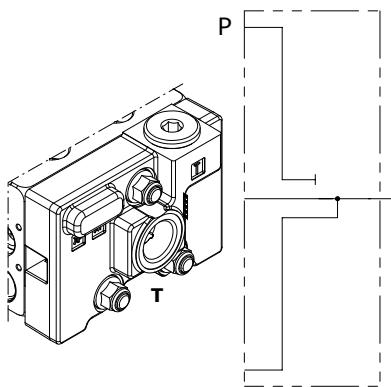
Description example: Q130/2/F7S(N150)/103-A1-M1/**E51**/103-A1-M1/F3Dintermediate  
section**E61 type**

Intermediate spacer section

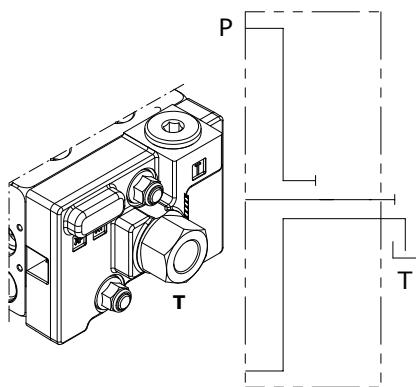
Description example: Q130/2/F7S(N150)/103-A1-M1/**E61**/103-A1-M1/F3Dintermediate  
section

**Outlet section**

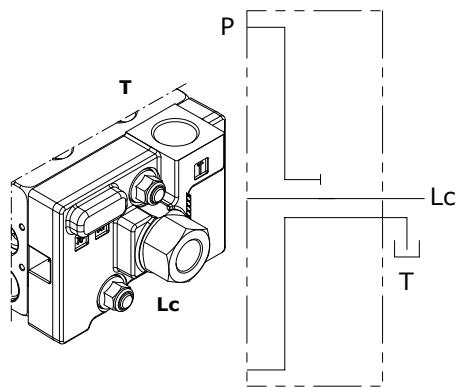
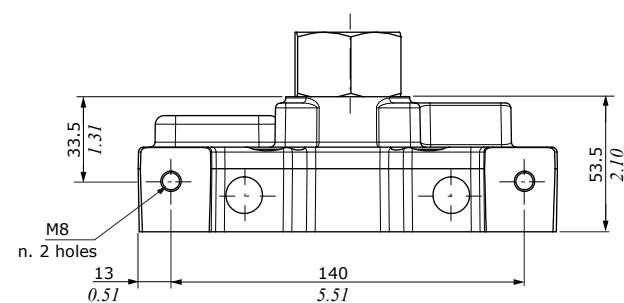
**F3D configuration**  
Open center configuration



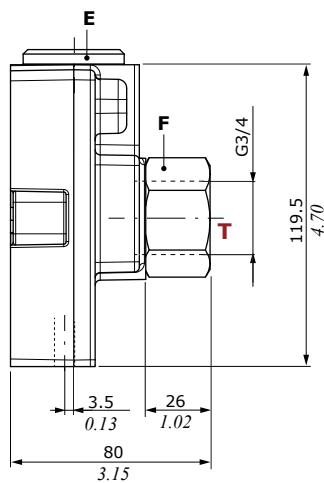
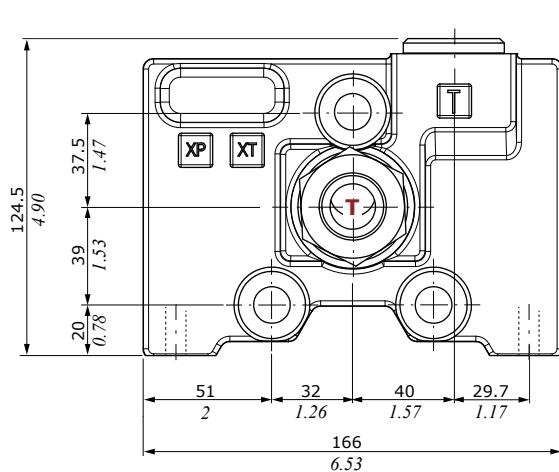
**F16D configuration**  
Closed center configuration



**F6D 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)



## Accessories

### Coils and connectors

#### Dimensional data and features

Coil type	Voltage	Connectors					
		ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads (without conn.)
	<b>10 VDC</b>	4SLE001000A	-	-	-	-	-
	<b>12 VDC</b>	4SLE001200A 4SLE001217A <sup>(3)</sup>	4SLE001201A <sup>(5)</sup> 4SLE001209A <sup>(3-5)</sup> 4SLE001202A <sup>(6)</sup> 4SLE001216A <sup>(3-6)</sup> 4SLE001206A <sup>(2)</sup>	4SLE001203A <sup>(5)</sup> 4SLE001211A <sup>(3-5)</sup>	4SLE001210A <sup>(2)</sup>	4SLE001214A <sup>(2)</sup>	4SLE001207A
	<b>14 VDC</b>	-	4SLE001400A <sup>(6)</sup> 4SLE001401A <sup>(3-6)</sup> 4SLE001402A <sup>(3-5)</sup>	4SLE001403A <sup>(3-5)</sup>	-	-	-
<b>BER</b>	<b>24 VDC</b>	4SLE002400A 4SLE002408A <sup>(3)</sup> 4SLE302400A <sup>(1)</sup>	4SLE002401A <sup>(5)</sup> 4SLE002407A <sup>(3-5)</sup> 4SLE002402A <sup>(6)</sup>	4SLE002403A <sup>(5)</sup>	-	-	4SLE002404A
	<b>28 VDC</b>	-	4SLE002802A <sup>(6)</sup>	4SLE002800A <sup>(5)</sup>	-	-	-
	<b>48 VDC</b>	4SLE004800A 4SLE304800A <sup>(1)</sup>	-	-	-	-	-
	<b>110VDC</b>	4SLE011000A 4SLE311000A <sup>(1)</sup>	-	-	-	-	-
	<b>220 VDC</b>	4SLE022000A 4SLE322000A <sup>(1)</sup>	-	-	-	-	-
	<b>Mating connectors</b> (For connector with rectifier see last table)	4CN1009995	5CON140031	5CON003	5CON001	5CON017	-

Coil type	Voltage	Connectors					
		ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads (without conn.)
	<b>10 VDC</b>	4SL3000100	-	-	-	-	-
	<b>12 VDC</b>	4SL3000120 4SL3000126 <sup>(4)</sup>	4SL3000130 <sup>(6)</sup> 4SL3000134 <sup>(3-6)</sup> 4SL3000128 <sup>(2)</sup>	4SL3000122 <sup>(5)</sup> 4SL3001200 <sup>(3-5)</sup>	4SL3000124 <sup>(2)</sup>	4SL3000127 <sup>(2)</sup>	4SL300012C
	<b>24 VDC</b>	4SL3000240 4SL3030240 <sup>(1)</sup>	4SL3000249 <sup>(6)</sup> 4SL300024C <sup>(3-6)</sup>	4SL3000248 <sup>(5)</sup>	-	-	4SL3000246
<b>BT</b>	<b>26 VDC</b>	4SL3000260	-	-	-	-	-
	<b>48 VDC</b>	4SL3000480 4SL3030480 <sup>(1)</sup>	-	-	-	-	-
	<b>110VDC</b>	4SL3001100 4SL3031100 <sup>(1)</sup>	-	-	-	-	-
	<b>220 VDC</b>	4SLE022000A 4SLE322000A <sup>(1)</sup>	-	-	-	-	-
<b>Mating connectors</b> (For connector with rectifier see last table)	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

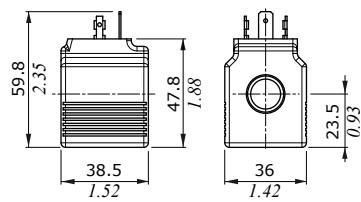
Voltage	ISO 4400 mating connector with rectifier	
	BER type coil	
<b>24 VDC</b>	4CN1010240	
<b>48 VDC</b>	4CN1010480	
<b>110 VDC</b>	4CN1011100	
<b>220 VDC</b>	4CN1012200	

## Coils and connectors

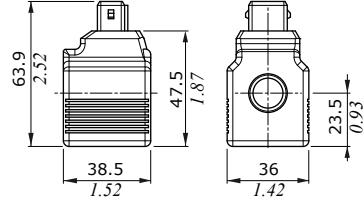
### Dimensional data and features

#### BER type

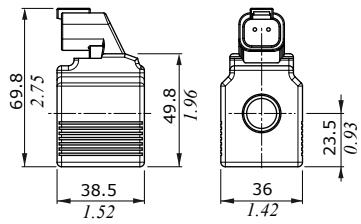
**ISO4400 connector**



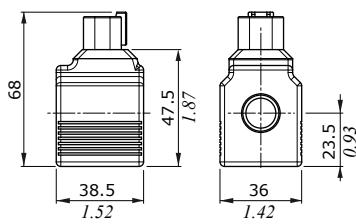
**AMP JPT connector**



**DEUTSCH DT04 connector**  
(parallel type)



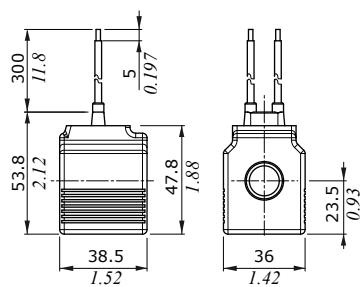
**DEUTSCH DT04 connector**  
(perpendicular type)



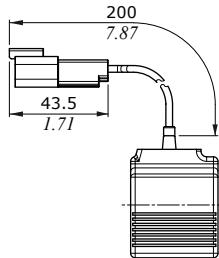
#### **Features**

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 : 0.89 A - 24 RAC : 0.45 A - 48 RAC : 0.19 A - 110 RAC : 0.09 A - 220 RAC
Coil insulation . . . . .	: Class H (180°C - 356°F)
Weather protection . . . . .	: IP65 - ISO4400 : IP69K - Deutsch DT : IP65 - AMP JPT : IP67 - Weatherpack : IP67 - Metri-pack
Insertion . . . . .	: 100%

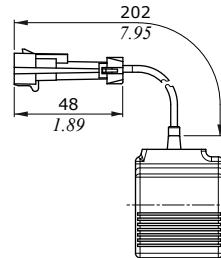
**Flying leads with  
DEUTSCH DT04 connector**



**Flying leads with  
PACKARD WEATHER-PACK connector**



**Flying leads with  
PACKARD METRI-PACK connector**



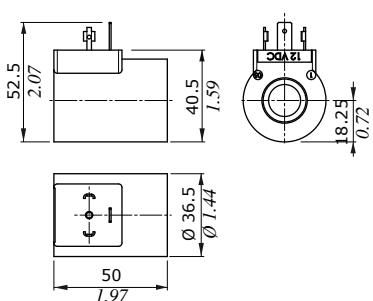
## Accessories

## Coils and connectors

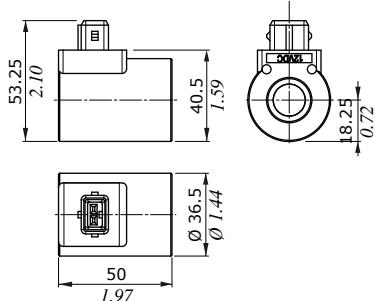
### Dimensional data and features

#### BT type

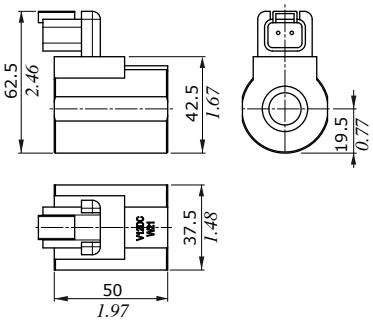
##### ISO4400 connector



##### AMP JPT connector



##### DEUTSCH DT04 connector (parallel type)



#### Flying leads

Coil type	L dimension (mm)	L dimension (in)
12 VDC	240	9.45
24 VDC	600	23.62

#### Features

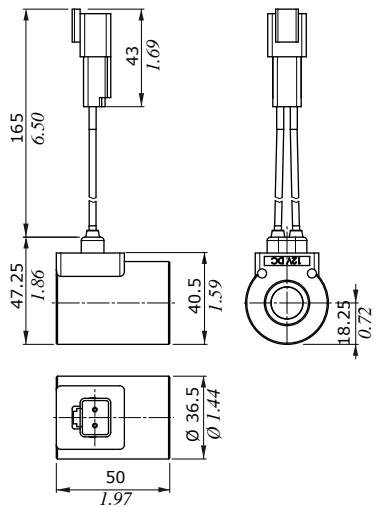
Nominal voltage tolerance :  $\pm 10\%$   
 Power rating . . . . . : 19 W - 10 VDC - 48 RAC  
                          : 21 W - 12/24/26 VDC  
                          : 20.3 W - 48 VDC  
                          : 17.3 W - 110 VDC  
                          : 17.7 W - 220 VDC  
                          : 19.9 W - 24 RAC  
                          : 20.7 W - 48 RAC  
                          : 20 W - 110/220 RAC

Max. operating current . . . . . : 1.90 A - 10 VDC  
                                  : 1.77 A - 12 VDC  
                                  : 0.89 A - 24 VDC  
                                  : 0.84 A - 26 VDC  
                                  : 0.43 A - 48 VDC  
                                  : 0.16 A - 110 VDC  
                                  : 0.08 A - 220 VDC  
                                  : 0.93 A - 24 RAC  
                                  : 0.47 A - 48 RAC  
                                  : 0.18 A - 110 RAC  
                                  : 0.09 A - 220 RAC

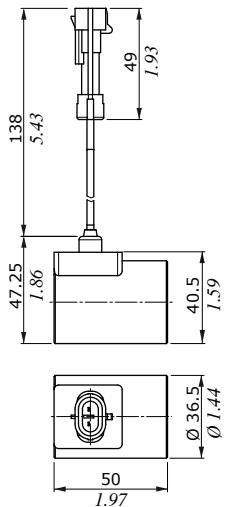
Coil insulation . . . . . : Class F (155°C - 311°F)  
 Weather protection . . . . . : IP65 - ISO4400  
                                  : IP69K - Deutsch DT  
                                  : IP65 - AMP JPT  
                                  : IP67 - Weatherpack  
                                  : IP67 - Metri-pack

Insertion . . . . . : 100%

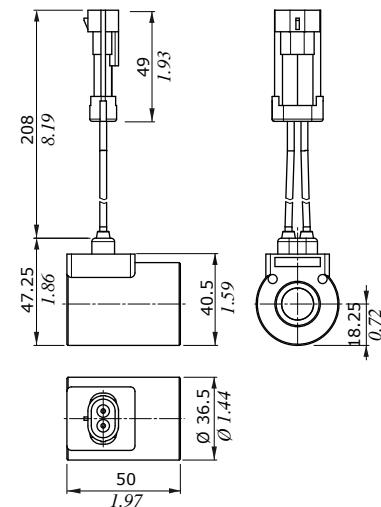
##### Flying leads with DEUTSCH DT04 connector



##### Flying leads with PACKARD METRI-PACK connector



##### Flying leads with PACKARD WEATHER-PACK connector



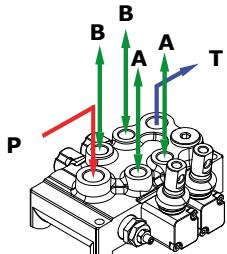
## Main rules

The directional control valves range are assembled and tested as per the technical specifications of this catalogue.

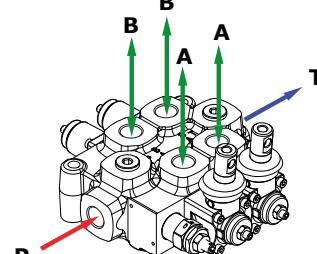
Before the final installation on your equipment, please follow the recommendations below:

- 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.

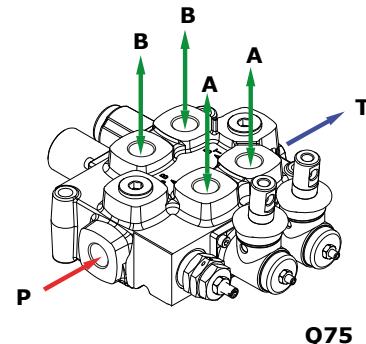
### Monoblock valves



GMV15



Q45



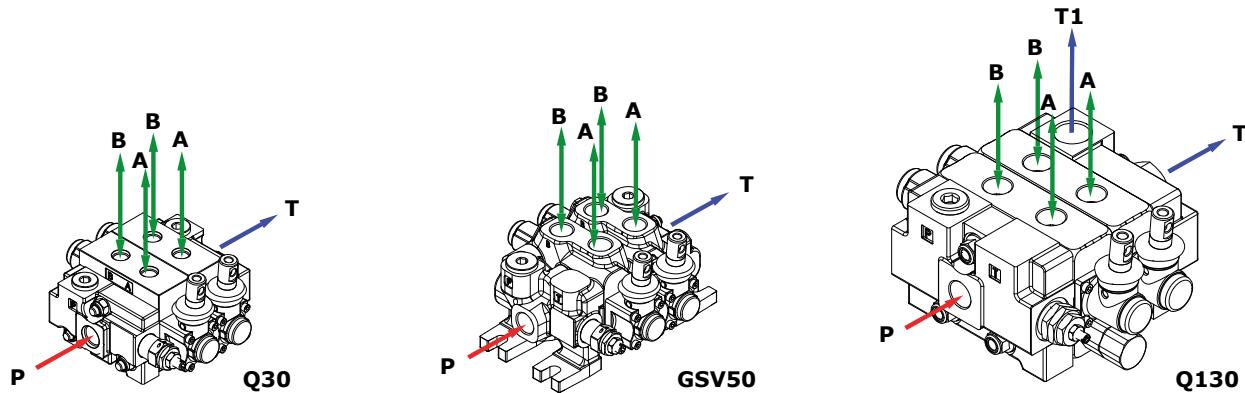
Q75

### FITTING TIGHTENING TORQUE - Nm / lbft

THREAD TYPE	P port	A and B ports	T port	Lc port
Q35	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	-
GMV15	UN-UNF	3/4-16 (SAE 8)	3/4-16 (SAE 8)	-
	With O-Ring seal	50 / 36.9	50 / 36.9	-
	BSP	G 3/8	G 1/4	G 3/8
	With O-Ring seal	35 / 25.8	25 / 18.4	35 / 25.8
Q45	With copper washer	40 / 29.5	30 / 22.1	40 / 29.5
	With steel and rubber washer	30 / 22.1	16 / 11.8	30 / 22.1
	UN-UNF	3/4-16 (SAE 8)	9/16-18 (SAE 6)	3/4-16 (SAE 8)
	With O-Ring seal	35 / 25.8	30 / 22.1	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
Q25 - Q45	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	35 / 25.8	50 / 36.9
	With copper washer	40 / 29.5	60 / 44.3	40 / 29.5	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	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)
Q75 - Q95	With O-Ring seal	30 / 22.1	35 / 25.8	30 / 22.1	35 / 25.8	90 / 66.4	35 / 25.8
	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	50 / 36.9	90 / 66.4
	With copper washer	60 / 44.3	90 / 66.4	60 / 44.3	90 / 66.4	60 / 44.3	90 / 66.4
UN-UNF	With steel and rubber washer	60 / 44.3	70 / 51.6	60 / 44.3	70 / 51.6	60 / 44.3	70 / 51.6
	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	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
<b>Q30 - Q50</b>	BSP	G 3/8	G 3/8	G 1/2	G 1/2	G 1/2
	With O-Ring seal	35 / 25.8	35 / 25.8	50 / 36.9	50 / 36.9	50 / 36.9
	With copper washer	40 / 29.5	40 / 29.5	60 / 44.3	60 / 44.3	60 / 44.3
	With steel and rubber washer	30 / 22.1	30 / 22.1	60 / 44.3	60 / 44.3	60 / 44.3
	UN-UNF	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)
	With O-Ring seal	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	G 1/2
	With O-Ring seal	50 / 36.9		50 / 36.9	50 / 36.9	50 / 36.9
	With copper washer	60 / 44.3		60 / 44.3	60 / 44.3	60 / 44.3
	With steel and rubber washer	60 / 44.3		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)	3/4-16 (SAE 8)
	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	G 3/4
	With O-Ring seal	50 / 36.9 - 90 / 66.4		50 / 36.9 - 90 / 66.4	90 / 66.4	90 / 66.4
	With copper washer	60 / 44.3 - 90 / 66.4		60 / 44.3 - 90 / 66.4	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	70 / 51.6
	UN-UNF	7/8-14 (SAE 10)		3/4-16 (SAE 8)	1" 1/16-12 (SAE 12)	7/8-14 (SAE 10)
	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"	G 1"
	With O-Ring seal	90 / 66.4 - 100 / 73.8		90 / 66.4 - 100 / 73.8	100 / 73.8	100 / 73.8
	With copper washer	90 / 66.4 - 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	100 / 73.8
	UN-UNF	1" 5/16-12 (SAE 16)		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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