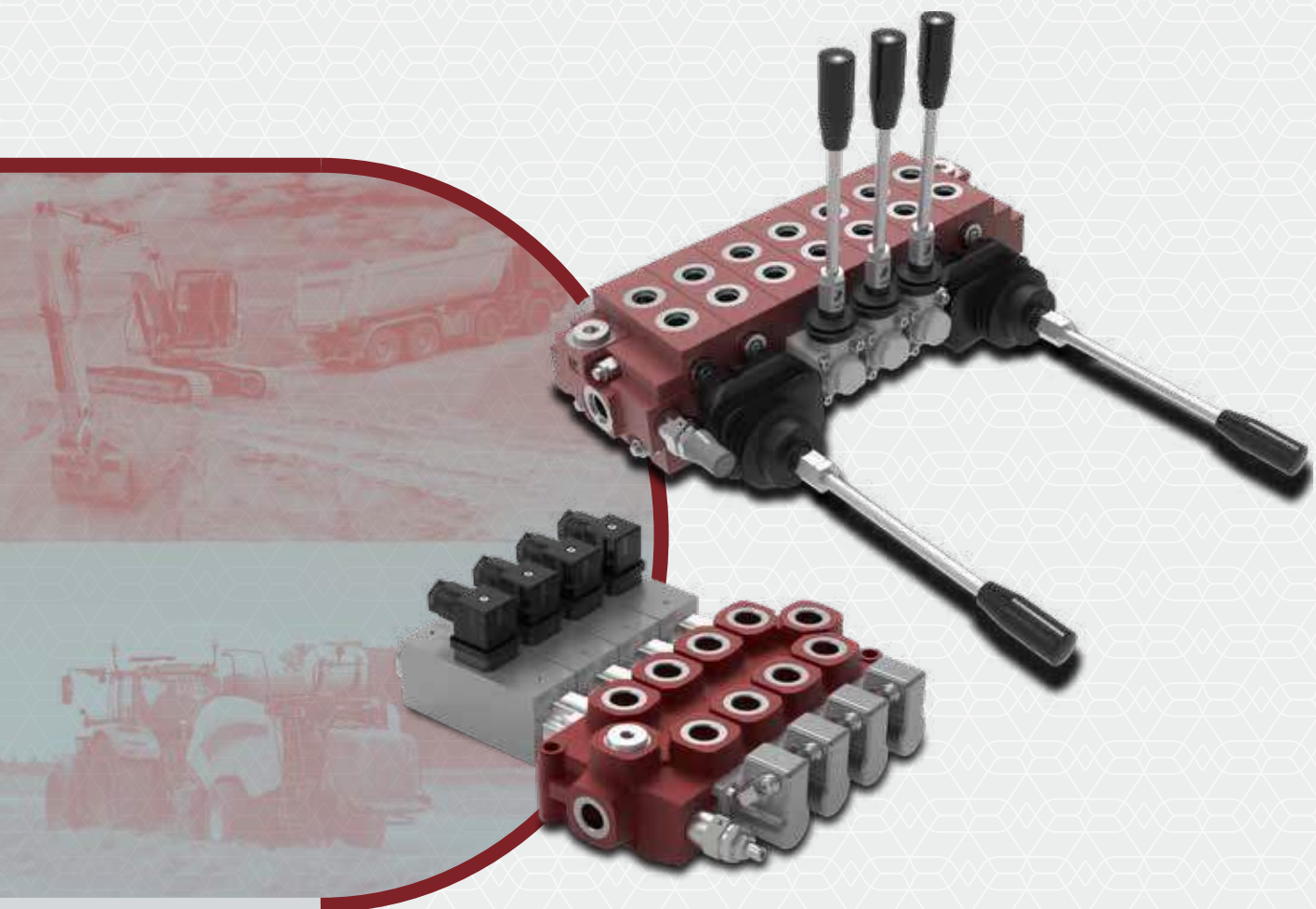


Monoblock and Sectional control valves range  
Q series



PHC



DIRECTIONAL VALVES

## Features

---

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.

6<sup>th</sup> edition July 2026



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### Sectional directional control valves

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## Q25 - Q45

### Monoblock directional valves

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

#### Working conditions

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

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

NOTE - For different conditions please contact our Sales Department.

(\*): On request for 1 or 2 section monoblock valve only, max back pressure allowable is 180 bar (2610 psi)

#### REFERENCE STANDARD

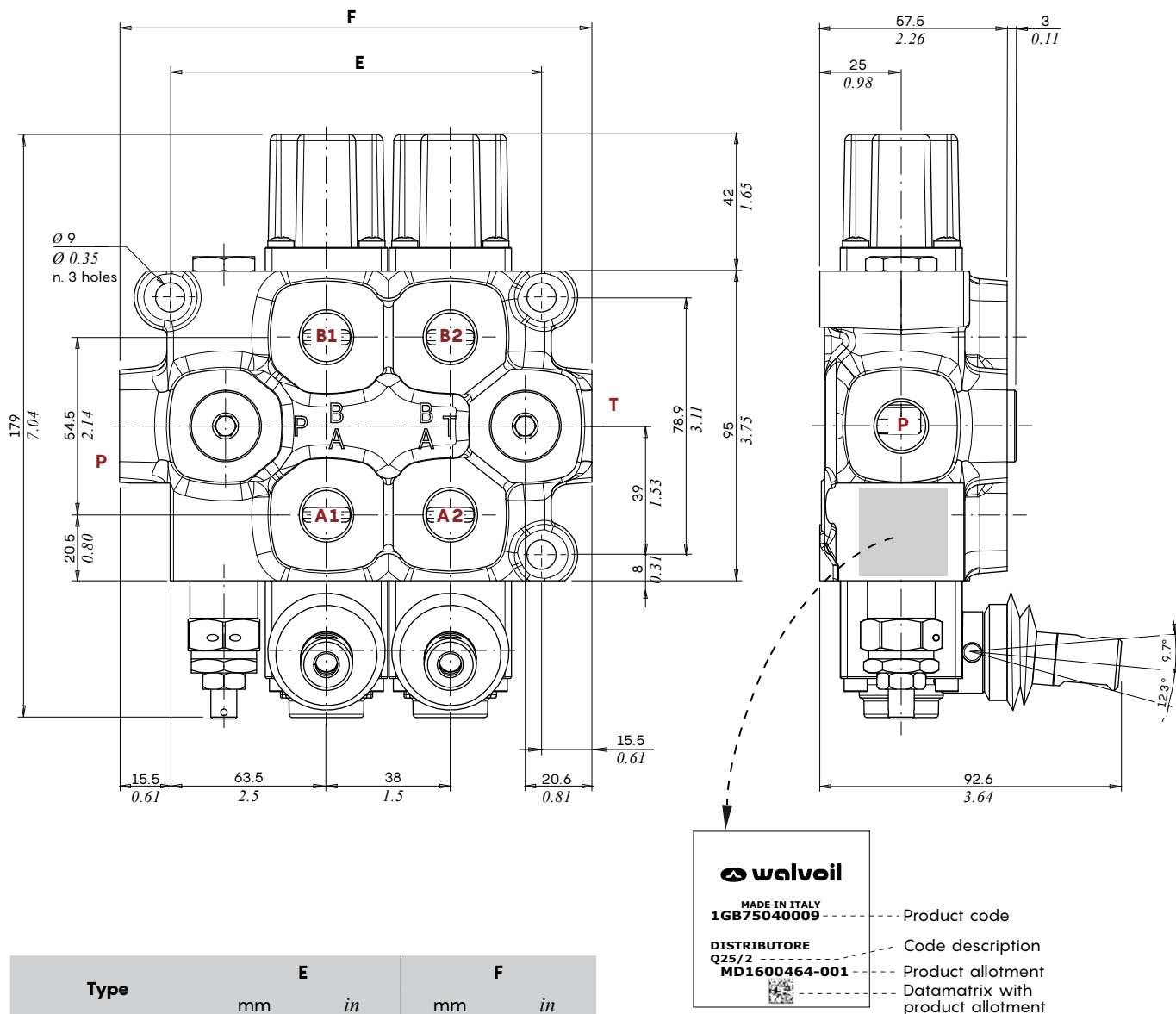
|                               |     | BSP                 | UN-UNF            |
|-------------------------------|-----|---------------------|-------------------|
| THREAD ACCORDING TO           |     | ISO 228/1           | ISO 263           |
|                               |     | BS 2779       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

#### PORT THREADING

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

## Dimensional data

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

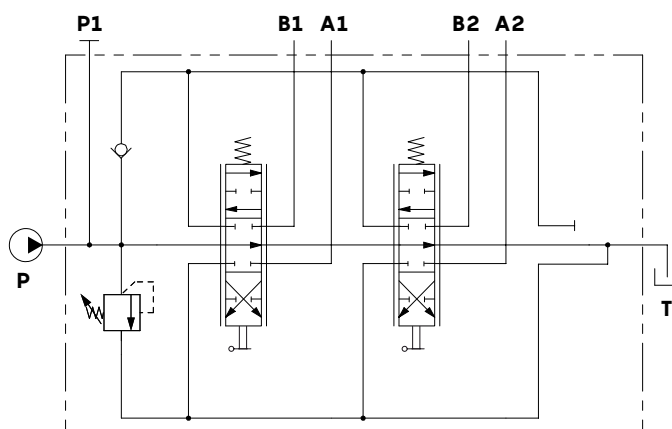


| Type          | E   |       | F   |       |
|---------------|-----|-------|-----|-------|
|               | mm  | in    | mm  | in    |
| Q25/1 – Q45/1 | 76  | 2.99  | 107 | 4.21  |
| Q25/2 – Q45/2 | 114 | 4.48  | 145 | 5.70  |
| Q25/3 – Q45/3 | 152 | 5.98  | 183 | 7.2   |
| Q25/4 – Q45/4 | 190 | 7.48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

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



## Hydraulic circuit

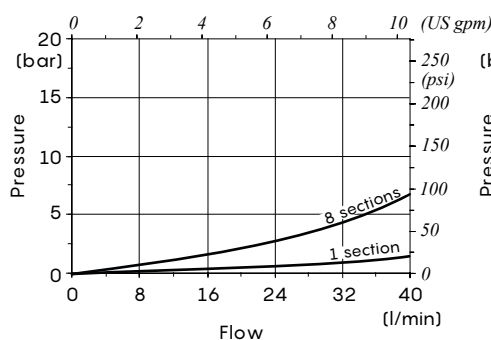


Description example (parallel circuit):  
 Q25/2/F1S(N250)/103-A1-M1/103-A1-M1/F3D-S  
 Q45/2/F1S(N250)/103-A1-M1/103-A1-M1/F3D-S

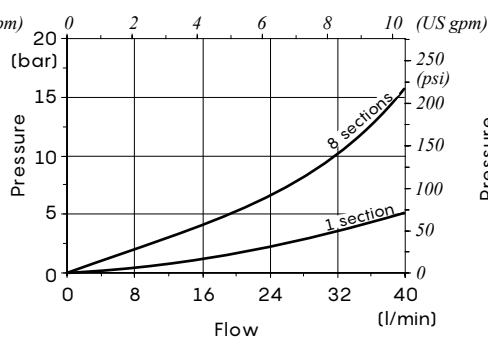
## Performance data

## Q25

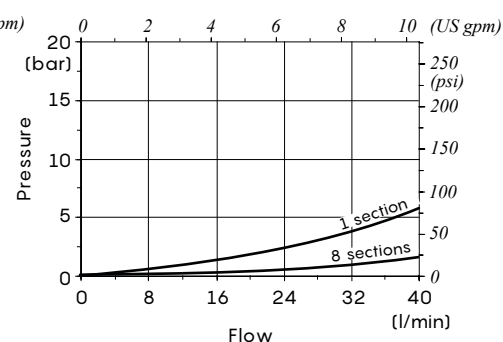
P⇒T pressure drops



P⇒A(B) pressure drops

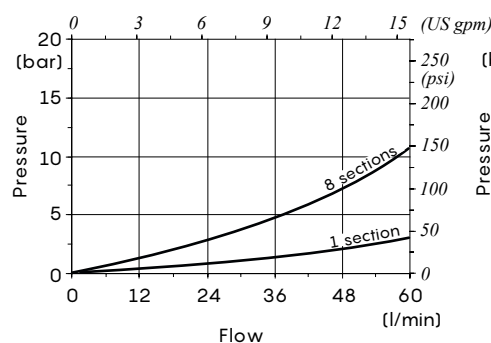


A(B)⇒T pressure drops

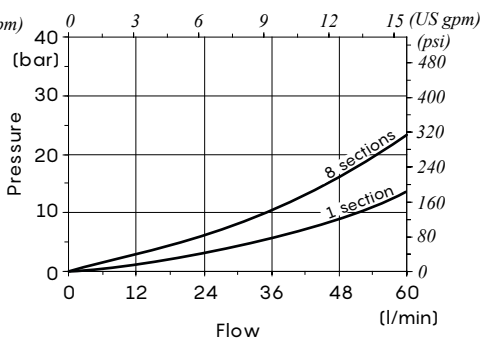


## Q45

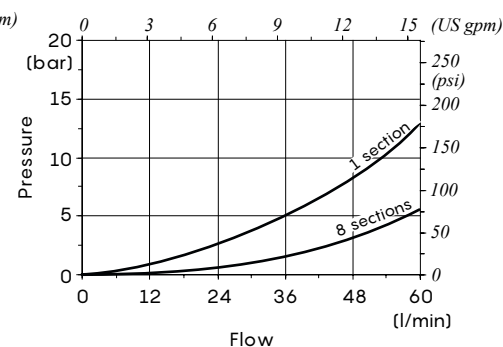
P⇒T pressure drops



P⇒A(B) pressure drops

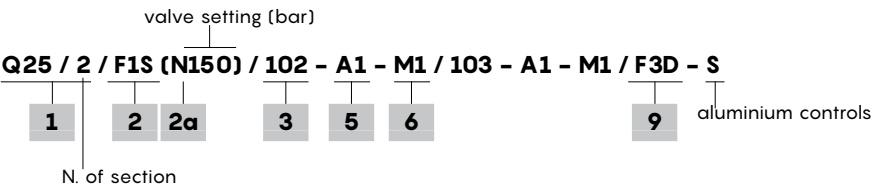


A(B)⇒T pressure drops

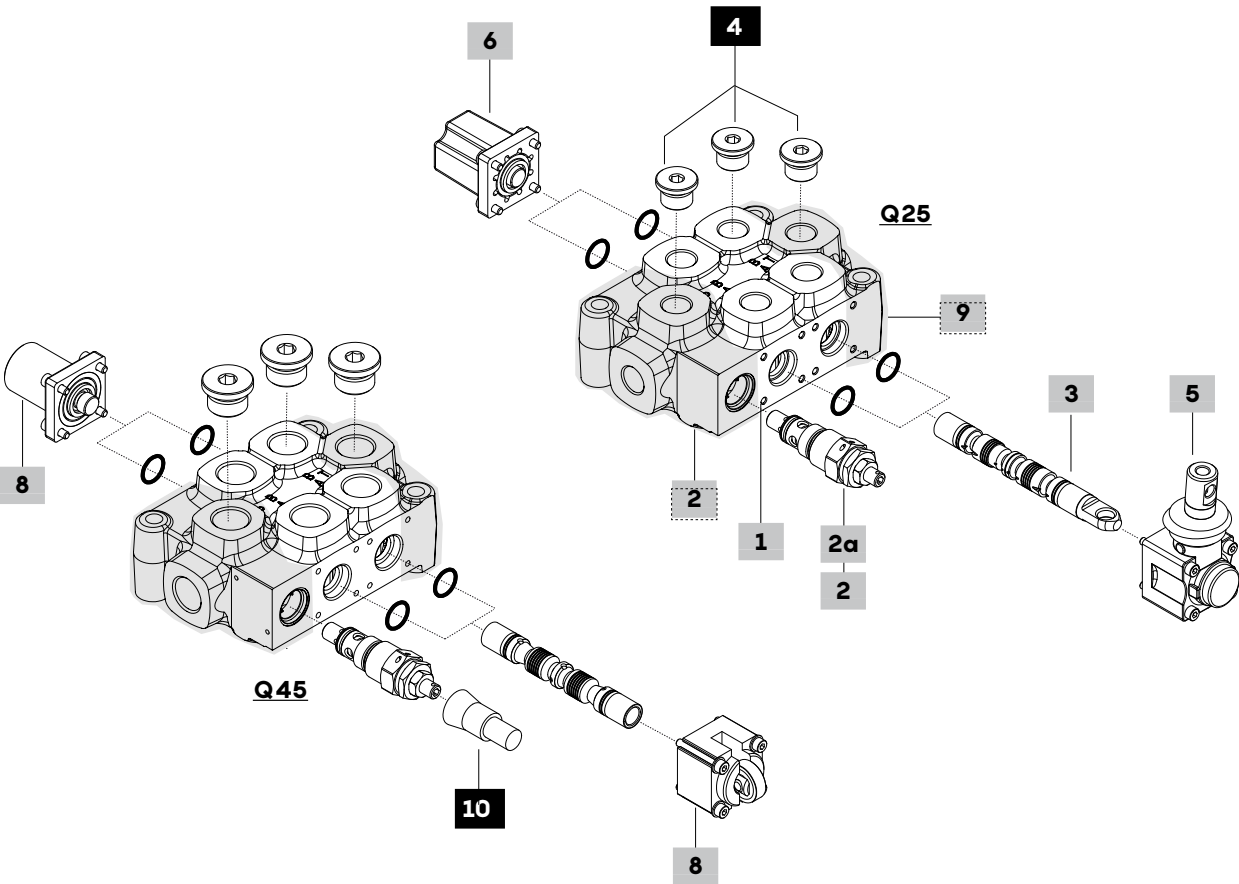


Parts ordering codes

Mechanical control valve configuration example



C2/C3 complete mechanical control valve configuration example



## 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  |

|              |               |            |
|--------------|---------------|------------|
| <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\*** page 14

| 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** page 15

|                                                                      |                        |
|----------------------------------------------------------------------|------------------------|
| TYPE: <b>B</b>                                                       | CODE: 7000352050000000 |
| DESCRIPTION: VLP35S valve, setting range 10–100 bar (145–1450 psi)   |                        |
| TYPE: <b>N</b>                                                       | CODE: 7000351050000000 |
| DESCRIPTION: VLP35S valve, setting range 101–200 bar (1460–2900 psi) |                        |
| TYPE: <b>R</b>                                                       | CODE: 7000353050000000 |
| DESCRIPTION: VLP35S valve, setting range 201–380 bar (2910–5500 psi) |                        |
| TYPE: <b>-</b>                                                       | CODE: 060002788899     |
| DESCRIPTION: Relief valve blanking plug                              |                        |

**3 Spool** page 16

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

**Note (3):** Q25 valve required 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 17

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

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

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

**5 A side control** page 31

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

## Parts ordering codes

| 6                                               | B side control | page 25                                                           |
|-------------------------------------------------|----------------|-------------------------------------------------------------------|
| 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/O1</b>                                    | 03730M1/01     | As M1 type, for mechanical joystick                               |
|                                                 | 03730M1/01/03  | As previous one, with aluminium cap                               |
| <b>M1/O2</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 pos.                       |
|                                                 | 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 pos.                       |
|                                                 | 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 pos.                       |
| <b>M3-U2</b>                                    | 03717M3-U2     | 2 pos. (0-2), spring return in neutral pos.                       |
| <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                               |

| 6                                                                        | B side control (cont.) | page 25                                                                    |
|--------------------------------------------------------------------------|------------------------|----------------------------------------------------------------------------|
| TYPE                                                                     | CODE                   | DESCRIPTION                                                                |
| <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

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

## 8 Complete controls A+B sides page 31

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

## 9 Outlet configuration\* page 35

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

## 10 Accessories

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

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

**Proportional hydraulic controls valve configuration example**

valve setting (bar)

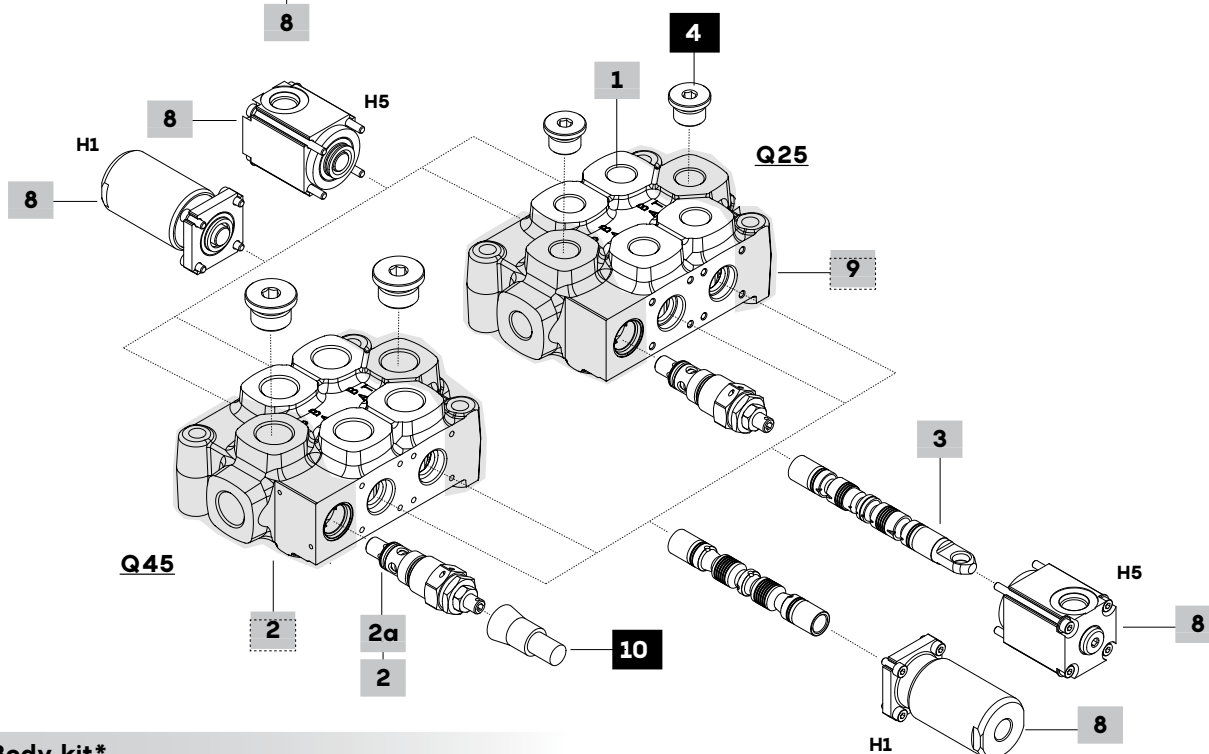
**Q25 / 2 / F1S (N150) / 103 – H5 / 103 – H5 / F3D – S**

1 2 2a 3 8 9 aluminium controls

N. of section

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

8

**1 Body kit\***

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

**H1** hydraulic control requires standard body: see #1, page 9

| TYPE         | CODE           | DESCRIPTION |
|--------------|----------------|-------------|
| <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 14

See #2, page 9

**2a Main pressure relief valve** page 15

See #2a, page 9

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

**3 Spool** page 16

| TYPE                            | CODE         | DESCRIPTION                                        |
|---------------------------------|--------------|----------------------------------------------------|
| <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 9

**8 Hydraulic controls A+B sides\*** page 32

| 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 35

See #9, page 10

**10 Accessories**

See #10, page 10

### Parts ordering codes

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

valve setting (bar)

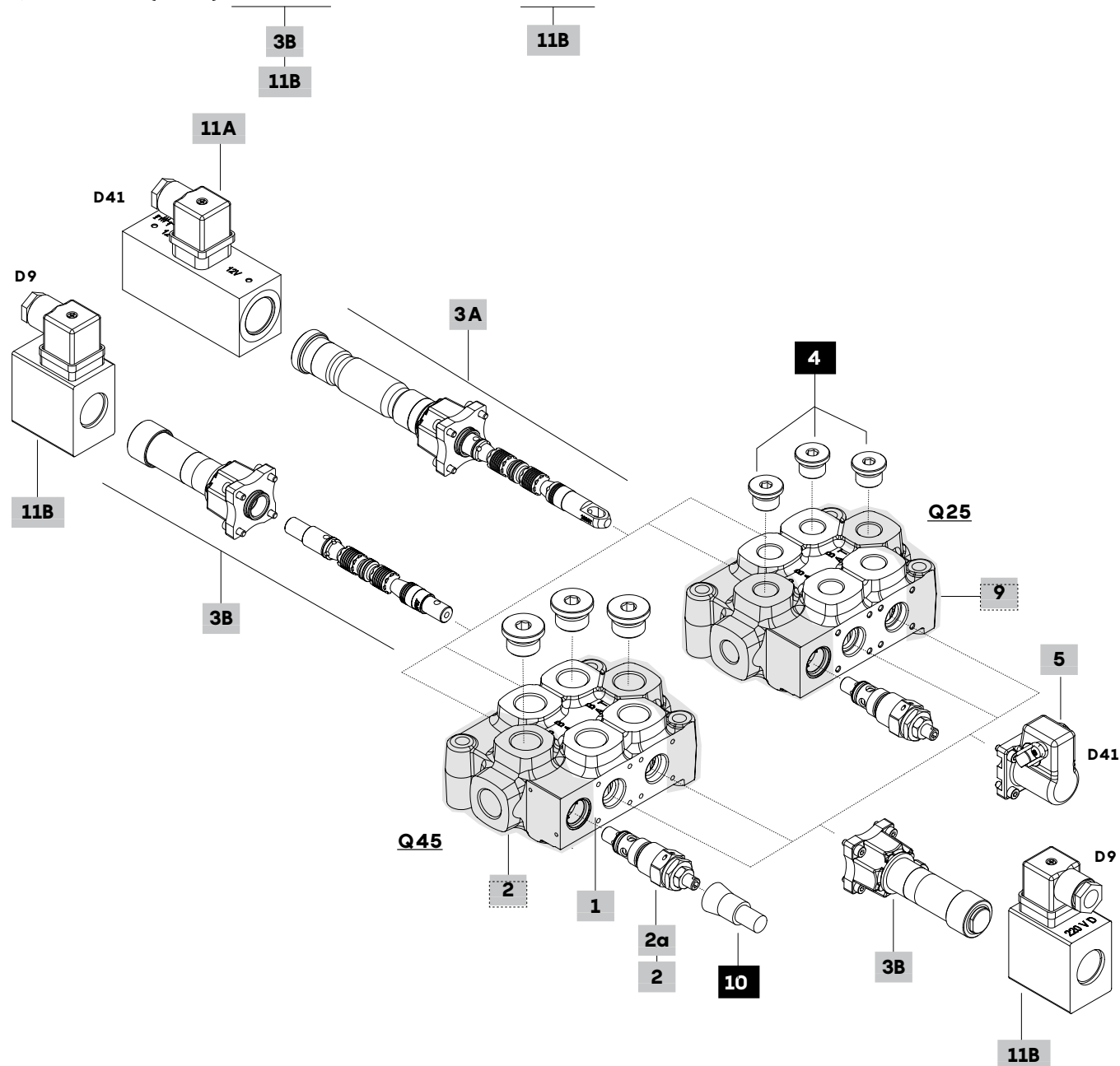
**Q25 / 2 / F1S (N150) / 101 - A1 - D41 / 101 - A1 - D41 / F3D - 12VDC - S**

1 2 2a 3A 5 3A 9 11A aluminium controls

N. of section 11A

#### 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 14**

See #2, page 9

**2a Main pressure relief valve page 15**

See #2a, page 9

**3A D41 solenoid control page 33****One side solenoid control**

For Q25 valve:

| TYPE       | CODE          | DESCRIPTION                                                                                                    |
|------------|---------------|----------------------------------------------------------------------------------------------------------------|
| <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 pos.                                        |
| <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:

|            |               |                                                                                                                |
|------------|---------------|----------------------------------------------------------------------------------------------------------------|
| <b>103</b> | X060102889700 | Tube assembly with double acting spool, A and B closed in neutral pos.                                         |
| <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 34****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 9

**5 A side control for D41 page 33**

| 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 35**

See #9, page 10

**10 Accessories**

See #10, page 10

**11A/B Coil page 33****D41 coil**

For Q25 valve:

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

For Q45 valve:

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

**D9 coil**

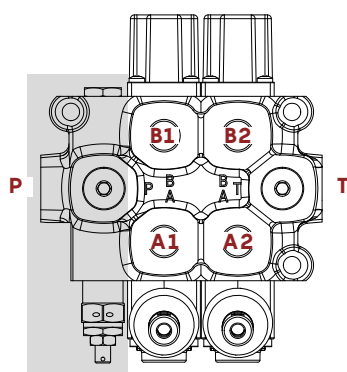
For Q25/Q45 valves:

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

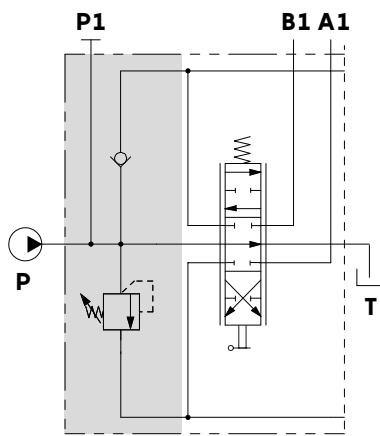
**Note:** The connector is included(\*): Codes are referred to **BSP** thread



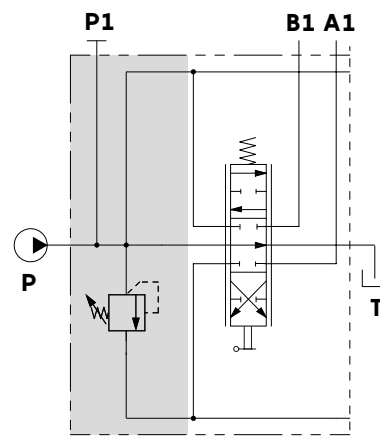
## Inlet configuration



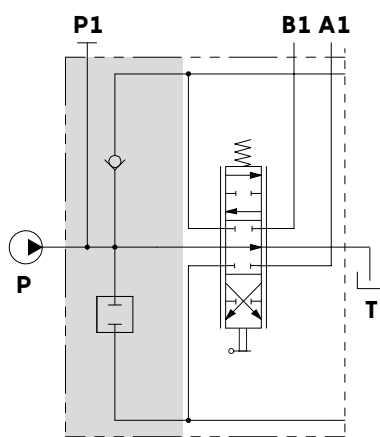
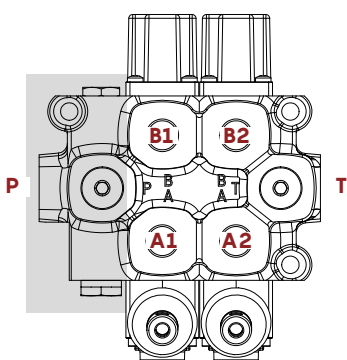
**F1S configuration**  
With load check and pressure relief valve



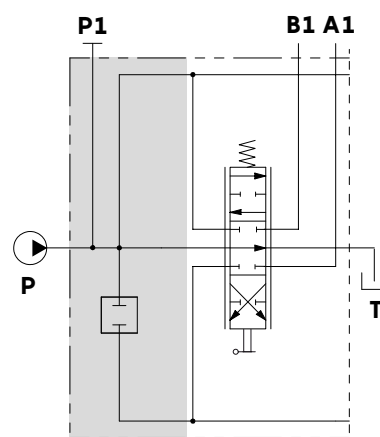
**F7S configuration**  
With pressure relief valve



**F2S configuration**  
With load check valve



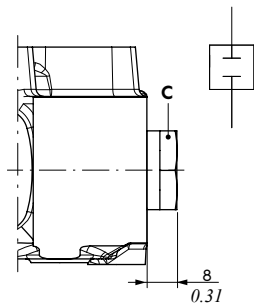
**F8S configuration**  
Without valves  
(pressure relief valve plugged port)



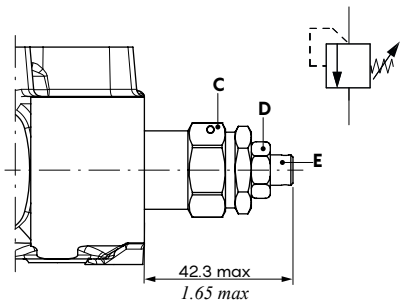


Main pressure relief valve

Relief valve blanking plug

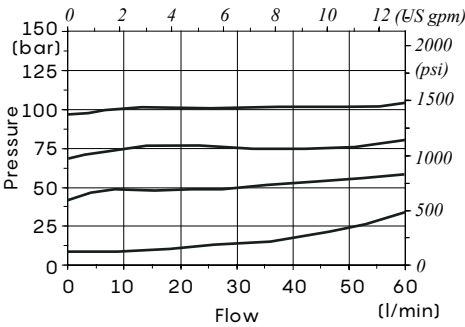


Main pressure relief valve

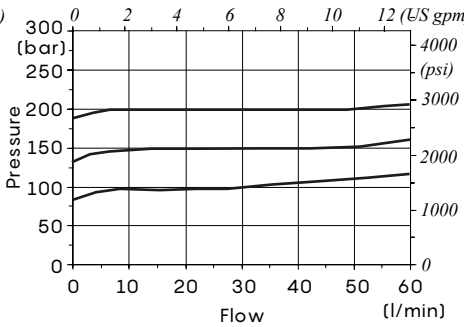


| Spring type | Setting ranges (bar - psi)          |
|-------------|-------------------------------------|
| B (white)   | From 10 to 100 - from 145 to 1450   |
| N (black)   | From 101 to 200 - from 1460 to 2900 |
| R (red)     | From 201 to 380 - from 2910 to 5500 |

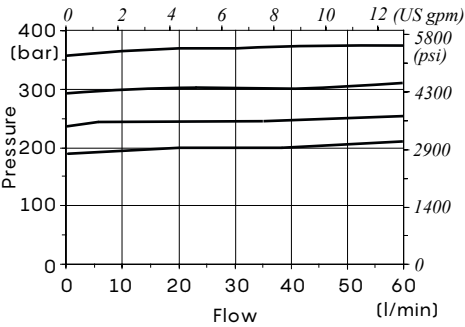
Setting example (B type spring)



Setting example (N type spring)



Setting example (R type spring)



Wrenches and tightening torques

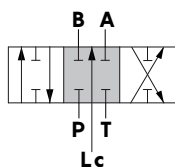
- C = wrench 22 – 42 Nm (30.9 lbf·ft)
- D = wrench 13 – 24 Nm (17.7 lbf·ft)
- E = allen wrench 4

## Spool

### 103 type

A and B closed  
in neutral position

2 0 1



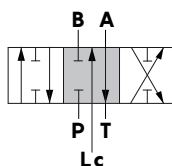
#### Stroke

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



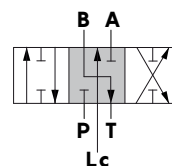
#### Stroke

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



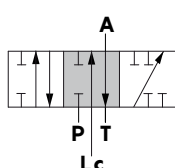
#### Stroke

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

### 109 type

A to tank in neutral position,  
B plugged

2 0 1



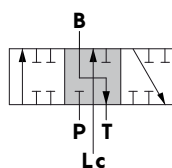
#### Stroke

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

### 110 type

B to tank in neutral position,  
A plugged

2 0 1



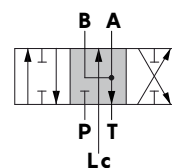
#### Stroke

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

### 111 type

A and B to tank  
in neutral position

2 0 1



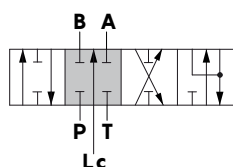
#### Stroke

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

### 116 type

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

2 0 1 3



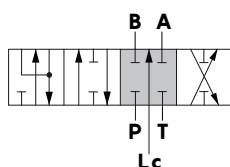
#### Stroke

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

### 126 type

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

3 2 0 1



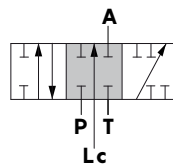
#### Stroke

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

### 101 type

Single acting on A,  
B plugged

2 0 1



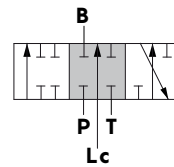
#### Stroke

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

### 102 type

Single acting on B,  
A plugged

2 0 1



#### Stroke

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

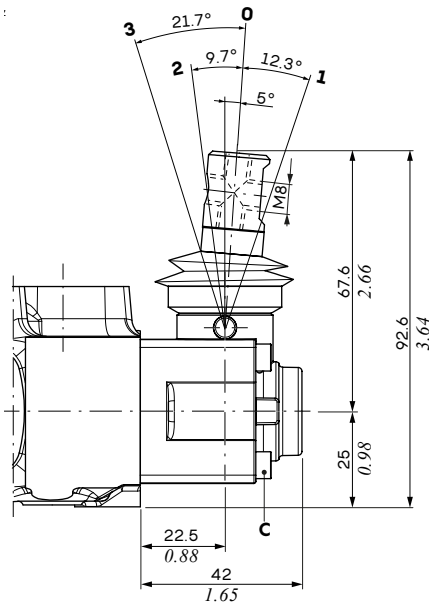
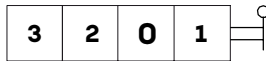
# A side controls

## Mechanical controls

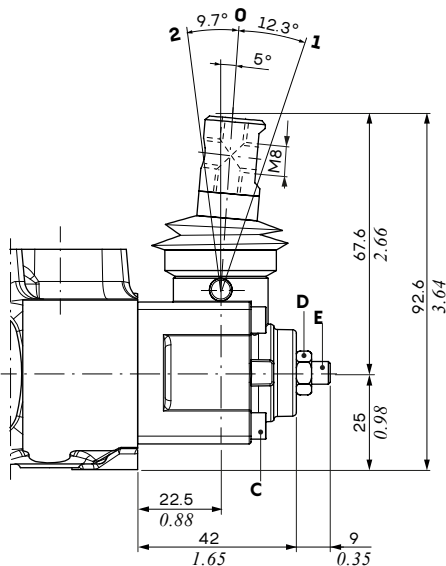
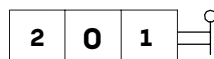
### With lever control

#### A1 type

M8 thread plastic lever box



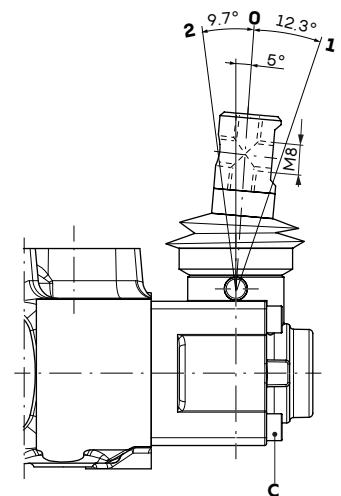
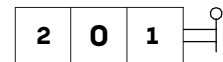
#### A1/06 type

M8 thread,  
with stroke limiter


#### A1/10 type

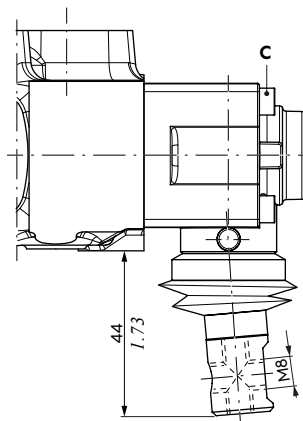
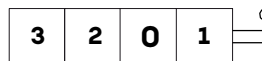
M8 thread aluminium lever box.  
Dimensions are the same  
of A1 type

#### A2/10 type

As A1/10 type,  
rotated 180°


#### A2 type

As A1 type, rotated 180°

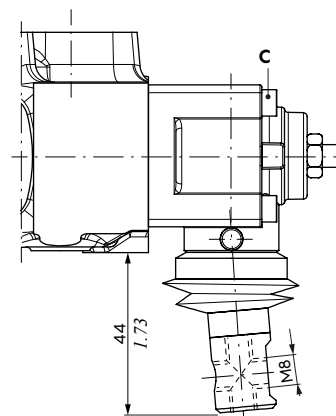
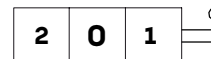


#### Wrenches and tightening torques

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

#### A2/06 type

As A1/06 type, rotated 180°



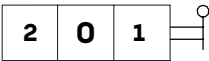
A side controls

Mechanical controls

With lever control

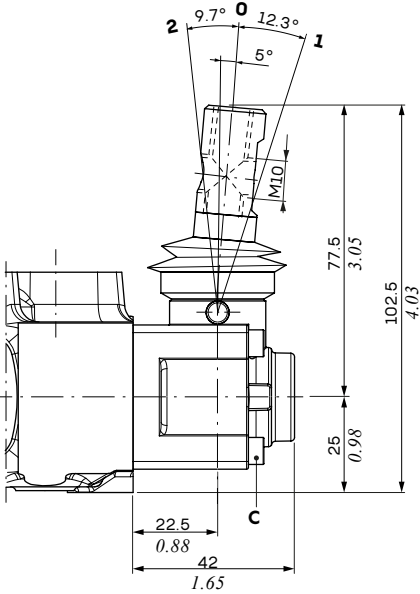
A1/PM type

M10 thread aluminium lever box



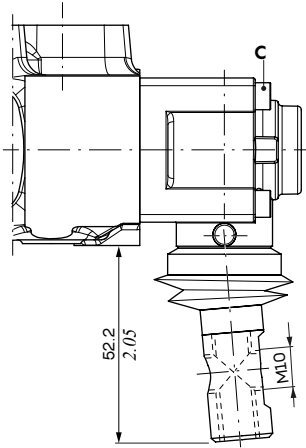
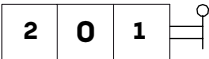
Wrenches and tightening torques

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



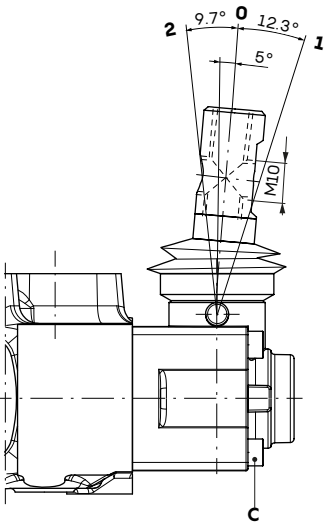
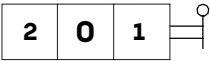
A2/PM type

As A1/PM type, rotated 180°



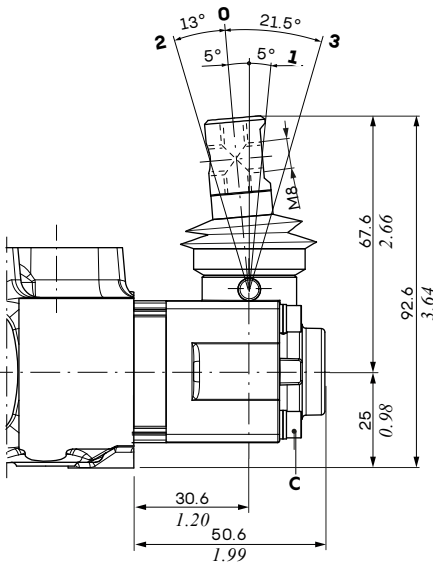
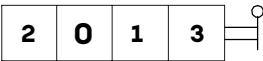
A1/PMP type

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



A2/PMP type

As A1/PMP type, rotated 180°

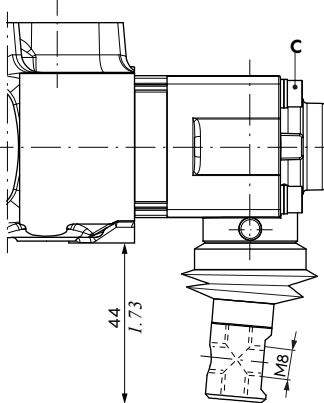
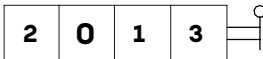


A1/Z1 type

M8 thread, for 116 floating spool type

A2/Z1 type

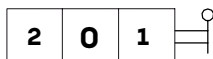
As A1/Z1 type, rotated 180°



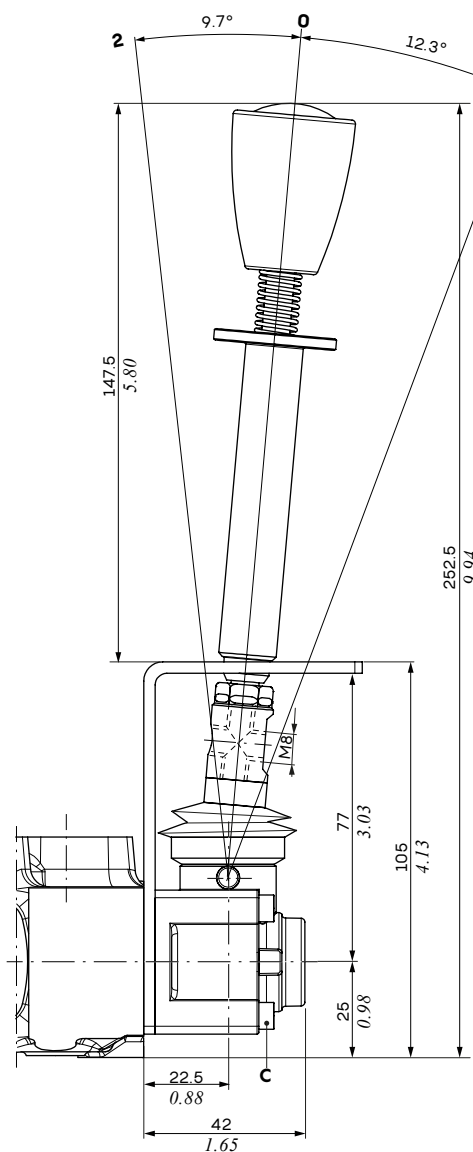
## Mechanical controls

### With safety lever control

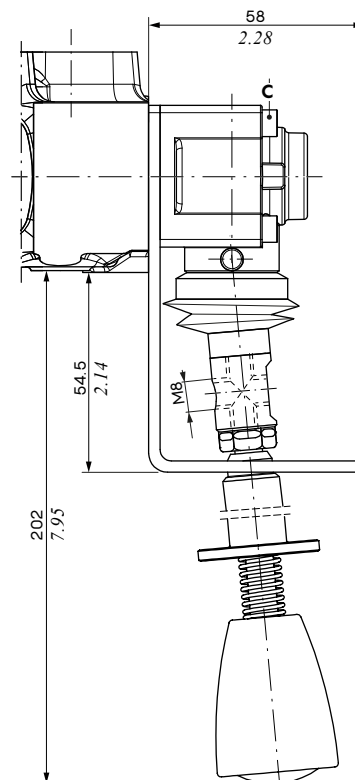
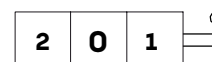
**A1/S type**  
M8 thread, aluminium lever box



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

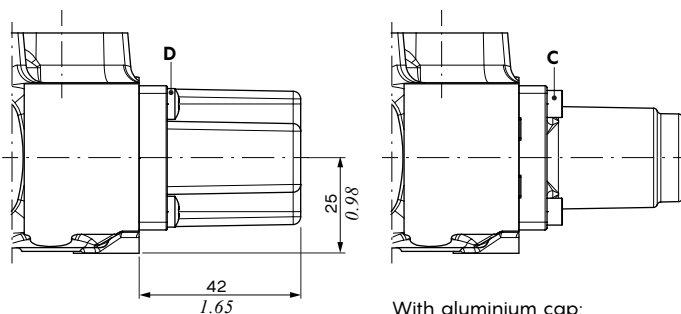
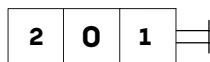


**A2/S type**  
As A1/S type, rotated 180°



### Without lever control

**A3 type**  
With cap.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

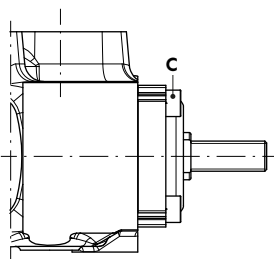
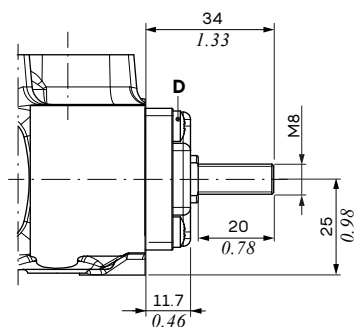
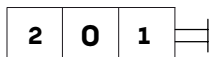
## A side controls

### Mechanical controls

#### Without lever control

##### A4 type

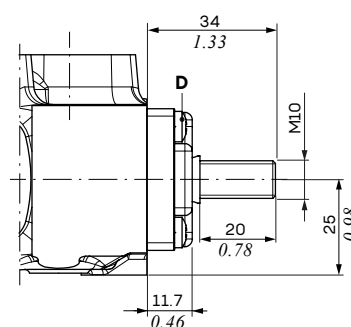
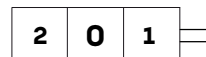
M8 male thread external pin with flange.  
Available with aluminium flange



With aluminium flange;  
dimensions are the same of standard type

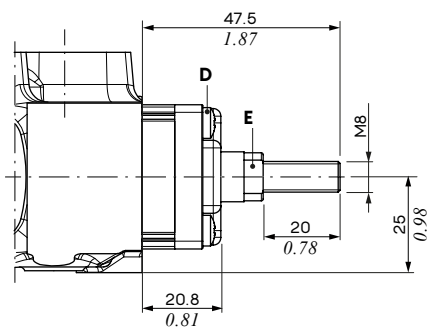
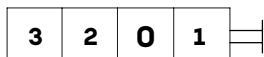
##### A4/01 type

M10 male thread external pin with flange



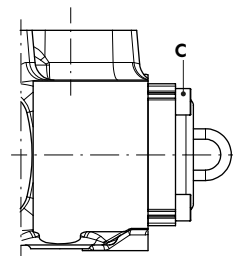
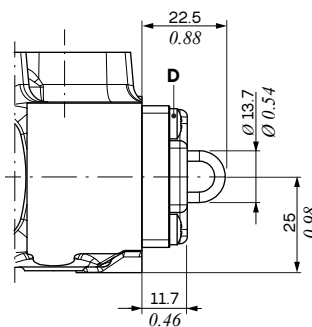
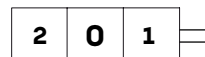
##### A4/Z1 type

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

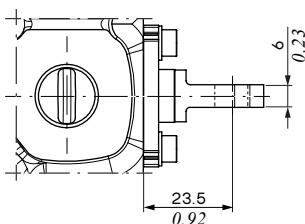
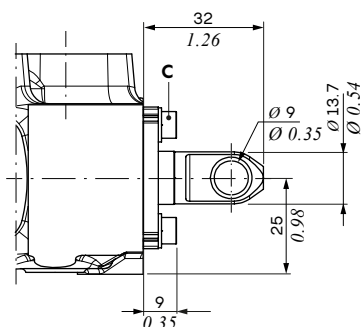
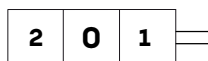
#### Wrenches and tightening torques

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

# Mechanical controls

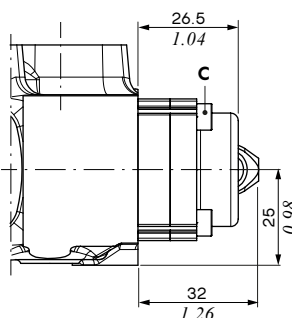
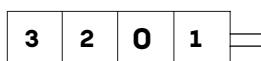
## Without lever control

**A6 type**  
With flange



**A6-H/Z1 type**

As A6 type,  
for 116 floating spool type



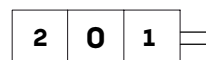
## Wrenches and tightening torques

C = allen wrench 3 – 3 Nm (2.2 lbft)

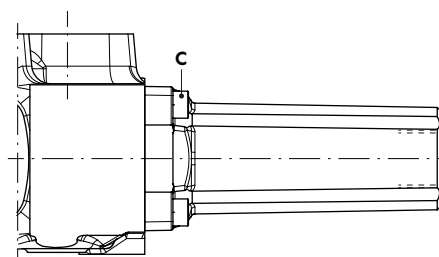
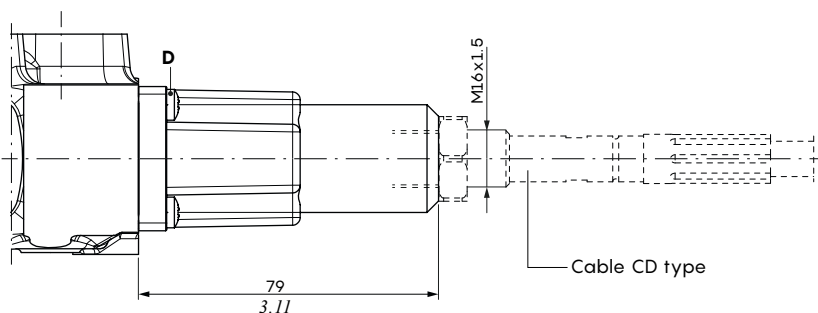
D = cross-head – 3 Nm (2.2 lbft)

**A8 type**

Flexible cable control arrangement.  
Available with aluminium cap

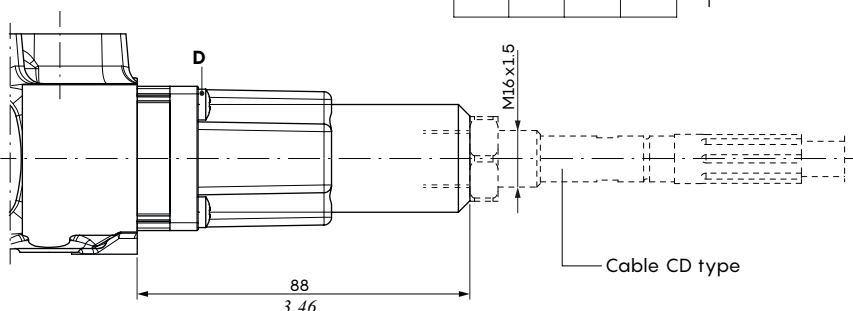
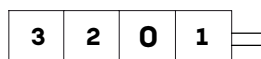


## With flexible cable control arrangement



With aluminium cap;  
dimensions are the same of standard type

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

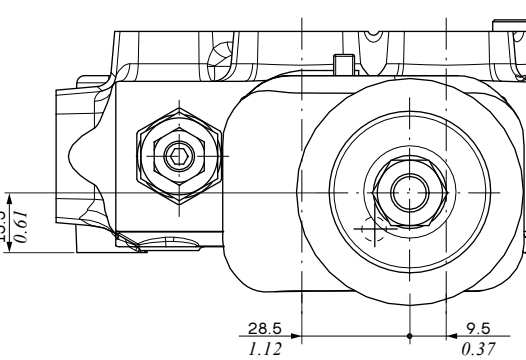


A side controls

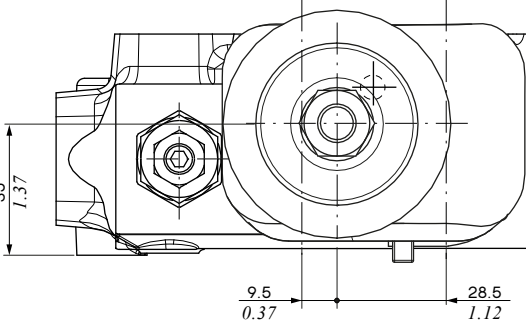
Joystick controls

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

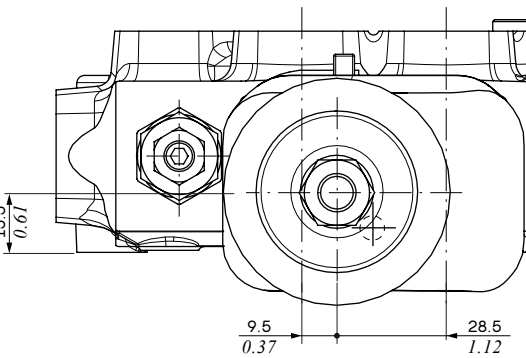
A35-1 type



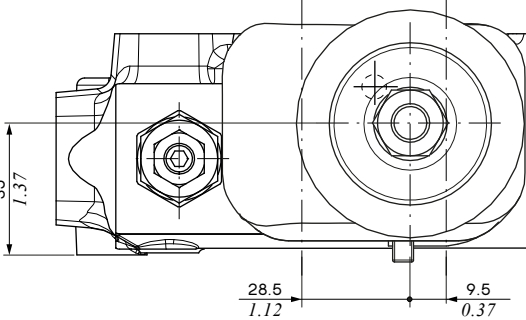
A35-2 type



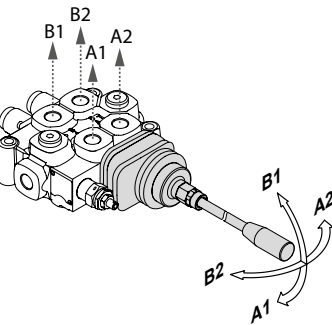
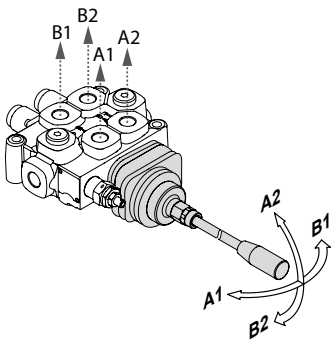
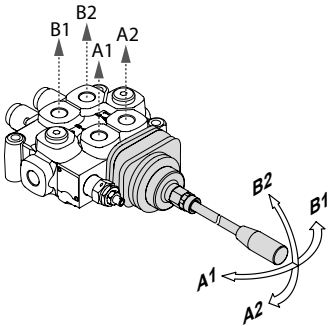
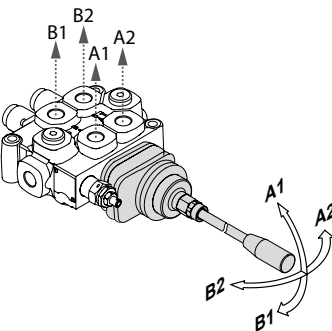
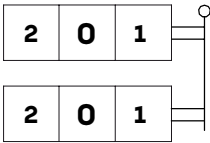
A35-3 type



A35-4 type



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





# Spool position microswitch

## With lever control

### N1-A1 type

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



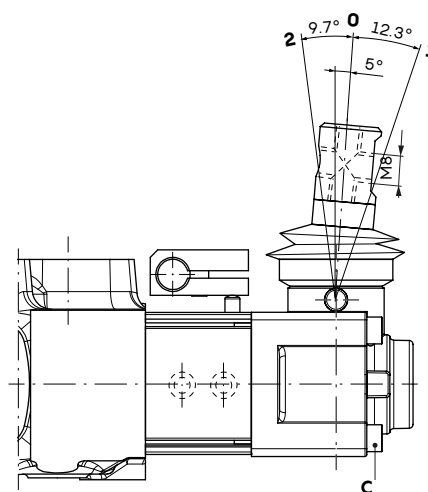
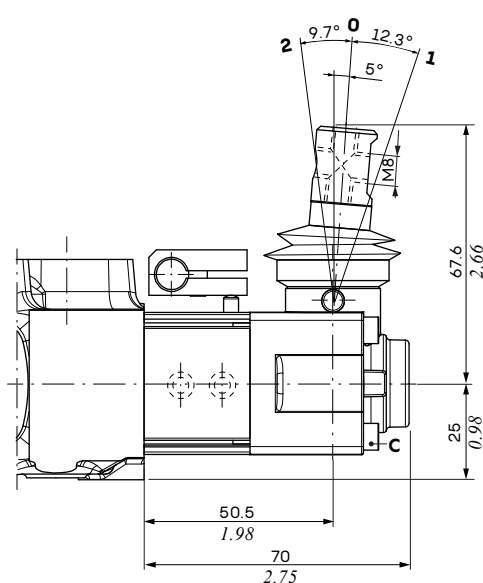
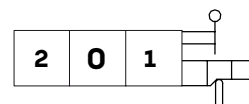
### N1A-A1 type

Micro operation in position 1



### N1B-A1 type

Micro operation in position 2



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

## Without lever control, with cap

### N1-A3 type

Micro operation in position 1 and 2



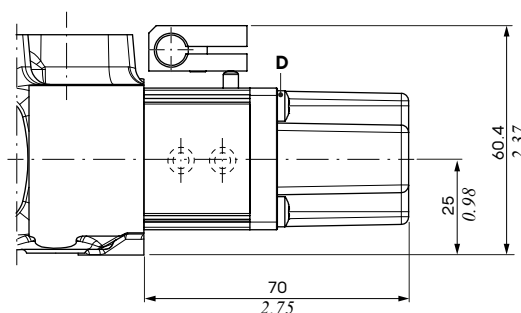
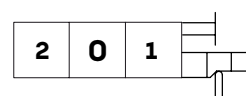
### N1A-A3 type

Micro operation in position 1



### N1B-A3 type

Micro operation in position 2



## Wrenches and tightening torques

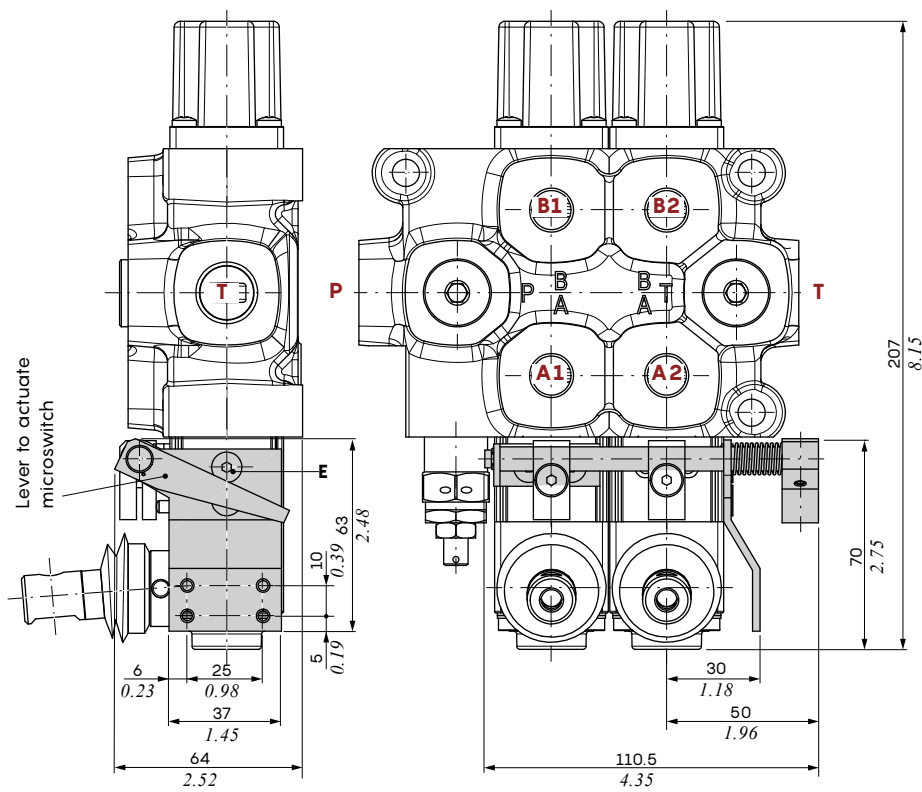
C = allen wrench 3 - 3 Nm (2.2 lbft)

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

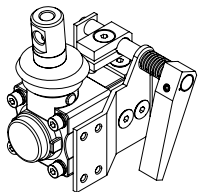
A side controls

Spool position microswitch

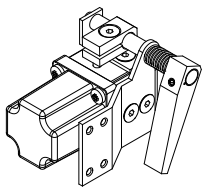
Microswitch assembly kit for 2 working section (N1–A1 type)



with cap



with lever box



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

Drawing is referred to a Q25 monoblock valve.

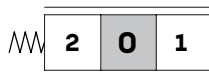
## B side controls

## Mechanical controls

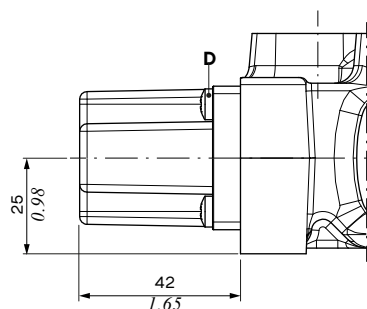
## With spring return control

**M1 type**

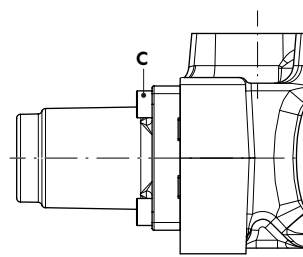
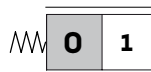
3 position, spring return  
in neutral position.  
Available with aluminium cap

**M1/01 type**

3 position,  
for joystick control.  
Available with aluminium cap

**M2 type**

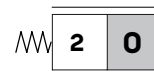
2 position (0-1), spring return  
in neutral position.  
Available with aluminium cap



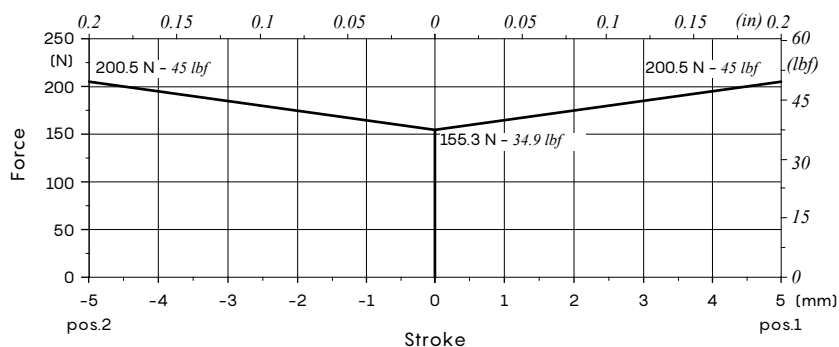
With aluminium cap;  
dimensions are the same of standard type

**M3 type**

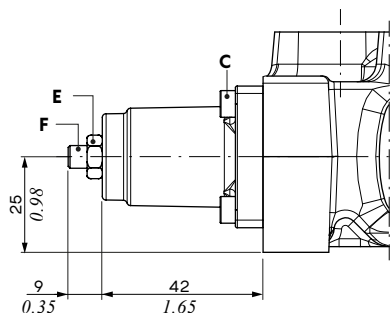
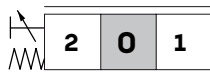
2 position (0-2), spring return  
in neutral position.  
Available with aluminium cap

**Wrenches and tightening torques**

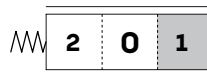
C = allen wrench 3 - 3 Nm (2.2 lbf)  
D = cross-head - 3 Nm (2.2 lbf)  
E = wrench 10 - 9.8 Nm (7.2 lbf)  
F = allen wrench 4 - 9.8 Nm (7.2 lbf)

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

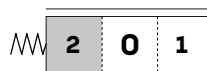
As M1 type, with stroke limiter

**M4 types**

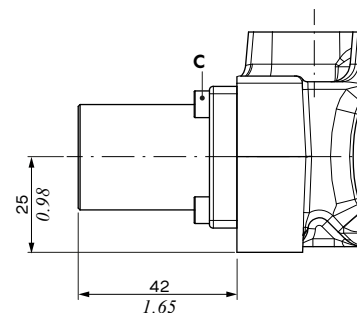
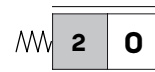
2 position (1-2),  
spring return in position 1



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



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



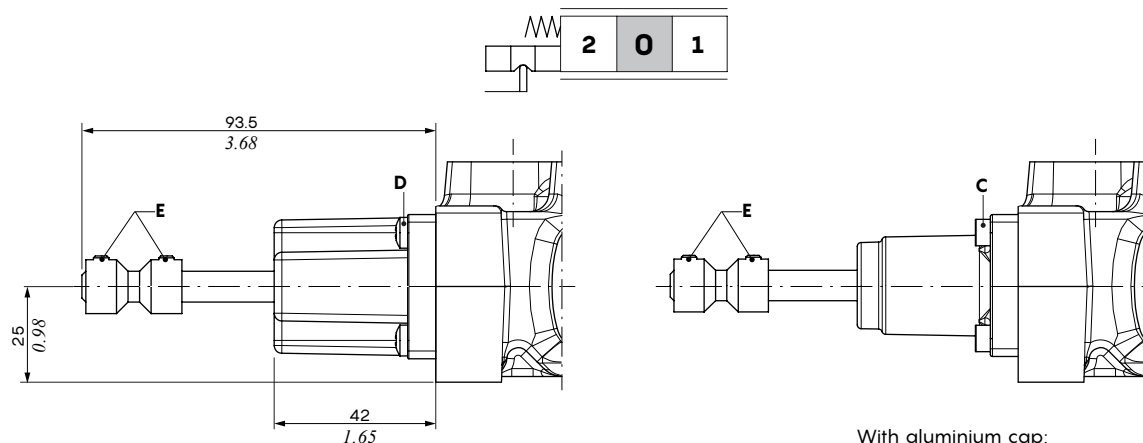
## B side controls

### Mechanical controls

#### With spring return control

##### M1-B1 type

3 position, microswitch arrangement.  
Available with aluminium cap

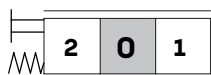


With aluminium cap;  
dimensions are the same of standard type

#### With flexible cable control arrangement

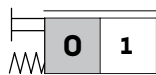
##### M1-U1 type

3 position, with M8 male  
thread external pin



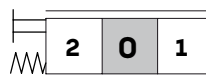
##### M2-U1 type

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



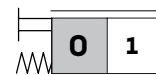
##### M1-U2 type

3 position, spring return  
in neutral position



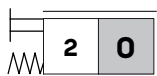
##### M2-U2 type

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



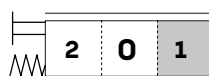
##### M3-U1 type

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



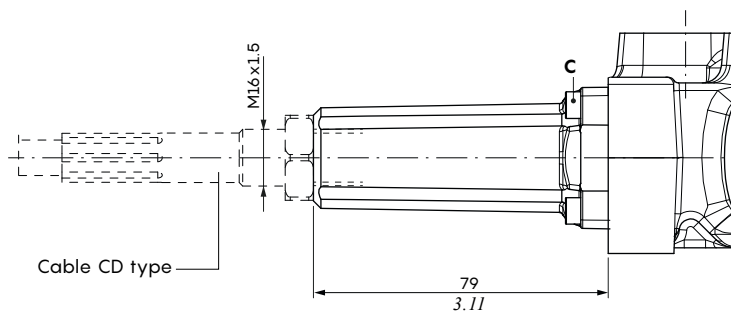
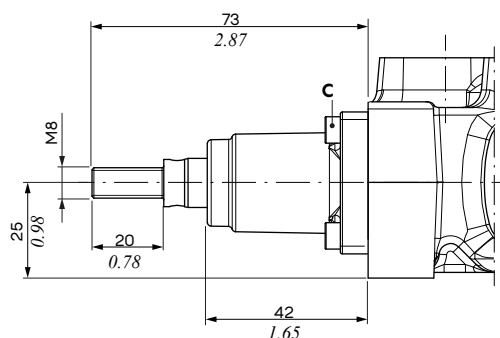
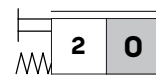
##### M4-U1 type

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



##### M3-U2 type

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



#### Wrenches and tightening torques

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

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

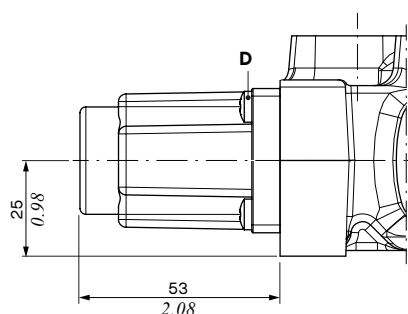
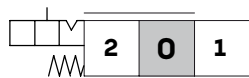
E = allen wrench 3 - 5 Nm (3.68 lbft)

# Mechanical controls

## With detent control

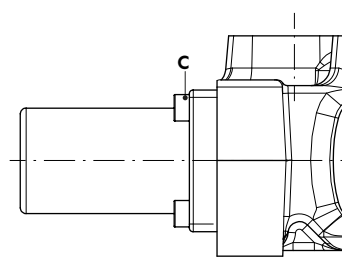
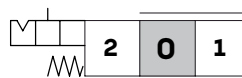
### R1 type

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



### R2 type

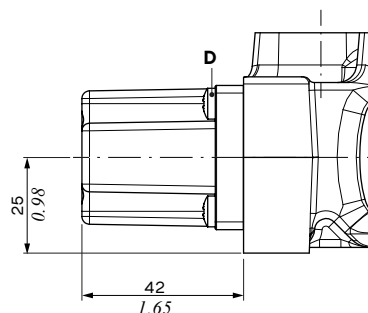
3 position, detent in position 2.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

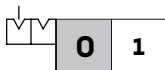
### R3 type

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



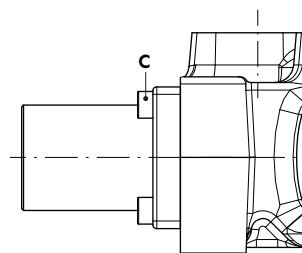
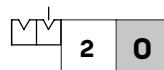
### R4 type

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



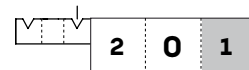
### R5 type

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



### R6 type

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



With aluminium cap;  
dimensions are the same of standard type

## Wrenches and tightening torques

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

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

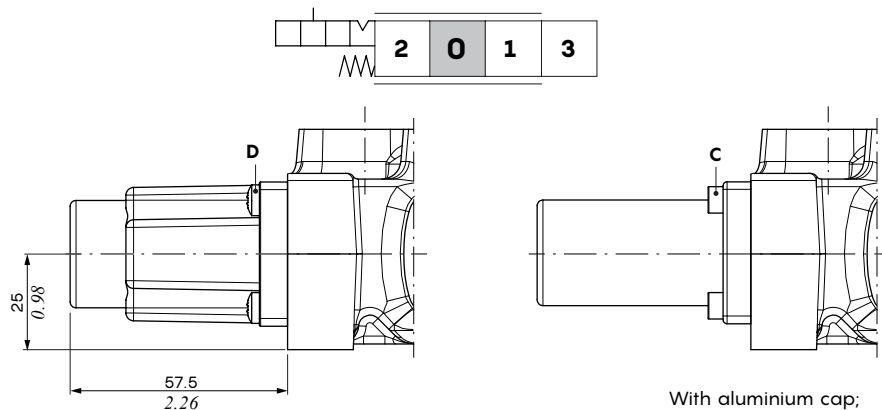
## B side controls

### Mechanical controls

#### With detent control

##### R8 type

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



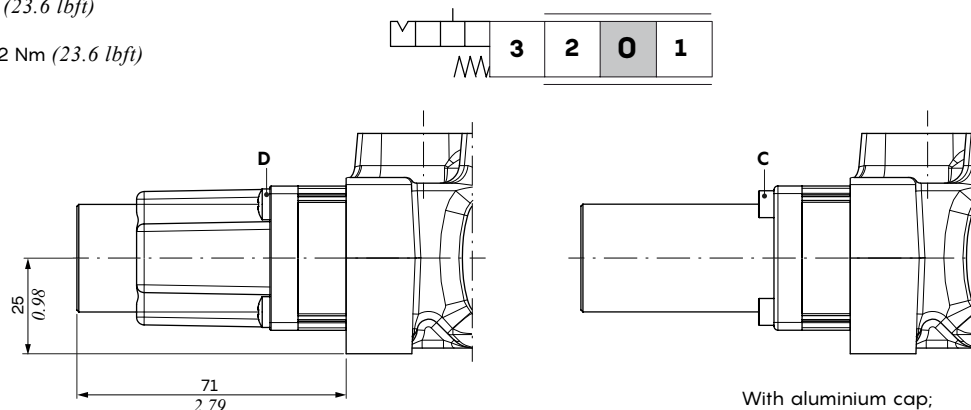
With aluminium cap;  
dimensions are the same of standard type

#### Wrenches and tightening torques

C = allen wrench 3 - 3 Nm (2.2 lbf ft)  
D = cross-head - 3 Nm (2.2 lbf ft)  
E = wrench 22 - 32 Nm (23.6 lbf ft)  
F = wrench 16  
G = allen wrench 10 - 32 Nm (23.6 lbf ft)

##### R10/Z1 type

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

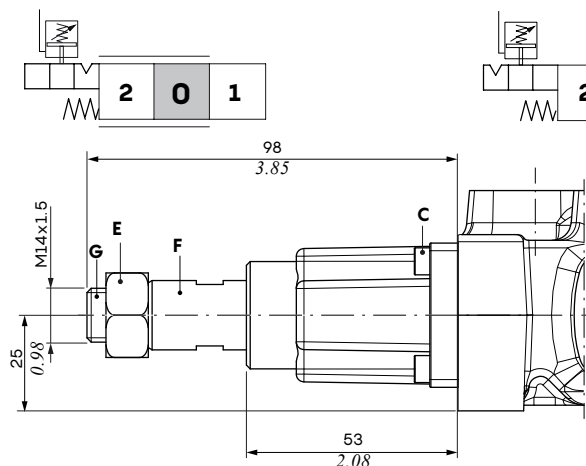


With aluminium cap;  
dimensions are the same of standard type

#### With detent control and kick out function

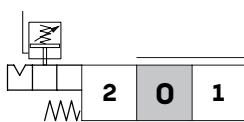
##### R1K type

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



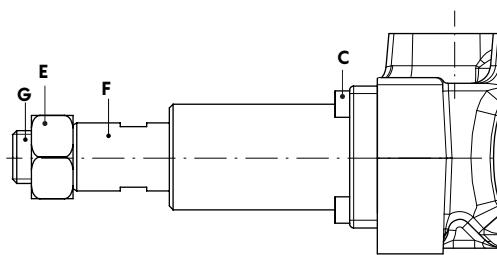
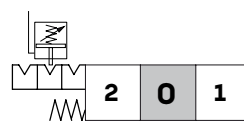
##### R2K type

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



##### R3K type

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



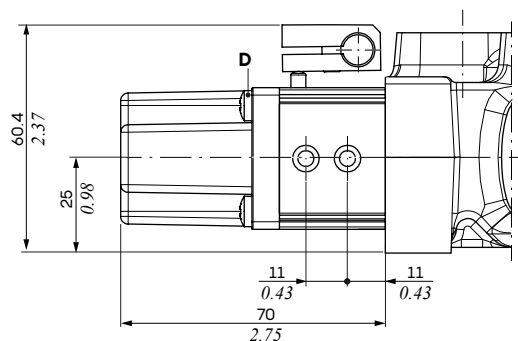
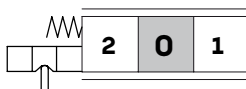
With aluminium cap;  
dimensions are the same of standard type

## Spool position microswitch

**M1-N1 type**

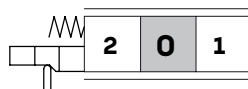
3 position, micro operation in position 1 and 2, spring return in neutral position.

Available with aluminium cap

**M1-N1A type**

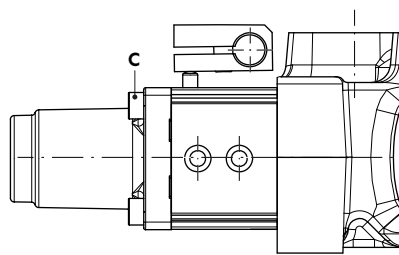
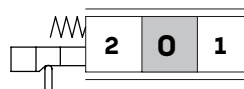
3 position, micro operation in position 1.

Available with aluminium cap

**M1-N1B type**

3 position, micro operation in position 2.

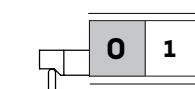
Available with aluminium cap



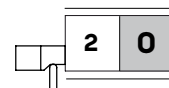
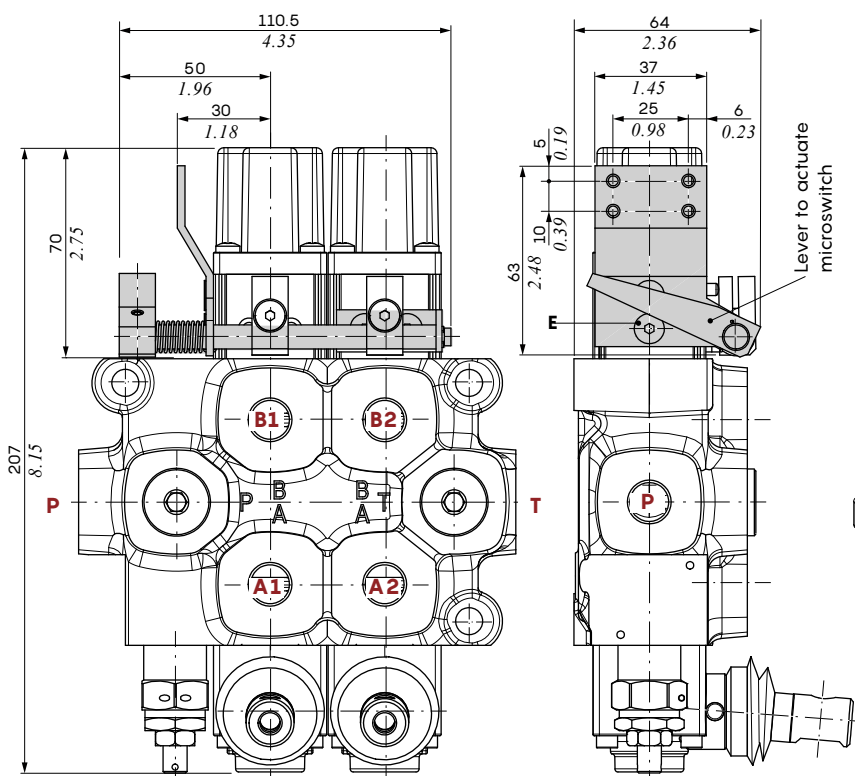
With aluminium cap;  
dimensions are the same of standard type

**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 3 - 3 Nm (2.2 lbft)

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

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

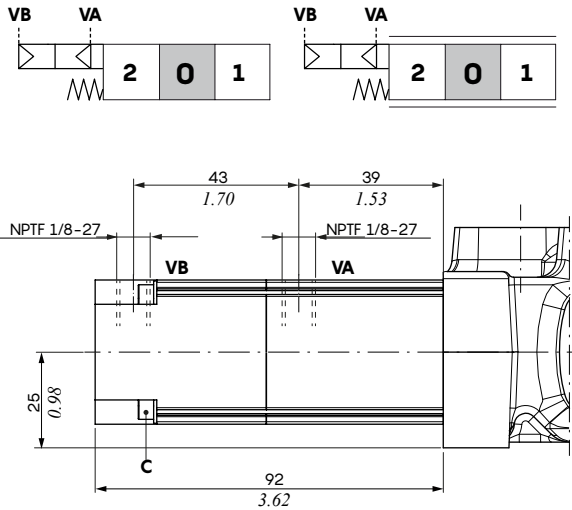
Drawing is referred to a Q25 monoblock valve.

## B side controls

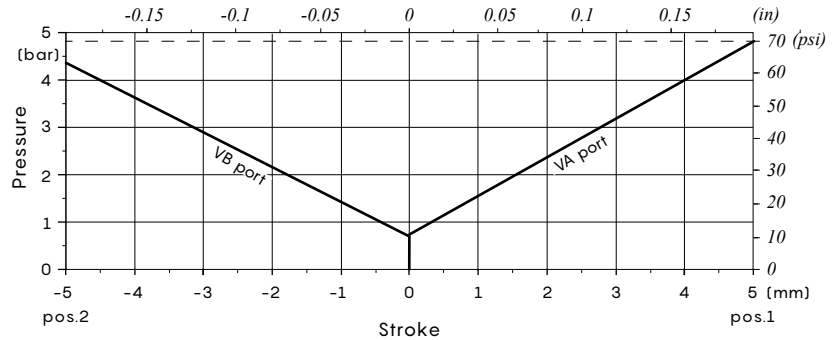
### Pneumatic control

#### P1NW type ON/OFF control

#### P1NPW type Proportional control



#### Proportional pilot pressure curves



#### Operating features

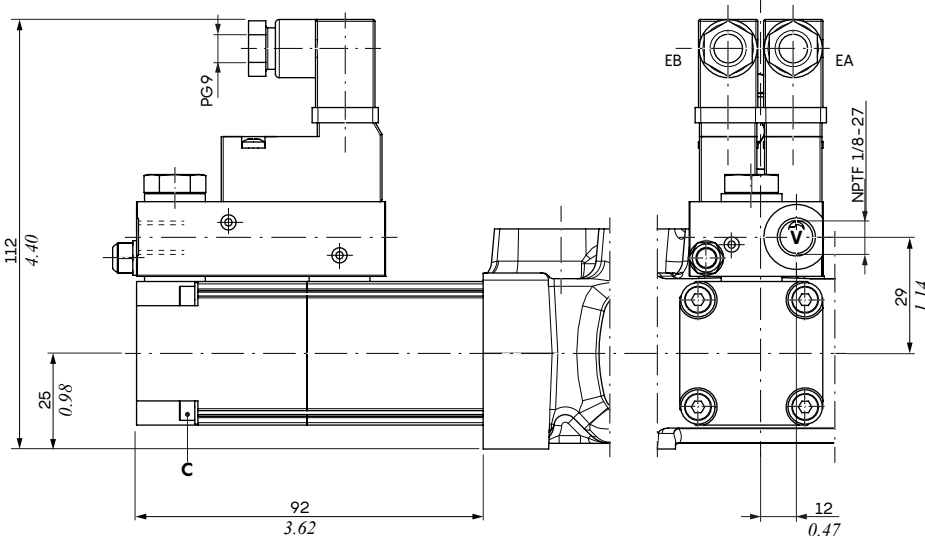
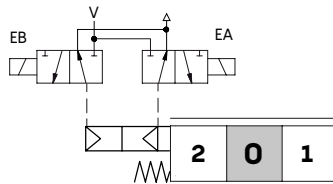
Pilot pressure.....: min. 5 bar (72.5 psi) - max. 30 bar (435 psi)  
Pilot volume.....: 4 cm<sup>3</sup>/min (0.24 in<sup>3</sup>/min)

#### Wrenches and tightening torques

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

### 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

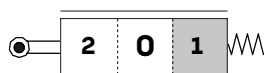
C = allen wrench 3 - 3 Nm (2.2 lbf)



### Cam control

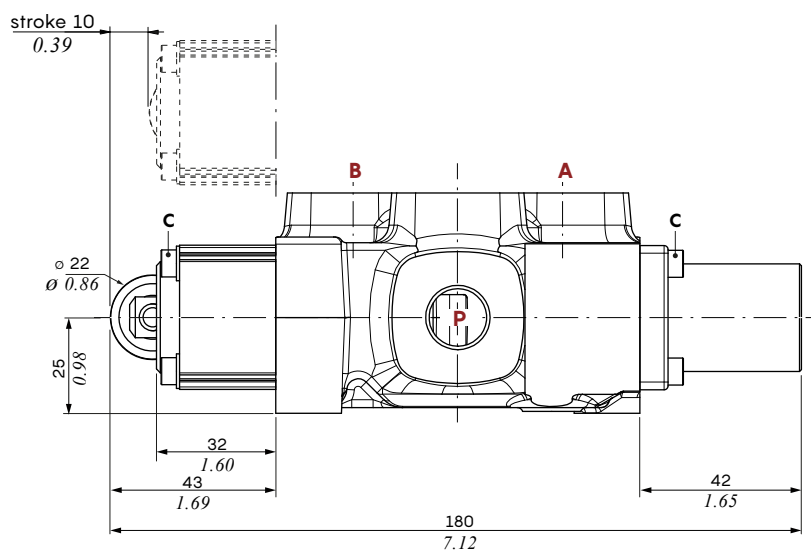
#### C2 type

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



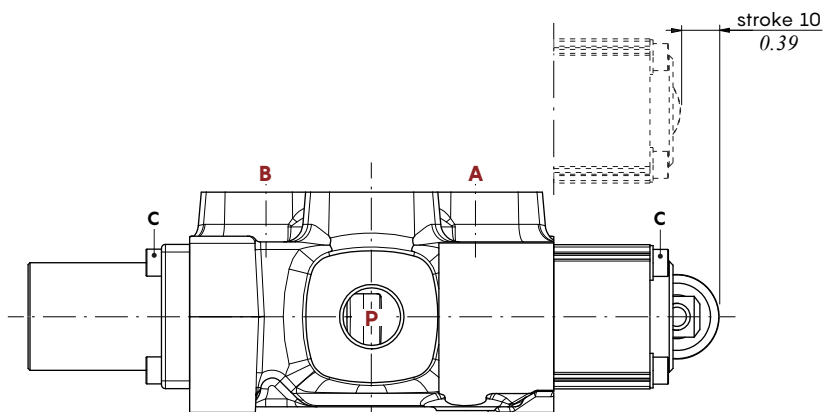
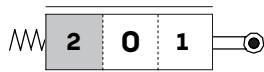
#### Wrenches and tightening torques

C = allen wrench 3 – 3 Nm (2.2 lbf·ft)



#### C3 type

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

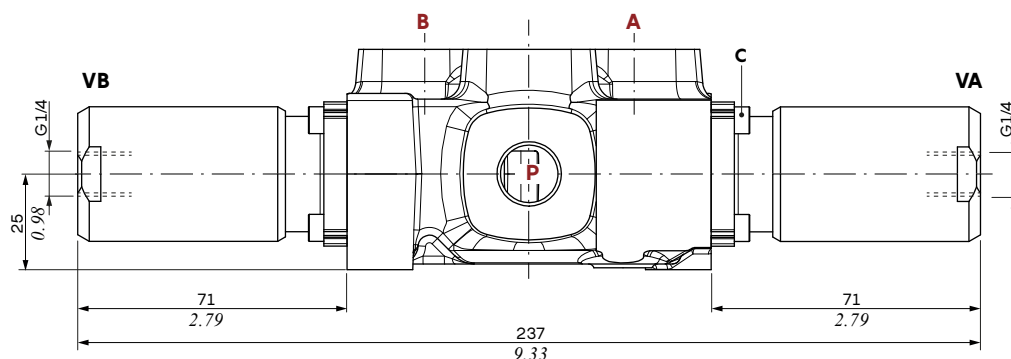
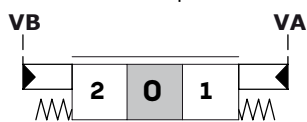


## A+B side controls

### Proportional hydraulic controls

#### H1 type

High pressure control  
with side ports

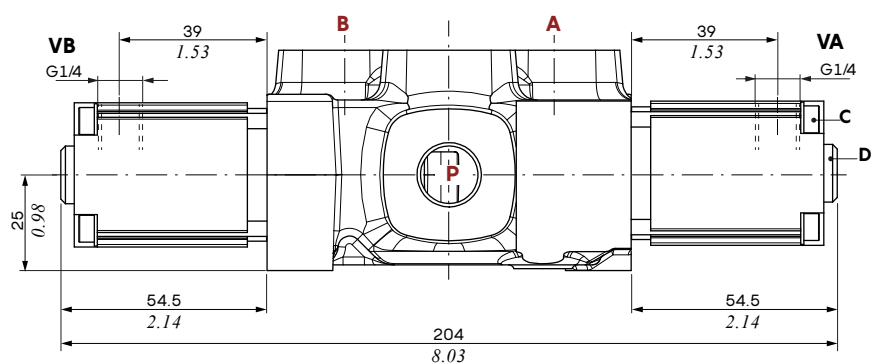
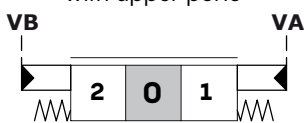


#### Operating features

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

#### H5 type

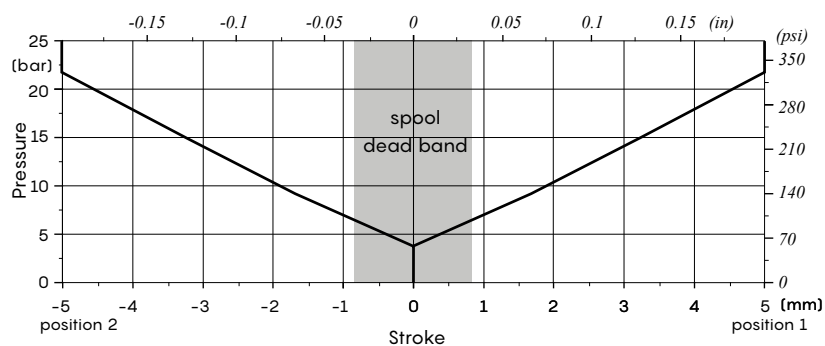
Low pressure control  
with upper ports



#### Operating features

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

Stroke vs. Pressure diagram for H5 type control



#### Wrenches and tightening torques

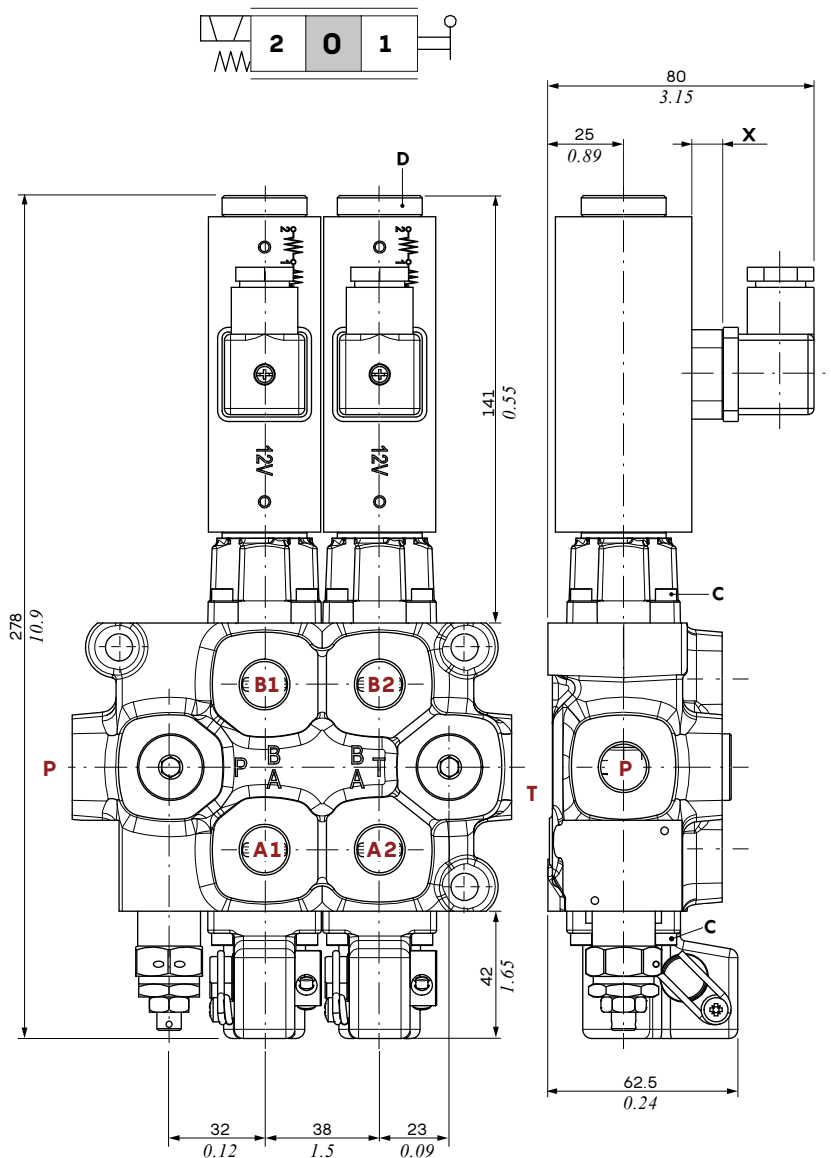
C = allen wrench 3 - 3 Nm (2.2 lbft)

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

## Direct solenoid control

## D41 type: ON/OFF one side

Drawing is referred to a Q25 monoblock valve.



## D41 coil

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

Connector type: ISO4400 3P+T-PG11

## X

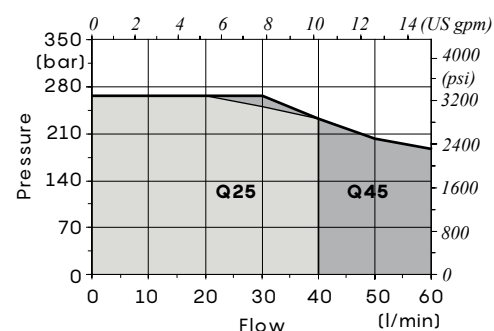
|     | Coil type       | mm - in   |
|-----|-----------------|-----------|
| Q25 | ZEB012 coil     | 10 - 0.39 |
|     | ZEB024 coil     |           |
| Q45 | 4SLG111200 coil | 8 - 0.31  |
|     | 4SLG111200 coil |           |

## Wrenches and tightening torques

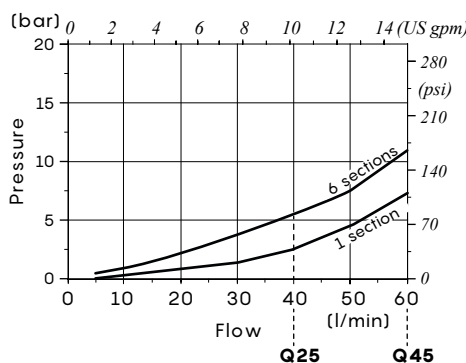
C = allen wrench 3 - 3 Nm (2.2 lbft)

D = manual tightening - 6.6 Nm (7.2 lbft)

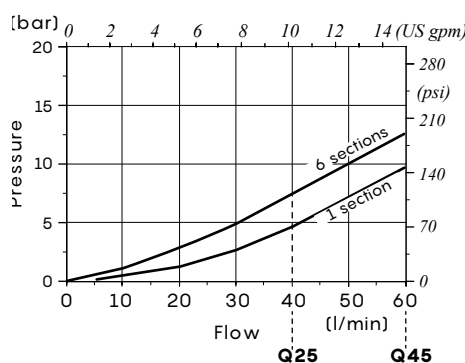
## Dynamic conditions



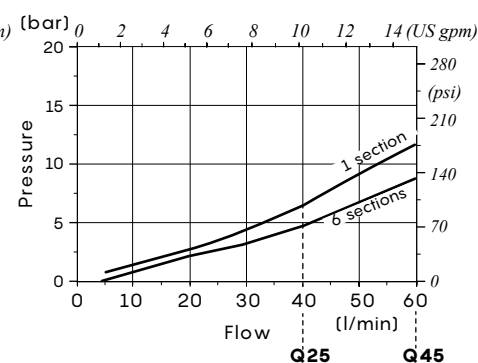
## P⇒T pressure drops



## P⇒A(B) pressure drops



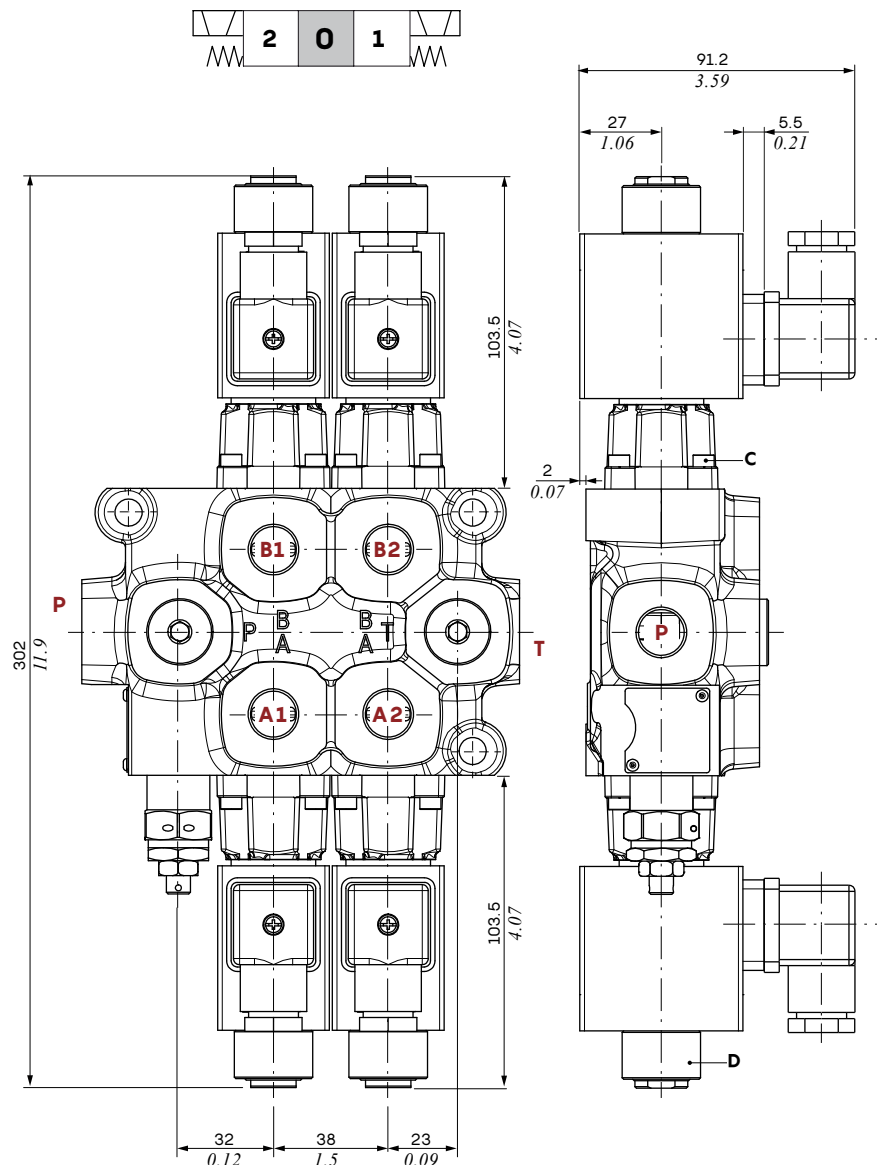
## A(B)⇒T pressure drops



### Direct solenoid control

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

Drawing is referred to a Q25 monoblock valve.

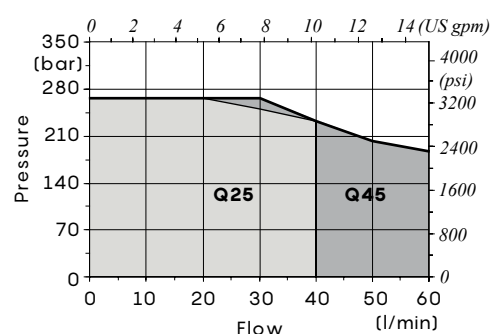


#### D9 coil

|                           |                  |
|---------------------------|------------------|
| Nominal voltage           | 12 VDC<br>24 VDC |
| Nominal voltage tolerance | ±10%             |
| Power rating              | 58 W             |
| Insulance                 | Class H          |
| Weather protection        | IP65             |

Connector type: ISO4400 3P+T-PG11

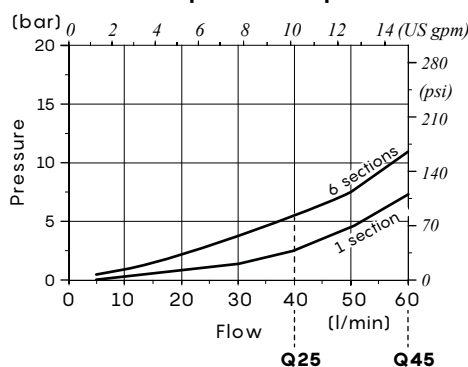
#### Dynamic conditions



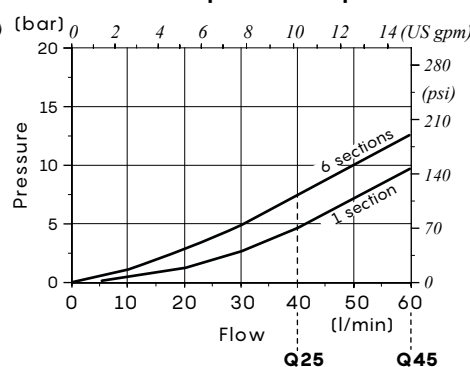
#### Wrenches and tightening torques

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

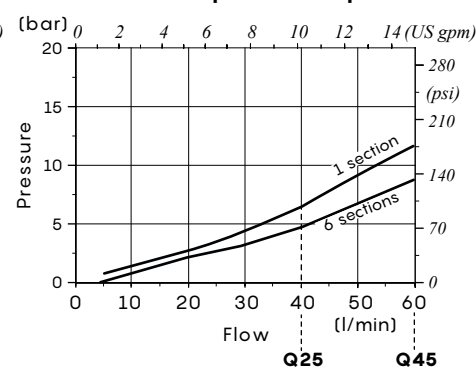
#### P⇒T pressure drops



#### P⇒A(B) pressure drops

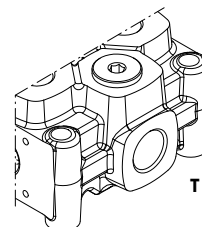
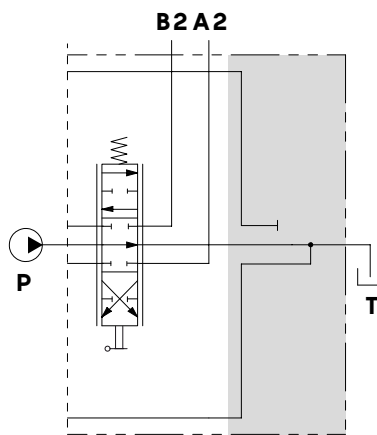
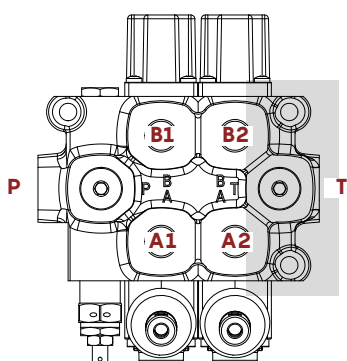


#### A(B)⇒T pressure drops

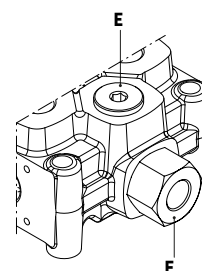
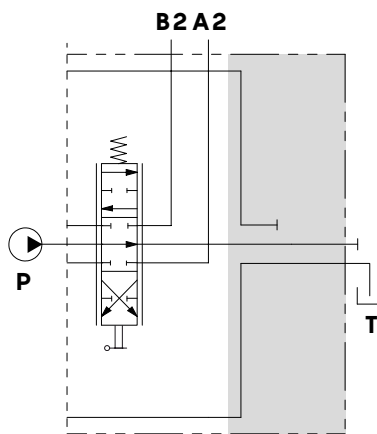
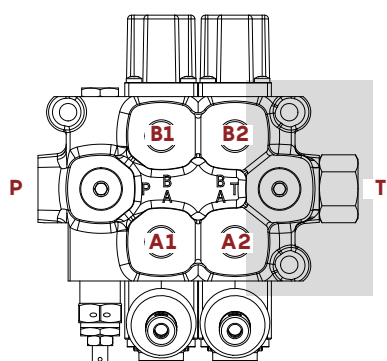


## Outlet configuration

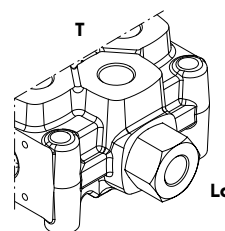
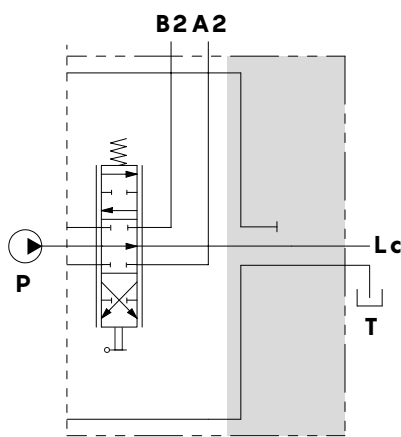
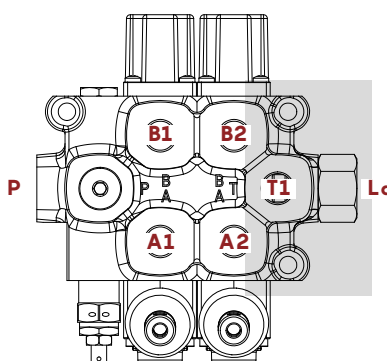
**F3D configuration**  
Open center configuration



**F16D configuration**  
Closed center configuration



**F6D configuration**  
Carry-over configuration



**Wrenches and tightening torques**

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

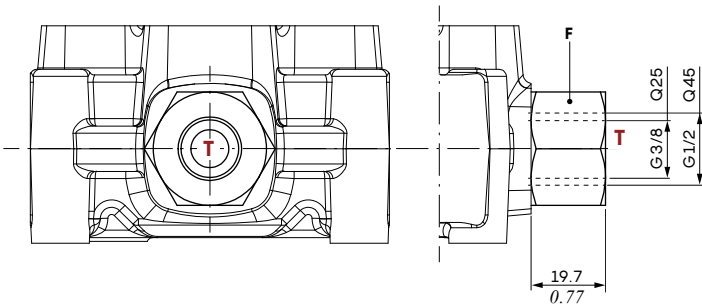
(Q45) = allen wrench 8 - 42 Nm (22 lbft)

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·ft)



## Q75 - Q95

### Monoblock directional valves

- Simple, compact and heavy duty designed monoblock valve
- From 1 to 6 sections
- For open and closed center hydraulic systems, optional carry over port
- Mechanical, pneumatic, electropneumatic, hydraulic and direct solenoid controls

#### Working conditions

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

|                                     | Q75                                   | Q95                                                    |
|-------------------------------------|---------------------------------------|--------------------------------------------------------|
| Nominal flow rating                 | 80 l/min - (22 Us gpm)                | 100 l/min - (27 Us gpm)                                |
| Max. pressure                       | 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             | Δp = 100 bar (1450 psi)               | 6 cm <sup>3</sup> /min (0.36 in <sup>3</sup> /min)     |
| Fluid                               | Mineral oil                           |                                                        |
| Fluid temperature                   | with NBR (BUNA-N) seals               | from -30°C to 80°C - from -22 °F to 176 °F             |
| Viscosity                           | operating range                       | from 10 to 400 mm <sup>2</sup> /s - from 10 to 400 cSt |
| Max. contamination level            | 16/14/12 - ISO 4406 - NAS1638 class 6 |                                                        |
| Ambient temperature                 | without electric devices              | from -40°C to 60°C - from 40 °F to 140 °F              |
|                                     | with electric devices                 | from -20°C to 50°C - from -4 °F to 122 °F              |

NOTES - For different conditions please contact our Sales Department.

#### REFERENCE STANDARD

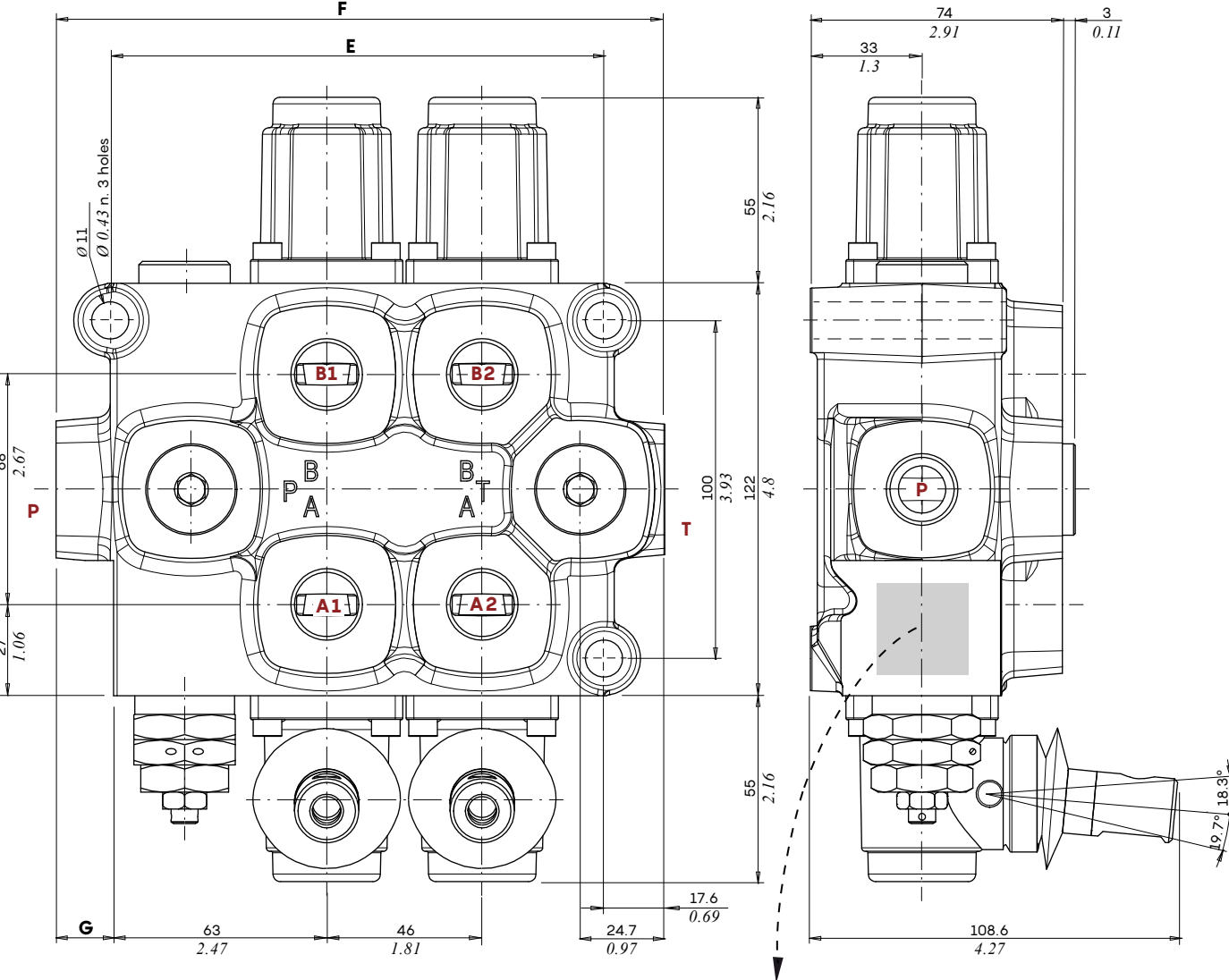
|                               | BSP       | UN-UNF              |
|-------------------------------|-----------|---------------------|
| THREAD ACCORDING TO           | ISO 228/1 | ISO 263             |
|                               | BS 2779   | ANSI B1.1 unified   |
| CAVITY DIMENSION ACCORDING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

#### PORT THREADING

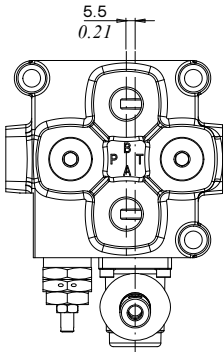
| PORTS                              | Q75         |                     | Q95         |                     |
|------------------------------------|-------------|---------------------|-------------|---------------------|
|                                    | BSP         | UN-UNF              | BSP         | UN-UNF              |
| P Inlet                            | G 1/2       | 7/8-14 (SAE 10)     | G 3/4       | 1" 1/16-12 (SAE 12) |
| P1 Inlet                           | G 1/2       | 7/8-14 (SAE 10)     | G 3/4       | 1" 1/16-12 (SAE 12) |
| A and B ports                      | G 1/2       | 7/8-14 (SAE 10)     | G 3/4       | 1" 1/16-12 (SAE 12) |
| T Outlet                           | G 3/4       | 1" 1/16-12 (SAE 12) | G 3/4       | 1" 1/16-12 (SAE 12) |
| T1 Outlet                          | G 1/2       | 7/8-14 (SAE 10)     | G 3/4       | 1" 1/16-12 (SAE 12) |
| Lc 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 51.  
Drawing are referred to a Q75 monoblock valve.



Directional valve with 1 section





MADE IN ITALY  
**1GB75040009**

DISTRIBUTORE  
Q75/2  
**MD1600464-001**

Product code

Code description

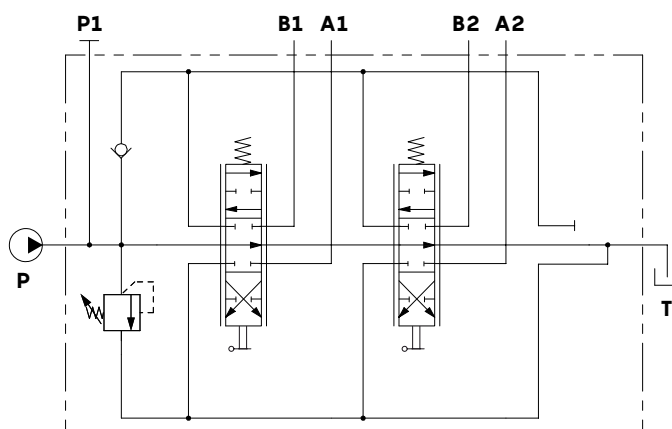
Product allotment

Datamatrix with product allotment

| Type          | E   |       | F   |       | G    |      |
|---------------|-----|-------|-----|-------|------|------|
|               | mm  | in    | mm  | in    | mm   | in   |
| Q75/1 - Q95/1 | 100 | 3.93  | 134 | 5.27  | 16.5 | 0.65 |
| Q75/2 - Q95/2 | 146 | 5.75  | 180 | 7.08  | 16.5 | 0.65 |
| Q75/3 - Q95/3 | 192 | 7.56  | 226 | 8.89  | 16.5 | 0.65 |
| Q75/4 - Q95/4 | 238 | 9.37  | 269 | 10.59 | 13.5 | 0.53 |
| Q75/5 - Q95/5 | 284 | 11.18 | 315 | 12.4  | 13.5 | 0.53 |
| Q75/6 - Q95/6 | 330 | 13    | 365 | 14.67 | 16.5 | 0.65 |

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

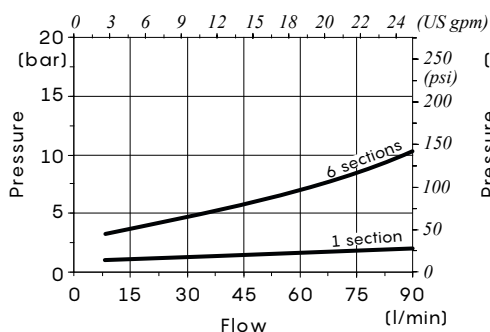




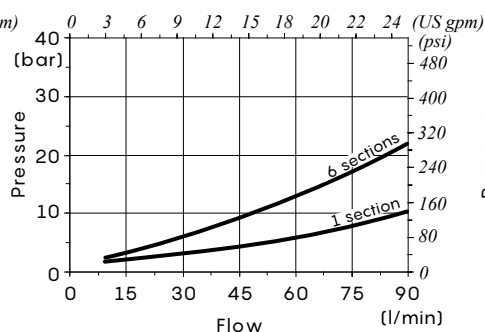
Description example (parallel circuit):  
Q75/2/F1S(R250)/103-A1-M1/103-A1-M1/F3D  
Q95/2/F1S(R250)/103-A1-M1/103-A1-M1/F3D

### Q75

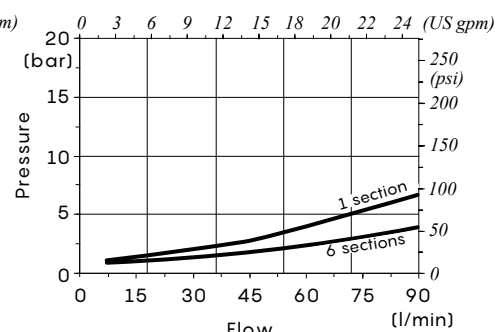
P⇒T pressure drops



P⇒A(B) pressure drops

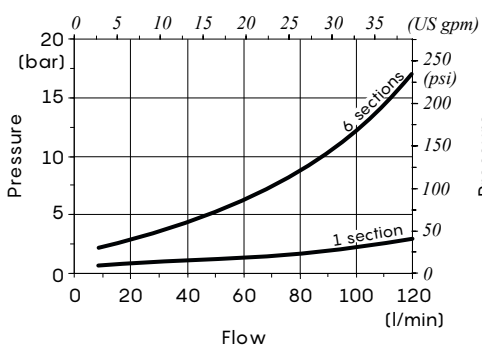


A(B)⇒T pressure drops

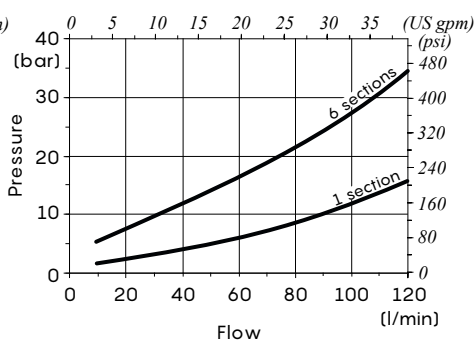


### Q95

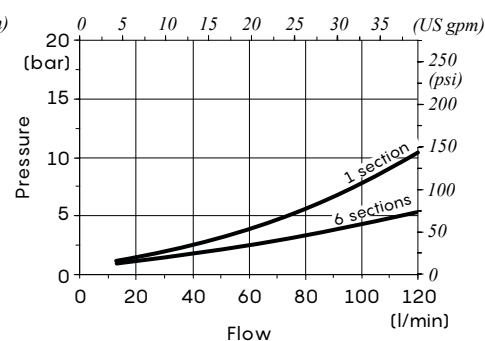
P⇒T pressure drops



P⇒A(B) pressure drops



A(B)⇒T pressure drops



### Parts ordering codes

#### Mechanical control valve configuration example

valve setting (bar)

**Q 75 / 2 / F1S (N150) / 102 - A1 - M1 / 102 - A1 - M1 / F3D**

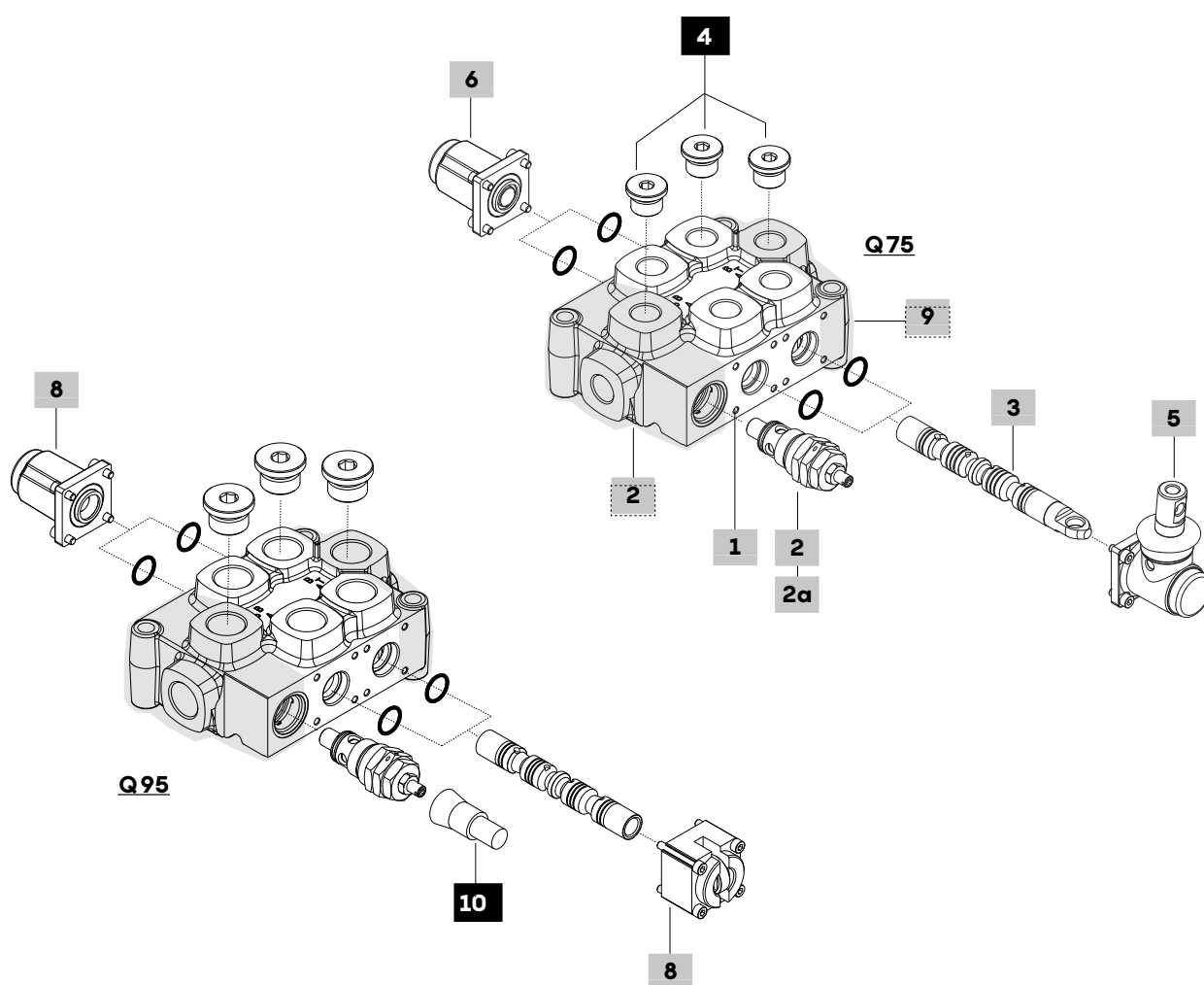
1 2 2a 3 5 6 9

N. of section

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

**Q 95 / 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  |

|              |               |            |
|--------------|---------------|------------|
| <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\***

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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**

page 46

|                                                                      |                       |
|----------------------------------------------------------------------|-----------------------|
| 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: <b>-</b>                                                       | CODE: 060002788999    |
| DESCRIPTION: Relief valve blanking plug                              |                       |

**3 Spool**

page 47

| 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**

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| 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°    |

With safety lever control:

|                           |              |                                           |
|---------------------------|--------------|-------------------------------------------|
| <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° |

Without lever control:

|              |            |                                       |
|--------------|------------|---------------------------------------|
| <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 |

Joystick controls for 2 section operation:

|              |             |                 |
|--------------|-------------|-----------------|
| <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 |

**For types 103 and 111 special spools**

With spool position microswitch:

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

|               |                |                                                         |
|---------------|----------------|---------------------------------------------------------|
| <b>N1-A1</b>  | 08641N1-A1/A2  | Micro operation in pos. 1 and 2, with lever box         |
| <b>N1A-A1</b> | 08642N1A-A1/A2 | Micro operation in pos. 1, with lever box               |
| <b>N1B-A1</b> | 08643N1B-A1/A2 | Micro operation in pos. 2, with lever box               |
| <b>N1-A3</b>  | 08648N1-A3L    | Micro operation in pos. 1 and 2, without lever with cap |
| <b>N1A-A3</b> | 08648N1A-A3    | Micro operation in pos. 1, without lever with cap       |
| <b>N1B-A3</b> | 08648N1B-A3    | Micro operation in pos. 2, without lever with cap       |

Without lever control:

|                         |         |                                          |
|-------------------------|---------|------------------------------------------|
| <b>A3</b>               | 08614A3 | Without lever, with cap                  |
| <b>A4</b>               | 08617A4 | M10 male thread external pin with flange |
| <b>A5<sup>(2)</sup></b> | 08619A5 | Flange with spherical spool end          |

(\*): Codes are referred to **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 53

| 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/O1</b>                                                             | 08730M1/O1     | As M1 type, for mechanical joystick                                        |
| <b>M1/O2</b>                                                             | 08730M1/O2     | 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 58

| 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 61

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

### 10 Accessories

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

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

**Proportional hydraulic controls valve configuration example**

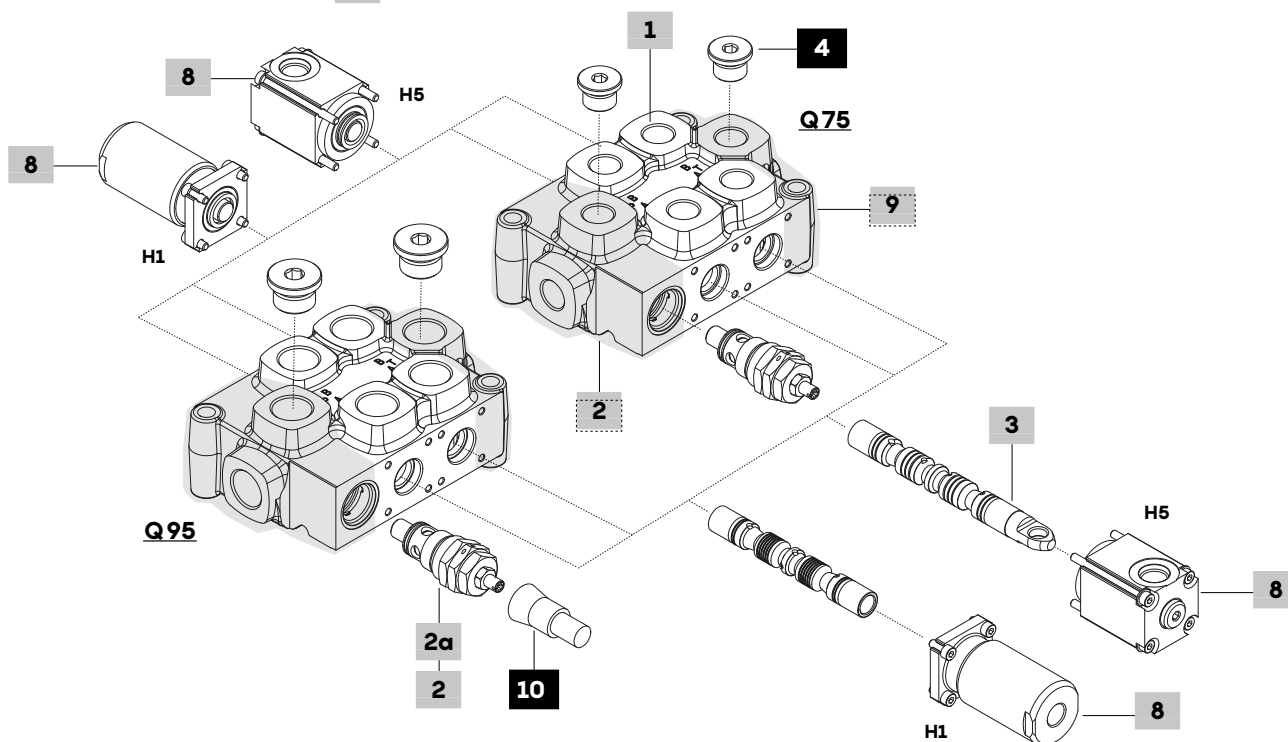
N. of section      valve setting (bar)

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

1      2      2a      3      8      9

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

8

**1 Body kit\***

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

**H1** hydraulic control requires standard body: see #1, page 41

| 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  |

|              |                |            |
|--------------|----------------|------------|
| <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 45

See #2, page 41

**2a Main pressure relief valve** page 46

See #2a, page 41

**3 Spool** page 47

| 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 41

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

| 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 61

See #9, page 42

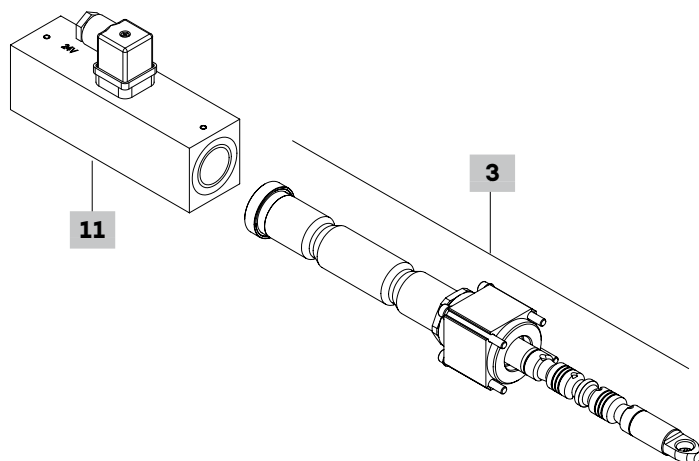
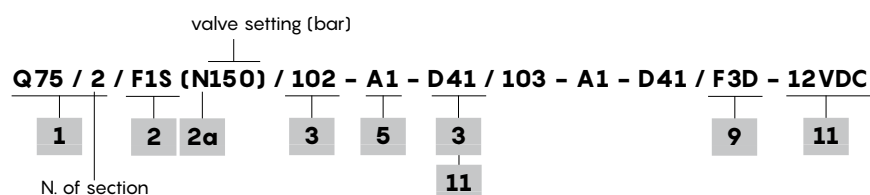
**10 Accessories**

See #10, page 42

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

### Parts ordering codes

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



#### 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  |

|              |                |            |
|--------------|----------------|------------|
| <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 45

See #2, page 41

#### 2a Main pressure relief valve page 46

See #2a, page 41

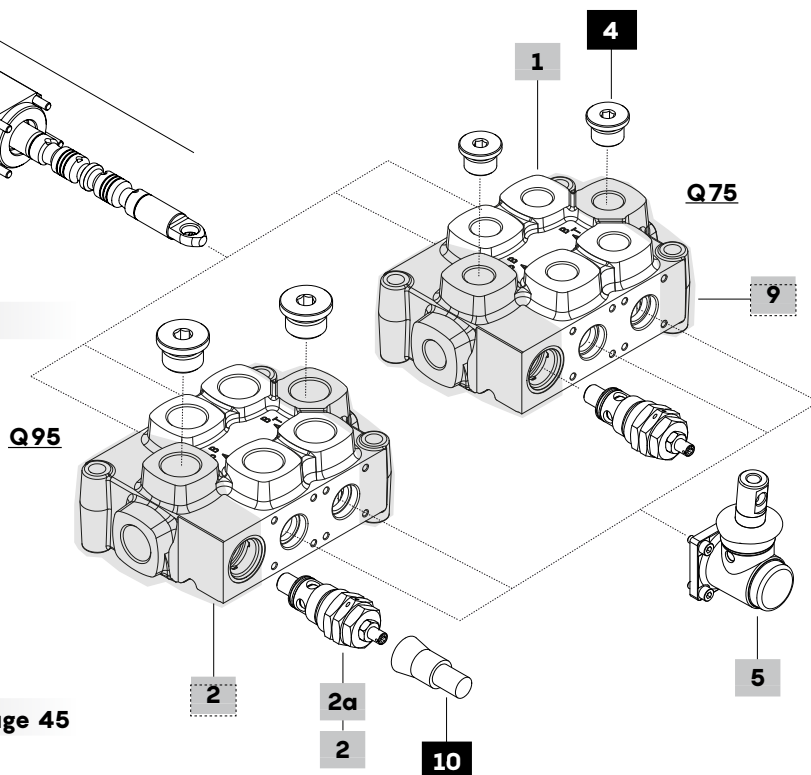
#### 3 Solenoid control page 60

| 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 41



#### 5 A side control page 48

| 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 61

See #9, page 42

#### 10 Accessories

See #10, page 42

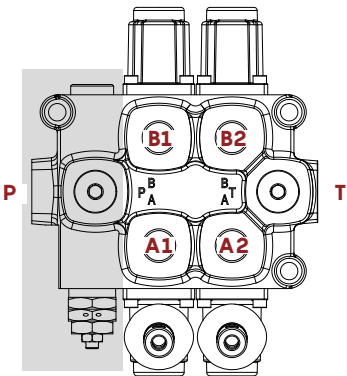
#### 11 Coil page 60

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

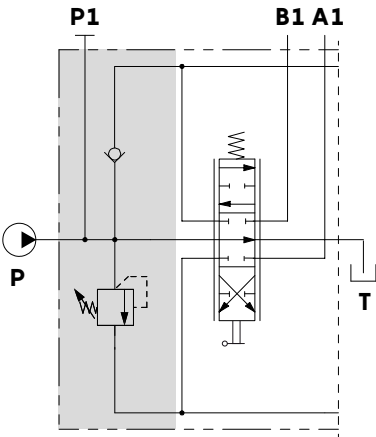
**Note:** The connector is included

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

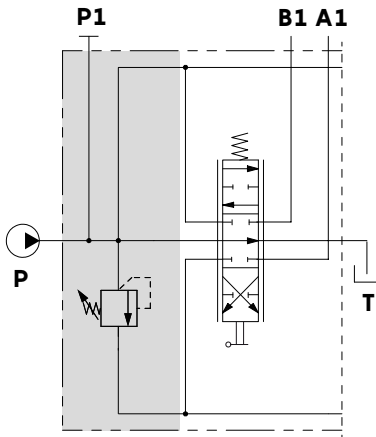
Inlet configuration



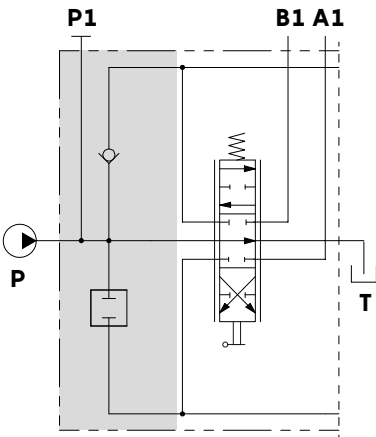
**F1S configuration**  
With load check and pressure relief valve



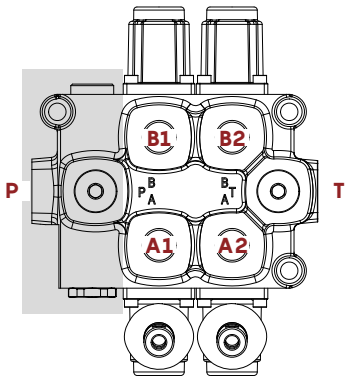
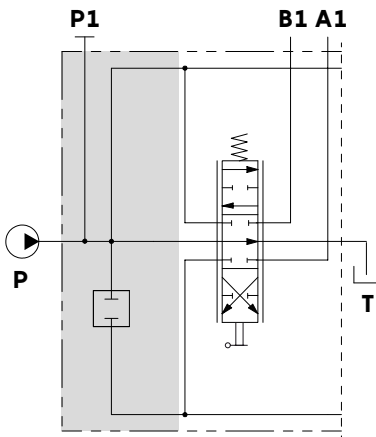
**F7S configuration**  
With pressure relief valve



**F2S configuration**  
With load check valve

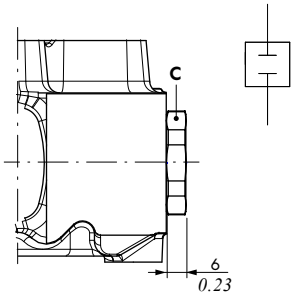


**F8S configuration**  
Without valves  
(pressure relief valve plugged port)

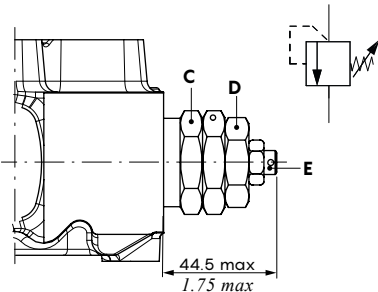


Main pressure relief valve

Relief valve blanking plug

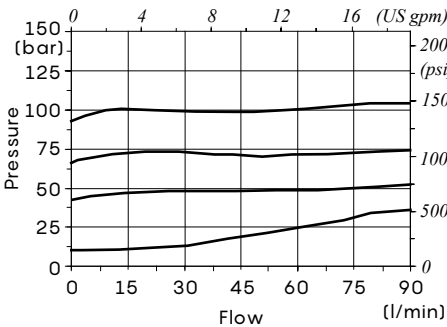


Main pressure relief valve

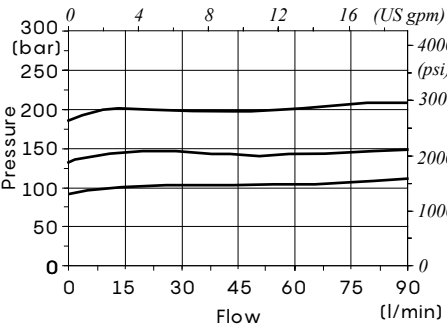


| Spring type | Setting ranges (bar - psi)          |
|-------------|-------------------------------------|
| B (white)   | From 10 to 100 - from 145 to 1450   |
| N (black)   | From 101 to 200 - from 1460 to 2900 |
| R (red)     | From 201 to 380 - from 2910 to 5500 |

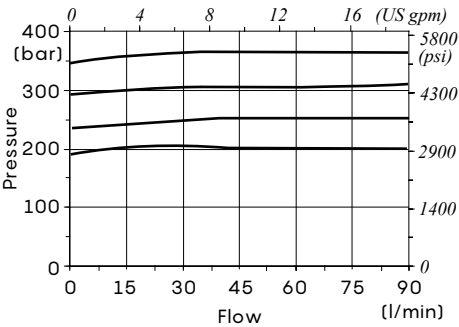
Setting example (B type spring)



Setting example (N type spring)



Setting example (R type spring)

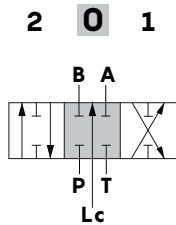


Wrenches and tightening torques

- C = wrench 30 - 80 Nm (59 lbf ft)
- D = wrench 26 - 42 Nm (35.2 lbf ft)
- E = allen wrench 4

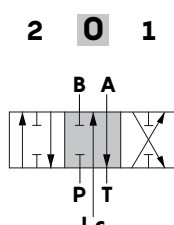


**103 type**  
A and B closed  
in neutral position



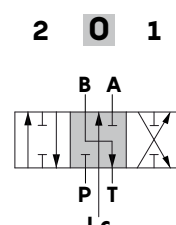
**Stroke**  
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

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



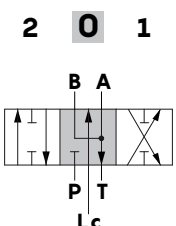
**Stroke**  
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

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



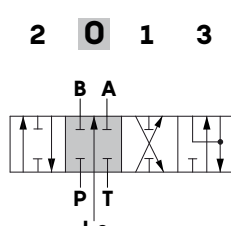
**Stroke**  
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

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



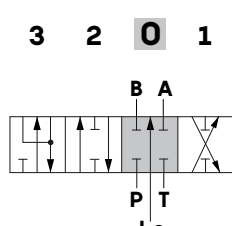
**Stroke**  
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

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



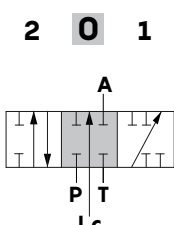
**Stroke**  
Position 1: - 7 mm (+ 0.27 in)  
Position 2: + 7 mm (+ 0.27 in)  
Position 3: - 10.25 mm (- 0.40 in)

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



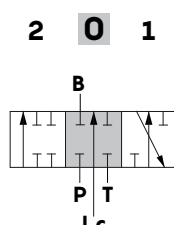
**Stroke**  
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (+ 0.27 in)  
Position 3: + 10.25 mm (- 0.40 in)

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



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

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



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

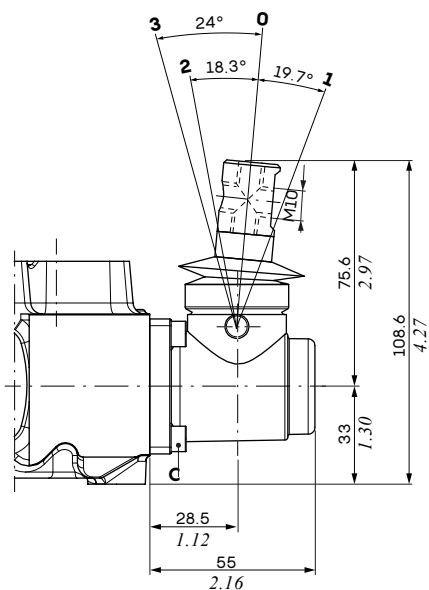
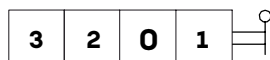
## A side control

### Mechanical controls

#### With lever control

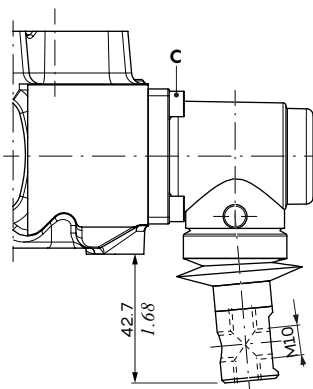
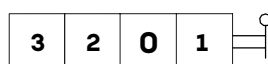
##### A1 type

M10 thread aluminium lever box



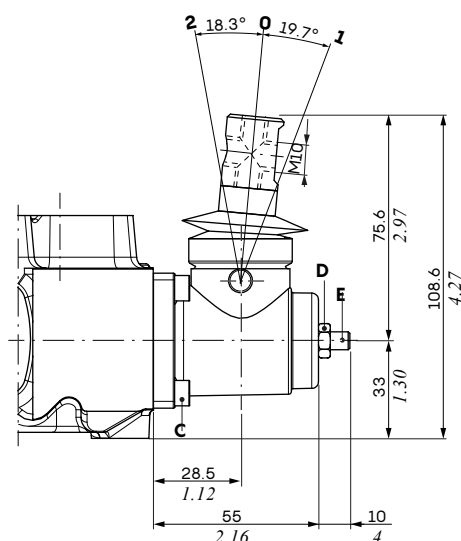
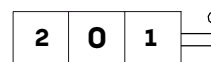
##### A2 type

As A1 type, rotated 180°



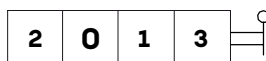
##### A1/06 type

M10 thread,  
with stroke limiter



##### A1/Z1 type

M10 thread,  
for 116 floating spool type



#### Wrenches and tightening torques

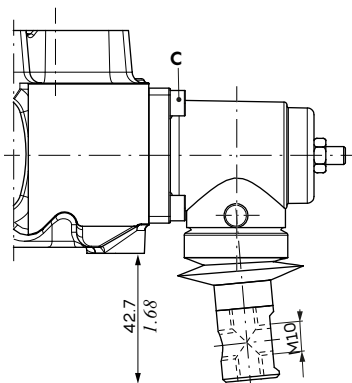
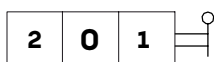
C = allen wrench 4 - 6.6 Nm (4.8 lbft)

D = wrench 10 - 9.8 Nm (7.2 lbft)

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

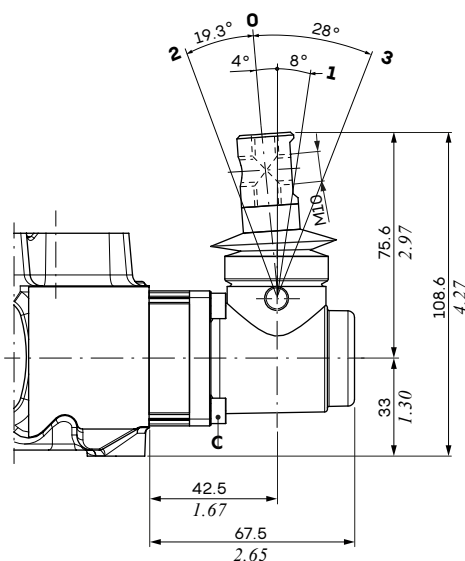
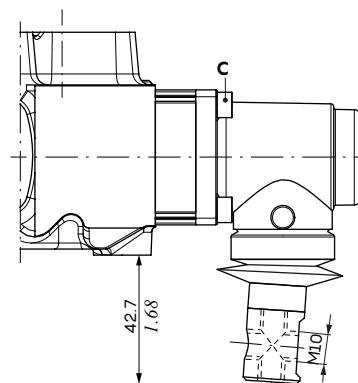
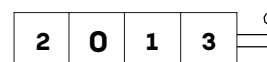
##### A2/06 type

As A1/06 type, rotated 180°



##### A2/Z1 type

As A1/Z1 type, rotated 180°

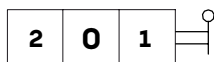


## Mechanical controls

### With safety lever control

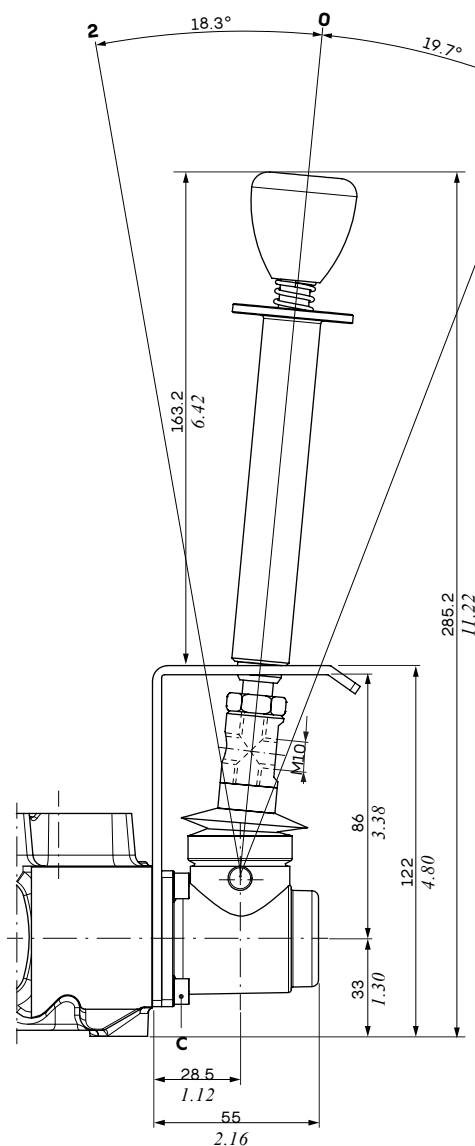
#### A1/S type

M10 thread, aluminium lever box



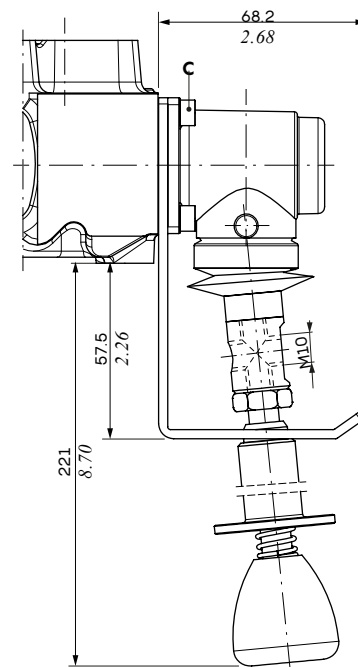
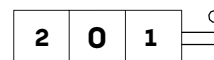
#### Wrenches and tightening torques

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



#### A2/S type

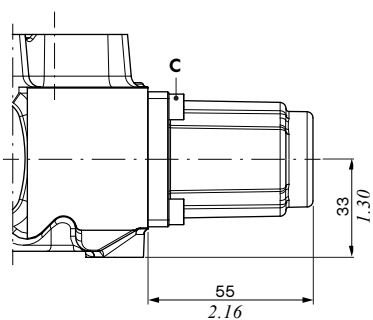
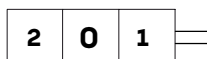
As A1/S type, rotated 180°



### Without lever control

#### A3 type

With cap



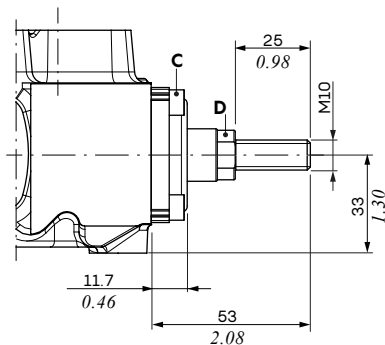
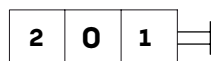
## A side control

### Mechanical controls

#### Without lever control

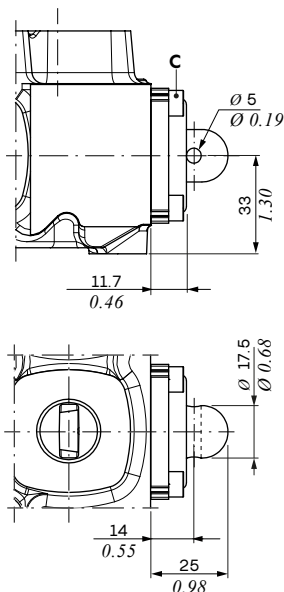
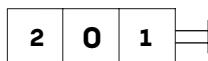
##### A4 type

M10 male thread  
external pin with flange



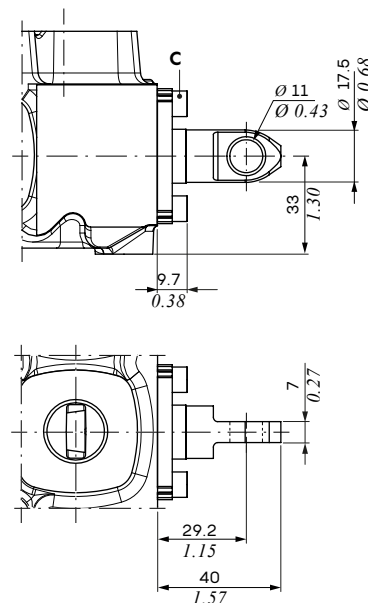
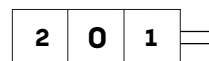
##### A5 type

Flange with spherical spool end



##### A6 type

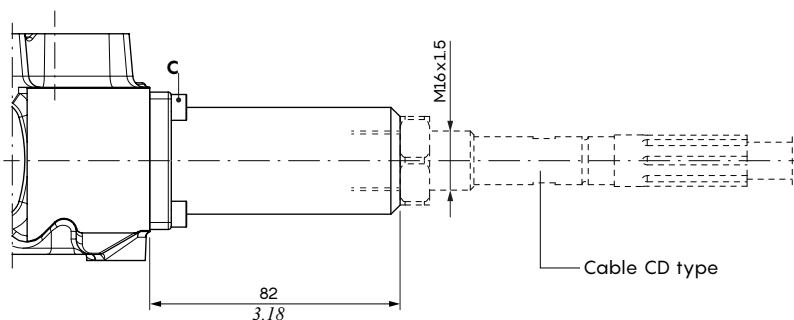
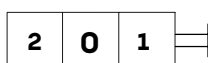
With flange



#### With flexible cable control arrangement

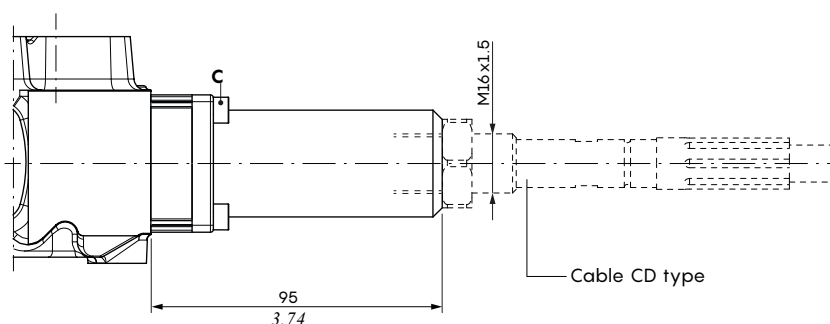
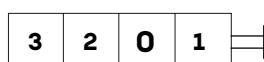
##### A8 type

Flexible cable control arrangement



##### A8/Z1 type

As A8 type,  
for 116 floating spool type



#### Wrenches and tightening torques

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

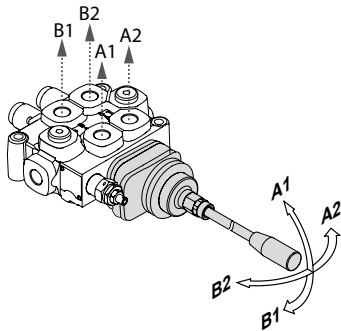
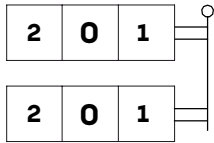
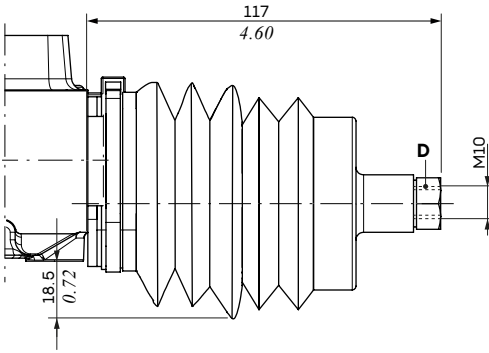
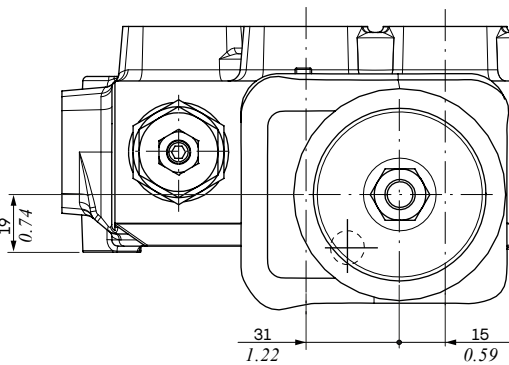
D = wrench 13 - 9.8 Nm (7.2 lbft)

A side control

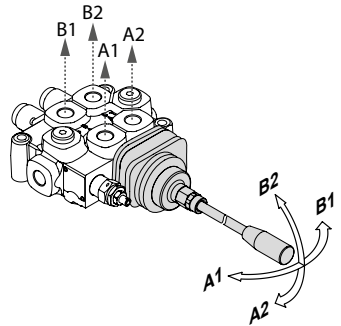
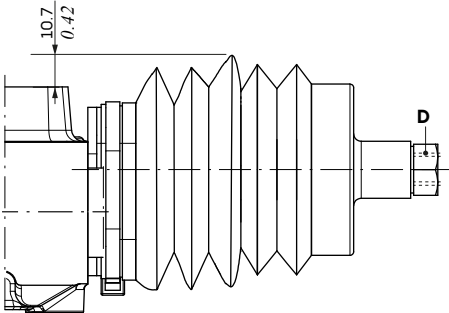
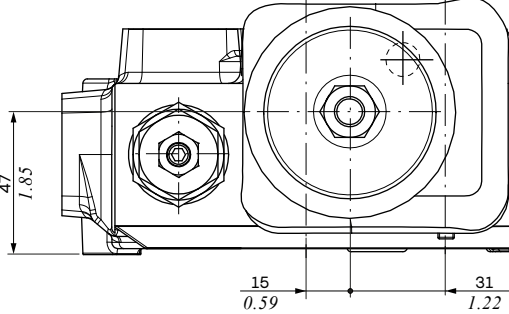
Joystick controls

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

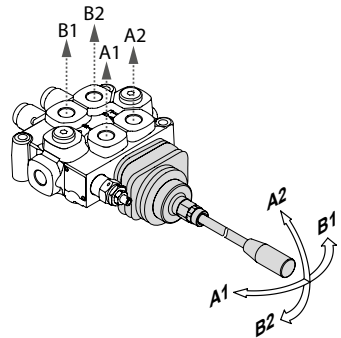
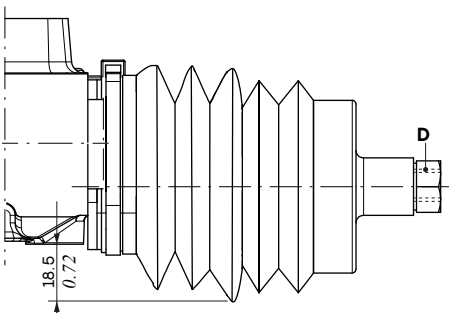
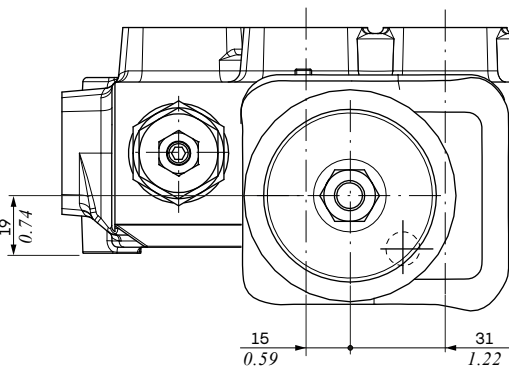
A35-1 type



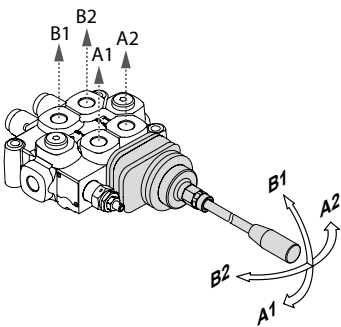
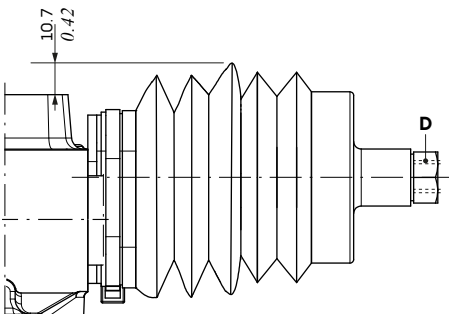
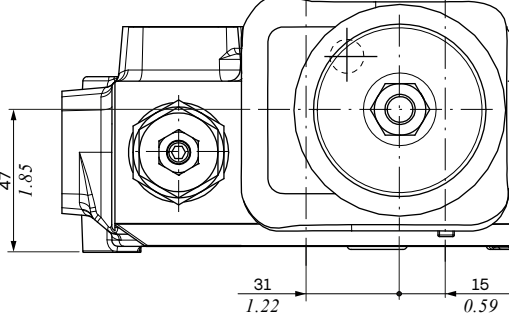
A35-2 type



A35-3 type



A35-4 type

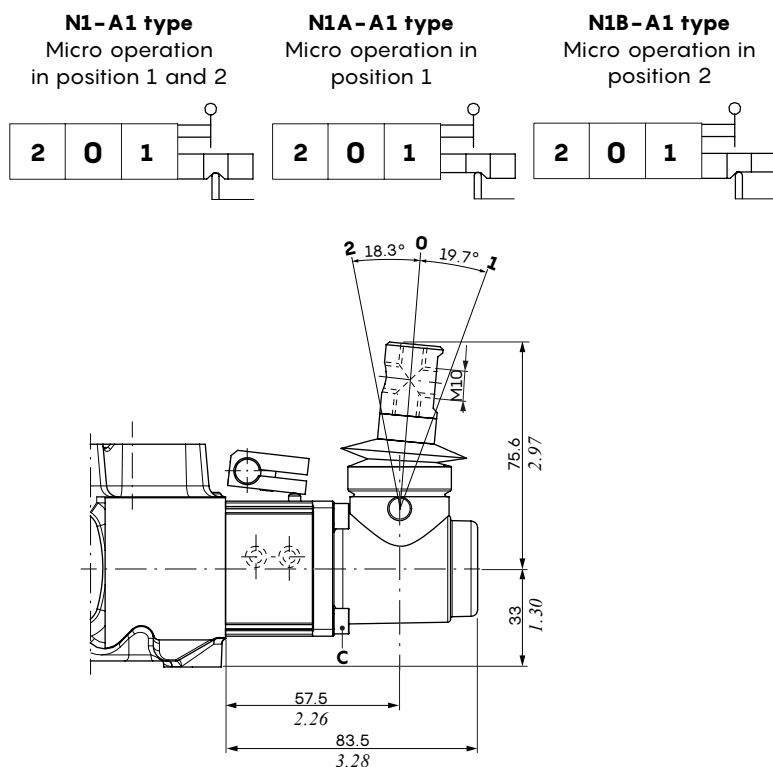


Wrenches and tightening torques  
D = wrench 17 - 24 Nm (17.7 lbf ft)

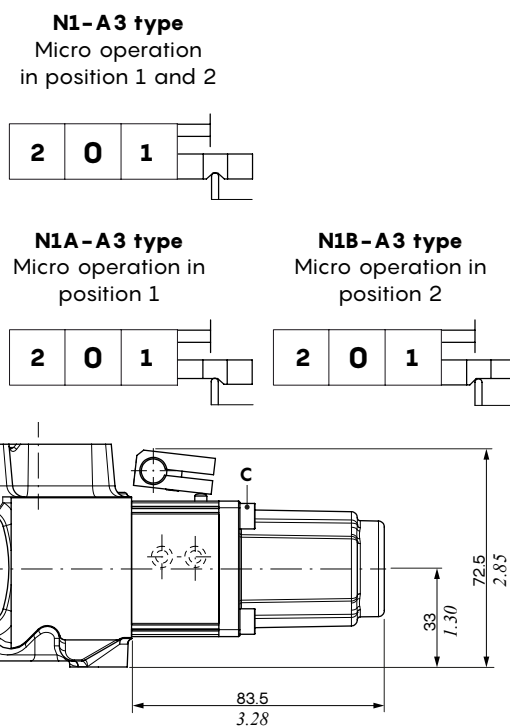
## A side control

## Spool position microswitch

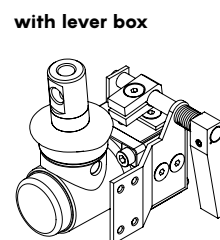
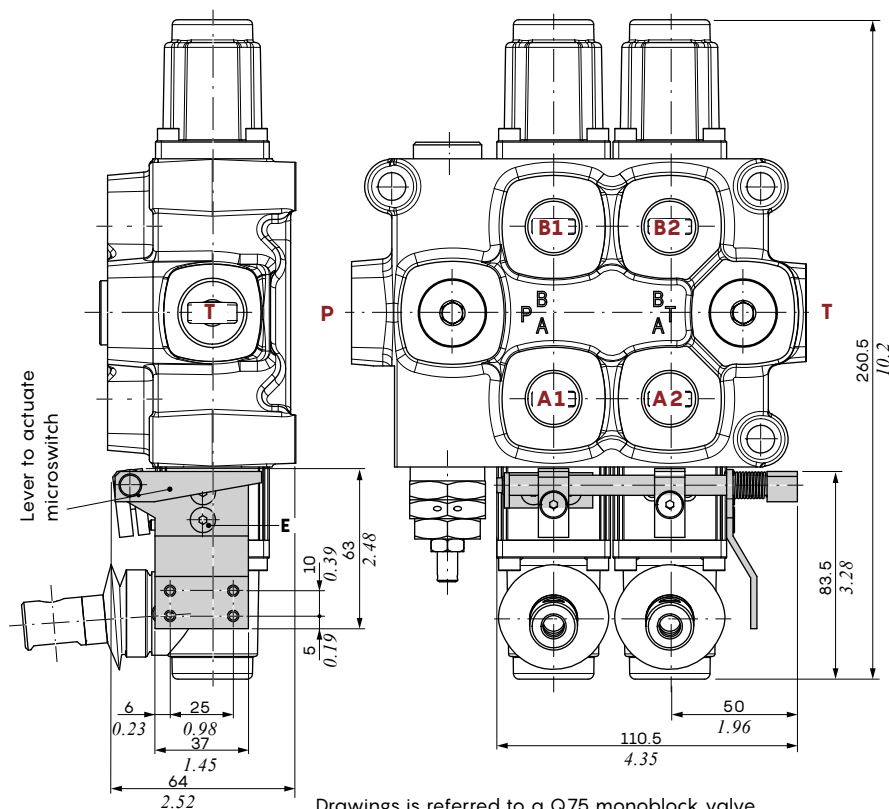
### With lever control



**Without lever control, with cap**



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



### Wrenches and tightening torques

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

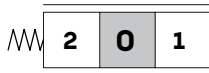
Drawings is referred to a Q75 monoblock valve.

## Mechanical controls

### With spring return control

#### M1 type

3 position, spring return  
in neutral position

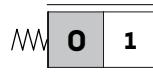


#### M1/O1 type

3 position,  
for joystick control

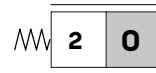
#### M2 type

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



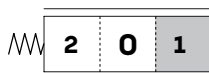
#### M3 type

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

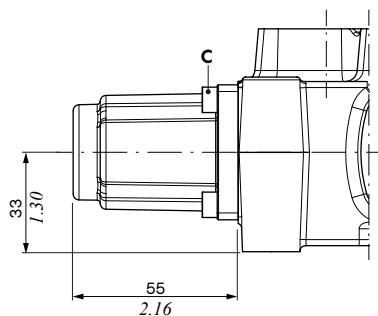
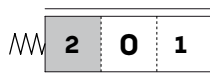


#### M4 types

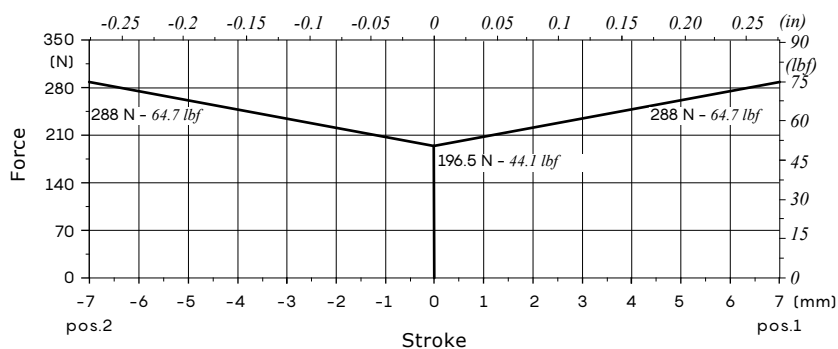
2 position (1-2),  
spring return in position 1



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

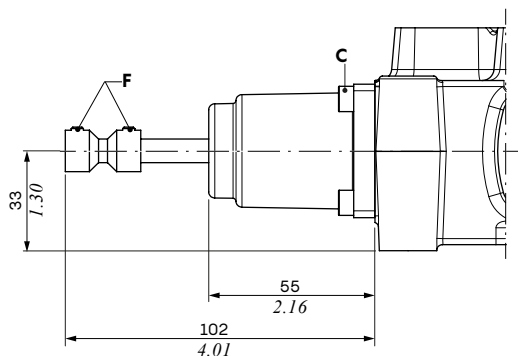
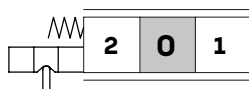


#### M1 control type - Force vs Stroke diagram



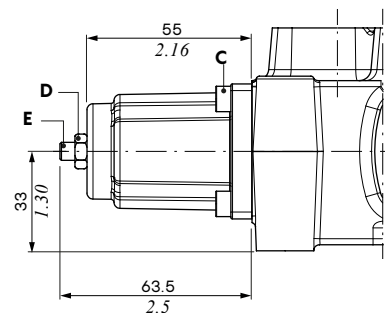
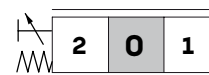
#### M1-B1 type

3 position,  
microswitch arrangement



#### M1/O2 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 control

### Mechanical controls

#### With spring return control

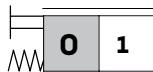
##### M1-U1 type

3 position, with M10 male thread external pin



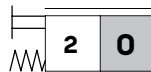
##### M2-U1 type

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



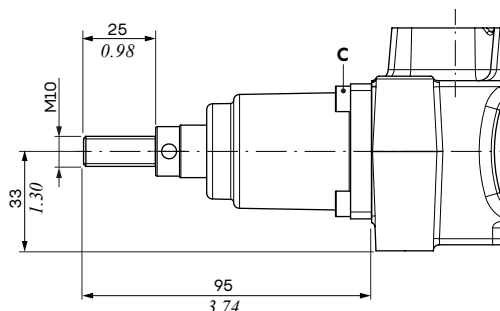
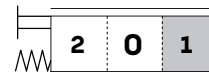
##### M3-U1 type

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



##### M4-U1 type

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



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

#### With flexible cable control arrangement

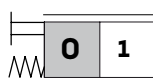
##### M1-U2 type

3 position, spring return in neutral position



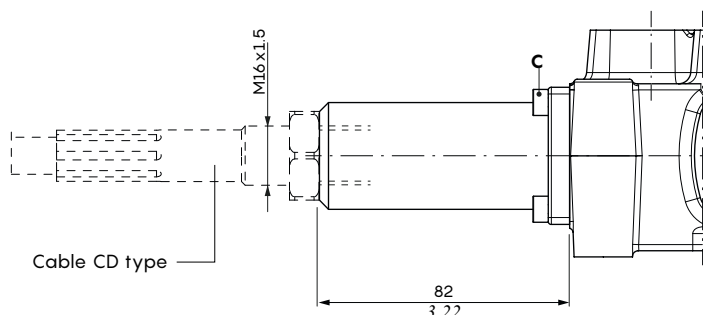
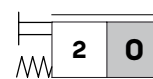
##### M2-U2 type

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



##### M3-U2 type

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



#### With detent control

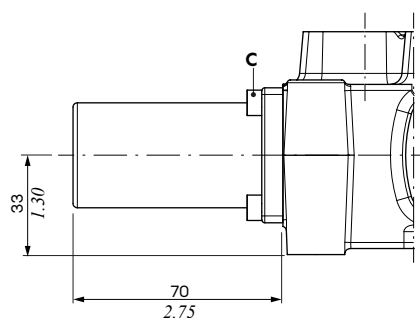
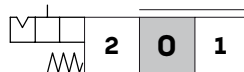
##### R1 type

3 position, detent in position 1



##### R2 type

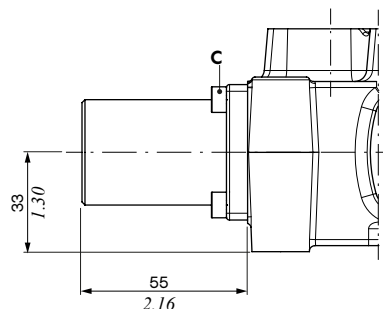
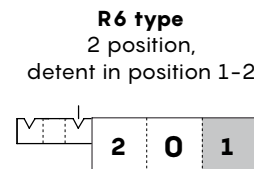
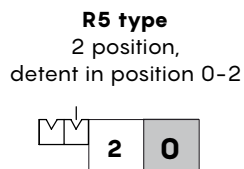
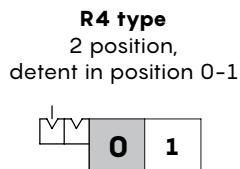
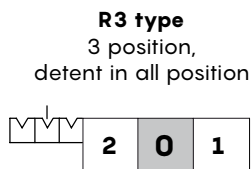
3 position, detent in position 2



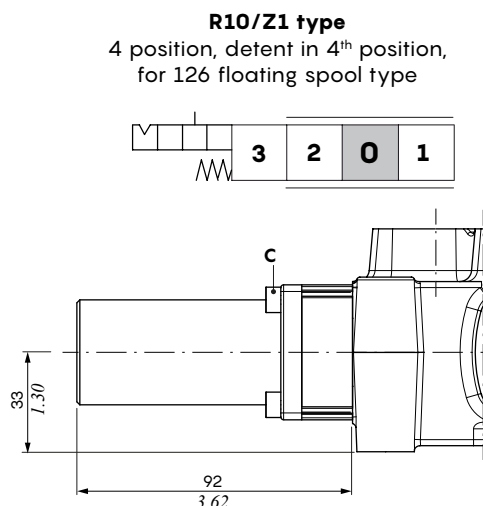
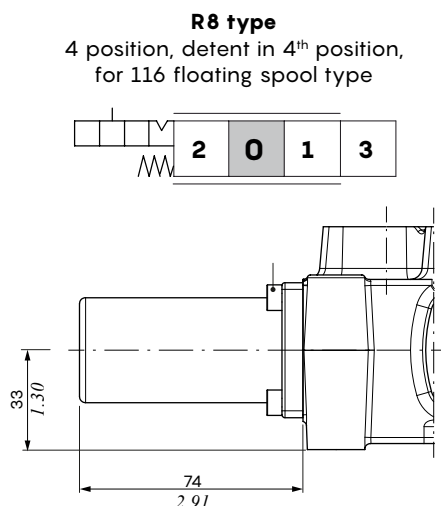


## Mechanical controls

### With detent control

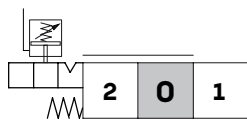


**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbft)  
D = wrench 30 - 42 Nm (30.9 lbft)  
E = wrench 22  
F = allen wrench 10 - 42 Nm (30.9 lbft)

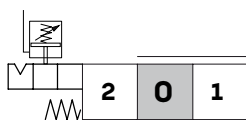


### With detent control and kick out function

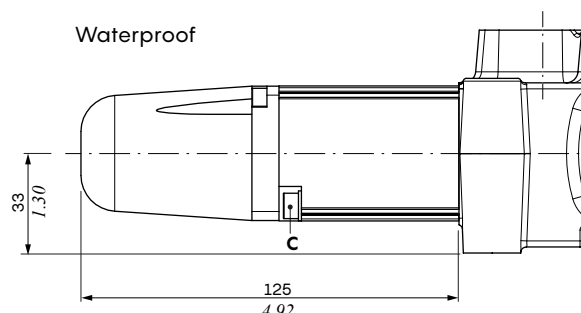
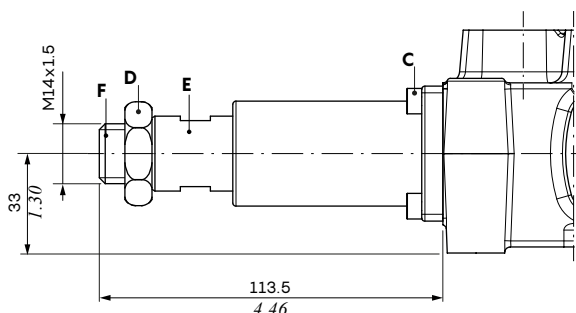
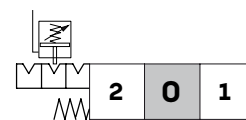
**R1K type**  
3 position, detent in position 1.  
Available with waterproof configuration



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



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

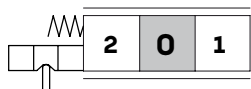


## B side control

### Spool position microswitch

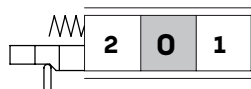
#### M1-N1 type

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



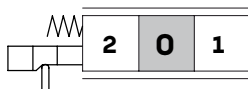
#### M1-N1A type

3 position, micro operation in position 1



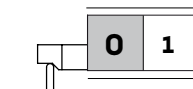
#### M1-N1B type

3 position, micro operation in pos. 2



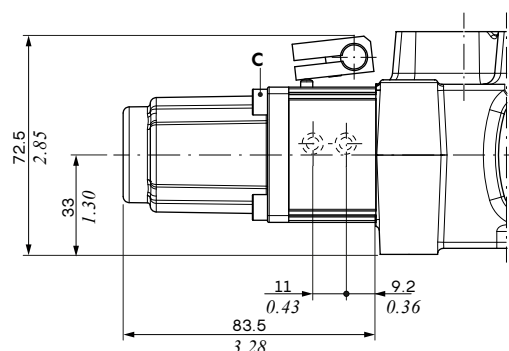
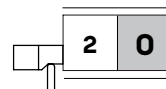
#### M2-N1 type

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

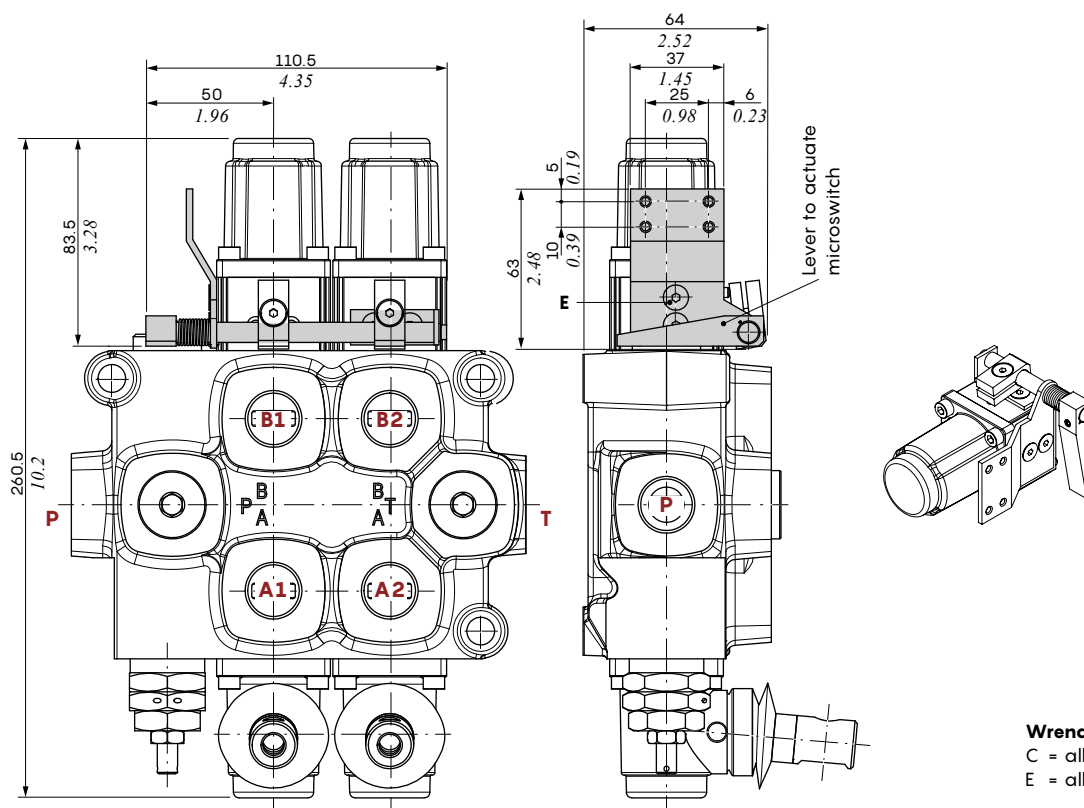


#### M3-N1 type

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



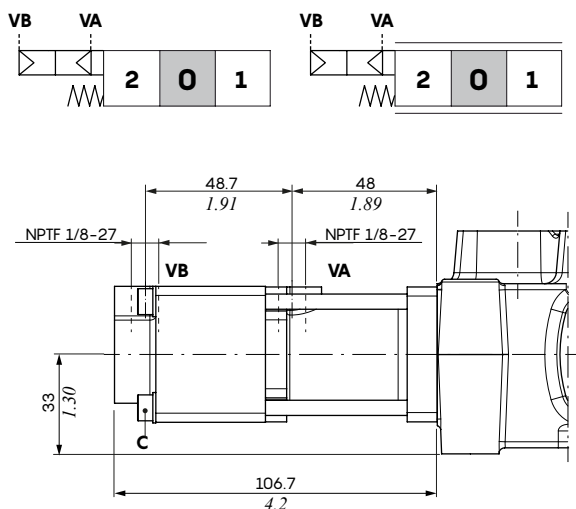
### Microswitch assembly kit for 2 working section (M1-N1 type)



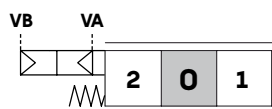
Drawing is referred to a Q75 monoblock valve.

## Pneumatic control

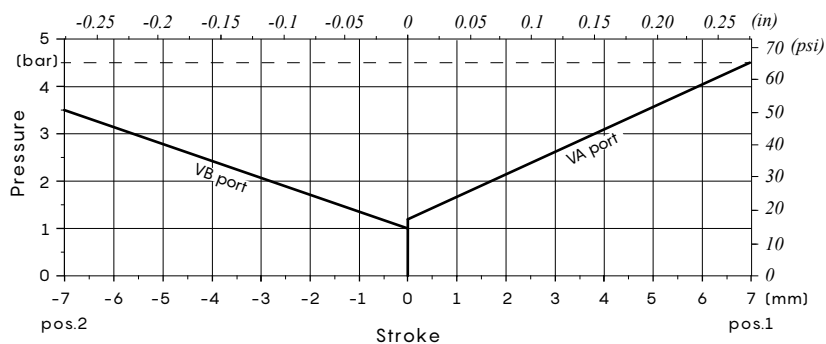
### P1N type ON/OFF control



### P1NP type Proportional control



### Proportional pilot pressure curves



### Operating features

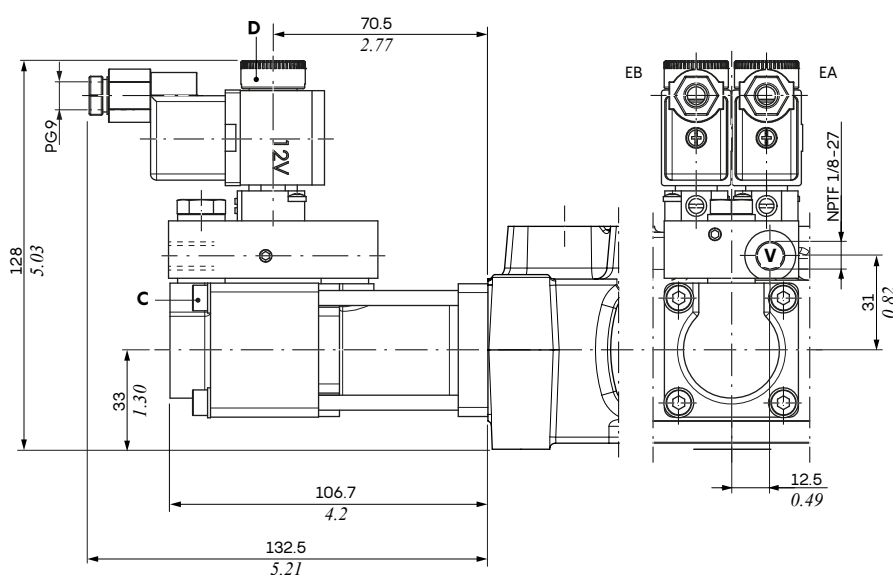
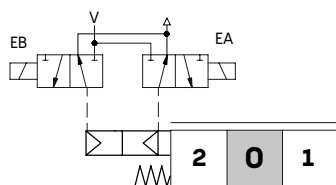
Pilot pressure.....: min. 5 bar (72.5 psi) - max. 30 bar (435 psi)  
Pilot volume.....: 9 cm<sup>3</sup>/min (0.54 in<sup>3</sup>/min)

### Wrenches and tightening torques

C = wrench 4 – 6.6 Nm (4.8 lbft)

## ON/OFF electropneumatic control

### D3 type ON/OFF control



### Operating features

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

### COILS

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

### Wrenches and tightening torques

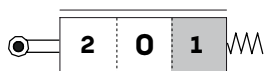
C = wrench 4 – 6.6 Nm (4.8 lbft)  
D = manual tightening – 6.6 Nm (4.8 lbft)

## A+B side control

### Cam control

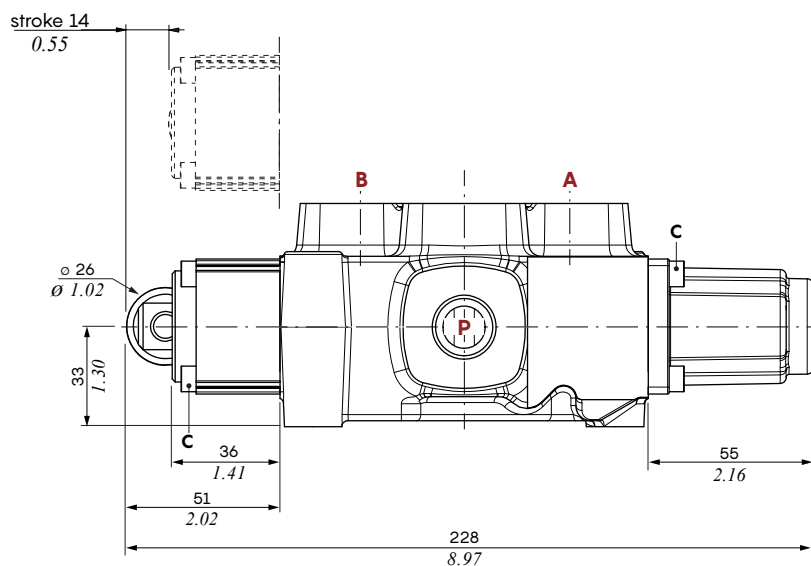
#### C2 type

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



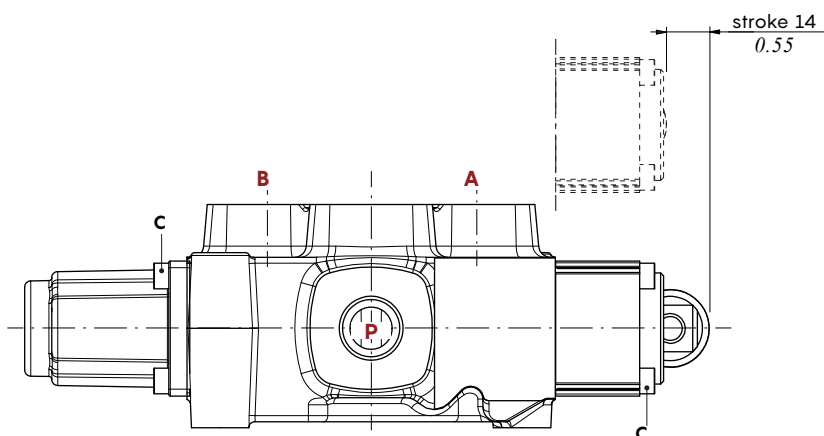
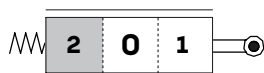
#### Wrenches and tightening torques

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



#### C3 type

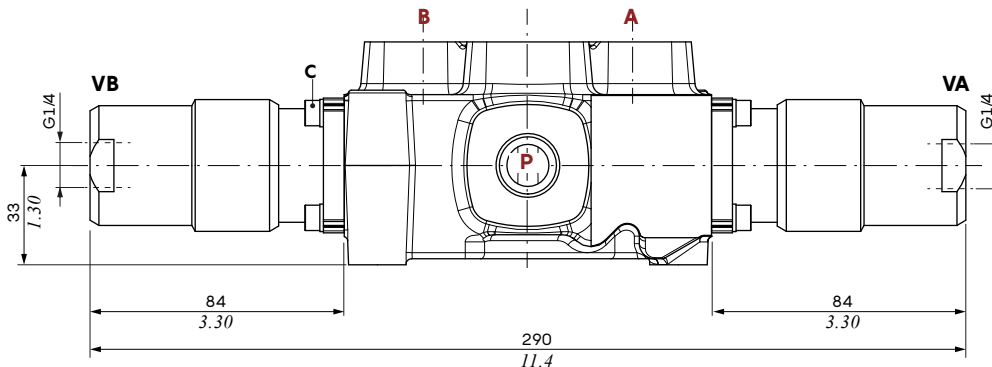
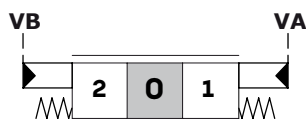
From position 2 to position 1,  
spring return in position 2.  
Dimensions are the same of C2 type



Proportional hydraulic controls

H1 type

High pressure control  
with side ports

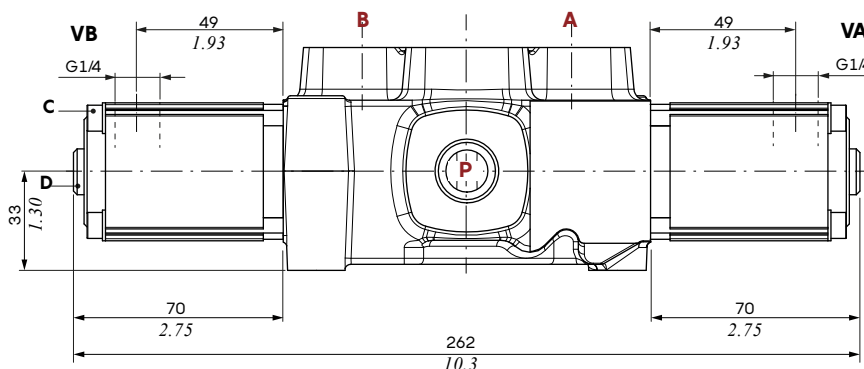
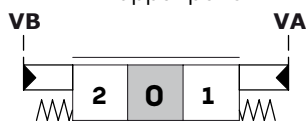


Operating features

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

H5 type

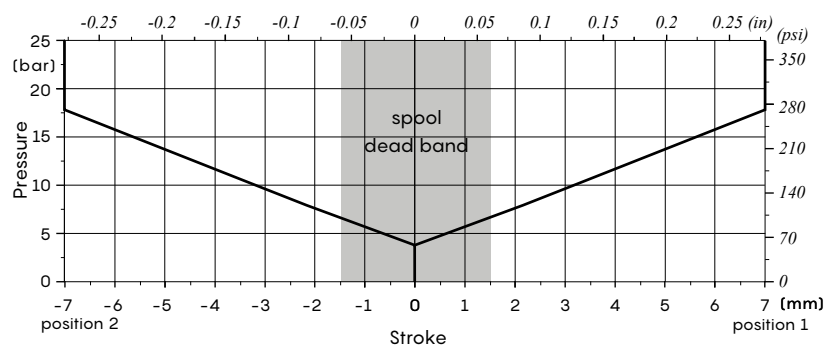
Low pressure control  
with upper ports



Operating features

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

Stroke vs. Pressure diagram for H5 type control



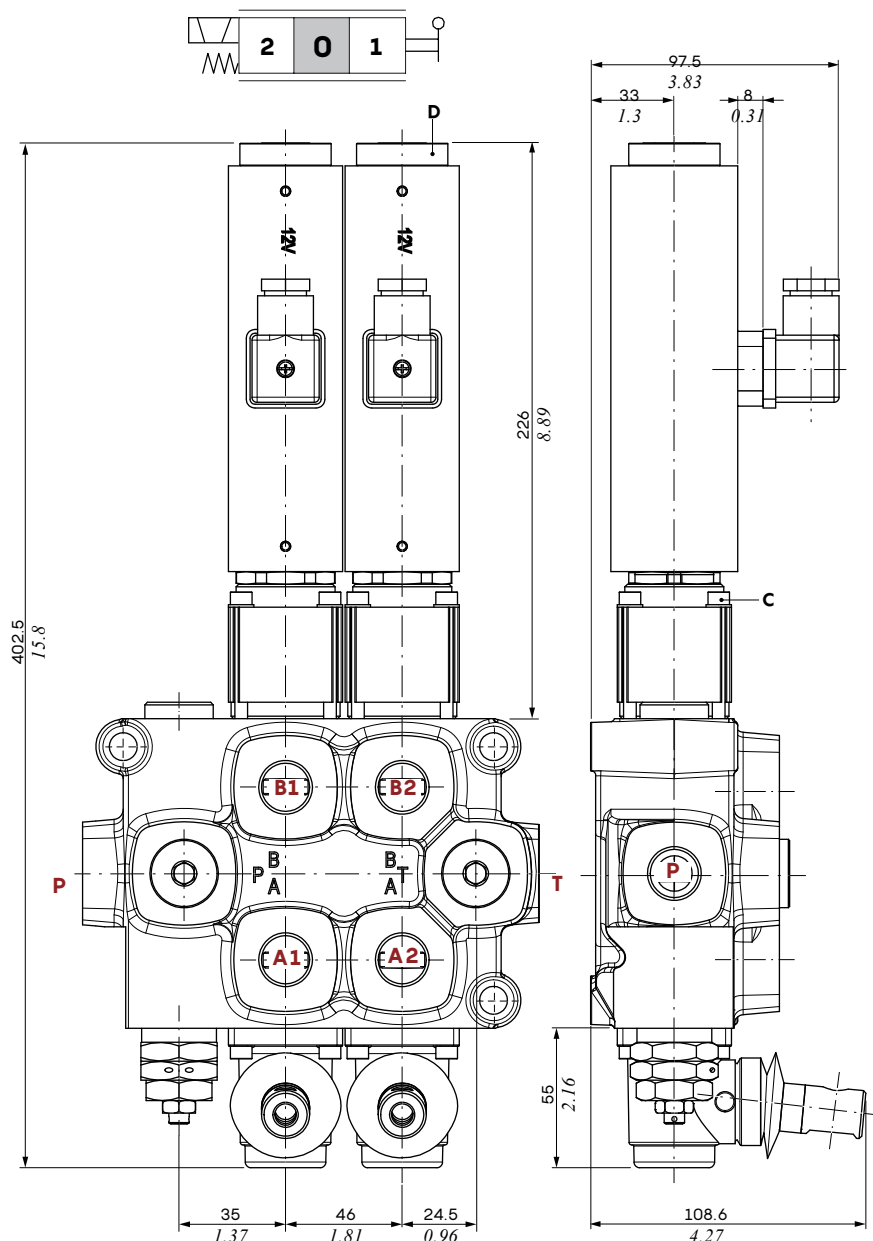
Wrenches and tightening torques

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.

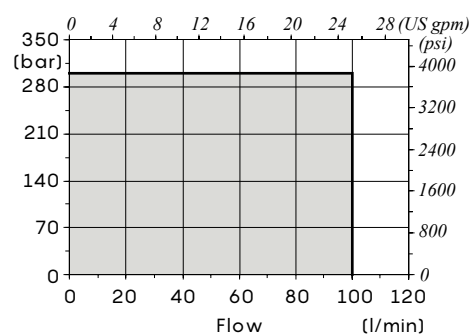


#### D41 coil

|                           |                  |
|---------------------------|------------------|
| Nominal voltage           | 12 VDC<br>24 VDC |
| Nominal voltage tolerance | ±10%             |
| Power rating              | 80 W             |
| Insulation                | Class H          |
| Weather protection        | IP65             |

Connector type: ISO4400 3P+T-PG11

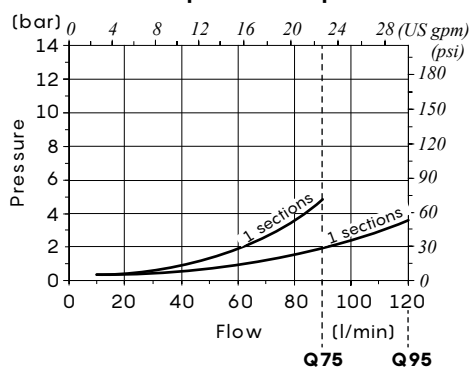
#### Dynamic conditions



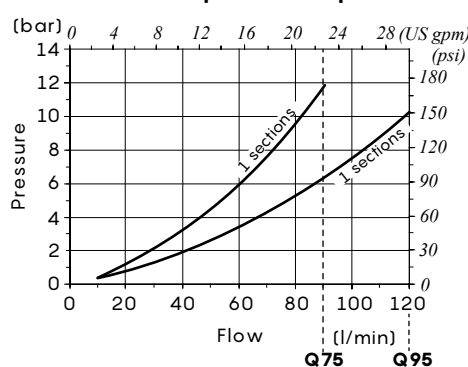
#### Wrenches and tightening torques

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

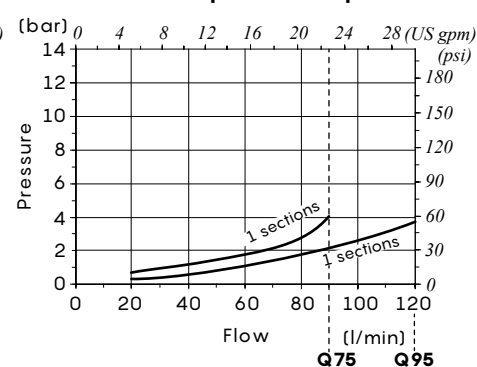
#### P⇒T pressure drops



#### P⇒A(B) pressure drops

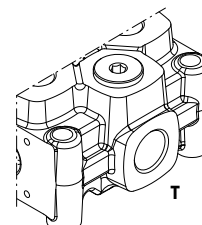
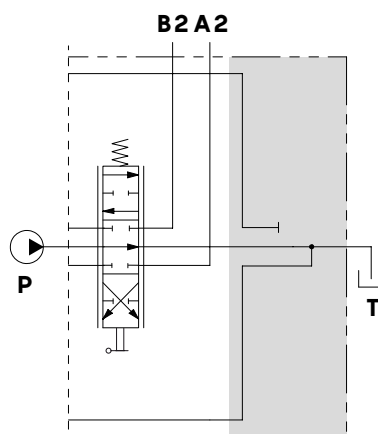
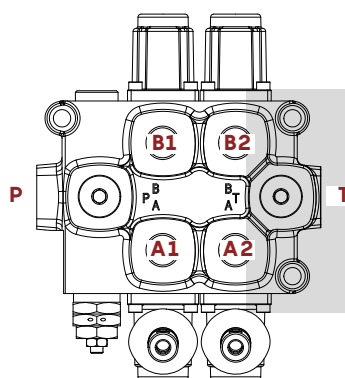


#### A(B)⇒T pressure drops

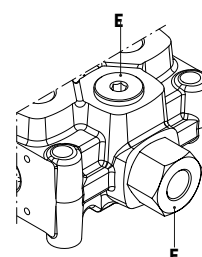
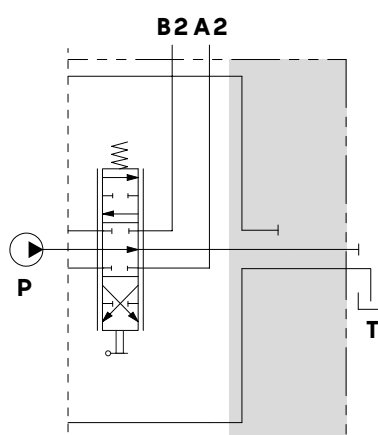
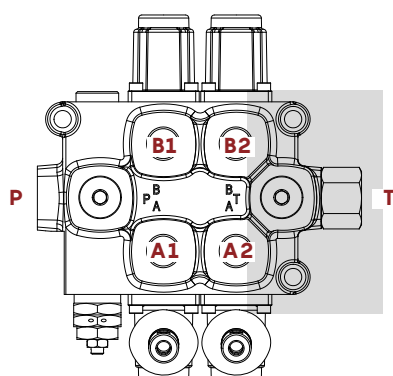


# Outlet configuration

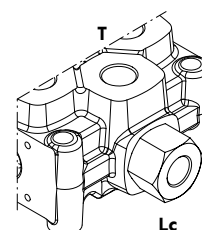
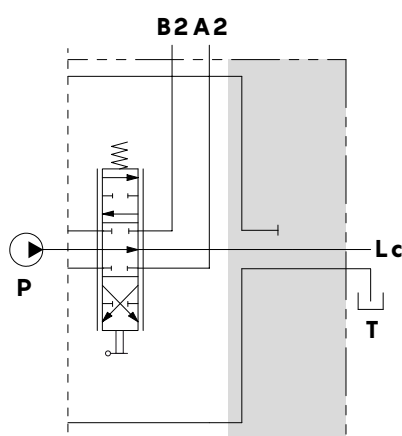
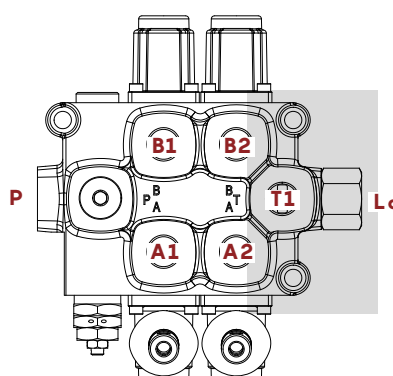
**F3D configuration**  
Open center configuration



**F16D configuration**  
Closed center configuration



**F6D configuration**  
Carry-over configuration



## Wrenches and tightening torques

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

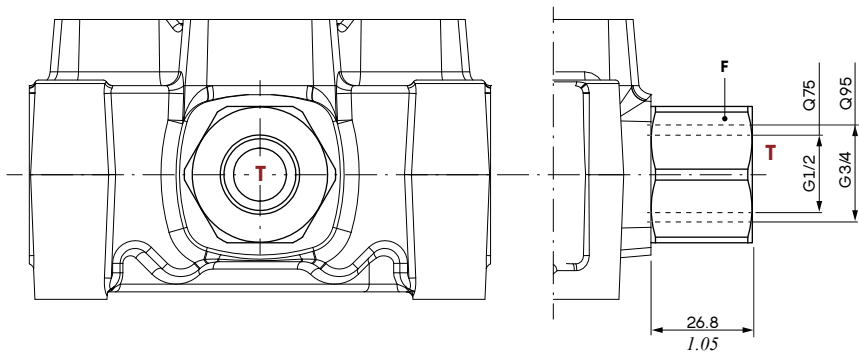
(Q95) = allen wrench 8 - 42 Nm (22 lbft)

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 lbf)





## Q30

### 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
- Mechanical, pneumatic, electropneumatic, hydraulic and direct solenoid controls

#### Working conditions

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

|                                            |                                      |                                                        |
|--------------------------------------------|--------------------------------------|--------------------------------------------------------|
| Nominal flow rating                        |                                      | 30 l/min - (8 Us gpm)                                  |
| Max. pressure                              | parallel circuit                     | 315 bar (4600 psi)                                     |
|                                            | series circuit                       | 210 bar (3050 psi)                                     |
| Max. back pressure on outlet <b>T</b> port |                                      | 25 bar (360 psi)                                       |
| Number sections                            |                                      | from 1 to 10                                           |
| Internal leakage A(B)⇒T                    | Δp = 100 bar (1450 psi)              | 5 cm <sup>3</sup> /min (0.30 in <sup>3</sup> /min)     |
| Fluid                                      |                                      | Mineral oil                                            |
| Fluid temperature                          | with NBR (BUNA-N) seals              | from -20°C to 80°C - from -4 °F to 176 °F              |
| Viscosity                                  | operating range                      | from 12 to 400 mm <sup>2</sup> /s - from 12 to 400 cSt |
| Max. contamination level                   |                                      | -/19/16 - ISO 4406 - NAS1638 class 6                   |
| Ambient temperature                        | with pneumatic and hydraulic devices | from -30°C to 60°C - from -22 °F to 140 °F             |
|                                            | without electric devices             | from -40°C to 60°C - from 40 °F to 140 °F              |
|                                            | with electric devices                | from -20°C to 50°C - from -4 °F to 122 °F              |

NOTE - For different conditions please contact our Sales Department.

#### REFERENCE STANDARD

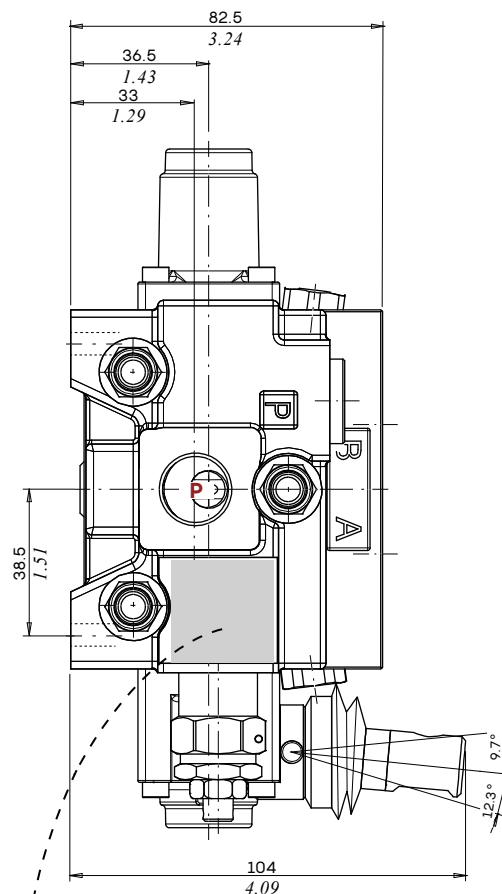
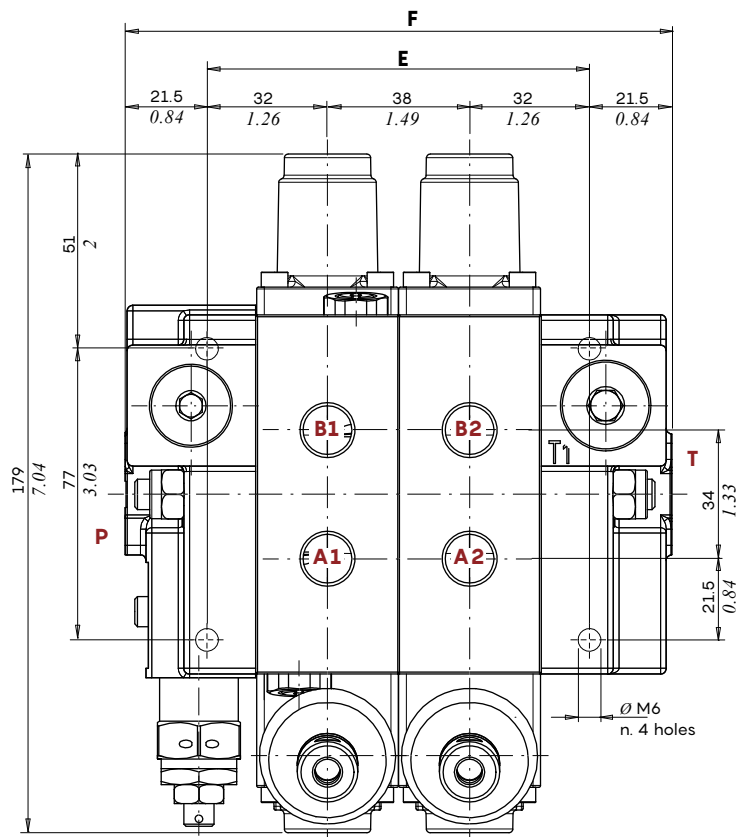
|                               | BSP       | UN-UNF              |
|-------------------------------|-----------|---------------------|
| THREAD ACCORDING TO           | ISO 228/1 | ISO 263             |
|                               | BS 2779   | ANSI B1.1 unified   |
| CAVITY DIMENSION ACCORDING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

#### PORT THREADING

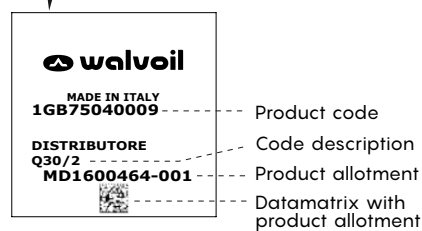
|                                           | BSP         | UN-UNF                           |
|-------------------------------------------|-------------|----------------------------------|
| <b>P</b> Inlet                            | G 3/8       | 3/4-16 (SAE 8)                   |
| <b>P1</b> Inlet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

## Dimensional data

### Standard configuration\*

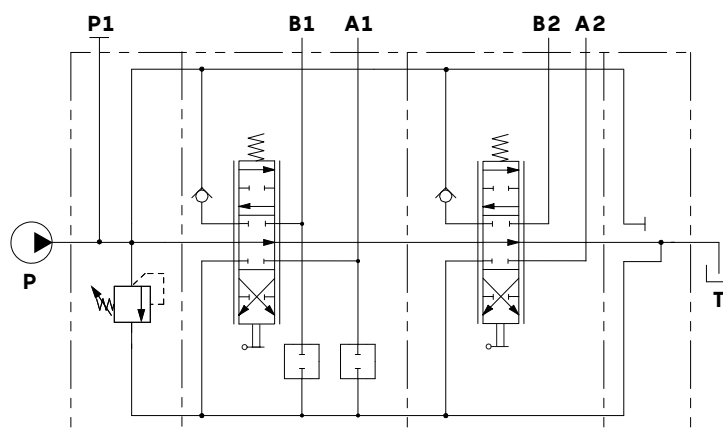


| Type   | E   |       | F     |       |
|--------|-----|-------|-------|-------|
|        | mm  | in    | mm    | in    |
| Q30/1  | 64  | 2.52  | 107.5 | 4.23  |
| Q30/2  | 102 | 4.01  | 145.5 | 5.72  |
| Q30/3  | 140 | 5.51  | 183.5 | 7.22  |
| Q30/4  | 178 | 7.00  | 221.5 | 8.72  |
| Q30/5  | 216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

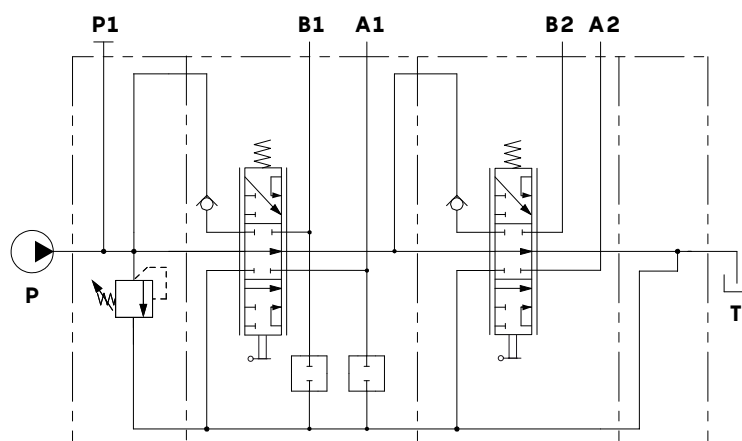


NOTE: Drawings and dimensions are referred to a **BSP** threading configuration.

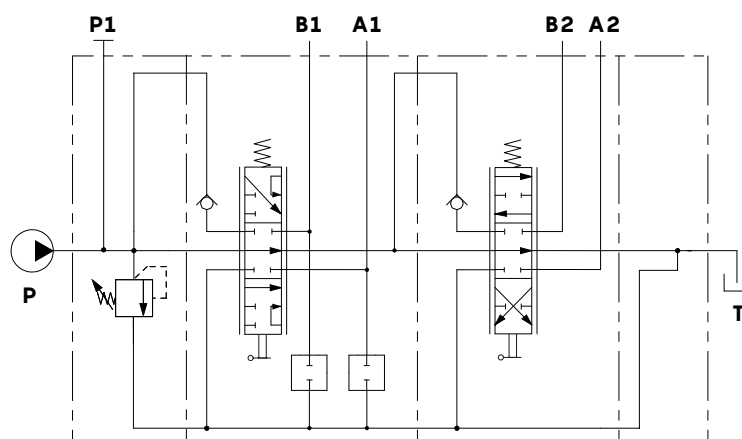
(\*): For other configurations, see page 108



Description example (parallel circuit):  
Q30/2/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

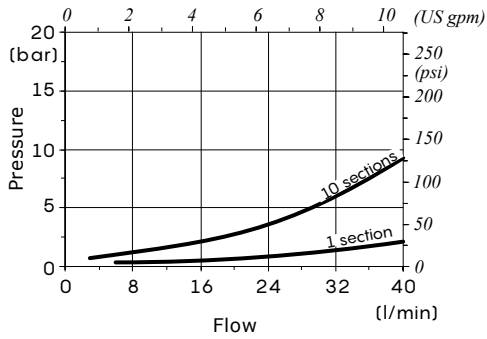


Description example (serie/parallel circuit):  
Q30/2/F7S(N150)/403-A1-M1.VC/103-A1-M1/F3D-S

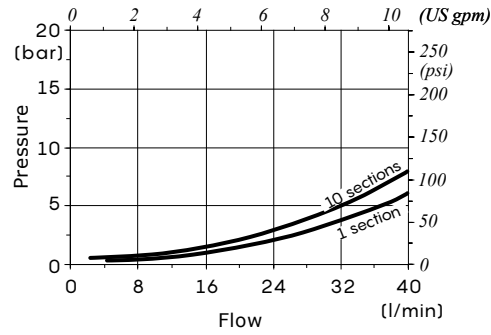
**Performance data**

**Q30**

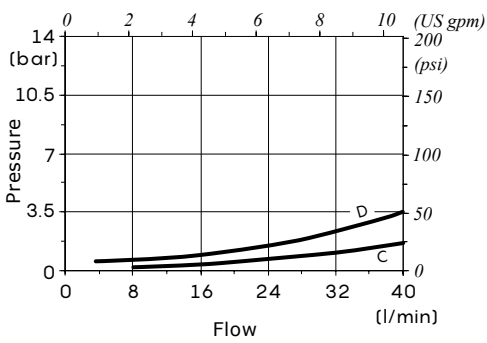
**P⇒T pressure drops**



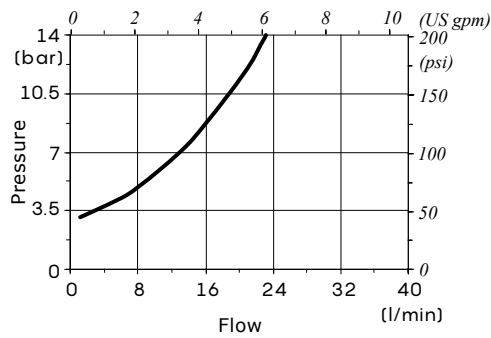
**P⇒A(B) pressure drops**



**A(B)⇒T pressure drops**



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



**Legenda**

C= 10<sup>th</sup> section

D= 1<sup>st</sup> section

## Complete section ordering codes

## Valve with mechanical and hydraulic controls configuration example

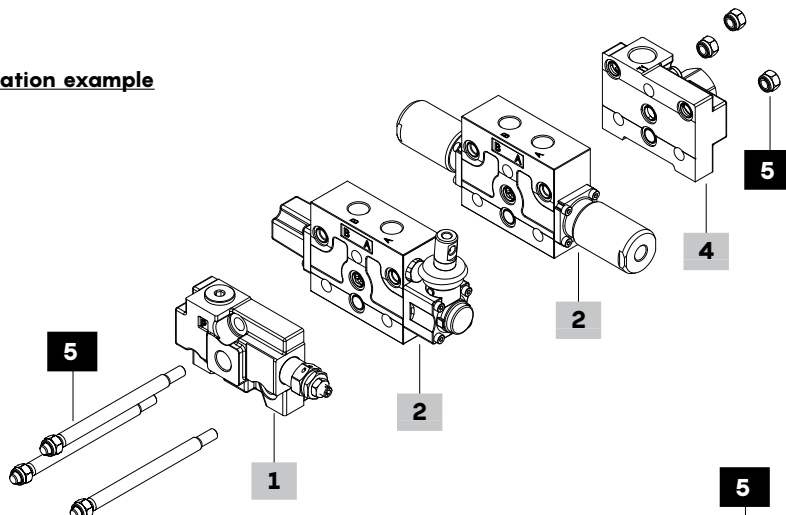
valve setting (bar)

**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

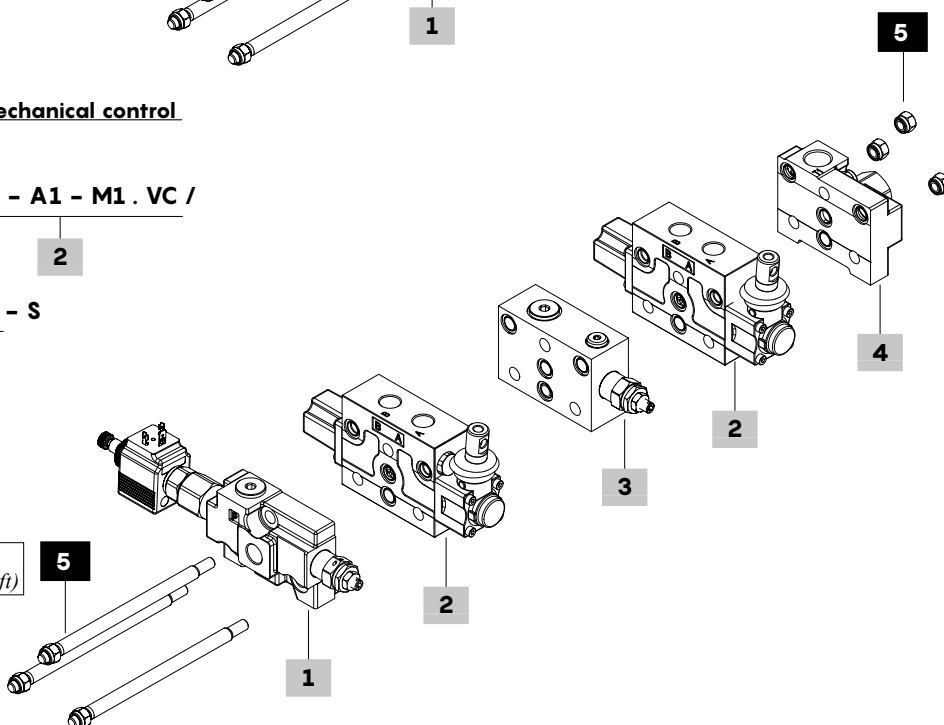
**Q30 / 2 / F7SMSE(NA)-N150 / 103 - A1 - M1 . VC /**

valve setting (bar) **1** **2**

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

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

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

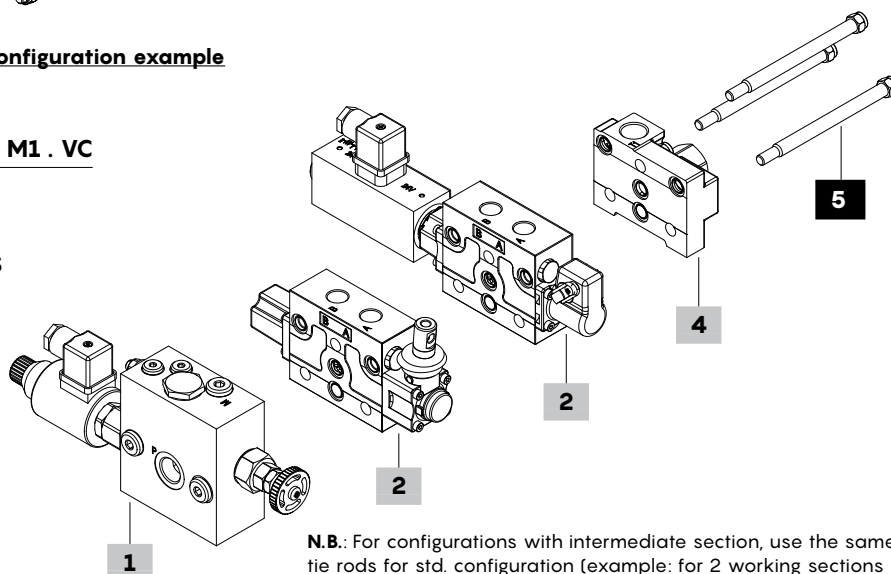

Valve with mechanical and electric control configuration example  
(with inlet flow regulation)

**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

**1 Inlet section\* page 71****Standard inlet section**

TYPE CODE  
**FE-Q30/F7S(N150)** 03000F7S/D-N  
 DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve, setting range 101-200 bar (1460-2900 psi)

TYPE CODE  
**FE-Q30/F8S** 03003F8S/D  
 DESCRIPTION: As previous one, without valves (pressure relief valve plugged port)

TYPE CODE  
**FE-Q30/F7SMSE(NA)** 03000F7SDMS1-N  
 DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve setting range 101-200 bar (1460-2900 psi), 12VDC normally open unloader valve

TYPE CODE  
**FE-Q30/F7SMSE(NC)** 03000F7SDMS7-N  
 DESCRIPTION: As previous one, with normally closed unloader valve

TYPE CODE  
**FE-Q30/F7SMSI** 03000F7SDMSI-N  
 DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve setting range 101-200 bar (1460-2900 psi), and hydraulic unloader valve

**Inlet section with flow regulator**

TYPE CODE  
**FE-Q30/F7SPR3M(N150)** 03000F7SDPRN3M  
 DESCRIPTION: Side inlet open, 12 VDC proportional flow control valve, pressure relief valve setting range 101-200 bar (1460-2900 psi), manual unloader valve

TYPE CODE  
**FE-Q30/F7SPR3E(N150)-12VDC** 03000F7SDPRN3E  
 DESCRIPTION: As previous one, with 12VDC unloader valve

**2 Working section\* page 79****With mechanical controls**

TYPE CODE  
**EL-Q30/103-A1-M1.VC-S** SGL300025  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, lever control and spring return to neutral position

TYPE CODE  
**EL-Q30/103-A1-M1-S** 030000103001000  
 DESCRIPTION: As previous one, without valve arrangement

**With proportional hydraulic controls**

TYPE CODE  
**EL-Q30/103-H1.VC-S** SGL300008  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, high pressure hydraulic controls, spring return to neutral position

TYPE CODE  
**EL-Q30/103-H1-S** SGL300009  
 DESCRIPTION: As previous one, without valve arrangement

TYPE CODE  
**EL-Q30/103-H5.VC-S** SGL300012  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, low pressure hydraulic controls, spring return to neutral position

TYPE CODE  
**EL-Q30/103-H5-S** SGL300013  
 DESCRIPTION: As previous one, without valve arrangement

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

TYPE CODE  
**EL-Q30/103-A1-D41.VC-12VDC-S** SGL300019  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct ON/OFF control with lever

TYPE CODE  
**EL-Q30/103-A1-D41-12VDC-S** 030000103098000  
 DESCRIPTION: As previous one, without valve arrangement

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

TYPE CODE  
**EL-Q30/103-D9.VC-12VDC-S** SGL300024  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct ON/OFF control

TYPE CODE  
**EL-Q30/103-D9-12VDC -S** SGL300016  
 DESCRIPTION: As previous one, without valve arrangement

[\*]: Codes are referred to **BSP** thread

## Complete section ordering codes

**3 Intermediate section** **page 108**

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

**4 Outlet section\*** **page 110**

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

**5 Tie rod kit**

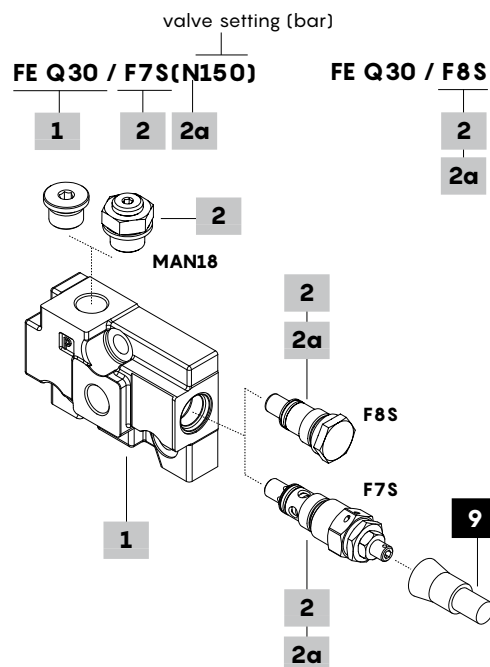
| CODE                                    | DESCRIPTION           |
|-----------------------------------------|-----------------------|
| <b>For standard configuration</b>       |                       |
| 03901TX1                                | For 1 section valve   |
| 03902TX2                                | For 2 sections valve  |
| 03903TX3                                | For 3 sections valve  |
| 03904TX4                                | For 4 sections valve  |
| 03905TX5                                | For 5 sections valve  |
| 03906TX6                                | For 6 sections valve  |
| 03907TX7                                | For 7 sections valve  |
| 03908TX8                                | For 8 sections valve  |
| 03909TX9                                | For 9 sections valve  |
| 03910TX10                               | For 10 sections valve |
| <b>For flow regulator configuration</b> |                       |
| 03901TX1                                | For 1 section valve   |
| 03902TX2                                | For 2 sections valve  |
| 03903TX3                                | For 3 sections valve  |
| 03904TX4                                | For 4 sections valve  |
| 03905TX5                                | For 5 sections valve  |
| 03906TX6                                | For 6 sections valve  |
| 03907TX7                                | For 7 sections valve  |
| 03908TX8                                | For 8 sections valve  |
| 03909TX9                                | For 9 sections valve  |
| 03910TX10                               | For 10 sections valve |

[\*]: Codes are referred to **BSP** thread

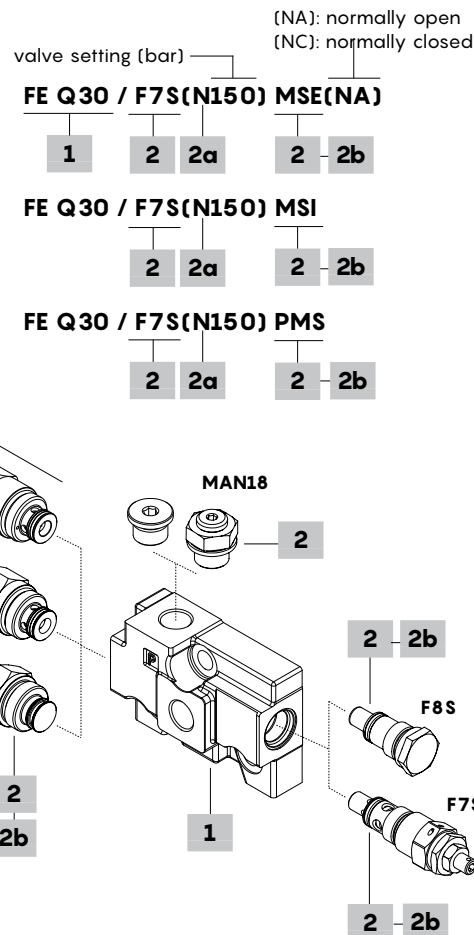
## Inlet section – parts ordering codes

## Standard section

With relief valve:



With relief and unloader valves:



## 1 Inlet body section\*

page 71

| TYPE                                                                                 | CODE         |
|--------------------------------------------------------------------------------------|--------------|
| <b>FE-Q30</b>                                                                        | 060012741599 |
| DESCRIPTION: Side inlet port, upper inlet plugged, pressure relief valve arrangement |              |
| TYPE                                                                                 | CODE         |
| <b>FE-Q30</b>                                                                        | 060012979299 |
| DESCRIPTION: As previous one, with unloader valve arrangement                        |              |

## 2 Configuration coding\*

| 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;

## 2a Main pressure relief valve

page 73

| 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 74

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

## 3 Coil

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

**Note:** For BER type coils, see page 185

## 9 Accessories

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

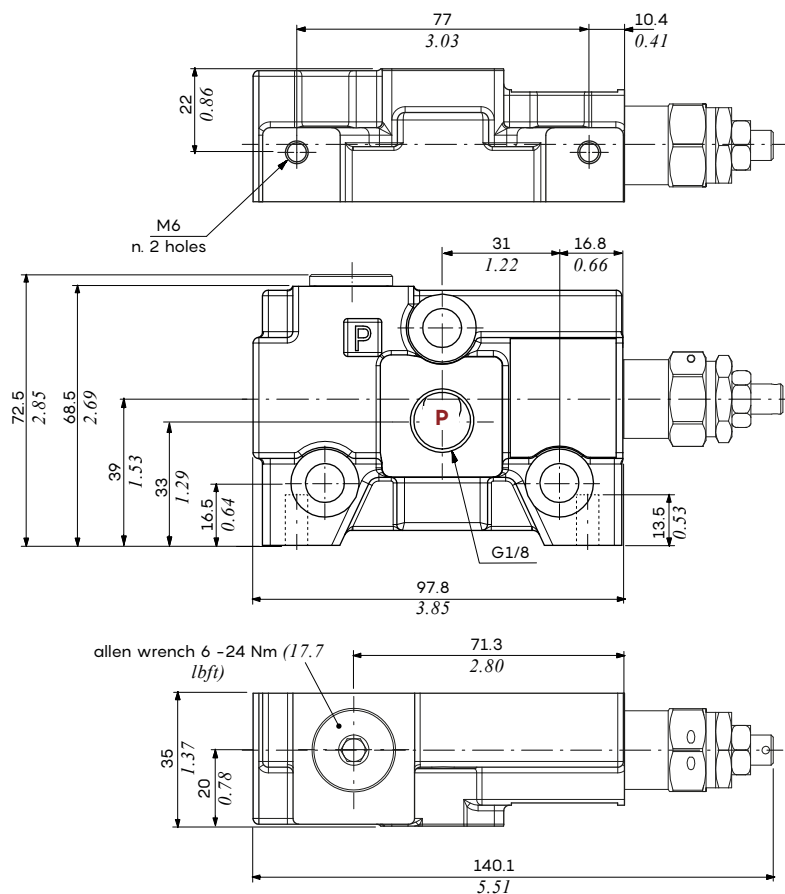
(\*): Codes are referred to **BSP** thread



## Standard inlet section

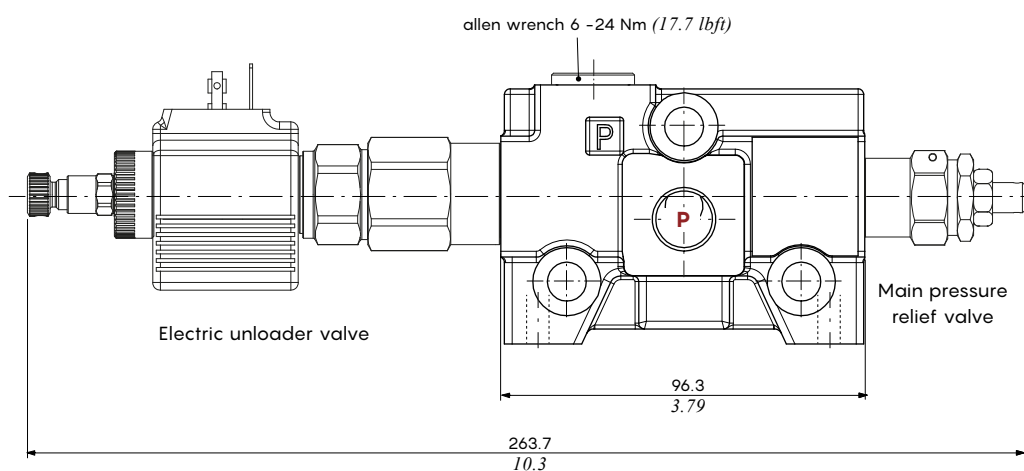
## Dimensional data

## With pressure relief valve



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

## With relief and unloader valves



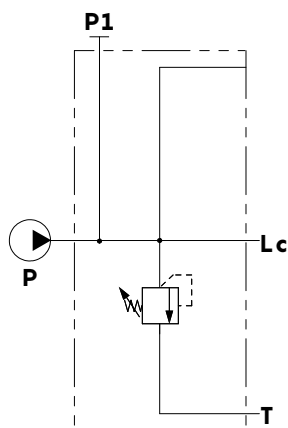
**Note:** For valves wrench and torque, see related pages

For other dimensions, see previous configuration

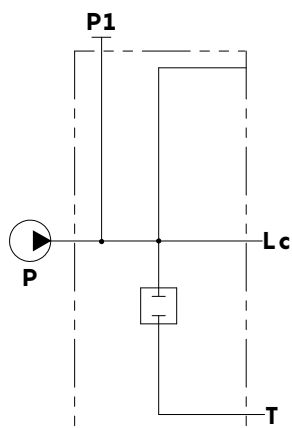
## Standard inlet section

## Hydraulic circuits

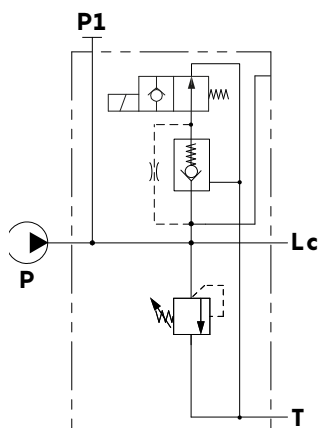
**F7S configuration**  
With pressure relief valve



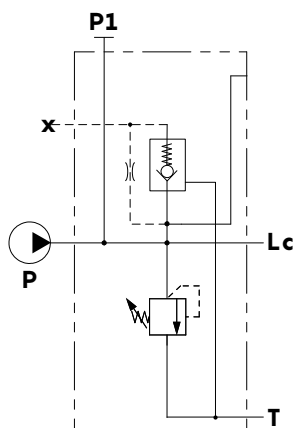
**F8S configuration**  
Without valves  
(pressure relief valve plugged port)



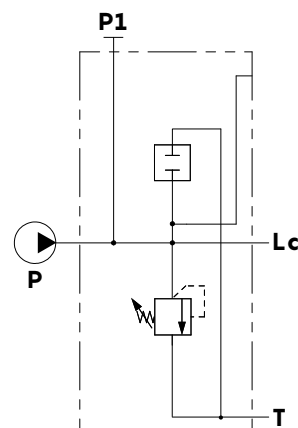
**F7S-MSE(NA/NC) configuration**  
With pressure relief valve  
and electric unloader valve



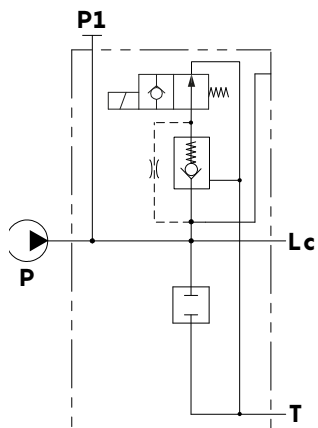
**F7S-MSI configuration**  
With pressure relief valve  
and hydraulic unloader valve



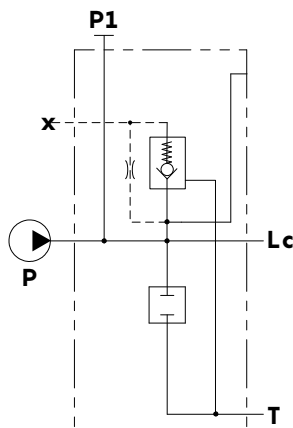
**F7S-PMS configuration**  
With pressure relief valve  
and unloader valve blanking plug



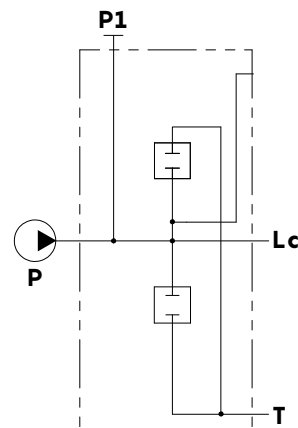
**F8S-MSE(NA/NC) configuration**  
Without pressure relief valve  
and electric unloader valve



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



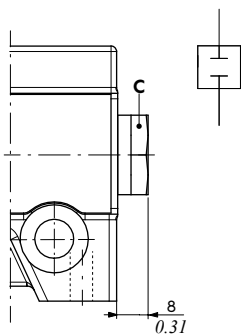
**F8S-PMS configuration**  
Without valves (plugged ports)



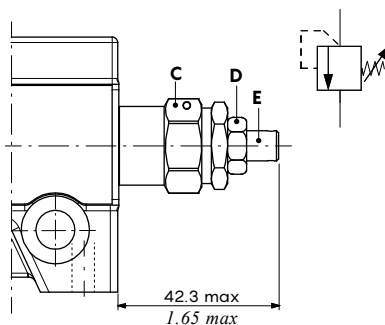
## Standard inlet section

## Main pressure relief valve

## Relief valve blanking plug



## Main pressure relief valve



## Wrenches and tightening torques

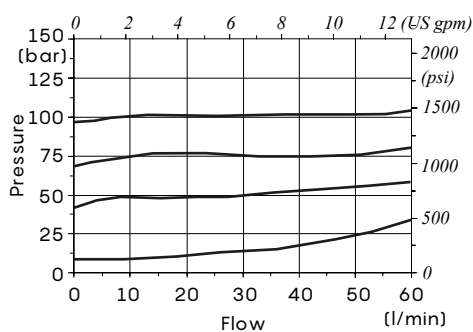
C = wrench 22 - 42 Nm (31 lbft)

D = wrench 13 - 24 Nm (17.7 lbft)

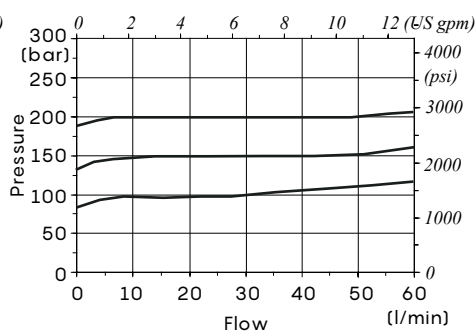
E = allen wrench 4

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

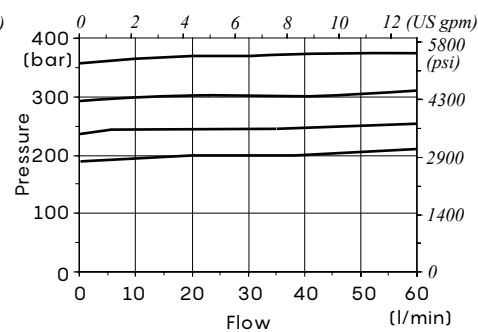
## Setting example (B type spring)



## Setting example (N type spring)



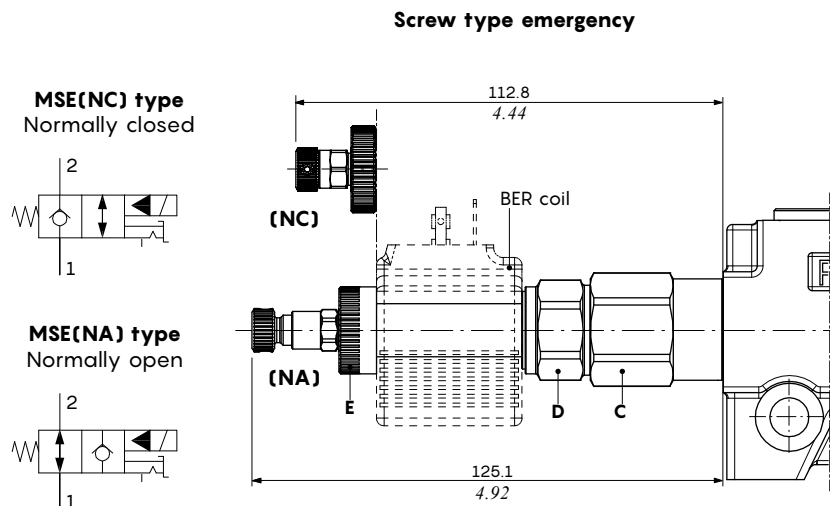
## Setting example (R type spring)



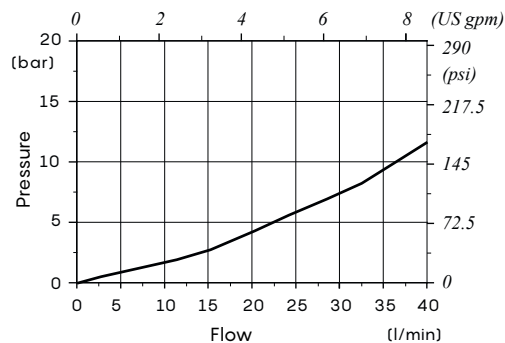
## Standard inlet section

## Unloader valve

## MSE type: electric control



## Pressure drops



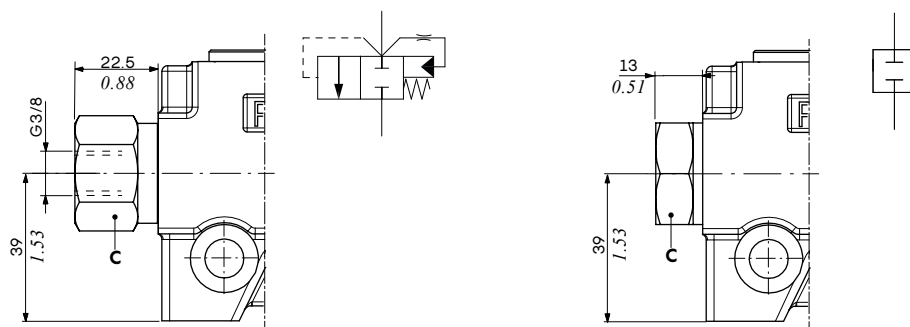
## Valve features

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 185

## MSI type: hydraulic control

## PMS type: valve blanking plug



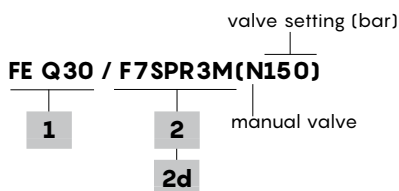
## Wrenches and tightening torques

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

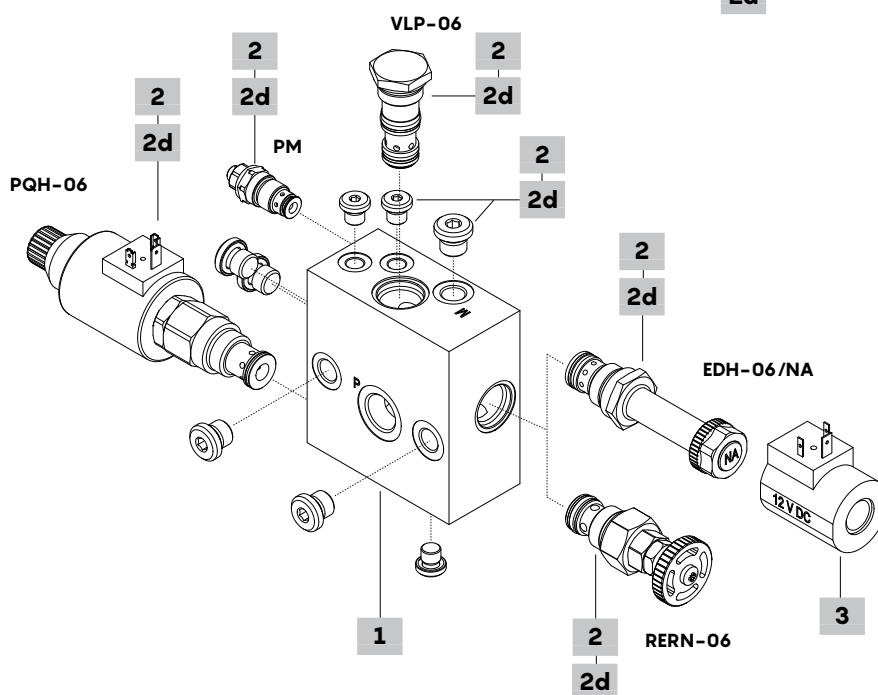
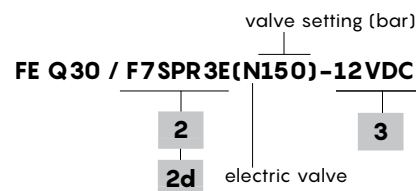
## Inlet section – parts ordering codes

## Section with flow regulator

With manual unloader valve:



With electric unloader valve:

**1 Inlet body section\*** **page 76**

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

**2 Configuration coding\***

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

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

**2d Inlet valves** **page 77**

| 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                                      |

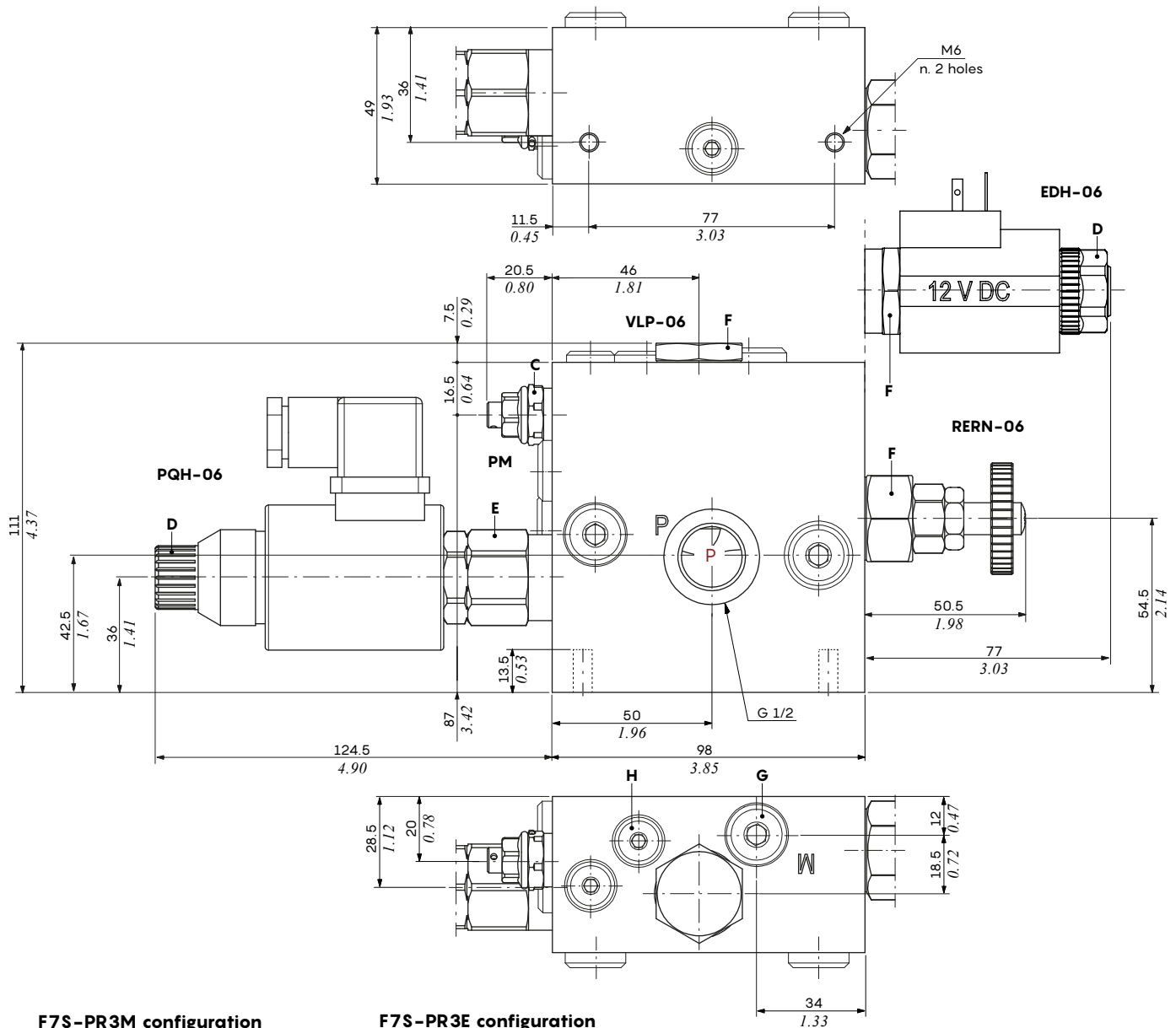
**3 Coil**

| 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

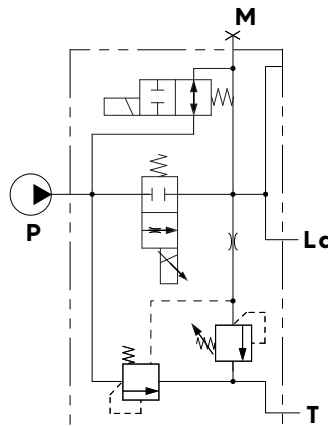
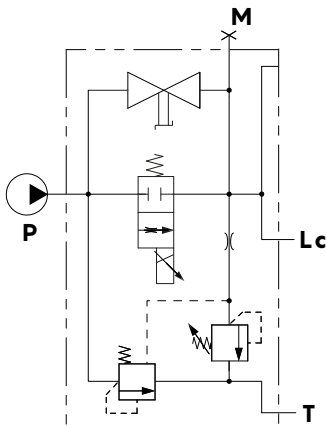
**Inlet section with flow regulator**

**Dimensional data and hydraulic circuit**



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

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



**Wrenches and tightening torques**

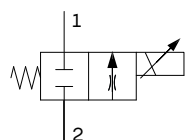
- C = wrench 17 - 30 Nm (22 lbft)
- D = manual tightening
- E = wrench 27 - 30 Nm (22 lbft)
- F = wrench 27 - 60 Nm (44.2 lbft)
- G = allen wrench 27 - 60 Nm (44.2 lbft)
- H = allen wrench 6 - 24 Nm (17.7 lbft)

## Inlet section with flow regulator

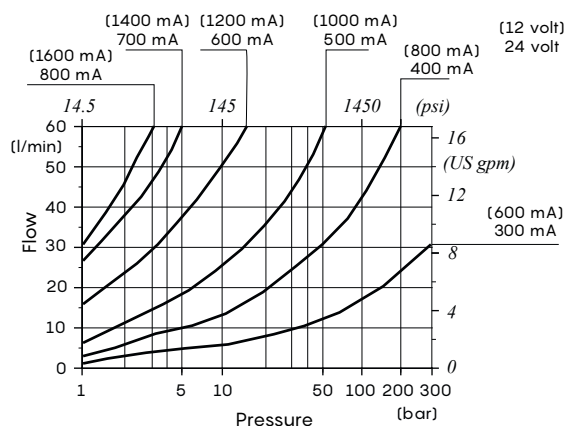
## Inlet valves

**PQH-06 type**

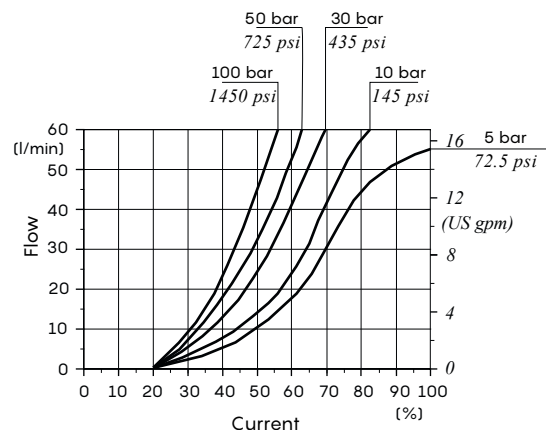
Flow control proportional pressure compensated valve, 12/24 VDC



Compensation curves



Flow control diagram

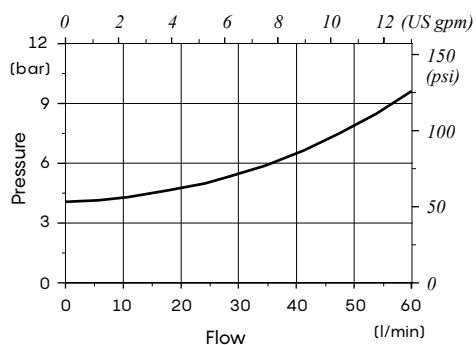
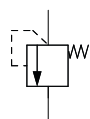
**Valve features**

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

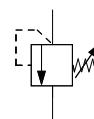
Pressure drops

**Valve features**

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

**PM type**

Antishock valve

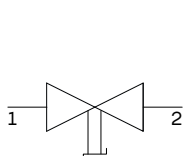


**Inlet section with flow regulator**

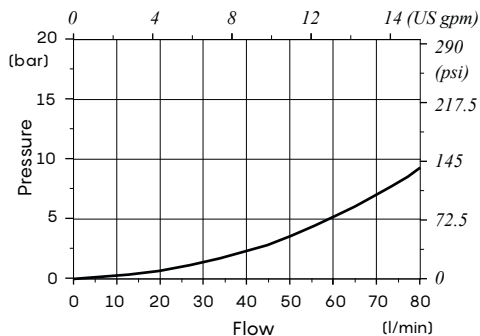
**Inlet valves**

**RERN-06 type**

Manual unloader valve



**Pressure drops**

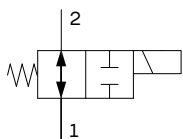


**Valve features**

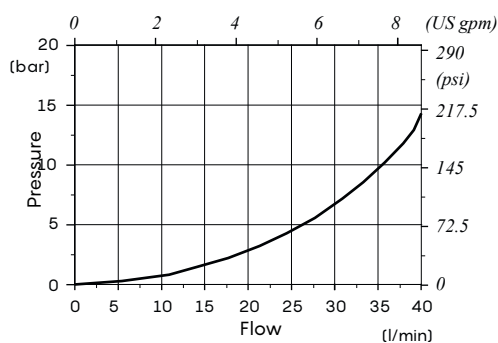
Nominal flow.....: 70 l/min (18.5 US gpm)  
 Max. pressure .....: 315 bar (4600 psi)  
 Closed valve leakage....: 0

**EDH-06 type**

Electric unloader valve, normally open



**Pressure drops**



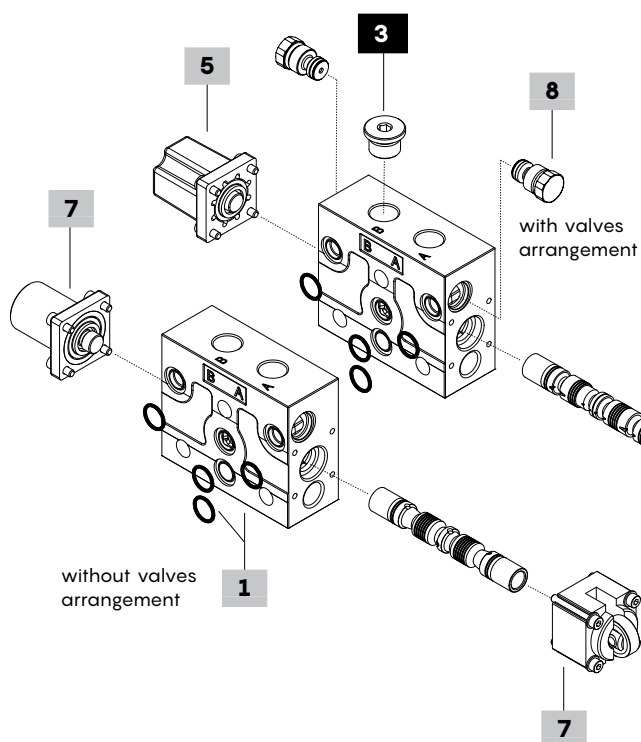
**Valve features**

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

Coil **A** type: To be order separately, see #3 page 75



## 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 Q30 / 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

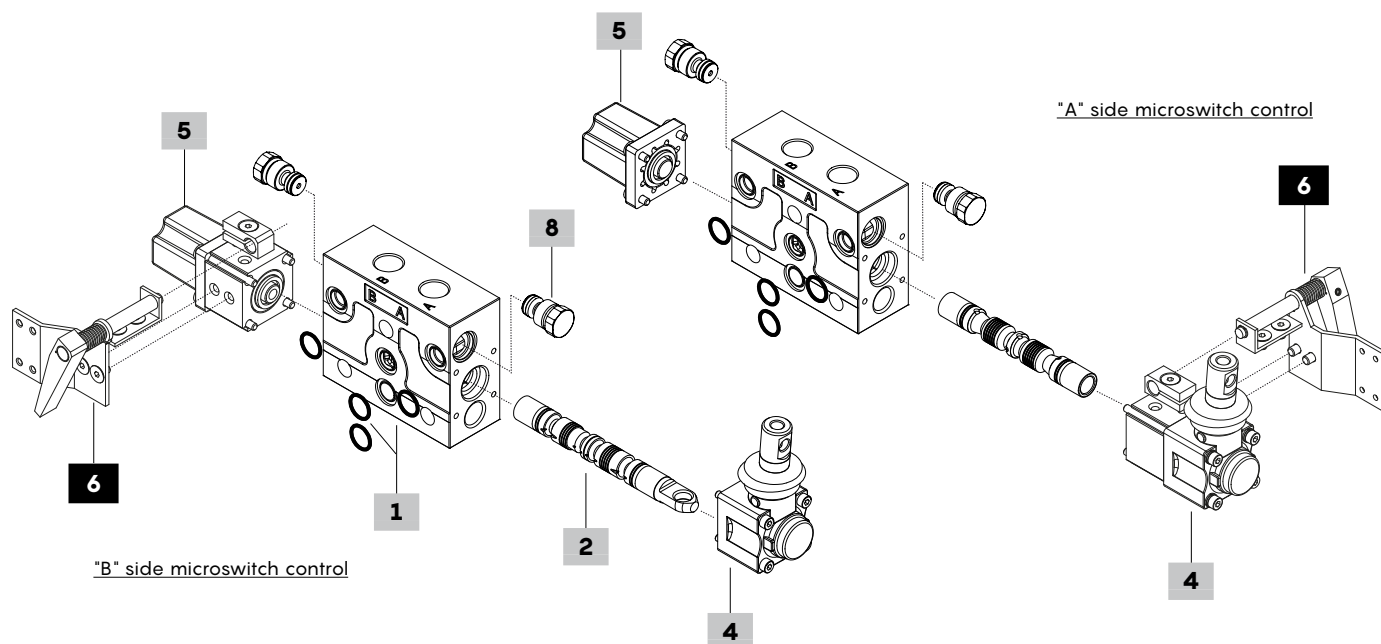
8

aluminium controls

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

4

5



## Working section – parts ordering codes

**1 Working section body kit\* page 84**

| TYPE                                                           | CODE          |
|----------------------------------------------------------------|---------------|
| <b>EL-Q30.VC</b>                                               | 5EL0600128432 |
| DESCRIPTION: Parallel circuit, with port valves arrangement    |               |
| TYPE                                                           | CODE          |
| <b>EL-Q30</b>                                                  | 5EL0600127900 |
| DESCRIPTION: Parallel circuit, without port valves arrangement |               |
| TYPE                                                           | CODE          |
| <b>EL-Q30.VC</b>                                               | 5EL0600128434 |
| DESCRIPTION: Series circuit, with port valves arrangement      |               |

**2 Spool page 85**

| TYPE                   | CODE         | DESCRIPTION                                                                                                |
|------------------------|--------------|------------------------------------------------------------------------------------------------------------|
| <b>Standard spools</b> |              |                                                                                                            |
| <b>103</b>             | 060103179499 | Double acting, A and B closed in neutral position                                                          |
|                        | 3CUG3197800  | As previous one, for <b>kick-out</b> control                                                               |
| <b>106</b>             | KR30106      | Double acting for closed circuit                                                                           |
| <b>107</b>             | KR80107-108  | Double acting, A to tank and B closed in neutral position                                                  |
| <b>108</b>             | KR80107-108  | Double acting, B to tank and A closed in neutral position                                                  |
| <b>111</b>             | 060103179599 | Double acting, A and B to tank in neutral position                                                         |
|                        | KR30111K     | As previous one, for <b>kick-out</b> control                                                               |
| <b>114</b>             | KR30114      | Double acting, A and B to tank in neutral position, for closed circuit                                     |
| <b>101</b>             | 3CUG32188000 | Single acting on port A (3)                                                                                |
| <b>102</b>             | 3CUG3218002  | Single acting on port B (3)                                                                                |
| <b>116</b>             | 3CUG3179200  | Double acting, with floating in the 4 <sup>th</sup> position (spool in): requires dedicated spool control  |
| <b>126</b>             | 3CUG3179201  | Double acting, with floating in the 4 <sup>th</sup> position (spool out): requires dedicated spool control |
| <b>403</b>             | 5CUG2895202  | Double acting, A and B closed in neutral position, for series circuit                                      |
| <b>411</b>             | 5CUG2895402  | Double acting, A and B to tank in neutral position, for series circuit                                     |

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

**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                     |
| <b>403</b> | 5CUG2895203  | Double acting, A and B closed in neutral position, for series circuit  |
| <b>411</b> | 5CUG2895403  | Double acting, A and B to tank in neutral position, for series circuit |

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

| TYPE | CODE         | DESCRIPTION |
|------|--------------|-------------|
| -    | 060002792199 | G3/8 plug   |

**4 A side control page 86**

| TYPE                                                                     | CODE           | DESCRIPTION                                             |
|--------------------------------------------------------------------------|----------------|---------------------------------------------------------|
| <b>For standard spools</b>                                               |                |                                                         |
| <u>With lever control:</u>                                               |                |                                                         |
| <b>A1</b>                                                                | 03600A1-A2     | M8 thread plastic lever box                             |
| <b>A2</b>                                                                | 03600A1-A2     | As A1 type, with lever box rotated 180°                 |
| <b>A1/10</b>                                                             | 03610A1-A2/10  | M8 thread aluminium lever box                           |
| <b>A2/10</b>                                                             | 03610A1-A2/10  | As A1/10 type, with lever box rotated 180°              |
| <b>A1/06</b>                                                             | 03606A1-A2/06  | Aluminium lever box, with stroke limiter                |
| <b>A2/06</b>                                                             | 03606A1-A2/06  | As A1/06 type, with lever box rotated 180°              |
| <b>A1/PM</b>                                                             | 03610A1-A2/PM  | M10 thread aluminium lever box                          |
| <b>A2/PM</b>                                                             | 03610A1-A2/PM  | As A1/PM type, with lever box rotated 180°              |
| <b>A1/PMP</b>                                                            | 03610A1-A2/PMP | M10 thread plastic lever box                            |
| <b>A2/PMP</b>                                                            | 03610A1-A2/PMP | As A1/PMP type, with lever box rotated 180°             |
| <b>A1/Z1</b>                                                             | 03610A1-A2/Z1  | Plastic lever box, for <b>116</b> spool type            |
| <b>A2/Z1</b>                                                             | 03610A1-A2/Z1  | As A1/Z1 type, with lever box rotated 180°              |
| <b>A1/Z1/10</b>                                                          | 03610A1-2/10Z1 | As A1/Z1 type, with aluminium lever box                 |
| <u>With safety lever control:</u>                                        |                |                                                         |
| <b>A1/S<sup>(1)</sup></b>                                                | 03624A1-A2/S   | M8 thread aluminium lever box                           |
| <b>A2/S<sup>(1)</sup></b>                                                | 03624A1-A2/S   | As A1/S type, with lever box rotated 180°               |
| <u>Without lever control:</u>                                            |                |                                                         |
| <b>A4/Z1</b>                                                             | 03617A4/Z1     | As A4 type, for <b>116</b> spool type                   |
| <b>A6</b>                                                                | 03620A6        | With flange                                             |
| <b>A6-H/Z1</b>                                                           | 03620A6-H/Z1SI | As A6 type, for <b>116</b> spool type                   |
| <b>A8</b>                                                                | 03622A8        | Arrangement for flexible cable control                  |
|                                                                          | 03622A8/03     | As previous one, with aluminium cap                     |
| <b>A8/Z1</b>                                                             | 03622A8/Z1     | As A8 type, for <b>116</b> spool type                   |
|                                                                          | 03622A8/Z1/10  | As previous one, with aluminium cap                     |
| <u>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                  |

(\*): 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 page 95**

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

**5 B side control (cont.) page 95**

| TYPE                                                                     | CODE           | DESCRIPTION                                                                |
|--------------------------------------------------------------------------|----------------|----------------------------------------------------------------------------|
| <u>With spool position microswitch:</u>                                  |                |                                                                            |
| <b>Note:</b> To complete the control you must use the assembly kit at #6 |                |                                                                            |
| <b>M1-N1</b>                                                             | 03766M1-N1     | 3 pos., micro operation in pos. 1 and 2, spring return in neutral position |
|                                                                          | 03766M1-N1/03  | As previous one, with aluminium lever box                                  |
| <b>M1-N1A</b>                                                            | 03767M1-N1AL   | As M1-N1 type, micro operation in pos. 1                                   |
|                                                                          | 03767M1-N1AL/3 | As previous one, with aluminium cap                                        |
| <b>M1-N1B</b>                                                            | 03768M1-N1BL   | As M1-N1 type, micro operation in pos. 2                                   |
|                                                                          | 03768M1-N1BL/3 | As previous one, with aluminium cap                                        |
| <b>M2-N1</b>                                                             | 03769M2-N1L    | 2 pos. (0-1), spring return in neutral pos.                                |
| <b>M3-N1</b>                                                             | 03772M3-N1L    | 2 pos. (0-2), spring return in neutral pos.                                |
| <u>Pneumatic and electropneumatic controls:</u>                          |                |                                                                            |
| <b>P1NW</b>                                                              | 03661P1-NW     | ON/OFF pneumatic control                                                   |
| <b>P1NPW</b>                                                             | 03661P1-NPW    | Proportional pneumatic control                                             |
| <b>D3W</b>                                                               | 03691D3-F-12DC | 12 VDC, ON/OFF electropneumatic control                                    |
|                                                                          | 03692D3-F-24DC | 24 VDC, ON/OFF electropneumatic control                                    |

**6 Microswitch assembly kit**

| CODE       | DESCRIPTION         |
|------------|---------------------|
| 03650N1-01 | Kit for 1 section   |
| 03650N1-02 | Kit for 2 sections  |
| 03650N1-03 | Kit for 3 sections  |
| 03650N1-04 | Kit for 4 sections  |
| 03650N1-05 | Kit for 5 sections  |
| 03650N1-06 | Kit for 6 sections  |
| 03650N1-07 | Kit for 7 sections  |
| 03650N1-08 | Kit for 8 sections  |
| 03650N1-09 | Kit for 9 sections  |
| 03650N1-10 | Kit for 10 sections |

**7 Complete controls A+B sides page 102**

| TYPE                                               | CODE       | DESCRIPTION                      |
|----------------------------------------------------|------------|----------------------------------|
| <b>For types 103, 111, 403, 411 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 |

**8 Auxiliary port valve page 106**

| TYPE                                                 | CODE         | DESCRIPTION                                                |
|------------------------------------------------------|--------------|------------------------------------------------------------|
| <u>Antishock valve:</u>                              |              |                                                            |
| <b>V30-B</b>                                         | 0380FV30-B   | Setting range: from 50 to 100 bar (from 725 to 1450 psi)   |
| <b>V30-N</b>                                         | 0380FV30-N   | Setting range: from 101 to 200 bar (from 1460 to 2900 psi) |
| <b>V30-R</b>                                         | 0380FV30-R   | Setting range: from 201 to 350 bar (from 2910 to 5100 psi) |
| <u>Antishock/anticavitation valve:</u>               |              |                                                            |
| <b>V33-B</b>                                         | 0380FV33-B   | Setting range: from 50 to 100 bar (from 145 to 1450 psi)   |
| <b>V33-N</b>                                         | 0380FV33-N   | Setting range: from 101 to 200 bar (from 1460 to 2900 psi) |
| <b>V33-R</b>                                         | 0380FV33-R   | Setting range: from 201 to 350 bar (from 2910 to 5100 psi) |
| <u>Anticavitation valve:</u>                         |              |                                                            |
| <b>V04</b>                                           | 03808V04     | Anticavitation valve                                       |
| <u>Plug:</u>                                         |              |                                                            |
| <b>VC</b>                                            | 060002846099 | Valve blanking plug                                        |
| For other configurations and positions, see page 106 |              |                                                            |

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

Working section - parts ordering codes

Proportional hydraulic controls valve configuration example

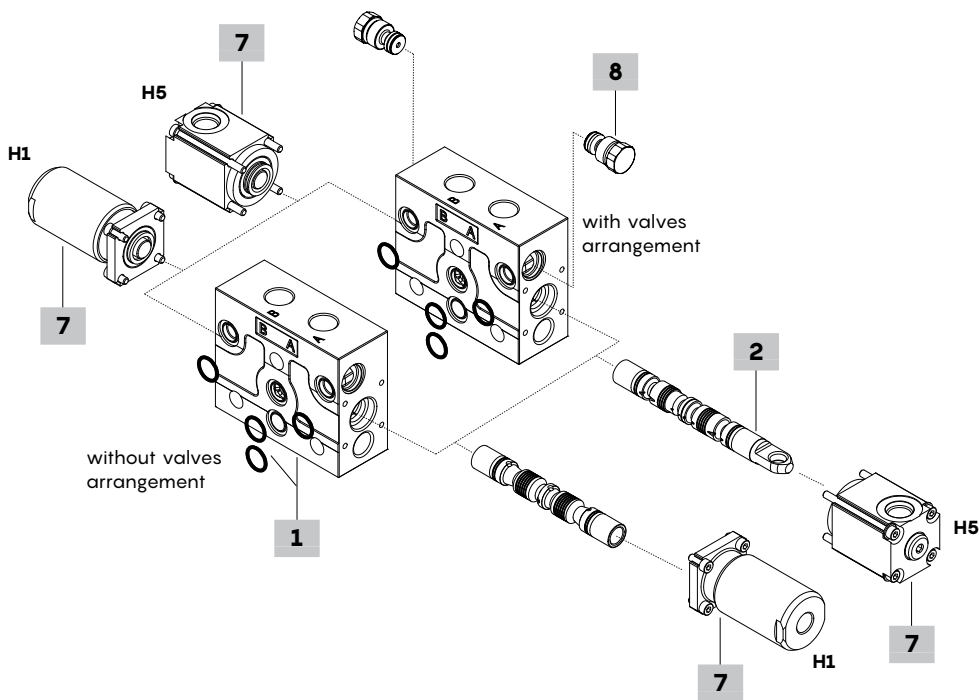
spring type and valve setting (bar)

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

1 2 7 8 aluminium controls

EL Q30 / 103 - H1 . V40(N)120 - S

7



1 Working section body kit\* page 84

The body kits listed below are for H5 hydraulic control.

H1 hydraulic control requires standard body: see #1, page 80

|                                                                |                 |
|----------------------------------------------------------------|-----------------|
| TYPE                                                           | CODE            |
| EL-Q30-H5.VC                                                   | 5EL0600128432H5 |
| DESCRIPTION: Parallel circuit, with port valves arrangement    |                 |
| TYPE                                                           | CODE            |
| EL-Q30-H5                                                      | 5EL0600127900H5 |
| DESCRIPTION: Parallel circuit, without port valves arrangement |                 |

2 Spool page 85

| TYPE                            | CODE         | DESCRIPTION                                       |
|---------------------------------|--------------|---------------------------------------------------|
| <b>For H5 hydraulic control</b> |              |                                                   |
| 103                             | 060103179499 | Double acting, A and B closed in neutral position |
| <b>For H1 hydraulic control</b> |              |                                                   |
| 103                             | 060103179099 | Double acting, A and B closed in neutral position |

7 Hydraulic controls A+B sides\* page 103

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

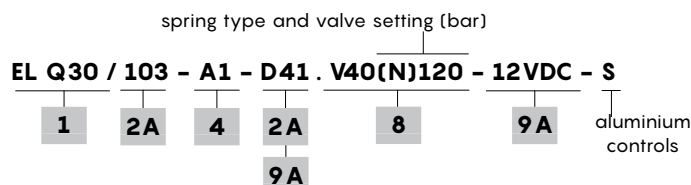
8 Auxiliary port valve page 106

See #8, page 81

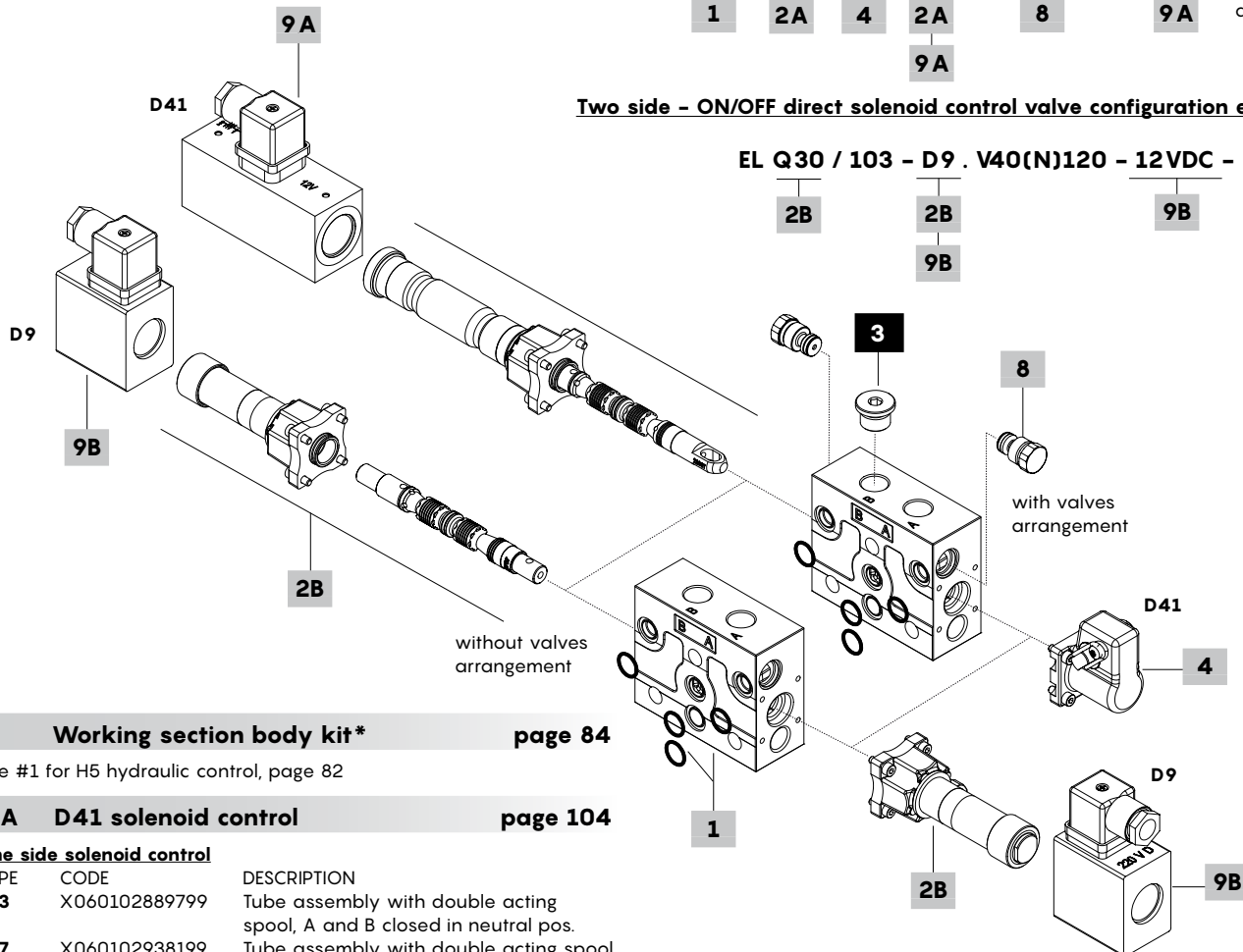
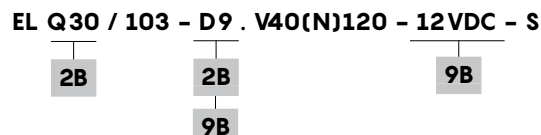
(\*): Codes are referred to BSP thread

## Working section – parts ordering codes

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



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

**1 Working section body kit\* page 84**

See #1 for H5 hydraulic control, page 82

**2A D41 solenoid control page 104****One side solenoid control**

| TYPE | CODE          | DESCRIPTION                                                                        |
|------|---------------|------------------------------------------------------------------------------------|
| 103  | X060102889799 | Tube assembly with double acting spool, A and B closed in neutral pos.             |
| 107  | X060102938199 | Tube assembly with double acting spool, A to tank and B closed in neutral pos.     |
| 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 pos. (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 105****Two side solenoid control**

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

See #3, page 80

**4 A side control for D41 page 104**

| 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 106**

See #8, page 81

**9A/B Coil page 104****D41 coil**

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

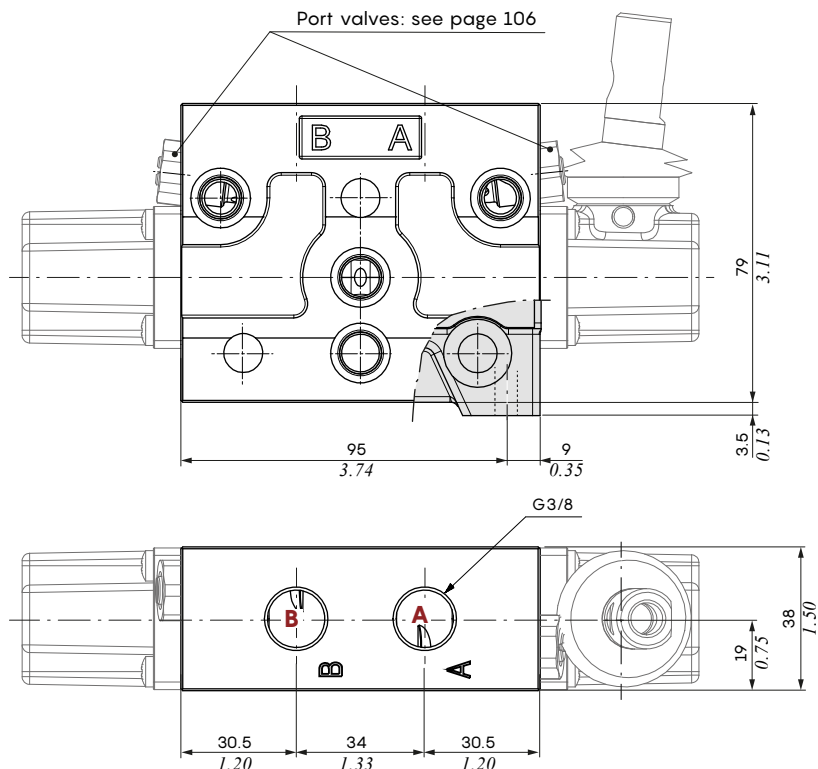
**D9 coil**

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

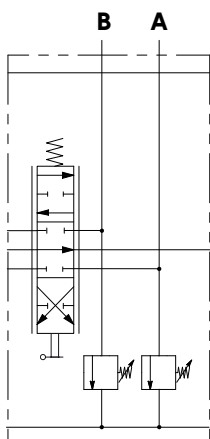
**Note:** The connector is included(\*): Codes are referred to **BSP** thread

## Working section

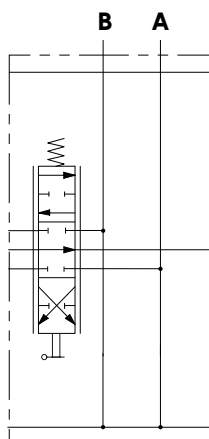
### Dimensional data and hydraulic circuits



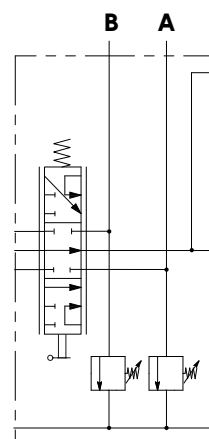
**Q30.V40(N)120 configuration**  
Parallel circuit,  
mechanical control with aux valves



**Q30 configuration**  
Parallel circuit,  
mechanical control without aux valves



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

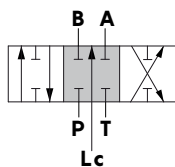


## Spool

**103 type**

A and B closed  
in neutral position

2 0 1

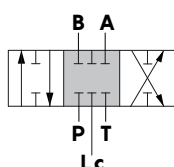
**Stroke**

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

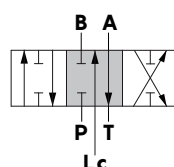
**Stroke**

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

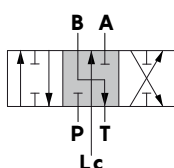
**Stroke**

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

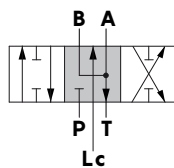
**Stroke**

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

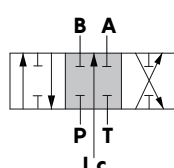
**Stroke**

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

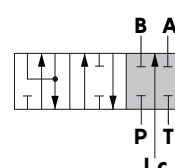
**Stroke**

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

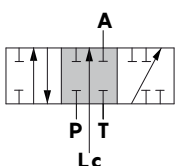
**Stroke**

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

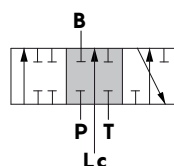
**Stroke**

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

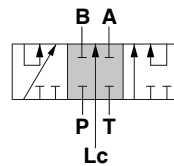
**Stroke**

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

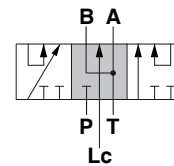
**Stroke**

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)

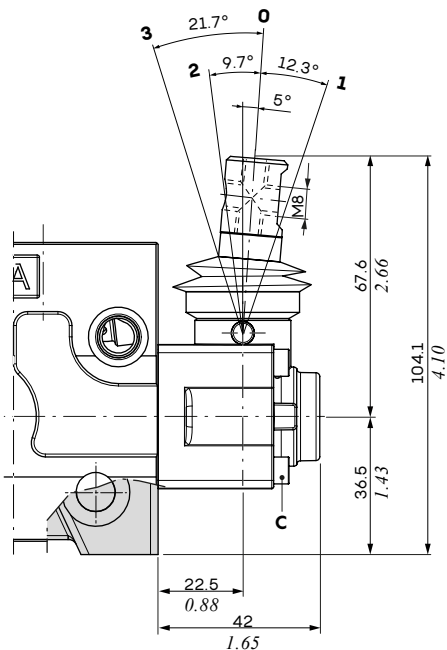
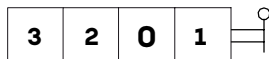
## Working section

### A side controls

#### With lever control

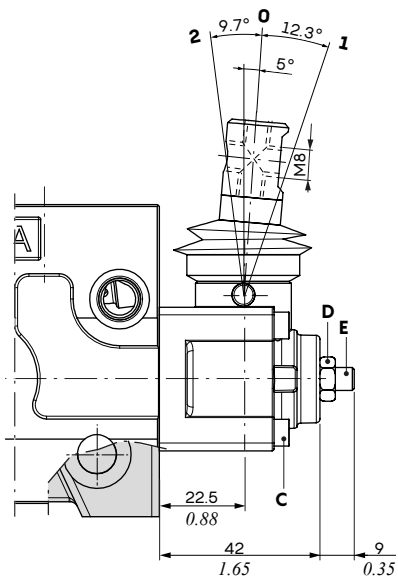
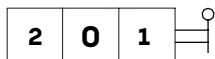
##### A1 type

M8 thread plastic lever box



##### A1/06 type

M8 thread, with stroke limiter

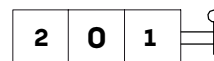


##### A1/10 type

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

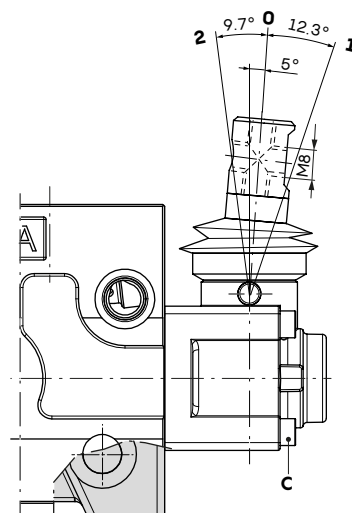
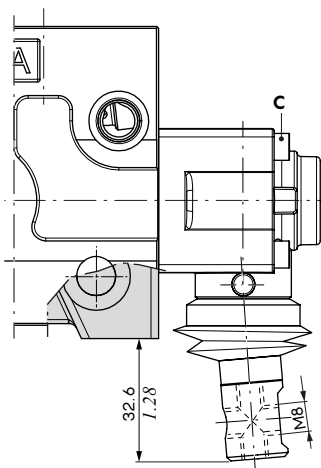
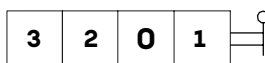
##### A2/10 type

As A1/10 type,  
rotated 180°



##### A2 type

As A1 type, rotated 180°



#### Wrenches and tightening torques

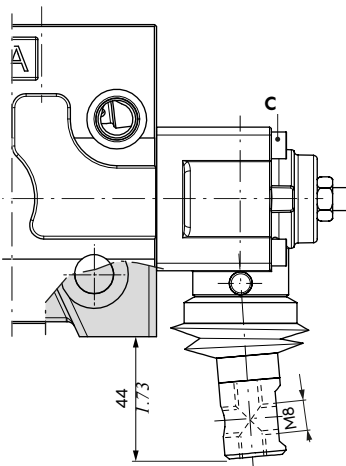
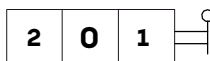
C = allen wrench 3 - 3 Nm (2.2 lbft)

D = wrench 10 - 9.8 Nm (7.2 lbft)

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

##### A2/06 type

As A1/06 type, rotated 180°





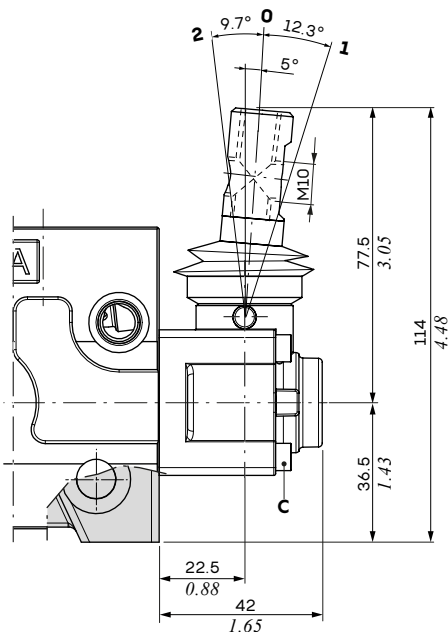
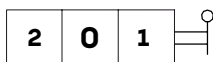
## Working section

## A side controls

## With lever control

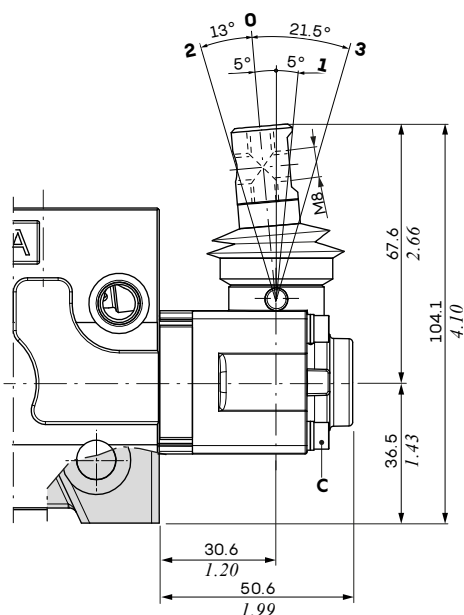
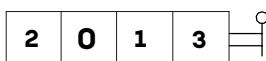
## A1/PM type

M10 thread aluminium lever box



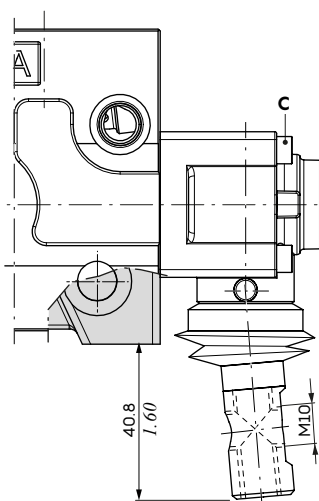
## A1/Z1 type

M8 thread, for 116 floating spool type



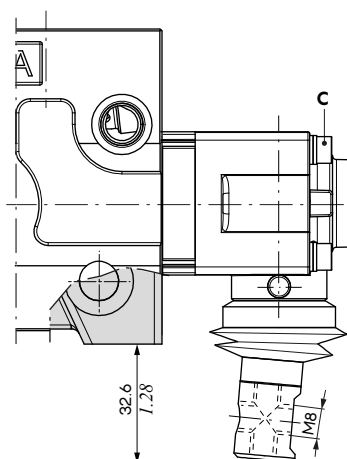
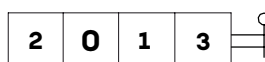
## A2/PM type

As A1/PM type, rotated 180°



## A2/Z1 type

As A1/Z1 type, rotated 180°



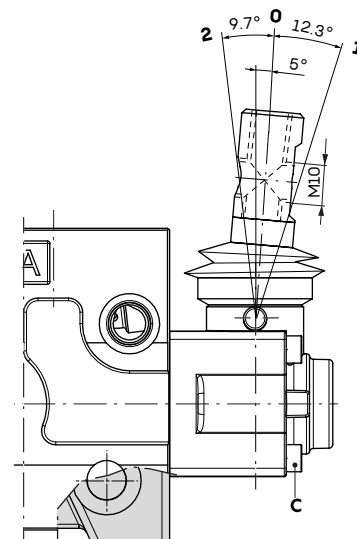
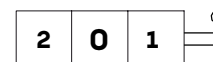
## A1/PMP type

M10 thread plastic lever box.

Dimensions are the same of A1/PM type

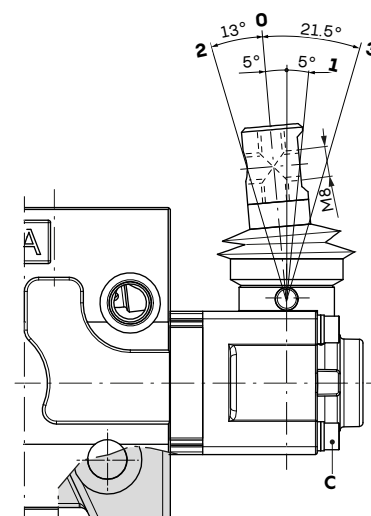
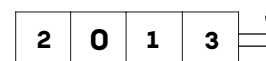
## A2/PMP type

As A1/PMP type, rotated 180°



## A1/Z1/10 type

As A1/Z1 type, with aluminium lever box



## Wrenches and tightening torques

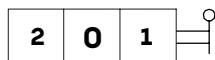
C = allen wrench 3 - 3 Nm (2.2 lbft)

## Working section

### A side controls

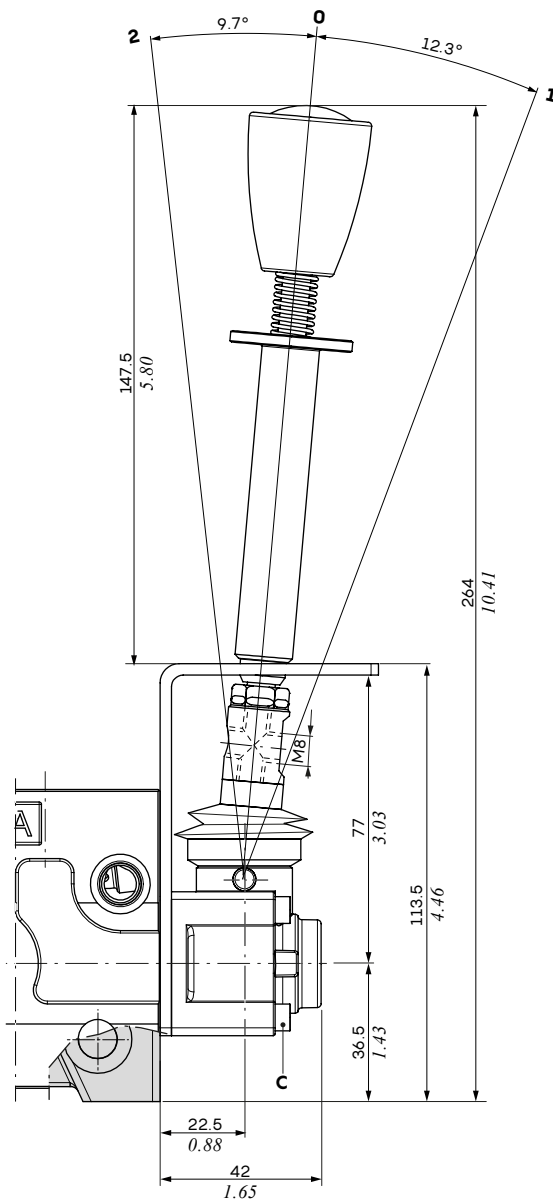
#### A1/S type

M8 thread, aluminium lever box



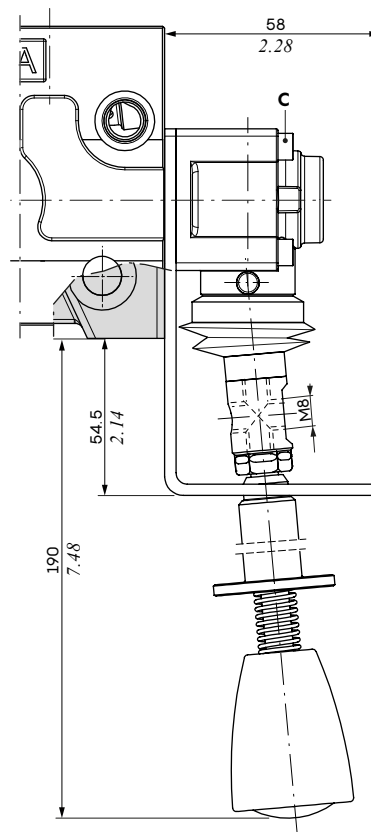
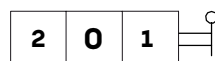
#### Wrenches and tightening torques

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



#### A2/S type

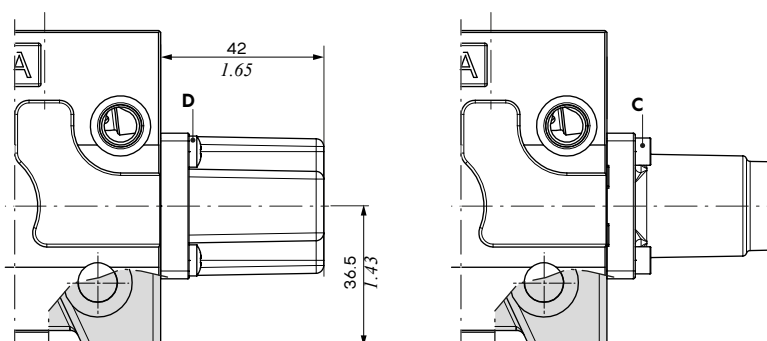
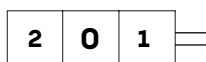
As A1/S type, rotated 180°



## A side controls

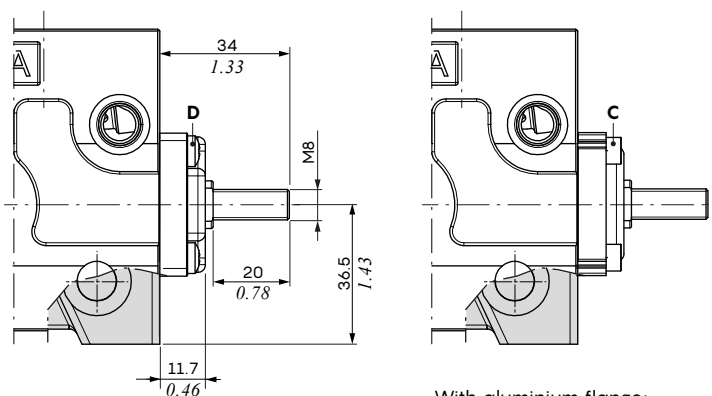
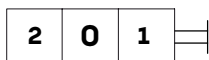
## Without lever control

**A3 type**  
With cap.  
Available with aluminium cap



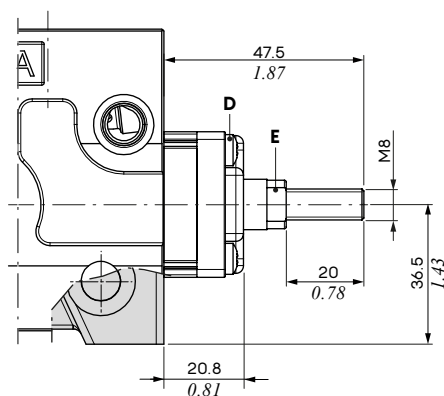
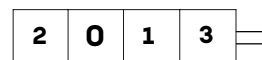
With aluminium cap;  
dimensions are the same of standard type

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

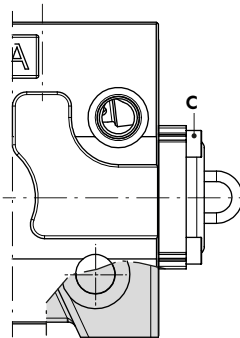
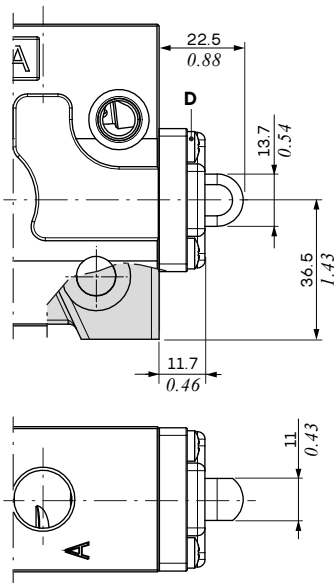
## Working section

## A side controls

## Without lever control

**A5 type**

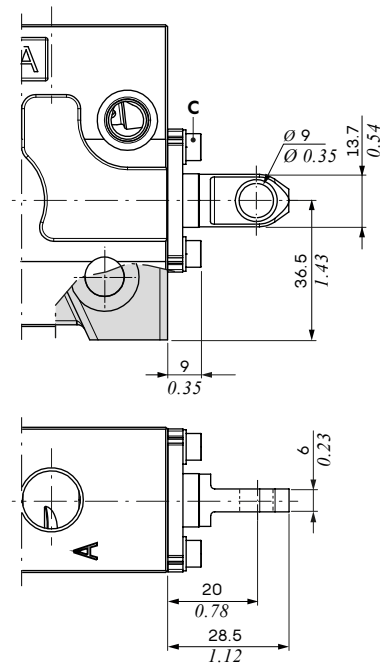
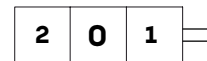
Flange with spherical spool end.  
Available with aluminium flange



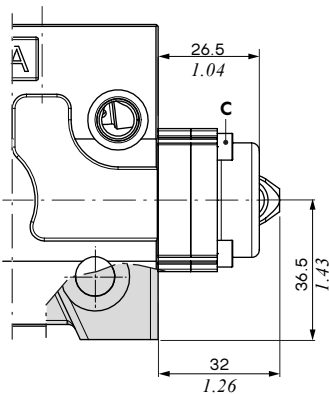
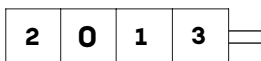
With aluminium flange;  
dimensions are the same of  
standard type

**A6 type**

With flange

**A6-H/Z1 type**

As A6 type,  
for 116 floating spool type

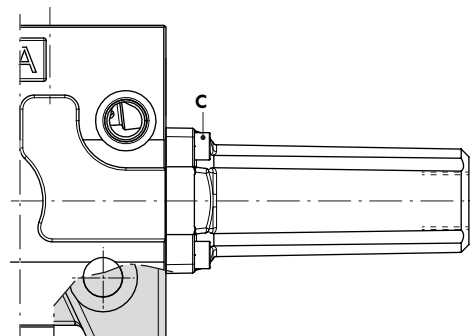
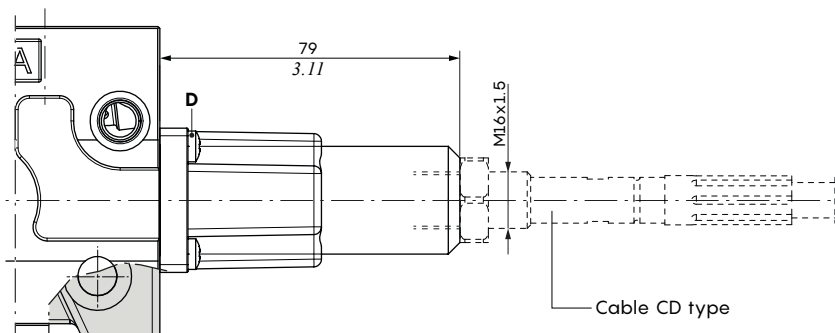
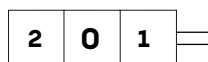
**Wrenches and tightening torques**

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

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

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

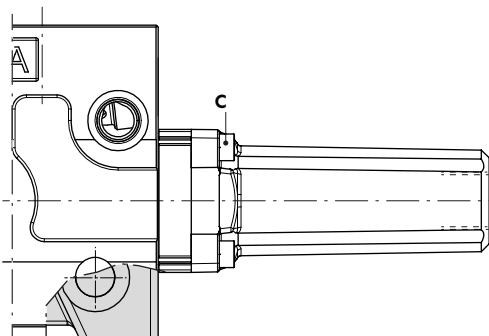
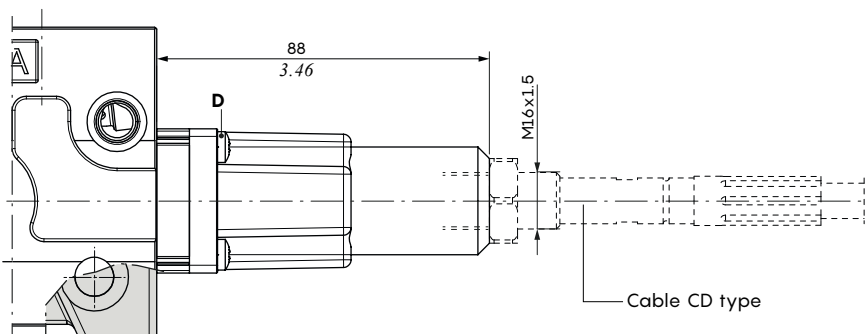
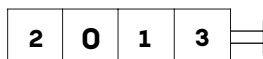
Flexible cable control arrangement.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

**A8/Z1 type**

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



With aluminium cap;  
dimensions are the same of standard type

**Wrenches and tightening torques**

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

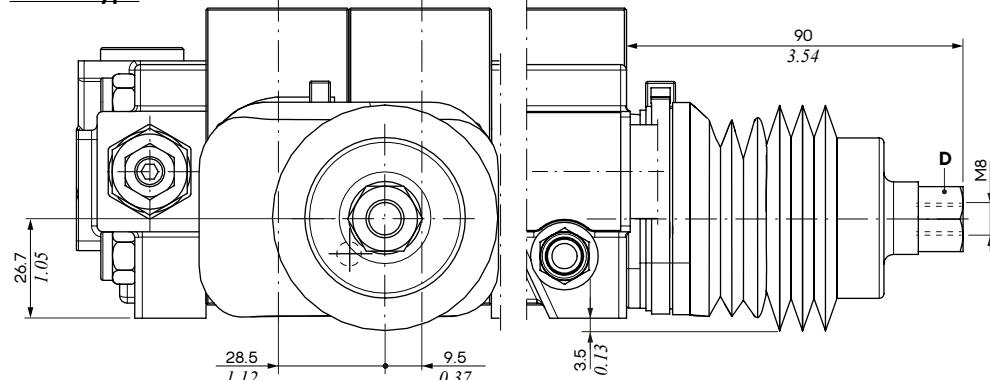
## Working section

### A side controls

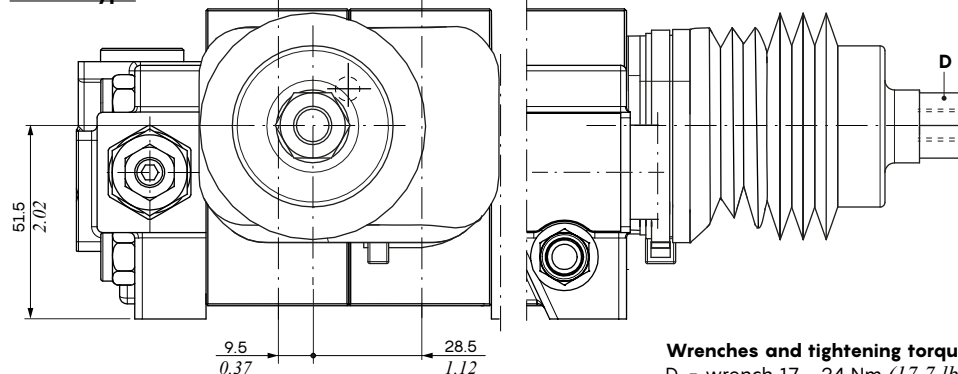
#### Joystick control

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

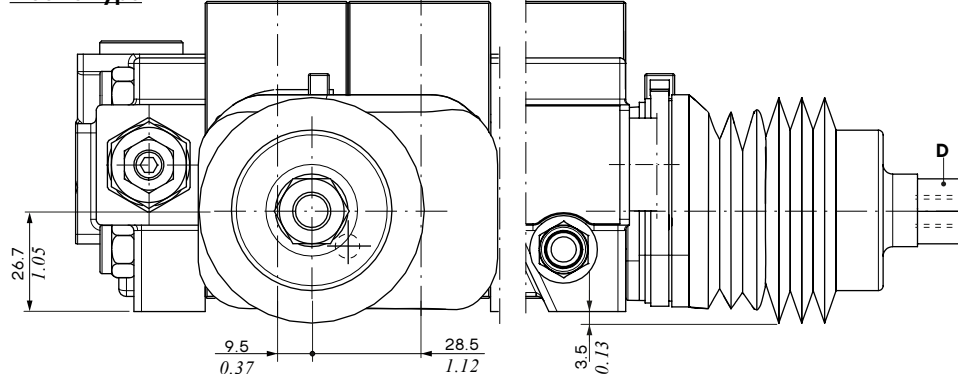
#### A35-1 type



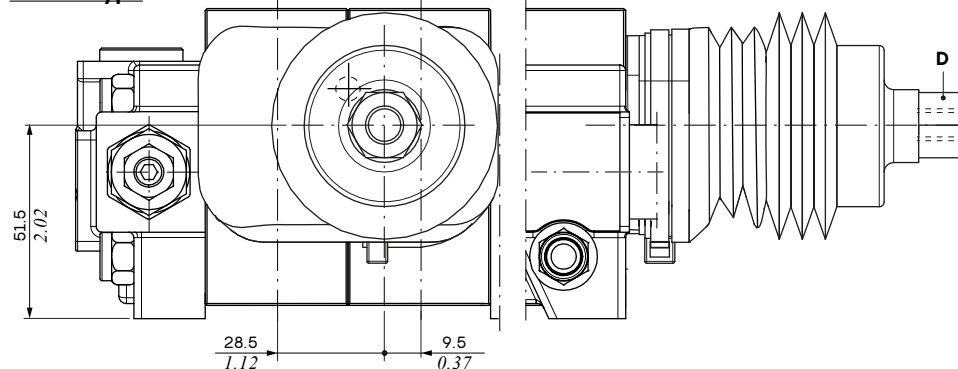
#### A35-2 type



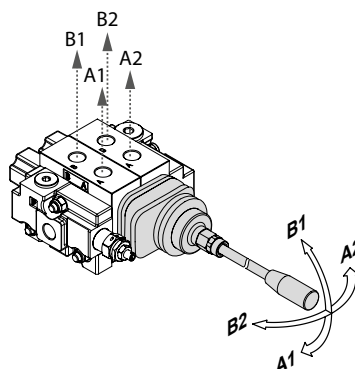
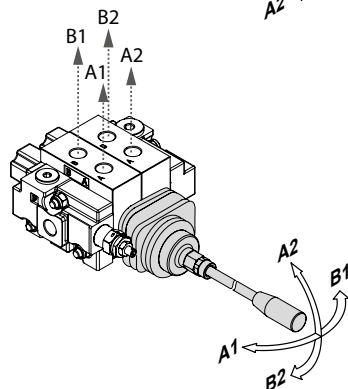
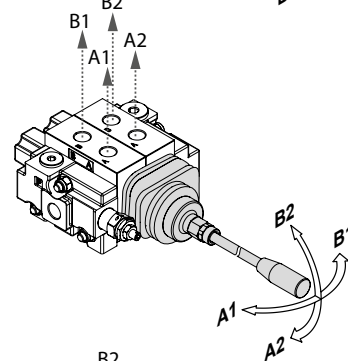
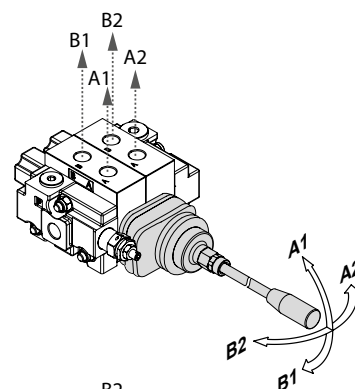
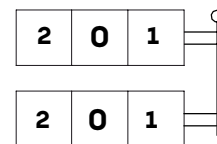
#### A35-3 type



#### A35-4 type



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



## A side controls

## With spool position microswitch, with lever

**N1-A1 type**

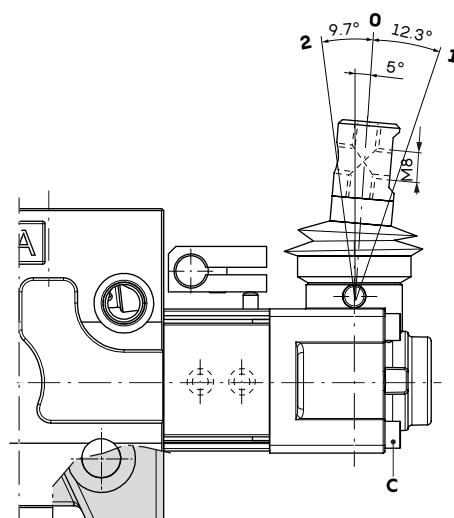
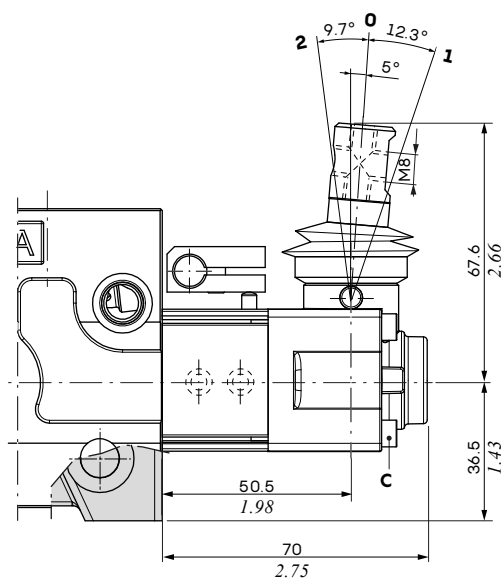
Micro operation in position 1 and 2.  
Available with aluminium lever box

**N1A-A1 type**

Micro operation in  
position 1

**N1B-A1 type**

Micro operation in  
position 2

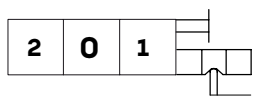


With aluminium lever box;  
dimensions are the same of standard type

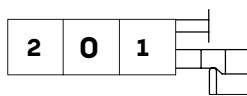
## With spool position microswitch, with cap

**N1-A3 type**

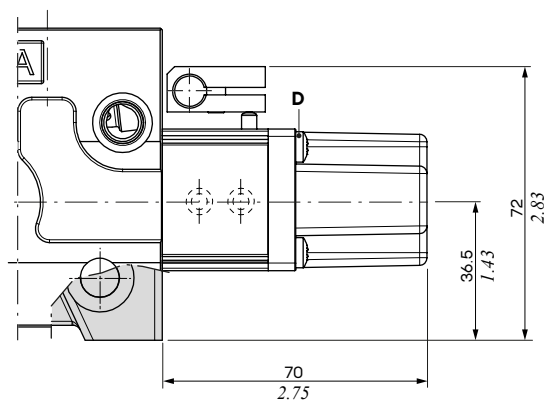
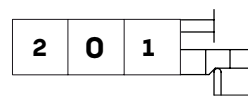
Micro operation in position  
1 and 2

**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 lbft)

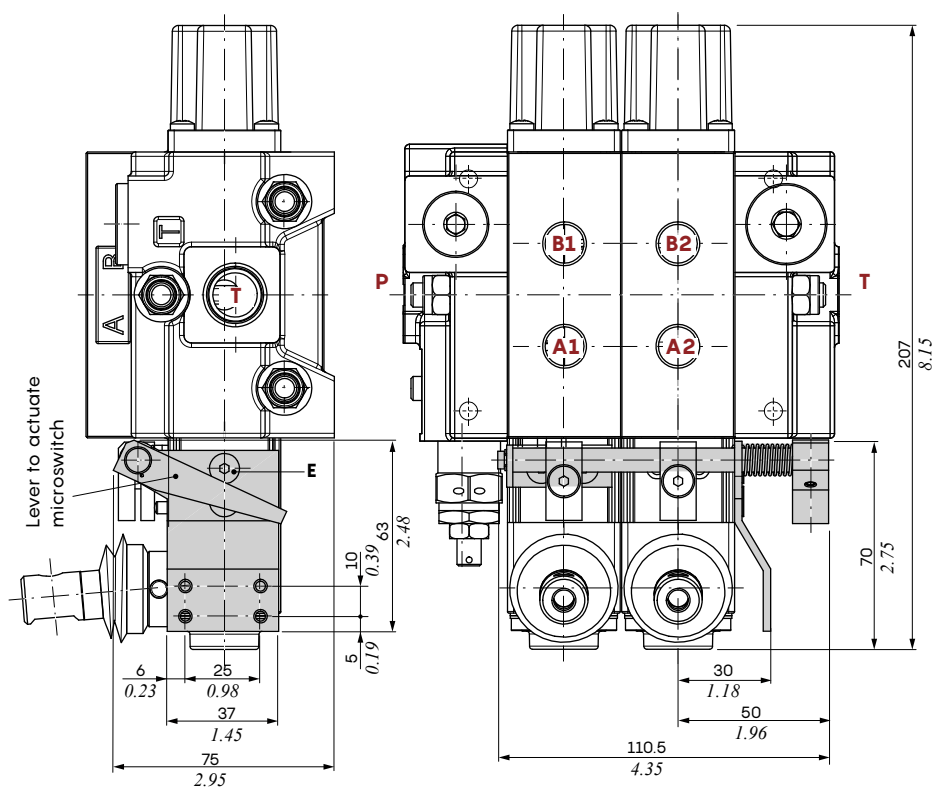
D = cross-head - 3 Nm (2.2 lbft)

## Working section

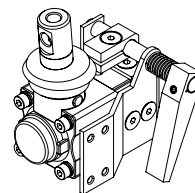
### A side controls

#### With spool position microswitch

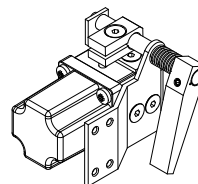
#### Microswitch assembly kit for 2 working section (N1-A1 type)



with cap



with lever box



#### Wrenches and tightening torques

E = allen wrench 3 - 6.6 Nm (4.8 lbf<sup>t</sup>)



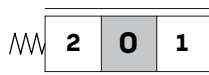
## Working section

## B side controls

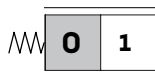
## With spring return control

**M1 type**

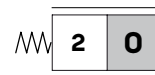
3 position, spring return  
in neutral position.  
Available with aluminium cap

**M2 type**

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

**M3 type**

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

**M1/01 type**

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

**M1/05 type**

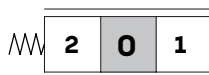
As M1 type,  
for series spool

**M1/06 type**

As M1/05 type,  
with aluminium cap

**M1/07 type**

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

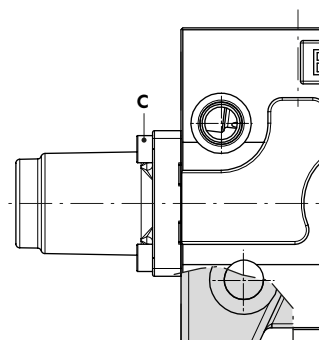
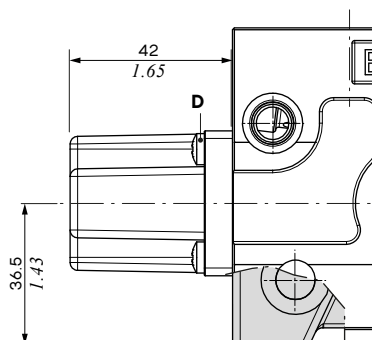
**Wrenches and tightening torques**

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

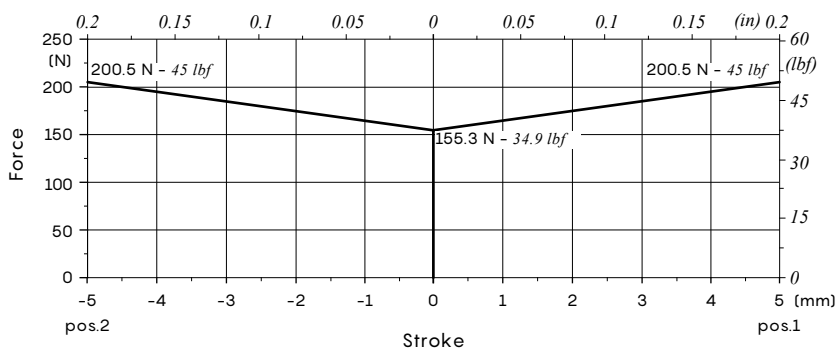
D = cross-head - 3 Nm (2.2 lbf ft)

E = wrench 10 - 9.8 Nm (7.2 lbf ft)

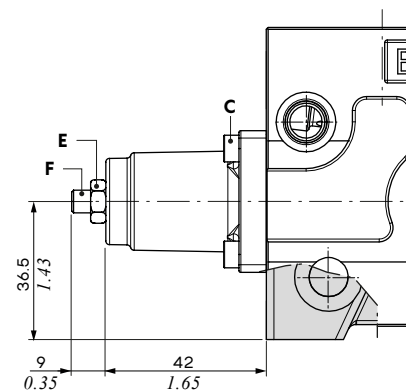
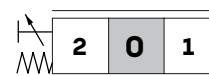
F = allen wrench 4 - 9.8 Nm (7.2 lbf ft)



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

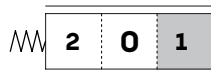
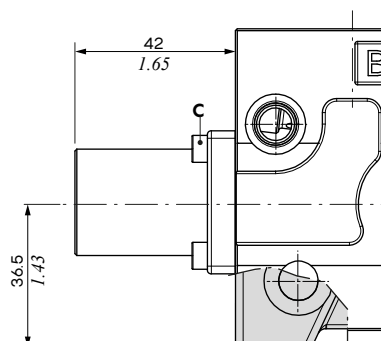
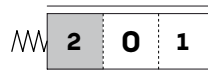


## Working section

## B side controls

## With spring return control

## M4 types

2 position (1-2),  
spring return in position 12 position (2-1),  
spring return in position 2

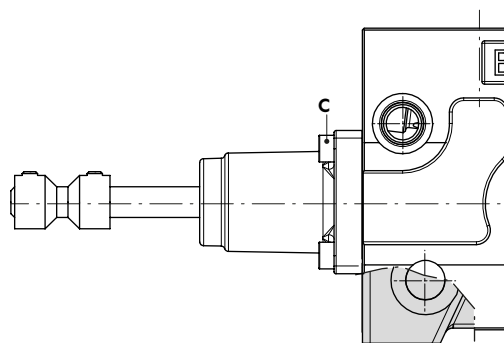
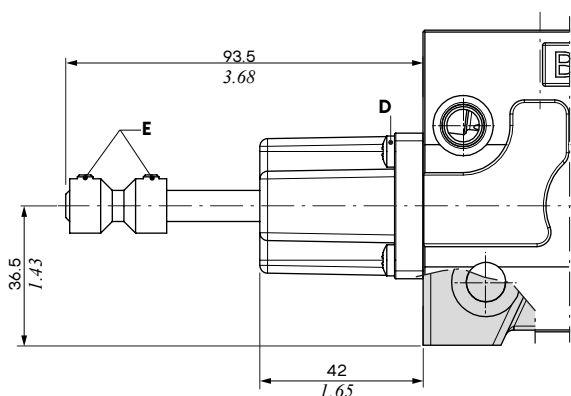
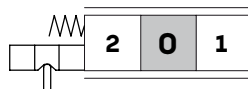
## Wrenches and tightening torques

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 capWith aluminium cap;  
dimensions are the same of standard type

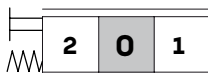
## Working section

## B side controls

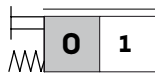
## With spring return control

**M1-U1 type**

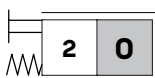
3 position, with M8 male thread external pin

**M2-U1 type**

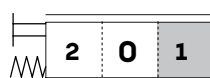
2 position (0-1), with M8 male thread external pin

**M3-U1 type**

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

**M4-U1 type**

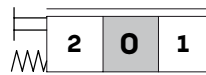
2 position (1-2), with M8 male thread external pin



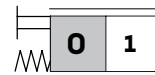
## With flexible cable control arrangement

**M1-U2 type**

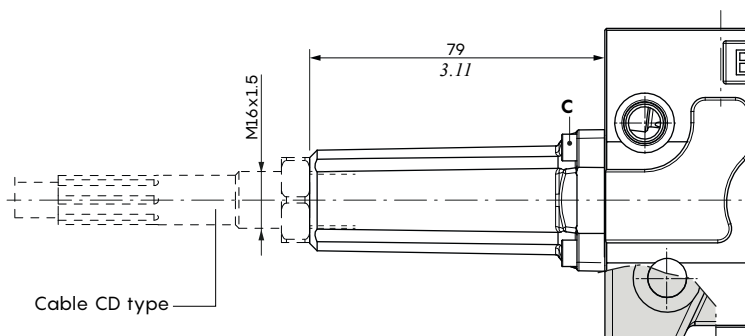
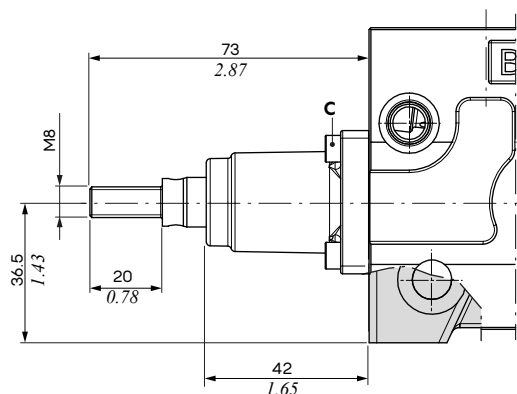
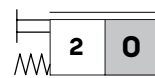
3 position, spring return in neutral position

**M2-U2 type**

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

**M3-U2 type**

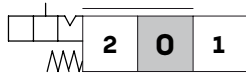
2 position (0-2), spring return in neutral position



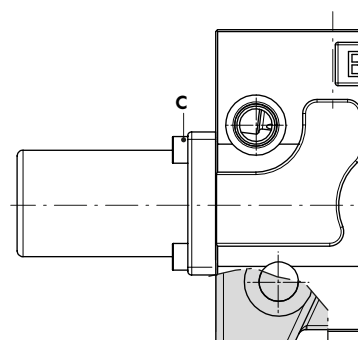
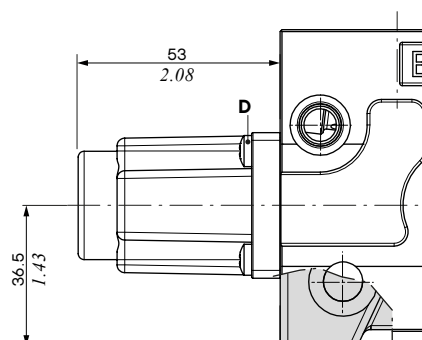
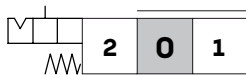
## With detent control

**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

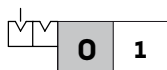
## With detent control

**R3 type**

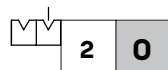
3 position,  
detent in all position.  
Available with aluminium cap

**R4 type**

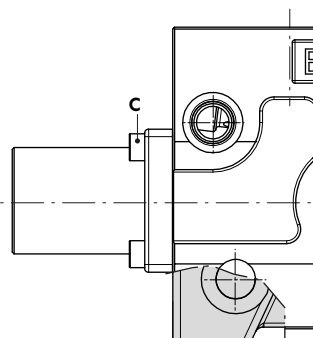
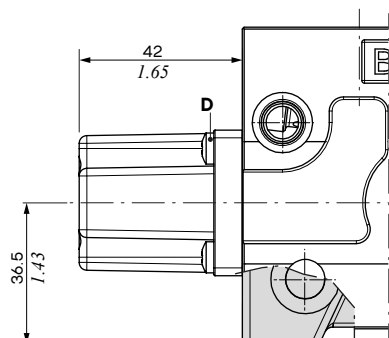
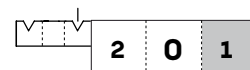
2 position,  
detent in position 0-1.  
Available with aluminium cap

**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

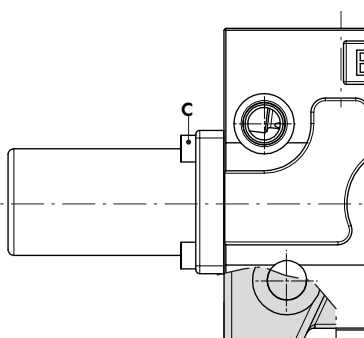
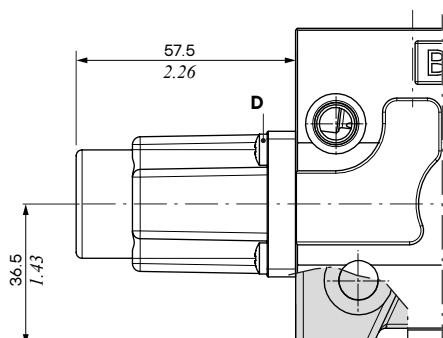
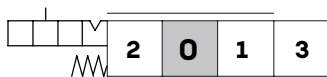
**Wrenches and tightening torques**

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

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

**R8 type**

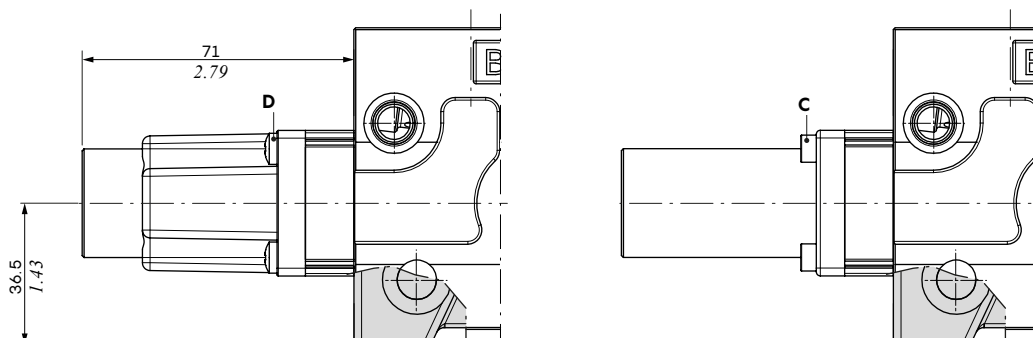
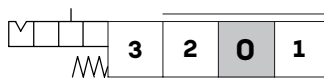
4 position, detent in 4<sup>th</sup> position, for 116 floating spool type.  
Available with aluminium cap



With aluminium cap;  
dimensions are the same of standard type

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

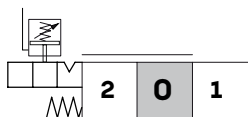
4 position, detent in 4<sup>th</sup> position, for 126 floating spool type.  
Available with aluminium cap



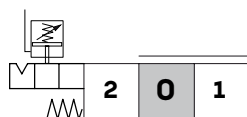
With aluminium cap;  
dimensions are the same of standard type

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

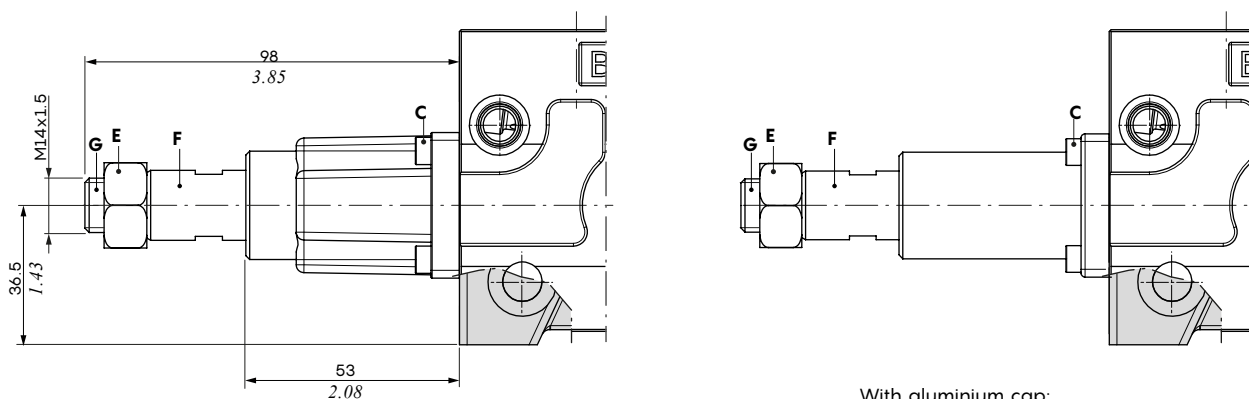
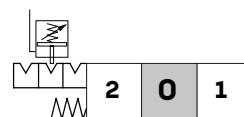
3 position, detent in position 1.  
Available with aluminium cap

**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 ft)

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

E = wrench 22 - 32 Nm (23.6 lbf ft)

F = wrench 16

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

**Working section**

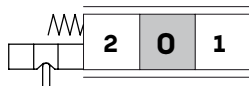
**B side controls**

**With spool position microswitch**

**M1-N1 type**

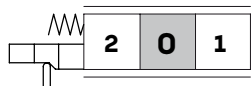
3 position, micro operation in position 1 and 2, spring return in neutral position.

Available with aluminium cap



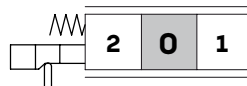
**M1-N1A type**

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



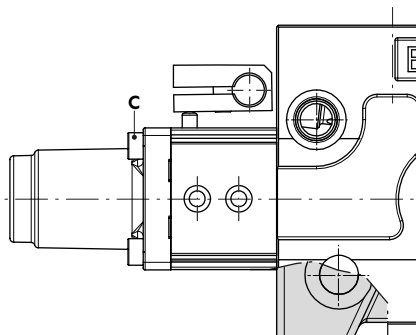
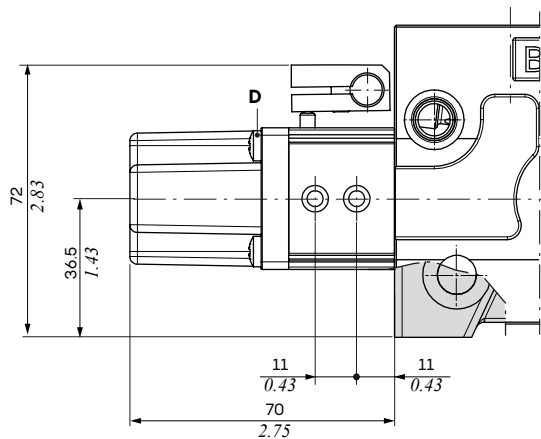
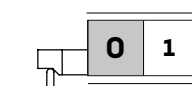
**M1-N1B type**

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



**M2-N1 type**

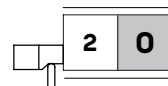
2 position (0-1) spring return in neutral position



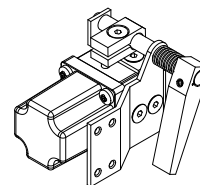
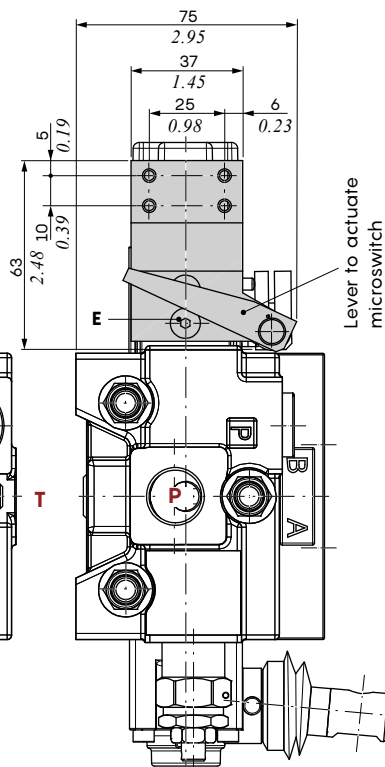
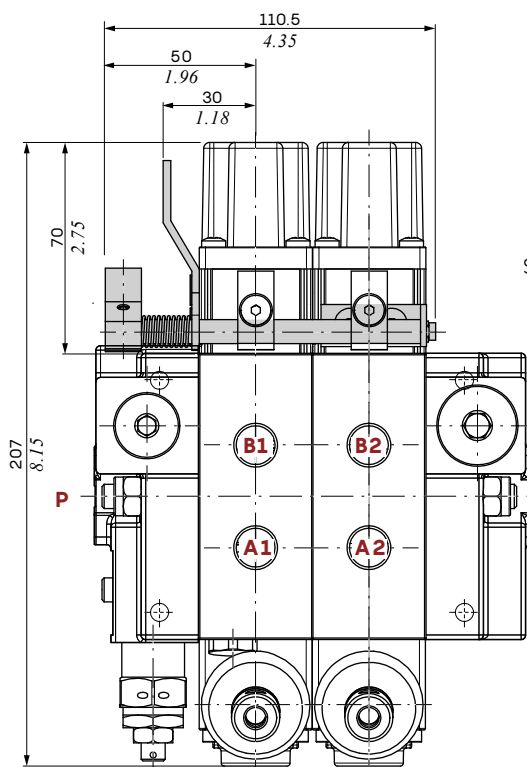
With aluminium cap; dimensions are the same of standard type

**M3-N1 type**

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



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



**Wrenches and tightening torques**

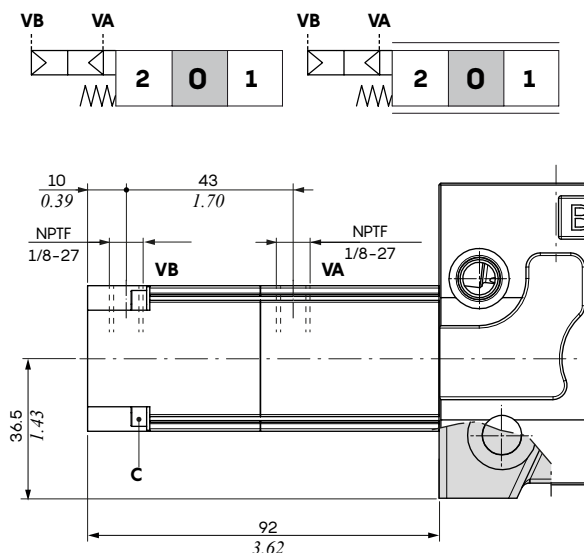
- C = allen wrench 3 - 3 Nm (2.2 lbft)
- D = cross-head - 3 Nm (2.2 lbft)
- E = allen wrench 3 - 6.6 Nm (4.8 lbft)

## B side controls

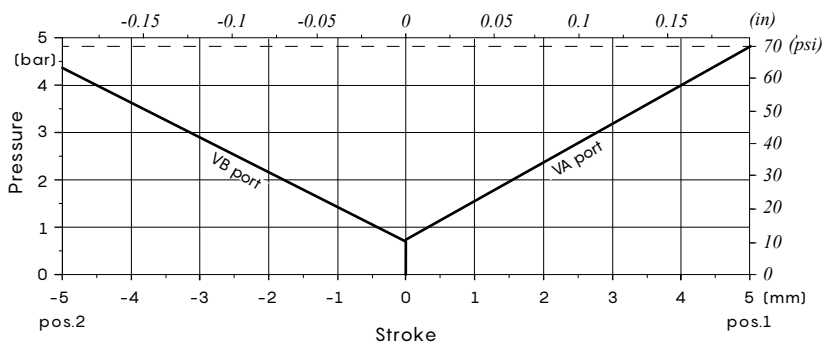
### With pneumatic control

#### P1NW type ON/OFF control

#### P1NPW type Proportional control



#### Proportional pilot pressure curves



#### Operating features

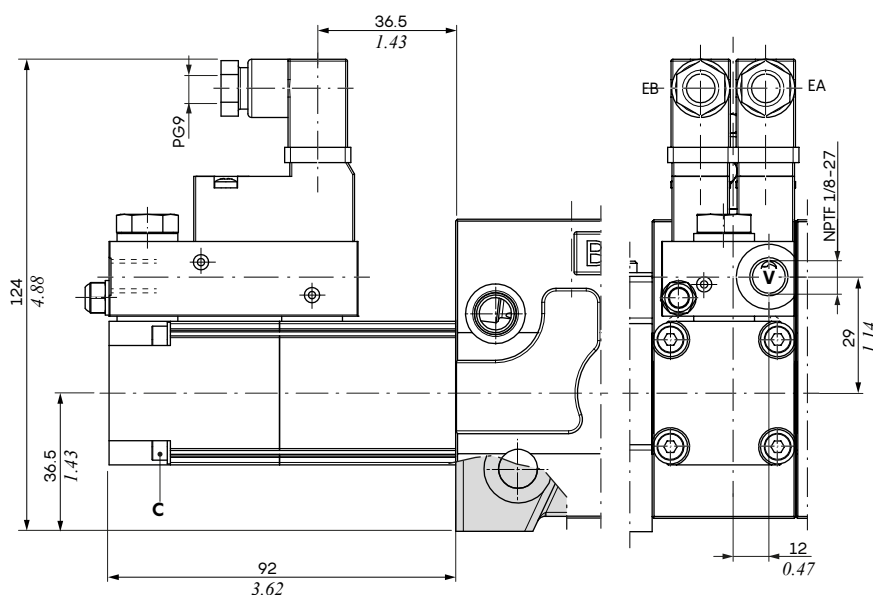
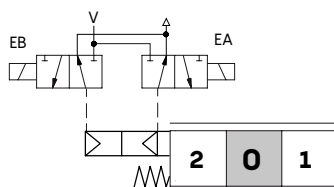
Pilot pressure.....: min. 5 bar (72.5 psi) - max. 30 bar (435 psi)  
Pilot volume.....: 4 cm<sup>3</sup>/min (0.24 in<sup>3</sup>/min)

#### 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)

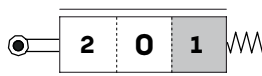
## Working section

### A+B side controls

#### With cam control

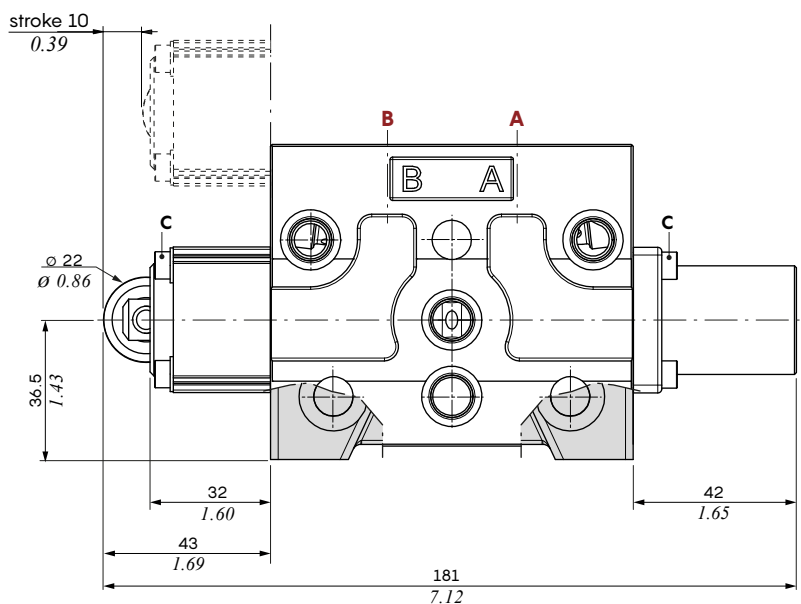
#### C2 type

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



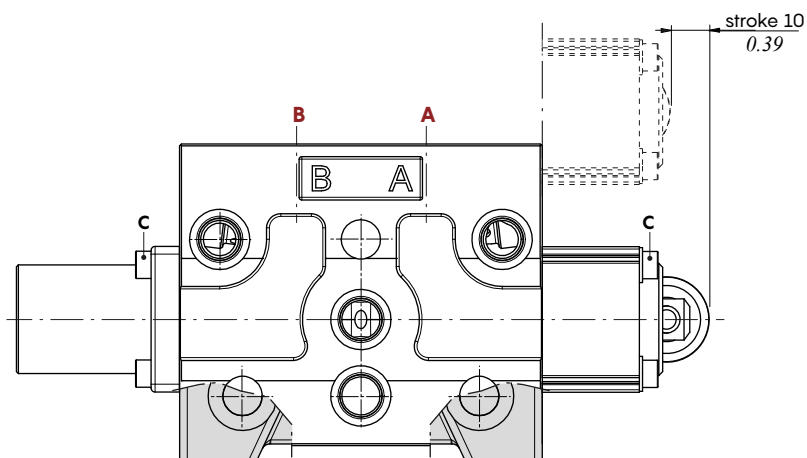
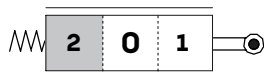
#### Wrenches and tightening torques

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



#### C3 type

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

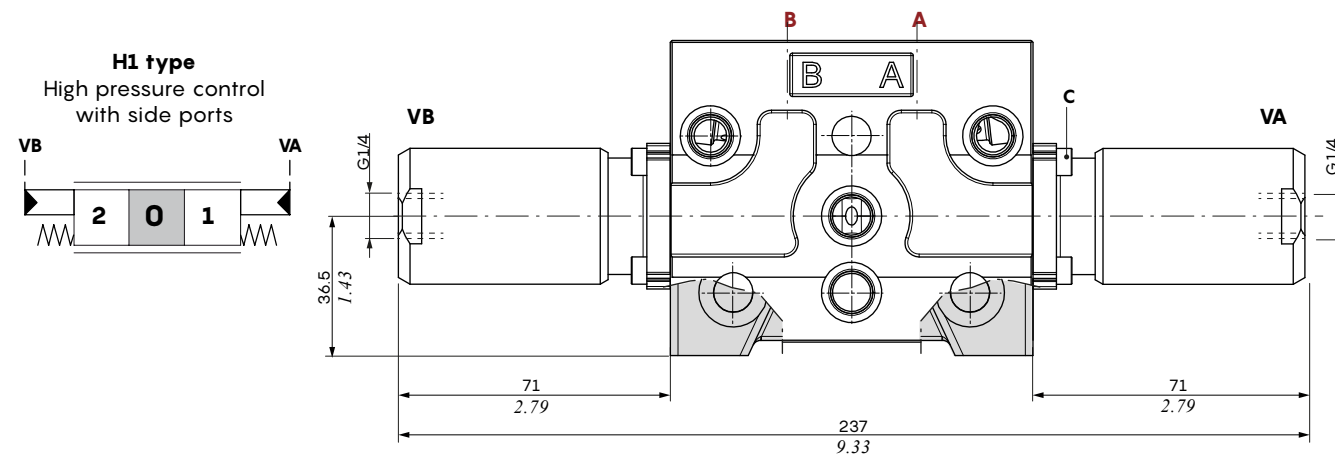




## Working section

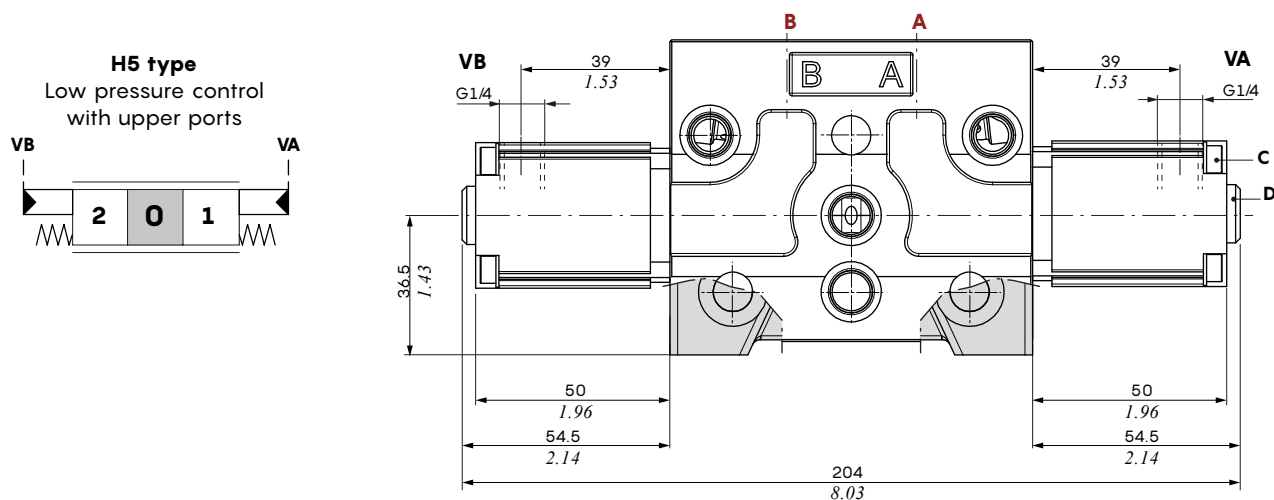
## A+B side controls

## With proportional hydraulic controls



## Operating features

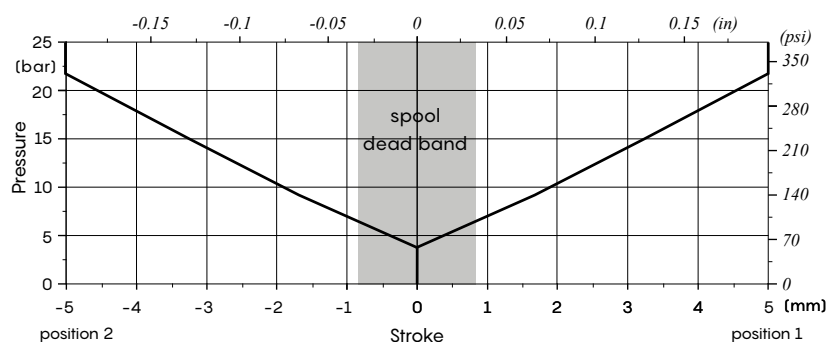
Pilot pressure.....: min. 16 bar (232 psi) - max. 350 bar (5070 psi)



## Operating features

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

Stroke vs. Pressure diagram for H5 type control



## Wrenches and tightening torques

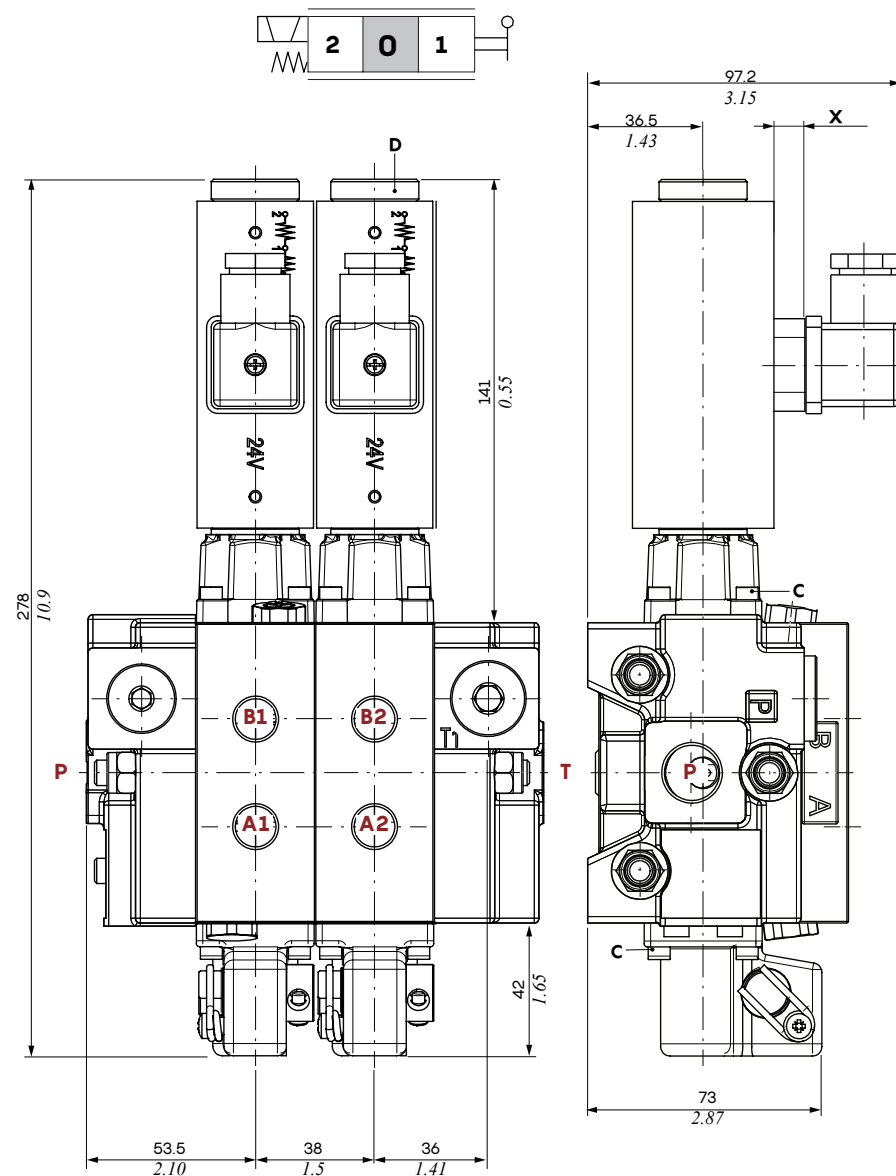
C = allen wrench 3 - 3 Nm (2.2 lbft)

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

## Working section

### Direct solenoid control

D41 type: ON/OFF one side



### D41 coil

|                           |                  |
|---------------------------|------------------|
| Nominal voltage           | 12 VDC<br>24 VDC |
| Nominal voltage tolerance | ±10%             |
| Power rating              | 58 W             |
| Insulance                 | Class H          |
| Weather protection        | IP65             |

Connector type: ISO4400 3P+T-PG11

### X

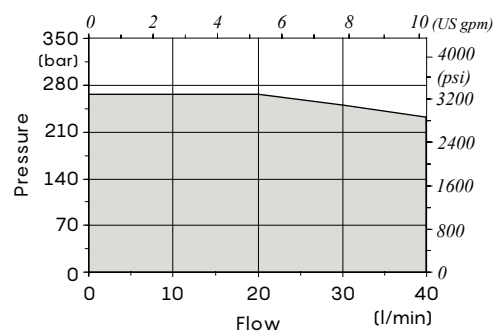
|             |           |
|-------------|-----------|
| coil type   | mm - in   |
| ZEB012 coil | 10 - 0.39 |
| ZEB024 coil |           |

### Wrenches and tightening torques

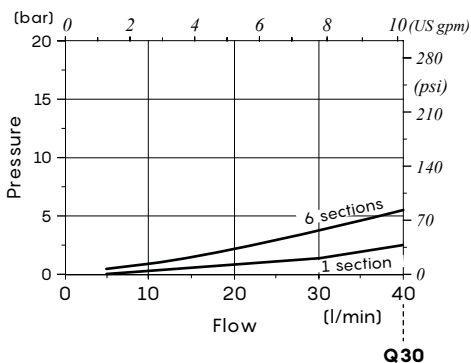
C = allen wrench 3 - 3 Nm (2.2 lbft)

D = manual tightening - 6.6 Nm (7.2 lbft)

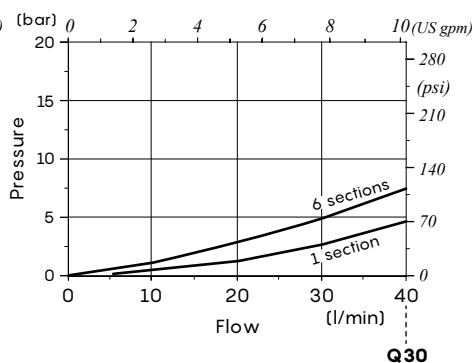
### Dynamic conditions



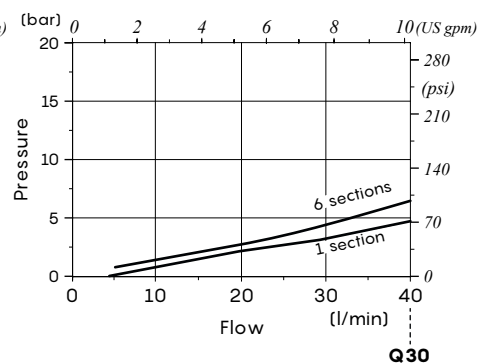
### P⇒T pressure drops



### P⇒A(B) pressure drops

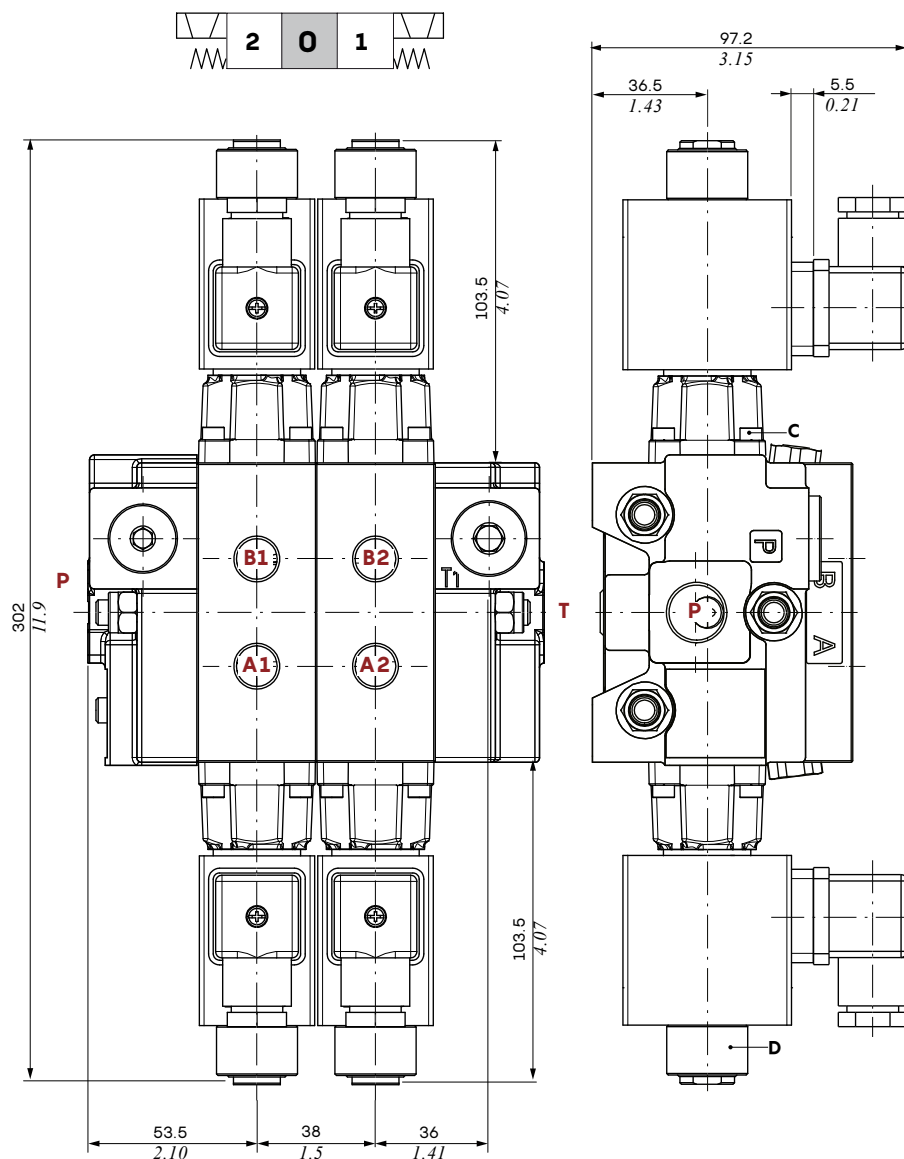


### A(B)⇒T pressure drops



## Direct solenoid control

## D9 type: ON/OFF two side

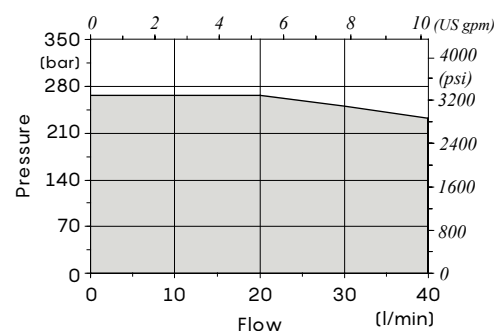


## D9 coil

|                           |                  |
|---------------------------|------------------|
| Nominal voltage           | 12 VDC<br>24 VDC |
| Nominal voltage tolerance | ±10%             |
| Power rating              | 58 W             |
| Insulation                | Class H          |
| Weather protection        | IP65             |

Connector type: ISO4400 3P+T-PG11

## Dynamic conditions

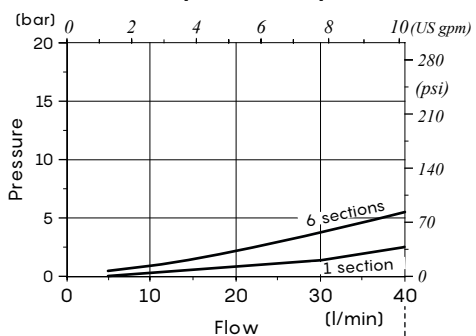


## Wrenches and tightening torques

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

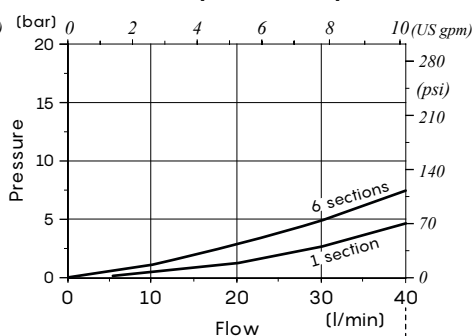
D = manual tightening - 6.6 Nm (4.8 lbft)

## P⇒T pressure drops



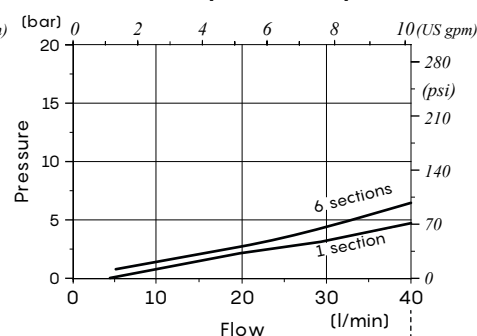
Q30

## P⇒A(B) pressure drops



Q30

## A(B)⇒T pressure drops



Q30

## Auxiliary valve configuration

### Dimensional data, hydraulic circuits and performance data

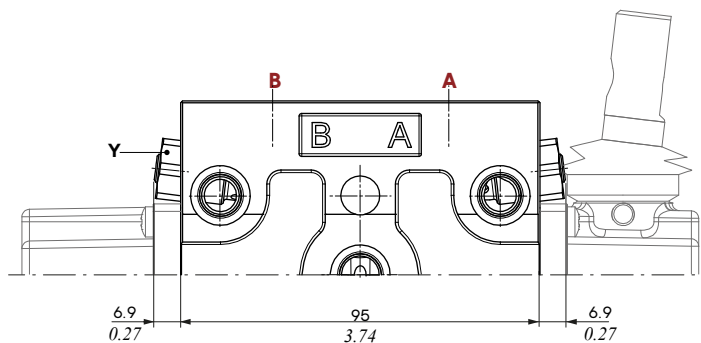
#### Description example

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

aux valve      spring type and valve setting (bar)

#### Wrenches and tightening torques

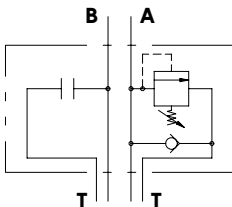
Y = wrench 16 - 20 Nm (14.7 lbf ft)



#### Antishock/anticavitation valve example

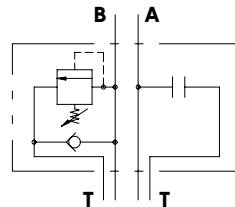
##### A side configuration:

##### V33



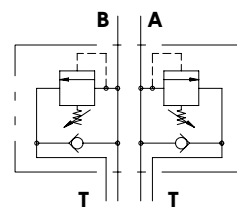
##### B side configuration:

##### V34



##### A+B side configuration:

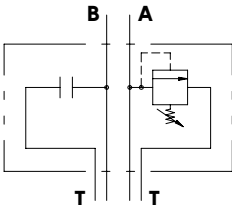
##### V35 (V34 + V33)



#### Antishock valve example

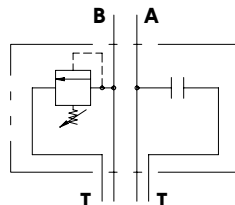
##### A side configuration:

##### V30



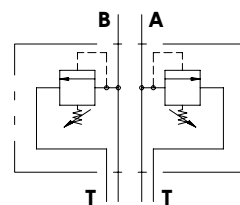
##### B side configuration:

##### V31



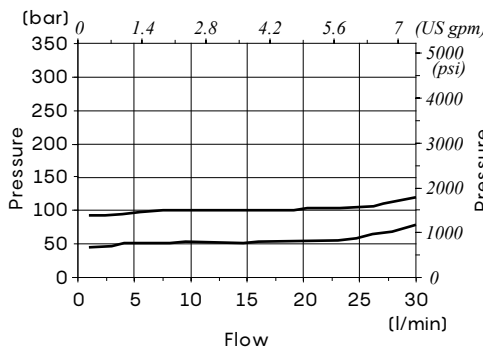
##### A+B side configuration:

##### V32 (V30 + V31)

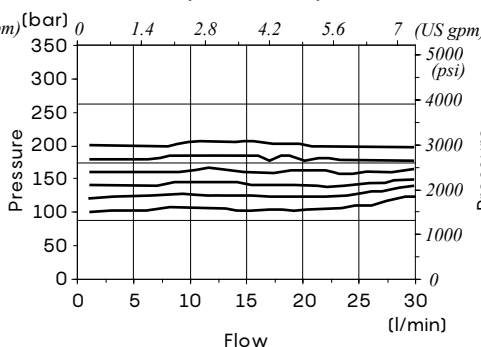


| Spring type      | Setting ranges (bar - psi)          |
|------------------|-------------------------------------|
| <b>B</b> (white) | From 50 to 100 - from 725 to 1450   |
| <b>N</b> (black) | From 101 to 200 - from 1460 to 2900 |
| <b>R</b> (red)   | From 201 to 350 - from 2910 to 5100 |

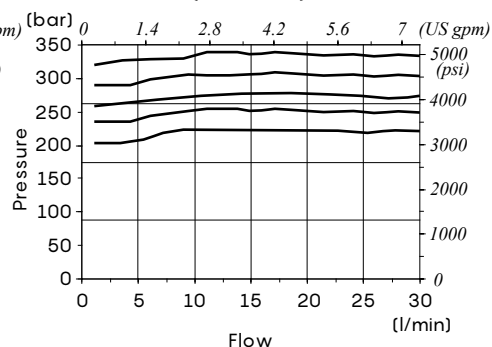
#### Setting range example (white band)



#### Setting range example (black band)



#### Setting range example (red band)

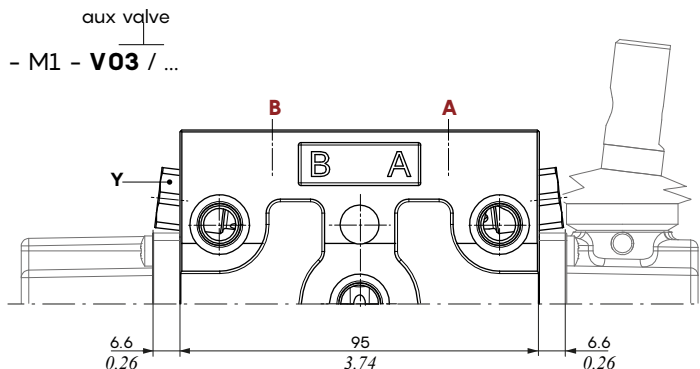


## Auxiliary valve configuration

## Dimensional data and hydraulic circuits

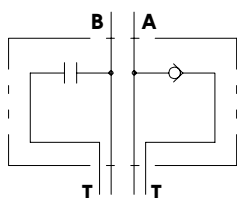
## Anticavitation valve example

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

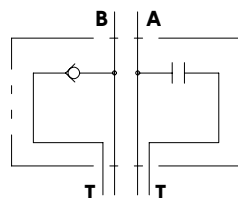


**Wrenches and tightening torques**  
Y = wrench 16 - 20 Nm (14.7 lbf·ft)

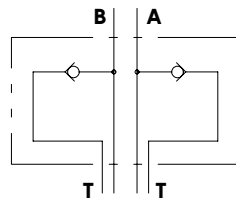
## A side configuration:

**V04**

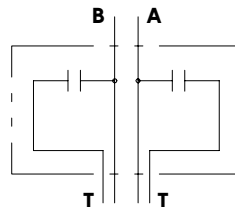
## B side configuration:

**V05**

## A+B side configuration:

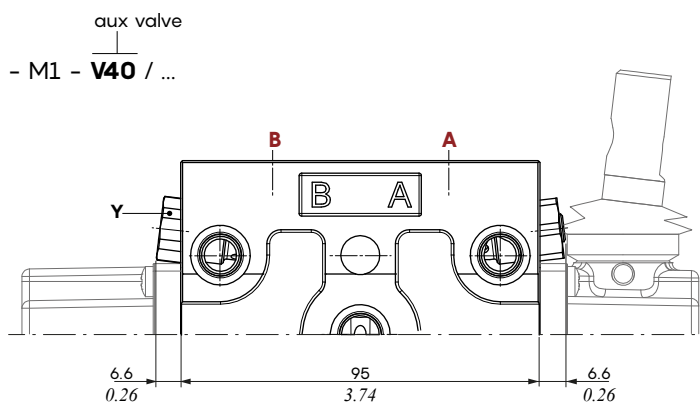
**V03 (V04 + V05)**

## Plug valve:

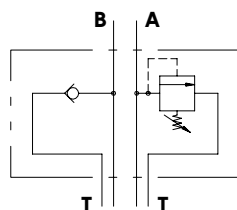
**VC**

## Antishock and anticavitation combining valves example

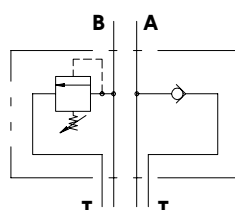
Q30 / 1 / ... / 103 - A1 - M1 - **V40** / ...



## A side configuration:

**V40 (V30 + V05)**

## B side configuration:

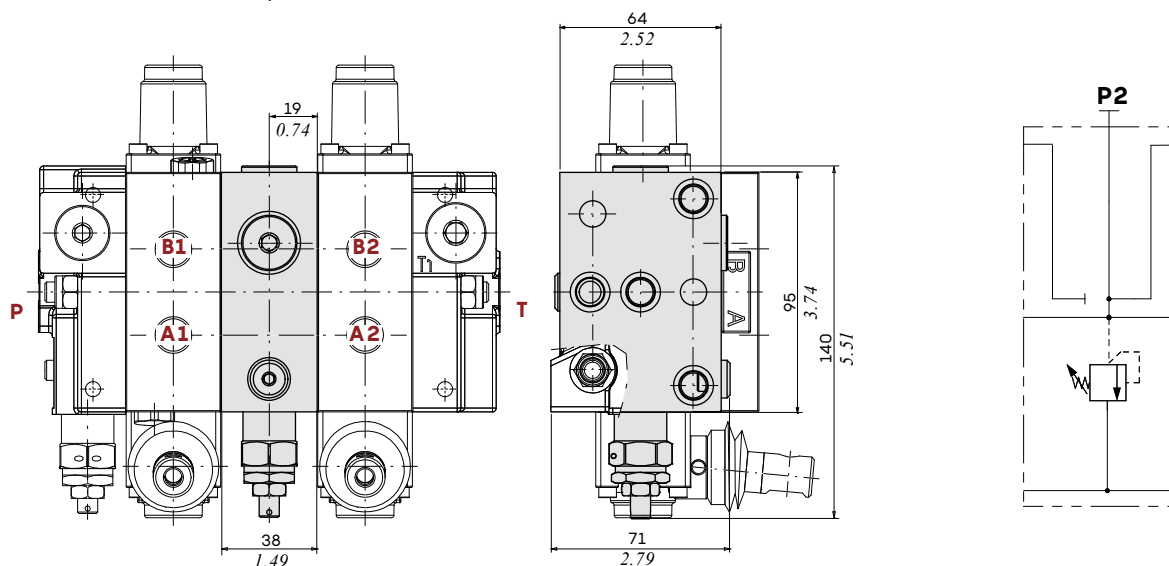
**V41 (V31 + V04)**

## Intermediate section

## Dimensional data and hydraulic circuit

**E50 type**

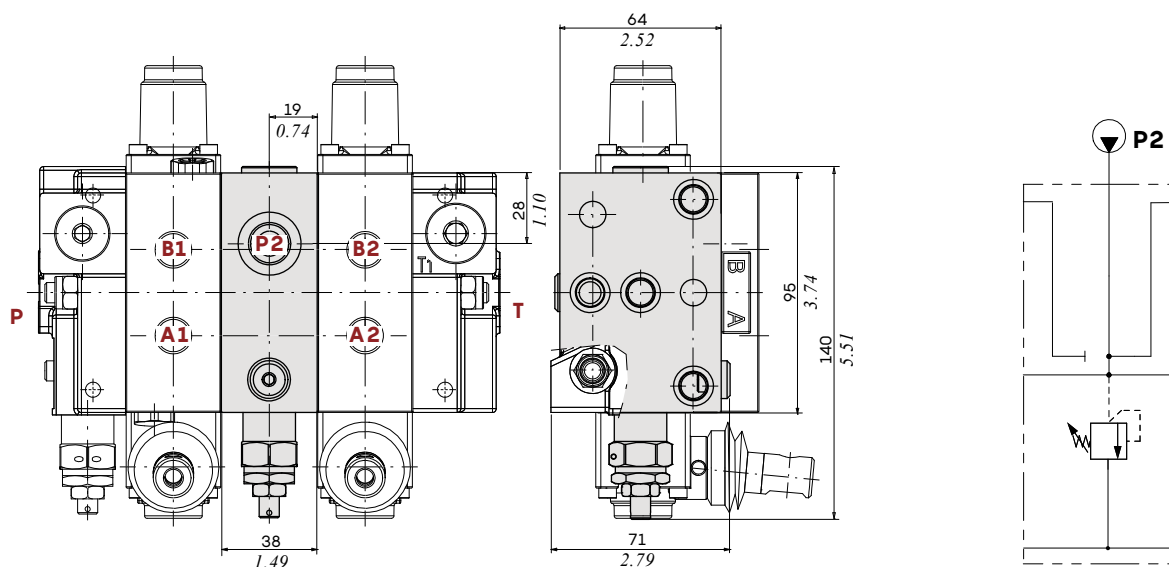
Intermediate inlet section with pressure relief valve

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

intermediate section      spring type and valve setting (bar)

**E53 type**

Intermediate inlet section with pressure relief valve and P2 port open

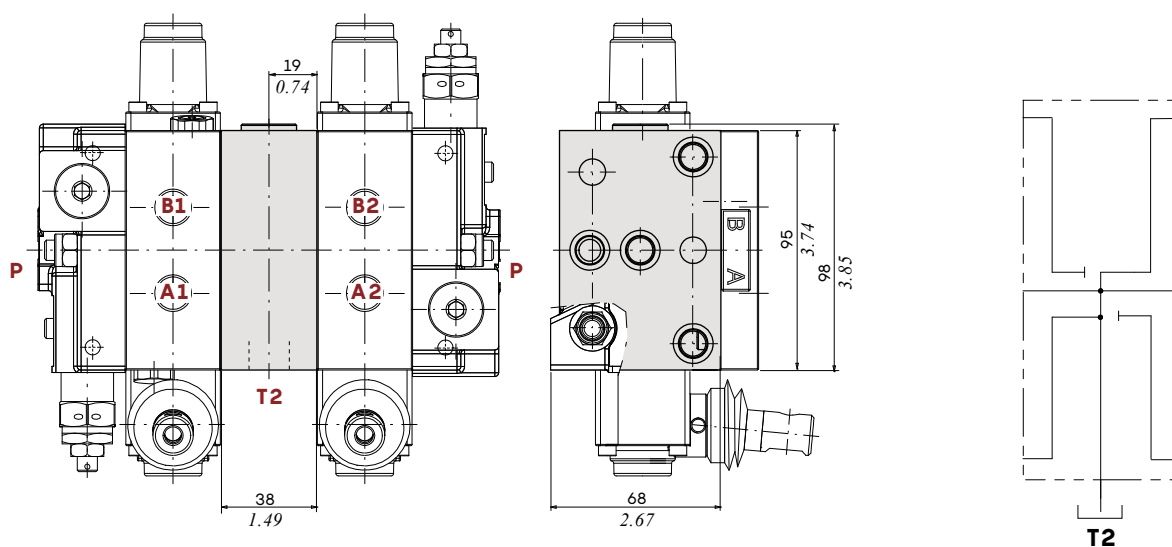
Description example: Q30/2/F7S(N150)/103-A1-M1.VC/**E53(N150)**/103-A1-M1/F3D-S

intermediate section      spring type and valve setting (bar)

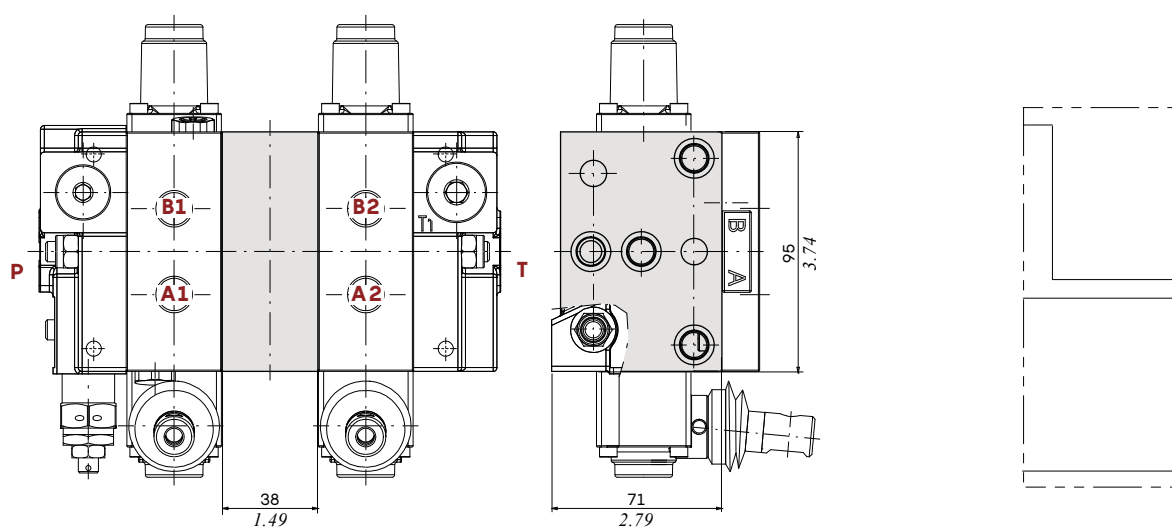
## Dimensional data and hydraulic circuit

**E51 type**

Intermediate outlet section, T2 port open

Description example: Q30/2/F7S(N150)/103-A1-M1.VC/**E51**/103-A1-M1/F3D-Sintermediate  
section**E61 type**

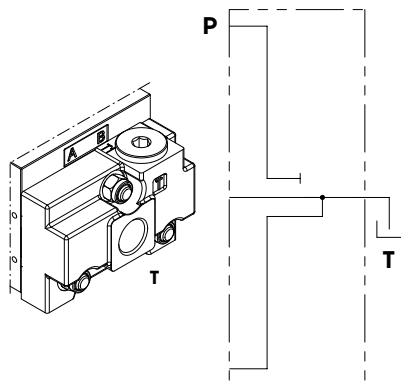
Intermediate spacer section

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

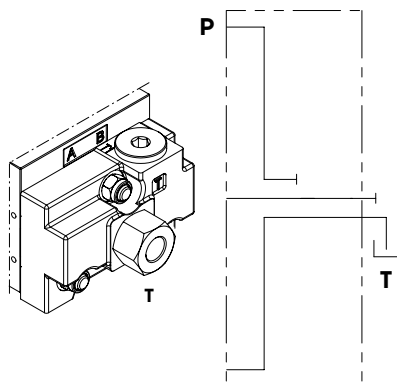
## Outlet section

**F3D configuration**

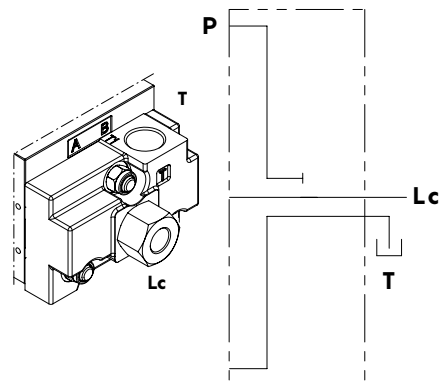
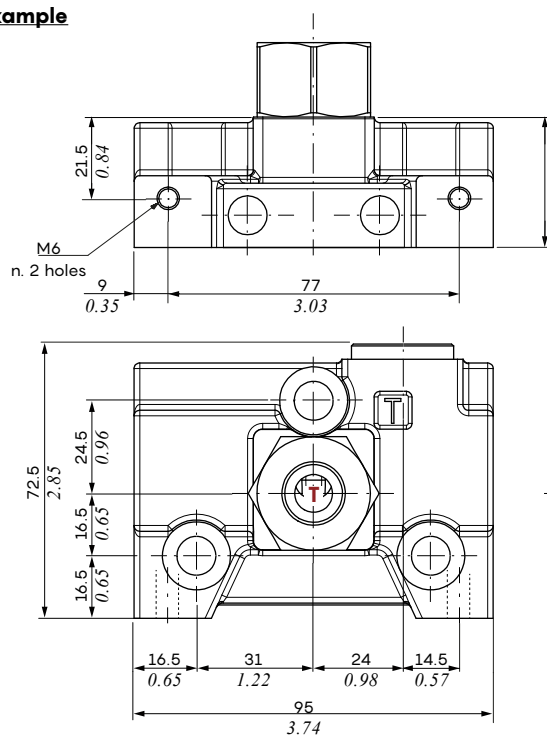
Open center configuration

**F16D configuration**

Closed center configuration

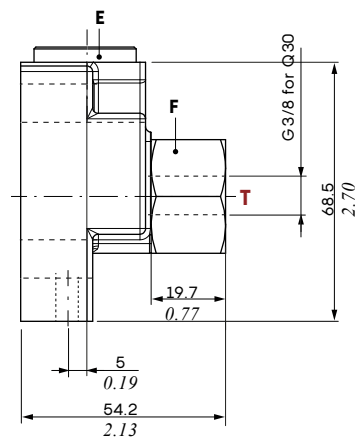
**F6D configuration**

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 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

|                                     |                          |                                                        |
|-------------------------------------|--------------------------|--------------------------------------------------------|
| Nominal flow rating                 |                          | 80 l/min - (21.1 Us gpm)                               |
| Max. pressure                       |                          | 300 bar (4350 psi)                                     |
| Max. back pressure on outlet T port |                          | 25 bar (360 psi)                                       |
| Number sections                     |                          | from 1 to 10                                           |
| Internal leakage A(B)⇒T             | Δp = 100 bar (1450 psi)  | 6 cm <sup>3</sup> /min (0.36 in <sup>3</sup> /min)     |
| Fluid                               |                          | Mineral oil                                            |
| Fluid temperature                   | with NBR (BUNA-N) seals  | from -30°C to 80°C - from -22 °F to 176 °F             |
| Viscosity                           | operating range          | from 10 to 400 mm <sup>2</sup> /s - from 10 to 400 cSt |
| Max. contamination level            |                          | 16/14/12 - ISO 4406 - NAS1638 class 6                  |
| Ambient temperature                 | without electric devices | from -40°C to 60°C - from 40 °F to 140 °F              |
|                                     | with electric devices    | from -20°C to 50°C - from -4 °F to 122 °F              |

NOTE - For different conditions please contact our Sales Department.

#### REFERENCE STANDARD

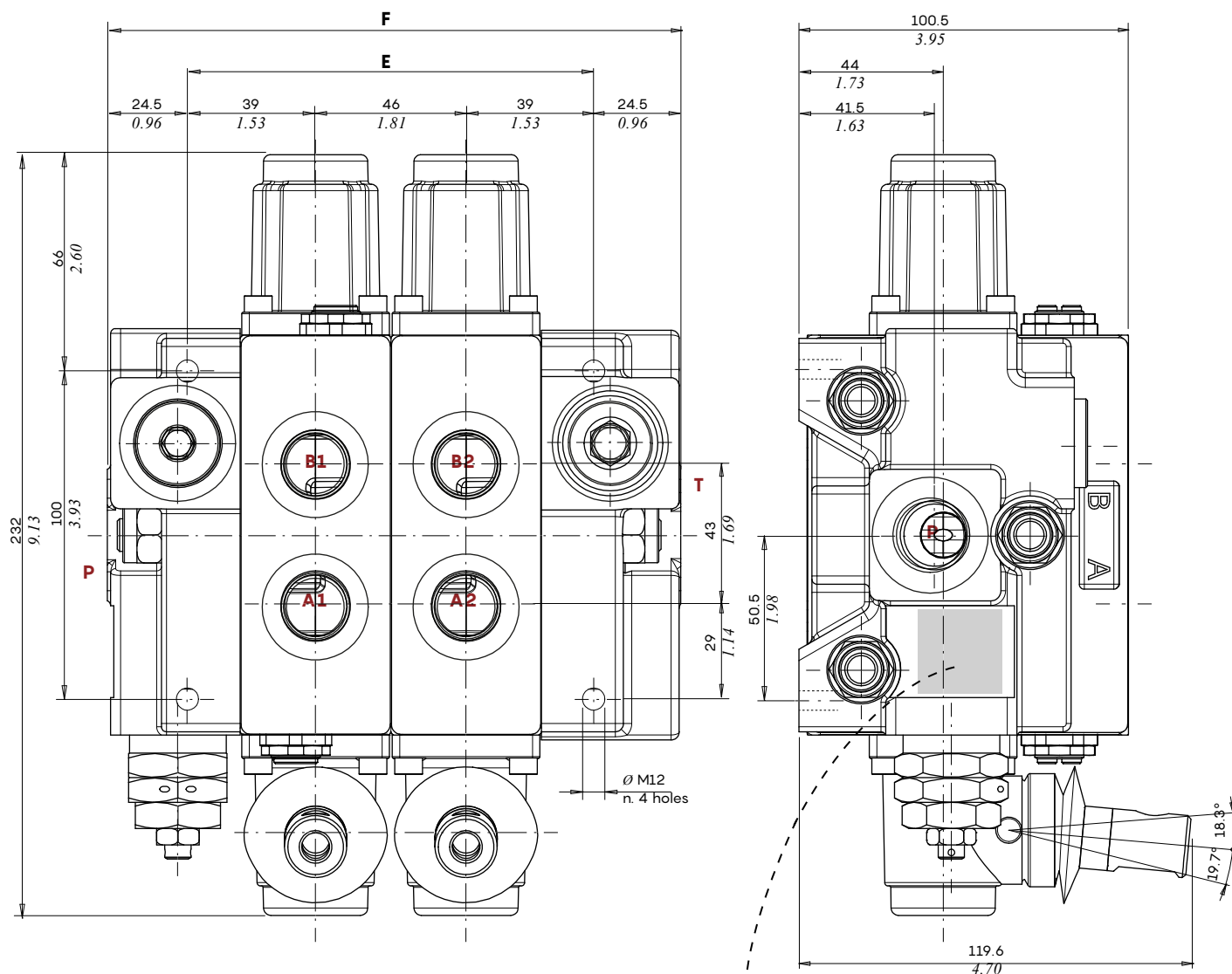
|                               |     | BSP                 | UN-UNF            |
|-------------------------------|-----|---------------------|-------------------|
| THREAD ACCORDING TO           |     | ISO 228/1           | ISO 263           |
|                               |     | BS 2779       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

#### PORT THREADING

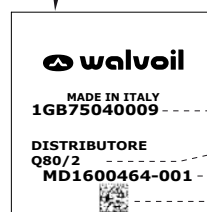
| PORTS                              | BSP (standard) | BSP (G 3/4) | UN-UNF             |
|------------------------------------|----------------|-------------|--------------------|
| P Inlet                            | G 1/2          | G 3/4       | 7/8-14 (SAE 10)    |
| P1 Inlet                           | G 1/2          | G 3/4       | 7/8-14 (SAE 10)    |
| A and B ports                      | G 1/2          | G 3/4       | 3/4-16 (SAE 8)     |
| T Outlet                           | G 3/4          | G 3/4       | 1" 1/16-12 (SAE12) |
| T1 Outlet                          | G 3/4          | G 3/4       | 7/8-14 (SAE 10)    |
| Lc port (Carry-over plug - T port) | G 1/2-G 3/4    | G 3/4       | 7/8-14 (SAE 10)    |
| Hydraulic controls                 | G 1/4          | G 3/4       | 9/16-18 (SAE 6)    |
| Pneumatic controls                 | NPTF 1/8-27    | NPTF 1/8-27 | NPTF 1/8-27        |

### Dimensional data

#### Standard configuration\*



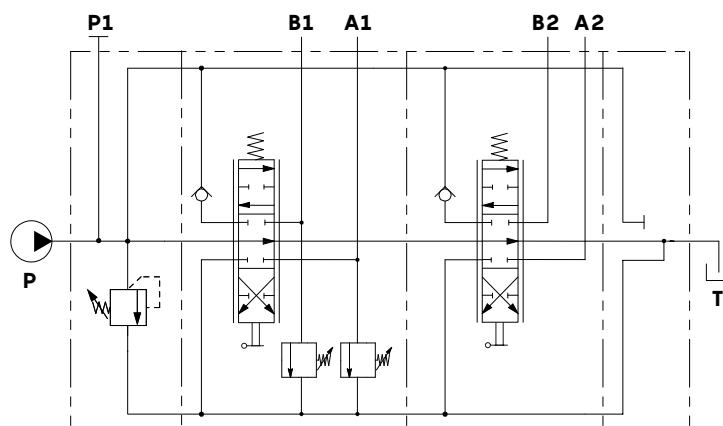
| Type   | E   |       | F   |       |
|--------|-----|-------|-----|-------|
|        | mm  | in    | mm  | in    |
| Q80/1  | 78  | 3.07  | 127 | 5     |
| Q80/2  | 124 | 4.88  | 173 | 6.81  |
| Q80/3  | 170 | 6.69  | 219 | 8.62  |
| Q80/4  | 216 | 8.50  | 265 | 10.43 |
| Q80/5  | 262 | 10.31 | 311 | 12.24 |
| Q80/6  | 308 | 12.12 | 357 | 14.05 |
| Q80/7  | 354 | 13.93 | 403 | 15.86 |
| Q80/8  | 400 | 15.74 | 449 | 17.67 |
| Q80/9  | 446 | 17.56 | 495 | 19.48 |
| Q80/10 | 492 | 19.37 | 541 | 21.3  |



Product code  
Code description  
Product allotment  
Datamatrix with product allotment

NOTE: Drawings and dimensions are referred to a **BSP** threading configuration.  
(\*): For other configurations, see page 145

## Hydraulic circuit

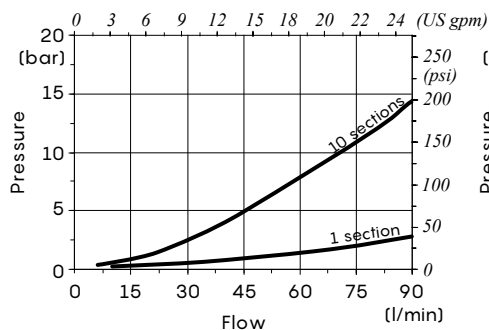


Description example (parallel circuit):

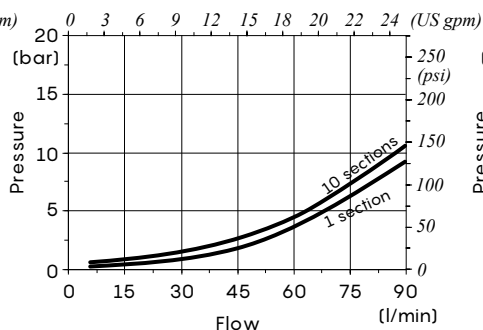
Q80/2/F7S(N150)/103-A1-M1.V32(N105\N105)/103-A1-M1/F3D

## Performance data

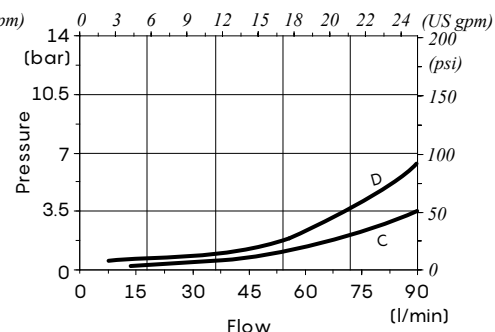
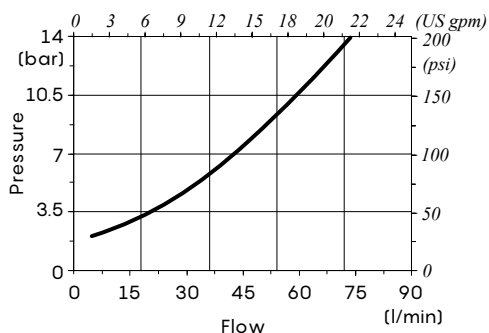
P⇒T pressure drops



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

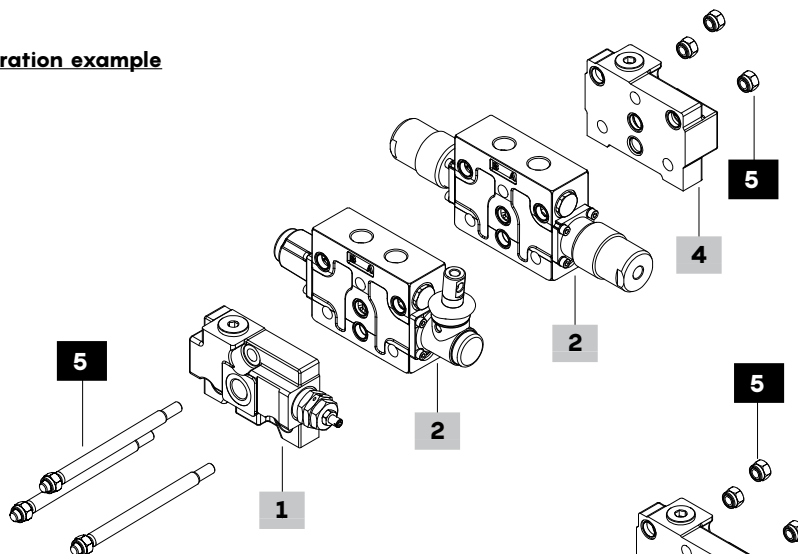
valve setting (bar)

**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

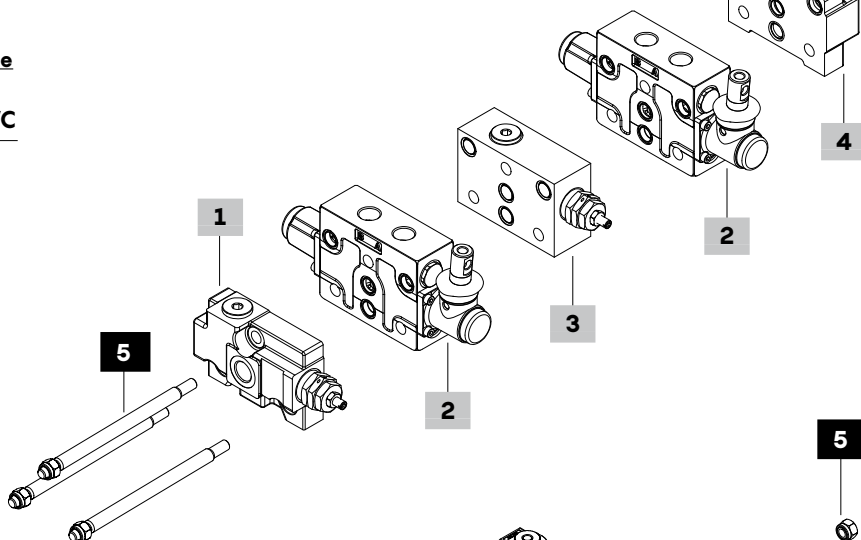
valve setting (bar)

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

valve setting (bar) **1** **2**

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

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



## Valve with electrohydraulic control configuration example

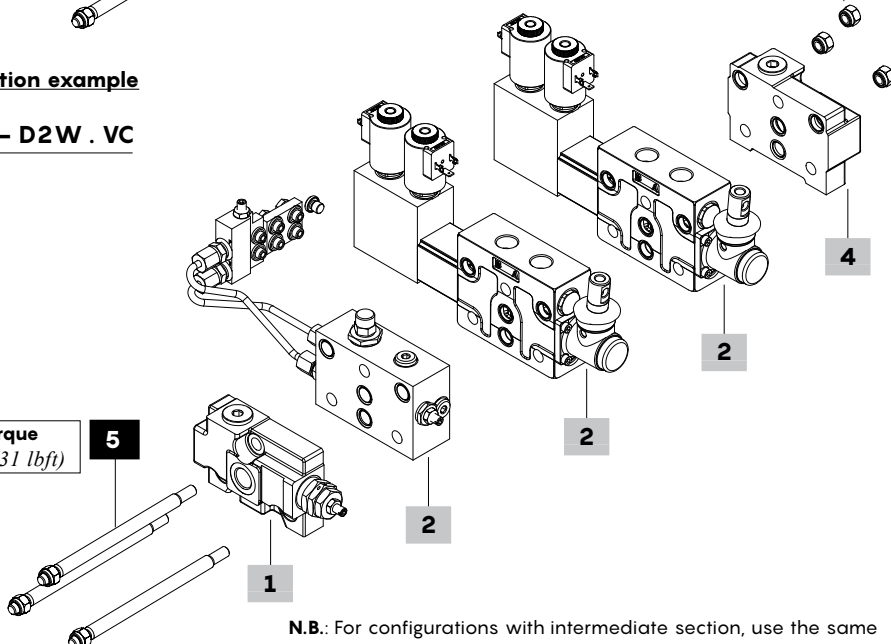
**Q80 / 2 / F7S(N150) / KE2R / 103 - A1 - D2W . VC**

**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

**1 Inlet section\* page 116**

TYPE: **FE-Q80/F7S(N150)** CODE: 08000F7S/D-N  
 DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve, setting range 101-200 bar (1460-2900 psi)  
 TYPE: **FE-Q80/F8S** CODE: 08003F8S/D  
 DESCRIPTION: As previous one, without valves (pressure relief valve plugged port)

**2 Working section\* page 118****With mechanical controls**

TYPE: **EL-Q80/103-A1-M1.VC** CODE: SGL800007  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, lever control and spring return to neutral position

TYPE: **EL-Q80/103-A1-M1** CODE: 080000103001000  
 DESCRIPTION: As previous one, without valve arrangement

**With proportional hydraulic controls**

TYPE: **EL-Q80/103-H1.VC** CODE: SGL800008  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, high pressure hydraulic controls, spring return to neutral position

TYPE: **EL-Q80/103-H1** CODE: SGL800009

DESCRIPTION: As previous one, without valve arrangement

TYPE: **EL-Q80/103-H5.VC** 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: **EL-Q80/103-H5** CODE: SGL800012

DESCRIPTION: As previous one, without valve arrangement

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

TYPE: **EL-Q80/103-A1-D41.VC-12VDC** CODE: SGL800010

DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC electric direct ON/OFF control with lever

TYPE: **EL-Q80/103-A1-D41-12VDC** CODE: SGL800013

DESCRIPTION: As previous one, without valve arrangement

**With electrohydraulic ON/OFF controls - one side type**

TYPE: **EL-Q80/KE1S/103-A1-D2W.VC-12VDC** CODE: SGL800014

DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, 12VDC one-side electrohydraulic ON/OFF control, internal pilot and drain, lever control and spring return to neutral position

TYPE: **EL-Q80/KE1S/103-A1-D2W-12VDC** CODE: SGL800015

DESCRIPTION: As previous one, without valve arrangement

**3 Intermediate section\* page 145**

| TYPE       | CODE       | DESCRIPTION                                                                                                  |
|------------|------------|--------------------------------------------------------------------------------------------------------------|
| <b>E50</b> | 08850E50-B | With pressure relief valve setting range 10-100 bar (145-1450 psi)                                           |
|            | 08850E50-N | As previous one, setting range 101-200 bar (1460-2900 psi)                                                   |
|            | 08850E50-R | As previous one, setting range 201-380 bar (2910-5500 psi)                                                   |
| <b>E53</b> | 08854E53-B | With pressure relief valve setting range 10-100 bar (145-1450 psi) and P2 port open for 2 <sup>nd</sup> pump |
|            | 08854E53-N | As previous one, setting range 101-200 bar (1460-2900 psi)                                                   |
|            | 08854E53-R | As previous one, setting range 201-380 bar (2910-5500 psi)                                                   |
| <b>E51</b> | 08853E51   | Intermediate outlet section, T2 port open                                                                    |
| <b>E61</b> | 08877E61   | Intermediate spacer section                                                                                  |

**4 Outlet section\* page 147**

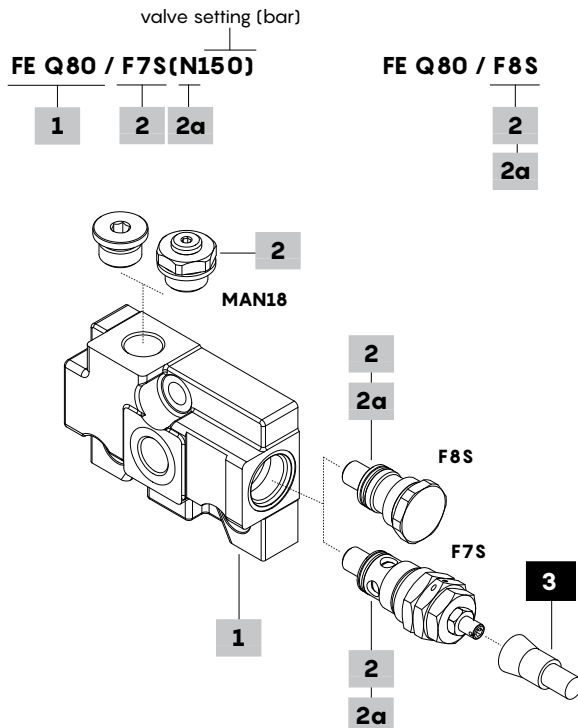
|                                                                                 |                 |
|---------------------------------------------------------------------------------|-----------------|
| TYPE: <b>FS-Q80-F3D</b>                                                         | CODE: 08012F3D  |
| DESCRIPTION: T port open, T1 port plugged. For open center circuit              |                 |
| TYPE: <b>FS-Q80-F16D</b>                                                        | CODE: 08016F16D |
| DESCRIPTION: T port open, T1 port plugged. For closed center circuit            |                 |
| TYPE: <b>FS-Q80-F6D</b>                                                         | CODE: 08014F6D  |
| DESCRIPTION: Lc port and T1 port open. With joint for carry-over (HPCO) circuit |                 |

**5 Tie rod kit**

| CODE      | DESCRIPTION           |
|-----------|-----------------------|
| 08901TX1  | For 1 section valve   |
| 08902TX2  | For 2 sections valve  |
| 08903TX3  | For 3 sections valve  |
| 08904TX4  | For 4 sections valve  |
| 08905TX5  | For 5 sections valve  |
| 08906TX6  | For 6 sections valve  |
| 08907TX7  | For 7 sections valve  |
| 08908TX8  | For 8 sections valve  |
| 08909TX9  | For 9 sections valve  |
| 08910TX10 | For 10 sections valve |

[\*]: Codes are referred to **BSP** thread

## Inlet section - parts ordering codes



### 1 Inlet body section\* page 116

TYPE: **FE-Q80**

CODE: 060012741799

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

### 2 Configuration coding\*

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 117

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 Accessories

TYPE

CODE

DESCRIPTION

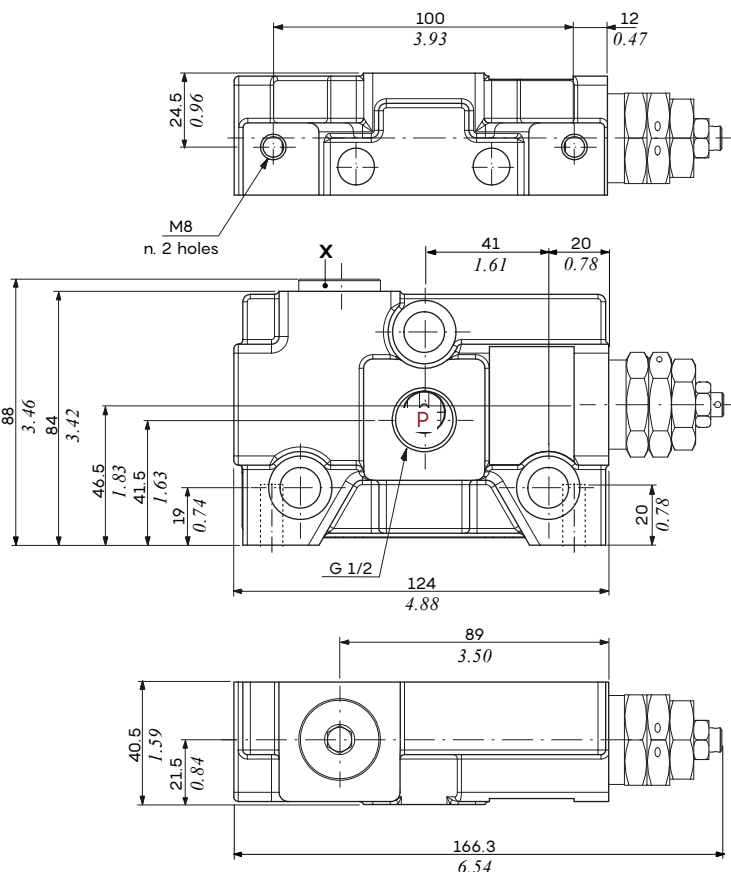
-

4COP120420

Antitamper cap for pressure relief valve

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

## Dimensional data and hydraulic circuits



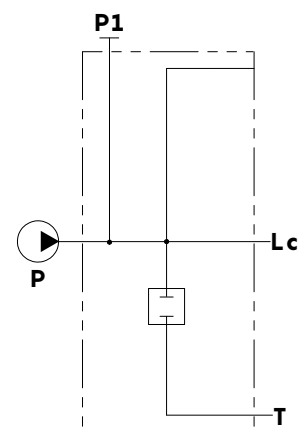
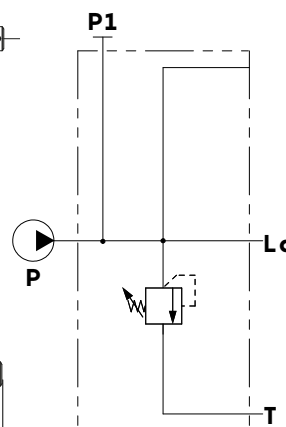
### Wrenches and tightening torques

X = allen wrench 8 - 42 Nm (31 lbft)

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

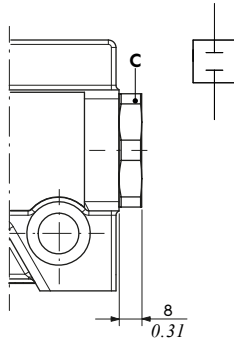
**F7S configuration**  
With pressure relief valve

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

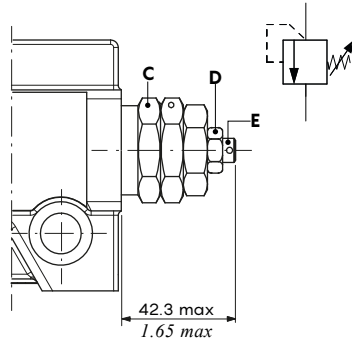


Main pressure relief valve

Relief valve blanking plug



Main pressure relief valve



Wrenches and tightening torques

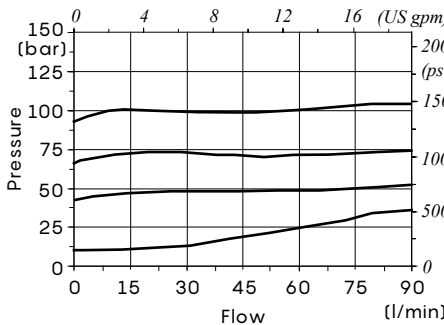
C = wrench 30 - 80 Nm (59 lbf ft)

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

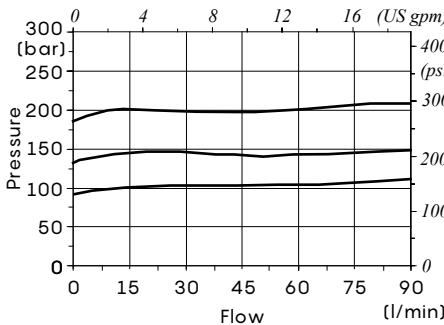
E = allen wrench 4

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

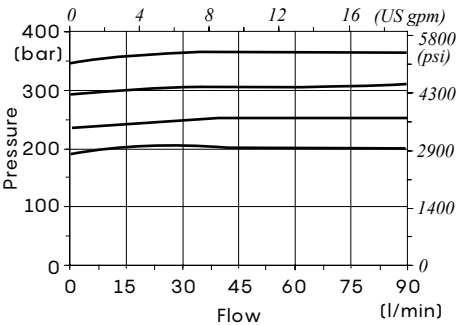
Setting example (B type spring)



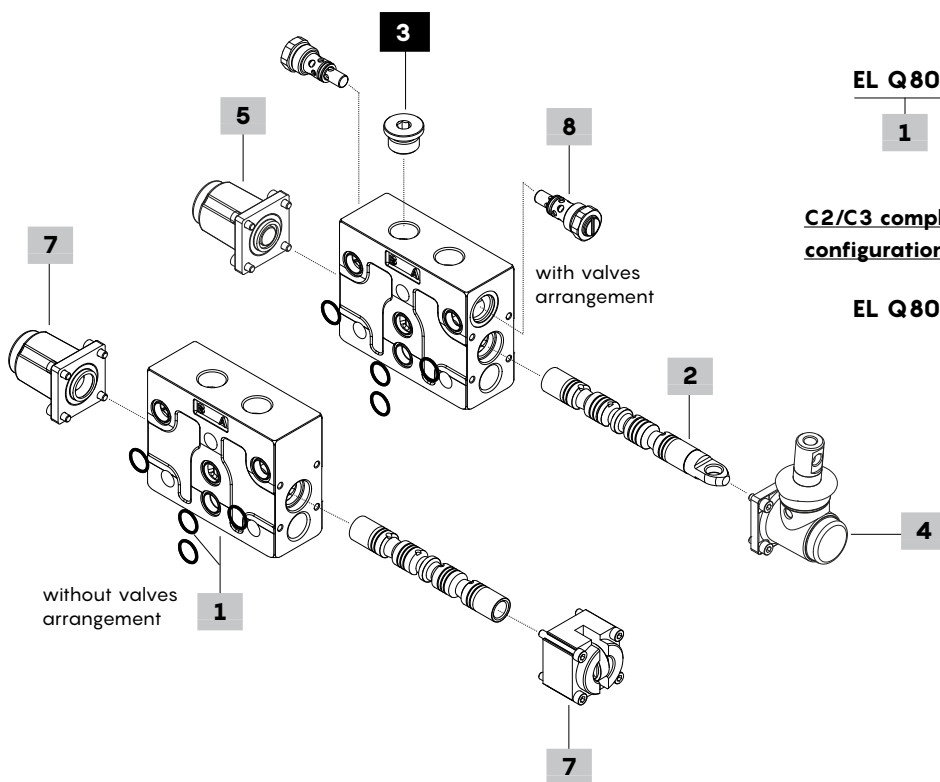
Setting example (N type spring)



Setting example (R type spring)



### Working section - parts ordering codes



#### Mechanical control valve configuration example

spring type and valve setting (bar)

EL Q 80 / 102 - A1 - M1 . V40(N)120

1 2 4 5 8

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

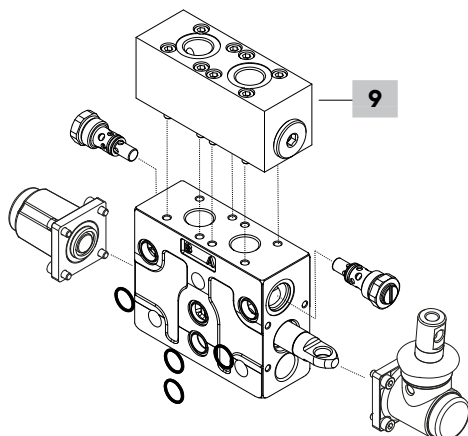
EL Q 80 / 102 - C3 . V40(N)120

7

#### Mechanical control valve with arrangement for secondary aux valves block: configuration example

EL Q 80 / 103 - A1 - M1 . V40(N)120 / VC03

9





## Working section – parts ordering codes

**1 Working section body kit\* page 124**

|                                                                                            |                     |
|--------------------------------------------------------------------------------------------|---------------------|
| 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 125**

| 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.<br>G1/2 plug is required, see #3                                                  |
| <b>102</b>                                                                       | 3CUG2891901  | Single acting on port B.<br>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 126**

| 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 126**

| 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                                         |
| <b>For types 103 and 111 special spools</b>                              |                |                                                         |
| <u>With spool position microswitch:</u>                                  |                |                                                         |
| <b>Note:</b> to complete the control you must use the assembly kit at #6 |                |                                                         |
| <b>N1-A1</b>                                                             | 08641N1-A1/A2  | Micro operation in pos. 1 and 2, with lever box         |
| <b>N1A-A1</b>                                                            | 08642N1A-A1/A2 | Micro operation in pos. 1, with lever box               |
| <b>N1B-A1</b>                                                            | 08643N1B-A1/A2 | Micro operation in pos. 2, with lever box               |
| <b>N1-A3</b>                                                             | 08648N1-A3     | Micro operation in pos. 1 and 2, without lever with cap |
| <b>N1A-A3</b>                                                            | 08648N1A-A3    | Micro operation in pos. 1, without lever with cap       |
| <b>N1B-A3</b>                                                            | 08648N1B-A3    | Micro operation in pos. 2, without lever with cap       |
| <u>Without lever control:</u>                                            |                |                                                         |
| <b>A3</b>                                                                | 08614A3        | Without lever, with cap                                 |
| <b>A4</b>                                                                | 08617A4        | M10 thread male external pin with flange                |
| <b>A5<sup>(2)</sup></b>                                                  | 08619A5        | Flange with spherical spool end                         |

**5 B side control page 132**

| 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>                                       | 08734M4-2     | 2 pos. (1-2), spring return in position 1                         |
|                                                 | 08735M4-2-1   | 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

**5 B side control (cont.) page 132**

| TYPE                                                                     | CODE           | DESCRIPTION                                                                |
|--------------------------------------------------------------------------|----------------|----------------------------------------------------------------------------|
| <u>With detent and kick out function:</u>                                |                |                                                                            |
| <b>R1K</b>                                                               | 08741R1K       | 3 pos., detent in position 1                                               |
| <b>R2K</b>                                                               | 08742R2K       | 3 pos., detent in position 2                                               |
| <b>R3K</b>                                                               | 08743R3K       | 3 pos., detent in all position                                             |
| <u>With spool position microswitch:</u>                                  |                |                                                                            |
| <b>Note:</b> To complete the control 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>M1-N1A</b>                                                            | 08767M1-N1A    | As M1-N1 type, micro operation in pos. 1                                   |
| <b>M1-N1B</b>                                                            | 08768M1-N1B    | As M1-N1 type, micro operation in pos. 2                                   |
| <b>M2-N1</b>                                                             | 08769M2-N1     | 2 pos. (0-1), spring return in neutral position                            |
| <b>M3-N1</b>                                                             | 08772M3-N1     | 2 pos. (0-2), spring return in neutral position                            |
| <u>Pneumatic and electropneumatic controls:</u>                          |                |                                                                            |
| <b>P1N</b>                                                               | 08561P1-N      | ON/OFF pneumatic control                                                   |
| <b>P1NP</b>                                                              | 08561P1-NP     | Proportional pneumatic control                                             |
| <b>D3</b>                                                                | 08591D3-V-12DC | 12 VDC, ON/OFF electropneumatic control                                    |
|                                                                          | 08592D3-V-24DC | 24 VDC, ON/OFF electropneumatic control                                    |

**6 Microswitch assembly kit**

| CODE       | DESCRIPTION         |
|------------|---------------------|
| 08650N1-01 | Kit for 1 section   |
| 08650N1-02 | Kit for 2 sections  |
| 08650N1-03 | Kit for 3 sections  |
| 08650N1-04 | Kit for 4 sections  |
| 08650N1-05 | Kit for 5 sections  |
| 08650N1-06 | Kit for 6 sections  |
| 08650N1-07 | Kit for 7 sections  |
| 08650N1-08 | Kit for 8 sections  |
| 08650N1-09 | Kit for 9 sections  |
| 08650N1-10 | Kit for 10 sections |

**7 Complete controls A+B sides page 137**

| 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 |

**8 Auxiliary port valve page 142**

| TYPE                                   | CODE         | DESCRIPTION                                                   |
|----------------------------------------|--------------|---------------------------------------------------------------|
| <u>Antishock valve:</u>                |              |                                                               |
| <b>V30-B</b>                           | 08800V30-B   | Setting range: from 30 to 80 bar<br>(from 435 to 1150 psi)    |
| <b>V30-N</b>                           | 08800V30-N   | Setting range: from 81 to 200 bar<br>(from 1170 to 2900 psi)  |
| <b>V30-R</b>                           | 08800V30-R   | Setting range: from 201 to 370 bar<br>(from 2910 to 5400 psi) |
| <u>Antishock/anticavitation valve:</u> |              |                                                               |
| <b>V33-B</b>                           | 08803V33-B   | Setting range: from 30 to 80 bar<br>(from 435 to 1150 psi)    |
| <b>V33-N</b>                           | 08803V33-N   | Setting range: from 81 to 200 bar<br>(from 1170 to 2900 psi)  |
| <b>V33-R</b>                           | 08803V33-R   | Setting range: from 201 to 370 bar<br>(from 2910 to 5400 psi) |
| <u>Anticavitation valve:</u>           |              |                                                               |
| <b>V04</b>                             | 08808V04     | Anticavitation valve                                          |
| <u>Plug:</u>                           |              |                                                               |
| <b>VC</b>                              | 060002758699 | Valve blanking plug                                           |

For other configurations and positions, see page 142

**9 Secondary aux valves\* page 144**

| TYPE            | CODE      | DESCRIPTION                                                     |
|-----------------|-----------|-----------------------------------------------------------------|
| <b>VRP-VC01</b> | 08835V01C | Single piloted check valve on A port, 250 bar (3600 psi)        |
| <b>VRP-VC03</b> | 08837V03C | Double piloted check valve on A and B ports, 250 bar (3600 psi) |

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

Working section – parts ordering codes

Proportional hydraulic controls valve configuration example

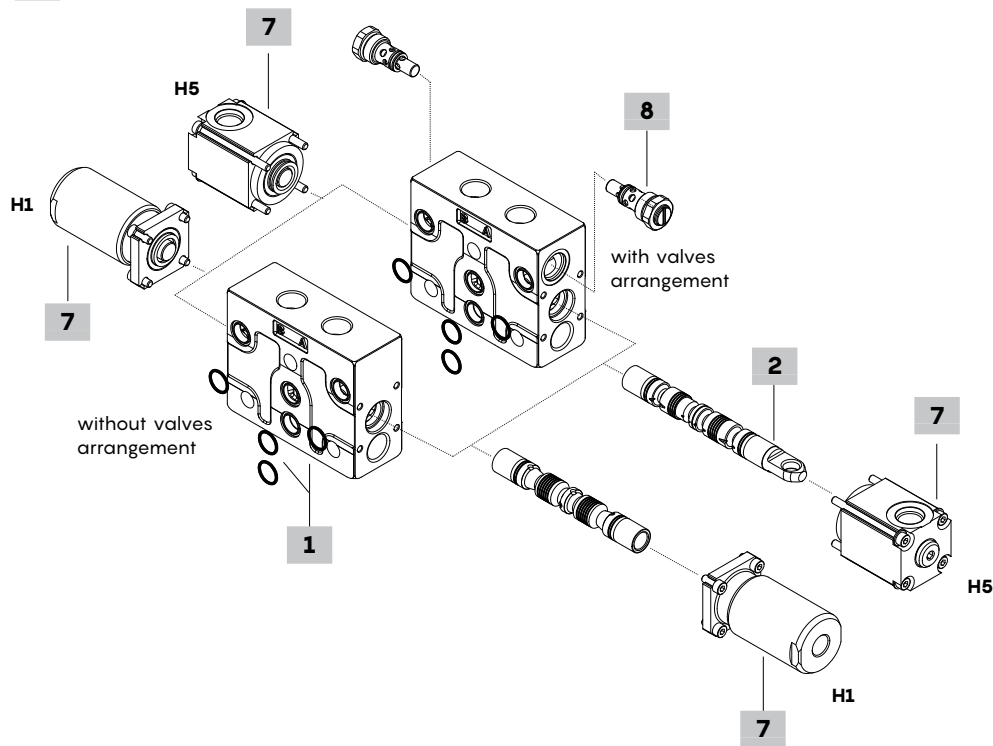
spring type and valve setting (bar)

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 124

The body kits listed below are for H5 hydraulic control.

H1 hydraulic control requires standard body: see #1, page 119

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 125

| TYPE                            | CODE         | DESCRIPTION                                       |
|---------------------------------|--------------|---------------------------------------------------|
| <b>For H5 hydraulic control</b> |              |                                                   |
| 103                             | 060102894999 | Double acting, A and B closed in neutral position |

|                                 |              |                                                   |
|---------------------------------|--------------|---------------------------------------------------|
| <b>For H1 hydraulic control</b> |              |                                                   |
| 103                             | 060102879199 | Double acting, A and B closed in neutral position |

7 Hydraulic controls A+B sides\* page 138

| TYPE | CODE    | DESCRIPTION                                 |
|------|---------|---------------------------------------------|
| H5   | 08785H5 | Low pressure proportional type, upper ports |
| H1   | 08779H1 | High pressure proportional type, side ports |

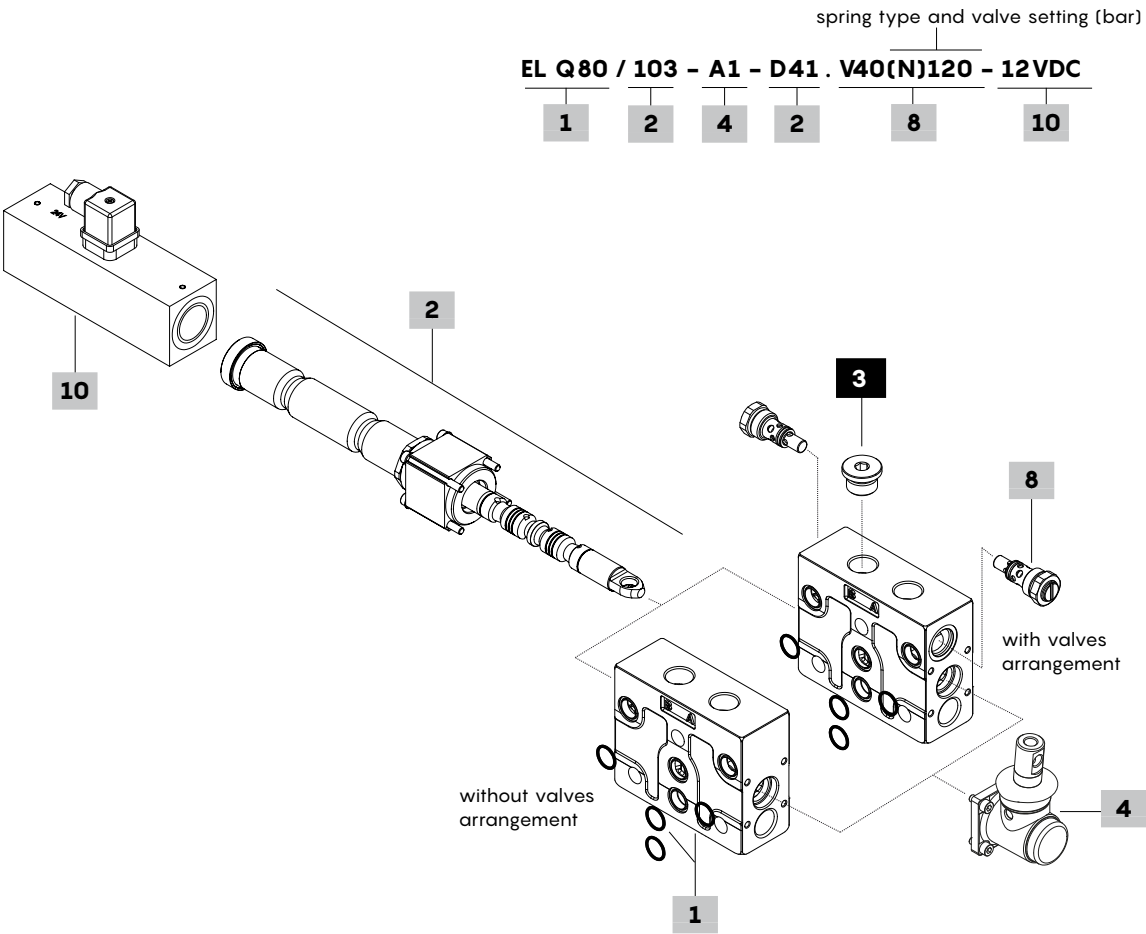
8 Auxiliary port valve page 142

See #8, page 120

(\*): Codes are referred to BSP thread

Working section – parts ordering codes

One side – ON/OFF direct solenoid control valve: configuration example



**1 Working section body kit\* page 124**

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 139**

| 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.<br>G1/2 plug is required, see #3 |
| <b>102</b> | X0601030060B | Single acting on port B.<br>G1/2 plug is required, see #3 |

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

See #3, page 119

**4 A side control page 126**

| 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 142**

See #8, page 120

**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

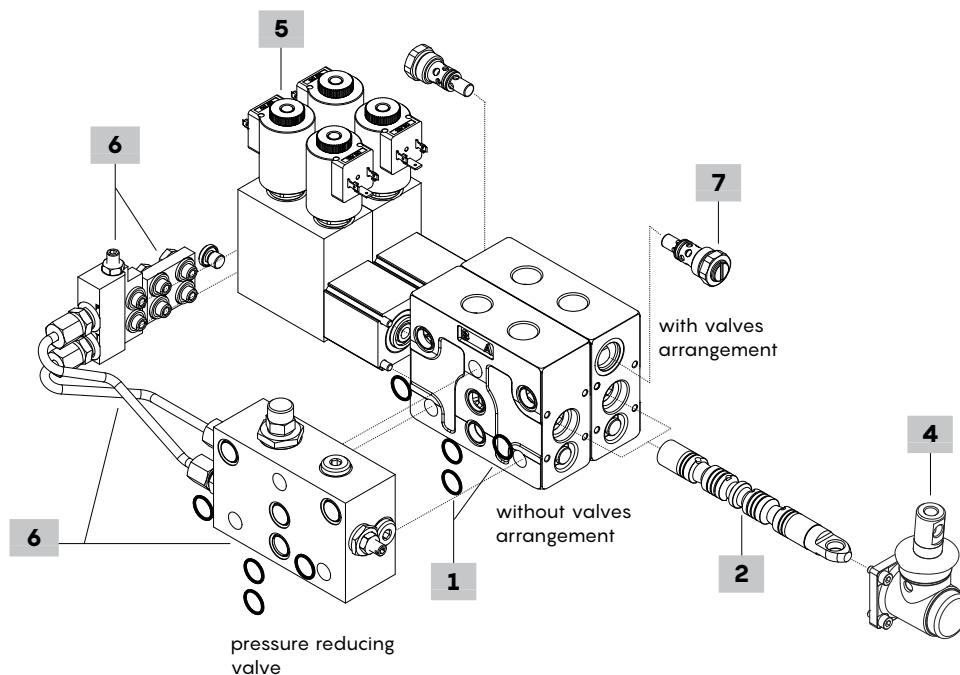
2

4

5

7

5



# 1 Working section body kit\* page 124

See #1, page 119

# 2 Spool page 125

See #2, page 119

# 4 A side control page 126

See #4, page 119

# 5 B side electrohydraulic control page 140

| 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 185

## 6 Connector kit page 141

| 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

| TYPE         | CODE       | DESCRIPTION         |
|--------------|------------|---------------------|
| <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 142

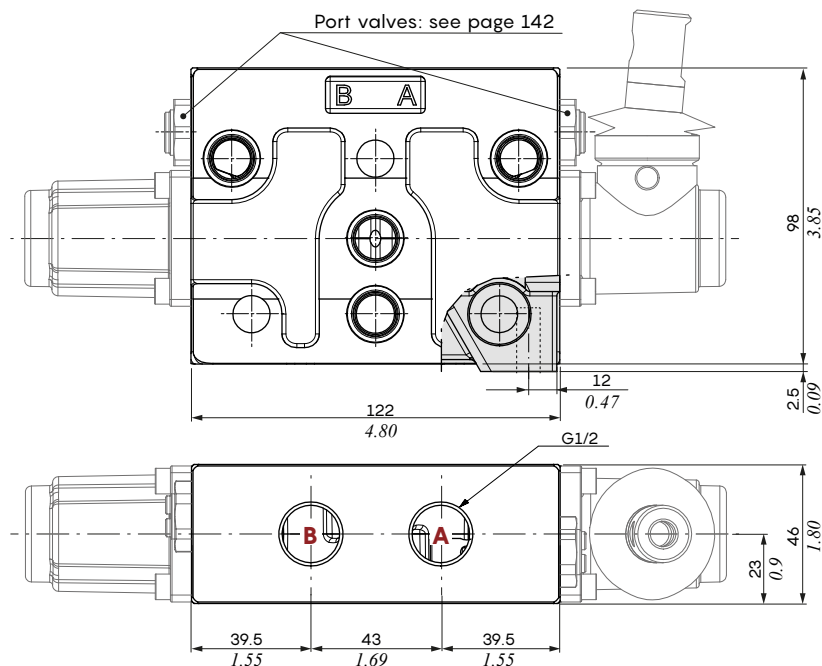
See #8, page 120

(\*): Codes are referred to BSP thread

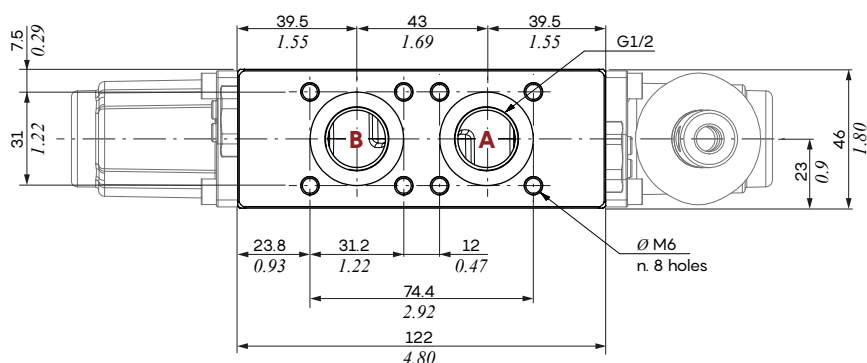
## Working section

### Dimensional data and hydraulic circuits

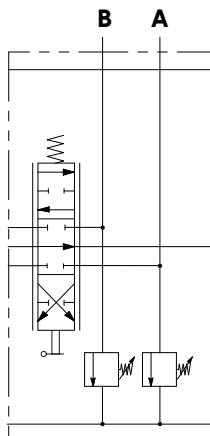
#### Standard working section



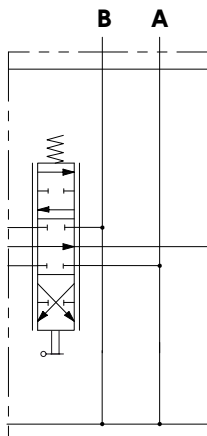
#### Working section for secondary aux valves block



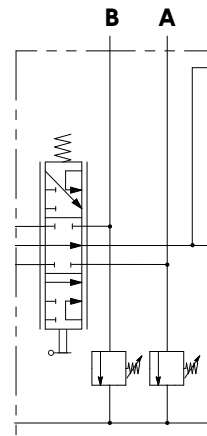
**Q80.V40(N)120 configuration**  
Parallel circuit,  
mechanical control with aux valves



**Q80 configuration**  
Parallel circuit,  
mechanical control without aux valves

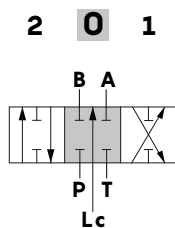


**Q80.V40(N)120 configuration**  
Series circuit,  
mechanical control with aux valves



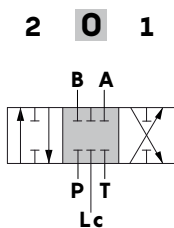
## Spool

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

**Stroke**

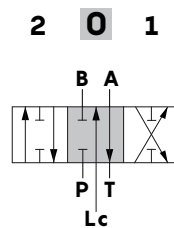
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

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

**Stroke**

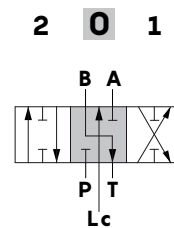
Position 1: + 5 mm (+ 0.19 in)  
Position 2: - 5 mm (- 0.19 in)

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

**Stroke**

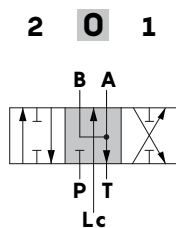
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

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

**Stroke**

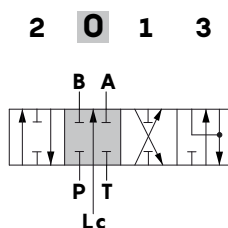
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

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

**Stroke**

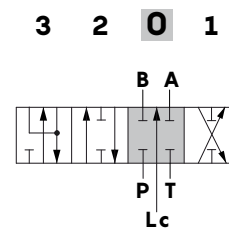
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

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

**Stroke**

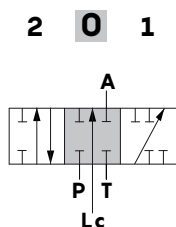
Position 1: - 4.5 mm (- 0.17 in)  
Position 2: + 7 mm (+ 0.27 in)  
Position 3: - 10.25 mm (- 0.40 in)

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

**Stroke**

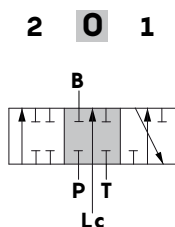
Position 1: + 4.5 mm (+ 0.17 in)  
Position 2: - 7 mm (- 0.27 in)  
Position 3: + 10.25 mm (+ 0.40 in)

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

**Stroke**

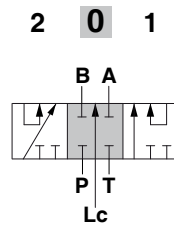
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

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

**Stroke**

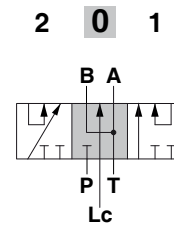
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

**403 type**  
A and B closed in neutral  
position. For series circuit

**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

**Stroke**

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

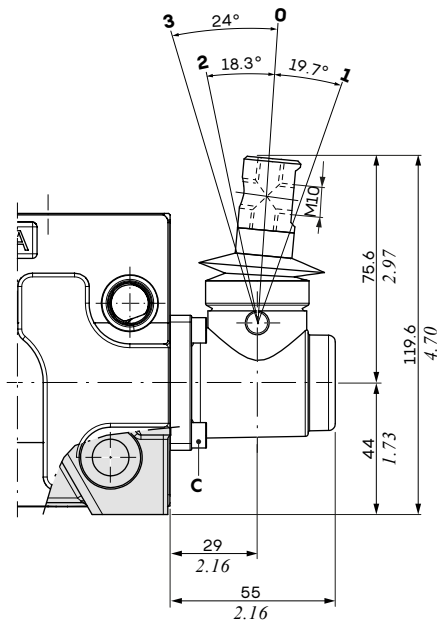
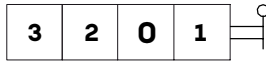
Working section

A side controls

With lever control

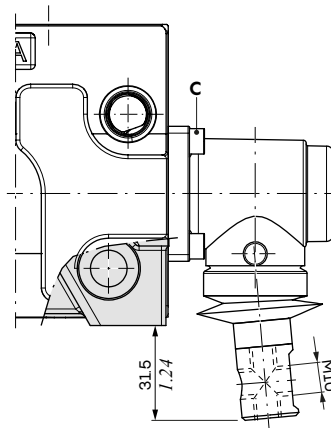
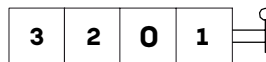
A1 type

M10 thread aluminium  
lever box



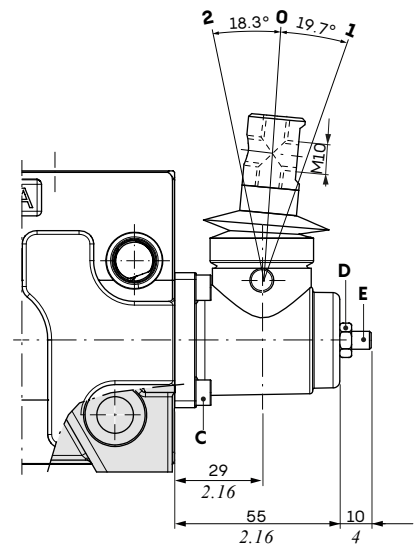
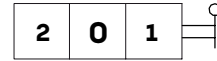
A2 type

As A1 type, rotated 180°



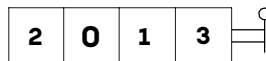
A1/06 type

M10 thread, with stroke limiter



A1/Z1 type

M10 thread, for 116 floating spool type



Wrenches and tightening torques

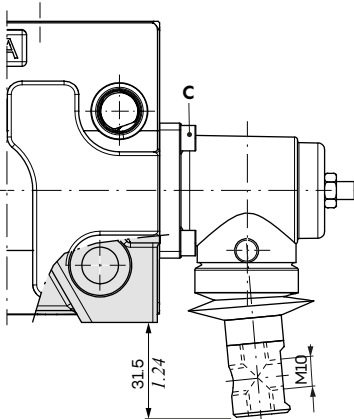
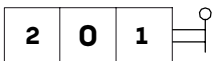
C = allen wrench 4 - 6.6 Nm (4.8 lbf ft)

D = wrench 10 - 9.8 Nm (7.2 lbf ft)

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

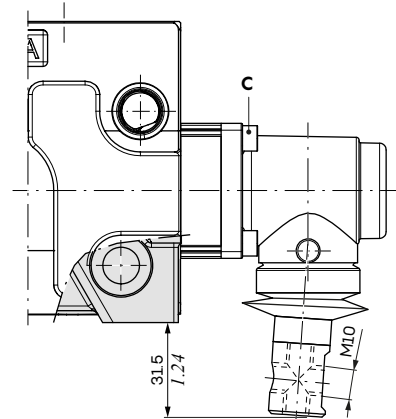
A2/06 type

As A1/06 type, rotated 180°



A2/Z1 type

As A1/Z1 type, rotated 180°



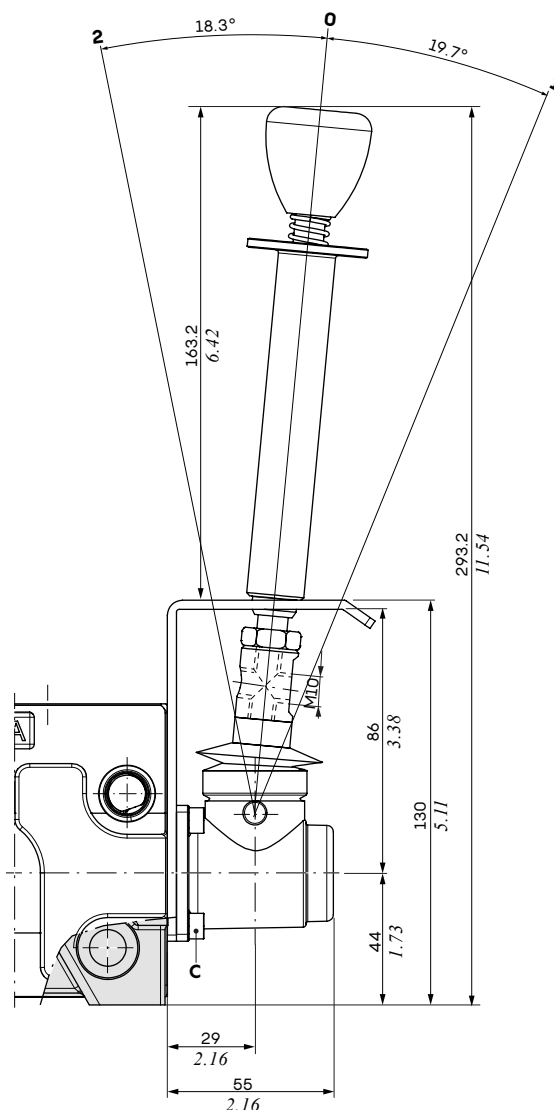
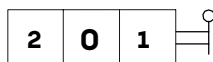


## A side controls

## With safety lever control

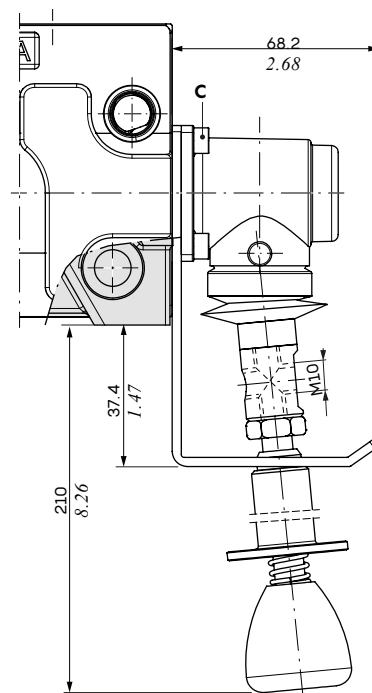
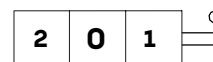
## A1/S type

M10 thread, aluminium lever box



## A2/S type

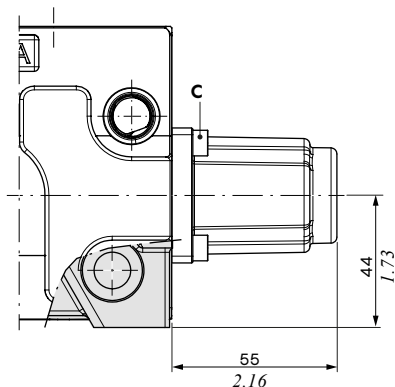
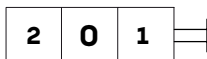
As A1/S type, rotated 180°



## Without lever control

## A3 type

With cap



## Wrenches and tightening torques

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

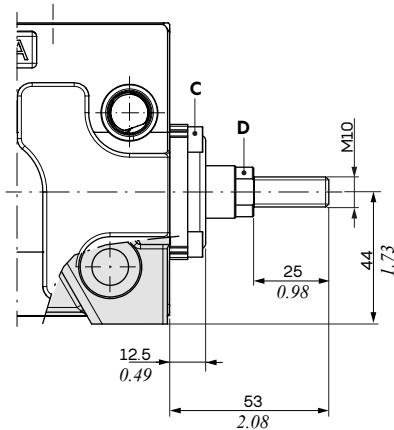
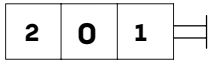
## Working section

## A side controls

## Without lever control

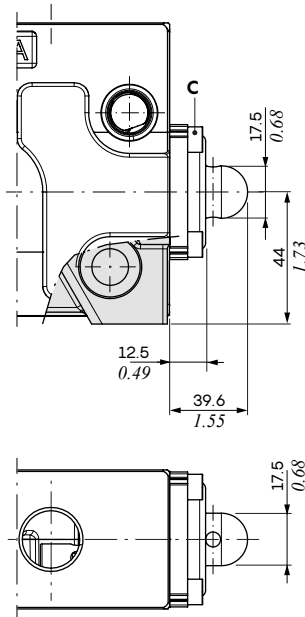
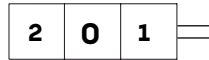
## A4 type

M10 male thread external pin with flange



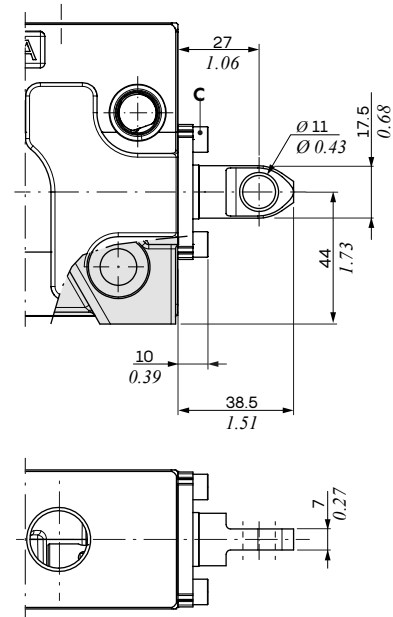
## A5 type

Flange with spherical spool end



## A6 type

With flange



## Wrenches and tightening torques

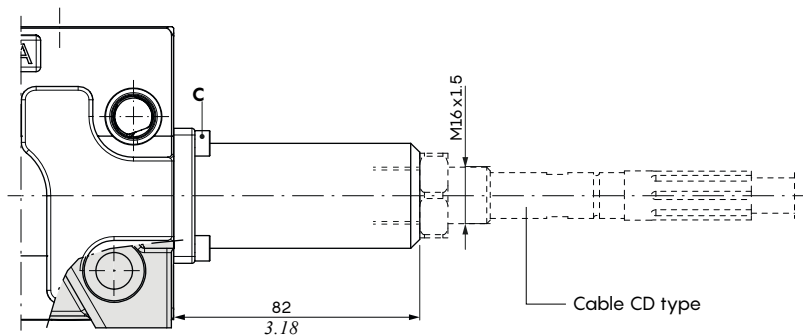
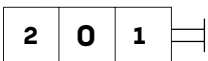
C = allen wrench 4 - 6.6 Nm (4.8 lbft)

D = wrench 13 - 9.8 Nm (7.2 lbft)

## With flexible cable control arrangement

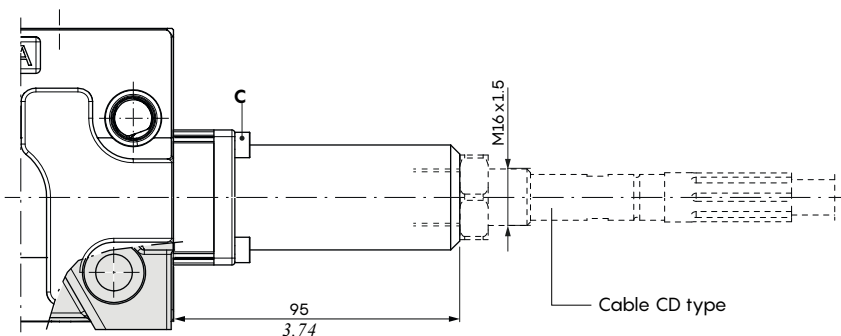
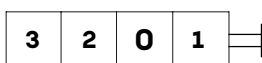
## A8 type

Flexible cable control arrangement



## A8/Z1 type

As A8 type, for 116 floating spool type

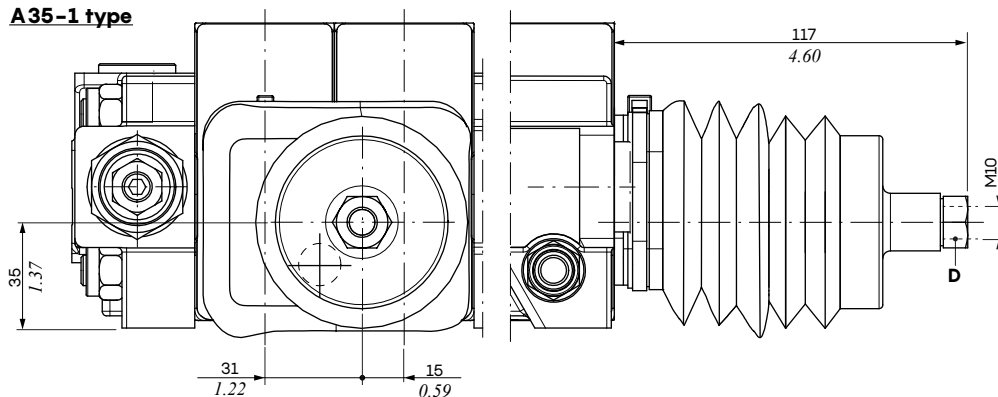


## A side controls

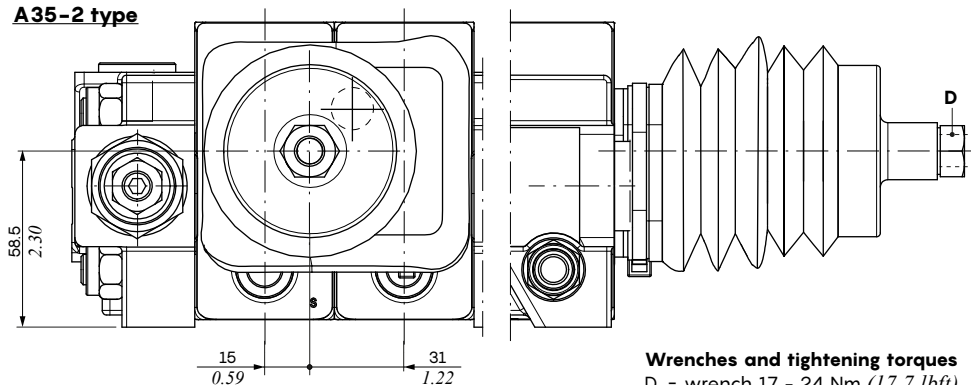
## Joystick control

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

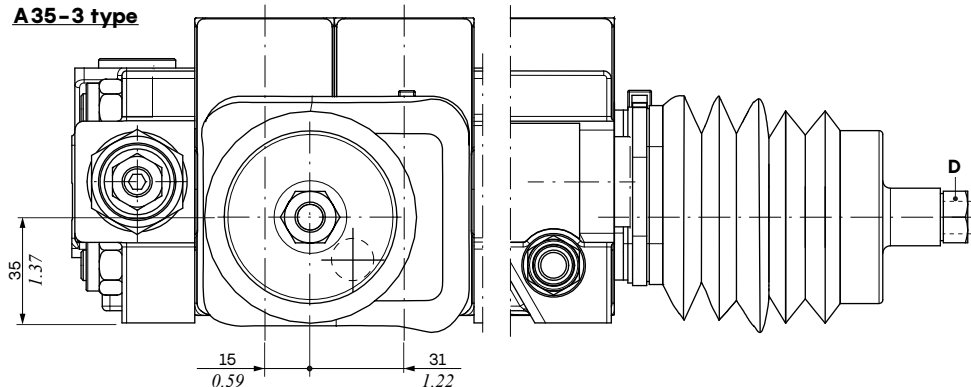
## A35-1 type



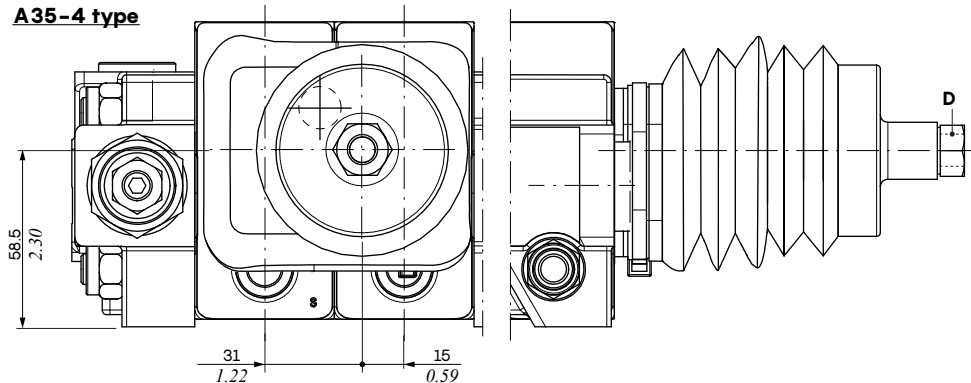
## A35-2 type



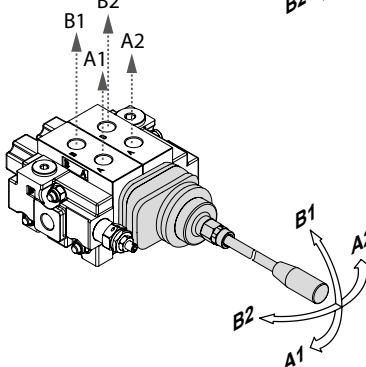
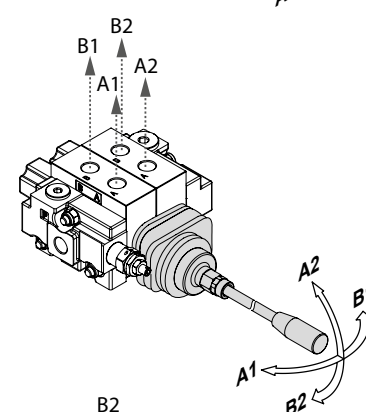
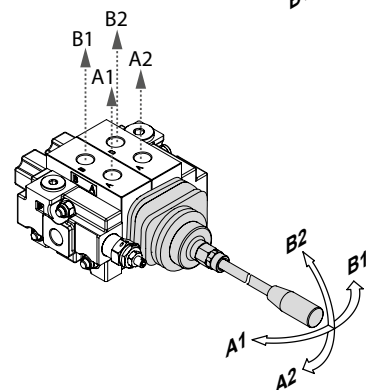
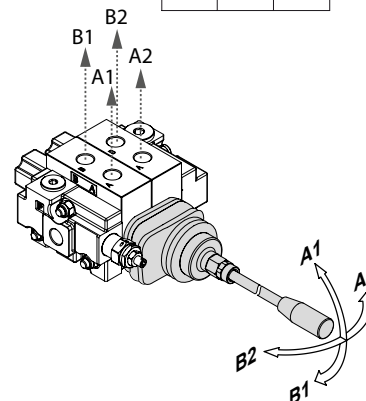
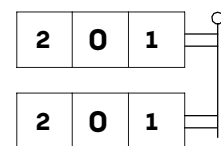
## A35-3 type



## A35-4 type



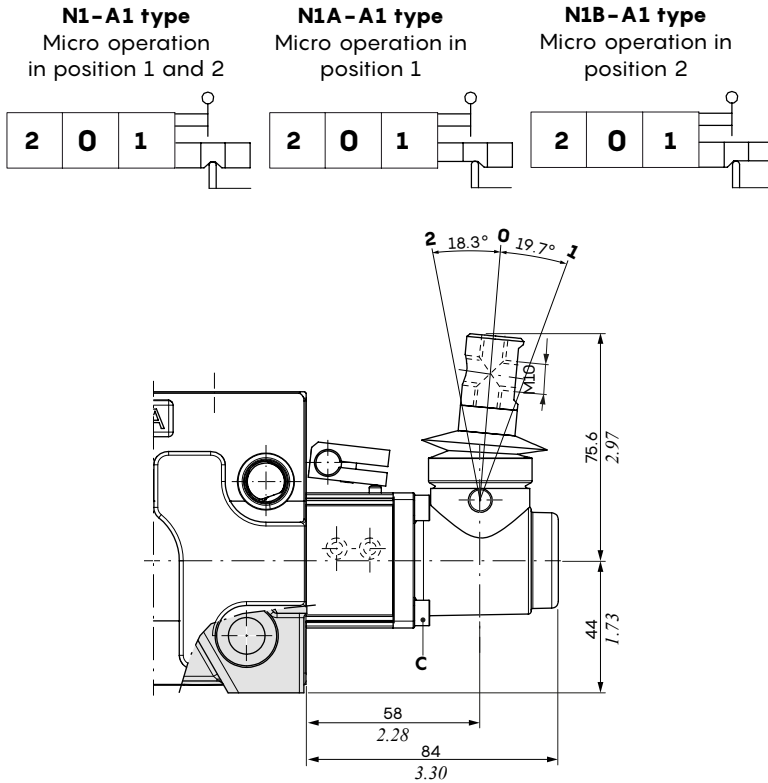
**Wrenches and tightening torques**  
D = wrench 17 - 24 Nm (17.7 lbf ft)



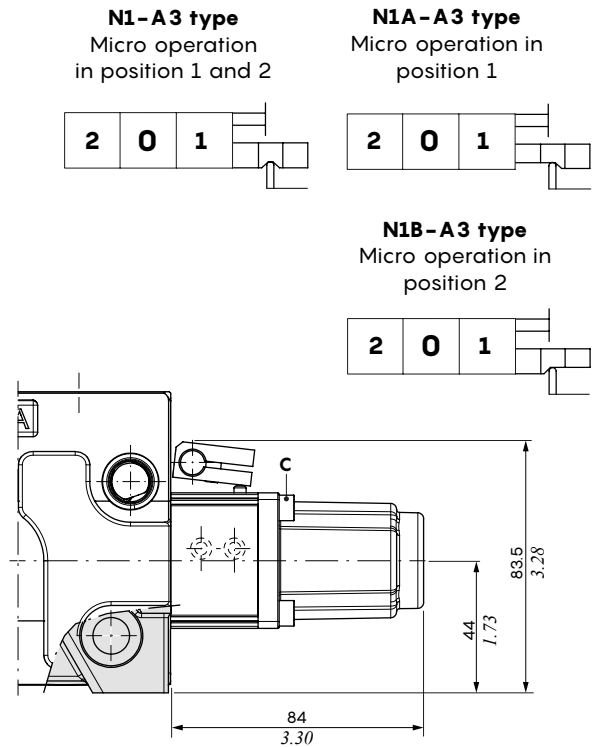
## Working section

### A side controls

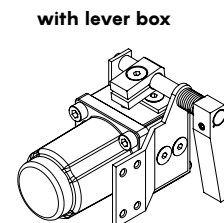
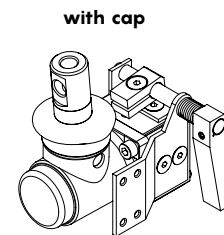
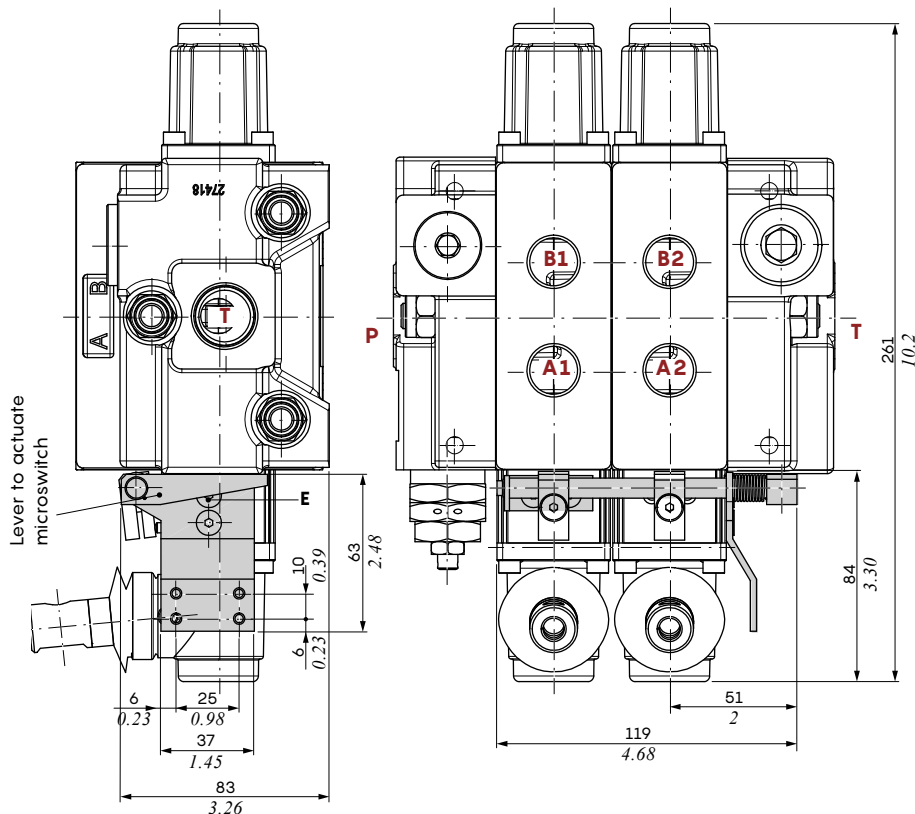
#### With spool position microswitch, with lever



#### With spool position microswitch, with cap



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



#### Wrenches and tightening torques

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

## B side controls

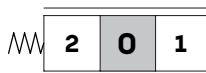
## With spring return control

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

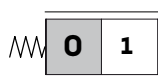
**M1/01 type**  
As M1 type,  
for joystick control

**M1/05 type**  
As M1 type,  
for series spool

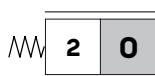
**M1/07 type**  
As M1 type, for  
joystick series spool



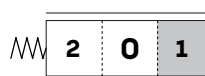
**M2 type**  
2 position (0-1), spring return  
in neutral position



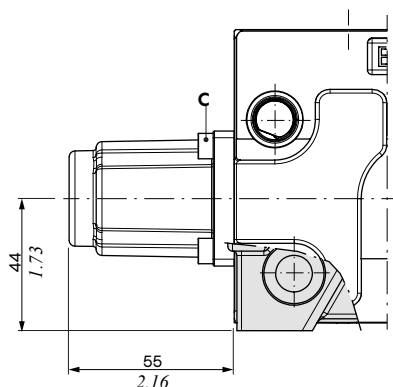
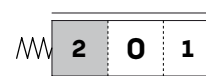
**M3 type**  
2 position (0-2), spring return  
in neutral position



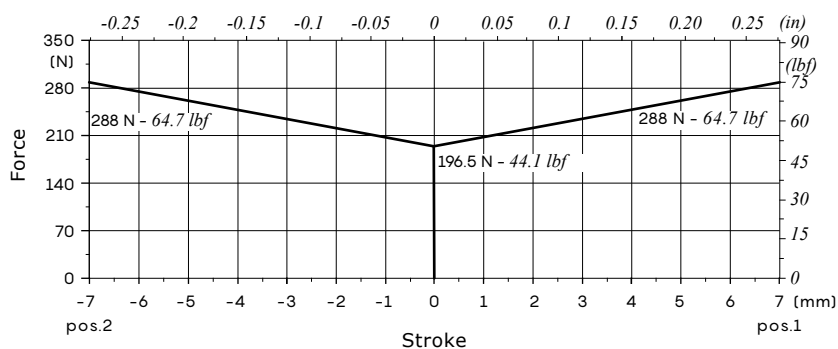
**M4 types**  
2 position (1-2),  
spring return in position 1



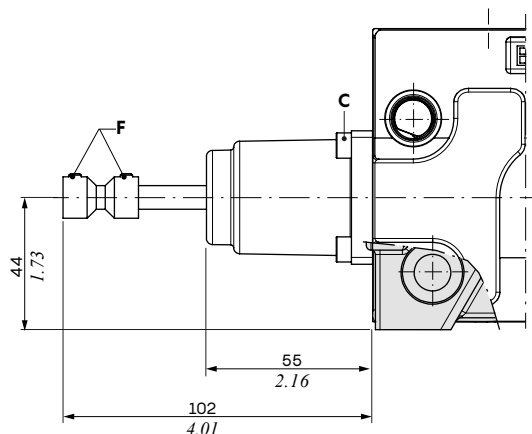
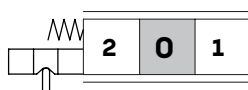
2 position (2-1),  
spring return in position 2



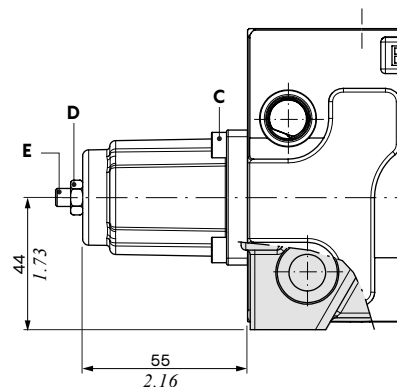
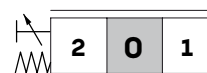
M1 control type - Force vs. Stroke diagram



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



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



## Wrenches and tightening torques

C = allen wrench 4 - 6.6 Nm (4.8 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)

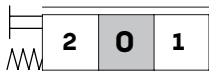
## Working section

### B side controls

#### With spring return control

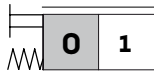
##### M1-U1 type

3 position, with M10 male thread external pin



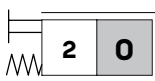
##### M2-U1 type

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



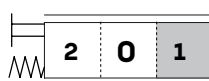
##### M3-U1 type

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



##### M4-U1 type

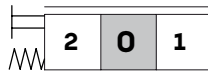
2 position (1-2), with M10 male thread external pin



#### With flexible cable control arrangement

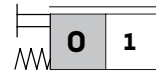
##### M1-U2 type

3 position, spring return in neutral position



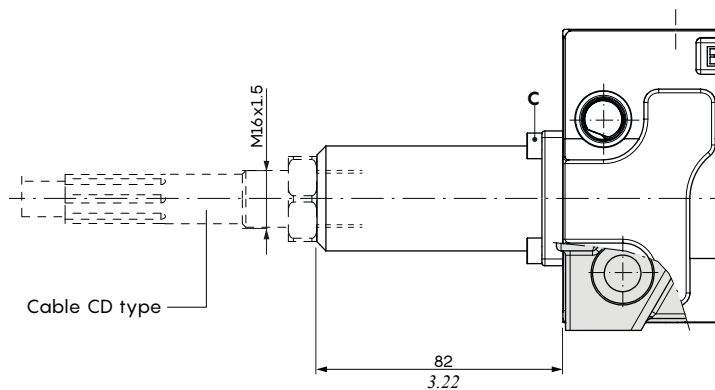
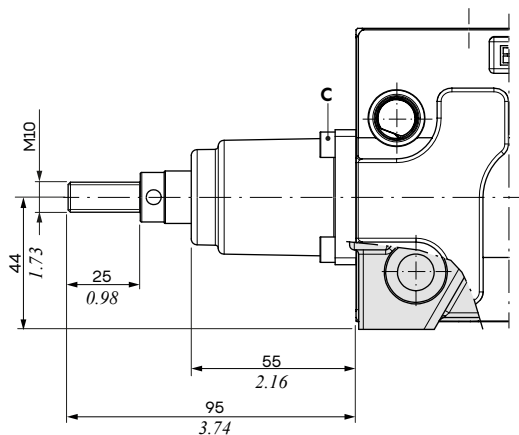
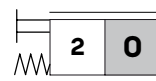
##### M2-U2 type

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



##### M3-U2 type

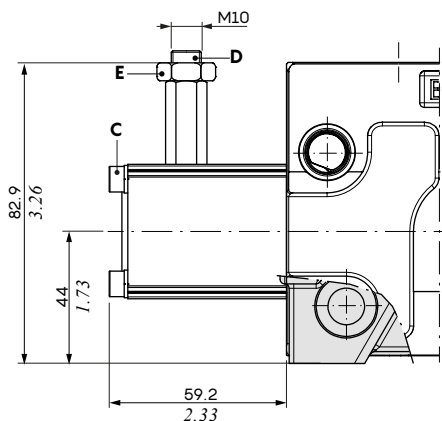
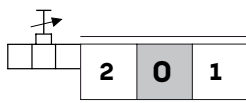
2 position (0-2), spring return in neutral position



#### With friction control

##### R0 type

Adjustable friction control



#### Wrenches and tightening torques

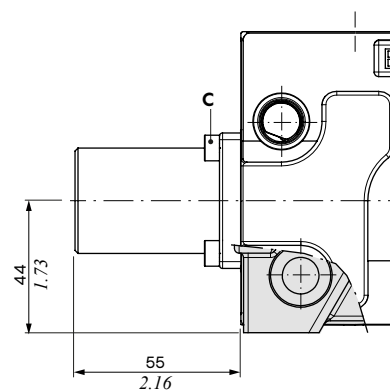
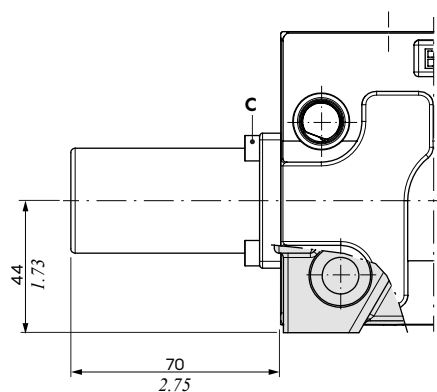
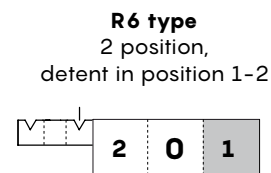
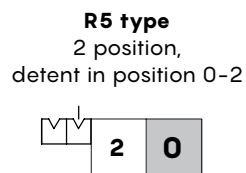
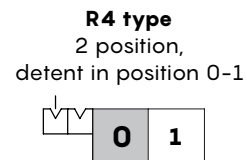
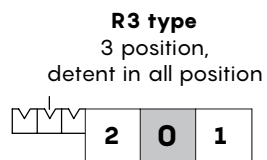
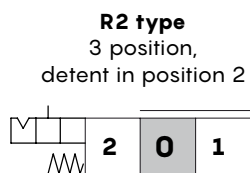
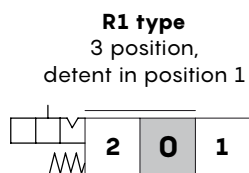
C = allen wrench 4 - 6.6 Nm (4.8 lbft)

D = allen wrench 5 - 15 Nm (11.1 lbft)

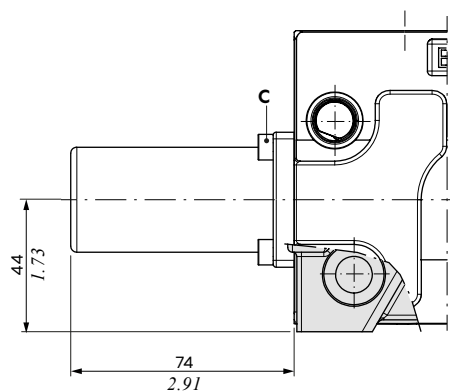
E = wrench 17 - 9.8 Nm (7.2 lbft)

## B side controls

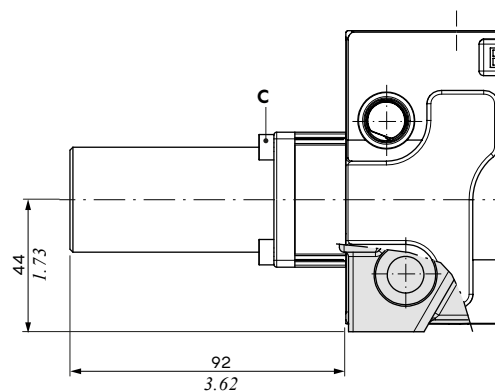
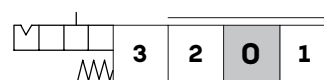
## With detent control



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



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



## Wrenches and tightening torques

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

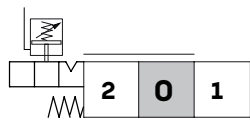
**Working section**

**B side controls**

**With detent control and kick out function**

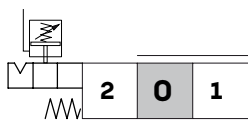
**R1K type**

3 position, detent in position 1



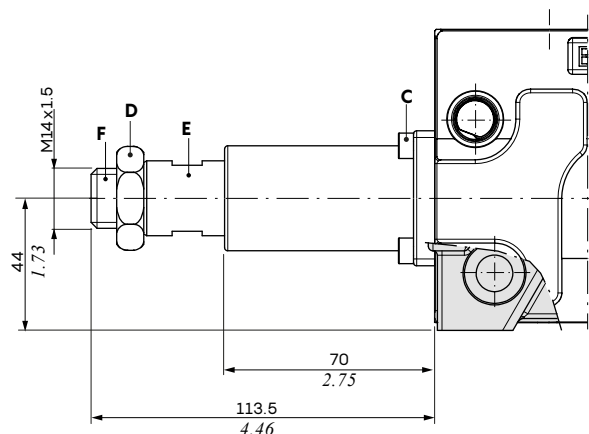
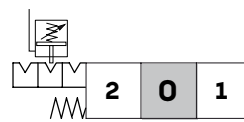
**R2K type**

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 lbf·ft)

D = wrench 30 - 42 Nm (30.9 lbf·ft)

E = wrench 22

F = allen wrench 10 - 42 Nm (30.9 lbf·ft)

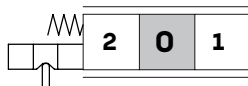


## B side controls

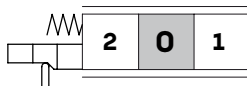
## With spool position microswitch

**M1-N1 type**

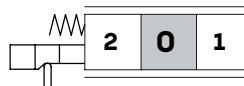
3 position, micro operation in position 1 and 2, spring return in neutral position

**M1-N1A type**

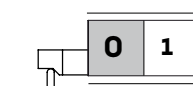
3 position, micro operation in position 1

**M1-N1B type**

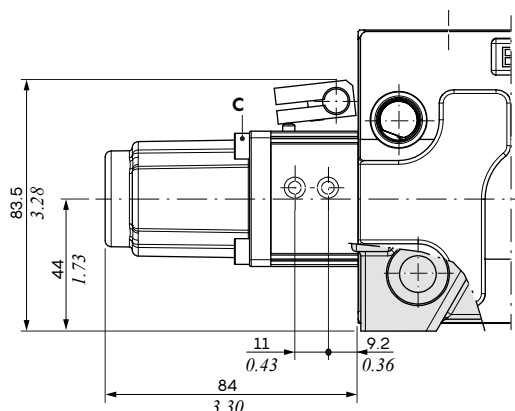
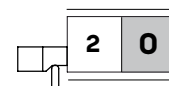
3 position, micro operation in position 2

**M2-N1 type**

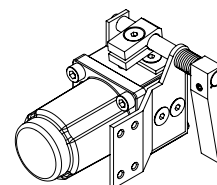
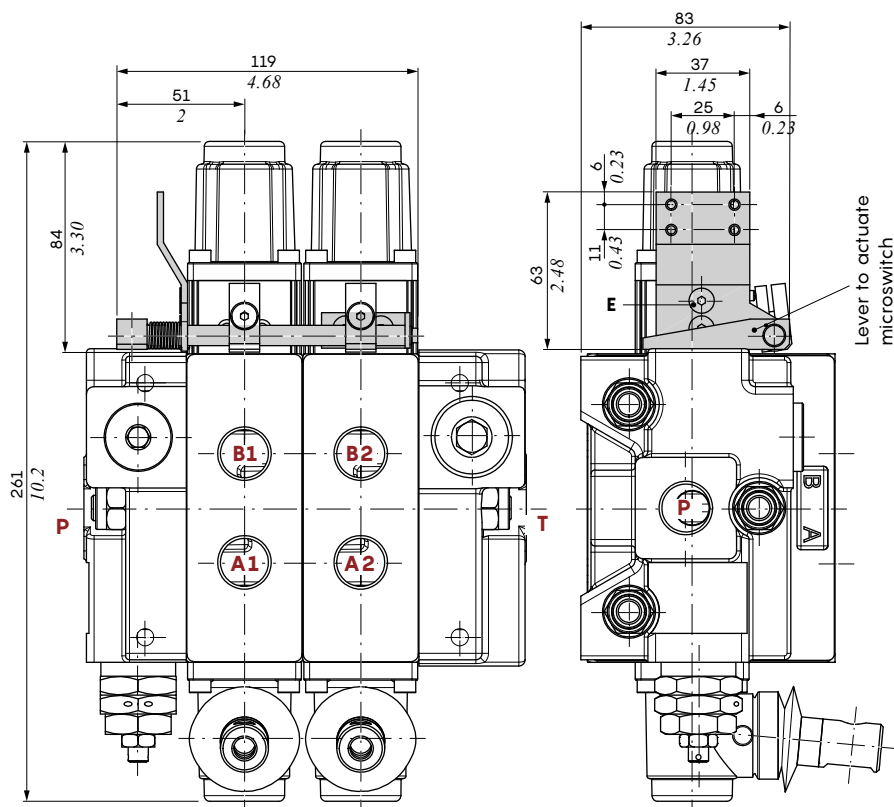
2 position (0-1), spring return in neutral position

**M3-N1 type**

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



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

**Wrenches and tightening torques**

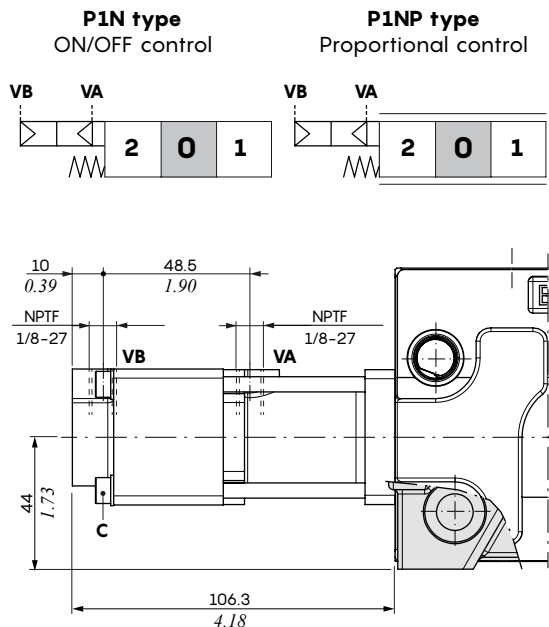
C = allen wrench 4 - 6.6 Nm (4.8 lbft)

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

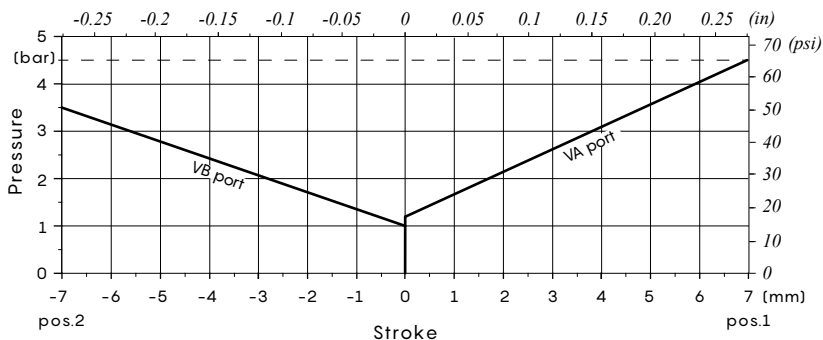
## Working section

### B side controls

#### With pneumatic control



#### Proportional pilot pressure curves



#### Operating features

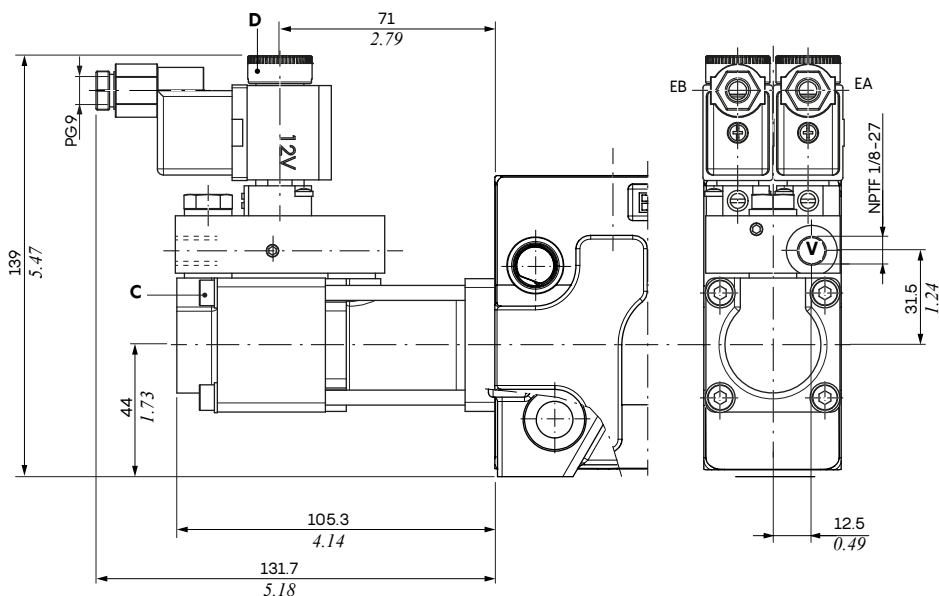
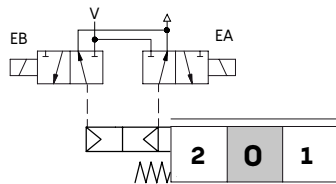
Pilot pressure..... min. 5 bar (72.5 psi) - max. 30 bar (435 psi)  
Pilot volume..... 9 cm<sup>3</sup>/min (0.54 in<sup>3</sup>/min)

#### Wrenches and tightening torques

C = wrench 4 - 6.6 Nm (4.8 lbft)

#### With ON/OFF electropneumatic control

#### D3W type ON/OFF control



#### Operating features

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

#### COILS

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

#### Wrenches and tightening torques

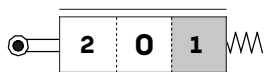
C = allen wrench 4 - 6.6 Nm (4.8 lbft)  
D = manual tightening - 6.6 Nm (4.8 lbft)

### A+B side controls

### With cam control

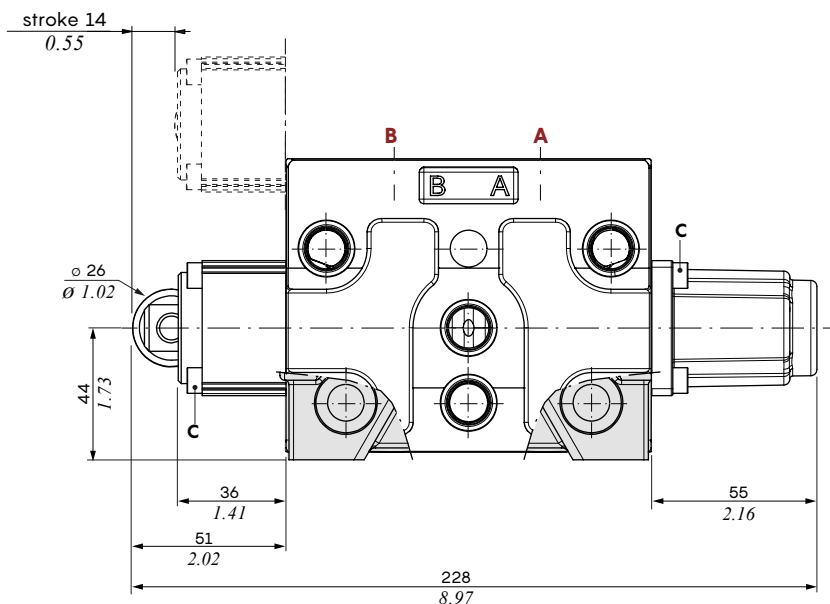
### C2 type

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



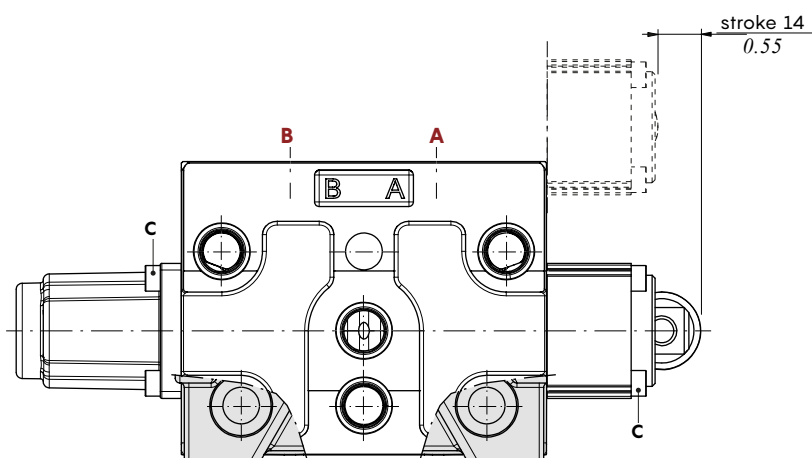
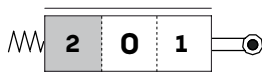
## Wrenches and tightening torques

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



### C3 type

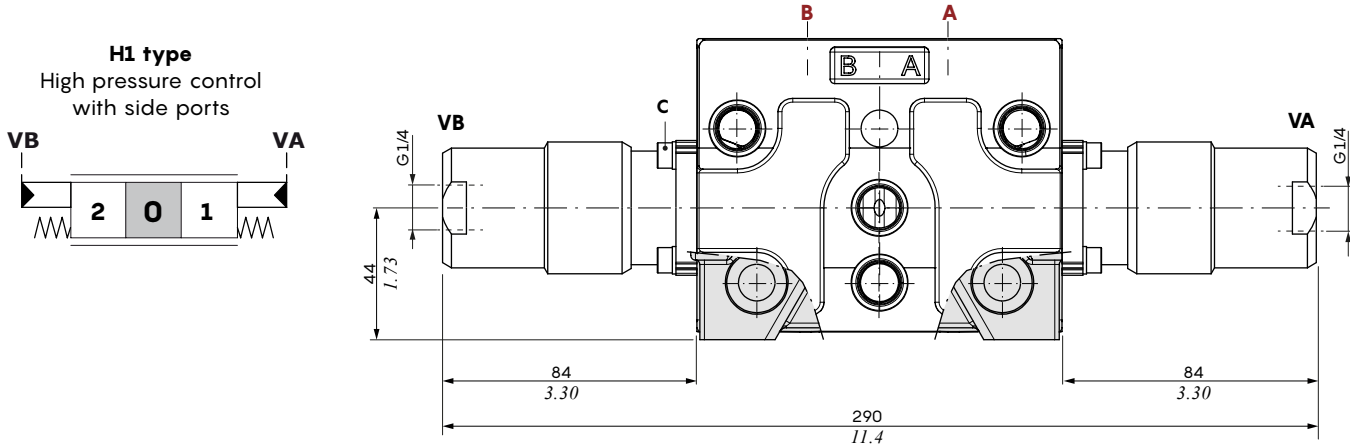
From position 2 to position 1,  
spring return in position 2.  
Dimensions are the same of C2 type



Working section

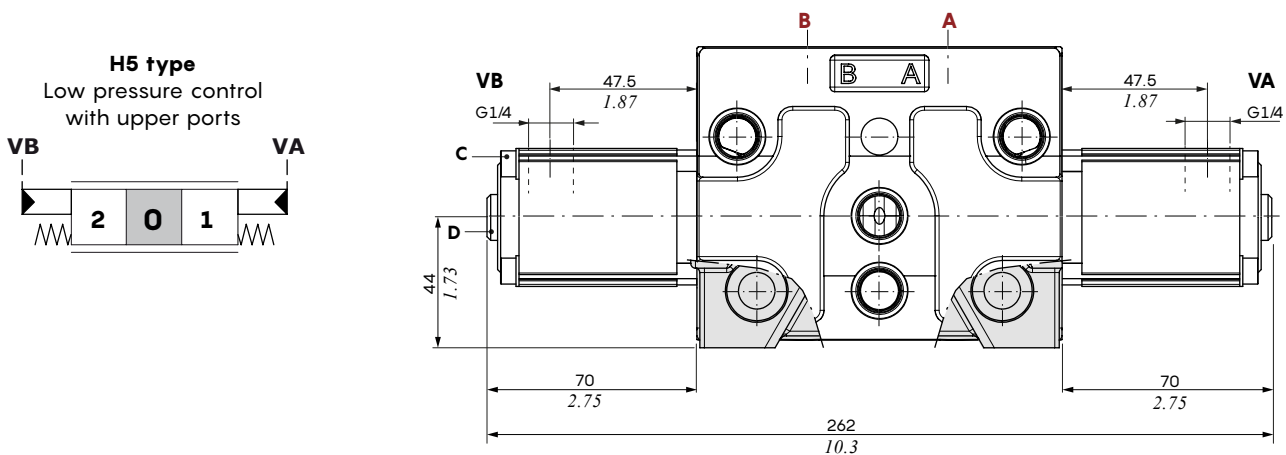
A+B side controls

With proportional hydraulic controls



Operating features

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



Operating features

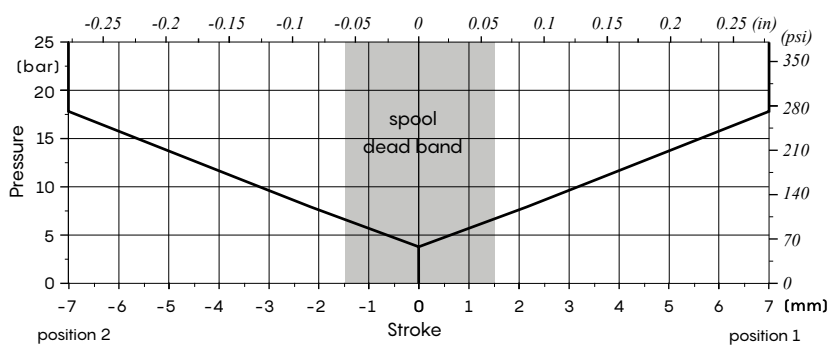
Pilot pressure.....: max. 100 bar (1450 psi)

Wrenches and tightening torques

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

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

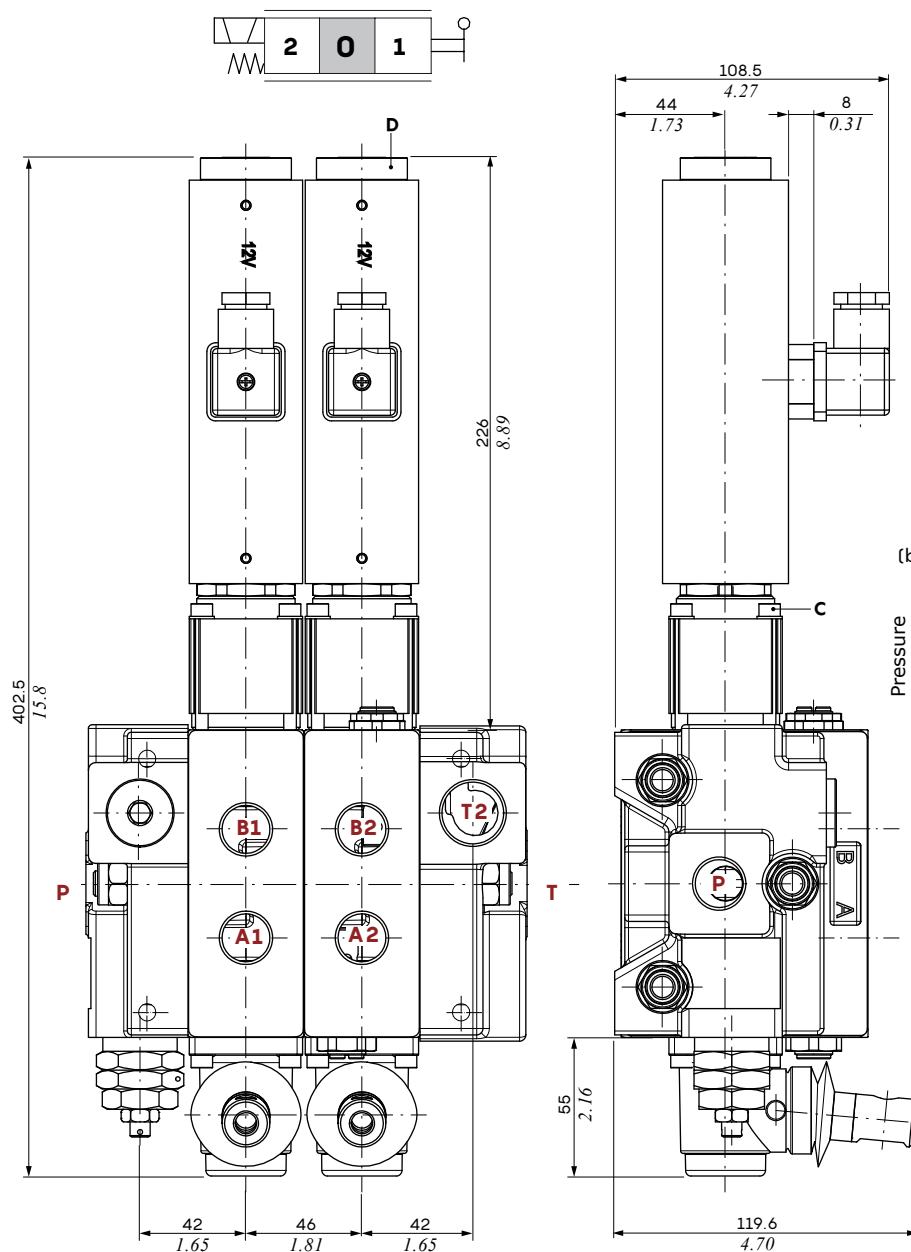
Stroke vs. Pressure diagram for H5 type control



## Working section

## Direct solenoid control

## D41 type: ON/OFF one side

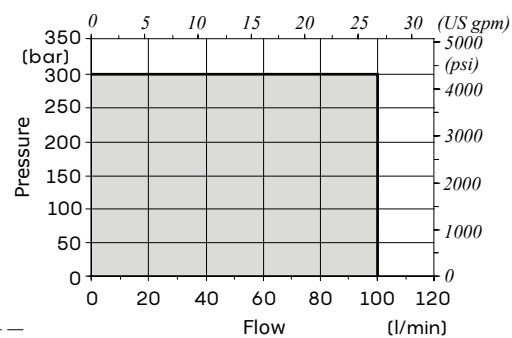


## D41 coil

|                           |                  |
|---------------------------|------------------|
| Nominal voltage           | 12 VDC<br>24 VDC |
| Nominal voltage tolerance | ±10%             |
| Power rating              | 80 W             |
| Insulation                | Class H          |
| Weather protection        | IP65             |

Connector type: ISO4400 3P+T-PG11

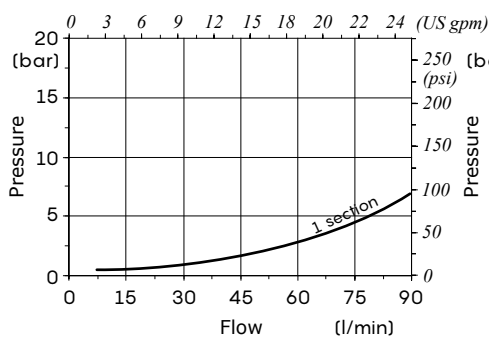
## Dynamic conditions



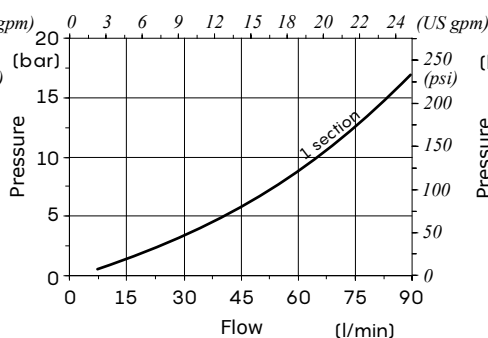
## Wrenches and tightening torques

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

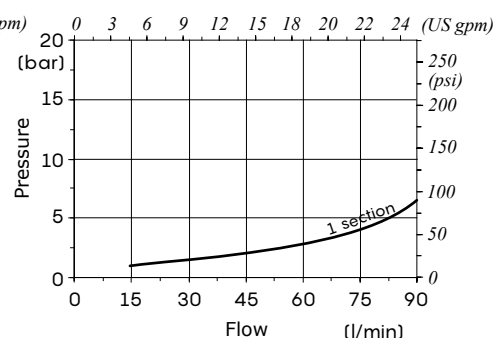
## P⇒T pressure drops



## P⇒A(B) pressure drops



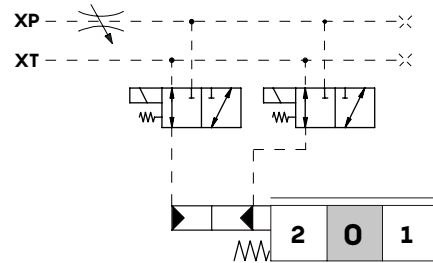
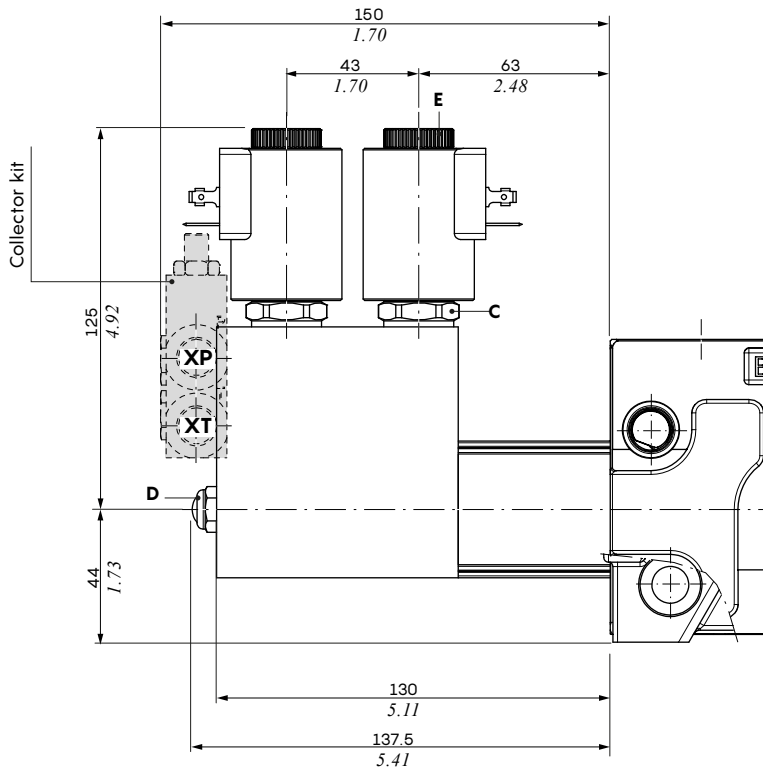
## A(B)⇒T pressure drops



## Working section

## Electrohydraulic control

**D2W type: ON/OFF one side**

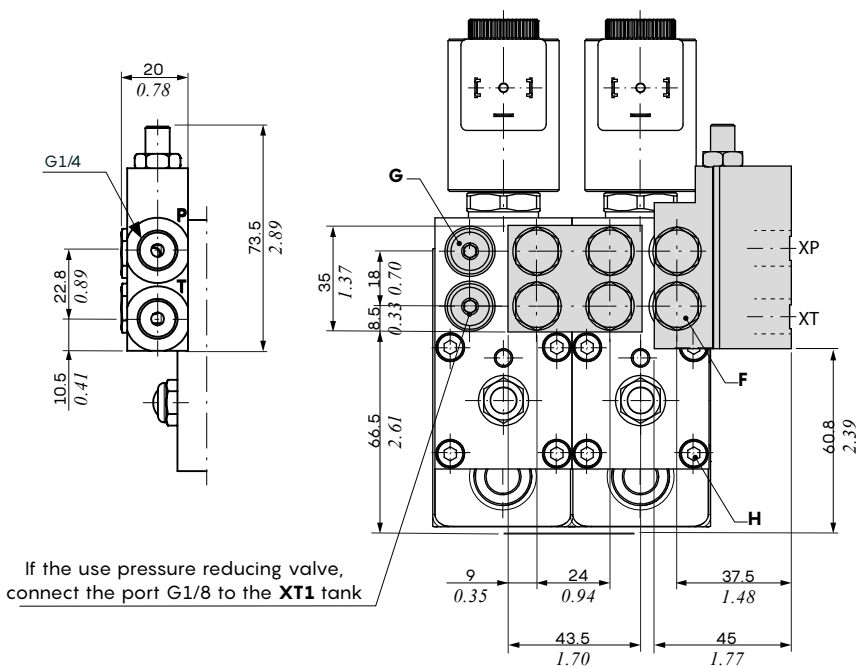


## Features

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 185

### KE2S connector kit

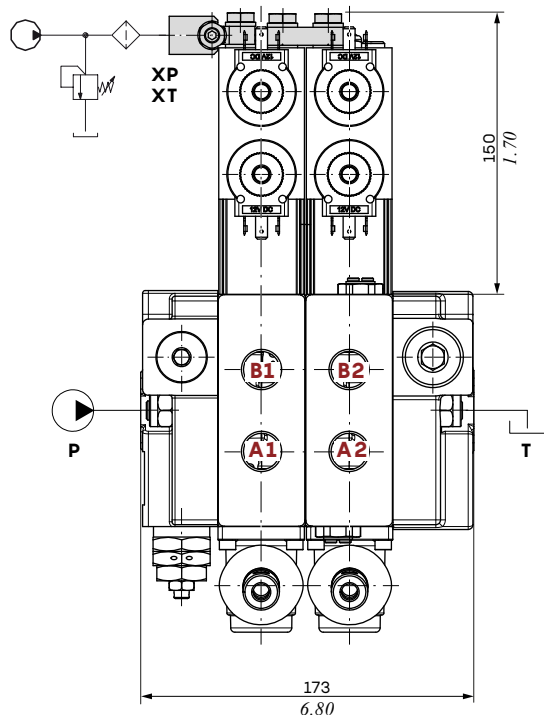


### Wrenches and tightening torques

C = wrench 24 - 30 Nm (22.1 lbf)  
D = wrench 13 - 9 Nm (6.6 lbf)  
E = wrench 6.6 - 9.8 Nm (7.2 lbf)  
F = wrench 14 - 24 Nm (17.7 lbf)  
G = allen wrench 4 - 9.8 Nm (6.6 lbf)  
H = allen wrench 4 - 3 Nm (2.2 lbf)

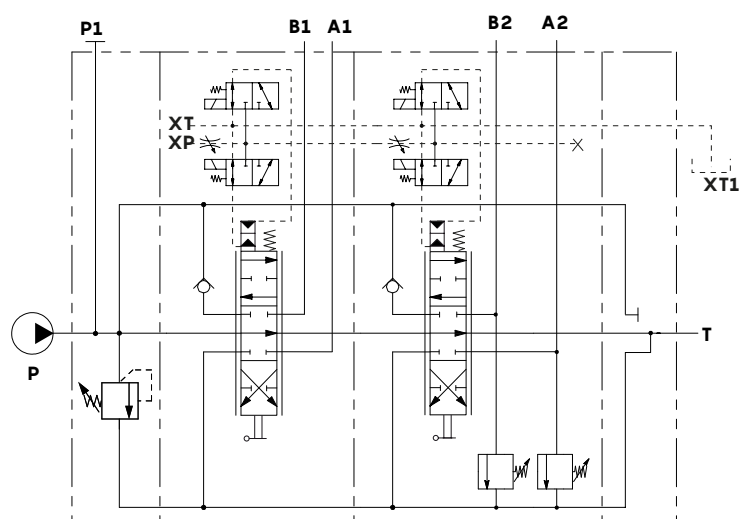
## Electrohydraulic control

## 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 123

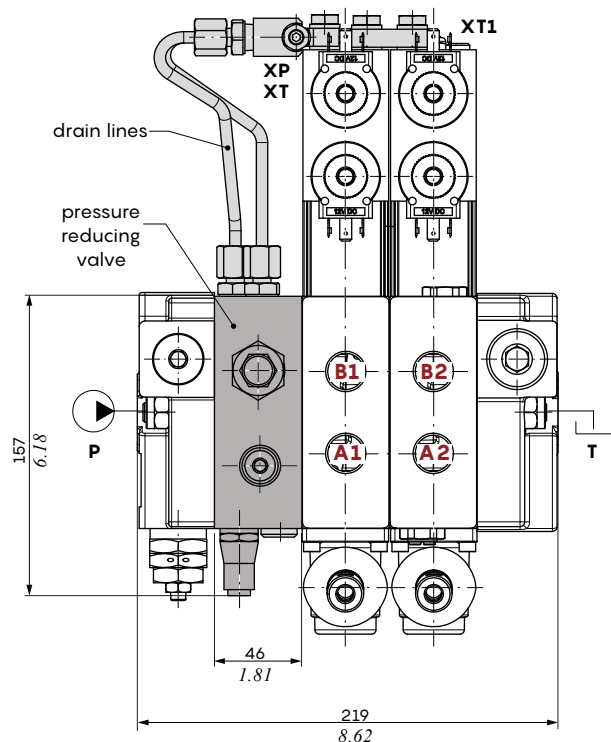


Description example:

Q80/2/F7S(N120)/KE2S/103-A1-D2W.V40(N)120/  
103-A1-D2W.V40(N)120/F3D-12VDC-S

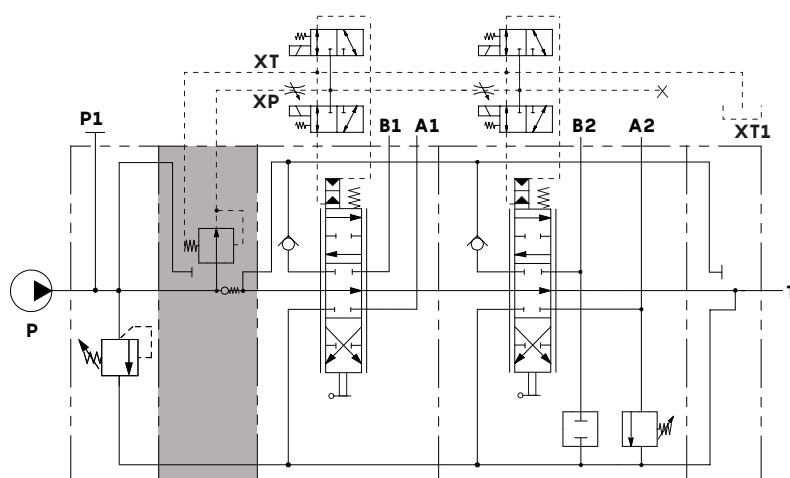
## Connector kit for internal pilot and drain

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 123



Description example:

Q80/2/F7S(N120)/KE2R/103-A1-D2W.V40(N)120/  
103-A1-D2W.V40(N)120/F3D-12VDC-S

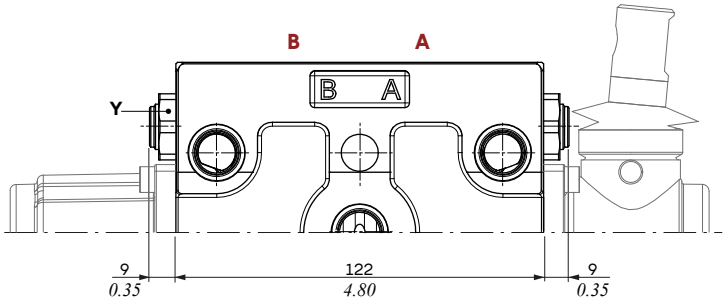
Pressure reducing valve

Working section

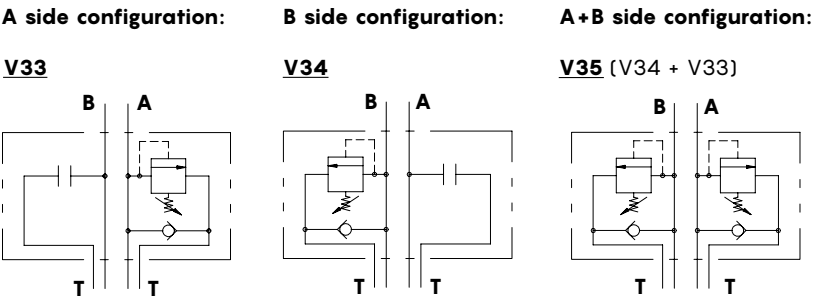
Dimensional data and hydraulic circuits

Description example

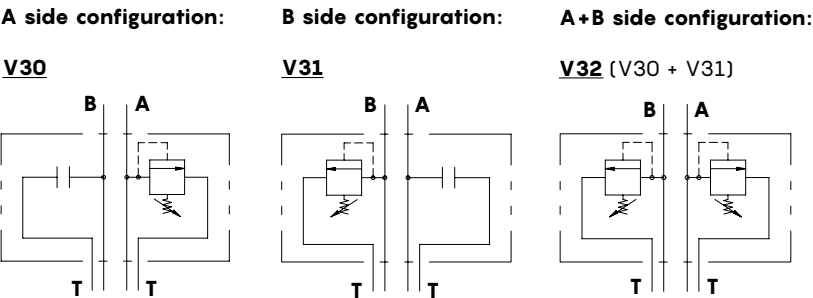
Q 80 / 1 / ... / 103 - A1 - M1 - aux valve spring type and valve setting (bar) **V32(N)120** / ...



Antishock/anticavitation valve example



Antishock valve example



| 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 370 - from 2910 to 5400 |

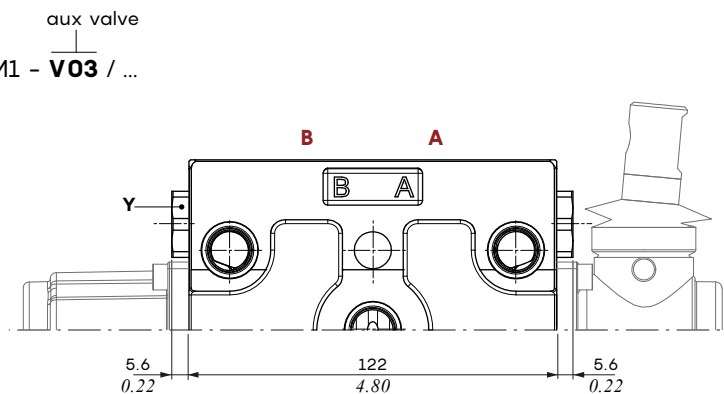
Wrenches and tightening torques  
Y = wrench 22 - 42 Nm (30.9 lbf)



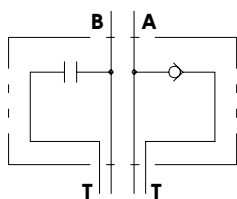
## Dimensional data and hydraulic circuits

## Anticavitation valve example

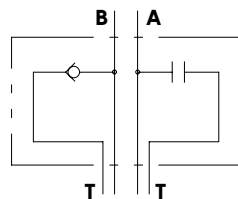
Q80 / 1 / ... / 103 - A1 - M1 - **V03** / ...



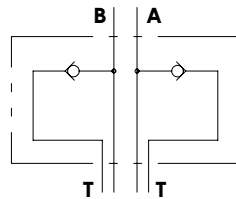
A side configuration:

**V04**

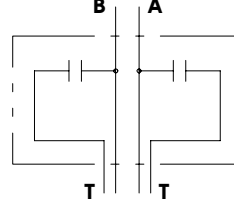
B side configuration:

**V05**

A+B side configuration:

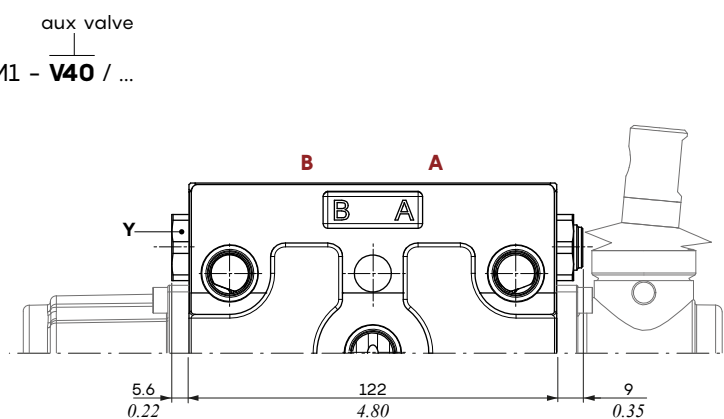
**V03** (V04 + V05)

Plug valve:

**VC**

## Antishock and anticavitation combining valves example

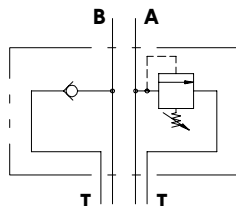
Q80 / 1 / ... / 103 - A1 - M1 - **V40** / ...



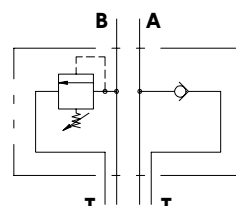
Wrenches and tightening torques

Y = wrench 22 - 42 Nm (30.9 lbft)

A side configuration:

**V40** (V30 + V05)

B side configuration:

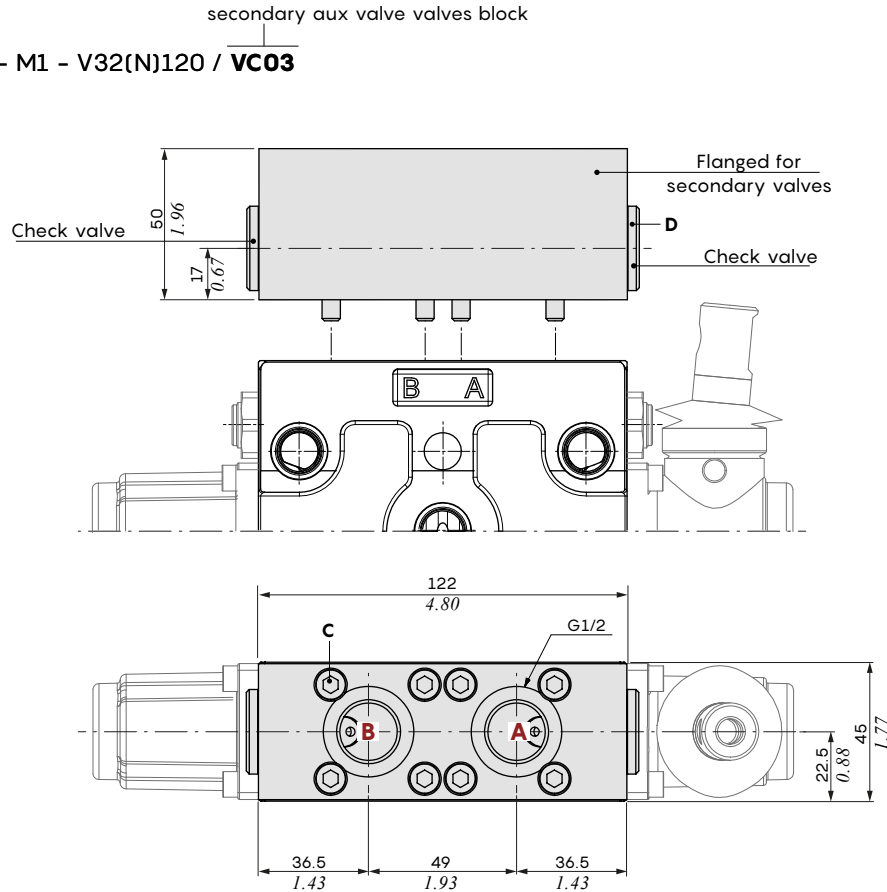
**V41** (V31 + V04)

## Secondary valve configuration

### Dimensional data and hydraulic circuits

#### Description example

Q80 / 1 / ... / 103 - A1 - M1 - V32(N)120 / **VC03**



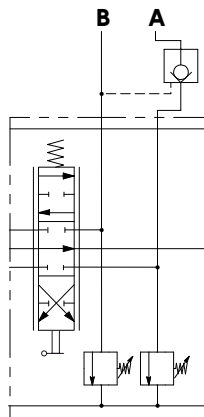
#### Wrenches and tightening torques

C = allen wrench 5 - 9.8 Nm (7.2 lbft)

D = allen wrench 8 - 60 Nm (44.2 lbft)

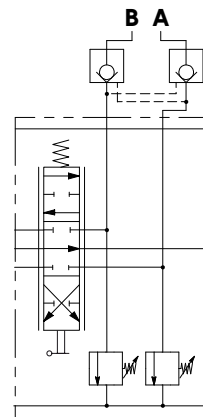
#### Q80.V40(N)120/VC01 configuration

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

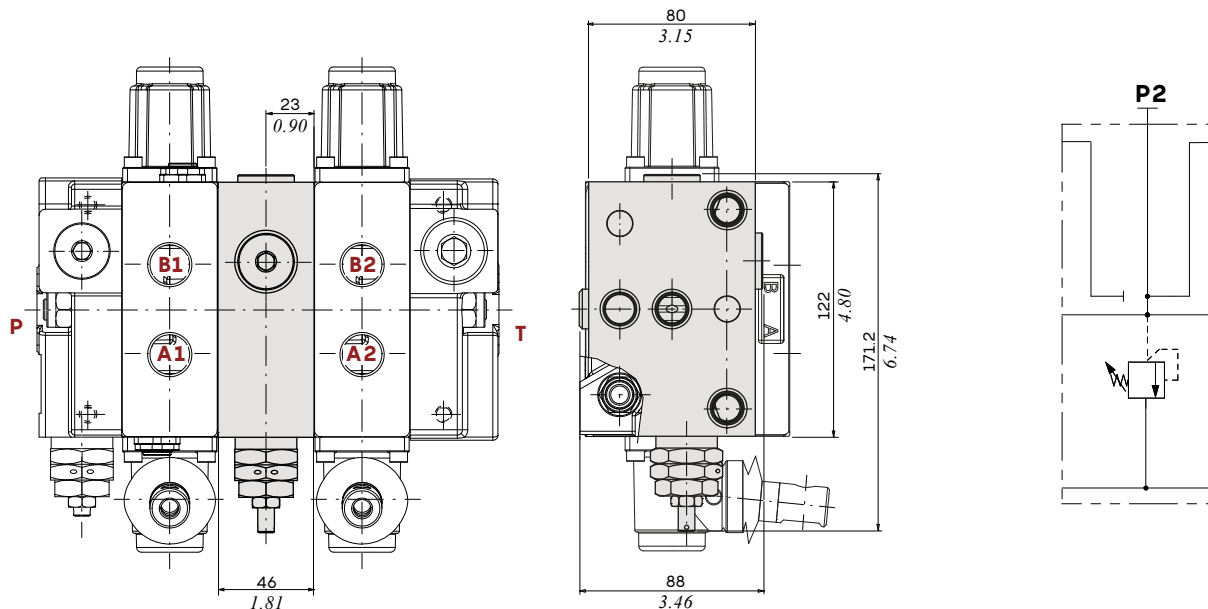


## Intermediate section

## Dimensional data and hydraulic circuit

**E50 type**

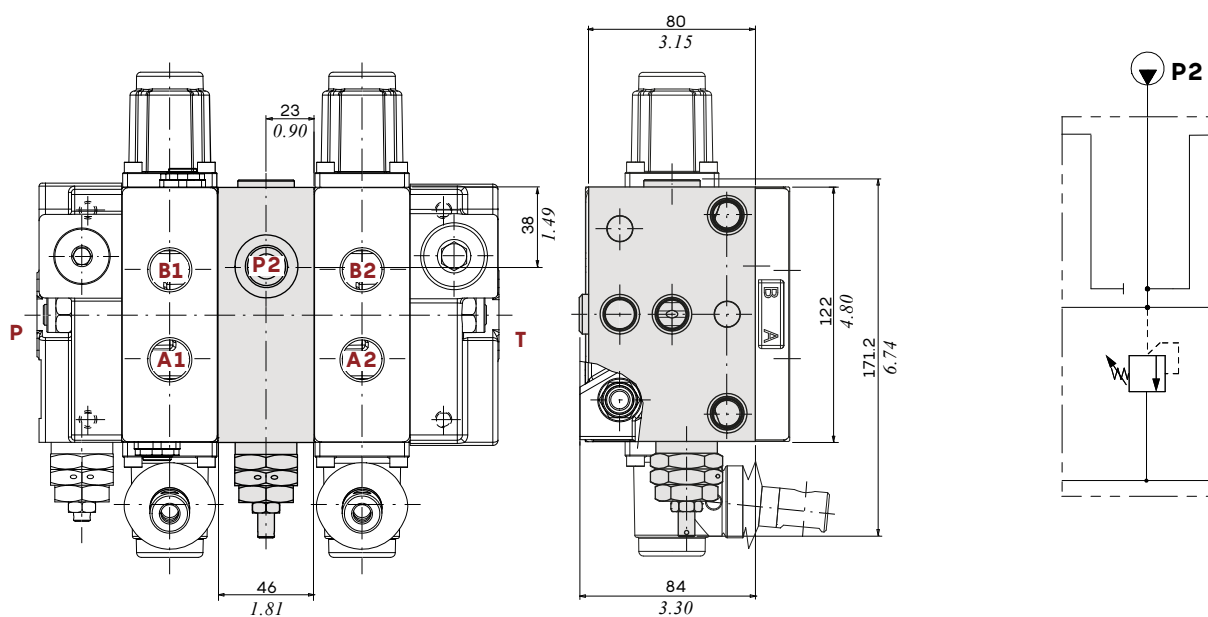
Intermediate inlet section with pressure relief valve

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

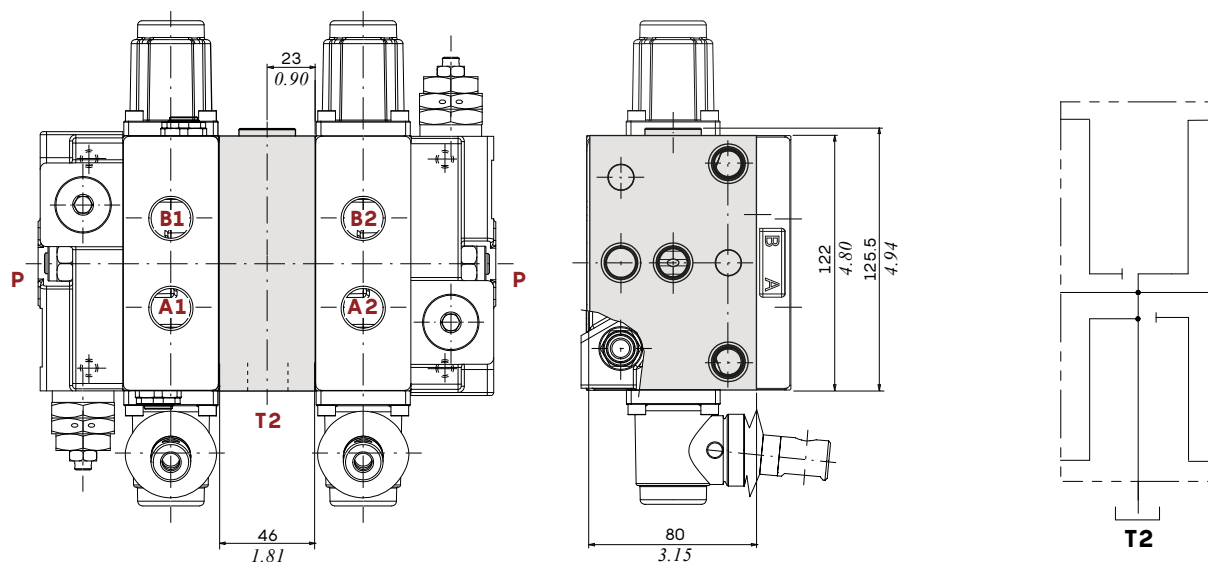
intermediate section      spring type and valve setting (bar)

## Intermediate section

### Dimensional data and hydraulic circuit

#### E51 type

Intermediate outlet section, T2 port open

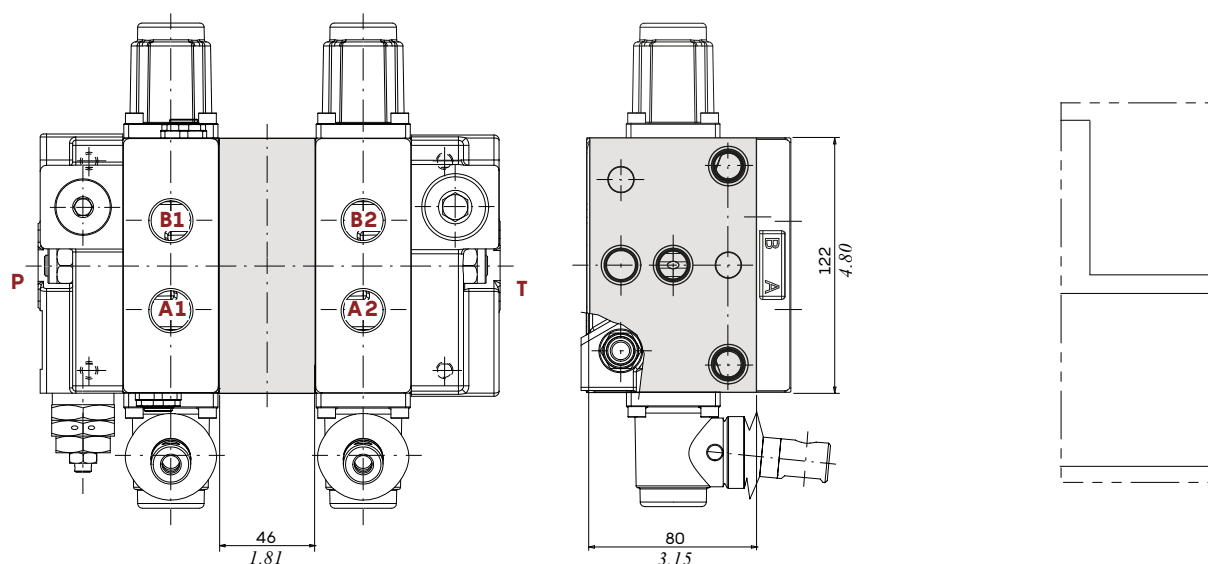


Description example: Q80/2/F7S(N150)/103-A1-M1.VC/**E51**/103-A1-M1/F3D

intermediate  
section

#### E61 type

Intermediate spacer section

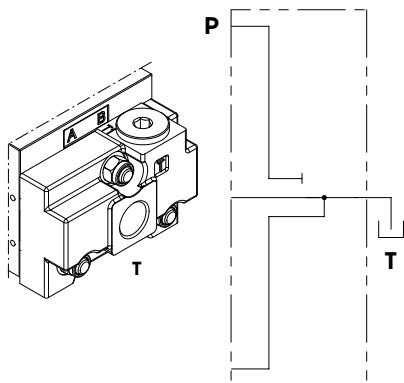


Description example: Q80/2/F7S(N150)/103-A1-M1.VC/**E61**/103-A1-M1/F3D

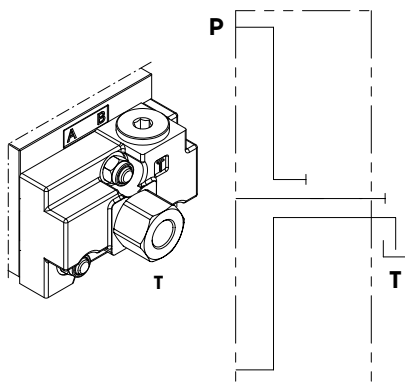
intermediate  
section

## Outlet section

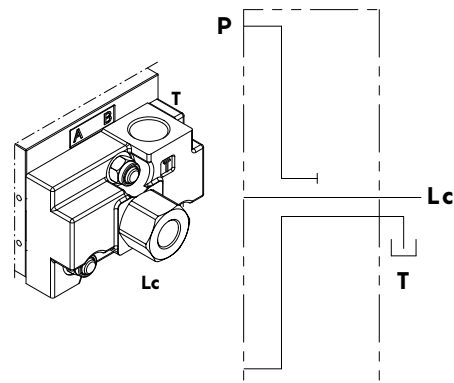
**F3D configuration**  
Open center configuration



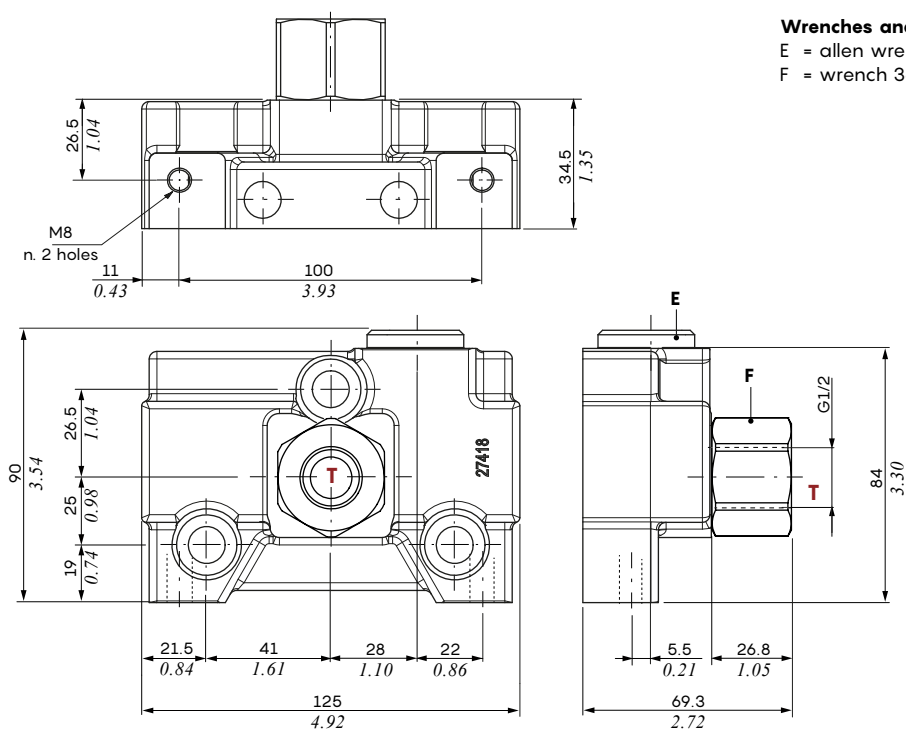
**F16D configuration**  
Closed center configuration



**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 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

|                                     |                          |                                                        |
|-------------------------------------|--------------------------|--------------------------------------------------------|
| Nominal flow rating                 |                          | 130 l/min - (34.3 Us gpm)                              |
| Max. pressure                       |                          | 300 bar (4350 psi)                                     |
| Max. back pressure on outlet T port |                          | 25 bar (360 psi)                                       |
| Number sections                     |                          | from 1 to 10                                           |
| Internal leakage A(B)⇒T             | Δp = 100 bar (1450 psi)  | 10 cm <sup>3</sup> /min (0.61 in <sup>3</sup> /min)    |
| Fluid                               |                          | Mineral oil                                            |
| Fluid temperature                   | with NBR (BUNA-N) seals  | from -30°C to 80°C - from -22 °F to 176 °F             |
| Viscosity                           | operating range          | from 10 to 400 mm <sup>2</sup> /s - from 10 to 400 cSt |
| Max. contamination level            |                          | 16/14/12 - ISO 4406 - NAS1638 class 6                  |
| Ambient temperature                 | without electric devices | from -40°C to 60°C - from 40 °F to 140 °F              |
|                                     | with electric devices    | from -20°C to 50°C - from -4 °F to 122 °F              |

NOTE - For different conditions please contact our Sales Department.

#### REFERENCE STANDARD

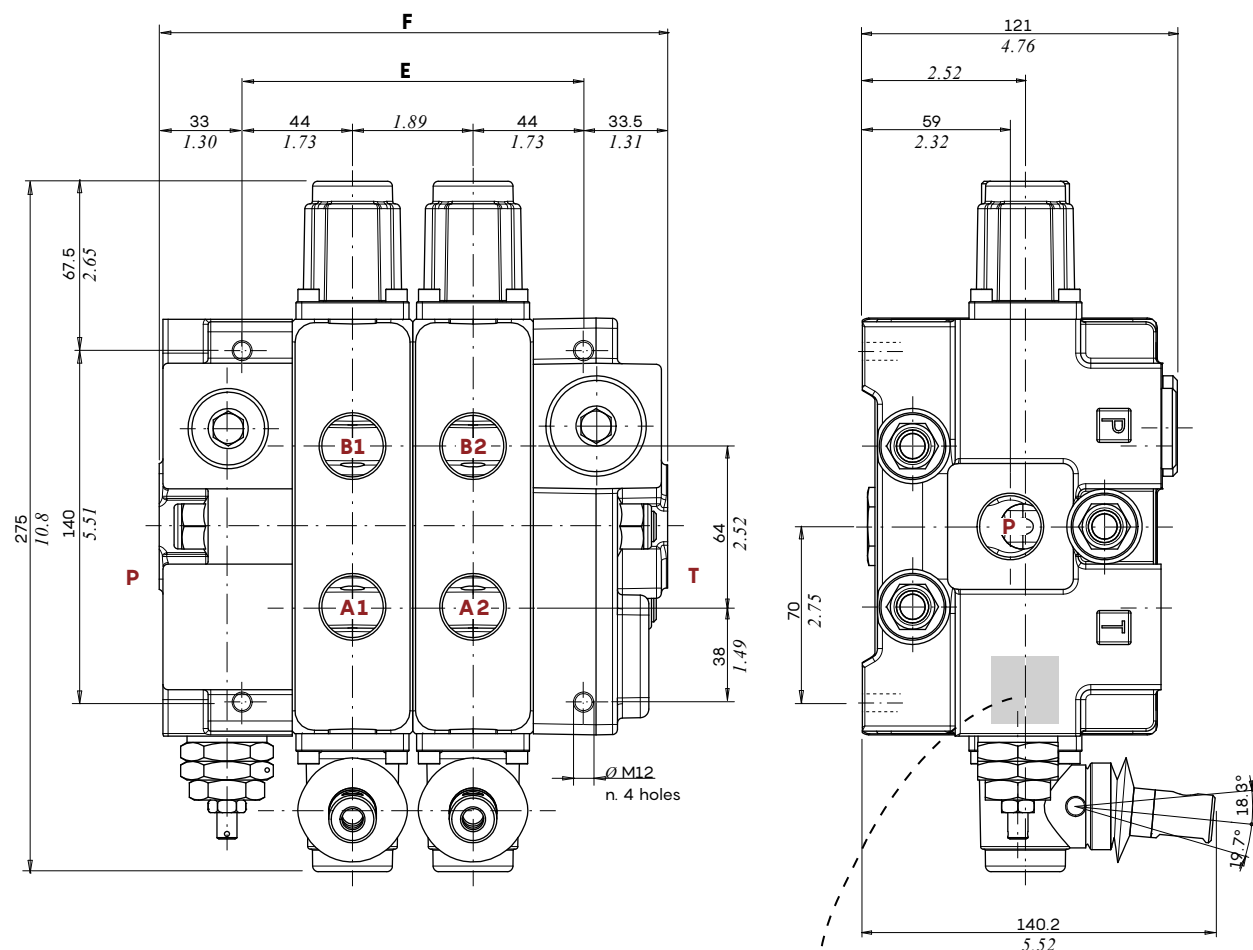
|                               |     | BSP                 | UN-UNF            |
|-------------------------------|-----|---------------------|-------------------|
| THREAD ACCORDING TO           |     | ISO 228/1           | ISO 263           |
|                               |     | BS 2779       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

#### PORT THREADING

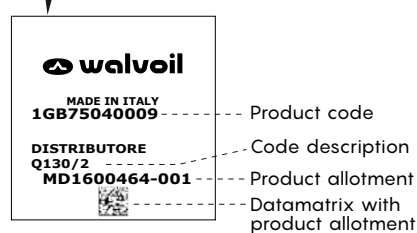
| PORTS                              | BSP (standard) | BSP (G 1")  | UN-UNF             |
|------------------------------------|----------------|-------------|--------------------|
| P Inlet                            | G 3/4          | G 1"        | 1" 5/16-12 (SAE16) |
| P1 Inlet                           | 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   |       | F     |       |
|---------|-----|-------|-------|-------|
|         |     | in    |       | in    |
| Q130/1  | 88  | 3.46  | 154.5 | 6.08  |
| Q130/2  | 136 | 5.35  | 202.5 | 7.97  |
| Q130/3  | 184 | 7.24  | 250.5 | 9.86  |
| Q130/4  | 232 | 9.13  | 298.5 | 11.75 |
| Q130/5  | 280 | 11    | 346.5 | 13.64 |
| Q130/6  | 328 | 12.91 | 394.5 | 15.53 |
| Q130/7  | 376 | 14.80 | 442.5 | 17.42 |
| Q130/8  | 424 | 16.70 | 490.5 | 19.31 |
| Q130/9  | 472 | 18.58 | 538.5 | 21.20 |
| Q130/10 | 520 | 20.47 | 586.5 | 23.09 |

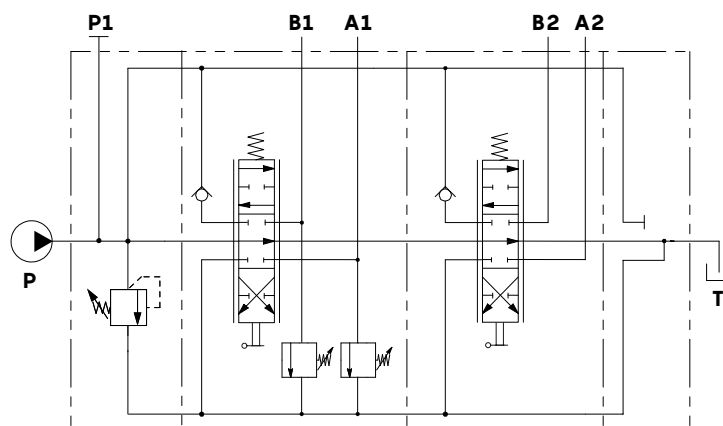


NOTE: Drawings and dimensions are referred to a **BSP** threading configuration.

(\*) For other configurations, see page 182



## Hydraulic circuit

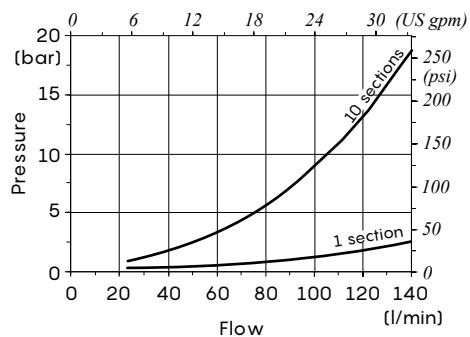


Description example (parallel circuit):

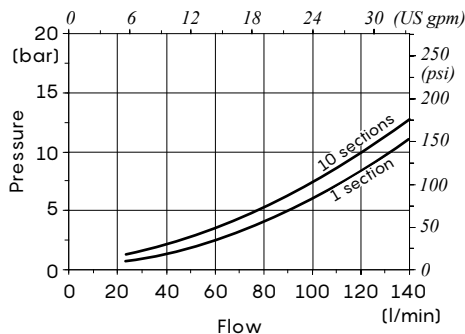
Q130/2/F7S(N150)/103-A1-M1.V32(N105\N105)/103-A1-M1/F3D

## Performance data

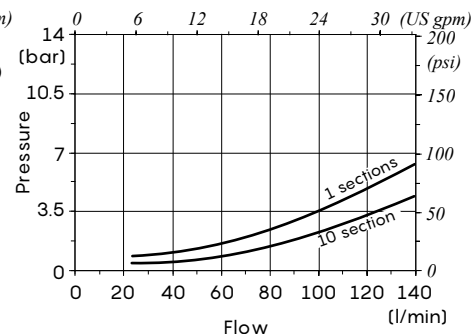
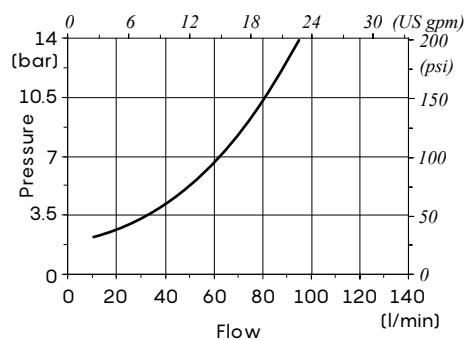
P⇒T pressure drops



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)

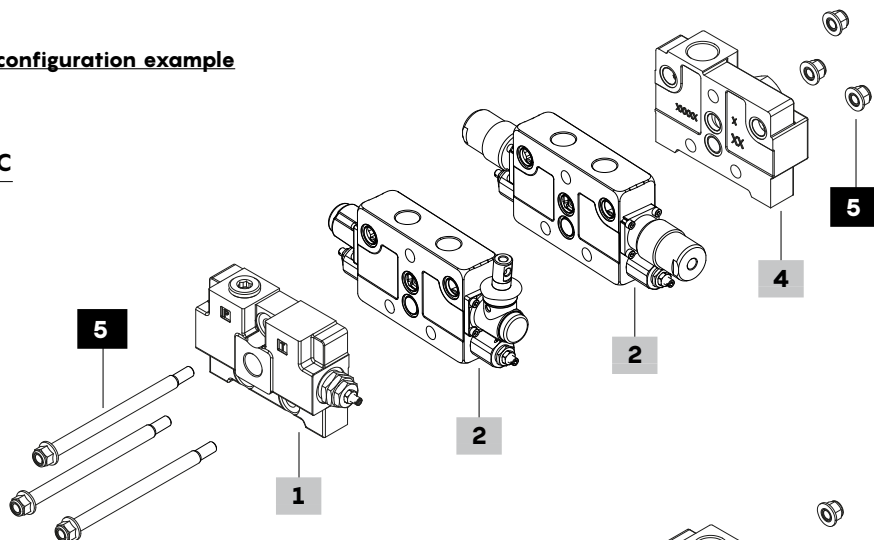
**Q130 / 2 / F7S(N150) / 103 - A1 - M1 . VC**

N. of section

**1** **2**

**/ 103 - H1 . VC / F6D**

**2** **4**



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

**Q130 / 2 / F7S(N150) / 103 - A1 - M1 . VC /**

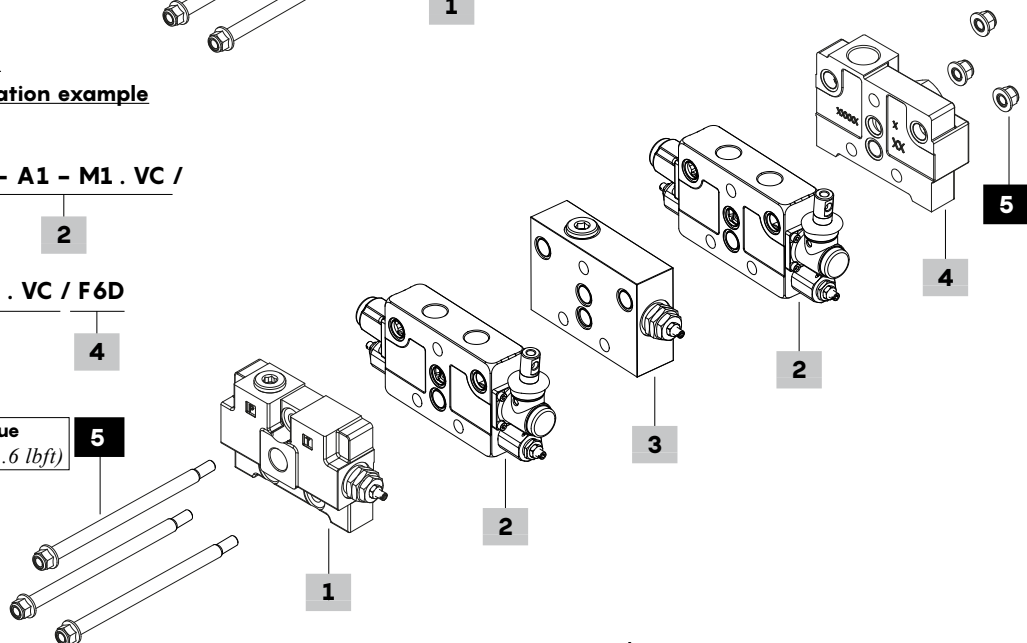
valve setting (bar)

**1** **2**

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

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

Tie rod tightening torque  
wrench 18 - 70 Nm (51.6 lbf ft)



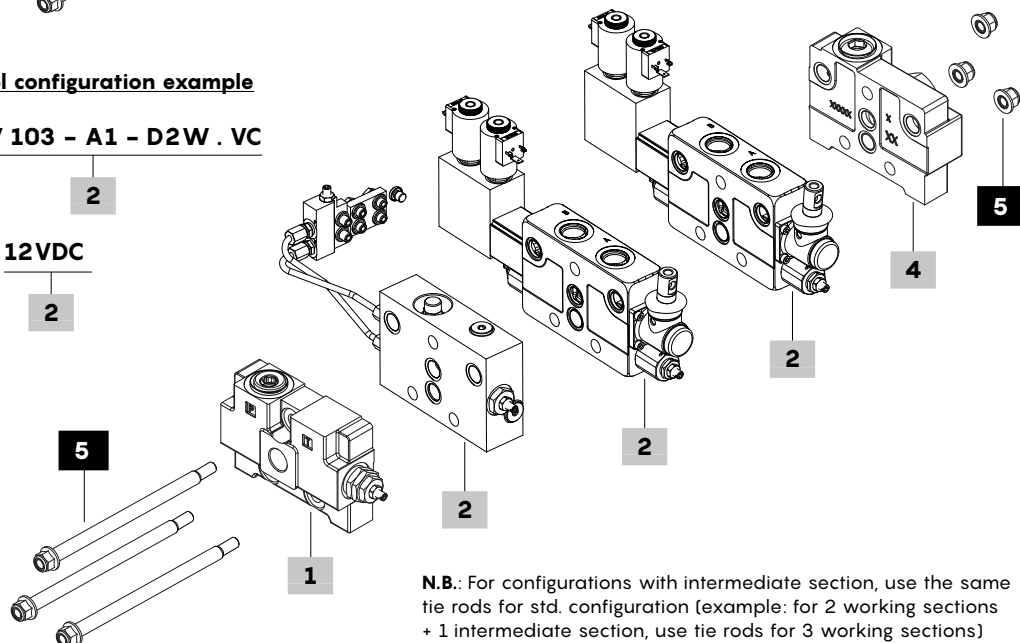
#### Valve with electrohydraulic control configuration example

**Q130 / 2 / F7S(N150) / KE2R / 103 - A1 - D2W . VC**

**1** **2**

**/ 103 - A1 - D2W . VC / F6D - 12VDC**

**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 154**

TYPE: **FE-Q130/F7S(N150)** CODE: 10000F7S/D-N  
 DESCRIPTION: Side inlet open, upper inlet plugged, with pressure relief valve, setting range 101-200 bar (1460-2900 psi)  
 TYPE: **FE-Q130/F8S** CODE: 10003F8S/D  
 DESCRIPTION: As previous one, without valves (pressure relief valve plugged port)

**2 Working section\* page 157****With mechanical controls**

TYPE: **EL-Q130/103-A1-M1.VC** CODE: SGL130004  
 DESCRIPTION: Parallel circuit with valve arrangement (seat plugged), 3 positions double acting spool, lever control and spring return to neutral position  
 TYPE: **EL-Q130/103-A1-M1** CODE: 100000103001000  
 DESCRIPTION: As previous one, without valve arrangement

**With proportional hydraulic controls**

TYPE: **EL-Q130/103-H1.VC** 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: **EL-Q130/103-H1** CODE: SGL130006  
 DESCRIPTION: As previous one, without valve arrangement  
 TYPE: **EL-Q130/103-H5.VC** 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: **EL-Q130/103-H5** CODE: SGL130008  
 DESCRIPTION: As previous one, without valve arrangement

**With electrohydraulic ON/OFF controls - one side type**

TYPE: **EL-Q130/KE1S/103-A1-D2W.VC -12VDC**  
 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: **EL-Q130/KE1S/103-A1-D2W-12VDC**  
 CODE: SGL130012  
 DESCRIPTION: As previous one, without valve arrangement

**3 Intermediate section\* page 182**

| TYPE       | CODE       | DESCRIPTION                                                                                                  |
|------------|------------|--------------------------------------------------------------------------------------------------------------|
| <b>E50</b> | 10850E50-B | With pressure relief valve setting range 10-100 bar (145-1450 psi)                                           |
|            | 10850E50-N | As previous one, setting range 101-200 bar (1460-2900 psi)                                                   |
|            | 10850E50-R | As previous one, setting range 201-380 bar (2910-5500 psi)                                                   |
| <b>E53</b> | 10854E53-B | With pressure relief valve setting range 10-100 bar (145-1450 psi) and P2 port open for 2 <sup>nd</sup> pump |
|            | 10854E53-N | As previous one, setting range 101-200 bar (1460-2900 psi)                                                   |
|            | 10854E53-R | As previous one, setting range 201-380 bar (2910-5500 psi)                                                   |
| <b>E51</b> | 10853E51   | Intermediate outlet section, T2 port open                                                                    |
| <b>E61</b> | 10877E61   | Intermediate spacer section                                                                                  |

**4 Outlet section\* page 184**

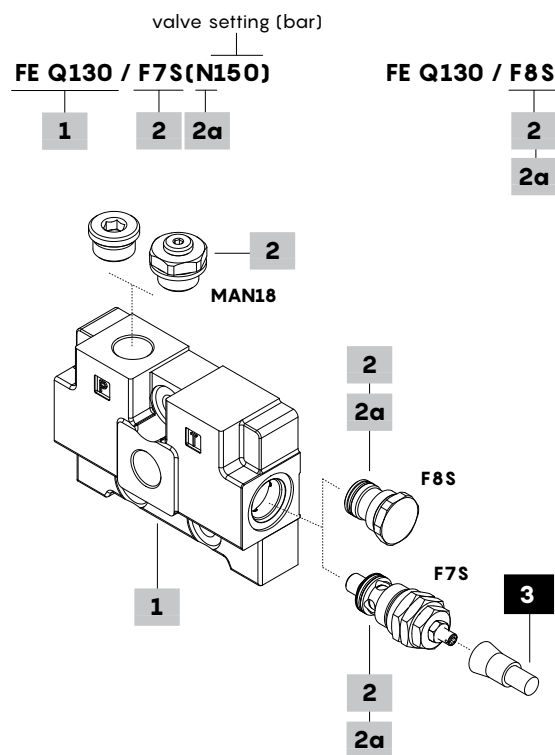
| TYPE                | CODE      | DESCRIPTION                                                        |
|---------------------|-----------|--------------------------------------------------------------------|
| <b>FS-Q130-F3D</b>  | 10012F3D  | T port open, T1 port plugged. For open center circuit              |
| <b>FS-Q130-F16D</b> | 10016F16D | T port open, T1 port plugged. For closed center circuit            |
| <b>FS-Q130-F6D</b>  | 10014F6D  | 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 155

TYPE: **FE-Q130** CODE: 060012839699  
DESCRIPTION: Side inlet port, upper inlet plugged, for pressure relief valve arrangement

2 Configuration coding\*

| TYPE       | DESCRIPTION                                         |
|------------|-----------------------------------------------------|
| <b>F7S</b> | With pressure relief valve                          |
| <b>F8S</b> | 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 156

|                                                                       |                        |
|-----------------------------------------------------------------------|------------------------|
| TYPE: <b>B</b>                                                        | CODE: 7001052050000000 |
| DESCRIPTION: VLP105S valve, setting range 10-100 bar (145-1450 psi)   |                        |
| TYPE: <b>N</b>                                                        | CODE: 7001051050000000 |
| DESCRIPTION: VLP105S valve, setting range 101-200 bar (1460-2900 psi) |                        |
| TYPE: <b>R</b>                                                        | CODE: 7001053050000000 |
| DESCRIPTION: VLP105S valve, setting range 201-380 bar (2910-5500 psi) |                        |
| TYPE: <b>-</b>                                                        | CODE: 06000468999      |
| DESCRIPTION: Relief valve blanking plug                               |                        |

3 Accessories

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

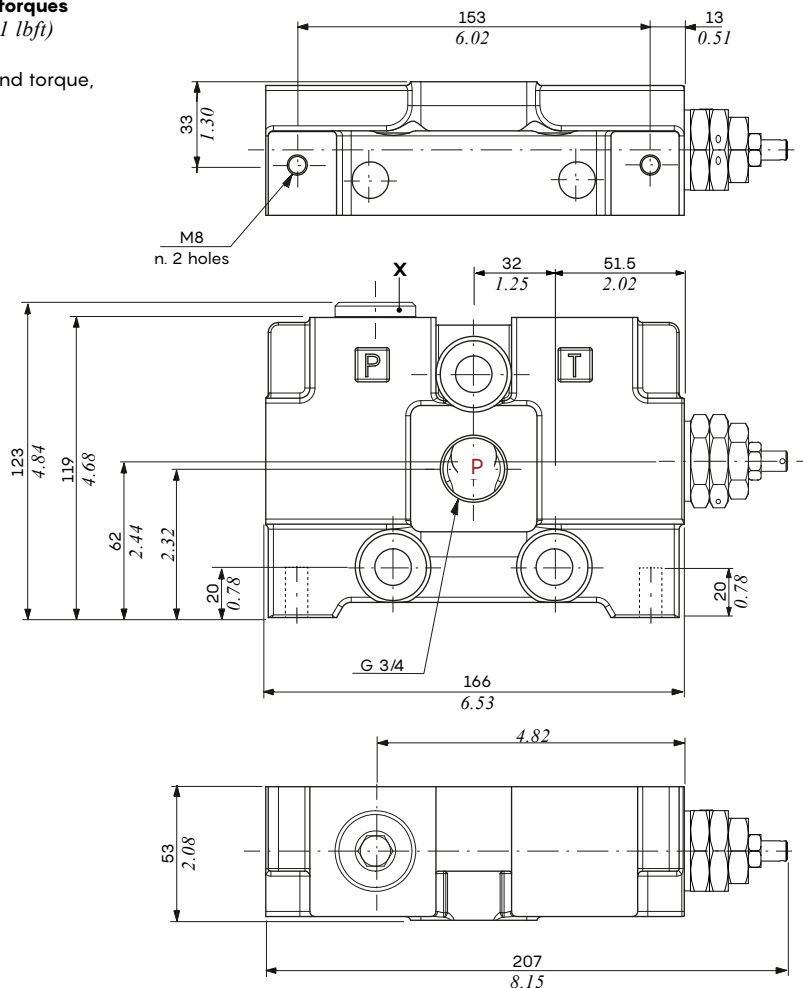
[\*]: Codes are referred to **BSP** thread

## Dimensional data and hydraulic circuits

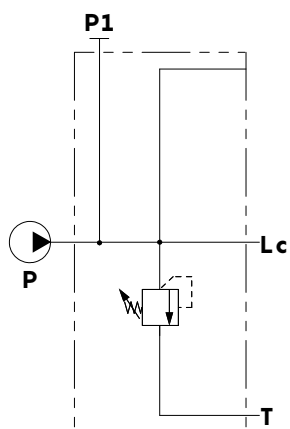
## Wrenches and tightening torques

X = wrench 12 - 42 Nm (31 lbft)

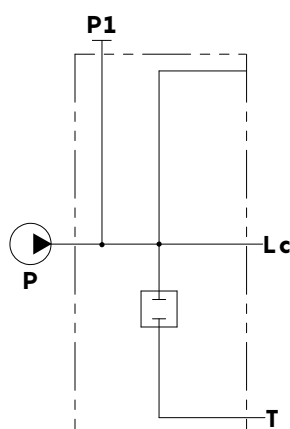
**Note:** For valves wrench and torque,  
see related pages



**F7S configuration**  
With pressure relief valve



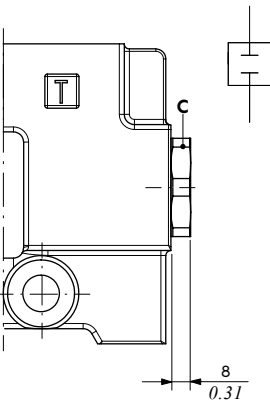
**F8S configuration**  
Without valves  
(pressure relief valve plugged port)



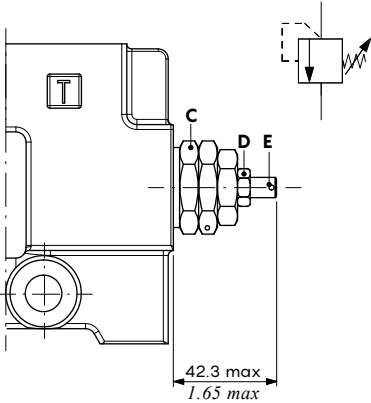
Inlet section

Main pressure relief valve

Relief valve blanking plug



Main pressure relief valve

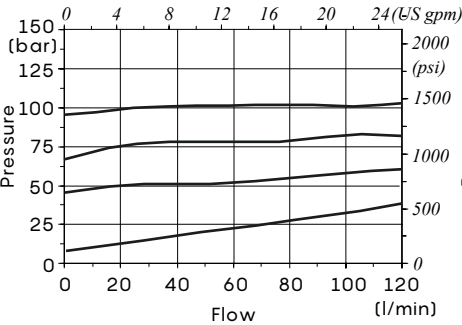


Wrenches and tightening torques

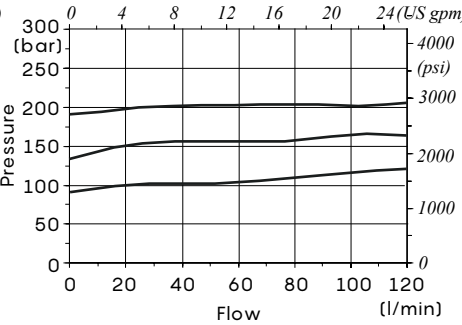
- C = wrench 32 - 80 Nm (59 lbf ft)
- D = wrench 13 - 24 Nm (17.7 lbf ft)
- E = allen wrench 4

| 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 |

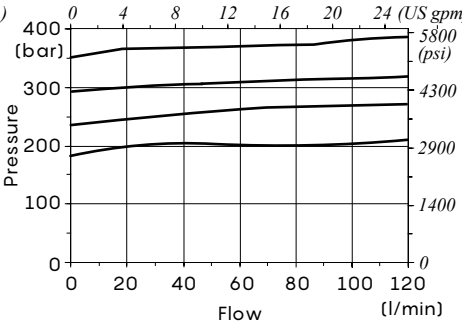
Setting example (B type spring)



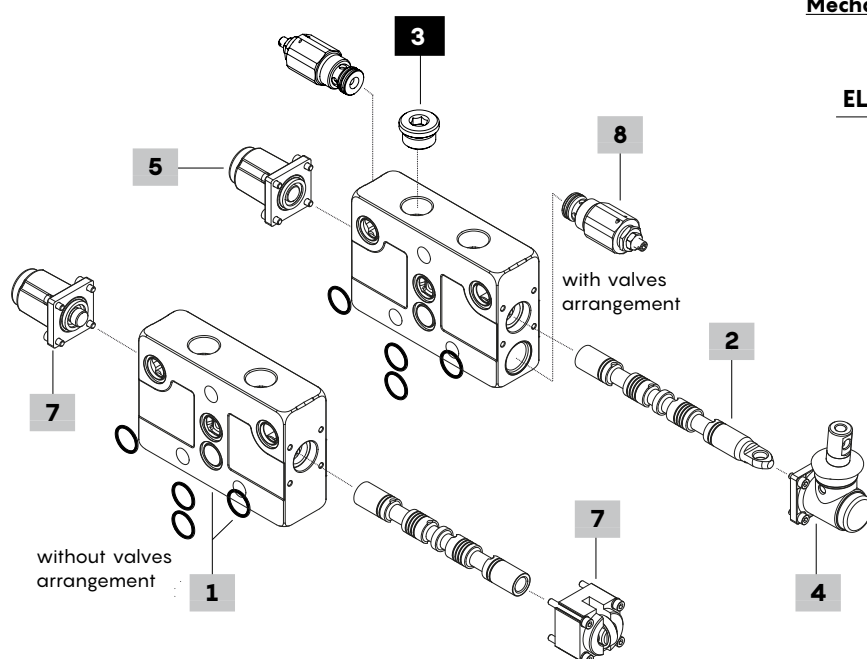
Setting example (N type spring)



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 | 8 |
|---|---|---|---|---|

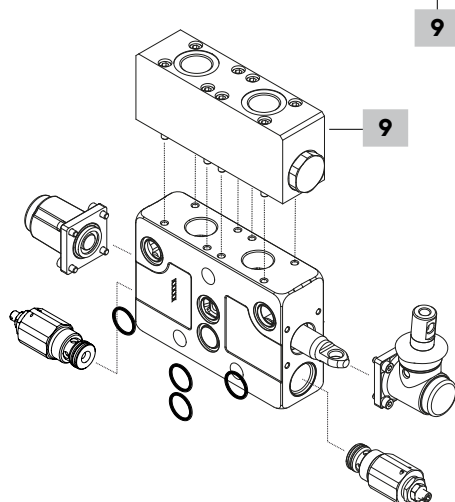
C2/C3 complete mechanical control configuration example

EL Q130 / 102 - C3 . V40(N)120

|   |
|---|
| 7 |
|---|

Mechanical control valve with arrangement for secondary aux valves block: configuration example

EL Q130 / 103 - A1 - M1 . V40(N)120 / VC03

**1 Working section body kit\*** page 161

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 162

| TYPE                   | CODE         | DESCRIPTION                                                                                               |
|------------------------|--------------|-----------------------------------------------------------------------------------------------------------|
| <b>Standard spools</b> |              |                                                                                                           |
| <b>103</b>             | 060102983699 | Double acting, A and B closed in neutral position                                                         |
|                        | KR130103K    | As previous one, for <b>kick-out</b> control                                                              |
| <b>106</b>             | KR130106     | Double acting for closed circuit                                                                          |
| <b>107</b>             | KR130107-108 | Double acting, A to tank and B closed in neutral position                                                 |
| <b>108</b>             | KR130107-108 | Double acting, B to tank and A closed in neutral position                                                 |
| <b>111</b>             | 060102996399 | Double acting, A and B to tank in neutral position                                                        |
|                        | KR103111K    | As previous one, for <b>kick-out</b> control                                                              |
| <b>101</b>             | 3CUG2996000  | Single acting on port A.<br>G3/4 plug is required, see #3                                                 |
| <b>102</b>             | 3CUG2996001  | Single acting on port B.<br>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

**4 A side control** page 163

| TYPE                                                                     | CODE           | DESCRIPTION                                             |
|--------------------------------------------------------------------------|----------------|---------------------------------------------------------|
| <b>For standard spools</b>                                               |                |                                                         |
| <u>With lever control:</u>                                               |                |                                                         |
| <b>A1</b>                                                                | 10600A1-A2     | M10 thread aluminium lever box                          |
| <b>A2</b>                                                                | 10600A1-A2     | As A1 type, with lever box rotated 180°                 |
| <b>A1/Z1</b>                                                             | 10610A1-A2/Z1  | Aluminium lever box for 116 spool type                  |
| <b>A2/Z1</b>                                                             | 10610A1-A2/Z1  | As A1/Z1 type, with lever box rotated 180°              |
| <u>With safety lever control:</u>                                        |                |                                                         |
| <b>A1/S<sup>(1)</sup></b>                                                | 10624A1-A2/S   | M10 thread aluminium lever box                          |
| <b>A2/S<sup>(1)</sup></b>                                                | 10624A1-A2/S   | As A1/S type, with lever box rotated 180°               |
| <u>Without lever control:</u>                                            |                |                                                         |
| <b>A6</b>                                                                | 10620A6        | With flange                                             |
| <b>A6/Z1</b>                                                             | 10620A6/Z1     | As A6 type, for 116 spool type                          |
| <b>A6H</b>                                                               | 10620A6HH      | As A6 type, with scraper                                |
| <b>A8</b>                                                                | 10622A8        | Arrangement for flexible cable control                  |
| <b>A8/Z1</b>                                                             | 10622A8/Z1     | As A8 type, for 116 spool type                          |
| <u>Joystick controls for 2 section operation:</u>                        |                |                                                         |
| <b>A35/1</b>                                                             | 10637A35-12    | Joystick 1 type                                         |
| <b>A35/2</b>                                                             | 10637A35-12    | Joystick 2 type                                         |
| <b>A35/3</b>                                                             | 10637A35-34    | Joystick 3 type                                         |
| <b>A35/4</b>                                                             | 10637A35-34    | Joystick 4 type                                         |
| <b>For types 103, 111 and 603 special spools</b>                         |                |                                                         |
| <u>With spool position microswitch:</u>                                  |                |                                                         |
| <b>Note:</b> to complete the control you must use the assembly kit at #6 |                |                                                         |
| <b>N1-A1</b>                                                             | 10641N1-A1/A2  | Micro operation in pos. 1 and 2, with lever box         |
| <b>N1A-A1</b>                                                            | 10642N1A-A1/A2 | Micro operation in pos. 1, with lever box               |
| <b>N1B-A1</b>                                                            | 10643N1B-A1/A2 | Micro operation in pos. 2, with lever box               |
| <b>N1-A3</b>                                                             | 10648N1-A3     | Micro operation in pos. 1 and 2, without lever with cap |
| <b>N1A-A3</b>                                                            | 10648N1A-A3    | Micro operation in pos. 1, without lever with cap       |
| <b>N1B-A3</b>                                                            | 10648N1B-A3    | Micro operation in pos. 2, without lever with cap       |
| <u>Without lever control:</u>                                            |                |                                                         |
| <b>A3</b>                                                                | 10614A3        | Without lever, with cap                                 |
| <b>A4</b>                                                                | 10617A4        | M10 thread male external pin with flange                |
| <b>A5<sup>(2)</sup></b>                                                  | 10619A5        | Flange with spherical spool end                         |

**5 B side control** page 170

| TYPE                                            | CODE       | DESCRIPTION                                                |
|-------------------------------------------------|------------|------------------------------------------------------------|
| <u>With spring return:</u>                      |            |                                                            |
| <b>M1</b>                                       | 10730M1    | 3 pos., spring return in neutral position                  |
| <b>M1/O1</b>                                    | 10730M1/O1 | As M1 type, for joystick control                           |
| <b>M1/B1</b>                                    | 10753M1-B1 | As M1 type, with microswitch arrangement                   |
| <b>M1-U1</b>                                    | 10701M1-U1 | As M1 type, with M10 male thread external pin              |
| <b>M2</b>                                       | 10732M2    | 2 pos. (0-1), spring return in neutral pos.                |
| <b>M2-U1</b>                                    | 10702M2-U1 | As M2 type, with M10 male thread external pin              |
| <b>M3</b>                                       | 10733M3    | 2 pos. (0-2), spring return in neutral pos.                |
| <b>M3-U1</b>                                    | 10702M3-U1 | As M3 type, with M10 male thread external pin              |
| <b>M4</b>                                       | 10735M42-1 | 2 pos. (2-1), spring return in position 2                  |
| <u>With flexible cable control arrangement:</u> |            |                                                            |
| <b>M1-U2</b>                                    | 10715M1-U2 | 3 pos., spring return in neutral position                  |
| <b>M2-U2</b>                                    | 10716M2-U2 | 2 pos. (0-1), spring return in neutral pos.                |
| <b>M3-U2</b>                                    | 10717M3-U2 | 2 pos. (0-2), spring return in neutral pos.                |
| <u>With friction:</u>                           |            |                                                            |
| <b>R0</b>                                       | 10740R0    | Adjustable friction control                                |
| <u>With detent:</u>                             |            |                                                            |
| <b>R1</b>                                       | 10741R1    | 3 pos., detent in position 1                               |
| <b>R2</b>                                       | 10742R2    | 3 pos., detent in position 2                               |
| <b>R3</b>                                       | 10743R3    | 3 pos., detent in all position                             |
| <b>R4</b>                                       | 10744R4    | 2 pos., detent in position 0-1                             |
| <b>R5</b>                                       | 10745R5    | 2 pos., detent in position 0-2                             |
| <b>R6</b>                                       | 10746R6    | 2 pos., detent in position 1-2                             |
| <b>R8</b>                                       | 10748R8    | 4 pos., detent in 4 <sup>th</sup> pos., for 116 spool type |

**5 B side controls (cont.)** page 170

| TYPE                                                                     | CODE           | DESCRIPTION                                                                |
|--------------------------------------------------------------------------|----------------|----------------------------------------------------------------------------|
| <u>With detent and kick out function:</u>                                |                |                                                                            |
| <b>R1K</b>                                                               | 10741R1K       | 3 pos., detent in position 1                                               |
| <b>R2K</b>                                                               | 10742R2K       | 3 pos., detent in position 2                                               |
| <b>R3K</b>                                                               | 10743R3K       | 3 pos., detent in all position                                             |
| <u>With spool position microswitch:</u>                                  |                |                                                                            |
| <b>Note:</b> To complete the control you must use the assembly kit at #6 |                |                                                                            |
| <b>M1-N1</b>                                                             | 10766M1-N1     | 3 pos., micro operation in pos. 1 and 2, spring return in neutral position |
| <b>M1-N1A</b>                                                            | 10767M1-N1A    | As M1-N1 type, micro operation in pos. 1                                   |
| <b>M1-N1B</b>                                                            | 10768M1-N1B    | As M1-N1 type, micro operation in pos. 2                                   |
| <b>M2-N1</b>                                                             | 10769M2-N1     | 2 pos. (0-1), spring return in neutral pos.                                |
| <b>M3-N1</b>                                                             | 10772M3-N1     | 2 pos. (0-2), spring return in neutral pos.                                |
| <u>Pneumatic and electropneumatic controls:</u>                          |                |                                                                            |
| <b>P1N</b>                                                               | 10561P1-N      | ON/OFF pneumatic control                                                   |
| <b>P1NP</b>                                                              | 10561P1-NP     | Proportional pneumatic control                                             |
| <b>D3</b>                                                                | 10591D3-O-12DC | 12 VDC, ON/OFF electropneumatic control                                    |
|                                                                          | 10592D3-O-24DC | 24 VDC, ON/OFF electropneumatic control                                    |

**6 Microswitch assembly kit**

| CODE       | DESCRIPTION         |
|------------|---------------------|
| 10650N1-01 | Kit for 1 section   |
| 10650N1-02 | Kit for 2 sections  |
| 10650N1-03 | Kit for 3 sections  |
| 10650N1-04 | Kit for 4 sections  |
| 10650N1-05 | Kit for 5 sections  |
| 10650N1-06 | Kit for 6 sections  |
| 10650N1-07 | Kit for 7 sections  |
| 10650N1-08 | Kit for 8 sections  |
| 10650N1-09 | Kit for 9 sections  |
| 10650N1-10 | Kit for 10 sections |

**7 Complete controls A+B sides** page 175

| TYPE                                             | CODE       | DESCRIPTION                  |
|--------------------------------------------------|------------|------------------------------|
| <b>For types 103, 111 and 603 special spools</b> |            |                              |
| <b>C2</b>                                        | 10792C2-C3 | Cam control from pos. 1 to 2 |
| <b>C3</b>                                        | 10792C2-C3 | Cam control from pos. 2 to 1 |

**8 Auxiliary port valve** page 179

| TYPE                                                 | CODE         | DESCRIPTION                                                |
|------------------------------------------------------|--------------|------------------------------------------------------------|
| <u>Antishock valve:</u>                              |              |                                                            |
| <b>V30-B</b>                                         | 10800V30-B   | Setting range: from 30 to 80 bar (from 435 to 1150 psi)    |
| <b>V30-N</b>                                         | 10800V30-N   | Setting range: from 81 to 200 bar (from 1170 to 2900 psi)  |
| <b>V30-R</b>                                         | 10800V30-R   | Setting range: from 201 to 350 bar (from 2910 to 5100 psi) |
| <u>Antishock/anticavitation valve:</u>               |              |                                                            |
| <b>V33-B</b>                                         | 10803V33-B   | Setting range: from 30 to 80 bar (from 435 to 1150 psi)    |
| <b>V33-N</b>                                         | 10803V33-N   | Setting range: from 81 to 200 bar (from 1170 to 2900 psi)  |
| <b>V33-R</b>                                         | 10803V33-R   | Setting range: from 201 to 350 bar (from 2910 to 5100 psi) |
| <u>Anticavitation valve:</u>                         |              |                                                            |
| <b>V04</b>                                           | 10808V04     | Anticavitation valve                                       |
| <u>Plug:</u>                                         |              |                                                            |
| <b>VC</b>                                            | 060002798999 | Valve blanking plug                                        |
| For other configurations and positions, see page 179 |              |                                                            |

**9 Secondary aux valves\*** page 181

| 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**

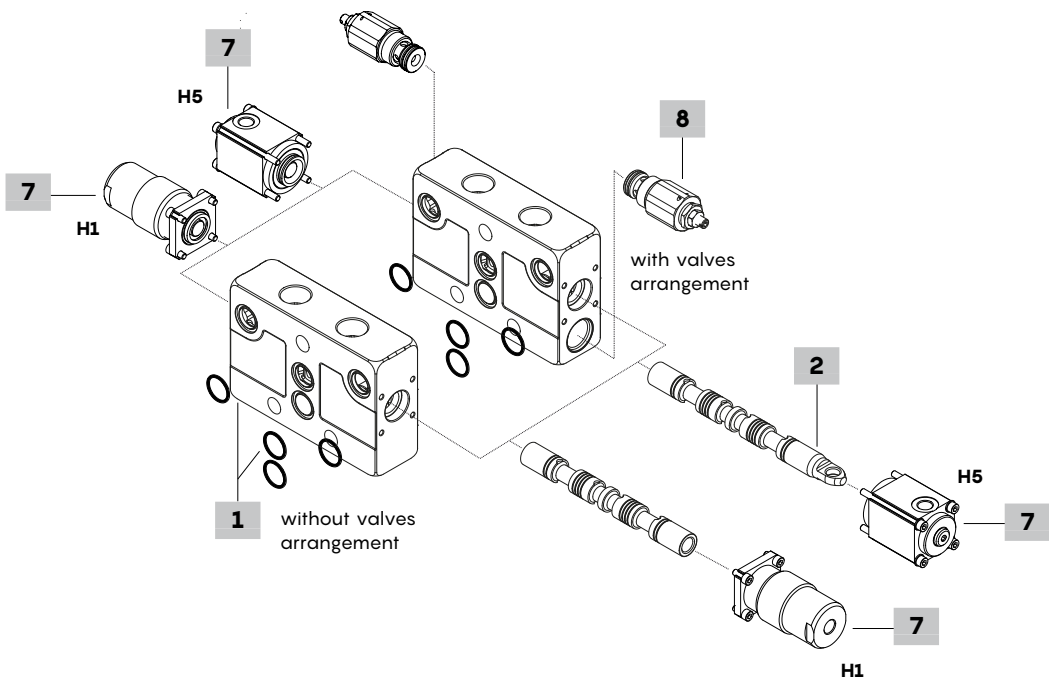
spring type and valve setting (bar)

**EL Q130 / 103 – H5 . V40(N)120**

1
2
7
8

**EL Q130 / 103 – H1 . V40(N)120**

7



**1 Working section body kit\* page 161**

The body kits listed below are for H5 hydraulic control.  
 H1 hydraulic control requires standard body: see #1, page 157  
 TYPE: **EL-Q130-H5.VC** CODE: 5EL0600127898H5  
 DESCRIPTION: Parallel circuit, with port valves arrangement  
 TYPE: **EL-Q130-H5** CODE: 5EL0600127893H5  
 DESCRIPTION: Parallel circuit, without port valves arrangement

**2 Spool page 162**

| TYPE                            | CODE         | DESCRIPTION                                       |
|---------------------------------|--------------|---------------------------------------------------|
| <u>For H5 hydraulic control</u> |              |                                                   |
| <b>103</b>                      | 060102983699 | Double acting, A and B closed in neutral position |
| <u>For H1 hydraulic control</u> |              |                                                   |
| <b>103</b>                      | 060102996199 | Double acting, A and B closed in neutral position |

**7 Hydraulic controls A+B sides\* page 176**

| 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 179**

See #8, page 158

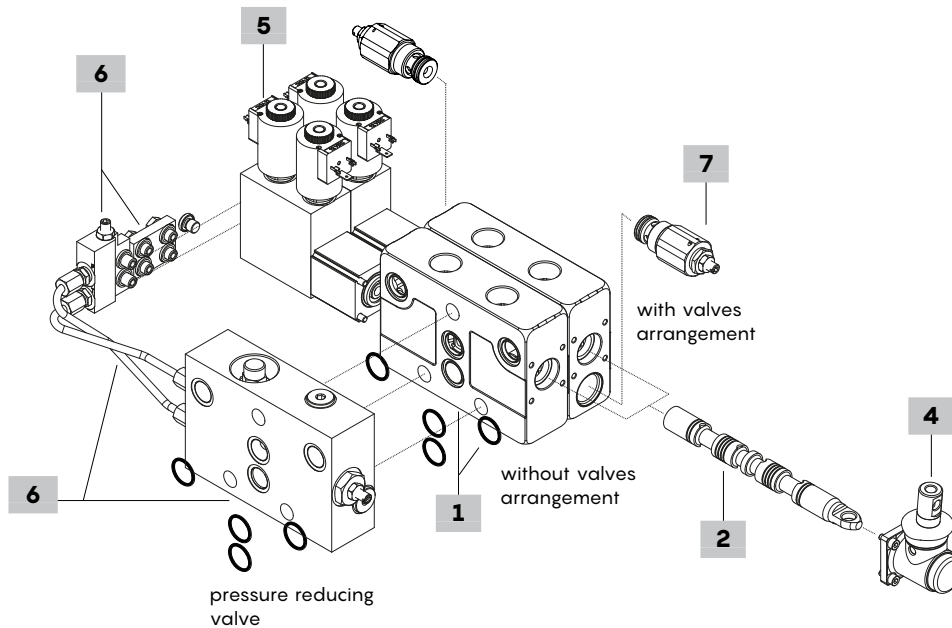
(\*): Codes are referred to **BSP** thread

### Working section - parts ordering codes

#### One side - ON/OFF electrohydraulic control valve configuration example

R = with pressure reducing valve  
S = without pressure reducing valve

EL Q130 / KE1R / 103 - A1 - D2W . V40(N)120 - 12VDC



#### 1 Working section body kit\* page 161

See #1, page 157

#### 2 Spool page 162

See #2, page 157

#### 4 A side control page 163

See #4, page 158

#### 5 B side electrohydraulic control page 177

| TYPE      | CODE         | DESCRIPTION                                   |
|-----------|--------------|-----------------------------------------------|
| D2W-12VDC | 10681D2W1200 | 3 pos., 12VDC ON/OFF electrohydraulic control |
| D2W-24VDC | 10681D2W2400 | 3 pos., 24VDC ON/OFF electrohydraulic control |

Note: For BT type coils, see page 185

#### 6 Connector kit page 178

| TYPE                                   | CODE       | DESCRIPTION         |
|----------------------------------------|------------|---------------------|
| <b>Without pressure reducing valve</b> |            |                     |
| KE1S                                   | 5GKE13S010 | Kit for 1 section   |
| KE2S                                   | 5GKE13S020 | Kit for 2 sections  |
| KE3S                                   | 5GKE13S030 | Kit for 3 sections  |
| KE4S                                   | 5GKE13S040 | Kit for 4 sections  |
| KE5S                                   | 5GKE13S050 | Kit for 5 sections  |
| KE6S                                   | 5GKE13S060 | Kit for 6 sections  |
| KE7S                                   | 5GKE13S070 | Kit for 7 sections  |
| KE8S                                   | 5GKE13S080 | Kit for 8 sections  |
| KE9S                                   | 5GKE13S090 | Kit for 9 sections  |
| KE10S                                  | 5GKE13S100 | Kit for 10 sections |

Note: Connector kit are included collector and feeding block

#### With pressure reducing valve

|       |            |                     |
|-------|------------|---------------------|
| KE1R  | 5GKE13R010 | Kit for 1 section   |
| KE2R  | 5GKE13R020 | Kit for 2 sections  |
| KE3R  | 5GKE13R030 | Kit for 3 sections  |
| KE4R  | 5GKE13R040 | Kit for 4 sections  |
| KE5R  | 5GKE13R050 | Kit for 5 sections  |
| KE6R  | 5GKE13R060 | Kit for 6 sections  |
| KE7R  | 5GKE13R070 | Kit for 7 sections  |
| KE8R  | 5GKE13R080 | Kit for 8 sections  |
| KE9R  | 5GKE13R090 | Kit for 9 sections  |
| KE10R | 5GKE13R100 | Kit for 10 sections |

Note: Connector kit are included collector and feeding block, drain lines and pressure reducing valve

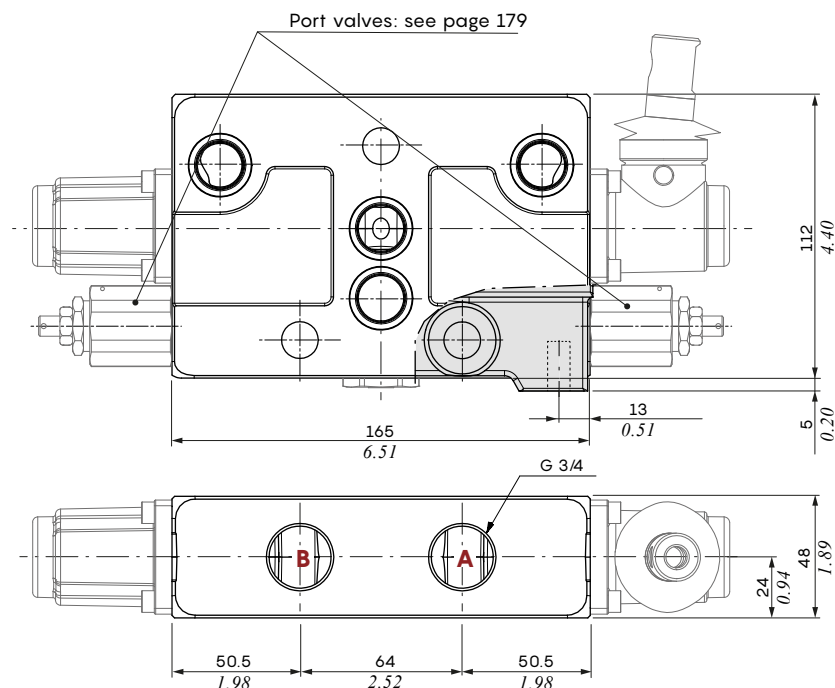
#### 7 Auxiliary port valve page 179

See #8, page 158

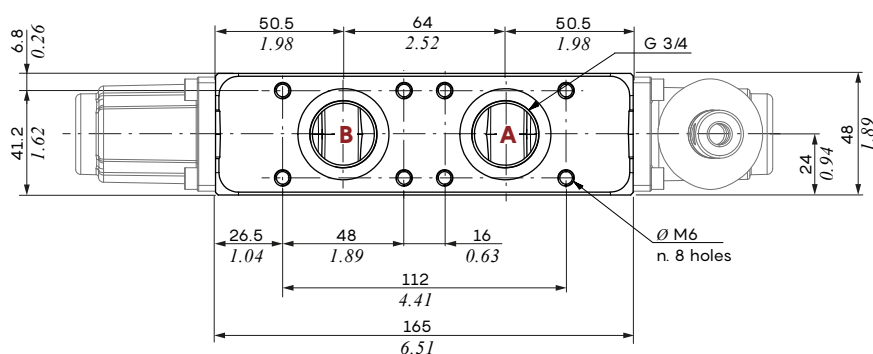
(\*): Codes are referred to BSP thread

# Dimensional data and hydraulic circuits

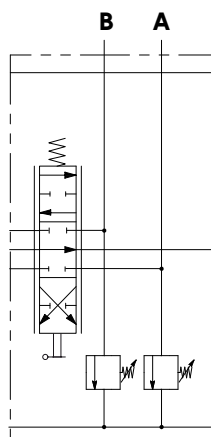
## Standard working section



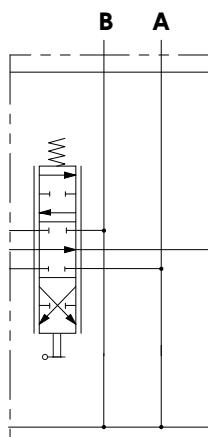
## Working section for secondary aux valves block



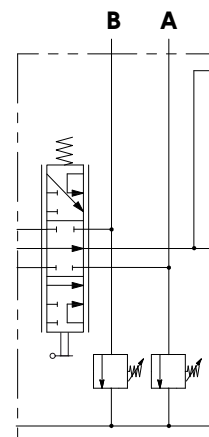
**Q130.V40(N)120 configuration**  
Parallel circuit,  
mechanical control with aux valves



**Q130 configuration**  
Parallel circuit,  
mechanical control without aux valves



**Q130.V40(N)120 configuration**  
Series circuit,  
mechanical control with aux valves



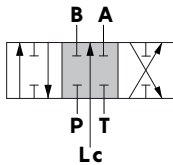
### Working section

#### Spool

##### 103 type

A and B closed  
in neutral position

2 0 1



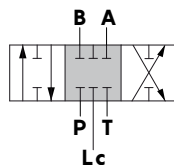
##### Stroke

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



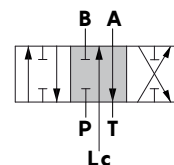
##### Stroke

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



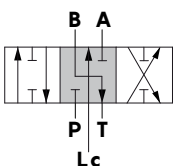
##### Stroke

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



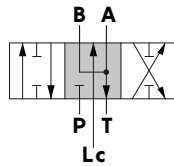
##### Stroke

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



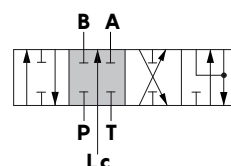
##### Stroke

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



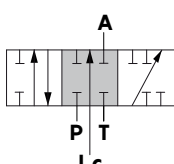
##### Stroke

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



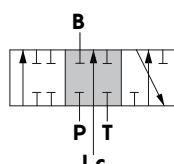
##### Stroke

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



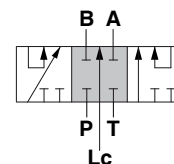
##### Stroke

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

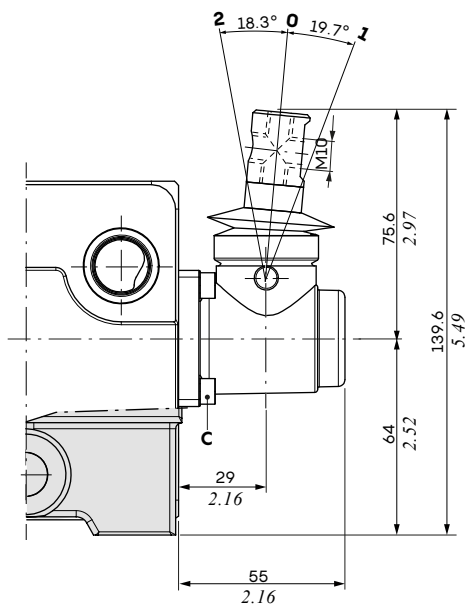
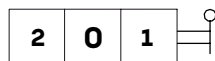
Position 1: + 7 mm (+ 0.27 in)  
Position 2: - 7 mm (- 0.27 in)

## A side controls

## With lever control

## A1 type

M10 thread aluminium lever box

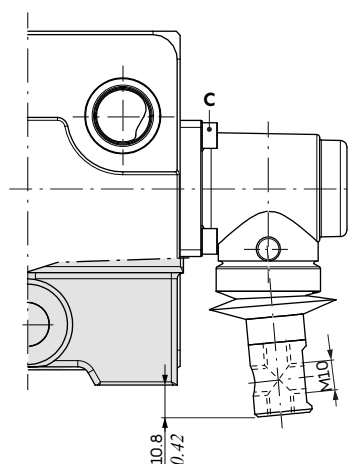
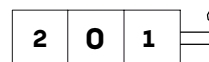


## Wrenches and tightening torques

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

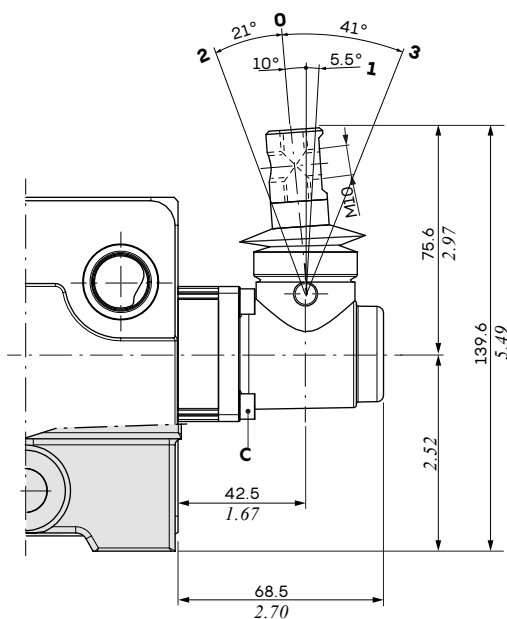
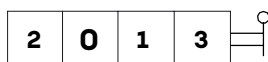
## A2 type

As A1 type, rotated 180°



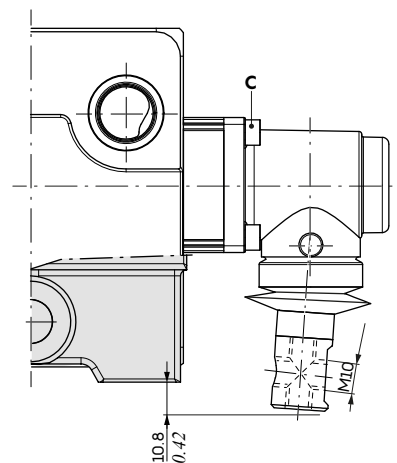
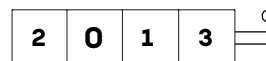
## A1/Z1 type

M10 thread, for 116 floating spool type



## A2/Z1 type

As A1/Z1 type, rotated 180°



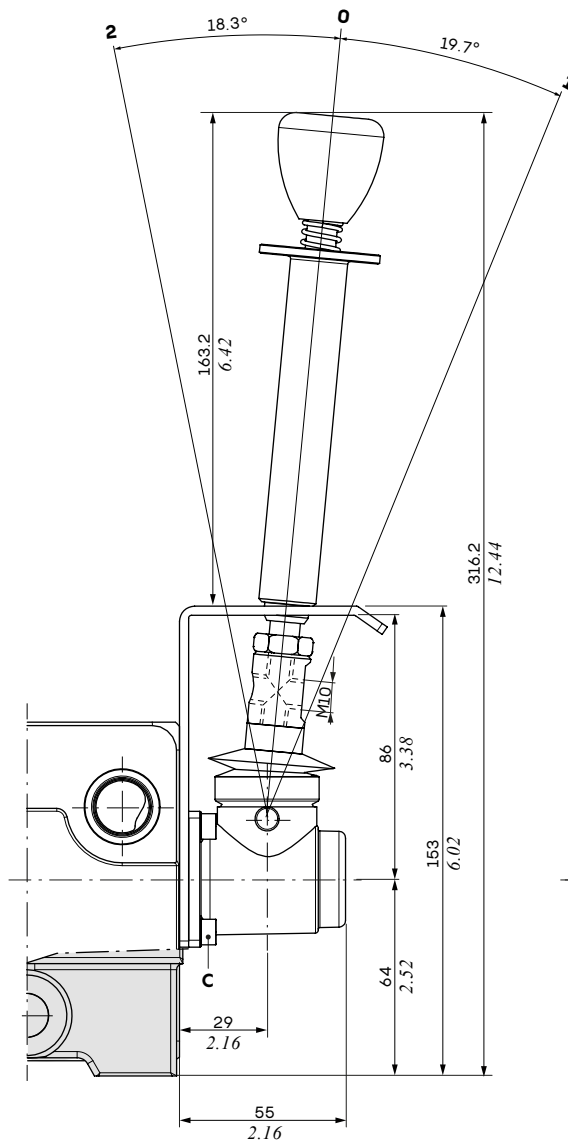
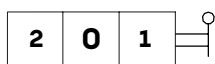
### Working section

#### A side controls

##### With safety lever control

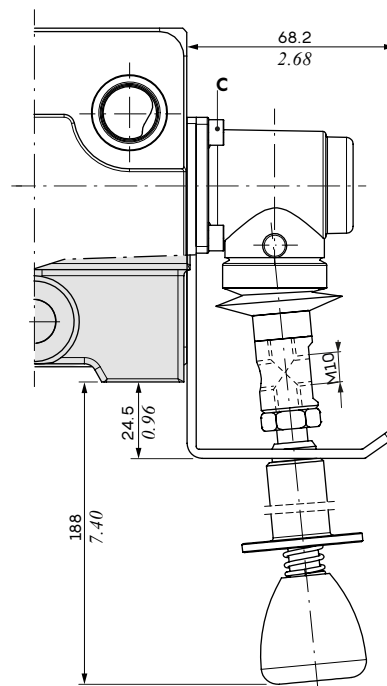
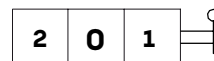
###### A1/S type

M10 thread, aluminium lever box



###### A2/S type

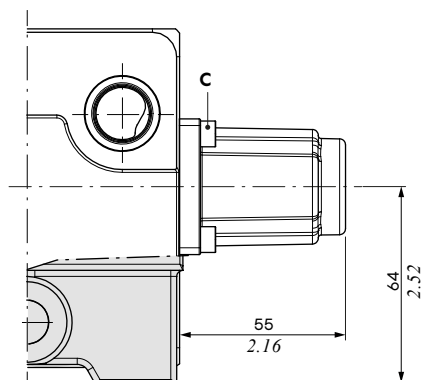
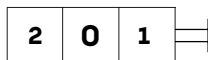
As A1/S type, rotated 180°



##### Without lever control

###### A3 type

With cap



##### Wrenches and tightening torques

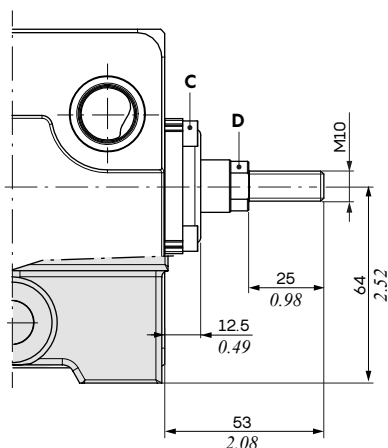
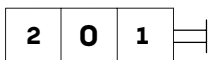
C = allen wrench 4 - 6.6 Nm (4.8 lbf<sub>t</sub>)

## A side controls

## Without lever control

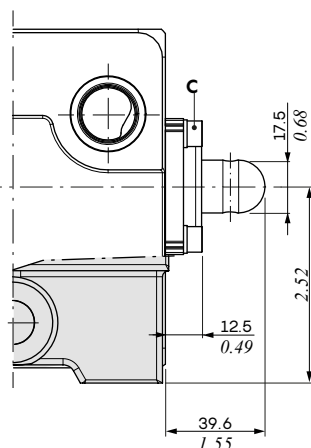
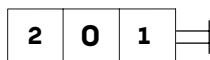
## A4 type

M8 male thread external pin with flange



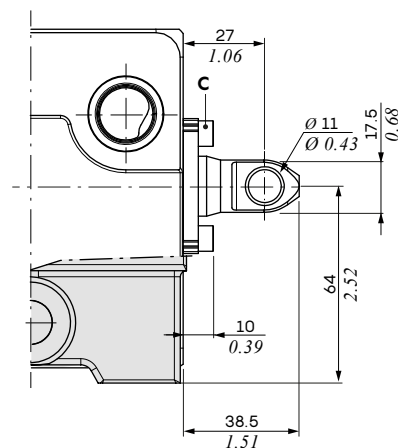
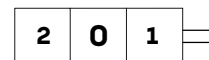
## A5 type

Flange with spherical spool end

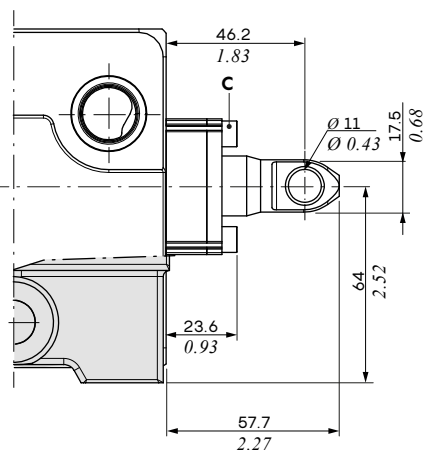
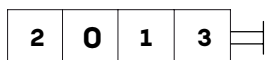


## A6 type

With flange

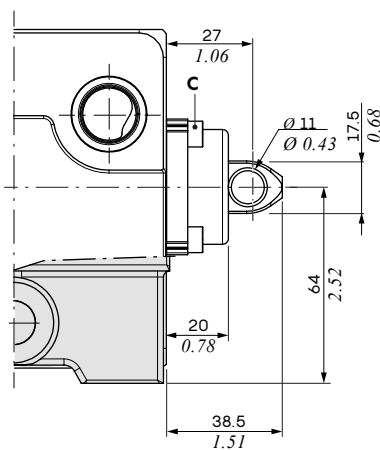
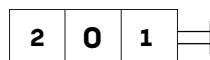


## A6/Z1 type

As A6 type,  
for 116 floating spool type

## A6H type

As A6 type, with scraper



## Wrenches and tightening torques

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

D = wrench 13 – 9.8 Nm (7.2 lbft)

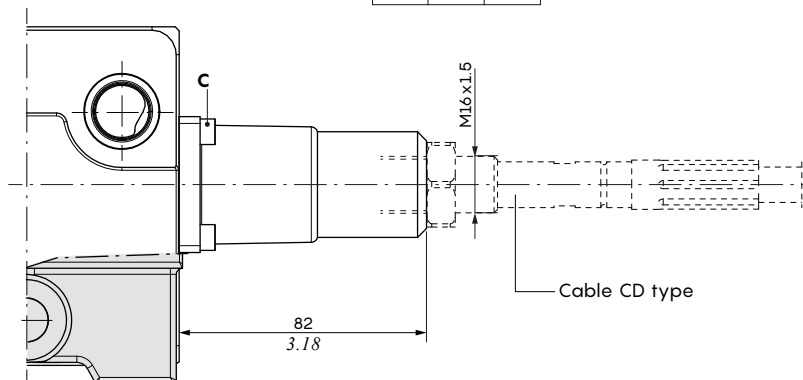
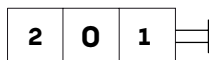
### Working section

#### A side controls

#### With flexible cable control arrangement

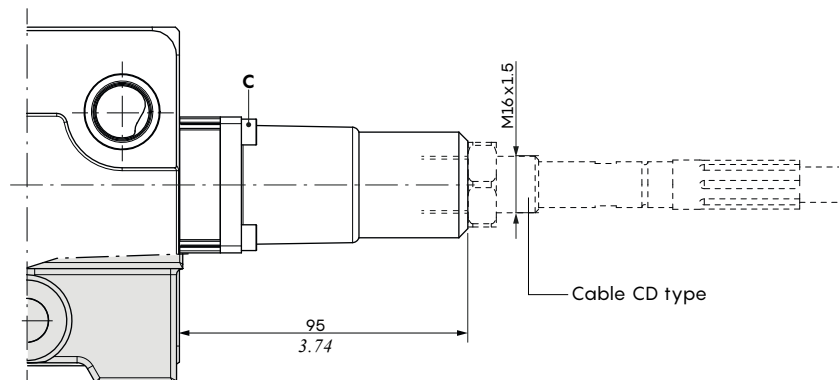
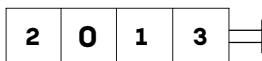
##### A8 type

Flexible cable control arrangement



##### A8/Z1 type

As A8 type,  
for 116 floating spool type



#### Wrenches and tightening torques

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

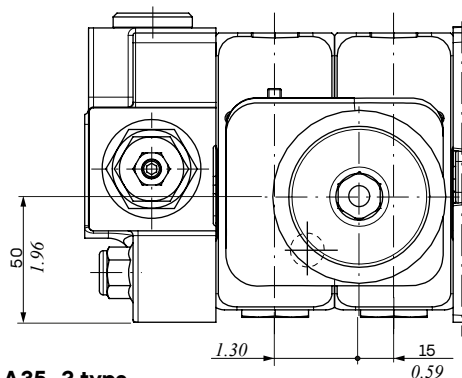


## A side controls

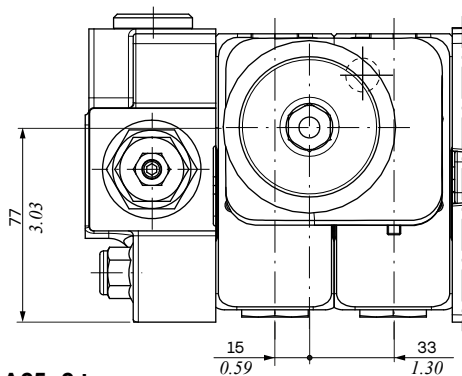
## Joystick control

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

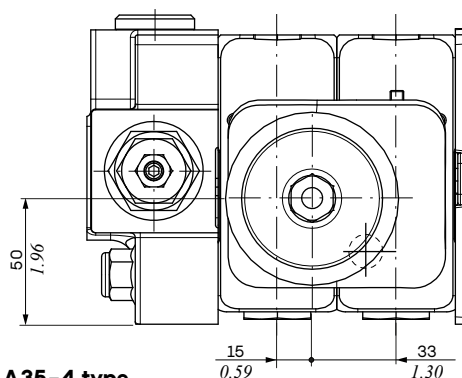
## A35-1 type



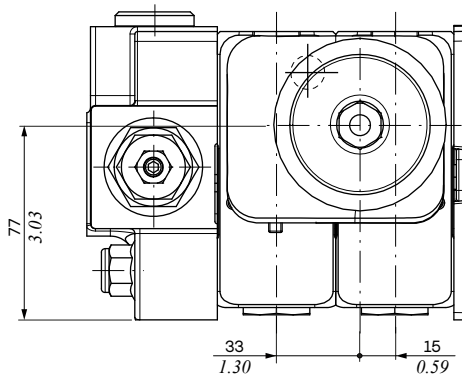
## A35-2 type



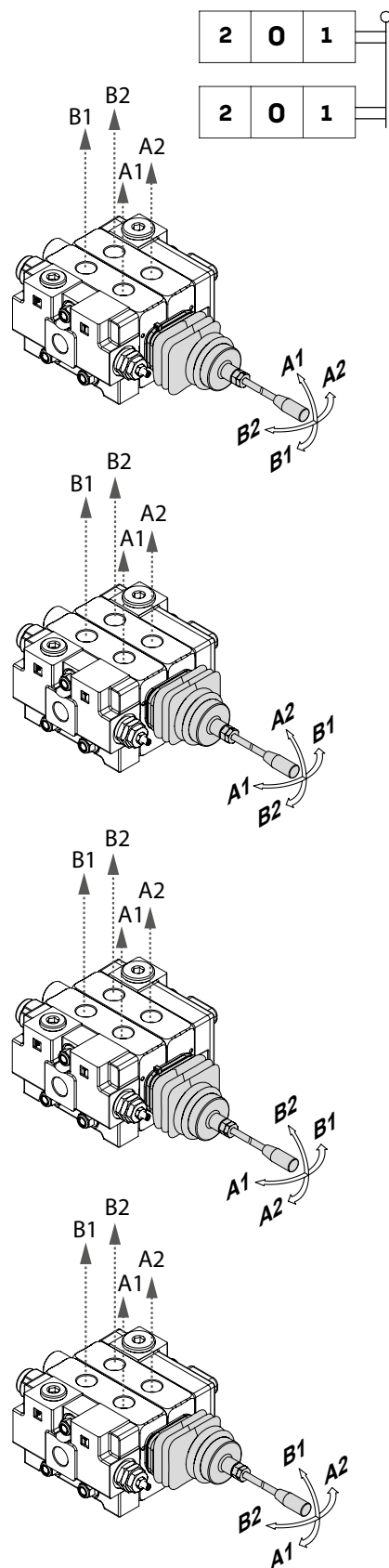
## A35-3 type



## A35-4 type



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

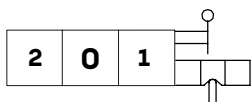


### Working section

#### A side controls

#### With spool position microswitch, with lever

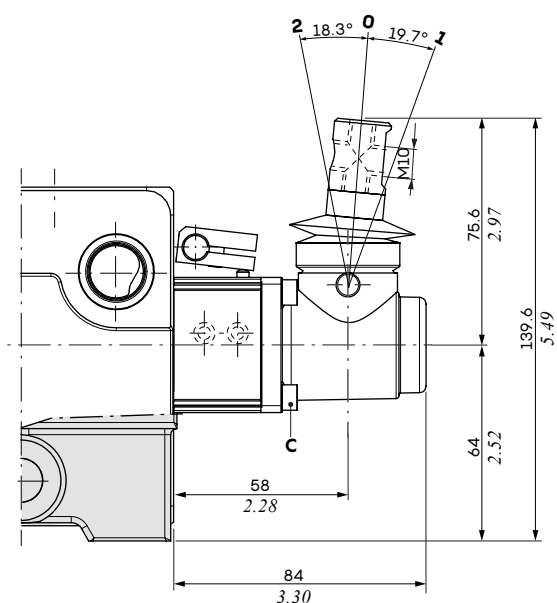
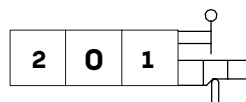
**N1-A1 type**  
Micro operation  
in position 1 and 2



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

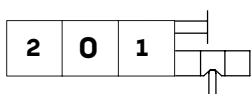


**N1B-A1 type**  
Micro operation in  
position 2



#### With spool position microswitch, with cap

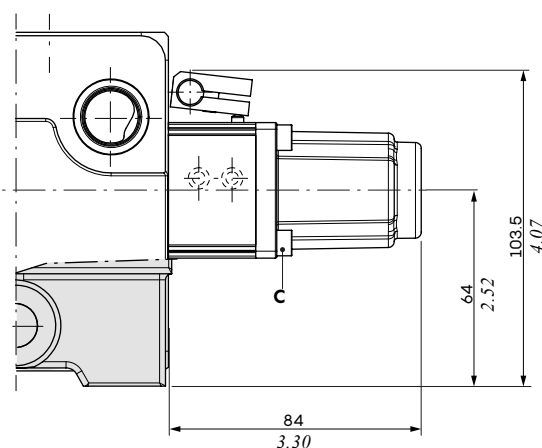
**N1-A3 type**  
Micro operation  
in position 1 and 2



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



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



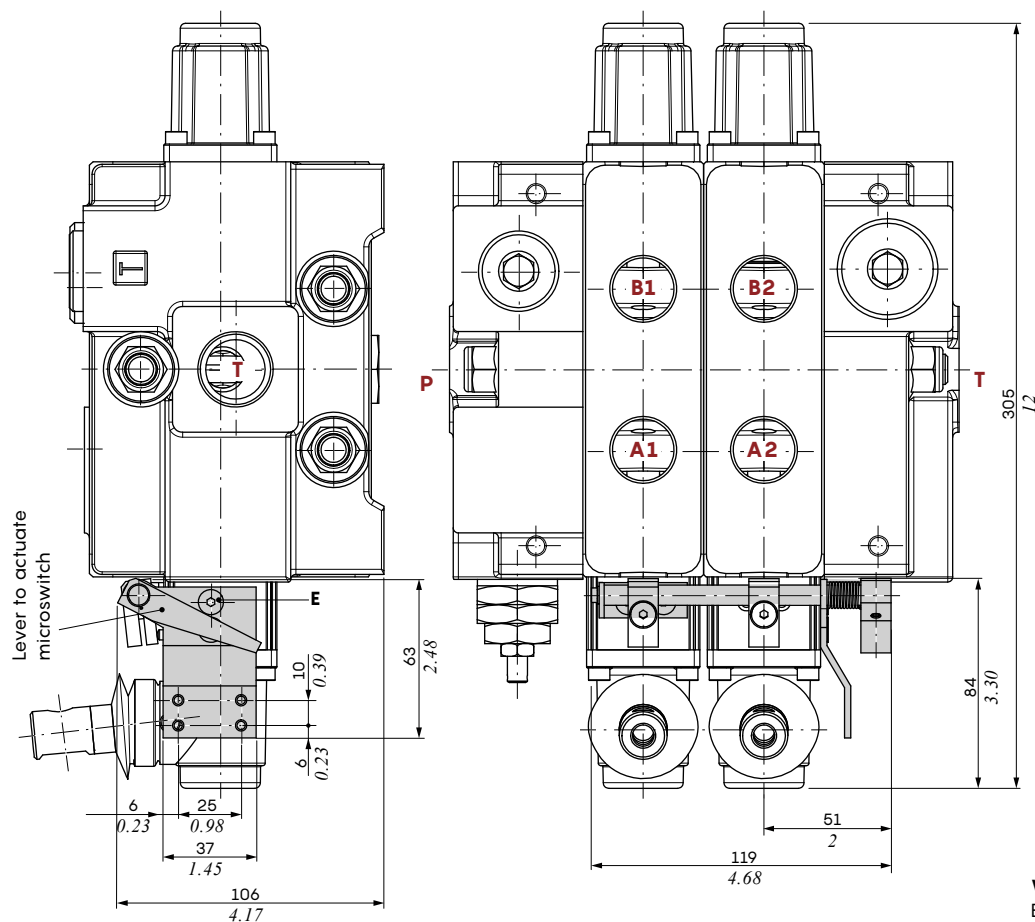
#### Wrenches and tightening torques

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

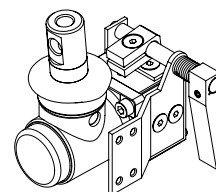
## A side controls

### With spool position microswitch

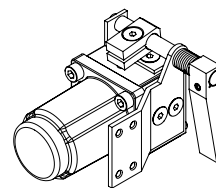
#### Microswitch assembly kit for 2 working section (N1-A1 type)



with cap



with lever box



#### Wrenches and tightening torques

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

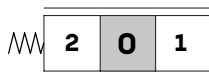
## Working section

### B side controls

#### With spring return

##### M1 type

3 position, spring return  
in neutral position

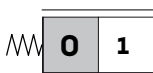


##### M1/01 type

As M1 type,  
for joystick control

##### M2 type

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



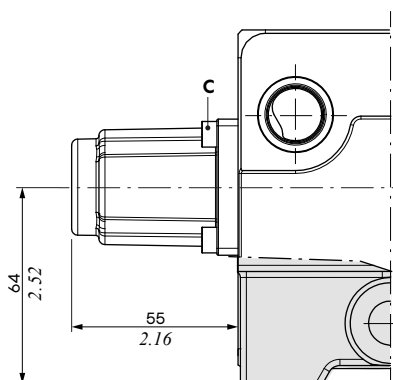
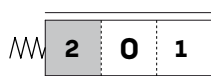
##### M3 type

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

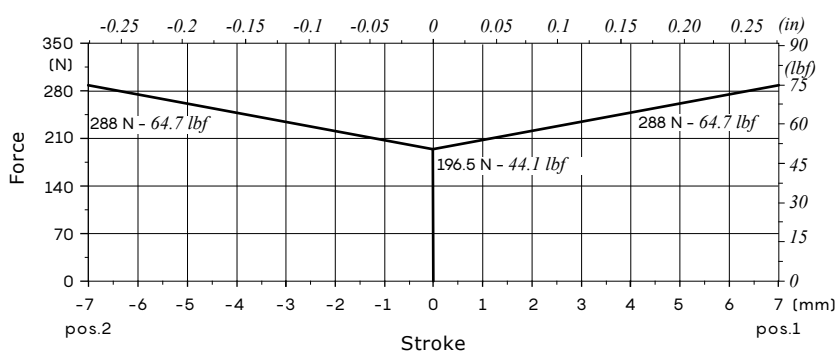


##### M4 type

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

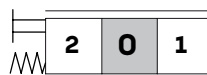


#### M1 control type - Force vs. Stroke diagram



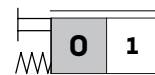
##### M1-U1 type

3 position, with M10 male  
thread external pin



##### M2-U1 type

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



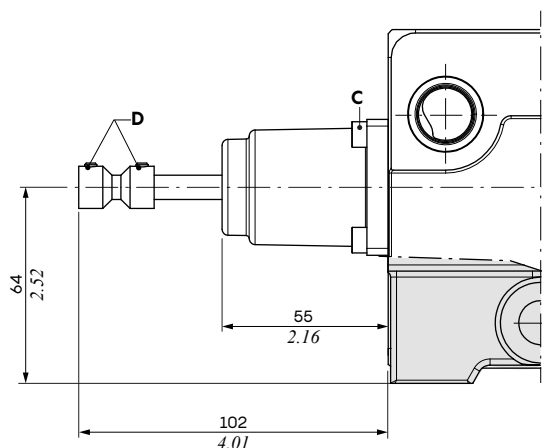
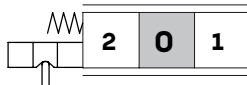
#### Wrenches and tightening torques

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

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

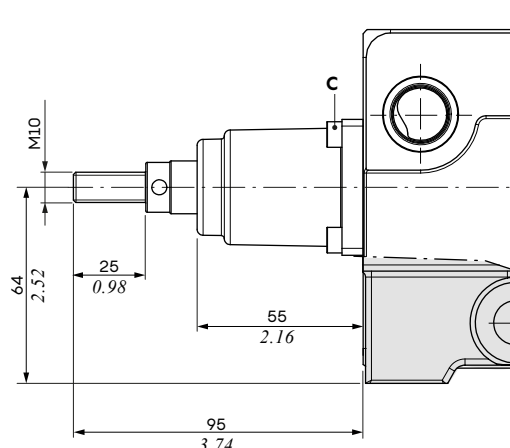
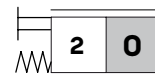
##### M1-B1 type

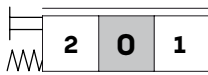
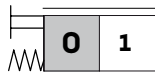
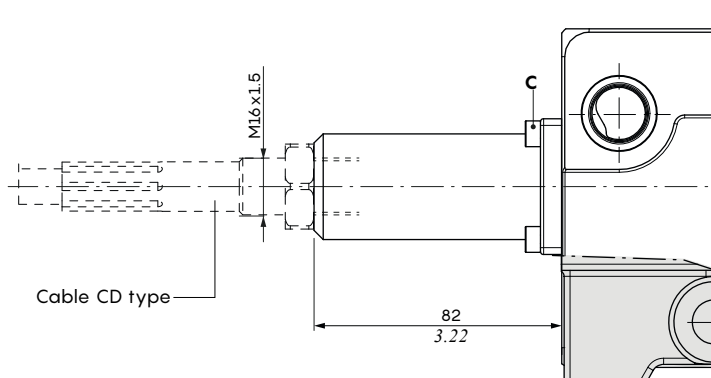
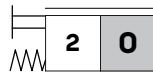
3 position, microswitch arrangement



##### M3-U1 type

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



**B side controls****With flexible cable control arrangement****M1-U2 type**3 position, spring return  
in neutral position**M2-U2 type**2 position (0-1), spring return  
in neutral position**M3-U2 type**2 position (0-2), spring return  
in neutral position**Wrenches and tightening torques**

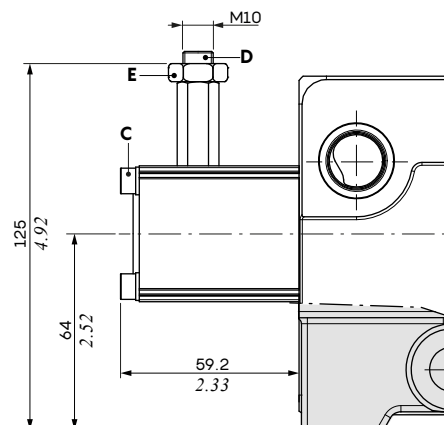
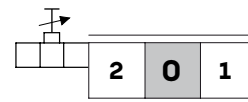
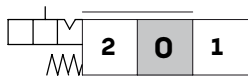
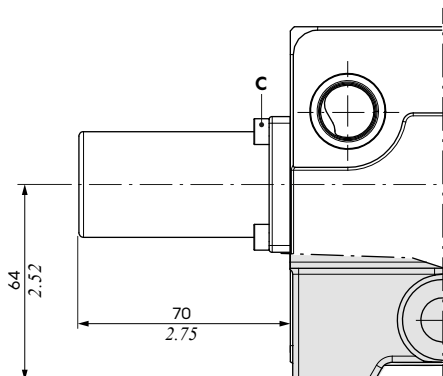
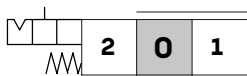
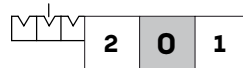
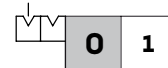
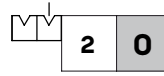
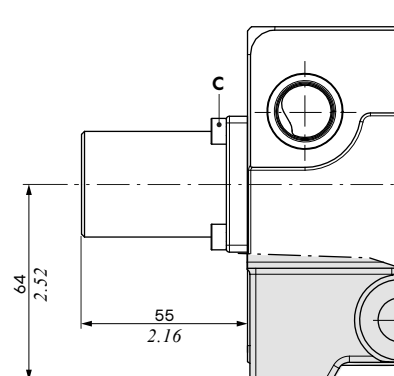
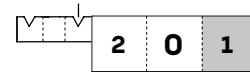
C = allen wrench 4 - 6.6 Nm (4.8 lbf ft)

D = allen wrench 5 - 15 Nm (11.1 lbf ft)

E = wrench 17 - 9.8 Nm (7.2 lbf ft)

**With friction control****R0 type**

Adjustable friction control

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

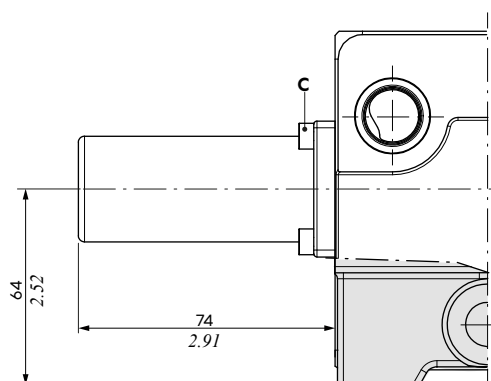
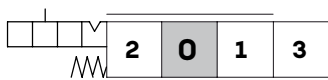
### Working section

#### 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 lbft)

D = wrench 30 - 42 Nm (30.9 lbft)

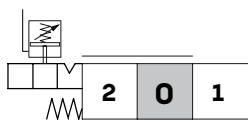
E = wrench 22

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

#### With detent and kick out function

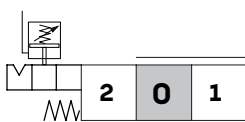
##### R1K type

3 position, detent in position 1



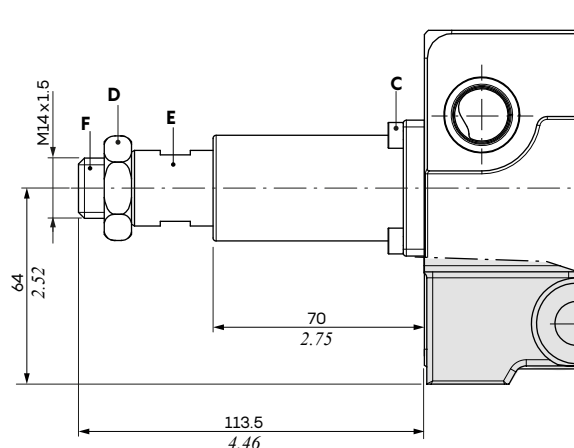
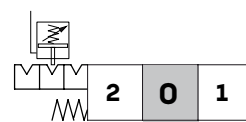
##### R2K type

3 position, detent in position 2



##### R3K type

3 position, detent in all position



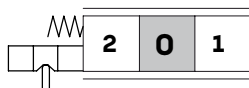
## Working section

## B side controls

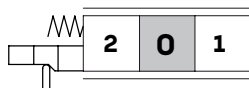
## With spool position microswitch

**M1-N1 type**

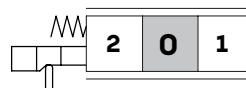
3 position, micro operation in position 1 and 2, spring return in neutral position

**M1-N1A type**

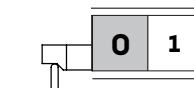
3 position, micro operation in position 1

**M1-N1B type**

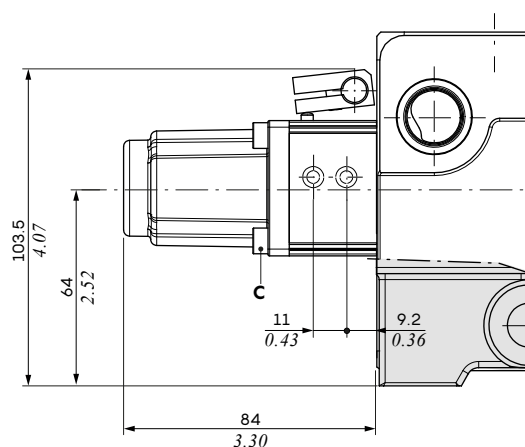
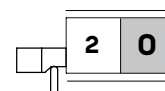
3 position, micro operation in position 2

**M2-N1 type**

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

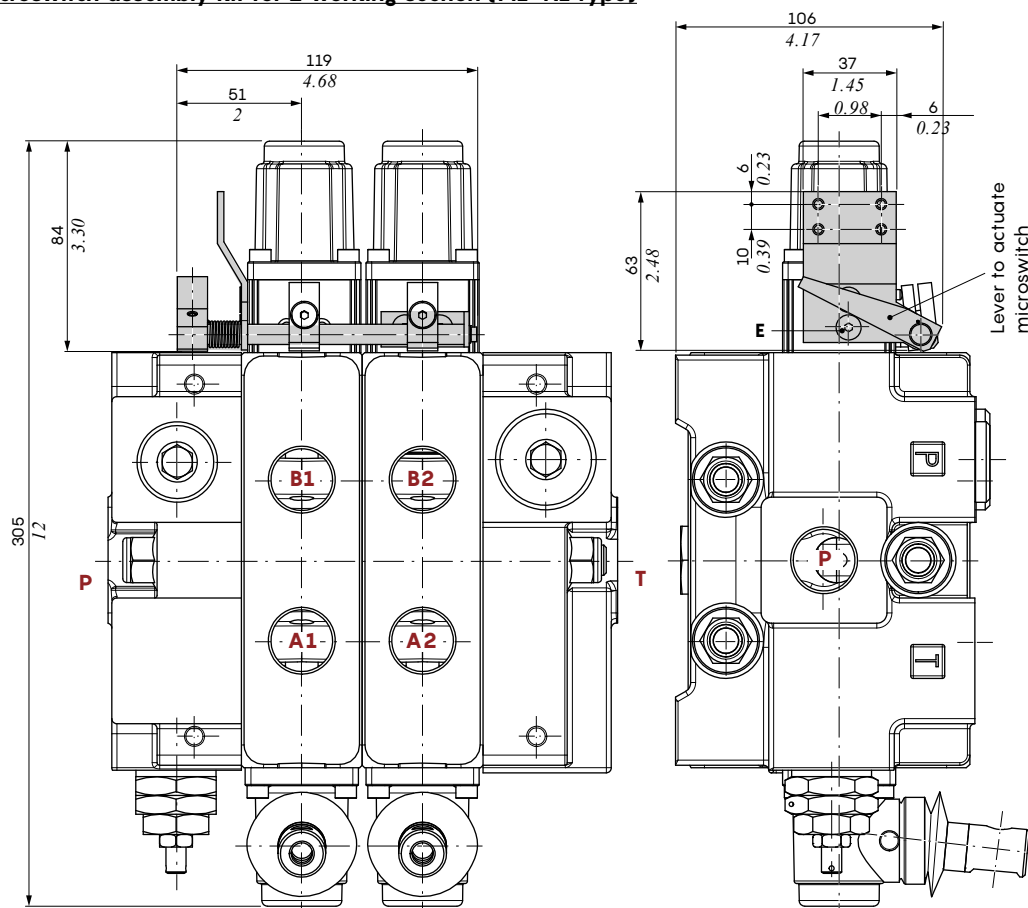
**M3-N1 type**

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



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

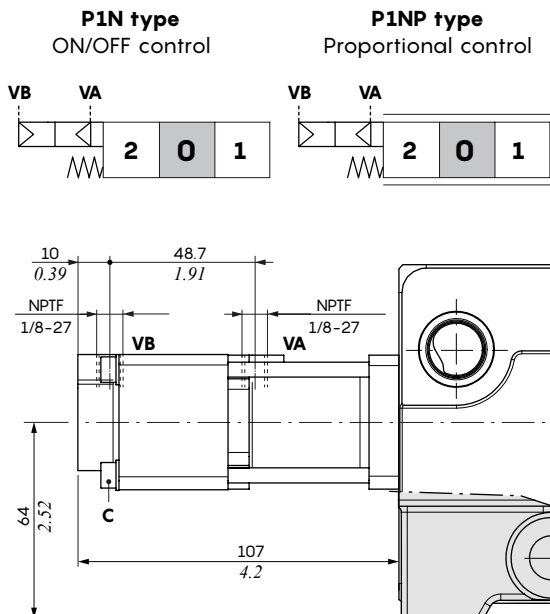
## Microswitch assembly kit for 2 working section (M1-N1 type)



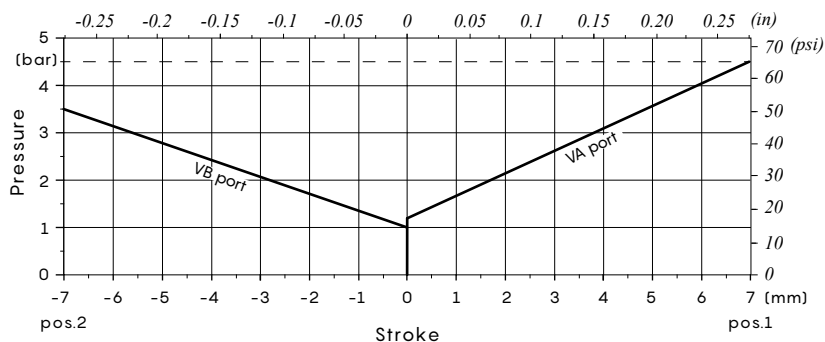
### Working section

#### B side controls

#### With pneumatic control



#### Proportional pilot pressure curves



#### Operating features

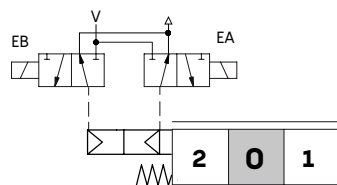
Pilot pressure.....: min. 5 bar (72.5 psi) - max. 30 bar (435 psi)  
Pilot volume.....: 9 cm<sup>3</sup>/min (0.54 in<sup>3</sup>/min)

#### Wrenches and tightening torques

C = wrench 4 - 6.6 Nm (4.8 lbft)

#### With ON/OFF electropneumatic control

#### D3 type ON/OFF control

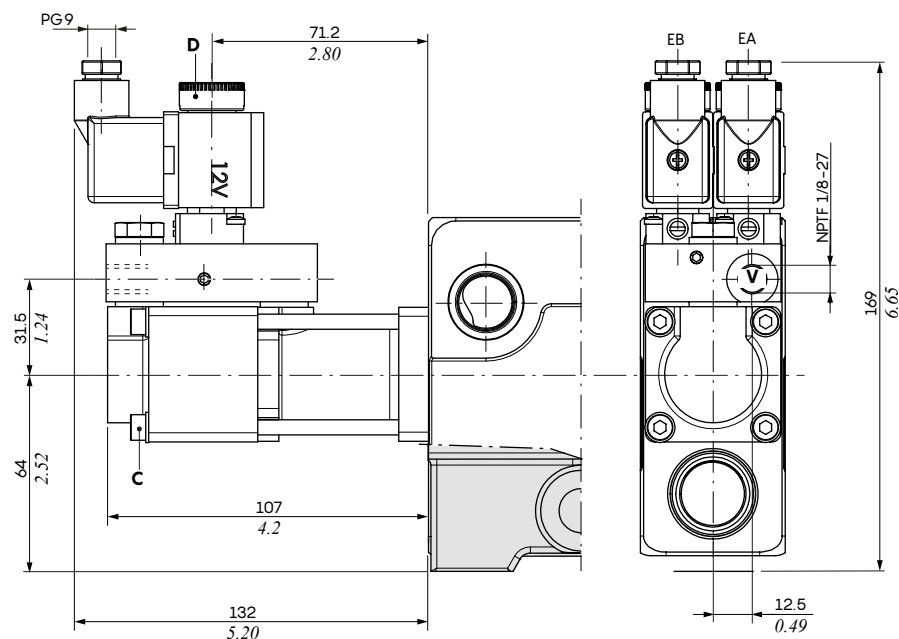


#### Operating features

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

#### COILS

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



#### Wrenches and tightening torques

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

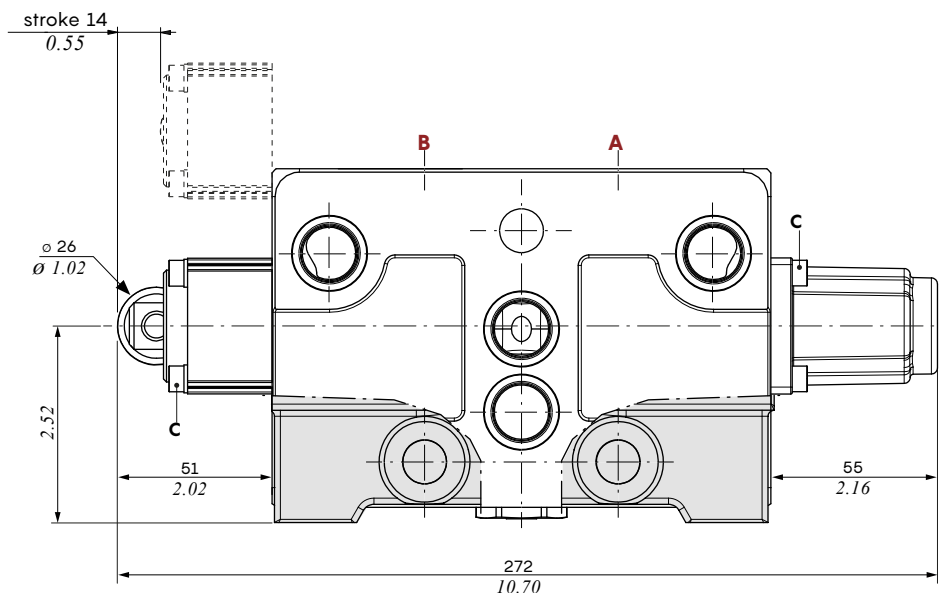
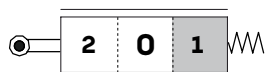


## A+B side controls

## With cam control

**C2 type**

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

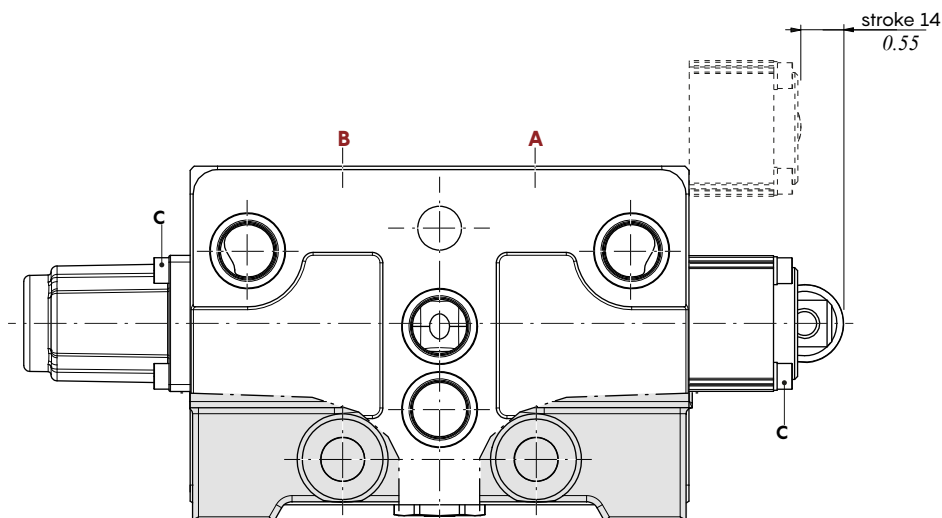
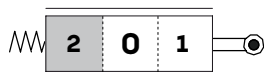
**Wrenches and tightening torques**

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

**C3 type**

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

Dimensions are the same of C2 type



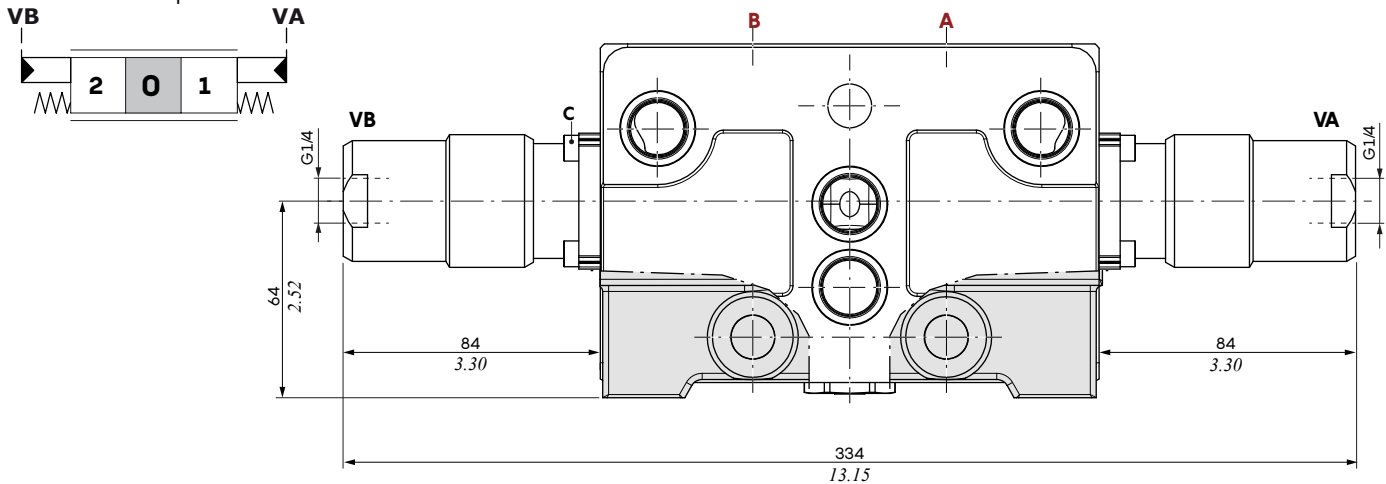
### Working section

#### A+B side controls

#### With proportional hydraulic controls

##### H1 type

High pressure control  
with side ports

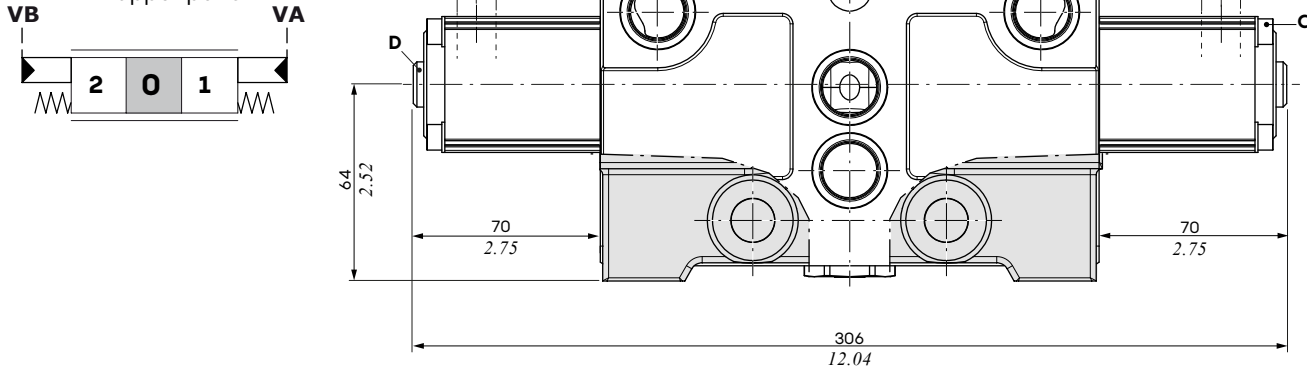


##### Operating features

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

##### H5 type

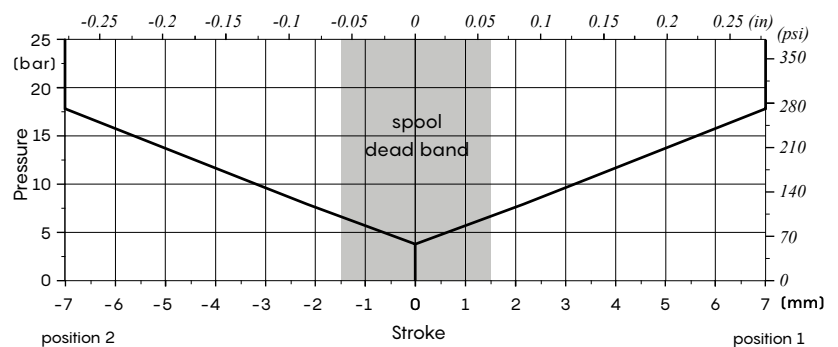
Low pressure control  
with upper ports



##### Operating features

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

Stroke vs. Pressure diagram for H5 type control



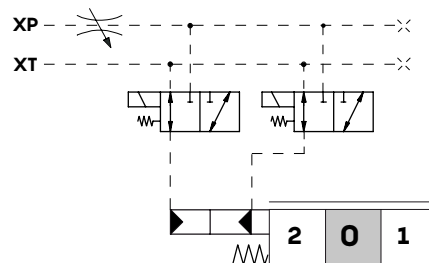
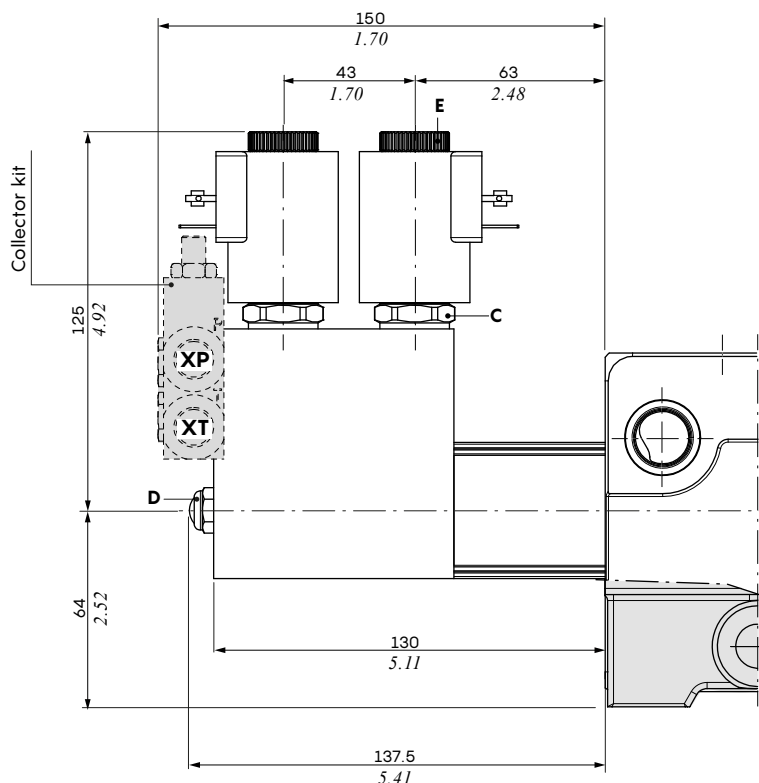
##### Wrenches and tightening torques

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

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

## Electrohydraulic control

## D2W type: ON/OFF one side

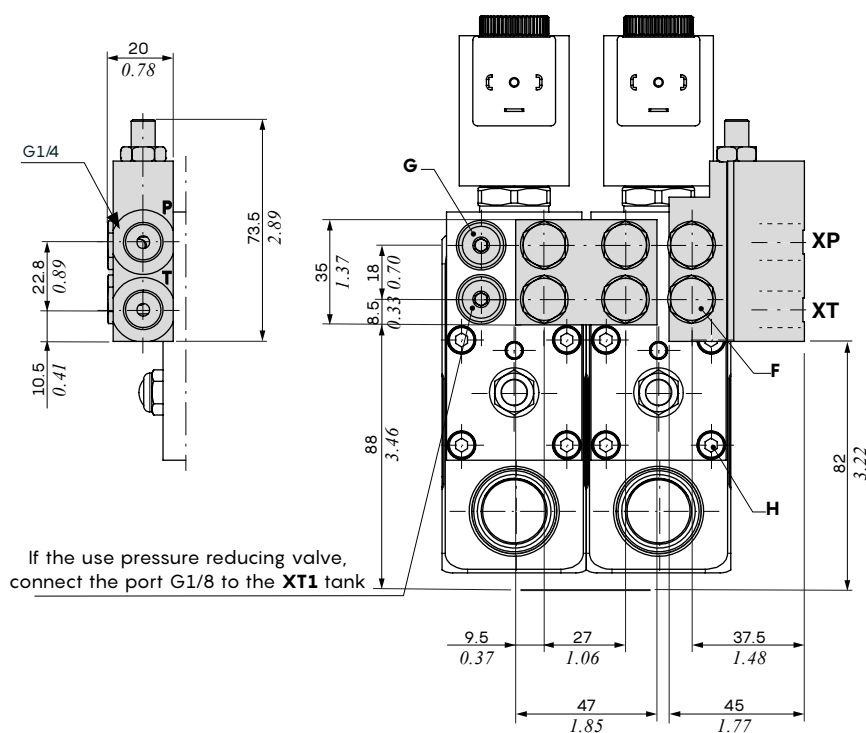


## Features

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 185

## 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 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)

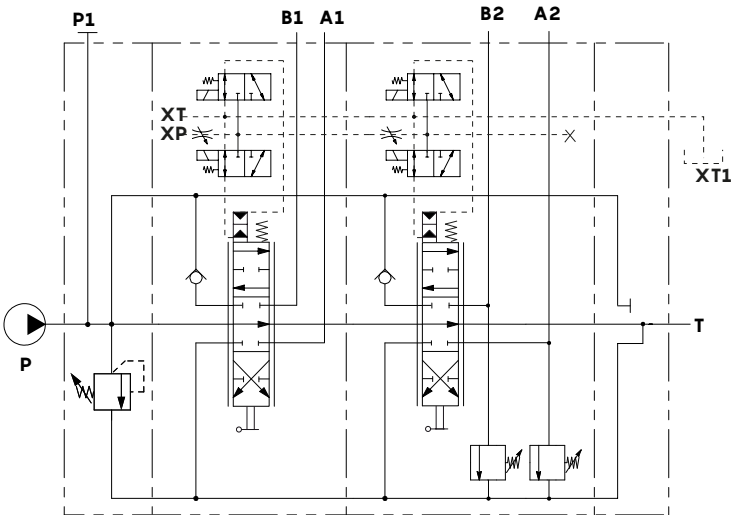
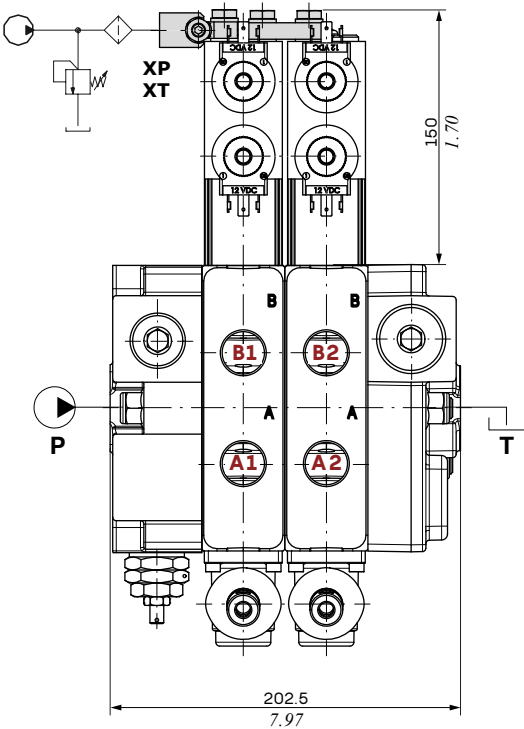
Working section

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 160



Description example:

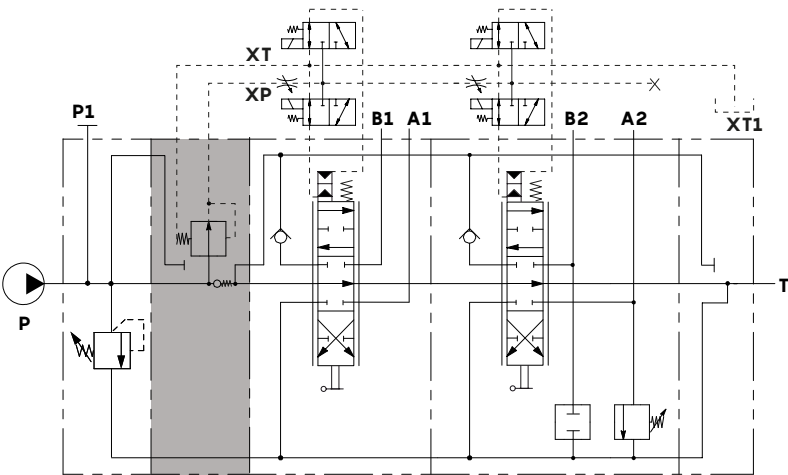
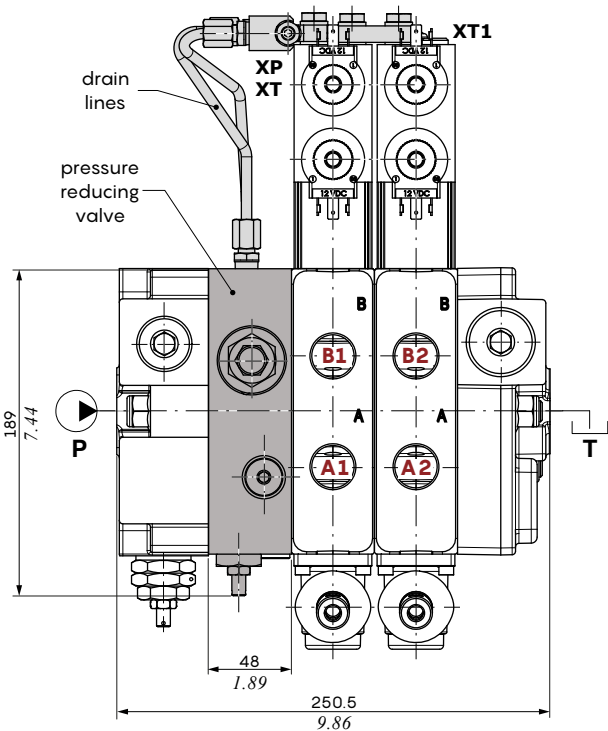
Q130/2/F7S(N120)/KE2S/103-A1-D2W.V40(N)120/  
103-A1-D2W.V40(N)120/F3D-12VDC-S

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 160



Description example:

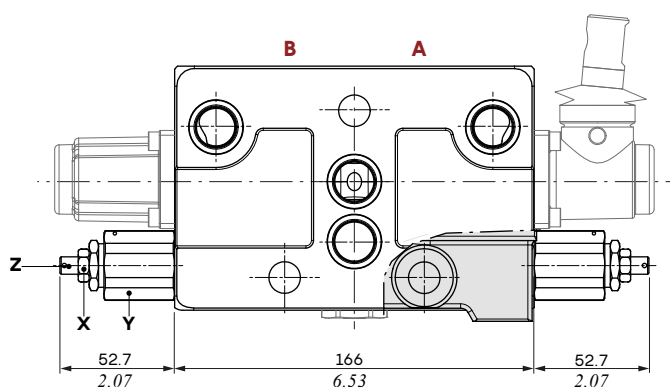
Q130/2/F7S(N120)/KE2R/103-A1-D2W.V40(N)120/  
103-A1-D2W.V40(N)120/F3D-12VDC-S

VRP pressure reducing valve

## Dimensional data and hydraulic circuits

## Antishock valve example

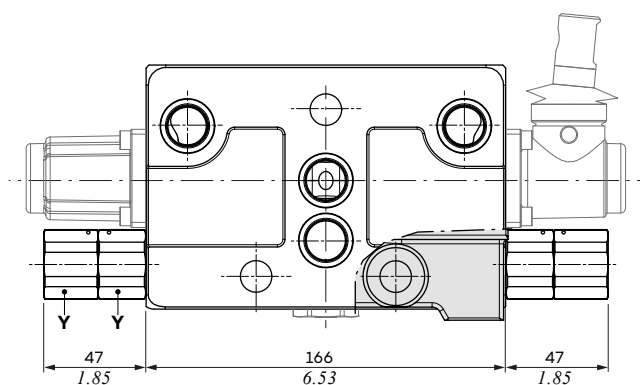
Q130 / 1 / ... / 103 - A1 - M1 -  $\overbrace{\text{V32(N)120}}^{\text{aux valve and valve setting (bar)}}$  / ...



| 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 |

## Antishock/anticavitation valve example

Q130 / 1 / ... / 103 - A1 - M1 -  $\overbrace{\text{V32(N)120}}^{\text{aux valve and valve setting (bar)}}$  / ...

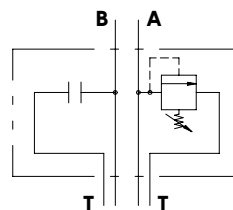


## Wrenches and tightening torques

Y = wrench 30 - 80 Nm (59 lbft)  
 X = wrench 20 - 24 Nm (17.7 lbft)  
 Z = allen wrench 4

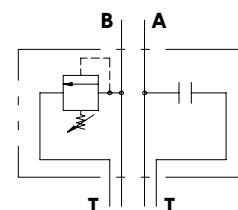
## A side configuration:

## V30



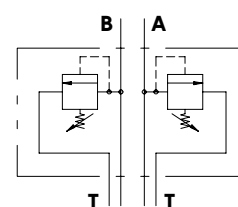
## B side configuration:

## V31



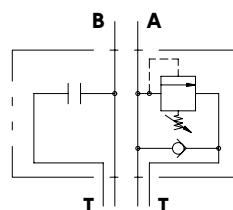
## A+B side configuration:

## V32 (V30 + V31)



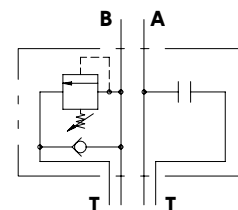
## A side configuration:

## V33



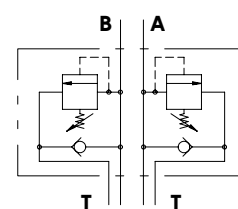
## B side configuration:

## V34



## A+B side configuration:

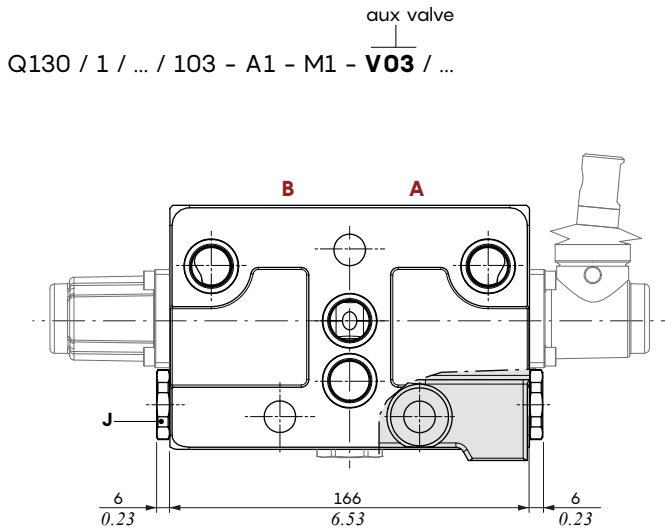
## V35 (V34 + V33)



### Auxiliary valve configuration

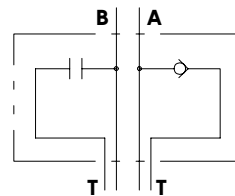
#### Dimensional data and hydraulic circuits

##### Anticavitation valve example



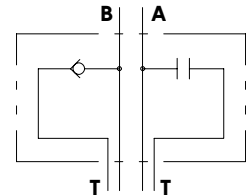
##### A side configuration:

###### V04



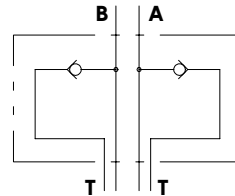
##### B side configuration:

###### V05



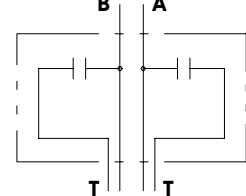
##### A+B side configuration:

###### V03 (V04 + V05)



##### Plug valve:

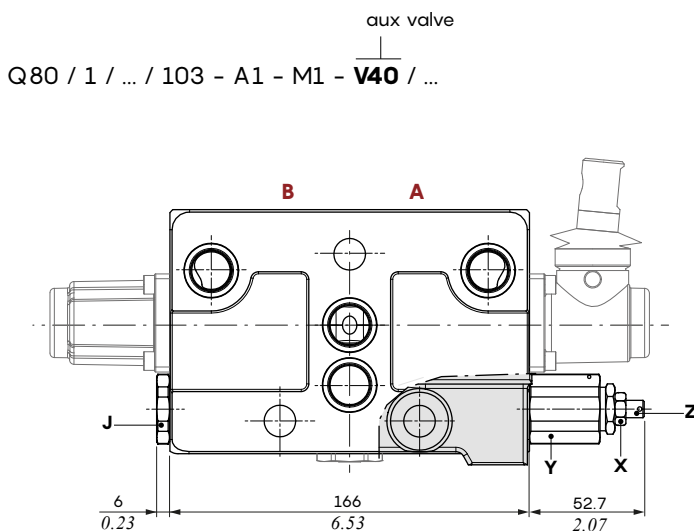
###### VC



##### Wrenches and tightening torques

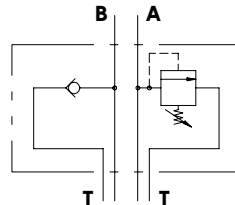
J = wrench 30 - 42 Nm (31 lbft)  
 Y = wrench 30 - 80 Nm (59 lbft)  
 X = wrench 20 - 24 Nm (17.7 lbft)  
 Z = allen wrench 4

##### Antishock and anticavitation combining valves example



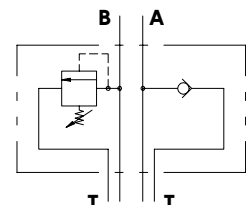
##### A side configuration:

###### V40 (V30 + V05)



##### B side configuration:

###### V41 (V31 + V04)



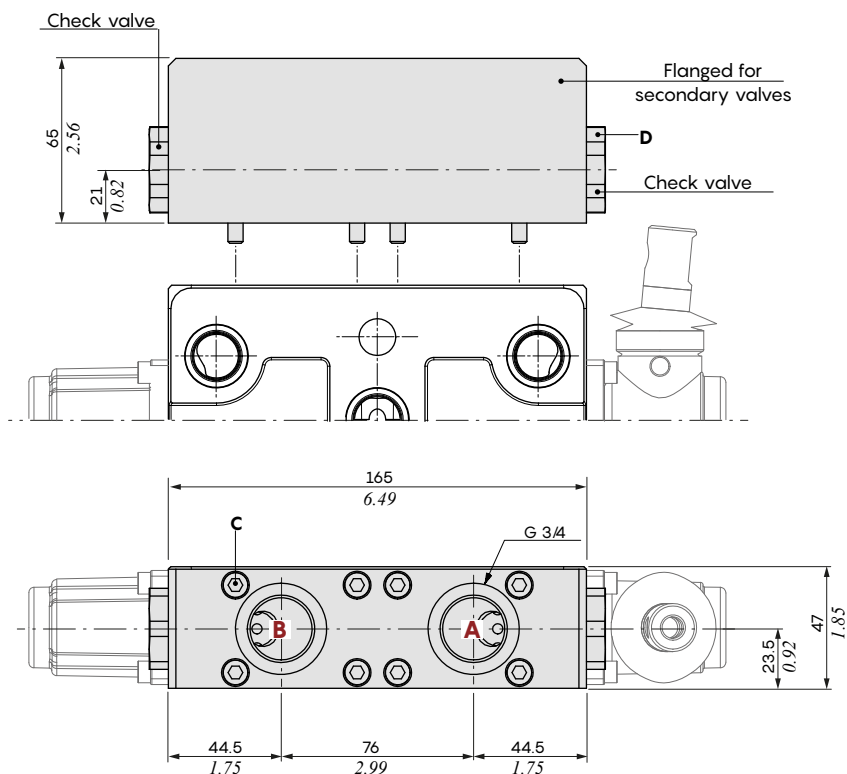
## Secondary valve configuration

## Dimensional data and hydraulic circuits

## Description example

Q130 / 1 / ... / 103 - A1 - M1 - V32(N)120 / **VC03**

secondary aux valve valves block



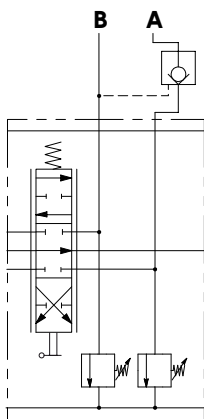
## Wrenches and tightening torques

C = allen wrench 5 - 9.8 Nm (7.2 lbft)

D = wrench 12 - 42 Nm (31 lbft)

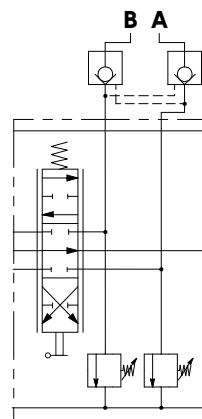
## Q130.V40(N)120/VC01 configuration

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

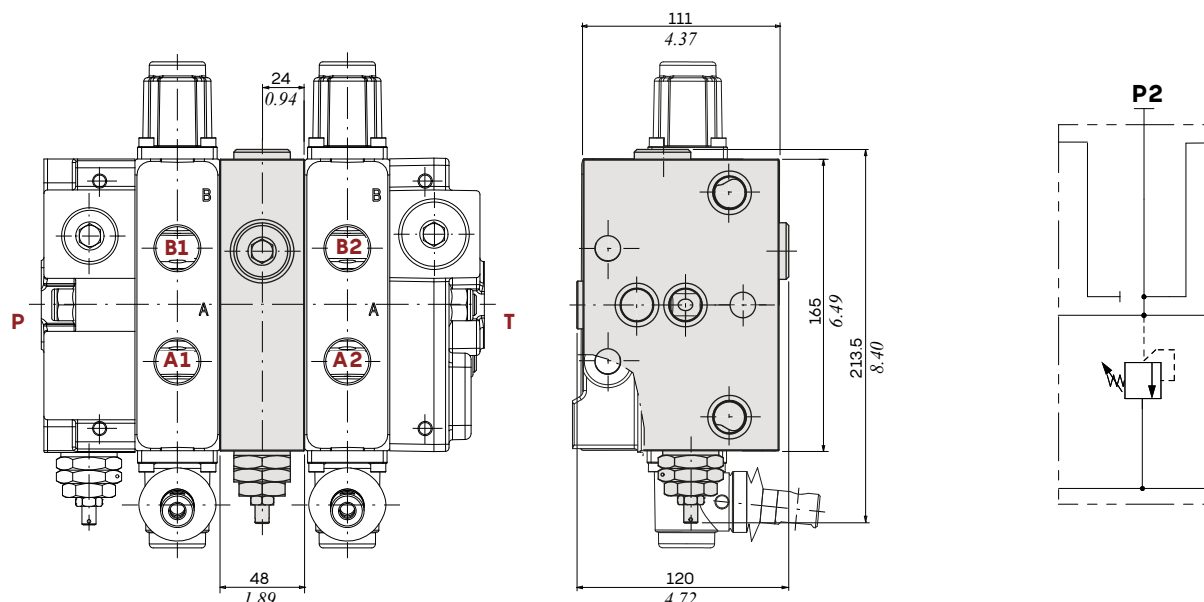


### Intermediate section

#### Dimensional data and hydraulic circuit

##### E50 type

Intermediate inlet section with pressure relief valve

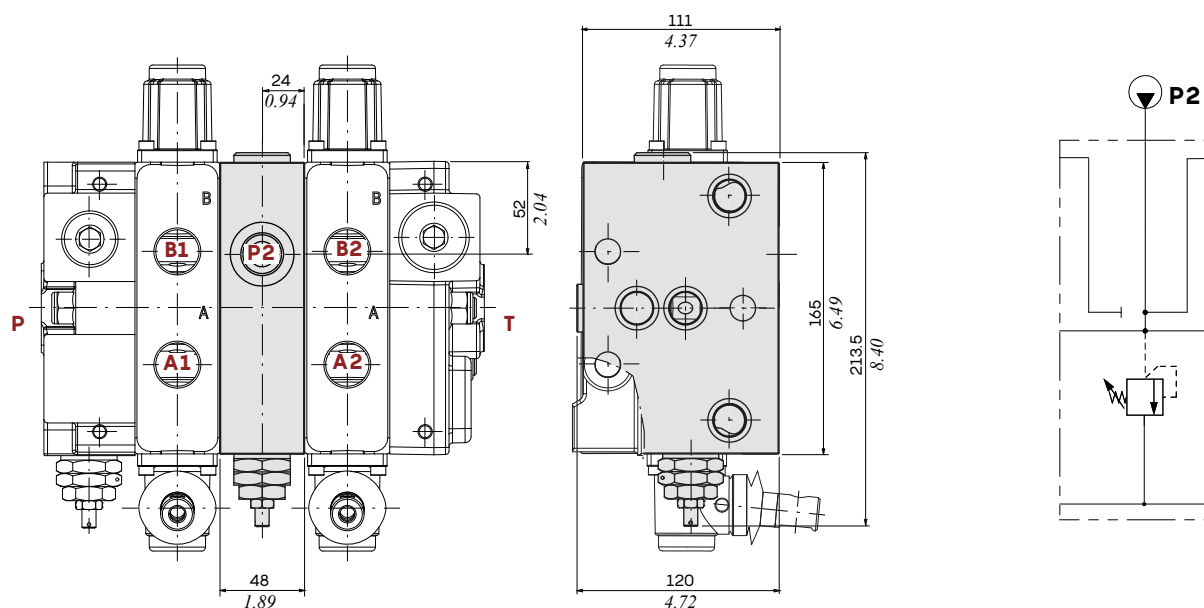


Description example: Q130/2/F7S(N150)/103-A1-M1/**E50(N150)**/103-A1-M1/F3D

intermediate section    spring type and valve setting (bar)

##### E53 type

Intermediate inlet section with pressure relief valve and P2 port open



Description example: Q130/2/F7S(N150)/103-A1-M1/**E53(N150)**/103-A1-M1/F3D

intermediate section    spring type and valve setting (bar)

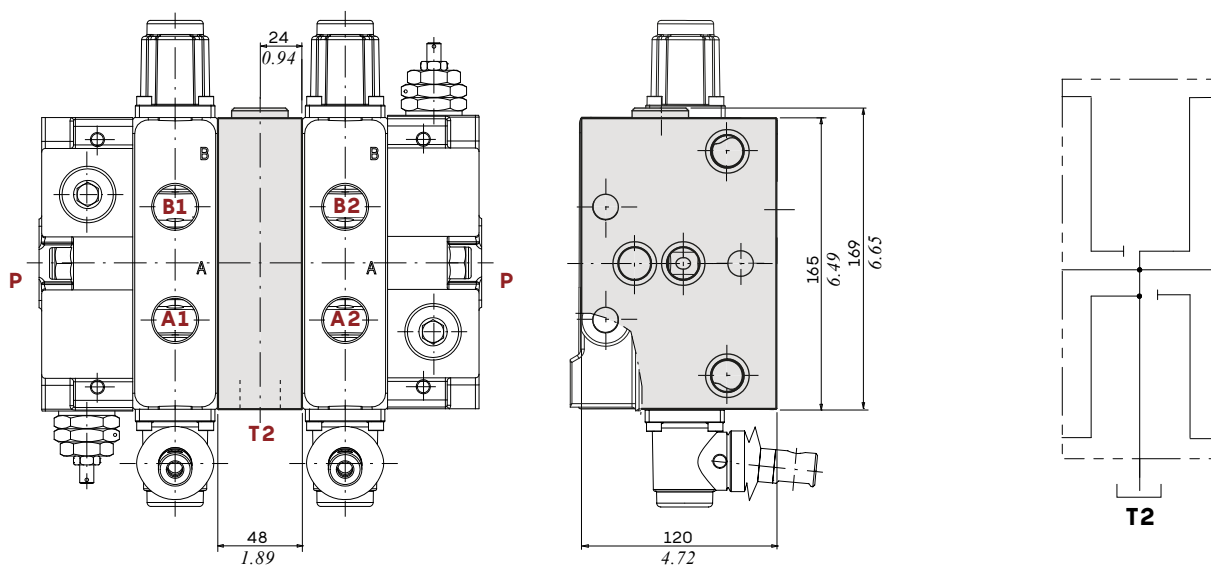


## Intermediate section

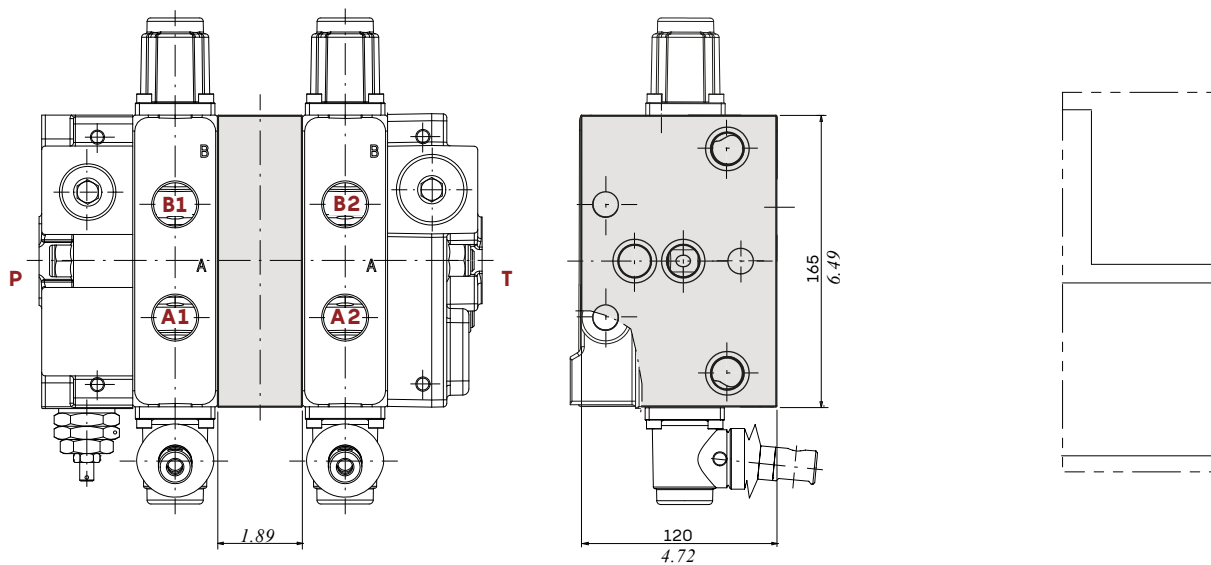
## Dimensional data and hydraulic circuit

**E51 type**

Intermediate outlet section, T2 port open

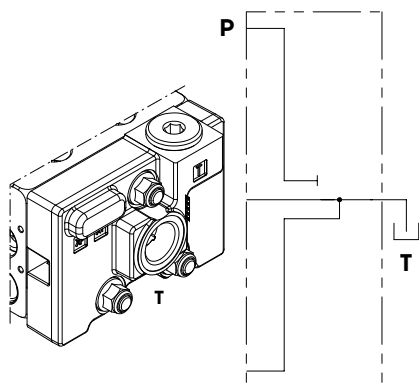
Description example: Q130/2/F7S(N150)/103-A1-M1/**E51**/103-A1-M1/F3Dintermediate  
section**E61 type**

Intermediate spacer section

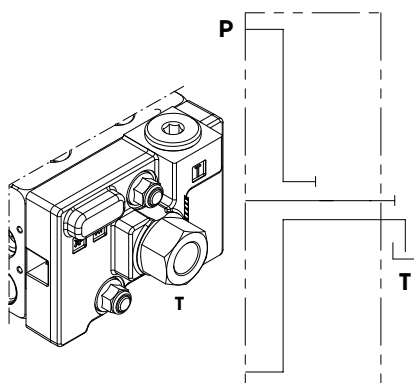
Description example: Q130/2/F7S(N150)/103-A1-M1/**E61**/103-A1-M1/F3Dintermediate  
section

### Outlet configuration

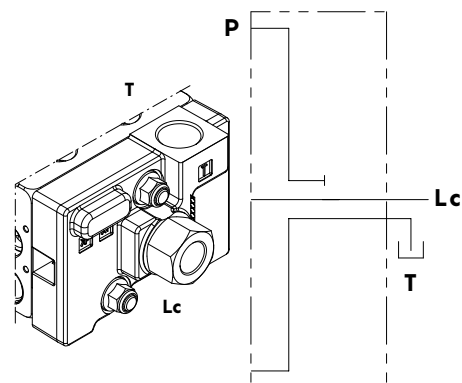
**F3D configuration**  
Open center configuration



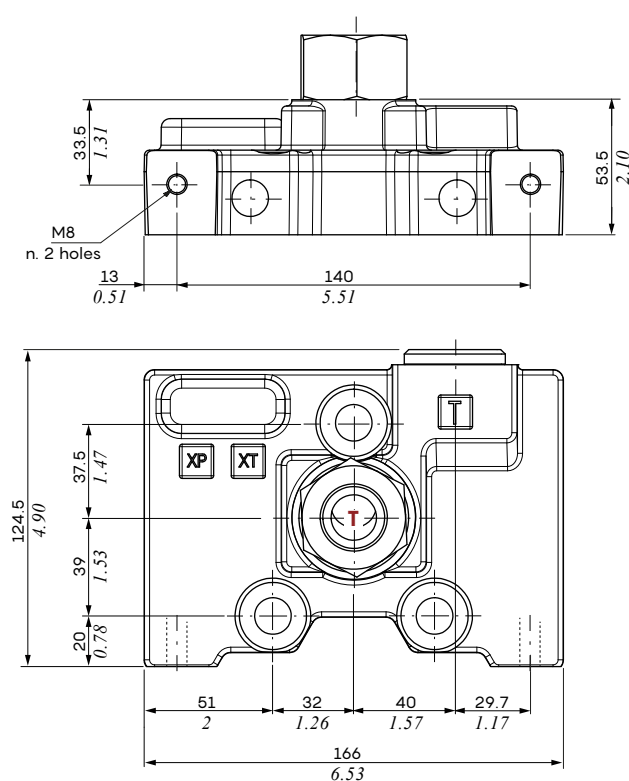
**F16D configuration**  
Closed center configuration



**F6D configuration**  
Carry-over configuration

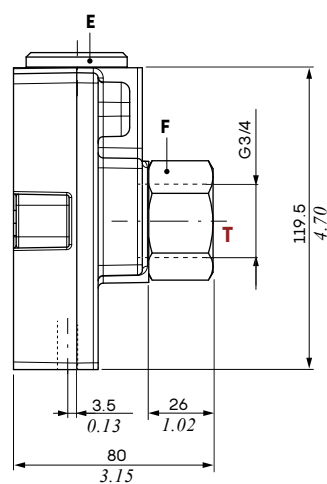


### F16D configuration example



#### Wrenches and tightening torques

E = allen wrench 12 - 42 Nm (30.9 lbft)  
F = wrench 41 - 80 Nm (59 lbft)



## Dimensional data and features

| Coil type | Voltage                                                                   | Connectors                                                              |                                                                                                                                                        |                                                            |                            |                            |                              |
|-----------|---------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------|----------------------------|------------------------------|
|           |                                                                           | ISO4400                                                                 | Deutsch DT                                                                                                                                             | AMP JPT                                                    | Packard Weatherpack        | Packard Metri-pack         | Flying leads (without conn.) |
| BER       | 10 VDC                                                                    | 4SLE001000A                                                             | -                                                                                                                                                      | -                                                          | -                          | -                          | -                            |
|           | 12 VDC                                                                    | 4SLE001200A<br>4SLE001217A <sup>(3)</sup>                               | 4SLE001201A <sup>(5)</sup><br>4SLE001209A <sup>(3-5)</sup><br>4SLE001202A <sup>(6)</sup><br>4SLE001216A <sup>(3-6)</sup><br>4SLE001206A <sup>(2)</sup> | 4SLE001203A <sup>(5)</sup><br>4SLE001211A <sup>(3-5)</sup> | 4SLE001210A <sup>(2)</sup> | 4SLE001214A <sup>(2)</sup> | 4SLE001207A                  |
|           | 14 VDC                                                                    | -                                                                       | 4SLE001400A <sup>(6)</sup><br>4SLE001401A <sup>(3-6)</sup><br>4SLE001402A <sup>(3-5)</sup>                                                             | 4SLE001403A <sup>(3-5)</sup>                               | -                          | -                          | -                            |
|           | 24 VDC                                                                    | 4SLE002400A<br>4SLE002408A <sup>(3)</sup><br>4SLE302400A <sup>(1)</sup> | 4SLE002401A <sup>(5)</sup><br>4SLE002407A <sup>(3-5)</sup><br>4SLE002402A <sup>(6)</sup>                                                               | 4SLE002403A <sup>(5)</sup>                                 | -                          | -                          | 4SLE002404A                  |
|           | 28 VDC                                                                    | -                                                                       | 4SLE002802A <sup>(6)</sup>                                                                                                                             | 4SLE002800A <sup>(5)</sup>                                 | -                          | -                          | -                            |
|           | 48 VDC                                                                    | 4SLE004800A<br>4SLE304800A <sup>(1)</sup>                               | -                                                                                                                                                      | -                                                          | -                          | -                          | -                            |
|           | 110VDC                                                                    | 4SLE011000A<br>4SLE311000A <sup>(1)</sup>                               | -                                                                                                                                                      | -                                                          | -                          | -                          | -                            |
|           | 220 VDC                                                                   | 4SLE022000A<br>4SLE322000A <sup>(1)</sup>                               | -                                                                                                                                                      | -                                                          | -                          | -                          | -                            |
|           | <b>Mating connectors</b><br>(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.) |
| BT        | 10 VDC                                                                    | 4SL3000100                                | -                                                                                     | -                                                        | -                         | -                         | -                            |
|           | 12 VDC                                                                    | 4SL3000120<br>4SL3000126 <sup>(4)</sup>   | 4SL3000130 <sup>(6)</sup><br>4SL3000134 <sup>(3-6)</sup><br>4SL3000128 <sup>(2)</sup> | 4SL3000122 <sup>(5)</sup><br>4SL3001200 <sup>(3-5)</sup> | 4SL3000124 <sup>(2)</sup> | 4SL3000127 <sup>(2)</sup> | 4SL300012C                   |
|           | 24 VDC                                                                    | 4SL3000240<br>4SL3030240 <sup>(1)</sup>   | 4SL3000249 <sup>(6)</sup><br>4SL300024C <sup>(3-6)</sup>                              | 4SL3000248 <sup>(5)</sup>                                | -                         | -                         | 4SL3000246                   |
|           | 26 VDC                                                                    | 4SL3000260                                | -                                                                                     | -                                                        | -                         | -                         | -                            |
|           | 48 VDC                                                                    | 4SL3000480<br>4SL3030480 <sup>(1)</sup>   | -                                                                                     | -                                                        | -                         | -                         | -                            |
|           | 110VDC                                                                    | 4SL3001100<br>4SL3031100 <sup>(1)</sup>   | -                                                                                     | -                                                        | -                         | -                         | -                            |
|           | 220 VDC                                                                   | 4SLE022000A<br>4SLE322000A <sup>(1)</sup> | -                                                                                     | -                                                        | -                         | -                         | -                            |
|           | <b>Mating connectors</b><br>(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                            |
| 24 VDC  | 4CN1010240                               |
| 48 VDC  | 4CN1010480                               |
| 110 VDC | 4CN1011100                               |
| 220 VDC | 4CN1012200                               |

**BER type**

[illegible]

Technical drawings of the 1000 Series 1/2" component. The left view shows a side profile with dimensions: total height 69.8, top section height 2.75, main body height 49.8, and base height 1.96. The bottom width is 38.5, and the overall base width is 1.52. The right view shows a top-down perspective with dimensions: central circular feature diameter 23.5, outer diameter 36, and overall width 1.42. A small detail of the top mounting is shown with a diameter of 0.93.



Technical drawings of the 1000 Series 1/2" (1.93") female plug. The left view shows the side profile with dimensions: overall height 6.8, body height 4.75, body diameter 38.5, and base diameter 1.52. The right view shows the front face with dimensions: overall height 23.5, body height 1.87, body diameter 36, and base diameter 1.42.

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

Weather protection.....: IP65 - ISO4400

: IP69K - Deutsch DT

: IP65 - AMP JPT

: IP67 - Weatherpack

: IP67 - Metri-pack

Insertion.....: 100%

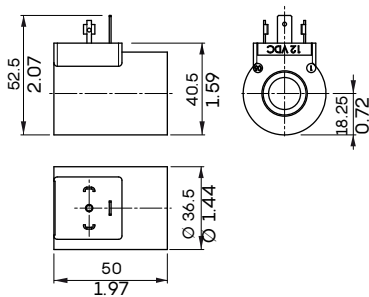
Technical drawing of the pump assembly showing dimensions: 200, 7.87, 43.5, and 1.71.

Technical drawing of the pump assembly showing dimensions: 144 (5.67) and 41.5 (1.63).

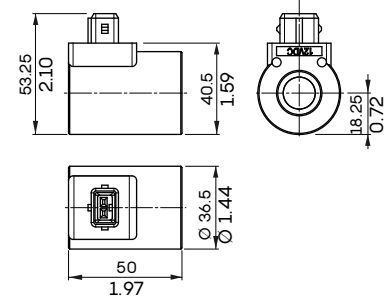
Dimensional data and features

BT type

ISO4400 connector



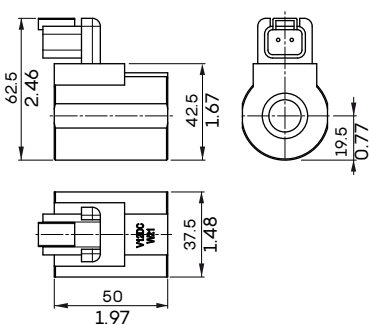
AMP JPT connector



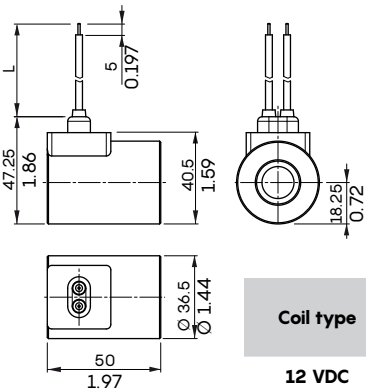
Features

- 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%

DEUTSCH DT04 connector  
(parallel type)

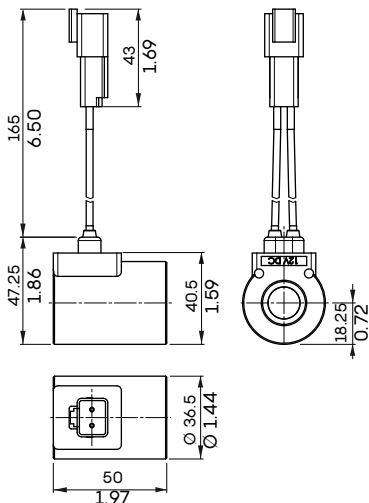


Flying leads

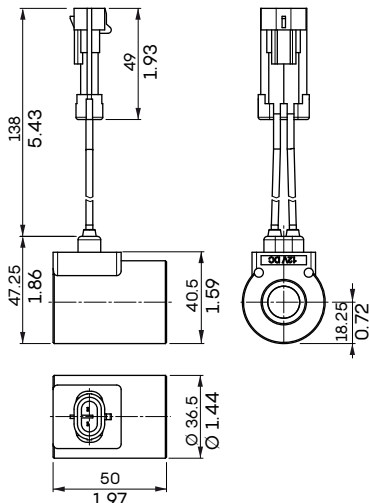


| Coil type | L dimension |       |
|-----------|-------------|-------|
|           | (mm)        | (in)  |
| 12 VDC    | 240         | 9.45  |
| 24 VDC    | 600         | 23.62 |

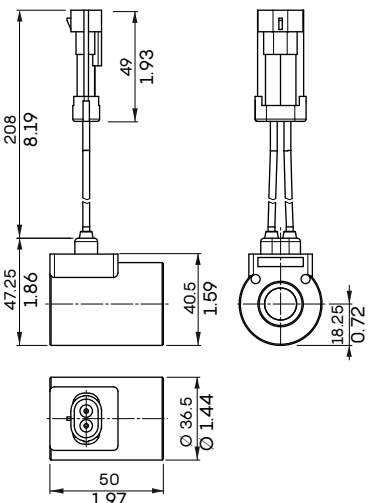
Flying leads with  
DEUTSCH DT04 connector



Flying leads with PACKARD  
METRI-PACK connector



Flying leads with PACKARD  
WEATHER-PACK connector



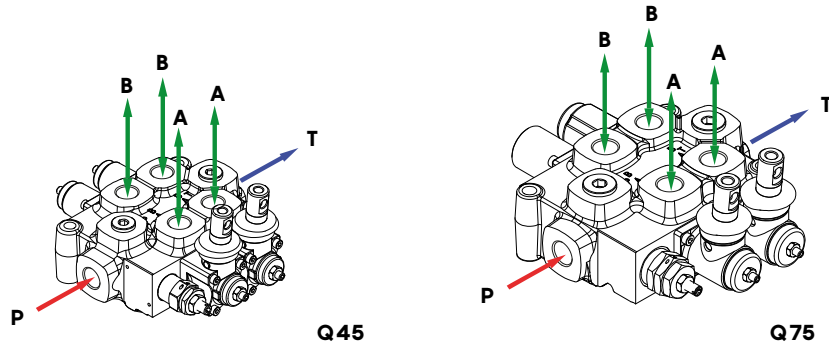
## Main rules

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.

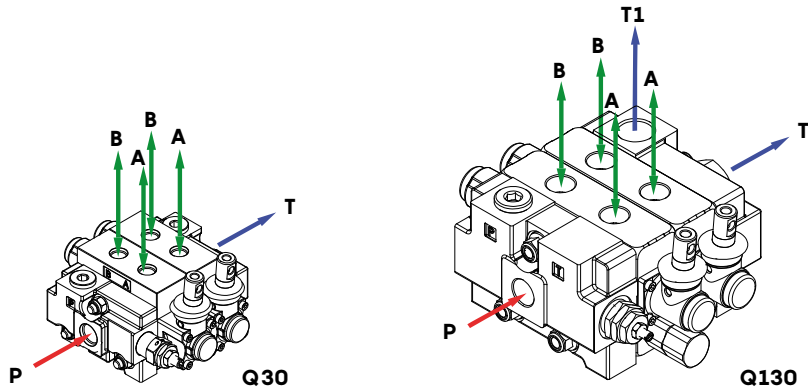
### Monoblock valves



| 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 1/2                  | G 3/8              | G 1/2                  |
|             | With O-Ring seal             | 35 / 25.8          | 50 / 36.9              | 35 / 25.8          | 50 / 36.9              | 50 / 36.9              | 35 / 25.8          | 50 / 36.9              |
|             | With copper washer           | 40 / 29.5          | 60 / 44.3              | 40 / 29.5          | 60 / 44.3              | 60 / 44.3              | 40 / 29.5          | 60 / 44.3              |
|             | With steel and rubber washer | 30 / 22.1          | 60 / 44.3              | 30 / 22.1          | 60 / 44.3              | 60 / 44.3              | 30 / 22.1          | 60 / 44.3              |
|             | UN-UNF                       | 9/16-18<br>(SAE 6) | 3/4-16<br>(SAE 8)      | 9/16-18<br>(SAE 6) | 3/4-16<br>(SAE 8)      | 7/8-14<br>(SAE 10)     | 3/4-16<br>(SAE 8)  | 3/4-16<br>(SAE 8)      |
|             | With O-Ring seal             | 30 / 22.1          | 35 / 25.8              | 30 / 22.1          | 35 / 25.8              | 90 / 66.4              | 35 / 25.8          | 35 / 25.8              |
| Q75 - Q95   |                              | Q75                | Q95                    | Q75                | Q95                    | Q75/Q95                | Q75                | Q95                    |
|             | BSP                          | G 1/2              | G 3/4                  | G 1/2              | G 3/4                  | G 3/4                  | G 1/2              | G 3/4                  |
|             | With O-Ring seal             | 50 / 36.9          | 90 / 66.4              | 50 / 36.9          | 90 / 66.4              | 90 / 66.4              | 50 / 36.9          | 90 / 66.4              |
|             | With copper washer           | 60 / 44.3          | 90 / 66.4              | 60 / 44.3          | 90 / 66.4              | 90 / 66.4              | 60 / 44.3          | 90 / 66.4              |
|             | With steel and rubber washer | 60 / 44.3          | 70 / 51.6              | 60 / 44.3          | 70 / 51.6              | 70 / 51.6              | 60 / 44.3          | 70 / 51.6              |
|             | UN-UNF                       | 7/8-14<br>(SAE 10) | 1" 1/16-12<br>(SAE 12) | 7/8-14<br>(SAE 10) | 1" 1/16-12<br>(SAE 12) | 1" 1/16-12<br>(SAE 12) | 7/8-14<br>(SAE 10) | 1" 1/16-12<br>(SAE 12) |
|             | With O-Ring seal             | 90 / 66.4          | 95 / 70.1              | 90 / 66.4          | 95 / 70.1              | 95 / 70.1              | 90 / 66.4          | 95 / 70.1              |

NOTE — These torques are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finish.

Sectional valves



| FITTING TIGHTENING TORQUE - Nm / lbft |                              |                        |                        |                        |
|---------------------------------------|------------------------------|------------------------|------------------------|------------------------|
| THREAD TYPE                           | P and P1 ports               | A and B ports          | T port                 | T1 and Lc ports        |
| <b>Q30</b>                            | BSP                          | G 3/8                  | G 3/8                  | G 1/2                  |
|                                       | With O-Ring seal             | 35 / 25.8              | 35 / 25.8              | 50 / 36.9              |
|                                       | With copper washer           | 40 / 29.5              | 40 / 29.5              | 60 / 44.3              |
|                                       | With steel and rubber washer | 30 / 22.1              | 30 / 22.1              | 60 / 44.3              |
|                                       | UN-UNF                       | 3/4-16<br>(SAE 8)      | 9/16-18<br>(SAE 6)     | 7/8-14<br>(SAE 10)     |
|                                       | With O-Ring seal             | 35 / 25.8              | 30 / 22.1              | 90 / 66.4              |
| <b>Q80</b>                            | BSP                          | G 1/2 - G 3/4          | G 1/2 - G 3/4          | G 3/4                  |
|                                       | With O-Ring seal             | 50 / 36.9 - 90 / 66.4  | 50 / 36.9 - 90 / 66.4  | 90 / 66.4              |
|                                       | With copper washer           | 60 / 44.3 - 90 / 66.4  | 60 / 44.3 - 90 / 66.4  | 90 / 66.4              |
|                                       | With steel and rubber washer | 60 / 44.3 - 70 / 51.6  | 60 / 44.3 - 70 / 51.6  | 70 / 51.6              |
|                                       | UN-UNF                       | 7/8-14<br>(SAE 10)     | 3/4-16<br>(SAE 8)      | 1" 1/16-12<br>(SAE 12) |
|                                       | With O-Ring seal             | 90 / 66.4              | 35 / 25.8              | 95 / 70.1              |
| <b>Q130</b>                           | BSP                          | G 3/4 - G 1"           | G 3/4 - G 1"           | G 1"                   |
|                                       | With O-Ring seal             | 90 / 66.4 - 100 / 73.8 | 90 / 66.4 - 100 / 73.8 | 100 / 73.8             |
|                                       | With copper washer           | 90 / 66.4 - 90 / 66.4  | 90 / 66.4 - 90 / 66.4  | 90 / 66.4              |
|                                       | With steel and rubber washer | 70 / 51.6 - 100 / 73.8 | 70 / 51.6 - 100 / 73.8 | 100 / 73.8             |
|                                       | UN-UNF                       | 1" 5/16-12<br>(SAE 16) | 1" 5/16-12<br>(SAE 16) | 1" 5/16-12<br>(SAE 16) |
|                                       | With O-Ring seal             | 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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**Notes** \_\_\_\_\_





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