



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

NOTES - For different conditions please contact our Sales Department.

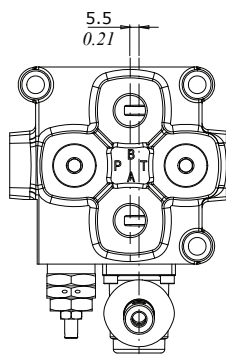
#### REFERENCE STANDARD

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

#### PORT THREADING

| PORTS                                     | Q75         |                     | Q95         |                     |
|-------------------------------------------|-------------|---------------------|-------------|---------------------|
|                                           | BSP         | UN-UNF              | BSP         | UN-UNF              |
| <b>P</b> Inlet                            | G 1/2       | 7/8-14 (SAE 10)     | G 3/4       | 1" 1/16-12 (SAE 12) |
| <b>P1</b> Inlet                           | G 1/2       | 7/8-14 (SAE 10)     | G 3/4       | 1" 1/16-12 (SAE 12) |
| <b>A</b> and <b>B</b> ports               | G 1/2       | 7/8-14 (SAE 10)     | G 3/4       | 1" 1/16-12 (SAE 12) |
| <b>T</b> Outlet                           | G 3/4       | 1" 1/16-12 (SAE 12) | G 3/4       | 1" 1/16-12 (SAE 12) |
| <b>T1</b> Outlet                          | G 1/2       | 7/8-14 (SAE 10)     | G 3/4       | 1" 1/16-12 (SAE 12) |
| <b>Lc</b> port (Carry-over plug - T port) | G 1/2       | 7/8-14 (SAE 10)     | G 3/4       | 7/8-14 (SAE 10)     |
| Hydraulic controls                        | G 1/4       | 9/16-18 (SAE 6)     | G 1/4       | 9/16-18 (SAE 6)     |
| Pneumatic controls                        | NPTF 1/8-27 | NPTF 1/8-27         | NPTF 1/8-27 | NPTF 1/8-27         |

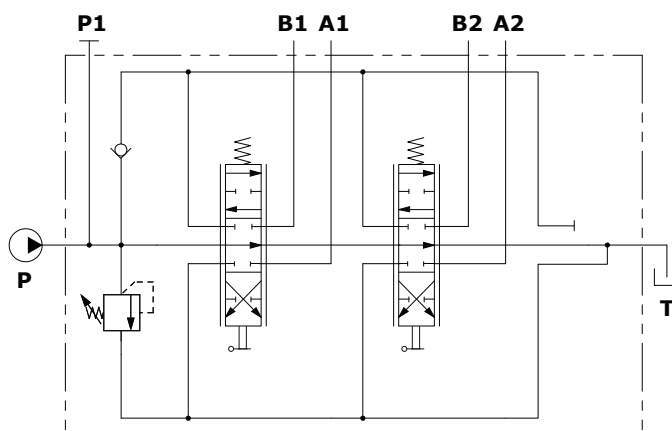
The Q75 and Q95 monoblock valves, have same dimensions but different threads. See port threading on page 51. Drawing are referred to a Q75 monoblock valve.



The diagram shows a rectangular label with the following text and callouts:

- walvoil** (with logo): Brand name.
- MADE IN ITALY**: Country of origin.
- 1GB75040009**: Product code.
- DISTRIBUTORE**: Distributor.
- Q75/2**: Code description.
- MD1600464-001**: Product allotment.
- DATA MATRIX**: Datamatrix with product allotment.

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

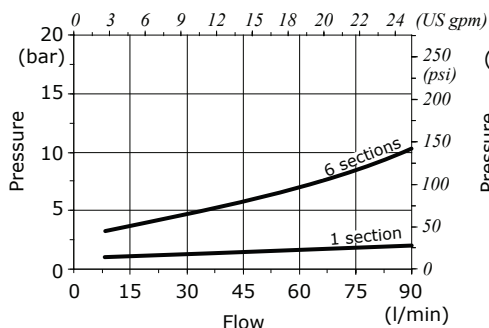


Description example (parallel circuit):  
 Q75/2/F1S(R250)/103-A1-M1/103-A1-M1/F3D  
 Q95/2/F1S(R250)/103-A1-M1/103-A1-M1/F3D

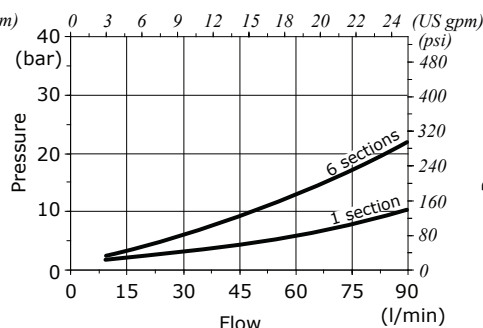
## Performance data

### Q75

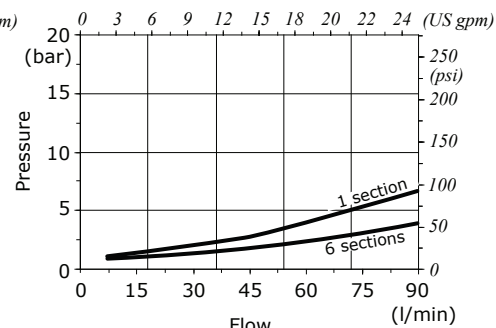
P⇒T pressure drops



P⇒A(B) pressure drops

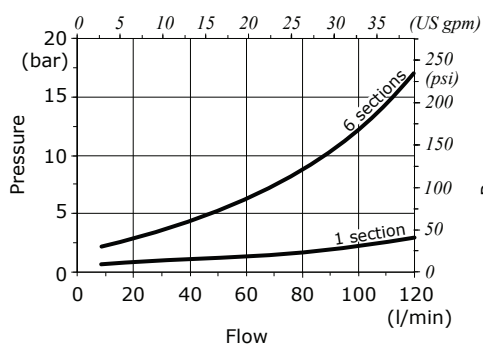


A(B)⇒T pressure drops

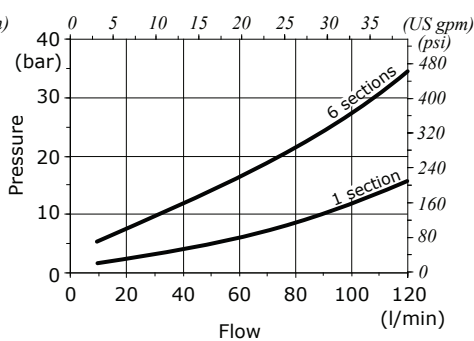


### Q95

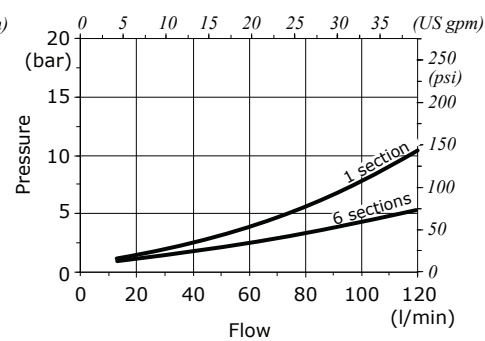
P⇒T pressure drops



P⇒A(B) pressure drops



A(B)⇒T pressure drops



### Parts ordering codes

#### Mechanical control valve configuration example

valve setting (bar)

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

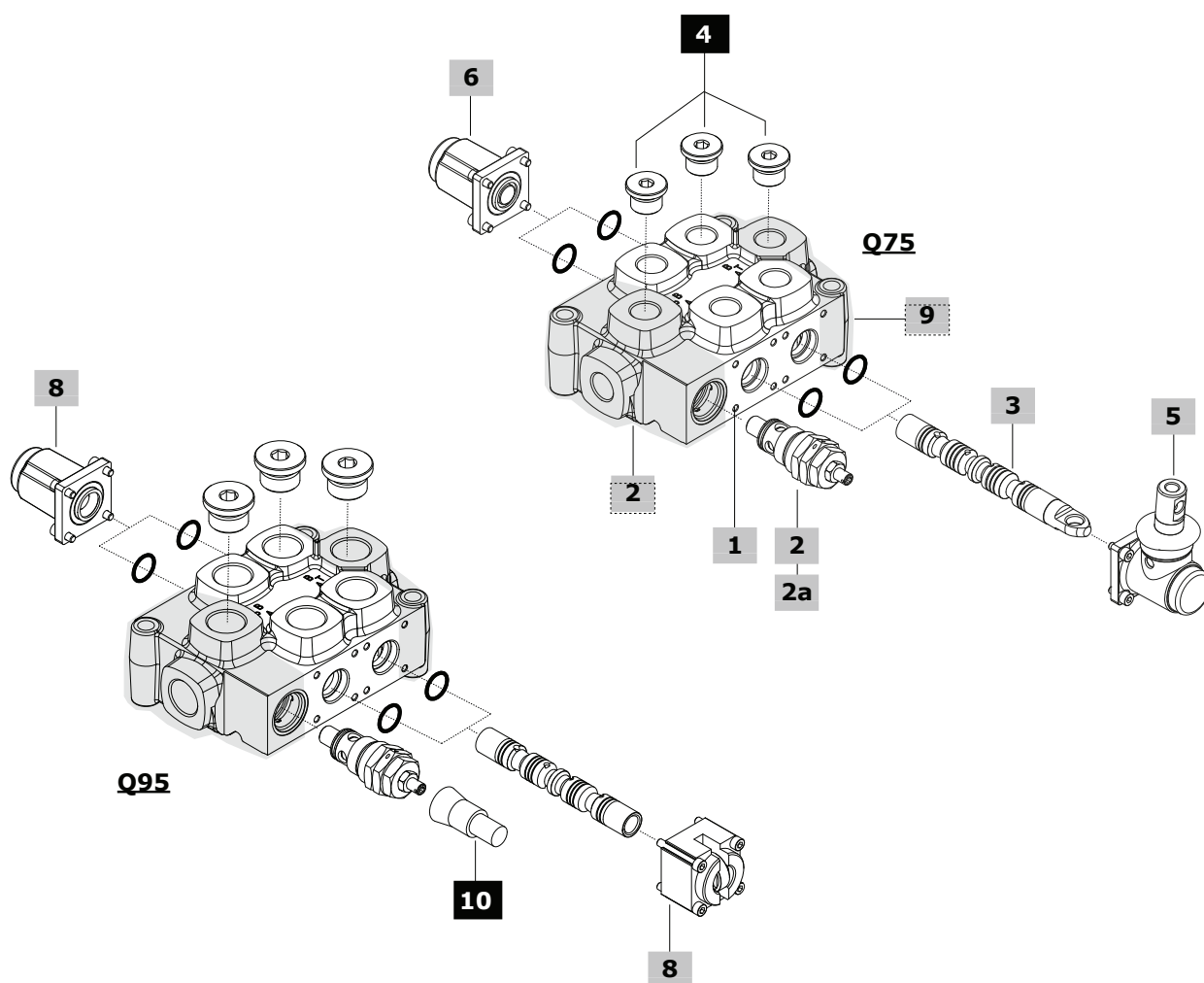
1 2 2a 3 5 6 9

N. of section

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

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

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## 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\* page 59**

| 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 60**

|                                                                      |                       |
|----------------------------------------------------------------------|-----------------------|
| 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 61**

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

**Note (3):** Q75 valve required G1/2 plug, see #4  
Q95 valve required G3/4 plug, see #4

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

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

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

| TYPE | CODE         | DESCRIPTION                |
|------|--------------|----------------------------|
| -    | 060002792099 | G1/2 plug for Q75 body kit |
| -    | 3XTAP732200  | G3/4 plug for Q95 body kit |

**5 A side control page 62**

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

**For standard spools****With lever control:**

|              |               |                                               |
|--------------|---------------|-----------------------------------------------|
| <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 67**

| 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 72**

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

**9 Outlet configuration\* page 75**

| 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 Accessory**

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

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

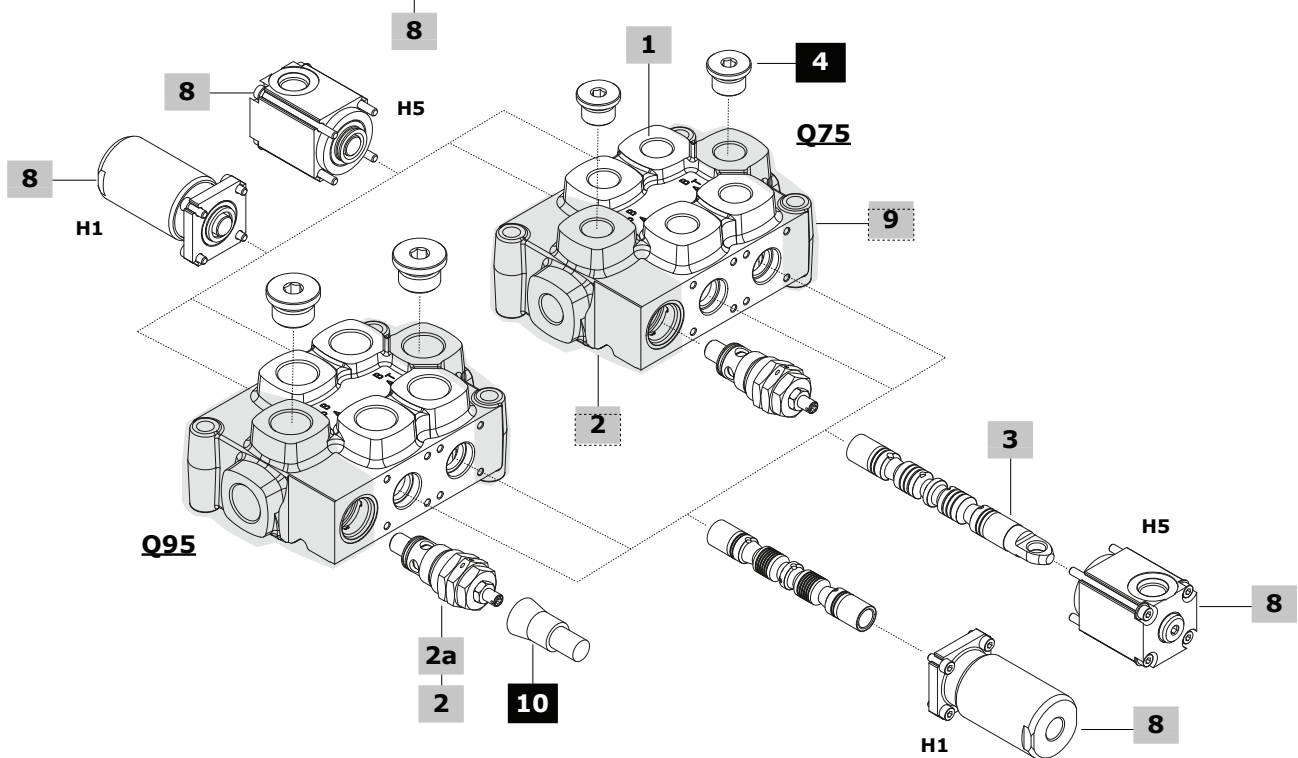
### Proportional hydraulic controls valve configuration example

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**



#### 1 Body kit\*

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

**H1** hydraulic control requires standard body: see #1, page 55

| 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 59

See #2, page 55

#### 2a Main pressure relief valve page 60

See #2a, page 55

#### 3 Spool page 61

TYPE CODE DESCRIPTION

##### For H5 hydraulic control

|            |              |                                                   |
|------------|--------------|---------------------------------------------------|
| <b>103</b> | 060102894999 | Double acting, A and B closed in neutral position |
|------------|--------------|---------------------------------------------------|

##### For H1 hydraulic control

|            |              |                                                    |
|------------|--------------|----------------------------------------------------|
| <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 55

#### 8 Hydraulic controls A+B sides\* page 73

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 75

See #9, page 56

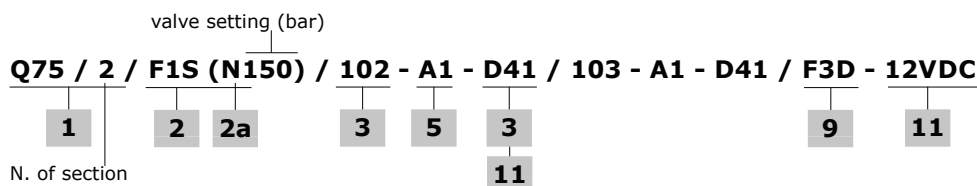
#### 10 Accessory

See #10, page 56

(\*): 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 59

See #2, page 55

#### 2a Main pressure relief valve page 60

See #2a, page 55

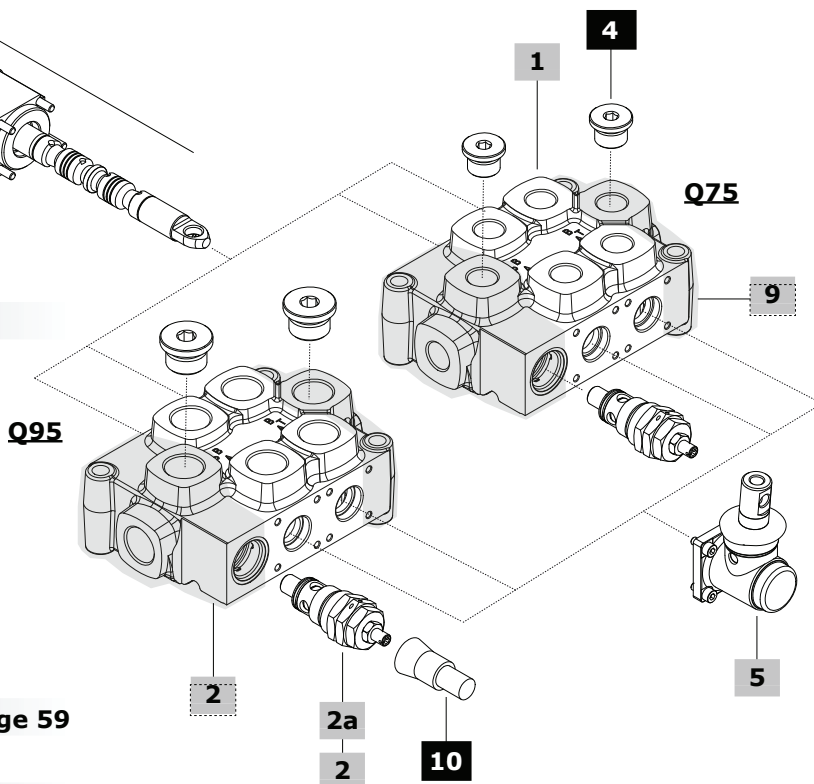
#### 3 Solenoid control page 74

| 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 55



#### 5 A side control page 74

| 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 75

See #9, page 56

#### 10 Accessory

See #10, page 56

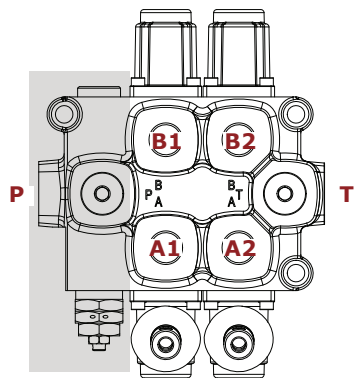
#### 11 Coil page 74

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

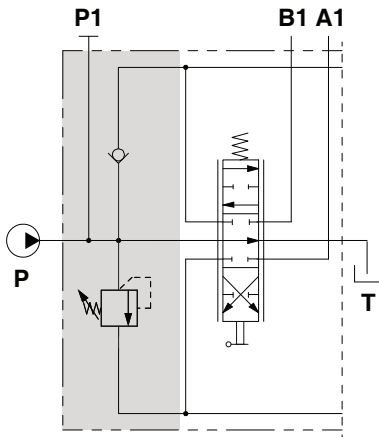
**Note:** The connector is included

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

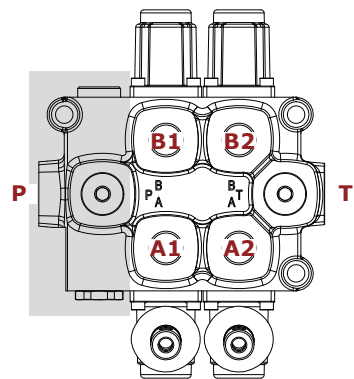
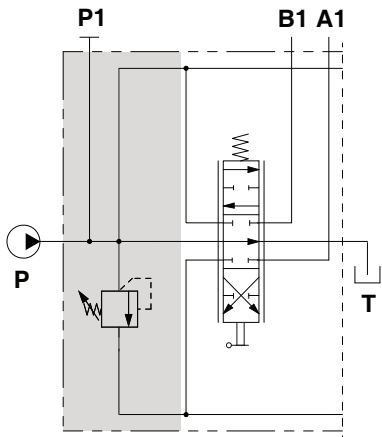
Inlet configuration



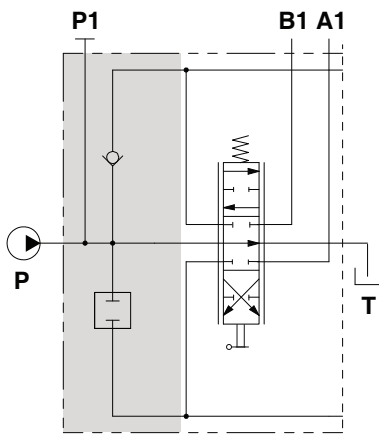
**F1S configuration**  
With load check and pressure relief valve



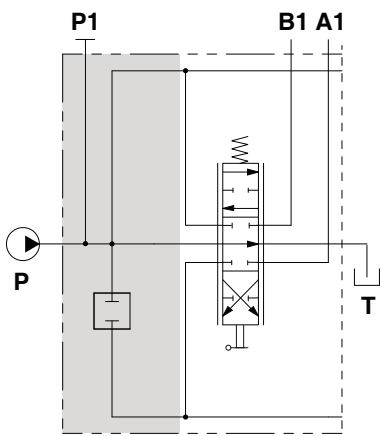
**F7S configuration**  
With pressure relief valve



**F2S configuration**  
With load check valve

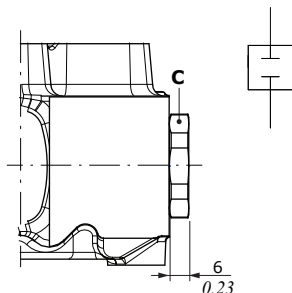


**F8S configuration**  
Without valves  
(pressure relief valve plugged port)

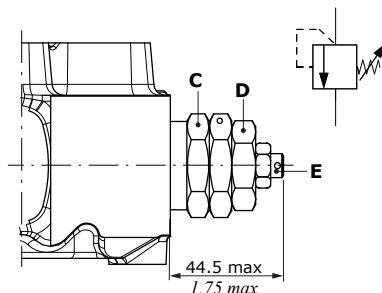


### Main pressure relief valve

#### Relief valve blanking plug

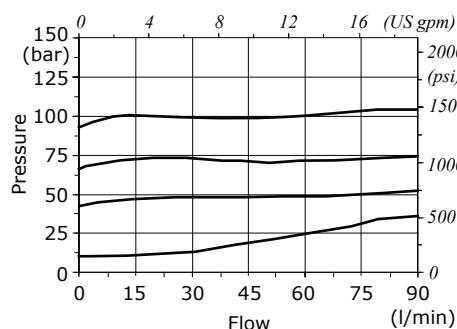


#### Main pressure relief valve

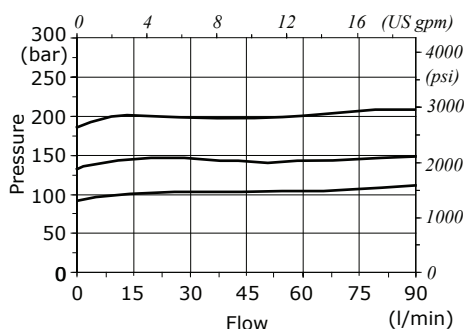


| Spring type      | Setting ranges (bar - psi)          |
|------------------|-------------------------------------|
| <b>B</b> (white) | From 10 to 100 - from 145 to 1450   |
| <b>N</b> (black) | From 101 to 200 - from 1460 to 2900 |
| <b>R</b> (red)   | From 201 to 380 - from 2910 to 5500 |

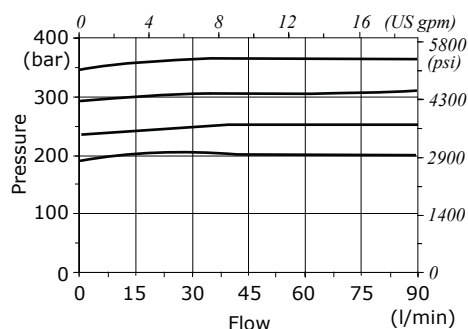
#### Setting example (B type spring)



#### Setting example (N type spring)



#### Setting example (R type spring)



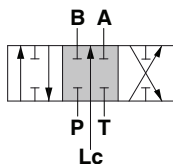
#### Wrenches and tightening torques

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

### 103 type

A and B closed  
in neutral position

2 0 1



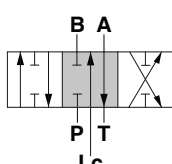
#### Stroke

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

### 107 type

A to tank, B closed  
in neutral position

2 0 1



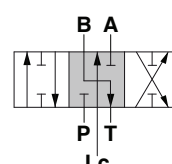
#### Stroke

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

### 108 type

B to tank, A closed  
in neutral position

2 0 1



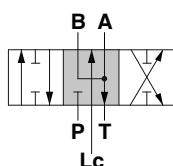
#### Stroke

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

### 111 type

A and B to tank  
in neutral position

2 0 1



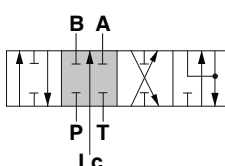
#### Stroke

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

### 116 type

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

2 0 1 3



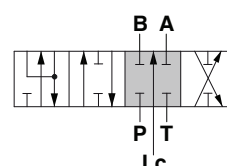
#### Stroke

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

### 126 type

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

3 2 0 1



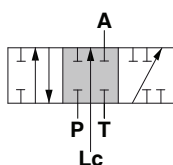
#### Stroke

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

### 101 type

Single acting on A,  
B plugged

2 0 1



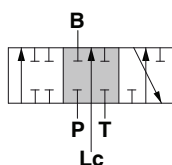
#### Stroke

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

### 102 type

Single acting on B,  
A plugged

2 0 1



#### Stroke

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

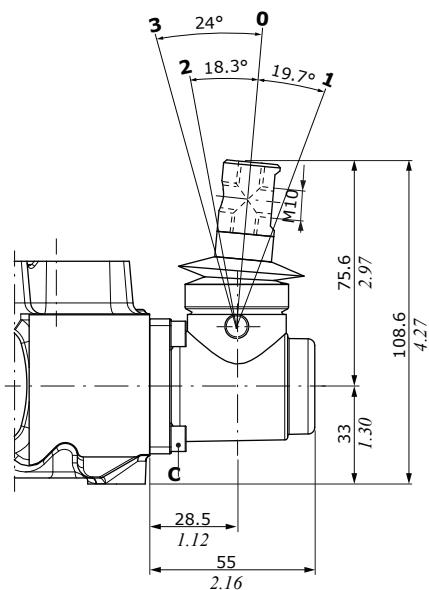
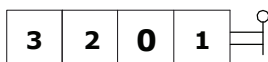
### A side controls

#### Mechanical controls

#### With lever control

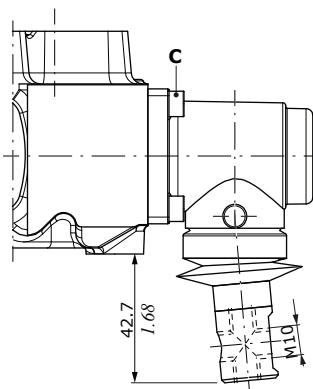
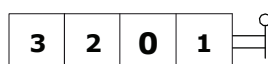
##### A1 type

M10 thread aluminium lever box



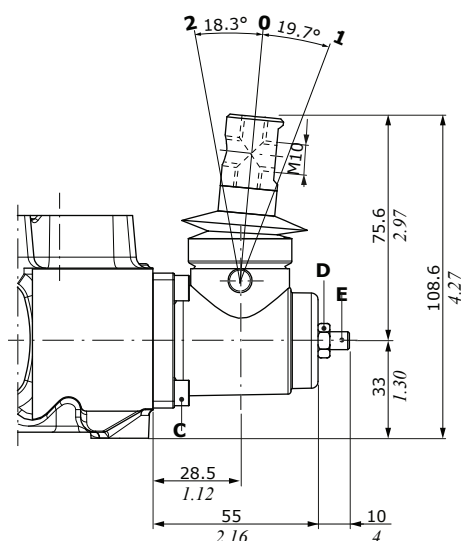
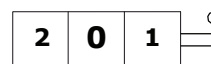
##### A2 type

As A1 type, rotated 180°



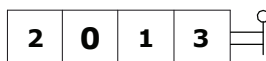
##### A1/06 type

M10 thread,  
with stroke limiter



##### A1/Z1 type

M10 thread,  
for 116 floating spool type



#### Wrenches and tightening torques

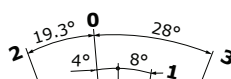
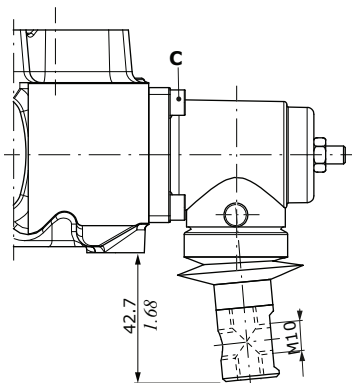
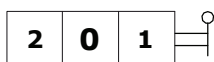
C = allen wrench 4 - 6.6 Nm (4.8 lbf ft)

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

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

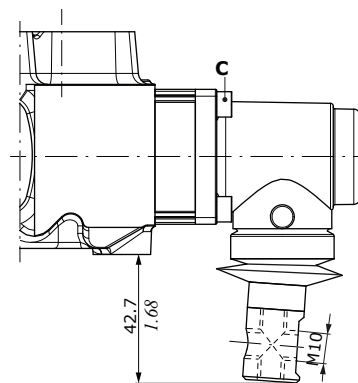
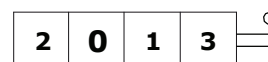
##### A2/06 type

As A1/06 type, rotated 180°



##### A2/Z1 type

As A1/Z1 type, rotated 180°

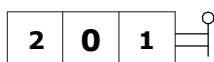


## Mechanical controls

### With safety lever control

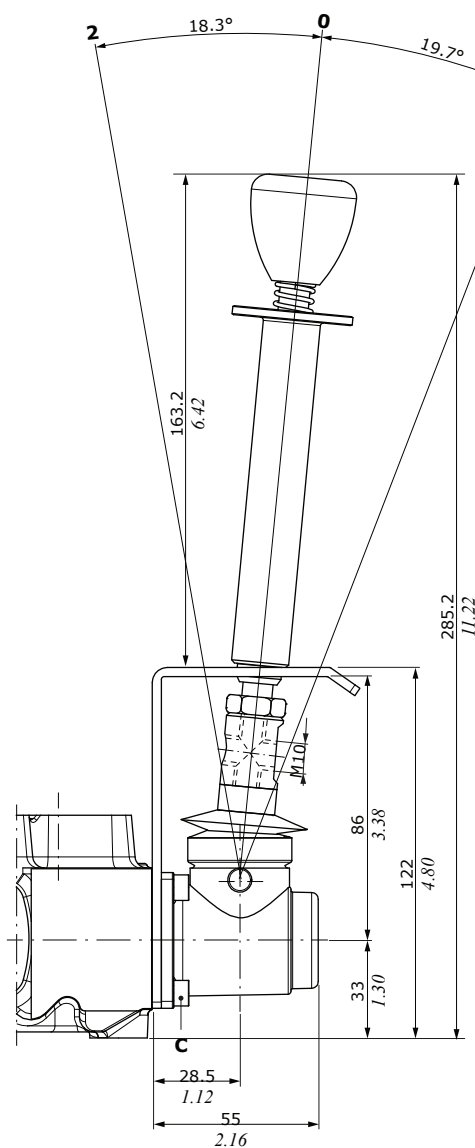
#### A1/S type

M10 thread, aluminium lever box



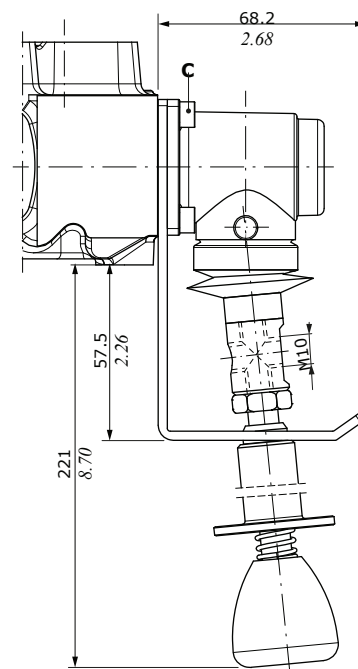
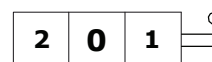
#### Wrenches and tightening torques

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



#### A2/S type

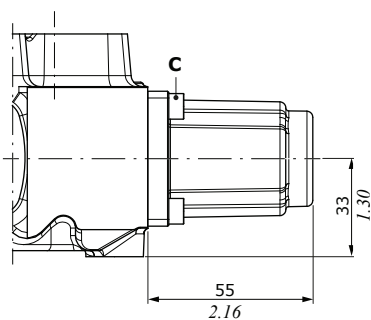
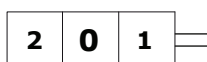
As A1/S type, rotated 180°



### Without lever control

#### A3 type

With cap



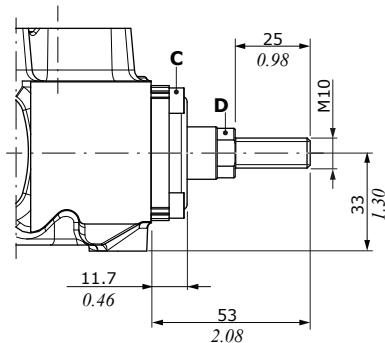
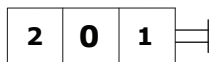
### A side controls

#### Mechanical controls

##### Without lever control

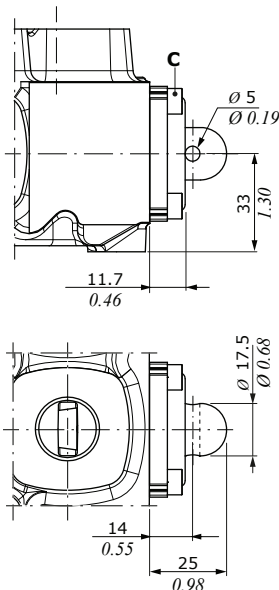
###### A4 type

M10 male thread  
external pin with flange



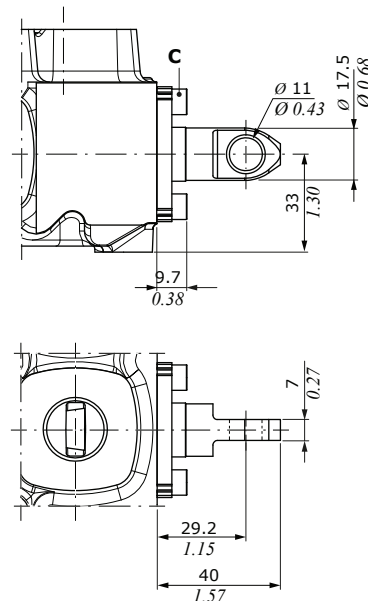
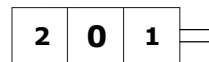
###### A5 type

Flange with spherical spool end



###### A6 type

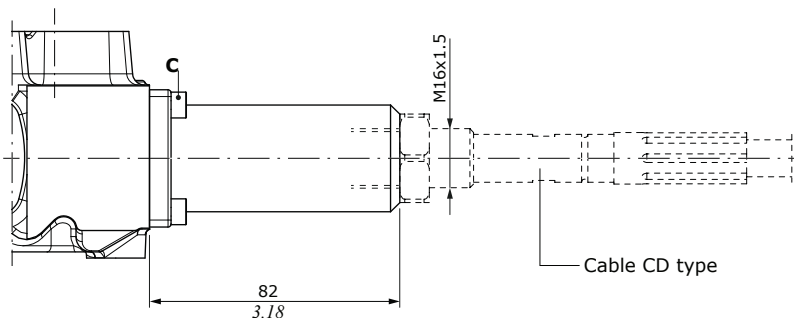
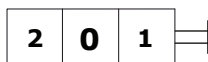
With flange



##### With flexible cable control arrangement

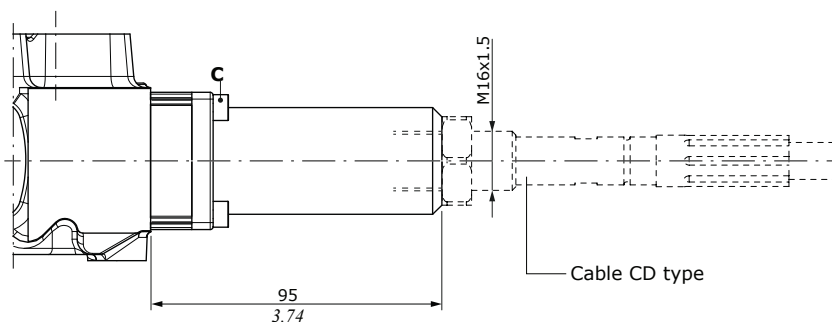
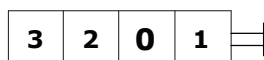
###### A8 type

Flexible cable control arrangement



###### A8/Z1 type

As A8 type,  
for 116 floating spool type



##### Wrenches and tightening torques

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

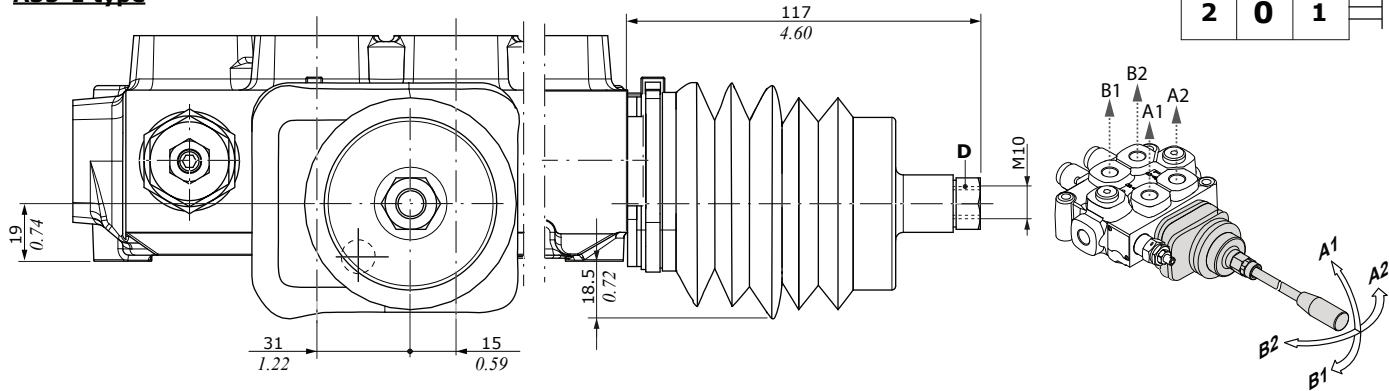
D = wrench 13 - 9.8 Nm (7.2 lbft)

A side controls

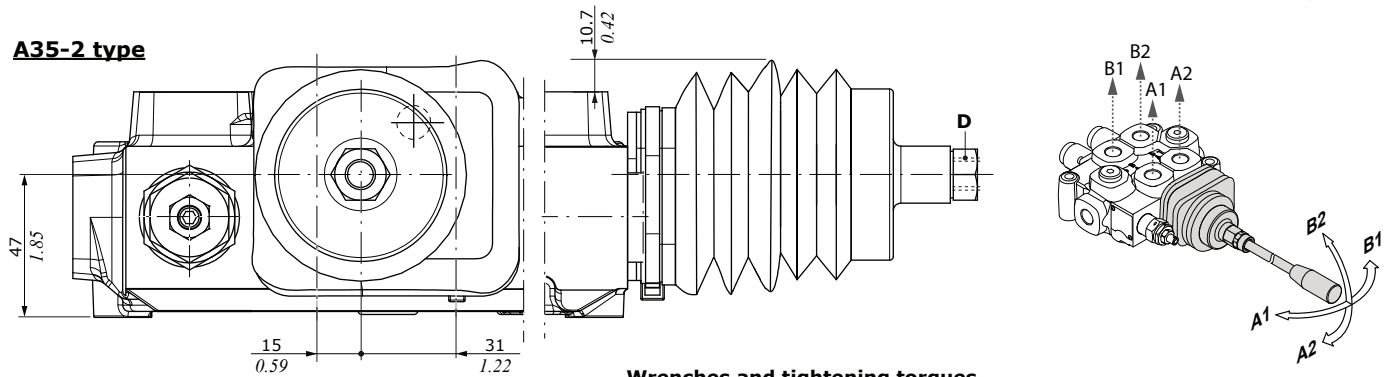
Joystick controls

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

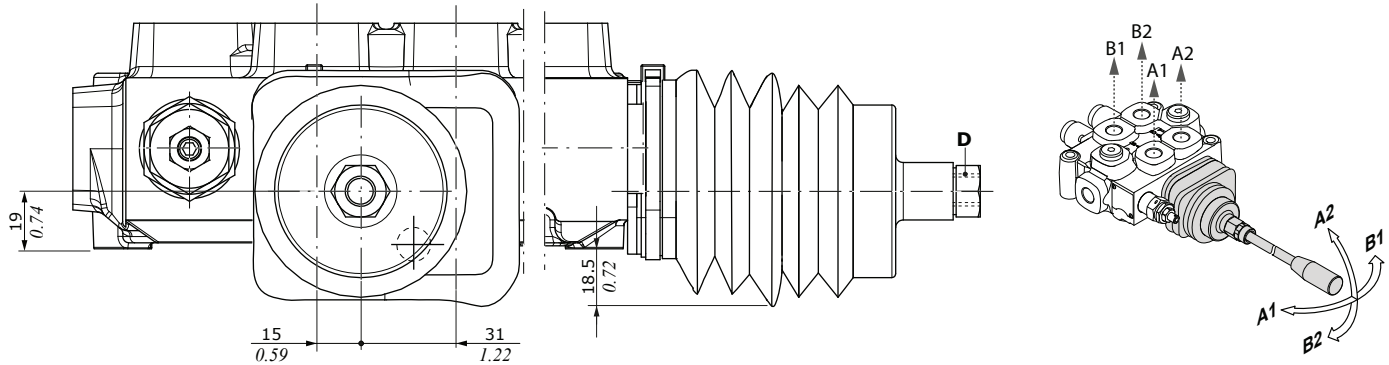
A35-1 type



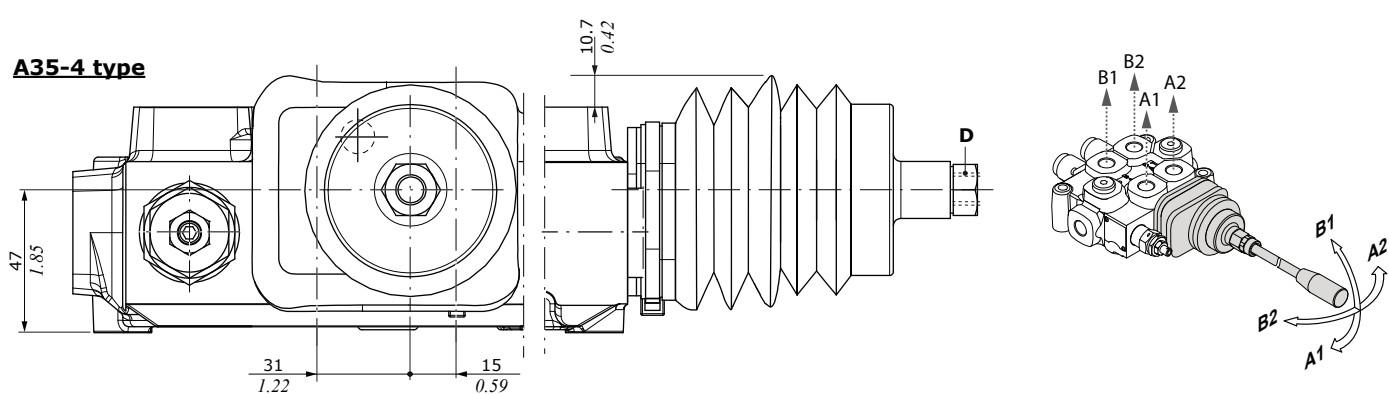
A35-2 type



A35-3 type



A35-4 type

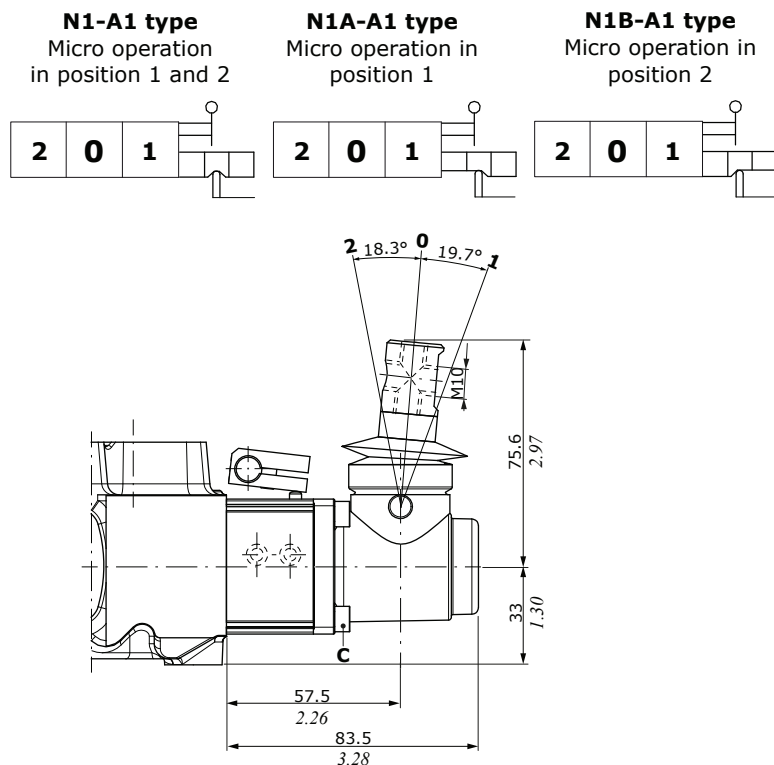


**Wrenches and tightening torques**  
D = wrench 17 - 24 Nm (17.7 lbf ft)

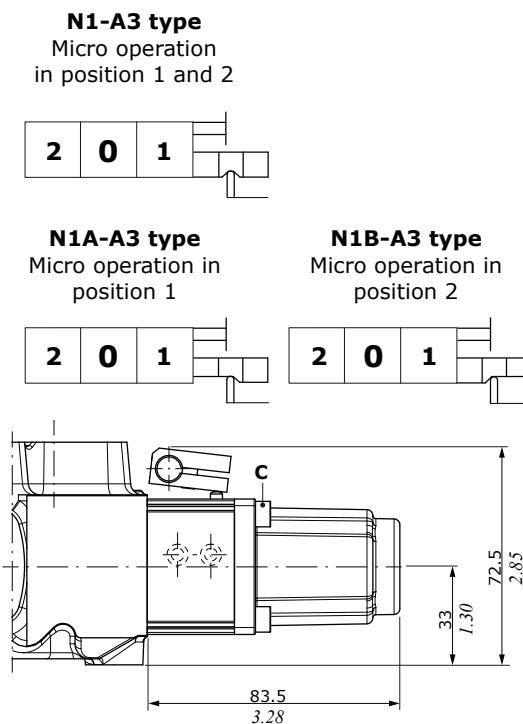
### A side controls

#### Spool position microswitch

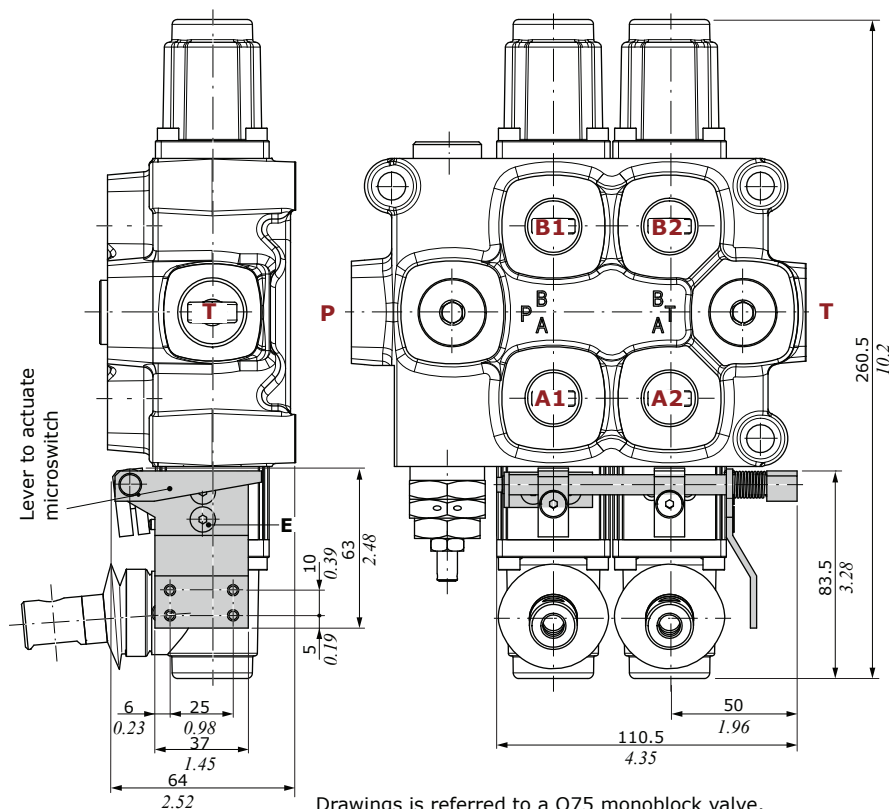
##### With lever control



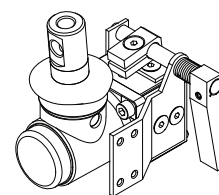
##### Without lever control, with cap



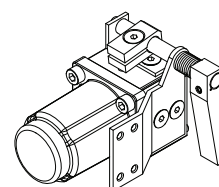
#### Microswitch assembly kit for 2 working section (N1-A1 type)



with lever box



with cap



#### Wrenches and tightening torques

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

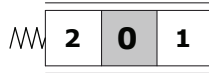
Drawings is referred to a Q75 monoblock valve.

## Mechanical controls

### With spring return control

#### M1 type

3 position, spring return  
in neutral position

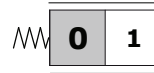


#### M1/01 type

3 position,  
for joystick control

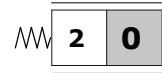
#### M2 type

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



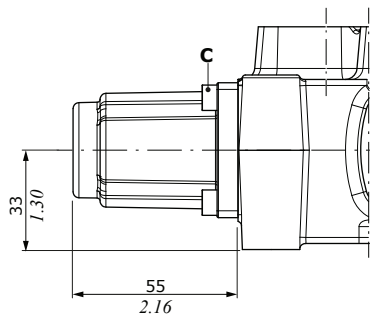
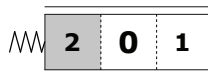
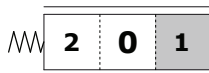
#### M3 type

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

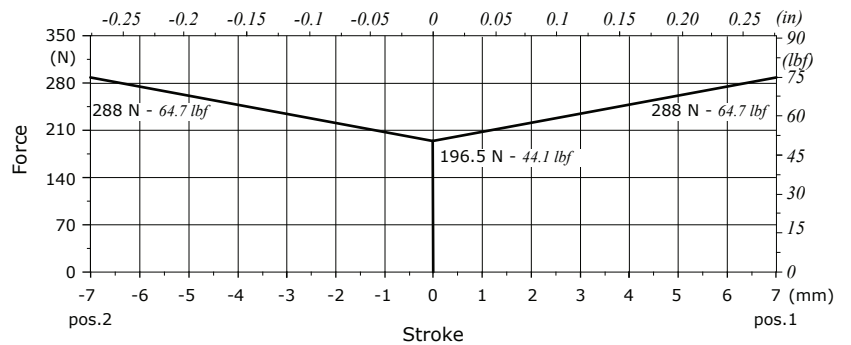


#### M4 types

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

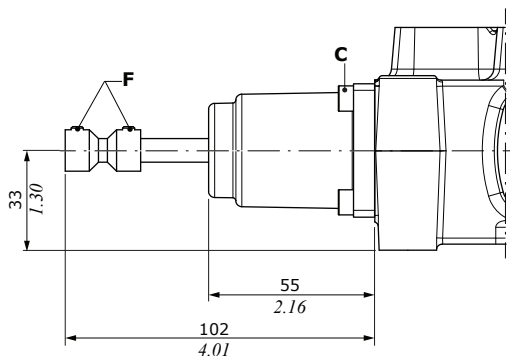
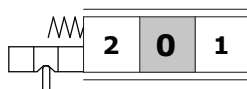


#### M1 control type - Force vs Stroke diagram



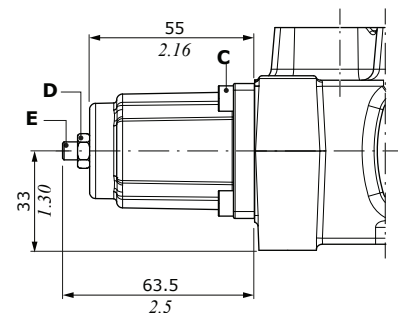
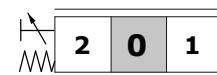
#### M1-B1 type

3 position,  
microswitch arrangement



#### M1/02 type

As M1 type, with stroke limiter



#### Wrenches and tightening torques

C = allen wrench 4 - 6.6 Nm (4.8 lbf ft)  
D = wrench 10 - 9.8 Nm (7.2 lbf ft)  
E = allen wrench 4 - 9.8 Nm (7.2 lbf ft)  
F = allen wrench 3 - 5 Nm (3.68 lbf ft)

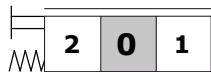
### B side controls

#### Mechanical controls

##### With spring return control

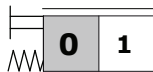
###### M1-U1 type

3 position, with M10 male thread external pin



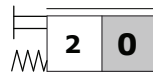
###### M2-U1 type

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



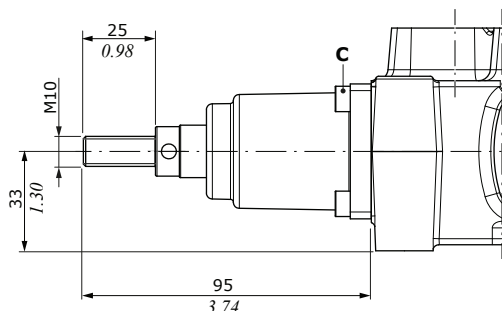
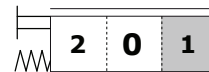
###### M3-U1 type

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



###### M4-U1 type

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

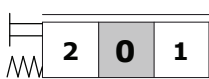


**Wrenches and tightening torques**  
C = allen wrench 4 - 6.6 Nm (4.8 lbft)

##### With flexible cable control arrangement

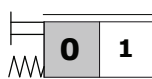
###### M1-U2 type

3 position, spring return in neutral position



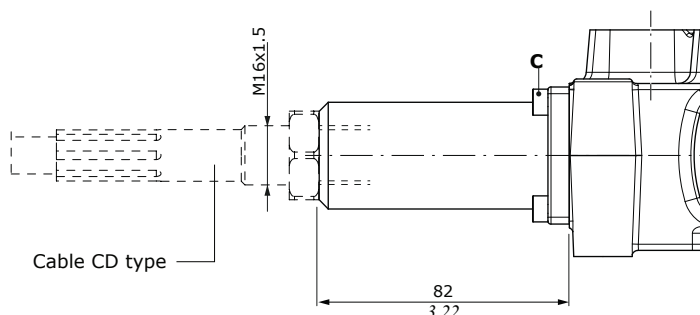
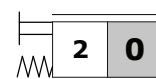
###### M2-U2 type

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



###### M3-U2 type

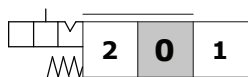
2 position (0-2), spring return in neutral position



##### With detent control

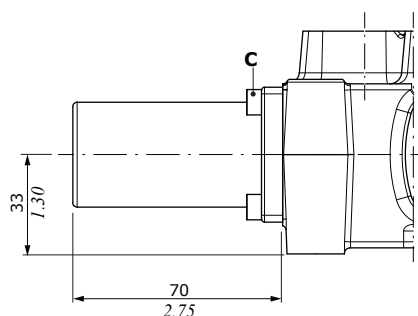
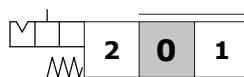
###### R1 type

3 position, detent in position 1



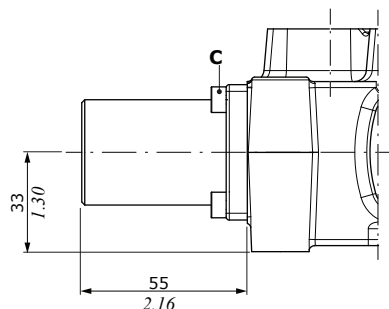
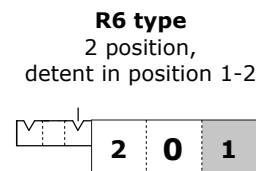
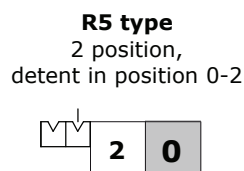
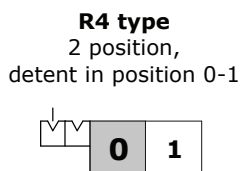
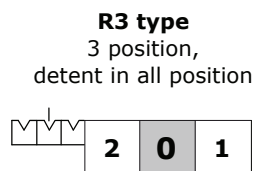
###### R2 type

3 position, detent in position 2



## Mechanical controls

### With detent control



#### Wrenches and tightening torques

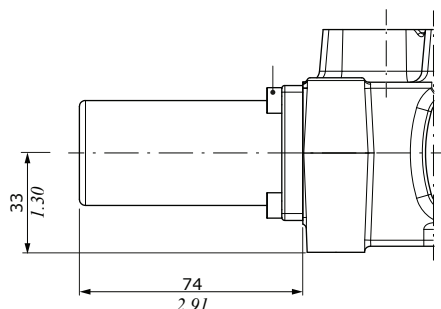
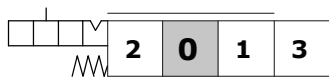
C = allen wrench 4 - 6.6 Nm (4.8 lbft)

D = wrench 30 - 42 Nm (30.9 lbft)

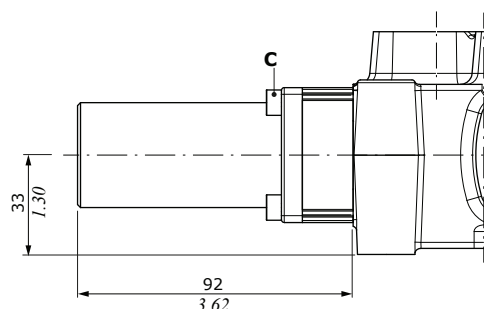
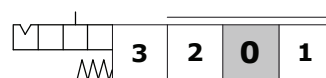
E = wrench 22

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

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

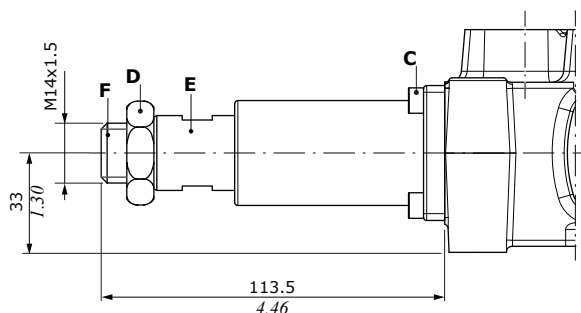
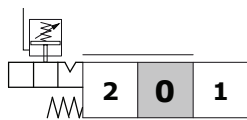


**R10/Z1 type**  
4 position, detent in 4<sup>th</sup> position,  
for 126 floating spool type

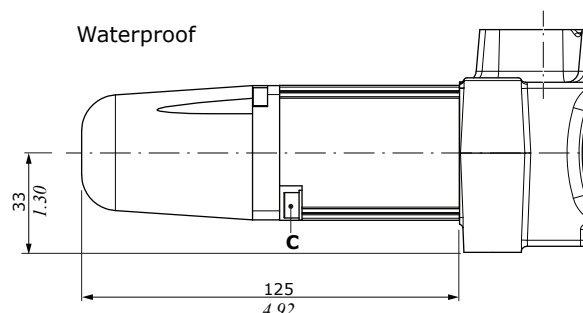
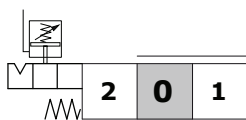


### With detent control and kick out function

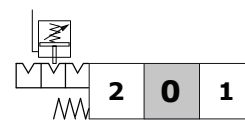
**R1K type**  
3 position, detent in position 1.  
Available with waterproof configuration



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



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



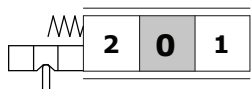
Waterproof

## B side controls

### Spool position microswitch

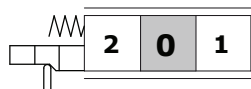
#### M1-N1 type

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



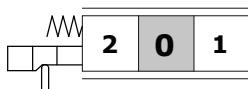
#### M1-N1A type

3 position, micro operation in position 1



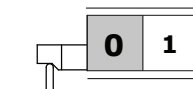
#### M1-N1B type

3 position, micro operation in pos. 2



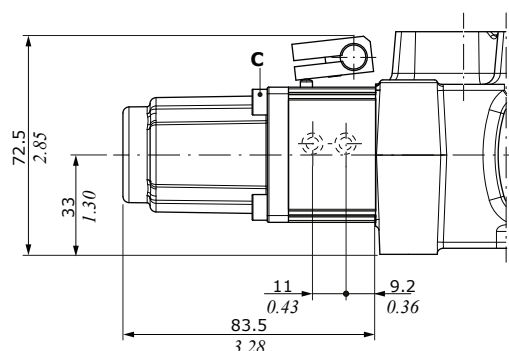
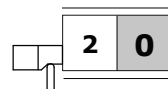
#### M2-N1 type

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

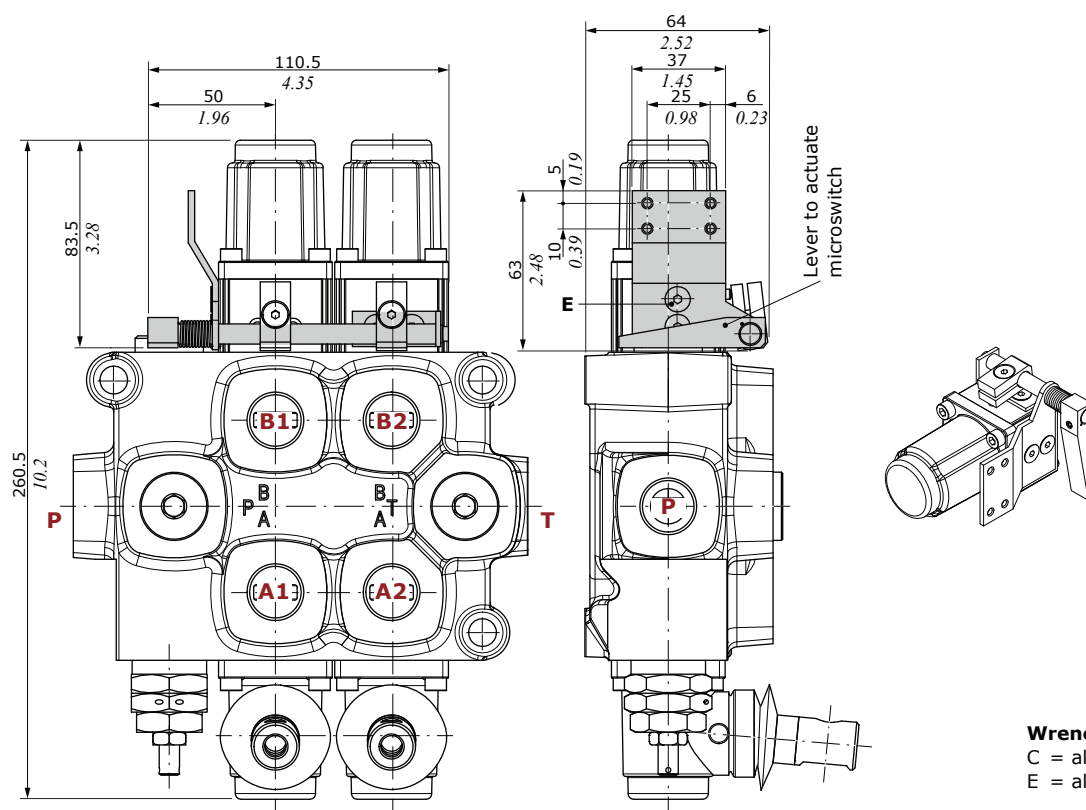


#### M3-N1 type

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



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



#### Wrenches and tightening torques

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

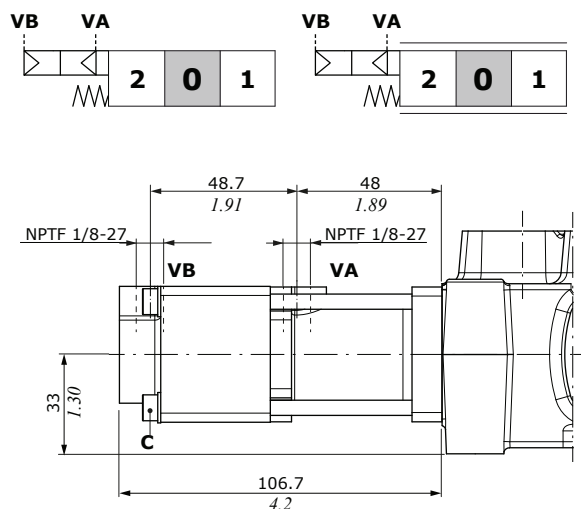
E = allen wrench 3 - 6.6 Nm (4.8 lbft)

Drawing is referred to a Q75 monoblock valve.

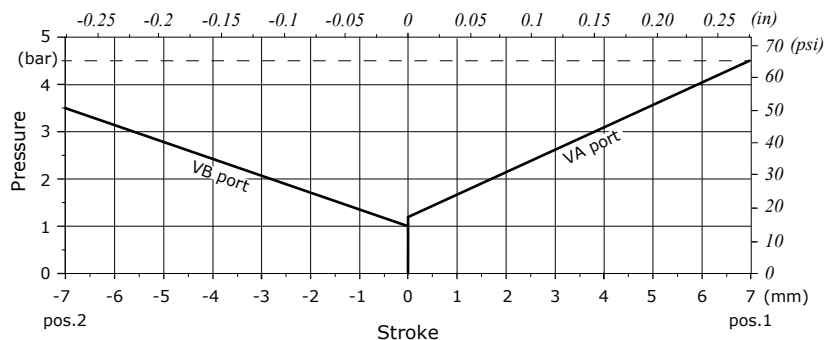
## Pneumatic control

**P1N type**  
ON/OFF control

**P1NP type**  
Proportional control



**Proportional pilot pressure curves**



### Operating features

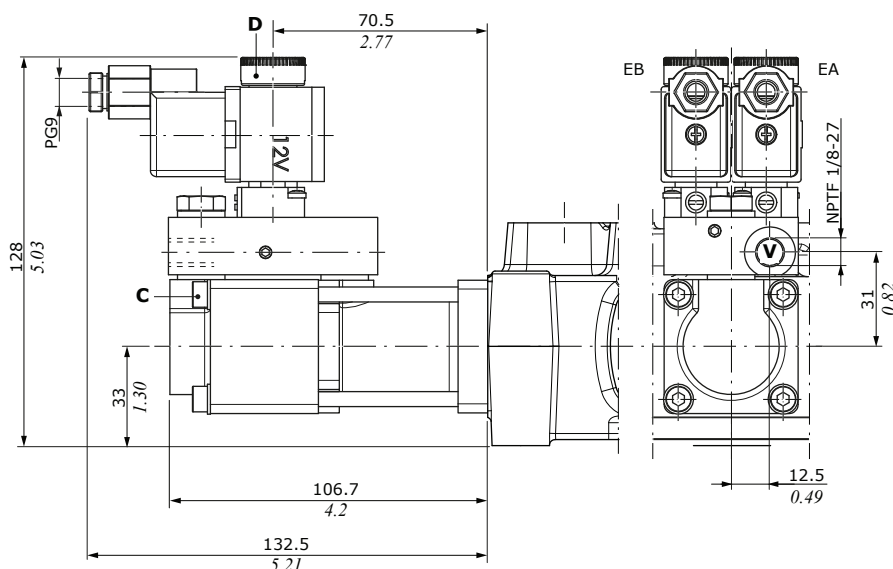
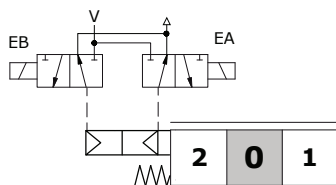
Pilot pressure..... : min. 5 bar (72.5 psi) - max. 30 bar (435 psi)  
Pilot volume..... : 9 cm<sup>3</sup>/min (0.54 in<sup>3</sup>/min)

### Wrenches and tightening torques

C = wrench 4 - 6.6 Nm (4.8 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

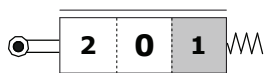
C = wrench 4 - 6.6 Nm (4.8 lbft)  
D = manual tightening - 6.6 Nm (4.8 lbft)

### A+B side controls

#### Cam control

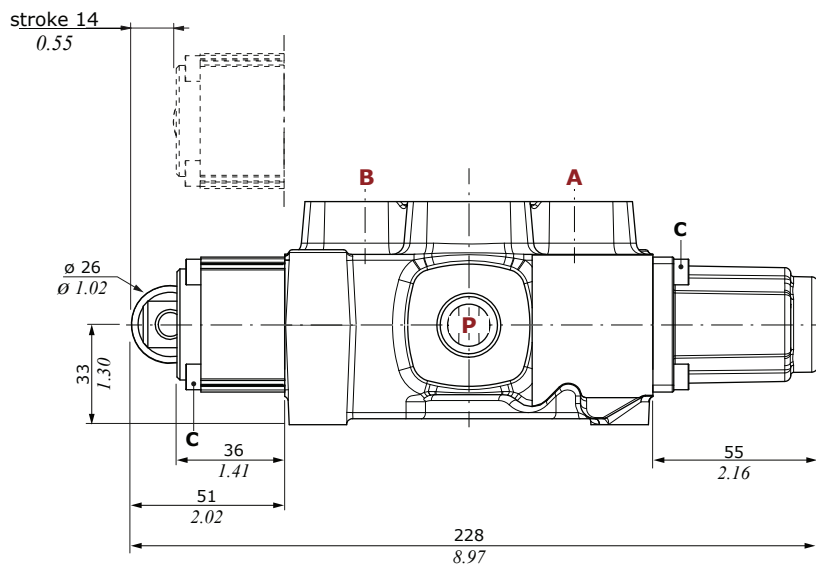
##### C2 type

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



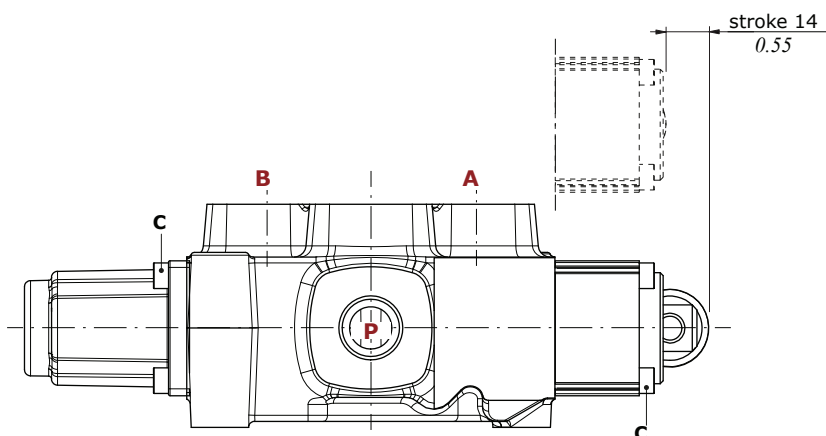
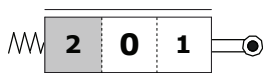
##### Wrenches and tightening torques

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



##### C3 type

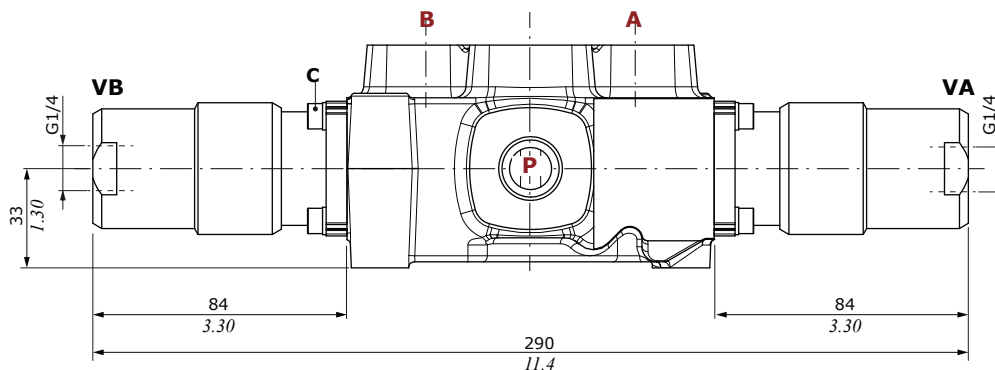
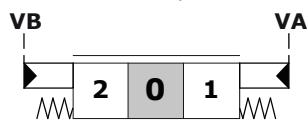
From position 2 to position 1,  
spring return in position 2.  
Dimensions are the same of C2 type



## Proportional hydraulic controls

### H1 type

High pressure control  
with side ports

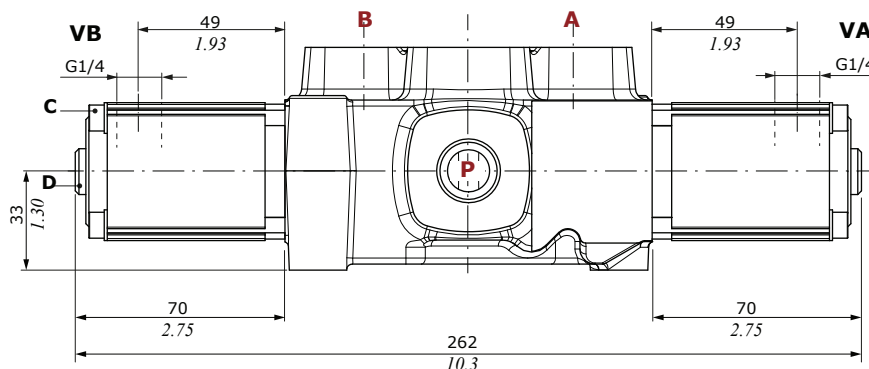
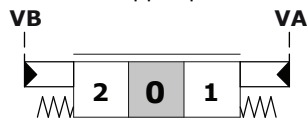


### Operating features

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

### H5 type

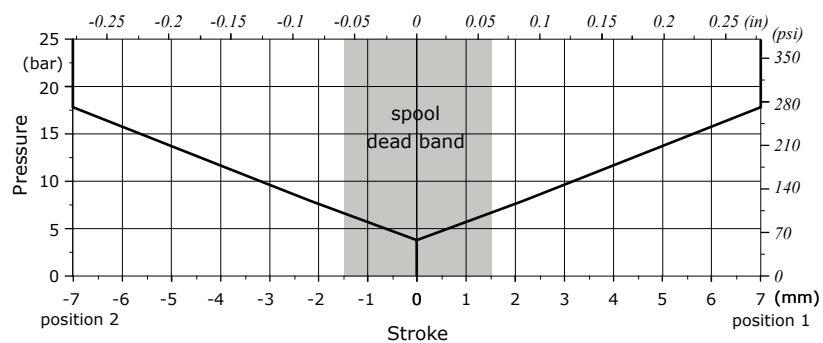
Low pressure control  
with upper ports



### Operating features

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

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



### Wrenches and tightening torques

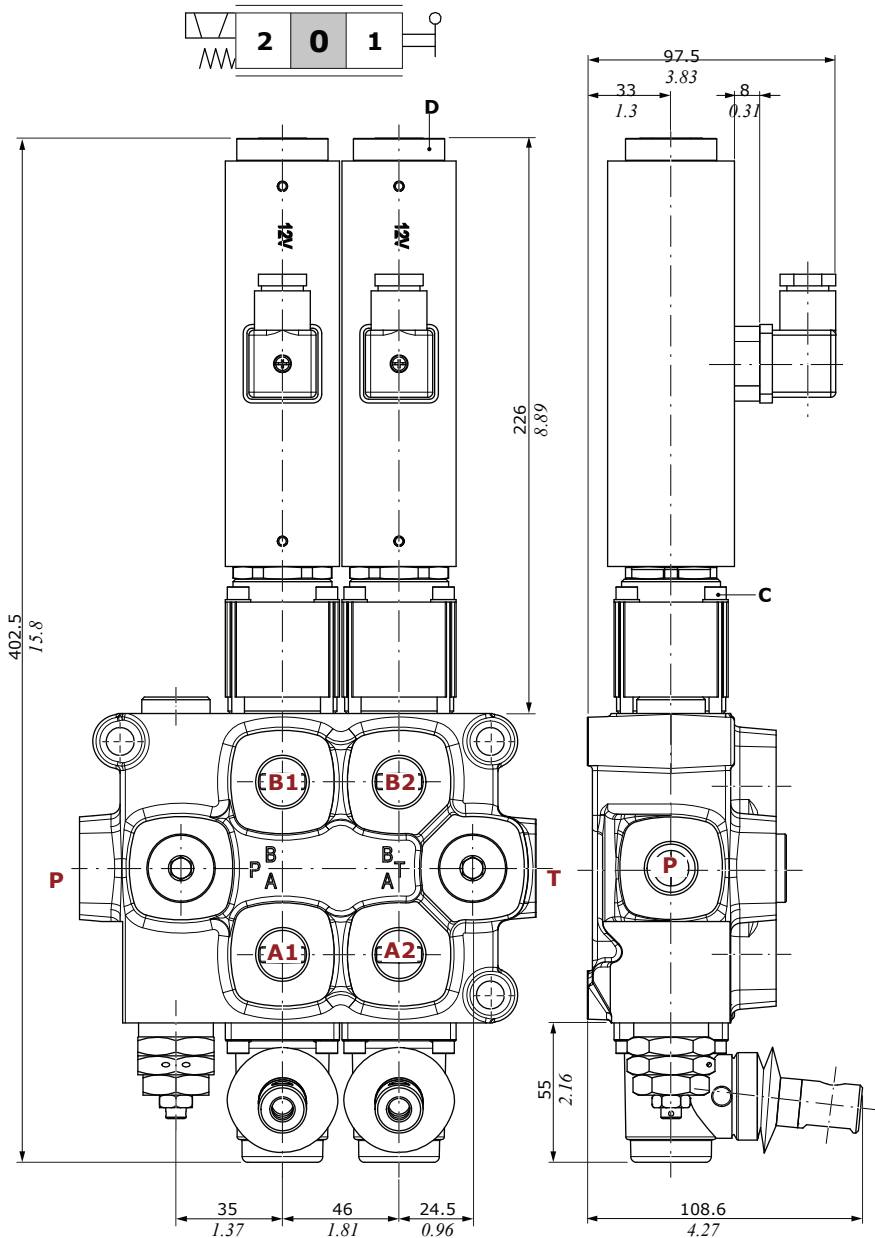
C = allen wrench 4 - 6.6 Nm (4.8 lbft)

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

Direct solenoid control

D41 type: ON/OFF one side

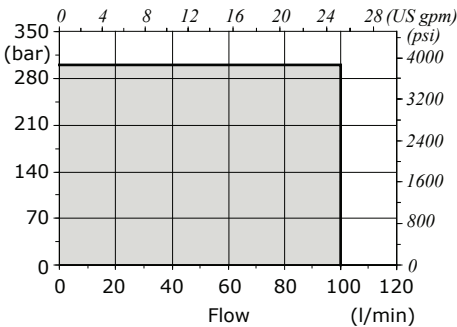
Drawing is referred to a Q75 monoblock valve.



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

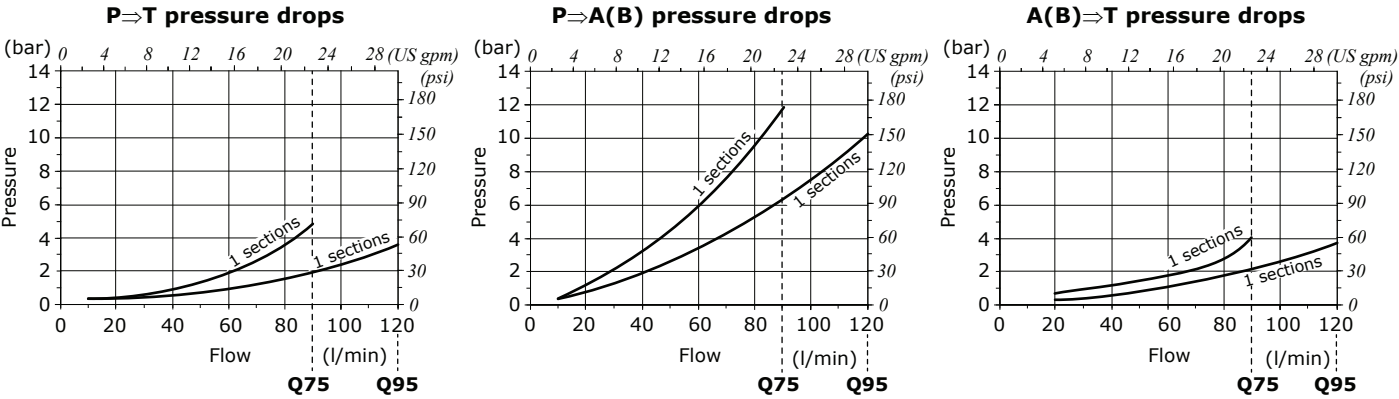
Connector type: ISO4400 3P+T-PG11

Dynamic conditions



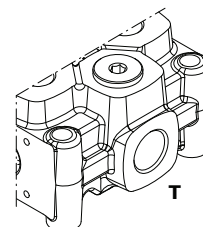
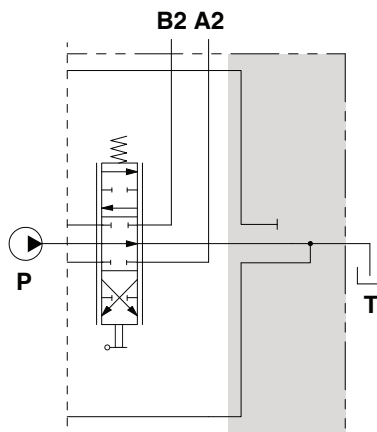
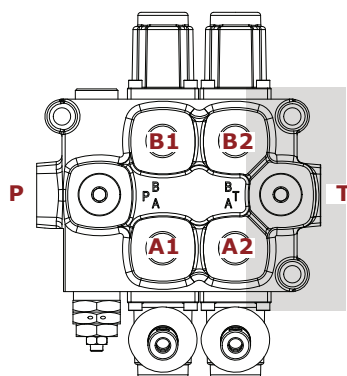
Wrenches and tightening torques

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

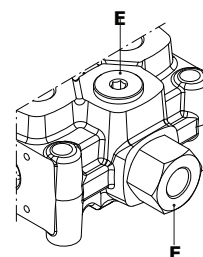
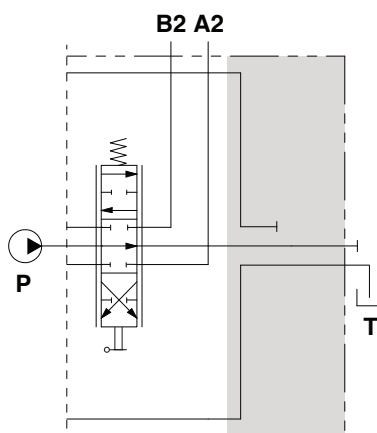
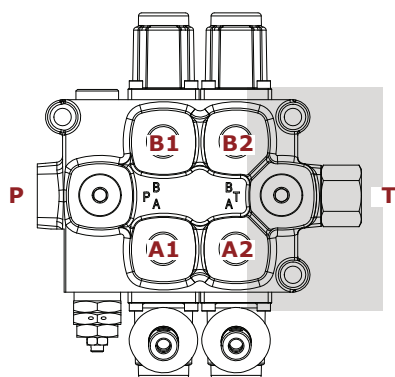


# Outlet configuration

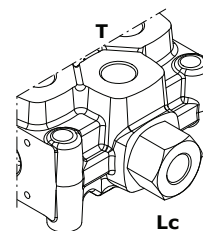
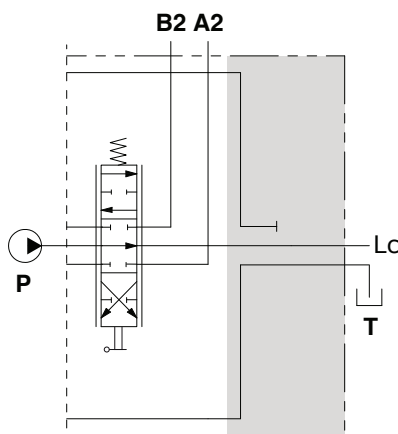
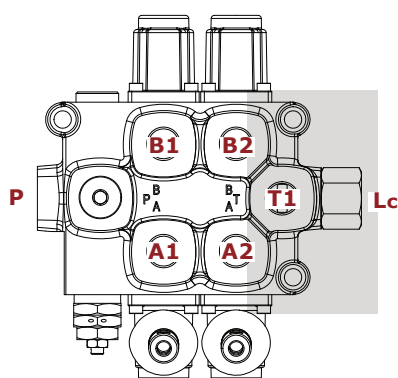
**F3D configuration**  
Open center configuration



**F16D configuration**  
Closed center configuration



**F6D configuration**  
Carry-over configuration



## Wrenches and tightening torques

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

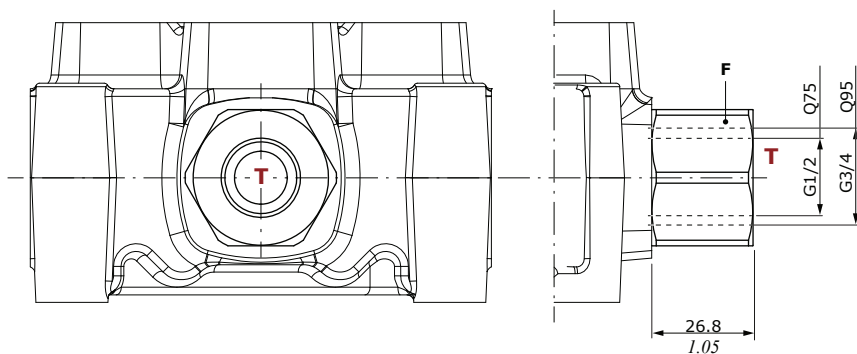
(Q95) = allen wrench 8 - 42 Nm (22 lbft)

F = wrench 36 - 80 Nm (59 lbft)

### Outlet configuration

#### F6D - F16D joint dimension

Drawing is referred to a Q75 monoblock valve.



#### Wrenches and tightening torques

F = wrench 36 - 80 Nm (*59 lbft*)