



## DF25

### Mechanical control monoblock diverter valve

- 3 ways configuration
- Mechanical lever, cam, electrohydraulic, pneumatic controls

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

| WORKING CONDITIONS                         |                                       |  |
|--|---------------------------------------|--|
| N. of available ways                       |                                       | 3  |
| Max. flow rating                           |                                       | 280 l/min (74 US gpm)                                |
| Max. pressure                              |                                       | 315 bar (4600 psi)                                   |
| Internal leakage A(B)⇒T                    | Δp = 100 bar (1450 psi)               | 8 cm <sup>3</sup> /min (0.48 in <sup>3</sup> /min)   |
| Fluid                                      |                                       | Mineral based oil                                    |
| Fluid temperature                          | with NBR (BUNA-N) seals               | from -20°C to 80°C (from -4°F to 176°F)              |
|  | with FPM (VITON) seals                | from -20°C to 100°C (from -4°F to 212°F)             |
| Viscosity                                  | operating range                       | from 15 to 75 mm <sup>2</sup> /s (from 15 to 75 cSt) |
|  | min.                                  | 12 mm <sup>2</sup> /s (12 cSt)                       |
|  | max.                                  | 400 mm <sup>2</sup> /s (400 cSt)                     |
| Max. level of contamination                |                                       | 21/19/16 - ISO 4406 - NAS 1638 - class 10            |
| Ambient temperature for working conditions | with mechanical controls              | from -40°C to 60°C (from -40°F to 140°F)             |
|  | with hydraulic and pneumatic controls | from -30°C to 60°C (from -22°F to 140°F)             |
|  | with electric controls                | from -20°C to 50°C (from -4°F to 122°F)              |

NOTE - For different working conditions please contact Sales Dept.

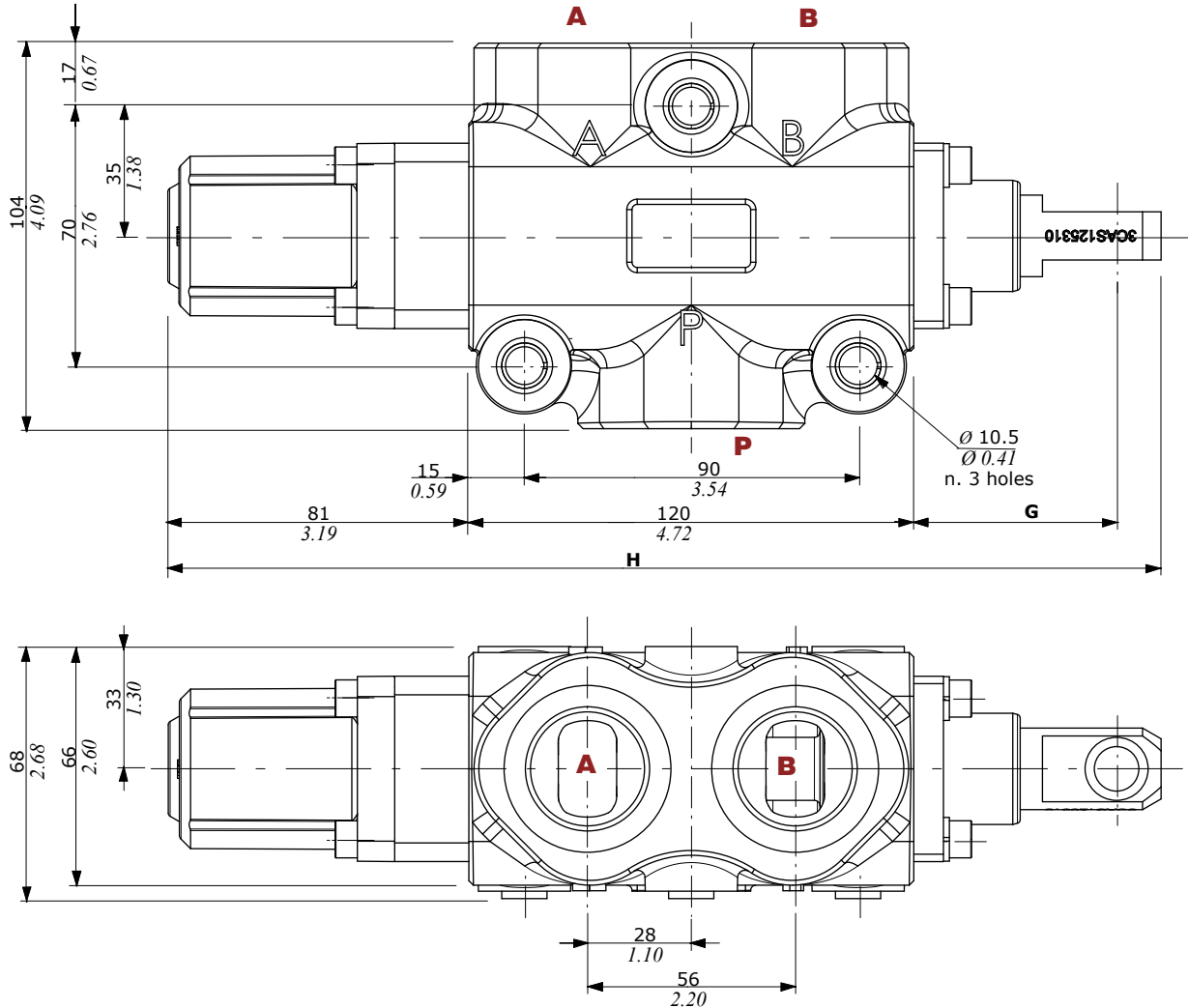
## Available threads

| PORTS THREAD |            |                     |
|--------------|------------|---------------------|
| ALL PORTS    | BSP        | UN-UNF              |
| <b>DF25</b>  | G 1        | 1" 5/16-12 (SAE 16) |
| PILOT PORTS  |            |                     |
| Pneumatic    | NPT 1/8-27 | NPT 1/8-27          |
| Hydraulic    | G 1/4      | 9/16-18 (SAE 6)     |

## Dimensional data - hydraulic circuit - performance data

### 3 ways

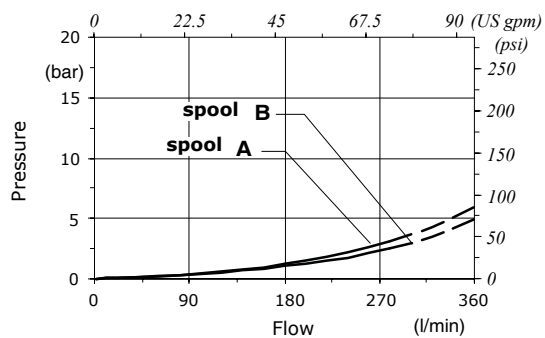
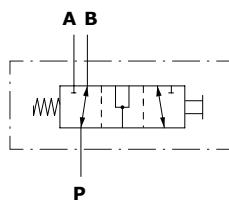
It's possible to obtain 2 ways diverter valve plugging port



|                | G                | H                  |
|----------------|------------------|--------------------|
| With spool out | 55 mm<br>2.16 in | 268 mm<br>10.55 in |
| With spool in  | 35 mm<br>1.37 in | 248 mm<br>9.76 in  |

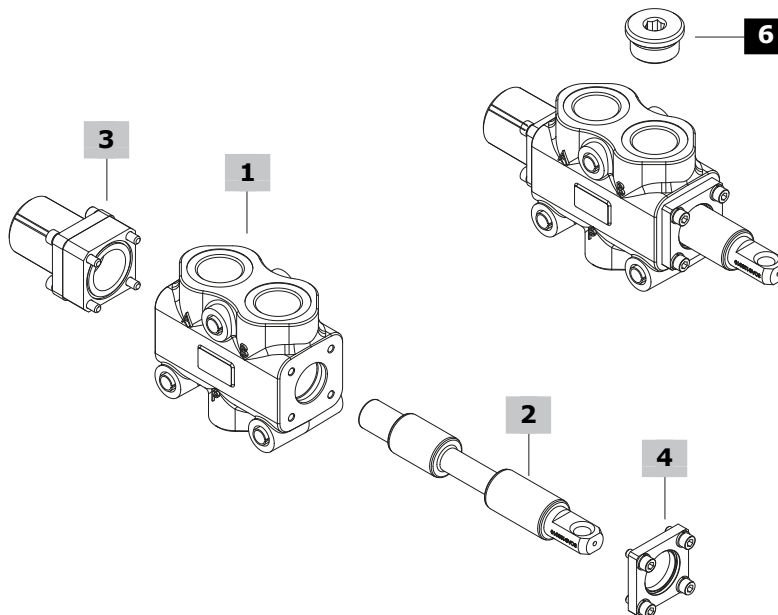
Pressure drop versus flow

P → A(B)



Example:

**DF25/3**   **A**   **17**   **SLP**   -   **...**   -   **(CVN)**  
 1   2   3   4   5   Painted with one layer of black Primer antirust



**1 Body kit\***

| TYPE          | CODE       | DESCRIPTION              |
|---------------|------------|--------------------------|
| <b>DF25/3</b> | 5CO2271300 | Standard body kit 3 ways |

**2 Spools** pag. 58

| TYPE      | CODE       | DESCRIPTION  |
|-----------|------------|--|
| <b>A</b>  | 3CAS125310 | Flow in B in pos. 1. Ports connected in transit position |
| <b>B</b>  | 3CAS125410 | Flow in B in pos. 1. Ports closed in transit position    |
| <b>AC</b> | 3CAS125320 | As type A, for cam control                               |

**3 "A" side spool positioners** pag. 58

| TYPE  | CODE       | DESCRIPTION                              |
|---|------------|--|
| <b>12</b>   | 5V12125000 | Detent in positions 1 and 2              |
| <b>17</b>   | 5V17125000 | Spring return in position 1              |
| <b>17ME</b>   | 5V17325000 | As kit 17, with heavier spring type E    |
| <u>Pneumatic controls: must be coupled to the control kit side B with lever, with plate or cap</u>        |            |  |
| <b>17P</b>  | 5V17125700 | On/off, with spring return in position 1 |
| <b>18P</b>  | 5V18125700 | On/off, with spring return in position 2 |
| <u>Electrohydraulic controls: must be coupled to the control kit side B with lever, with plate or cap</u> |            |  |
| Control requires collector kit; see page 61   |            |  |
| <b>18E11</b>  | 5V18125350 | Spring return in position 2, 12VDC       |
|   | 5V18125351 | Spring return in position 2, 24VDC       |

**4 "B" side options** pag. 62

| TYPE                      | CODE        | DESCRIPTION   |
|---------------------------|-------------|---|
| <b>SLP</b>                | 5COP125000  | Without lever box, with dust-proof plate kit            |
| <b>SLC</b>                | 5COP220000  | Without lever box, with cap                             |
| <b>L</b>                  | 5LEV120000  | Aluminum lever box                                      |
| <b>CA</b>                 | 5CAM125000  | Steel ball bearing cam operation                        |
| <b>CB</b>                 | 5CAM125020  | Bronze cam operation                                    |
| <u>Hydraulic controls</u> |             |   |
| <b>IA2</b>                | 5IDR520000* | On/off with high pressure pilot, need 17ME control type |
| <b>IB2</b>                | 5IDR720000* | On/off with low pressure pilot, need 17ME control type  |

**5 Body threading**

Specify threading always when it is different from **BSP** standard

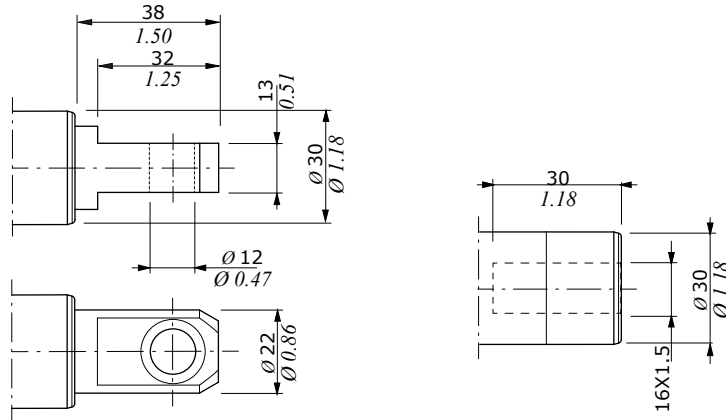
**6 Port plugs\***

| CODE        | DESCRIPTION |
|-------------|-------------|
| 3XTAP740210 | G1" plug    |

It's possible to obtain 2 ways diverter valve plugging DF25/3 port

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

**Spool end**



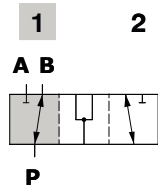
Standard:  
spool type **A, B**

Rotary cam arrangement:  
spool type **AC**

**Spool circuits**

**Type A/AC**

Ports connected  
in transit position

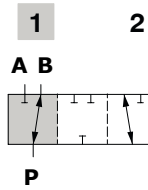


**Spool stroke**

Position 2: - 20 mm (- 0.78 in)

**Type B**

Ports closed  
in transit position



**Spool stroke**

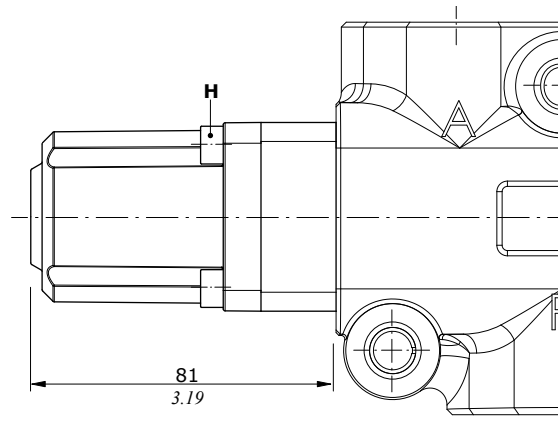
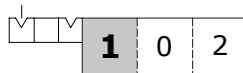
Position 2: - 20 mm (- 0.78 in)

**"A" side spool positioners**

**With detent**

**Type 12**

Detent in positions 1 and 2



**Wrenches and tightening torque**

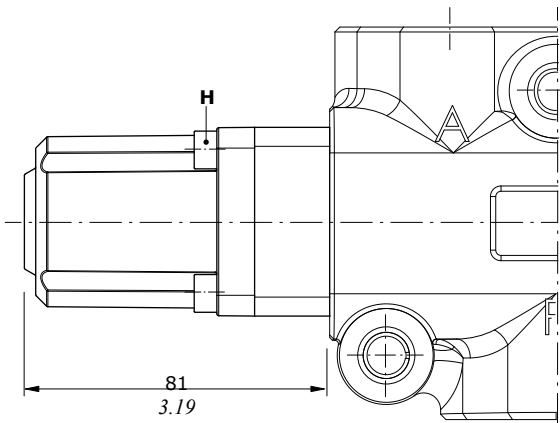
**H** = wrench 5 - 9.8 Nm (7.2 lbf*ft*)

**"A" side spool positioners**

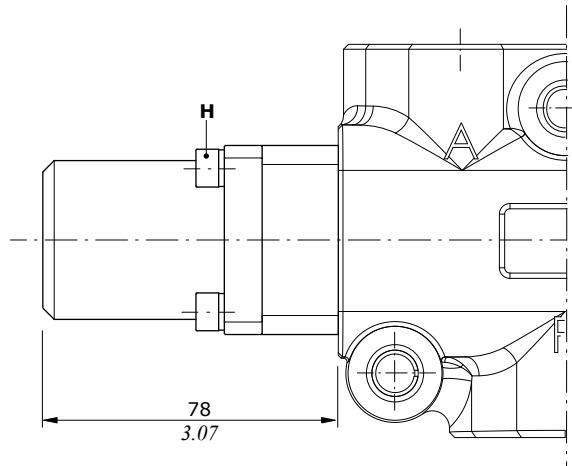
**With spring return in position 1**

With heavier spring type "E"

**Type 17**



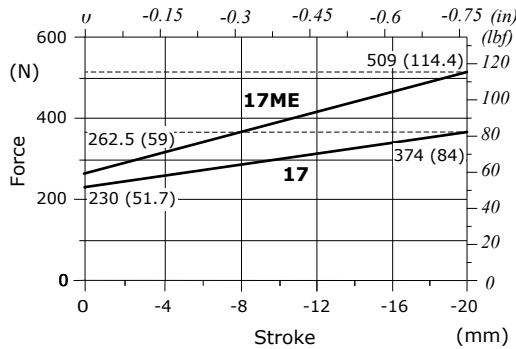
**Type 17ME**



**Wrenches and tightening torque**

**H** = wrench 5 - 9.8 Nm (7.2 lbf<sup>t</sup>)

**Force-Stroke diagram**

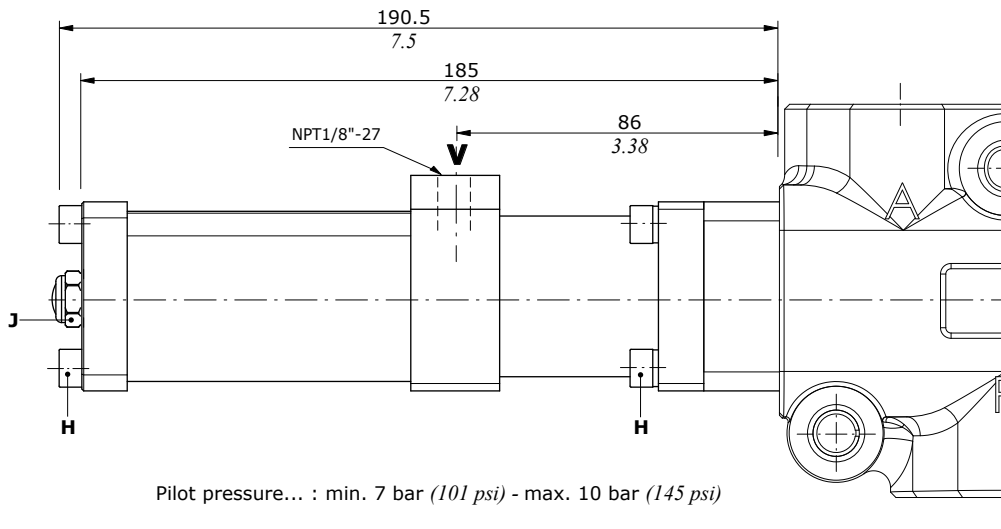
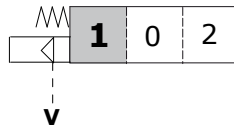


"A" side spool positioners

ON/OFF pneumatic controls

**Type 17P**

Spring return in position 1



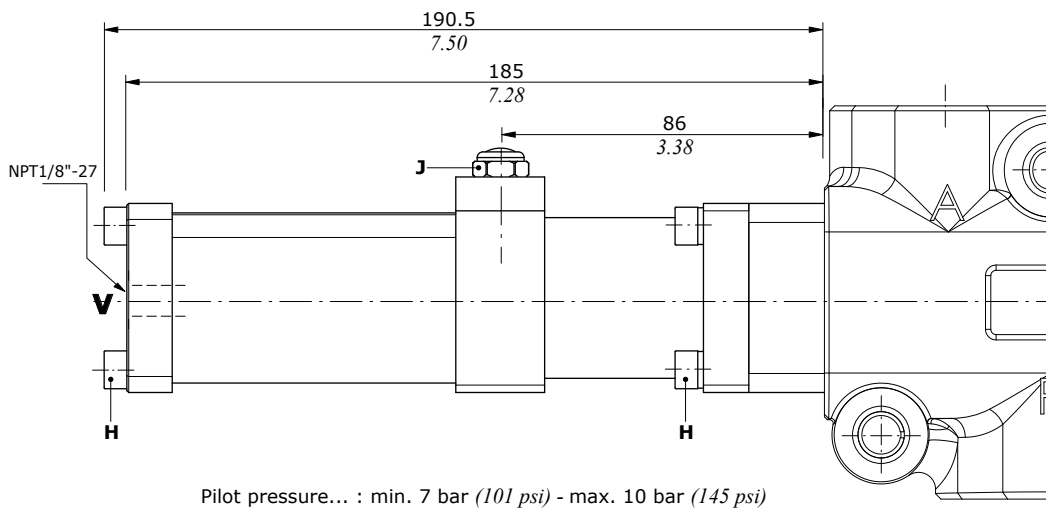
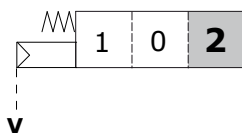
**Wrenches and tightening torque**

H = wrench 5 - 9.8 Nm (7.2 lbf·ft)

J = wrench 13 - 9.8 Nm (7.2 lbf·ft)

**Type 18P**

Spring return in position 2

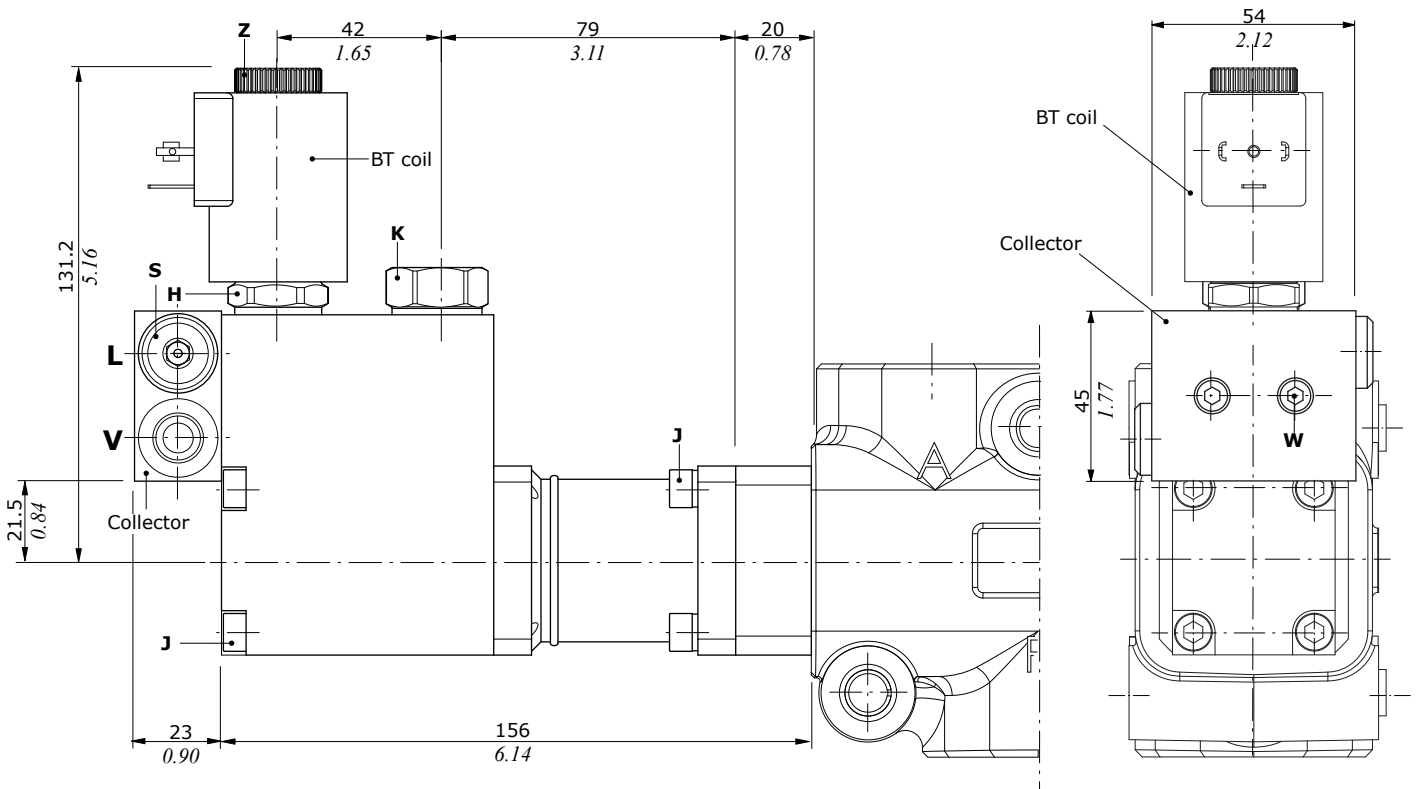
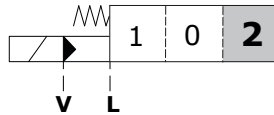


"A" side spool positioners

ON/OFF electrohydraulic control

**Type 18E11**

Spring return in pos. 2,  
with external pilot and drain



**Collector kit for external pilot and drain**

**Wrenches and tightening torque**

- J** = wrench 5 - 9.8 Nm (7.2 lbf<sup>t</sup>)
  - K** = wrench 24 - 30 Nm (22.1 lbf<sup>t</sup>)
  - Z** = 5 Nm (3.68 lbf<sup>t</sup>)
  - S** = wrench 6 - 24 Nm (17.7 lbf<sup>t</sup>)
  - H\*** = wrench 24 - 9.8 Nm (7.2 lbf<sup>t</sup>)
  - W** = wrench 4 - 6.6 Nm (4.9 lbf<sup>t</sup>)
- (\*)Tightening with dynamometric wrench or screwer

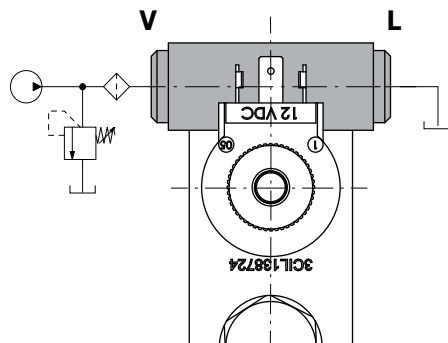
**Features**

- Pilot pressure: ..... : min. 10 bar (145 psi)
- ..... : max. 50 bar (725 psi)
- Max backpressure on drain L..... : 25 bar (362.5 psi)

**Note: for complete available BT coils list and features see page 64**

| COLLECTOR KIT CODE |            |                   |
|--------------------|------------|-------------------|
| Type               | Code       | Description       |
| KE1S0              | 5KE1S00030 | kit for 1 section |

Codes are referred to BSP thread

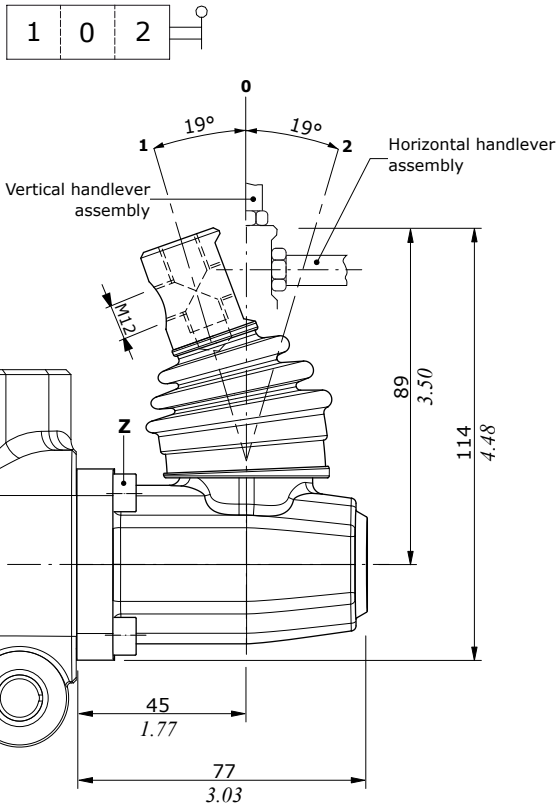


"B" side options

**Lever control kit**

Aluminium with protection boot lever pivot box; it can be rotated 180° (execution **L180**)

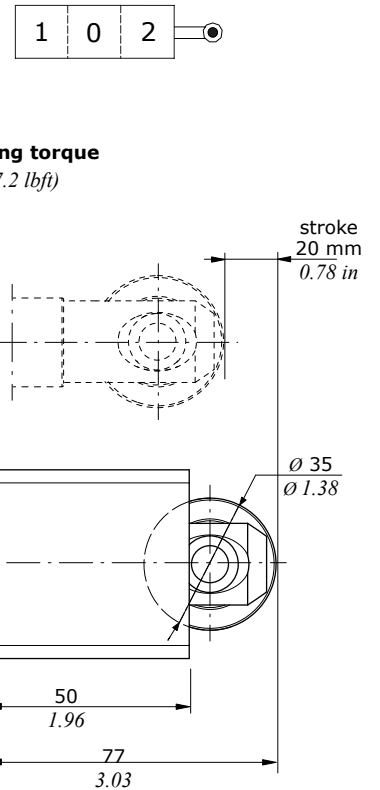
**Type L**



**Cam control kit**

Steel ball bearing cam operation (CA), and bronze cam operation (CB); it must be coupled to 17 control kit

**Type CA-CB**

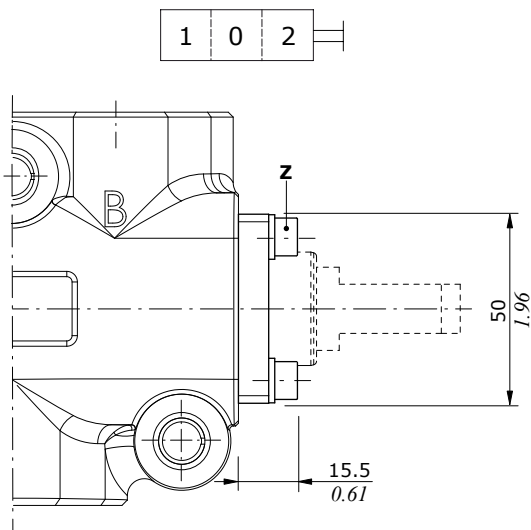


**Wrenches and tightening torque**

Z = wrench 5 - 9.8 Nm (7.2 lbft)

**Without lever, with flange**

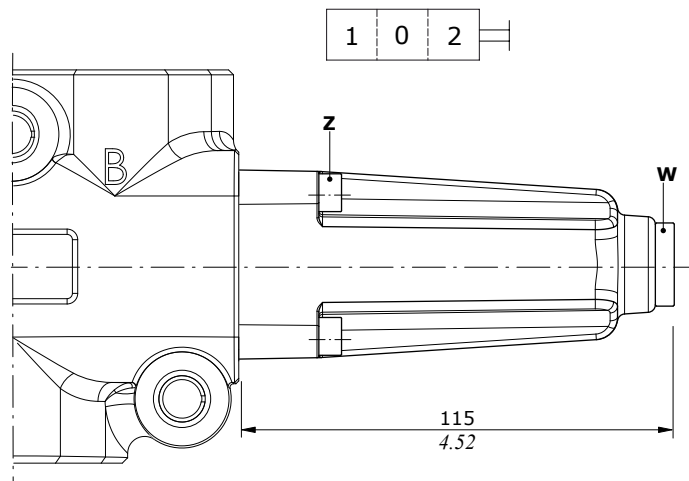
**Type SLP**



**Without lever, with cap**

Protection cap to use with pneumatic, hydraulic and electrohydraulic spool positioner kits

**Type SLC**



**Wrenches and tightening torque**

Z = wrench 5 - 9.8 Nm (7.2 lbft)

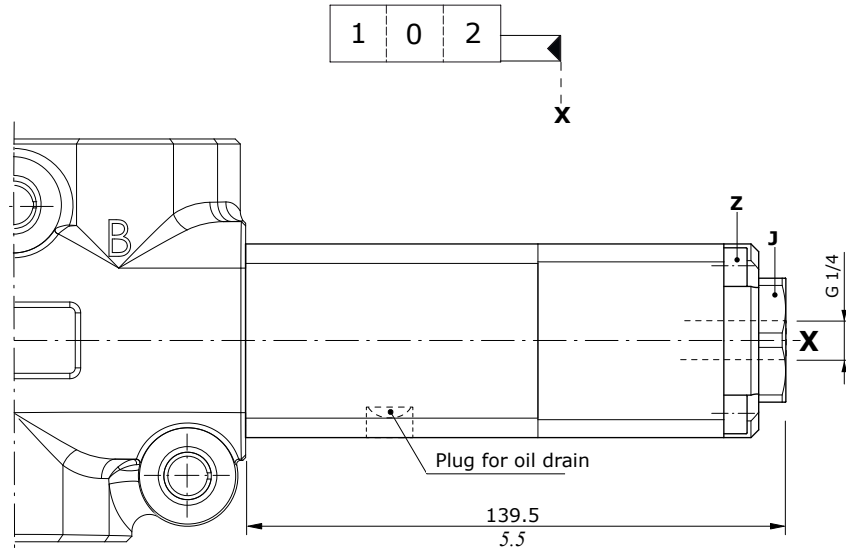
W = wrench 8 - 24 Nm (17.7 lbft)



**Hydraulic controls**

ON/OFF controls with high and low pressure pilot it must be only coupled to 17ME control kit

**Type IA2**  
High pressure pilot



Pilot pressure max. = 250 bar (3620 psi)

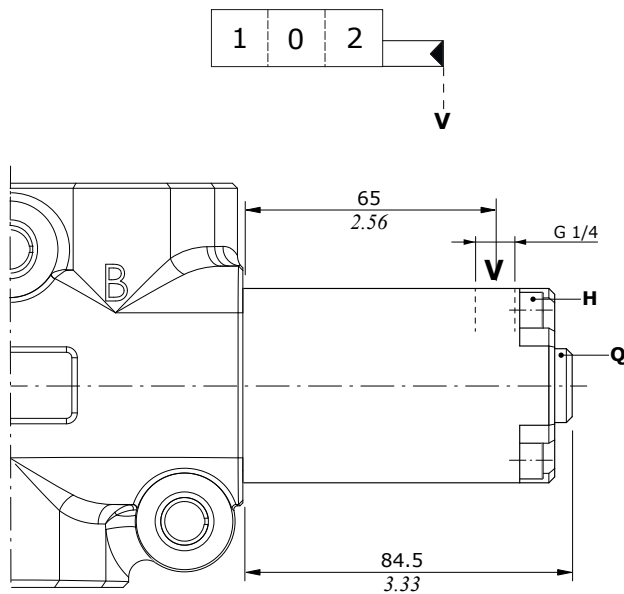
**Wrenches and tightening torque**

**Z** = wrench 5 - 9.8 Nm (7.2 lbf<sup>t</sup>)

**J** = wrench 24 - 42 Nm (31 lbf<sup>t</sup>)

**Q** = wrench 6 - 24 Nm (17.7 lbf<sup>t</sup>)

**Type IB2**  
Low pressure pilot



Pilot pressure max. = 50 bar (725 psi)

Coils and accessories for 18EI1 control

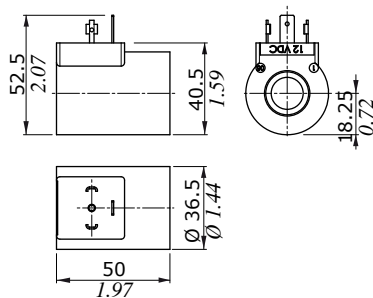
| Type                      | Voltage                    | Ordering codes            |                             |                             |                           |                           | Flying leads without connector |
|---------------------------|----------------------------|---------------------------|-----------------------------|-----------------------------|---------------------------|---------------------------|--------------------------------|
|                           |                            | ISO4400                   | Deutsch DT                  | AMP JPT                     | Packard Weatherpack       | Packard Metri-pack        |                                |
| BT                        | 10 VDC                     | 4SL3000100                | -                           | -                           | -                         | -                         | -                              |
|                           | 12 VDC                     | 4SL3000120                | 4SL3000130 <sup>(6)</sup>   | 4SL3000122 <sup>(5)</sup>   | 4SL3000124 <sup>(2)</sup> | 4SL3000127 <sup>(2)</sup> | 4SL300012C                     |
|                           |                            | 4SL3000126 <sup>(4)</sup> | 4SL3000134 <sup>(3-6)</sup> | 4SL3001200 <sup>(3-5)</sup> | -                         | -                         | -                              |
|                           | 24 VDC                     | 4SL3000240                | 4SL3000249 <sup>(6)</sup>   | 4SL3000248 <sup>(5)</sup>   | -                         | -                         | 4SL3000246                     |
|                           |                            | 4SL3030240 <sup>(1)</sup> | 4SL300024C <sup>(3-6)</sup> | -                           | -                         | -                         | -                              |
|                           | 26 VDC                     | 4SL3000260                | -                           | -                           | -                         | -                         | -                              |
|                           | 48 VDC                     | 4SL3000480                | -                           | -                           | -                         | -                         | -                              |
|                           |                            | 4SL3030480 <sup>(1)</sup> | -                           | -                           | -                         | -                         | -                              |
| 110 VDC                   | 4SL3001100                 | -                         | -                           | -                           | -                         | -                         |                                |
| 4SL3031100 <sup>(1)</sup> | -                          | -                         | -                           | -                           | -                         | -                         |                                |
| 220 VDC                   | 4SLE022000A                | -                         | -                           | -                           | -                         | -                         |                                |
|                           | 4SLE322000A <sup>(1)</sup> | -                         | -                           | -                           | -                         | -                         |                                |
| <b>Mating connectors</b>  |                            |                           |                             |                             |                           |                           |                                |
| With rectifier            |                            | 4CN1009995                | 5CON140031                  | 5CON003                     | 5CON001                   | 5CON017                   | -                              |
|                           | 24 VDC                     | 4CN3010240                | -                           | -                           | -                         | -                         | -                              |
|                           | 48 VDC                     | 4CN3010480                | -                           | -                           | -                         | -                         | -                              |
|                           | 110 VDC                    | 4CN3011100                | -                           | -                           | -                         | -                         | -                              |
|                           | 220 VDC                    | 4CN3012200                | -                           | -                           | -                         | -                         | -                              |

Notes: (1) supply with AC and use only with rectifier connector - (2) with flying leads - (3) with bidirectional diode - (4) with unidirectional diode (5) integrated perpendicular type - (6) integrated parallel type

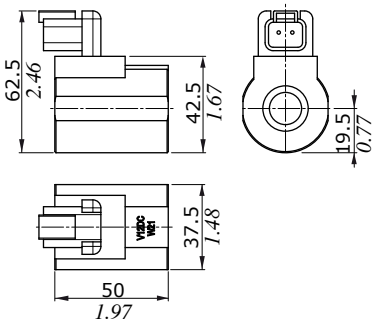
Features

- Nominal voltage tolerance: ±10%
- Nominal power..... : 19 W - 10 VDC  
: 21 W - 12/24/26 VDC  
: 20.3 W - 48 VDC  
: 17.3 W - 110 VDC  
: 17.7 W - 220 VDC
- Nominal current..... : 1.9 A @ 10 VDC  
: 1.77 A @ 12 VDC  
: 0.89 A @ 24VDC  
: 0.84 A @ 26 VDC  
: 0.43 A @ 48 VDC  
: 0.16 A @ 110 VDC  
: 0.08 A @ 220 VDC
- Insulation..... : Class F (155°C - 311°F)
- Weather protection... : IP65 - ISO4400 / AMP JPT  
: IP69K - Deutsch DT  
: IP67 - Weatherpack / Metri-pack
- Insertion..... : 100%

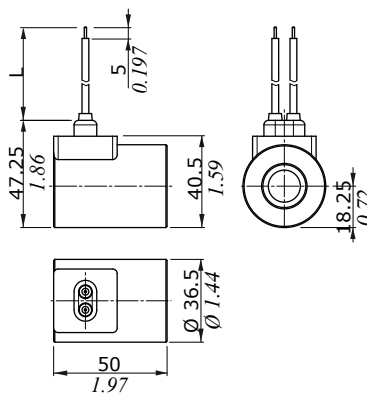
ISO4400 connector



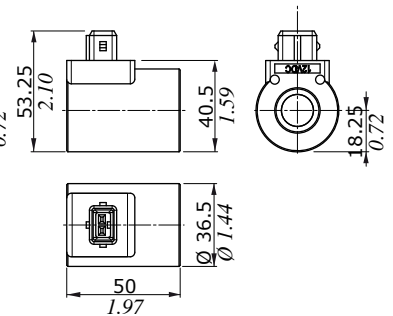
DEUTSCH DT04 connector (Parallel type)



Flying leads



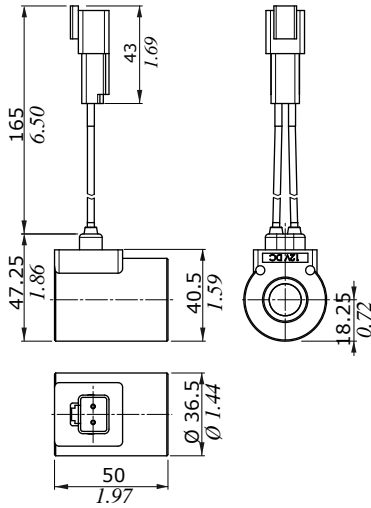
AMP JPT connector (Perpendicular type)



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

**Coils and accessories for 18EI1 control**

**Flying leads with DEUTSCH DT04 connector**



**Flying leads with PACKARD METRI-PACK connector**     **Flying leads with PACKARD WEATHER-PACK connector**

