



## 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.

<b>WORKING CONDITIONS</b>		
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)	15 cm <sup>3</sup> /min (0.92 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.

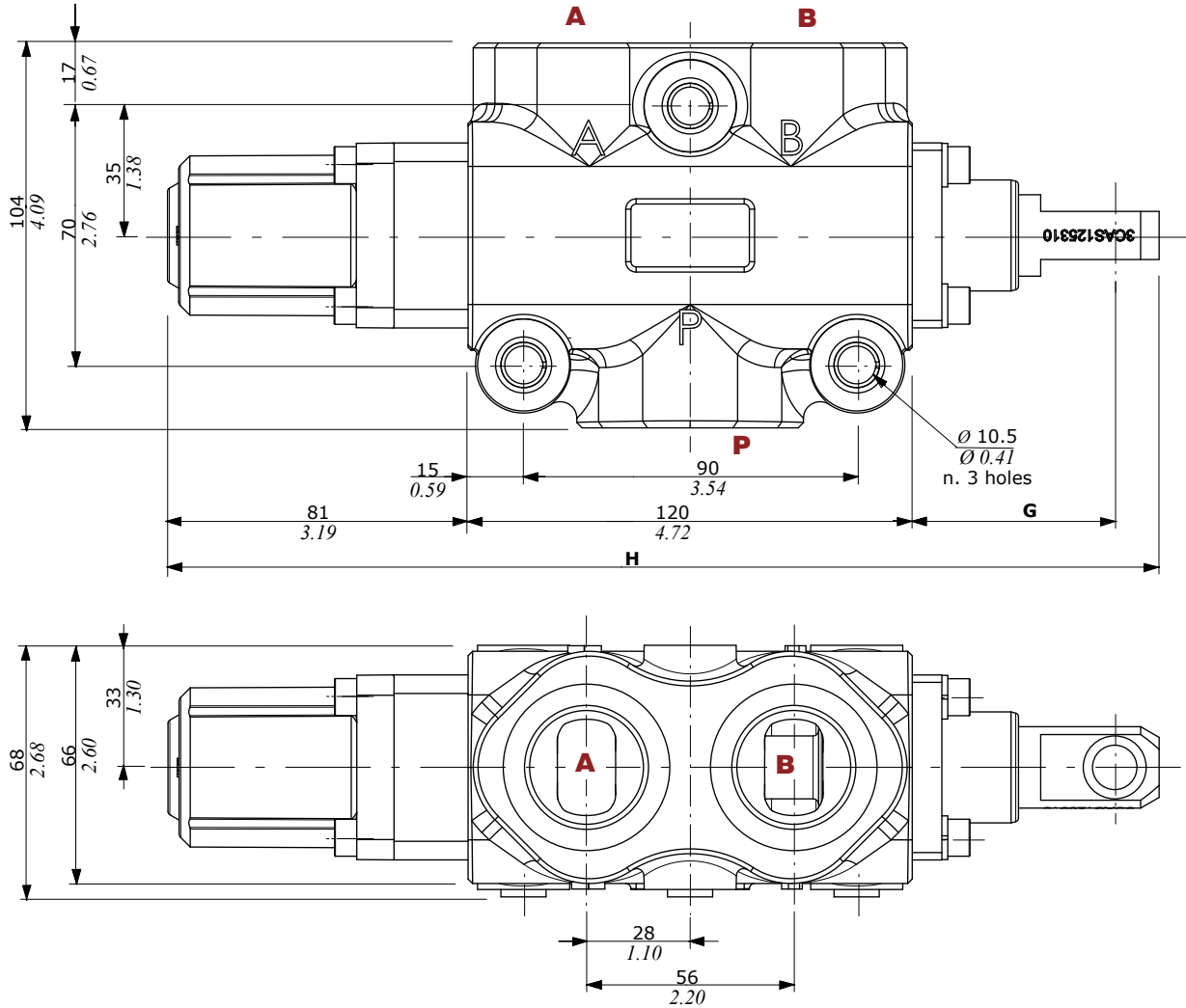
### Available threads

<b>PORTS THREAD</b>		
ALL PORTS	BSP	UN-UNF
<b>DF25</b>	G 1	1" 5/16-12 (SAE 16)
<b>PILOT PORTS</b>		
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

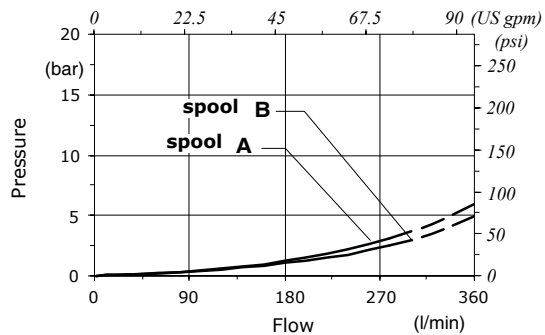
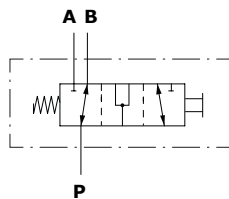
It's possible to obtain 2 ways diverter valve plugging port



	G	H
With spool out	55 mm 2.16 in	268 mm 10.55 in
With spool in	35 mm 1.37 in	248 mm 9.76 in

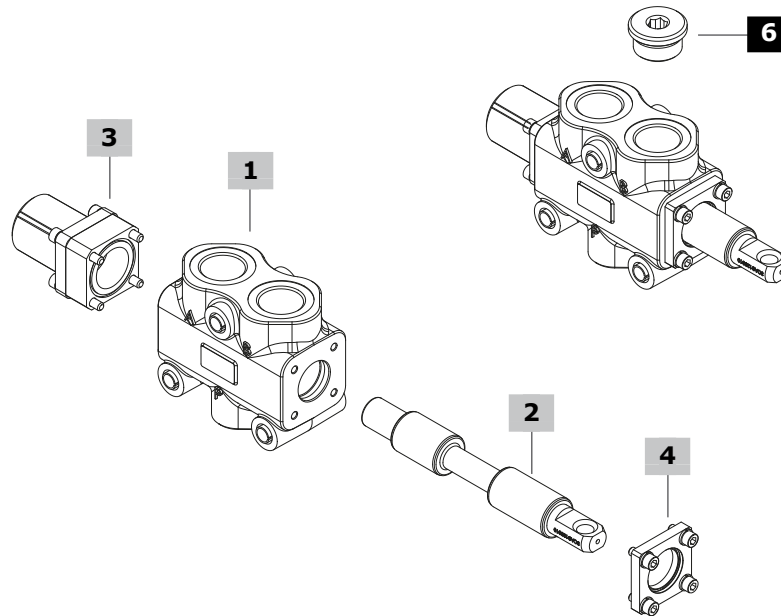
Pressure drop versus flow

P → A(B)



Example:

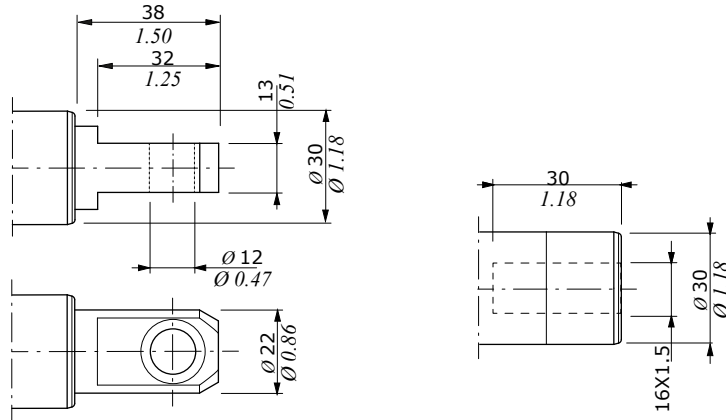
**DF25/3**   **A**   **17**   **SLP**   -   ...   -   **(CVN)**  
 1   2   3   4   5   Painted with one layer of black Primer antirust



1 Body kit*			4 "B" side options <span style="float: right;">pag. 62</span>		
TYPE	CODE	DESCRIPTION	TYPE	CODE	DESCRIPTION
<b>DF25/3</b>	5CO2271300	Standard body kit 3 ways	<b>SLP</b>	5COP125000	Without lever box, with dust-proof plate kit
2 Spools <span style="float: right;">pag. 58</span>			<b>SLC</b>	5COP220000	Without lever box, with cap
TYPE	CODE	DESCRIPTION	<b>L</b>	5LEV120000	Aluminum lever box
<b>A</b>	3CAS125310	Flow in B in pos. 1. Ports connected in transit position	<b>CA</b>	5CAM125000	Steel ball bearing cam operation
<b>B</b>	3CAS125410	Flow in B in pos. 1. Ports closed in transit position	<b>CB</b>	5CAM125020	Bronze cam operation
<b>AC</b>	3CAS125320	As type A, for cam control	<u>Hydraulic controls</u>		
3 "A" side spool positioners <span style="float: right;">pag. 58</span>			<b>IA2</b>	5IDR520000*	On/off with high pressure pilot, need 17ME control type
TYPE	CODE	DESCRIPTION	<b>IB2</b>	5IDR720000*	On/off with low pressure pilot, need 17ME control type
<b>12</b>	5V12125000	Detent in positions 1 and 2	<b>5 Body threading</b>		
<b>17</b>	5V17125000	Spring return in position 1	Specify threading always when it is different from <b>BSP</b> standard		
<b>17ME</b>	5V17325000	As kit 17, with heavier spring type E	<b>6 Port plugs*</b>		
<u>Pneumatic controls: must be coupled to the control kit side B with lever, with plate or cap</u>			It's possible to obtain 2 ways diverter valve plugging DF25/3 port		
<b>17P</b>	5V17125700	On/off, with spring return in position 1	CODE	DESCRIPTION	
<b>18P</b>	5V18125700	On/off, with spring return in position 2	3XTAP740210	G1" plug	
<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			

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

**Spool end**



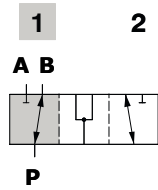
Standard:  
spool type **A, B**

Rotary cam arrangement:  
spool type **AC**

**Spool circuits**

**Type A/AC**

Ports connected  
in transit position

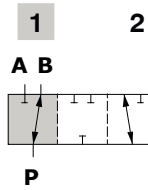


**Spool stroke**

Position 2: - 20 mm (- 0.78 in)

**Type B**

Ports closed  
in transit position



**Spool stroke**

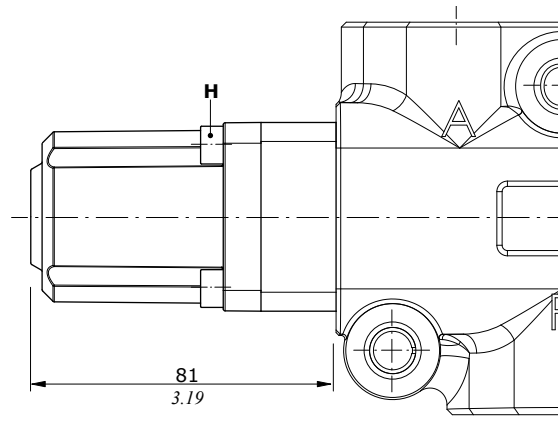
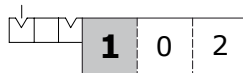
Position 2: - 20 mm (- 0.78 in)

**"A" side spool positioners**

**With detent**

**Type 12**

Detent in positions 1 and 2



**Wrenches and tightening torque**

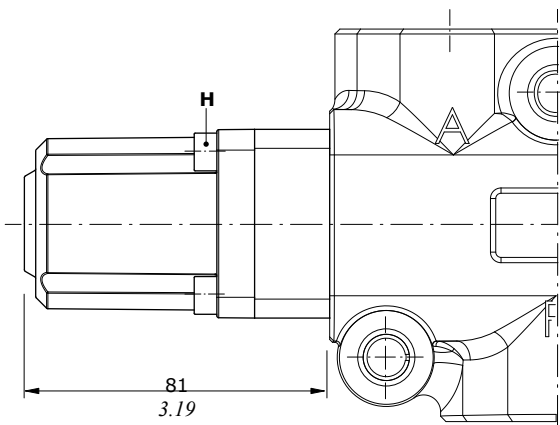
H = wrench 5 - 9.8 Nm (7.2 lbf<sub>t</sub>)

**"A" side spool positioners**

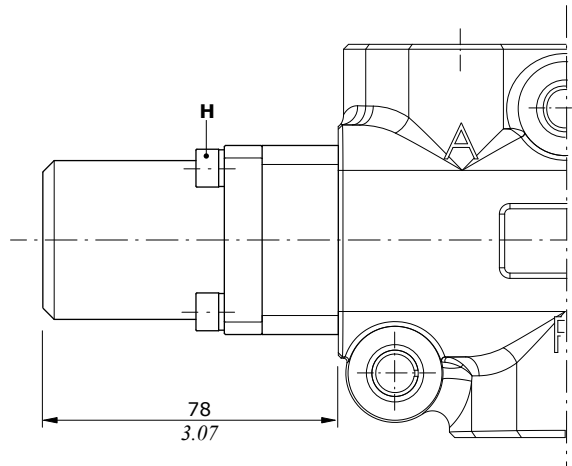
**With spring return in position 1**

With heavier spring type "E"

**Type 17**



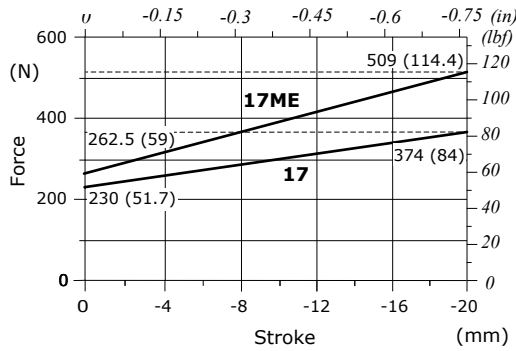
**Type 17ME**



**Wrenches and tightening torque**

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

**Force-Stroke diagram**

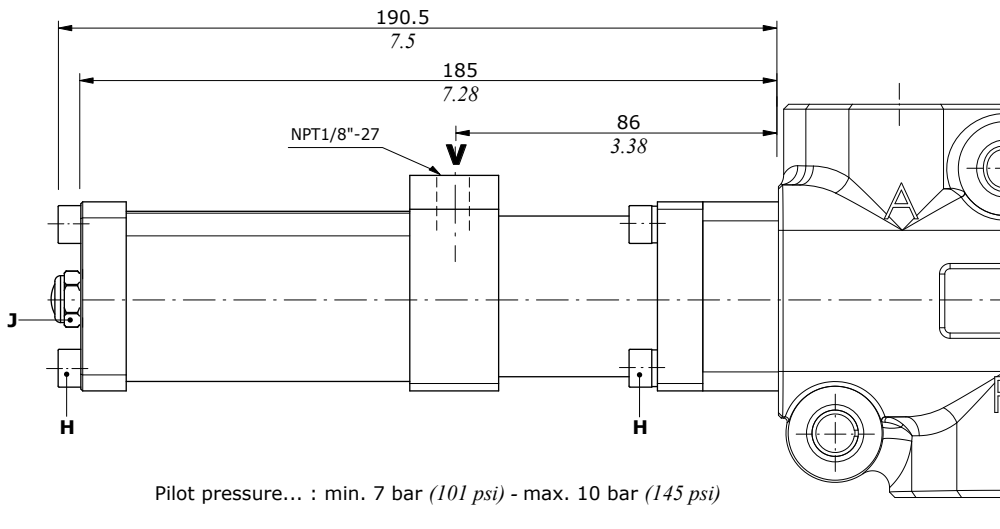
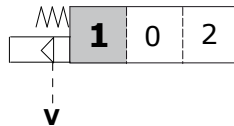


"A" side spool positioners

ON/OFF pneumatic controls

**Type 17P**

Spring return in position 1



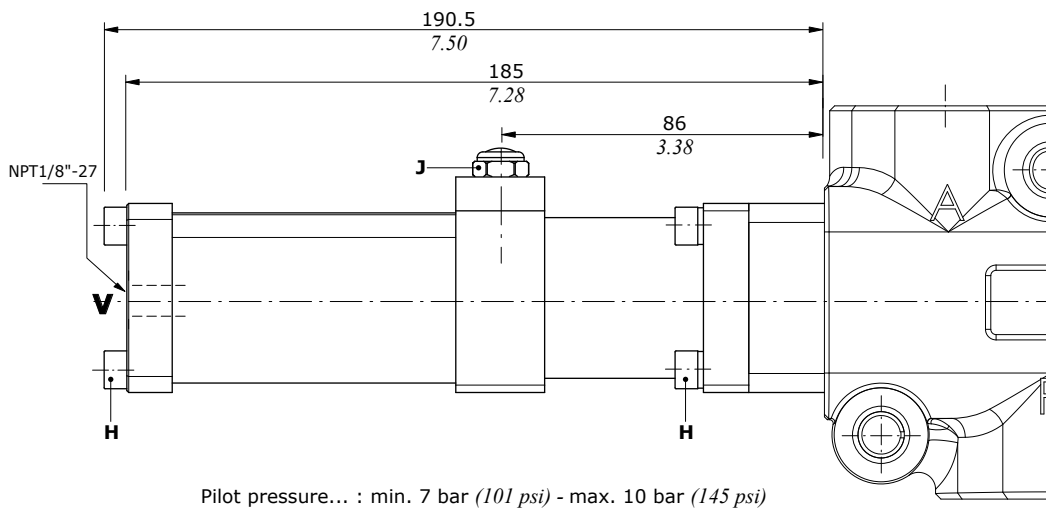
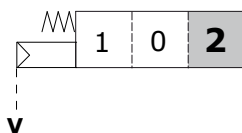
**Wrenches and tightening torque**

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

**J** = wrench 13 - 9.8 Nm (7.2 lbf<sup>t</sup>)

**Type 18P**

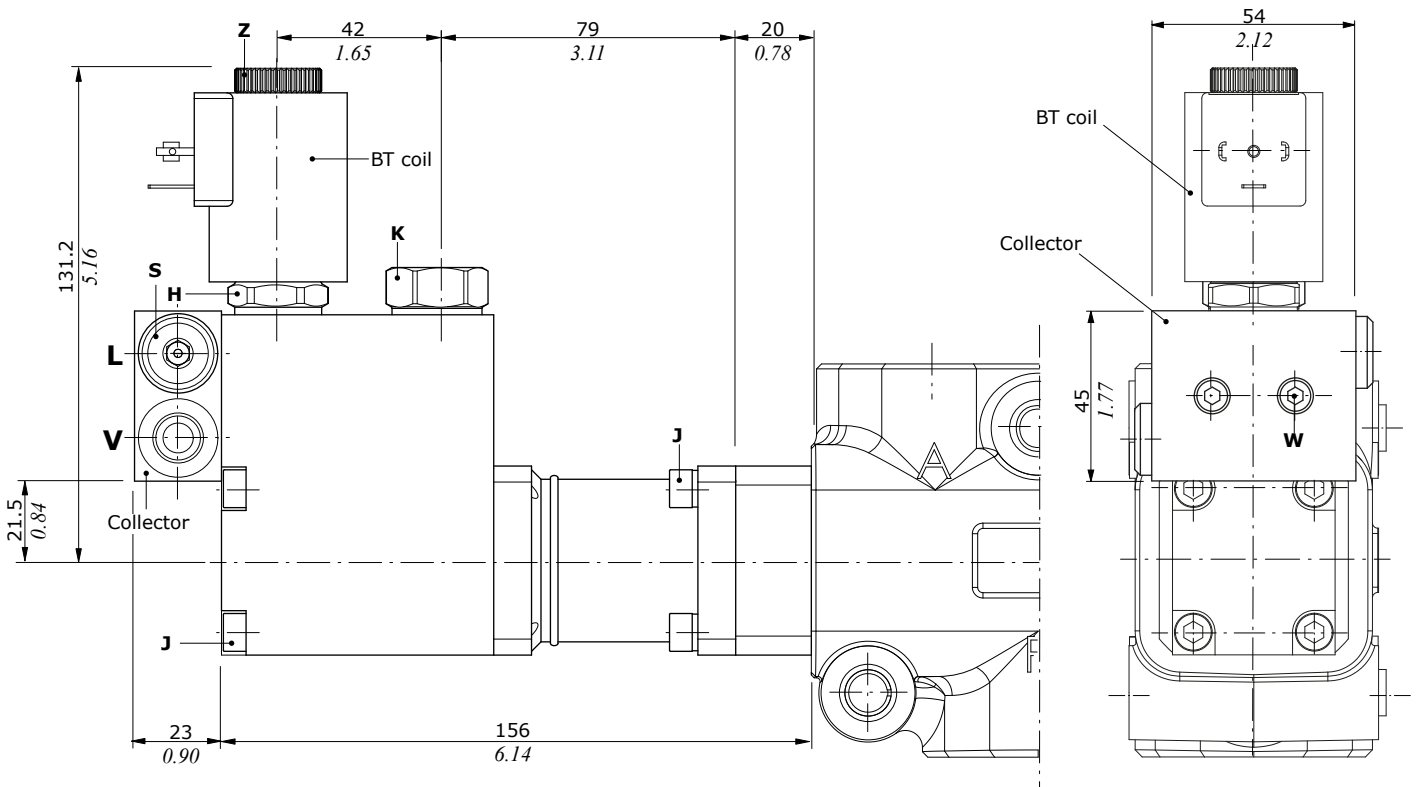
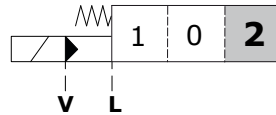
Spring return in position 2



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

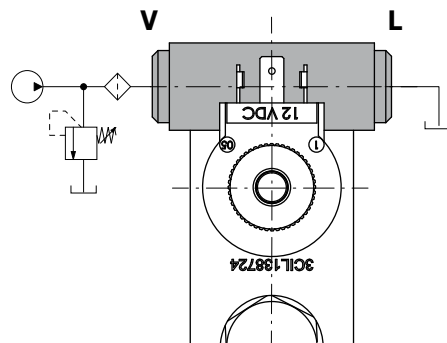
**Features**

- 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

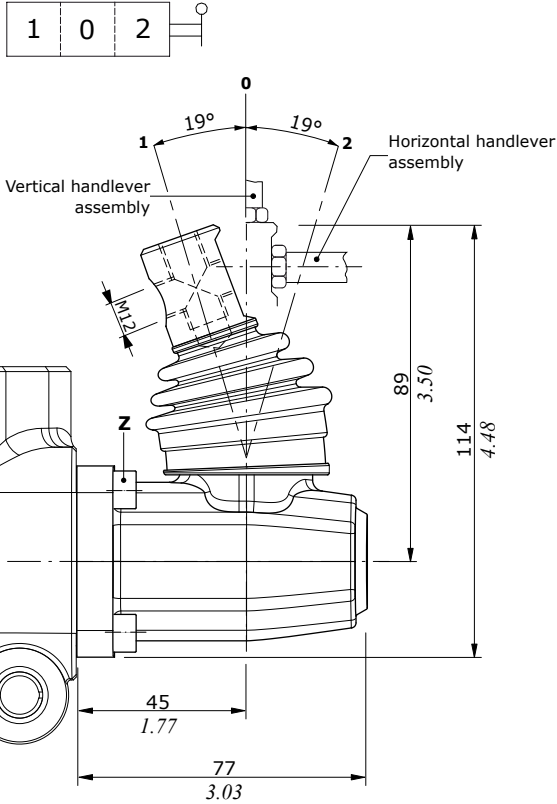


"B" side options

**Lever control kit**

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

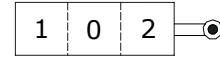
**Type L**



**Cam control kit**

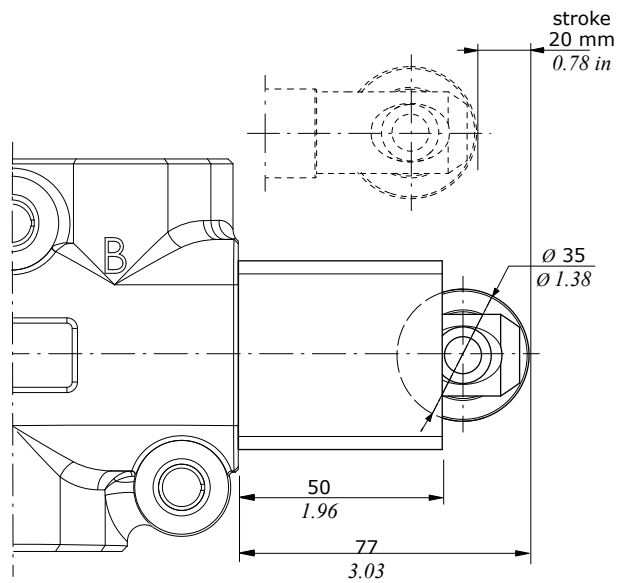
Steel ball bearing cam operation (CA), and bronze cam operation (CB); it must be coupled to 17 control kit

**Type CA-CB**



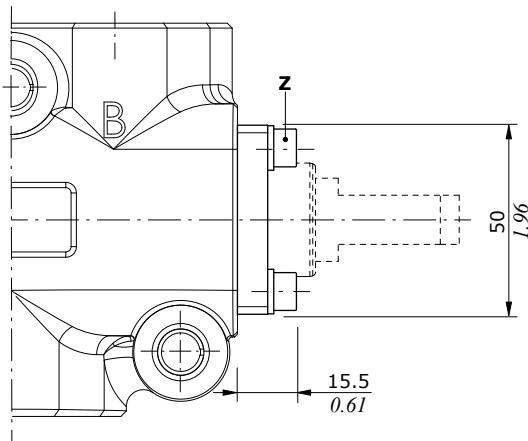
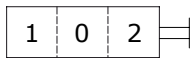
**Wrenches and tightening torque**

Z = wrench 5 - 9.8 Nm (7.2 lbft)



**Without lever, with flange**

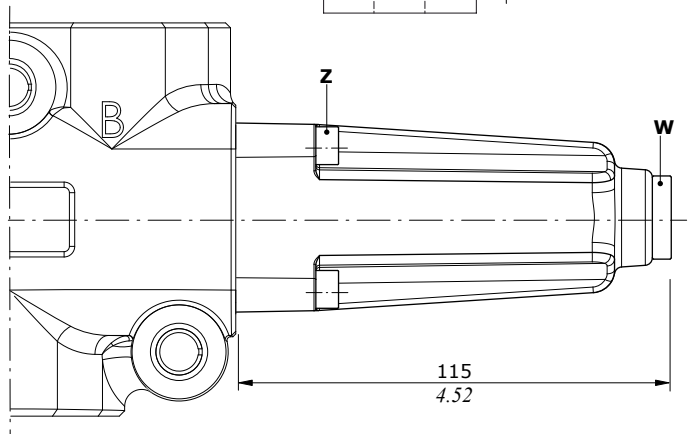
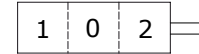
**Type SLP**



**Without lever, with cap**

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

**Type SLC**



**Wrenches and tightening torque**

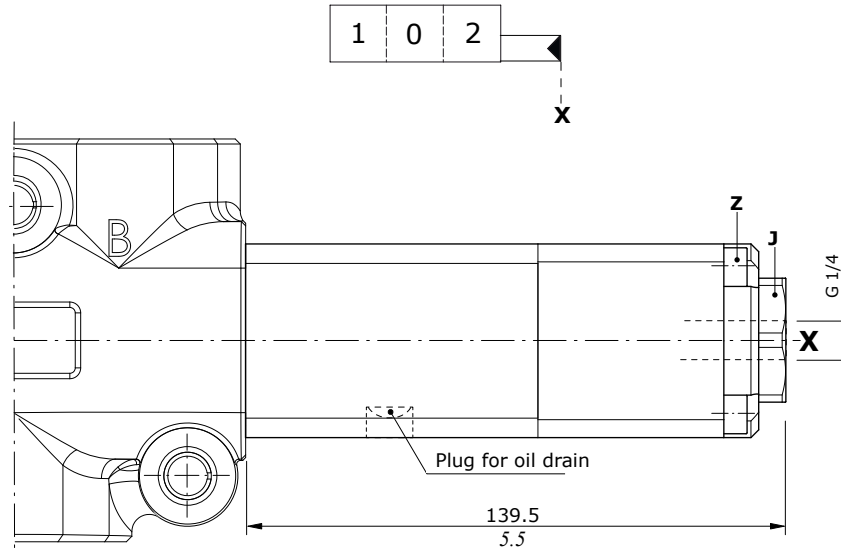
Z = wrench 5 - 9.8 Nm (7.2 lbft)

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)

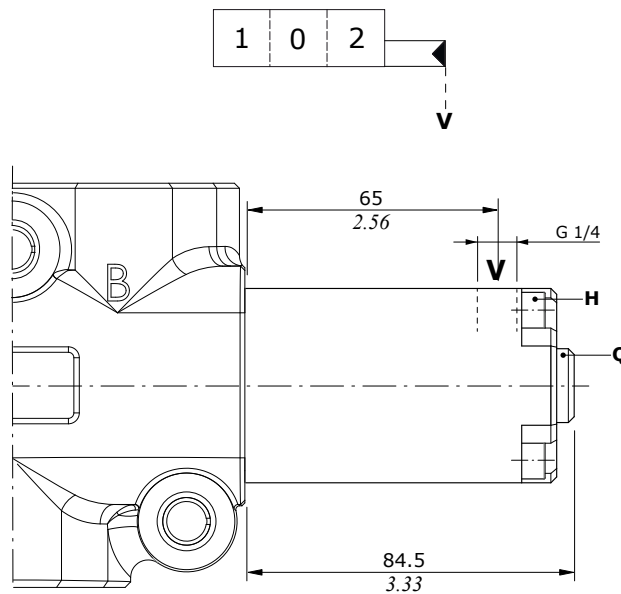
**Wrenches and tightening torque**

**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

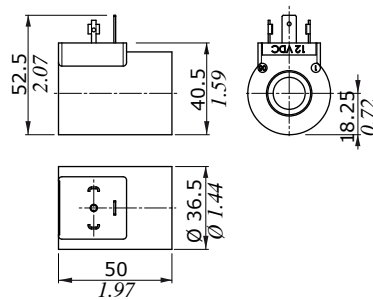
Type	Voltage	Ordering codes					Flying leads without connector
		ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	
BT	10 VDC	4SL3000100	-	-	-	-	-
	12 VDC	4SL3000120	4SL3000130 <sup>(6)</sup>	4SL3000122 <sup>(5)</sup>	4SL3000124 <sup>(2)</sup>	4SL3000127 <sup>(2)</sup>	4SL300012C
		4SL3000126 <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: <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

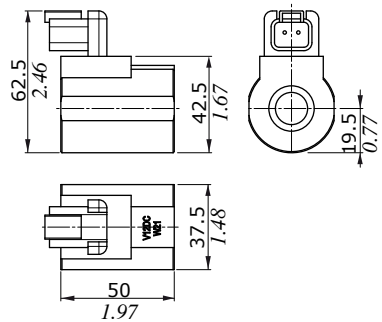
### Features

- 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%

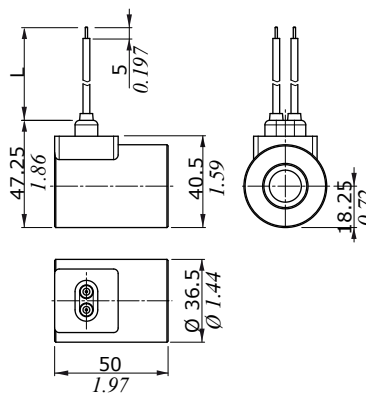
### ISO4400 connector



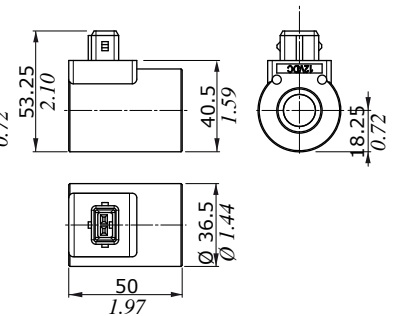
### DEUTSCH DT04 connector (Parallel type)



### Flying leads



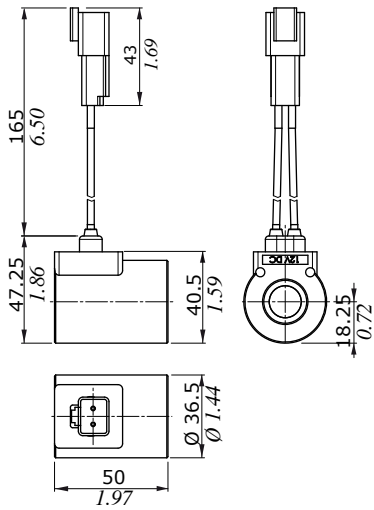
### AMP JPT connector (Perpendicular type)



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    PACKARD WEATHER-PACK connector**

