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 mm²/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)*	15 cm³/min *(0.92 in³/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 mm²/s *(from 15 to 75 cSt)*
	min.	12 mm²/s *(12 cSt)*
	max.	400 mm²/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.

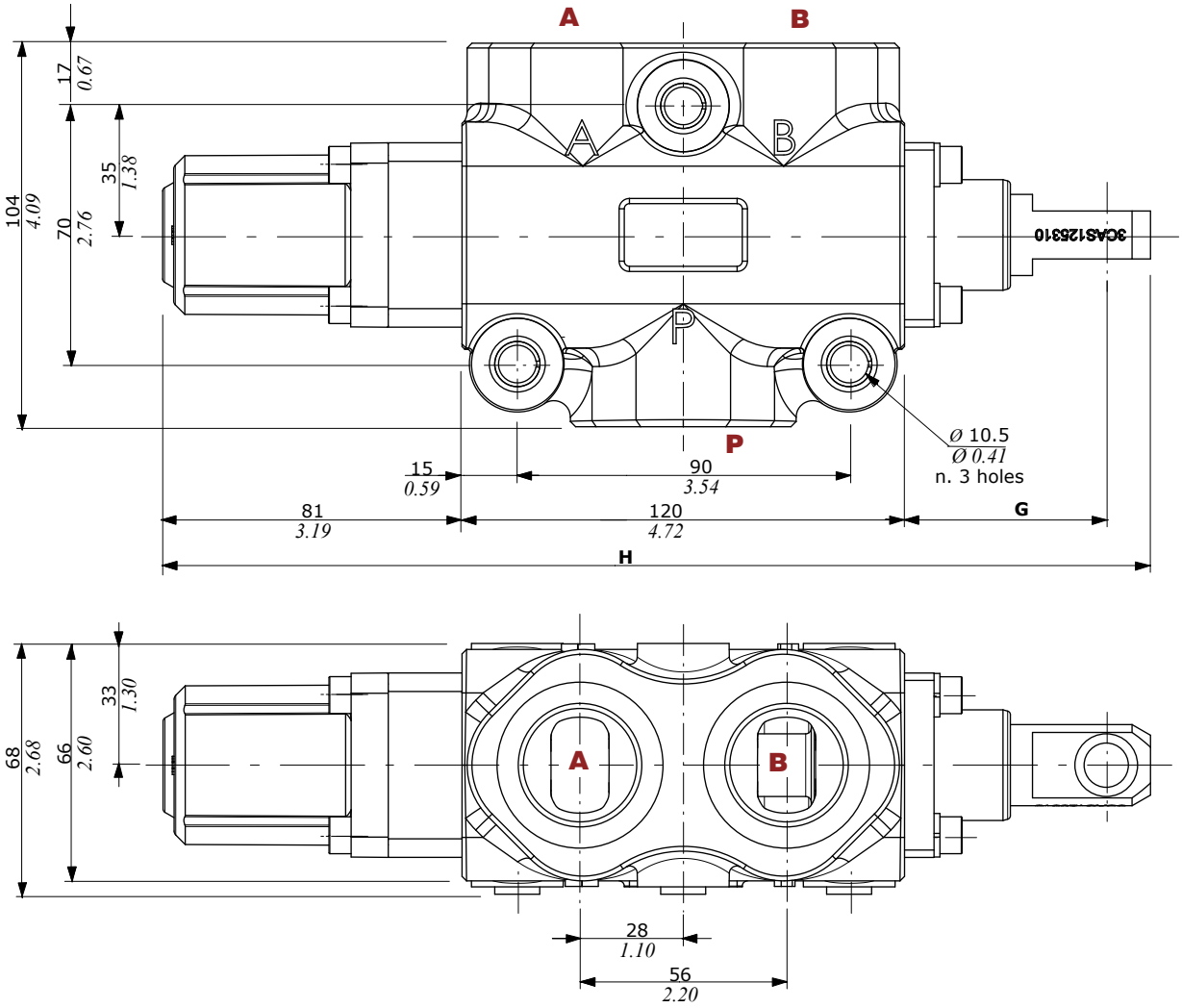
Available threads

PORTS THREAD		
ALL PORTS	**BSP**	**UN-UNF**
DF25	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)

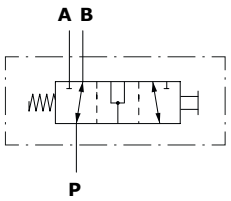
Dimensional data - hydraulic circuit - performance data

3 ways

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

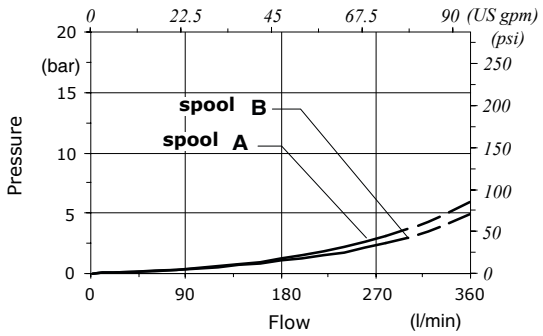


	G	H
With spool out	55 mm *2.16 in*	268 mm *10.55 in*
With spool in	35 mm *1.37 in*	248 mm *9.76 in*



Pressure drop versus flow

P → A(B)



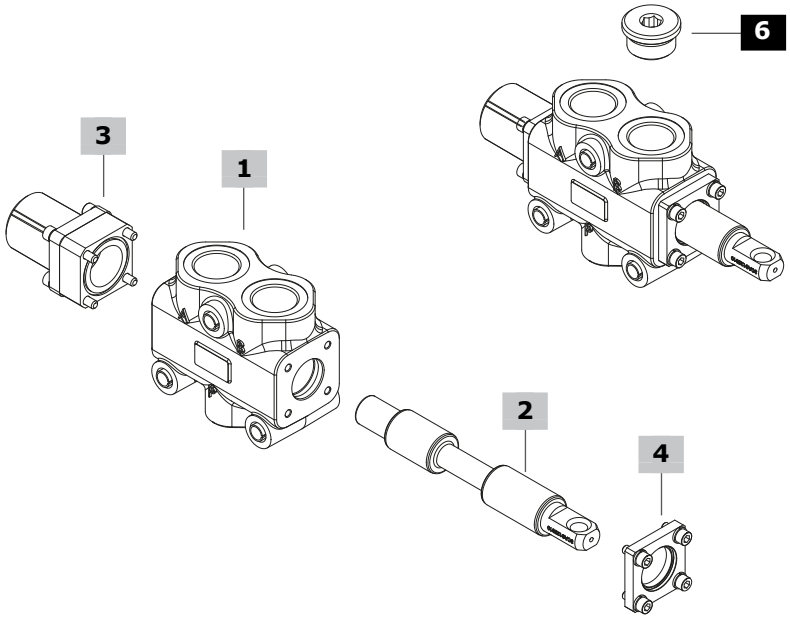
Part ordering codes

Example:

DF25/3 A 17 SLP - SAE - (CVN)

1 2 3 4 5

Painted with one layer of black Primer antirust



1 Body kit*

TYPE	CODE	DESCRIPTION
DF25/3	5CO2271700	Standard body kit 3 ways

2 Spools pag. 58

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

3 "A" side spool positioners pag. 58

TYPE	CODE	DESCRIPTION
12	5V12125000	Detent in positions 1 and 2
17	5V17125000	Spring return in position 1
17ME	5V17325000	As kit 17, with heavier spring type E
Pneumatic controls: must be coupled to the control kit side B with lever, with plate or cap		
17P	5V17125700	On/off, with spring return in position 1
18P	5V18125700	On/off, with spring return in position 2
Electrohydraulic controls: must be coupled to the control kit side B with lever, with plate or cap		
Control requires collector kit; see page 61		
18EI1	5V18125350	Spring return in position 2, 12VDC
	5V18125351	Spring return in position 2, 24VDC

4 "B" side options pag. 62

TYPE	CODE	DESCRIPTION
SLP	5COP125000	Without lever box, with dust-proof plate kit
SLC	5COP220000	Without lever box, with cap
L	5LEV120000	Aluminum lever box
CA	5CAM125000	Steel ball bearing cam operation
CB	5CAM125020	Bronze cam operation
Hydraulic controls		
IA2	5IDR520700*	On/off with high pressure pilot, need 17ME control type
IB2	5IDR720700*	On/off with low pressure pilot, need 17ME control type

5 Body threading

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

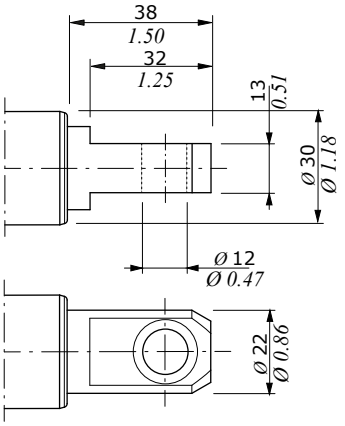
6 Port plugs*

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

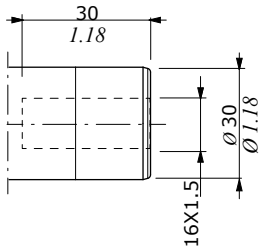
CODE	DESCRIPTION
3XTAP838200	SAE16 plug

(*) - Codes are referred to **UN-UNF** thread

Spool end



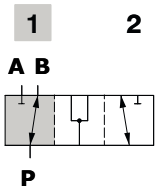
Standard:
spool type **A**, **B**



Rotary cam arrangement:
spool type **AC**

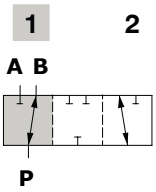
Spool circuits

Type A/AC
Ports connected
in transit position



Spool stroke
Position 2: - 20 mm *(- 0.78 in)*

Type B
Ports closed
in transit position

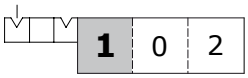


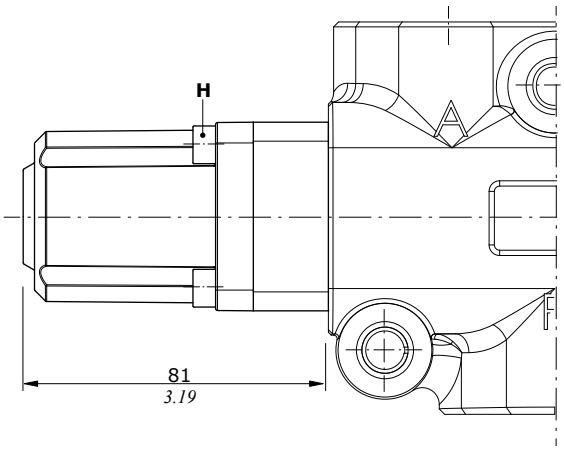
Spool stroke
Position 2: - 20 mm *(- 0.78 in)*

"A" side spool positioners

With detent

Type 12
Detent in positions 1 and 2





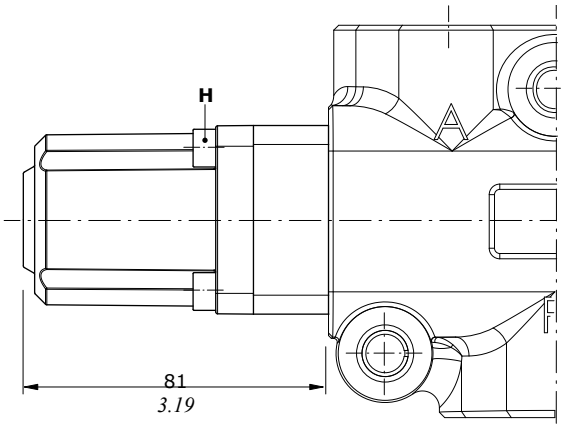
Wrenches and tightening torque
H = wrench 5 - 9.8 Nm *(7.2 lbft)*

"A" side spool positioners

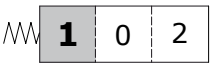
With spring return in position 1

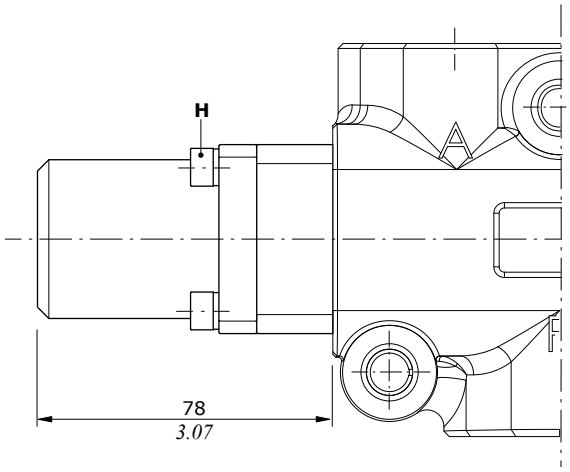
With heavier spring type "E"

Type 17



Type 17ME

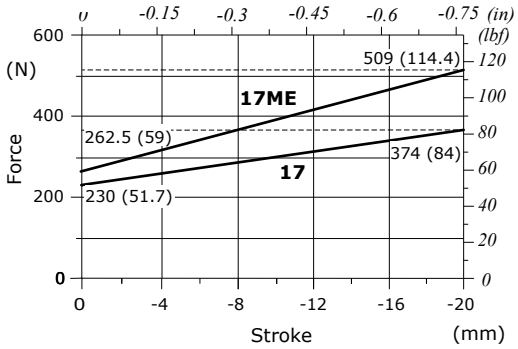




Wrenches and tightening torque

H = wrench 5 - 9.8 Nm *(7.2 lbft)*

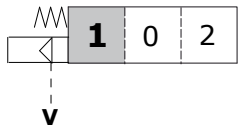
Force-Stroke diagram

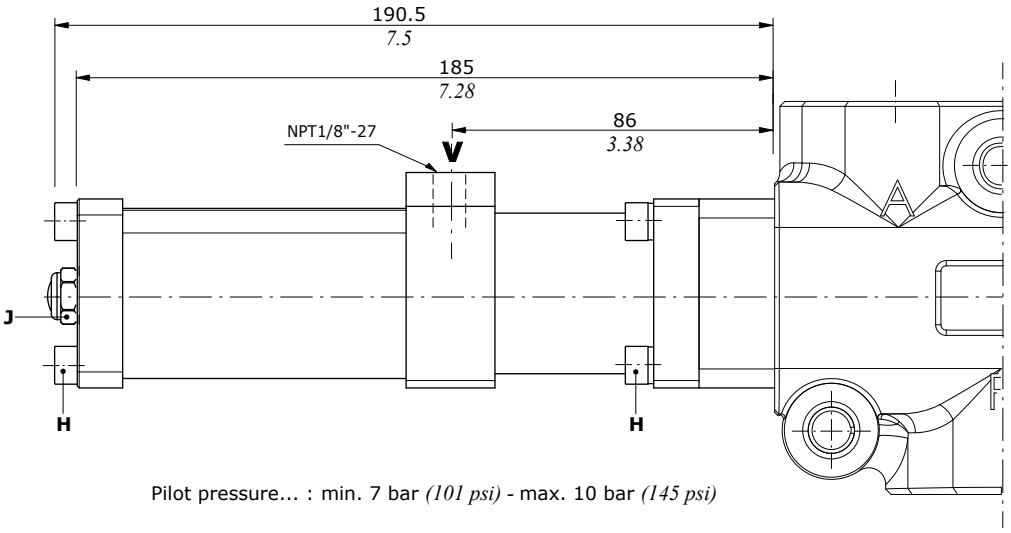


"A" side spool positioners

ON/OFF pneumatic controls

Type 17P
Spring return in position 1

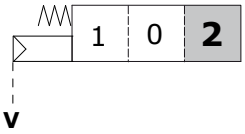


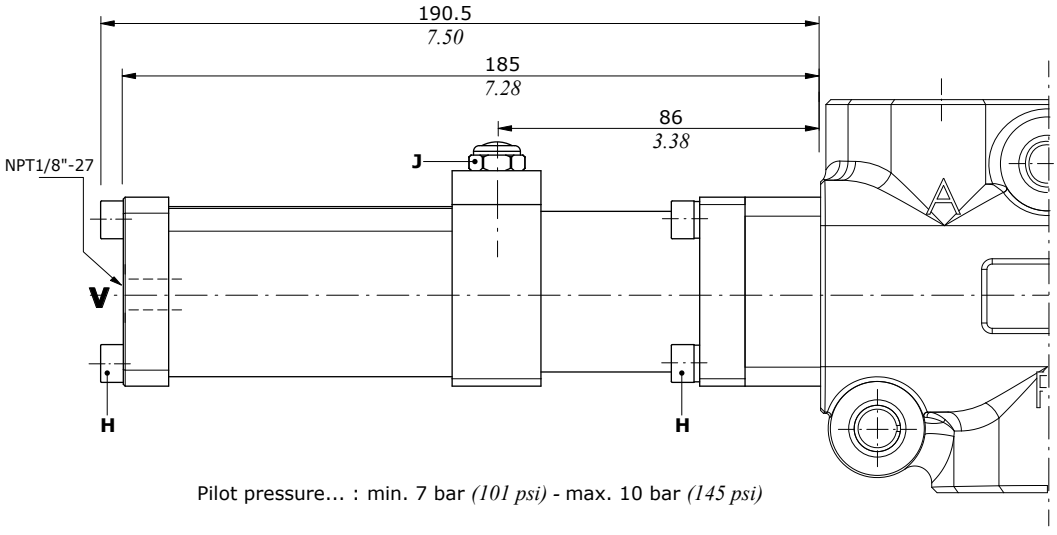


Pilot pressure... : min. 7 bar *(101 psi)* - max. 10 bar *(145 psi)*

Wrenches and tightening torque
H = wrench 5 - 9.8 Nm *(7.2 lbft)*
J = wrench 13 - 9.8 Nm *(7.2 lbft)*

Type 18P
Spring return in position 2





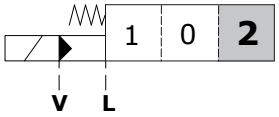
Pilot pressure... : min. 7 bar *(101 psi)* - max. 10 bar *(145 psi)*

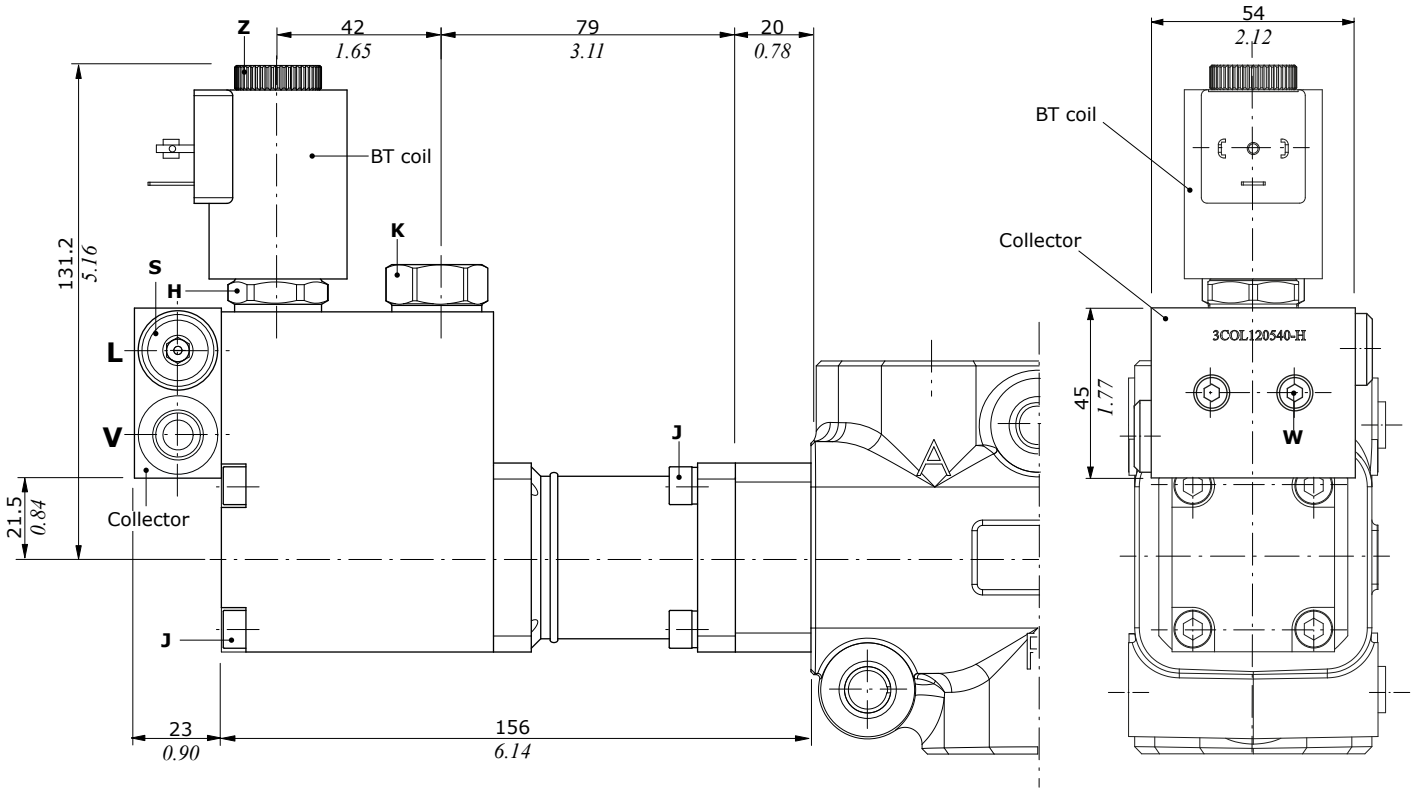
"A" side spool positioners

ON/OFF electrohydraulic control

Type 18EI1

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





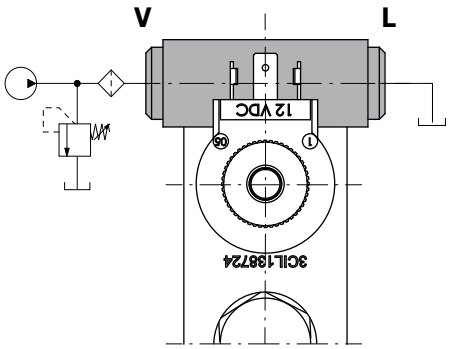
Collector kit for external pilot and drain

Wrenches and tightening torque

J = wrench 5 - 9.8 Nm *(7.2 lbft)*
K = wrench 24 - 30 Nm *(22.1 lbft)*
Z = 5 Nm *(3.68 lbft)*
S = wrench 6 - 24 Nm *(17.7 lbft)*
H* = wrench 24 - 9.8 Nm *(7.2 lbft)*
W = wrench 4 - 6.6 Nm *(4.9 lbft)*
(*)Tightening with dynamometric wrench or screwer

COLLECTOR KIT CODE		
Type	**Code**	**Description**
KE1S0	5KE1S00070	kit for 1 section

Codes are referred to UN-UNF thread



Features

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

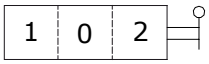
Note: for complete available BT coils list and features see page 64

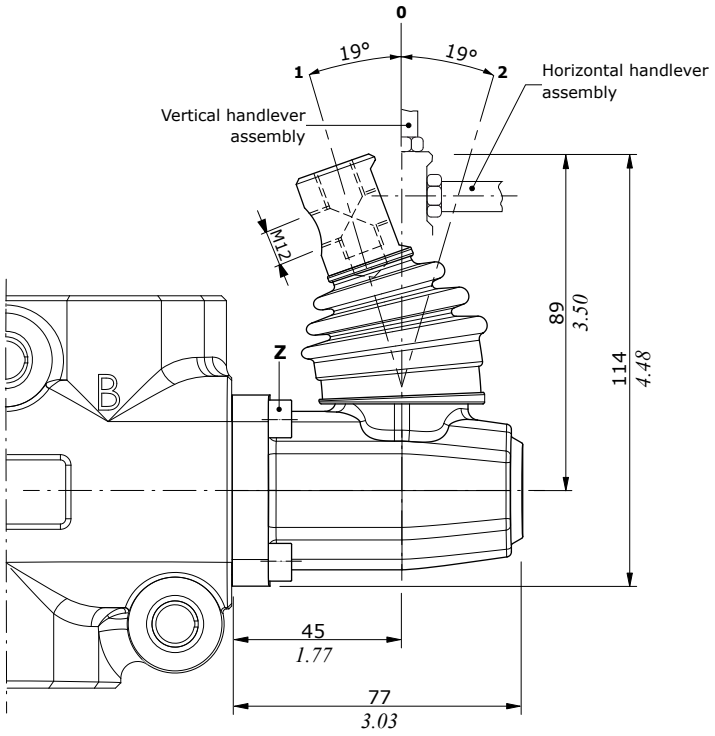
"B" side options

Lever control kit

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

Type L

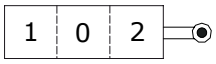




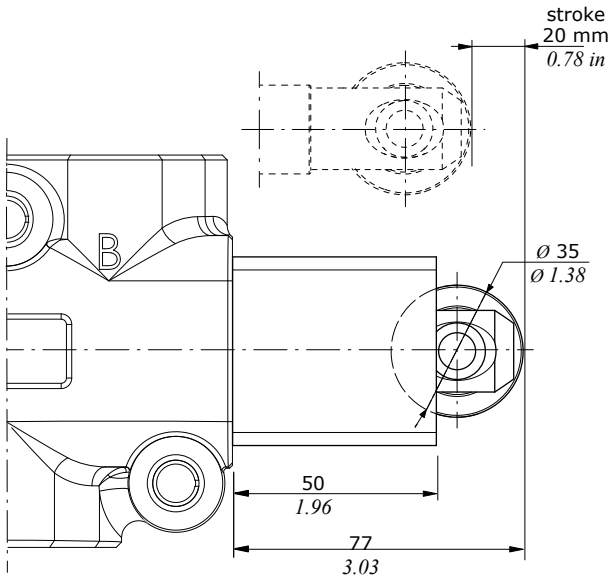
Cam control kit

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

Type CA-CB

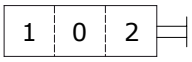


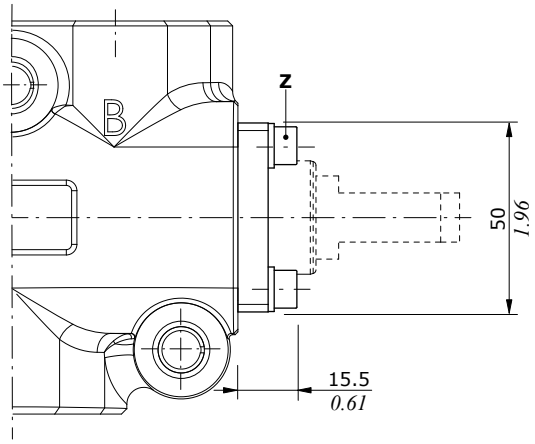
Wrenches and tightening torque
Z = wrench 5 - 9.8 Nm *(7.2 lbft)*



Without lever, with flange

Type SLP



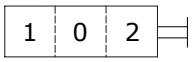


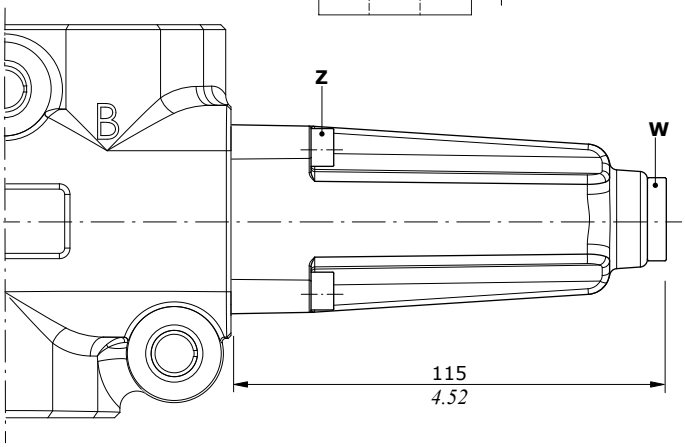
Wrenches and tightening torque
Z = wrench 5 - 9.8 Nm *(7.2 lbft)*
W =wrench 8 - 24 Nm *(17.7 lbft)*

Without lever, with cap

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

Type SLC





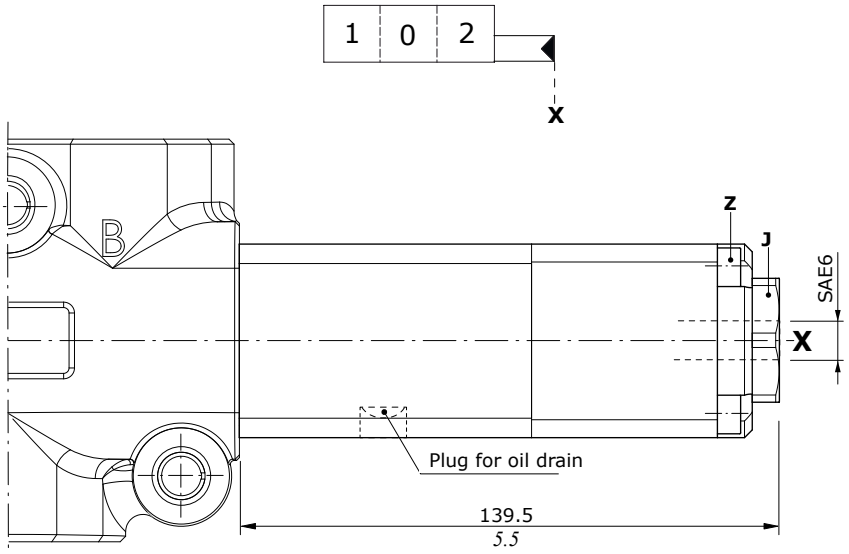
"B" side options

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

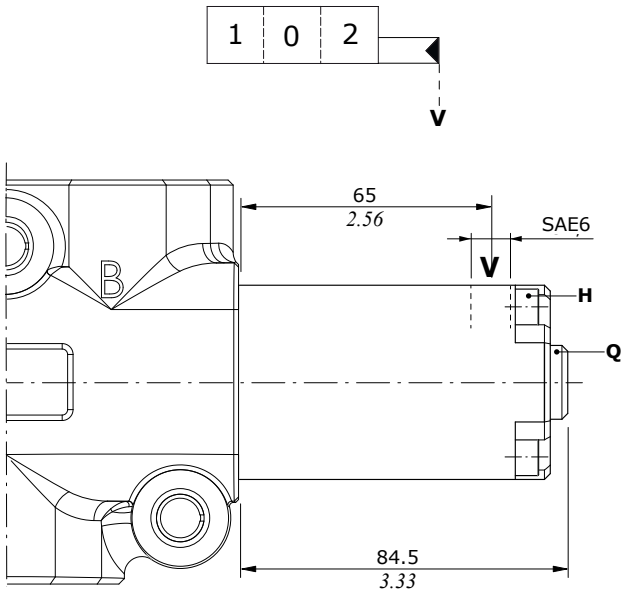


Pilot pressure max. = 250 bar *(3620 psi)*

Wrenches and tightening torque
Z = wrench 5 - 9.8 Nm *(7.2 lbft)*
J = wrench 24 - 42 Nm *(31 lbft)*
Q = wrench 6 - 24 Nm *(17.7 lbft)*

Type IB2

Low pressure pilot



Pilot pressure max. = 50 bar *(725 psi)*

Coils and accessories for 18EI1 control

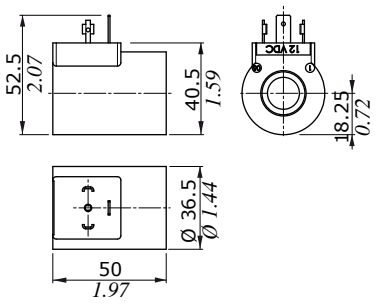
Type	Voltage	Ordering codes – Connector types					
		ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads without connector
BT	**10 VDC**	4SL3000100	-	-	-	-	-
	12 VDC	4SL3000120 4SL3000126(4)	4SL3000130(6) 4SL3000134(3-6) 4SL3000128(2)	4SL3000122(5) 4SL3001200(3-5)	4SL3000124(2)	4SL3000127(2)	4SL300012C
	24 VDC	4SL3000240 4SL3030240(1)	4SL3000249(6) 4SL300024C(3-6)	4SL3000248(5)	-	-	4SL3000246
	26 VDC	4SL3000260	-		-	-	-
	48 VDC	4SL3000480 4SL3030480(1)	-	-	-	-	-
	110 VDC	4SL3001100 4SL3031100(1)	-	-	-	-	-
	220 VDC	4SLE022000A 4SLE322000A(1)	-	-	-	-	-
	Mating connectors						
		4CN1009995	5CON140031	5CON003	5CON001	5CON017	-
With rectifier	**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

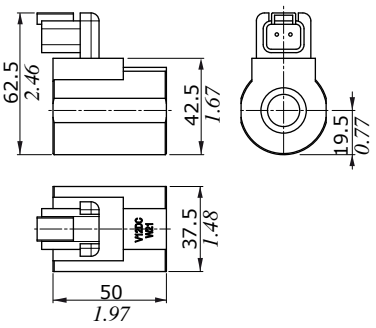
Features

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%

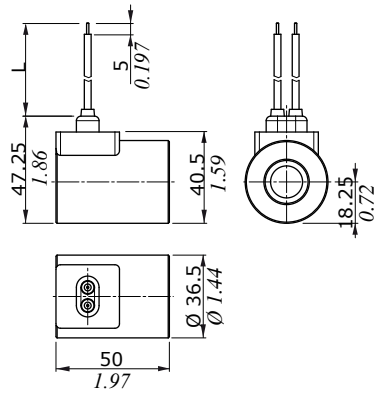
ISO4400 connector



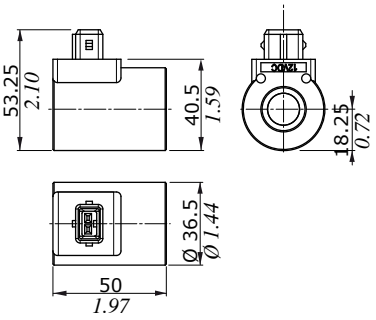
DEUTSCH DT04 connector
(Parallel type)



Flying leads



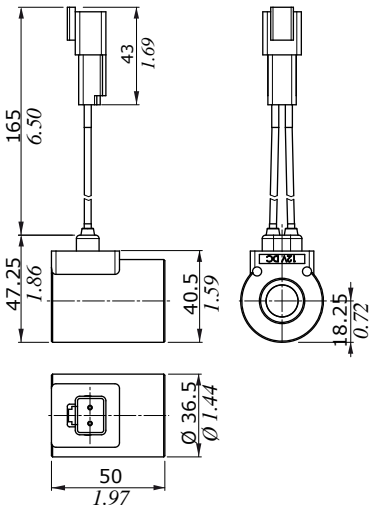
AMP JPT connector
(Perpendicular type)



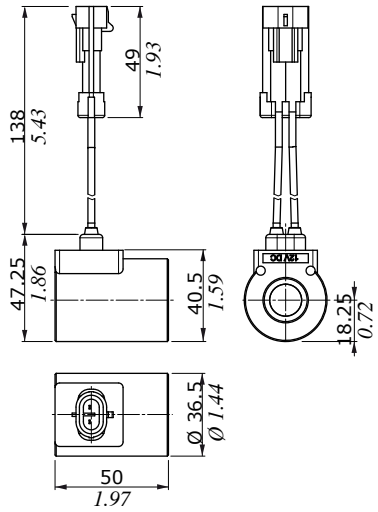
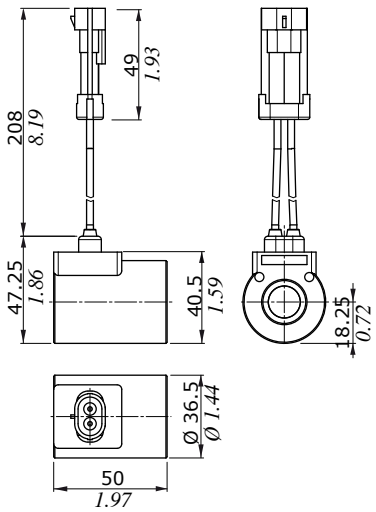
Coil type	L dimension	
	(mm)	*(in)*
12 VDC	240	*9.45*
24 VDC	600	*23.62*

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