



EXPLOSION PROOF DIRECTIONAL CONTROL VALVE TYPE ED6 SERIE 6X ATEX DIRECTIVE / IECEx / KOSHA



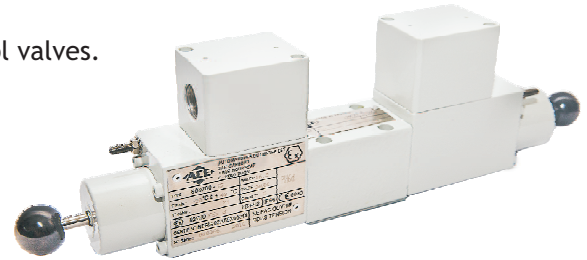
CARACTERISTICS

Hydraulic :

Cetop 3.
Maximum pressure in service : 315 Bar.
Nominal Flow max. : 40 l/mn.(voir tableau)
Directional control valves are solenoid operated directional spool valves.

Electriques :

Protection Index: IP 66.
Directive ATEX or IECEx
Protection mode ATEX :
- Surface : Ex d ou Ex de , II 2 GD IIB+H2 T6,T5 ou T4
- Mining : EEx d ou EEx de, I M2.
Protection mode IECEx :
- Surface : Ex d IIB + H2 T6, T5 or T4 Gb
Protection mode KOSHA :
- Surface : Ex d IIB + H2 T6, T5 or T4 Gb



4 ED6 E 6X/EX700 24-DC-T6 PA PB H1d

DESCRIPTION OF FONCTION

Directional control valves type ED 6 are solenoid operated directional spool valves.
They control start, stop and direction of an oil flow.

These valves basically consist of the housing (1), one or two solenoids (2), the control spool (3), and return springs (4).

In unoperated condition the control spool (3) is held in the neutral or starting position by the return springs (4) (except for type O and OF).
The operation of the control spool is by means of oil immersed solenoids (2).

The force of the solenoid (2) acts via the plunger (5) on the control spool (3) and pushes it from its rest position into the required end position.

When the solenoid is de-energised (2), the control spool (3) is returned to its original by the return springs (4).

An hand emergency button, allows movement of the control spool (3) without solenoid energisation.

TYPE : ED6 _ 6X/O

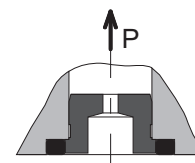
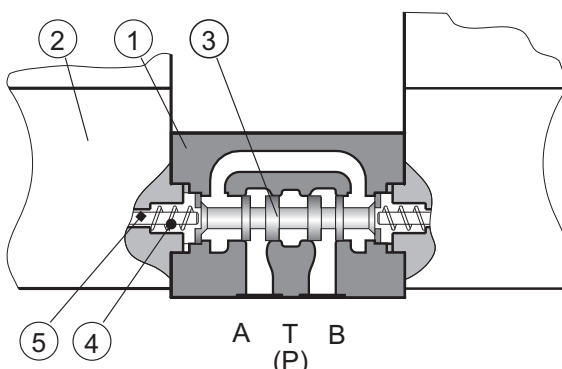
Only for symboles A, C et D
these are directional valves with 2 switching positions and 2 solenoids without locking.
When the solenoid is energised there is no median position (without return springs).

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Cardridge Throttle : ED6 _ 6X/Bxx

Use of the cardridge throttle is necessary when, because of the given operating conditions, flow larger than that allowed by the valve operating limits arise during spool cross-over.



GENERALITY OF FONCTION

It is in an oil bath and can be powered by direct current or alternating current (AC only in EEx d version).
Its mechanical impact resistance meets the standards for explosion-proof equipment.

Polymerized it can operate in tropical climates.

The plunger operate in oil to reduce friction, dissipate head and cushions and drives control spool.

Direct curent solenoid has the advantages of :

- slow movement of the control spool.
- energized maintenance of the control valve in intermediary position, is not detrimental to the solenoid.

-Insensitivity to undervoltage and even a brief overvoltage, overload or a mechanical stop.

ELECTRIC CONNECTION

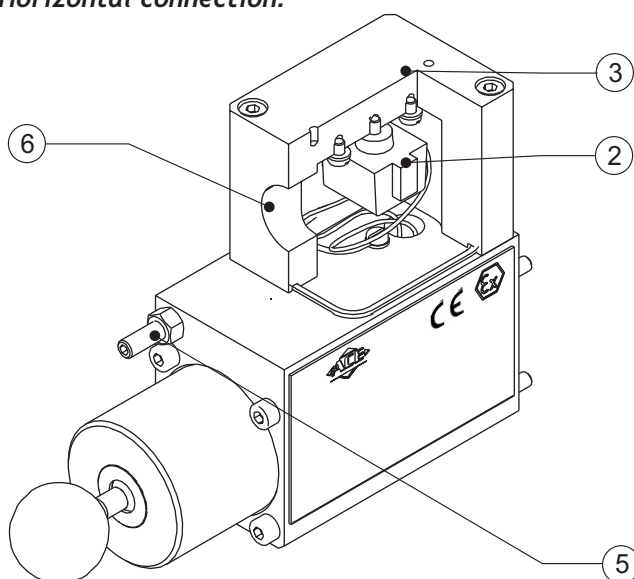
Junction in box for group I and IIB+H2

The terminal box (3) can be oriented in steps of 180° on the solenoid housing (1).

The electrical connector on the outlet terminal box (6) can be arranged horizontally (on terminal box 3) suitable for cable gland.

One earth connection (5) is available inside or outside the terminal box .

Model H1, H2, ... (Box) Horizontal connection.



2 differents protection modes.

1) Protection Ex d
On terminal strip (2) inside the explosion proof terminal (3) box suitable for 0.5 to 1.5 mm² with cable gland EE "d".

2) Protection Ex e
On terminal strip (2B) inside the increased safety terminal box (3B) suitable for 0.5 to 2.5 mm² with cable gland Ex e.

The terminal box is produced in aluminium as standard, but production in STEEL possible on request.

Cable Gland Recognized

PE option (see page 5)

Cable gland for unarmored cable Ex d IIC recognized in 1/2" NPT and with a diameter of Ø6 to Ø9 mm over a sealing shield.

Also available in Exd, Exe group I or group IIC for armoured, unamored or mineral cable : Consult us.

ELECTRIC CONNECTION

Junction On Female Taped Flange For Group II Only.

Connection with threaded rigid conduit approved in group II only.
Seal integrated in the housing.

It is produced according to the "d" protection mode using a certified type of rigid conduit (threaded tube).

Seal integrated in the housing.

Available with either a horizontal (BH) or vertical (BI) electrical output .

Earth connexion (5).

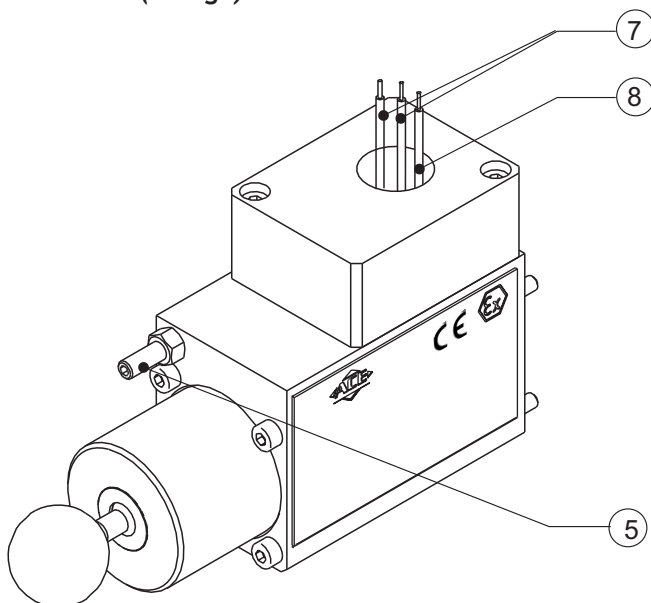
The lead wire length normally supplied is 1.5 meter.

Active lead wires (7).

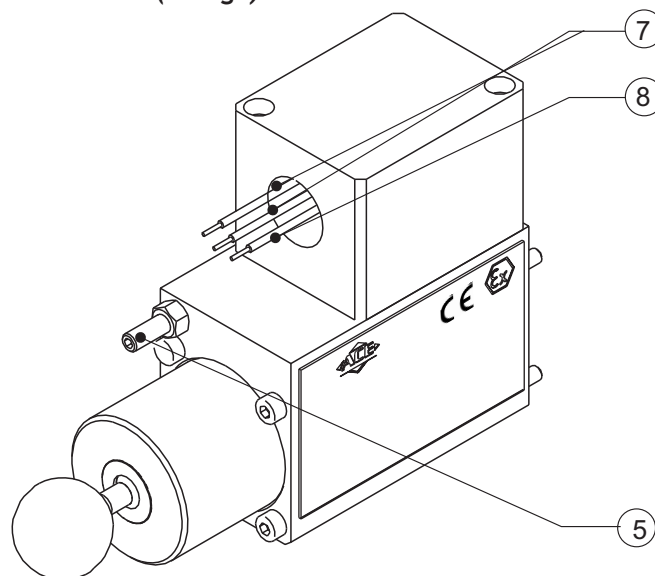
Earth lead wire (8).

Other lengths to order.

Model "BI" (Flange)












Model "BH" (Flange)



HYDRAULIC CODE

		ED6	6X						
3 service ports		3							
4 service ports		4							
								D	
								Y	
				OF				D	
				O				D	
								E	
								J	
								G	
Hydraulic housing series number.			6X						
<i>The above refer to symbols D, Y only.</i> Without return spring, with locking control spool. Without return spring. With return springs : No code								OF O	
<i>The above refer to E, J, G, ... Ect.</i> With one solenoid side A. With one solenoid side B. With one solenoid side A and side B.: No code								A B	
For use when the flow is greater than the valve capacity, fitted in P line.								Throttle Ø 0,8 MM : B08 Throttle Ø 1,0 MM : B10 Throttle Ø 1,2 MM : B12 Without throttle : No code	
								hydraulic piloted outside side A hydraulic piloted inside side A hydraulic piloted outside side B hydraulic piloted inside side B hydraulic piloted outside side A and B hydraulic piloted inside side A and B Without hydraulic piloted : No code	HEB-X HIB-X HEA-X HIA-X HEAB-X HIAB-X

ELECTRIC CODE

EX700							
	<table border="1"> <tr> <td>No Code</td> <td>Standard temp +40° C</td> </tr> <tr> <td>TX-60</td> <td>Temp. Declass +60° C</td> </tr> <tr> <td>TX-50</td> <td>Temp. declas +50° C See table page 6</td> </tr> </table>	No Code	Standard temp +40° C	TX-60	Temp. Declass +60° C	TX-50	Temp. declas +50° C See table page 6
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	<table border="1"> <tr> <td>1 2 3 4 5 6 7</td> <td>: 1/2" NPT : PG 11 (Only EEX e) : PG 13.5 (Only EEX e) : PG 16 (Only EEX e) : M 16 x 1.50 : M 20 x 1.50 : M 22 x 1.50</td> </tr> </table>	1 2 3 4 5 6 7	: 1/2" NPT : PG 11 (Only EEX e) : PG 13.5 (Only EEX e) : PG 16 (Only EEX e) : M 16 x 1.50 : M 20 x 1.50 : M 22 x 1.50				
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M	Solenoid for use in mining (group I). No code : Solenoid for use in explosive atmosphere (Group II). (groupe II).						



CARACTERISTICS

GENERALITY

Mounthing position		Optional - Horizontal preferred
Weight	- valve with 1 solenoid (kg)	2.7 kg
	- valve with 2 solenoids (kg)	4.5 kg

HYDRAULIC

Maximum operating pressure : Ports A, B, P.	bar	Up to ...315 bar
	bar	Up to ...100 bar
With spool type A and B, port T must be used as a drain port, if the operating pressure lies above 100 Bar.		
Pressure drop		see operating curves of pressure drop
Hydraulic fluid		Mineral oils
Fluid temperature range	°C	-20°C.....+70°C
Viscosity range	mm ² /s	2,8380
Degree of pollution		Class 9 under NAS 1638

ELECTRIQUES

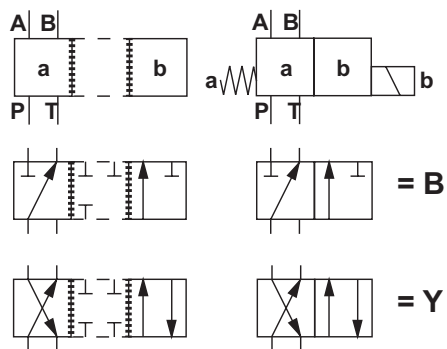
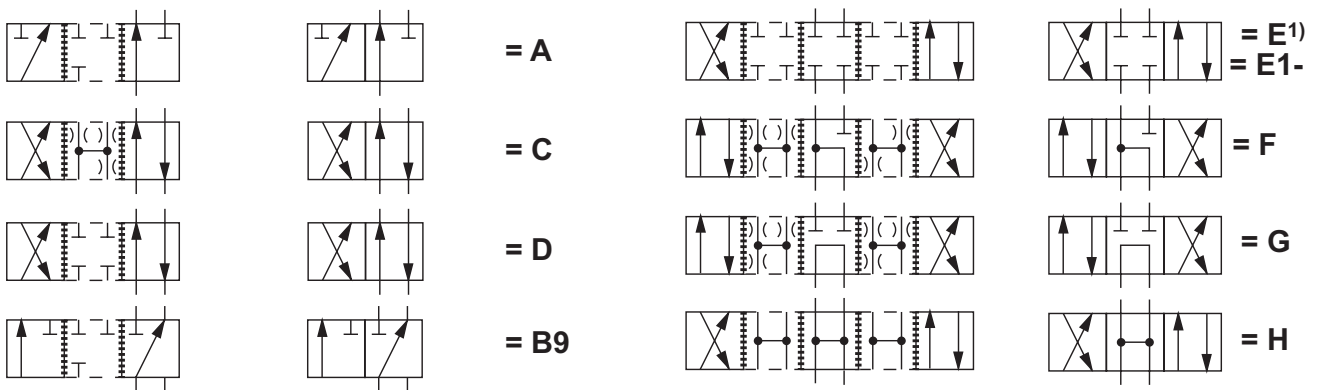
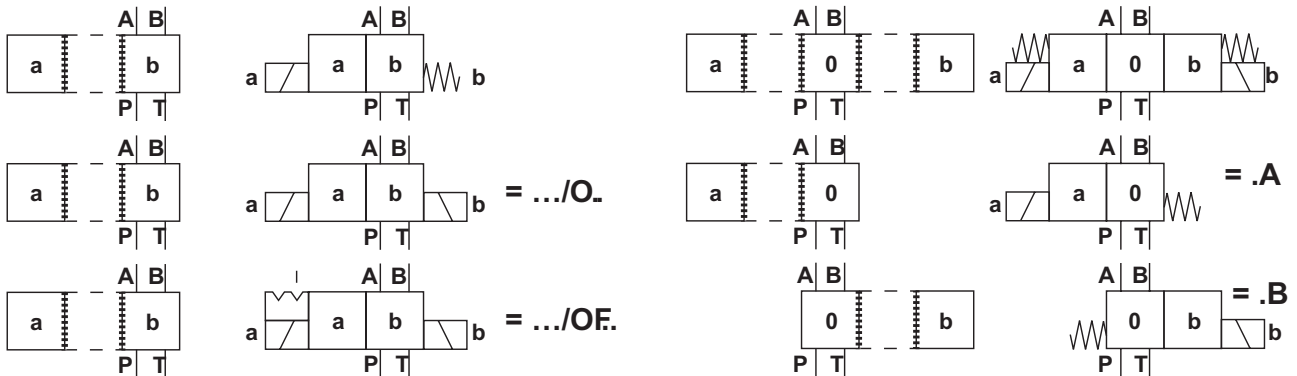
Continous voltages available	V/DC	12	22	24	24	48	96	110	200	220	
Alternative voltages available*	V/AC	----	24	----	----	----	110	----	220	----	
Temperature range with ambiente 40°C		T6	T6	T5	T6	T6	T6	T6	T6	T6	
Temperature range with ambiente 50°C		T5	T5	T4	T5	T5	T5	T5	T5	T5	
Temperature range with ambiente 60°C		T5	T5	T4	T5	T5	T4	T5	T5	T5	
Power requirement	VA	13.6	13.6	16.4	13.7	13.2	13.6	13.8	13.6	13.6	
Protection index		IP66									
Duty cycle		100%									
Maximum coil temperature		130°C									
Outlet connection on terminal box or taped flange		1/2"NPT-PG11-PG13.5-PG16-M16x1.5-M20x1.5-M22x1.5									

HOMOLOGATIONS

European classification code	IIBGD ou IM2 EEx d I ou EEx d IIB+H2 ou EEx de I ou EEx de IIB+H2 ou	Homologation Number INERIS 02ATEX0024X Product Quality Notification INERIS 03 ATEXQ718
International classification code	Ex d IIB + H2 T6, T5 or T4 Gb	Homologation Number IECEX INE 11.0011X
Korean classification code	Ex d IIB + H2 T6, T5 or T4 Gb	Homologation Number 15-AV4BO-0143X

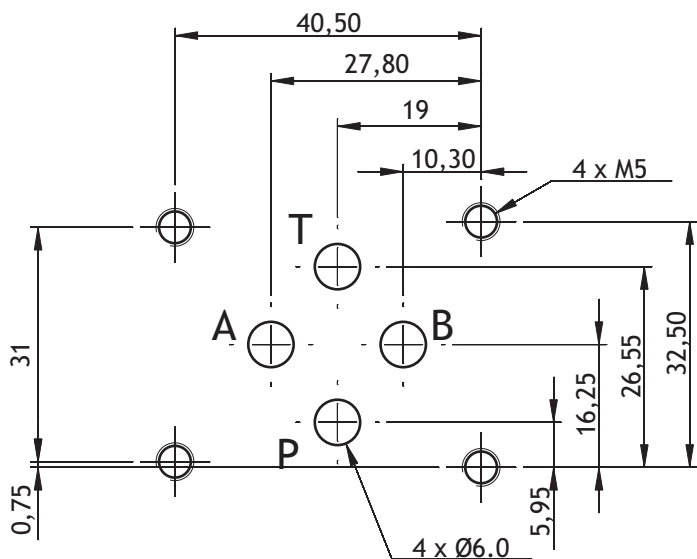
* AC voltages are available in EEx d

HYDRAULIC VARIATION SYMBOLS

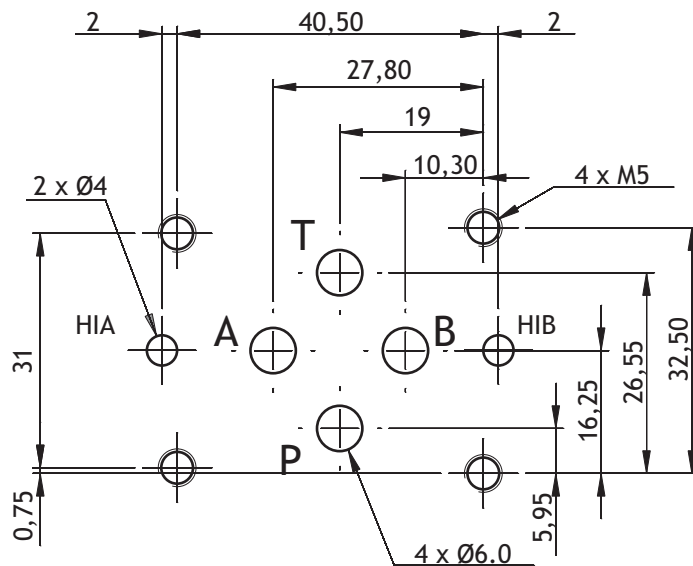


HYDRAULIC VALVE CONNECTION

HYDRAULIC VALVE CONNECTION CETOP3



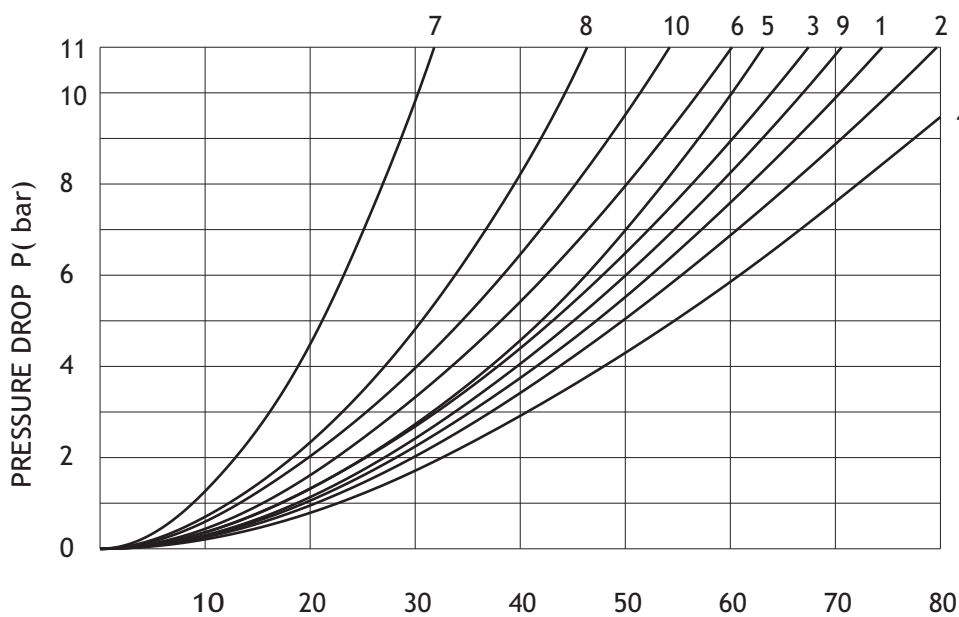
HYDRAULIC VALVE CONNECTION CETOP3 WITH HYDRAULIC COMMAND



CURVES OF PRESSURE DROP

CURVE 7 : SYMBOL "R" IN SWITCHING POSITION : B - A

CURVE 8 : SYMBOL "G" IN NEUTRAL POSITION : P - T

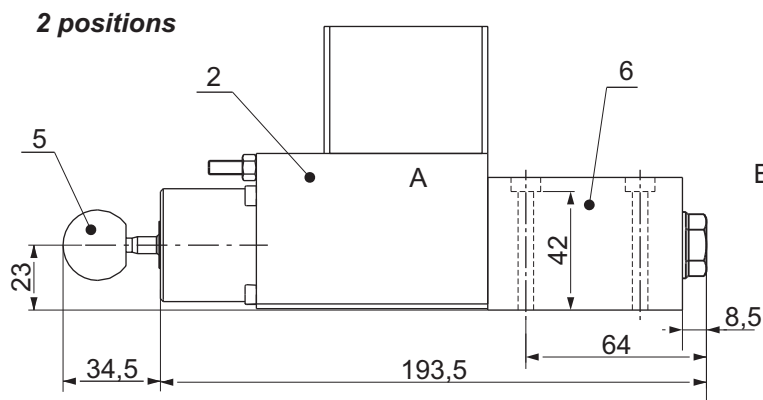
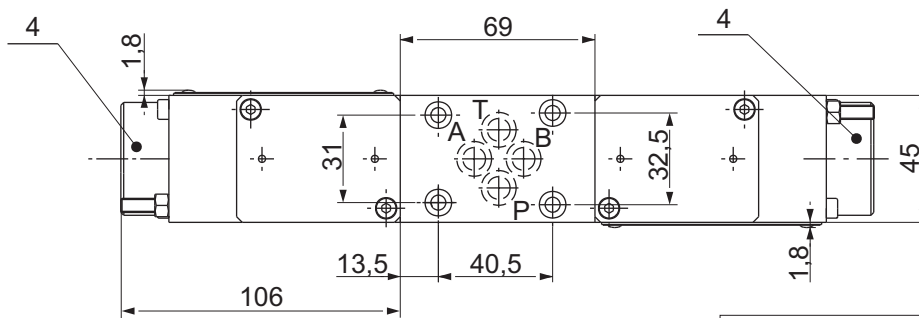
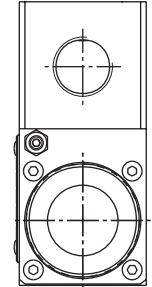
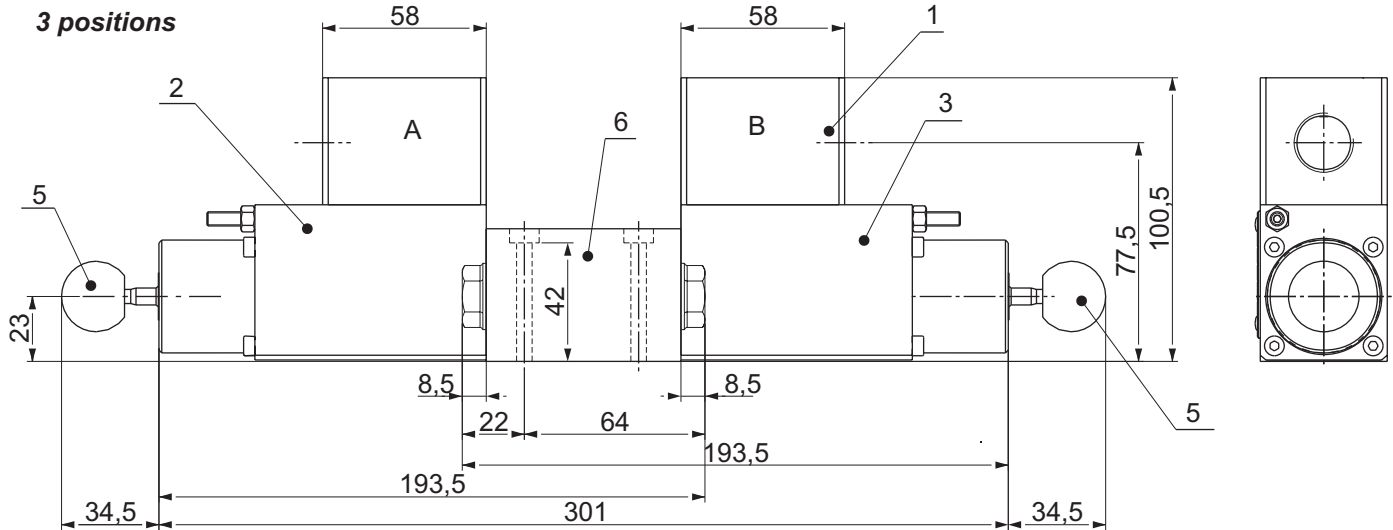


FLOW Q(L/mn)
 Measured at V : 36 mm² /S , t : 50 °C

SYMBOL	FLOW DIRECTION			
	P->A	P->B	A->T	B->T
A	3	3	-	-
B	3	3	-	-
C	1	1	3	1
D	5	5	3	3
E	3	3	1	1
F	1	3	1	1
G	6	6	9	9
H	2	4	2	2
J	1	1	2	1
L	3	3	4	9
M	2	4	3	3
P	3	1	1	1
Q	1	1	2	1
R	5	5	4	-
T	10	10	9	9
U	3	3	9	4
V	1	2	1	1
W	1	1	2	2
Y	5	5	3	3

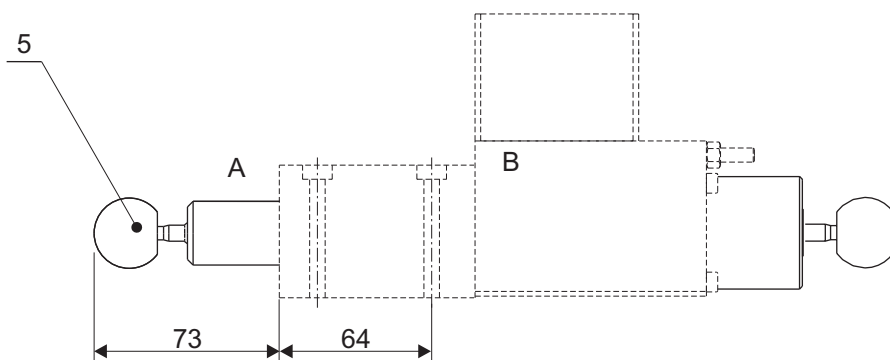
DIMENSIONS (In MM)

CONNECTION WITH A BOX AND A TERMINAL BLOCK (GROUP I & IIB+H2)



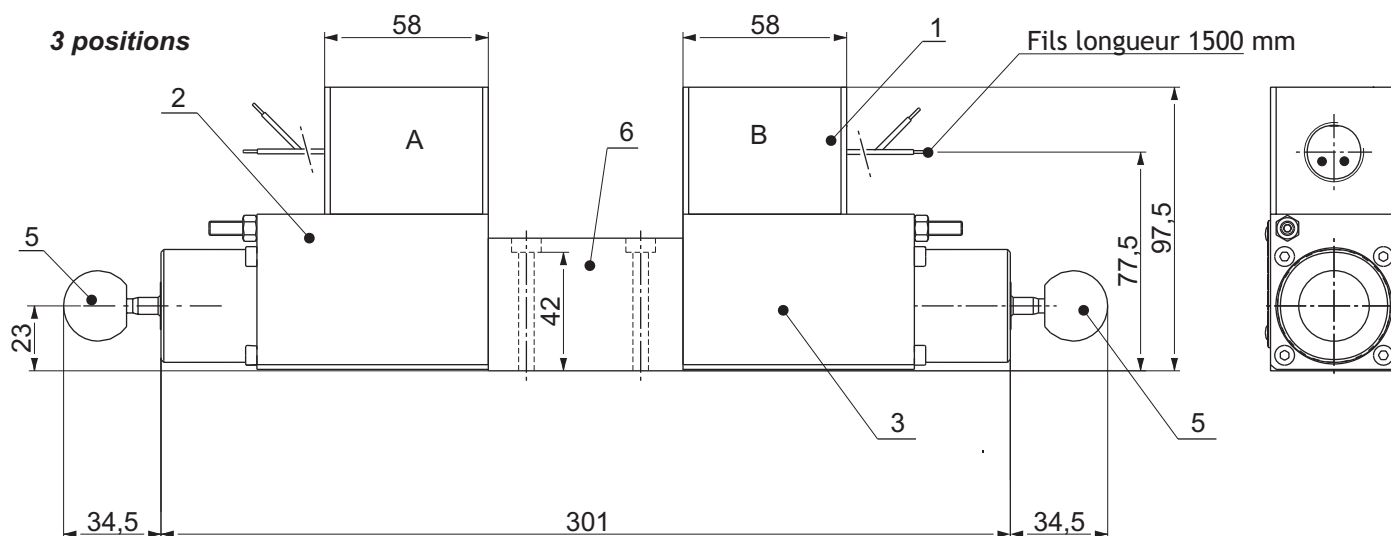
- 1 : EEx"d" and EEx"de" type connection box
- 2 : Solenoid housing side A
- 3 : Solenoid housing side B
- 4 : Without pushbutton housing
- 5 : Control pushbutton
- 6 : Hydraulic housing
- 7 : 4 fixing screws M5 x 50 DIN 912-10.9, to be ordered separately
- 8 : 4 rectangular seals 9,81 x 1,5 x 1,78

MANUAL TYPE WITHOUT SOLENOID

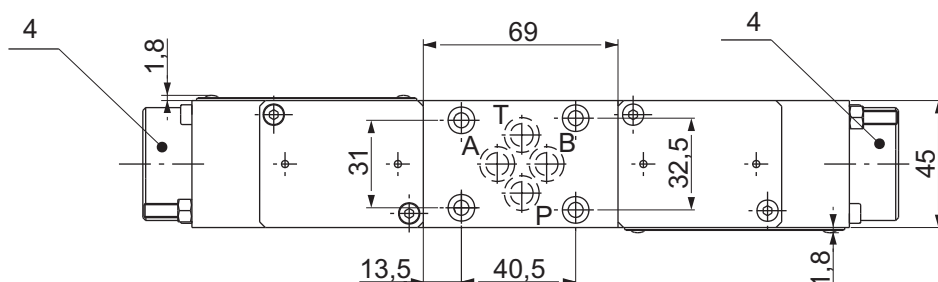


DIMENSIONS (In MM)

CONNECTION WITH A BH TYPE THREADED FLANGE (GROUP IIB+H2)

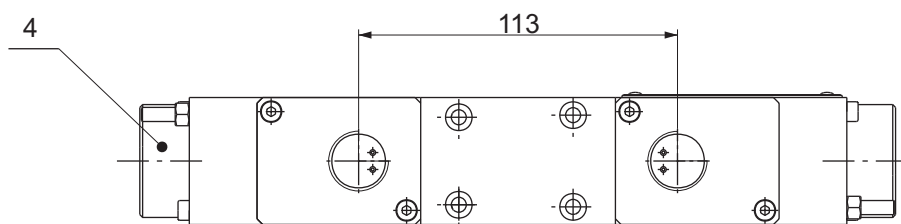
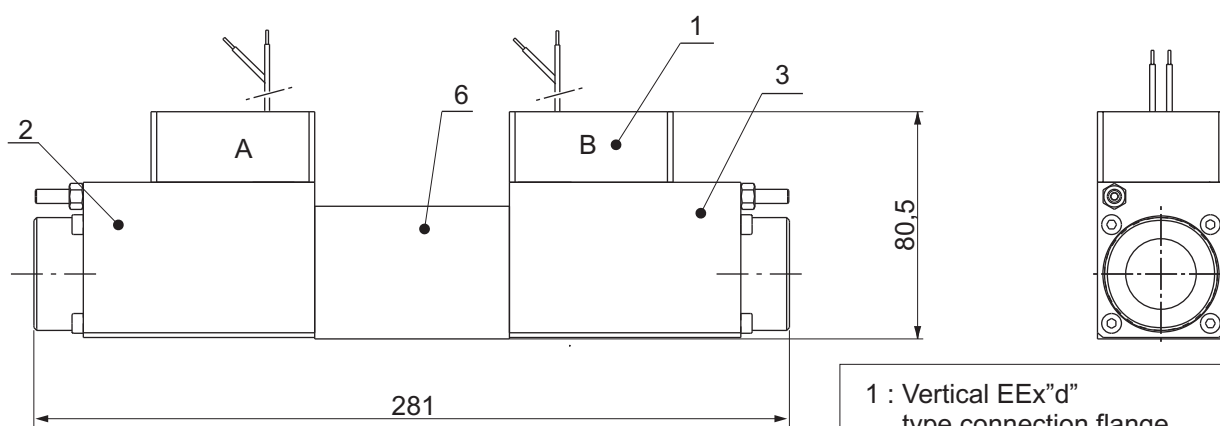


3 positions without push button



- 1 : Horizontal EEx"d" type connection flange
- 2 : Solenoid housing side A
- 3 : Solenoid housing side B
- 4 : Without pushbutton housing
- 5 : Control pushbutton
- 6 : Hydraulic housing
- 7 : 4 fixing screws
M5 x 50 DIN 912-10.9,
to be ordered separately
- 8 : 4 rectangular seals
9,81 x 1,5 x 1,78

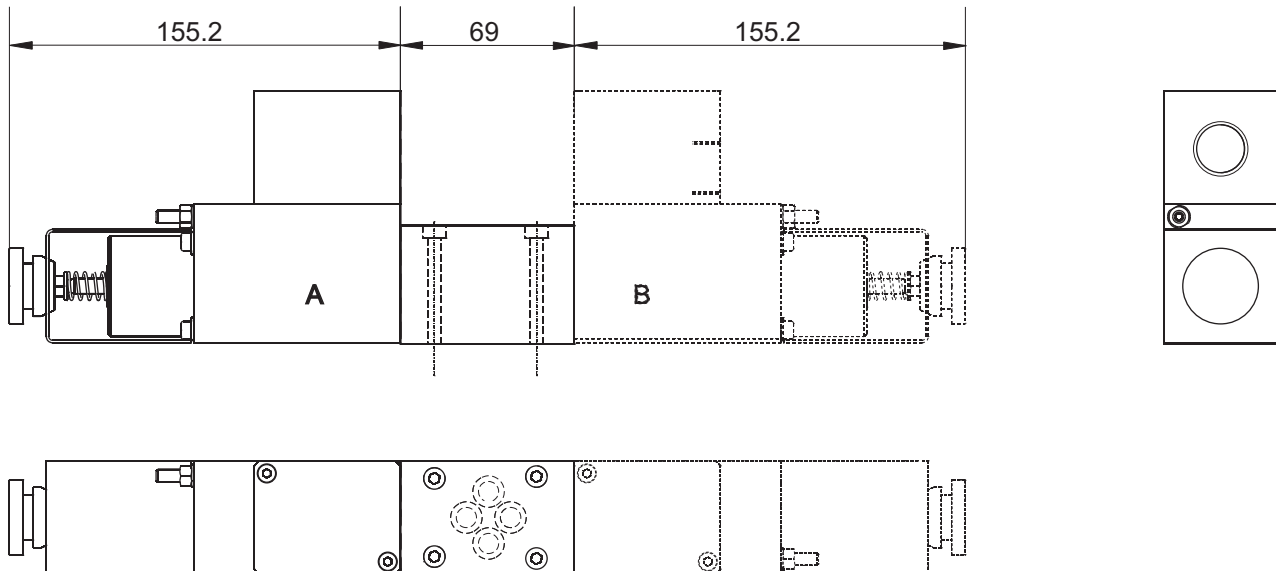
CONNECTION WITH A BI TYPE THREADED FLANGE (GROUP IIB+H2)



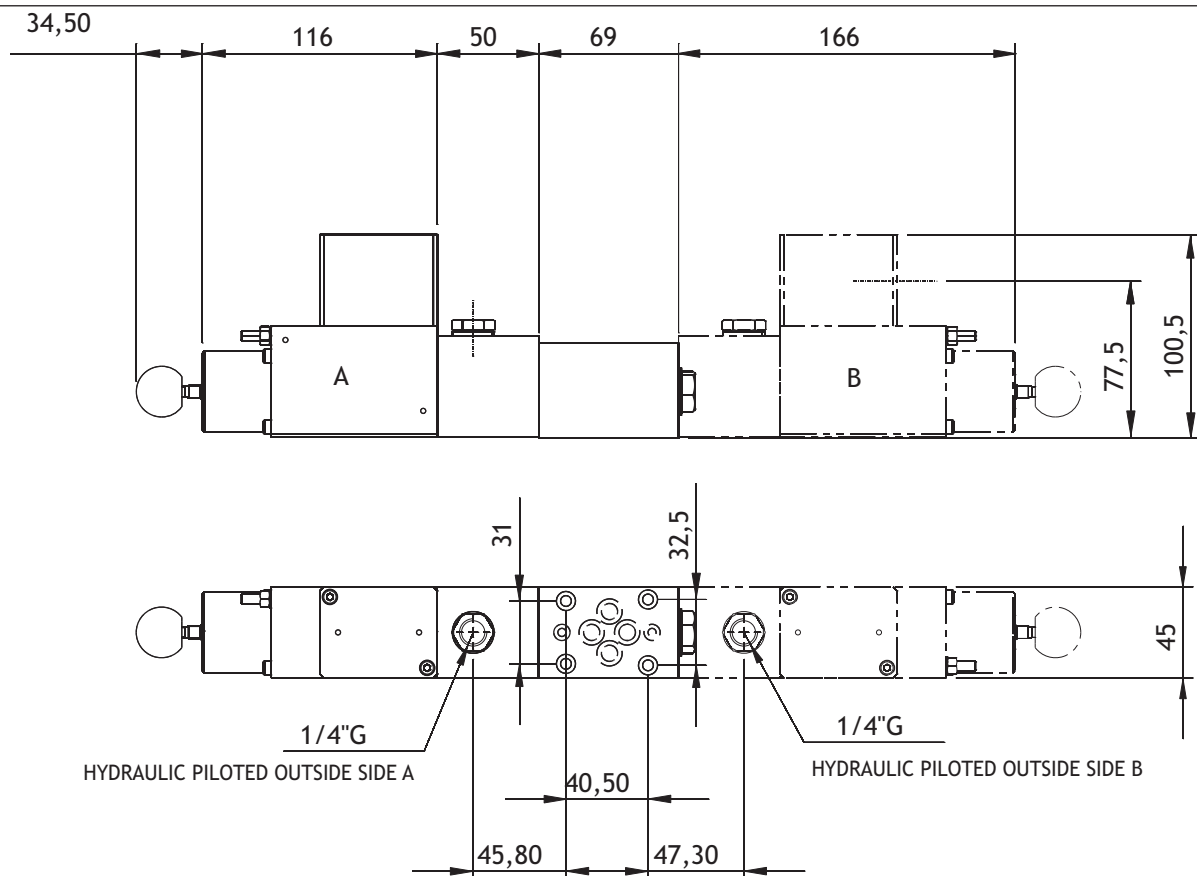
- 1 : Vertical EEx"d" type connection flange
- 2 : Solenoid housing side A
- 3 : Solenoid housing side B
- 4 : Without pushbutton housing
- 5 : Control pushbutton
- 6 : Hydraulic housing
- 7 : 4 fixing screws
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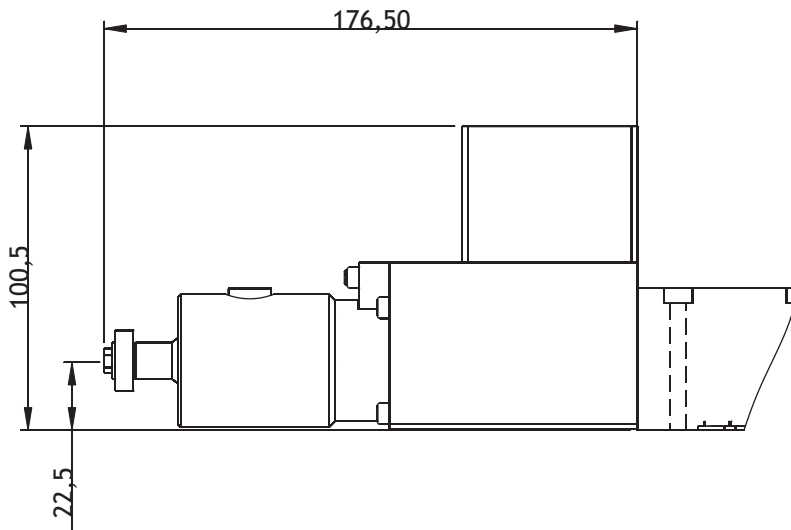
Punch operating with locking position



SOLENOID WITH HYDRAULIC OPERATOR INSIDE AND OUTSIDE



SCREW CONTROL



ONE HALF TURN TO ACTIVED THE SOLENOID

