

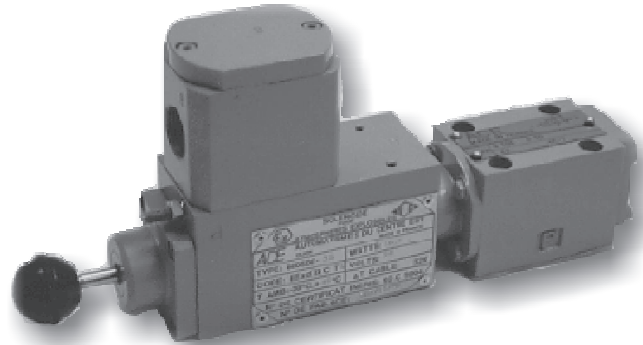
## CARACTERISTICS

### Hydraulic :

Cetop 3.  
Maximum pressure in service : 315 Bar.  
Nominal flow. : 60 l/mn.  
37 hydraulic symbols.

### Electric :

Protection index : IP 66.  
**CENELEC Standard & ATEX Directive**  
**Non-Mining : II 2 GD EExd or EExde, IIC.**  
Temperature range : T6, T5, T4.  
**Mining : EEx"d" or EEx"de", I M2.**  
Connections on terminal box or taped flange



4 ED6 D5X/EX800 24-DC-T6 PA H1d

## DESCRIPTION OF FUNCTION

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 C or D 5X/O

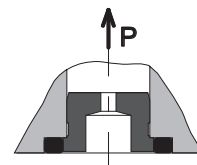
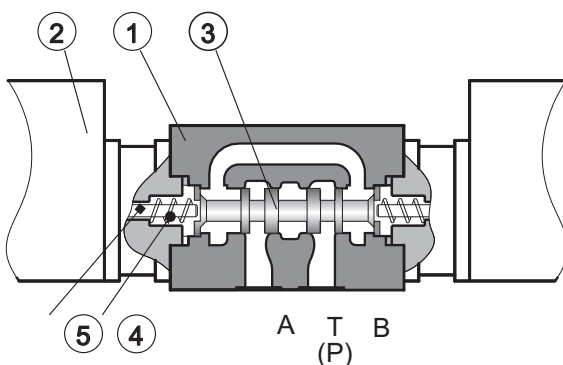
these are directional valves with 2 switching positions and 2 solenoids without locking.  
When the solenoid is energised there is no median position (without return springs).

### TYPE : ED6 C or D 5X/OF

these are directional valves with 2 switching positions and 2 solenoids with locking in position.

### CARDRIDGE THROTTLE

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.



.. ED6 ...5X ...B0..

## GENERALITY

Oil immersed direct current solenoid (1) impervious to 100 bar maximum pressure, its mechanical impact strength is approved by the CENELEC for explosion proof equipment.

Insulation to IP 66, it can work in tropical climates.

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

Direct current 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.

The solenoid housing can be oriented in steps of 90° on directional control valve.

## ELECTRIC CONNECTION

### JUNCTION IN BOX FOR GROUP I AND IIC

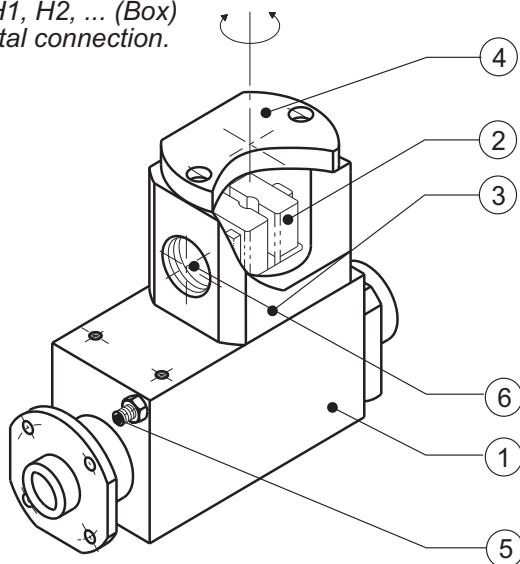
The terminal box (3) can be oriented in steps of 45° on the solenoid housing (1).

The electrical connector on the outlet terminal box (6) can be arranged horizontally (on terminal box 3) or vertically (on cover 4) suitable for cable gland.

The execution H is recommended for easy access to the terminal strip.

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

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



### 2 DIFFERENT PROTECTION MODES.

1) Protection EEx "d"  
On terminal strip (2A) inside the explosion proof terminal (3A) box suitable for 0.5 to 2.5 mm<sup>2</sup> with cable gland EEx "d".

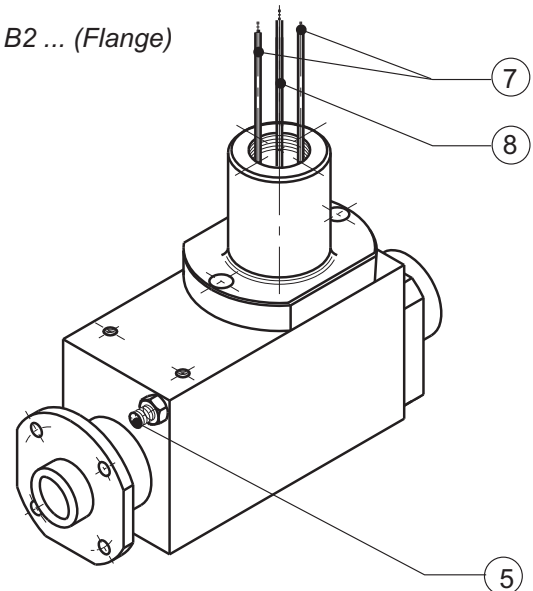
2) Protection EEx "e"  
On terminal strip (2B) inside the increased safety terminal box (3B) suitable for 0.5 to 2.5 mm<sup>2</sup> with cable gland EEx "e".

### JUNCTION ON FEMALE TAPED FLANGE FOR GROUP II ONLY.

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

Earth connection (5).  
The lead wire length normally supplied is 1.5 meter.  
Active lead wires (7).  
Earth lead wire (8).

*Model B1, B2 ... (Flange)*



### CABLE GLAND RECOGNIZED

PE option (see page 5).  
Cable gland for unarmored cable EEx"d" IIC recognized in 1/2" NPT

Also available in EEx"d", EEx"e" group I or group IIC for armoured, unarmored or mineral cable : Consult us.

## CARACTERISTICS

### HYDRAULIC

Maximum operating pressure : Ports A, B, P.	bar	315
Maximum operating pressure : Port T.	bar	100
With spool type A and B, port T must be used as a drain port, if the operating pressure lies above 100 Bar.		
Maximum flow	see operating curves of pressure drop page 8	
Hydraulic fluid	Mineral oil	
Fluid temperature range	°C	De -30 à +70
Viscosity range	mm <sup>2</sup> /s	De 2.8 à 350
Fluid cleanliness	Class 9 NAS 1638 issue	
Weight :	- valve with 1 solenoid (Kg)	4
Standard symbol :	- valve with 2 solenoids (Kg)	7
<b>32 others symbols (see page 6)</b>		
Mounting position :	- 3 Positions - 2 Positions	Optional. Optional - Horizontal preferred.

### ELECTRICAL

Continuous voltages available.	V/DC	12	22	24	24	48	96	110	200	220	
<b>Alternatives voltages available.*</b>	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	
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									

\*The alternatives voltages are available in EEx"d" version only.

### CERTIFICATE OF CONFORMITY

European classification code	Group IIC	Group I
Explosion proof	EEx"d" IIC	EEx"d" I.
Increased safety	EEx"de" IIC	EEx"de" I.
Approval number INERIS	03 ATEX 0044 X	03 ATEX 0044 X

### STANDARD

Conformity to European Standards from 94/9/CE.	Europe
	EN 50 014 -JUNE 1997 + AMENDMENT 1 ET 2
	EN 50 018 -NOVEMBER 2000
	EN 50 019 -JULY 2000
	EN 50 50281-1-1 -SEPTEMBER 1998



## ELECTRICAL CODE

**EX800** - -

**\*  
PE**

Other cable gland, consult us.  
With standard cable gland.  
No code : Without cable gland.

**d  
e**

With EEx"d" box .  
With EEx"e" box.  
No code. : For EEx"d" taped flange

**1  
:  
:  
:  
7**

<b>1</b> : 1/2" NPT	<b>5</b> : M 16 x 1.50
<b>2</b> : PG 11	<b>6</b> : M 20 x 1.50
<b>3</b> : PG 13.5	<b>7</b> : M 22 x 1.50
<b>4</b> : PG 16	

**H  
V  
B**

**H** Horizontal connection on the box.  
**V** Vertical connection. On cover of the box.  
**B** For taped flange, Group II only.

**PB  
PVB**

**PB** Control pushbutton . **Side B of Valve.**  
**PVB** Lock control pushbutton (for hydraulic valve. type OF).  
No code : Without control pushbutton.

**PA  
PVA**

**PA** Control pushbutton . **Side A of Valve.**  
**PVA** Lock control pushbutton (for hydraulic valve. type OF).  
No code : Without control pushbutton.

**T...**

Temperature range see table on page 3 (For group II only).

**AC  
DC**

**AC** Solenoid energized in alternative current.  
**DC** Solenoid energized in continuous current.

**12  
.  
220**

Solenoid power supply in Volt. 12, 48, 96, 110, 200, 220 ...  
See table on page 3 for correspondance with the temperature range T4, T5, T6.

**EX800**

Solénoid in accordance to European standard CENELEC & ATEX Directive  SERIES 800800

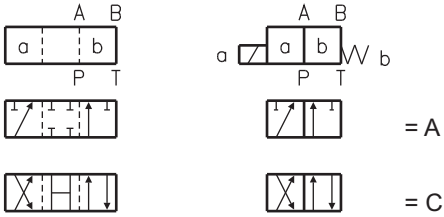
**M**

Solenoid for use in mining ( Group I).

No code : Solenoid for use in explosive atmosphere ( Group II).

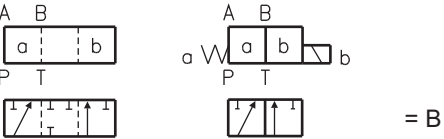
# HYDRAULIC VARIATION SYMBOL

(For special execution, consult us).

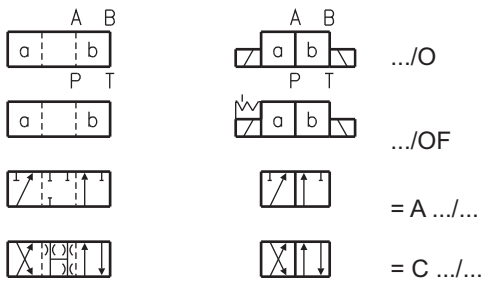


2 positions with one solenoid side A.

With return spring.



2 positions with one solenoid side B.



2 positions with solenoid side A and side B.

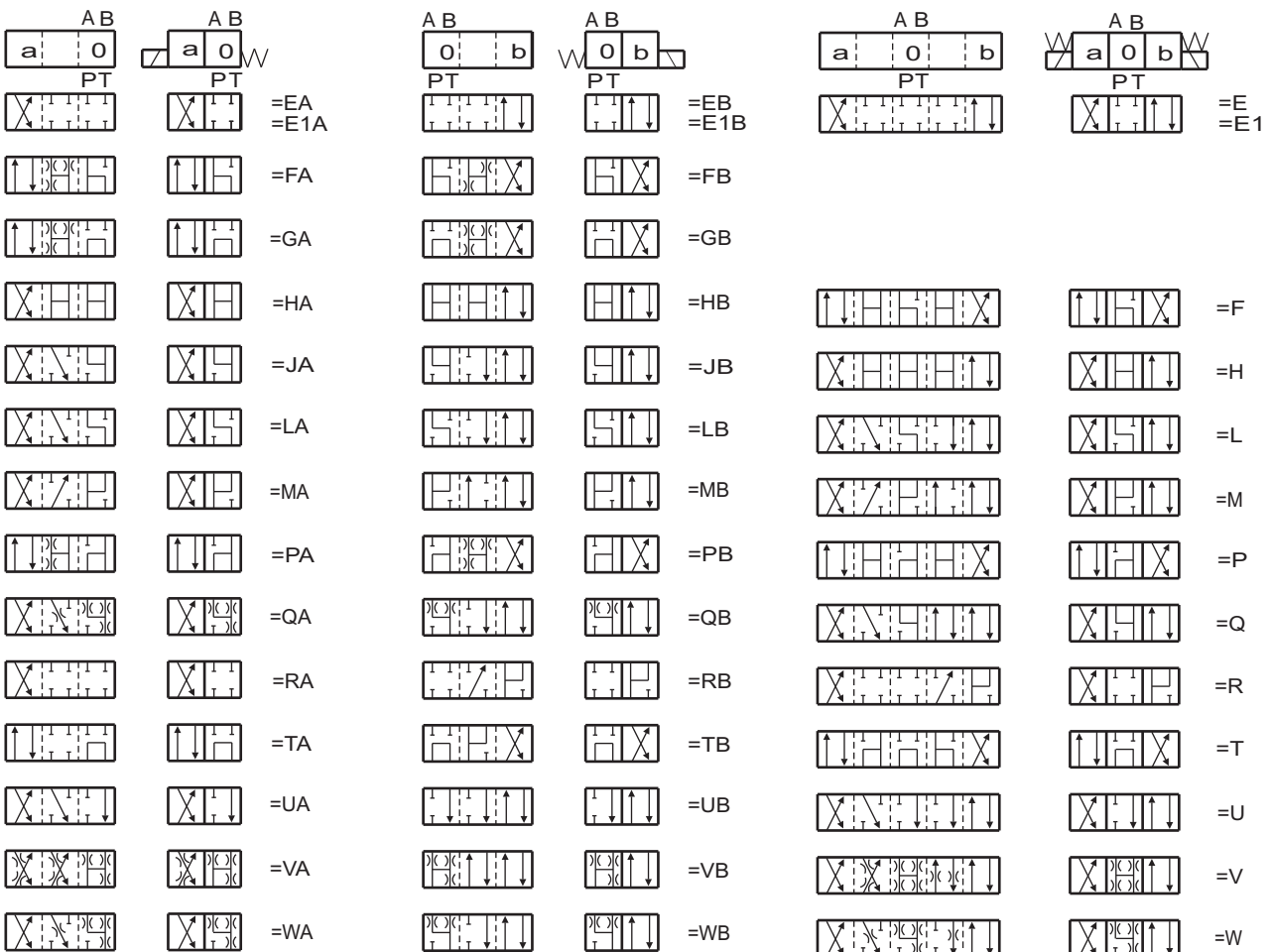
Without return spring.

With locking control spool.

2 positions with one solenoid side A.

2 positions with one solenoid side B.

3 positions with one solenoid side A & B.

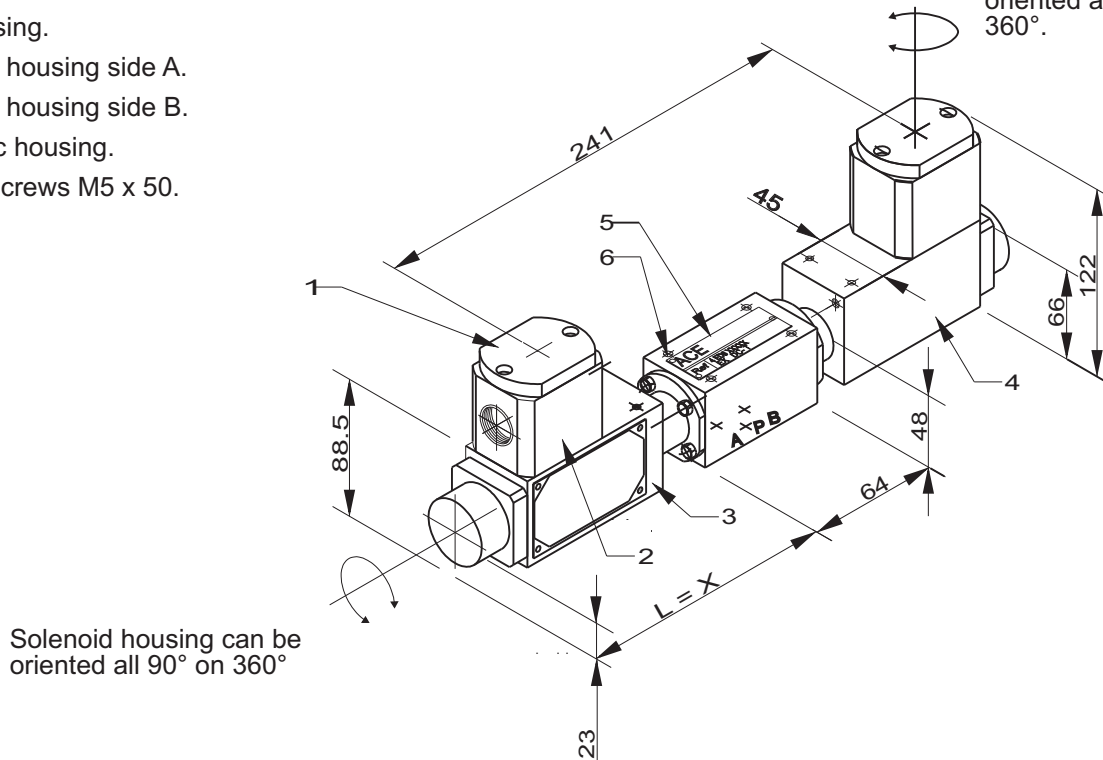


## DIMENSION (In MM)

### WITH EXPLOSION PROOF AND INCREASED SAFETY BOX (Group I & II)

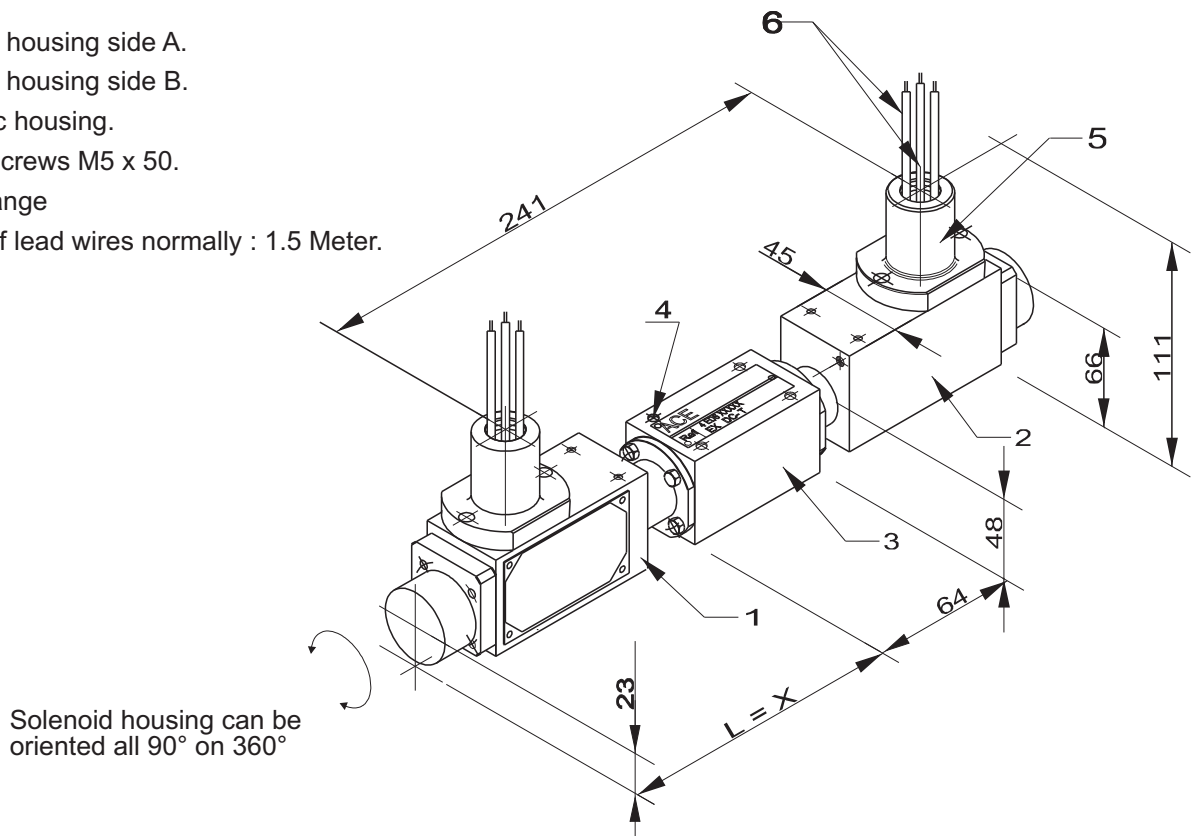
- 1 : Box cover.
- 2 : Box housing.
- 3 : Solenoid housing side A.
- 4 : Solenoid housing side B.
- 5 : Hydraulic housing.
- 6 : 4 fixing screws M5 x 50.

Housing box can be oriented all 45° on 360°.



### WITH EEx"d" FEMALE TAPED FLANGE (For group II only, execution B1, B2...)

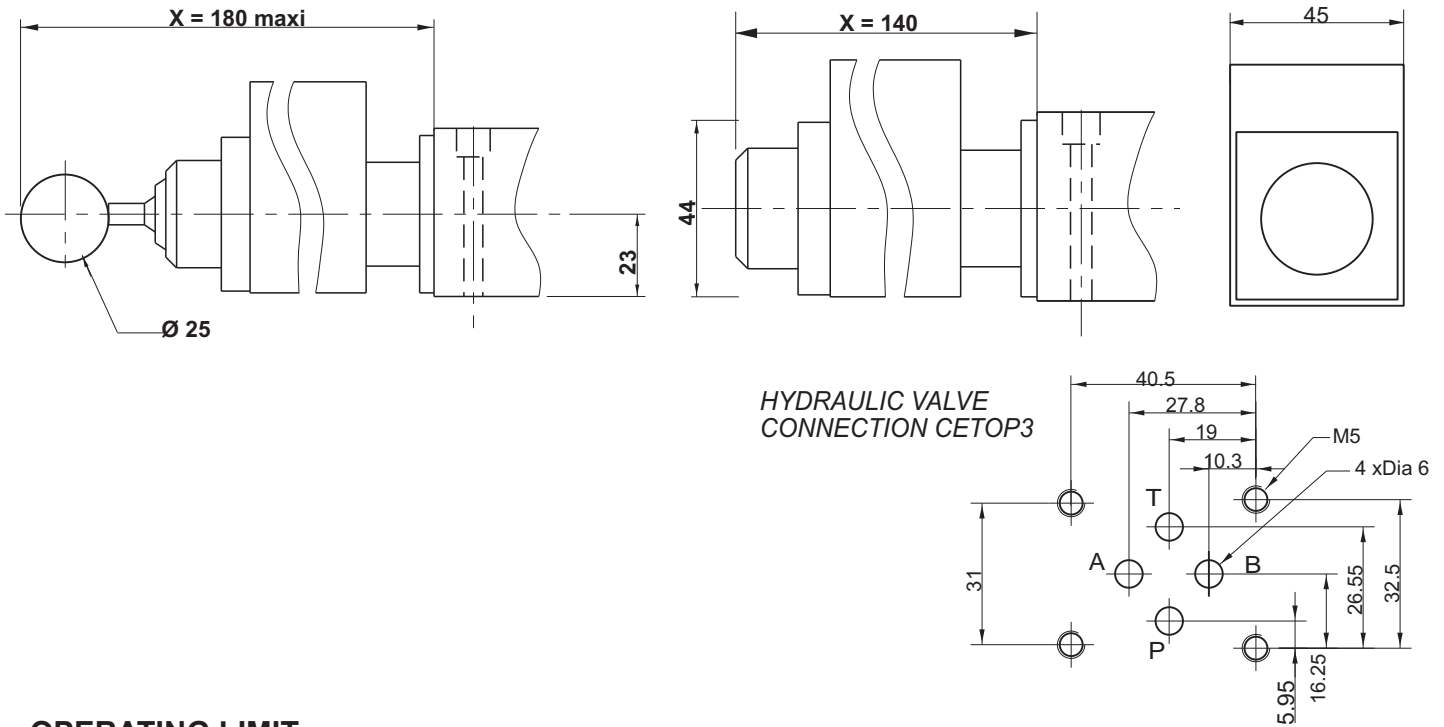
- 1 : Solenoid housing side A.
- 2 : Solenoid housing side B.
- 3 : Hydraulic housing.
- 4 : 4 fixing screws M5 x 50.
- 5 : Taped flange
- 6 : Length of lead wires normally : 1.5 Meter.



## CONTROL DIMENSION

WITH CONTROL TYPE PVA/B OR PA/B

WITHOUT CONTROL PUSHBUTTON



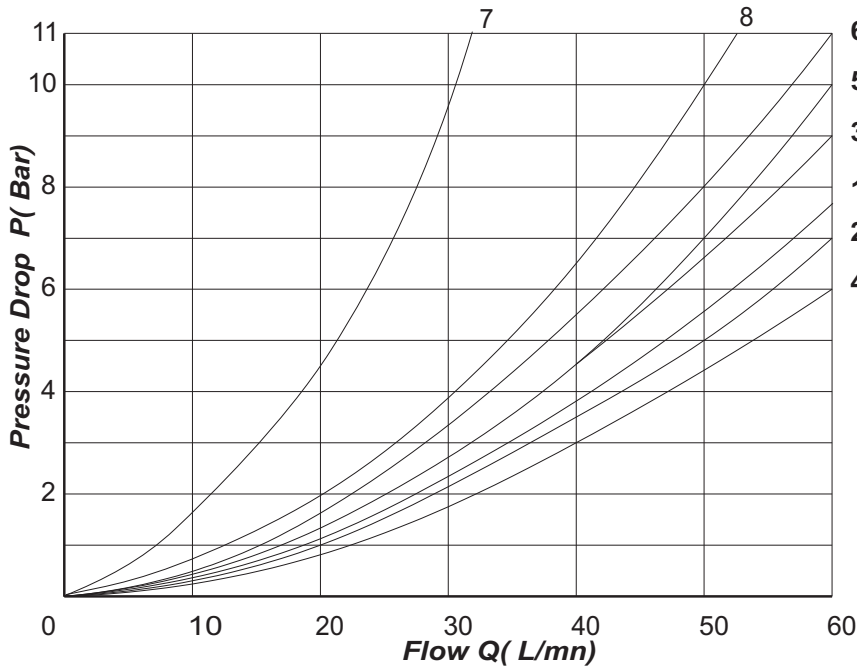
## OPERATING LIMIT

CURVES OF PRESSURE DROP

Mesured at  $V : 36 \text{ mm}^2 / \text{S}$  ,  $t : 50^\circ\text{C}$

Curve 7 : Symbol "r" In Switching Position : B - A

Curve 8 : Symbol "g" In Neutral Position : P - T



FLOW DIRECTION				
SYM-BOL	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	2	3	3	5
G	5	3	6	6
H	2	4	2	2
J	1	1	2	1
L	1	1	2	2
M	2	4	3	3
P	2	3	3	5
Q	1	1	2	1
R	5	3	4	-
T	5	3	6	6
U	3	1	3	3
V	1	2	1	1
W	1	1	2	2
Y	5	6	5	3