

HIDROSIB

S.A.



193rd Stefan Cel Mare str., 2400 Sibiu -Romania

100 l/min	Hydraulic directional control valves NB 10	FC - 2
315 bar		

GENERALITIES

Four-way 2 or 3 positions (4/2 or 4/3) spool valves.

Direct operated:

- manually, by hand lever;
- mechanically, by lever and roller;
- electrically, by DC or AC solenoids;
- hydraulically, from a remote air pilot source;
- pneumatically, from a remote air pilot source.

Spring return to normal position. Indexable at manual operated valves and at 4/2 solenoid operated valves.

Different control functions, obtained by different spools.

Subplate mounting surface, conforms to ISO 4401.

PERFORMANCE DATA

GENERAL

Fixing: face mounting.

Mounting position: functions 11 and 11R : horizontally; other functions: unrestricted.

Temperature range of ambient medium: -20°...+50°C

HYDRAULIC

Maximum pressure at ports P, A, B : 315 bar

Maximum pressure at port T : 80 bar

Flow: see figure 1,2,3.

Fluid :

Fluid type: additived mineral oil.

Viscosity range : 10.....500 cSt

Temperature range : -25°C.....+80°C

Filtration : < 25 μm

SPECIFIC TO DMN VALVES

Handle operating force : 2,5 da N

SPECIFIC TO DMC VALVES

Operating force : 10 ...17 da N
 Roller stroke : 3,2 ± 0,4 mm admissible overstroke: 0,5 mm

SPECIFIC TO DH AND DP VALVES

	DH	DP
Pilot pressure :	18....250 bar	2,5.....10 bar
Shift volume:	0,4 cm ³	2 cm ³
Response time: - shift in	15...100 ms ¹	20 ... 200 ms ¹
- shift out	60... 150 ms ¹	80... 3000 ms ¹

SPECIFIC TO DE VALVES

	CC	CA
Response time: - solenoid energized	65 ...100 ms ²	10 ... 25 ms ²
- no solenoid energized ¹	30 ..80 ms ²	50 ...65 ms ²

SOLENOID CHARACTERISTICS

Type of current :	direct current (cc)	alternating current (CA)
Voltage, Un	12 V 24 V 96 V 110 V 190 V	24 V - 50 Hz 110 V - 50 Hz 115 V - 60 Hz 220 V - 50 Hz 230 V - 60 Hz

Voltage admissible deviation: ± 10%
 Relative duty cycle: Da100%
 Maximum switch frequency per hour : 3600

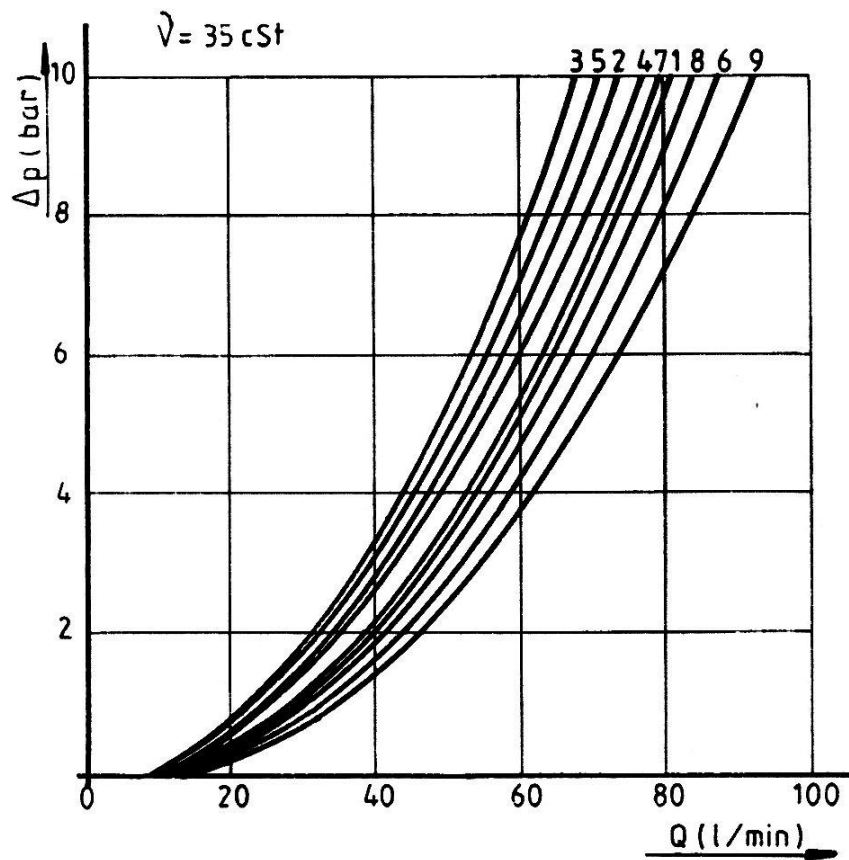
Power input at 20°C :		
- cut-in	38 V	500 VA (50 Hz)
- holding	38 V	80 VA (50 Hz) 96 VA (60 Hz)

Type of connection: plug-in connector, conforms to ISO 4400
 Type of protection : IP65 ; conforms to STAS 5325 (DIN 40050)

- 1 . Response time will vary with pilot pressure and pilot line length and width.
2. Response time will vary with valve hydraulic power.

CHARACTERISTIC CURVES

Pressure drop vs. flow, $\Delta p = f(Q)$, for every kind of control.

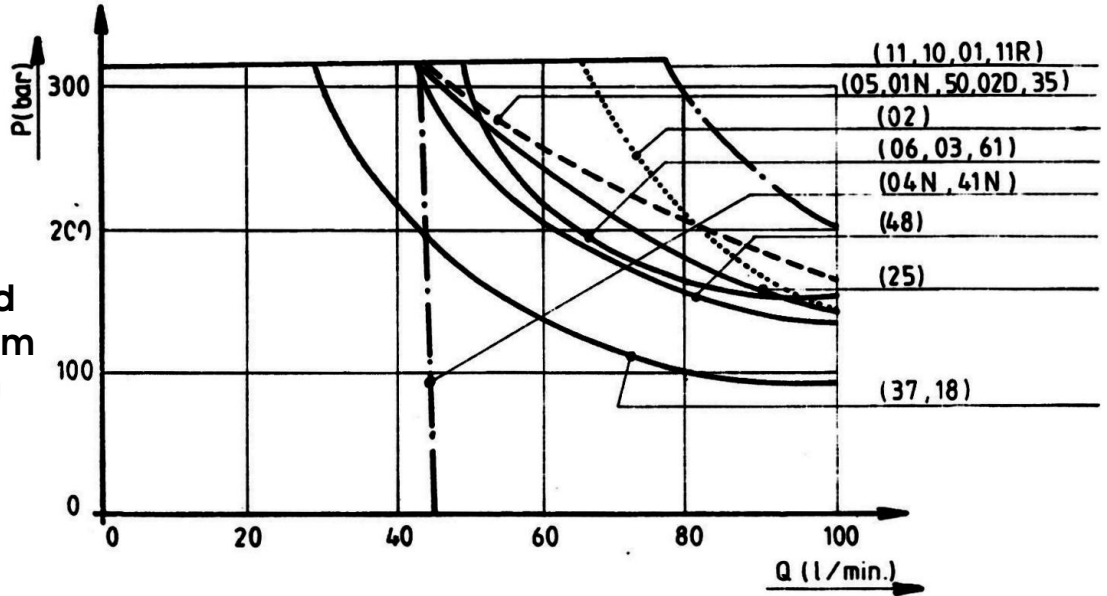


Spool type	Curve number				
	PA	PB	AT	BT	PT
06	9	9	5	7	
05	8	8	5	7	
04N	6	6	2	1	3
02	8	8	5	7	
03	9	9	5	7	
11	5	4	3	4	
10	5	4	3	4	
01N	5	4	3	4	
01	5	4	3	4	
41N	6			1	3
50	8			7	
02D	8	8	5	7	
11R	5	4	3	4	
48	8	8	5	7	
25	8			7	
61		9	5		
35	8	8	5		
37	8	8			
18		4	3	4	
02DS		8	5		

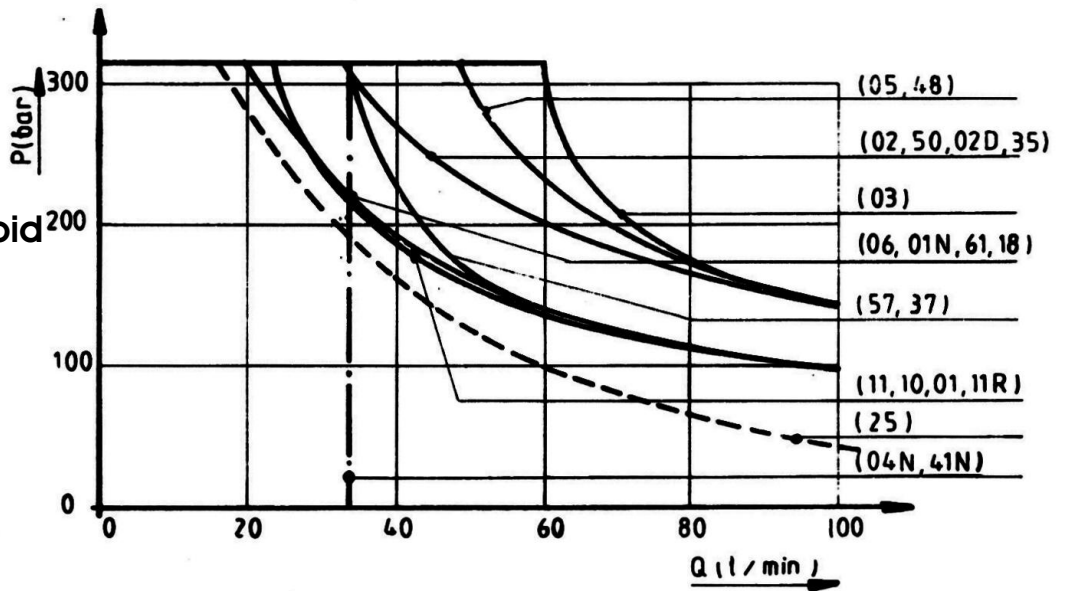
Fig. 1

Admissible flow vs. working pressure

DMN, DMC, DH,
DP and DE, DC
solenoid operated
valves (at minimum
voltage of 0,9 Un)



DE type, AC solenoid
operated valves
(at minimum
voltage of 0,9 Un)



VALVE FUNCTIONS

Note: variants followed by a dot are the most used , other voltage types are produced at customer's request

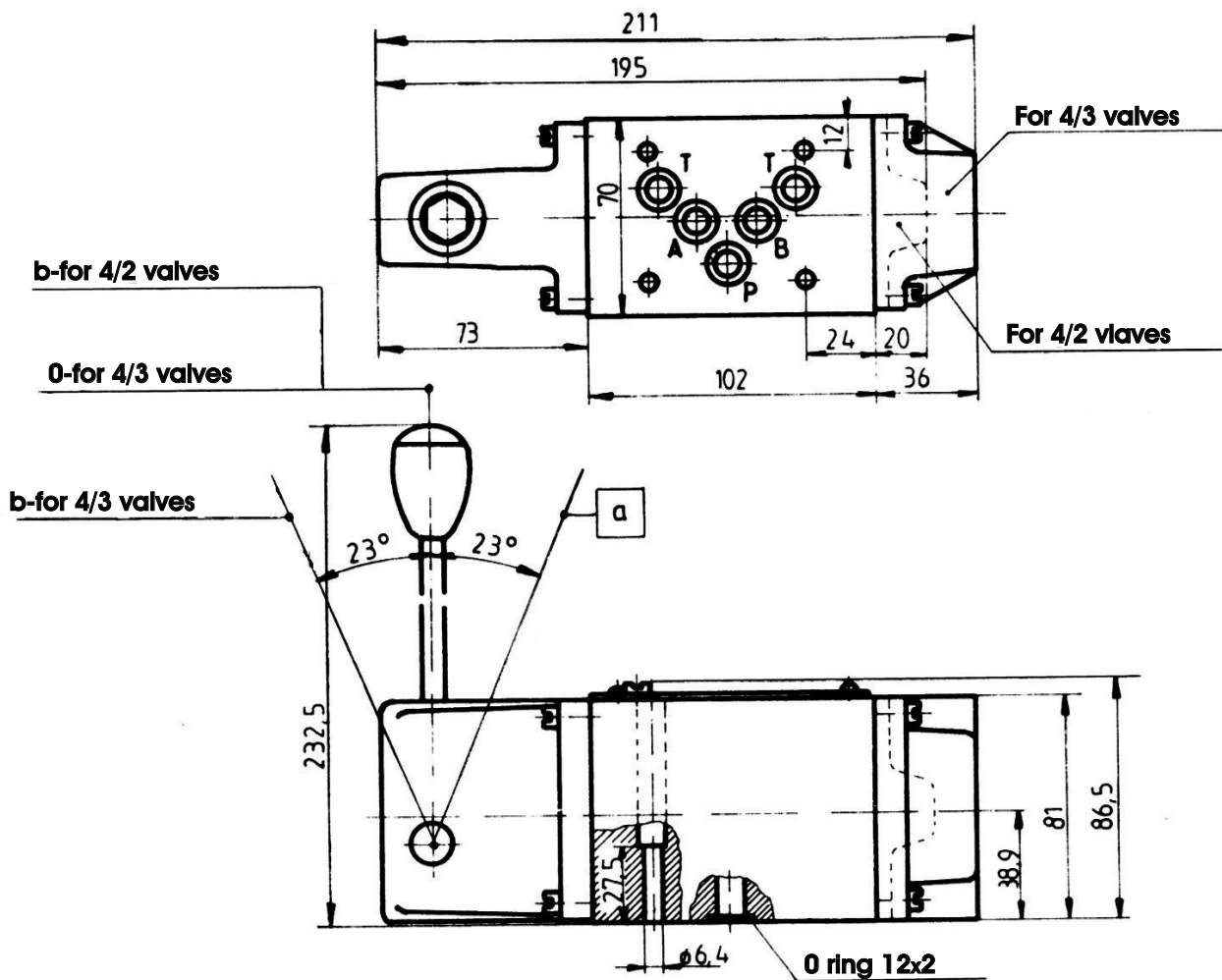
Spool type	Symbol	Lap	DEIZ												DMN	DMC	DH	DP				
			012/00	024/00	048/00	060/00	110/00	190/00	220/00	012/50	024/50	048/50	060/50	110/50					190/50	220/50	230/50	
00		+	●														●	●	●	●	●	
01		+	●															●	●	●	●	●
01N		-	●															●	●	●	●	●
02		+	●															●	●	●	●	●
02D		+	●															●	●	●	●	●
02DS		+	●															●	●	●	●	●
03		+	●															●	●	●	●	●
04N		-	●															●	●	●	●	●
05		+	●															●	●	●	●	●
05 I		+	●															●	●	●	●	●
06		+	●															●	●	●	●	●
07		+	●															●	●	●	●	●
08		+	●															●	●	●	●	●

VALVE FUNCTIONS

Spool type	Symbol	Lap	DE Z										DMN	DMC	DH	DP						
			012/00	024/00	048/00	060/00	110/00	190/00	220/00	012/50	048/50	060/50					110/50	190/50	220/50	230/50		
09		+	●														●	●	●	●	●	
10		+	●															●	●	●	●	●
11		+	●															●	●	●	●	●
11R		+	●															●	●	●	●	●
11RN		-	●															●	●	●	●	●
15		+	●															●	●	●	●	●
18		+	●															●	●	●	●	●
21		+	●															●	●	●	●	●
25		+	●															●	●	●	●	●
31		+	●															●	●	●	●	●
34N		+	●															●	●	●	●	●
35		+	●															●	●	●	●	●
37		+	●															●	●	●	●	●

DIMENSIONS

DMN type, hand lever operated



Weight :

4/2 valves : 5,500 kg

4/3 valves : 6,200 kg

DMC type, roller operated valves :

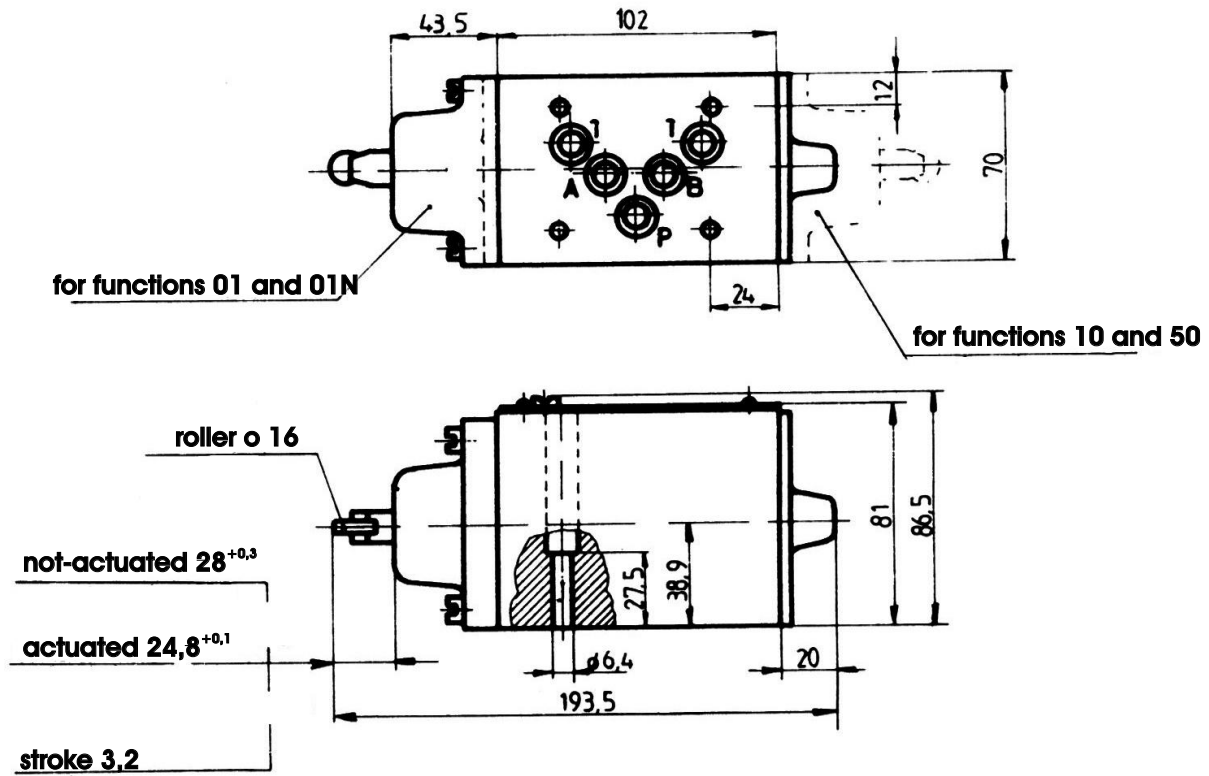
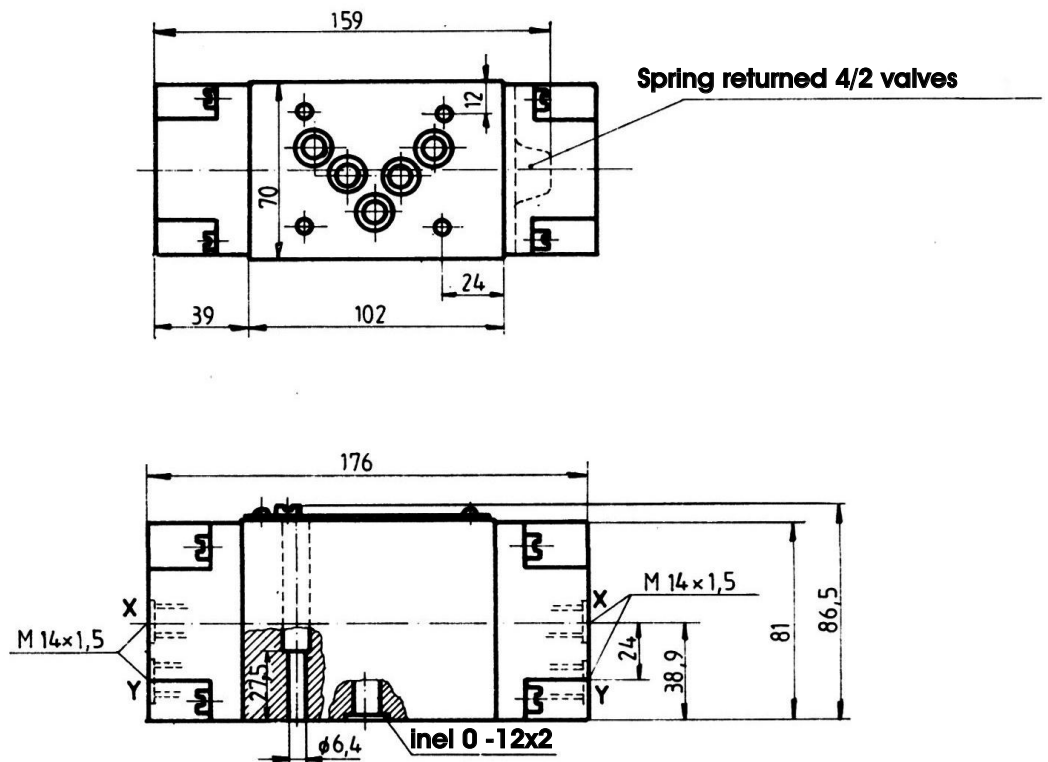


Fig. 5

Weight 4,0 kg

DH type, direct oil operated valves:

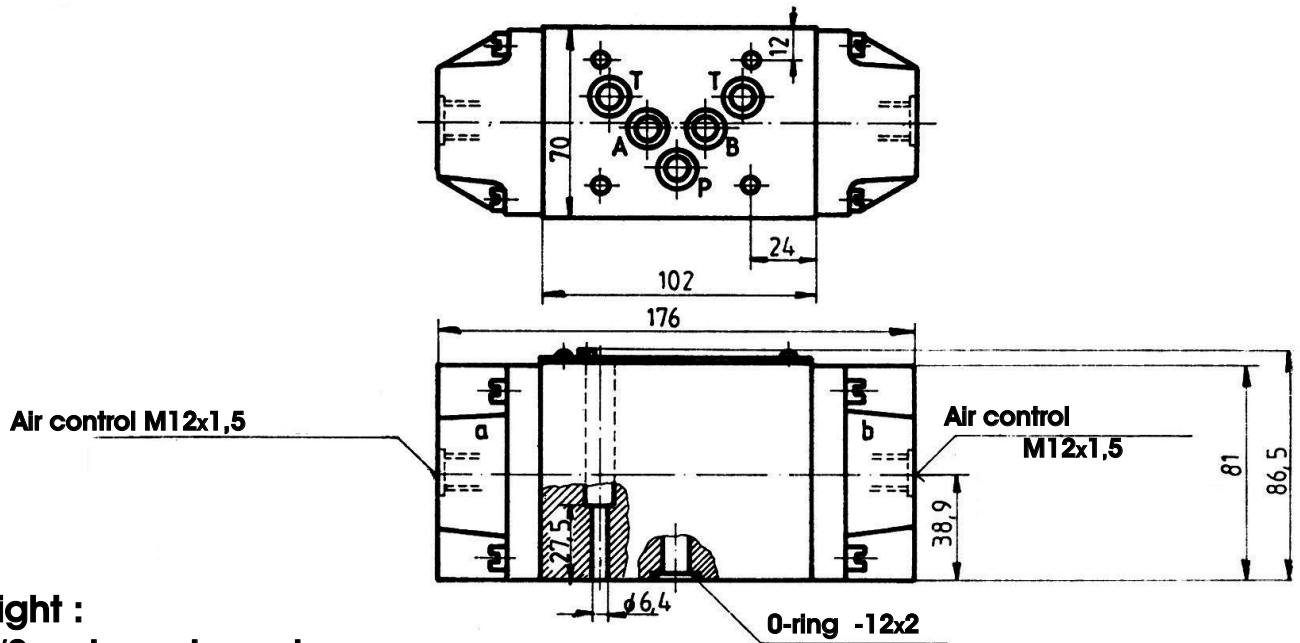


Weight:
4/2 spring returned
valves: 5,0 kg

The other
valves : 6,5 kg

Fig. 6

DP type, direct air operated valves



Weight :

4/2 spring returned
valves:

4,0kg

Fig. 7

The other valves:

4,5kg

DE type solenoid operated valves

DC solenoids

Spring returned 4/2 valves

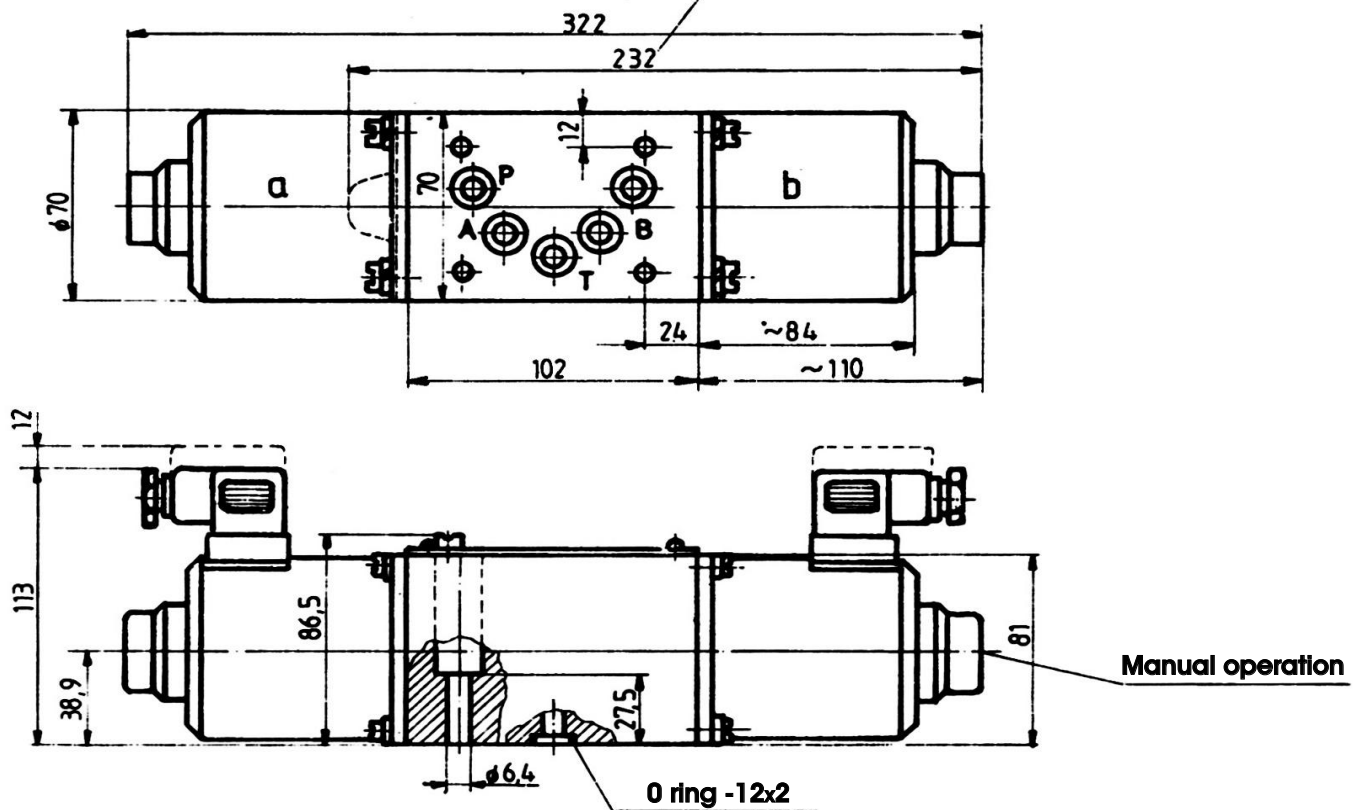


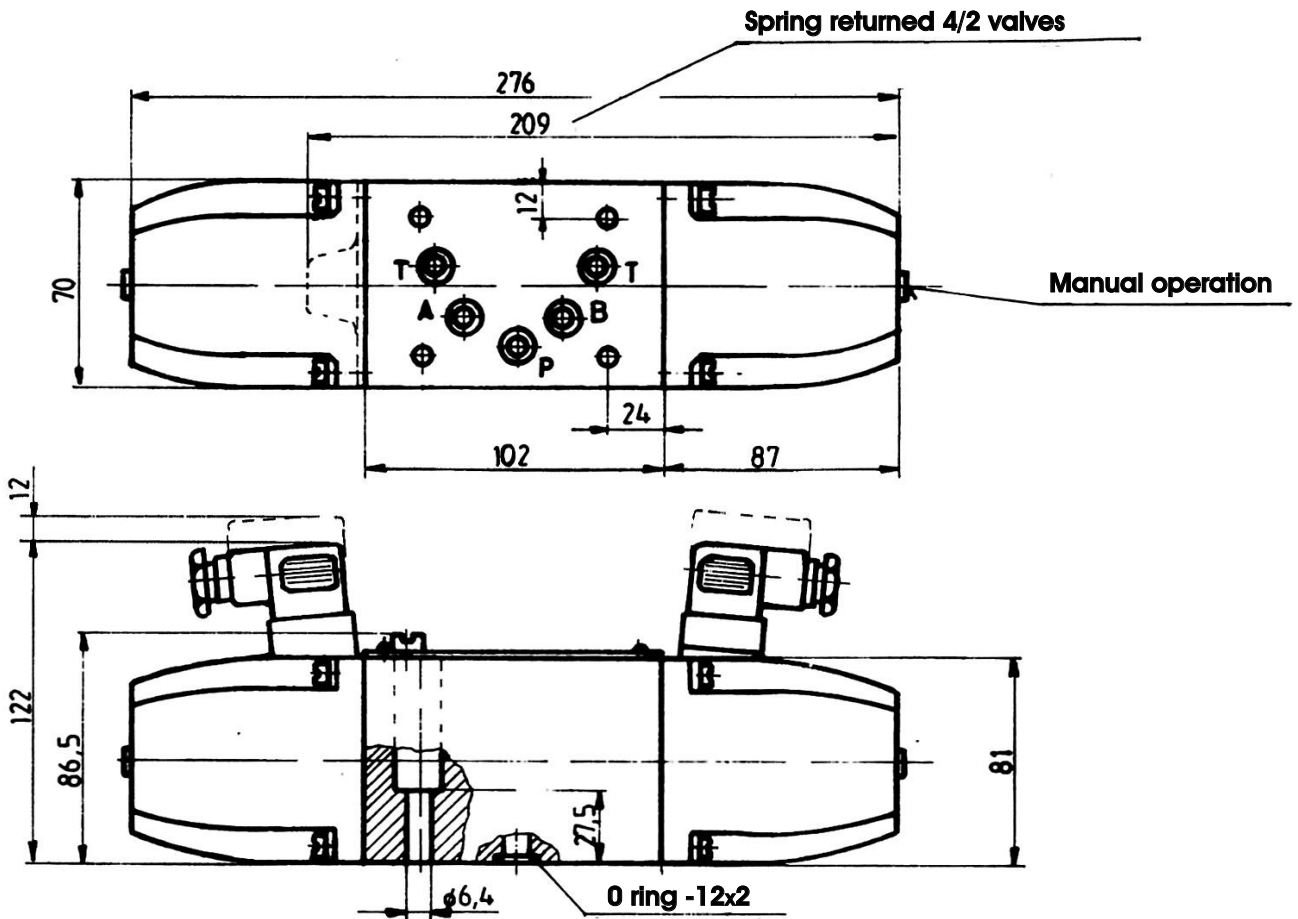
Fig. 8

Weight :

Single solenoid valves: 5,700 kg

Double solenoid valves: 7,700 kg

AC solenoids



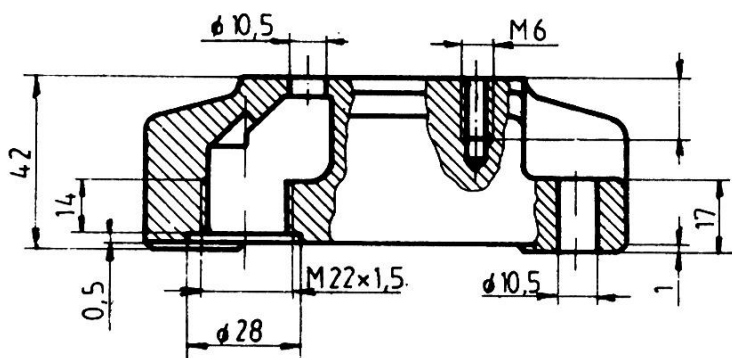
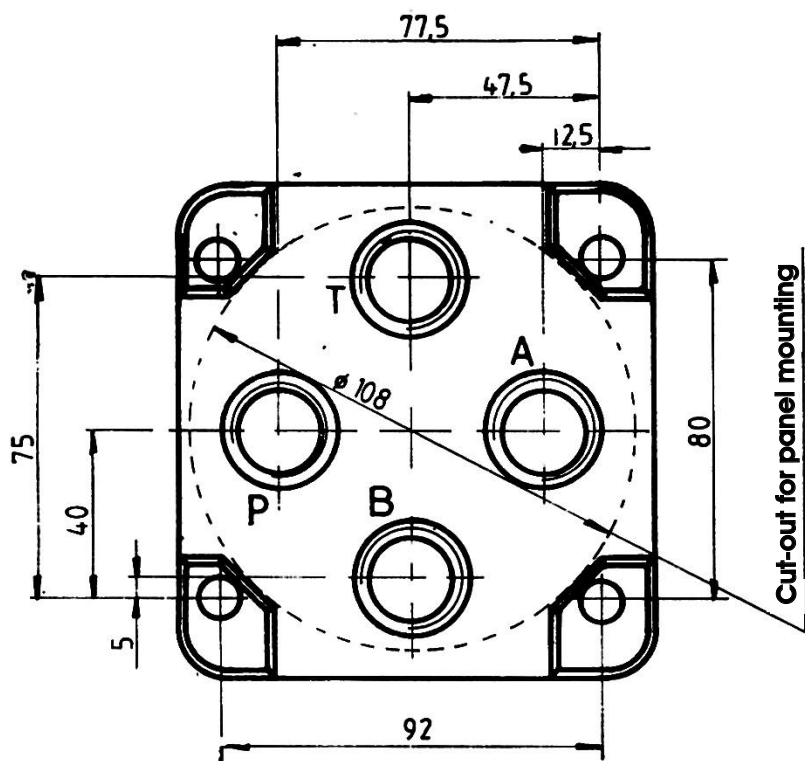
Fig, 9

Weight :

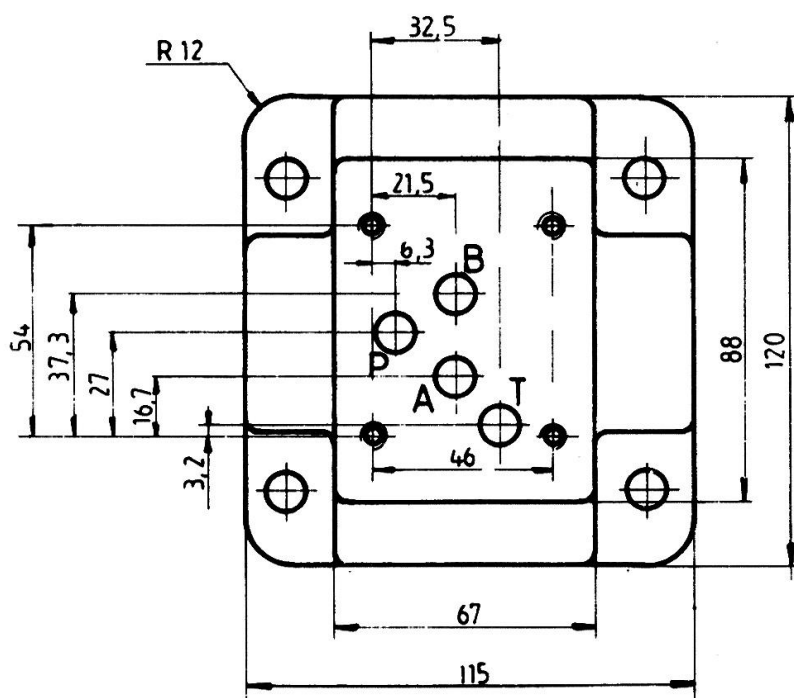
Single solenoid valves: 3,200kg

Double solenoid valves: 6,800kg

Subplate:



Weight: 3,0 kg



**Model code:
PBD 10-1**

Fig. 10

- 4 fixing screws M6x35 SR ISO 4762:1993, gr.10.9. Tightening torque $1,1^{+0,3}$ daNm.
Supplied with valve.

MODEL CODE

123-4-5*/6*-7*-8

***Only for DE valves**

1 . D - Directional control valves

2 . Valve actuation

MN - hand lever operated

MC - roller operated

H - direct oil operated

P - direct air operated

E - solenoid operated

3 . O - Nominal bore

4 . Valve functions, conform to table 3.

5/6 . Solenoid voltage:

012/00 - 12 V

024/00 - 24 V

096/00 - 96 V

110/00 - 110 V

190/00 - 190 V

024/50 - 24 V, 50 Hz

110/50 - 110 V, 50 Hz

220/50 - 220 V, 50 Hz

115/60 - 115 V, 60 Hz

230/60 - 230 V, 60 Hz

7 . S - Plug-in connector

8 . O - Series