



**6406  
CONTROL VALVES**

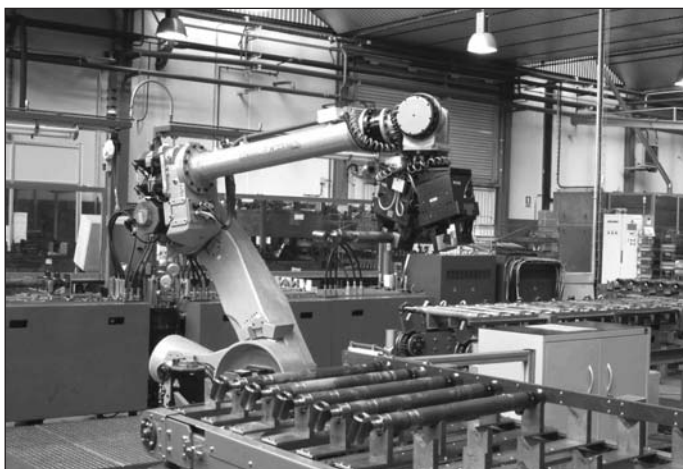
*Roquet*  
making moves

**HISTORY** Over fifty years experience in fluid power. Supplier to international manufactures of agricultural, construction, mining, mechanical handling, machine-tool and food machinery. Main supplier to the Spanish market with rapidly increasing presence in European and world markets.

**TECHNOLOGY** Roquet has a large design and development department with substantial fatigue, noise and corrosion-resistance testing facilities, backed by a well-equipped metallurgical laboratory. Major investments are made in the latest machine tools to ensure production efficiency. The vast majority of critical components such as valve spools, castings, pump shafts, etc. are produced in-house.

**RELIABILITY** A broad range of robust products: designed to perform, built to last. All products ranges life-tested under realistic conditions during development to ensure their suitability for use in applications such as tractors, fork-lift trucks, loaders, excavators, cranes, dumpers, dock-levellers... Each and every product tested to a stringent test specification prior to shipment.

**CAPABILITY** 400 well trained employees. Four factories with a total floor area of 30.000m<sup>2</sup> Current production 180.000 pumps, 300.000 control valve bodies, 500.000 cylinders and 30.000 power packs per year. Distribution network in over 35 countries.



This range of directional control valves is primarily intended for applications such as construction, material handling and agricultural machinery etc.

The valves are actuated by hand-levers, pneumatic operated, cable operated, etc.

Auxiliary valves can be fitted in each port.

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**6406**



**Technical data**

CONTROL VALVES TYPE		<b>6406</b>
Ports A and B		# 10 SAE - ORB 7/8"-14 UNF
Ports P and T		# 12 SAE - ORB 1 1/16"-12 UN
Maximum spool quantity		9
Spool diameter (mm)		18
Spool stroke (mm)		7
Type		Parallel
Nominal flow		100 (l/min.) / 26 (US GPM)
Working max. pressure		350 bar / 5075 psi
Return max. pressure T port	Static spool	80 bar / 1160 psi
	During spool positioning	20 bar / 290 psi
Spool force (kg)		18 Kg
Fluid to be used		ISO 6742 mineral-oil-based hydraulic fluid
Temperature range (NBR)		-20°C...+80°C (-4° F...+176° F)
Viscosity range		ISO 3448 CAT. VG22-VG68
Recommended fluid cleanliness		16/13 s./ ISO 4406 o NAS 10

**CODING SYSTEM**

6406 / CV - 11 - 24 - S CODE

**INLET**

Control valve type	
6406	

Front cover type	
CV	Front cover with relief valve.
SV	Front cover without relief valve.

Main relief valve pressure range (pressure set at 22l/min.)			
Adjustment		Pressure range bar	Pressure range psi
Adjustable	Tamper-proof		
11	41	5-80 (80)	70-1100 (1100)
12	42	85-175 (160)	1200-2500 (2200)
13	43	180-250 (200)	2600-3600 (2900)
14	44	255-350 (315)	3700-5000 (4600)
00		Without main relief valve	

Code	
------	--

Operative pressure port	
S	Side port
T	Top port

With electrical unloading valve	
12	Electrical 12V
24	Electrical 24V
L0	Plug
HP	Hydraulic piloted
00	Without option

**CODING SYSTEM**

6406 / CF - N - S

**OUTLET**

Control valve type	
6406	

Outlet	
CF	Outlet

Operative tank port	
S	Side port
A	Around port

Return configuration	
N	Open center
Z	Power beyond
C	Closed center

**CODING SYSTEM**

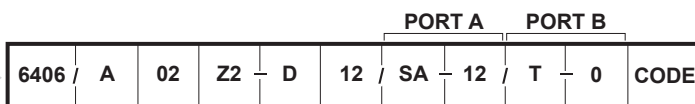
6406 / CI

**MID-OUTLET**

Control valve type	
6406	

Mid-outlet	
CI	Mid-outlet

## CODING SYSTEMS



## OPERATING SECTIONS

Control valve type
6406

Main relief valve position
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <b>A</b>    <b>Standard</b> </div> <div style="text-align: center;"> <b>C</b>  </div> </div>

Spool position kits	
02	Three positions with detent.
07	Two positions with detent, third position return by spring.
08	Special options.
09	Two ends positions with detent.
11	Three positions return to neutral by spring.
17	Three positions hydraulic piloted.
20	Four positions three return by spring the fourth detented, pulling spool.
22	Three positions pneumatic pilot.
29	Three positions. Central by spring and two end positions with detent.
37	Two spool position kits (type 1) by joystick. If is required a different spool position kit is necessary a code.
83	Direct solenoid operated, three positions spring centered.
84	Direct solenoid operated, two positions (center + one end). Solenoid side port A.
85	Direct solenoid operated, two positions (center + one end). Solenoid side port B.

Operators	
X	Mechanical joystick or special options.
Y	Hydraulic pilot.
P2	Lever box with lever and rubber boot.
D2	Lever box with rubber both, inverted 180°.
Z2	Lever box with rubber boot and without lever.
T	Spool end cap.
S	Open spool end (no lever box)
I	Cable control
E	Electrical control. Only for 83, 84 and 85 spool position.

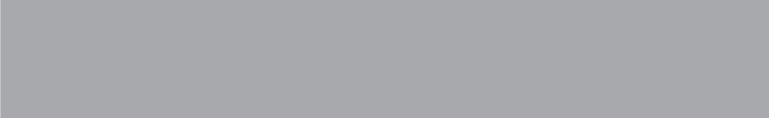
Code
------

Auxiliary valve pressure range (pressure set at 22l/min.)			
Adjustment		Pressure range bar	Pressure range psi
Adjustable	Tamper-proof		
11	41	5-80 (80)	70-1100 (1100)
12	42	85-175 (160)	1200-2500 (2200)
13	43	180-250 (200)	2600-3600 (2900)
14	44	255-350 (315)	3700-5000 (4600)
00		Without main relief valve	

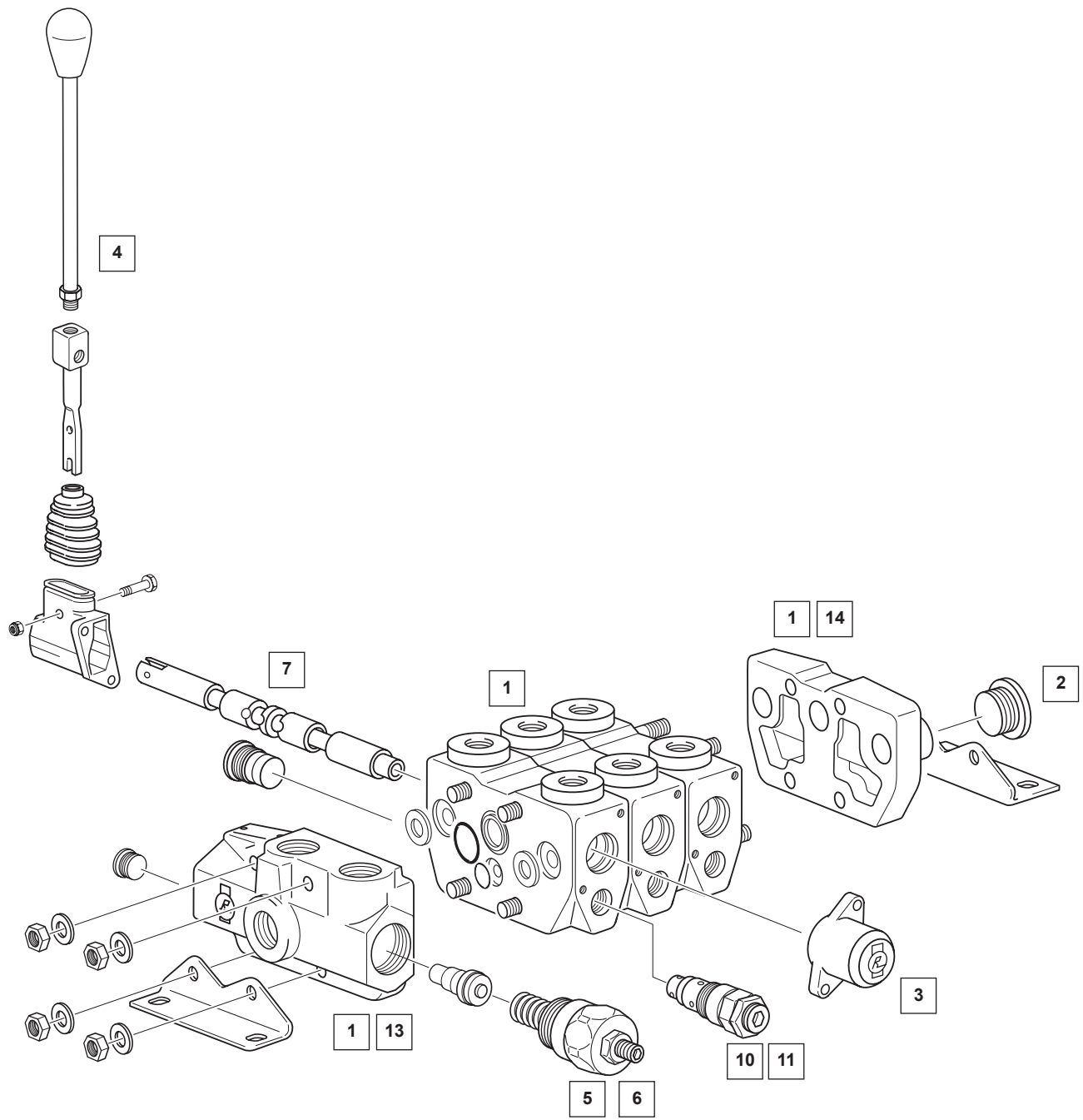
Auxiliary valves	
SA	Port relief and anticavitation valve
SD	Port relief valve
A	Anticavitation
T	Plug
0	Section without port valves

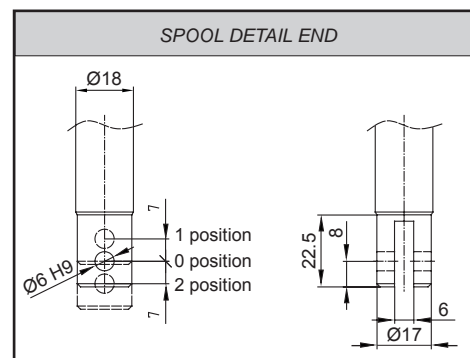
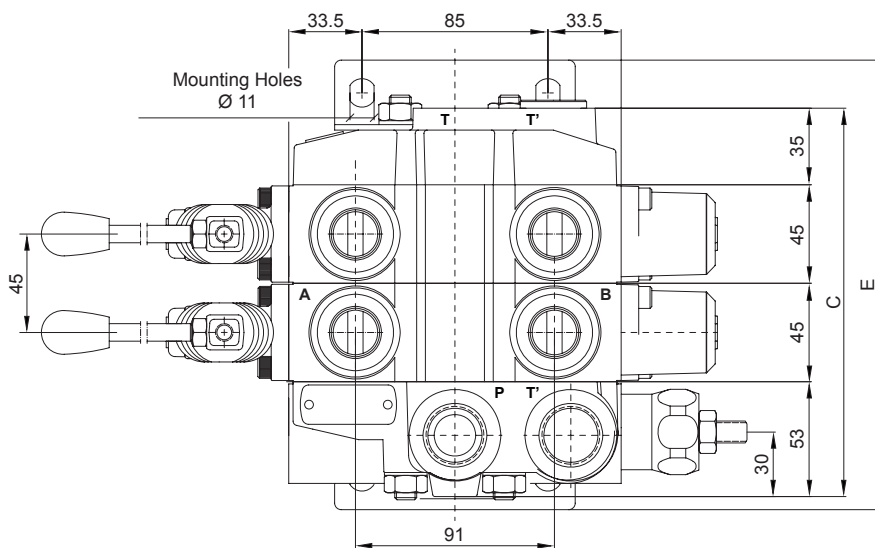
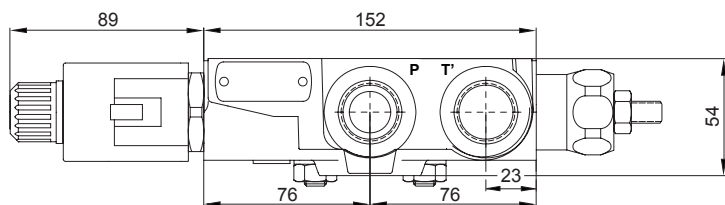
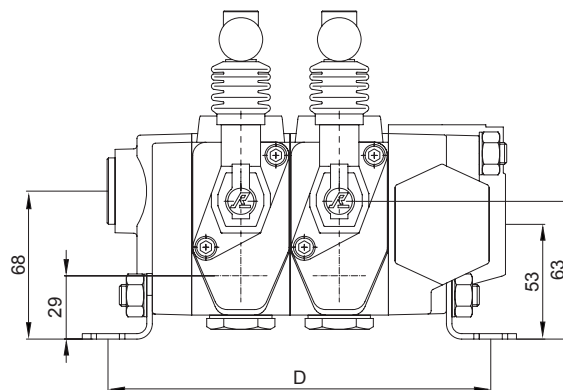
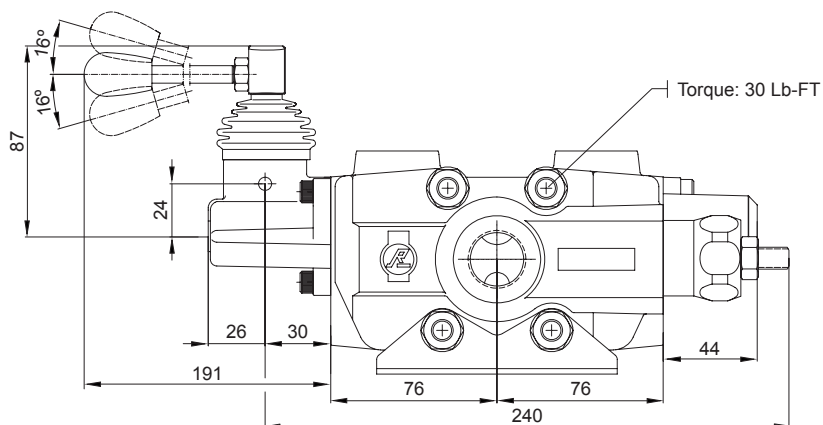
D.C. VOLTAGE (Only for spool position kits 83, 84 and 85)	
12	12 V.
24	24 V.
00	Without voltatge

Spool types	
D	3 position, 4-way, double acting, A and B ports blocked in 0 position.
I	3 position, 4-way, double acting, A and B ports open to tank in 0 position.
U	3 position, 4-way, double acting, A and B ports restricted to tank in 0 position.
S	3 position, 3-way, single acting, A port blocked in position 0, B port plugged.
V	3 position, 3-way, single acting, B port blocked in position 0, A port plugged.
L	4 position, 4-way, double acting, A and B port blocked in position 0, 4th position float.



<b>Roquet model code:</b>		
<b>CUSTOMER:</b>		
	<b>QTY</b>	<b>CODE</b>
<b>Inlet</b>		
<b>Outlet</b>		
<b>Tie Rod Kit</b>		
<b>Working sections:</b>		
1		
2		
3		
4		
5		
6		
7		
8		
9		





<b>P</b>	Pressure ports
<b>A-B</b>	Work ports.

**FREE FLOW**

<b>T-T'</b>	Both are tank ports
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**POWER BEYOND**

<b>T</b>	Power
<b>T'</b>	Tank port

**CLOSED CENTER**

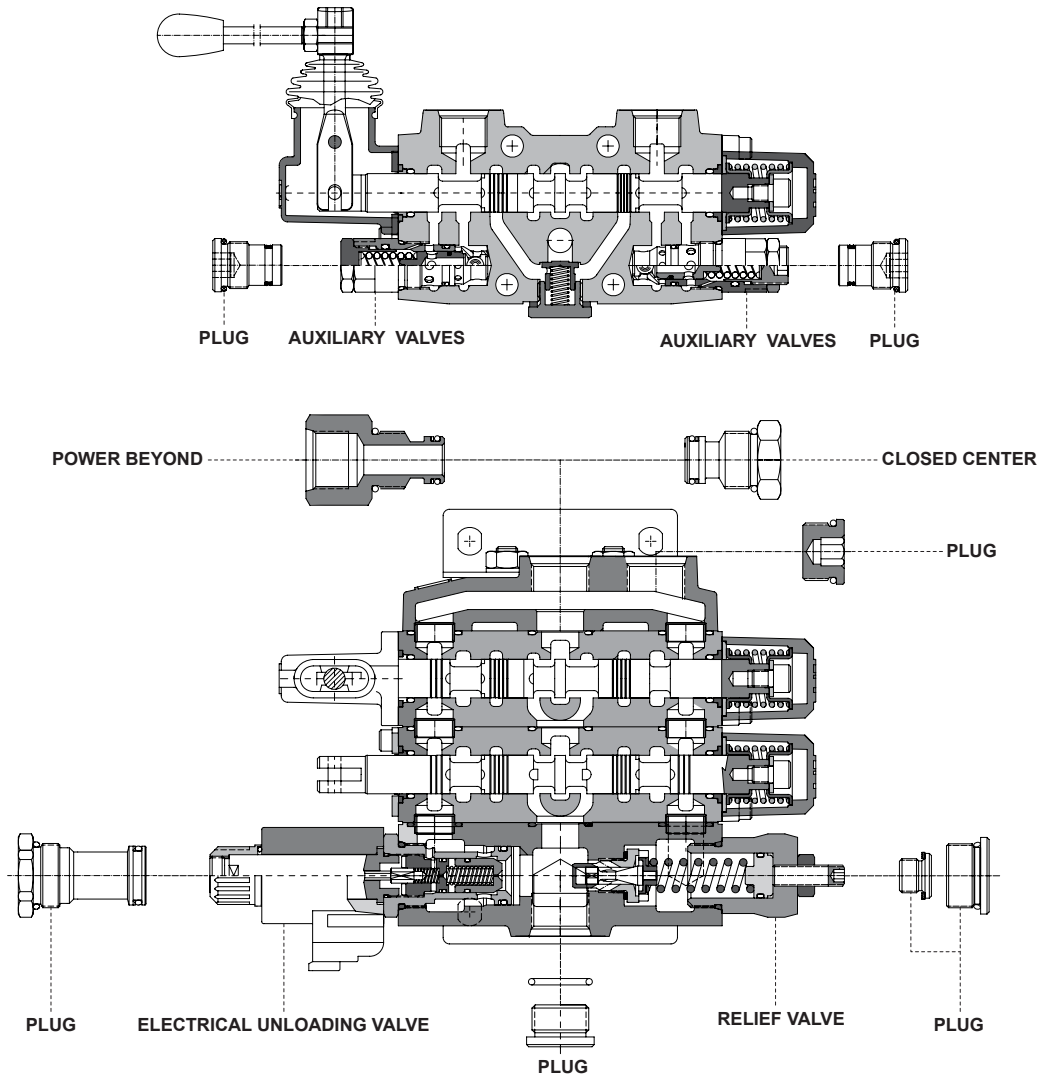
<b>T</b>	Closed
<b>T'</b>	Tank port

With spool S the port B Should be plugged.  
With spool V the port A Should be plugged.

Spool count	1	2	3	4	5	6
C	128	173	218	263	308	353
D	129	174	219	264	309	354
E	159	204	249	294	339	384
Weight in kg.	8	12.5	17	21.5	26	30.5
Weight in Lb.	17.7	27.6	37.5	47.4	57.3	67.2

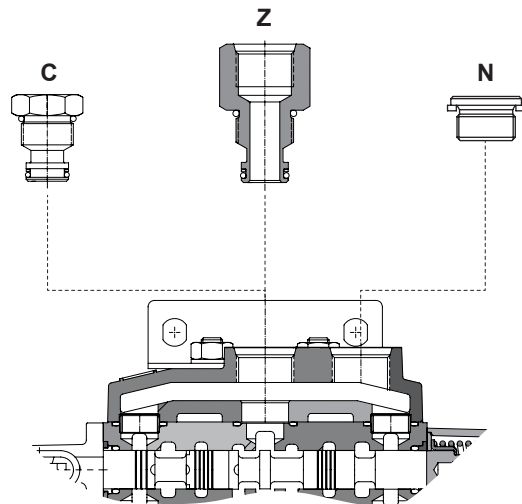
Ports A-B
#10 SAE-ORB 7/8"-14 UNF

Ports P-T
#12 SAE-ORB 1 1/16"-12 UN



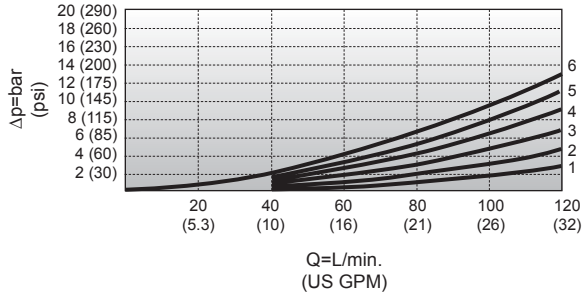
**Return configuration**

Return type		Ports
		T
N	Open center	# 12 SAE-ORB 1 1/16"-12 UN
Z	Power beyond	# 12 SAE-ORB 1 1/16"-12 UN
C	Closed center	Plug

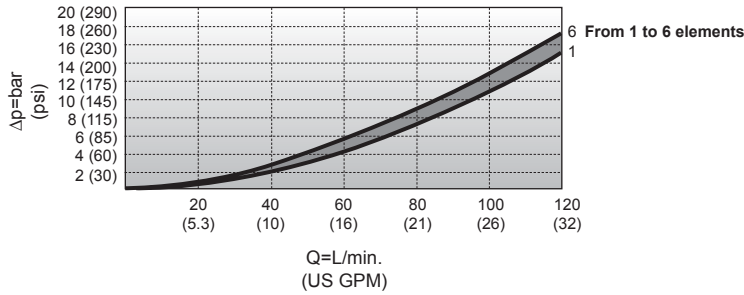


Diagrams  $\Delta p - Q$  a 27 cSt

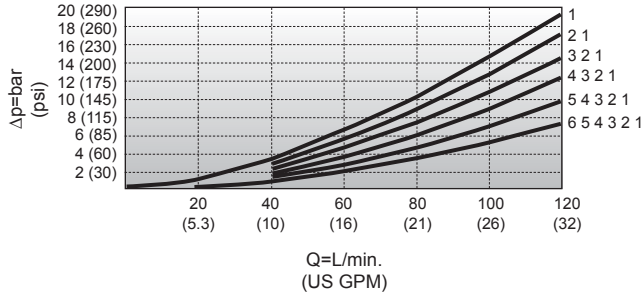
**P → T**



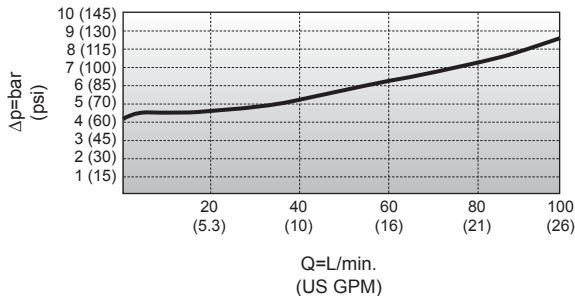
**P → A or B**



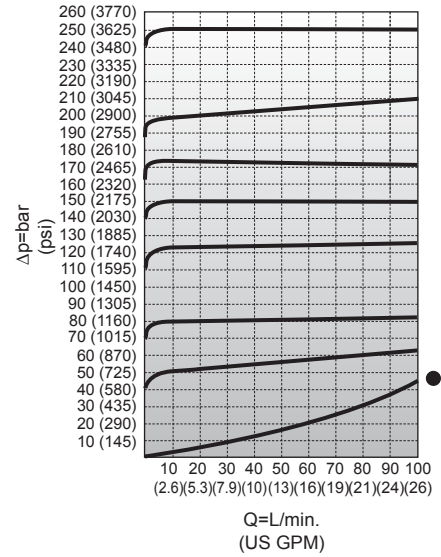
**A or B → T**



**Unloading valve**



**Relief valve**

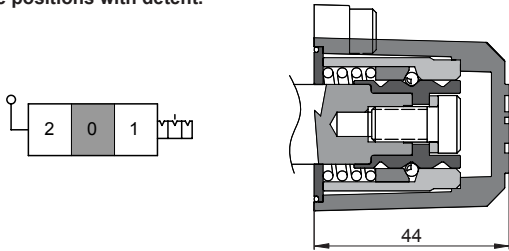


● Minimal pressure curve

Spool position kits

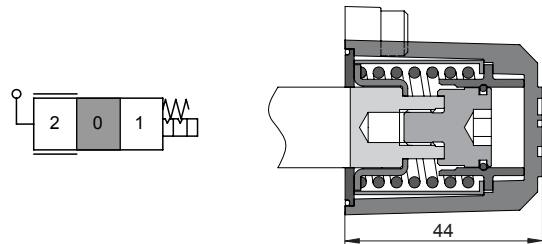
Type 02

Three positions with detent.



Type 07

Two positions with detent, third position return by spring.



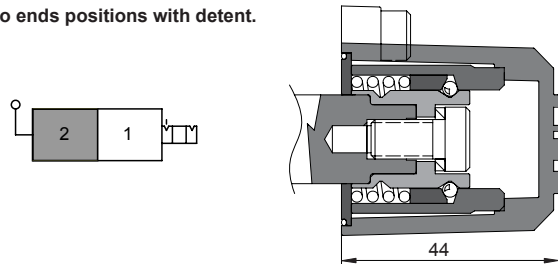
Type 08

Special or several options (additional code is required).

**N.B.:** This description is used when different types of drive are fitted – must be specified by a code.

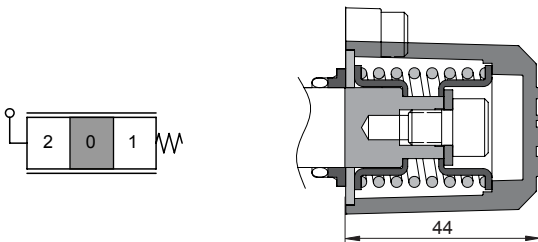
Type 09

Two ends positions with detent.



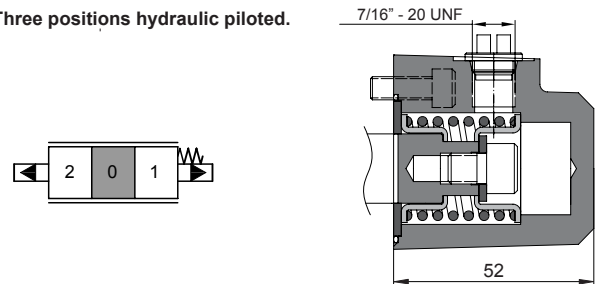
Type 11

Three positions return to neutral by spring.



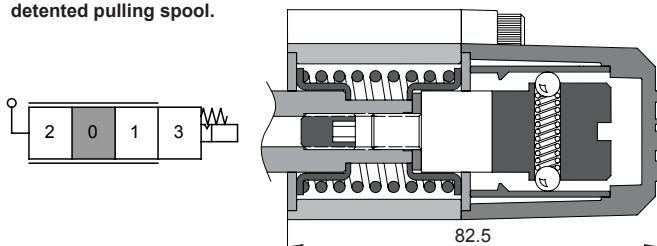
Type 17

Three positions hydraulic piloted.



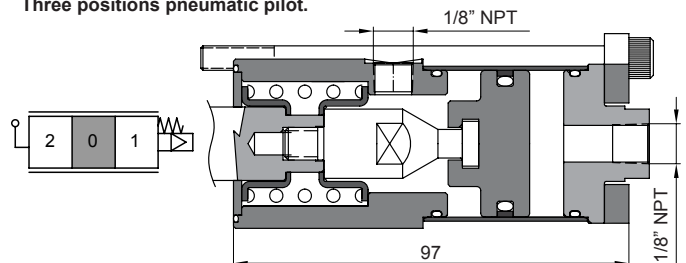
Type 20

Four positions three return by spring the fourth detented pulling spool.



Type 22

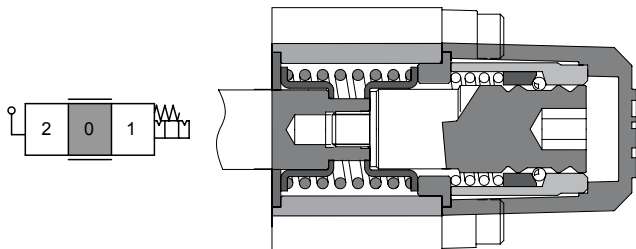
Three positions pneumatic pilot.



Spool position kits

Type 29

Three positions. Central by spring and two end positions with detent.

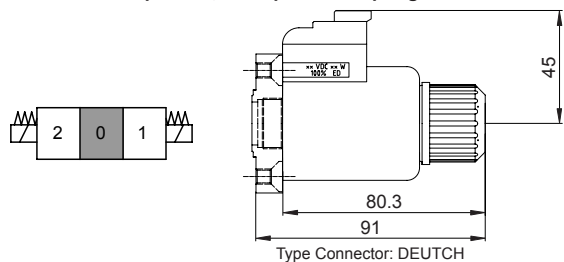


Type 37

Two spool position kits (type 1) by joystick. If is required a different spool position kit is necessary a code.

Type 83

Direct solenoid operated, three positions spring centered.



Type 84

Direct solenoid operated, two positions (center + one end). Solenoid side port A.

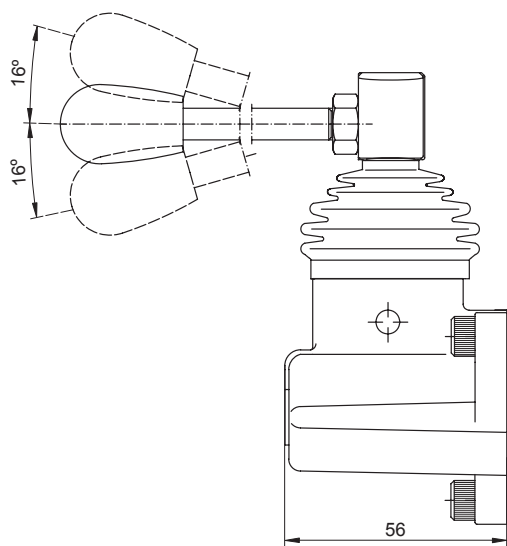
Type 85

Direct solenoid operated, two positions (center + one end). Solenoid side port B.

Operator

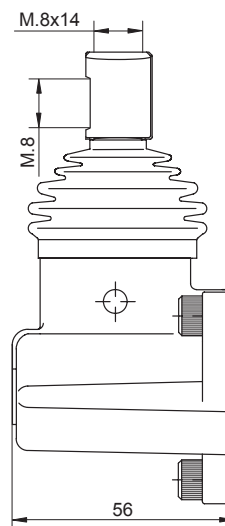
Lever box with lever and rubber boot

P2



Lever box without lever

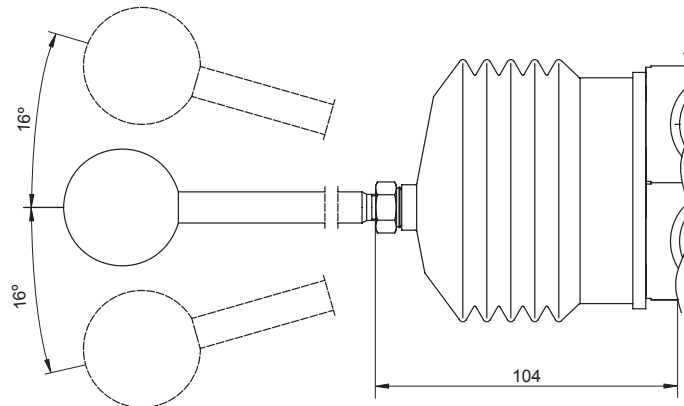
Z2



Operator

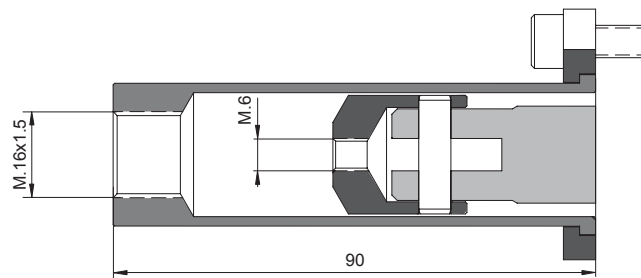
Mechanical joystick, special or several options. (Additional code is required)

X



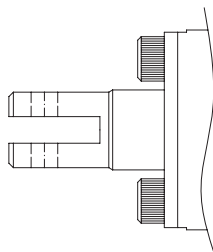
Cable control

I



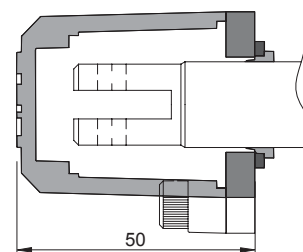
Open spool end (no lever box)

S



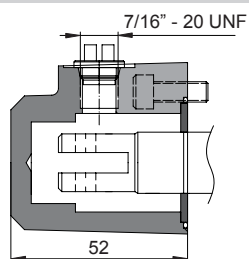
Spool end cap

T



Hydraulic pilot

Y



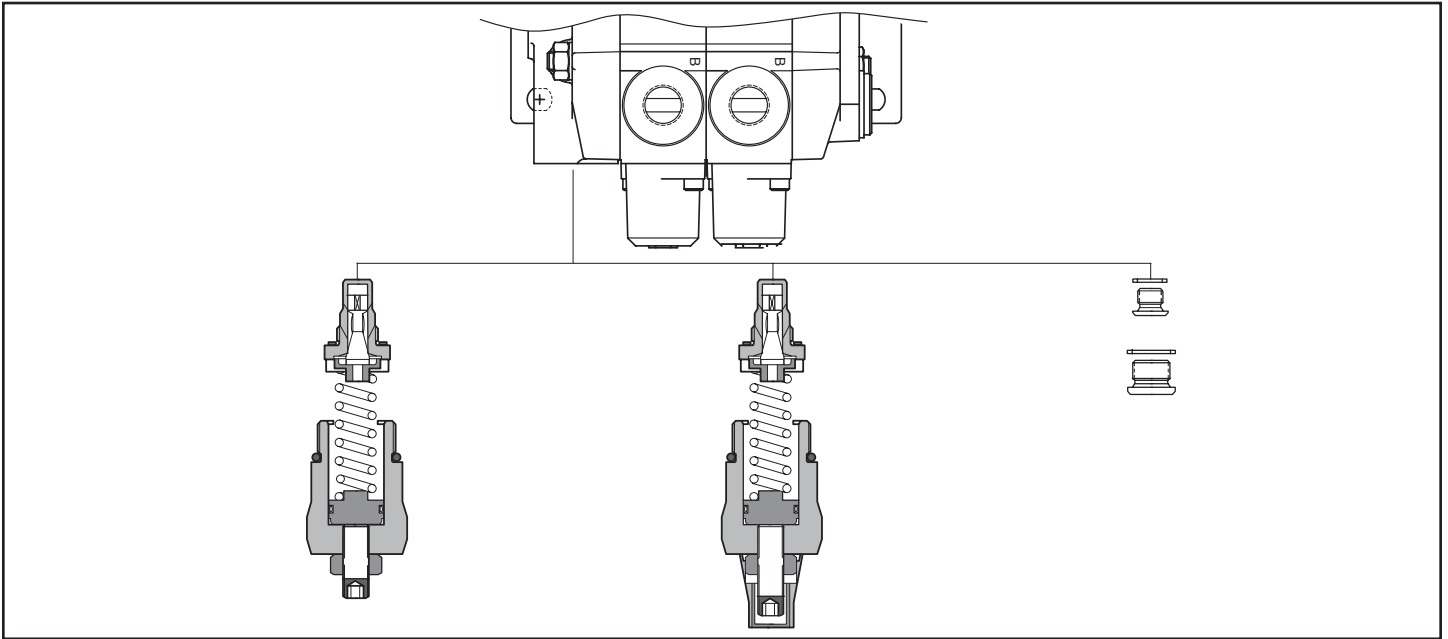
Electrical control

E

Only for 83, 84 and 85 spool position.

**Note:** Connector type DEUTCH

Main relief valve



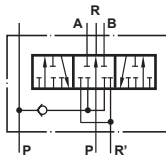
Main relief valve (pressure set at 221./min.)

Setting		Adjustable	Tamper-proof
5-80 (80) bar	70-1100 (1100) psi	11	41
85-175 (160) bar	1200-2500 (2200) psi	12	42
180-250 (200) bar	2600-3600 (2900) psi	13	43
255-350 (315) bar	3700-5000 (4600) psi	14	44

Spool types

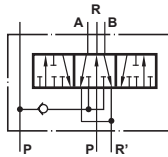
**Type D**

3 position, 4-way, double acting, A and B ports blocked in 0 position.



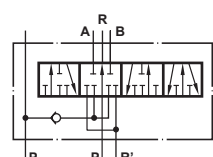
**Type I**

3 position, 4-way, double acting, A and B ports open to tank in 0 position.



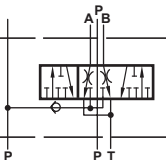
**Type L**

4 position, 4-way, double acting, A and B port blocked in position 0, 4th position float.



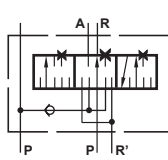
**Type U**

3 position, 4-way, double acting, A and B ports restricted to tank in 0 position.



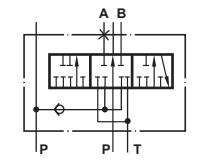
**Type S**

3 position, 3-way, single acting, A port blocked in position 0, B port plugged.

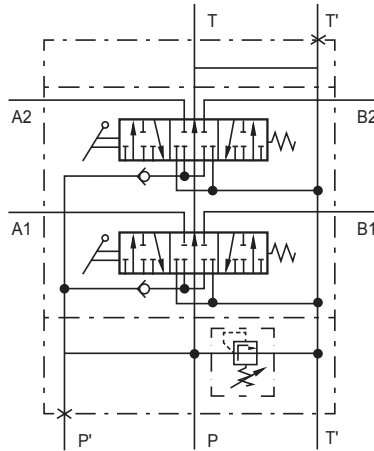


**Type V**

3 position, 3-way, single acting, B port blocked in position 0, A port plugged.



Hydraulic circuit



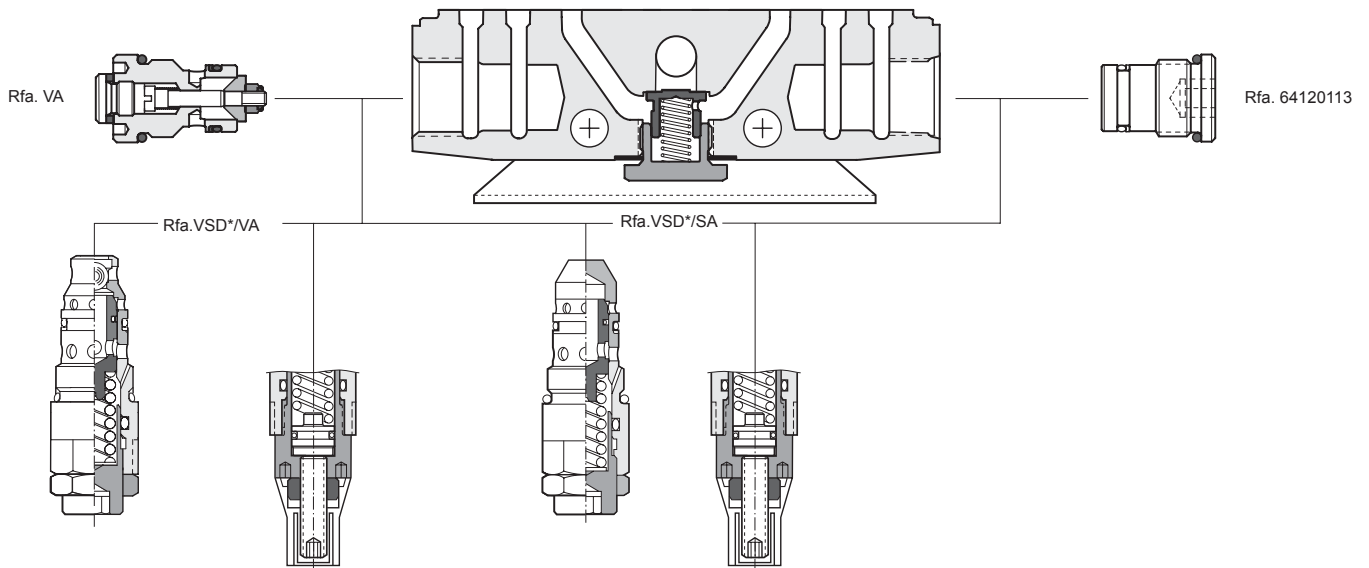
Code

In order to obtain codes it is necessary to consult with Pedro Roquet S.A. or an authorized distributor.  
If the auxiliary valves or the assembling options are not specified, the valve will be delivered without assembling valve options.

**It is defined by a special CODE the possibility of:**

- Assembling auxiliary valves.
- Assembling different spool positioning device in the same valve.
- Any additional data.

Auxiliary valves

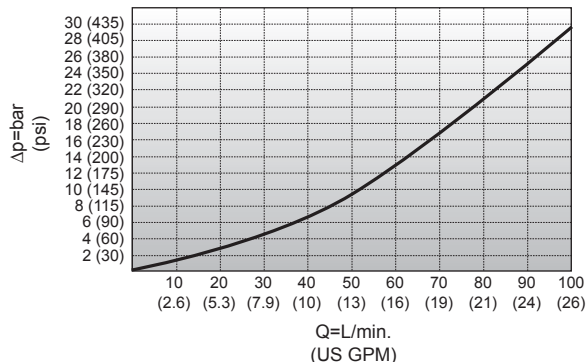
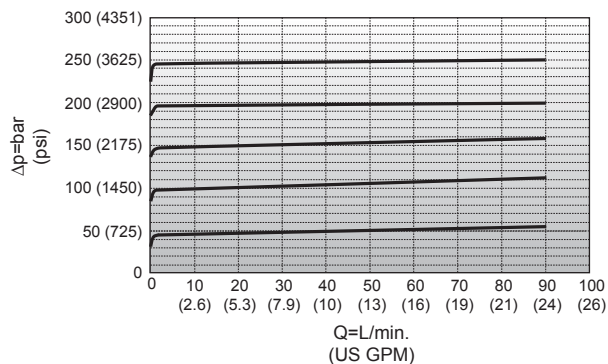
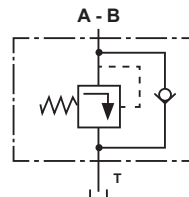
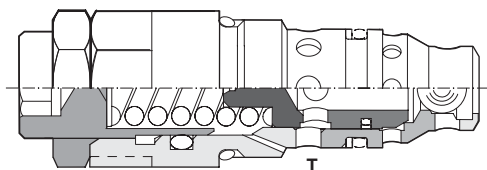


Port relief pressure setting (pressure set at 12l. min)			
Adjustable	Tamper-proof	Pressure ranges	
11	41	5-80 (80) bar	70-1100 (1100) psi
12	42	85-175 (160) bar	1200-2500 (2200) psi
13	43	190-250 (200) bar	2600-3600 (2900) psi
14	44	255-350 (315) bar	3700-5000 (4600) psi

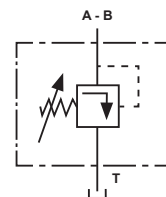
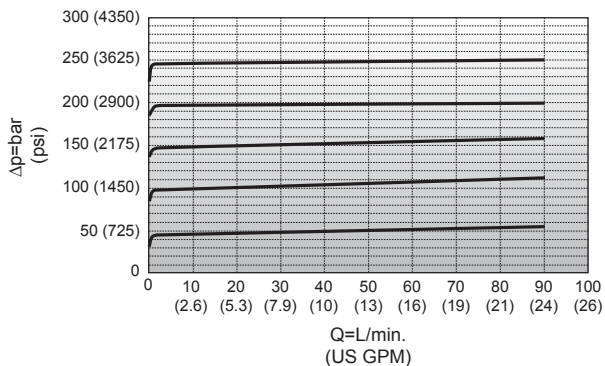
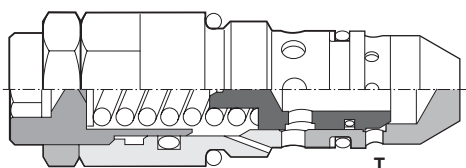
Replaced \* for the setting pressure and regulation type (see table).

Auxiliary valves

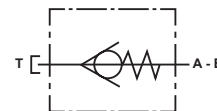
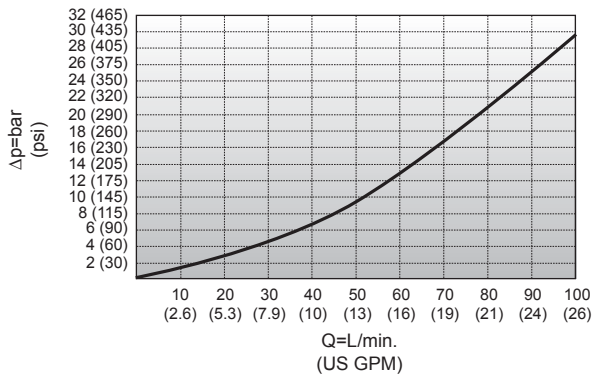
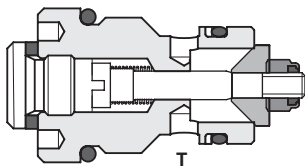
Port relief and anticavitation valve VSD\*/VA



Port relief valve VSD\*/SA



Anticavitation VA



A large rectangular area filled with a grid of small, evenly spaced dotted lines, intended for writing notes.



## USA

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