



ORVAL
HYDRAULIC



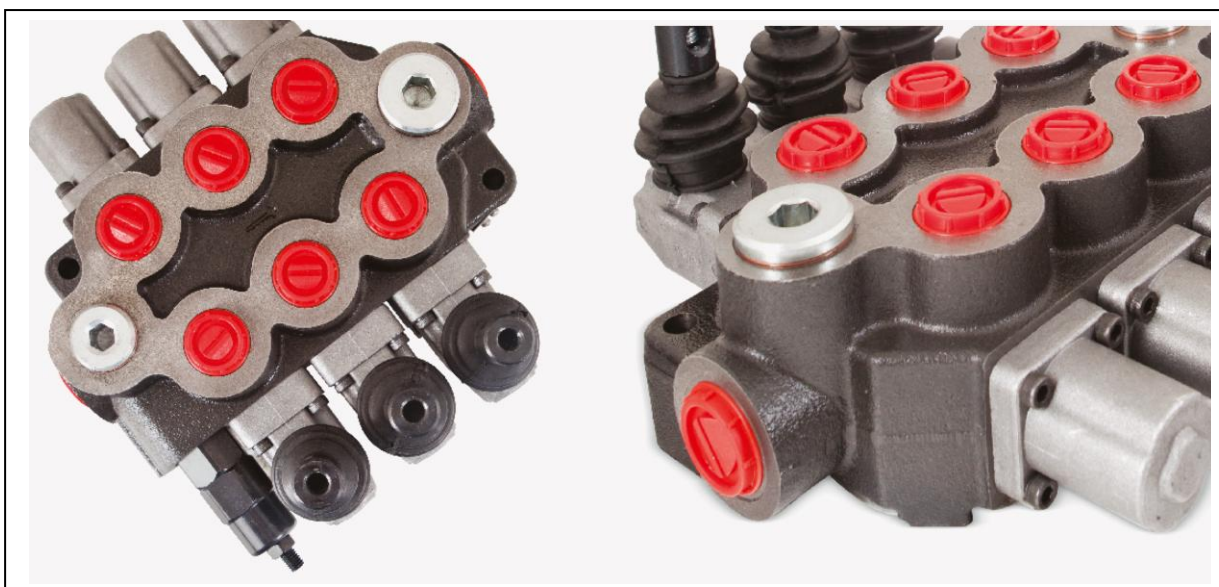
MONOBLOCK DIRECTIONAL
CONTROL VALVES

ORV-M80

DETAILED TECHNICAL CATALOGUE

CE





Contents

Working Conditions	3
Dimensional Data	4
Hydraulic Circuit	5
Performance Data And Curve	7
Inlet Relief Options	8
Ordering Codes	9
Spool Options	11
Spool Positioners – Side of Return	14
Spool Positioners – Side of Lever Control	16
Spool Positioners – Side of Lever Control	17
Spool Positioners – Side of Lever Control	18
Outlet Port Options	19
Installation and Maintenance	20
Technical Data	21

Additional Informations

Note: This catalog shows the product in the most standard configurations. For Other Configurations, more detailed information or special request, Please contact Customer Service Dpt.

Warning! :All specifications of this catalog refer to the standard product at this date (01/2011) . ORVAL, oriented to a continuous improvement, reserves the right to discontinue, modify or revise the specifications, without notice.

ORVAL IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY AN INCORRECT USE OF THE PRODUCT.

Working Conditions

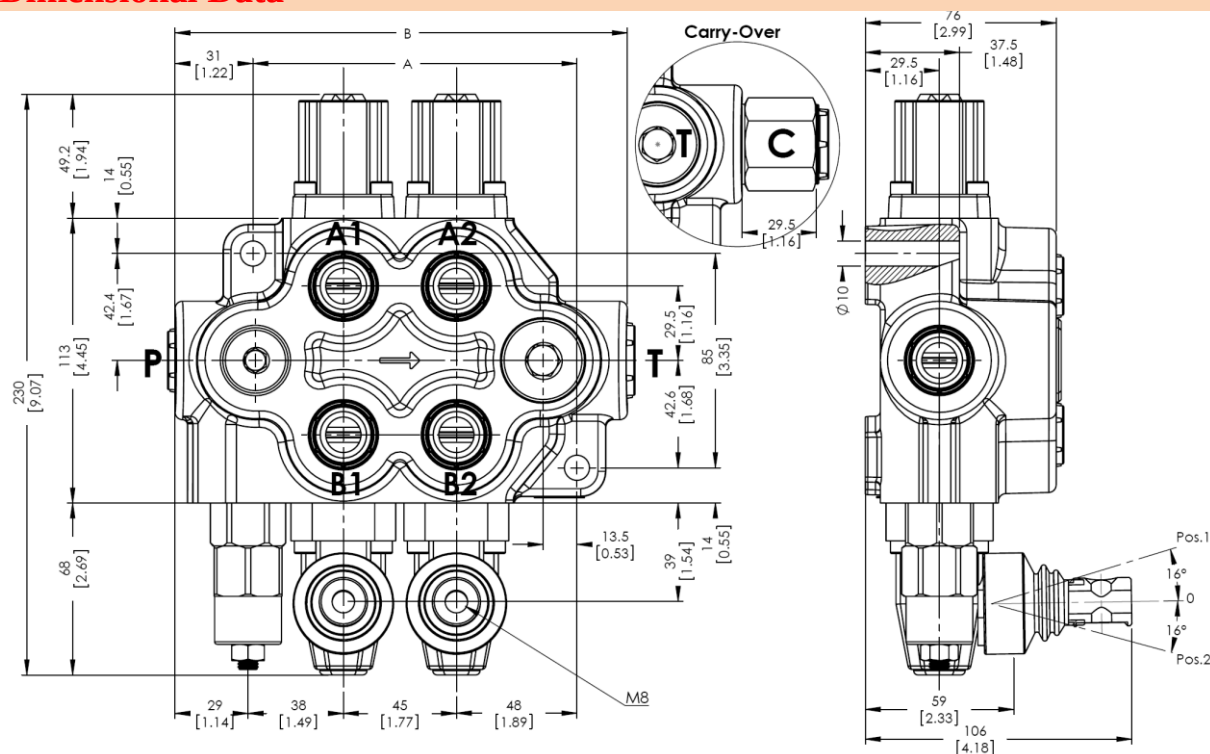
Nominal Flow Rating / Displacement	80 l/min	21 U.S.G.P.M
Maximum Working Pressure (Series Circuit)	315 Bar	4600 PSI
Max. Back Pressure	25 Bar	360 PSI
Oil Temperature with NBR Seals	-20 to 80 C°	-4 to 176 F °
with FPM (Viton) Seals	-20 to 100 C°	-4 to 212 F °
Oil Viskosity – Operating Range	From 10 to 75 mm2/s	From 10 to 75 cSt
Minumum / Maximum	10 / 400 mm2/s	10 / 400 cSt
Oil Filtration	≤30 μ	
Ambiant Temperature Range	-35 to 60 C°	-31 to 140 F °
Number Of Spools	1 to 6	
Internal Leakage (at 100 bar (1450 PSI), 40C° (110 F°), 46 cSt – A(B)—T)	3 cm3/min	0,18 in3/min
Max. Level Of Contamination	19/16 - ISO 4406	

Not: This catalogue shows technical specifications measured with mineral oil of 46 mm2/s- 46 cSt viscosity at 40 C° temparture.

Features

- Simple, compact and heavy duty designed monoblock valves from 1 to 6 sections for open and closed center hydraulic systems.
- Fitted with a main pressure relief valve.
- Optionaly Carry-Over port only tandem circuit.
- Interchangeable spool diametre is 18 mm – 0,71 in.
- Available manual, pneumatic, hydraulic and electro-pneumatic spool control kits.

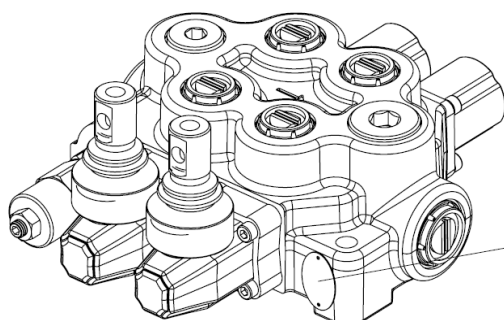
Dimensional Data



TYPE	A		B		Weight	
	mm	in	mm	in	Kg	lb
ORV-M80-1P	130	5,12	84	3,31	4,92	10,56
ORV-M80-2P	175	6,89	129	5,08	7,32	15,96
ORV-M80-3P	220	8,66	174	6,85	9,72	21,36
ORV-M80-4P	265	10,43	219	8,65	12,12	26,76
ORV-M80-5P	310	12,20	264	10,39	14,52	32,17
ORV-M80-6P	355	13,98	309	12,17	16,92	37,57

Standard Threads

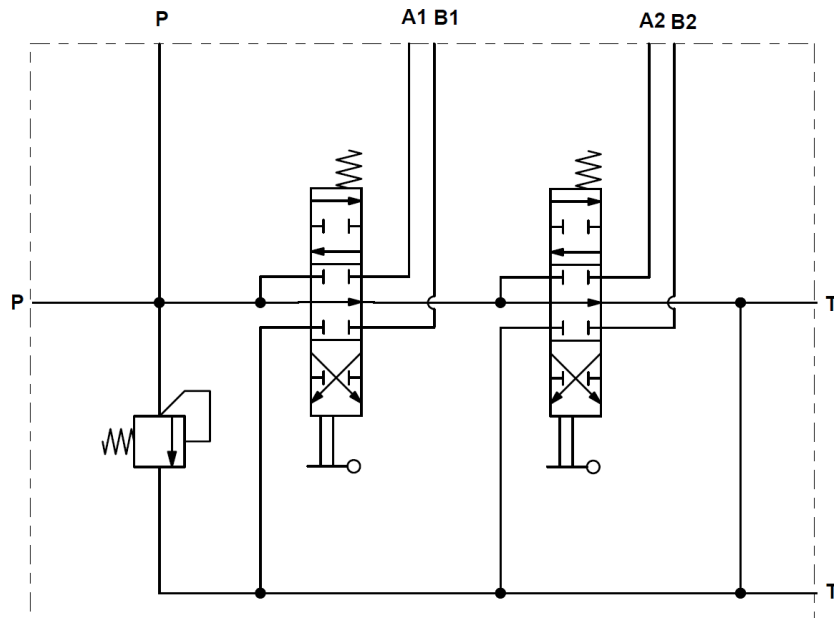
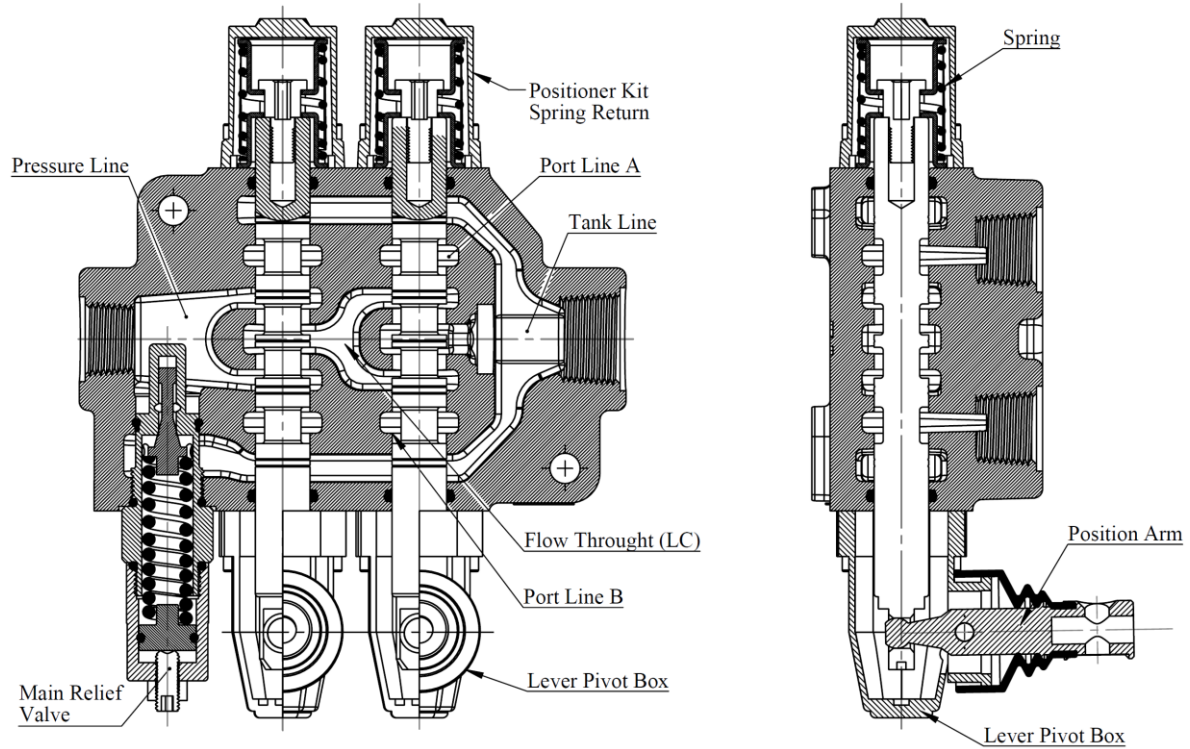
PORT	BSP (Iso 228)		UN-UNF (Iso 11926-1)	Metric (Iso 262)
	1/2" Series	3/4" Series		
P Inlet	G 1/2	G 3/4	1 1/16-12 UN	M27x2
A-B Ports	G 1/2	G 3/4	7/8-14 UNF	M22x1.5
T Outlet	G 3/4	G 3/4	1 1/16-12 UN	M27x2
Pneumatic	G 1/4	G 1/4	NPTF 1/8 - 27	NPTF 1/8 - 27
Carry-Over	G 3/4	G 3/4	1 1/16-12 UN	G 3/4



Valve Type
Production Batch
39.10 = Production Year - Week (2010/39)
101149 = Progressive Party Number

Hydraulic Circuit

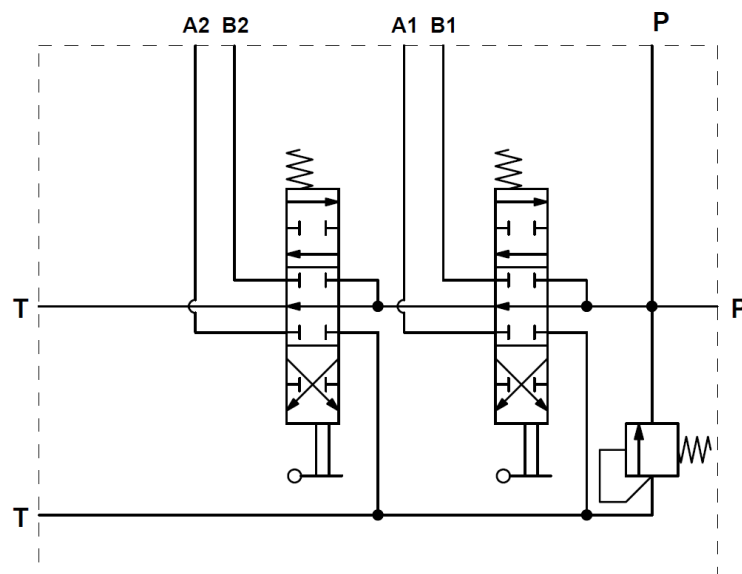
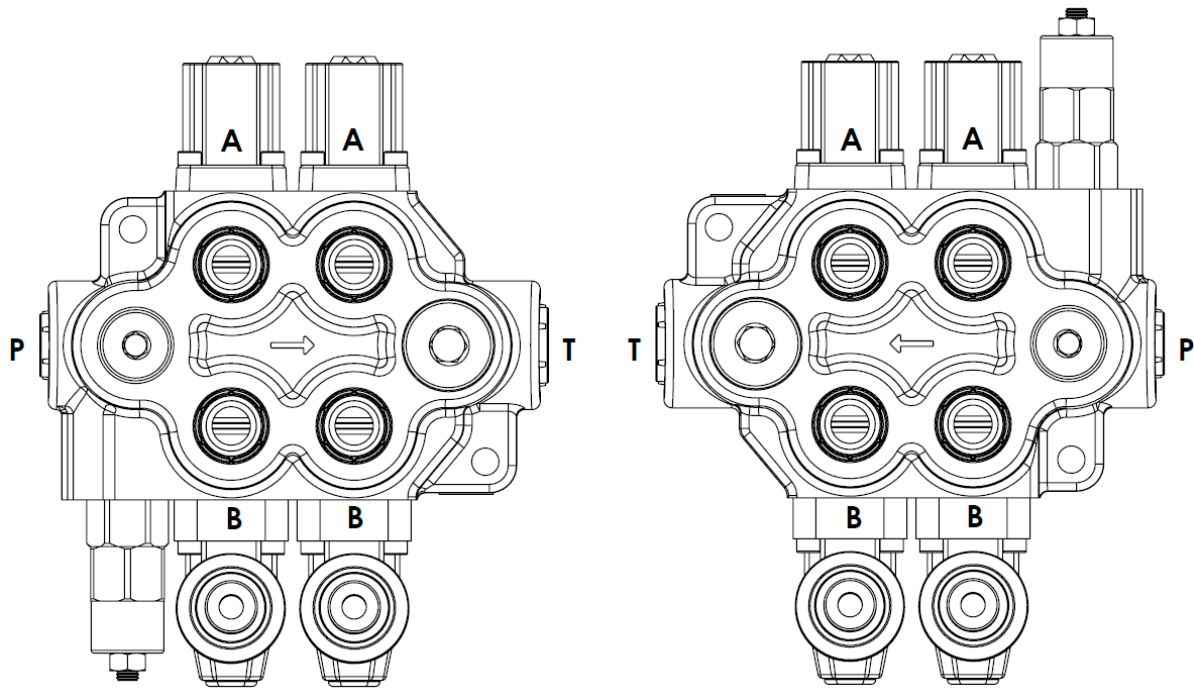
Standard Configurations With Top Inlet And Outlet Ports - LH



Code:ORV M80-2P / SMR2-120 / 1A-SR-STL/1A-SR-STL/PA1/SGT

Standard Configurations With Top Inlet And Outlet Ports - RH (Right Inlet)

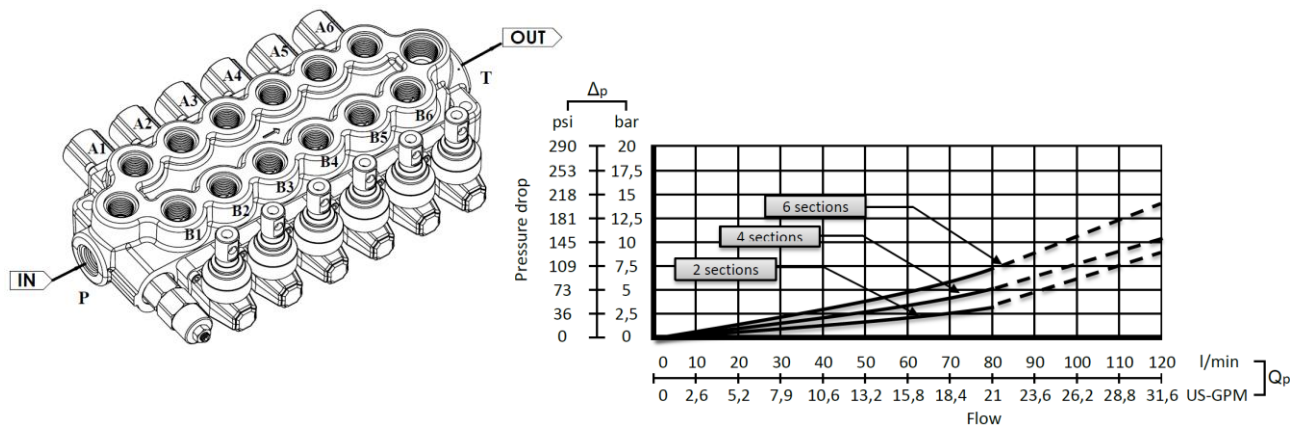
A symmetrical body allows the reverse assembly of spool and this with connected control kit (**RH** Configuration).



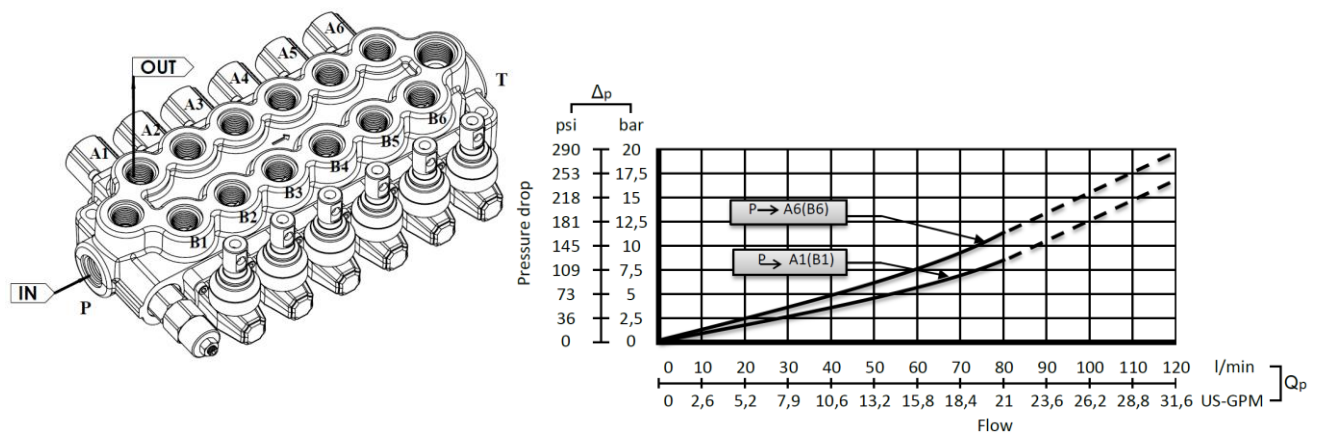
Code: ORV M80-2P / SMR2-120 / (RH) 1A-SR-STL/1A-SR-STL/PA1/SGT

Performance Data And Curve

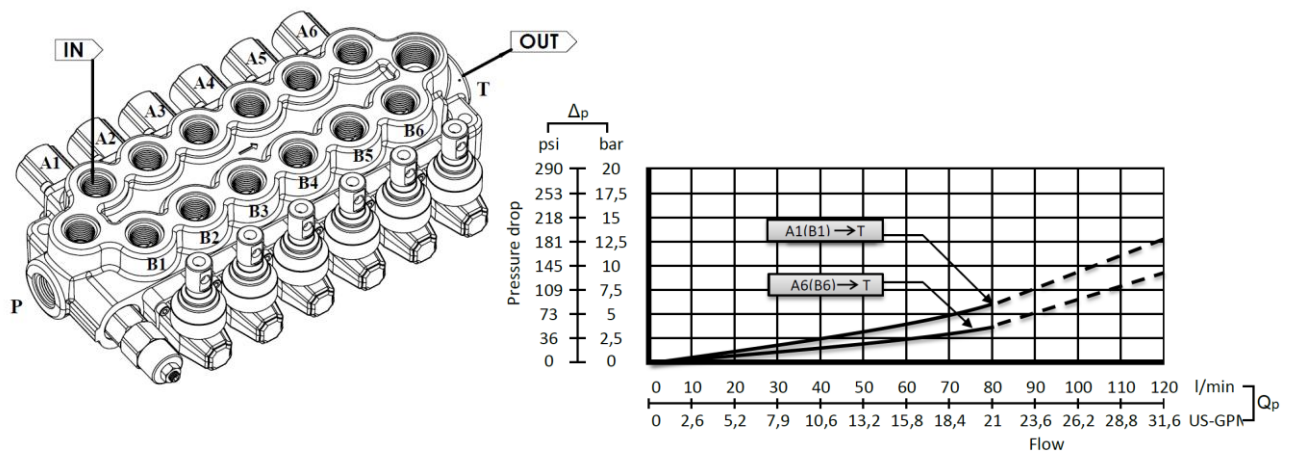
Open Center - Pressure Drop (P-T)



Inlet to Work Port - Pressure Drop (P-A/B)



Work Port to Outlet - Pressure Drop (A/B-T)



Note: Measured and chart value with spool type 1A.

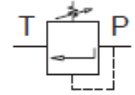
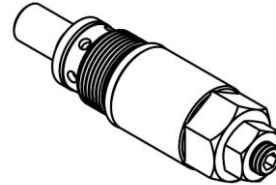
Inlet Relief Options

Direct Pressure Relief Valve

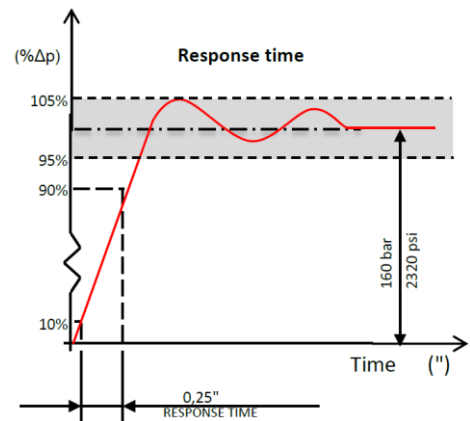
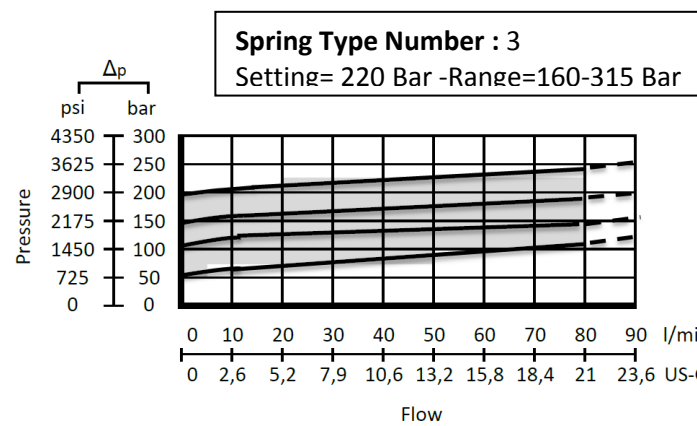
Code:

SMR2 – 120

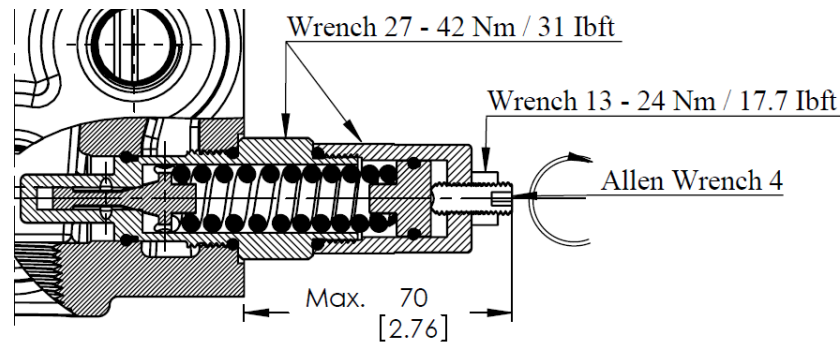
- Pressure Setting Bar in (Standard 120 bar)
- Standard Main Relief Spring Type -2



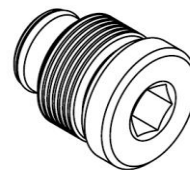
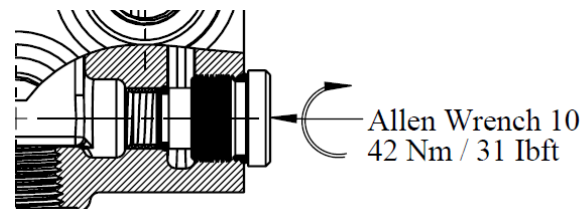
Performance Data:



Adjustment Type on Valve:



Relief Blanking Plug - WM



Ordering Codes

Order example

ORV M80-1P /SMR2-120 /1A-SR-STL/ 1A-80P-STL/ CO-PL1-P1 / SGT

1

2

3

4

5

6

7

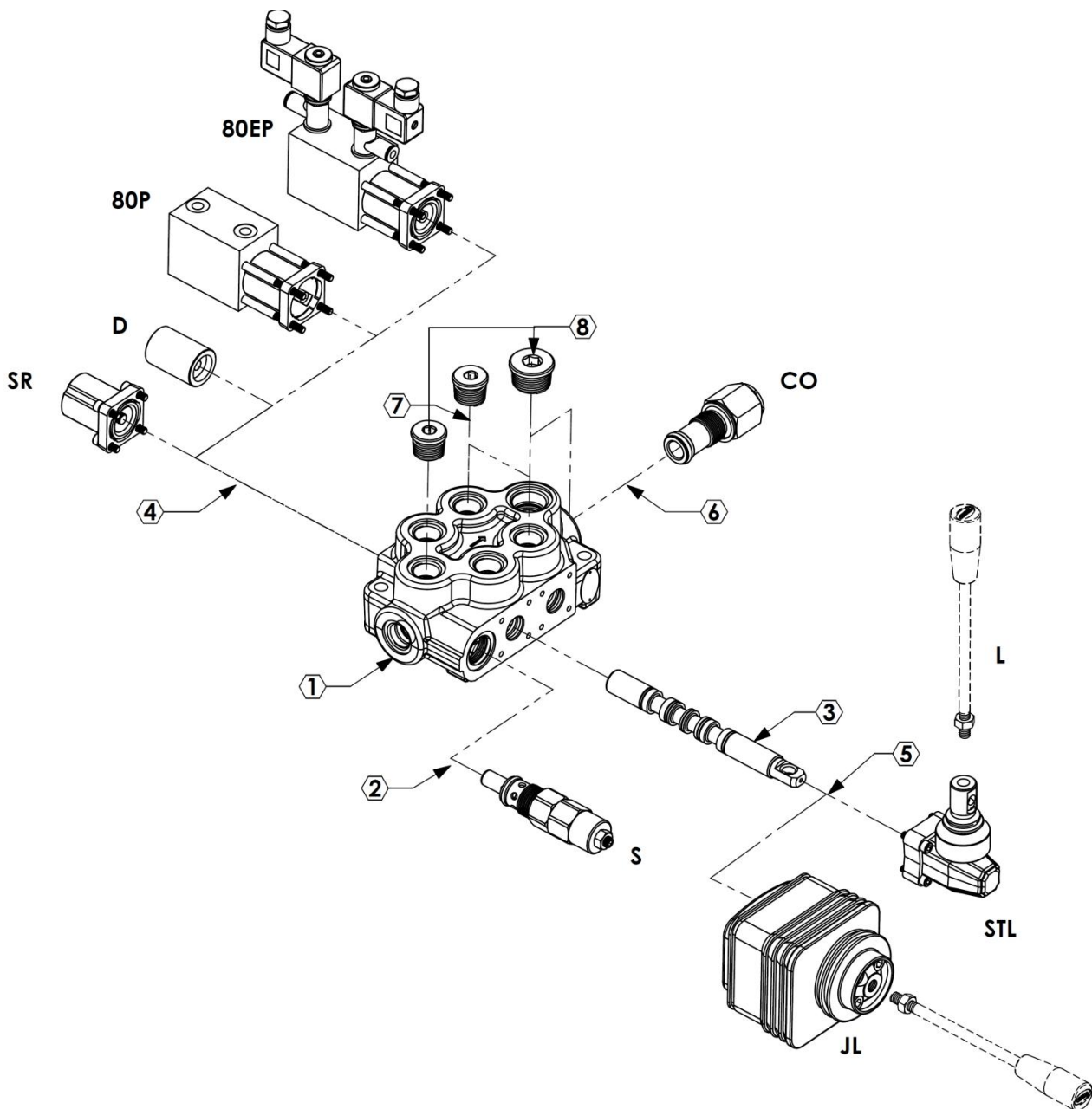
8

9

1 st Section

Following
Section

Output
Section



Ordering Codes

1-Valve Type and Body

M80 =Valve Type - (M) - Monoblok
(80) - Max. Flow Rate

- 1P** =Body for 1 Section - (1BM180100)
- 2P** =Body for 2 Sections - (1BM280100)
- 3P** =Body for 3 Sections - (1BM380100)
- 4P** =Body for 4 Sections - (1BM480100)
- 5P** =Body for 5 Sections - (1BM580100)
- 6P** =Body for 6 Sections - (1BM680100)

2-Pressure Relief Options

SMR = Standard direct pressure relief valve
SMR1-080 – (2SMR180080)–Range 0-80 bar
 Setting 80 bar
SMR2-120 – (2SMR280120)–Range 60-200 bar
 Setting 120 bar
SMR3-220 – (2SMR380220)–Range 160-315 bar
 Setting 220 bar

3-Spool Options

- 1A -(3SM180110) – 3 Positions ,Double acting
- 2A -(3SM180120) – 3 Positions ,Double acting
A to tank B Blocked
- 3A -(3SM180130) – 3 Positions ,Double acting
B to tank A blocked
- 4A -(3SM180140) – 3 Positions ,Double acting
A and B tank
- 5A -(3SM180150) – 3 Positions ,Single acting on
A (A to tank)
- 6A -(3SM180160) – 3 Positions ,Single acting on
B (B to tank)

4- Spool Positioners

SR=Spring Return in neutral position –
(4SR080100)
D =Detent in position 1, neutral and 2 -
(4D080100)
80P=ON/OFF Pneumatic – (445P045100)
80EP=12 VDC ON/OFF electro-pneumatic –
(480EP080112)
 24 VDC ON/OFF electro-pneumatic –
(480EP080124)

5-Lever Options

STL=Standard Lever –(5STL080100)
JL=Joystick lever for two sections operation
 - (5JL 080100)

6- Output Options

PA2(T) =G3/4 Top output plug –(6PL1080134)
PA2(S) =G3/4 Side output plug –(6PL1080134)
CO =G3/4 Carry-Over Connector -(6CO080100)

7-Ports Plug Options "If Required"

PL3(5A) =Plug for single action spool for 5A
 G3/4 –(6PL1080134)
PL3(6A) =Plug for single action spool for 6A
 G3/4 –(6PL1080134)
PL2(5A)=Plug for single action spool for 5A
 G1/2- (6PL1040112)
PL2(6A)=Plug for single action spool for 6A
 G1/2- (6PL1040112)

*Page 13 for detail spool options.

8- Ports Input Plug Options

PI1(T) = G1/2 Top input – (6PL1040112)
PI1(S) = G1/2 Side input – (6PL1040112)
PI3(T) = G3/4 Top input - (6PL1080134)
PI3(S) = G3/4 Side input - (6PL1080134)

9- Ports Thread Options

SGT1 =1/2" Series Port Options - (9P045112)
SGT3 =3/4" Series Port Options - (9P080134)
UNF =UNF Series Port Options - (9U045138)
M =Metric Series Port Options -
 (9M045138)

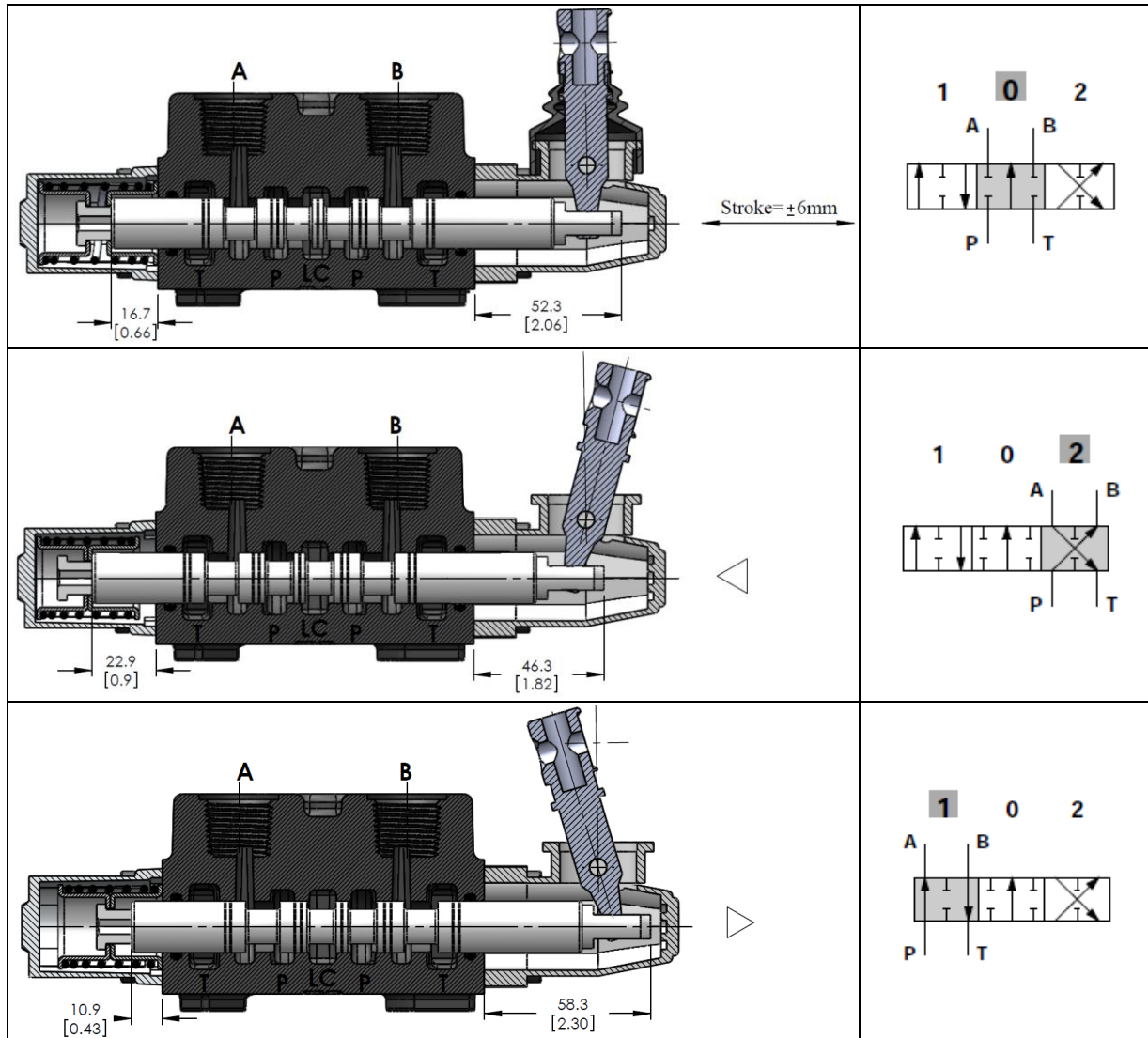
*Page 4 for detail port information.

HandLever

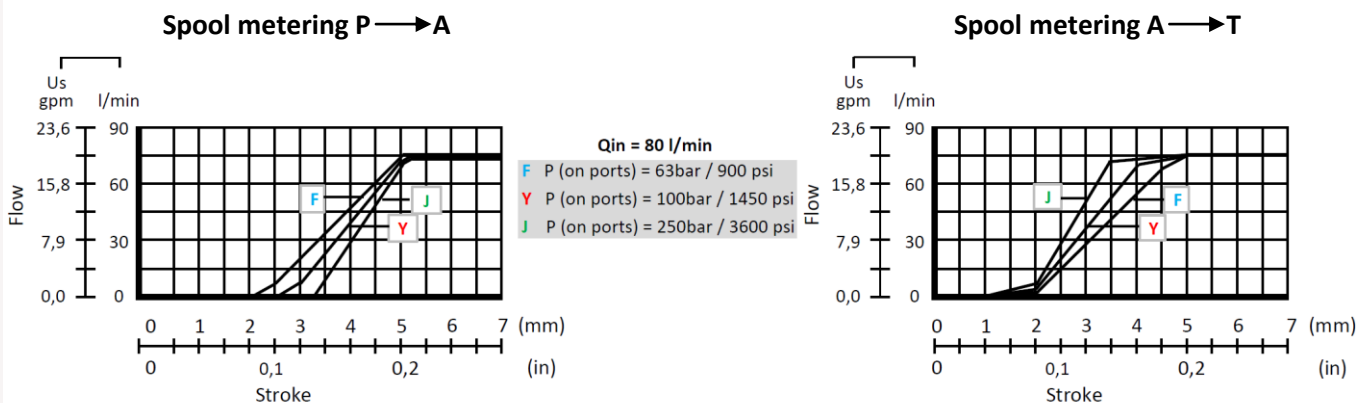
L =Standard HandLever (L=120mmxM8) -
(7L040100)

Spool Options

Spool Type - 1A

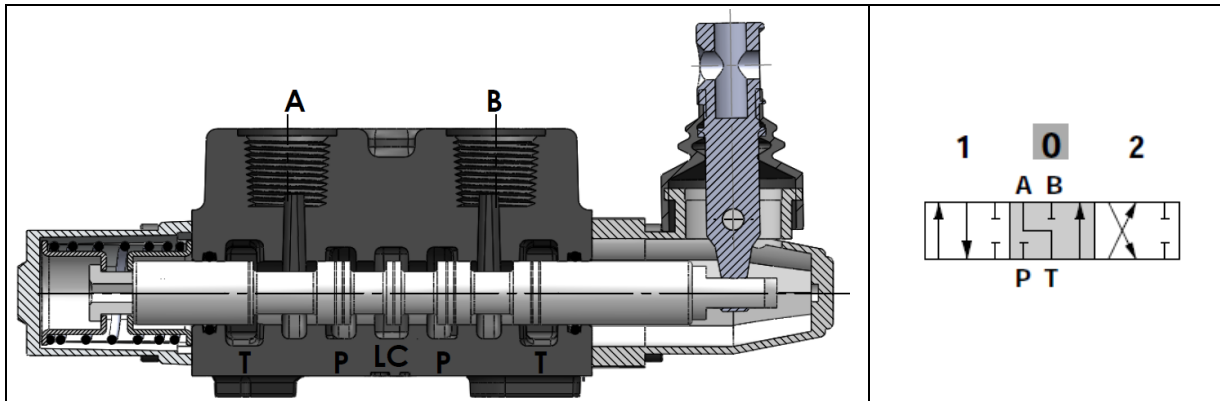


Performance Curve And Data:

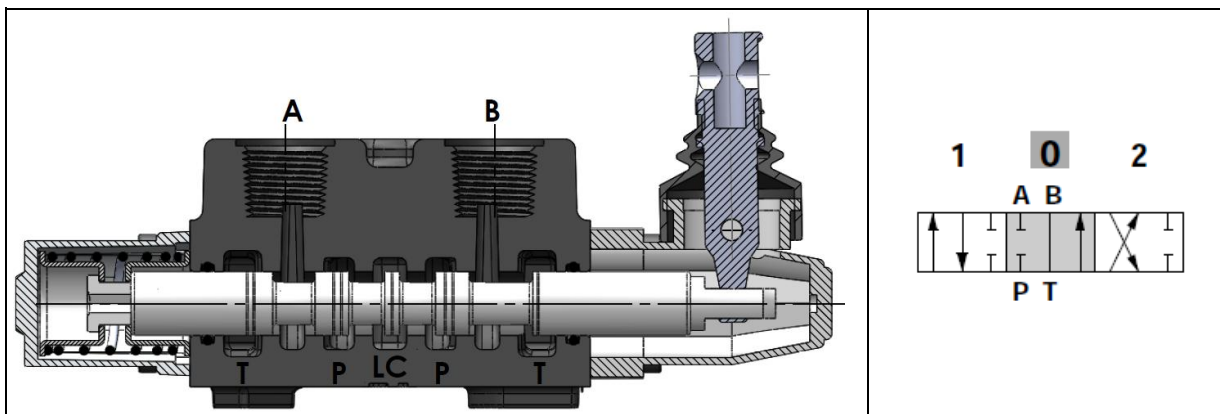


Spool Options

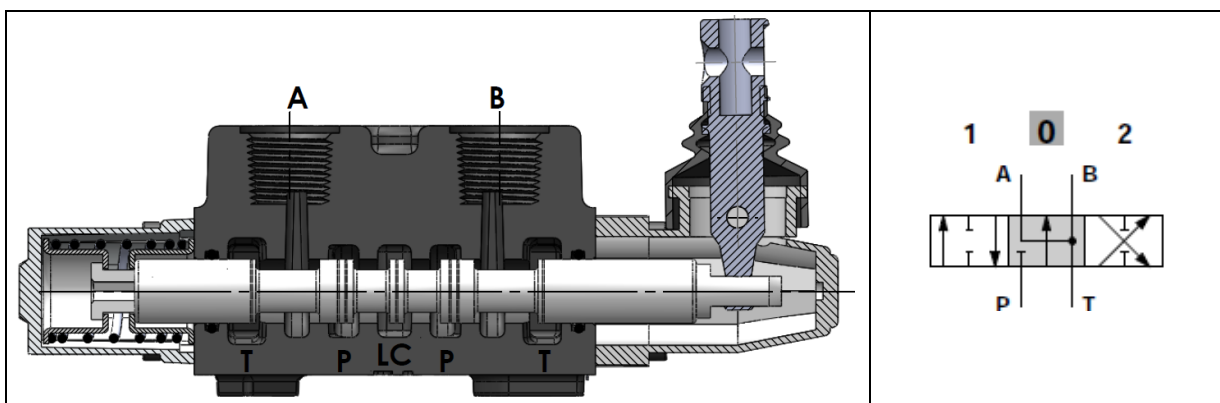
Spool Type - 2A



Spool Type - 3A

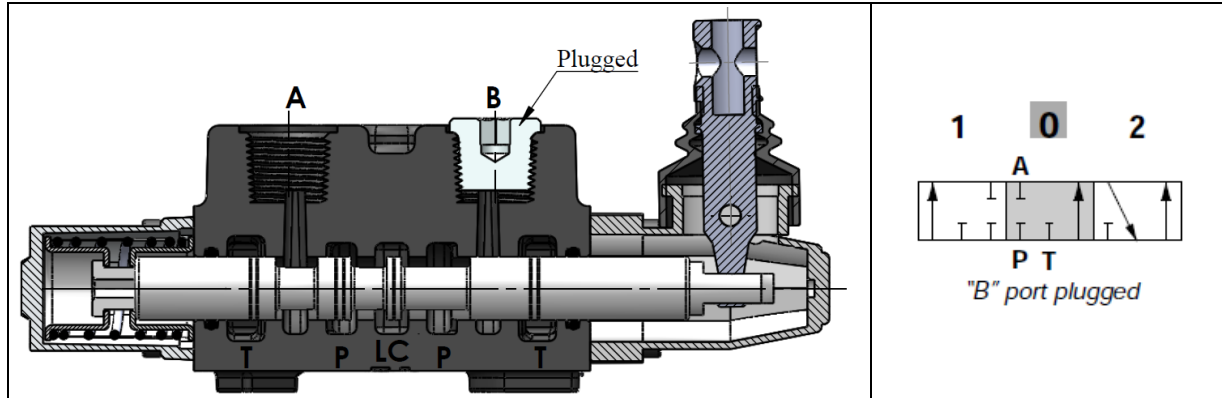


Spool Type - 4A

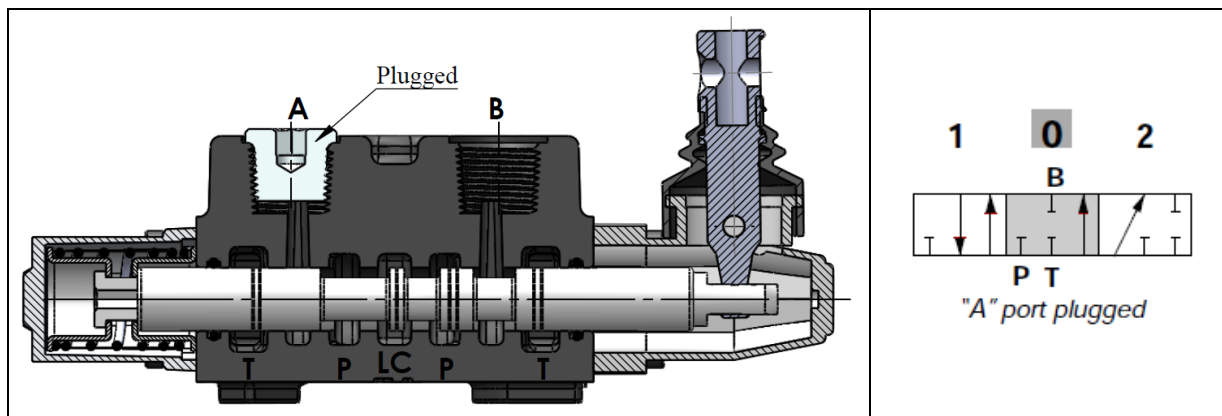


Spool Options

Spool Type - 5A

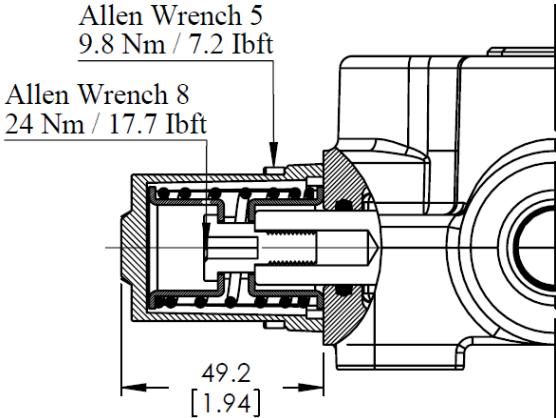
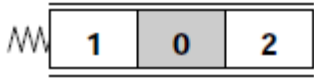


Spool Type - 6A

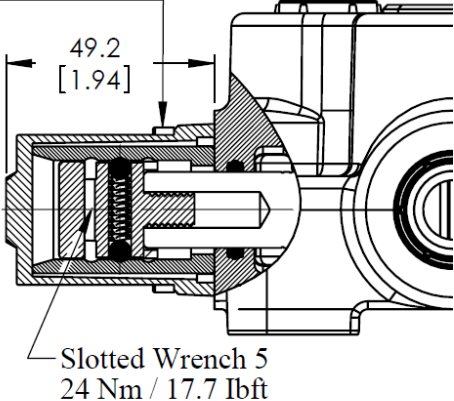
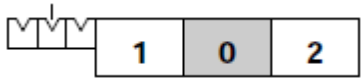


Spool Positioners – Side of Return

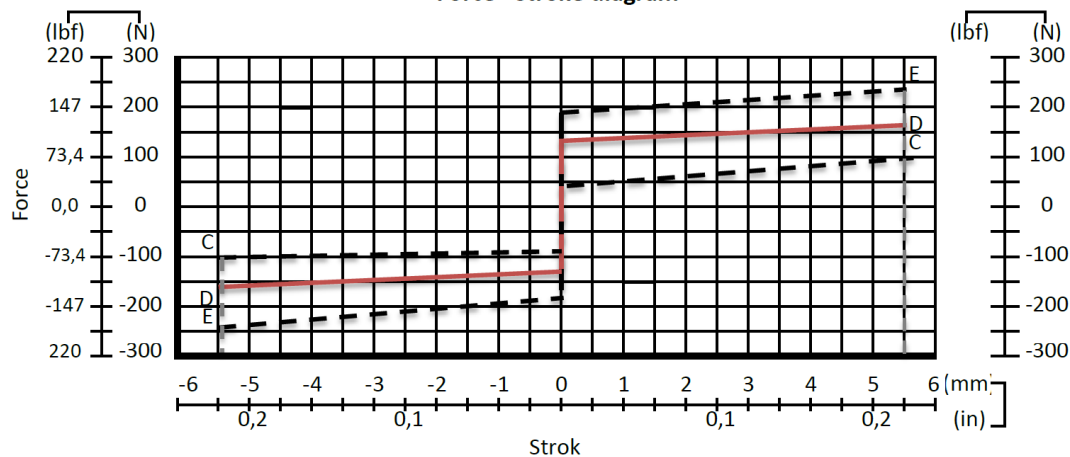
With Spring Return in Neutral Position

Kit No: SR	
Sectional Appearance	Diagram
	

With Detent

Kit No: D	
Sectional Appearance	Diagram
	

Force - stroke diagram



Spool Positioners – Side of Return

ON/OFF Pneumatic Control

Kit No: 80P	
Sectional Appearance	Diagram
Operatig Features Pilot Pressure: 6 Bar (Max. 10) / 87 Psi (Max. 145)	

ON/OFF Electro-Pneumatic Control

Kit No: 80EP	
Sectional Appearance	Diagram
Operatig Features Pilot Pressure: 6 Bar (Max. 10) / 87 Psi (Max. 145)	
Selonoid Operating Features Nominal Voltage.....: 12VDC / 24 VDC Power Rating.....: 6 W	

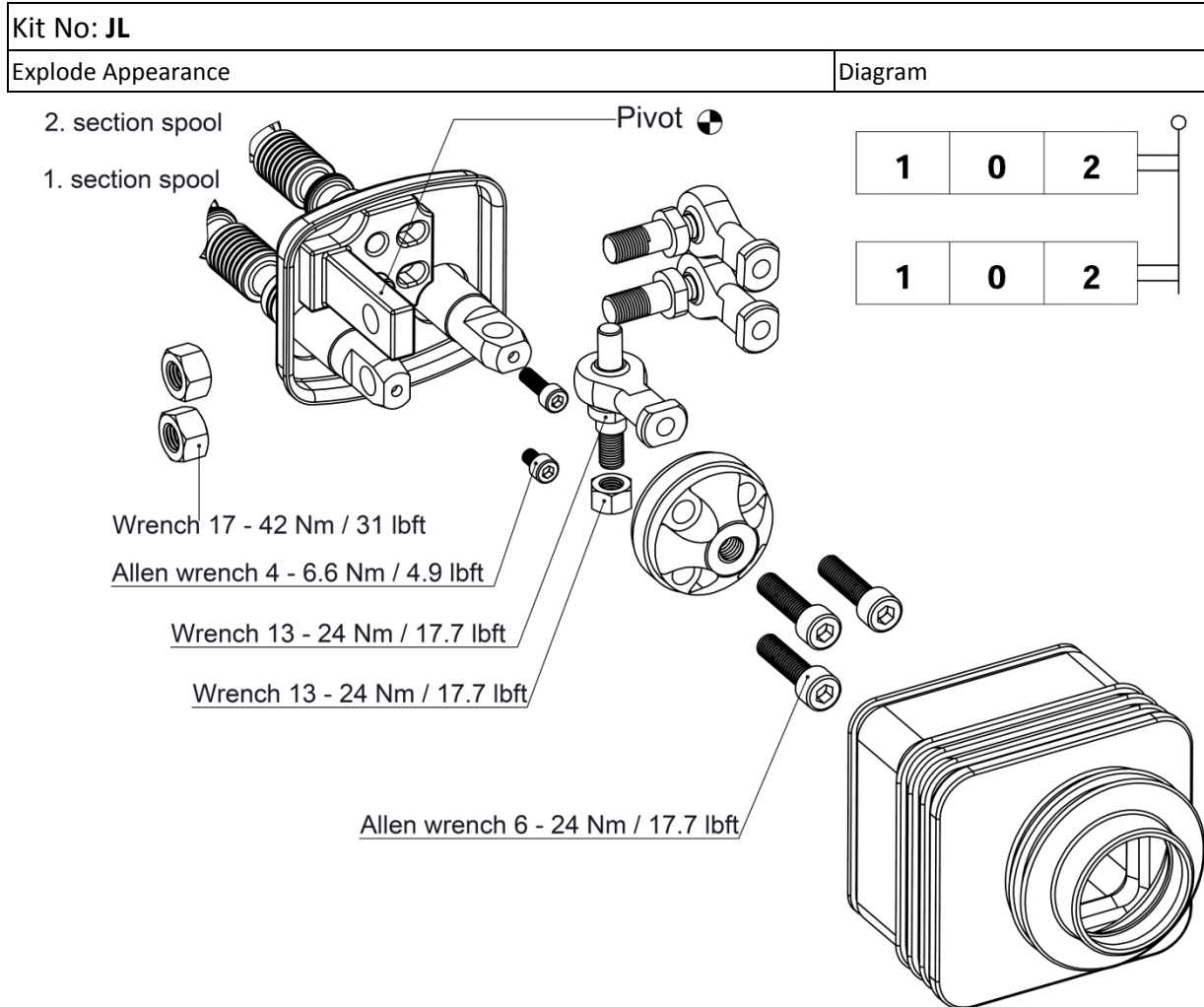
Spool Positioners – Side of Lever Control

Lever Controls

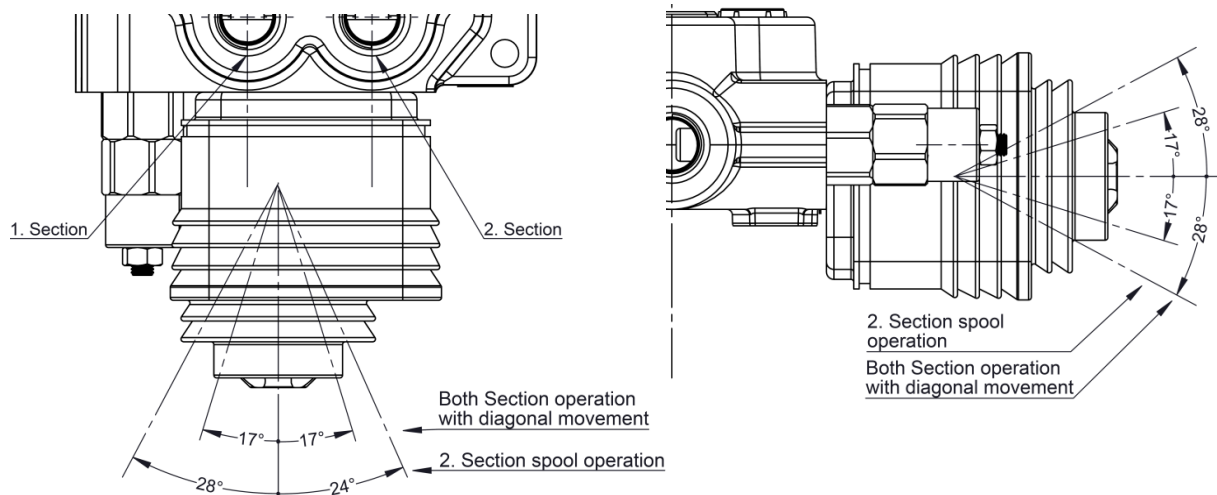
Kit No: STL - L0	
Sectional Appearance	Diagram
Kit No: STL - L180	
Sectional Appearance	Diagram
Note: Aluminium with protection arm lever pivot box, it can be rotated 180°.	

Spool Positioners – Side of Lever Control

Lever Controls - Joystick



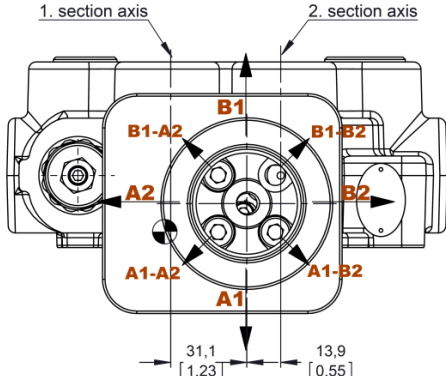
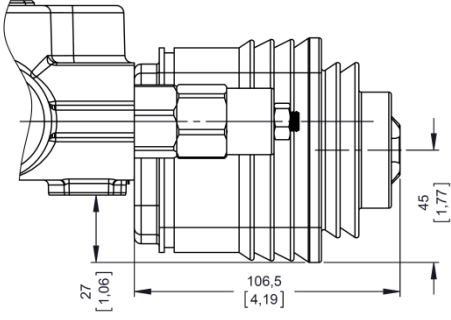
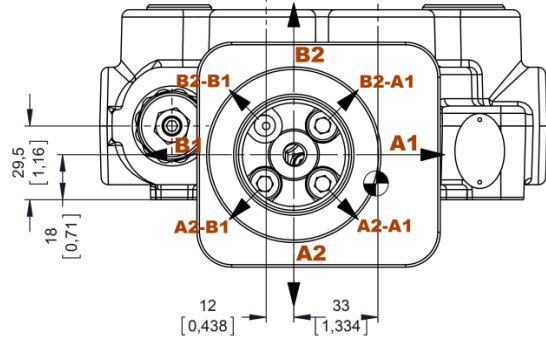
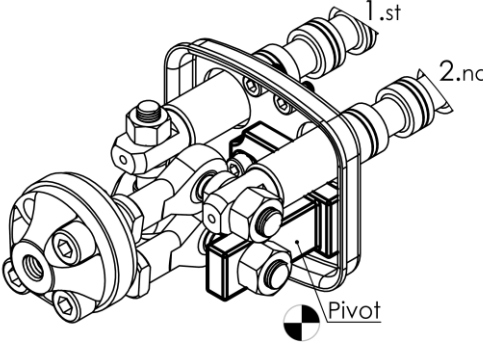
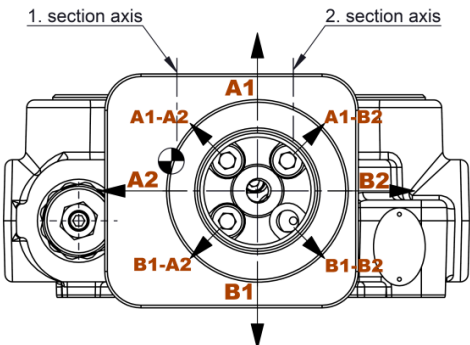
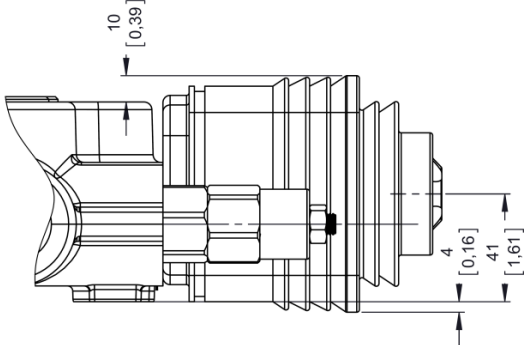
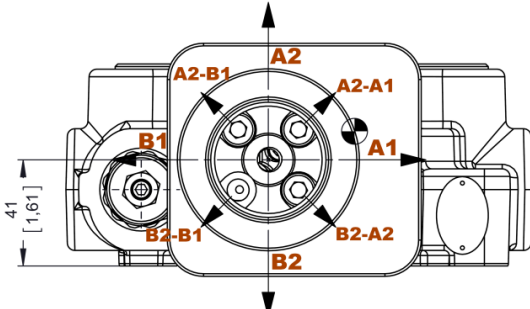
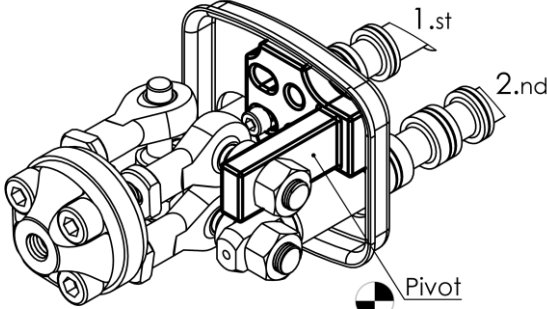
Operation Angle:



Spool Positioners – Side of Lever Control

Lever Controls - Joystick

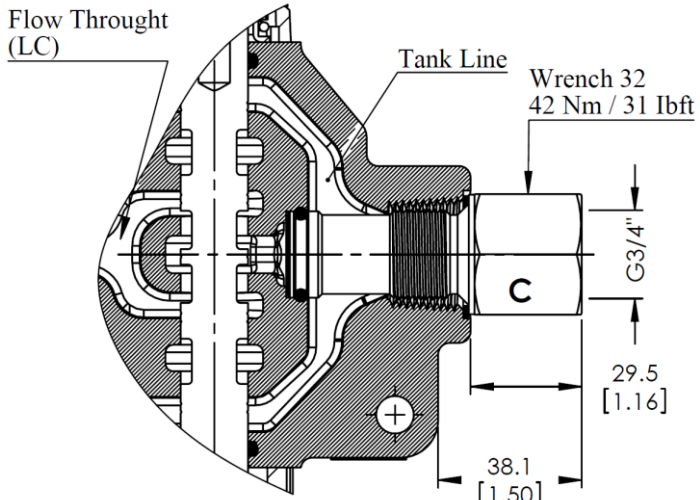
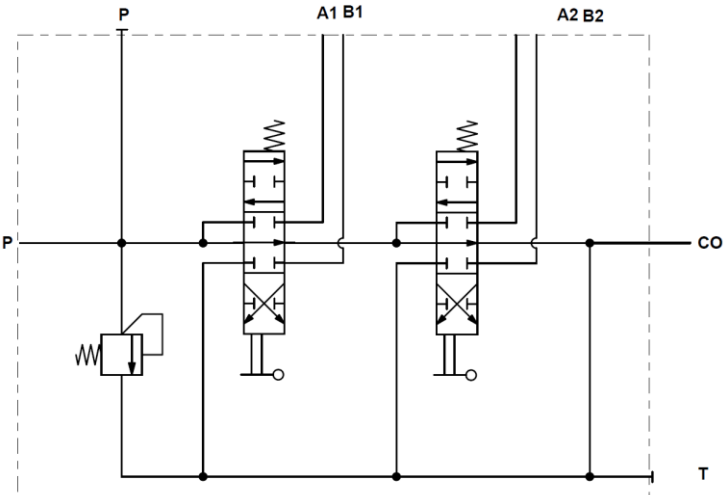
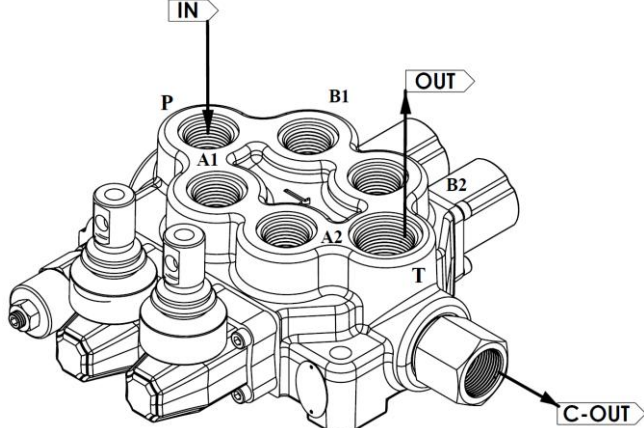
Dimensions and movement scheme

Type No: JL1	Execution: Pivod placed down on the Left
	
Type No: JL2	Execution: Pivod placed down on the right
	
Type No: JL3	Execution: Pivod placed above on the Left
	
Type No: JL4	Execution: Pivod placed above on the right
	

Outlet Port Options

Carry - Over Connection

Kit No: **CO**

	Sectional Appearance
	Hydraulic Circuit Code:ORV M80-2P / SMR2-120 / 1A-SR-STL/1A-SR-STL/CO-PA1/SGT
	Direction of Port Connected

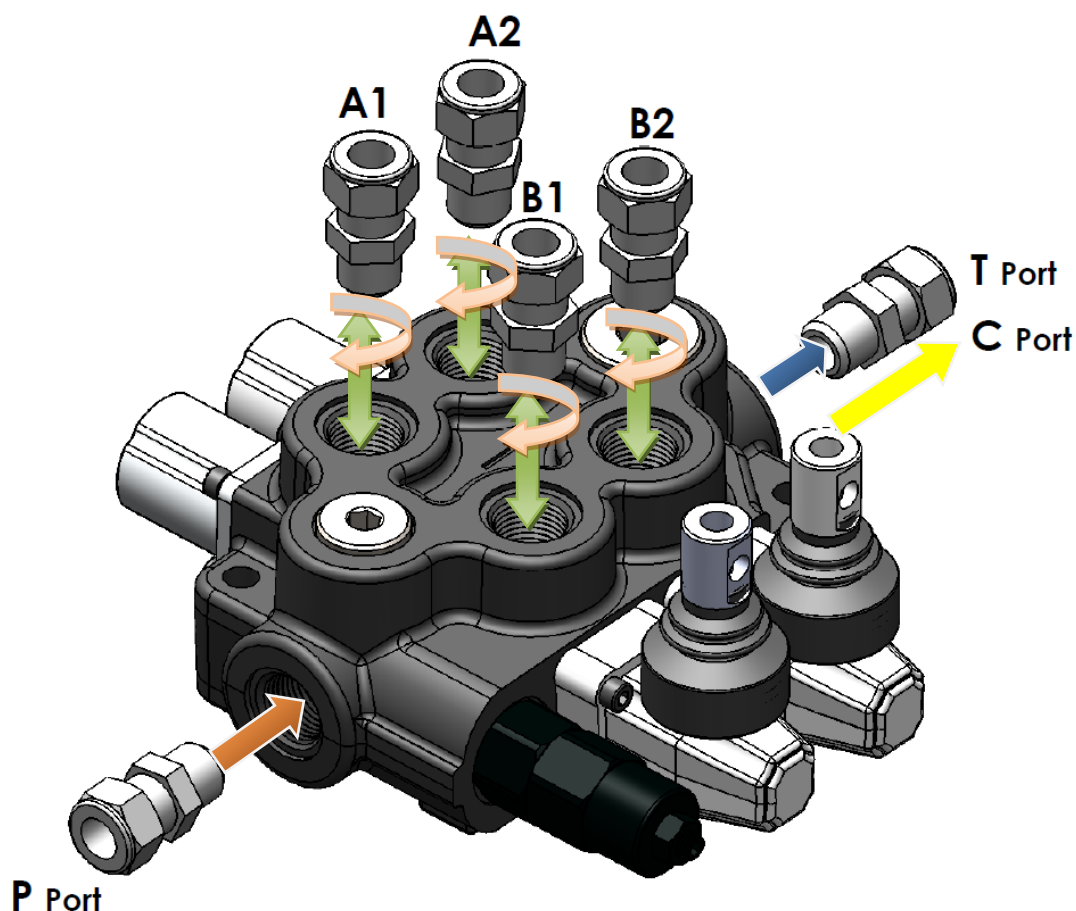
SGT : See page 5 for Standard center

Installation and Maintenance

The ORV M80 valve is assembled and tested as per the technical specification of this catalog.

Before the final installation on your equipment, follow the below recommendation:

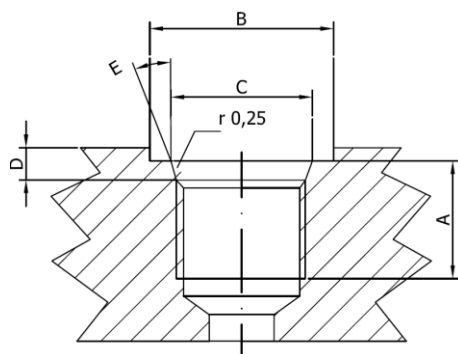
- The valve can be assembled in any position, in order to prevent body deformation and spool sticking mount the product on a flat surface;
- In order to prevent the possibility of water entering the lever box and spool control kit, do not use high pressure wash down directly on the valve;
- Prior to painting, ensure plastic port plugs are tightly in place.



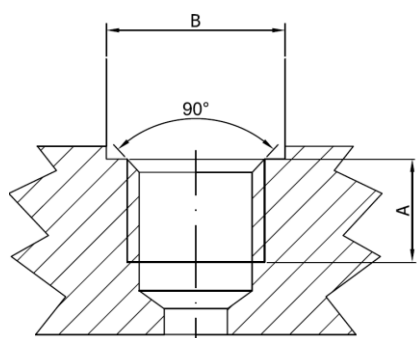
Threads Type (Nm / lbft)	P Port	A and B Port	T and C Port
BSP (ISO 228/1)	G 1/2	G 1/2	G 3/4
With O--Ring seal	50 / 36.9	50 / 36.9	70 / 51.6
With copper washer	60 / 44.3	60 / 44.3	70 / 51.6
With steel and rubber washer	60 / 44.3	60 / 44.3	70 / 51.6
BSP (ISO 228/1)	G 3/4	G 3/4	G 3/4
With O--Ring seal	70 / 51.6	70 / 51.6	70 / 51.6
With copper washer	70 / 51.6	70 / 51.6	70 / 51.6
With steel and rubber washer	70 / 51.6	70 / 51.6	70 / 51.6
UN--UNF (ISO 11926--1)	11/16--12 UNF--2B	9/16--18 UNF--2B	11/16--12 UNF--2B
With O--Ring seal	95 / 70	30 / 22.1	95 / 70
METRIC (ISO 262)	M27 x 2	M22 x 1.5	M27 x 2
With O--Ring seal	100 / 73.8	50 / 36.9	100 / 73.8
With copper washer	100 / 73.8	60 / 44.3	100 / 73.8
With steel and rubber washer	100 / 73.8	60 / 44.3	100 / 73.8

Technical Data

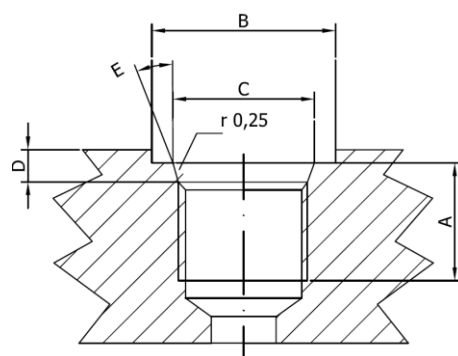
Ports Dimensional Data



SAE UN-UNF (ISO 725)							
Dimensions		7/8-14 UNF		1"1/16-12 UN		1"5/16-12 UN	
mm	in	SAE10		SAE12		SAE16	
A		17	0,67	20	0,79	20	0,79
B		34	1,34	41	1,61	49	1,92
C		23,9	0,94	29,2	1,15	35,5	1,40
D		2,5	0,10	3,3	0,13	3,3	0,13
E		15°		15°		15°	



BSP (ISO 228)							
Dimensions		G 1/2"		G 3/4		G 1	
mm	in						
A		16	0,63	18	0,71	20	0,79
B		27	1,06	33	1,30	40	1,57



METRIC (ISO 262)					
Dimensions		M22x1,5 ISO 262		M27x2 ISO 262	
mm	in				
A		16	0,63	18	0,71
B		31,5	1,24	37,7	1,48

