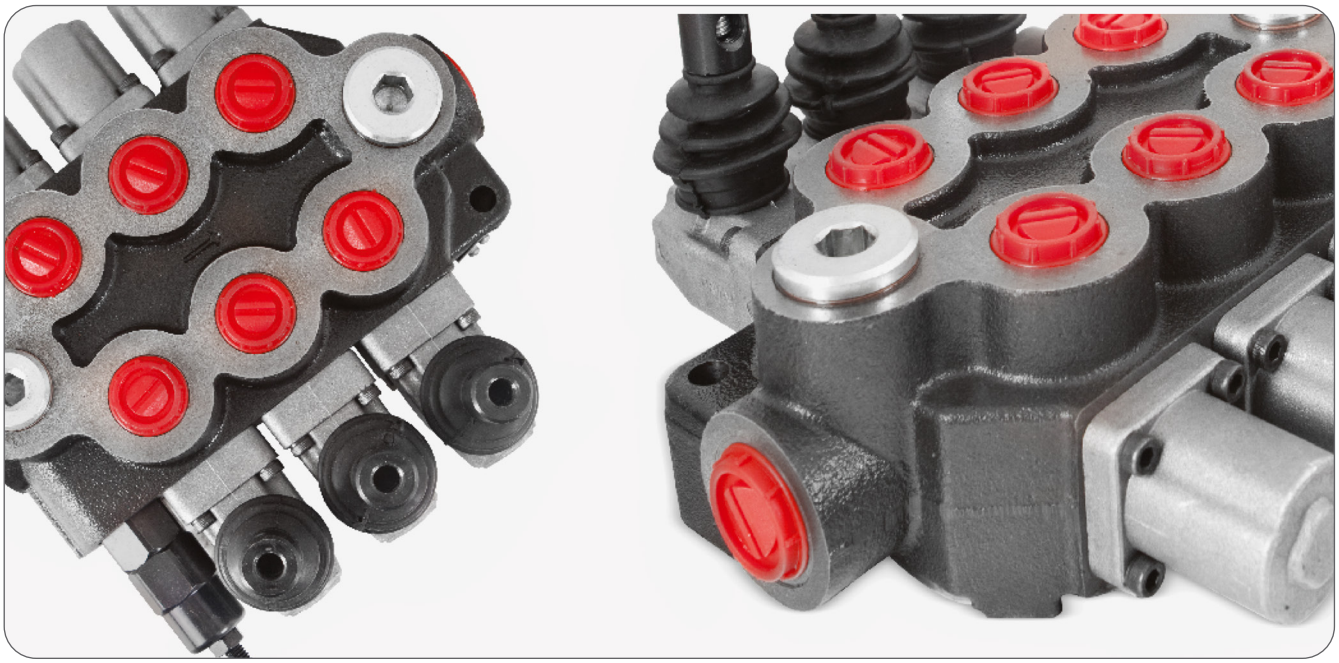
ORVAL HYDRAULIC

MONOBLOCK DIRECTIONAL CONTROL VALVES

ORV-M80





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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 (01/2020). 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

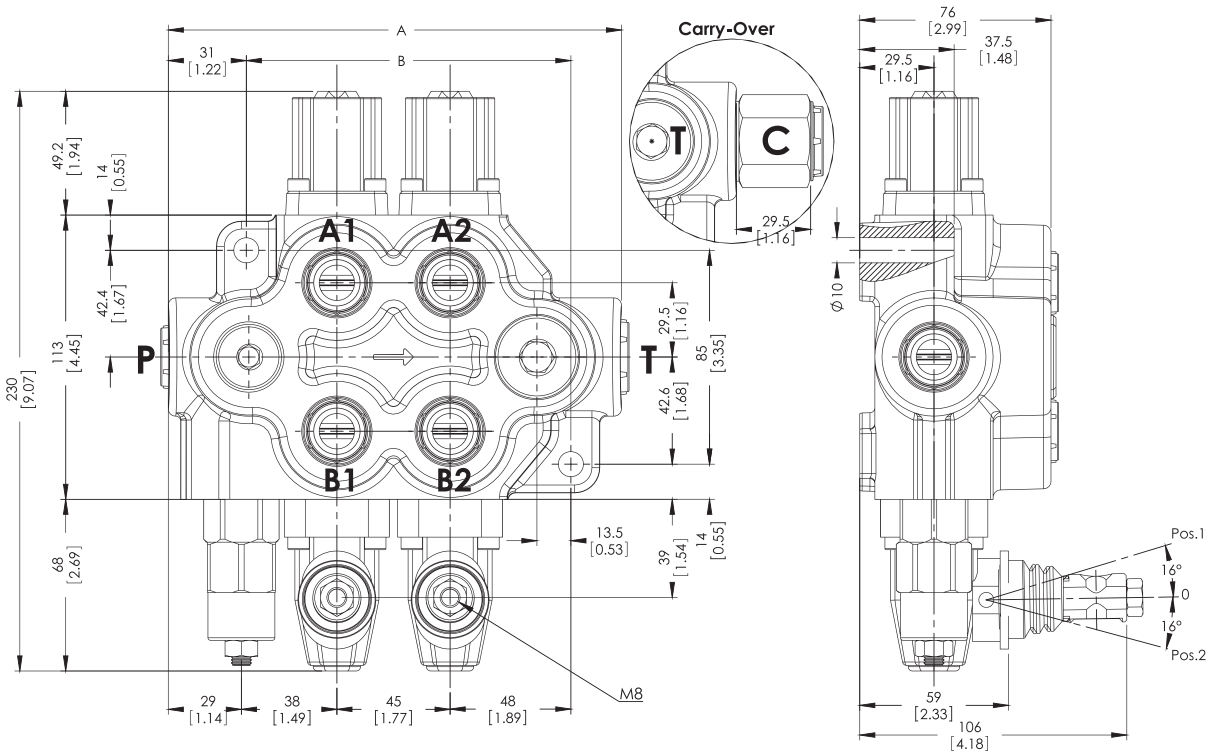
Nominal Flow Rating / Displacement	80 l/min	21 U.S.G.P.M
Maximum Working Pressure (Series Circuit)	250 Bar	3600 PSI
Max. Back Pressure	25 Bar	360 PSI
Oil Temperature with NBR Seals	-20 to 80 C°	-4 to 176 F °
with FPM (Viton) Seals	-20 to 100 C°	-4 to 212 F °
Oil Viscosity – Operating Range	From 10 to 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.

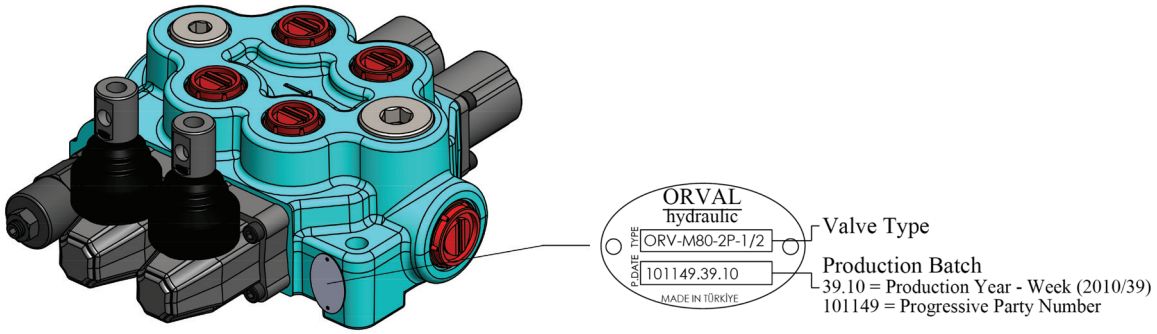
DIMENSIONAL DATA



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

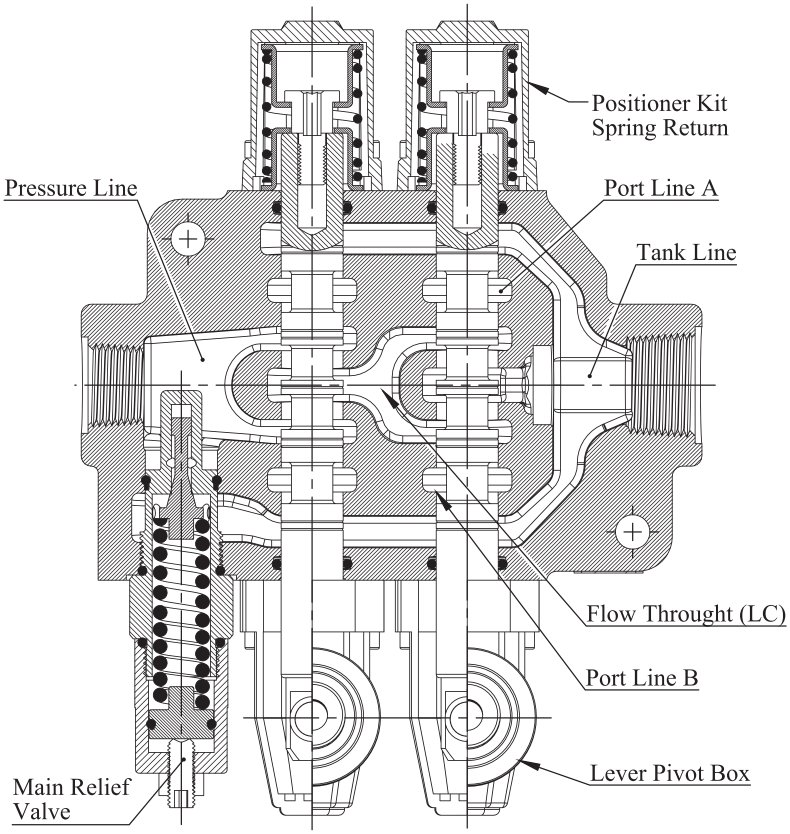
STANDARD THREADS

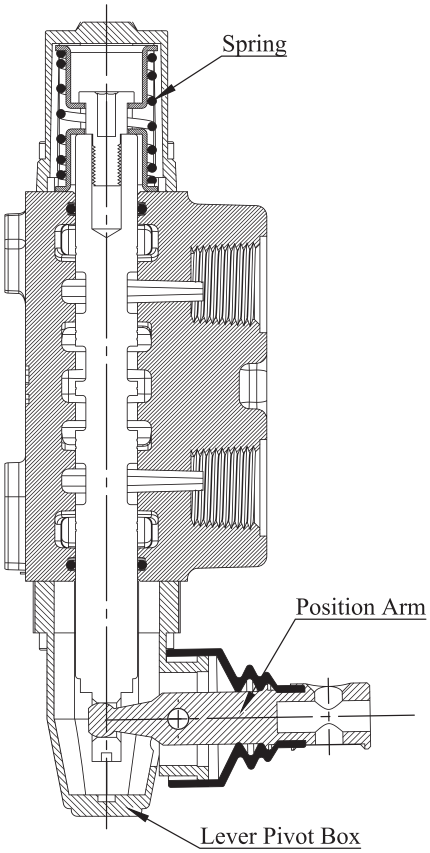
PORT	BSP (Iso 228) 1/2" Series	BSP (Iso 228) 3/4"Series	UN-UNF (Iso 11926-1)	Metric (Iso 262)
P Inlet	G 1/2	G 3/4	1 1/16-12 UN	M27x2
A-B Ports	G 1/2	G 3/4	7/8-14 UNF	M22x1.5
T Outlet	G 3/4	G 3/4	1 1/16-12 UN	M27x2
Pneumatic	G 1/4	G 1/4	NPTF 1/8 - 27	NPTF 1/8 - 27
Carry-Over	G 3/4	G 3/4	1 1/16-12 UN	G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

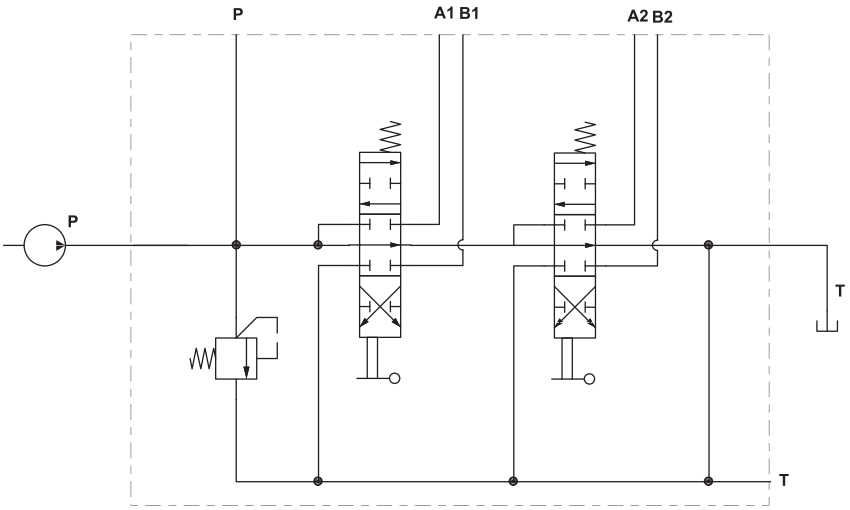


HYDRAULIC CIRCUIT

Standard Configurations With Top Inlet And Outlet Ports - LH



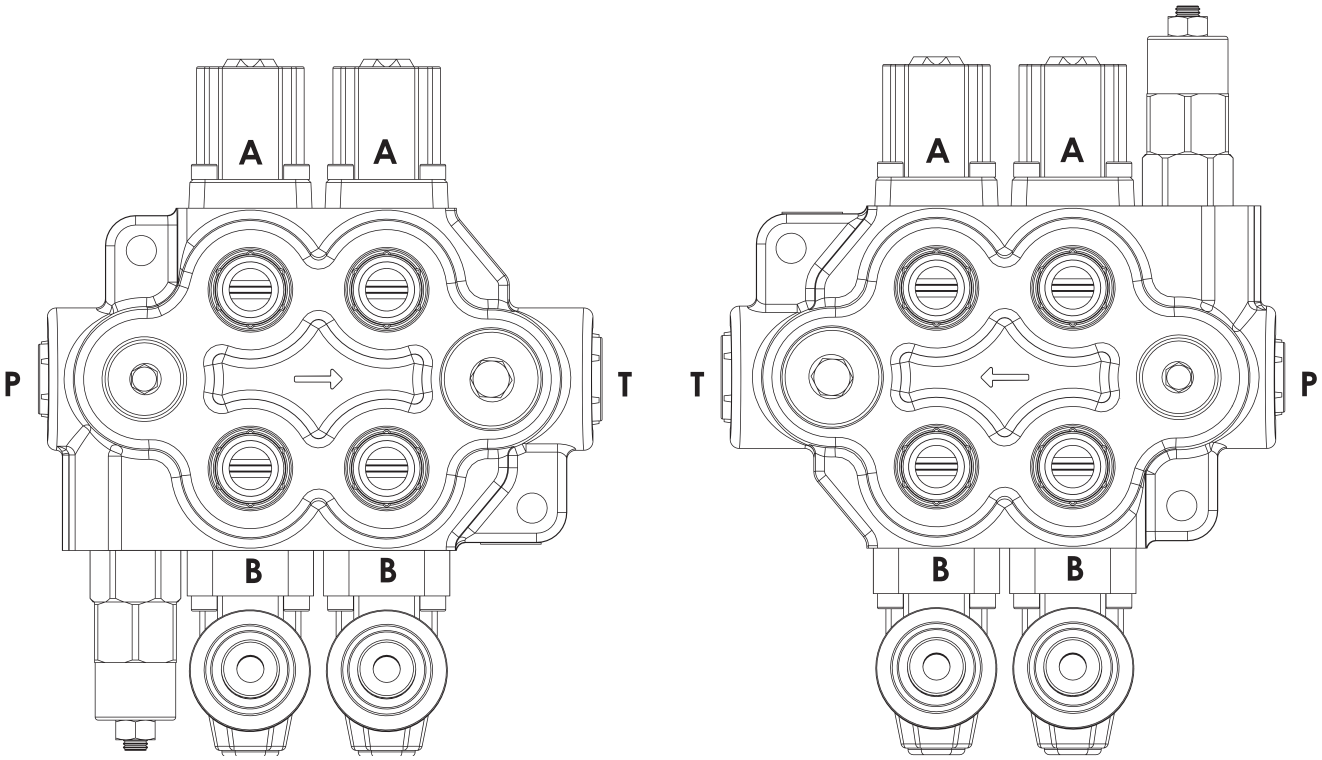


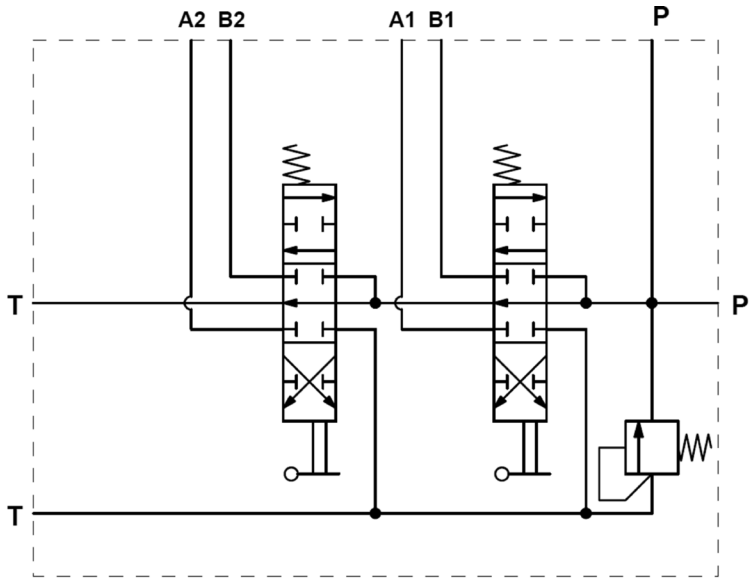


Code: ORV M80-2P / SMR2-120 / 1A-SR-STL/1A-SR-STL/PA1/SGT

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

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

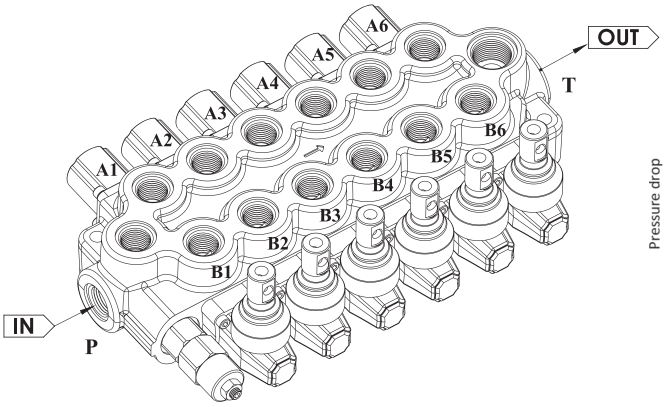


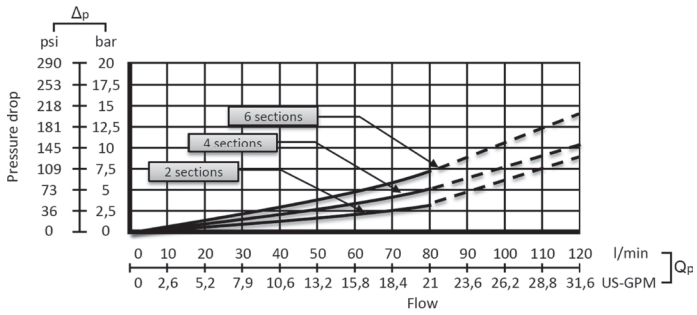


Code: ORV M80-2P / SMR2-120 / (RH) 1A-SR-STL/1A-SR-STL/PA1/SGT

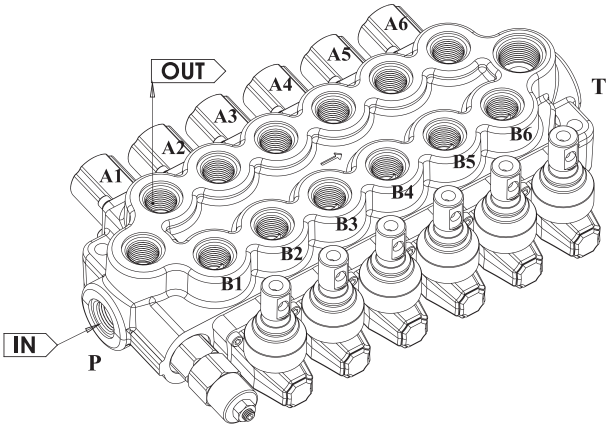
PERFORMANCE DATA AND CURVE

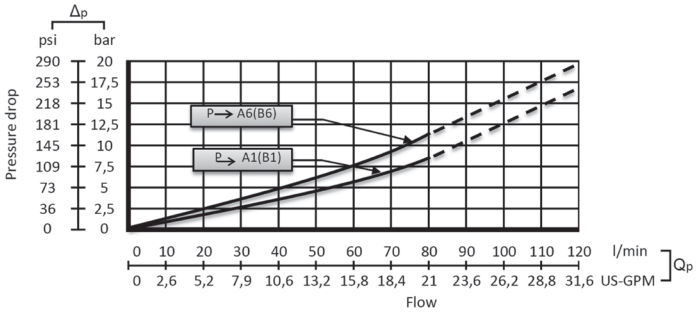
Open Center - Pressure Drop (P-T)



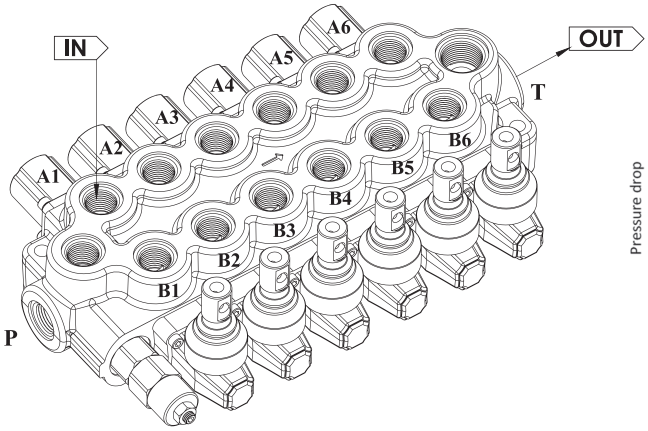


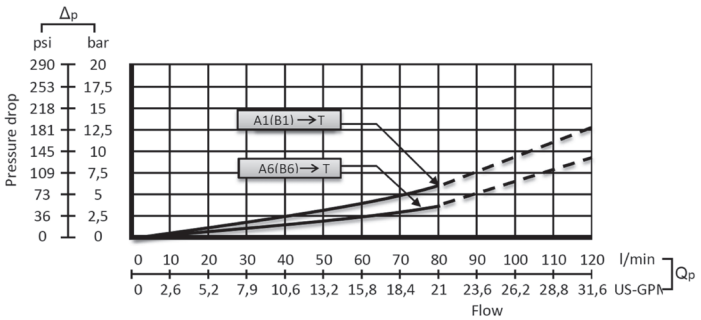
Inlet to Work Port - Pressure Drop (P-A/B)





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





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

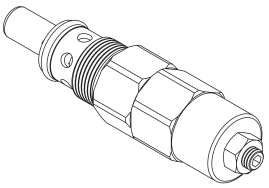
INLET RELIEF OPTIONS

Direct Pressure Relief Valve

Code:

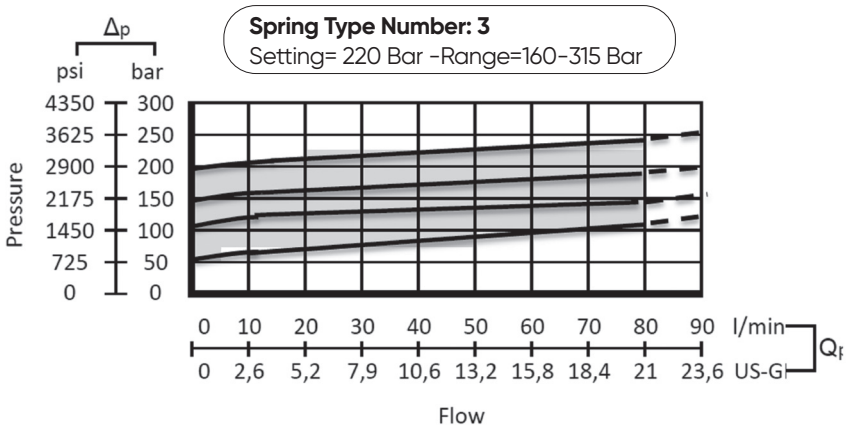
SMR2 – 120

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

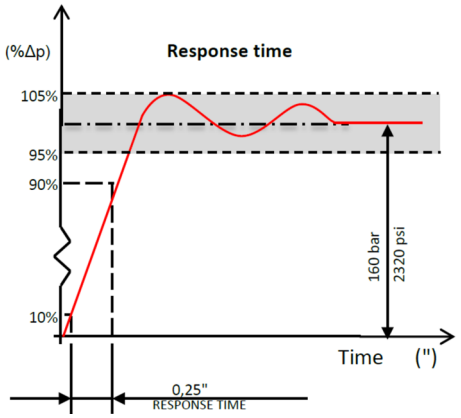




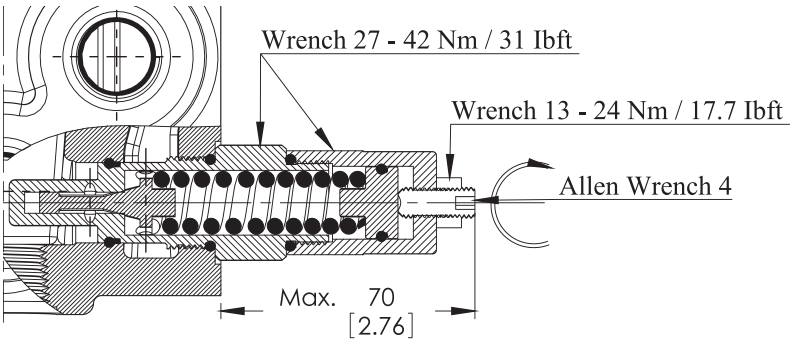
Performance Data



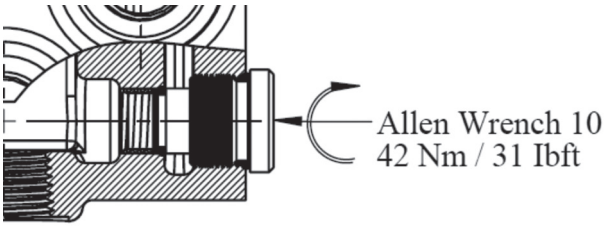
Spring Type Number: 3
Setting= 220 Bar -Range=160-315 Bar

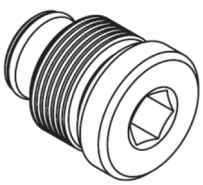


Adjustment Type on Valve



Relief Blanking Plug - WM



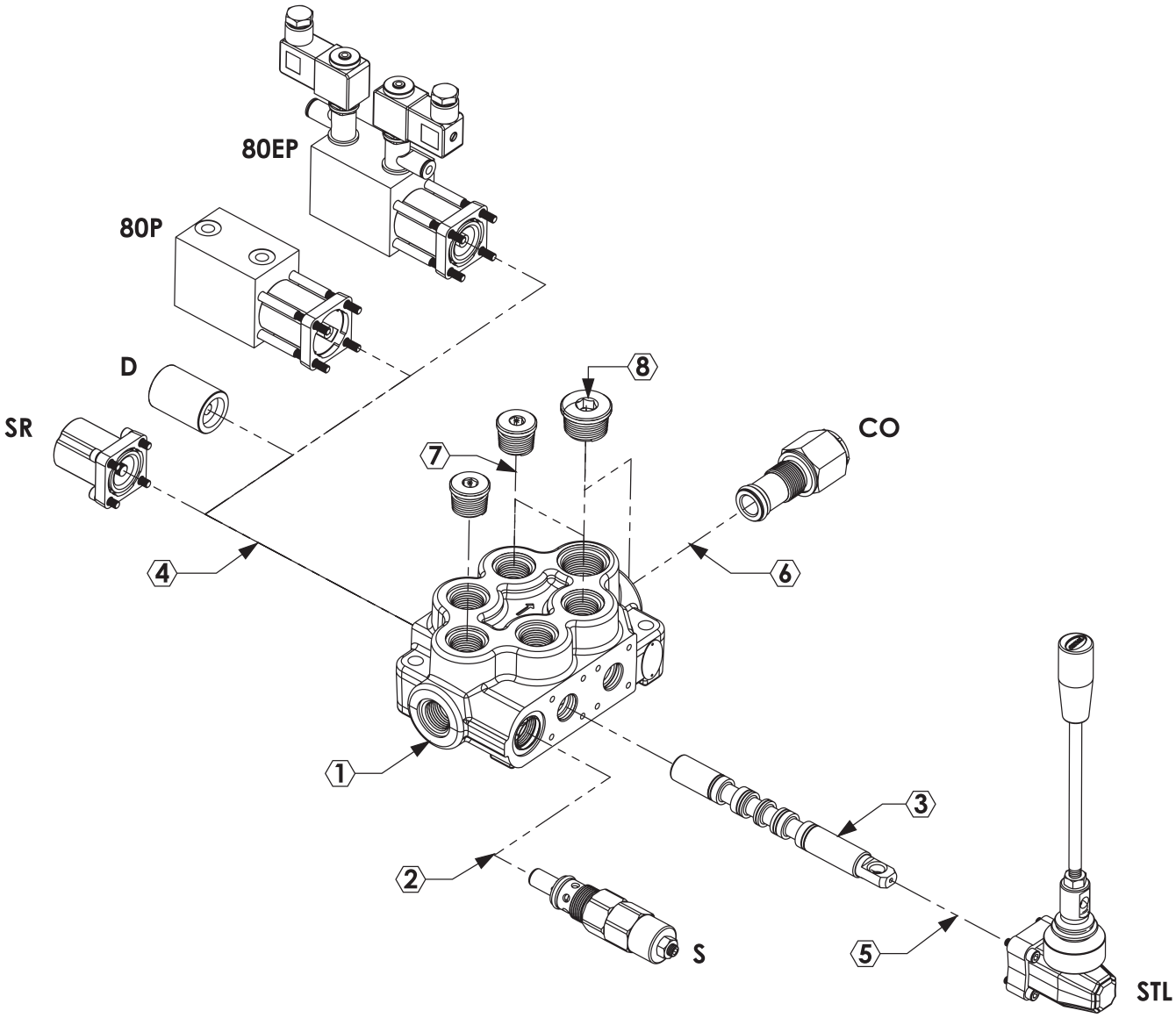




ORDERING CODES

Order Example

ORV M80-2P	/	SMR2-120	/	1A-SR-STL	/	1A-80P-STL	/	CO - PL1 - P1	/	SGT
1		2		3 4 5 (1st Section)		Following Section		6 7 8 (Output Section)		9



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)

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

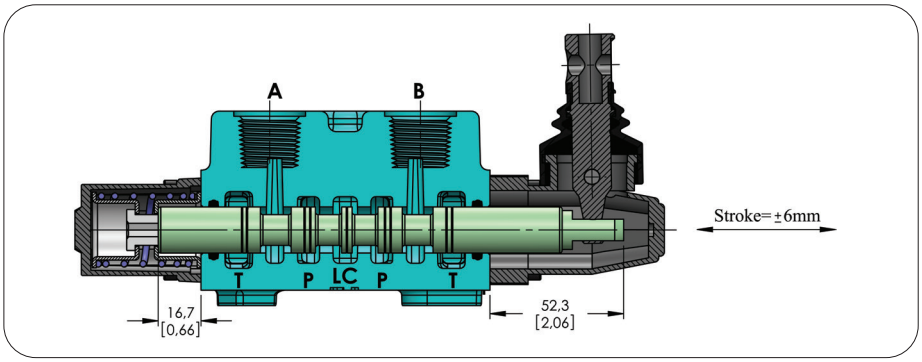
SGT1 =1/2" Series Port Options - (9P045112)
SGT3 =3/4" Series Port Options - (9P080134)
UNF =UNF Series Port Options - (9U045138)
M =Metric Series Port Options - (9M045138)
*Page 4 for detail port information.

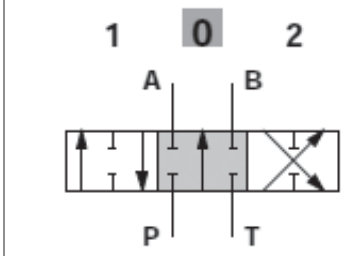
HandLever

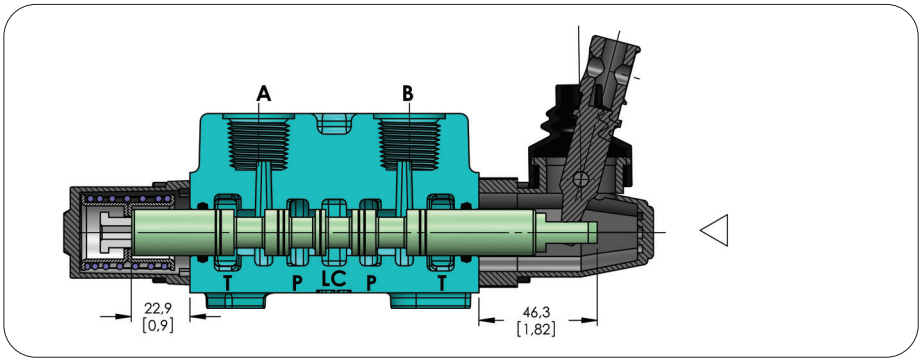
L = Standard HandLever (L=120mmxM8)-(7L040100)
HL = Remote Cable Kit – (80HL80100)

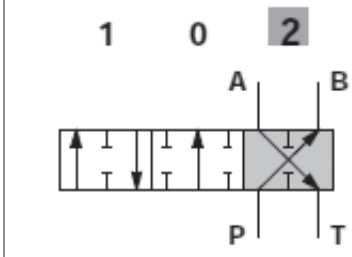
SPOOL OPTIONS

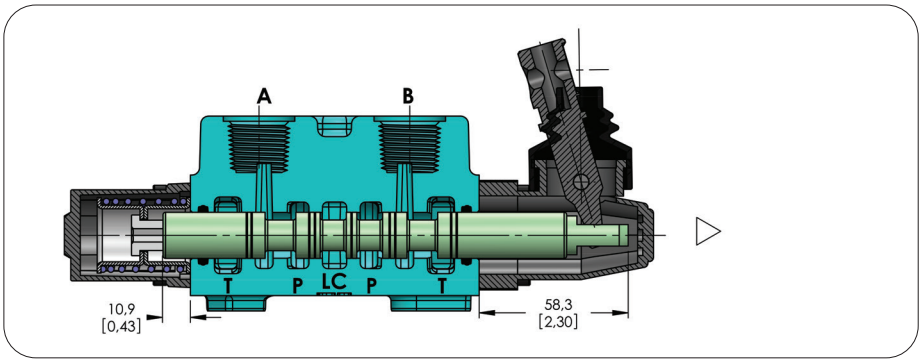
Spool Type - 1A

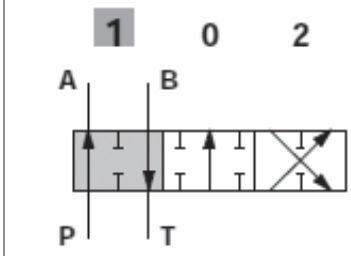




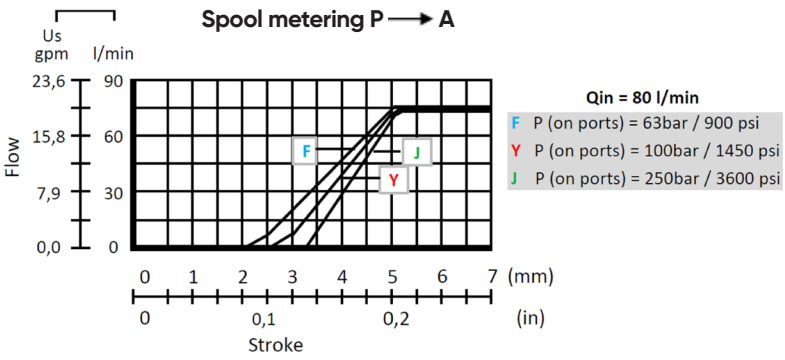








Performance Curve And Data

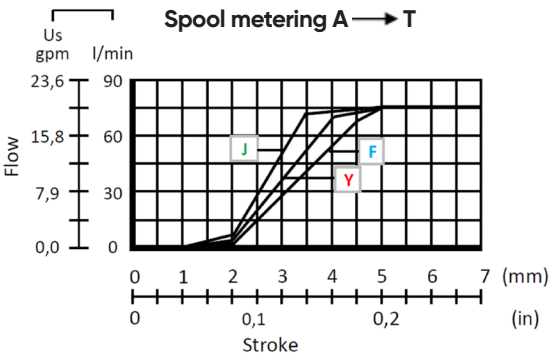


Qin = 80 l/min

F P (on ports) = 63bar / 900 psi

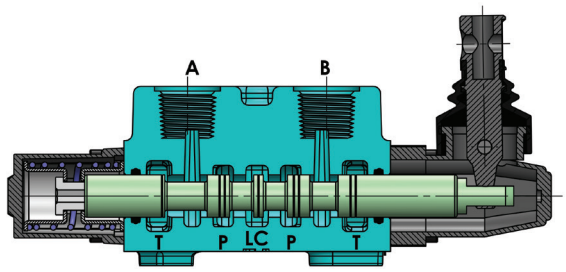
Y P (on ports) = 100bar / 1450 psi

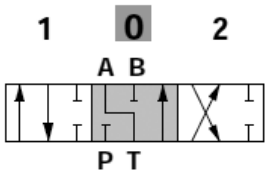
J P (on ports) = 250bar / 3600 psi



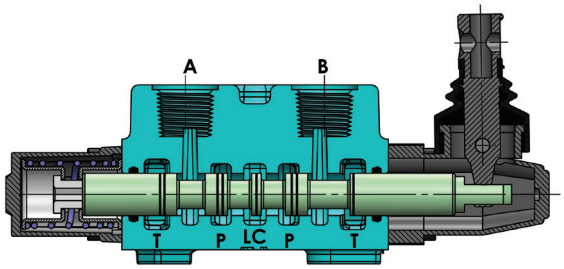
SPOOL OPTIONS

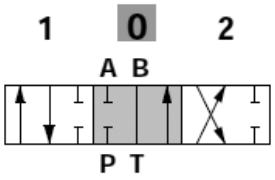
Spool Type - 2A



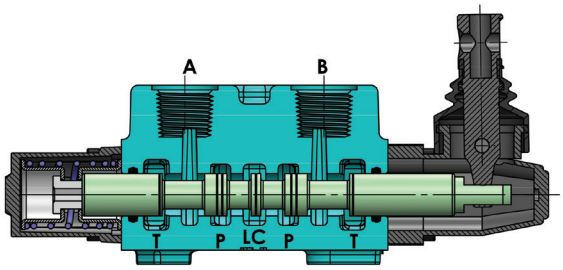


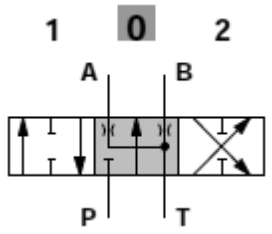
Spool Type - 3A



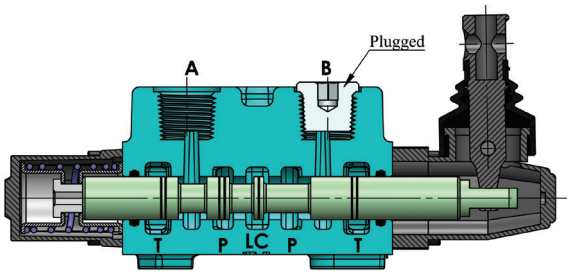


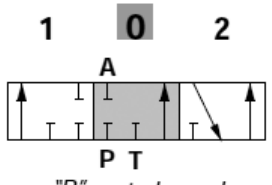
Spool Type - 4A





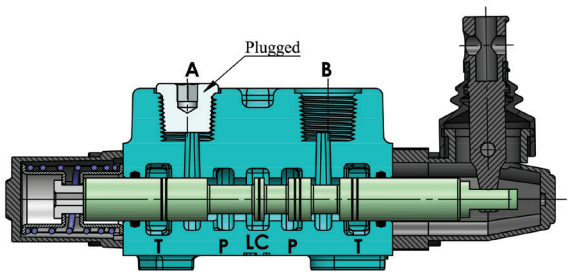
Spool Type - 5A

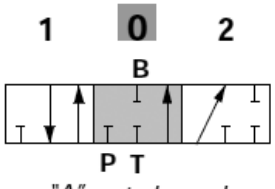




"B" port plugged

Spool Type - 6A





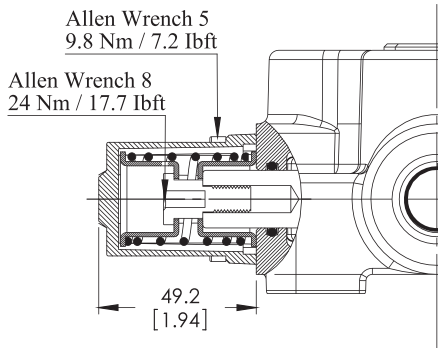
"A" port plugged

SPOOL POSITIONERS – SIDE OF RETURN

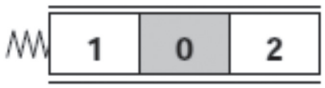
With Spring Return in Neutral Position

Kit No: **SR**

Sectional Appearance



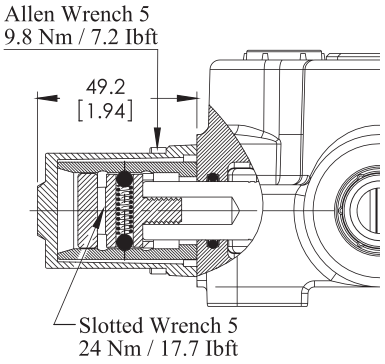
Diagram



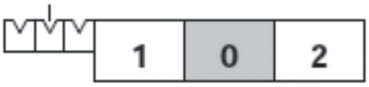
With Detent

Kit No: **D**

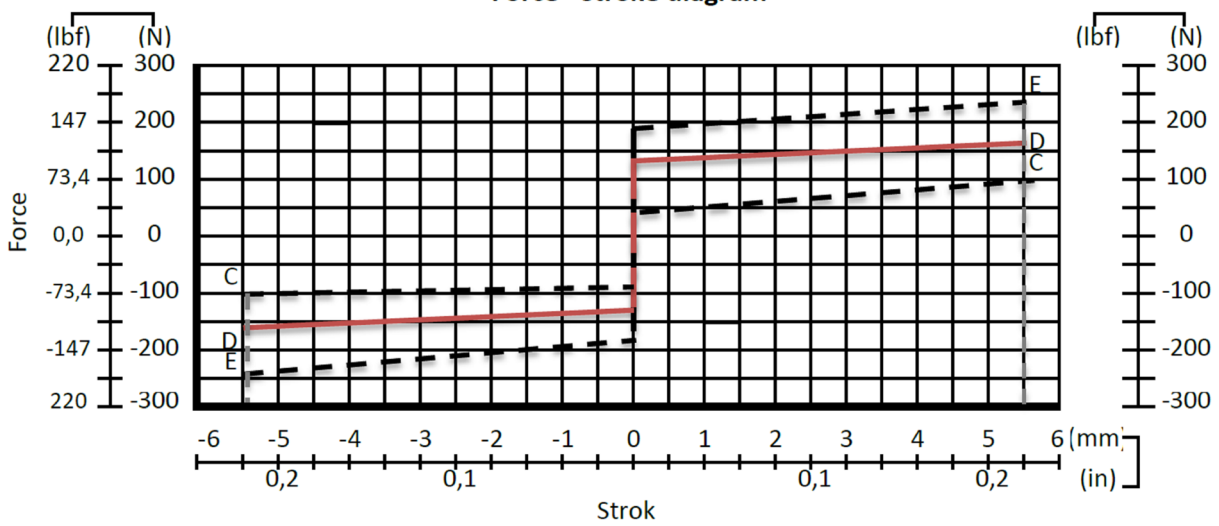
Sectional Appearance



Diagram



Force - stroke diagram

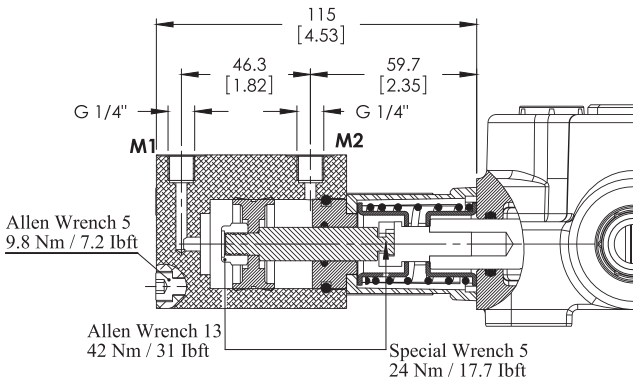


SPOOL POSITIONERS – SIDE OF RETURN

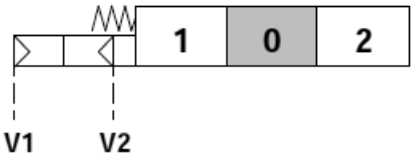
ON/OFF Pneumatic Control

Kit No: **80P**

Sectional Appearance



Diagram



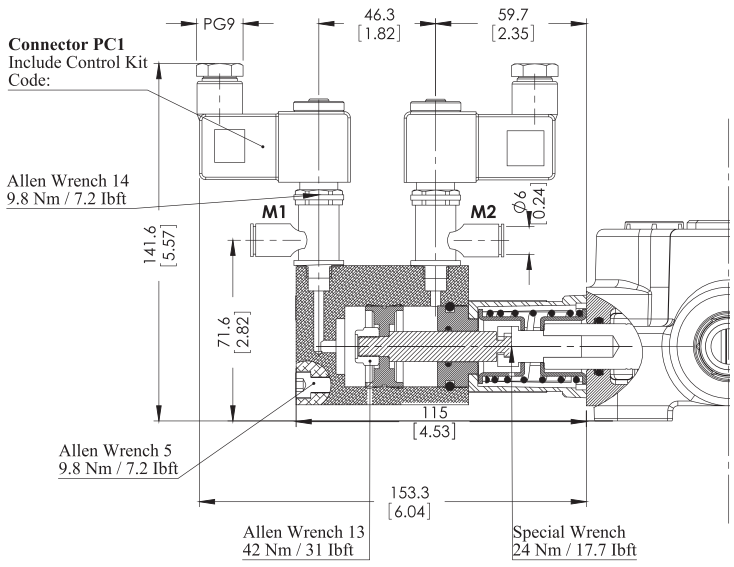
Operating Features

Pilot Pressure .....: 6 Bar (Max. 10) / 87 Psi (Max. 145)

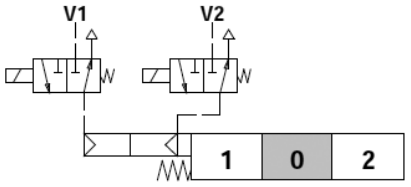
ON/OFF Electro-Pneumatic Control

Kit No: **80EP**

Sectional Appearance



Diagram



Operating Features

Pilot Pressure .....: 6 Bar (Max. 10) / 87 Psi (Max. 145)

Selenoid Operating Features

Nominal Voltage.....: 12VDC / 24 VDC

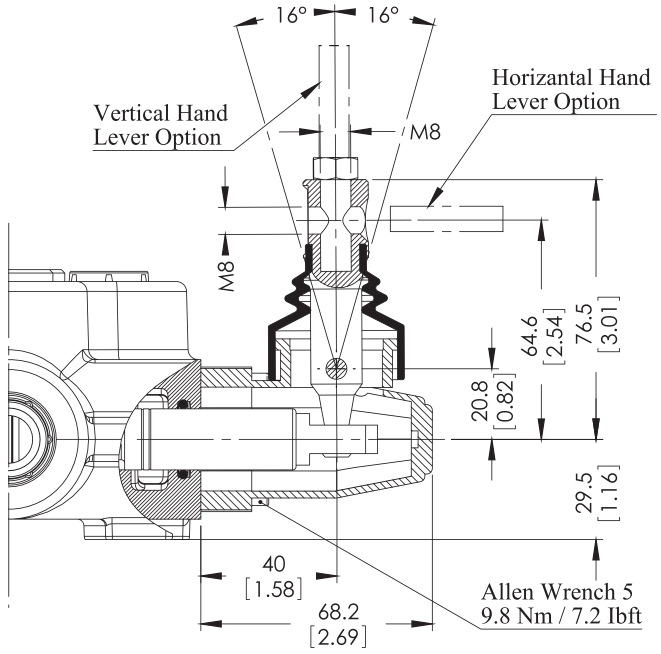
Power Rating.....: 6 W

SPOOL POSITIONERS – SIDE OF LEVER CONTROL

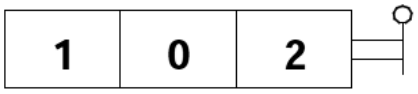
Lever Controls

Kit No: **STL - L0**

Sectional Appearance

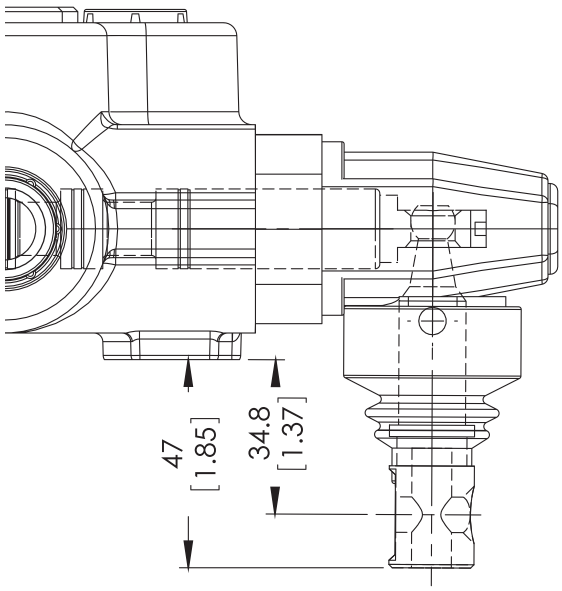


Diagram

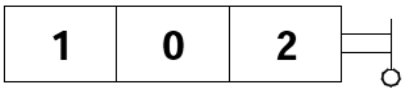


Kit No: **STL - L180**

Sectional Appearance



Diagram



Note: Arm lever pivot box is aluminium cap protected. And it can be rotated 180º.

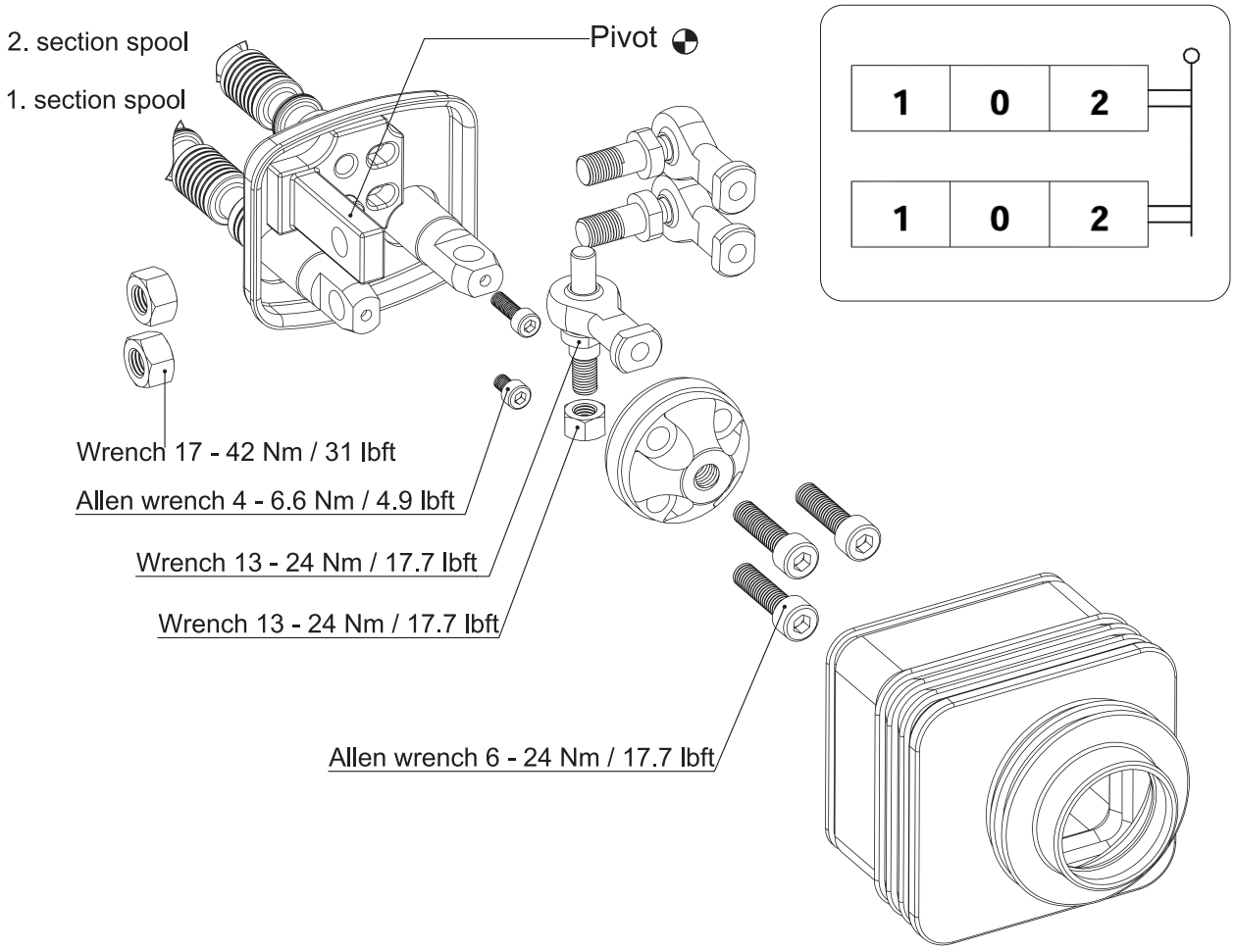
SPOOL POSITIONERS – SIDE OF LEVER CONTROL

Lever Controls - Joystick

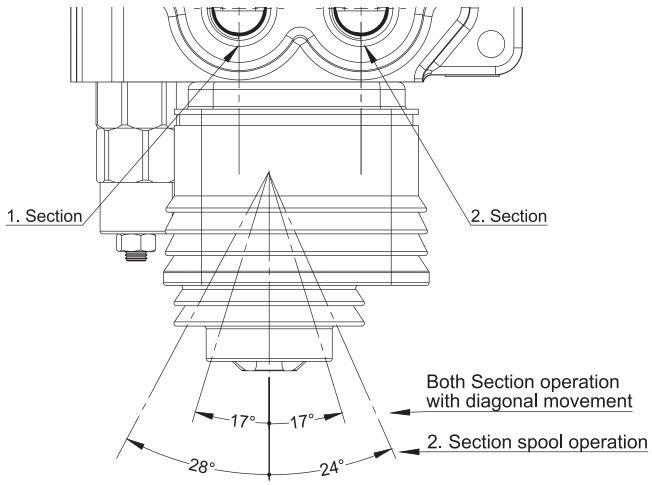
Kit No: **JL**

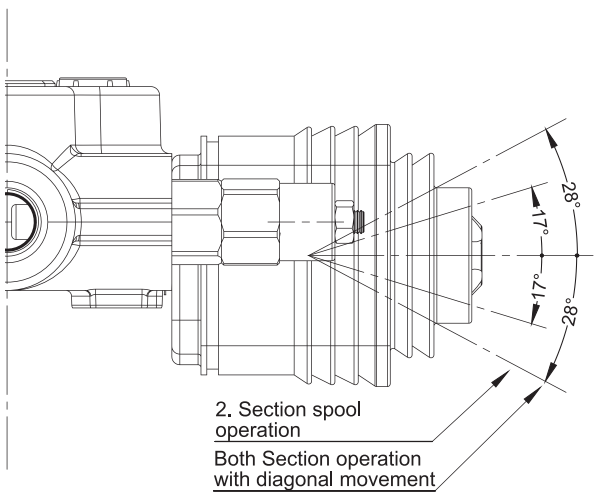
Exploded View

Diagram



Operation Angle:



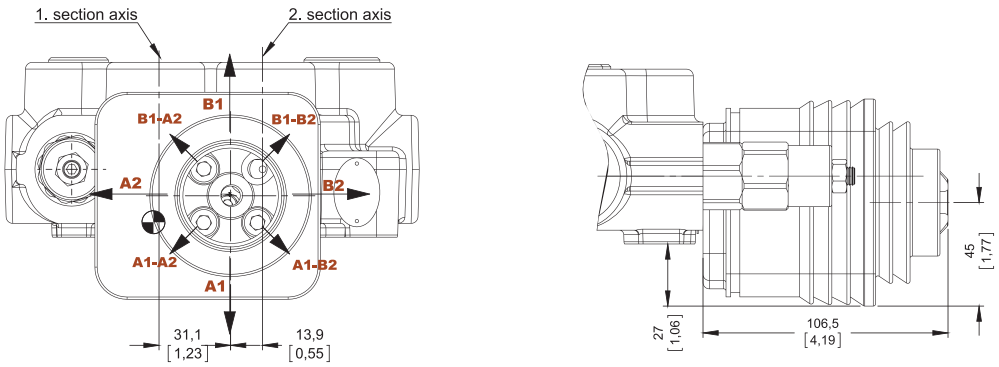


SPOOL POSITIONERS – SIDE OF LEVER CONTROL

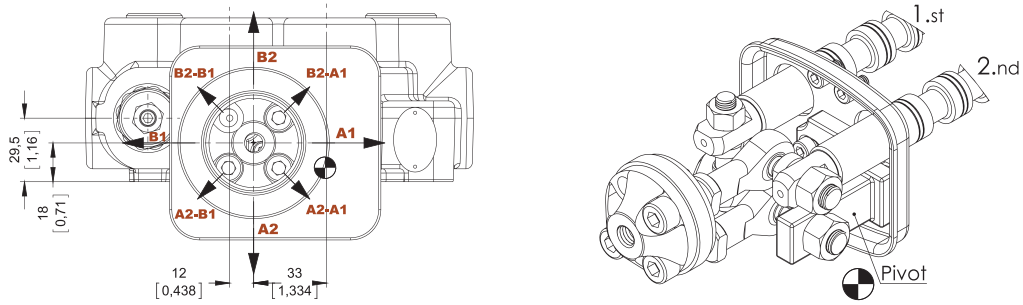
Lever Controls - Joystick

Dimensions and movement sceme

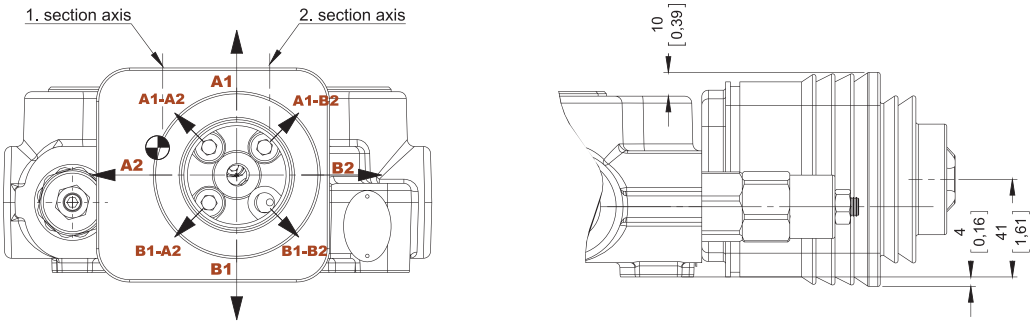
Type No: **JL1** — **Application:** Pivot placed down on the Left



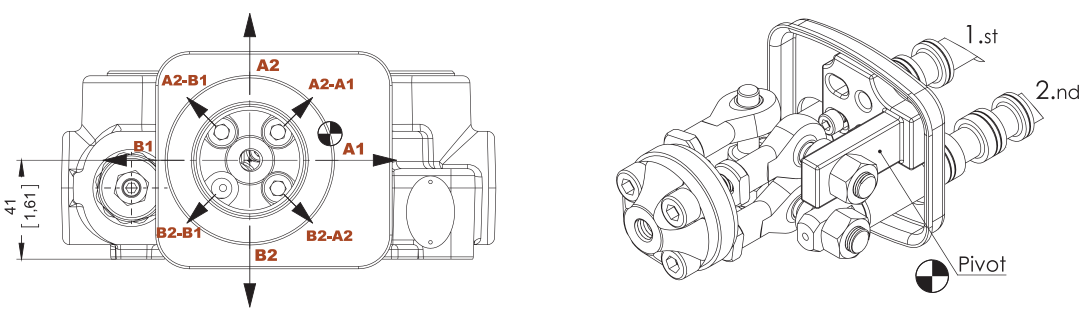
Type No: **JL2** — **Application:** Pivot placed down on the right



Type No: **JL3** — **Application:** Pivot placed above on the Left



Type No: **JL4** — **Application:** Pivot placed above on the right



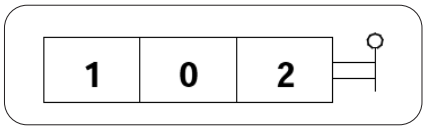
SPOOL POSITIONERS – SIDE OF LEVER CONTROL

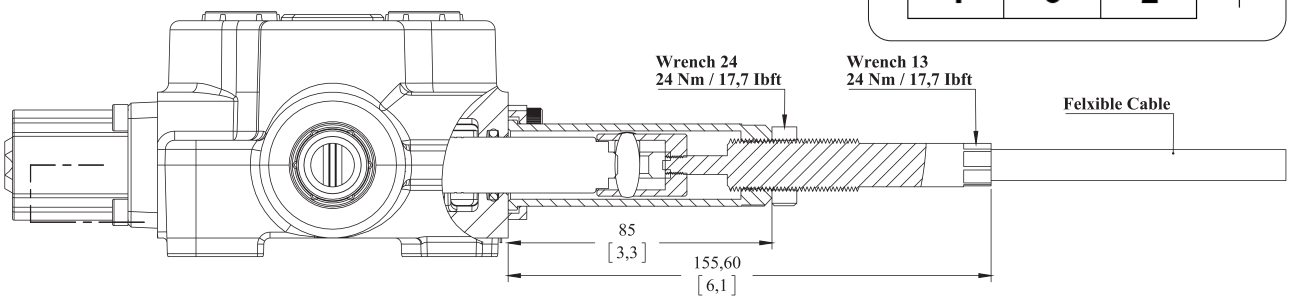
Lever Controls - Cable Control

Kit No: **HL**

Exploded View | Diagram

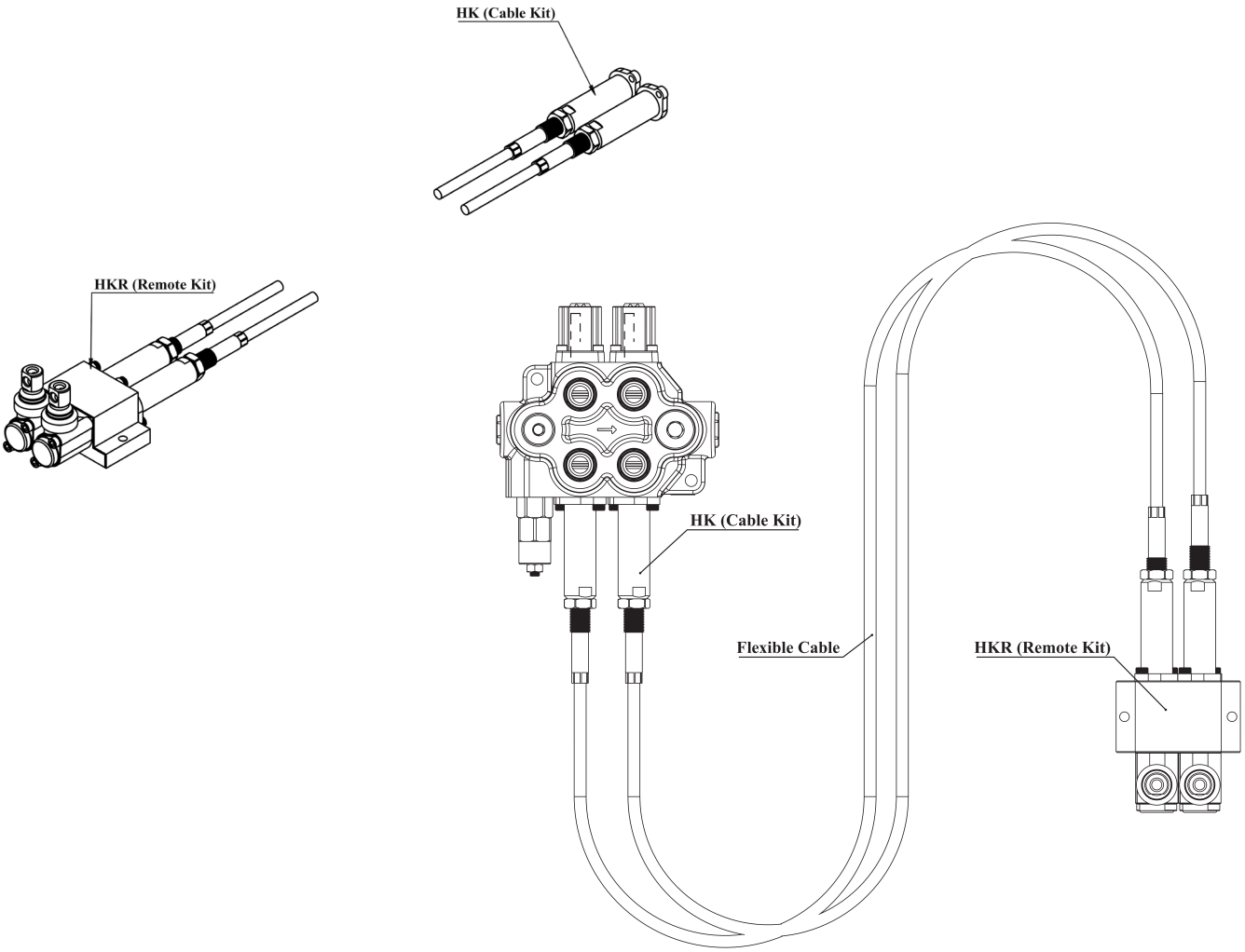
Waterproof cap prearranged for remote control with flexible cable.





Note: Remote cable control has several options. Please indicte the cable length demanded and contact our sales department.

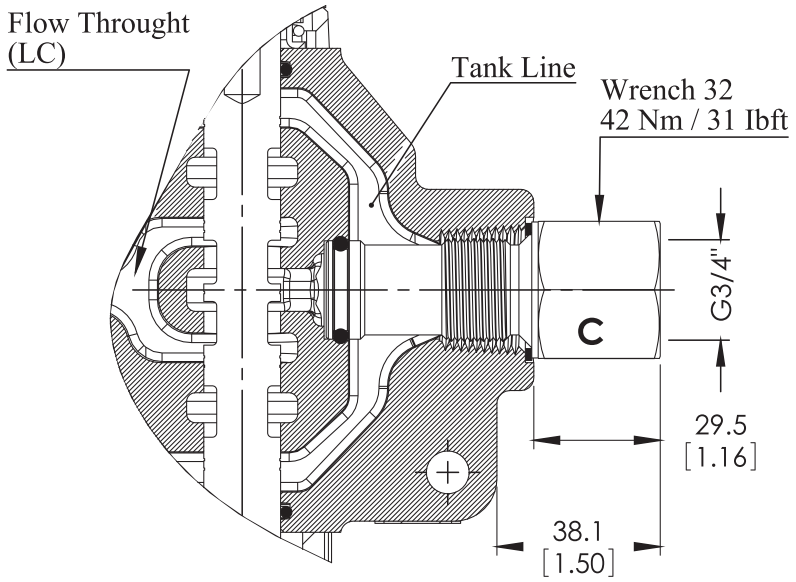
Example Operation



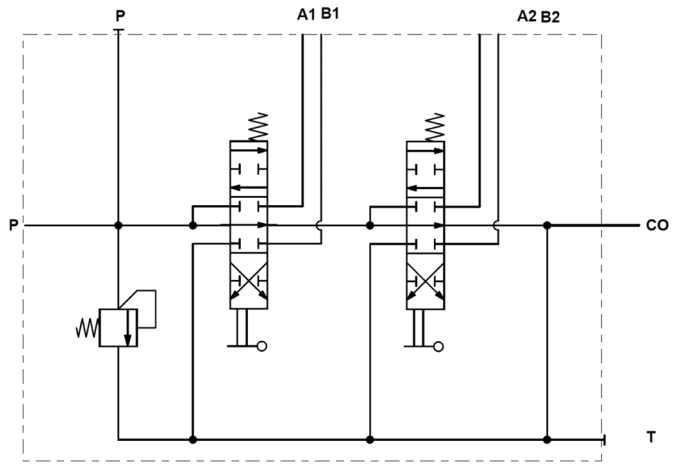
OUTLET PORT OPTIONS

Carry - Over Connection

Kit No: **CO**

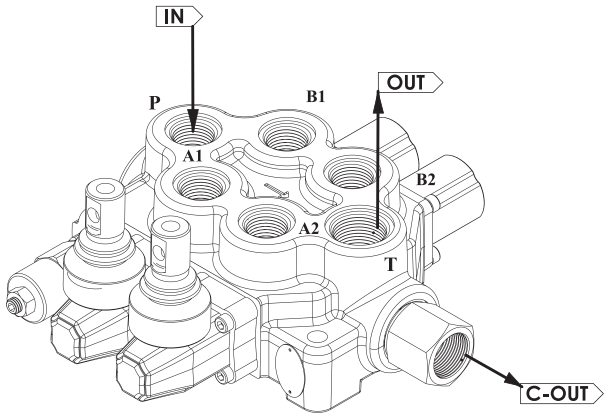


Sectional Appearance



Hydraulic Circuit

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



Direction of Port Connectted

SGT : See page 5 for Standard center

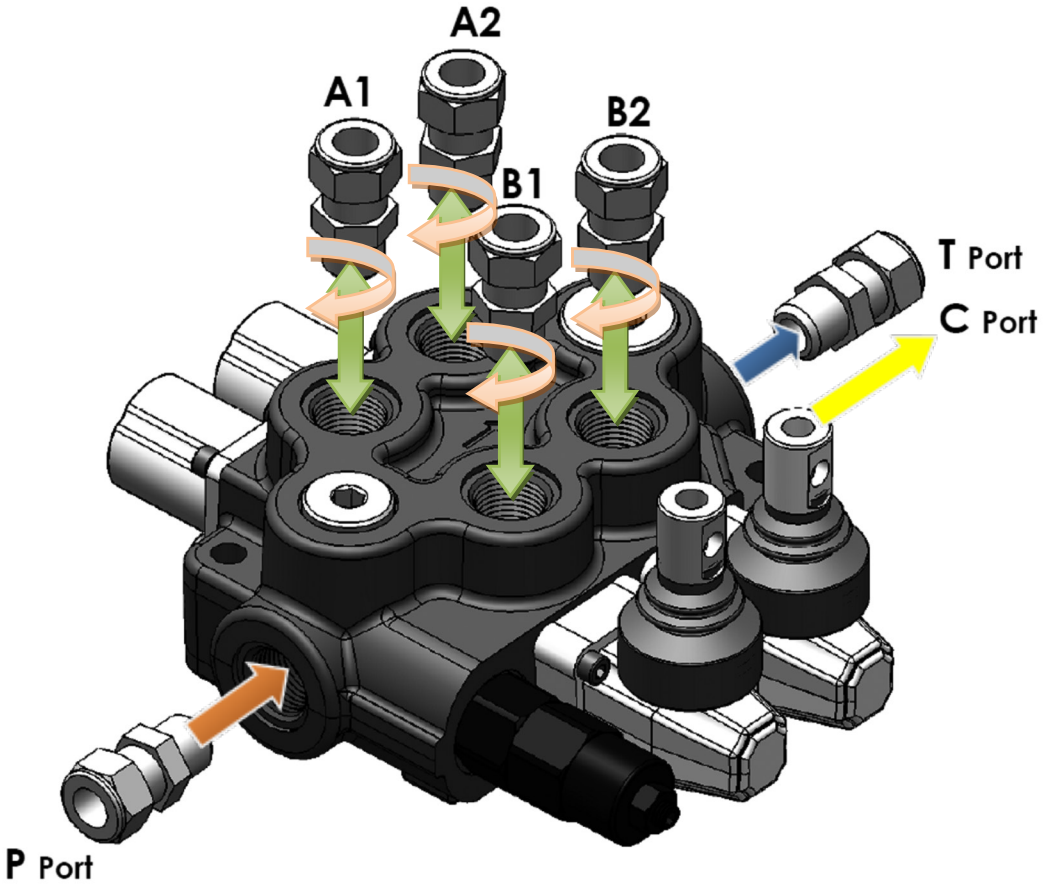
INSTALLATION AND MAINTENANCE

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;

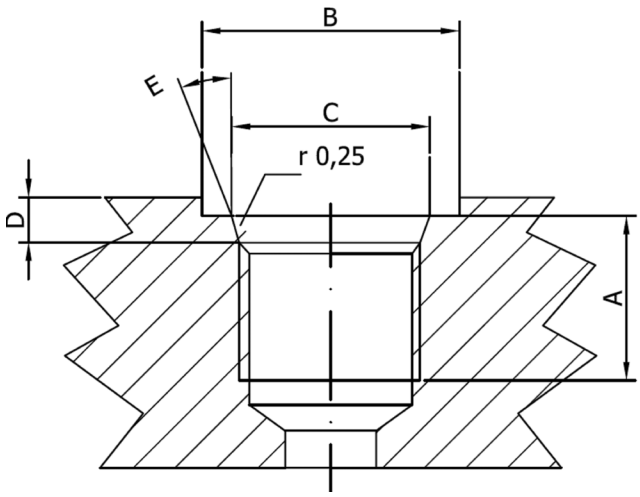
• Before painting, ensure plastic port plugs are tightly fitted.



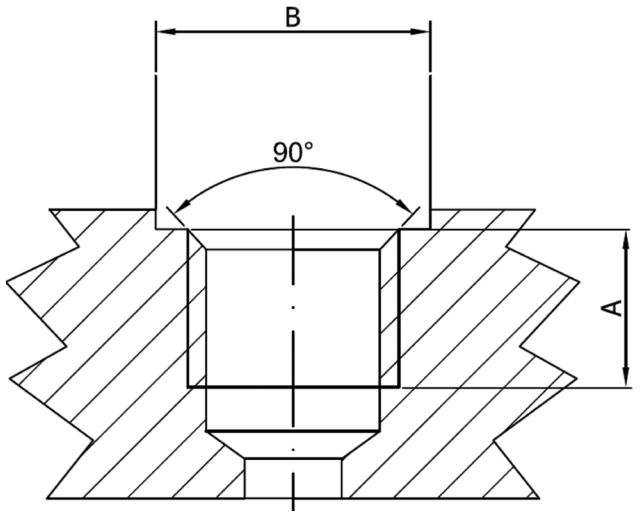
Threads Type (Nm / lbft)	P Port	A and B Port	T and C Port
BSP (ISO 228/1)	G 1/2	G 1/2	G 3/4
With O--Ring seal	50 / 36.9	50 / 36.9	70 / 51.6
With copper washer	60 / 44.3	60 / 44.3	70 / 51.6
With steel and rubber washer	60 / 44.3	60 / 44.3	70 / 51.6
BSP (ISO 228/1)	G 3/4	G 3/4	G 3/4
With O--Ring seal	70 / 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

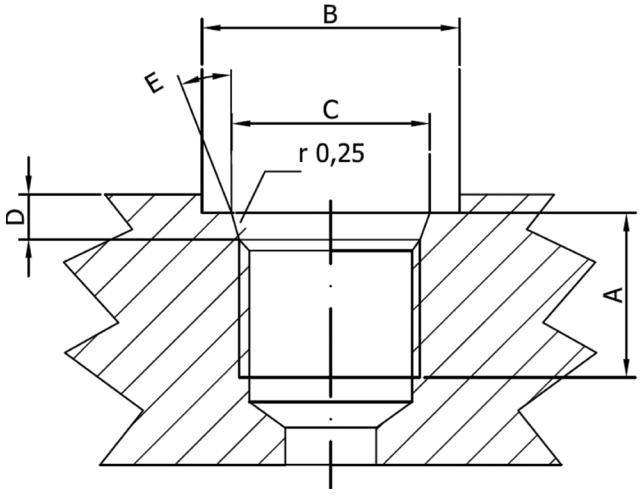
Ports Dimensional Data



SAE UN-UNF (ISO 725)						
Dimensions		7/8-14 UNF SAE10		1"1/16-12 UN SAE12		1"5/16-12 UN SAE16	
mm	in						
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		G1	
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

ORVAL HYDRAULIC

ORV M80



ORIGINAL VALVE

ORVAL HYDRAULIC

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