

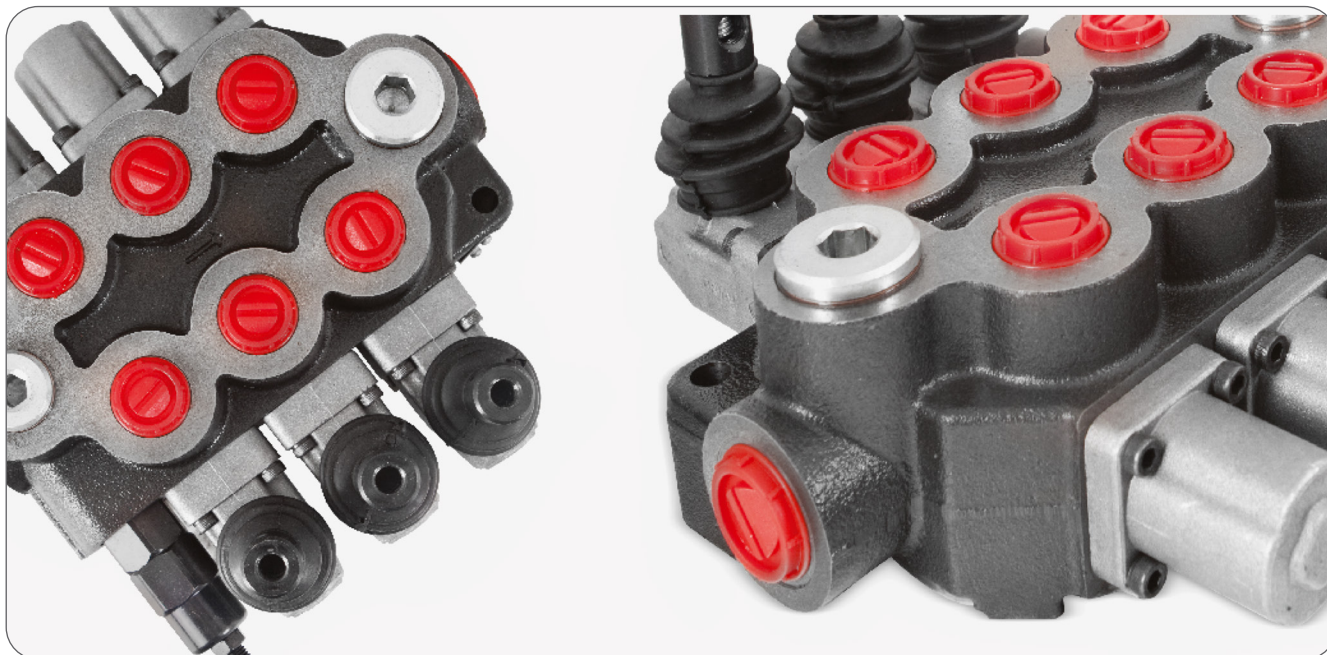


MONOBLOCK  
DIRECTIONAL  
CONTROL VALVES

**ORV-M80**

CE





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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**

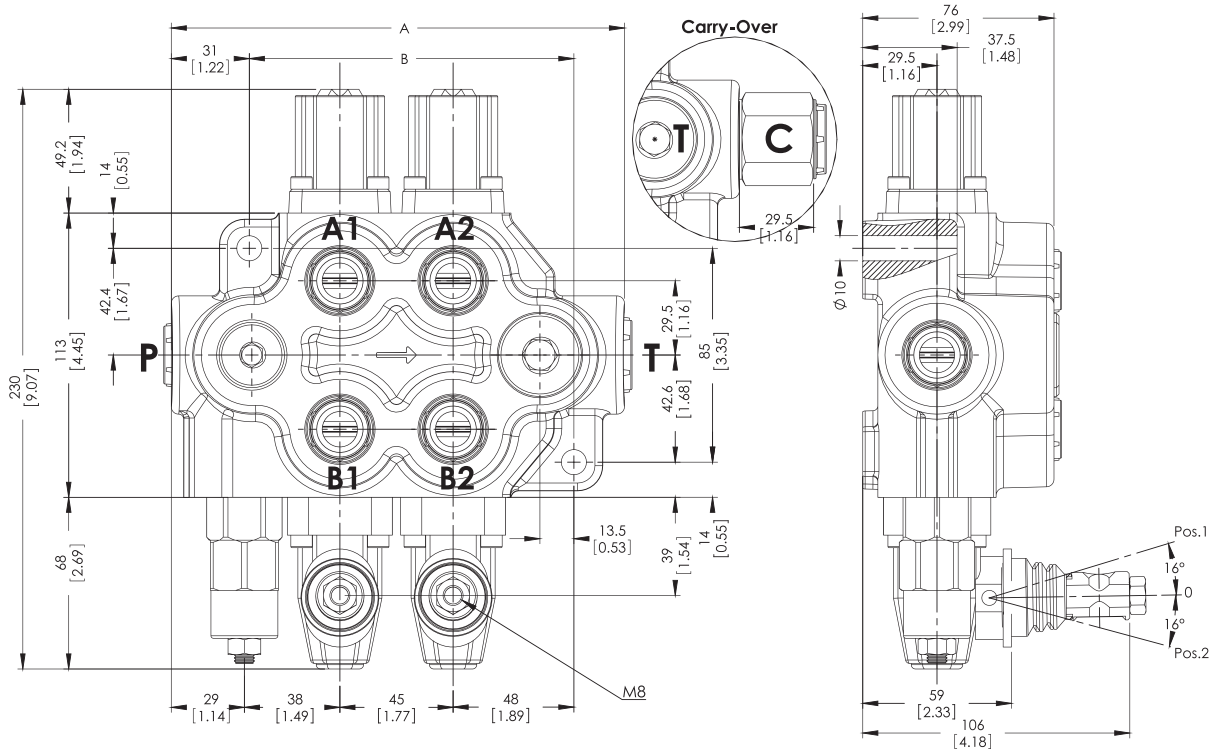
Nominal Flow Rating / Displacement	80 l/min	21 U.S.G.P.M
Maximum Working Pressure (Series Circuit)	315 Bar	4600 PSI
Max. Back Pressure	25 Bar	360 PSI
Oil Temperature with NBR Seals	-20 to 80 C°	-4 to 176 F°
with FPM (Viton) Seals	-20 to 100 C°	-4 to 212 F°
Oil Viscosity – Operating Range	From 10 to 75 mm <sup>2</sup> /s	From 10 to 75 cSt
Minimum / Maximum	10 / 400 mm <sup>2</sup> /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 cm <sup>3</sup> /min	0,18 in <sup>3</sup> /min
Max. Level Of Contamination	19/16 - ISO 4406	

**Not:** This catalogue shows technical specifications measured with mineral oil of 46 mm<sup>2</sup>/s-46 cSt viscosity at 40 C° temperature.

**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.
- Optionally Carry-Over port only tandem circuit.
- Interchangeable spool diameter is 18 mm – 0,71 in.
- Available manual, pneumatic, hydraulic and electro-pneumatic spool control kits.

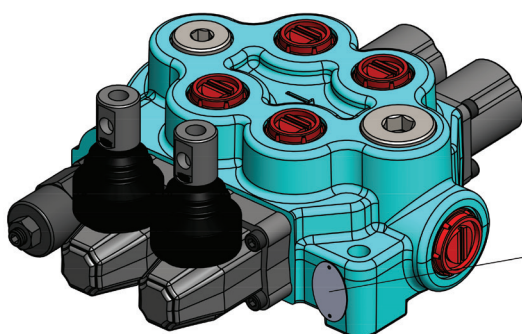
**DIMENSIONAL DATA**



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

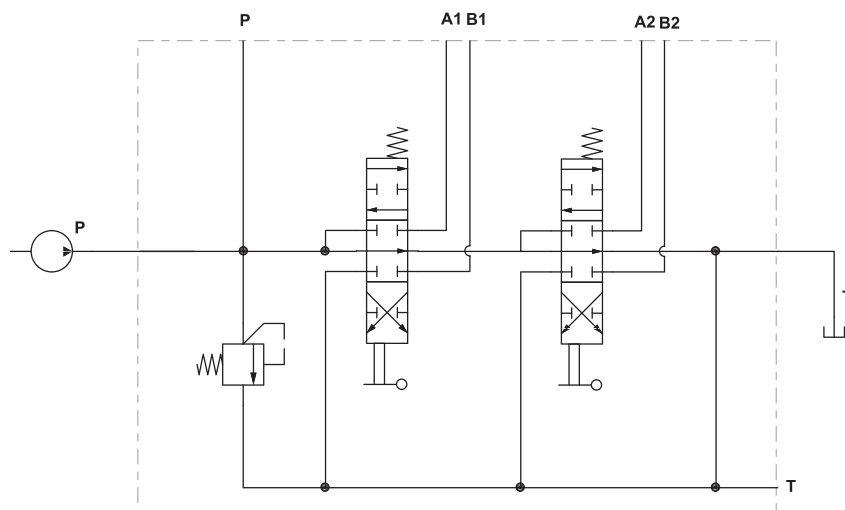
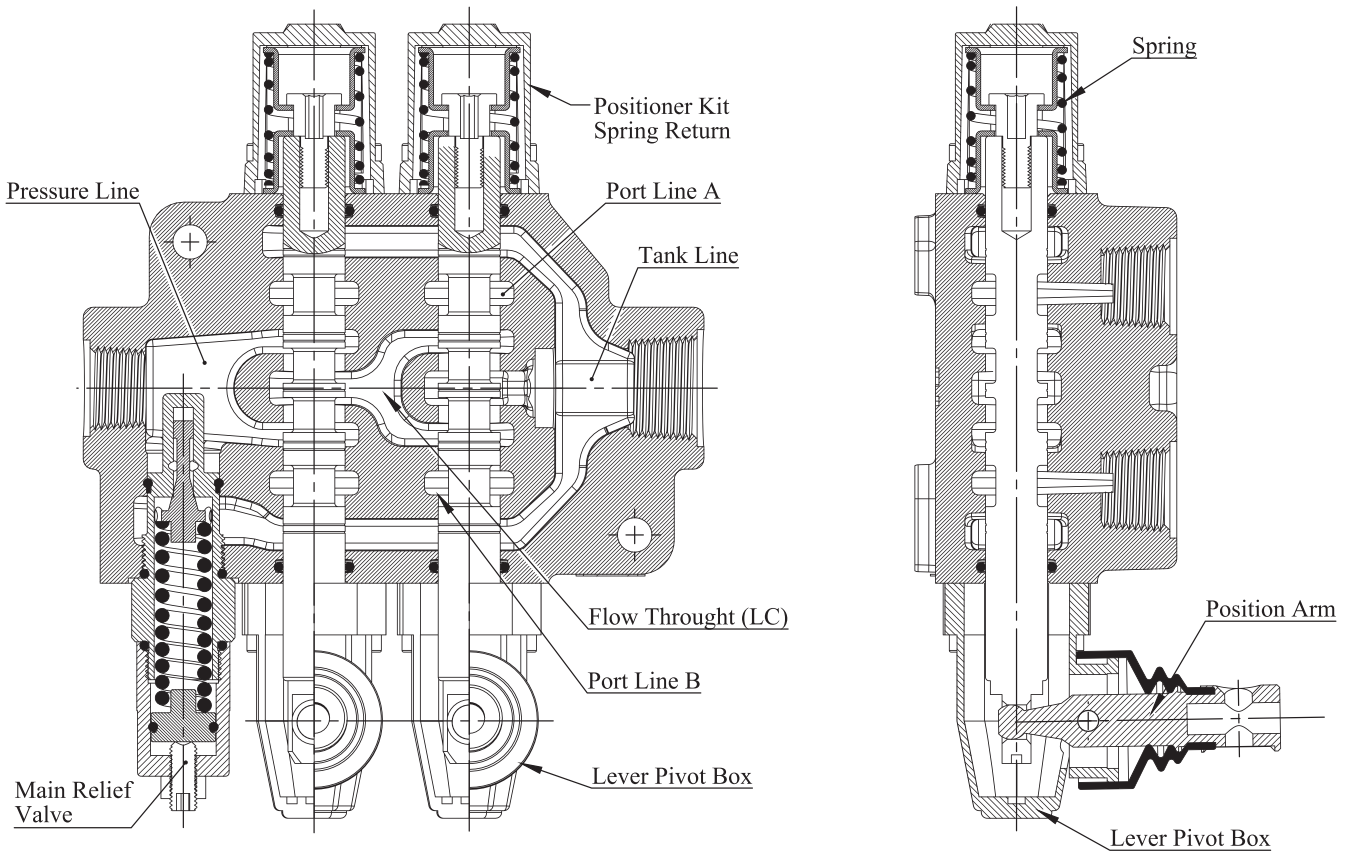


Valve Type  
 Production Batch  
 39.10 = Production Year - Week (2010/39)  
 101149 = Progressive Party Number



HYDRAULIC CIRCUIT

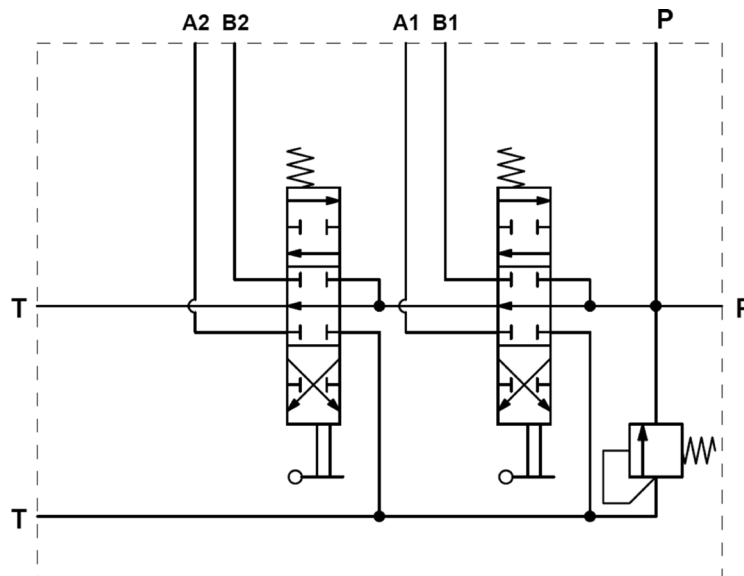
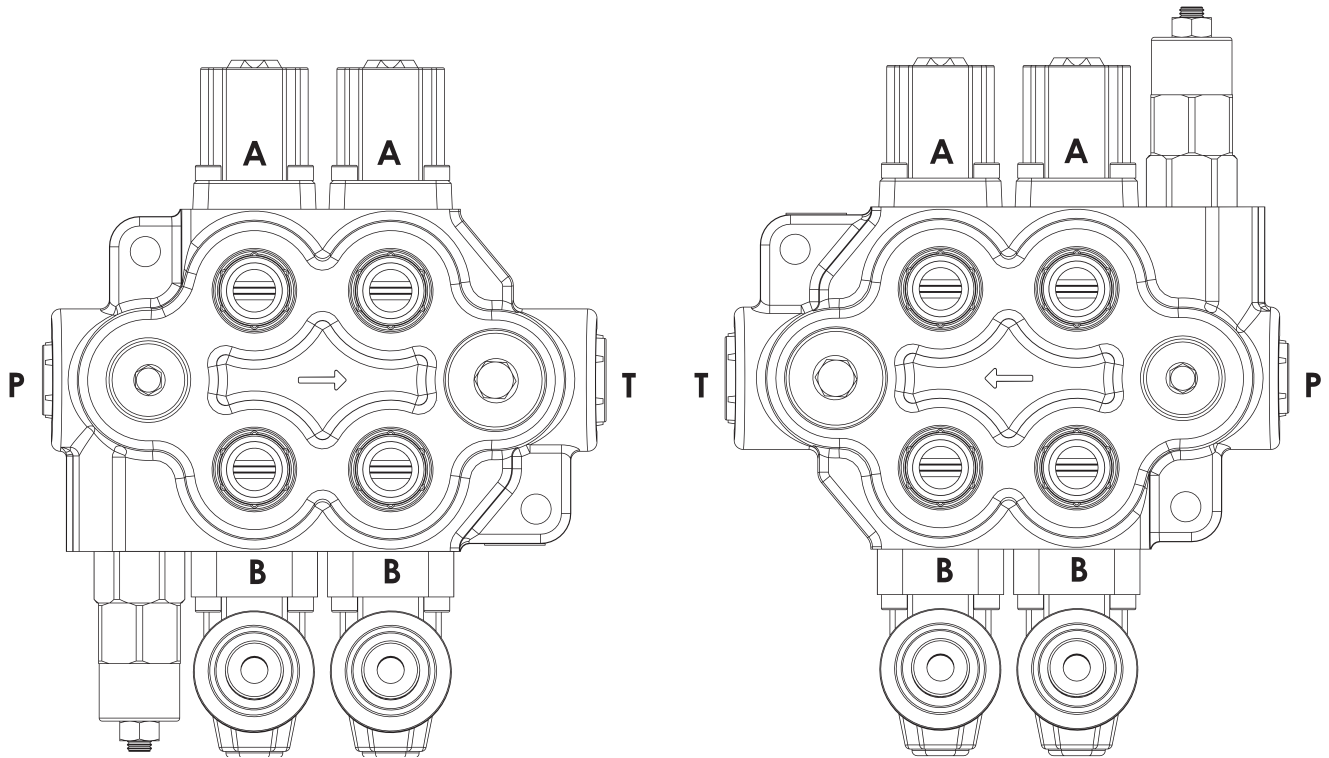
Standard Configurations With Top Inlet And Outlet Ports - LH



**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)**

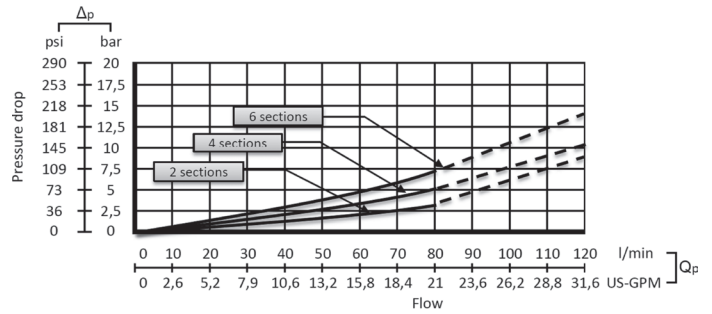
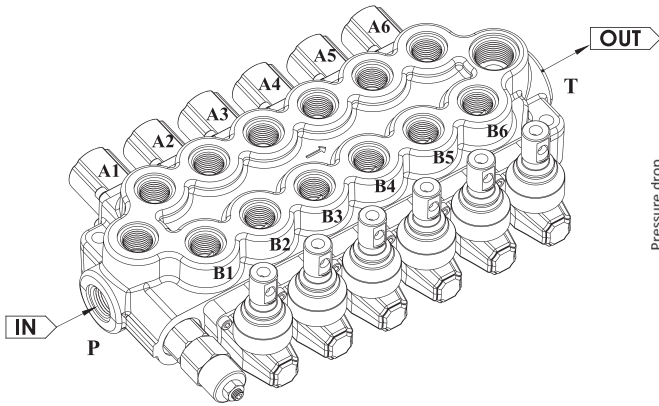
A symmetrical body allows the reverse assembly of spool and this with connected control kit (RH Configuration).



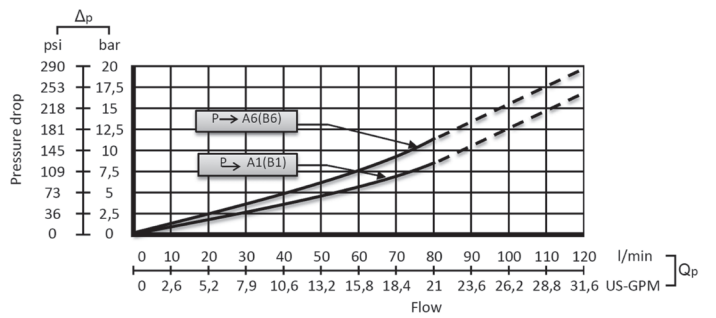
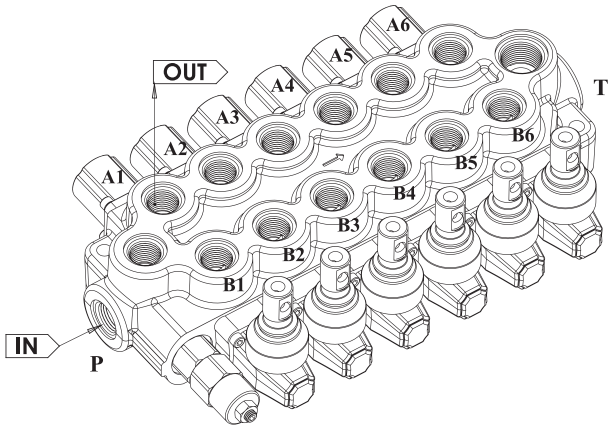
**Code:** ORV M80-2P / SMR2-120 / (RH) 1A-SR-STL/1A-SR-STL/PA1/SGT

PERFORMANCE DATA AND CURVE

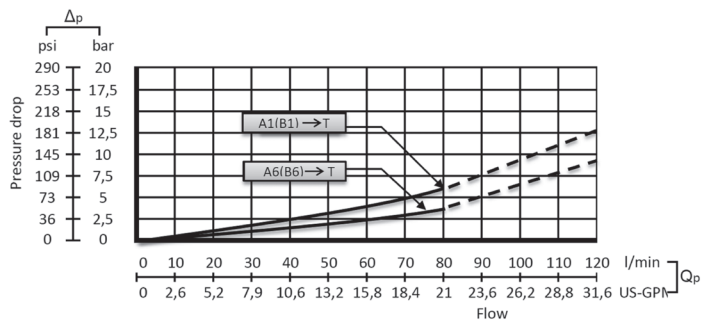
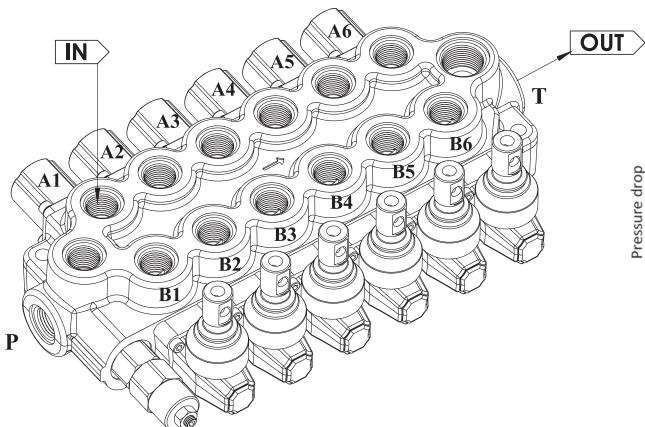
Open Center - Pressure Drop (P-T)



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.

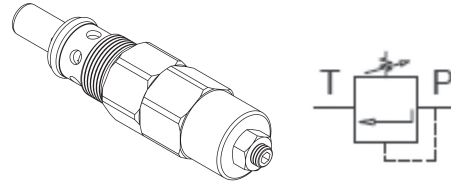
**INLET RELIEF OPTIONS**

**Direct Pressure Relief Valve**

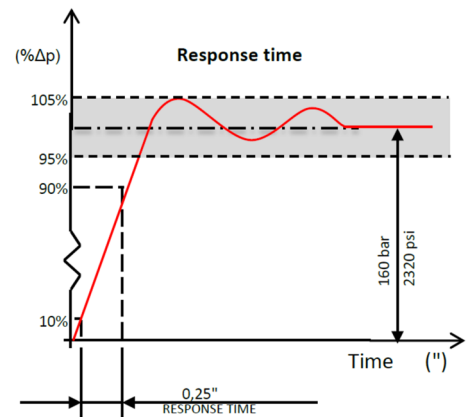
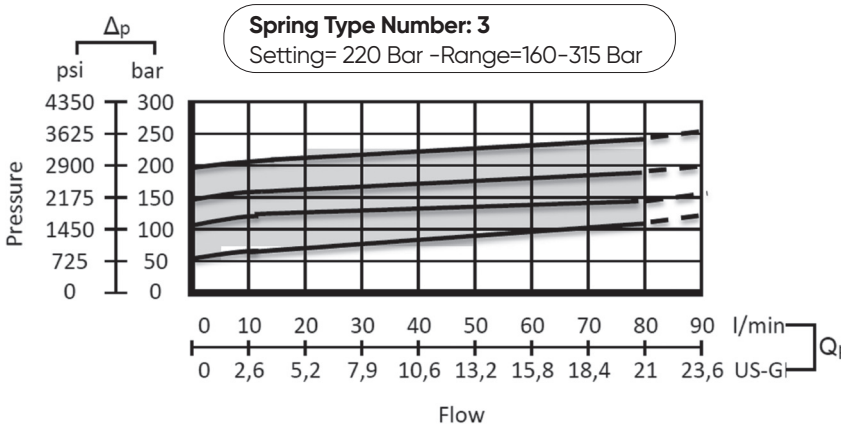
Code:

**SMR2 - 120**

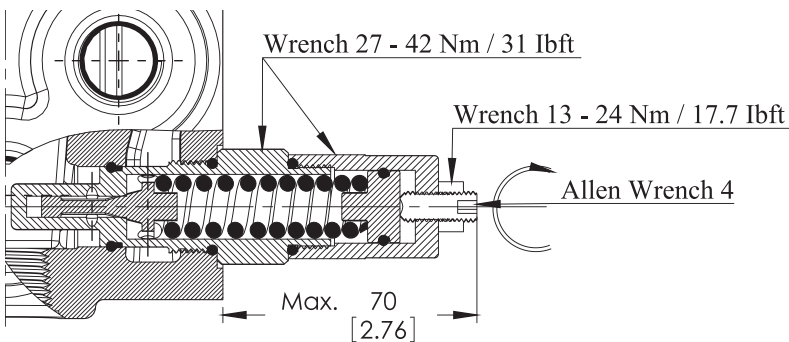
- Pressure Setting Bar in (Standard 120 bar)
- Standard Main Relief Spring Type -2



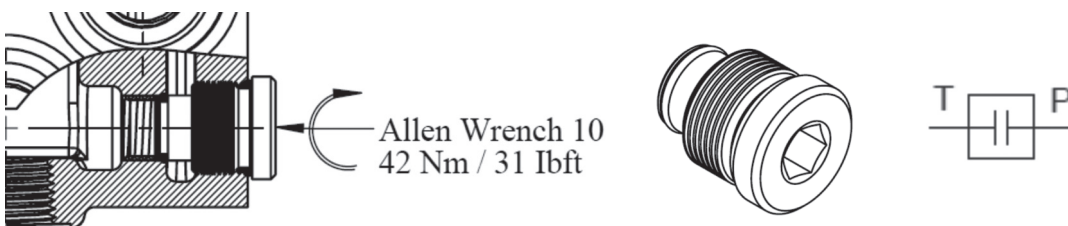
**Performance Data**



**Adjustment Type on Valve**



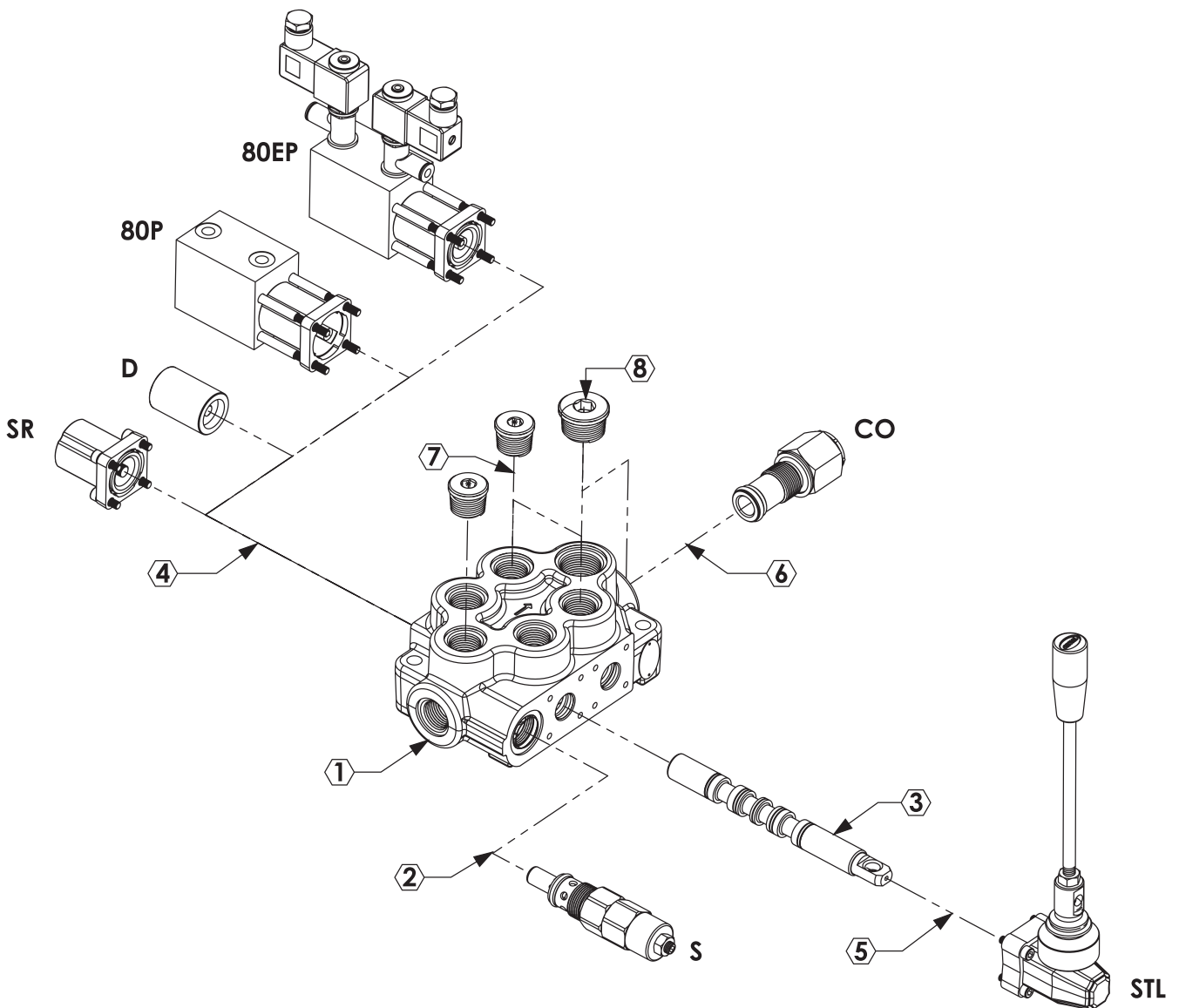
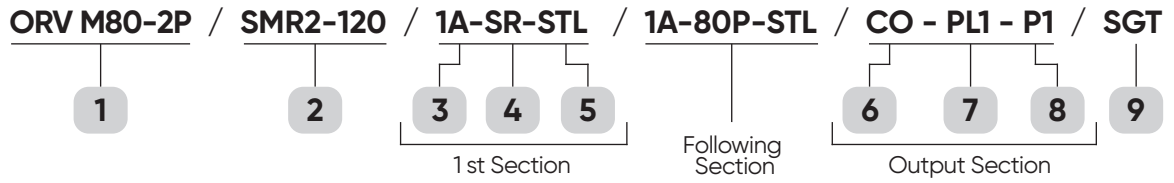
**Relief Blanking Plug - WM**





**ORDERING CODES**

**Order Example**



**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.

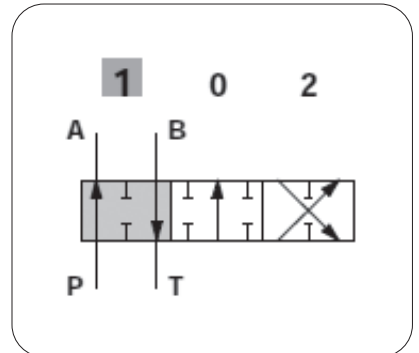
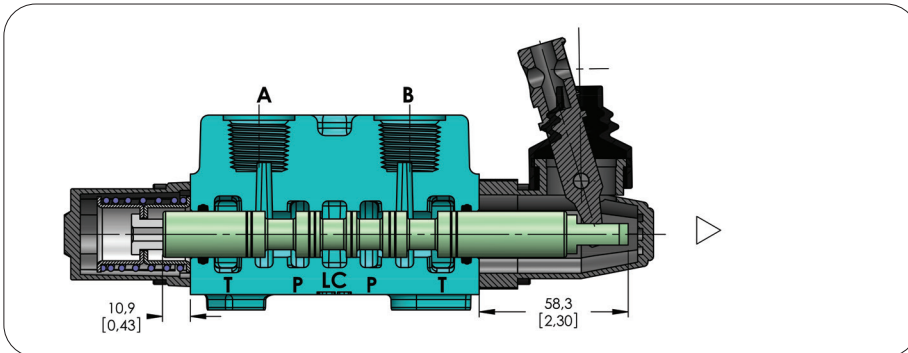
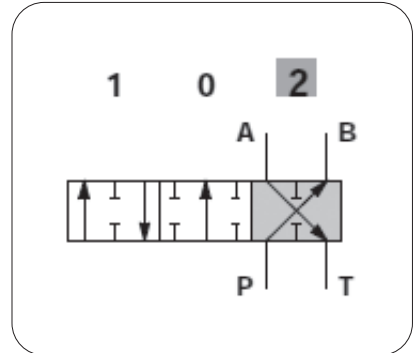
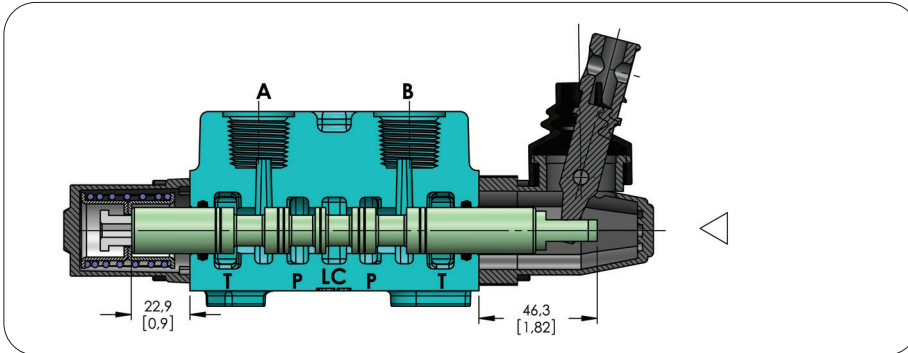
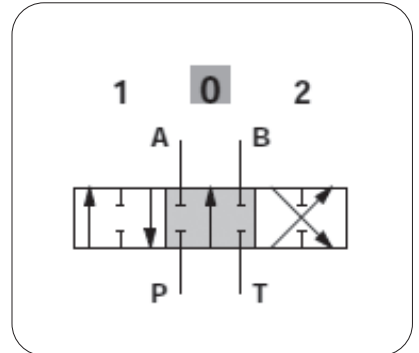
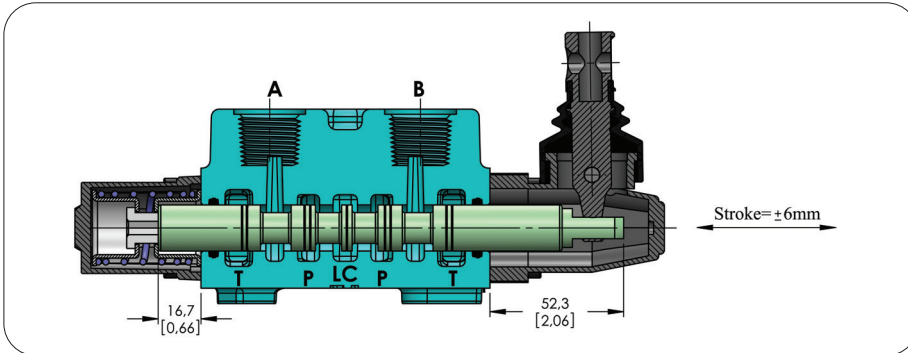
**HandLever**

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

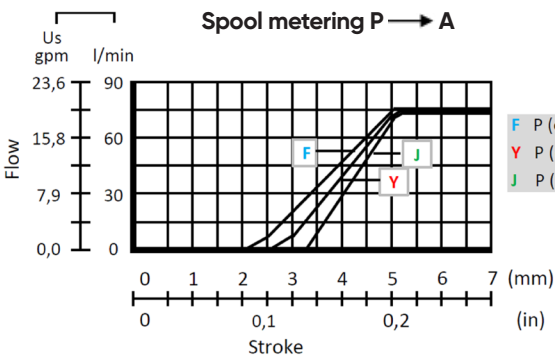
**HL** = Remote Cable Kit - (80HL80100)

SPOOL OPTIONS

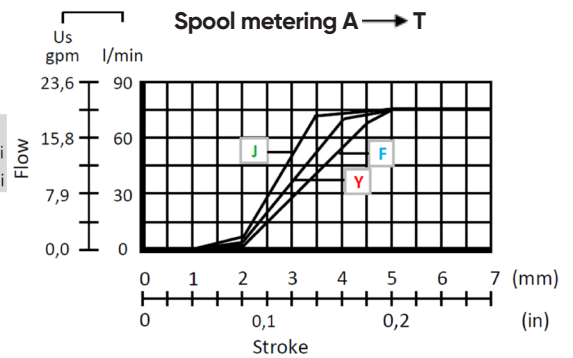
Spool Type - 1A



Performance Curve And Data

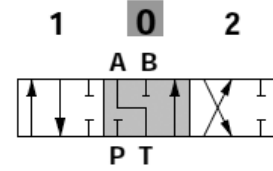
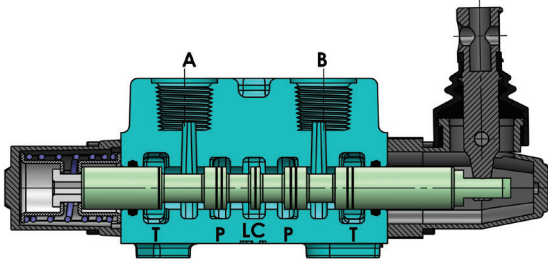


Qin = 80 l/min  
 F P (on ports) = 63bar / 900 psi  
 Y P (on ports) = 100bar / 1450 psi  
 J P (on ports) = 250bar / 3600 psi

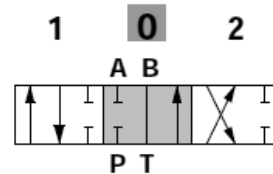
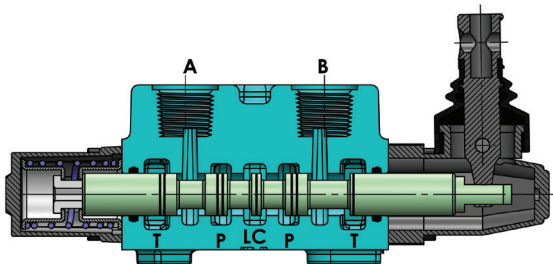


**SPOOL OPTIONS**

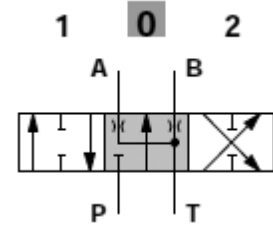
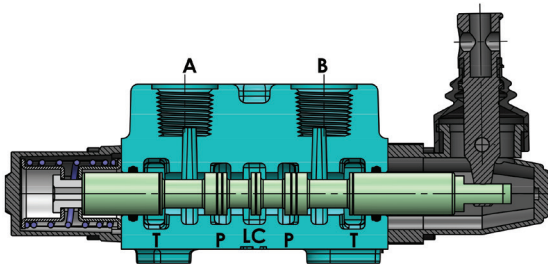
**Spool Type - 2A**



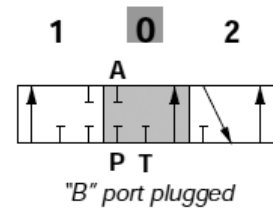
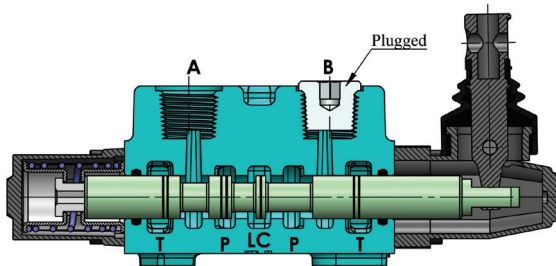
**Spool Type - 3A**



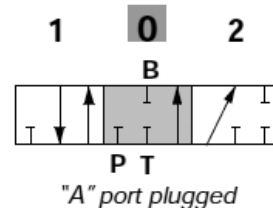
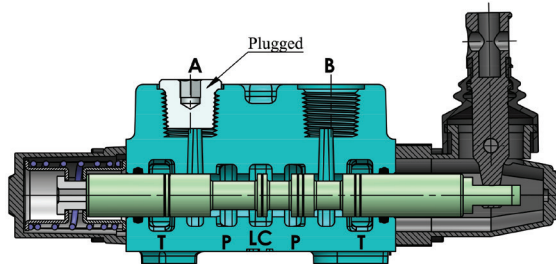
**Spool Type - 4A**



**Spool Type - 5A**



**Spool Type - 6A**





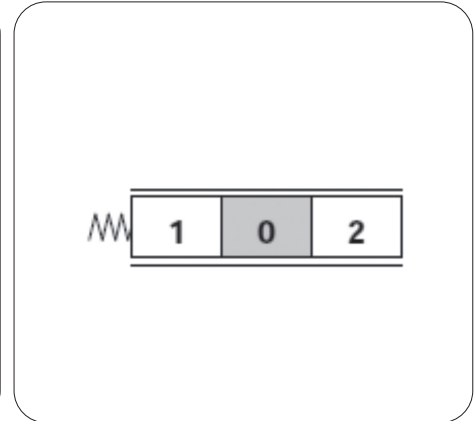
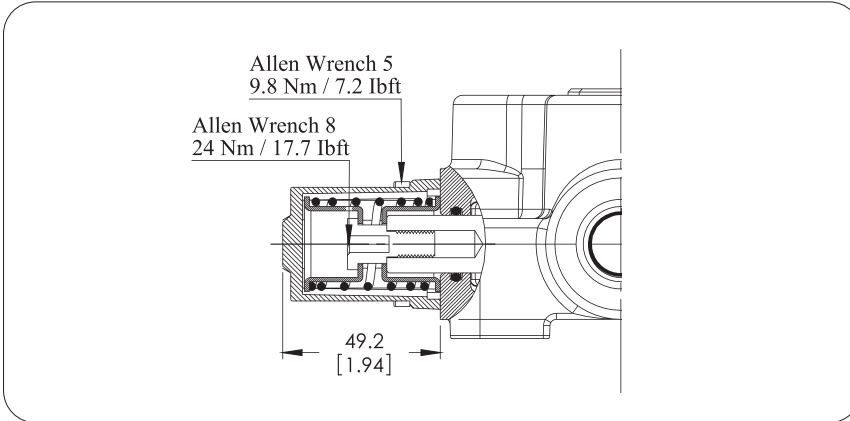
**SPOOL POSITIONERS – SIDE OF RETURN**

**With Spring Return in Neutral Position**

Kit No: **SR**

Sectional Appearance

Diagram

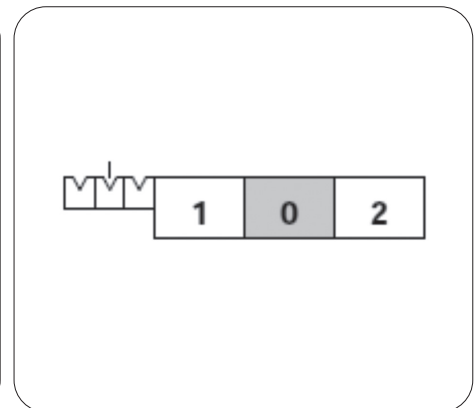
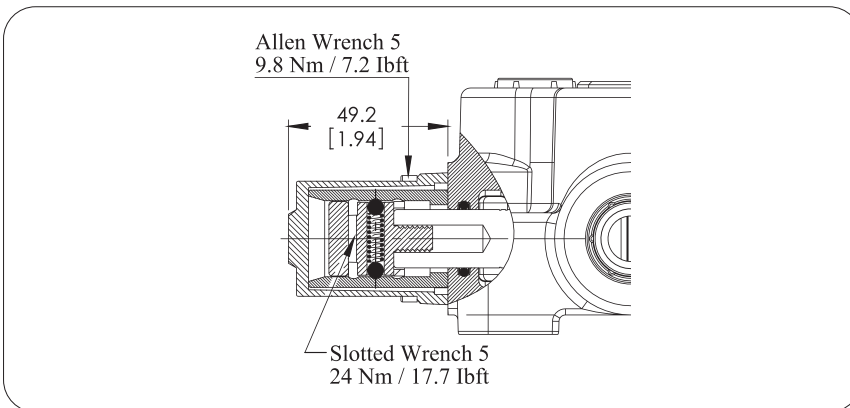


**With Detent**

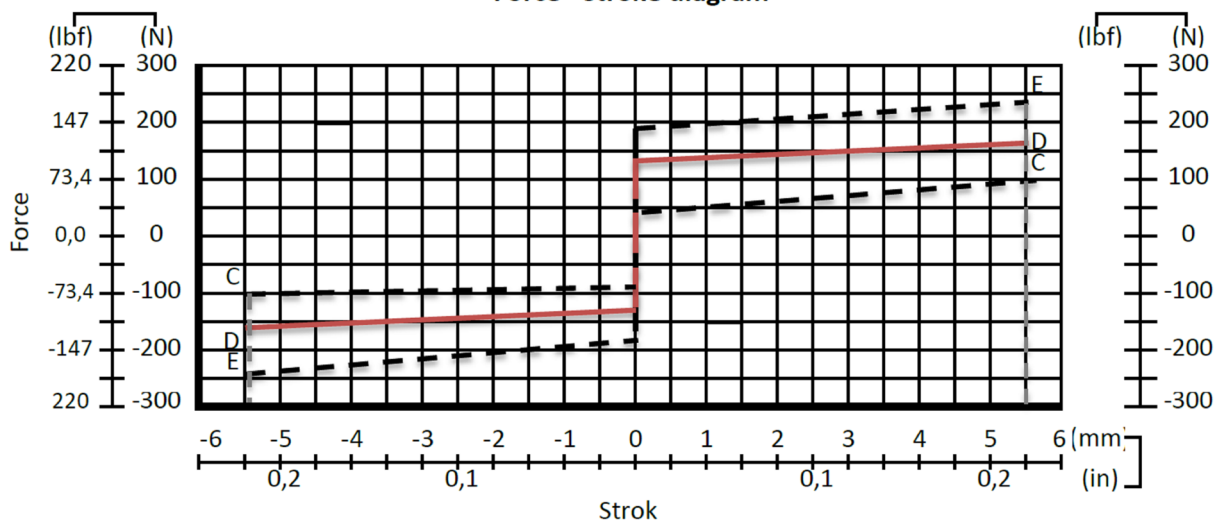
Kit No: **D**

Sectional Appearance

Diagram



**Force - stroke diagram**

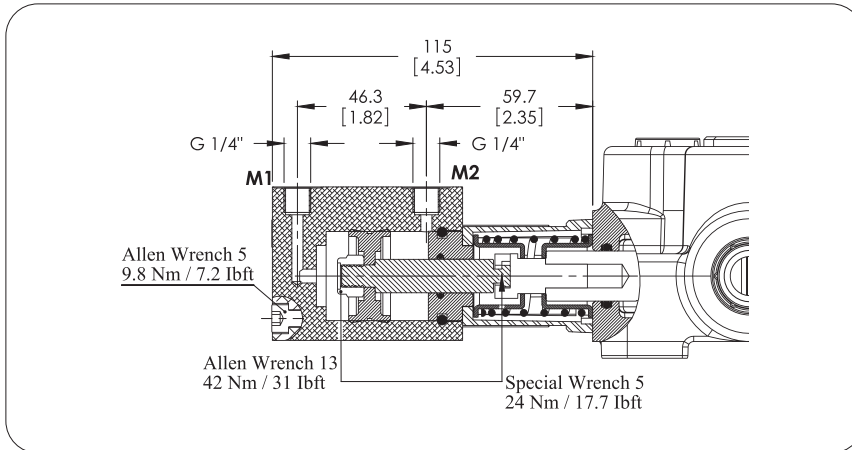


**SPOOL POSITIONERS – SIDE OF RETURN**

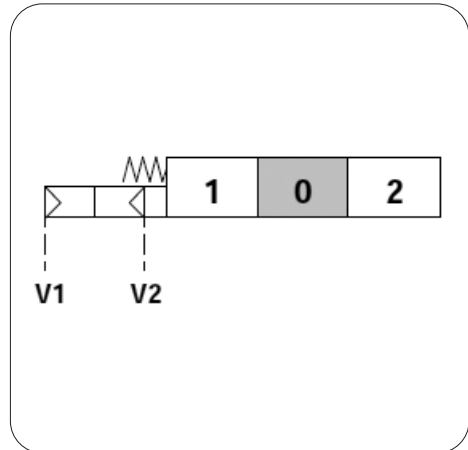
**ON/OFF Pneumatic Control**

Kit No: **80P**

Sectional Appearance



Diagram



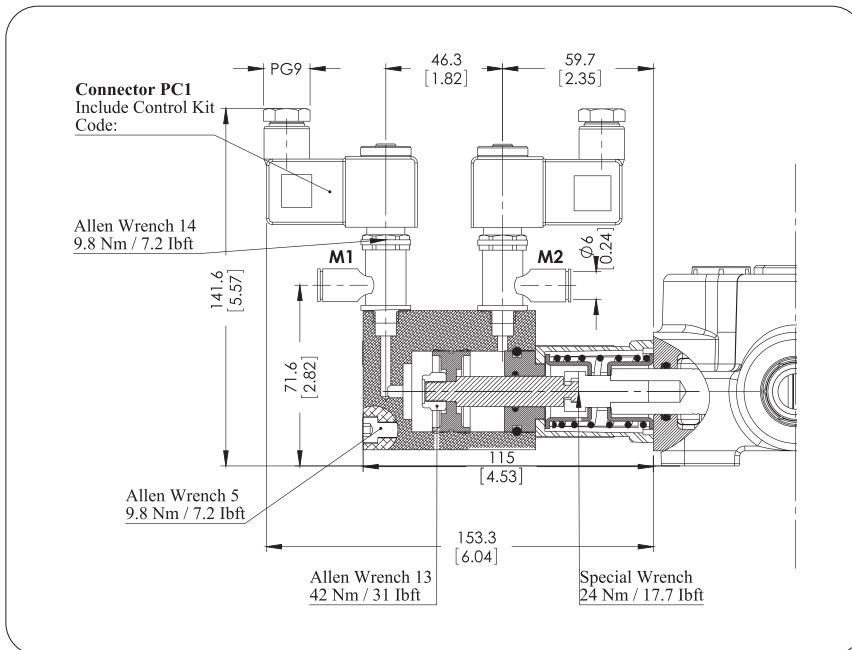
**Operating Features**

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

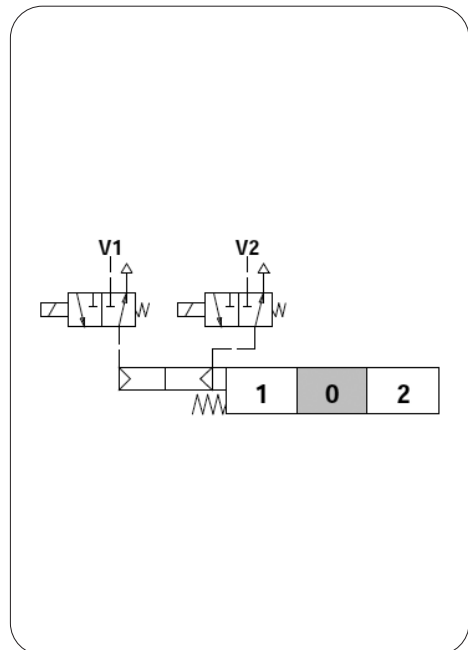
**ON/OFF Electro-Pneumatic Control**

Kit No: **80EP**

Sectional Appearance



Diagram



**Operating Features**

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

**Solenoid Operating Features**

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

Power Rating.....: 6 W

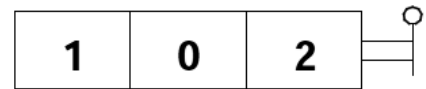
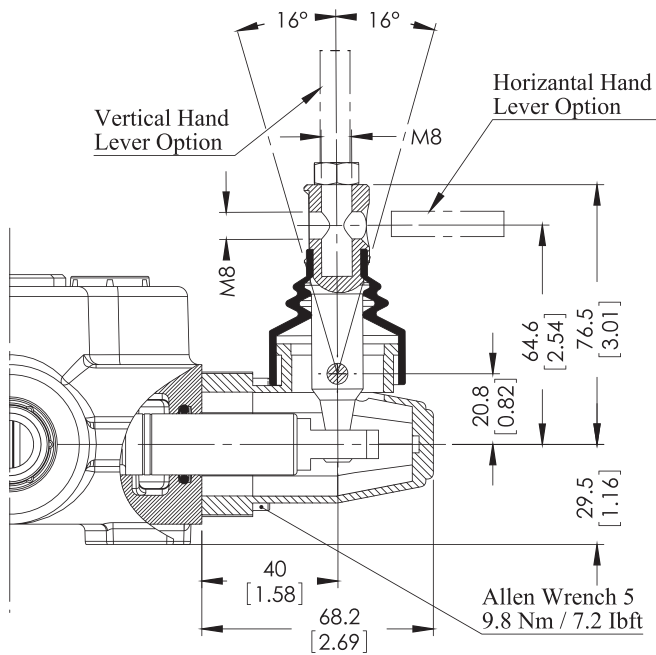
**SPOOL POSITIONERS – SIDE OF LEVER CONTROL**

**Lever Controls**

Kit No: **STL - L0**

Sectional Appearance

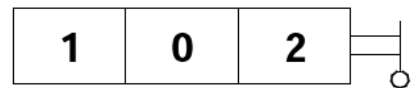
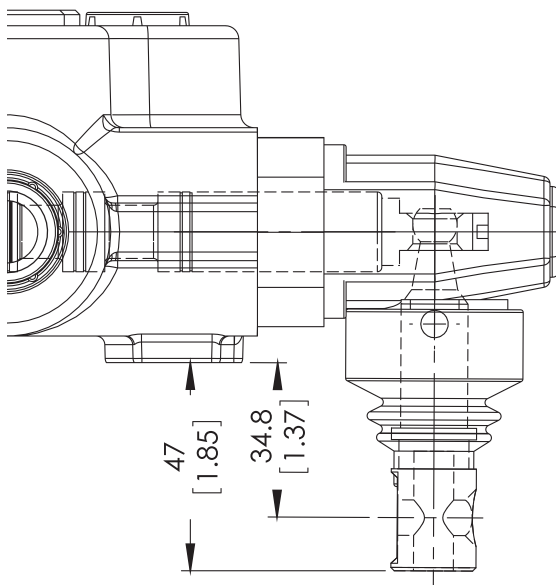
Diagram



Kit No: **STL - L180**

Sectional Appearance

Diagram



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

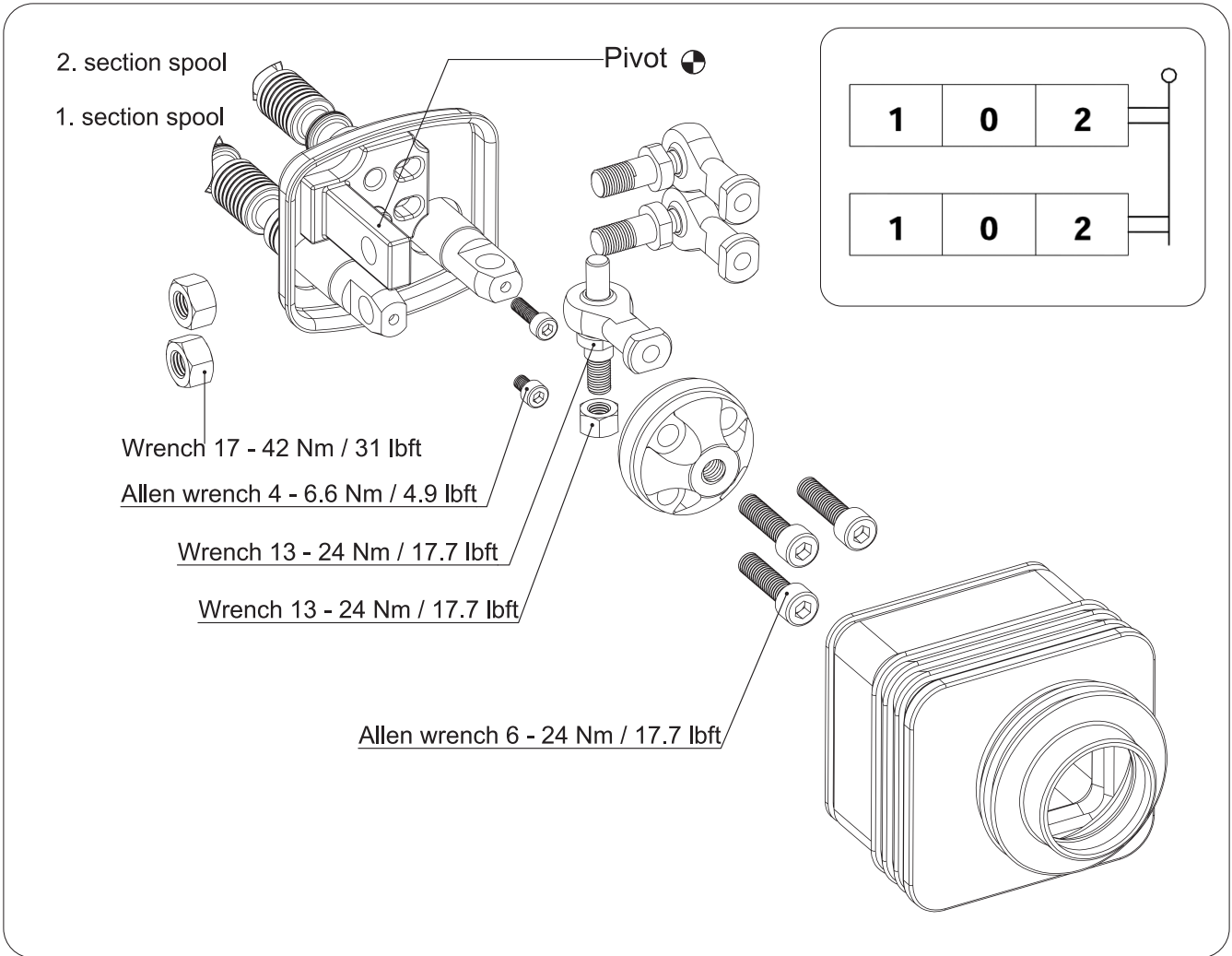
**SPOOL POSITIONERS – SIDE OF LEVER CONTROL**

**Lever Controls – Joystick**

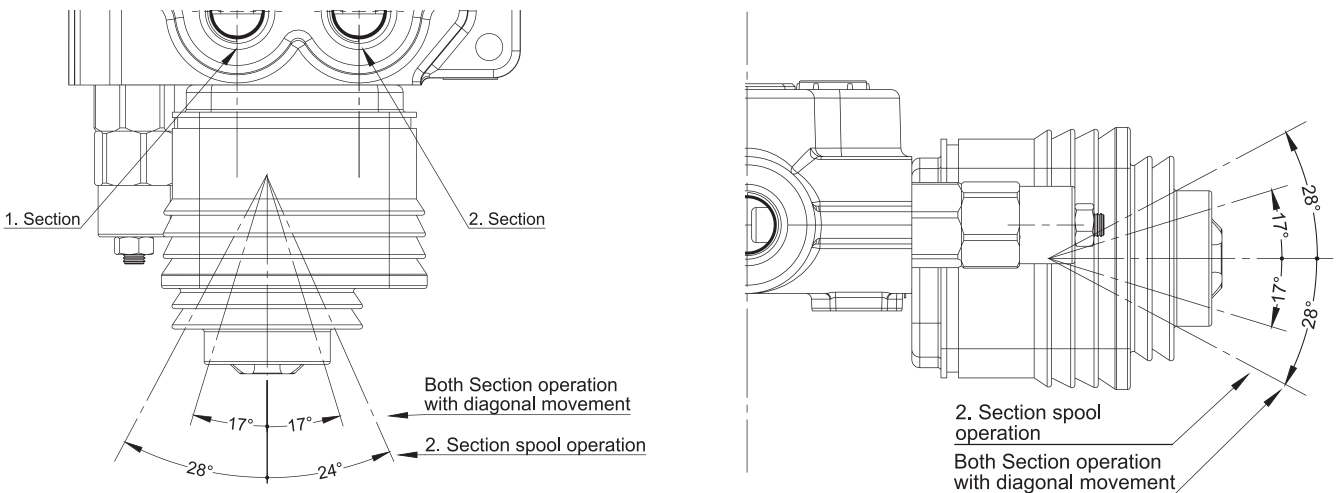
Kit No: **JL**

Exploded View

Diagram



**Operation Angle:**





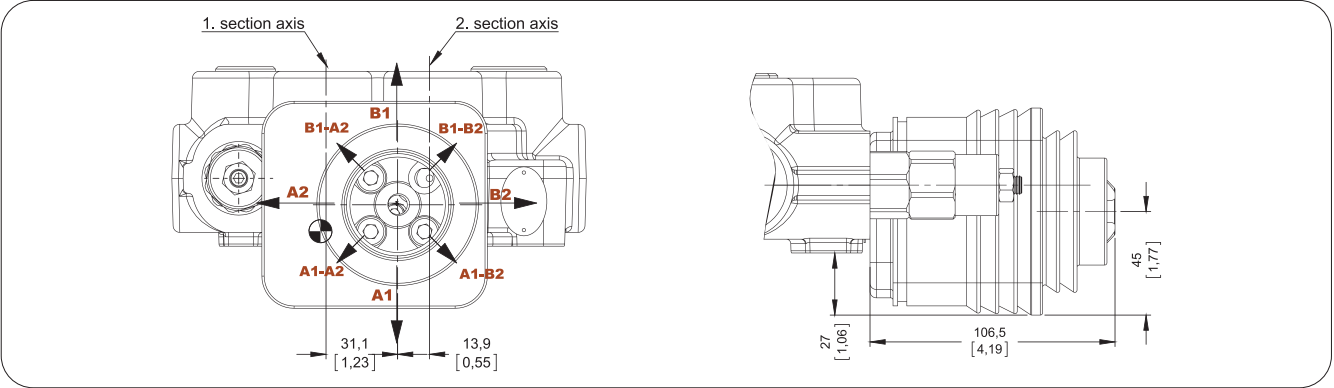
**SPOOL POSITIONERS – SIDE OF LEVER CONTROL**

**Lever Controls – Joystick**

**Dimensions and movement scene**

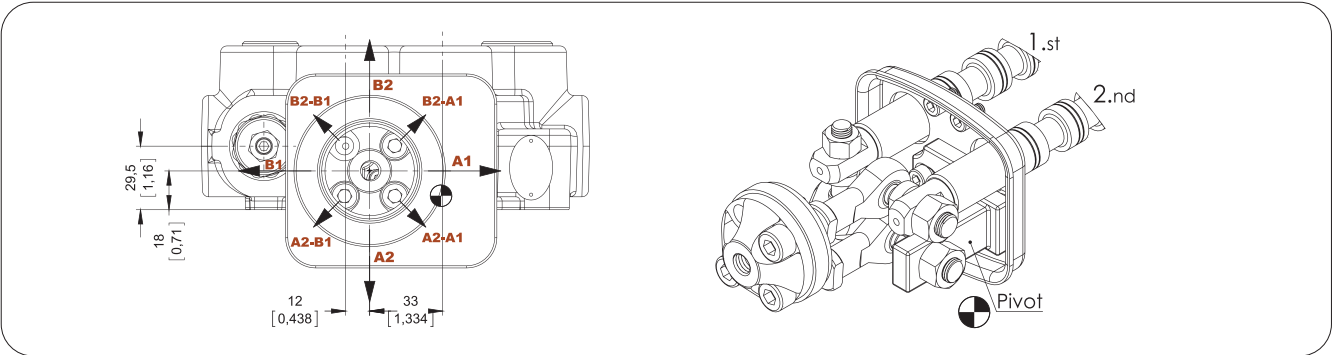
Type No: **JL1**

Application: Pivot placed down on the Left



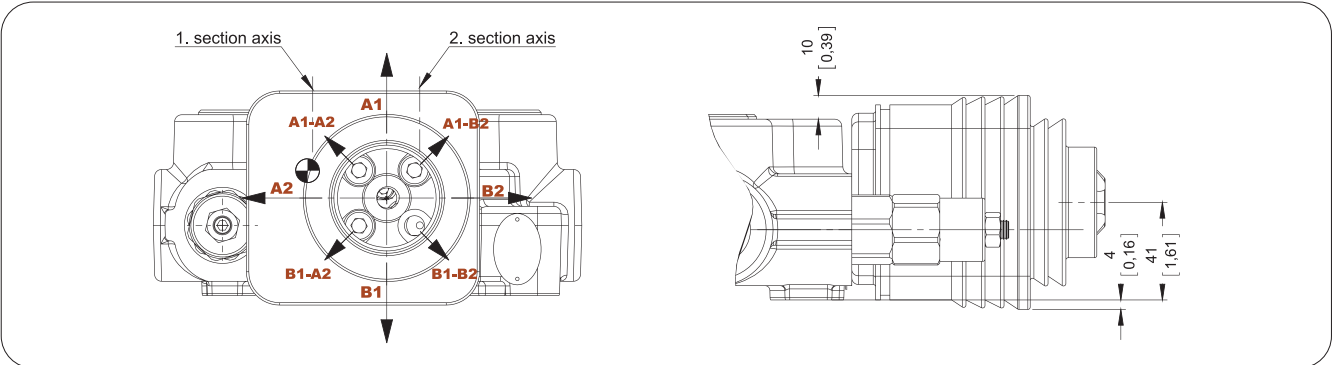
Type No: **JL2**

Application: Pivot placed down on the right



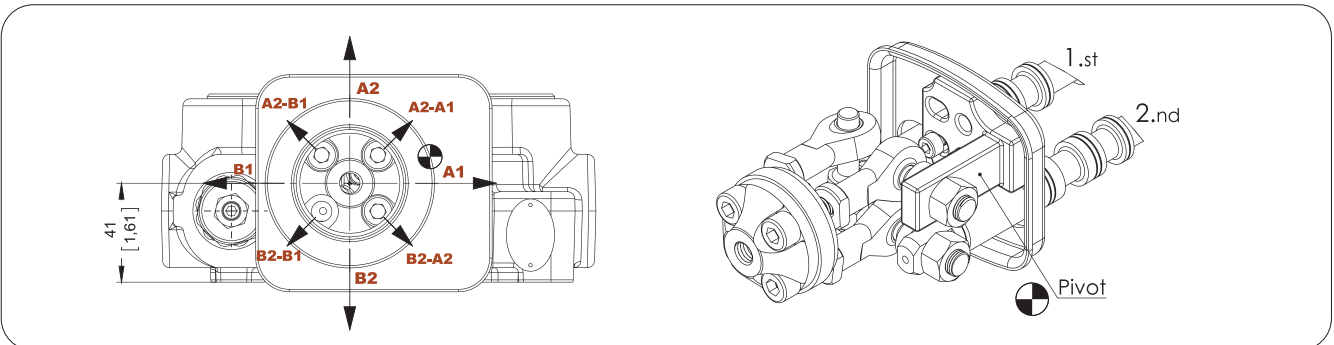
Type No: **JL3**

Application: Pivot placed above on the Left



Type No: **JL4**

Application: Pivot placed above on the right



**SPOOL POSITIONERS – SIDE OF LEVER CONTROL**

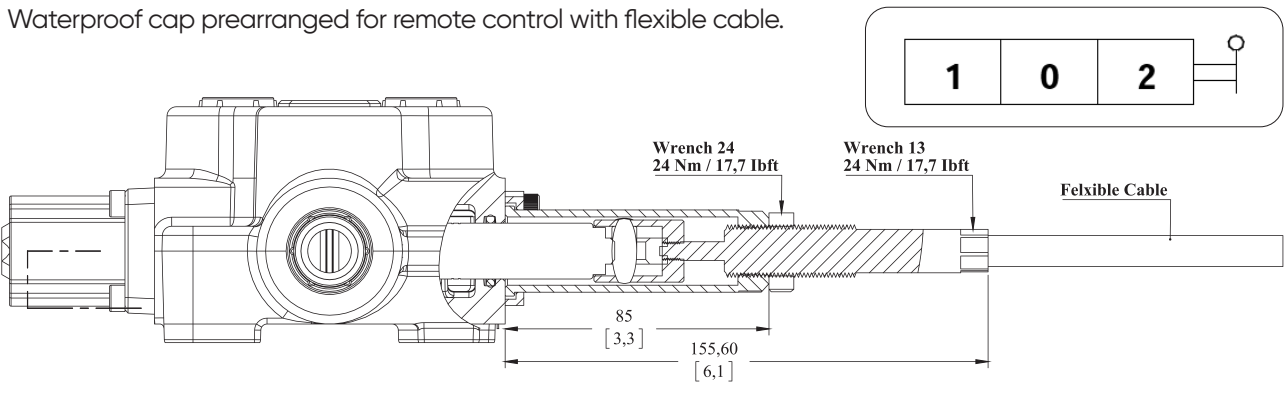
**Lever Controls – Cable Control**

Kit No: **HL**

Exploded View

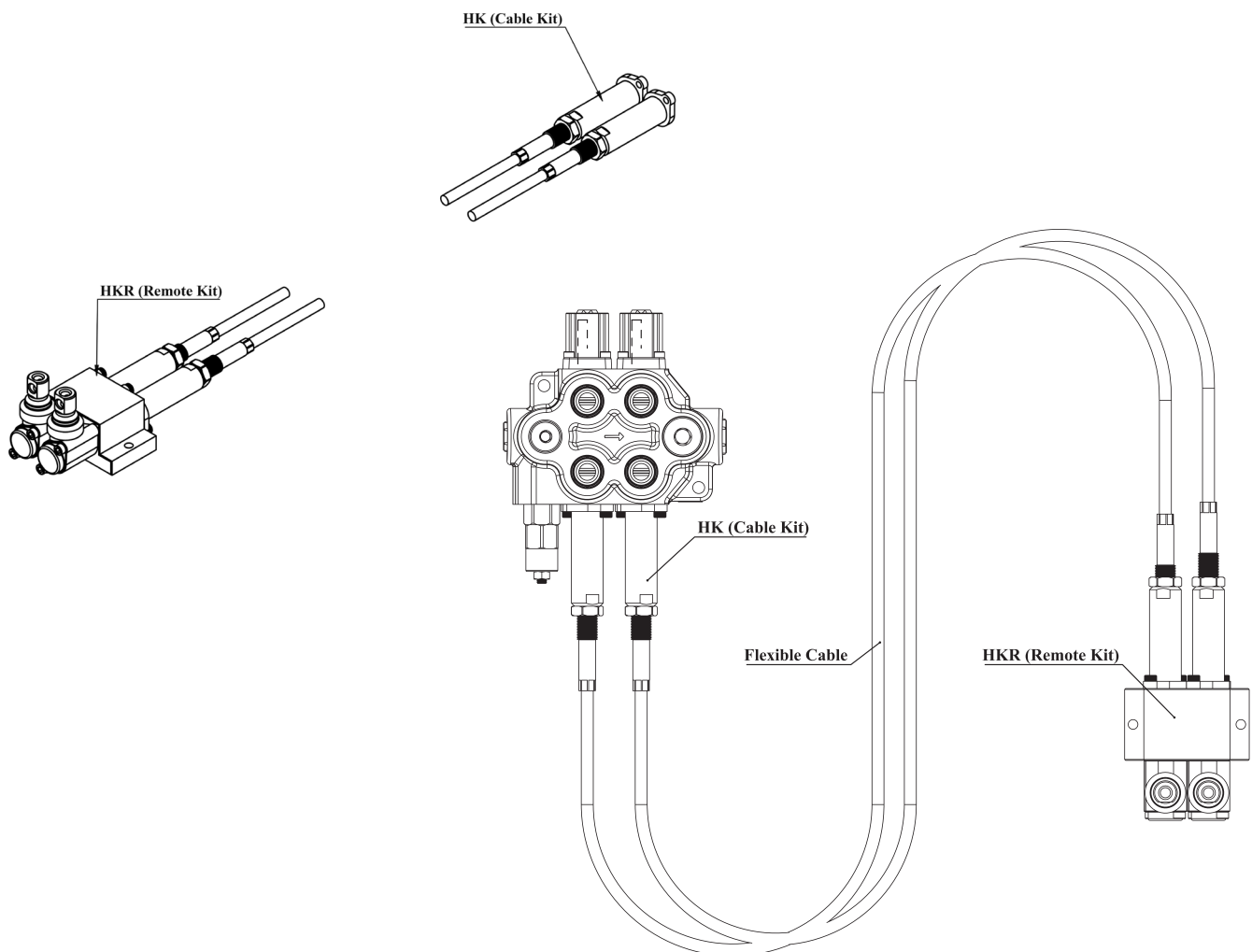
Diagram

Waterproof cap prearranged for remote control with flexible cable.



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

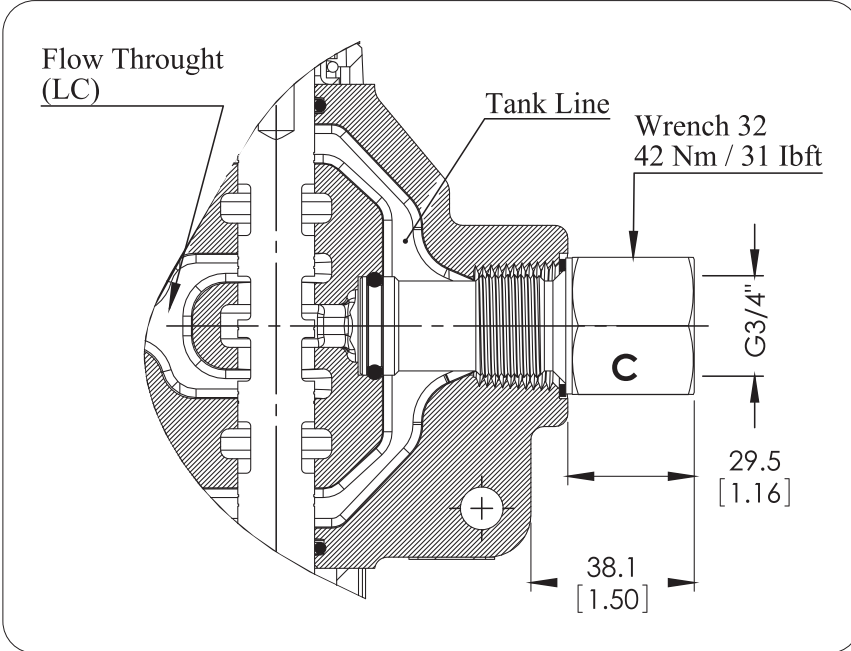
**Example Operation**



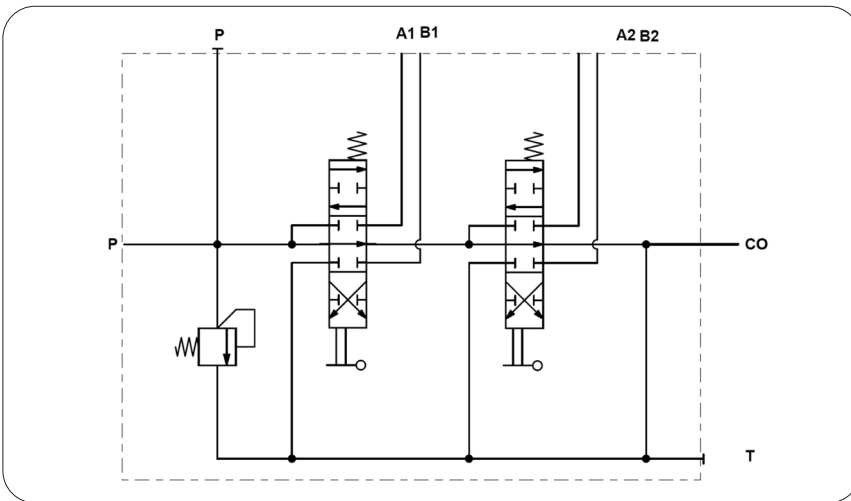
OUTLET PORT OPTIONS

Carry - Over Connection

Kit No: CO

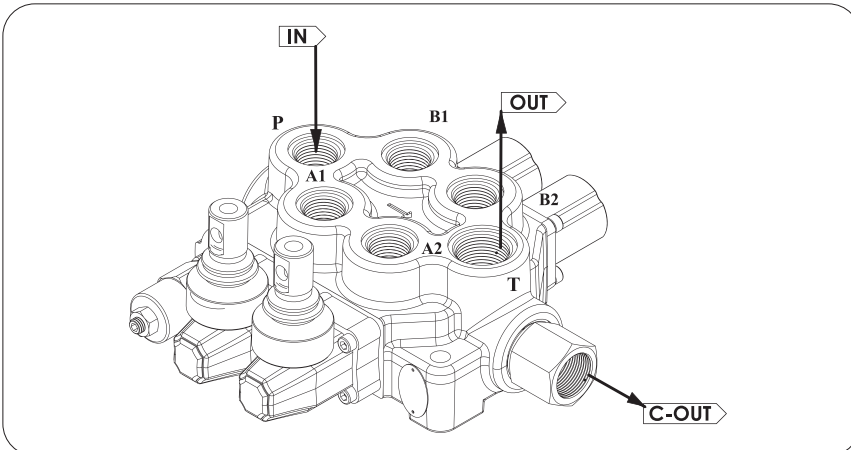


Sectional Appearance



Hydraulic Circuit

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



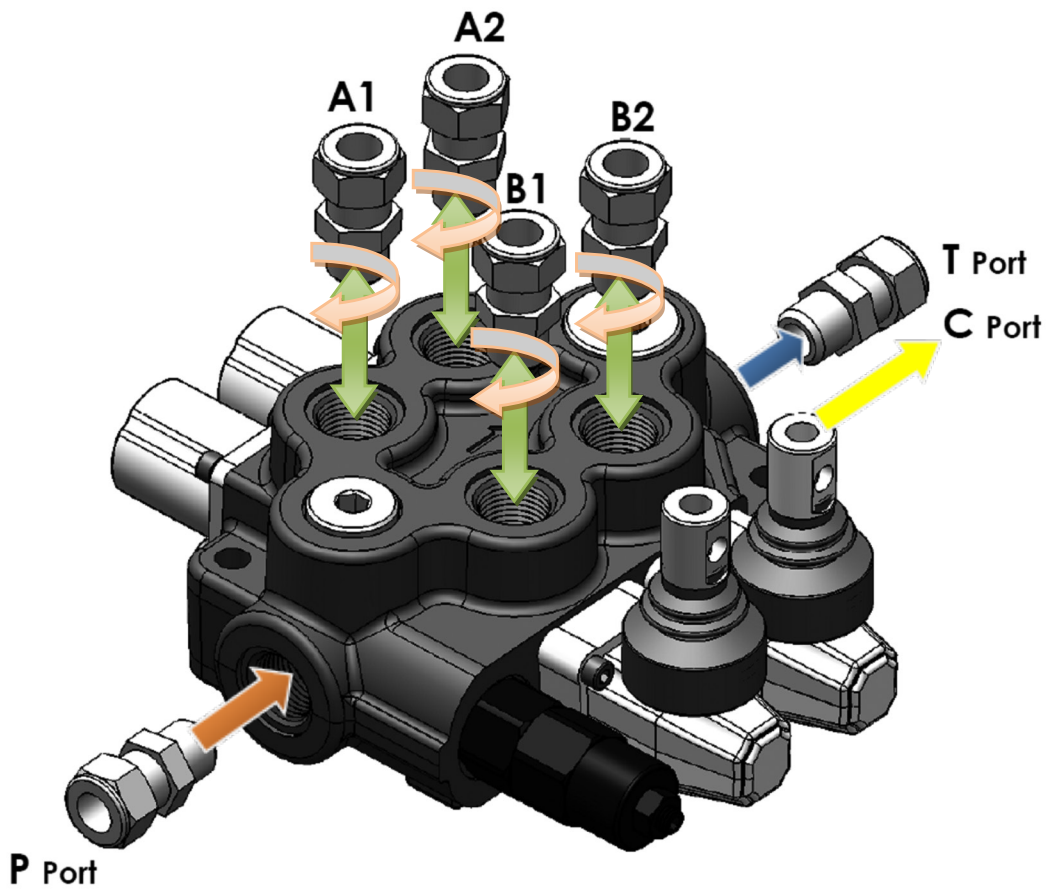
Direction of Port Connected

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;
- Before painting, ensure plastic port plugs are tightly fitted.

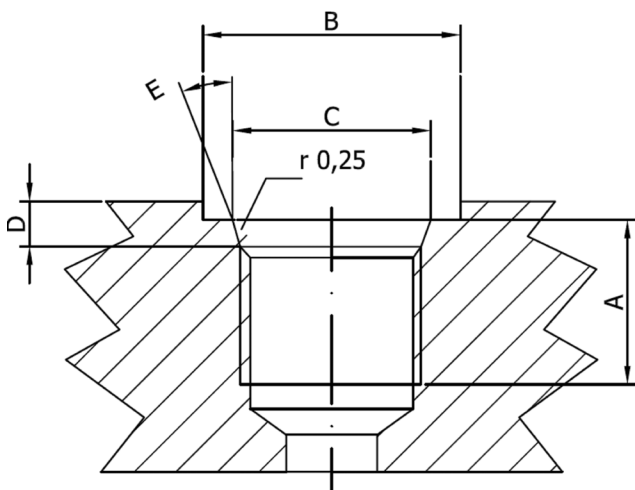
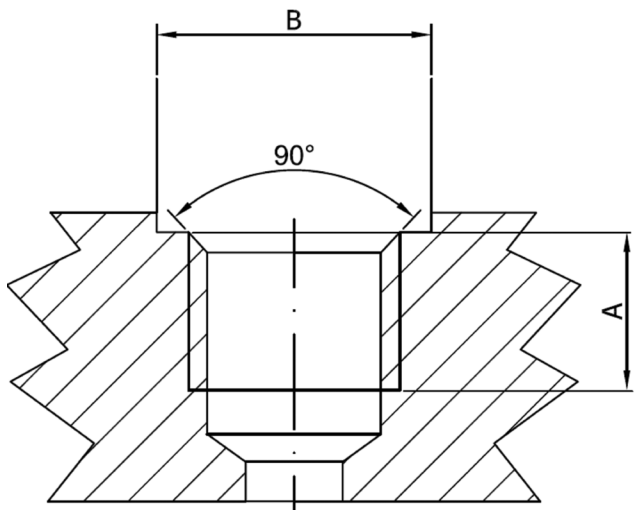
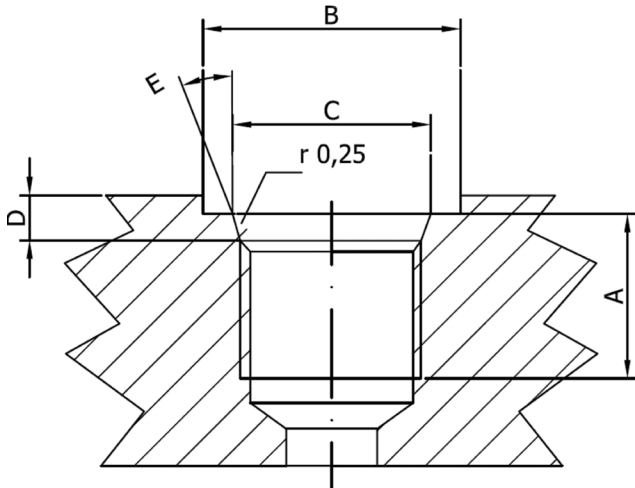


Threads Type (Nm / lbft)	P Port	A and B Port	T and C Port
BSP (ISO 228/1)	G 1/2	G 1/2	G 3/4
With O--Ring seal	50 / 36.9	50 / 36.9	70 / 51.6
With copper washer	60 / 44.3	60 / 44.3	70 / 51.6
With steel and rubber washer	60 / 44.3	60 / 44.3	70 / 51.6
BSP (ISO 228/1)	G 3/4	G 3/4	G 3/4
With O--Ring seal	70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




# ORV M80





# ORIGINAL VALVE



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