

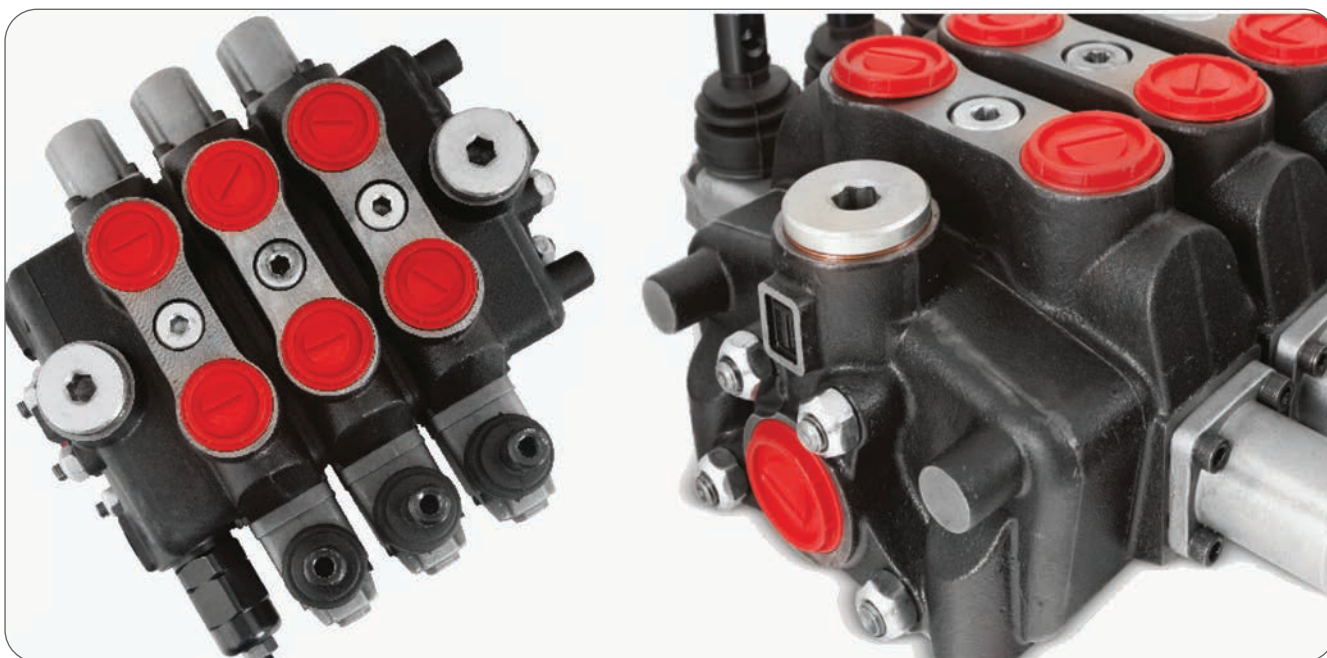


SECTIONAL
VALVES

GMM-PD250

CE





CONTENTS

Working Conditions	333
Dimensional Data	334
Hydraulic Circuit	335
Performance Data And Curve	339
Inlet Relief Options	340
Ordering Codes	342
Inlet Cover- Pump Side	344
Spool Options	346
Spool Positioners – Side of Return	348
Working Section Kit	350
Spool Positioners – Side of Lever Control	351
Spool Positioners – Side of Lever Control	352
Spool Positioners – Side of Lever Control	353
Outlet Cover- Tank Side	354
Port Valves Options	356
Installation and Maintenance	359
Technical Data	360

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 (11/2019) .

GEMMA, oriented to a continuous improvement, reserves the right to discontinue, modify or revise the specifications, without notice.

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

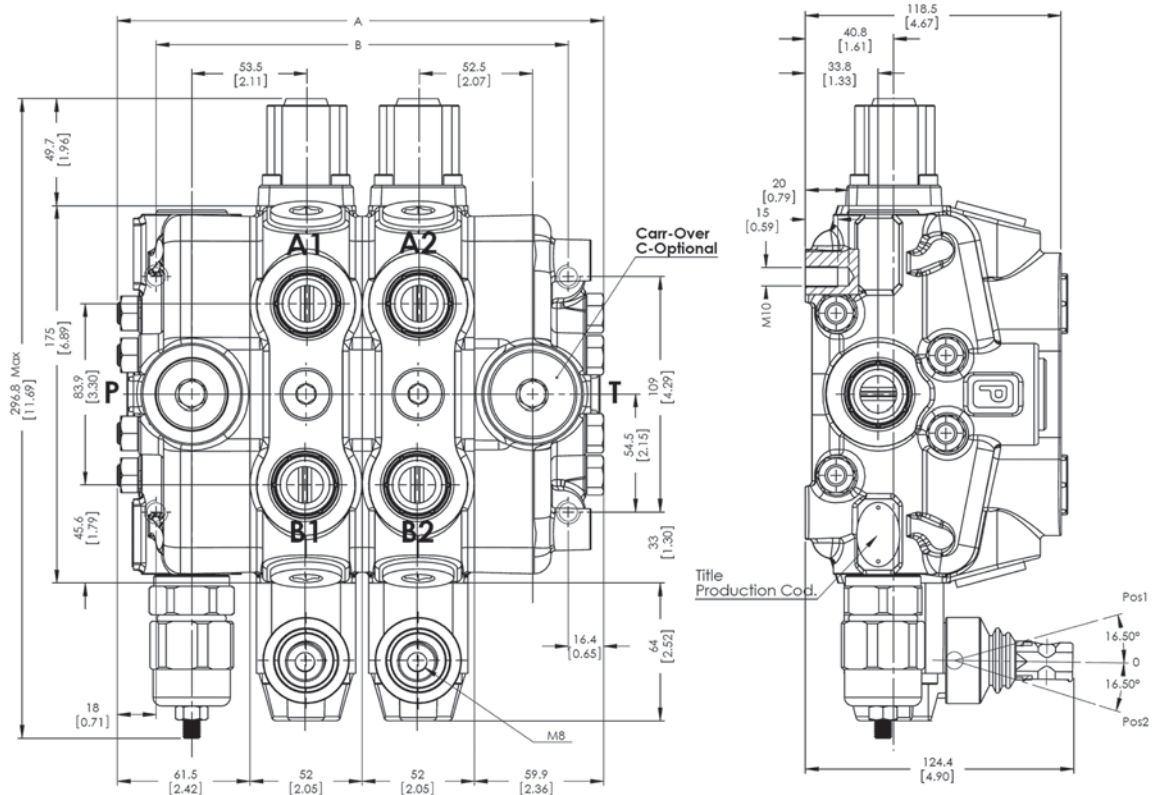
WORKING CONDITIONS

Nominal Flow Rating / Displacement	240 l/min	63 U.S.G.P.M
Maximum Working Pressure (Series Circuit)	210 Bar	3050 PSI
Maximum Working Pressure (Parallel 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 ² /s	From 10 to 75 cSt
Minimum / Maximum	10 / 400 mm ² /s	10 / 400 cSt
Oil Filtration	≤30 μ	
Ambiant Temperature Range	-35 to 60 C°	-31 to 140 F°
Number Of Spools	1 to 12	
Internal Leakage (at 100 bar (1450 PSI), 40C° (110 F°), 46 cSt – A(B)–T)	4 cm ³ /min	0,24 in ³ /min
Max. Level Of Contamination	19/16 - ISO 4406	
Tie rod tightening torque	40 Nm	30 lbft

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

Features

- Simple, compact and heavy duty designed sectional valves from 1 to 12 sections for open and closed center hydraulic systems.
- Optional Carry-Over port only tandem circuit.
- Fitted with a main pressure relief valve.
- Interchangeable spool diameter is 25 mm – 0,79 in.
- Available manual, pneumatic, hydraulic and electro-pneumatic spool control kits.

DIMENSIONAL DATA


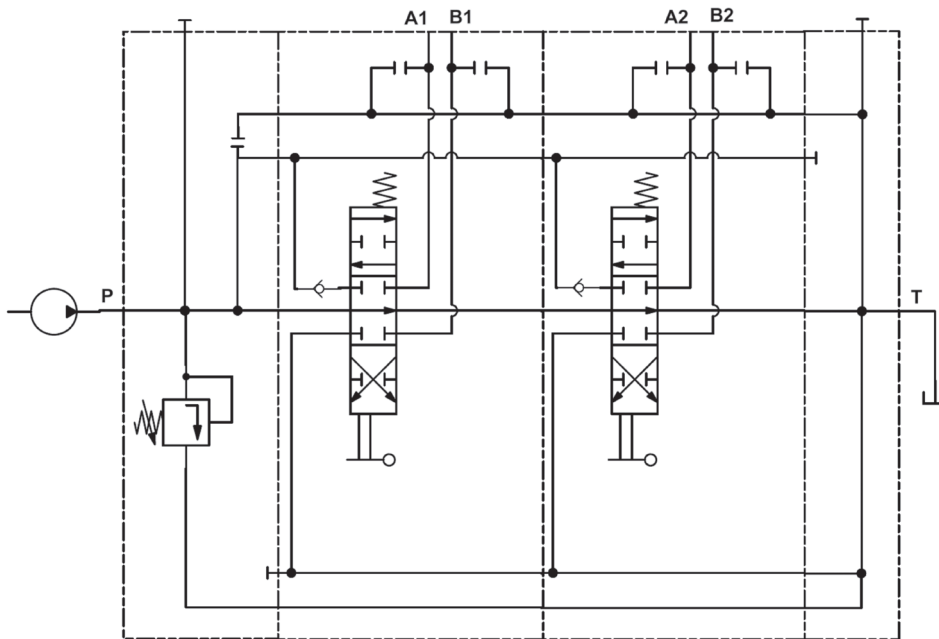
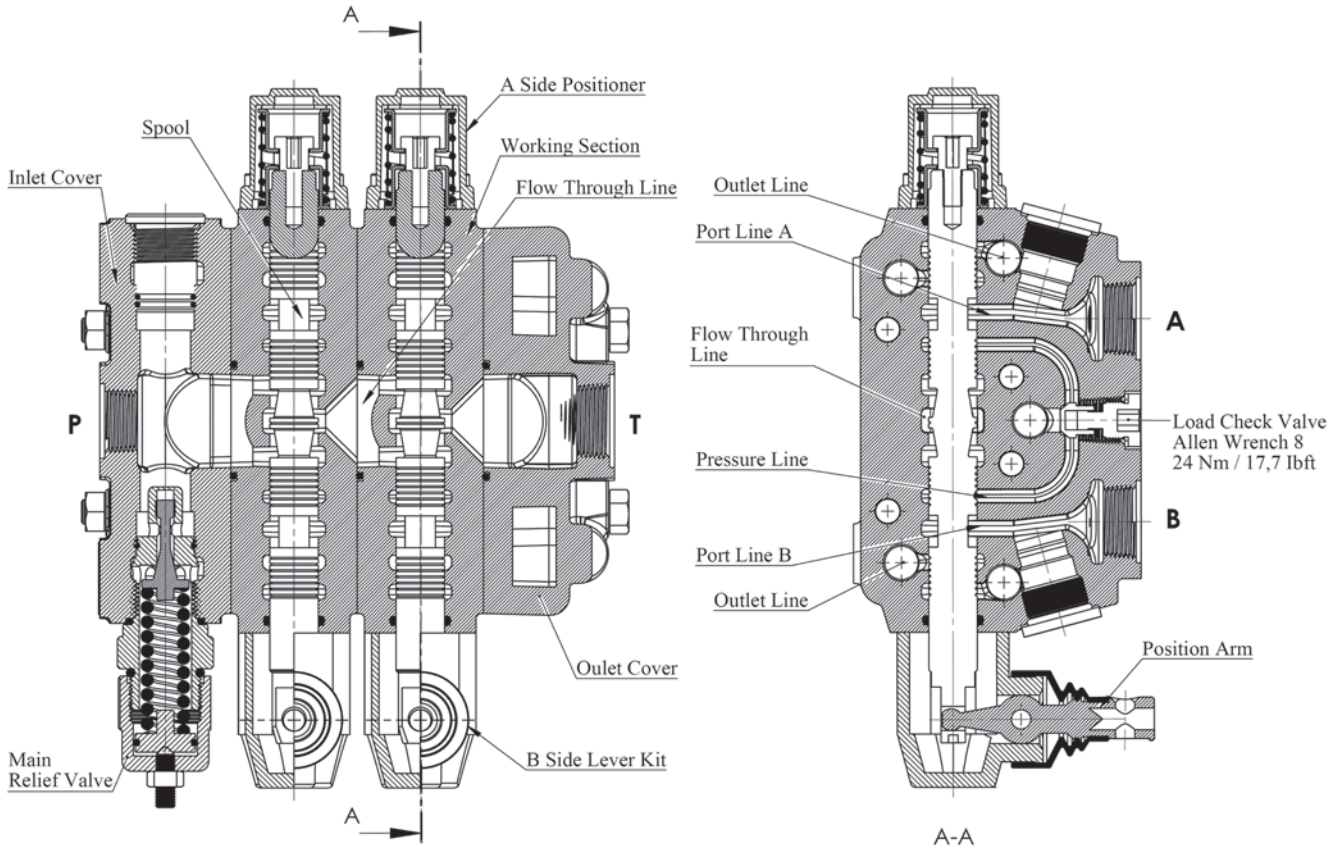
TYPE	A		B		Weight	
	mm	in	mm	in	Kg	lb
GMM- PD250-1P	160	6.30	73	2.87	13.46	29.67
GMM- PD250-2P	212.5	8.37	125.5	4.94	19.60	43.21
GMM- PD250-3P	265	10.43	178	7.00	25.74	56.75
GMM- PD250-4P	317.5	12.50	230.5	9.07	31.88	70.29
GMM- PD250-5P	370	14.56	283	11.14	38.02	83.83
GMM- PD250-6P	422.5	16.63	335.5	13.20	44.16	97.37
GMM- PD250-7P	475	18.50	388	14.96	50.30	110.91
GMM- PD250-8P	527.5	20.76	440.5	17.34	56.44	124.45
GMM- PD250-9P	580	22.83	493	19.41	62.58	137.99
GMM- PD250-10P	632.5	24.90	545.5	21.48	68.72	151.53
GMM- PD250-11P	685	26.97	598	23.54	74.86	165.07
GMM- PD250-12P	737.5	29.03	650.5	25.61	81.00	178.61

STANDARD THREADS

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

HYDRAULIC CIRCUIT

Parallel

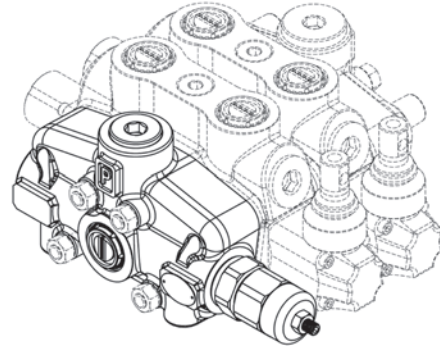


Code: GMM PD250-2P (SD(LA)-SMR2-125-PP)/P-1A-STL-SR/ P-1A-STL-SR/ SO-PT1 / SGT

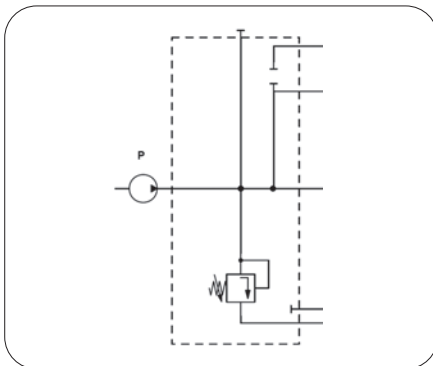
HYDRAULIC CIRCUIT

Inlet Cover – Pump Side

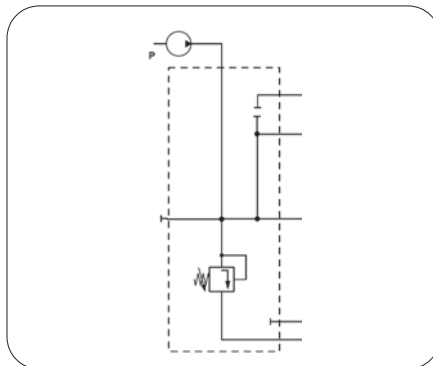
SD - Side inlet with direct pressure relief valve
 TD - Top inlet with direct pressure relief valve
 SP - Side inlet with relief valve blanking plug



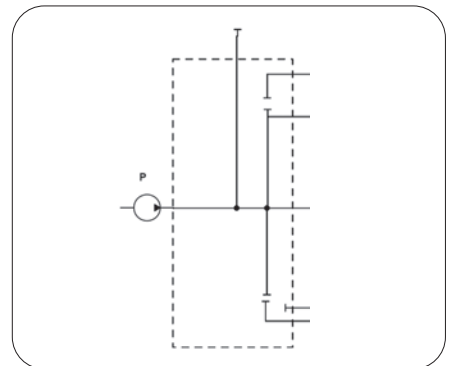
Type = SD



Type = TD

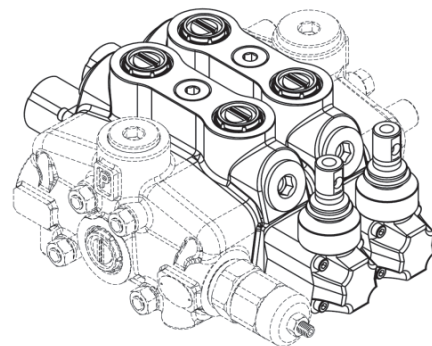


Type = SP

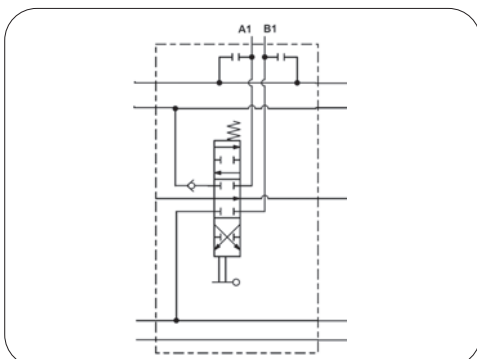


Working Sections

P – Parallel



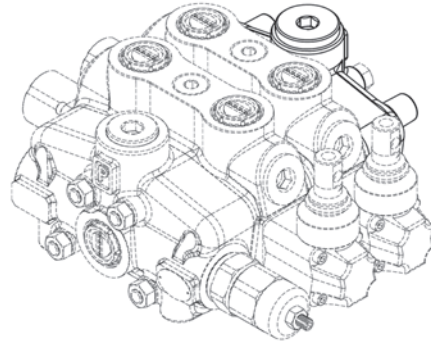
Type = P



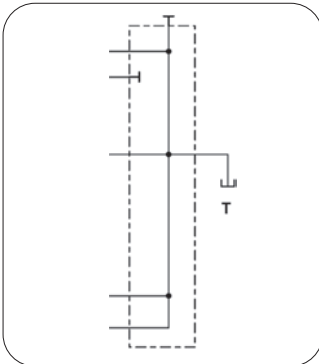
HYDRAULIC CIRCUIT

Outlet Cover (Tank Side)

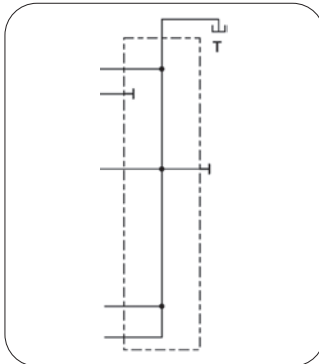
- SO - Side outlet
- TO - Top outlet
- TCO - Top outlet with carry-over
- TC - Top outlet with closed centre



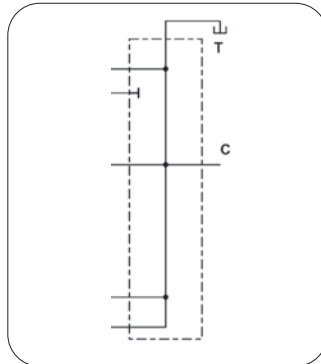
Type = SO



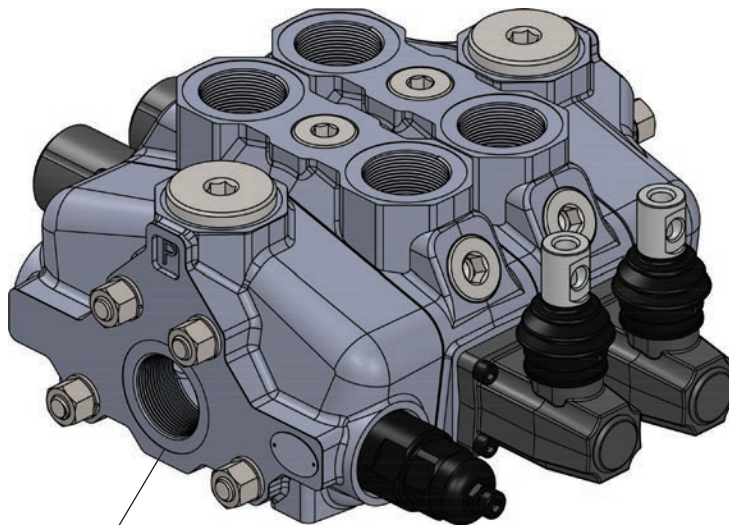
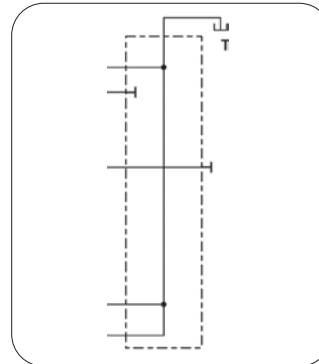
Type = TO



Type = TCO



Type = TC



Valve Type

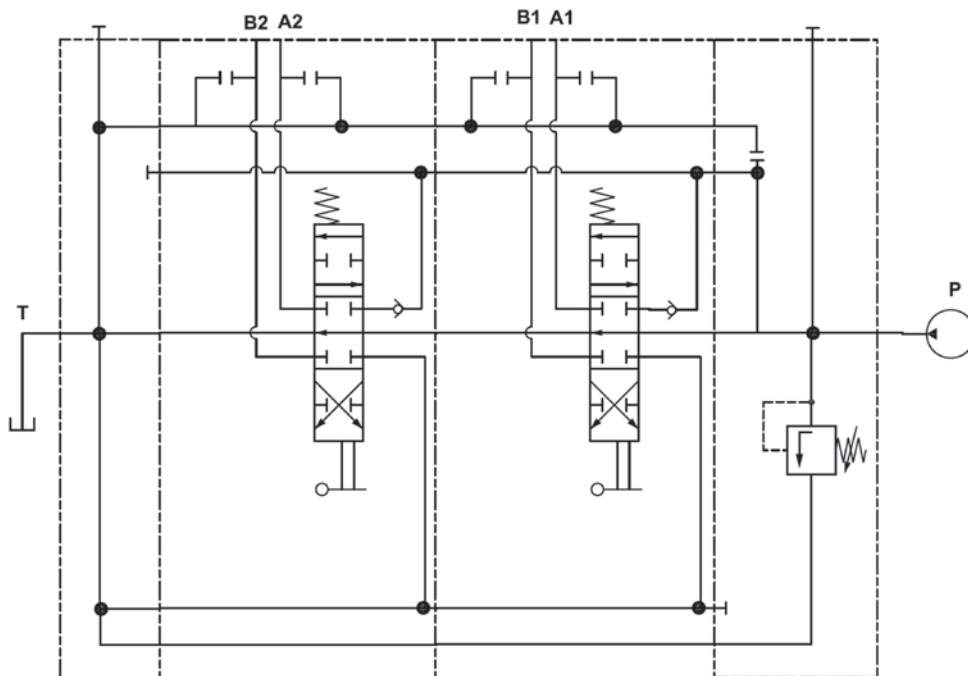
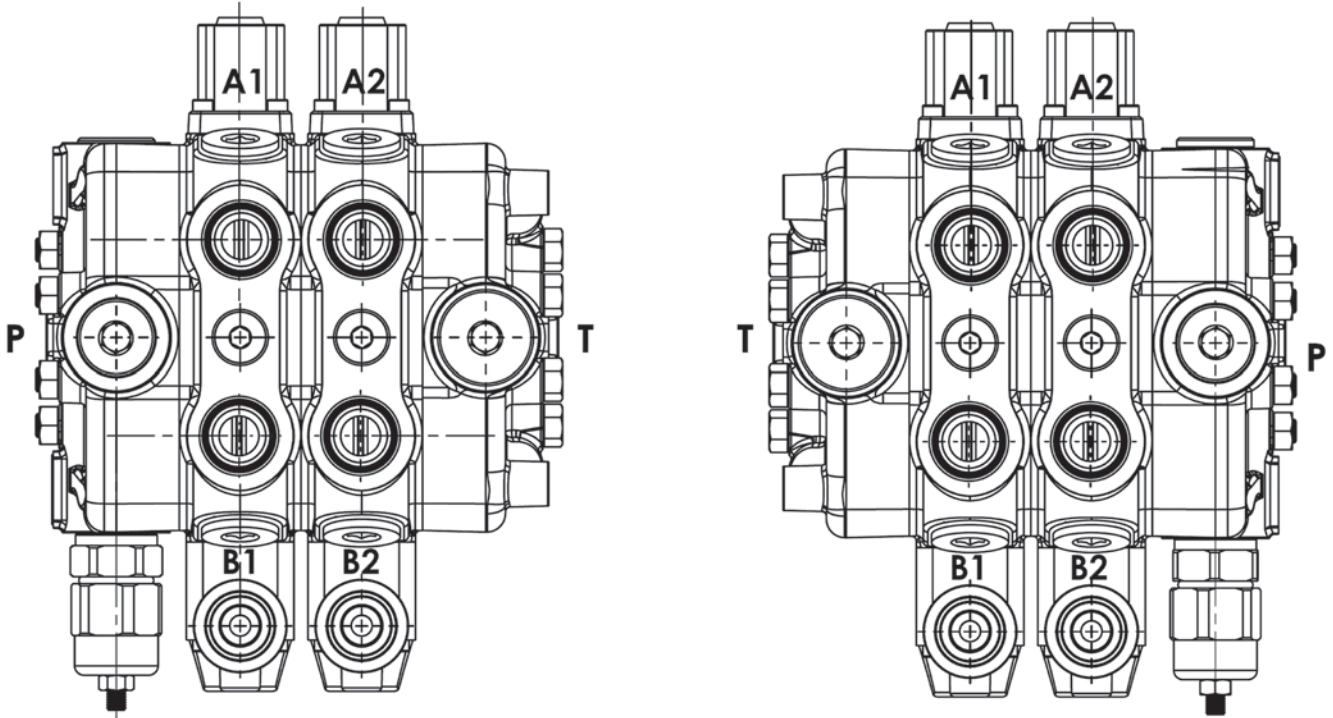
Production Batch

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

HYDRAULIC CIRCUIT

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

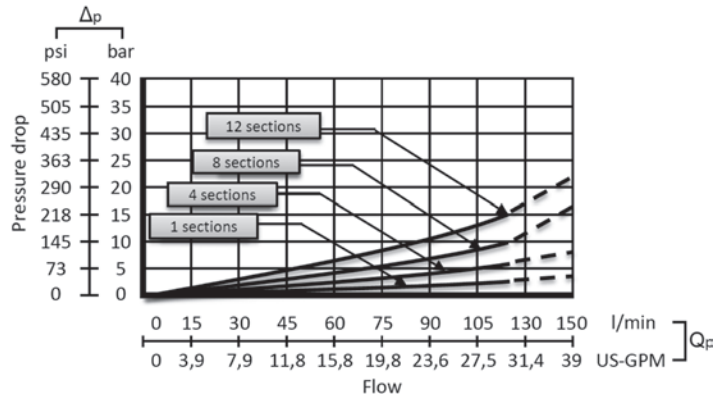
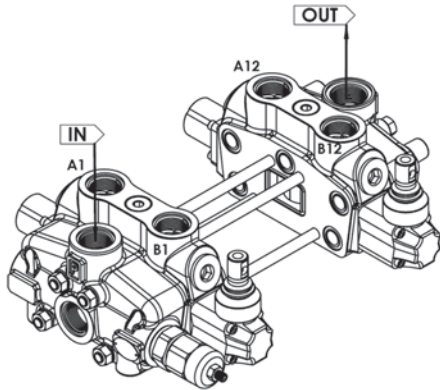
A symmetrical body allows the reverse assembly of spool.



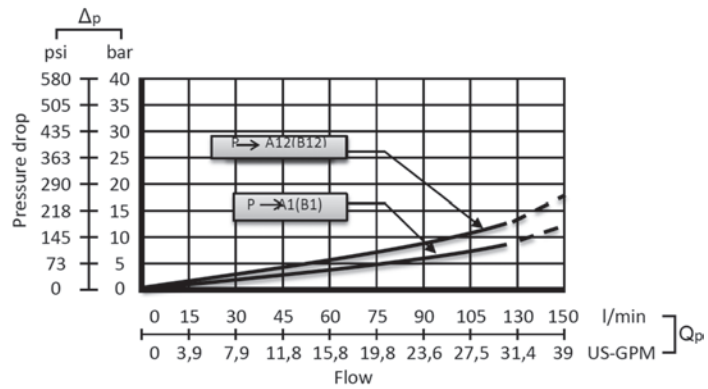
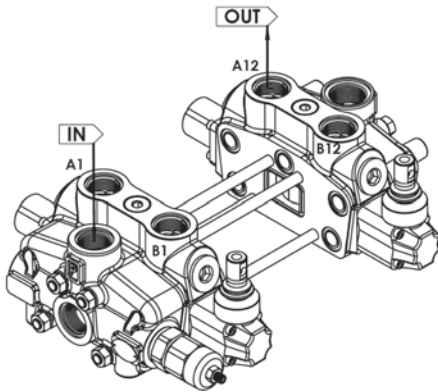
Code: GMM PD250-2P (SD(RA)-SMR2-125-PP)/P-1A-STL-SR/ P-1A-STL-SR/ SO-PT1 /

PERFORMANCE DATA AND CURVE

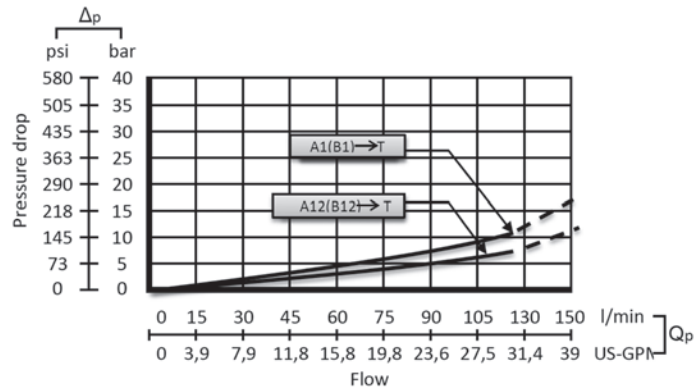
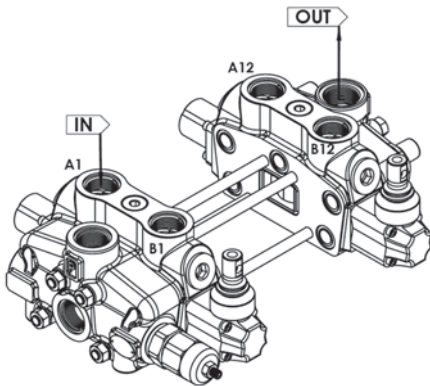
Open Center - Pressure Drop (P-T)



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



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



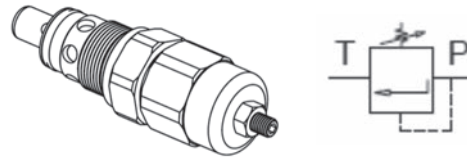
INLET RELIEF OPTIONS

Direct Pressure Relief Valve

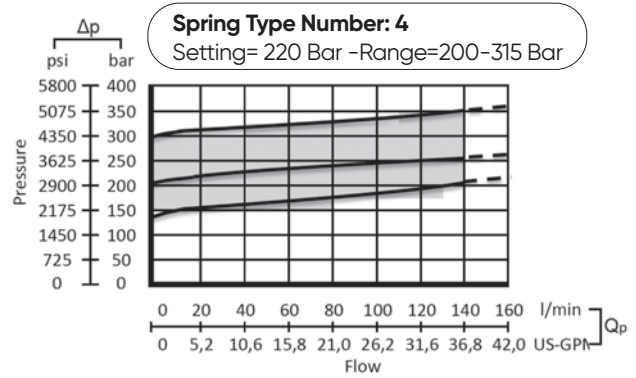
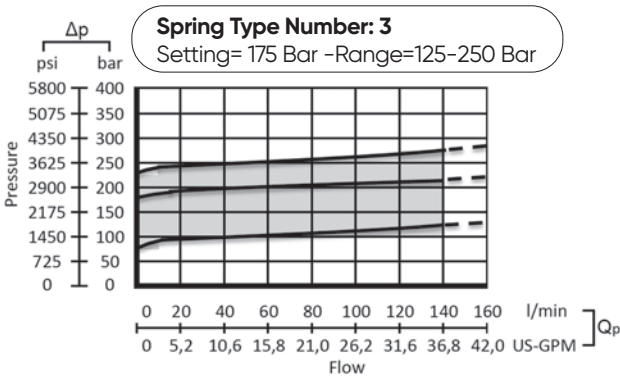
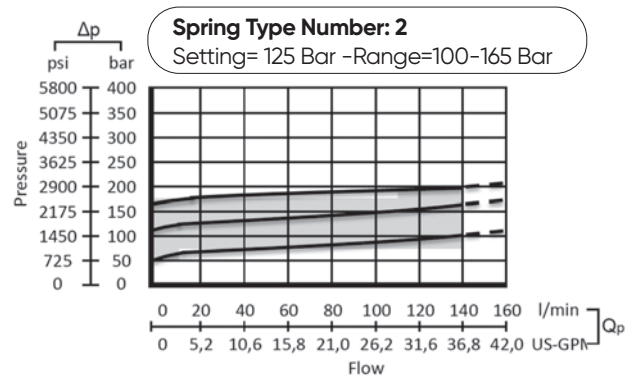
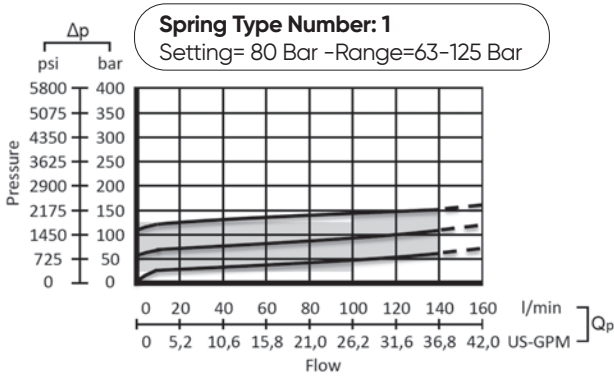
Code:

SMR2 – 125

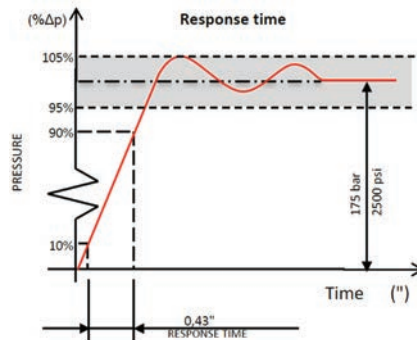
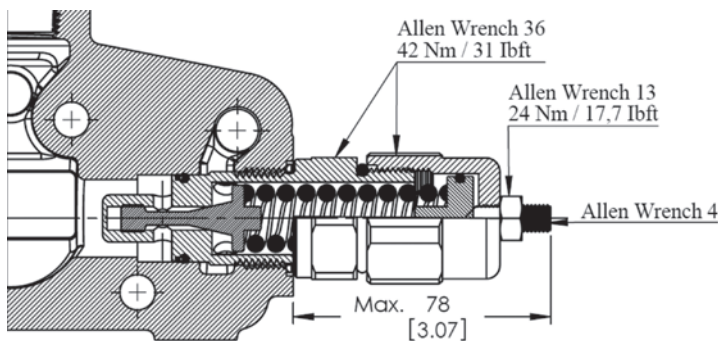
- Pressure Setting Bar in (Standard 125 bar)
- Standard Main Relief Spring Type -2



Performance Data



Adjustment Type on Valve



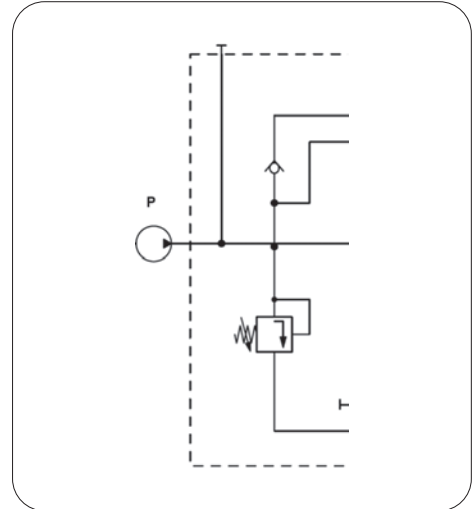
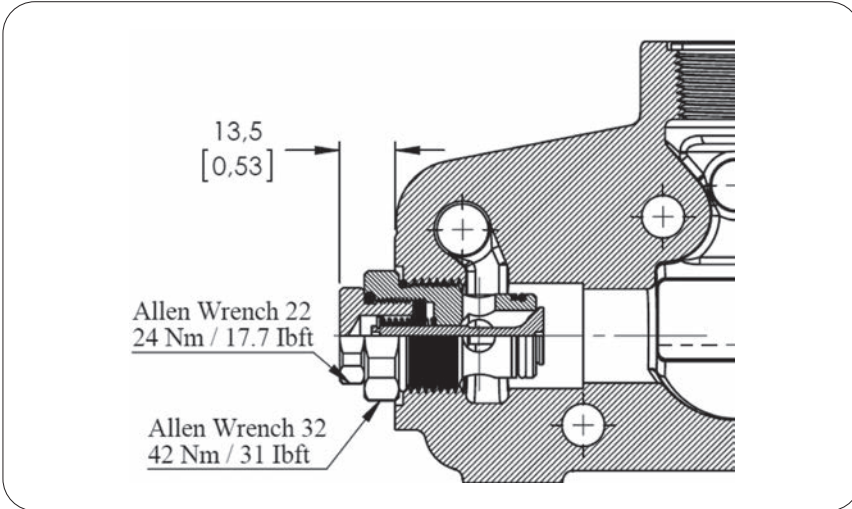
INLET RELIEF OPTIONS

Direct Pressure Relief Valve

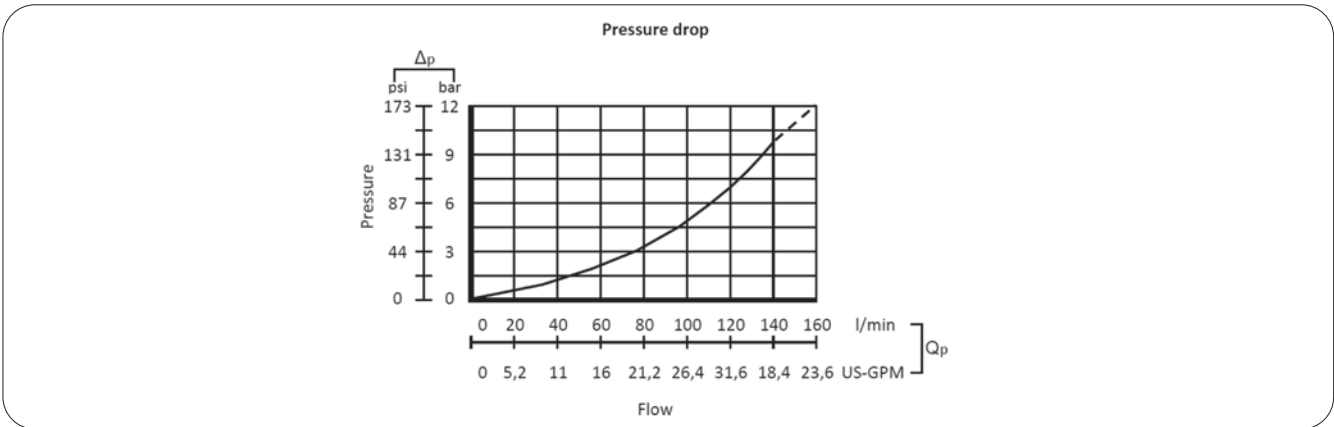
Kit No: **PAC**

Sectional Appearance

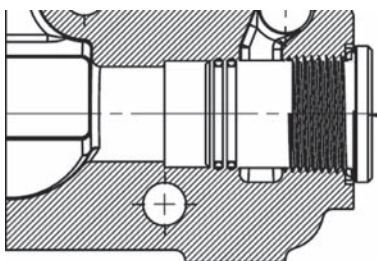
Diagram



Performance Data



Relief Blanking Plug - SP

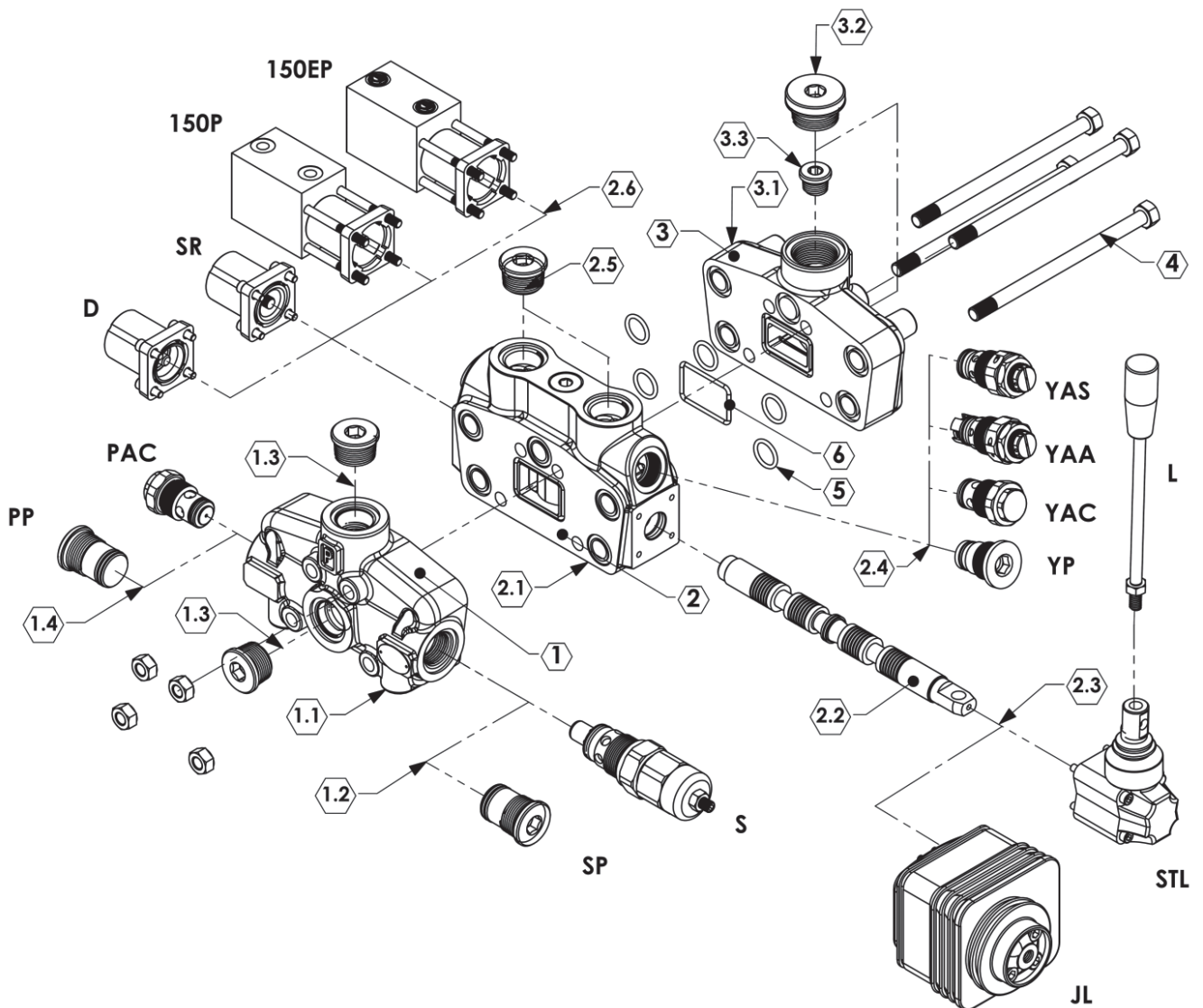
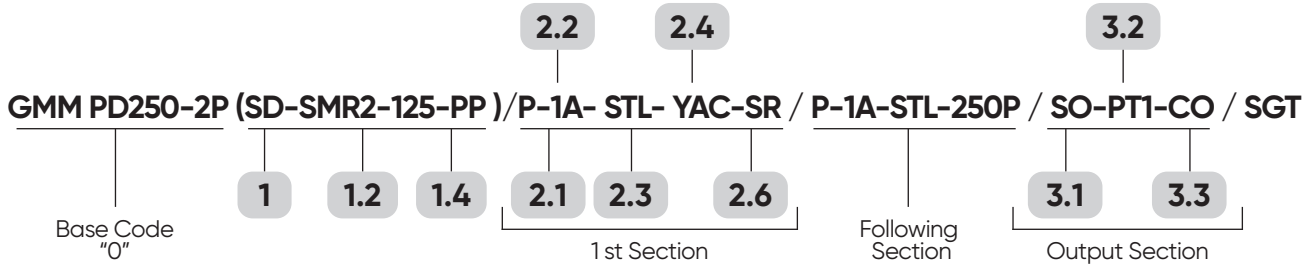


Allen Wrench 12 - 42 Nm / 31 Ibft



ORDERING CODES

Order Example



ORDERING CODES

1- Inlet Section

GMM PD250-2P PD150 =Valve Type-(PD)- Sectional (250) - Max. Flow Rate
 2P =Sections Quantity
SD = Side inlet with direct pressure relief valve (1SD250100)
TD = Top inlet with direct pressure relief valve (1TD250100)
SP = Side inlet with relief valve blanking plug (1SP250100)

2- Working Section

P = Parallel (2P250100)

3- Output Section

SO = Side outlet (3SO250100)
TO = Top outlet (3TO250100)
TCO = Top outlet with carry-over (3TCO250100)
TC = Top outlet with closed centre (3TC250100)

4- Assembling Kit

Tie rod kit for 1 section valve - (4TRK1250100)
 Tie rod kit for 2 section valve - (4TRK2250100)
 Tie rod kit for 3 section valve - (4TRK3250100)
 Tie rod kit for 4 section valve - (4TRK4250100)
 Tie rod kit for 5 section valve - (4TRK5250100)
 Tie rod kit for 6 section valve - (4TRK6250100)
 Tie rod kit for 7 section valve - (4TRK7250100)
 Tie rod kit for 8 section valve - (4TRK8250100)
 Tie rod kit for 9 section valve - (4TRK9250100)
 Tie rod kit for 10 section valve - (4TRK10250100)
 Tie rod kit for 11 section valve - (4TRK11250100)
 Tie rod kit for 12 section valve - (4TRK12250100)

5-6- O_Ring Kit

5. -17.00x2.65 NBR 70 SH O-Ring seal (3 Qty.) (5MK250100)
6. -34.60x2.62 NBR 70 SH O-Ring seal (1 Qty.) (6MK250100)

1.*-Inlet Options

1.1 Inlet Cover
Body = Standard (11BS150100)
1.2 Inlet Relief
SMR1-080 - (12SMR1250080)-Range 63-125 bar
 Setting 80 bar
SMR2-125 - (12SMR2250120)-Range 100-160 bar
 Setting 125 bar
SMR3-175 - (12SMR3250175)-Range 125-250 bar
 Setting 175 bar
SMR4-220 - (12SMR4250220)-Range 200-315 bar
 Setting 220 bar
1.3 Ports Plug
PA1 = G3/4 Top and side input - (13PA1150100)
PA2 = G1 Top and side input - (13PA2150100)
1.4 Inlet Valve
PAC =Inlet anti-cavitation valve - (14PAC150100)
PP(SP) = Relief valve blanking plug - (14PSP150100)

2.*- Working Options

2.1 Working Section

PA= Without ports valve prearrangement, with parallel circuit - Body (21BSPA250100)

2.2 Spool Options

1A -(22SS250110) - 3 Positions ,Double acting
2A -(22SS250120) - 3 Positions ,Double acting
 A to tank B Blocked
3A -(22SS250130) - 3 Positions ,Double acting
 B to tank A blocked
4A -(22SS250140) - 3 Positions ,Double acting
 A and B tank
5A -(22SS250150) - 3 Positions ,Single acting on
 A (A to tank)
6A -(22SS250160) - 3 Positions ,Single acting on
 B (B to tank)

2.3 Lever Options

L =Standard HandLever (L=120mmxM8) - (7L040100)
JL=Joystick lever for two sections operation-(5JL 080100)
STL=Standard Lever - (23STL150100)

2.4 Port Relief Valves

Anti-Shock Valve
YAS (T1-50) - (24YAC150050)-Range 35-70 bar
 Setting 50 bar
YAS (T1-100) - (24YAC150100)-Range 63-220 bar
 Setting 100 bar
YAS (T1-200) - (24YAC150200)-Range 180-350 bar
 Setting 200 bar

Anti-Shock and Anti-Cavitation Valve

YAA (T1-63) - (24YAA150063)-Range 35-70 bar
 Setting 50 bar
YAA (T1-100) - (24YAA150100)-Range 63-220 bar
 Setting 100 bar
YAA (T1-200) - (24YAA150200)-Range 180-350 bar
 Setting 200 bar

YAC - Anti Cavitation- (24YAS150100)
YP- A and B ports valve blanking plug (24YP150100)
DST-A and B ports valve blanking plugs with
 connection to tank-(24DST150100)

2.5 Ports Plug Options

PL1 =Plug for single action spool for 2A-3A, G3/4
 (25PL1150100)
PL2 =Plug for single action spool for 2A-3A, G1
 (25PL2150100)

2.6 Spool Positioners

SR=Spring Return in neutral position - (26SR150100)
D =Detent in position 1, neutral and 2 -(26D150100)
150P=ON/OFF Pneumatic - (2645P150100)
150EP=12 VDC ON/OFF electro-pneumatic -
 (2680EP150112)
 24 VDC ON/OFF electro-pneumatic -
 (2680EP150124)

3.*- Working Options

3.1 Working Section

Body = Standard (31BS250100)

3.2 Output Plug

PT1 =G1 Top and Side output (32PT1250100)

3.3 Circuits Options

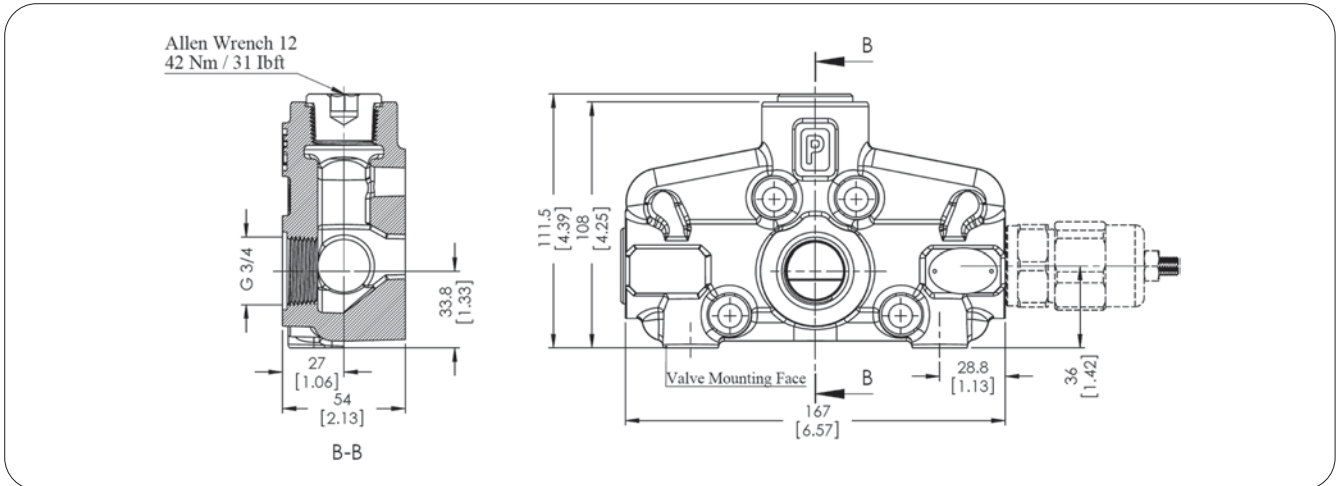
CO =G1/8 Carry-Over Connector (33CO250100)

INLET COVER- PUMP SIDE

LH Inlet Valve Options

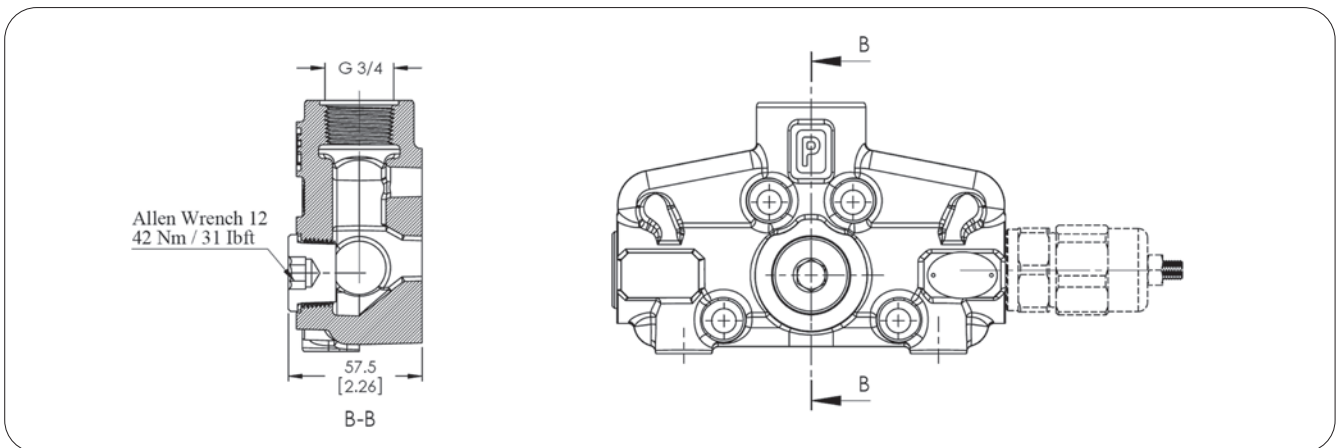
Type No: **SD**

Sectional Appearance



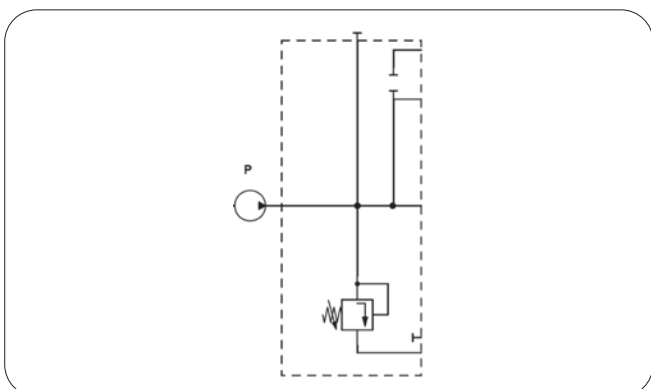
Type No: **TD**

Sectional Appearance

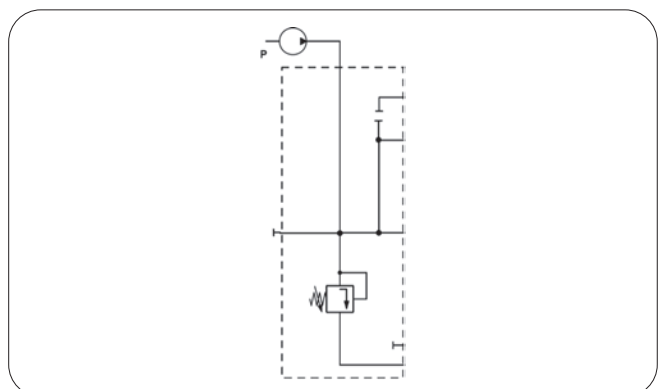


Hydraulic Diagram

Type No: **SD**



Type No: **TD**

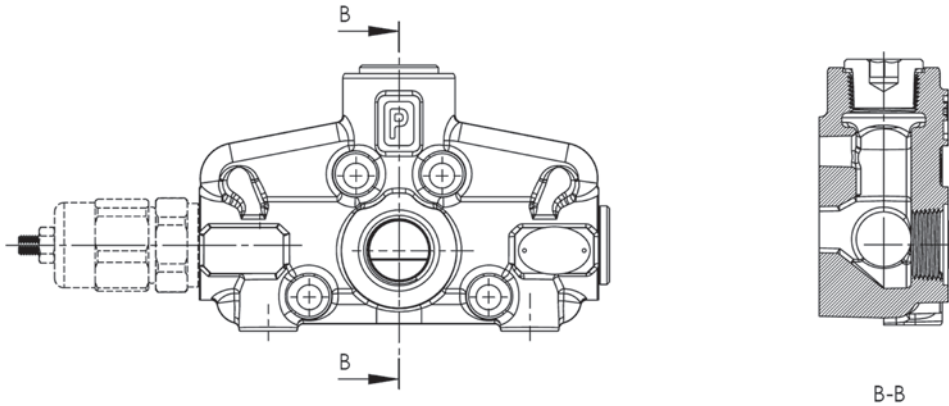


INLET COVER- PUMP SIDE

RH Inlet Valve Options

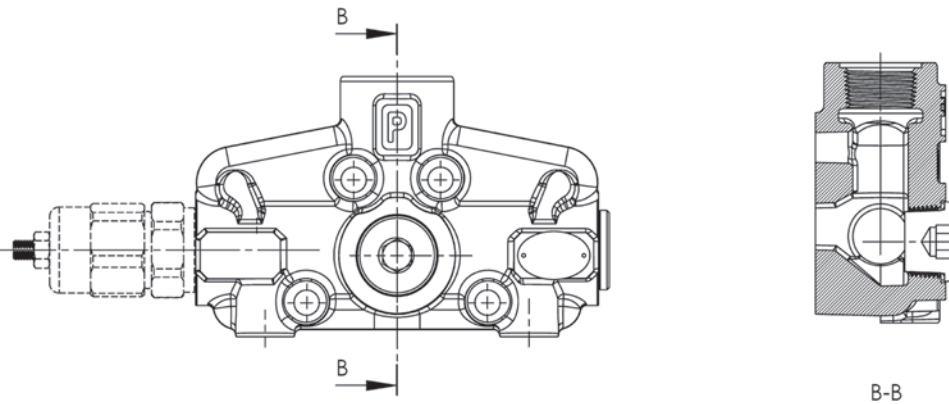
Type No: **RA**

Sectional Appearance



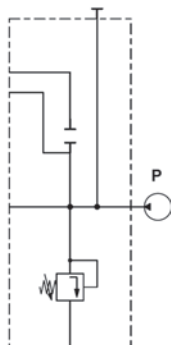
Type No: **RB**

Sectional Appearance

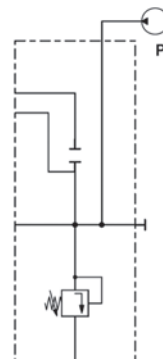


Hydraulic Diagram

Type No: **RA**

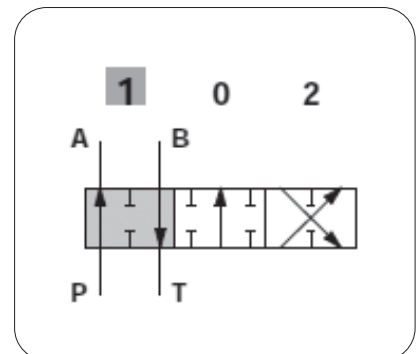
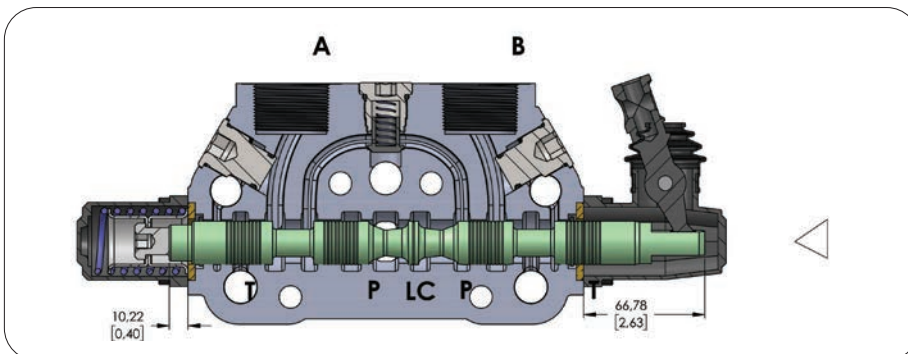
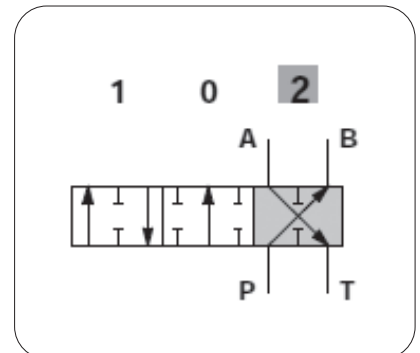
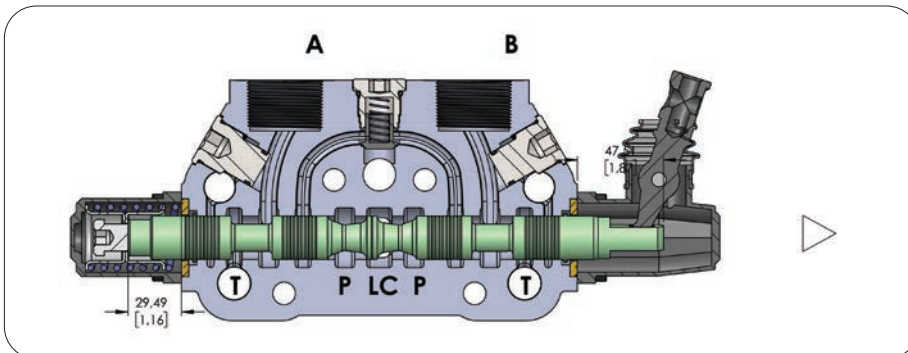
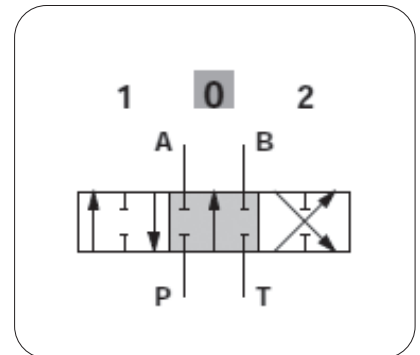
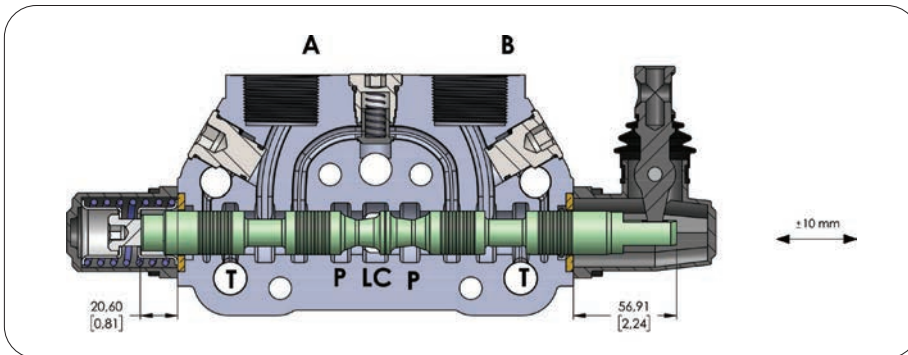


Type No: **RB**

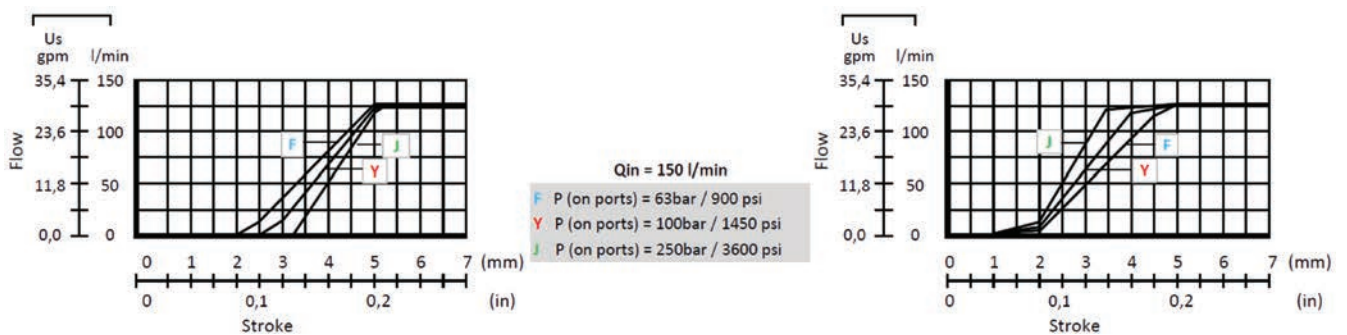


SPOOL OPTIONS

Spool Type - 1A

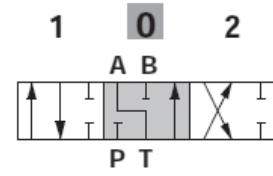
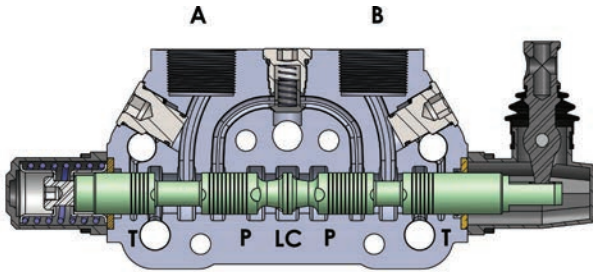


Performance Curve And Data

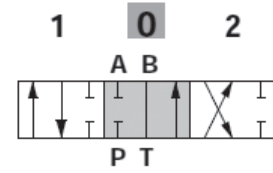
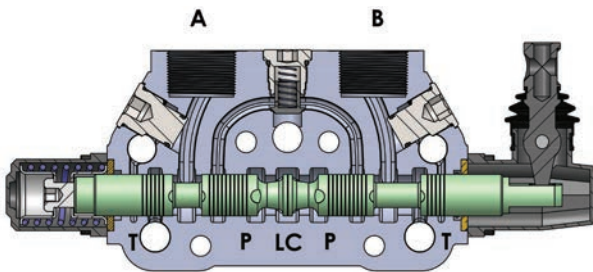


SPOOL OPTIONS

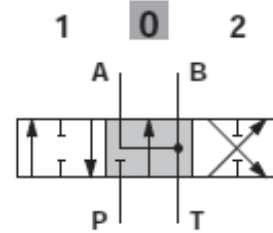
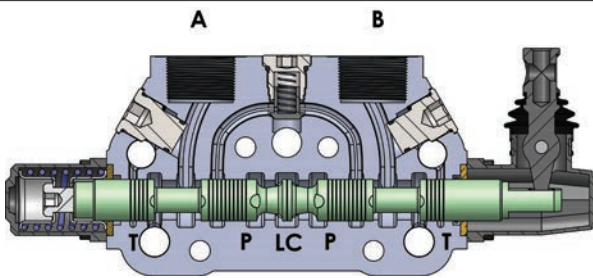
Spool Type - 2A



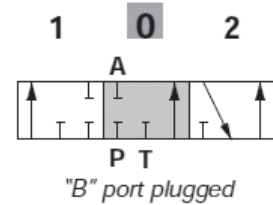
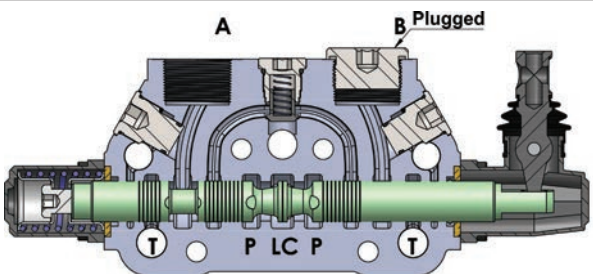
Spool Type - 3A



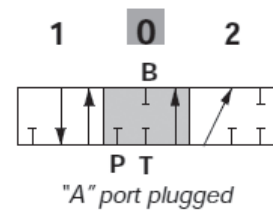
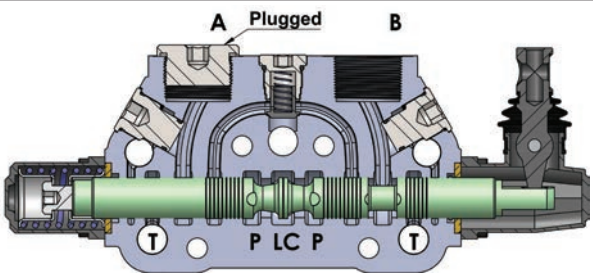
Spool Type - 4A



Spool Type - 5A



Spool Type - 6A



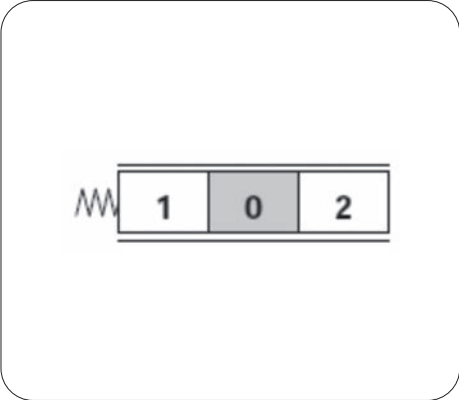
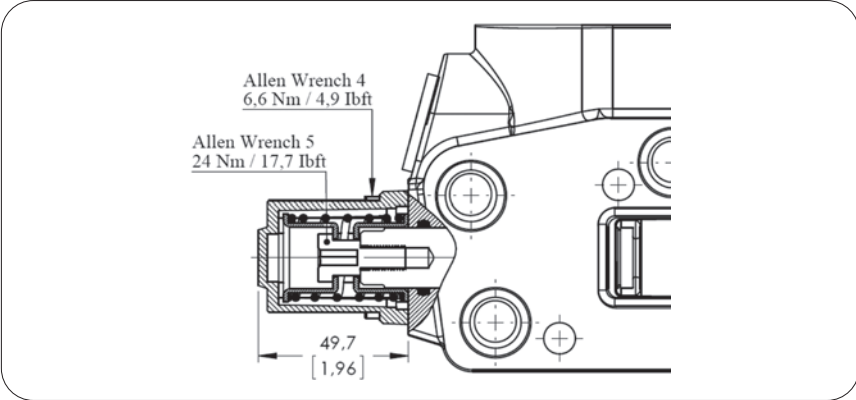
SPOOL POSITIONERS – SIDE OF RETURN

With Spring Return in Neutral Position

Kit No: **SR**

Sectional Appearance

Diagram

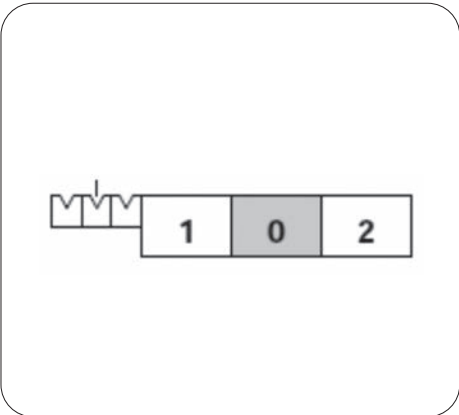
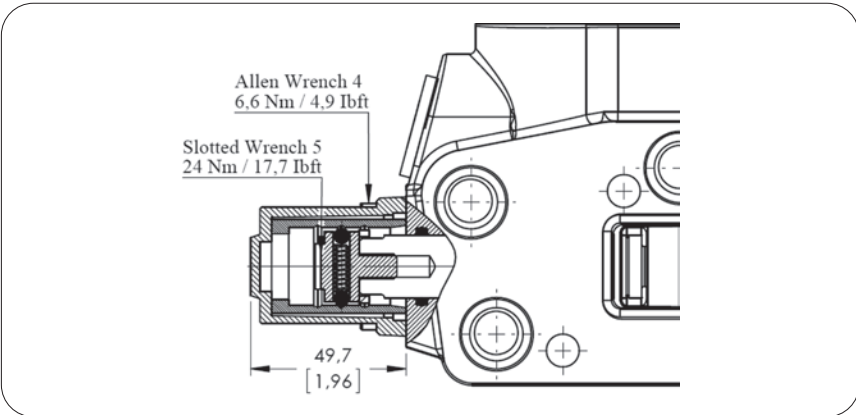


With Detent

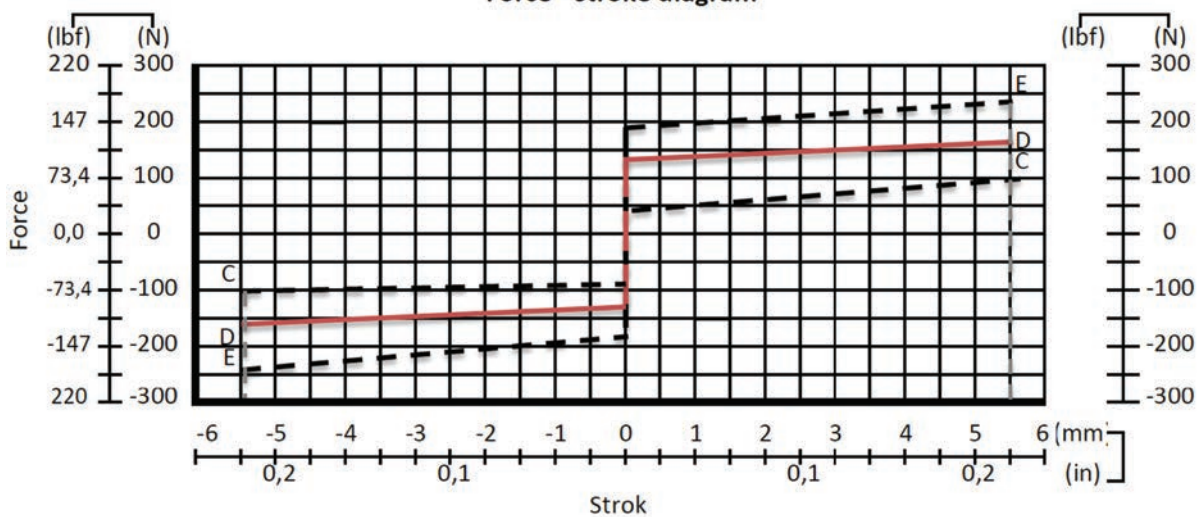
Kit No: **D**

Sectional Appearance

Diagram



Force - stroke diagram



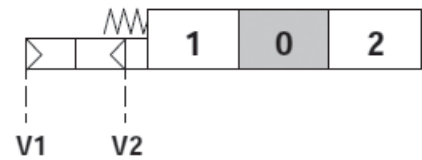
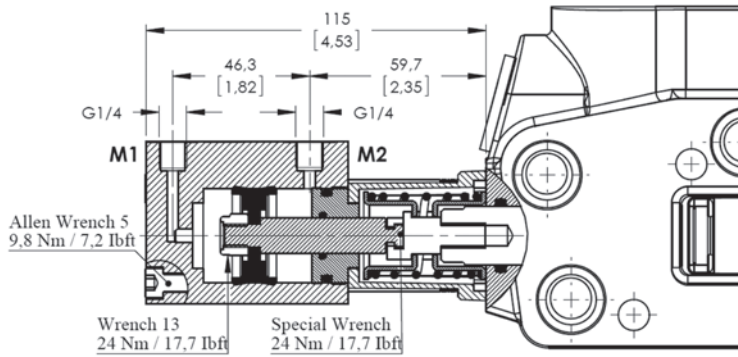
SPOOL POSITIONERS – SIDE OF RETURN

ON/OFF Pneumatic Control

Kit No: **250P**

Sectional Appearance

Diagram



Operating Features

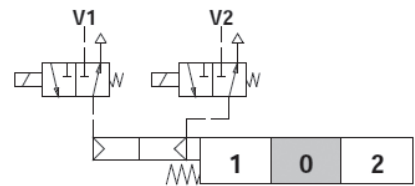
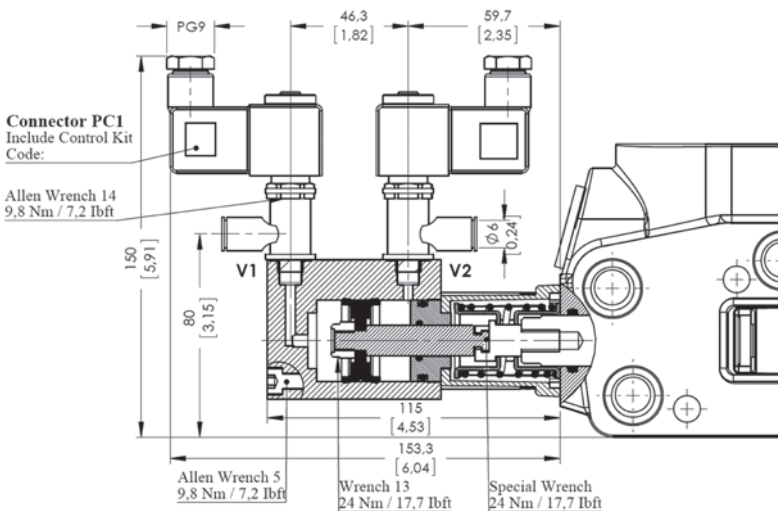
Pilot Pressure: 6 Bar (Max. 10) / 87 Psi (Max. 145)

ON/OFF Electro-Pneumatic Control

Kit No: **250EP**

Sectional Appearance

Diagram



Operating Features

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

Solenoid Operating Features

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

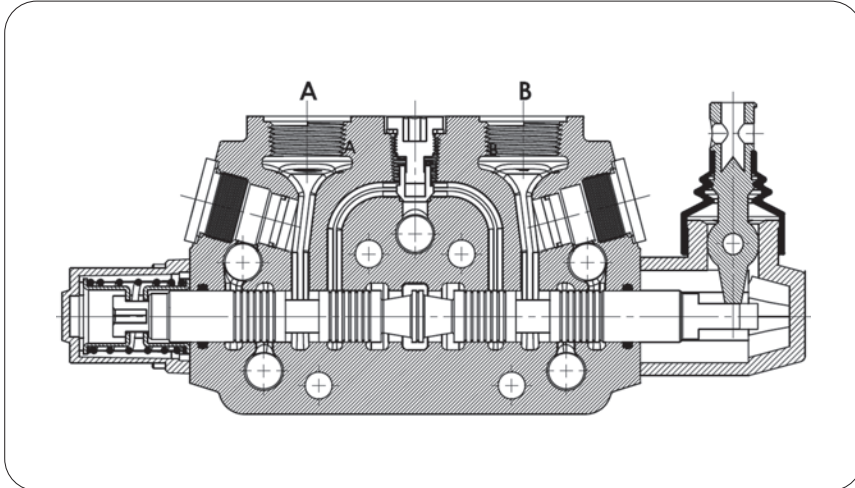
Power Rating.....: 6 W

WORKING SECTION KIT

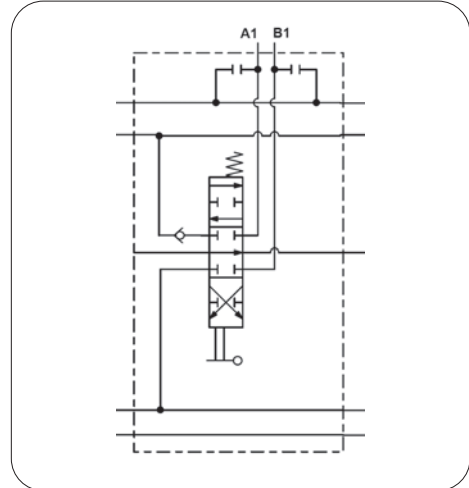
With Port Valves Type

Kit No: **AA**

Sectional Appearance



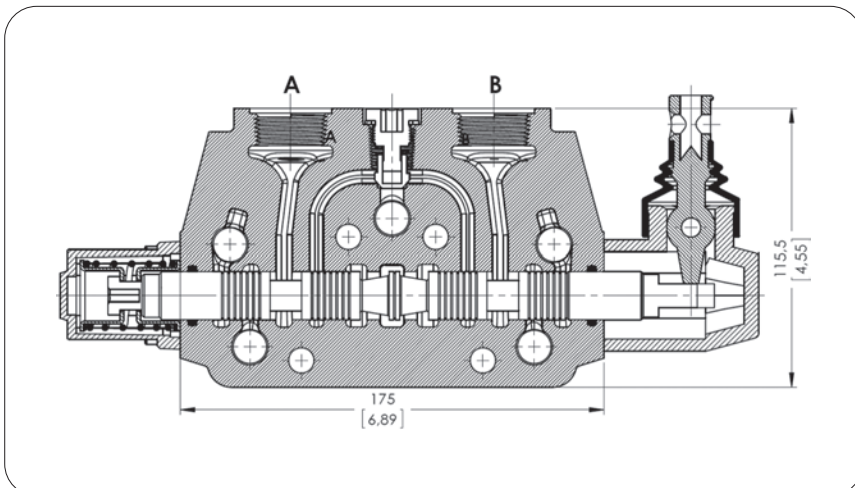
Diagram



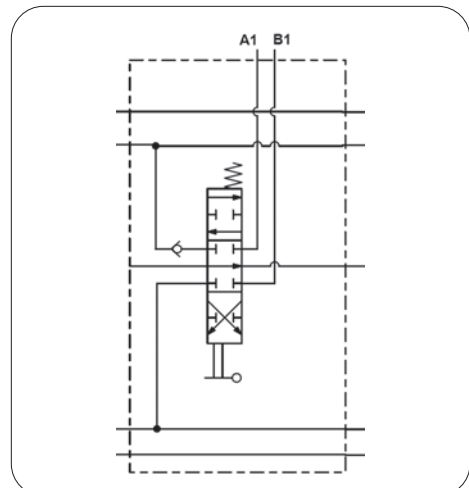
With Port Valves Type

Kit No: **AB**

Sectional Appearance



Diagram



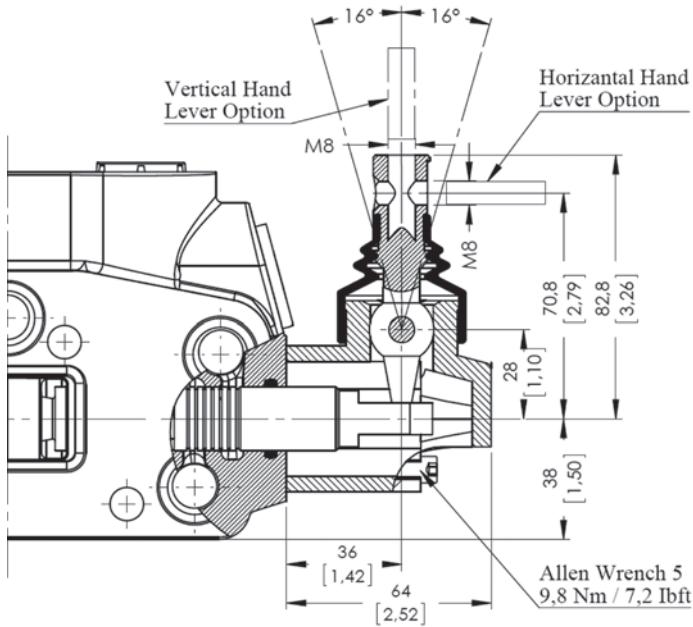
SPOOL POSITIONERS – SIDE OF LEVER CONTROL

Lever Controls

Kit No: **STL - L0**

Sectional Appearance

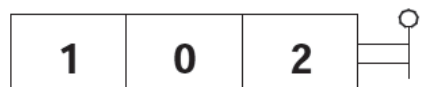
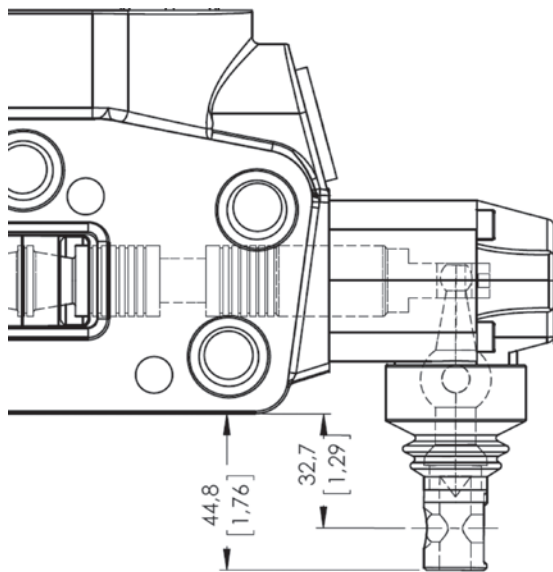
Diagram



Kit No: **STL - L180**

Sectional Appearance

Diagram



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

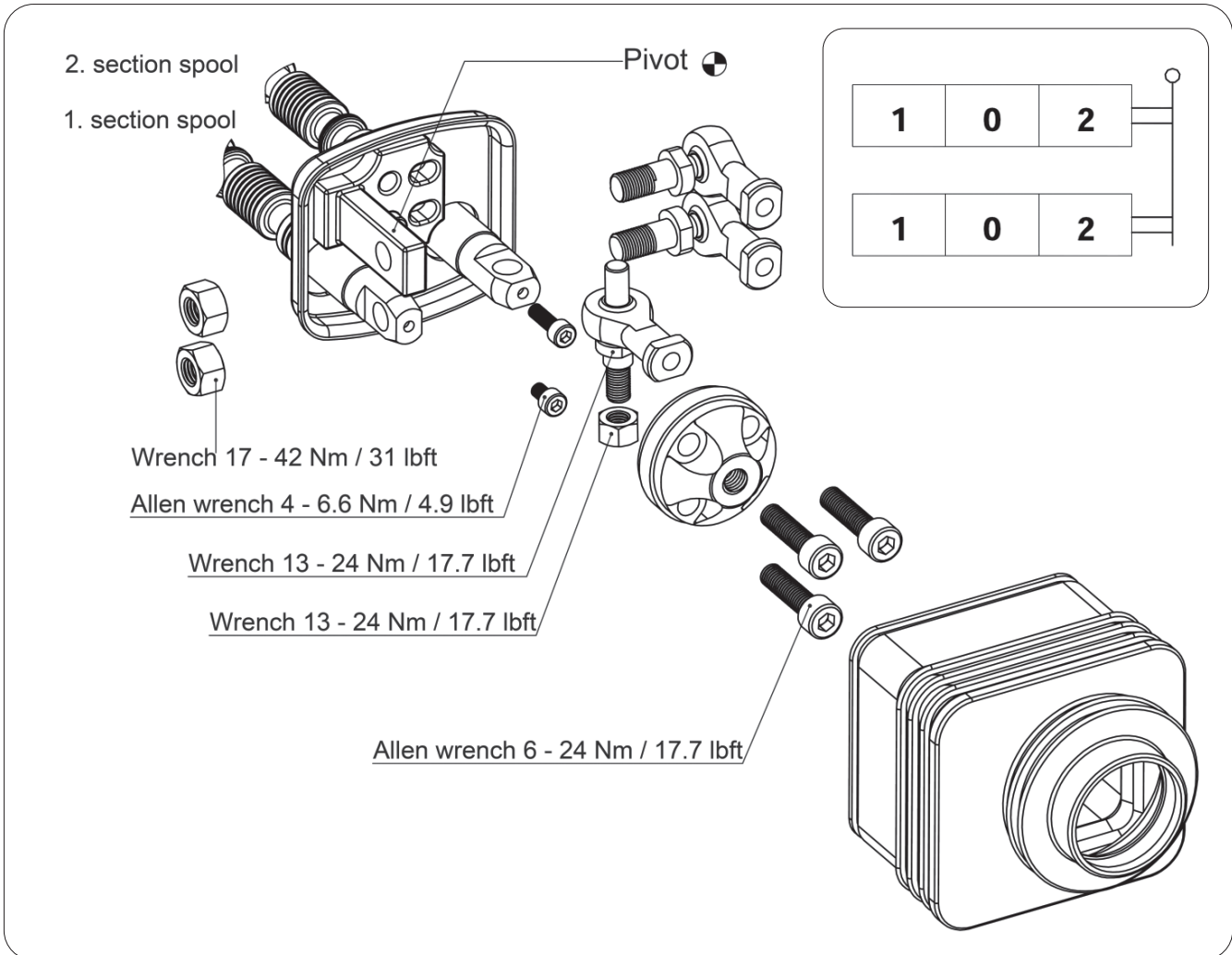
SPOOL POSITIONERS – SIDE OF LEVER CONTROL

Lever Controls - Joystick

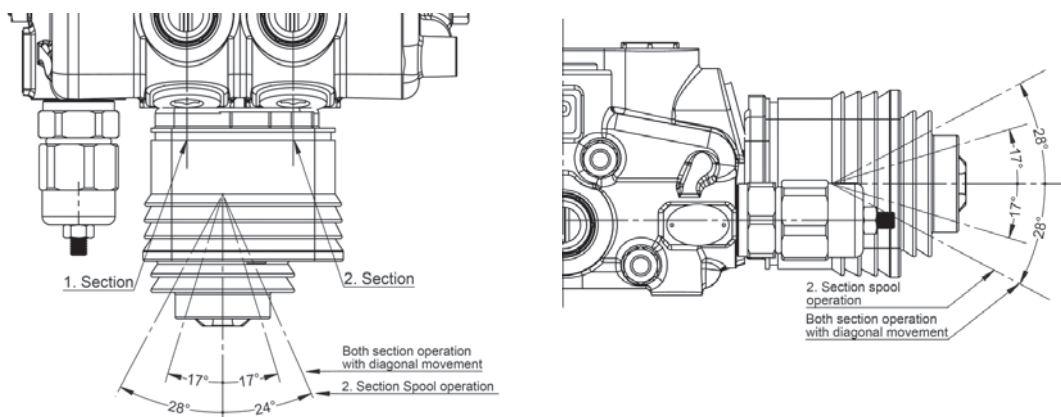
Kit No: JL

Exploded View

Diagram



Operation Angle:



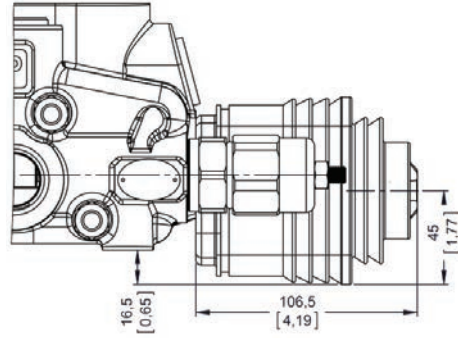
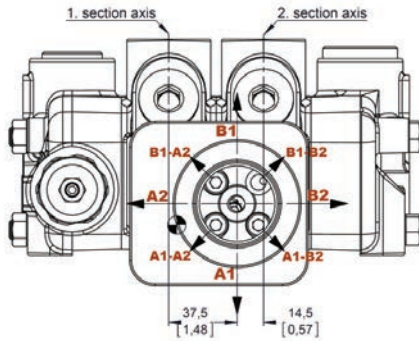
SPOOL POSITIONERS – SIDE OF LEVER CONTROL

Lever Controls – Joystick

Dimensions and movement sceme

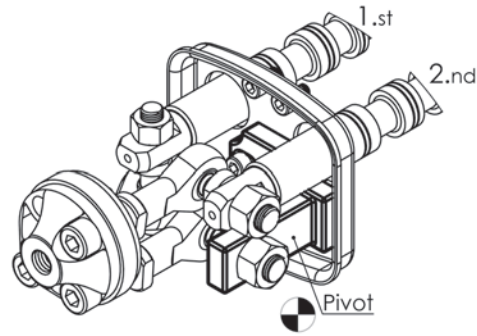
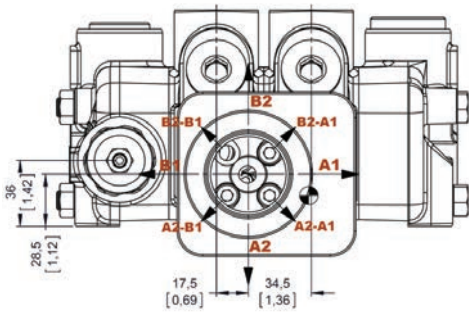
Type No: **JL1**

Application: Pivot placed down on the Left



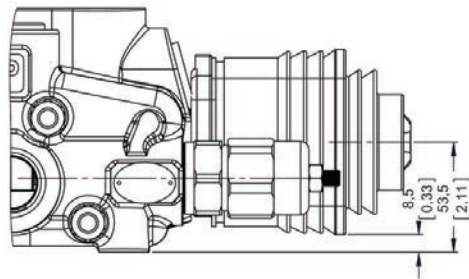
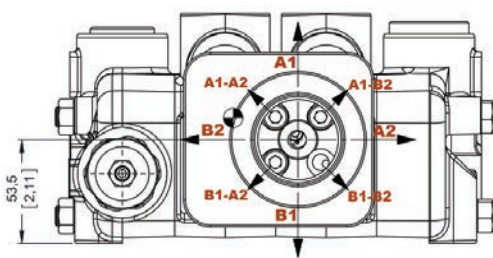
Type No: **JL2**

Application: Pivot placed down on the right



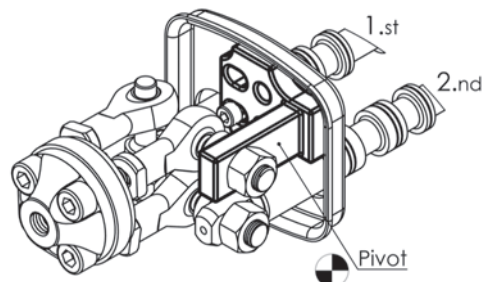
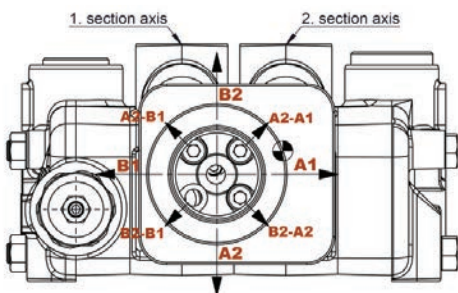
Type No: **JL3**

Application: Pivot placed above on the Left



Type No: **JL4**

Application: Pivot placed above on the right

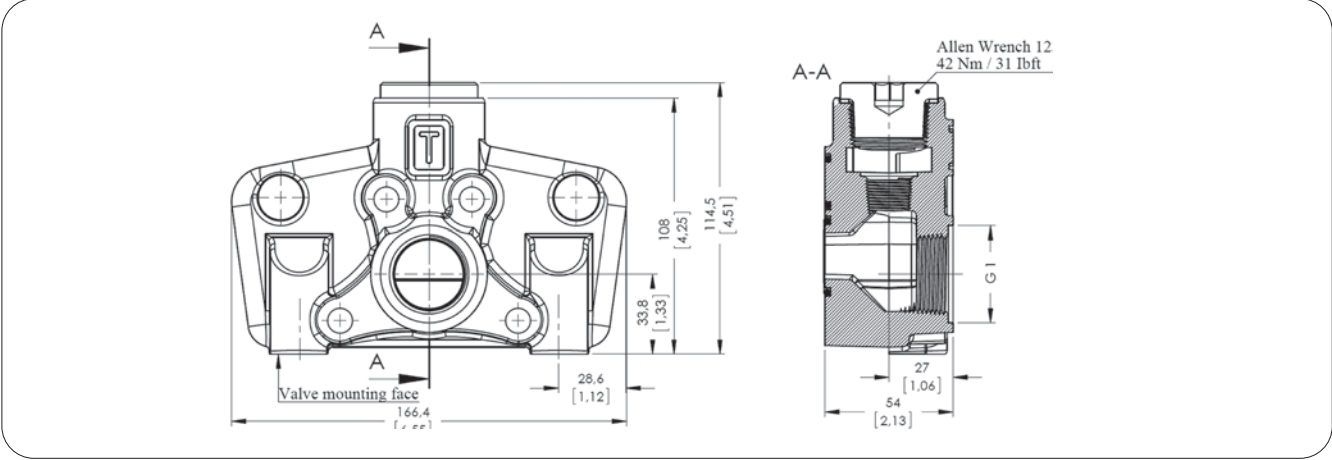


OUTLET COVER - TANK SIDE

Output Cover Options

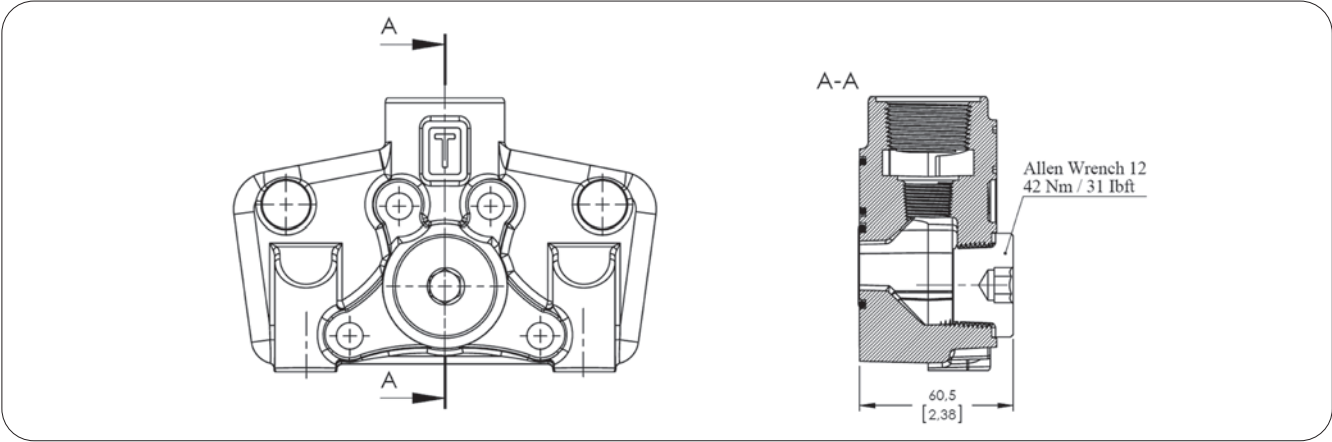
Kit No: **SO**

Sectional Appearance



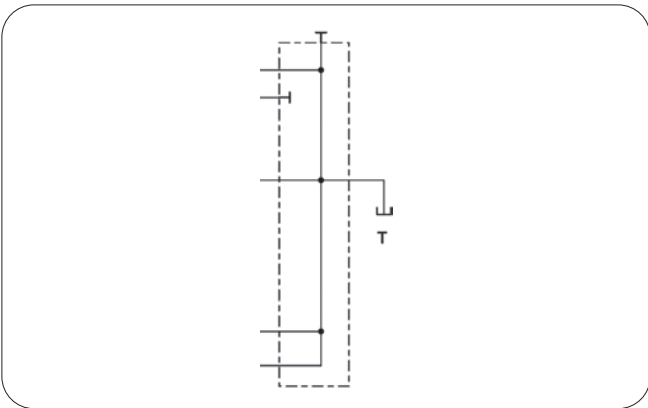
Type No: **TO**

Sectional Appearance

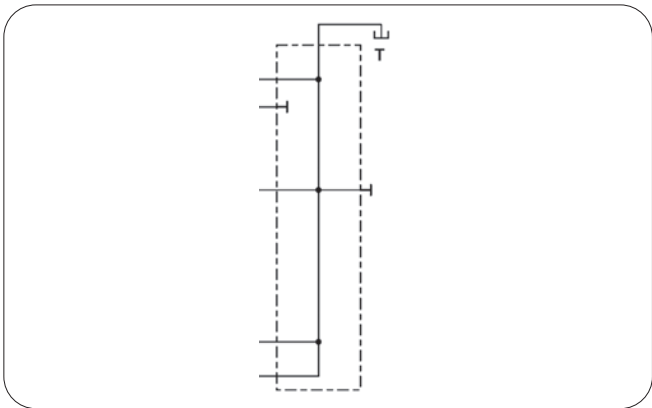


Hydraulic Diagram

Type No: **SO**



Type No: **TO**

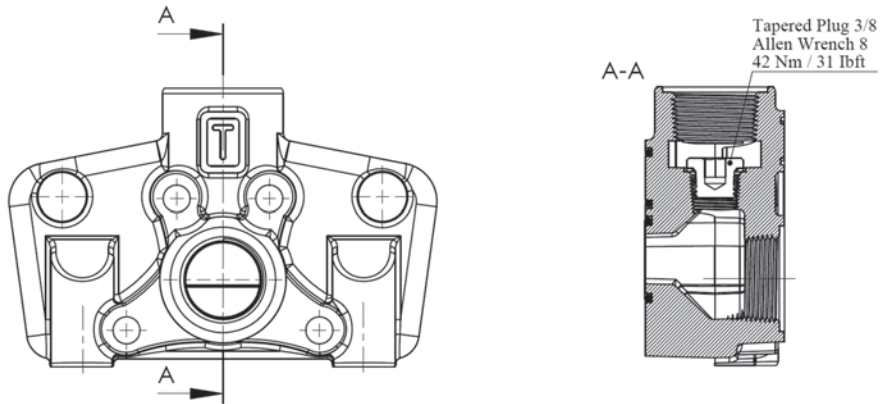


OUTLET COVER - TANK SIDE

Output Cover Options

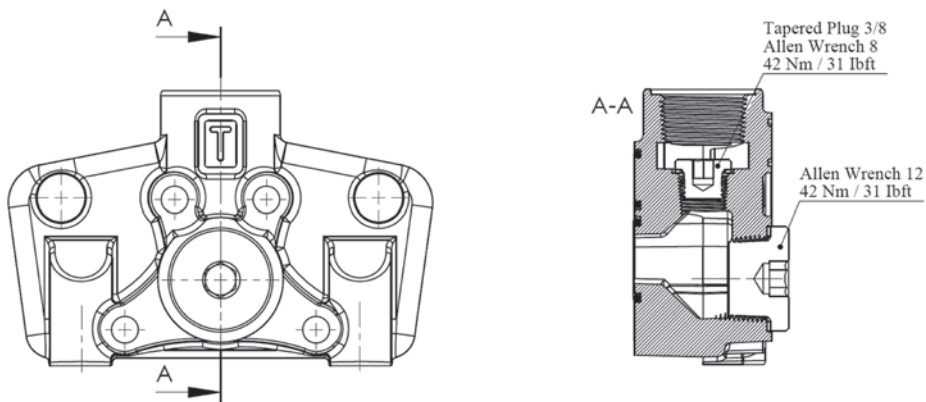
Kit No: **TCO**

Sectional Appearance



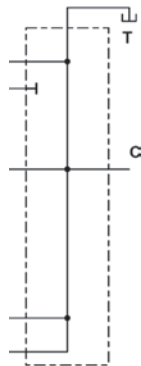
Kit No: **TC**

Sectional Appearance

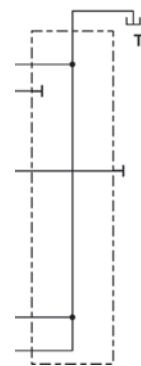


Hydraulic Diagram

Type No: **TCO**



Type No: **TC**



PORT VALVES OPTIONS
Anti Shock Valves

Code:

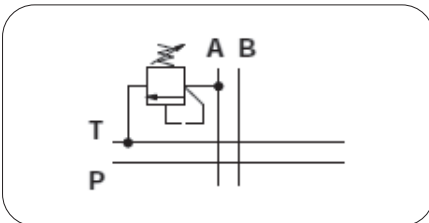
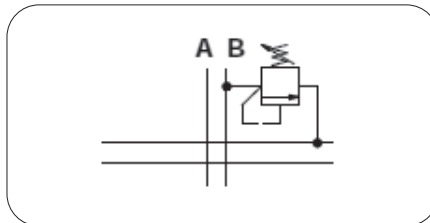
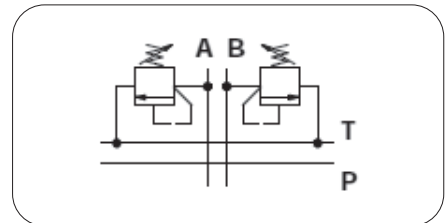
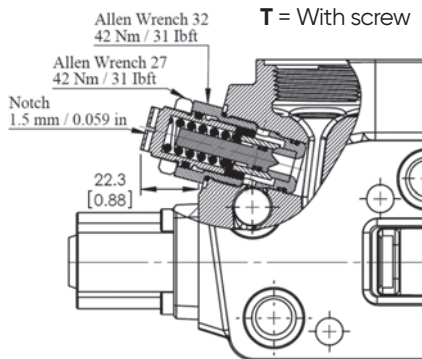
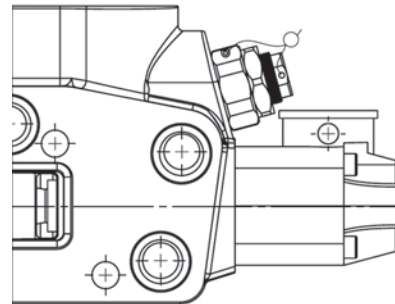
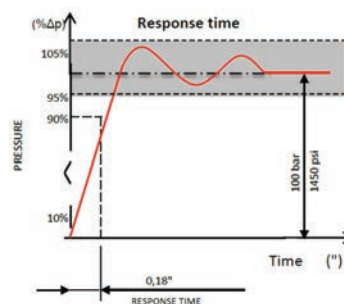
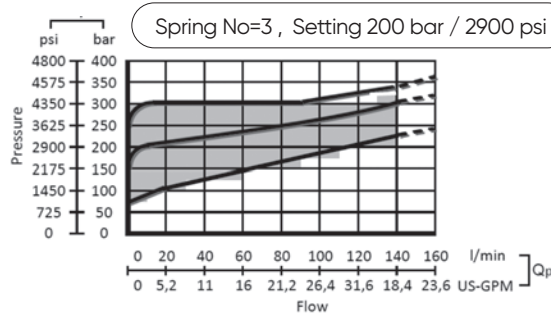
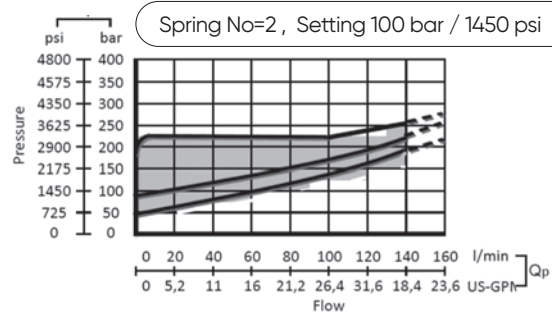
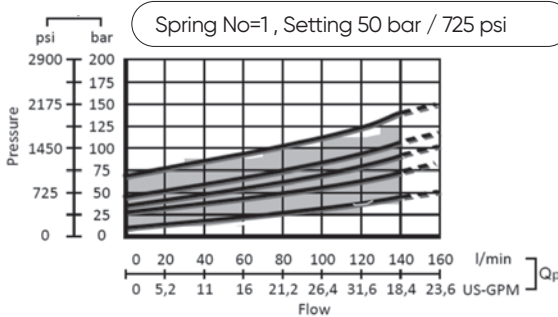
YAS-1 (T1-100)

→ Pressure Setting in Bar

→ Adjusting type T=With screw , L=Valve Set / Spring Type (1,2,3)

→ 1 = Mounted Port A , 2 = Mounted Port B , 3 = Mounted Port A and B

Hydraulic Diagram

 Kit No: **YAS1**

 Kit No: **YAS2**

 Kit No: **YAS3**

Adjustment Type on Valve:

T = With screw
L = Valve set

Performance Data:


PORT VALVES OPTIONS

Anti shock And Anti Cavitation Valves

Code:

YAA-1 (T1-100)

→ Pressure Setting in Bar

→ Adjusting type T=With screw , L=Valve Set / Spring Type (1,2,3)

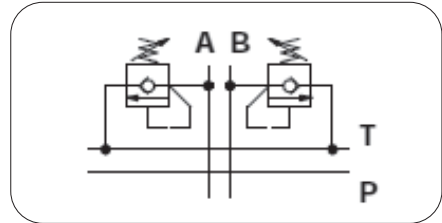
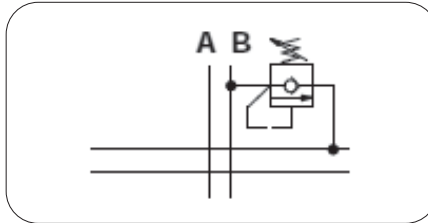
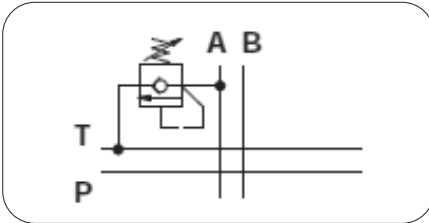
→ 1 = Mounted Port A , 2 = Mounted Port B , 3 = Mounted Port A and B

Hydraulic Diagram

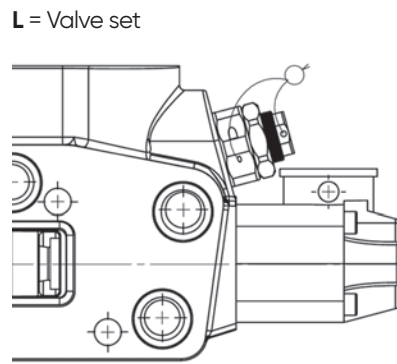
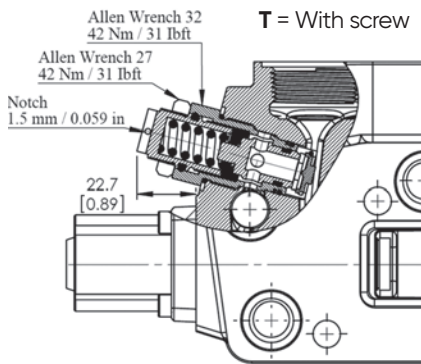
Kit No: **YAA1**

Kit No: **YAA2**

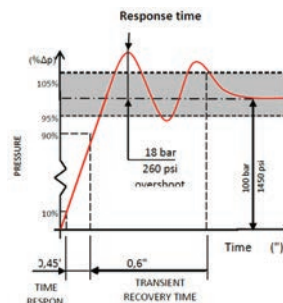
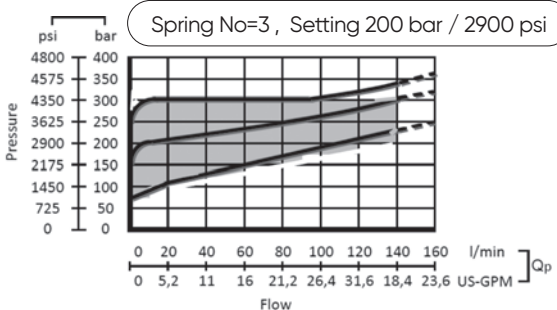
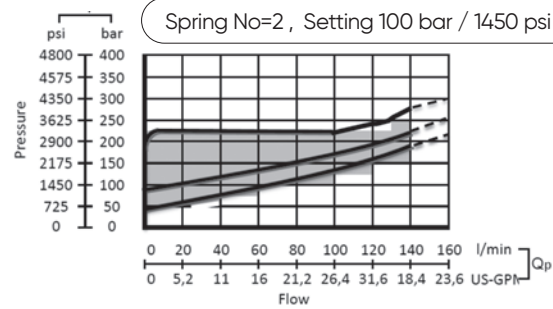
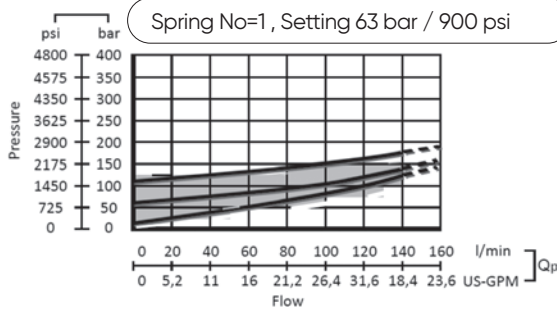
Kit No: **YAA3**



Adjustment Type on Valve:



Performance Data:



PORT VALVES OPTIONS

Anti Cavitation Valves

Code:

YAC-1

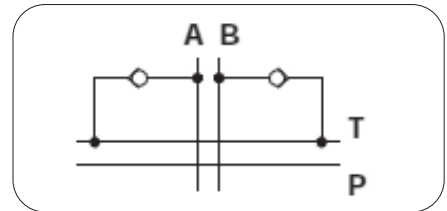
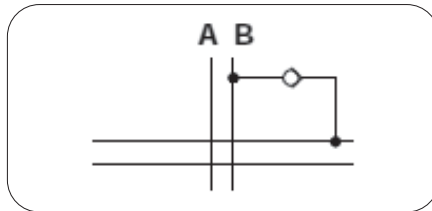
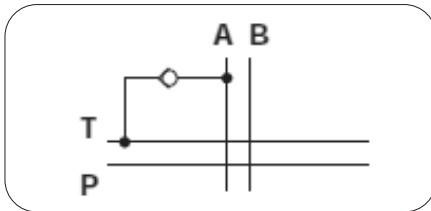
→ 1= Mounted Port A , 2=Mounted Port B , 3=Mounted Port A and B

Hydraulic Diagram

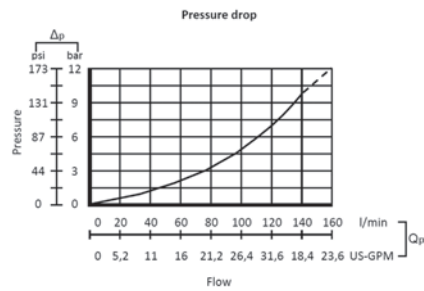
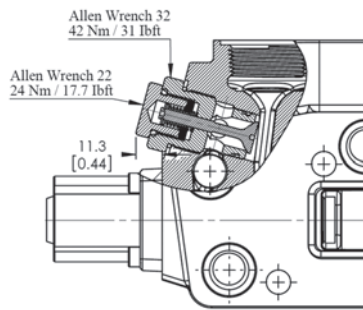
Kit No: YAC1

Kit No: YAC2

Kit No: YAC3



Adjustment Type on Valve And Data:



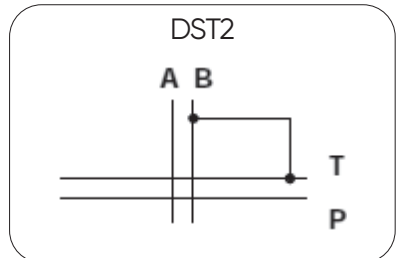
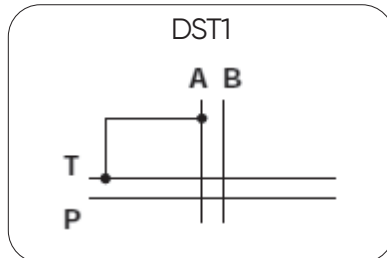
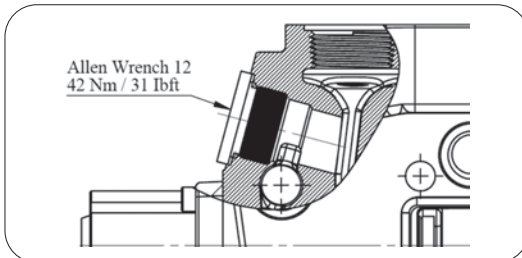
Valve Blanking

Plug with tank connection

DST-1 (1:Mounted port A – 2:Mounted port B)

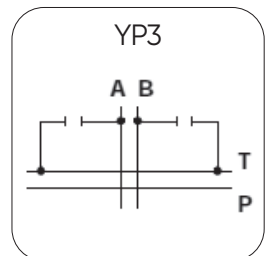
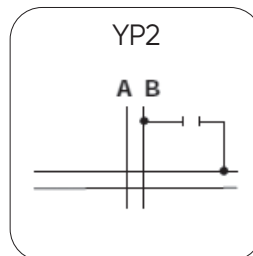
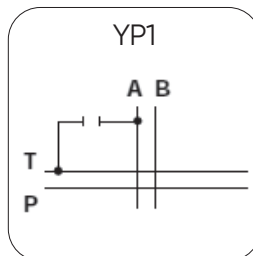
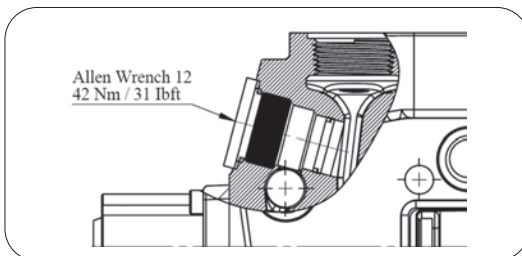
Sectional Appearance

Hydraulic Diagram



Plug

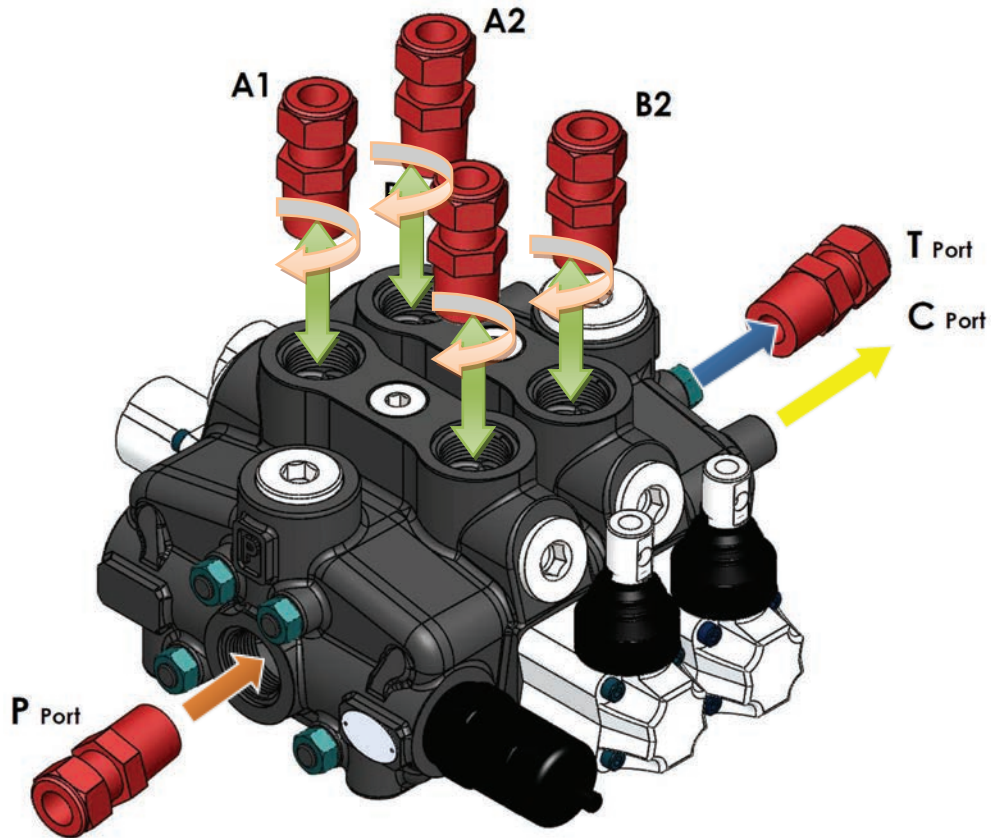
YP-1 (1:Mounted port A – 2:Mounted port B – 3:Mounted port A and B)



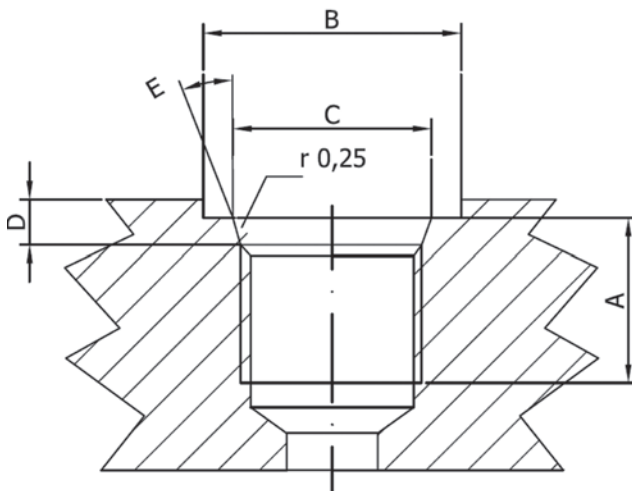
INSTALLATION AND MAINTENANCE

The GMM-PD250 valve is assembled and tested as per the technical specification of this catalog. Before the final installation on your equipment, follow the below recommendation:

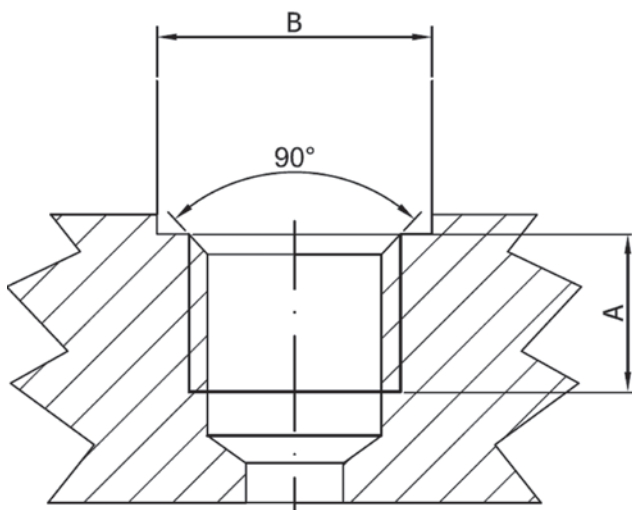
- The valve can be assembled in any position, in order to prevent body deformation and spool sticking mount the product on a flat surface;
- In order to prevent the possibility of water entering the lever box and spool control kit, do not use high pressure wash down directly on the valve;
- Before painting,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



Threads Type (Nm / lbft)	P Port	A and B Port	T Port
BSP (ISO 228/1)	G 1	G 1	G 1/4
With O--Ring seal	70 / 51.6	70 / 51.6	100 / 73.7
With copper washer	70 / 51.6	70 / 51.6	90 / 66.3
With steel and rubber washer	70 / 51.6	70 / 51.6	100 / 51.6
BSP (ISO 228/1)	G 1/4	G 1/4	G 1/4
With O--Ring seal	100 / 73.7	100 / 73.7	100 / 73.7
With copper washer	90 / 66.3	90 / 66.3	90 / 66.3
With steel and rubber washer	100 / 51.6	100 / 51.6	100 / 51.6
UN--UNF (ISO 11926--1)	1 5/16--12 UNF--2B	1 1/16--12 UNF--2B	1 5/16--12 UNF--2B
With O--Ring seal	150 / 110.6	95 / 70	150 / 110.6

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"		G3/4		G1	
mm	in						
A		16	0,63	18	0,71	20	0,79
B		27	1,06	33	1,30	40	1,57