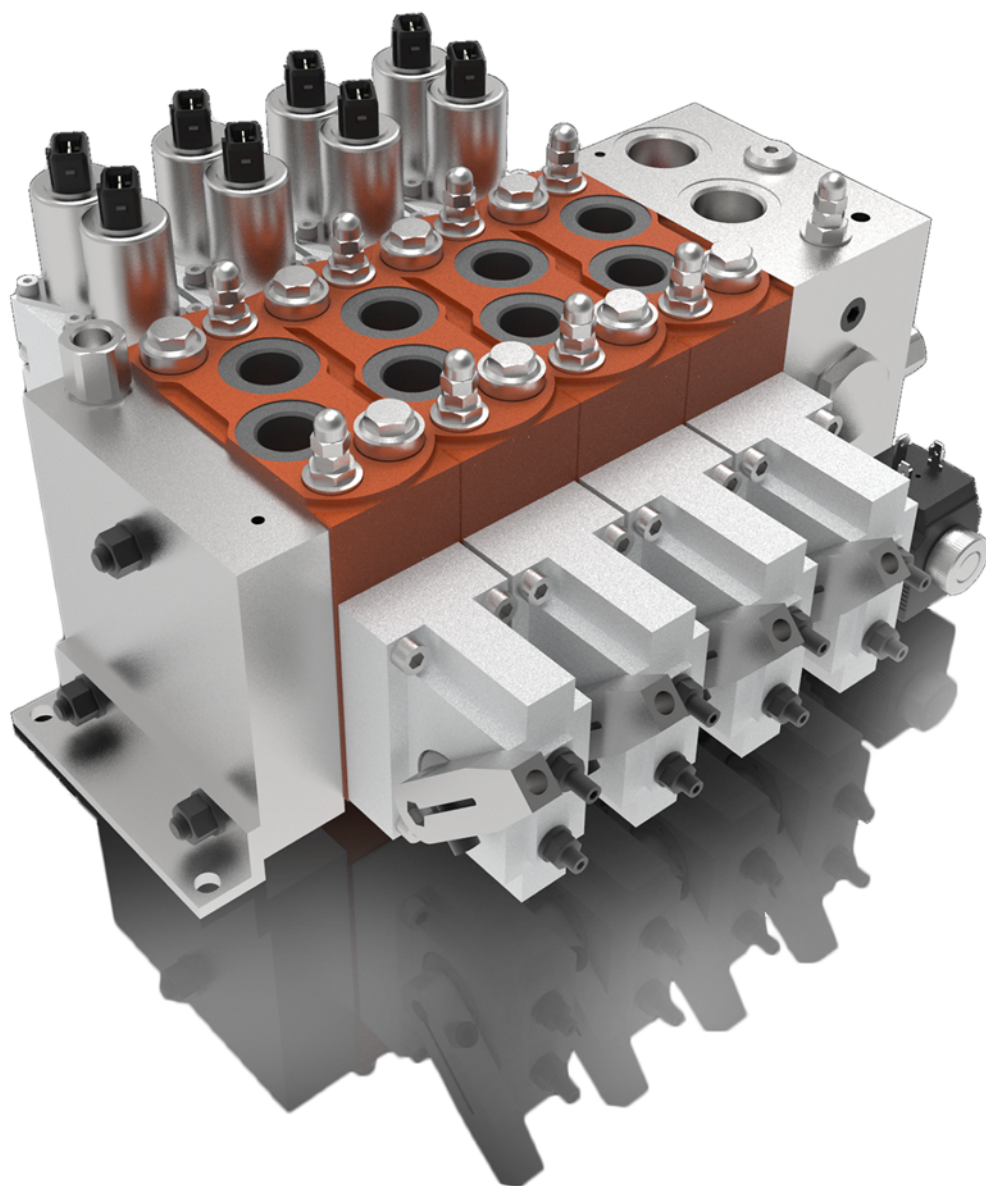


MONODLOCK DIRECTIONAL CONTROL VALVE



Mpl 120

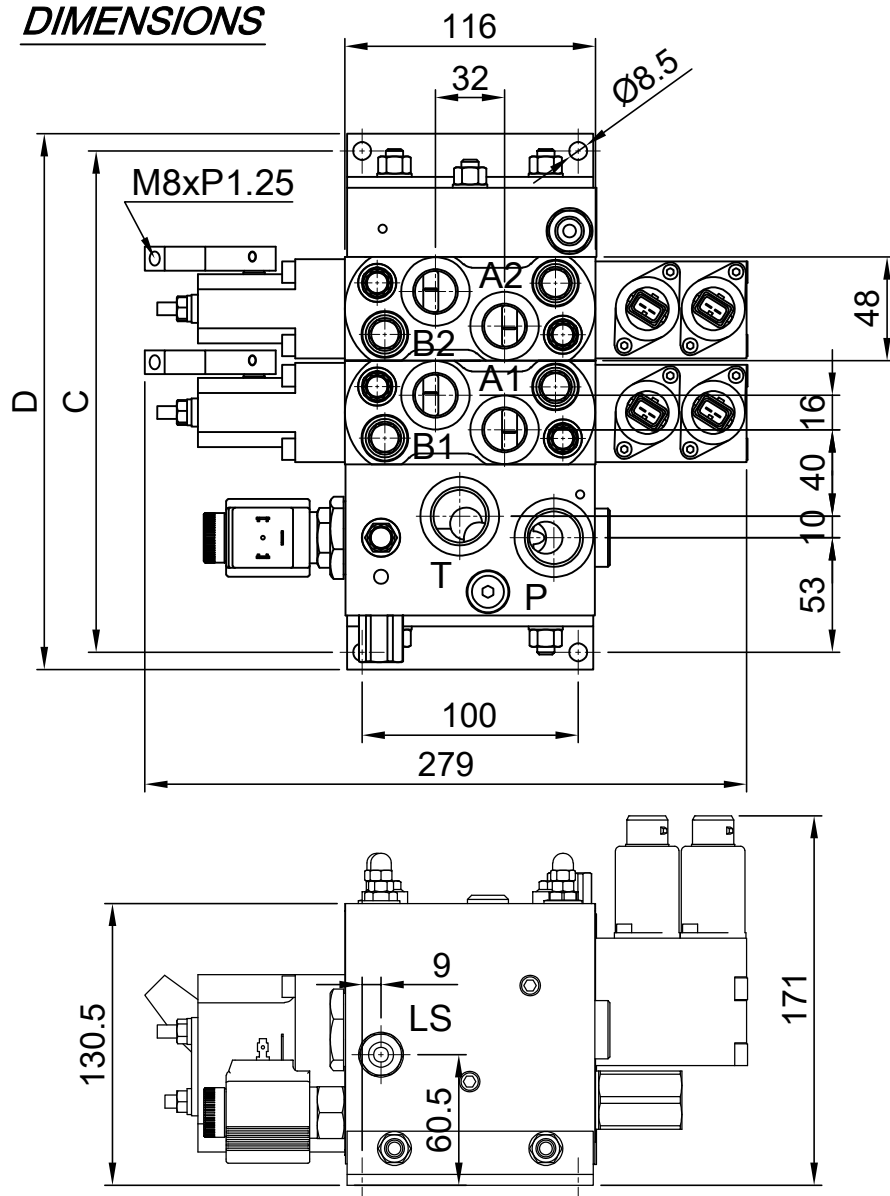
B HYDRAULIC PRODUCT

SYSTEM OF FLUID POWER

Proportional valve

MPL-120

DIMENSIONS



Type	Dimensions	
	C	D
MPL-120/1	184	200
MPL-120/2	232	248
MPL-120/3	280	296
MPL-120/4	328	344
MPL-120/5	376	392
MPL-120/6	424	440
MPL-120/7	472	488
MPL-120/8	520	536
MPL-120/9	568	584
MPL-120/10	616	632

unit : mm

PERFORMANCE

Nominal flow rating : on inlet port with compensator 150 l/min
on working ports with compensator 100 l/min
on working ports without compensator 130 l/min

Operating pressure (Max.) : 315 bar

Back pressure (Max.) : 25 bar (on outlet port T)

Oil leaks from A (B) to T : 16 c.c/min at 100 bar(1450 psi)

Fluid : best use mineral oil with viscosity ranging between 15 to 75 mm² /s

Fluid temperature : Min. -20°C , Max 80°C ,with NBR (BUNA-N) gaskets

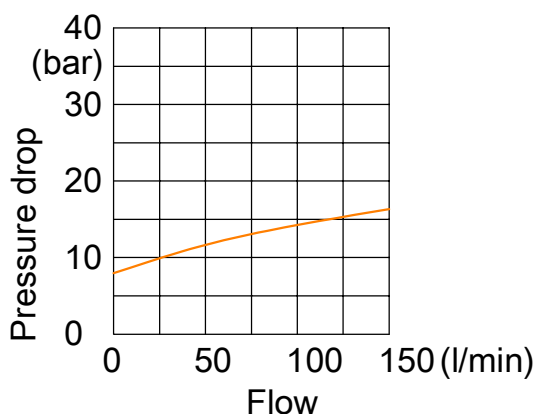
Min. -20°C ,Max 100°C ,with FPM (VITON) seals gaskets

MPL-120

RATING DIAGRAM

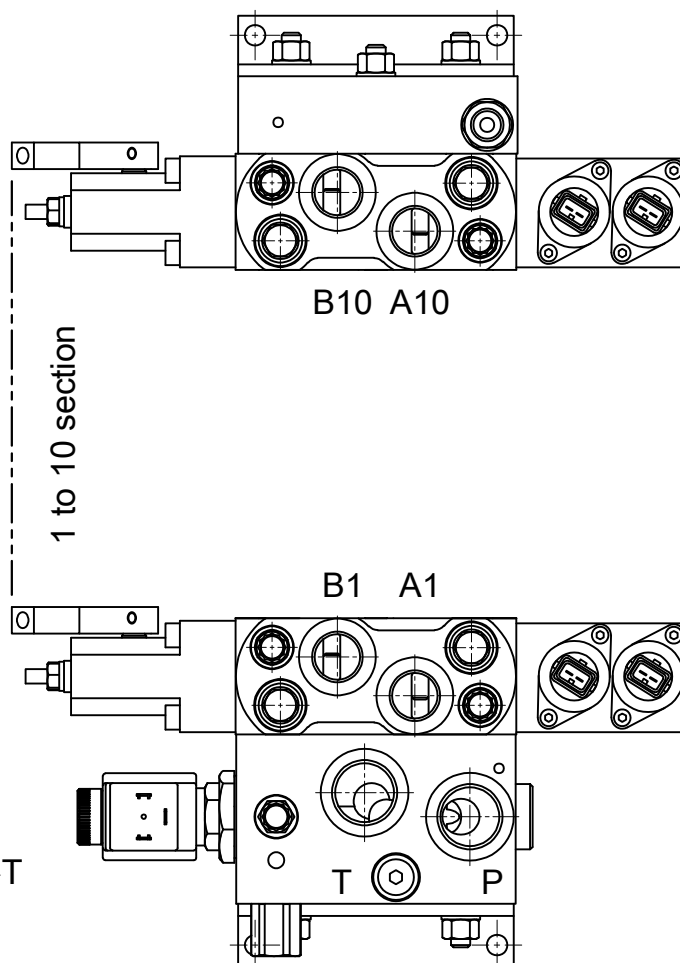
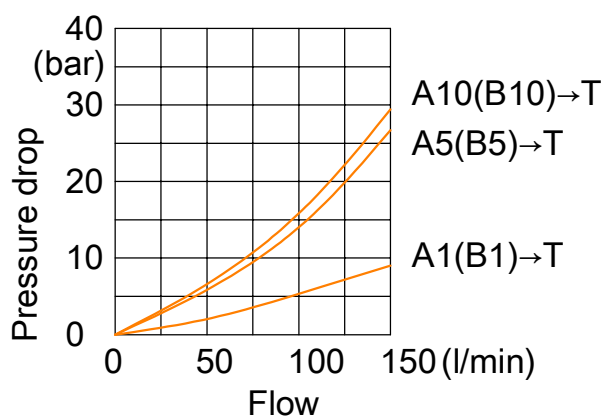
Open centre

P to T Pressure drop inlet compensator



Work port to outlet

From A port (spool in position 2) or B port (spool in position 1) to side outlet



MPL-120

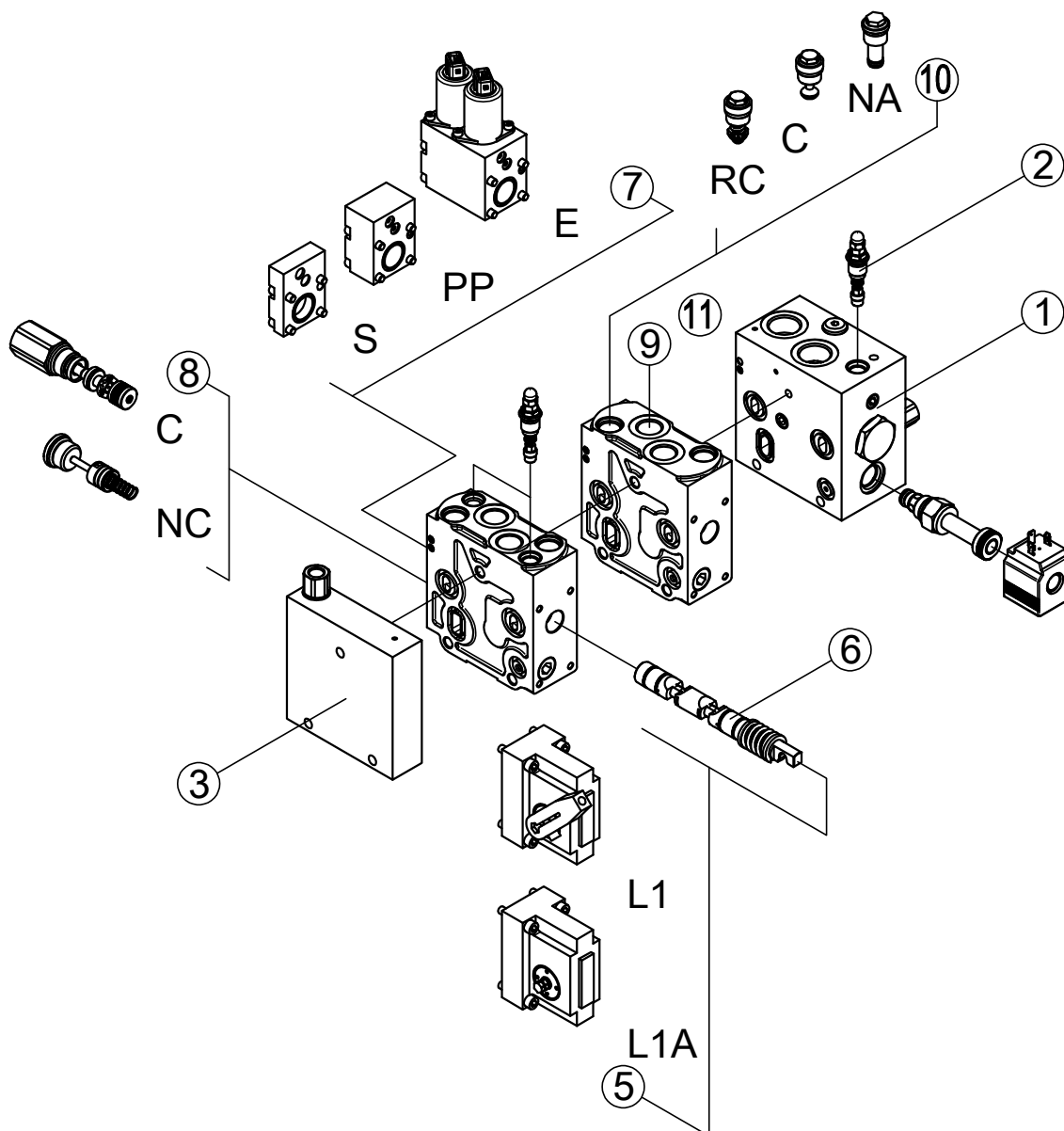
ORDERING CODE NUMBER EXAMPLE

MPL-120/2/ CA -S(1-90) / OS10 / OC / L1 A1(10) S NC 1 /
 / L2 A1(10) E C 4 ARC50 / SAE

NO. of working section.

1st section

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.



MPL-120

ORDERING CODE NUMBER EXAMPLE

MPL-120/2/ CA -S(1-90) / OS10 / OC / L1 A1(10) S NC 1 /
 / L2 A1(10) E C 4 ARC50 / SAE

NO. of working section.

1st section

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.

1.Inlet section page.6

| Type | Description |
|------|--|
| CA | Closed center(Configuration without pressure reducing valve) |
| CB | Closed center(Configuration with pressure reducing valve) |
| CC | Closed center(Configuration with pressure reducing valve,no pressure relief valve) |
| OA | Open center(Configuration without pressure reducing valve) |
| OB | Open center(Configuration with pressure reducing valve) |

2.Inlet cover main relief valve page.9

| Type | Description |
|----------|--|
| NR | Relief valve blanking plug. |
| S(1-90) | Pilot operated relief valve, range 40 to 180 bar/ 580 to 2600 psi. standard setting 90 bar / 1300psi. |
| S(2-180) | Pilot operated relief valve, range 180 to 350 bar/ 2600 to 5100 psi. standard setting 180 bar / 2600psi. |

3.Outlet section page.10

| Type | Description |
|------|---|
| OS10 | Equipped with S type |
| OS20 | Equipped with PP type |
| OS30 | Equipped with E type , without ports |
| OS31 | Equipped with E type , with L 、 P1 and T1 ports |
| OS32 | Equipped with E type , With L、 P1、 T1 and LS1 ports |

4.Hydraulic circuit page.12

| Type | Description |
|------|-----------------------------|
| OC | Open center configuration |
| CC | Closed center configuration |

5."B" side option page.13

| Type | Description |
|------|--|
| L1 | Aluminium lever box |
| L1A | Aluminium lever box , without lever |
| L1B | Aluminium lever box , able to adjust both side of spool stroke |
| L1C | Able to adjust both side of spool stroke ,without lever |

6.Spool option page.14

| Type | Description |
|------|--|
| A1 | Double acting,3 positions with A and B closed in centre. |
| A2 | Double acting,3 positions with A and B open to tank in neutral position. |
| A3 | Single acting on A,3 position. B plugged. |
| A5 | Double acting,3 positions,with regenerativa in position 1. A shorter stroke is required. |

7."A" side spool positioners page.16

| Type | Description |
|------|---|
| S | Spring return to neutral. |
| PP | Proportional hydraulic control. |
| E | On/off electro-hydraulic control with extrnal pilot and solenoid function to position 1 and 2.Spring return to neutral. |

8.Working section option 1 page.17

| Type | Description |
|------|--------------------------------------|
| Z | Without compensator |
| NC | Without compensator,with check valve |
| C | With compensator |

MPL-120

ORDERING CODE NUMBER EXAMPLE

9. Working section option 2 page.18

| Type | Description |
|------|--|
| 1 | Without port valves arrangement, without L.S. relief valve |
| 2 | With port valves arrangement, without L.S. relief valve |
| 3 | Arrangement for port valves and one L.S. relief valve |
| 4 | Arrangement for port valves and two L.S. relief valve |

10. Port Relief valves age.20

| Type | Description |
|------------------|---------------------------------------|
| A | Mounted on port A. |
| B | Mounted on port B. |
| C | Mounted on port A and B. |
| Anti-shock valve | |
| RC 50 | Range 50 to 420 bar/ 725 to 6100 psi. |

| | |
|-----------------------|-----------------|
| Anti-cavitation valve | |
| C | Anti-cavitation |

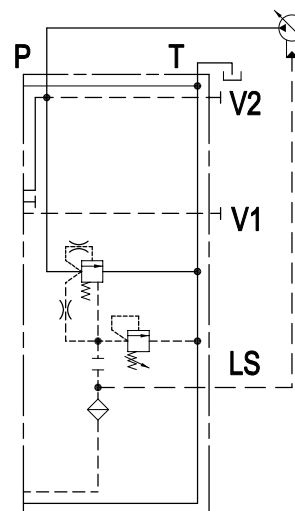
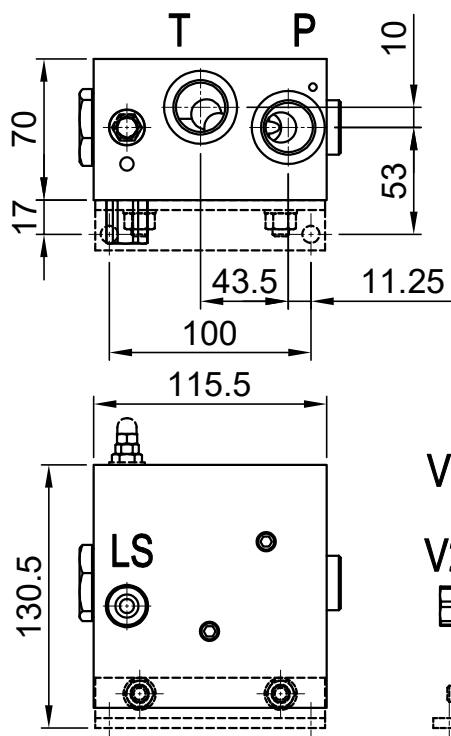
11. Port threads option page.25

| Type | Description |
|------|-------------|
| BSP | G |
| SAE | UN-UNF |

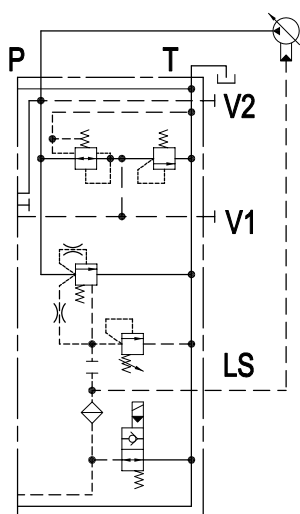
MPL-120

1. Inlet section

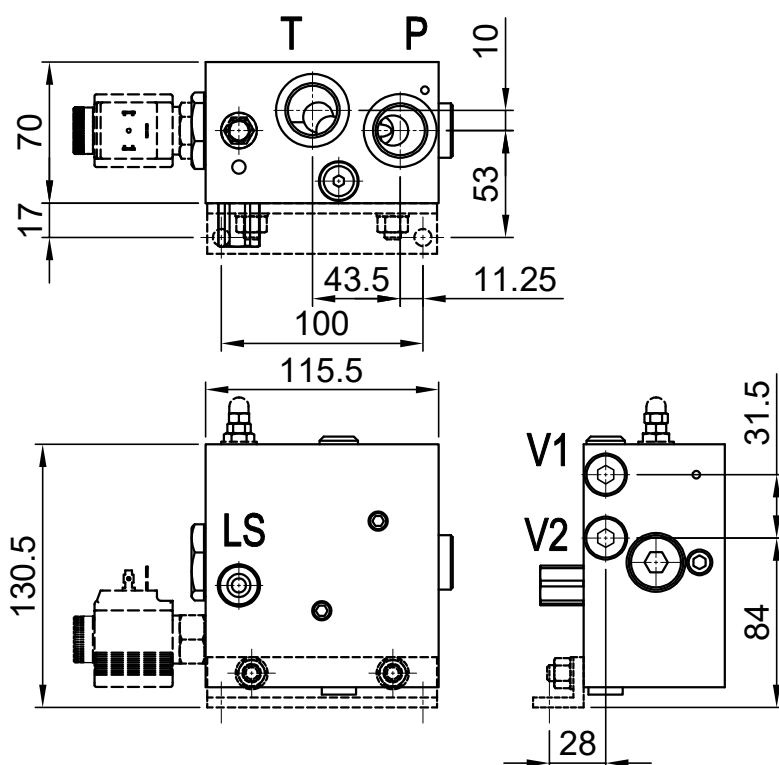
Inlet section hydraulic circuit



CA: Closed center (Configuration without pressure reducing valve)



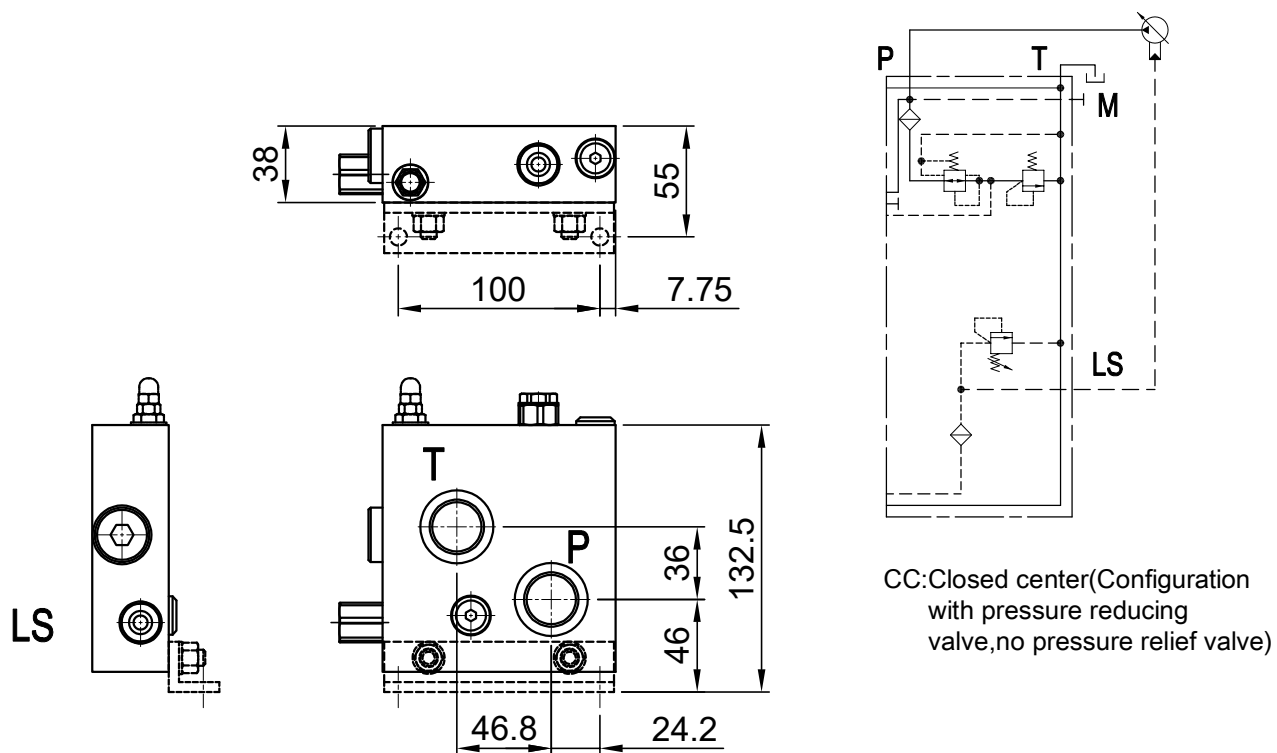
CB: Closed center (Configuration with pressure reducing valve)



MPL-120

1. Inlet section

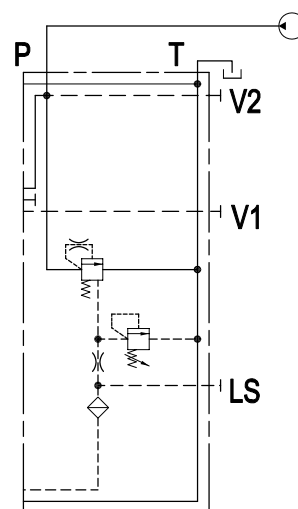
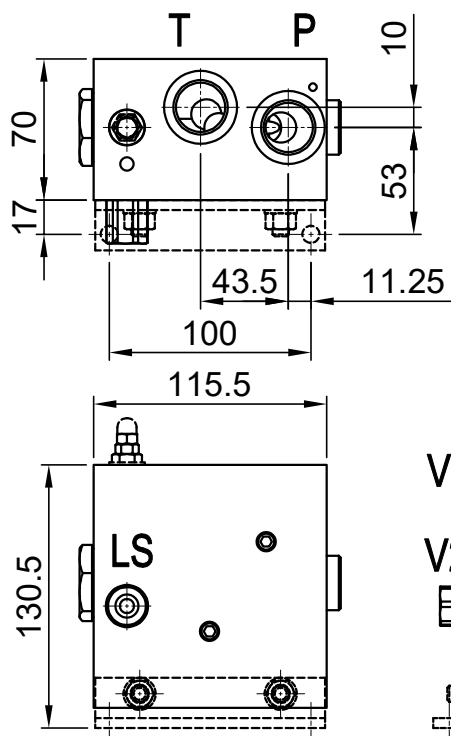
Inlet section hydraulic circuit



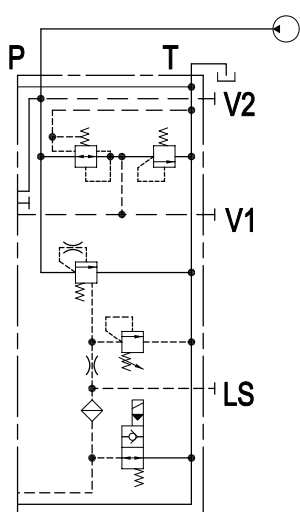
MPL-120

1. Inlet section

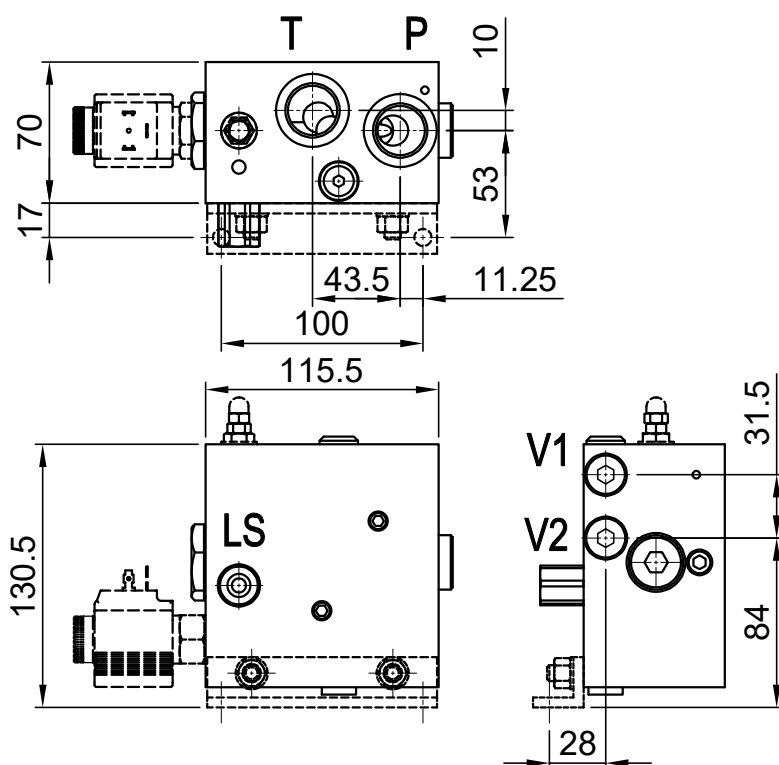
Inlet section hydraulic circuit



OA: Open center (Configuration without pressure reducing valve)



OB: Open center (Configuration with pressure reducing valve)

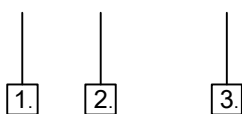


MPL-120

2. Inlet cover main relief valve

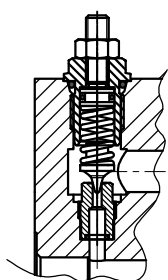
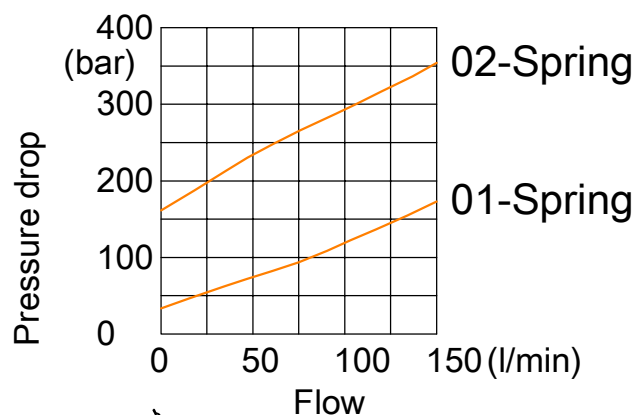
Main relief valve

S (1 - 80)

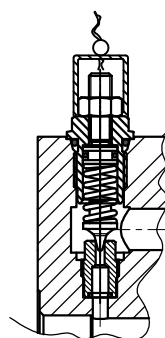


1. Adjustment type. (S , SB , L , NR)
2. Spring type.
3. Standard pressure setting in bar.

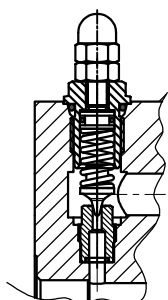
| Spring Type | 01 | 02 |
|------------------|-----|-----|
| Maximum | 180 | 350 |
| Minimum | 40 | 180 |
| Standard Setting | 90 | 180 |



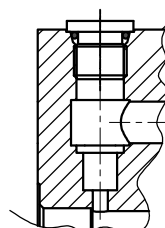
S : with screw adjustment



L : valve set and locked



SB : with anti-tamper cap

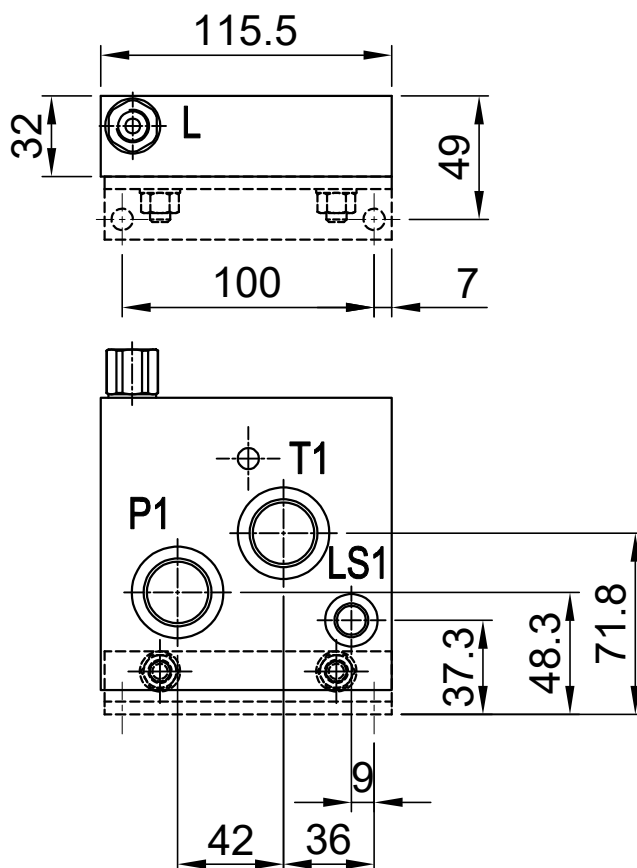


NR : Relief valve blanking plug

MPL-120

3. Outlet section

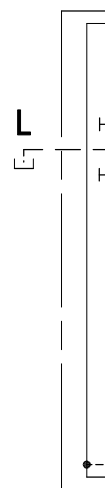
Outlet section hydraulic circuit



OS10: Equipped with S type



OS20: Equipped with PP type



OS30: Equipped with E type, without ports

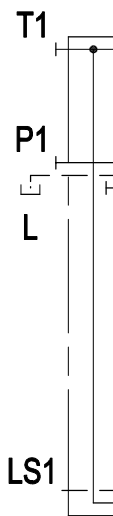
MPL-120

3. Outlet section

Outlet section hydraulic circuit



OS31: Equipped with E type, with L, P1 and T1 ports

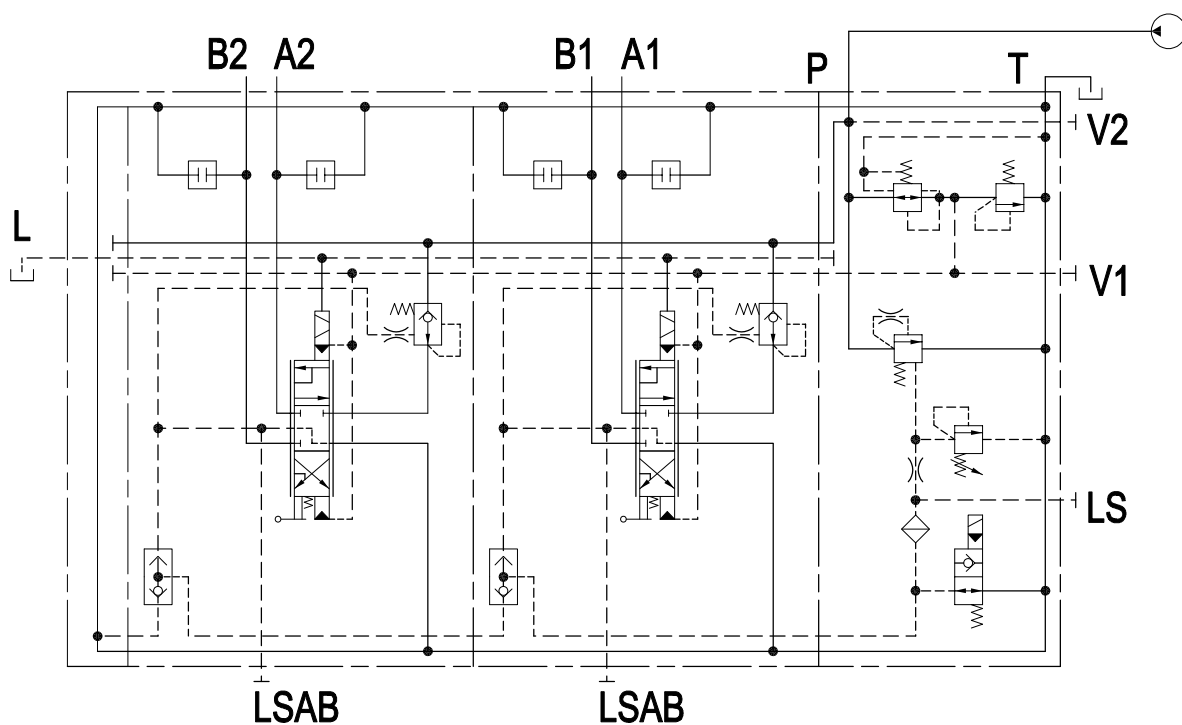


OS32: Equipped with E type, With L, P1, T1 and LS1 ports

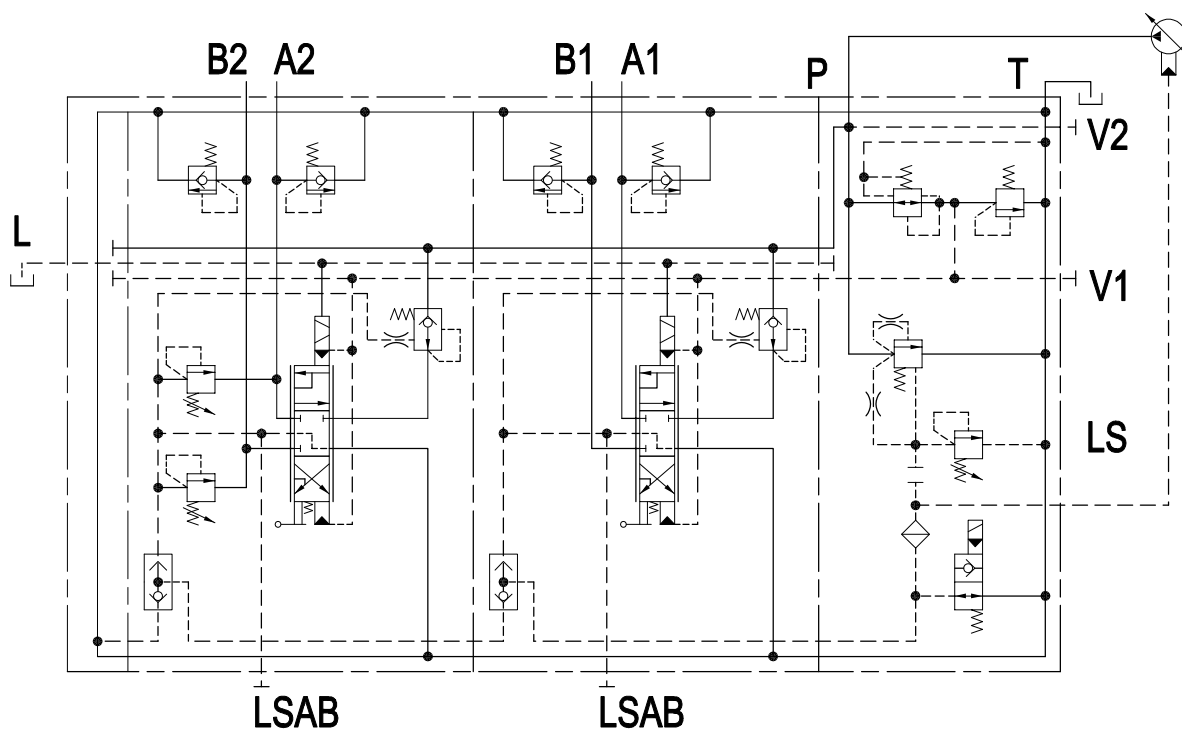
MPL-120

4. Hydraulic circuit

Open center configuration



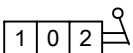
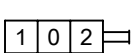
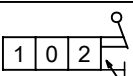
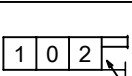
Closed center configuration

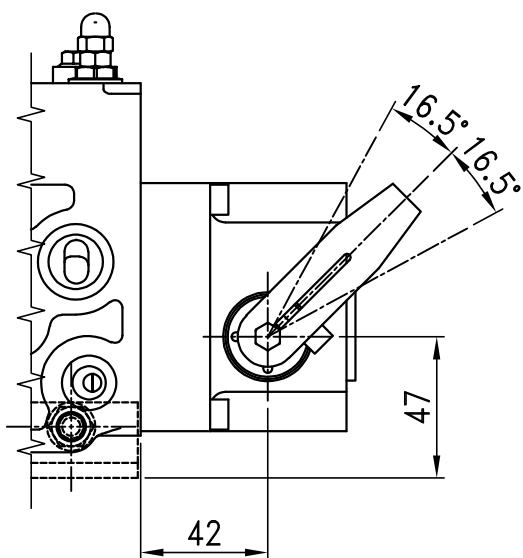


MPL-120

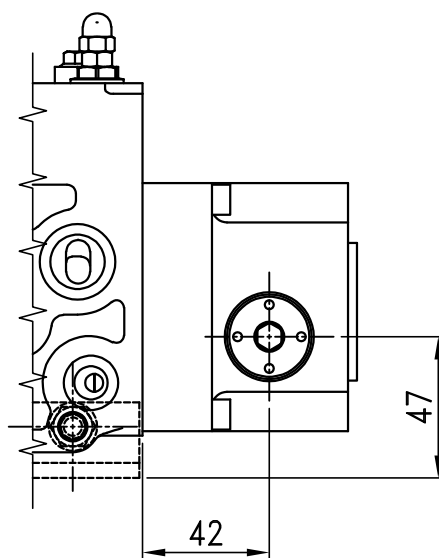
5. "B" side option

Spool control B port side

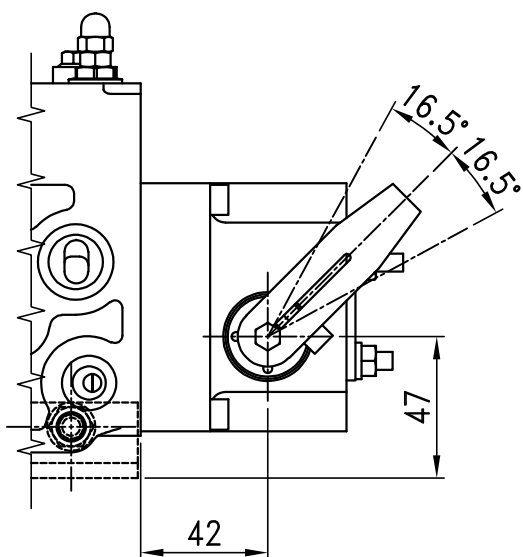
| Type | Scheme | Description | Type | Scheme | Description |
|------|---|--|------|--|---|
| L1 |  | aluminium lever box | L1A |  | aluminium lever box , without lever |
| L1B |  | aluminium lever box , able to adjust both side of spool stroke | L1C |  | able to adjust both side of spool stroke ,without lever |



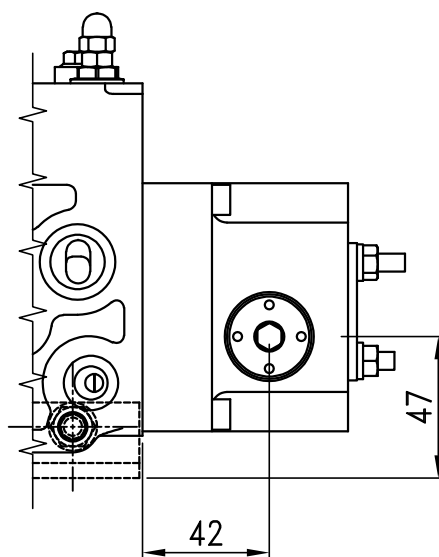
L1



L1A



L1B



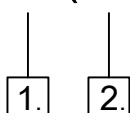
L1C

MPL-120

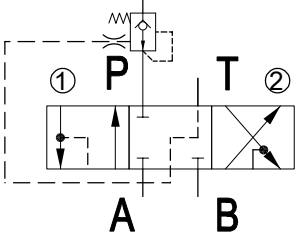
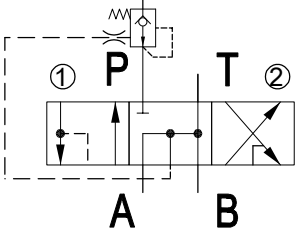
6. Spool option

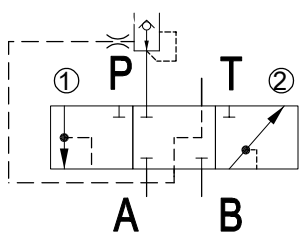
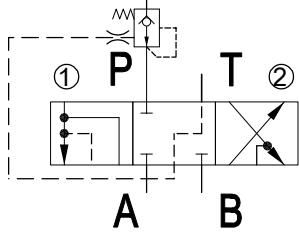
Spool

A1(10)



1. Spool type
2. Nominal flow rating:
 10=10 l/min flow
 40=40 l/min flow
 60=60 l/min flow
 80=80 l/min flow
 100=100 l/min flow

| Type | Scheme |
|------|---|
| A1 |  |
| A2 |  |

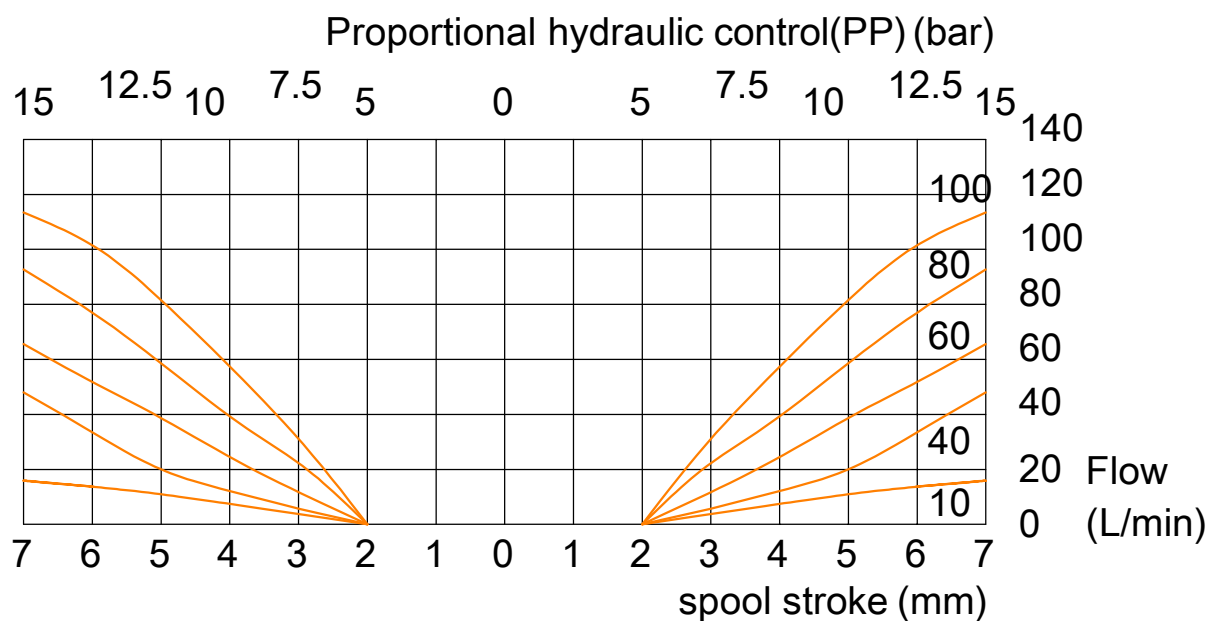
| Type | Scheme |
|------|---|
| A3 |  |
| A5 |  |

Note: A3 available flow rating: 40, 60, 80, 100 l/min
 A5 available flow rating: 60 l/min

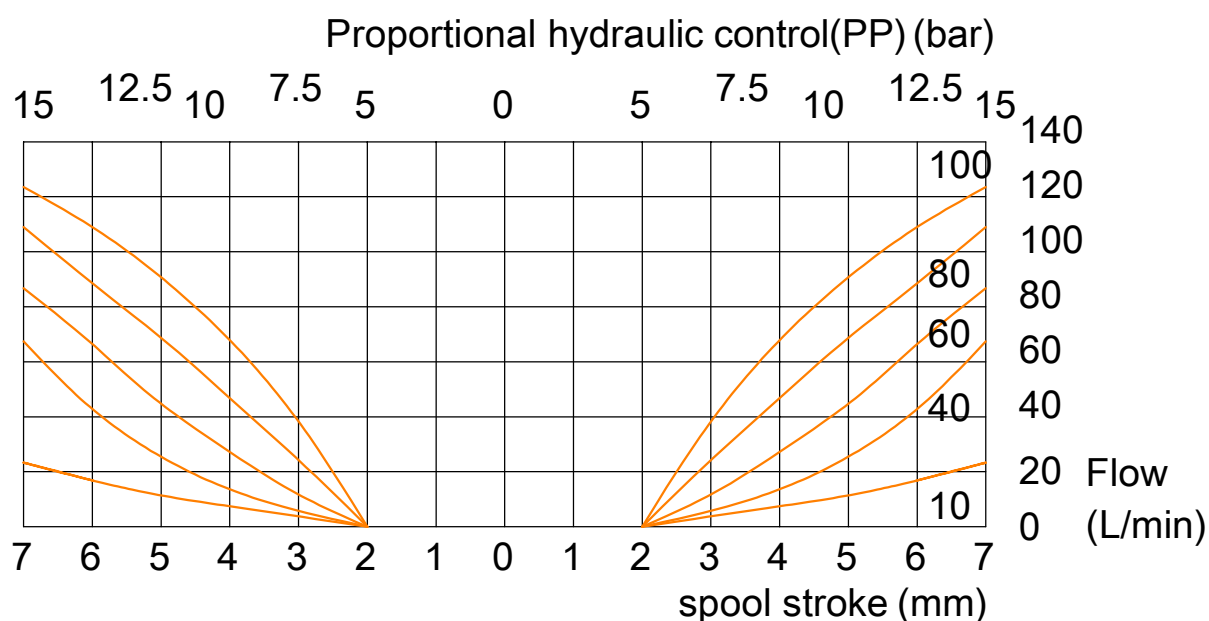
MPL-120

6. Spool option

Spool Flow



pressure compensated section, open or closed centre

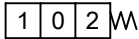
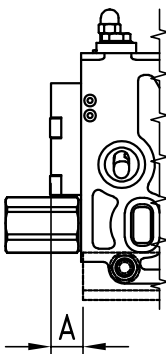
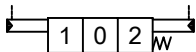
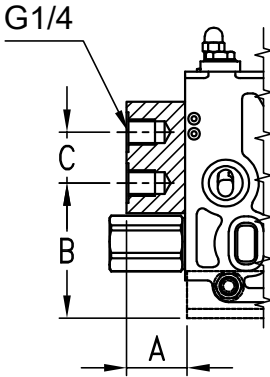


pressure non compensated section, open centre

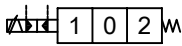
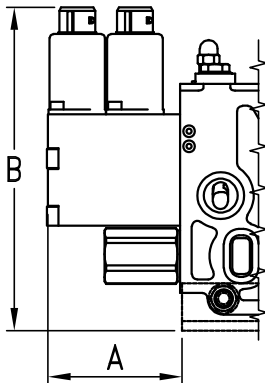
MPL-120

7. "A" side spool positioners

Spool control A port side

| Type | Scheme | Description | Dimensions | |
|------|---|---|--|---|
| S |  | S = Spring return to neutral. |  | A
17
(0.67) |
| PP |  | PP=Proportional hydraulic control. |  | A
32
(1.26)

B
71.5
(2.81)

C
27
(1.06) |
| E |  | E=On/off electro-hydraulic control with external pilot and solenoid function to position 1 and 2.
Spring return to neutral.
Voltage:12VDC,24VDC |  | A
71
(2.8)

B
171.5
(6.75) |

MPL-120

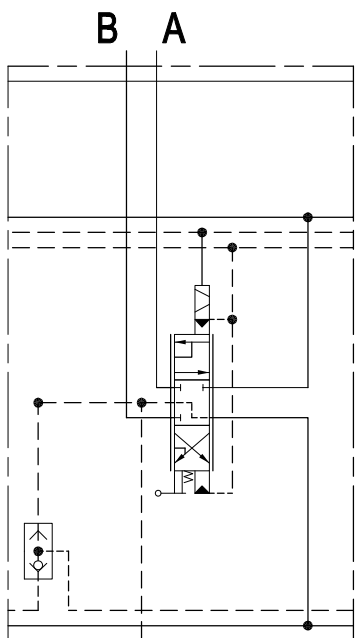
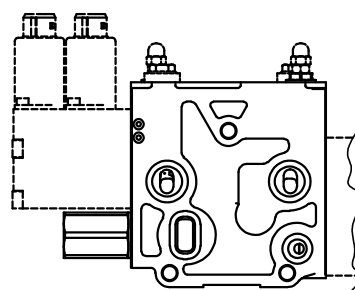
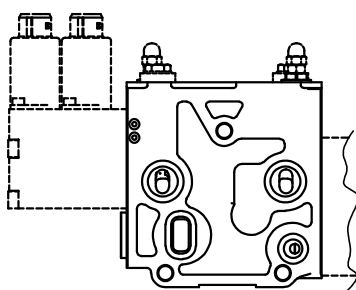
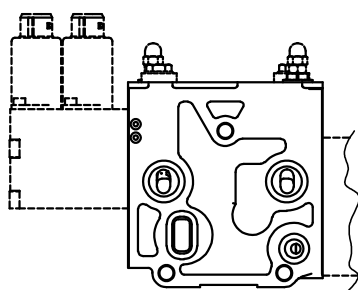
8. Working section option 1

Working section hydraulic circuit

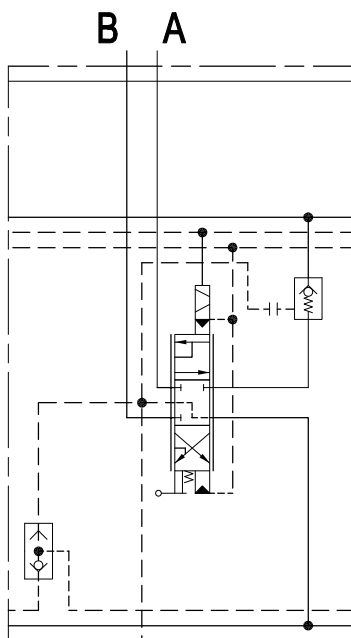
L1 A1 S NC 1

1.

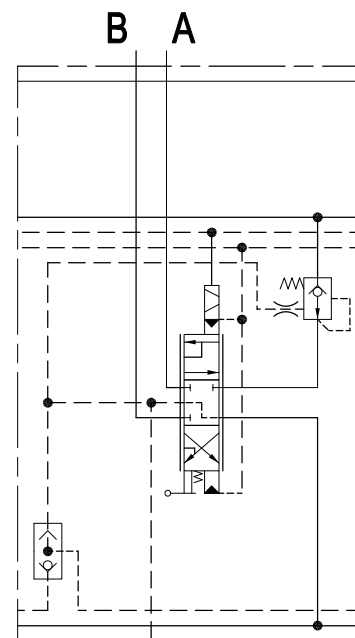
1. Working section option:
Z、NC、C



LSAB



LSAB



LSAB

Z=Without compensator

NC=Without compensator
,with check valve

C=With compensator

MPL-120

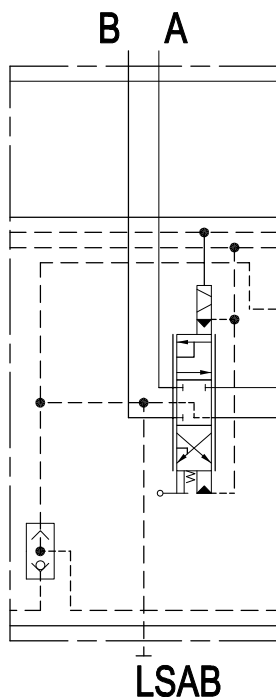
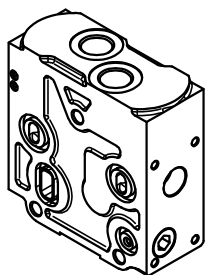
9. Working section option 2

Working section hydraulic circuit

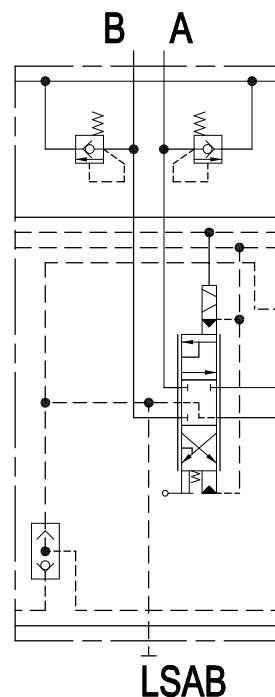
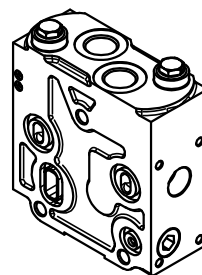
L1 A1 S NC 1



1. Working section option:
1、2、3、4



1=Without port valves
arrangement



2=With port valves
arrangement, without L.S.
relief valve

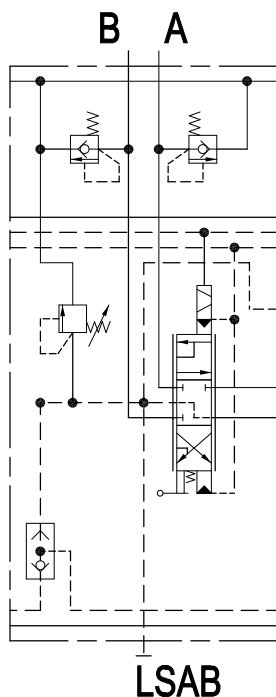
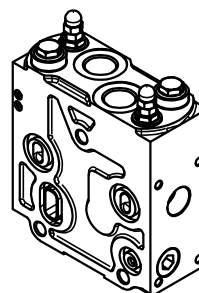
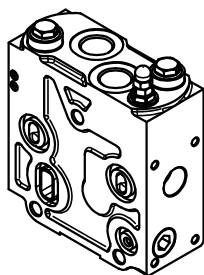
MPL-120

9. Working section option 2

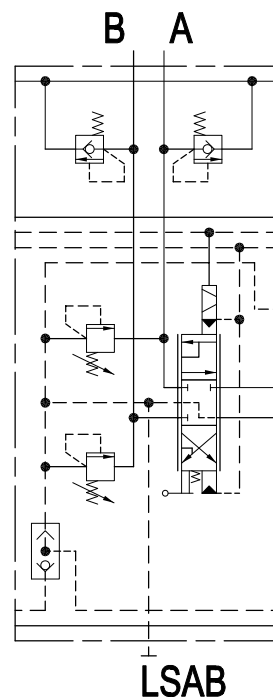
Working section hydraulic circuit

L1 A1 S NC 1

1. Working section option:
1、2、3、4



3=Arrangement for port valves and one L.S. relief valve



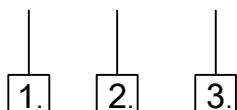
4=arrangement for port valves and two L.S. relief valve

MPL-120

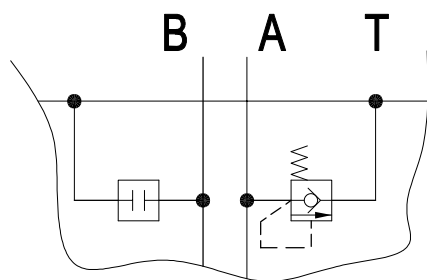
10.Port Relief valves

Anti-shock valve

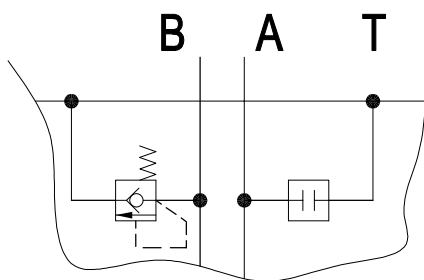
A RC 50



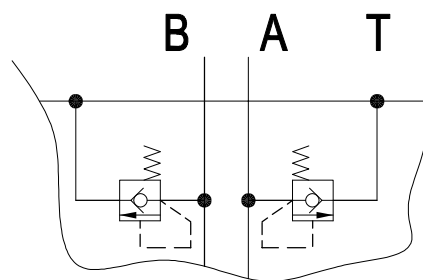
1. A= Mounted on port A.
B= Mounted on port B.
C= Mounted on port A and B.
2. Valve options
3. Pressure setting(bar):
50 bar 63 bar 80 bar 100 bar
110 bar 125 bar 140 bar 150 bar
160 bar 175 bar 190 bar 200 bar
210 bar 230 bar 240 bar 250 bar
260 bar 270 bar 280 bar 290 bar
300 bar 310 bar 320 bar 340 bar
360 bar 400 bar 420 bar



ARC



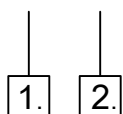
BRC



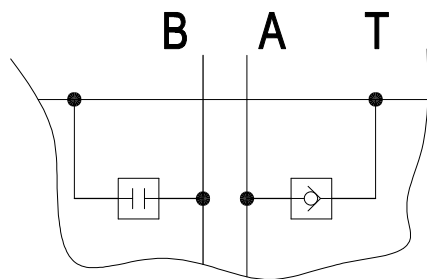
CRC

Anti-cavitation valve

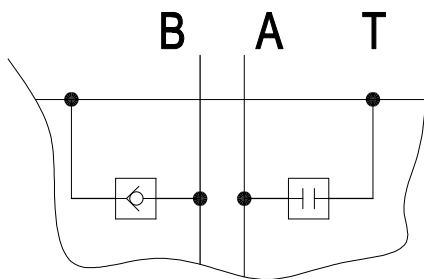
A C



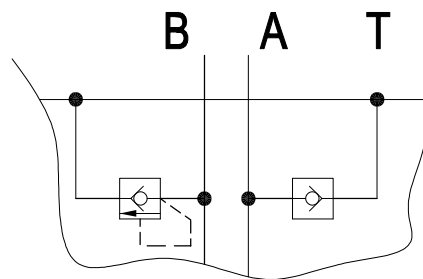
1. A= Mounted on port A.
B= Mounted on port B.
C= Mounted on port A and B.
2. Valve options



AC



BC

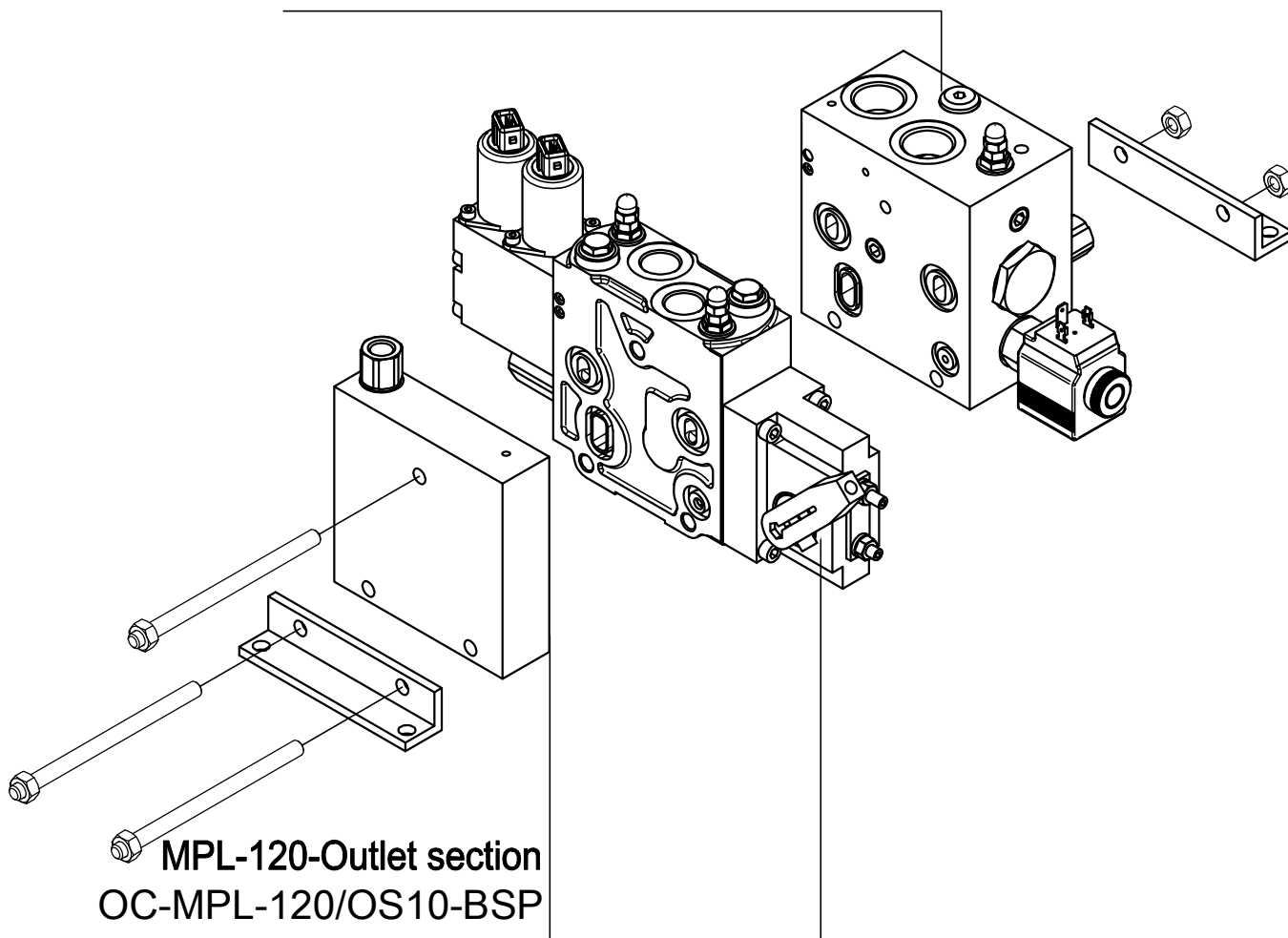


CC

MPL-120

ORDERING CODE NUMBER EXAMPLE

MPL-120-Inlet section
IC-MPL-120/ CA -S(1-90) - OC-BSP

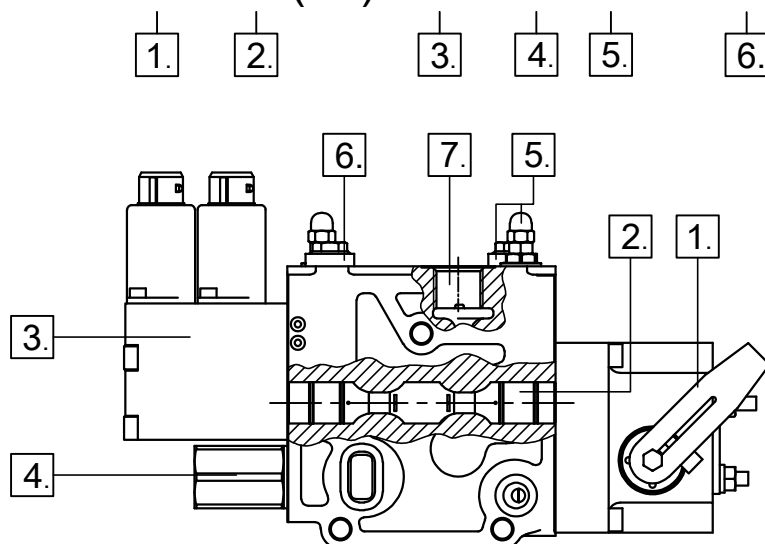


MPL-120-Working section
WS-MPL-120/L1-A1(10)-S-NC 4-ARC50-BSP

MPL-120-Working section

ORDERING CODE NUMBER EXAMPLE

WS - MPL - 120/ L1 - A1(10) - S - NC 4 - ARC50 - BSP



1."B" side option

page.13

| Type | Description |
|------|--|
| L1 | Aluminium lever box |
| L1A | Aluminium lever box , without lever |
| L1B | Aluminium lever box , able to adjust both side of spool stroke |
| L1C | Able to adjust both side of spool stroke ,without lever |

3."A" side spool positioners

page.16

| Type | Description |
|------|---|
| S | Spring return to neutral. |
| PP | Proportional hydraulic control. |
| E | On/off electro-hydraulic control with extrnal pilot and solenoid function to position 1 and 2.Spring return to neutral. |

2.Spool option

page.14

| Type | Description |
|------|--|
| A1 | Double acting,3 positions with A and B closed in centre. |
| A2 | Double acting,3 positions with A and B open to tank in neutral position. |
| A3 | Single acting on A,3 position. B plugged. |
| A5 | Double acting,3 positions,with regenerativa in position 1. A shorter stroke is required. |

4.Working section option 1

page.17

| Type | Description |
|------|--------------------------------------|
| Z | Without compensator |
| NC | Without compensator,with check valve |
| C | With compensator |

5.Working section option 2

page.18

| Type | Description |
|------|--|
| 1 | Without port valves arrangement, without L.S. relief valve |
| 2 | With port valves arrangement, without L.S. relief valve |
| 3 | Arrangement for port valves and one L.S. relief valve |
| 4 | Arrangement for port valves and two L.S. relief valve |



MPL-120-Working section

ORDERING CODE NUMBER EXAMPLE

6.Port Relief valves page.20

| Type | Description |
|-----------------------|---------------------------------------|
| A | Mounted on port A. |
| B | Mounted on port B. |
| C | Mounted on port A and B. |
| Anti-shock valve | |
| RC 50 | Range 50 to 420 bar/ 725 to 6100 psi. |
| Anti-cavitation valve | |
| C | Anti-cavitation |

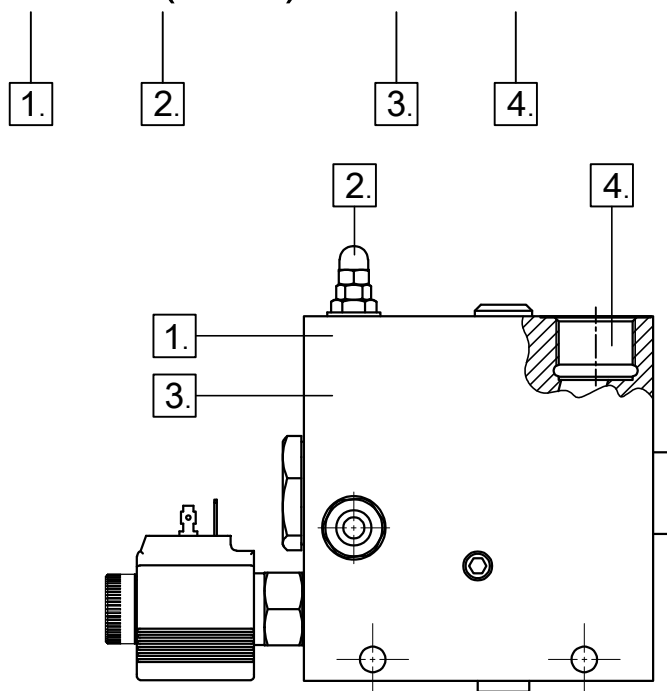
7.Port threads option page.25

| Type | Description |
|------|-------------|
| BSP | G |
| SAE | UN-UNF |

MPL-120-Inlet section

ORDERING CODE NUMBER EXAMPLE

IC-MPL-120/ CA -S(1-90) - OC--BSP



1.Inlet section

page.6

| Type | Description |
|------|--|
| CA | Closed center(Configuration without pressure reducing valve) |
| CB | Closed center(Configuration with pressure reducing valve) |
| CC | Closed center(Configuration with pressure reducing valve,no pressure relief valve) |
| OA | Open center(Configuration without pressure reducing valve) |
| OB | Open center(Configuration with pressure reducing valve) |

3.Hydraulic circuit

page.12

| Type | Description |
|------|-----------------------------|
| OC | Open center configuration |
| CC | Closed center configuration |

2.Inlet cover main relief valve

page.9

| Type | Description |
|----------|--|
| NR | Relief valve blanking plug. |
| S(1-90) | Pilot operated relief valve, range 40 to 180 bar/ 580 to 2600 psi. standard setting 90 bar / 1300psi. |
| S(2-180) | Pilot operated relief valve, range 180 to 350 bar/ 2600 to 5100 psi. standard setting 180 bar / 2600psi. |

4.Port threads option

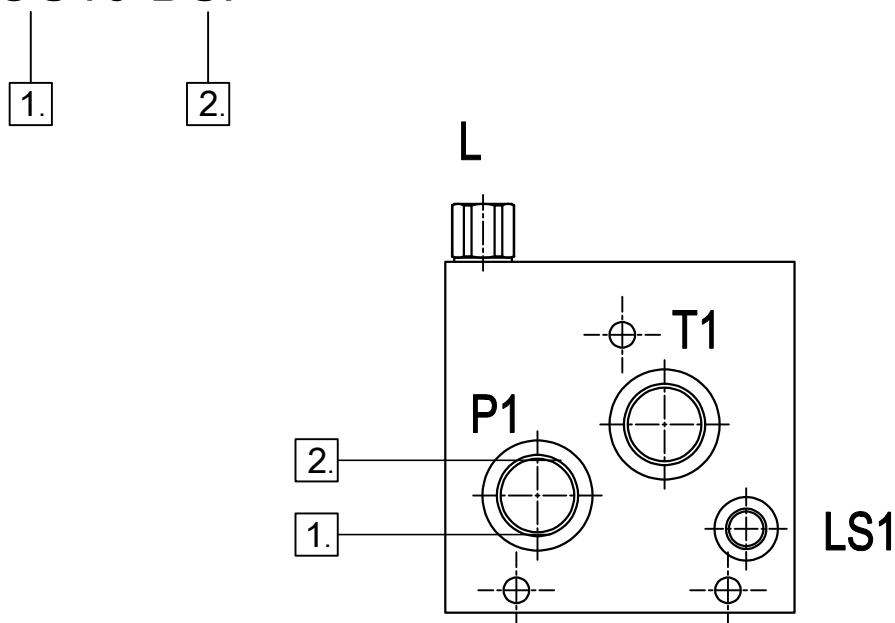
page.25

| Type | Description |
|------|-------------|
| BSP | G |
| SAE | UN-UNF |

MPL-120-Outlet section

ORDERING CODE NUMBER EXAMPLE

OC-MPL-120/OS10-BSP



1.Outlet section

page.10

| Type | Description |
|------|---|
| OS10 | Equipped with S type |
| OS20 | Equipped with PP type |
| OS30 | Equipped with E type , without ports |
| OS31 | Equipped with E type , with L 、 P1 and T1 ports |
| OS32 | Equipped with E type , With L、 P1、 T1 and LS1 ports |

2.Port threads option

page.25

| Type | Description |
|------|-------------|
| BSP | G |
| SAE | UN-UNF |

11.Port threads option

Port threads

| PORT | BSP | SAE | PORT | BSP | SAE |
|--------------|------|--------------|------|------|------------|
| P | G3/4 | 1 1/16-12UNF | V1 | G1/4 | 9/16-18UNF |
| A and B port | G1/2 | 7/8-14UNF | V2 | G1/4 | 9/16-18UNF |
| T | G3/4 | 1 1/16-12UNF | L | G1/4 | 7/16-20UNF |
| LS | G1/4 | 9/16-18UNF | M | G1/4 | 9/16-18UNF |