

SECTIONAL DIRECTIONAL CONTROL VALVE



**Ms 100**

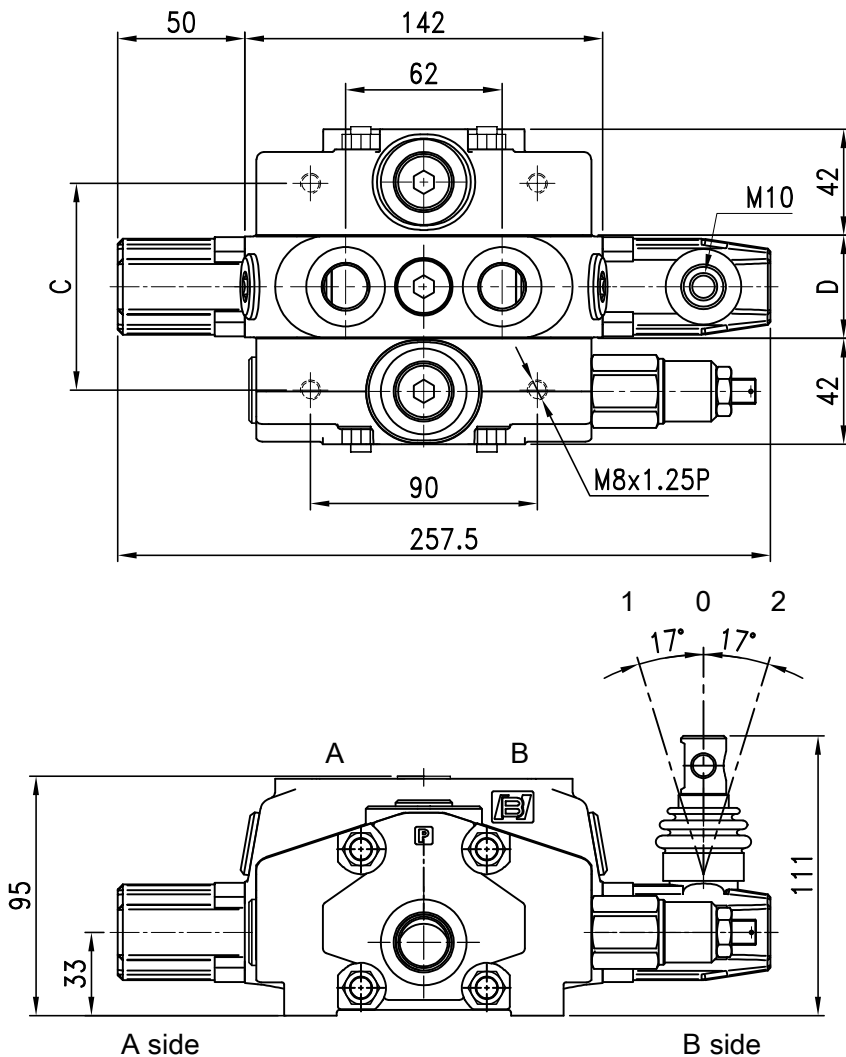
**B** HYDRAULIC PRODUCT

SYSTEM OF FLUID POWER

# Sectional Directional Control Valves

## MS-100

### DIMENSIONS



| Type      | Dimensions |     |
|-----------|------------|-----|
|           | C          | D   |
| MS-100/1  | 82         | 41  |
| MS-100/2  | 123        | 82  |
| MS-100/3  | 164        | 123 |
| MS-100/4  | 205        | 164 |
| MS-100/5  | 246        | 205 |
| MS-100/6  | 287        | 246 |
| MS-100/7  | 328        | 287 |
| MS-100/8  | 369        | 328 |
| MS-100/9  | 410        | 369 |
| MS-100/10 | 451        | 410 |
| MS-100/11 | 492        | 451 |
| MS-100/12 | 533        | 492 |

unit : mm

### PERFORMANCE

Nominal flow rating : 80 l/min

Operating pressure (Max.) : parallel or tandem circuit : 315 bar  
 series circuit : 210 bar

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

Oil leaks from A (B) to T: 3 c.c/min at 100 bar (1450 psi)

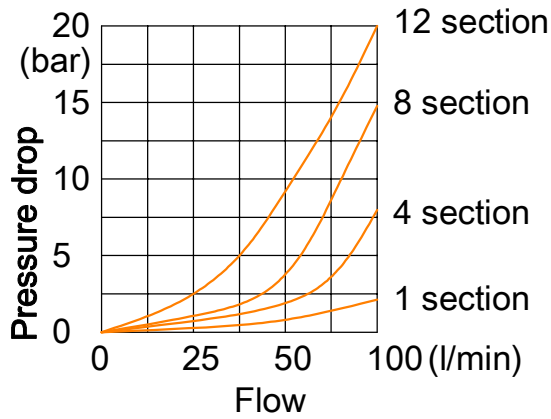
Fluid: best use mineral oil with viscosity ranging between 15 to 75 mm<sup>2</sup>/s

Fluid temperature : Min. -20°C , Max 80°C ,with NBR (BUNA-N) gaskets  
 Min. -20°C ,Max 100°C ,with FPM (VITON) seals gaskets

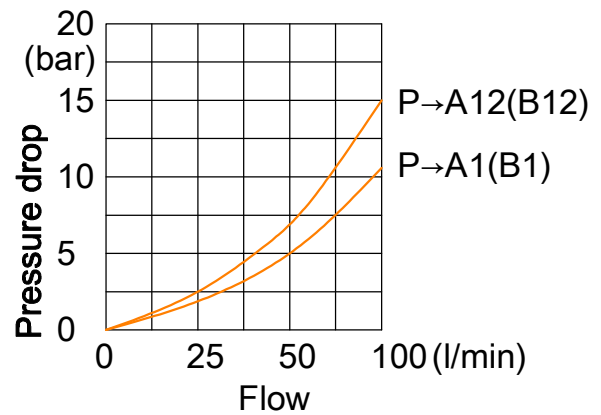
# MS-100

## RATING DIAGRAM

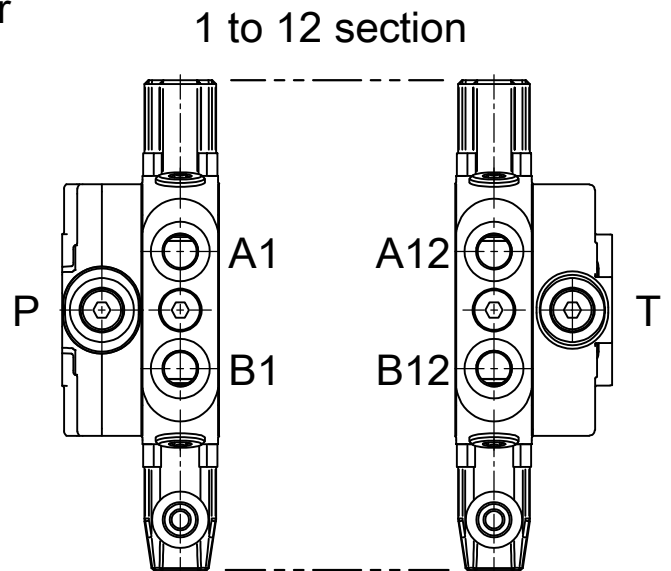
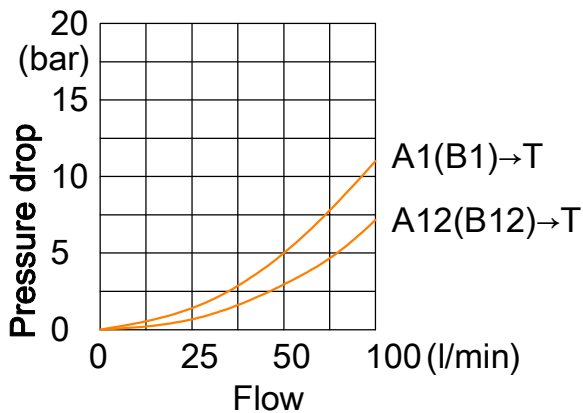
Open centre  
From side inlet to side outlet



Inlet to work port  
From side inlet to A port (spool in position 1) or B port (spool in position 2)



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





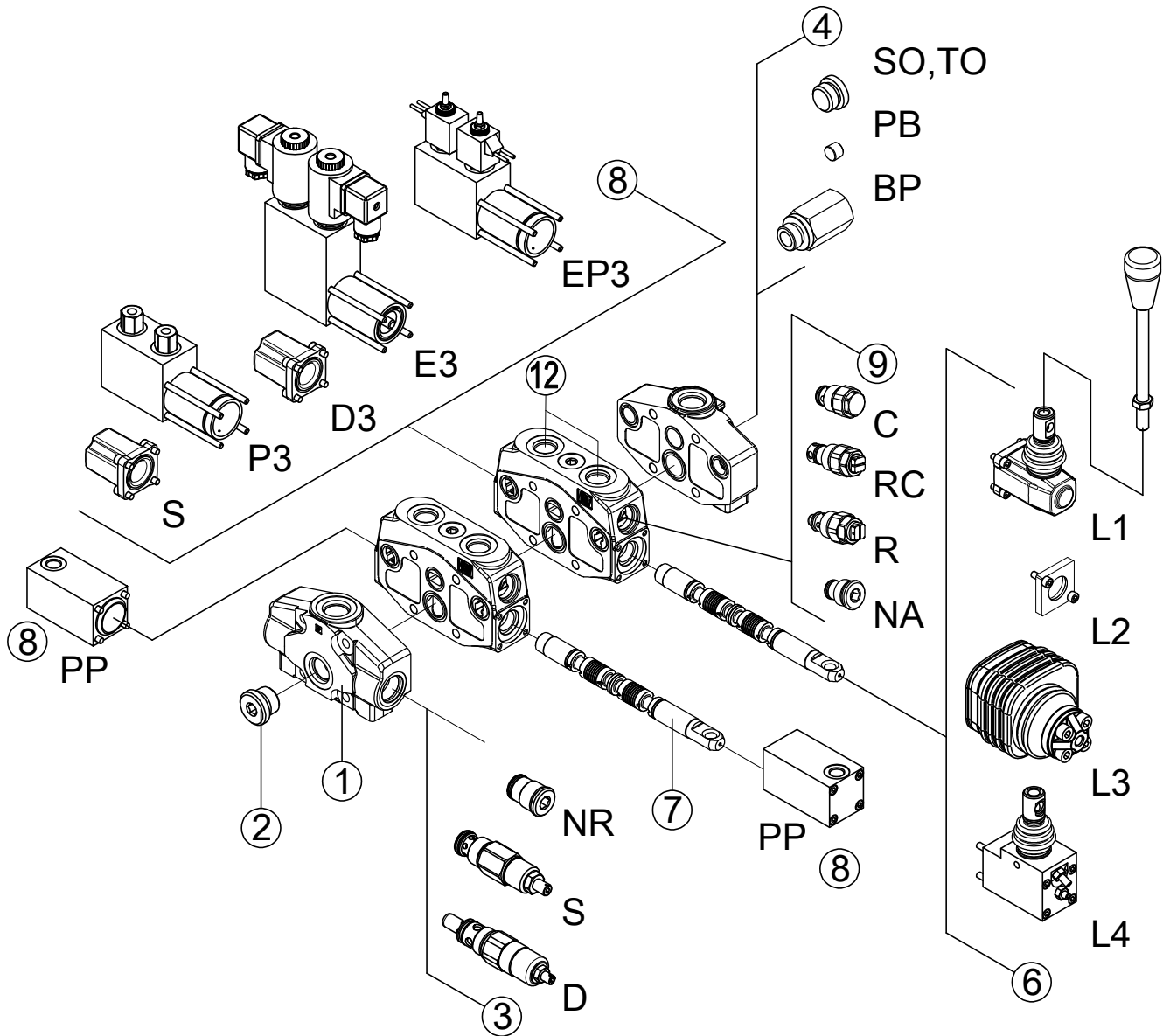
SYSTEM OF FLUID POWER

# MS-100

## ORDERING CODE NUMBER EXAMPLE

MS-100/2/ L - S - A ( S - 200 ) / PB / PC / <sup>1st section</sup> A1 PP - NH /  
 / L1 A2 E1 - AR(1-50) / SAE / ECK1/2-CS01

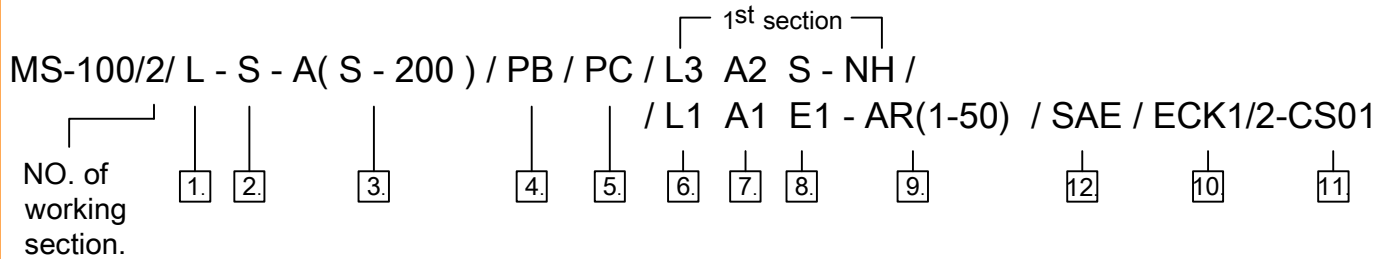
NO. of working section.      1.   2.   3.   4.   5.   6.   7.   8.   9.   12.   10.   11.





# MS-100

## ORDERING CODE NUMBER EXAMPLE



### 1. Inlet alimentation page.93

| Type | Description             |
|------|-------------------------|
| L    | Left side alimentation  |
| R    | Right side alimentation |

### 2. Inlet cover page.94

| Type | Description |
|------|-------------|
| S    | Side inlet. |
| T    | Top inlet.  |

### 3. Inlet cover main relief valve page.95

| Type     | Description                                                                                                           |
|----------|-----------------------------------------------------------------------------------------------------------------------|
| NR       | Relief valve blanking plug.                                                                                           |
| (S-200)  | Pilot operated relief valve, range 30 to 380 bar/ 200 to 2900 psi. standard setting 200 bar / 2900psi.                |
| (D-200)  | Direct-acting relief valve, range 200 to 315 bar/ 2900 to 4570 psi. standard setting 220 bar / 3200psi.               |
| (SL-200) | Pilot operated relief valve with capping, range 200 to 315 bar/ 2900 to 4570 psi. standard setting 220 bar / 3200psi. |
| (DL-200) | Direct-acting relief valve with capping, range 200 to 315bar/ 2900 to 4570 psi. standard setting 220 bar / 3200psi.   |

### 4. Outlet cover page.96

| Type | Description                    |
|------|--------------------------------|
| PB   | Top outlet with power beyond.  |
| CC   | Top outlet with closed center. |
| SO   | Side outlet to tank.           |
| BP   | Back pressure option.          |
| TO   | Top outlet to tank.            |

### 5. Hydraulic circuit page.99

| Type | Description       |
|------|-------------------|
| PC   | Parallel circuit. |
| TC   | Tandem circuit.   |

### 6. "B" side option page.100

| Type | Description                                                               |
|------|---------------------------------------------------------------------------|
| L1   | Standards lever aluminum pivot box. with neoprene gaiter.                 |
| L1A  | Standard lever with an extra screw to adjust either side of spool stroke. |
| L2   | Without lever with L2 dust cover.                                         |
| L3   | joystick lever(+axis) with left fulcrum.                                  |
| L4   | Standard lever set as L1A, able to adjust both side of spool stroke.      |

### 7. Spool option page.101

| 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.                 |
| 2A   | Double acting,3 positions with A open to tank in neutral position.                       |
| 2B   | Double acting,3 positions with B open to tank in neutral position.                       |
| A3   | Single acting on A,3 position.B plugged.                                                 |
| A4   | Single acting on B,3 position.A plugged.                                                 |
| A5   | Double acting,3 positions,with regenerativa in position 1. A shorter stroke is required. |
| A6   | Double acting,3 positions,with regenerativa in position 2. A shorter stroke is required. |



# MS-100

## ORDERING CODE NUMBER EXAMPLE

### 8."A" side spool positioners page.102

| Type | Description                                                                                                              |
|------|--------------------------------------------------------------------------------------------------------------------------|
| S    | Spring return to neutral.                                                                                                |
| SA   | Adjust single side of spool stroke.<br>Spring return to neutral.                                                         |
| P3   | On/off pneumatic control.<br>Min. pressure 5 bar(70 psi)<br>Max. pressure 10 bar (140 psi).                              |
| D1R  | Detent in positions1.Spring return to neutral.                                                                           |
| D2R  | Detent in positions2.Spring return to neutral.                                                                           |
| D12R | Detent in positions 1 or 2.Spring return to neutral.                                                                     |
| D3   | Detent in three positions.                                                                                               |
| LH1  | External hydraulic pilot to position 1. Spring return to neutral.                                                        |
| LH2  | external hydraulic pilot to position 2. Spring return to neutral.                                                        |
| LH3  | external hydraulic pilot to position 1 and 2. Spring return to neutral.                                                  |
| E1   | On/off electro-hydraulic control with extrnal pilot and solenoid function to position 1.Spring return to neutral.        |
| E2   | On/off electro-hydraulic control with extrnal pilot and solenoid function to position 2.Spring return to neutral.        |
| E3   | On/off electro-hydraulic control with extrnal pilot and solenoid function to position 1 and 2.Spring return to neutral.  |
| EP1  | On/off electro-pneumatic control with extrnal pilot and solenoid function to position 1. Spring return to neutral.       |
| EP2  | On/off electro-pneumatic control with extrnal pilot and solenoid function to position 2. Spring return to neutral.       |
| EP3  | On/off electro-pneumatic control with extrnal pilot and solenoid function to position 1 and 2. Spring return to neutral. |
| PP   | Proportional hydraulic control.                                                                                          |

### 9.Port Relief valves page.105

| Type         | Description                                                                    |
|--------------|--------------------------------------------------------------------------------|
| NH           | No cartridge cavities.                                                         |
| NA           | No relief valve.                                                               |
| A            | Mounted on port A.                                                             |
| B            | Mounted on port B.                                                             |
| C            | Mounted on port A and B.                                                       |
| Relief valve |                                                                                |
| R(1-50)      | Range 20 to 80 bar/ 290 to 1160 psi.<br>standard setting 50 bar / 725psi.      |
| R(2-100)     | Range 50 to 220 bar/ 725 to 3190 psi.<br>standard setting 100 bar / 1450psi.   |
| R(3-200)     | Range 180 to 350 bar/ 2610 to 5076 psi.<br>standard setting 200 bar / 2900psi. |

| Type                  | Description                                                                    |
|-----------------------|--------------------------------------------------------------------------------|
| Anti-shock valve      |                                                                                |
| RC(1-50)              | Range 20 to 80 bar/ 290 to 1160 psi.<br>standard setting 50 bar / 725psi.      |
| RC(2-100)             | Range 50 to 220 bar/ 725 to 3190 psi.<br>standard setting 100 bar / 145psi.    |
| RC(3-200)             | Range 180 to 350 bar/ 2610 to 5076 psi.<br>standard setting 200 bar / 2900psi. |
| Anti-cavitation valve |                                                                                |
| C                     | Anti-cavitation                                                                |

### 10.EL control pilot kit page. 108

| Type      | Description                                                                                 |
|-----------|---------------------------------------------------------------------------------------------|
| ECK1/1-12 | Compele kit with pressure reducing valve, manifold and pipes. (1-12 sections)               |
| ECK2/1-12 | Manifold kit and pressure reducing valve for connection to the main circuit.(1-12 sections) |

### 11.Coil series page. 109

| Type | Description                                                                                 |
|------|---------------------------------------------------------------------------------------------|
| CS01 | Connection:A EN 175301-803 ISO 4400 (DIN.43650)<br>Voltage : 12-24VDC                       |
| CS02 | Connection:lead wires connection<br>Voltage : 12-24VDC                                      |
| CS03 | Connection:AMP Junior connection<br>Voltage : 12-24VDC                                      |
| CS04 | Connection:M27x1 connection<br>Voltage : 12-24VDC                                           |
| EP   | Connection:lead wires connection<br>Voltage : 12-24VDC<br>("A" side has to be used with EP) |

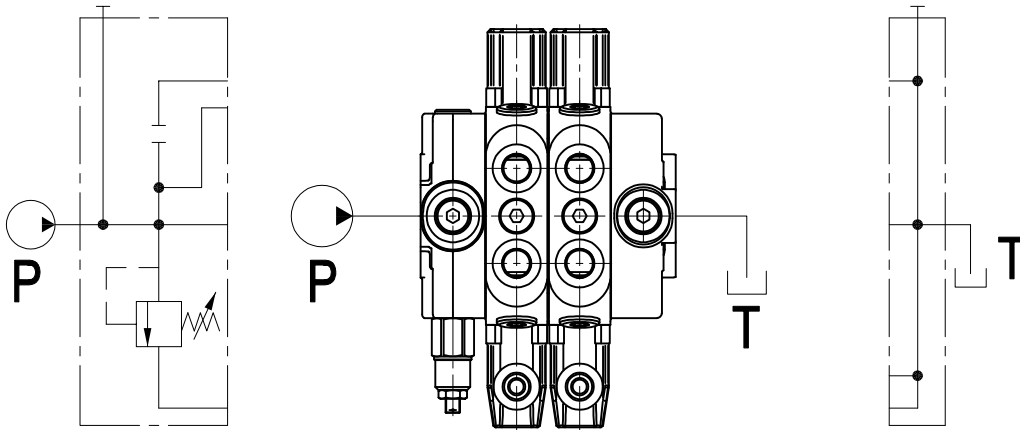
### 12.Port threads option page.114

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

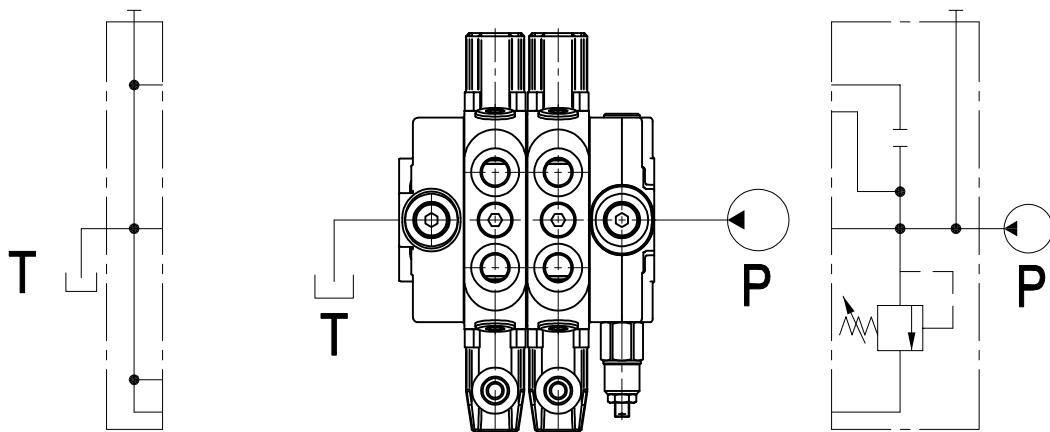
# MS-100

## 1. Inlet alimentation

### Left inlet



### Right inlet

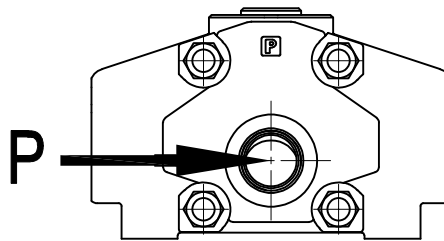
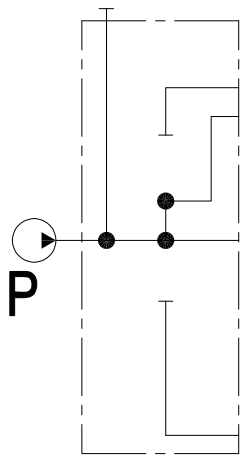


# MS-100

## 2. Inlet cover

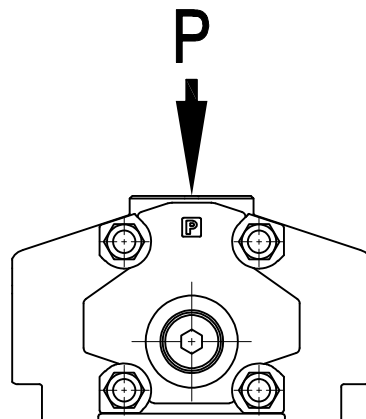
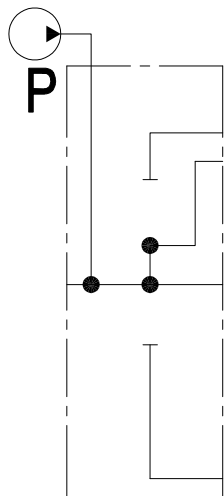
### Inlet cover and position

Side inlet.



S

Top inlet.



T

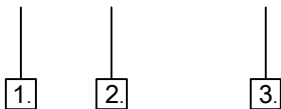


# MS-100

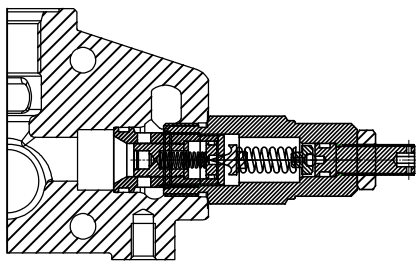
## 3. Inlet cover main relief valve

Main relief valve position

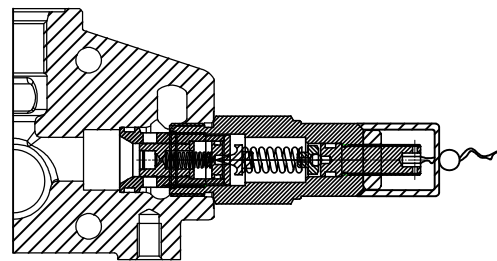
A (S - 200)



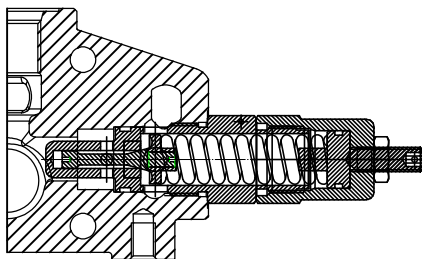
- 1. NR=None relief valve.  
A=Mounted on port A.  
B=Mounted on port B.
- 2. Main relief type(S, D)  
Optional: with capping (SL, DL)



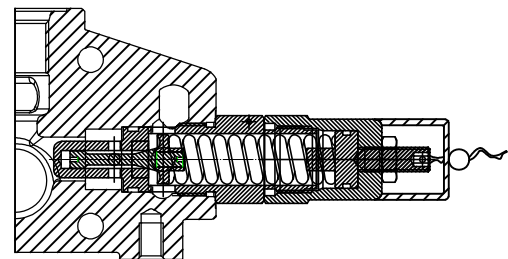
S : Pilot operated relief valve



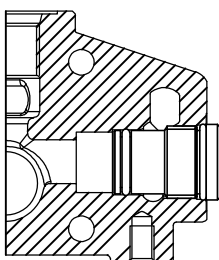
SL : Pilot operated relief valve with capping



D : Direct-acting relief valve



DL : Direct-acting relief valve with capping



NR : Relief valve blanking plug

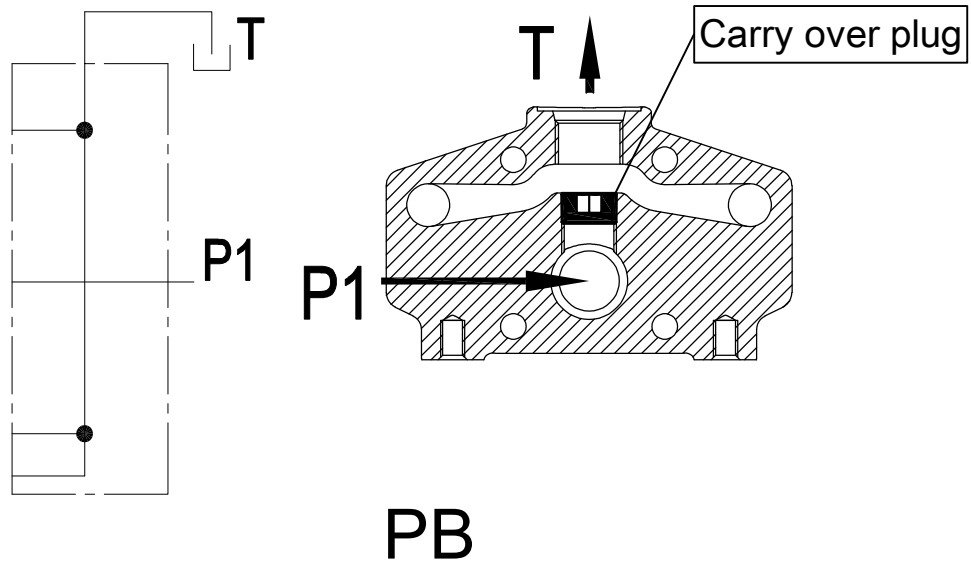
- 3. S / SL : Standard pressure setting in 30~380bar.  
Standard pressure 200bar/2900psi.
- D / DL : Standard pressure setting in 200~315bar.  
Standard pressure 220bar/3200psi.

# MS-100

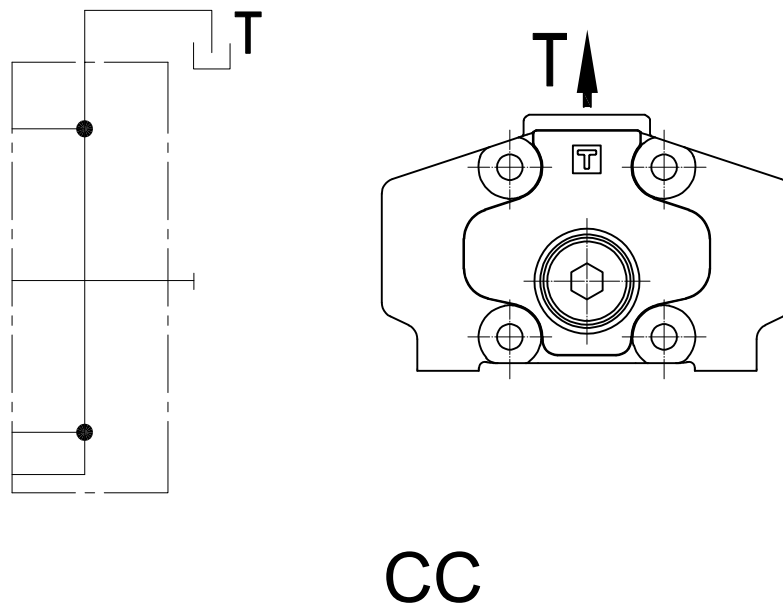
## 4. Outlet cover

### Outlet cover and position

Top outlet with power beyond



Top outlet with closed center

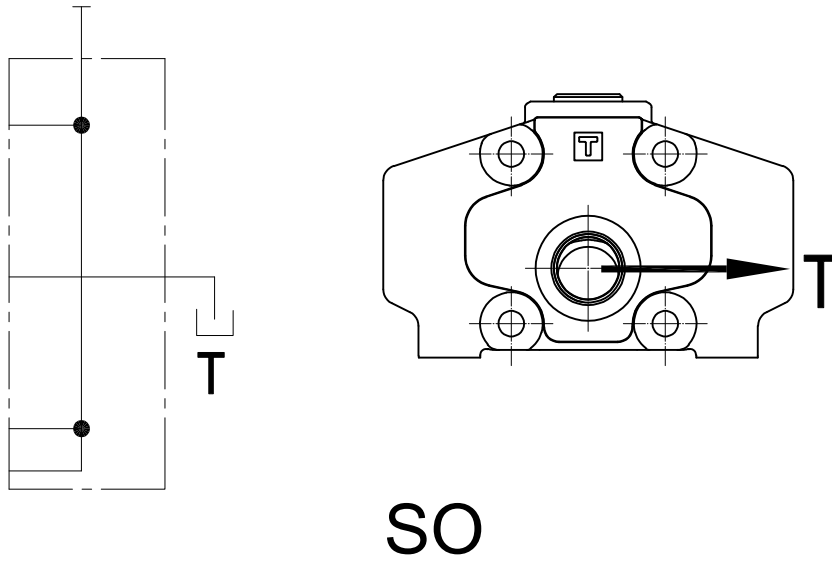


# MS-100

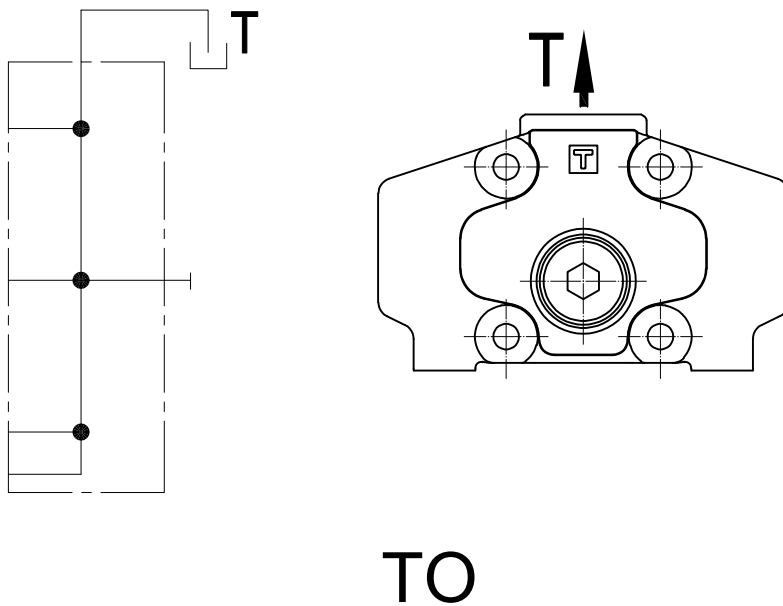
## 4. Outlet cover

### Outlet cover and position

Side outlet to tank



Top outlet to tank

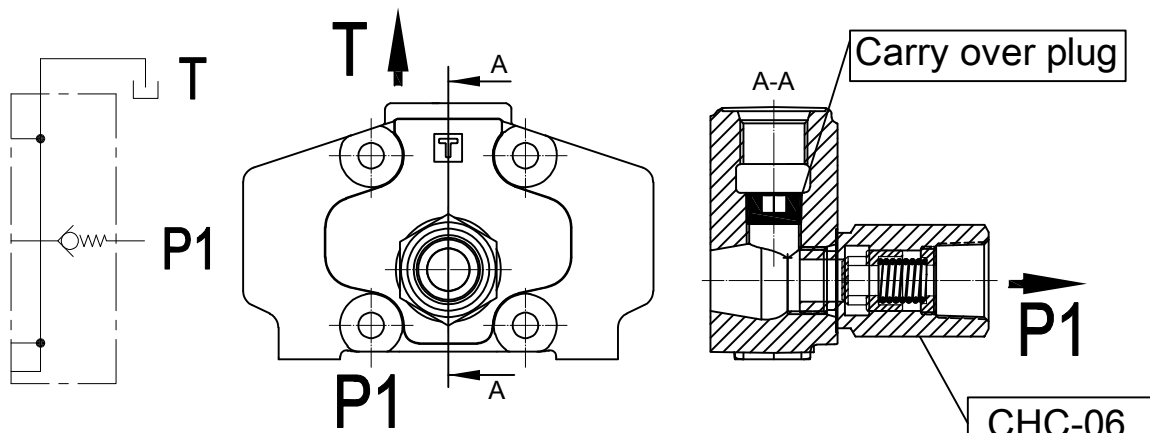


# MS-100

## 4. Outlet cover

### Outlet cover and position

Back pressure option  
(For use with electro-hydraulic control)



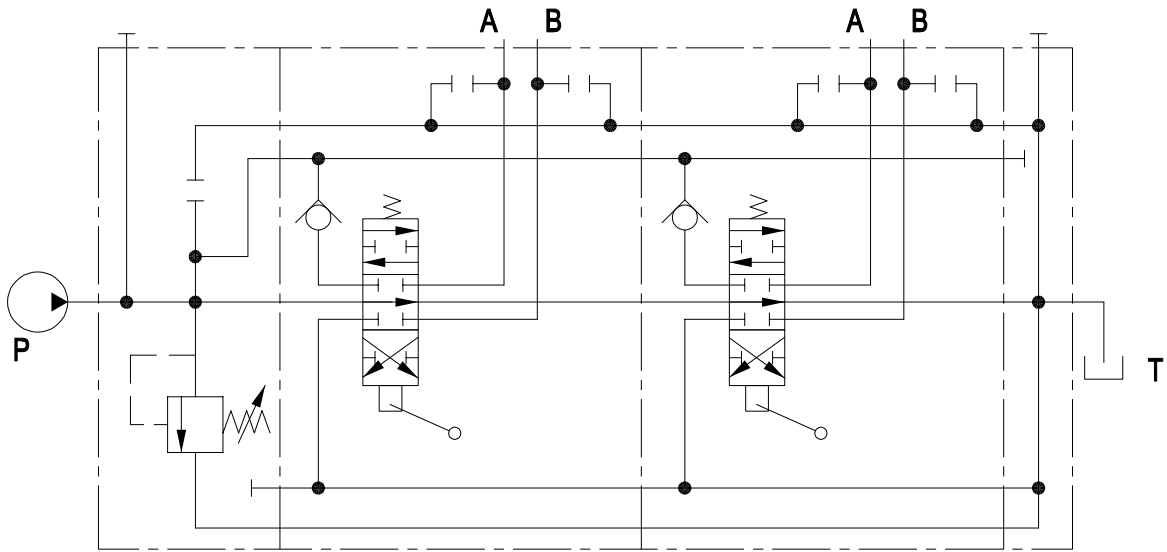
Carry-over with CHC-06 back pressure valve set at 10bar (145 psi) on the free line (side outlet). Used for electro-hydraulic controls.

BP

# MS-100

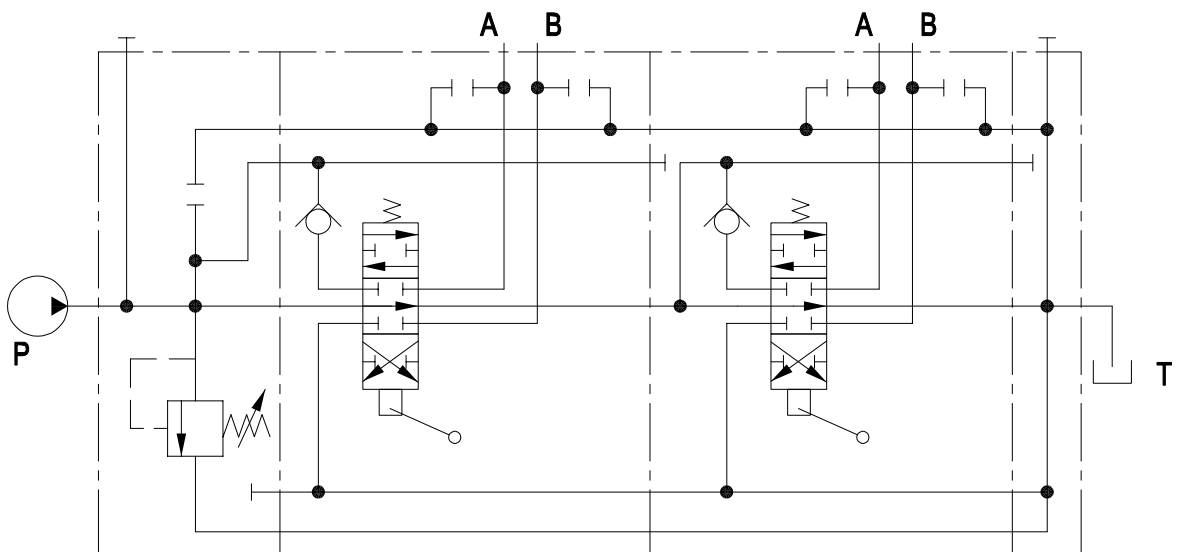
## 5. Hydraulic circuit

### Parallel circuit



PC

### Tandem circuit

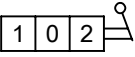
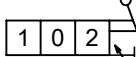
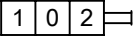
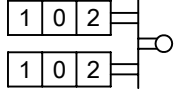
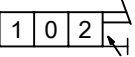


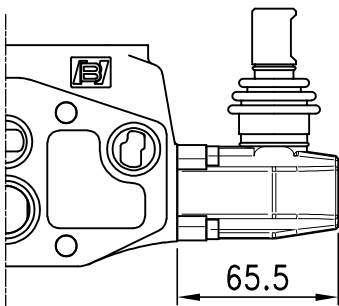
TC

# MS-100

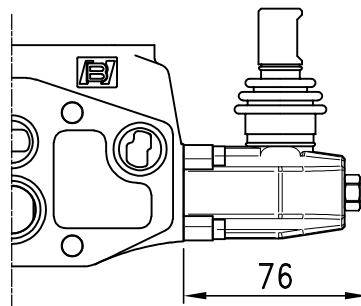
## 6. "B" side option

### Spool control B port side

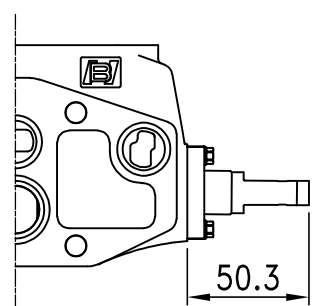
| Type | Scheme                                                                            | Description                                                         | Type | Scheme                                                                             | Description                                                              |
|------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------|------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| L1   |  | Standard lever aluminum pivot box with neoprene gaiter.             | L1A  |  | Standard lever with an extra screw to adjust either side of spool stroke |
| L2   |  | Without lever with L2 dust cover.                                   | L3   |  | "L3 of 4 Type" joystick lever(+ axis) with left fulcrum.                 |
| L4   |  | Standard lever set as L1A, able to adjust both side of spool stroke |      |                                                                                    |                                                                          |



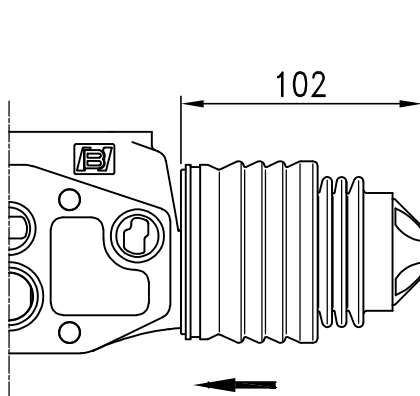
L1



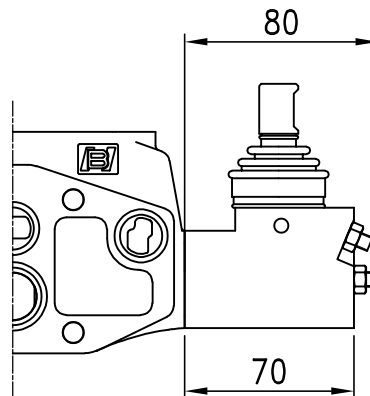
L1A



L2



L3

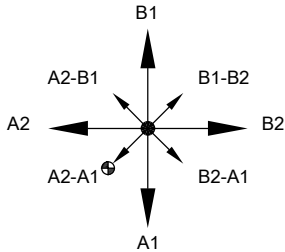


L4

# MS-100

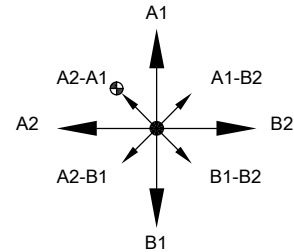
L3-1

View from B side



Bottom fulcrum

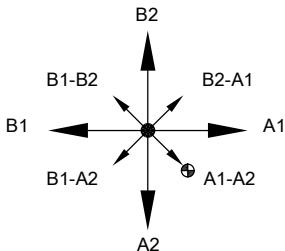
L3-3\*



Top fulcrum

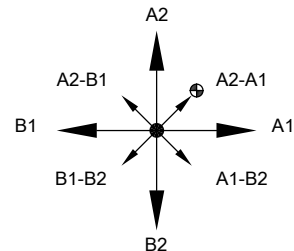
L3-2

View from B side



Bottom fulcrum

L3-4\*

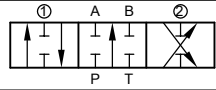
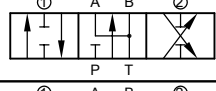
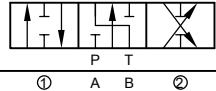
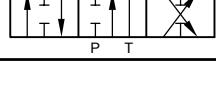


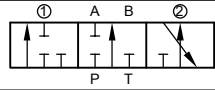
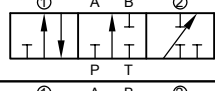
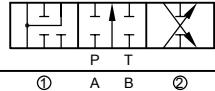
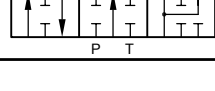
Top fulcrum

Note: \* Configurations not available with service port valve.

## 7. Spool option

### Spool

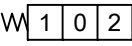
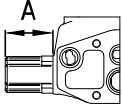
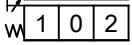
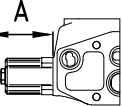
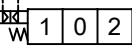
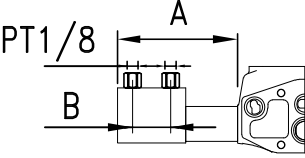
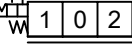
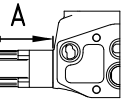
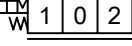
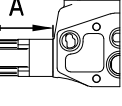
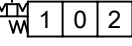
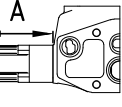
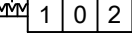
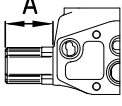
| Type | Scheme                                                                              |
|------|-------------------------------------------------------------------------------------|
| A1   |  |
| A2   |  |
| 2A   |  |
| 2B   |  |

| Type | Scheme                                                                                |
|------|---------------------------------------------------------------------------------------|
| A3   |  |
| A4   |  |
| A5   |  |
| A6   |  |

# MS-100

## 8. "A" side spool positioners

### Spool control A port side

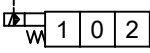
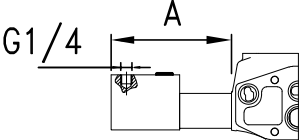
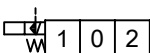
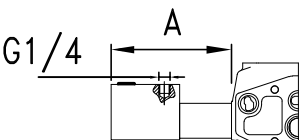
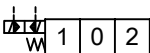
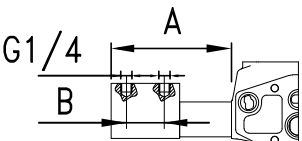
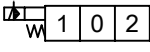
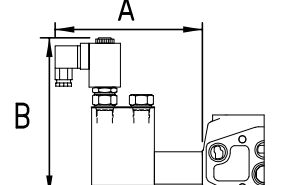
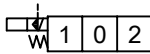
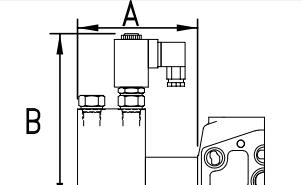
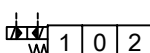
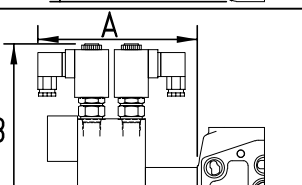
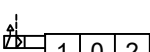
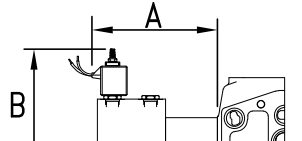
| Type | Scheme                                                                              | Description                                                                                    | Dimensions                                                                                                             |
|------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| S    |    | S = Spring centered.                                                                           |  50<br>(1.97)                       |
| SA   |   | SA = Spring return to neutral.<br>Adjust single side of spool stroke.                          |  65<br>(2.56)                      |
| P3   |  | P = On/off pneumatic control<br>Min. pressure 5 bar (70 psi)<br>Max. pressure 10 bar (140 psi) |  A 130<br>(5.12)<br>B 58<br>(2.28) |
| D1R  |  | D1R = Detent in positions 1.<br>Spring return to neutral.                                      |  75<br>(2.95)                     |
| D2R  |  | D2R = Detent in position 2.<br>Spring return to neutral.                                       |  75<br>(2.95)                     |
| D12R |  | D12R = Detent in positions 1 or 2.<br>Spring return to neutral.                                |  75<br>(2.95)                     |
| D3   |  | D3 = Detent in three positions                                                                 |  50<br>(1.97)                     |



# MS-100

## 8. "A" side spool positioners

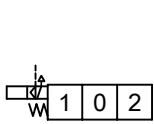
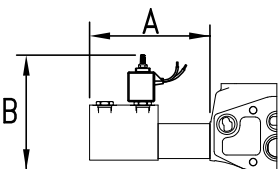
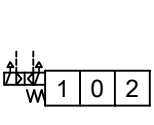
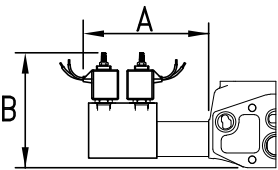
### Spool control A port side

| Type | Scheme                                                                              | Description                                                                                                                                            | Dimensions                                                                           |                                    |
|------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------|
| LH1  |    | LH1 = External hydraulic pilot to position 1.<br>Spring return to neutral.                                                                             |    | 130<br>(5.12)                      |
| LH2  |    | LH2 = External hydraulic pilot to position 2.<br>Spring return to neutral.                                                                             |   | 130<br>(5.12)                      |
| LH3  |  | LH3 = External hydraulic pilot to position 1 and 2.<br>Spring return to neutral.                                                                       |  | A 130<br>(5.12)<br>B 58<br>(2.28)  |
| E1   |  | E1=On/off electro-hydraulic control with external pilot and solenoid function to position 1.<br>Spring return to neutral.<br>Voltage:12VDC,24VDC       |  | A 170<br>(6.69)<br>B 180<br>(7.08) |
| E2   |  | E2=On/off electro-hydraulic control with external pilot and solenoid function to position 2.<br>Spring return to neutral.<br>Voltage:12VDC,24VDC       |  | A 130<br>(5.11)<br>B 180<br>(7.08) |
| E3   |  | E3=On/off electro-hydraulic control with external pilot and solenoid function to position 1 and 2.<br>Spring return to neutral.<br>Voltage:12VDC,24VDC |  | A 170<br>(6.69)<br>B 180<br>(7.08) |
| EP1  |  | EP1=On/off electro-pneumatic control with external pilot and solenoid function to position 1.<br>Spring centered.<br>Voltage:12VDC,24VDC               |  | A 140<br>(5.51)<br>B 110<br>(4.33) |

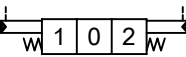
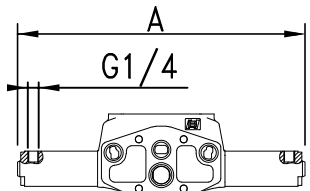
# MS-100

## 8. "A" side spool positioners

### Spool control A port side

| Type | Scheme                                                                            | Description                                                                                                                              | Dimensions                                                                          |                                        |
|------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------|
| EP2  |  | EP2=On/off electro-pneumatic control with external pilot and solenoid function to position 2. Spring centered. Voltage:12VDC,24VDC       |   | A 130<br>(5.12)<br><br>B 110<br>(4.33) |
| EP3  |  | EP3=On/off electro-pneumatic control with external pilot and solenoid function to position 1 and 2. Spring centered. Voltage:12VDC,24VDC |  | A 140<br>(5.51)<br><br>B 110<br>(4.33) |

### Spool control A and B-port side

|    |                                                                                     |                                      |                                                                                      |                |
|----|-------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------|----------------|
| PP |  | PP = Proportional hydraulic control. |  | 316<br>(12.45) |
|----|-------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------|----------------|

# MS-100

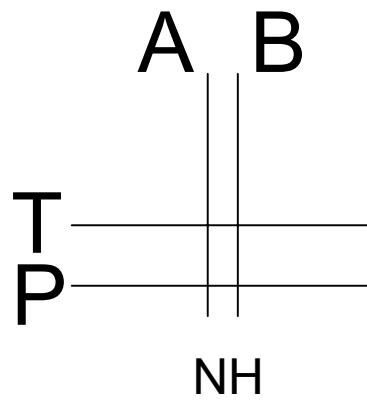
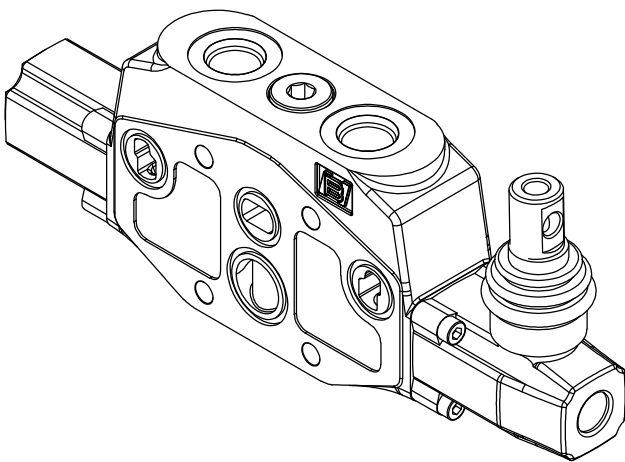
## 9.Port Relief valves

### Without Port Valve Prearrangement

L1 A2 S - NH

1. NH= No relieve port

1.



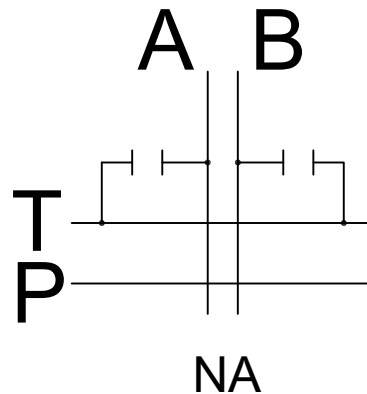
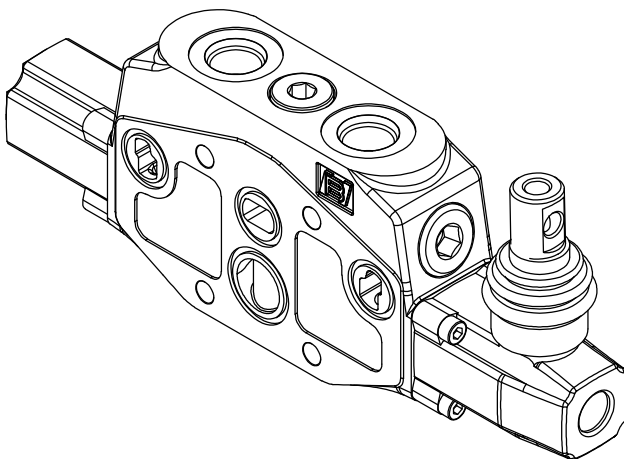
NH

### With Port Valve Prearrangement

L1 A2 S - NA

1. NA= No relieve valve (can be omitted)

1.



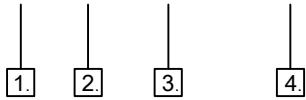
NA

# MS-100

## 9.Port Relief valves

### Anti-shock Valves

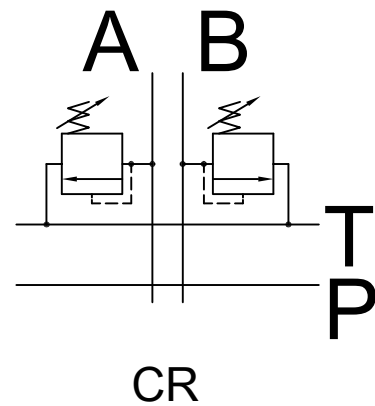
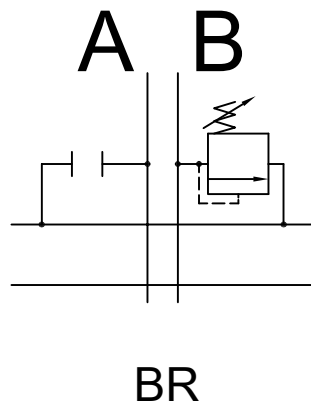
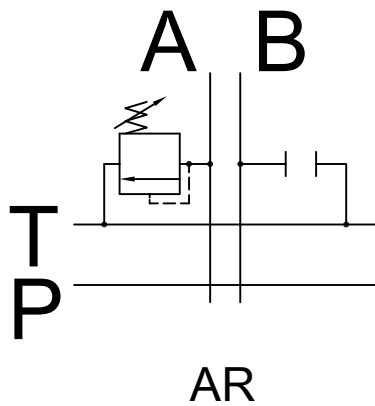
A R ( 2 - 100 )



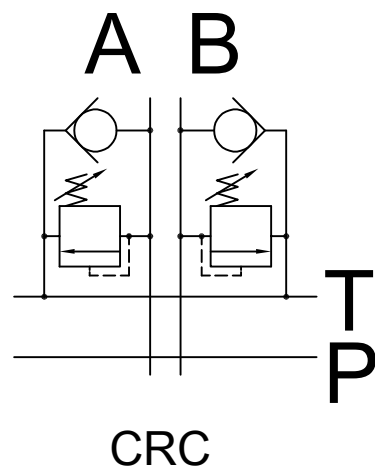
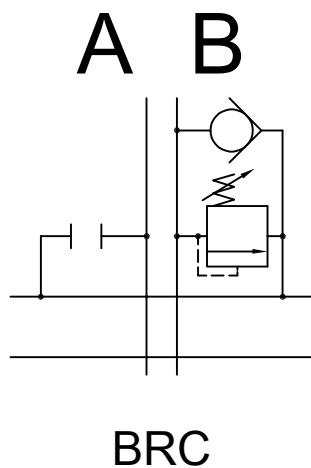
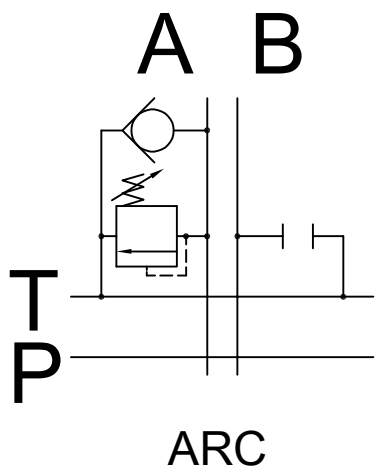
- 1. A= On A side  
B= On B side  
C= On both sides
- 2. Valve options
- 3. Spring options
- 4. Pressure setting

| Spring type   | 01 | 02  | 03  |
|---------------|----|-----|-----|
| Max. Pressure | 80 | 220 | 350 |
| Min. Pressure | 20 | 50  | 180 |

unit : bar



### Anti-shock and Anti-cavitation Valves



# MS-100

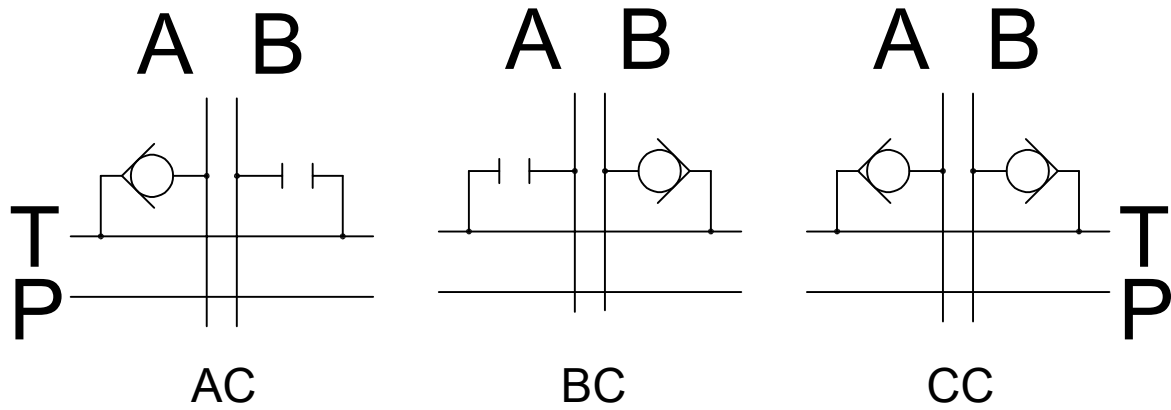
## 9.Port Relief valves

Anti-cavitation Valves

L1 A2 S - A C



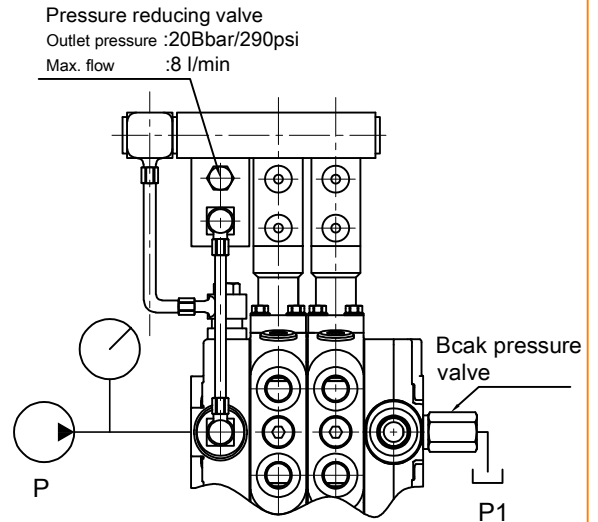
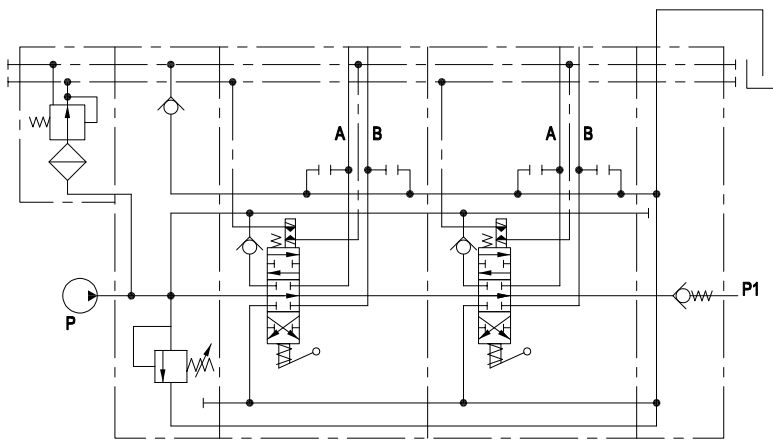
- 1. A=On A side
- B=On B side
- C=On both sides



# MS-100

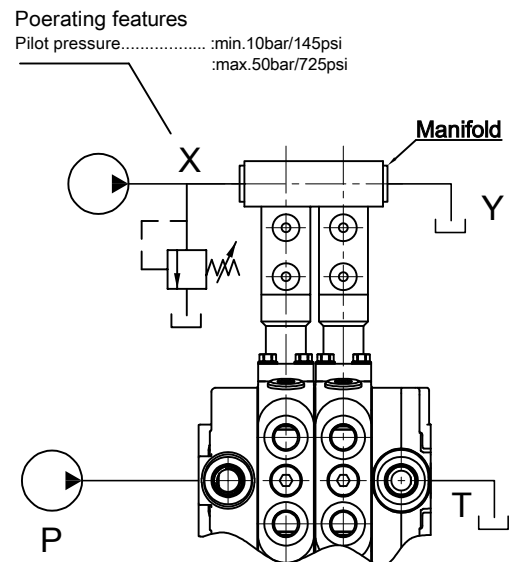
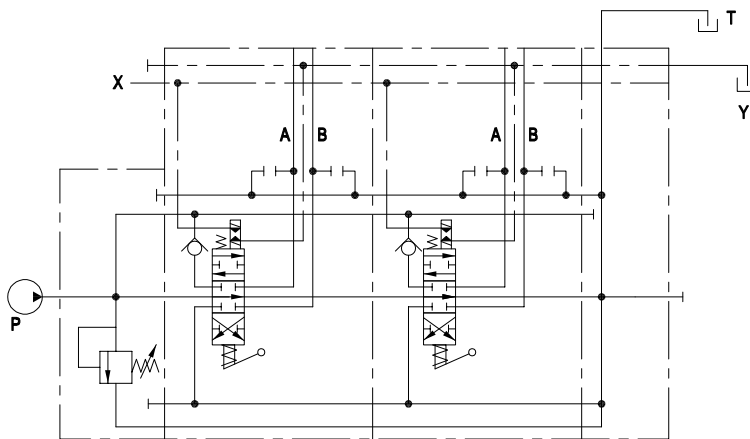
## 10.EL control pilot kit

### EL control pilot kit



Complete kit with pressure reducing valve, manifold and pipes.

ECK1/1-12



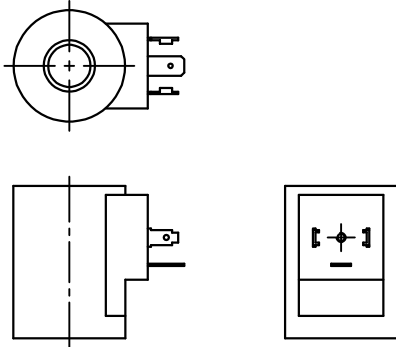
Manifold kit and pressure reducing valve for connection to the main circuit.

ECK2/1-12

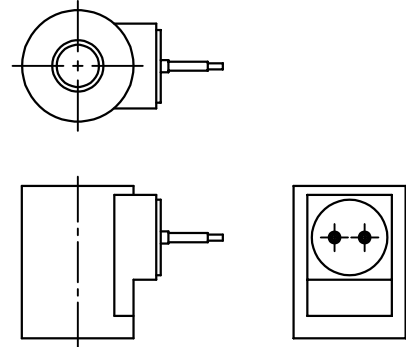
# MS-100

## 11. Coil Series

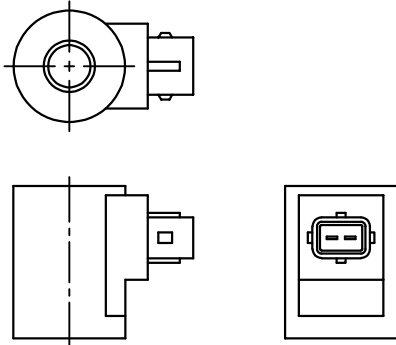
Coil series option



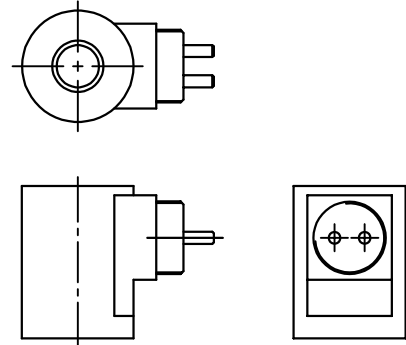
Type : CS01  
 Connection=A EN 175301-803 ISO 4400(DIN.43650)  
 Voltage : 12-24VDC



Type : CS02  
 Connection=lead wires connection  
 Voltage : 12-24VDC

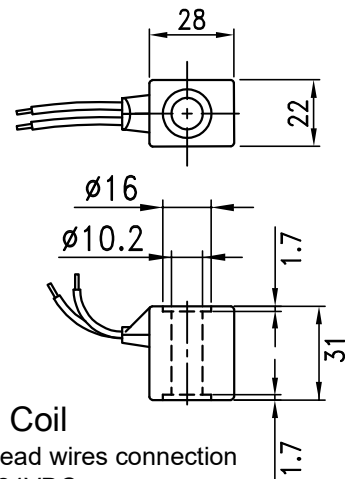
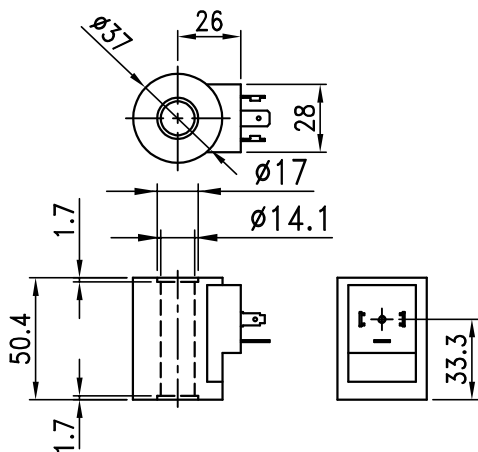


Type : CS03  
 Connection=AMP Junior connection  
 Voltage : 12-24VDC



Type : CS04  
 Connection=M27x1 connection  
 Voltage : 12-24VDC

### DIMENSIONS



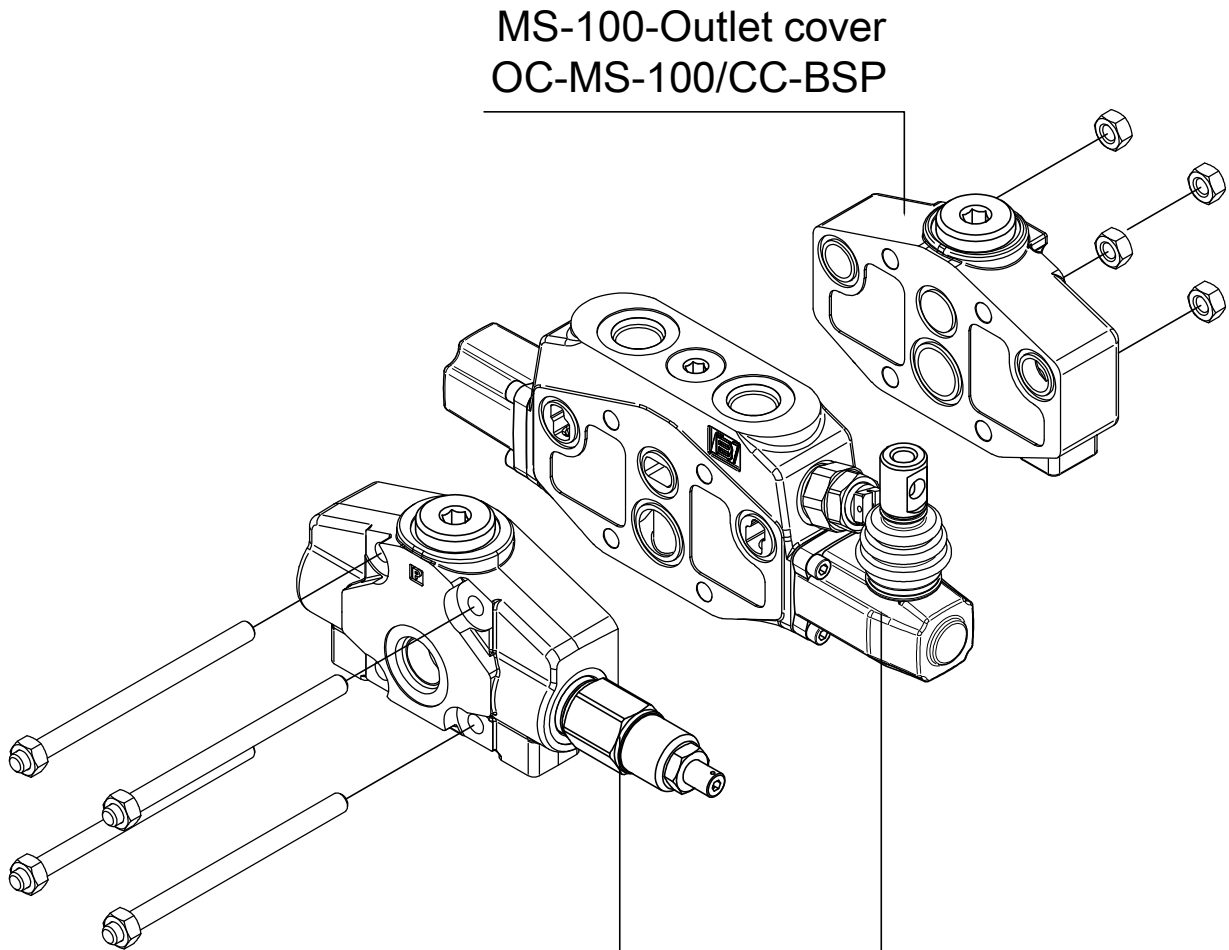
Type : EP Coil  
 Connection=lead wires connection  
 Voltage : 12-24VDC



SYSTEM OF FLUID POWER

# MS-100

## ORDERING CODE NUMBER EXAMPLE



MS-100-Outlet cover  
OC-MS-100/CC-BSP

MS-100-Inlet cover  
IC-MS-100/L-S-A(S-200)-BSP

MS-100-Working section  
WS-MS-100/L1A A1-PC-SA-AR(1-50)-BSP-CS01

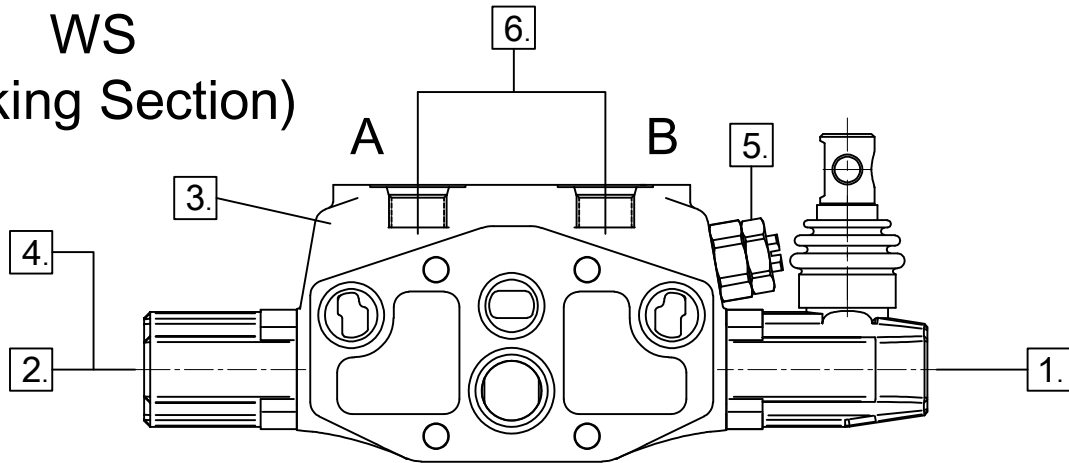


# MS-100-Working section

## ORDERING CODE NUMBER EXAMPLE

WS-MS-100/ 1. L1A 2. A1 - PC 3. - SA 4. - AR(1-50) 5. - BSP 6. - CS01 7.

WS  
(Working Section)



### 1."B" side option page.100

| Type | Description                                                               |
|------|---------------------------------------------------------------------------|
| L1   | Standard lever aluminum pivot box. with neoprene gasket.                  |
| L1A  | Standard lever with an extra screw to adjust either side of spool stroke. |
| L2   | Without lever with L2 dust cover.                                         |
| L3   | joystick lever(+axis) with left fulcrum.                                  |
| L4   | Standard lever set as L1A, able to adjust both side of spool stroke.      |

### 2.Spool option page.101

| 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.                 |
| 2A   | Double acting,3 positions with A open to tank in neutral position.                       |
| 2B   | Double acting,3 positions with B open to tank in neutral position.                       |
| A3   | Single acting on A,3 position.B plugged.                                                 |
| A4   | Single acting on B,3 position.A plugged.                                                 |
| A5   | Double acting,3 positions,with regenerativa in position 1. A shorter stroke is required. |
| A6   | Double acting,3 positions,with regenerativa in position 2. A shorter stroke is required. |

### 3.Hydraulic circuit page.99

| Type | Description       |
|------|-------------------|
| PC   | Parallel circuit. |
| TC   | Tandem circuit.   |

### 4."A" side spool positioners page.102

| Type | Description                                                                                                        |
|------|--------------------------------------------------------------------------------------------------------------------|
| S    | Spring return to neutral.                                                                                          |
| SA   | Adjust single side of spool stroke. Spring return to neutral.                                                      |
| P3   | On/off pneumatic control. Min. pressure 5 bar(70 psi) Max. pressure 10 bar (140 psi).                              |
| D1R  | Detent in positions1.Spring return to neutral.                                                                     |
| D2R  | Detent in positions2.Spring return to neutral.                                                                     |
| D12R | Detent in positions 1 or 2.Spring return to neutral.                                                               |
| D3   | Detent in three positions.                                                                                         |
| LH1  | External hydraulic pilot to position 1. Spring return to neutral.                                                  |
| LH2  | external hydraulic pilot to position 2. Spring return to neutral.                                                  |
| LH3  | external hydraulic pilot to position 1 and 2. Spring return to neutral.                                            |
| E1   | On/off electro-hydraulic control with external pilot and solenoid function to position 1.Spring return to neutral. |
| E2   | On/off electro-hydraulic control with external pilot and solenoid function to position 2.Spring return to neutral. |



# MS-100-Working section

## ORDERING CODE NUMBER EXAMPLE

### 4."A" side spool positioners page.102

| Type | Description                                                                                                              |
|------|--------------------------------------------------------------------------------------------------------------------------|
| E3   | On/off electro-hydraulic control with extrnal pilot and solenoid function to position 1 and 2.Spring return to neutral.  |
| EP1  | On/off electro-pneumatic control with extrnal pilot and solenoid function to position 1. Spring return to neutral.       |
| EP2  | On/off electro-pneumatic control with extrnal pilot and solenoid function to position 2. Spring return to neutral.       |
| EP3  | On/off electro-pneumatic control with extrnal pilot and solenoid function to position 1 and 2. Spring return to neutral. |
| PP   | Proportional hydraulic control.                                                                                          |

### 5.Port Relief valves page.105

| Type                  | Description                                                                    |
|-----------------------|--------------------------------------------------------------------------------|
| NH                    | No cartridge cavities.                                                         |
| NA                    | No relief valve.                                                               |
| A                     | Mounted on port A.                                                             |
| B                     | Mounted on port B.                                                             |
| C                     | Mounted on port A and B.                                                       |
| Relief valve          |                                                                                |
| R(1-50)               | Range 20 to 80 bar/ 290 to 1160 psi.<br>standard setting 50 bar / 725psi.      |
| R(2-100)              | Range 50 to 220 bar/ 725 to 3190 psi.<br>standard setting 100 bar / 1450psi.   |
| R(3-200)              | Range 180 to 350 bar/ 2610 to 5076 psi.<br>standard setting 200 bar / 2900psi. |
| Anti-shock valve      |                                                                                |
| RC(1-50)              | Range 20 to 80 bar/ 290 to 1160 psi.<br>standard setting 50 bar / 725psi.      |
| RC(2-100)             | Range 50 to 220 bar/ 725 to 3190 psi.<br>standard setting 100 bar / 145psi.    |
| RC(3-200)             | Range 180 to 350 bar/ 2610 to 5076 psi.<br>standard setting 200 bar / 2900psi. |
| Anti-cavitation valve |                                                                                |
| C                     | Anti-cavitation                                                                |

### 6.Port threads option page.114

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

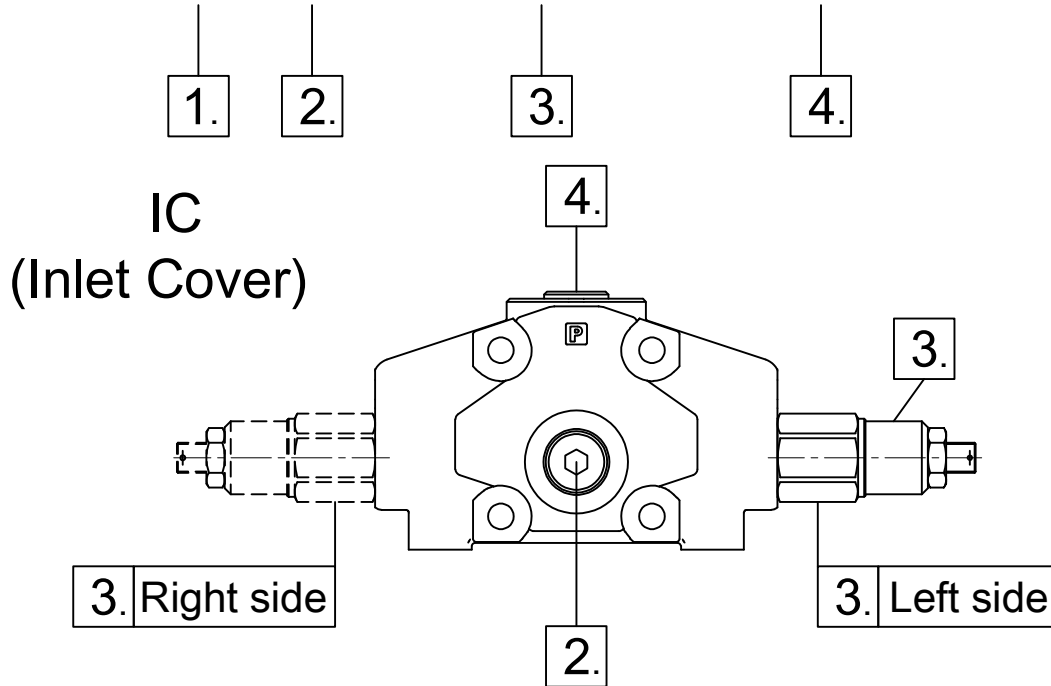
### 7.Coil series page.109

| Type | Description                                                                                 |
|------|---------------------------------------------------------------------------------------------|
| CS01 | Connection:A EN 175301-803 ISO 4400 (DIN.43650)<br>Voltage : 12-24VDC                       |
| CS02 | Connection:lead wires connection<br>Voltage : 12-24VDC                                      |
| CS03 | Connection:AMP Junior connection<br>Voltage : 12-24VDC                                      |
| CS04 | Connection:M27x1 connection<br>Voltage : 12-24VDC                                           |
| EP   | Connection:lead wires connection<br>Voltage : 12-24VDC<br>("A" side has to be used with EP) |

# MS-100-Inlet cover

## ORDERING CODE NUMBER EXAMPLE

IC-MS-100/ L - S - A ( S- 200 ) - BSP



### 1. Inlet Alimentation page.93

| Type | Description             |
|------|-------------------------|
| L    | Left side Alimentation  |
| R    | Right side Alimentation |

### 4. Port threads option page.114

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

### 2. Inlet cover page.94

| Type | Description |
|------|-------------|
| S    | Side inlet. |
| T    | Top inlet.  |

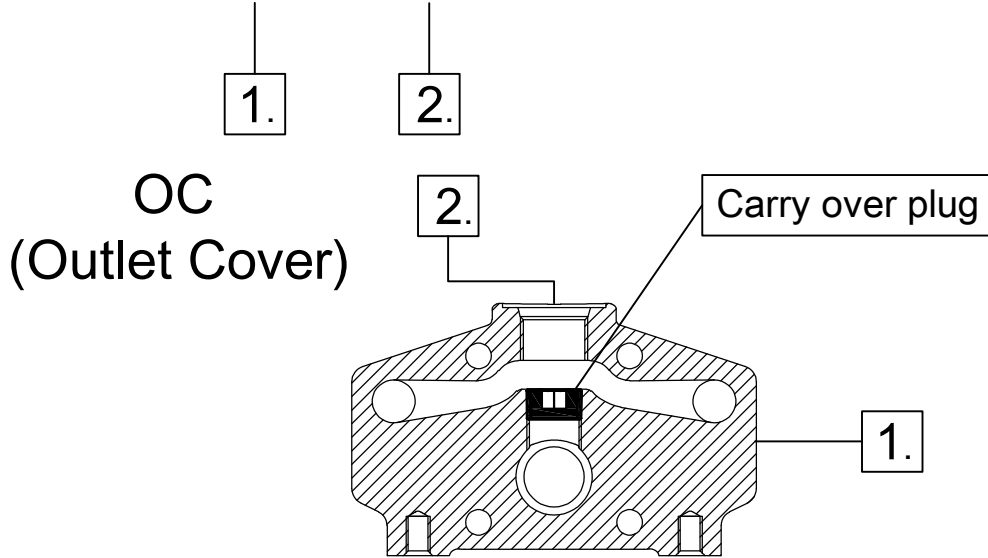
### 3. Inlet cover relief valve page.95

| Type     | Description                                                                                                           |
|----------|-----------------------------------------------------------------------------------------------------------------------|
| NR       | Relief valve blanking plug.                                                                                           |
| (S-200)  | Pilot operated relief valve, range 30 to 380 bar/ 200 to 2900 psi. standard setting 200 bar / 2900psi.                |
| (D-200)  | Direct-acting relief valve, range 200 to 315 bar/ 2900 to 4570 psi. standard setting 220 bar / 3200psi.               |
| (SL-200) | Pilot operated relief valve with capping, range 200 to 315 bar/ 2900 to 4570 psi. standard setting 220 bar / 3200psi. |
| (DL-200) | Direct-acting relief valve with capping, range 200 to 315bar/ 2900 to 4570 psi. standard setting 220 bar / 3200psi.   |

# MS-100-Outlet cover

***ORDERING CODE NUMBER EXAMPLE***

OC-MS-100/ CC - BSP



| 1.Outlet cover <span style="float:right">page.96</span> |                                | 2.Port threads option <span style="float:right">page.114</span> |             |
|---------------------------------------------------------|--------------------------------|-----------------------------------------------------------------|-------------|
| Type                                                    | Description                    | Type                                                            | Description |
| PB                                                      | Top outlet with power beyond.  | BSP                                                             | G.          |
| CC                                                      | Top outlet with closed center. | SAE                                                             | UN-UNF.     |
| SO                                                      | Side outlet to tank.           |                                                                 |             |
| BP                                                      | Back pressure option.          |                                                                 |             |
| TO                                                      | Top outlet to tank.            |                                                                 |             |

## 12.Port threads option

### Port threads

| PORT         | BSP  | SAE       |
|--------------|------|-----------|
| P            | G1/2 | 7/8-14UNF |
| A and B port | G1/2 | 3/4-16UNF |
| T            | G3/4 | 7/8-14UNF |