



# SDM122 DLM122

**Monoblock valves for  
Front Loaders Applications**



# SDM122-DLM122

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## Features

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- Configuration open centre SDM122 and Load Sensing DLM122
- Fitted with a main pressure relief valve (on SDM122) and load check valve on every working section
- Optional power beyond port (on SDM122)
- Anticavitation and antishock valves (with fixed setting) available on every section
- Dedicated range of controls: manual, mechatronic and remote with flexible cable

### Additional information

This catalogue shows the product in the most standard configurations.  
Please contact our Sales Dpt. for more detailed information or special requests.

### WARNING!

All specifications of this catalogue refer to the standard product at this date.  
Walvoil, oriented to a continuous improvement, reserves the right to discontinue, modify or revise the specifications, without notice.

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

3<sup>rd</sup> edition October 2014

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## **SDM122**

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# SDM122-DLM122

## Working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

|                                            |                                                             |                                  |                           |
|--------------------------------------------|-------------------------------------------------------------|----------------------------------|---------------------------|
| Max. flow rating                           |                                                             | 80 l/min                         | 21 US gpm                 |
| Operating pressure (max.)                  |                                                             | 250 bar                          | 3600 psi                  |
| Back pressure (max.)                       | on outlet port T                                            | 10 bar                           | 1450 psi                  |
| Medium internal leakage                    | A(B)⇒T with $\Delta p = 100 \text{ bar} - 1450 \text{ psi}$ | 3 cm <sup>3</sup> /min           | 0.18 in <sup>3</sup> /min |
| Fluid                                      |                                                             | Mineral based oil                |                           |
| Fluid temperature                          | with NBR (BUNA-N) seals                                     | from -20°C to 80°C               | from -4°F to 176°F        |
|                                            | with FPM (VITON) seals                                      | from -20°C to 100°C              | from -4°F to 212°F        |
| Viscosity                                  | operating range                                             | from 15 to 75 mm <sup>2</sup> /s | from 15 to 75 cSt         |
|                                            | min.                                                        | 12 mm <sup>2</sup> /s            | 12 cSt                    |
|                                            | max.                                                        | 400 mm <sup>2</sup> /s           | 400 cSt                   |
| Max. contamination level                   |                                                             | -/19/16 - ISO 4406               | NAS 1638 - class 10       |
| Ambient temperature for working conditions | with mechanical devices                                     | from -40°C to 60°C               | from -40°F to 140°F       |
|                                            | with mechatronic devices                                    | from -25°C to 60°C               | from -13°F to 122°F       |

NOTE - For different conditions please contact our Sales Dpt.

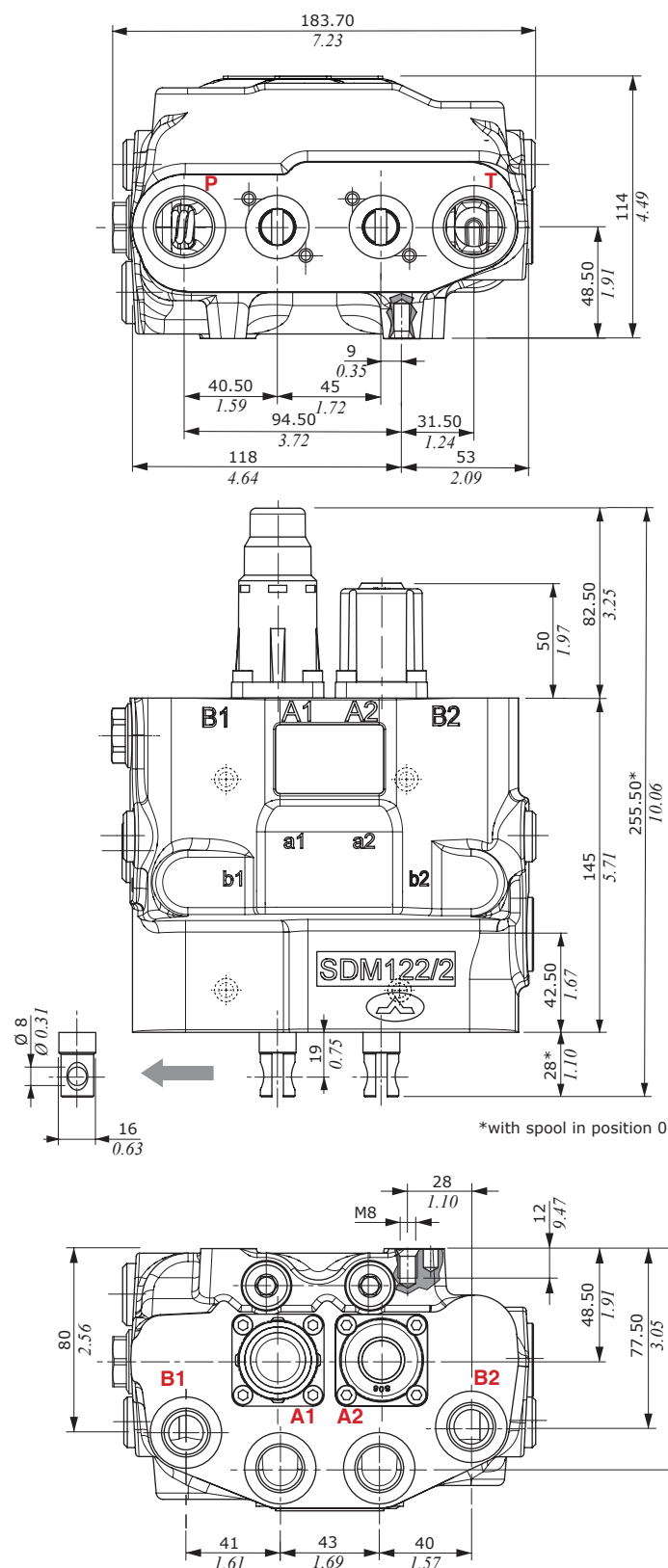
## Standard threads

| REFERENCE STANDARD               |     |                     |                   |         |            |
|----------------------------------|-----|---------------------|-------------------|---------|------------|
|                                  |     | BSP                 | UN-UNF            | METRIC  | METRIC ISO |
| THREAD ACCORDING TO              |     | ISO 228/1           | ISO 263           | ISO 261 | ISO 261    |
|                                  |     | BS 2779             | ANSI B1.1 unified |         |            |
| CAVITY DIMENSION<br>ACCORDING TO | ISO | 1179                | 11926             | 9974/1  | 6149       |
|                                  | SAE |                     | J11926            |         | J2244      |
|                                  | DIN | 3852-2 shape X or Y |                   |         |            |

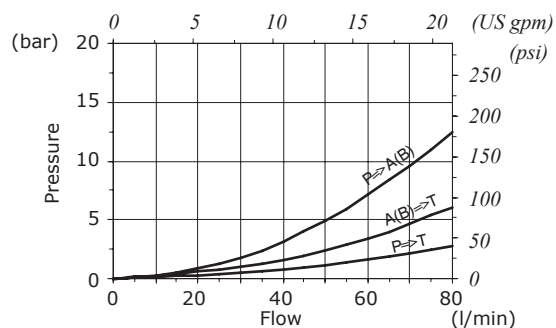
| PORTS THREADING                        |       |                   |         |
|----------------------------------------|-------|-------------------|---------|
| MAIN                                   | BSP   | UN-UNF            | METRIC  |
| Inlet <b>P</b> and carry-over <b>C</b> | G 3/4 | 11/16-12 (SAE 12) | M27x2   |
| Ports <b>A</b> and <b>B</b>            | G 1/2 | 7/8-14 (SAE 10)   | M22x1.5 |
| Outlet <b>T</b>                        | G 3/4 | 11/16-12 (SAE 12) | M27x2   |
| Load Sensing <b>LS</b>                 | G 1/4 | 9/16-18 (SAE 6)   | M14x1.5 |

Note: for different port size contact our Sales Dpt.

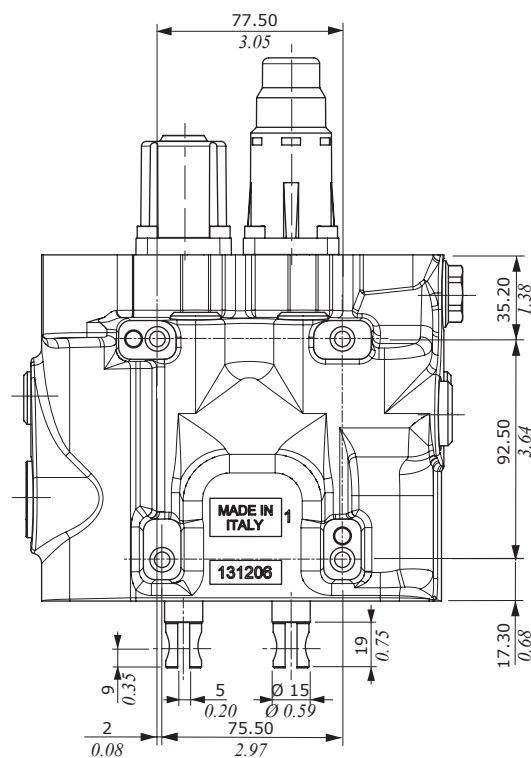
### Mechanical control



### Main pressure drop

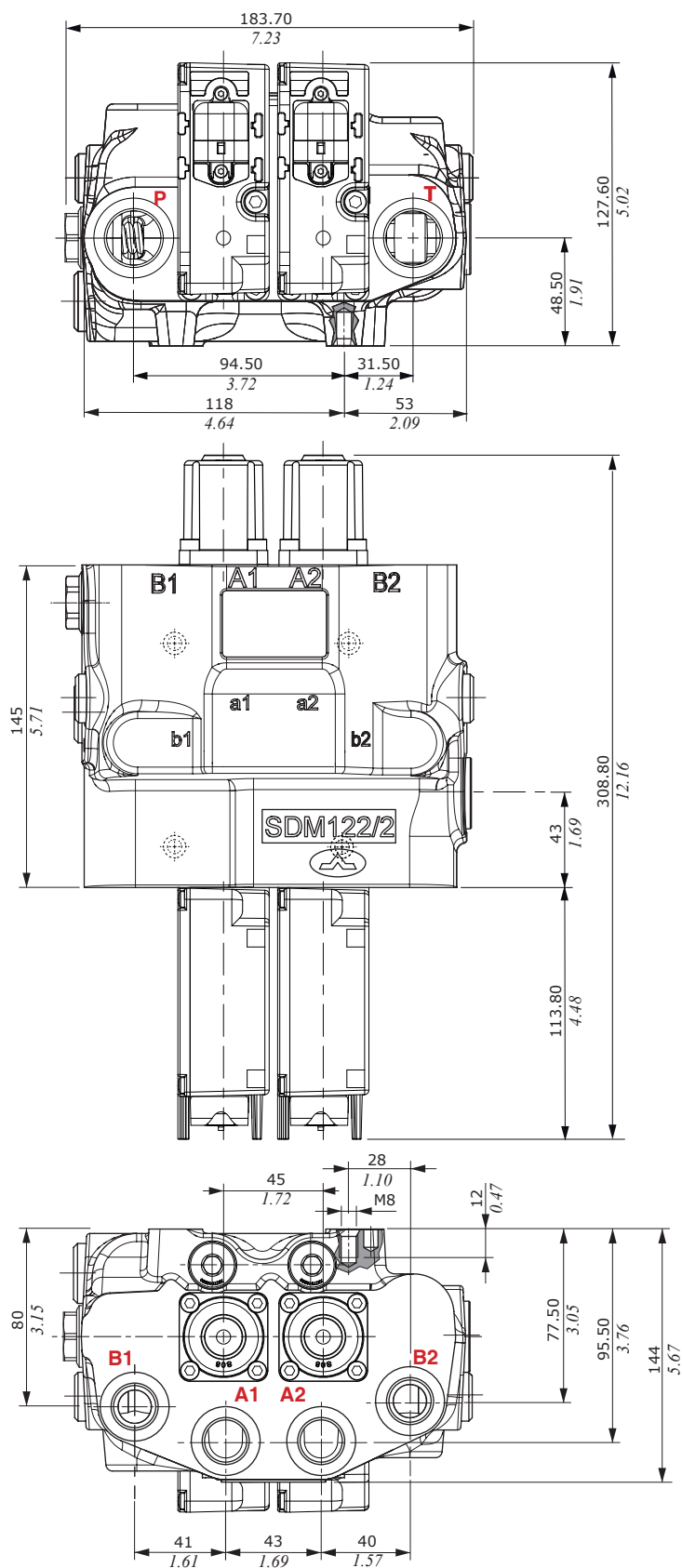


### Bottom view

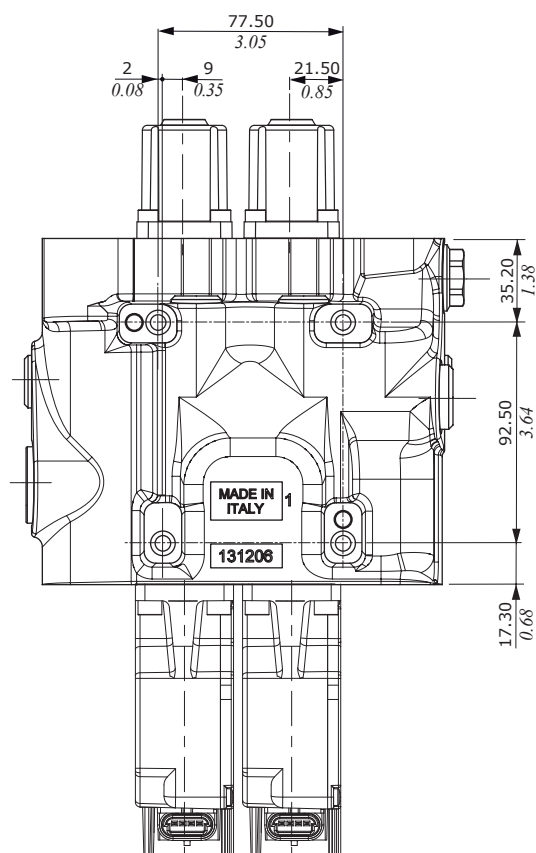


## Dimensional data

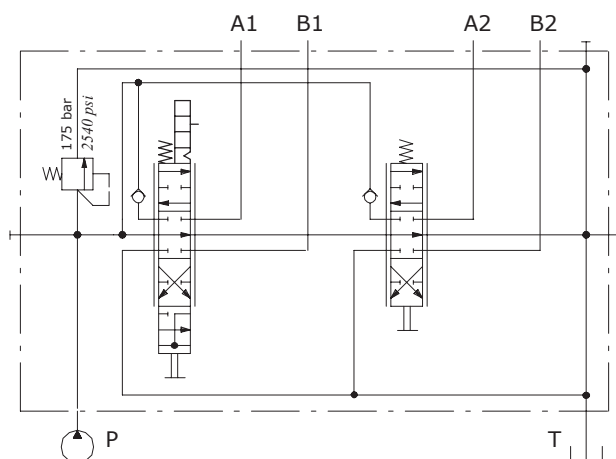
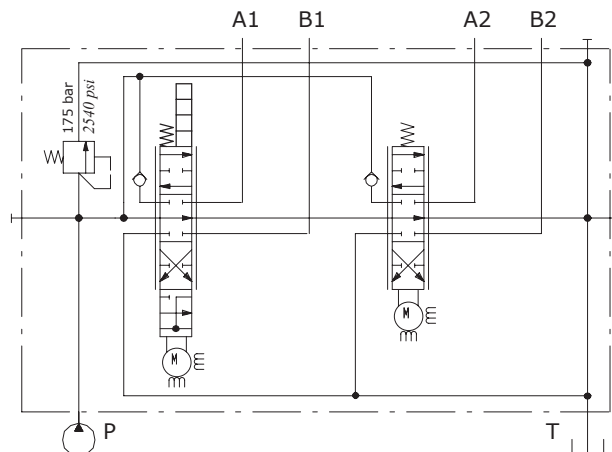
### Mechatronic control



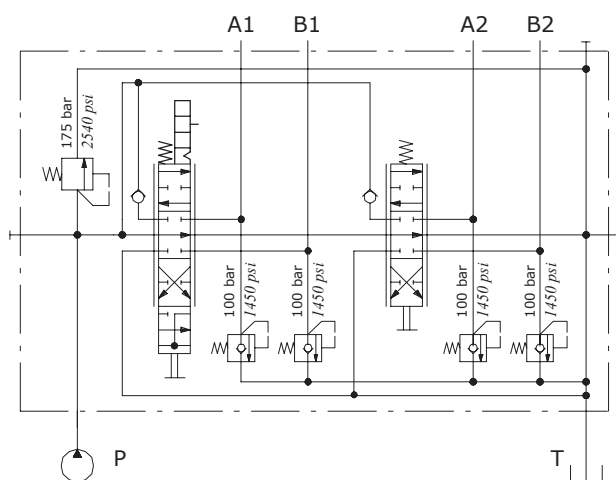
Bottom view



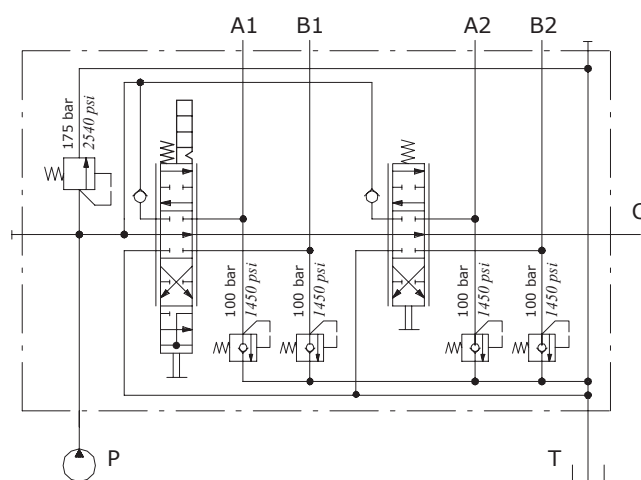
## Configuration without port valves

Mechanical controlMechatronic control

## Configuration with port valves



## Configuration with port valves and carry-over



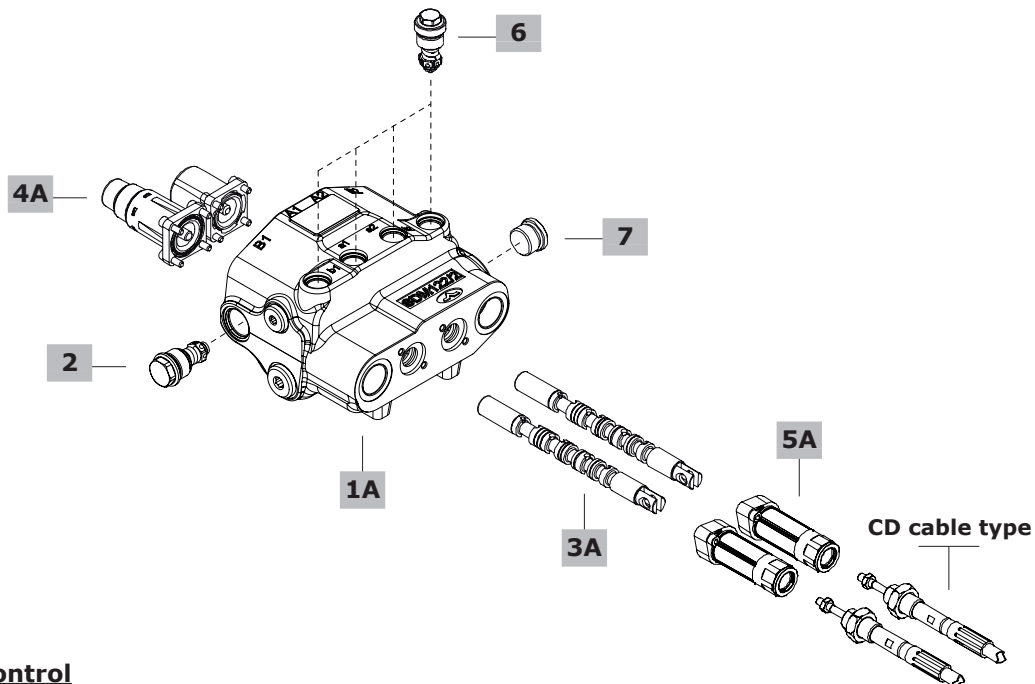
## Ordering codes

### Mechanical control

Man relief valve setting (bar) 1 Mounted on port A  
2 Mounted on port B  
3 Mounted A and B  
Port valves setting (bar)  
Valve is painted as standard, with one coat of Primer black antitrust paint

SDM122/ 2-P (UD - 180) / 1[S] 13 TQ . U3(100) / 1[S] 8MA TQ . U3(100) / AET - ... - <CVN>

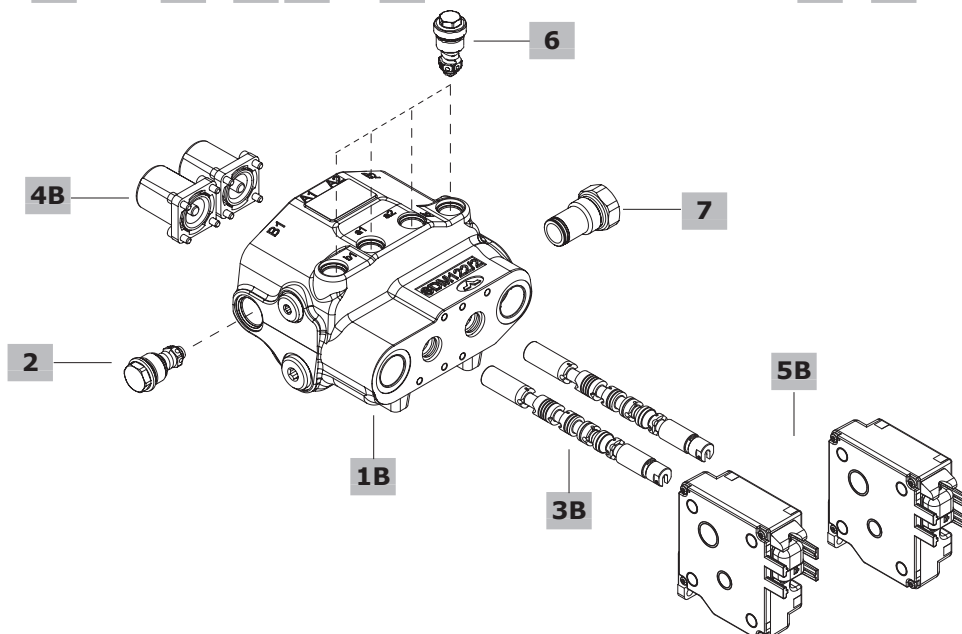
1A 2 3A 4A 5A 6 7 8



### Mechatronic control

SDM122/ 2-P (UD - 180) / 1SO[S] 13 EME . U3(100) / 1SO[S] 8 EME . U3(100) / AE - ... - <CVNE>

1B 2 3B 4B 5B 6 7 8





## Ordering codes

**With mechanical control****1A Body kit\***

|                                                          |                  |
|----------------------------------------------------------|------------------|
| TYPE: <b>SDM122/2-P</b>                                  | CODE: 5KC1843005 |
| DESCRIPTION: Without port valves arrangement             |                  |
| TYPE: <b>SDM122/2-P/P3T</b>                              | CODE: 5KC1843006 |
| DESCRIPTION: With port valves arrangement on all port    |                  |
| TYPE: <b>SDM122/2-P/P3(s2)</b>                           | CODE: 5KC1843004 |
| DESCRIPTION: With port valves arrangement on ports A2-B2 |                  |

**3A Spool page 11**

| TYPE        | CODE       | DESCRIPTION                                                                                                                                                                          |
|-------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1[S]</b> | 3CU5110100 | With positioner kit 8MA: double acting, 3 positions, A and B closed in neutral position<br>With positioner kit 13: 4 positions, A and B to tank in 4 <sup>th</sup> positions (float) |

**4A "A" side spool positioners page 12**

| TYPE       | CODE       | DESCRIPTION                                                                                   |
|------------|------------|-----------------------------------------------------------------------------------------------|
| <b>8MA</b> | 5V08108240 | 3 positions with spring return in neutral position                                            |
| <b>13</b>  | 5V13108040 | 4 positions, detent in 4 <sup>th</sup> position with detent spring return in neutral position |

**5A "B" side spool control kit page 12**

| TYPE        | CODE       | DESCRIPTION               |
|-------------|------------|---------------------------|
| <b>TQ81</b> | STEL108220 | Cable control arrangement |

**For all configurations****2 Main relief valves page 10**

| TYPE      | CODE       | DESCRIPTION         |
|-----------|------------|---------------------|
| <b>SV</b> | XTAP528480 | Valve blanking plug |

**Fixed setting valves**

Setting is referred to 10 l/min - 2.6 US gpm flow

|               |            |                    |
|---------------|------------|--------------------|
| <b>UD-170</b> | 5KIT324170 | 170 bar - 2450 psi |
| <b>UD-180</b> | 5KIT324180 | 180 bar - 2600 psi |
| <b>UD-190</b> | 5KIT324190 | 190 bar - 2750 psi |
| <b>UD-210</b> | 5KIT324210 | 210 bar - 3050 psi |
| <b>UD-230</b> | 5KIT324230 | 230 bar - 3350 psi |

**6 Port valves page 10**

| TYPE         | CODE       | DESCRIPTION                   |
|--------------|------------|-------------------------------|
| <b>UT</b>    | XTAP522441 | Valve blanking plug           |
| <b>SE/DE</b> | XKIT408200 | Single/double effect selector |

**Fixed setting antishock valves**

Setting is referred to 10 l/min - 2.6 US gpm flow

|             |            |                                  |
|-------------|------------|----------------------------------|
| <b>U025</b> | 5KIT330025 | Valve setting 25 bar - 360 psi   |
| <b>U030</b> | 5KIT330030 | Valve setting 30 bar - 430 psi   |
| <b>U040</b> | 5KIT330040 | Valve setting 40 bar - 580 psi   |
| <b>U050</b> | 5KIT330050 | Valve setting 50 bar - 720 psi   |
| <b>U063</b> | 5KIT330063 | Valve setting 63 bar - 900 psi   |
| <b>U080</b> | 5KIT330080 | Valve setting 80 bar - 1150 psi  |
| <b>U100</b> | 5KIT330100 | Valve setting 100 bar - 1450 psi |
| <b>U110</b> | 5KIT330110 | Valve setting 110 bar - 1600 psi |
| <b>U125</b> | 5KIT330125 | Valve setting 125 bar - 1800 psi |
| <b>U140</b> | 5KIT330140 | Valve setting 140 bar - 2050 psi |
| <b>U150</b> | 5KIT330150 | Valve setting 150 bar - 2150 psi |
| <b>U160</b> | 5KIT330160 | Valve setting 160 bar - 2300 psi |
| <b>U175</b> | 5KIT330175 | Valve setting 175 bar - 2550 psi |

**With mechatronic control****1B Body kit\***

|                                              |                  |
|----------------------------------------------|------------------|
| TYPE: <b>SDM122/2-P/EME</b>                  | CODE: 5KC1843024 |
| DESCRIPTION: Without port valves arrangement |                  |

Note: For port valves arrangement please contact our Sales Dpt.

**3B Spool page 11**

| TYPE              | CODE       | DESCRIPTION                                                                                                                                                                        |
|-------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1SO[S]-EME</b> | 3CU5110111 | With positioner kit 8: double acting, 3 positions, A and B closed in neutral position<br>With positioner kit 13: 4 positions, A and B to tank in 4 <sup>th</sup> positions (float) |

**4B "A" side spool positioners page 13**

| TYPE      | CODE       | DESCRIPTION                                                                                   |
|-----------|------------|-----------------------------------------------------------------------------------------------|
| <b>8</b>  | 5V08112001 | 3 positions with spring return in neutral position                                            |
| <b>13</b> | 5V13112001 | 4 positions, detent in 4 <sup>th</sup> position with detent spring return in neutral position |

**5B "B" side spool control kit page 13**

| TYPE           | CODE       | DESCRIPTION                                    |
|----------------|------------|------------------------------------------------|
| <b>EME(8)</b>  | 5MEC080803 | Mechatronic control kit for positioner type 8  |
| <b>EME(13)</b> | 5MEC130803 | Mechatronic control kit for positioner type 13 |

**6 Port valves (continue) page 10**

| TYPE        | CODE       | DESCRIPTION                      |
|-------------|------------|----------------------------------|
| <b>U190</b> | 5KIT330190 | Valve setting 190 bar - 2750 psi |
| <b>U200</b> | 5KIT330200 | Valve setting 200 bar - 2900 psi |
| <b>U210</b> | 5KIT330210 | Valve setting 210 bar - 3050 psi |
| <b>U220</b> | 5KIT330220 | Valve setting 220 bar - 3200 psi |
| <b>U230</b> | 5KIT330230 | Valve setting 230 bar - 3350 psi |
| <b>U240</b> | 5KIT330240 | Valve setting 240 bar - 3500 psi |
| <b>U250</b> | 5KIT330250 | Valve setting 250 bar - 3600 psi |

**7 Return circuit\* page 14**

| TYPE             | CODE        | DESCRIPTION                   |
|------------------|-------------|-------------------------------|
| <b>AET</b>       | 3XTAP732201 | Open center plug              |
| <b>AEK</b>       | 3XTAP532450 | Closed center plug            |
| <b>AE G3/4</b>   | XGIU536692  | G3/4 female carry-over sleeve |
| <b>AE G1/2-F</b> | XGIU532470  | G1/2 female carry-over sleeve |
| <b>MAE G3/4</b>  | XGIU532475  | G3/4 male carry-over sleeve   |

**8 Threading specification**Specify thread type only if it's different from BSP standard:  
see page 4

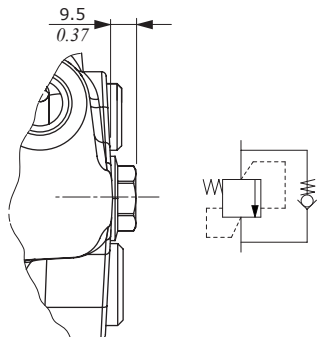
Note (\*): Codes are referred to UN-UNF standard thread

## Main relief valves

Description example: **(UD-180)**

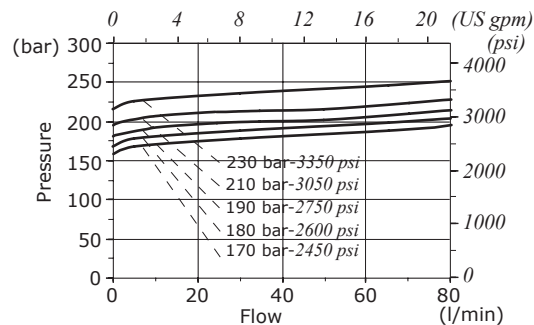
Valve setting (bar)

### UD fixed setting valve

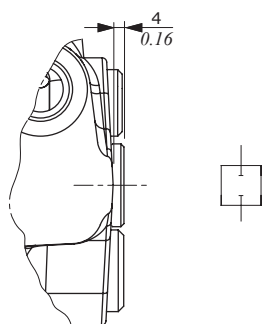


### Setting examples

10 l/min - 2.6 US gpm



### Valve seat plug



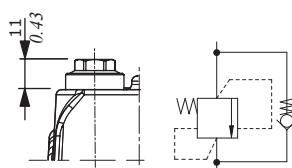
## Port valves

Description example: **U3(100)**

Valve setting (bar)

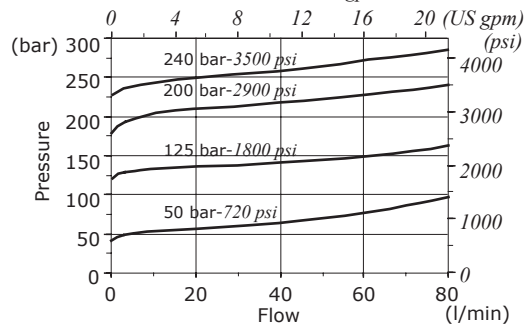
- 1 Mounted on port A
- 2 Mounted on port B
- 3 Mounted on ports A and B

### U type fixed setting valve

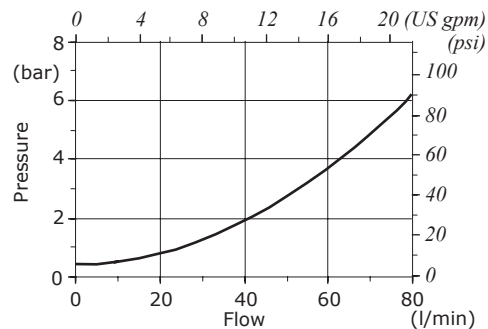


### Setting examples

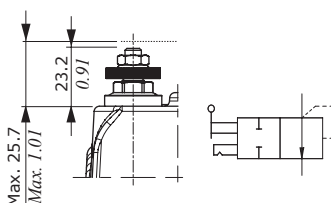
10 l/min - 2.6 US gpm



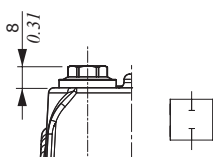
### Pressure drop



### SE/DE Single/double effect selector



### Valve seat plug

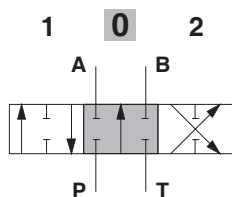


### 3 positions configuration

Configuration with double acting, 3 positions, A and B closed in neutral position.

**1[S]** type for mechanical control.

**1SO[S]** type for mechatronic control.



**Spool stroke: type 1[S]**

position 1: + 7 mm / + 0.28 in

position 2: - 7 mm / - 0.28 in

**Spool stroke: type 1SO[S]-EME**

position 1: + 6.6 mm / + 0.26 in

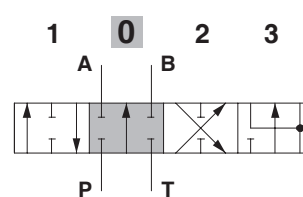
position 2: - 6.6 mm / - 0.26 in

### 4 positions configuration

Configuration with 4 positions, A and B to tank in 4<sup>th</sup> position (float).

**1[S]** type for mechanical control.

**1SO[S]** type for mechatronic control.



**Spool stroke: type 1[S]**

position 1: + 7 mm / + 0.28 in

position 2: - 7 mm / - 0.28 in

position 3 (floating): -12 mm / - 0.47 in

**Spool stroke: type 1SO[S]-EME**

position 1: + 6.6 mm / + 0.26 in

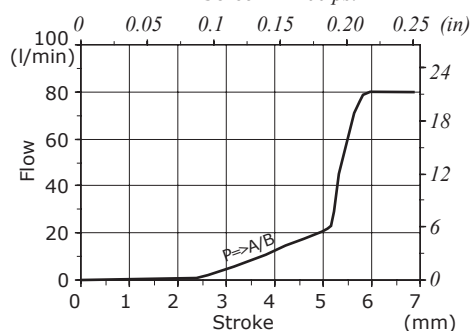
position 2: - 6.6 mm / - 0.26 in

position 3 (floating): -11.6 mm / - 0.46 in

#### Type 1[S] spool metering curve

$Q_{in} = 80 \text{ l/min} - 21 \text{ US gpm}$

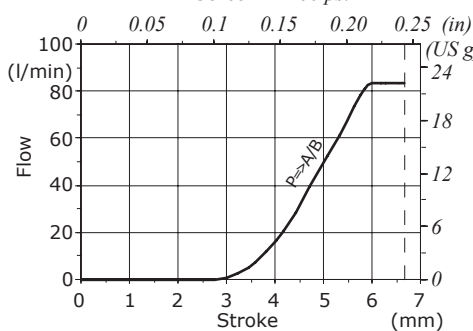
$P = 150 \text{ bar} - 2200 \text{ psi}$



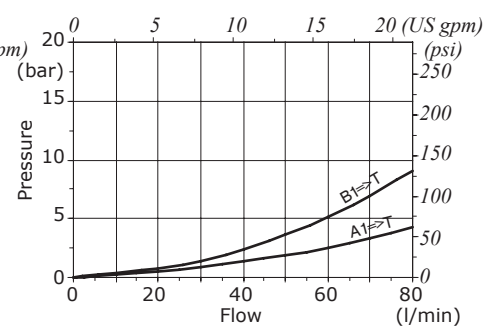
#### Type 1SO[S]-EME spool metering curve

$Q_{in} = 80 \text{ l/min} - 21 \text{ US gpm} (*)$

$P = 150 \text{ bar} - 2200 \text{ psi}$



#### Pressure drop in float position

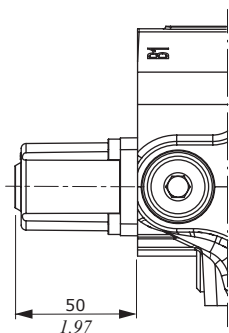


NOTE (\*) - For mechatronic control: spools with flow rates up to 100 l/min (26.4 US gpm) are recommended for flow rates higher than 80 l/min (21 US gpm). For availability, please contact our Sales Dpt.

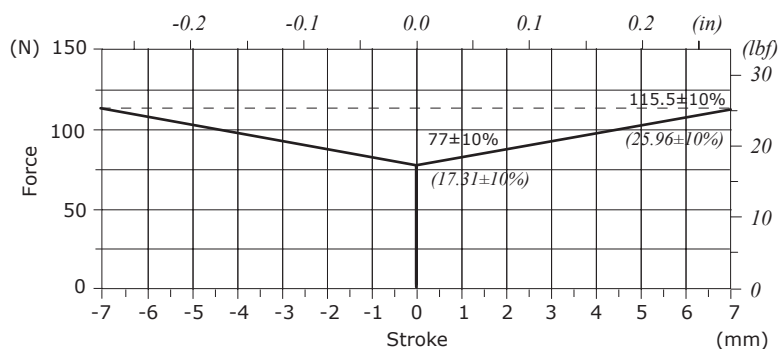
# SDM122

## "A" side spool positioners for mechanical control

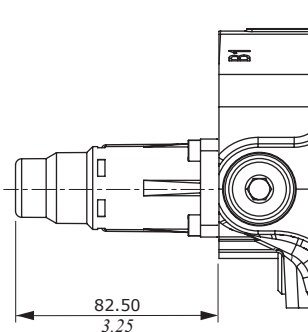
### Type 8MA



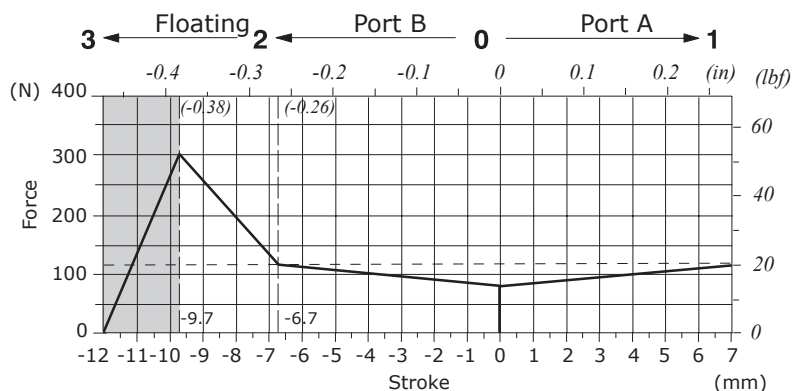
Force-stroke diagram



### Type 13



Force-stroke diagram

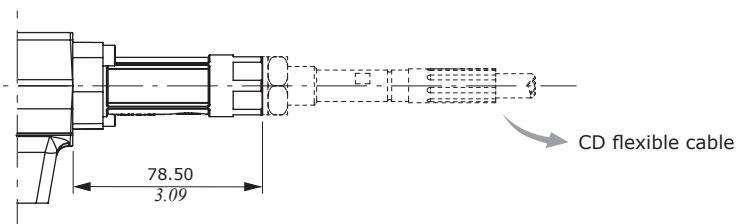


#### Detent area

Locking force: 300 N/67.4 lbf ± 10%  
Release force: 270 N/60.7 lbf ± 10%

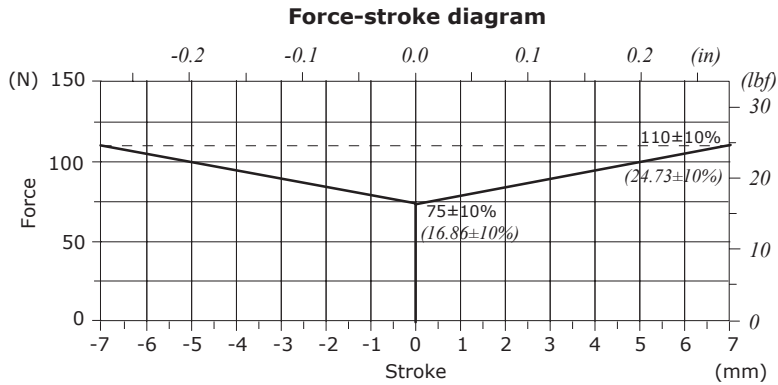
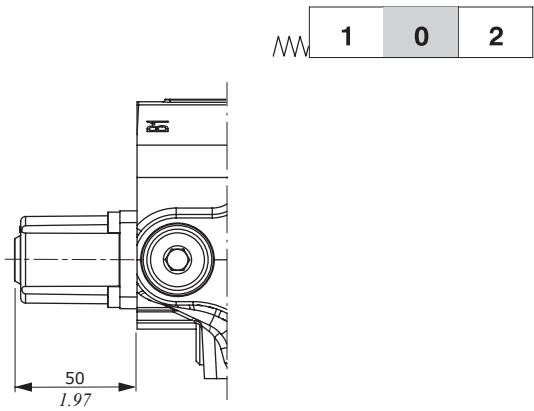
## "B" side spool control kit for mechanical control

### Type TQ81

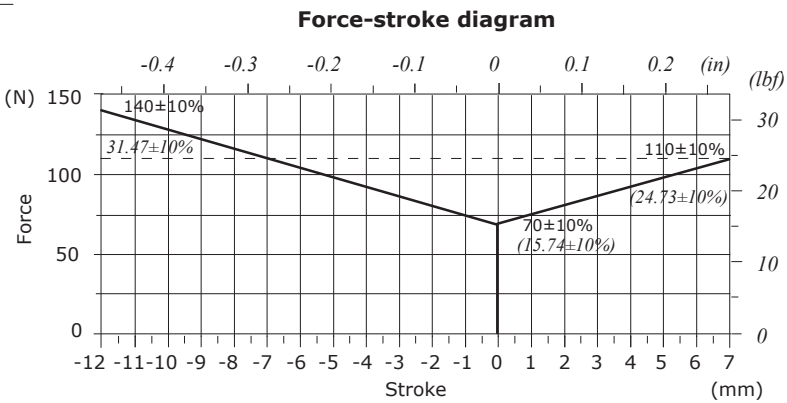
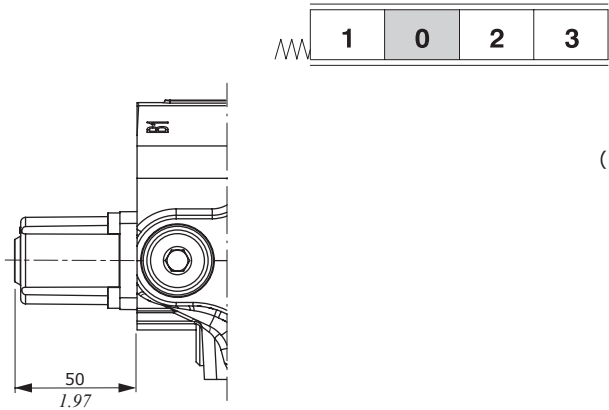


“A” side spool positioners for mechatronic control

Type 8EMC



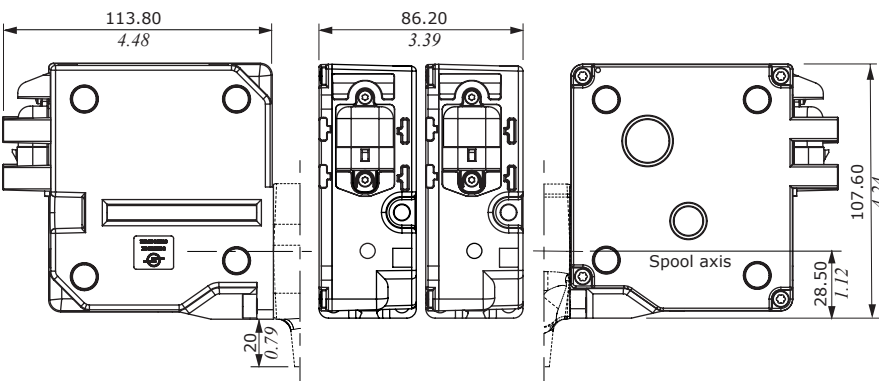
Type 13EMC



“B” side spool control kit for mechatronic control

Type EME

The dimensions of the type (8) and the type (13) are the same.

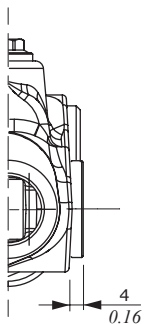


| TECHNICAL DATA  |               |                 |
|-----------------|---------------|-----------------|
| Force           | up to 160 N   | up to 35.97 lbf |
| Speed           | up to 80 mm/s | up to 80 cSt    |
| Residual force  | <45 N         | 10.12 lbf       |
| Travel          | ± 12 mm       | ±0.47 in        |
| Resolution      | 0.01 mm/incr. | 0.0004 in/incr  |
| Protocol        | SAE J1939     |                 |
| Supply voltage  | 9-16 VDC      |                 |
| Max. axial play | <0.25 mm      | <0.01 in        |
| EMC             | ISO 14982     |                 |
| Vibration       | IEC 68-2      |                 |

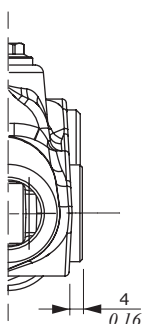
Notes: Parameter such as spool stroke may be limited by WST software according to the application.

## Return circuit

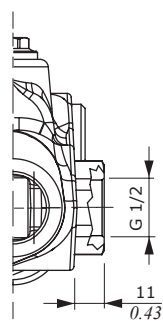
**AET**  
open center plug



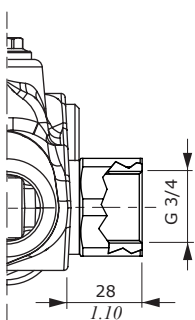
**AEK**  
closed center plug



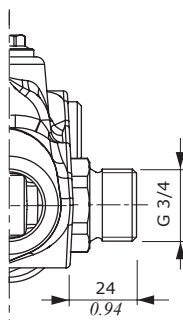
**AE-BSP12**  
G1/2 female "carry-over" sleeve



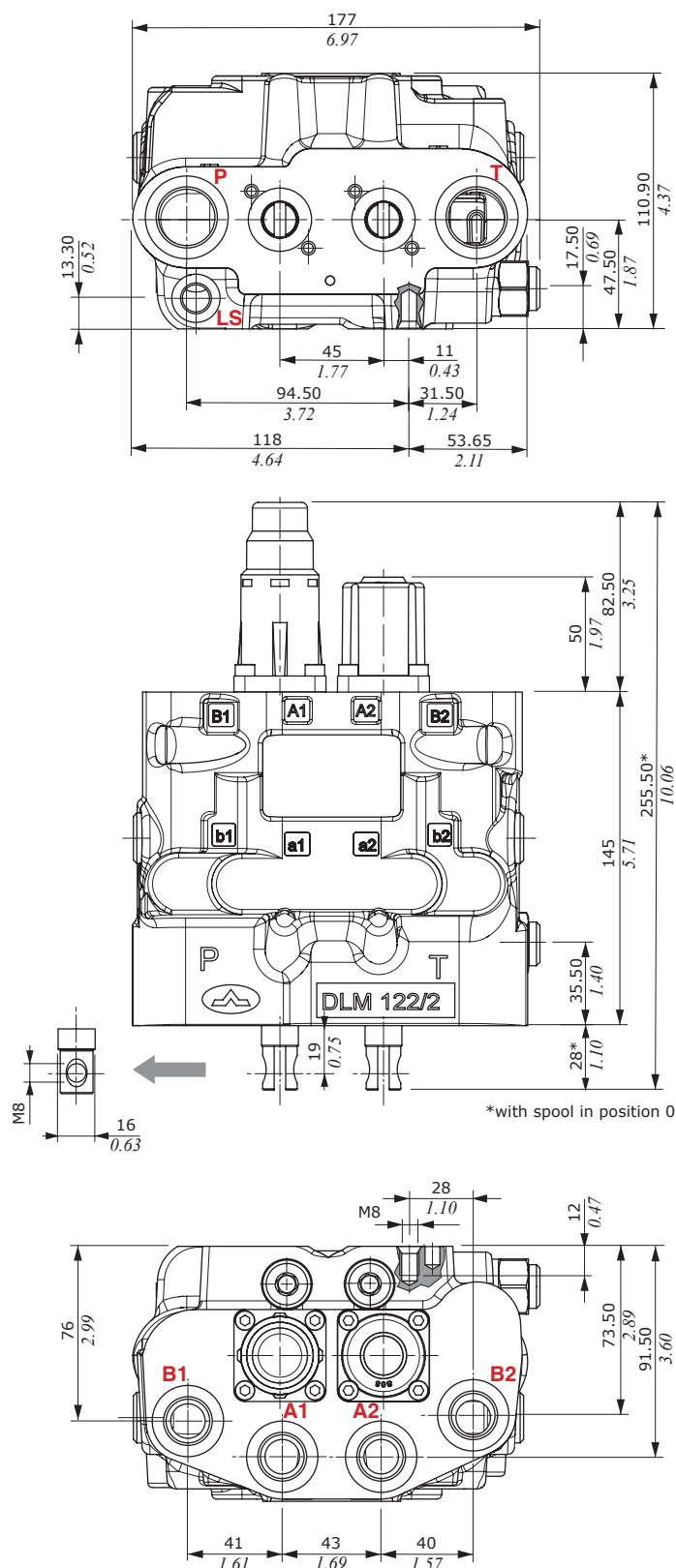
**AE**  
G3/4 female "carry-over" sleeve



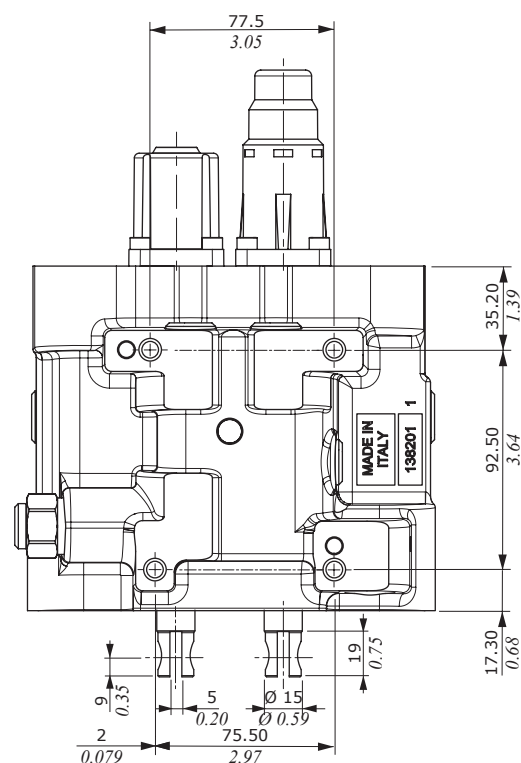
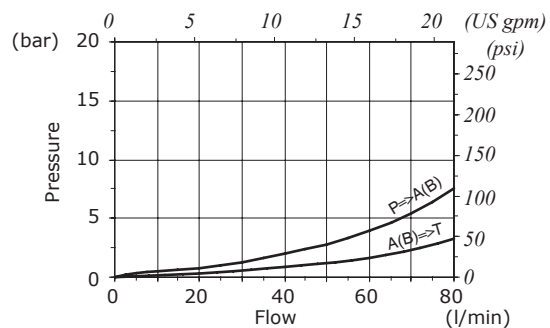
**MAE**  
G3/4 male "carry-over" sleeve



### Mechanical control

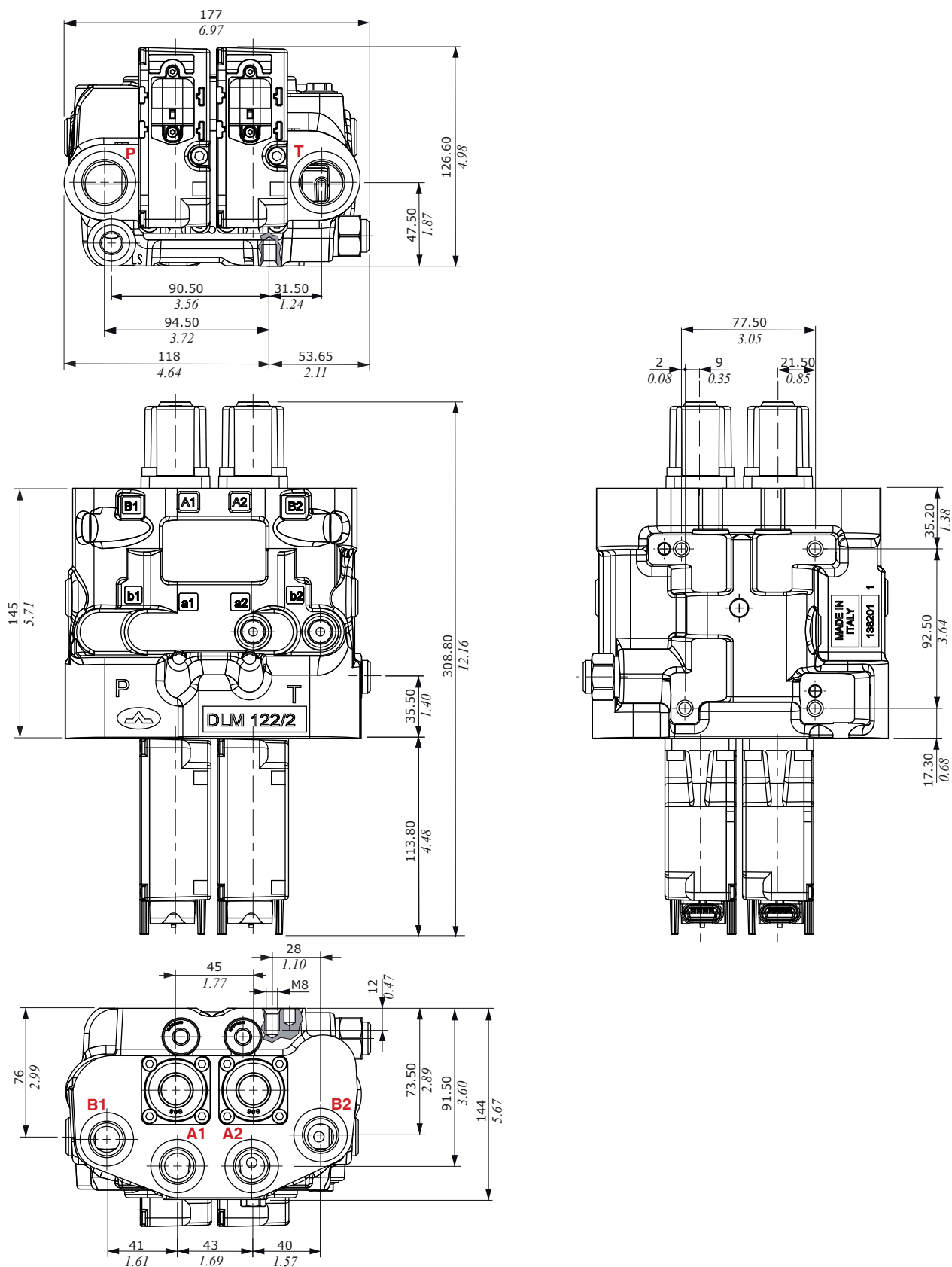


### Main pressure drop



## Dimensional data

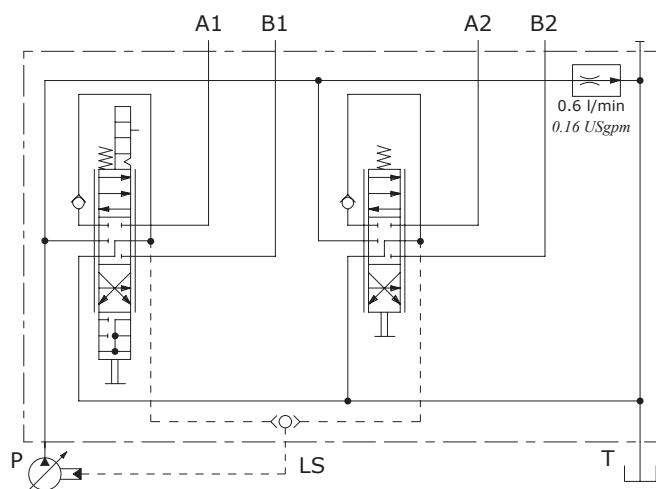
### Mechatronic control



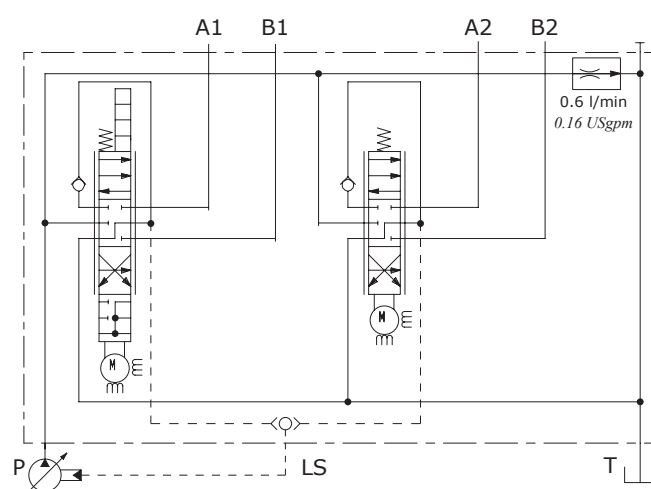


### Configuration without port valves, with Bleed valve

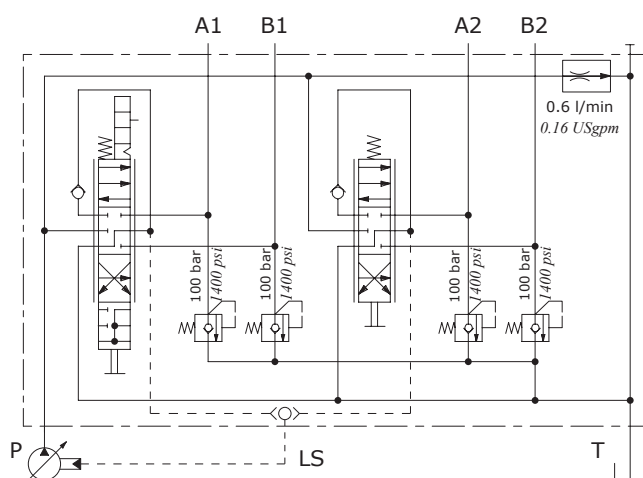
#### Mechanical control



#### Mechatronic control

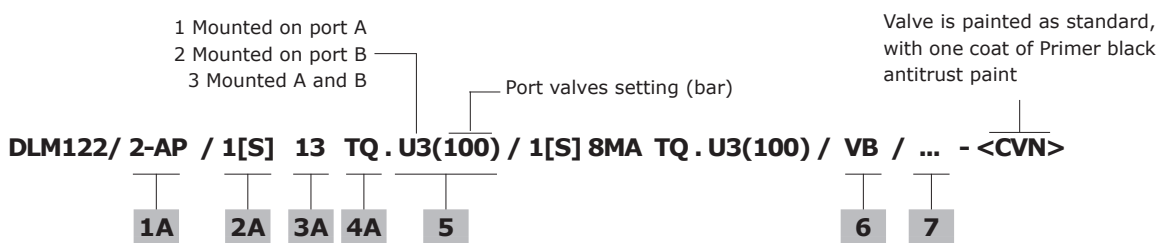


### Configuration with port valves and Bleed valve

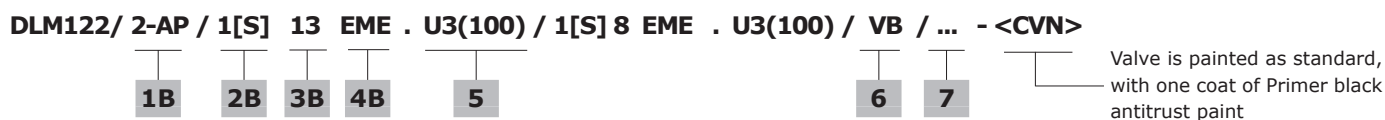


## Ordering codes

### Mechanical control



### Mechatronic control



## Ordering codes

**With mechanical control****1A Body kit\***

TYPE: **DLM122/2-P** CODE: 5KC1843008  
 DESCRIPTION: Configuration without bleed valve arrangement  
 TYPE: **DLM122/2-P/VBF** CODE: 5KC1843012  
 DESCRIPTION: Configuration with bleed valve arrangement  
 TYPE: **DLM122/2-P/VBF-P3T** CODE: 5KC1843009  
 DESCRIPTION: As previous, port valves arrangement on all ports

**2A Spool page 20**

| TYPE        | CODE        | DESCRIPTION                                                                                                                                                                          |
|-------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1[S]</b> | 3CU51111100 | With positioner kit 8MA: double acting, 3 positions, A and B closed in neutral position<br>With positioner kit 13: 4 positions, A and B to tank in 4 <sup>th</sup> positions (float) |

**3A "A" side spool positioners page 12**

| TYPE       | CODE       | DESCRIPTION                                                                                   |
|------------|------------|-----------------------------------------------------------------------------------------------|
| <b>8MA</b> | 5V08108240 | 3 positions with spring return in neutral position                                            |
| <b>13</b>  | 5V13108040 | 4 positions, detent in 4 <sup>th</sup> position with detent spring return in neutral position |

**4A "B" side spool control kit page 12**

| TYPE        | CODE       | DESCRIPTION               |
|-------------|------------|---------------------------|
| <b>TQ81</b> | 5TEL108220 | Cable control arrangement |

**With mechatronic control****1B Body kit\***

TYPE: **DLM122/2-P/EME** CODE: 5KC1843025  
 DESCRIPTION: Configuration without bleed valve arrangement  
 TYPE: **DLM122/2-A/VBF-EME** CODE: 5KC1843026  
 DESCRIPTION: Configuration with bleed valve arrangement

Note: For port valves arrangement please contact our Sales Dept.

**2B Spool page 20**

| TYPE            | CODE       | DESCRIPTION                                                                                                                                                                        |
|-----------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1[S]-EME</b> | 3CU5111111 | With positioner kit 8: double acting, 3 positions, A and B closed in neutral position<br>With positioner kit 13: 4 positions, A and B to tank in 4 <sup>th</sup> positions (float) |

**3B "A" side spool positioners page 13**

| TYPE      | CODE       | DESCRIPTION                                                                                   |
|-----------|------------|-----------------------------------------------------------------------------------------------|
| <b>8</b>  | 5V08112001 | 3 positions with spring return in neutral position                                            |
| <b>13</b> | 5V13112001 | 4 positions, detent in 4 <sup>th</sup> position with detent spring return in neutral position |

**4B "B" side spool control kit page 13**

| TYPE           | CODE       | DESCRIPTION                                    |
|----------------|------------|------------------------------------------------|
| <b>EME(08)</b> | 5MEC080804 | Mechatronic control kit for positioner type 8  |
| <b>EME(13)</b> | 5MEC130804 | Mechatronic control kit for positioner type 13 |

**For all configurations****5 Port valves page 10**

| TYPE         | CODE       | DESCRIPTION                   |
|--------------|------------|-------------------------------|
| <b>UT</b>    | XTAP522441 | Valve blanking plug           |
| <b>SE/DE</b> | XKIT408200 | Single/double effect selector |

**Fixed setting antishock valves**

Setting is referred to 10 l/min - 2.6 US gpm flow

|             |            |                                  |
|-------------|------------|----------------------------------|
| <b>U025</b> | 5KIT330025 | Valve setting 25 bar - 360 psi   |
| <b>U030</b> | 5KIT330030 | Valve setting 30 bar - 430 psi   |
| <b>U040</b> | 5KIT330040 | Valve setting 40 bar - 580 psi   |
| <b>U050</b> | 5KIT330050 | Valve setting 50 bar - 720 psi   |
| <b>U063</b> | 5KIT330063 | Valve setting 63 bar - 900 psi   |
| <b>U080</b> | 5KIT330080 | Valve setting 80 bar - 1150 psi  |
| <b>U100</b> | 5KIT330100 | Valve setting 100 bar - 1450 psi |
| <b>U110</b> | 5KIT330110 | Valve setting 110 bar - 1600 psi |
| <b>U125</b> | 5KIT330125 | Valve setting 125 bar - 1800 psi |
| <b>U140</b> | 5KIT330140 | Valve setting 140 bar - 2050 psi |
| <b>U150</b> | 5KIT330150 | Valve setting 150 bar - 2150 psi |
| <b>U160</b> | 5KIT330160 | Valve setting 160 bar - 2300 psi |
| <b>U175</b> | 5KIT330175 | Valve setting 175 bar - 2550 psi |
| <b>U190</b> | 5KIT330190 | Valve setting 190 bar - 2750 psi |
| <b>U200</b> | 5KIT330200 | Valve setting 200 bar - 2900 psi |
| <b>U210</b> | 5KIT330210 | Valve setting 210 bar - 3050 psi |
| <b>U220</b> | 5KIT330220 | Valve setting 220 bar - 3200 psi |
| <b>U230</b> | 5KIT330230 | Valve setting 230 bar - 3350 psi |
| <b>U240</b> | 5KIT330240 | Valve setting 240 bar - 3500 psi |
| <b>U250</b> | 5KIT330250 | Valve setting 250 bar - 3600 psi |

**6 Bleed valves page 21**

| TYPE             | CODE       | DESCRIPTION                                            |
|------------------|------------|--------------------------------------------------------|
| <b>LC(FC0.8)</b> | XTAP722421 | Screw with orifice Ø 0.8 mm - Ø 0.03 in                |
| <b>LC(NFC)</b>   | XTAP722420 | Screw without orifice                                  |
| <b>VB</b>        | X138810000 | Bleed valve with standard orifice Ø 0.7 mm - Ø 0.03 in |
| <b>VB(1.2)</b>   | X138810010 | Bleed valve with orifice Ø 1.2 mm - Ø 0.05 in          |

**7 Threading specification**

Specify thread type only if it's different from BSP standard:  
see page 4

Notes (\*): Codes are referred to UN-UNF standard thread

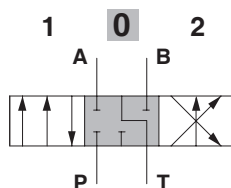
## Spools

### 3 positions configuration

Double acting spool, 3 positions, A and B closed in neutral position.

**1[S]** type for mechanical control.

**1[S]-EME** type for mechatronic control.



#### Type 1[S] spool stroke

position 1: + 7 mm / + 0.28 in  
position 2: - 6.7 mm / - 0.26 in

#### Type 1[S]-EME spool stroke

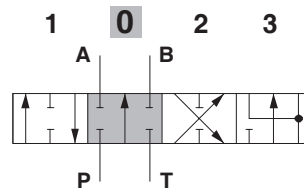
position 1: + 6.6 mm / + 0.25 in  
position 2: - 6.6 mm / - 0.25 in

### 4 positions configuration

Double acting spool, 4 positions, A and B to tank in 4<sup>th</sup> position (float).

**1[S]** type for mechanical control.

**1[S]-EME** type for mechatronic control.



#### Type 1[S] spool stroke

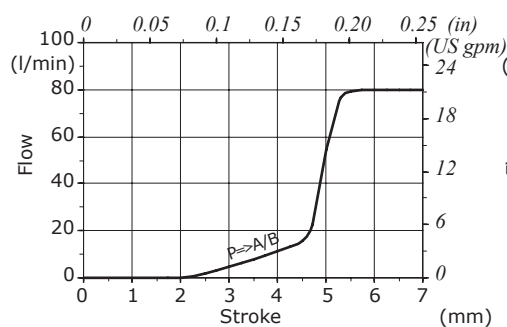
position 1: + 7 mm / + 0.28 in  
position 2: - 6.7 mm / - 0.26 in  
position 3 (floating): -12 mm / - 0.47 in

#### Type 1[S]-EME spool stroke

position 1: + 6.6 mm / + 0.25 in  
position 2: - 6.6 mm / - 0.25 in  
position 3 (floating): -11.6 mm / - 0.45 in

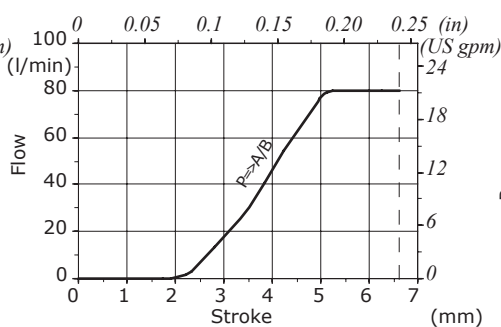
### 1[S] type Spool metering curve

$Q_{in} = 80 \text{ l/min} - 21 \text{ US gpm}$   
 $P = 150 \text{ bar} - 2200 \text{ psi}$

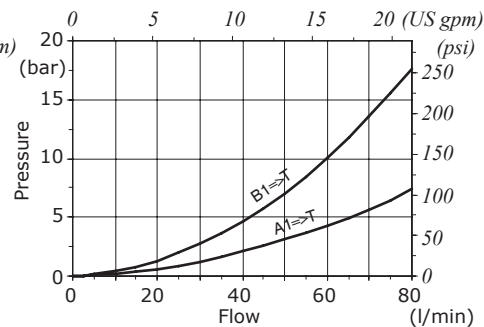


### 1[S]-EME type Spool metering curve

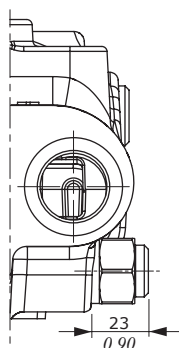
$Q_{in} = 80 \text{ l/min} - 21 \text{ US gpm}$   
 $P = 150 \text{ bar} - 2200 \text{ psi}$



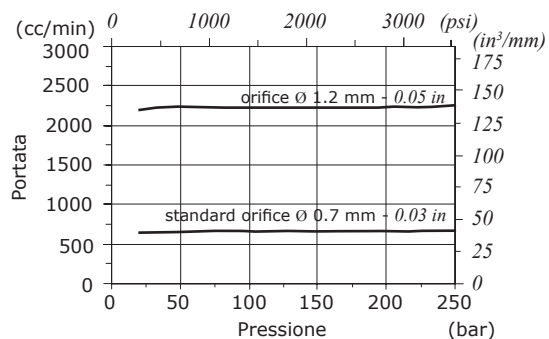
### Pressure drop in float position



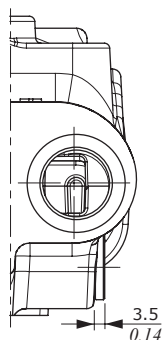
### Bleed valves



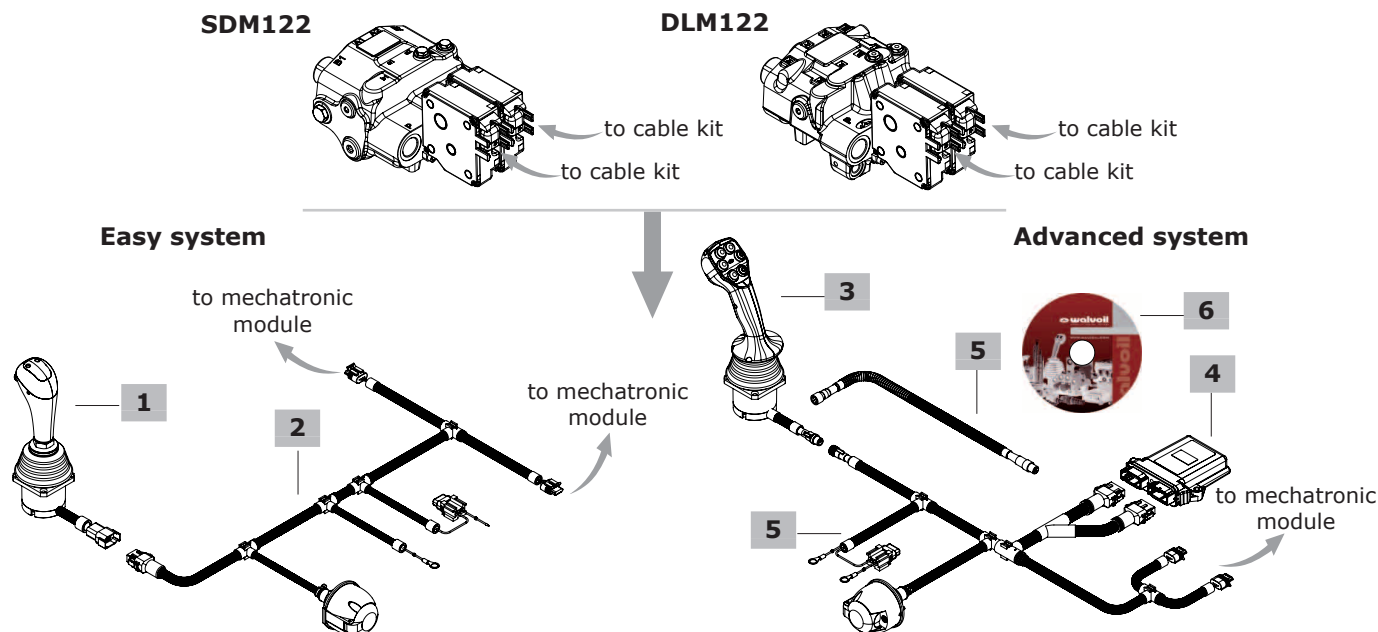
Pressure drop VB bleed valve



### Screw with or without metering hole option



## Ordering codes



## Easy system

## 1 Joystick

TYPE: **CJW2043B-FWV-B-1MV2-2KN5-3MR3-4RL-5VL/(D2F08035)-(TC)**

CODE: 183530010

DESCRIPTION: Two proportional axis joystick with auxiliary and ON/OFF functions, CAN-Bus, and FWV-B type handle with 3 push-up buttons and symbols according to UNI-EN 12525

Supply voltage from 8 to 31 V

Output CAN protocols SAE J1939

Working temperature from -40° C to +85° C / from -40° F to 185°F

Weather protection IP65

## 2 Cable kit

TYPE: **KCD05/D2M06-01CCF07600(TC)-02M2M04345(TC)-03M2M04345(TC)-AU2F15734(TC)-AU1730(TC)**

CODE: 183480165

DESCRIPTION: Cable kit for directional valve connection to joystick and auxiliary functions

## Advanced system

## 3 Joystick

TYPE: **CJW2040A-PMB6000AQ-1N2-2N2-3R4-4N2-5Y8-6V9/(F1M05150)-(TC)**

CODE: 183530017

DESCRIPTION: Two proportional axis joystick with auxiliary and ON/OFF functions, P type handle with 6 push-up buttons

Supply voltage from 8 to 31 V

Output CAN protocols SAE J1939

Working temperature from -40° C to +85° C / from -40° F to 185°F

Weather protection IP65

## 5 Cable kit

TYPE: **KCD05/(D2M12-D2M12)-01F1F05080(TC)02CCF07330(TC)-03M2M04180(TC)-04M2M04180(TC)-AU1F15350(TC)**

CODE: 183480166

DESCRIPTION: Cable kit for directional valve connection to joystick and auxiliary functions

TYPE: **F1M05-F1F05(TC)**

CODE: 183490001

DESCRIPTION: Extension for cable kit

## 6 Accessories

TYPE: **PROGRAMMING CABLE FOR EME MODULES**

CODE: VCAV600020

DESCRIPTION: Programming cable (L=1.5 m / 59 in)

TYPE: **WST**

CODE: DCDSW0210004

DESCRIPTION: System programming software "Walvoil service tool"

## 4 Electronic control unit

TYPE: **CED040/WALVOIL/PHC250C-12V/ v6.00**

CODE: 183360010

DESCRIPTION: Electronic control unit

Supply voltage from 9 to 16 V

Working temperature from -40° C to +85° C / from -40° F to 185°F

Weather protection IP67 with mating connector attached

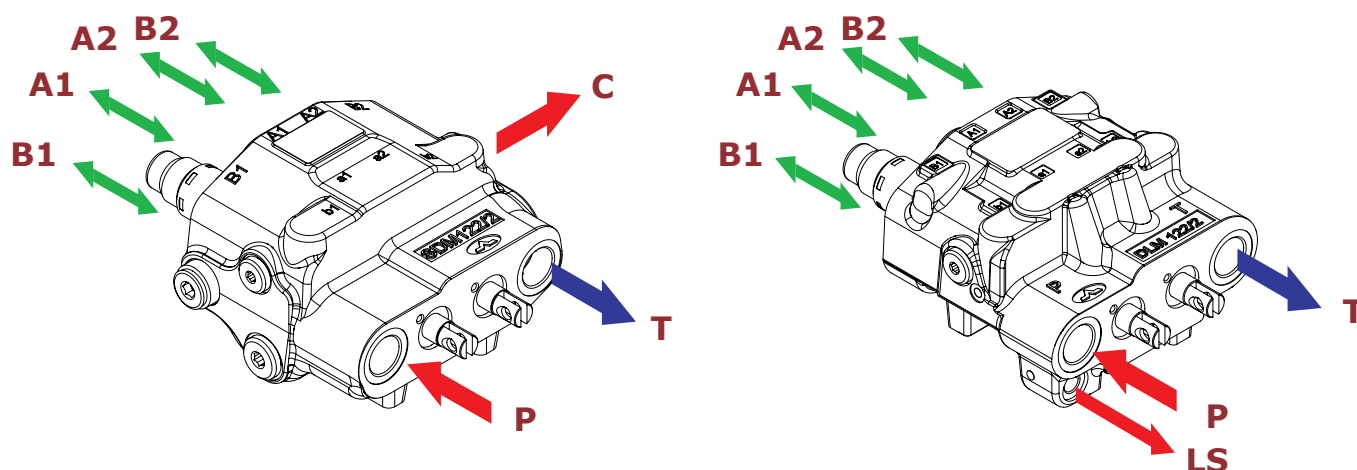
**Note: for technical specifications see the catalog of Electronic components and PHC systems code D1WWE01E**

## Installation and maintenance

The SDM122-DLM122 valves are assembled and tested as per the technical specification of this catalogue.

Before the final installation on your equipment, follow the below recommendations:

- 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 spool control kit, do not use high pressure wash down directly on the valve;
- prior to painting, ensure plastic port plugs are tightly in place.



Fitting tightening torque - Nm / lbft

| THREAD TYPE                  | P and C ports      | A and B ports   | T port             | LS port         |
|------------------------------|--------------------|-----------------|--------------------|-----------------|
| BSP                          | G 3/4              | G 1/2           | G 3/4              | G 1/4           |
| With O-Ring seal             | 70 / 51.6          | 50 / 36.9       | 70 / 51.6          | 25 / 18.4       |
| With copper washer           | 70 / 51.6          | 60 / 44.3       | 70 / 51.6          | 30 / 22.1       |
| With steel and rubber washer | 70 / 51.6          | 60 / 44.3       | 70 / 51.6          | 16 / 11.8       |
| UN-UNF                       | 1 1/16-12 (SAE 12) | 7/8-14 (SAE 10) | 1 1/16-12 (SAE 12) | 9/16-18 (SAE 6) |
| With O-Ring seal             | 95 / 70.1          | 60 / 44.3       | 95 / 70.1          | 30 / 22.1       |
| METRIC                       | M27 x 2            | M22 x 1.5       | M27 x 2            | M14 x 1.5       |
| With O-Ring seal             | 90 / 66.4          | 50 / 36.9       | 90 / 66.4          | 25 / 18.4       |
| With copper washer           | 60 / 44.3          | 40 / 29.5       | 60 / 44.3          | 30 / 22.1       |
| With steel and rubber washer | 70 / 51.6          | 60 / 44.3       | 70 / 51.6          | 20 / 14.7       |

NOTE – These torque are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finish. The manufacturer shall be consulted.

| Malfunction                                    | Cause                                                              | Remedy                                                                       |
|------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------|
| External leakage control kit or opposite side. | Worn spool seal due to mechanical actuation or high back pressure. | Locate the leakage and replace the seal. Check back pressure level.          |
| Excessive internal leakage on A and B ports.   | Increase clearance between spools and body due to high wear.       | Replace the directional control valve and check the oil contamination level. |
| Dropping load during transition while raising. | High leakage on the load check valve.                              | Remove the load check valve and clean the seat.                              |
| Inability to build pressure on A and B         | Main pressure relief valve blocked open.                           | Remove and clean or replace the main relief valve.                           |
|                                                | Port relief valve open.                                            | Remove and clean or replace the port relief valve.                           |
|                                                | Low pump pressure and flow.                                        | Check the pump and the circuit.                                              |

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D1WWEA01E

