CATALOGUE

SDM122
DLM122

Monoblock valves for Front Loaders Applications

walvoil
HYDRAULIC CONTROL SYSTEMS

Features

- 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 Sales Dpt. for more detailed information or special request.

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.

2nd edition January 2011

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Working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46mm²/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 *Δp = 100 bar* - 1450 psi	3 cm³/min	*0.18 in³/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 mm²/s	*from 15 to 75 cSt*
	min.	12 mm²s	*12 cSt*
	max.	400 mm²s	*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 Sales Dpt.

Standard threads

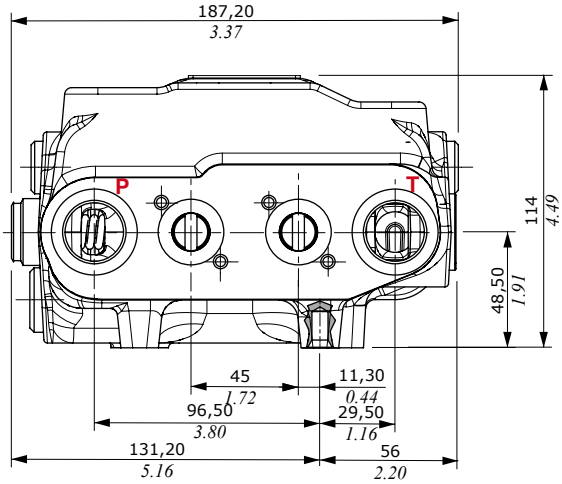
REFERENCE STANDARD					
		BSP	**UN-UNF**	**METRIC**	**METRIC ISO**
THREAD ACCORDING TO		ISO 228/1	ISO 263	ISO 261	ISO 261
		BS 2779	ANSI B1.1 unified		
CAVITY DIMENSION ACCORDING TO	ISO	1179	11926	9974/1	6149
	SAE		J11926		J2244
	DIN	3852-2 shape X or Y			

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

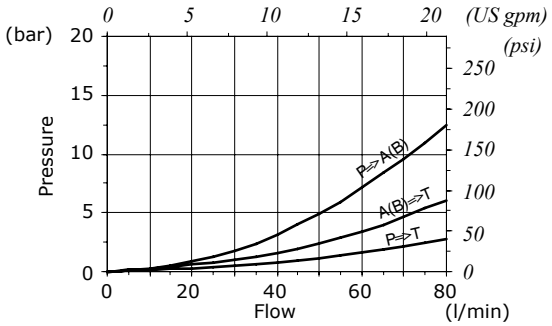
Note: for different port size contact Sales Dpt.

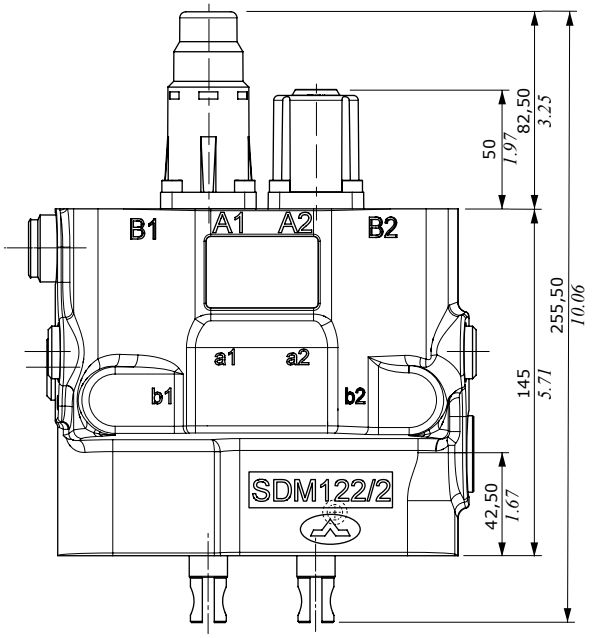
Dimensional data

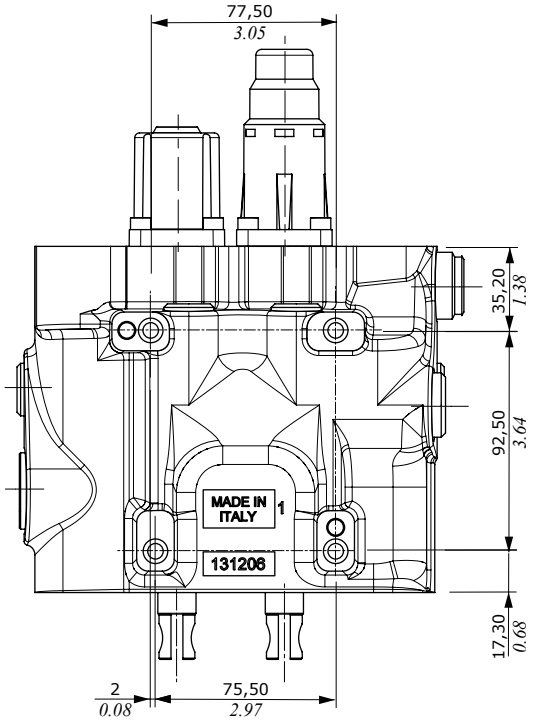
Mechanical control

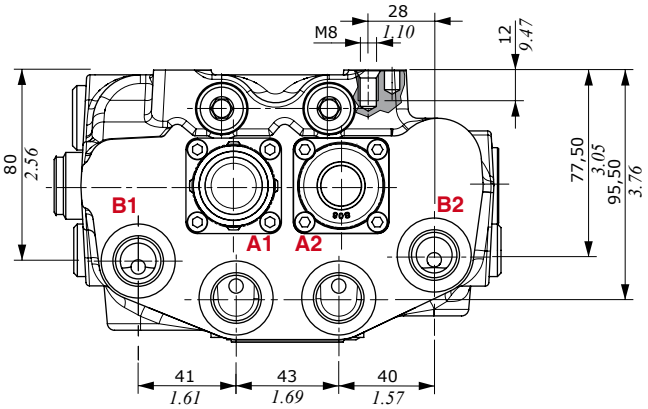


Main pressure drop



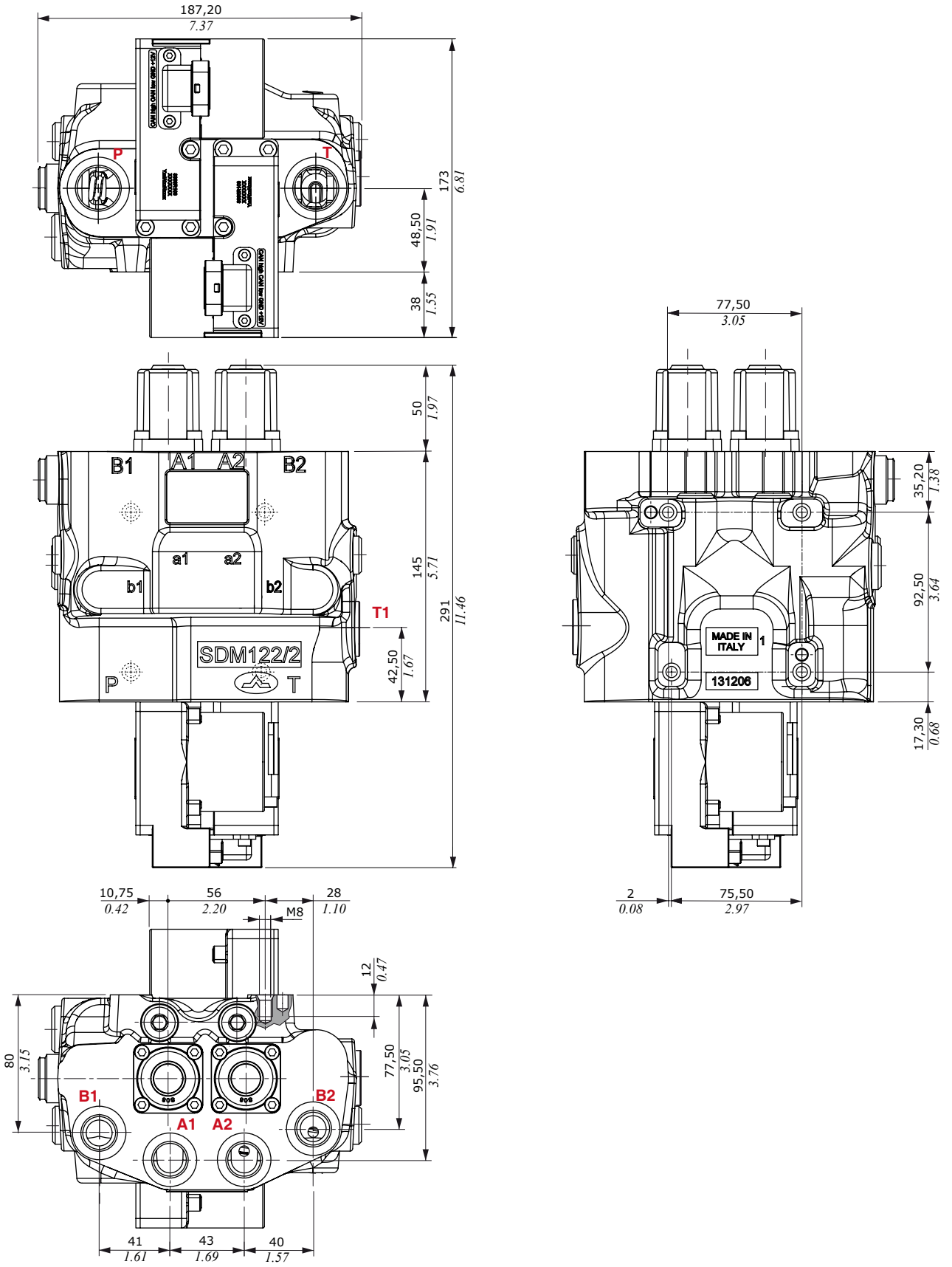






Dimensional data

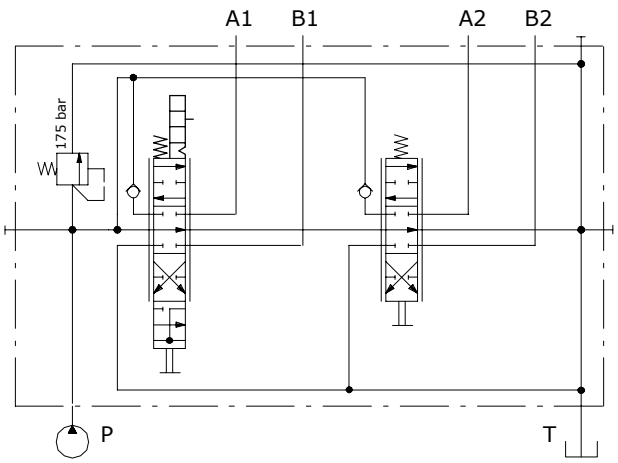
Mechatronic control



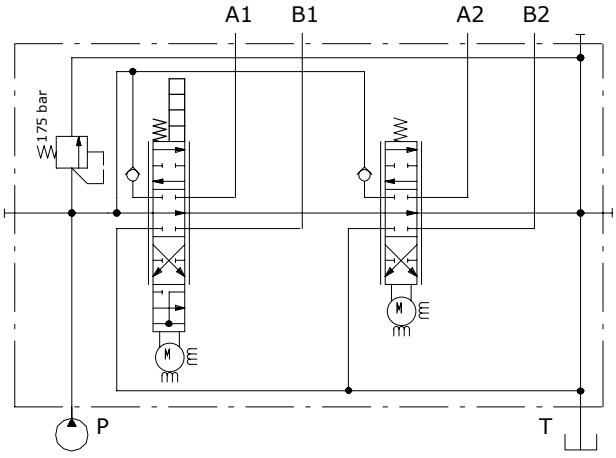
Hydraulic circuit

Configuration without port valves

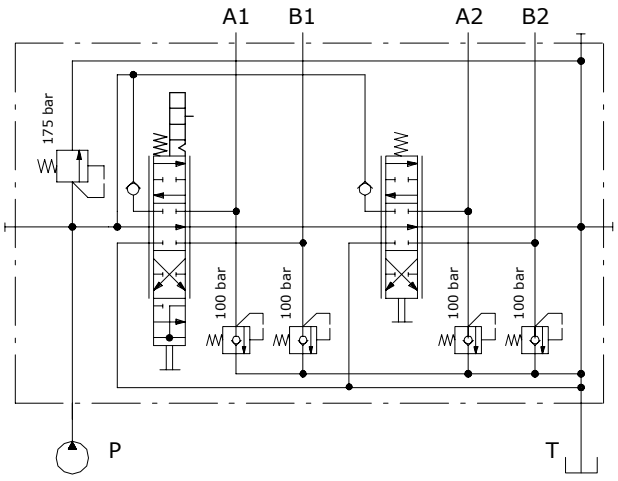
Mechanical control



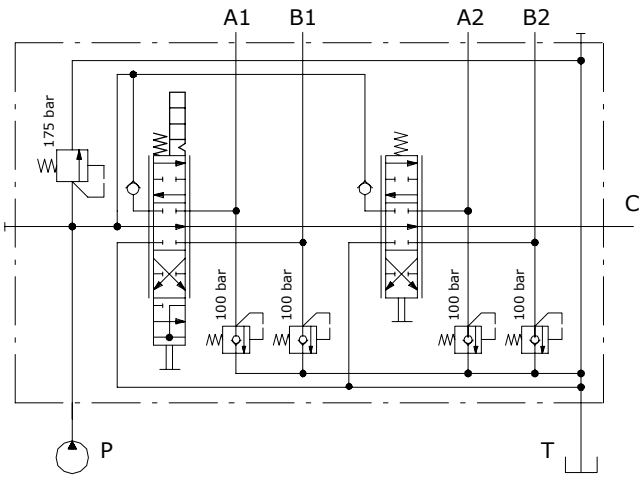
Mechatronic control



Configuration with port valves



Configuration with port valves and carry-over



Ordering codes

Mechanical control

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

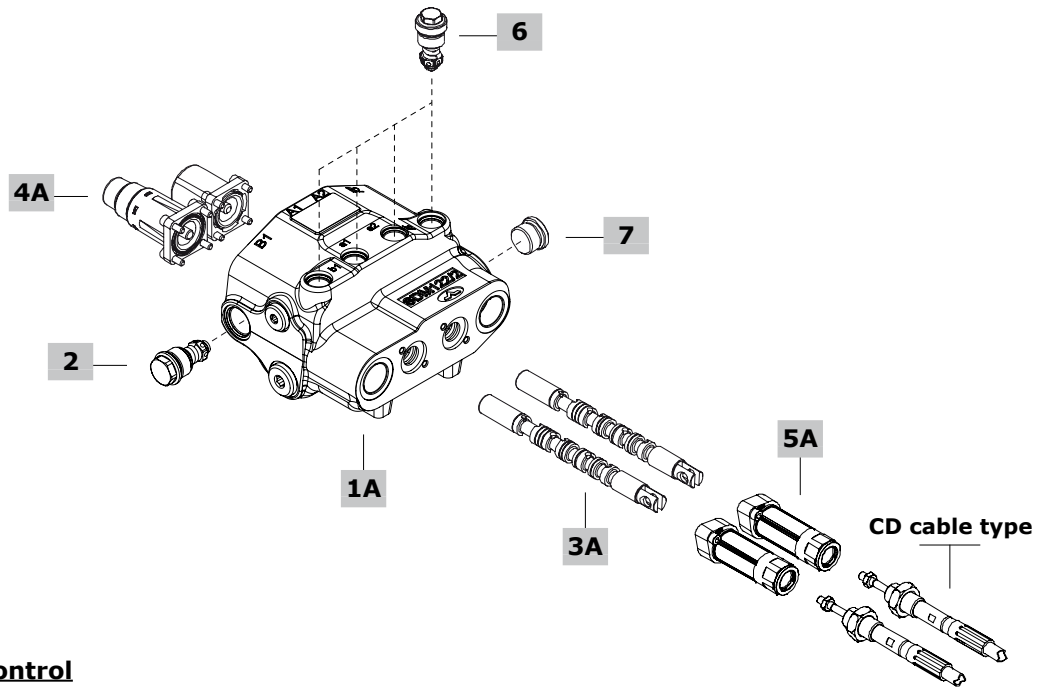
Man relief valve setting (bar)

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 - BSP - <CVN>

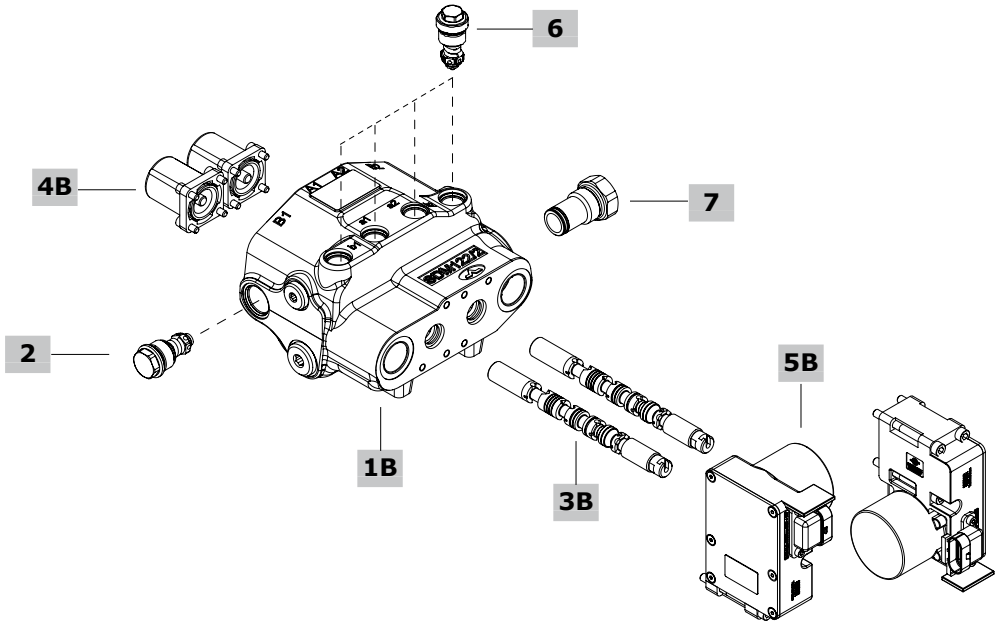
1A 2 3A 4A 5A 6 7 8



Mechatronic control

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

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



Ordering codes

With mechanical control

1A Body kit*

TYPE: **SDM122/2-P** CODE: 5KC1843005
DESCRIPTION: Without port valves arrangement
TYPE: **SDM122/2-P/P3T** CODE: 5KC1843001
DESCRIPTION: With port valves arrangement on all port
TYPE:**SDM122/2-P/P3(s2)** CODE: 5KC1843004
DESCRIPTION: With port valves arrangement on ports A2-B2

3A Spool page 11

TYPE	CODE	DESCRIPTION
1[S]	3CU5110100	With positioner kit 8MA: double acting, 3 positions, A and B closed in neutral position. With positioner kit 13: 4 positions, A and B to tank in 4th positions (float)

4A "A" side spool positioners page 12

TYPE	CODE	DESCRIPTION
8MA	5V08108240	With spring return in neutral position
13	5V13108040	With detent in 4th position and spring return in neutral position

5A "B" side spool control kit page 12

TYPE	CODE	DESCRIPTION
TQ81	5TEL108220	Cable control arrangement

With mechatronic control

1B Body kit*

TYPE: **SDM122/2-P/EMC** CODE: 5KC1843019
DESCRIPTION: Configuration without port valves
TYPE: **SDM122/2-P/P3(s2)-EMC** CODE: 5KC1843016
DESCRIPTION: With port valves arrangement on ports A2-B2
TYPE:**SDM122/2-P/P1(s1)-EMC** CODE: 5KC1843020
DESCRIPTION: With port valves arrangement on port A1

3B Spool page 11

TYPE	CODE	DESCRIPTION
1[S]	3CU5110101	With positioner kit 8MA: double acting, 3 positions, A and B closed in neutral position. With positioner kit 13: 4 positions, A and B to tank in 4TH positions (float)

4B "A" side spool positioners page 13

TYPE	CODICE	DESCRIPTION
8	5V08112001	With spring return in neutral position
13	5V13112001	With detent in 4th position and spring return in neutral position

5B "B" side spool control kit page 13

TYPE	CODE	DESCRIPTION
EMC	5MEC080800	Mechatronic control kit for positioner type 8
EMC	5MEC130800	Mechatronic control kit for positioner type 13

For all configurations

2 Main relief valves page 10

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

TYPE	CODE	DESCRIPTION
UD-170	5KIT323170	170 bar - *2450 psi*
UD-180	5KIT323180	180 bar - *2600 psi*
UD-190	5KIT323190	190 bar - *2750 psi*
UD-210	5KIT323210	210 bar - *3050 psi*
UD-230	5KIT323230	230 bar - *3350 psi*
UR	X252421270	Adjustable valve (141/270 bar - *2050/3900 psi*)
SV	XTAP528480	Valve blanking plug

6 Port valves page 10

TYPE	CODE	DESCRIPTION

Fixed setting antishock valves

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

U025	5KIT332025	Valve setting 25 bar - *360 psi*
U030	5KIT332030	Valve setting 30 bar - *430 psi*
U040	5KIT332040	Valve setting 40 bar - *580 psi*
U050	5KIT332050	Valve setting 50 bar - *720 psi*
U063	5KIT332063	Valve setting 63 bar - *900 psi*
U080	5KIT332080	Valve setting 80 bar - *1150 psi*
U100	5KIT332100	Valve setting 100 bar - *1450 psi*
U110	5KIT332110	Valve setting 110 bar - *1600 psi*
U125	5KIT332125	Valve setting 125 bar - *1800 psi*
U140	5KIT332140	Valve setting 140 bar - *2050 psi*
U150	5KIT332150	Valve setting 150 bar - *2150 psi*
U160	5KIT332160	Valve setting 160 bar - *2300 psi*
U175	5KIT332175	Valve setting 175 bar - *2550 psi*

6 Port valves (continued) page 10

TYPE	CODE	DESCRIPTION
U190	5KIT332190	Valve setting 190 bar - *2750 psi*
U200	5KIT332200	Valve setting 200 bar - *2900 psi*
U210	5KIT332210	Valve setting 210 bar - *3050 psi*
U220	5KIT332220	Valve setting 220 bar - *3200 psi*
U225	5KIT332230	Valve setting 225 bar - *325 0 psi*
U230	5KIT332230	Valve setting 230 bar - *3350 psi*
U240	5KIT332240	Valve setting 240 bar - *3500 psi*
U250	5KIT332250	Valve setting 250 bar - *3600 psi*
UT	XTAP522441	Valve blanking plug
SE/DE	XKIT408201	Single/double effect selector

7 Return circuit* page 14

TIPO TYPE	CODICE CODE	DESCRIZIONE DESCRIPTION
AET	3XTAP732201	Open center plug
AEK	3XTAP532450	Closed center plug
AE	XGIU536692	G3/4 female carry-over sleeve
AE-BSP12	XGIU532470	G1/2 female carry-over sleeve
MAE	XGIU532475	G3/4 male carry-over sleeve

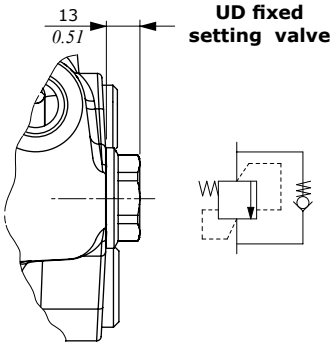
8 Threading specification

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

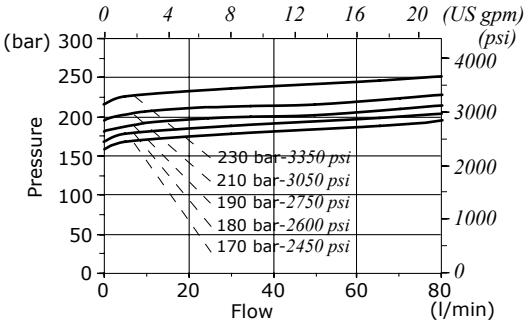
Note (*): Codes are referred to BSP standard thread

Main relief valves

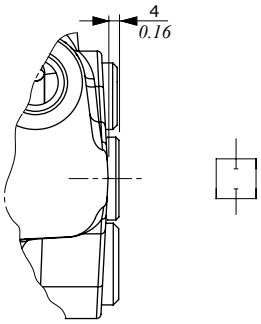
UD fixed setting valve



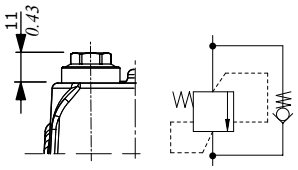
UD type valve setting examples



Valve seat plug

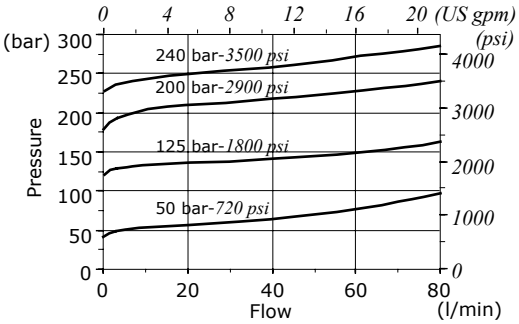


Port valves

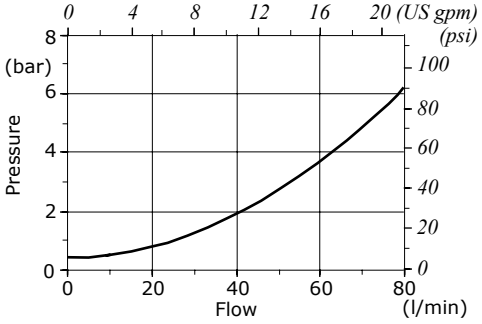


U type valve setting examples

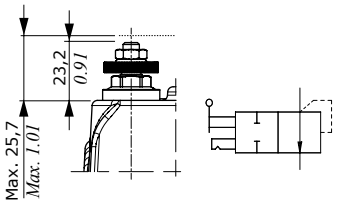
Setting examples (10 l/min-*2.6 US gpm*)



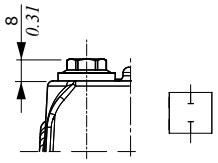
U type valve pressure drop



SE/DE Single/double effect selector



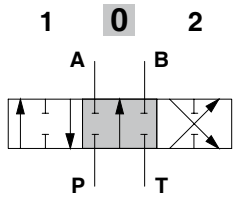
Valve seat plug



Spools

3 position type

For mechanical control: type 1[S]
and mechatronic control: type 1SO[S]



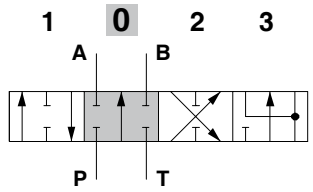
Position 1

stroke + 7 mm
+ 0.28 in

Position 2

stroke - 7 mm
- 0.28 in

4 position type



For mechanical control: type 1[S]

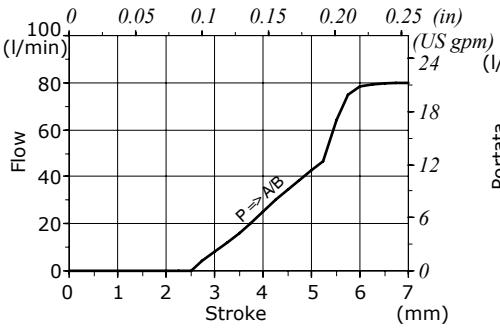
Position 1
stroke + 7 mm
+ 0.28 in
Position 2
stroke - 7 mm
- 0.28 in
Position 3 (floating)
stroke - 12 mm
- 0.47 in

For mechatronic control: type 1SO[S]

Position 1
stroke + 7 mm
+ 0.28 in
Position 2
stroke - 7 mm
- 0.28 in
Position 3 (floating)
stroke - 11,7 mm
- 0.46 in

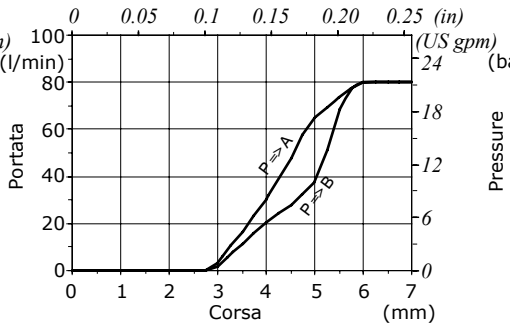
Spool metering curve 1[S]

Qin = 80 l/min-*21 USgpm*
P = 150 bar-*2200 psi*

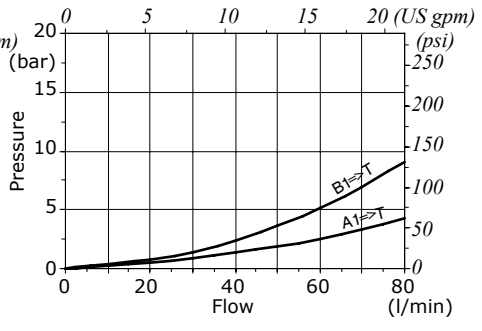


Spool metering curve 1SO[S]

Qin = 80 l/min-*21 USgpm*
P = 150 bar-*2200 psi*

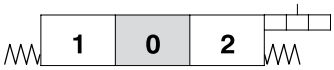


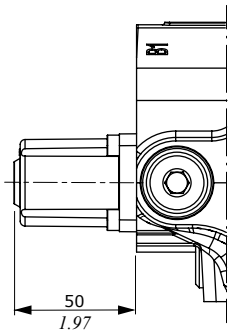
Pressure drop in float position



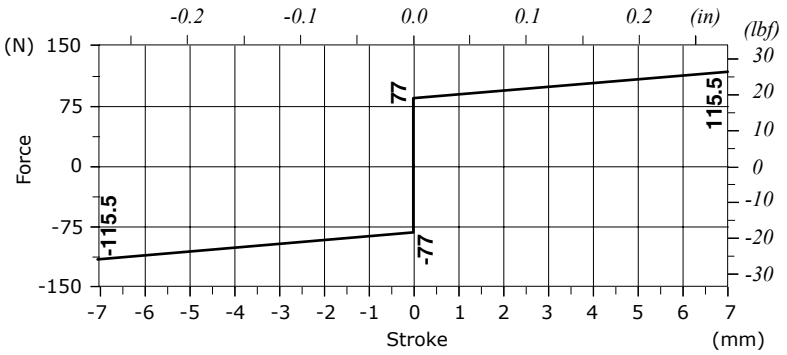
"A" side spool positioners for mechanical control

Type 8MA

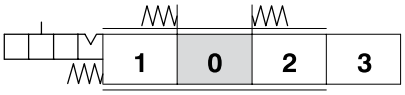


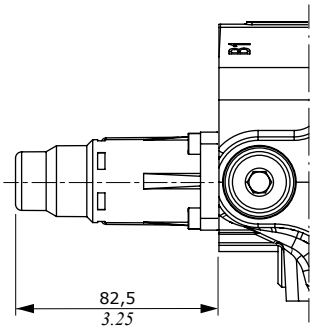


Force-stroke diagram

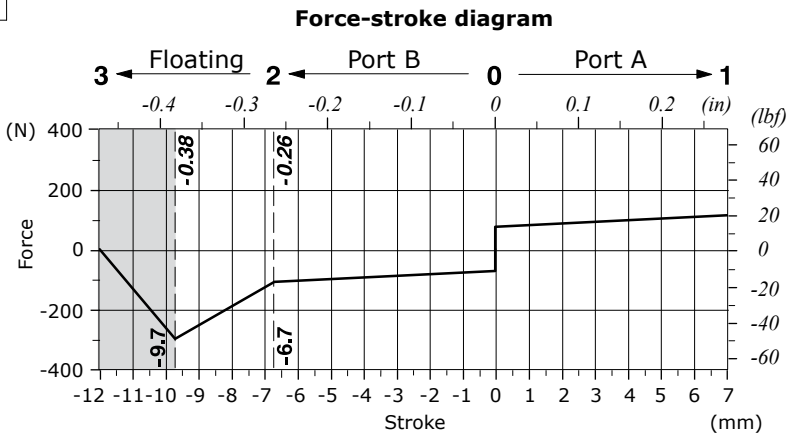


Type 13





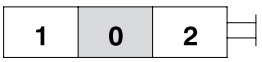
Force-stroke diagram

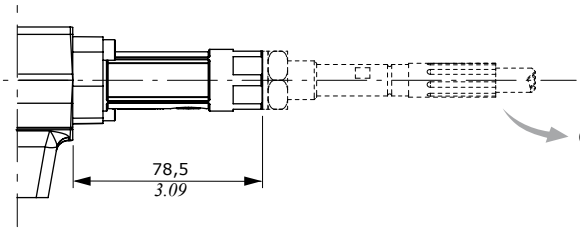


Detent area
Locking force: 300 N/*67.4 lbf±10%*
Release force: 270 N/*60.7 lbf±10%*

"B" side spool control kit for mechanical control

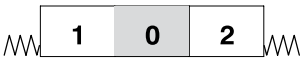
Type TQ81

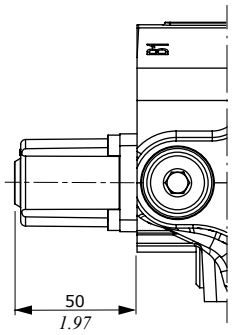




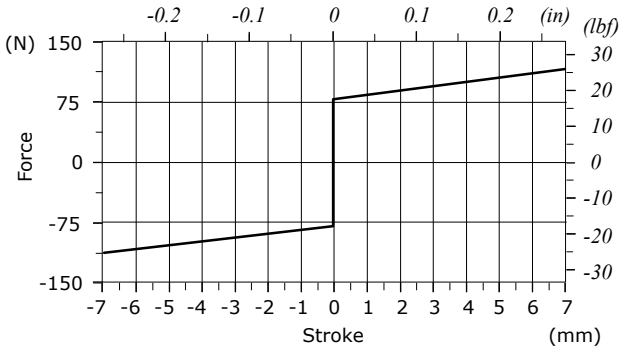
"A" side spool positioners for mechatronic control

Type 8EMC

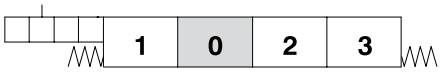


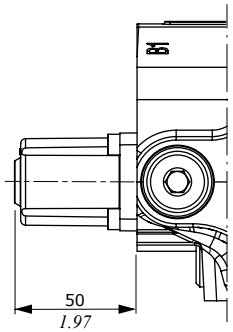


Force-stroke diagram

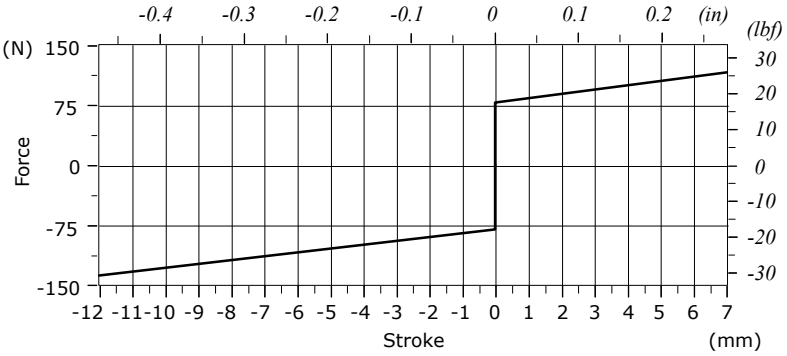


Type 13EMC



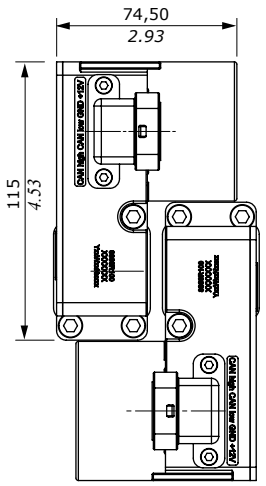


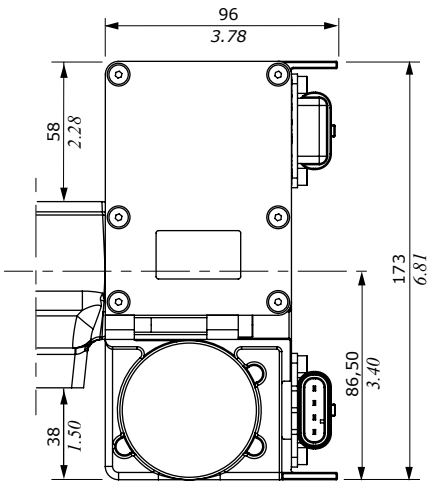
Force-stroke diagram



"B" side spool positioners for mechatronic control

Type 8EMCType EMC





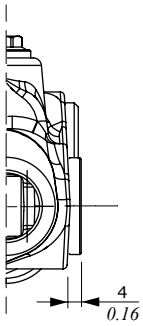
Note: Dimension are the same for type (08) and type (13)

TECHNICAL DATA		
Force	up to 340 N	*up to 76.43 lbf*
Speed	up to 75 mm/s	*up to 75 cSt*
Residual force	<40 N	*8.99 lbf*
Travel	± 12 mm	*±0.47 in*
Resolution	0.02 mm/incr.	*0.0008 in/incr*
Integrated electronic driver	CAN 2.0A	
Supply voltage	9-16 VDC	
Max. axial play	<0.25 mm	*<0.01 in*
EMC	ISO 14982	
Load dump - pulse 5 ISO 7637-2 2004 (E)	level 1 @ 12V	
Vibration	IEC 68-2	

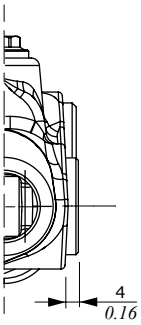
Notes:Parameter such as spool stroke may be limited by WST software according to the application.

Return circuit

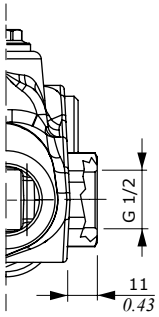
AET - open center plug



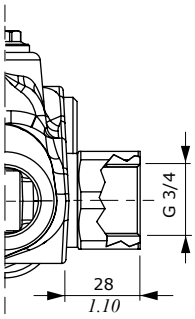
AEK - closed center plug



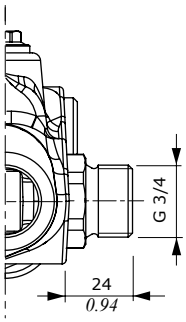
AE-BSP12 - G1/2 female "carry-over" sleeve



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

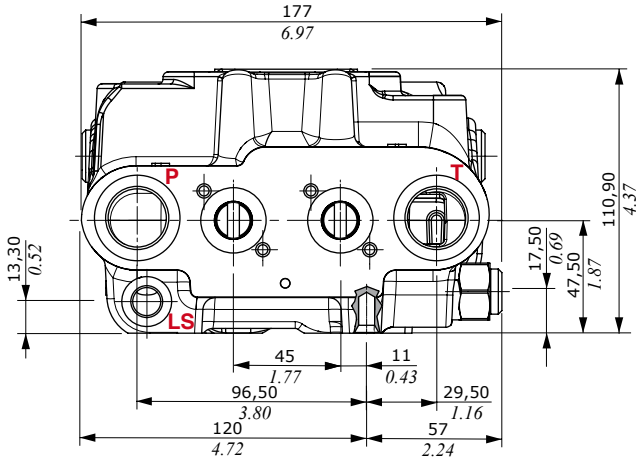


MAE - G3/4 male "carry-over" sleeve

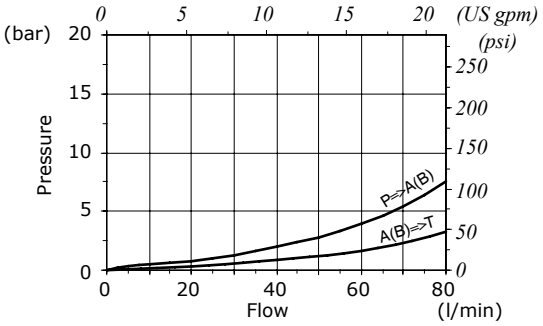


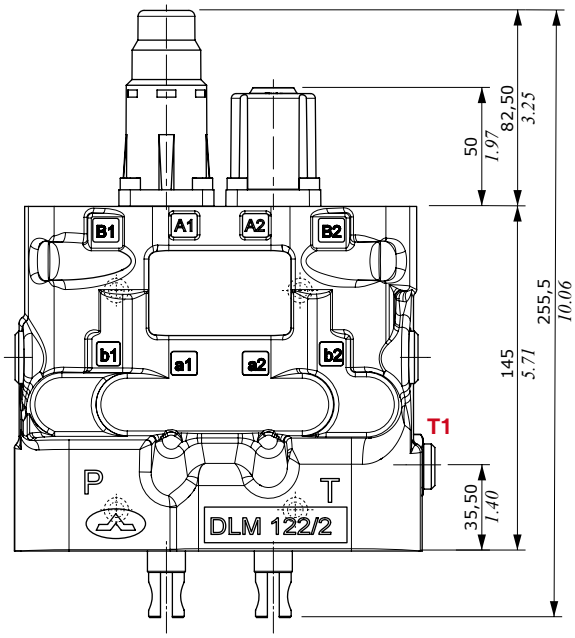
Dimensional data

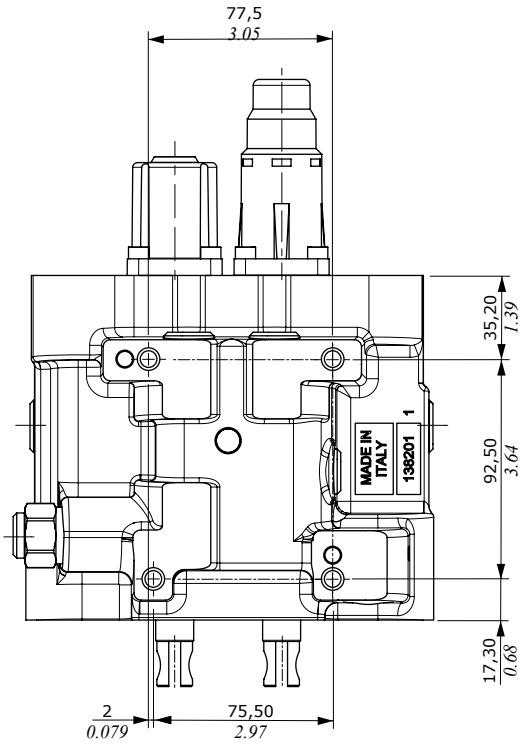
Mechanical control

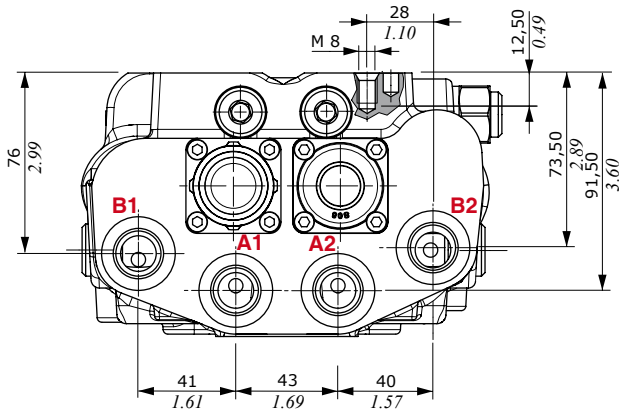


Main pressure drop



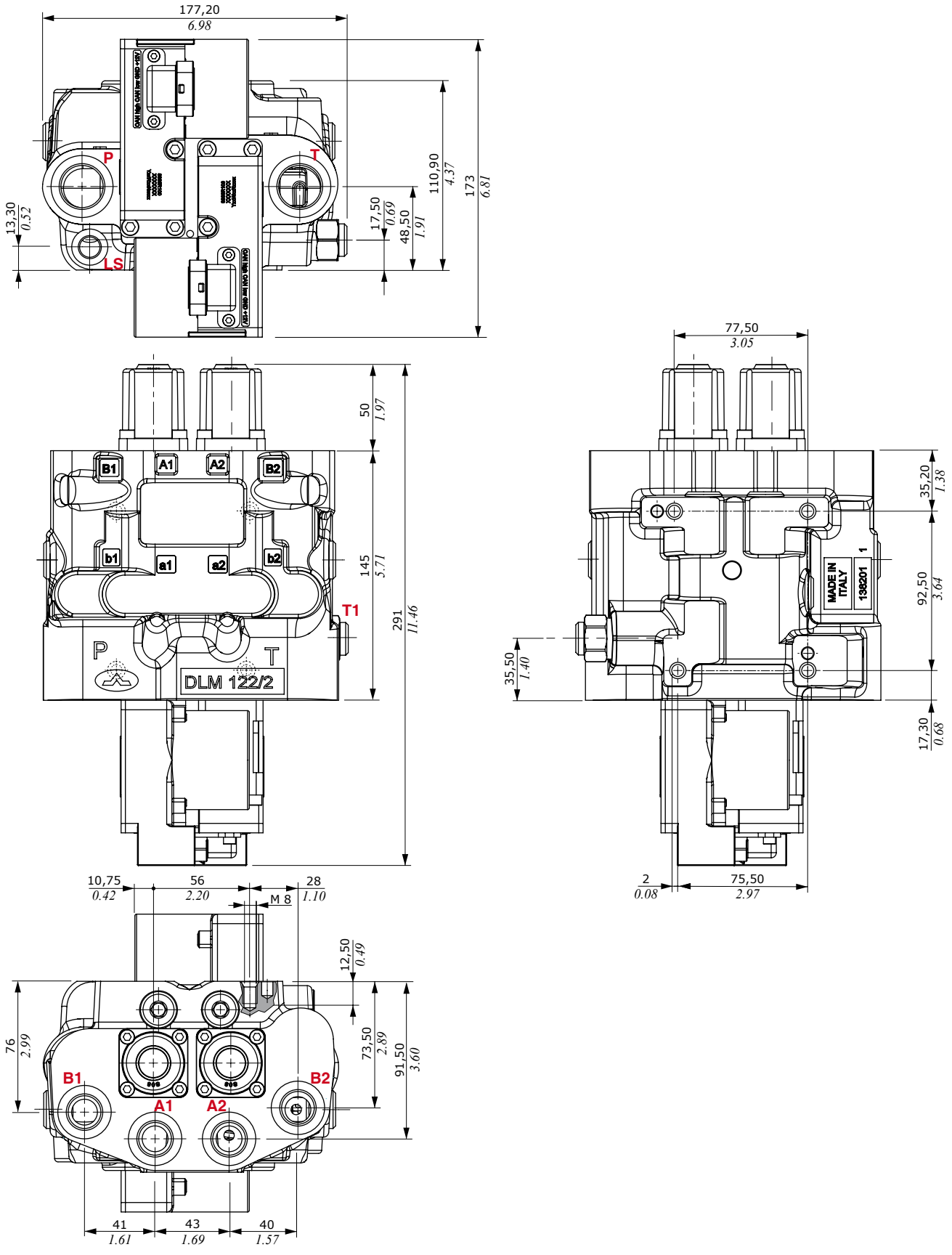






Dimensional data

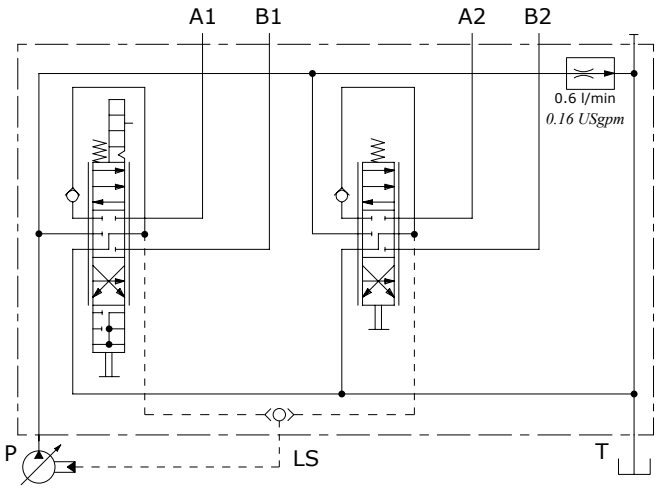
Mechatronic control



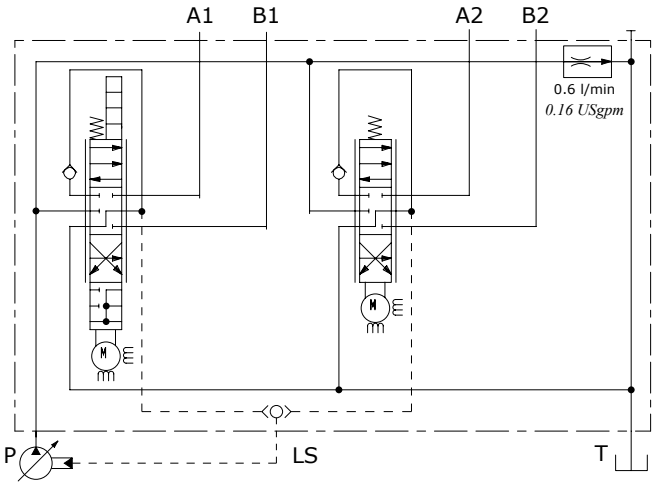
Hydraulic circuit

Configuration without port valves, with Bleed valve

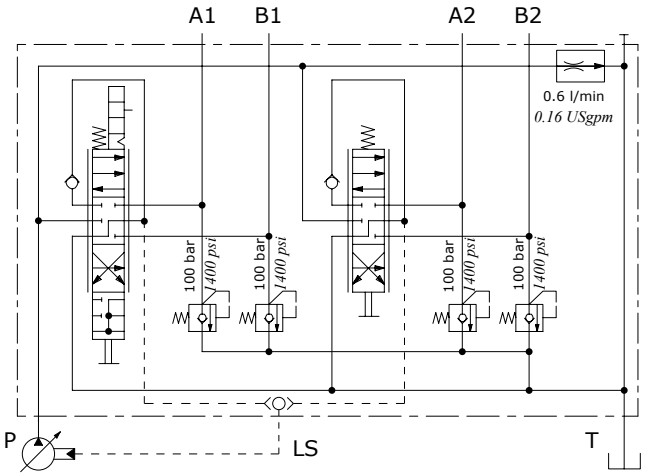
Mechanical control



Mechatronic control



Configuration with port valves and Bleed valve



Ordering codes

Mechanical control

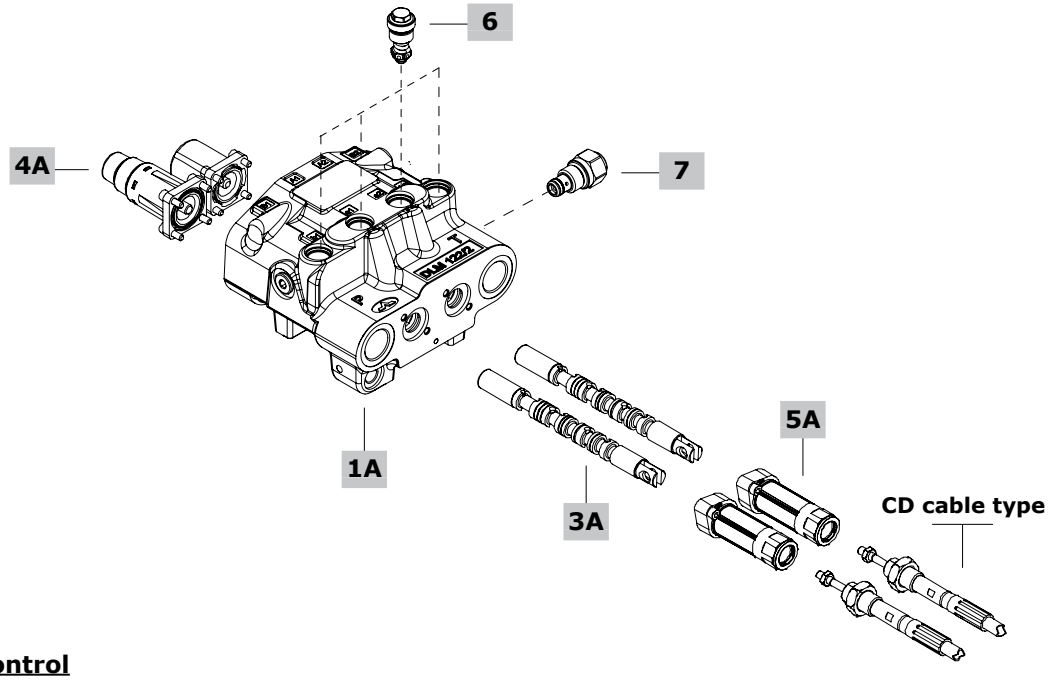
1 Mounted on port A
2 Mounted on port B
3 Mounted A and B

Port valves setting (bar)

Valve is painted as standard, with one coat of Primer black antitrust paint

DLM122/ 2-AP - VB / 1[S] 13 TQ . U3(100) / 1[S] 8MA TQ . U3(100) / BSP - <CVN>

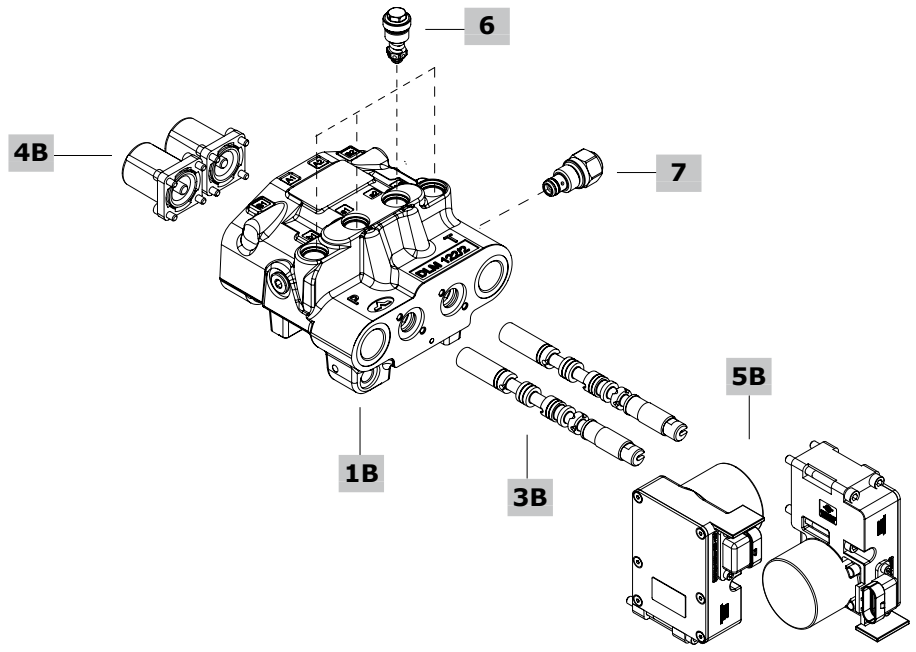
1A 7 3A 4A 5A 6 8



Mechatronic control

DLM122/ 2-AP - VB / 1[S] 13EMC EMC(13) . U3(100) / 1[S] 8EMC EMC(08) . U3(100) / BSP - <CVN>

1B 7 3B 4B 5B 6 8



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 wit bleed valve arrangement
TYPE: **DLM122/2-P/VBF-P3T** CODE: 5KC1843009
DESCRIPTION: As previous, port valves arrangement on all ports

3A Spool page 20

TYPE	CODE	DESCRIPTION
1[S]	3CU5111100	With positioner kit 8MA: double acting, 3 positions, A and B closed in neutral position. With positioner kit 13: 4 positions, A and B to tank in 4TH positions (float)

4A "A" side spool positioners page 12

TYPE	CODE	DESCRIPTION
8MA	5V08108240	With spring return in neutral position
13	5V13108040	With detent in 4th position and spring return in neutral position

5A "B" side spool control kit page 12

TYPE	CODE	DESCRIPTION
TQ81	5TEL108220	Cable control arrangement

With mechatronic control

1B Body kit*

TYPE: **DLM122/2-P/EMC** CODE: 5KC18A3001
DESCRIPTION: Configuration without bleed valve arrangement
TYPE: **DLM122/2-A/VBF-EMC** CODE: 5KC1843017
DESCRIPTION: Configuration wit bleed valve arrangement
TYPE: **DLM122/2-A/VBF-EMC-P3T** CODE: 5KC1843011
DESCRIPTION: As previous, port valves arrangement on all ports

3B Spool page 20

TYPE	CODE	DESCRIPTION
1SO[S]	3CU5111101	With positioner kit 8MA: double acting, 3 positions, A and B closed in neutral position. With positioner kit 13: 4 positions, A and B to tank in 4TH positions (float)

4B "A" side spool positioners page 13

TYPE	CODE	DESCRIPTION
8	5V08112001	With spring return in neutral position
13	5V13112001	With 4 position and spring return in neutral position

5B "B" side spool control kit page 13

TYPE	CODE	DESCRIPTION
EMC	5MEC080800	Mechatronic control kit for positioner type 8
EMC	5MEC130800	Mechatronic control kit for positioner type 13

For all configurations

6 Port valves page 10

TYPE	CODE	DESCRIPTION
Fixed setting antishock valves		
Setting is referred to 10 l/min - *2.6 US gpm flow*		
U025	5KIT332025	Valve setting 25 bar - *360 psi*
U030	5KIT332030	Valve setting 30 bar - *430 psi*
U040	5KIT332040	Valve setting 40 bar - *580 psi*
U050	5KIT332050	Valve setting 50 bar - *720 psi*
U063	5KIT332063	Valve setting 63 bar - *900 psi*
U080	5KIT332080	Valve setting 80 bar - *1150 psi*
U100	5KIT332100	Valve setting 100 bar - *1450 psi*
U110	5KIT332110	Valve setting 110 bar - *1600 psi*
U125	5KIT332125	Valve setting 125 bar - *1800 psi*
U140	5KIT332140	Valve setting 140 bar - *2050 psi*
U150	5KIT332150	Valve setting 150 bar - *2150 psi*
U160	5KIT332160	Valve setting 160 bar - *2300 psi*
U175	5KIT332175	Valve setting 175 bar - *2550 psi*
U190	5KIT332190	Valve setting 190 bar - *2750 psi*
U200	5KIT332200	Valve setting 200 bar - *2900 psi*
U210	5KIT332210	Valve setting 210 bar - *3050 psi*
U220	5KIT332220	Valve setting 220 bar - *3200 psi*
U225	5KIT332225	Valve setting 225 bar - *325 0 psi*
U230	5KIT332230	Valve setting 230 bar - *3350 psi*
U240	5KIT332240	Valve setting 240 bar - *3500 psi*
U250	5KIT332250	Valve setting 250 bar - *3600 psi*
UT	XTAP522441	Valve blanking plug
SE/DE	XKIT408201	Single/double effect selector

7 Bleed valves page 21

TYPE	CODE	DESCRIPTION
LC(FC0.8)	XTAP722421	Screw with orifice Ø 0.8 mm - *0.03 in*
LC(NFC)	XTAP722420	Screw without orifice
VB	X138810000	Bleed valve with standard orifice Ø 0.7 mm - *0.03 in*
VB(1,2)	X138810010	Bleed valve with orifice Ø 1.2 mm - *0.05 in*

Threading specification

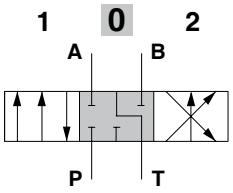
Specify thread type only if it's different from BSP standard:
see page 4

Notes (*): Codes are referred to BSP standard thread

Spools

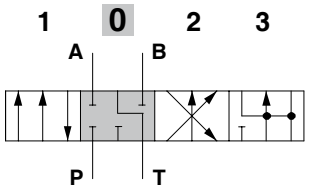
3 positions type

For mechanical control: type 1[S]
and mechatronic control: type 1SO[S]



Position 1
stroke + 7 mm
+ 0.28 in
Position 2
stroke - 6,7 mm
- 0.26 in

Tipo 4 posizioni



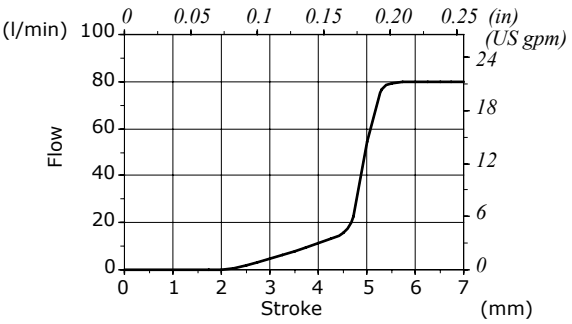
For mechanical control: type 1[S]

Position 1
stroke + 7 mm
+ 0.28 in
Position 2
stroke - 6,7 mm
- 0.26 in
Position 3 (floating)
stroke - 12 mm
- 0.47 in

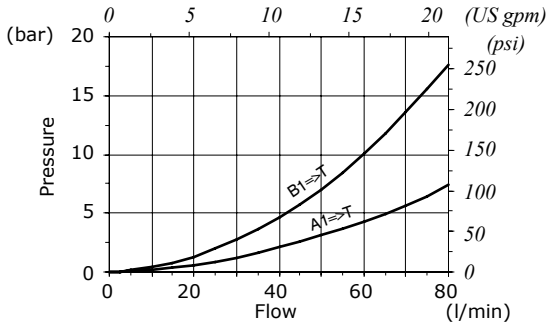
For mechatronic control: type 1SO[S]

Position 1
stroke + 7 mm
+ 0.28 in
Position 2
stroke - 6,7 mm
- 0.26 in
Position 3 (floating)
stroke - 11,7 mm
- 0.46 in

Spool metering curve
Qin = 80 l/min *(21 US gpm)*
P = 150 bar *(2200 psi)*

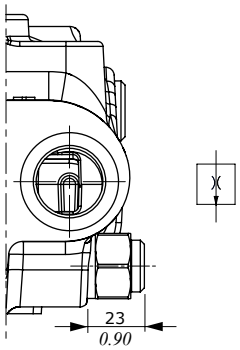


Pressure drop in float position



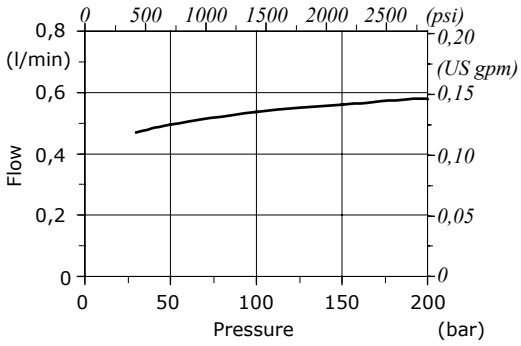
Return circuit

Bleed valves



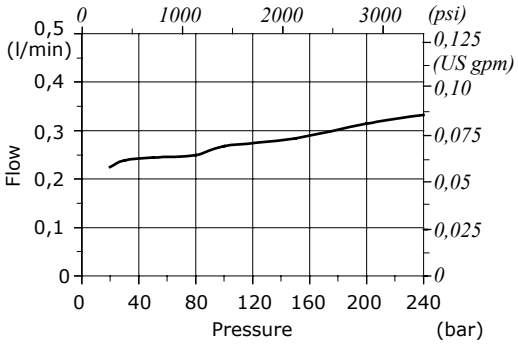
Pressure drop VB bleed valve

standard orifice Ø 0.7 mm - *0.03 in*

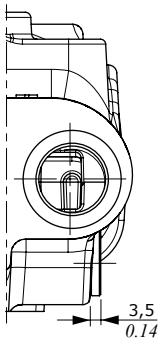


Pressure drop VB bleed valve

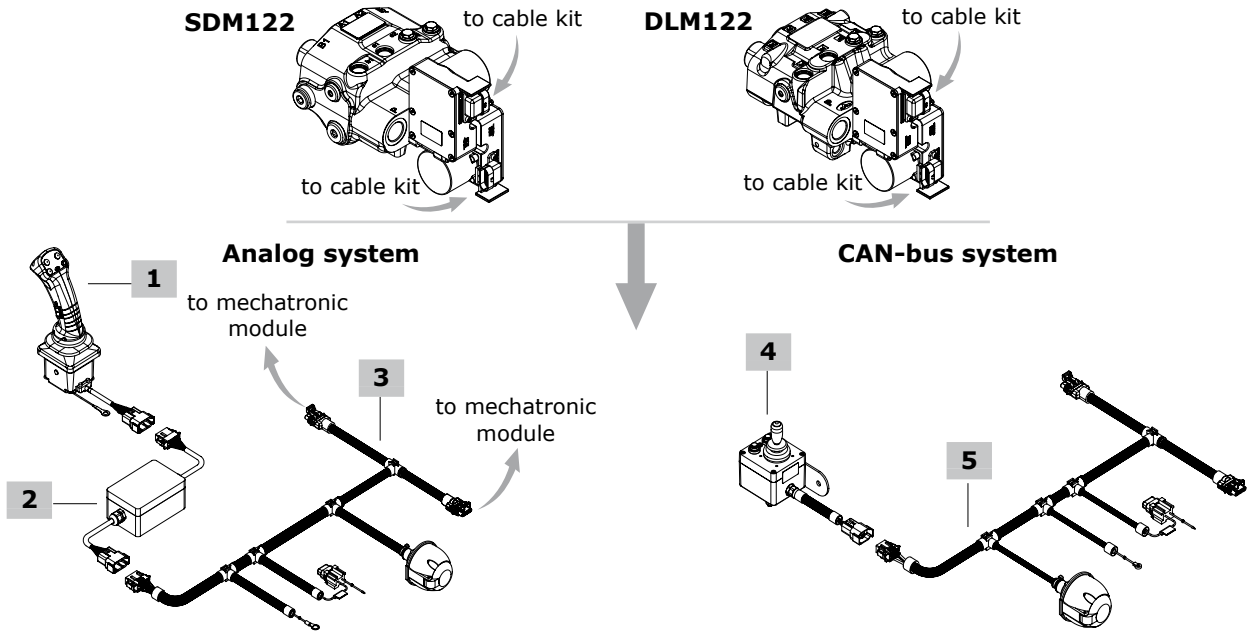
orifice Ø 1.2 mm - *0.05 in*



Screw with or without metering hole option



Ordering codes



SDM122

Analog control

1 Joystick page 23

TYPE: **MDT219HJ04C/D2F12030** CODE: 183520146
DESCRIPTION: Two proportional axis joystick with auxiliary and ON/OFF functions

2 Analog unit page 24

TYPE	CODE	DESCRIPTION
	182400011	Analog/Can-bus signal converter unit

3 Cables kit page 24

TYPE	CODE	DESCRIPTION
KCD05/D2M12	183480084	Cable kit for directional valve connection to joystick and auxiliary functions

6 Accessories

TYPE	CODE	DESCRIPTION
	VCAV600017	Cable for system programming trough PC (L=1,5m - *4.92 ft*)
	W0420002	CAN-USB interface module
WST	DCDSW016001	System programming software

CAN-bus control

4 Joystick page 25

TYPE: **UPD220** CODE: 183900004
DESCRIPTION: Two proportional axis CAN Bus joystick with auxiliary and ON/OFF functions

5 Cables kit page 26

TYPE: **KCD05/D2M08** CODE: 183480086
DESCRIPTION: Cable kit for directional valve connection to joystick and auxiliary functions

DLM122

Analog control

1 Joystick page 23

TYPE: **MDT219HJ04C/D2F12030** CODE: 183520146
DESCRIPTION: Two proportional axis joystick with auxiliary and ON/OFF functions

2 Analog unit page 24

TYPE	CODE	DESCRIPTION
	182400010	Analog/Can-bus signal converter unit

3 Cables kit page 24

TYPE	CODE	DESCRIPTION
KCD05/D2M12	183480084	Cable kit for directional valve connection to joystick and auxiliary functions

6 Accessories

TYPE	CODE	DESCRIPTION
	VCAV600017	Cable for system programming trough PC (L=1,5m - *4.92 ft*)
	W0420002	CAN-USB interface module
WST	DCDSW016001	System programming software

CAN-bus control

4 Joystick page 25

TYPE: **UPD220** CODE: 183900003
DESCRIPTION: Two proportional axis CAN Bus joystick with auxiliary and ON/OFF functions

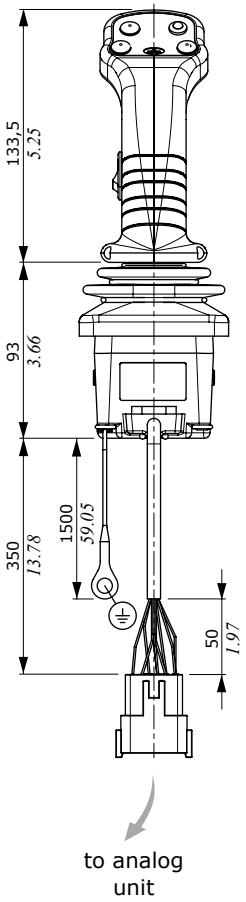
5 Cables kit page 26

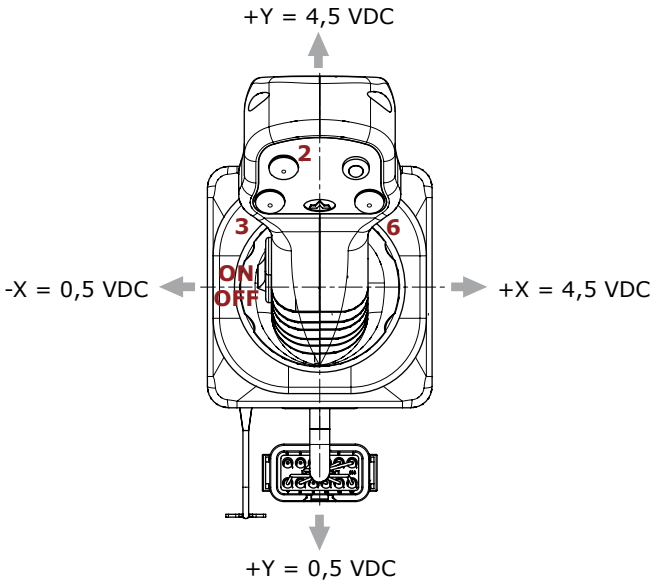
TYPE: **KCD05/D2M08** CODE: 183480086
DESCRIPTION: Cable kit for directional valve connection to joystick and auxiliary functions

Configuration example

Analog control

Joystick



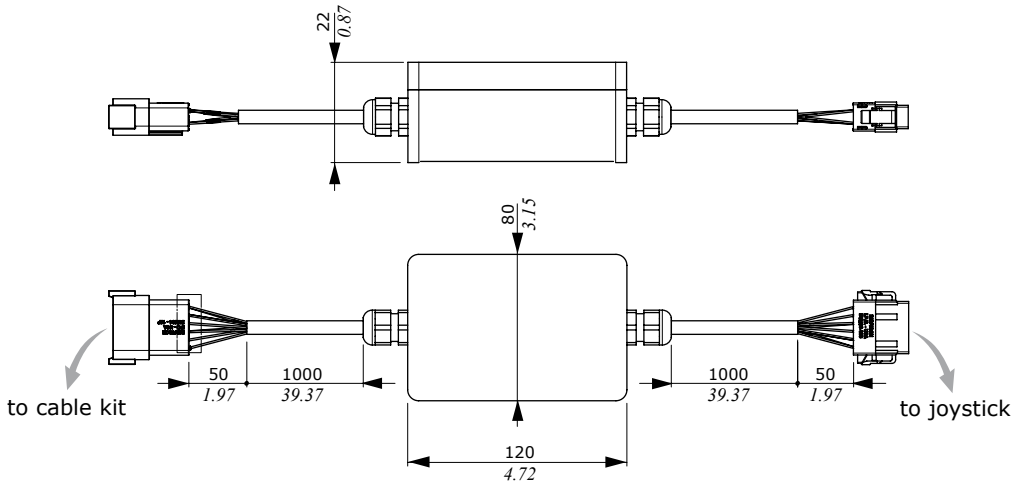


Joystick specifications	
Push-buttons pos. 2-3-6	
Execution	spring return
Current / voltage max	7A resistive load 4A inductive load 28VDC
Operating force	0.8N
Rocker ON-OFF	
Execution	2 pos. with detent
Current / voltage max	2A resistive load 24VDC

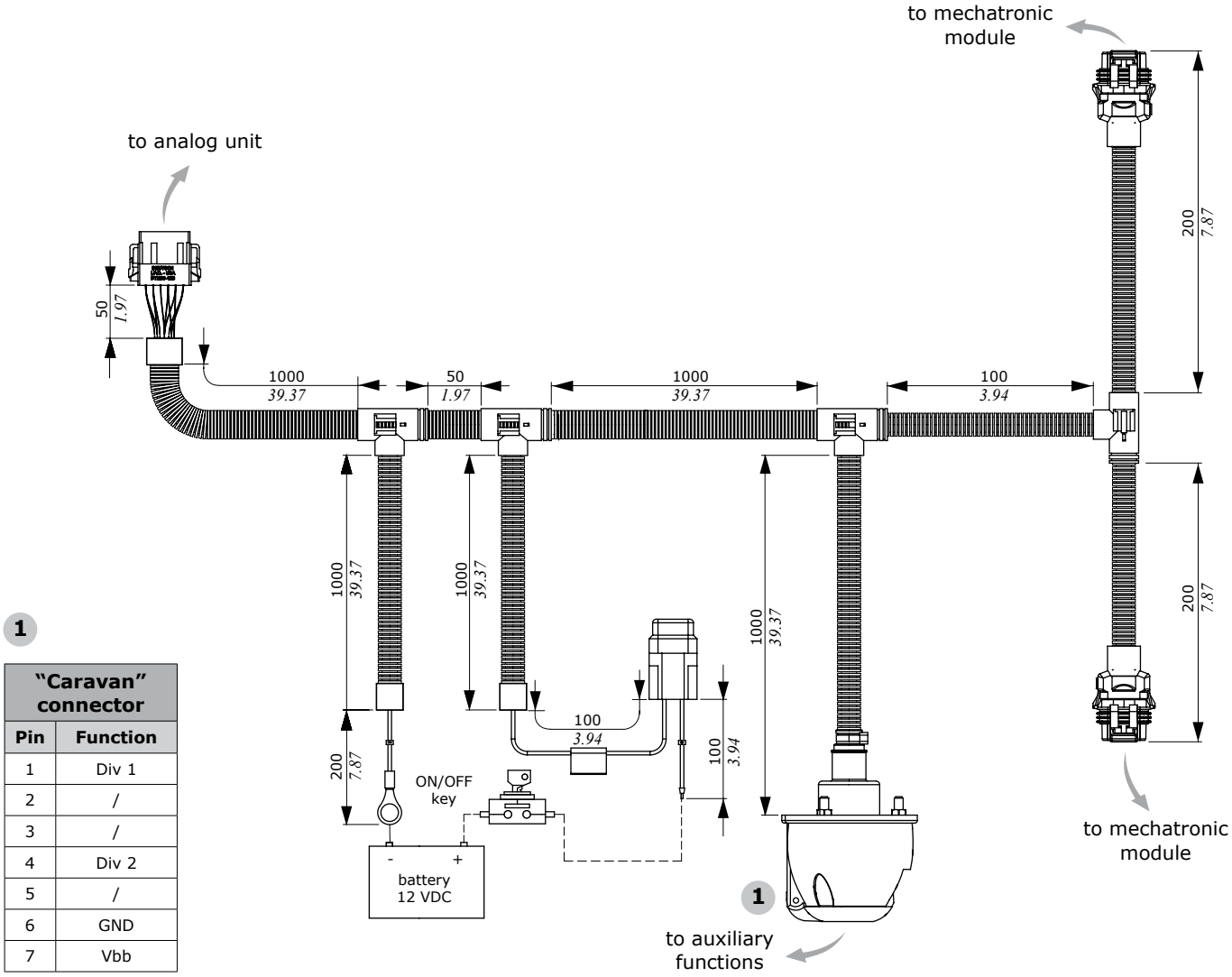
Configuration example

Analog control

Analog unit



KCD05 cables kit



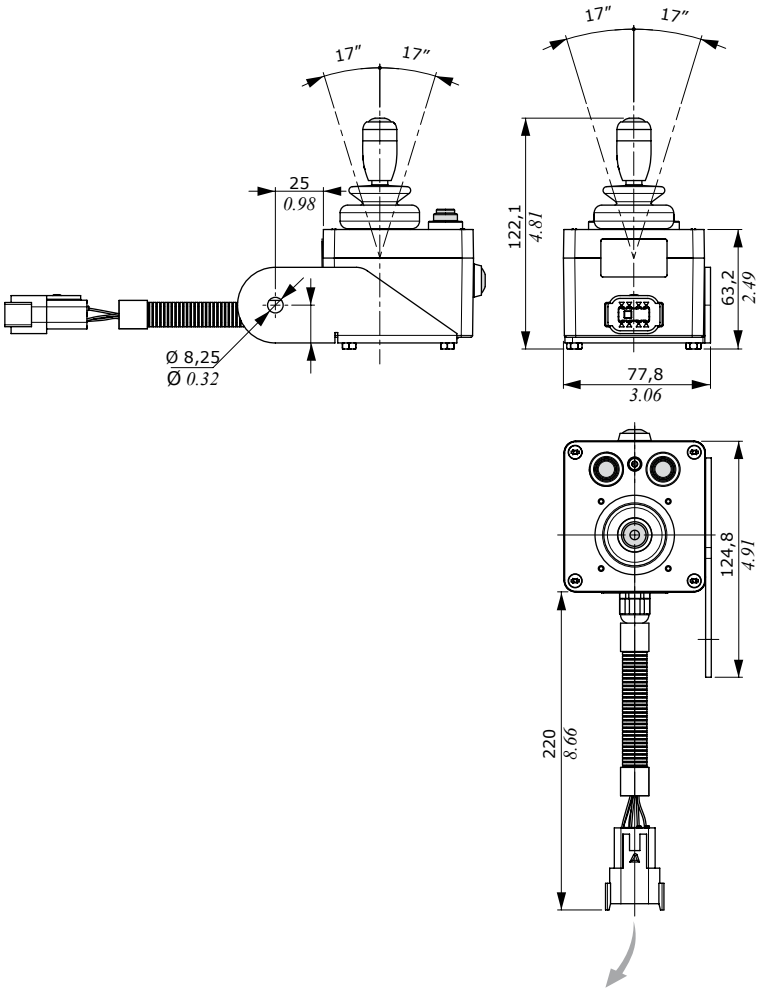
1

"Caravan" connector	
Pin	**Function**
1	Div 1
2	/
3	/
4	Div 2
5	/
6	GND
7	Vbb

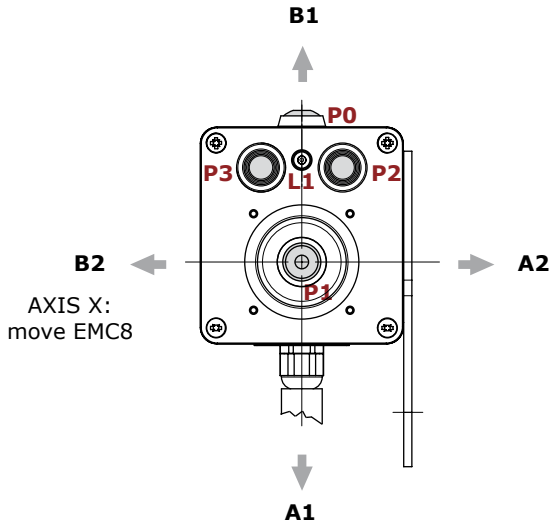
Configuration example

CAN-Bus control

Joystick UPD220



Technical data		
Joystick		
Nominal voltage	9 to 15 V	
Nominal current	30 mA	
CAN BUS output	CAN 2.0A	
Protection index	IP65	
Vibrations test according to	IEC 68-2-6	
Shock test according to	IEC 68-2-27	
ISO/CD 13766	EMC Earth-moving machines	
ISO/CD 14892	EMC forestry and agricoltural machines	
ESD protection	25 kV	
Push-buttons pos. P2-P3		
Contact type	Momentary-Normally open	
Actioning force	9.3 N	*2.09 lbf*



AXIS X:
move EMC8

AXIS Y:
move EMC13

LEGENDA

P0
On-Off detent push-button.
For interruption of console supply only, not for interrupt EMC supply.

P1
On-Off momentary push-button.
For float activation push the black button and move the joystick in neutral position. For float deactivation move the joystick backward.

P2
On-Off momentary push-button for direct activation of On-Off 3.

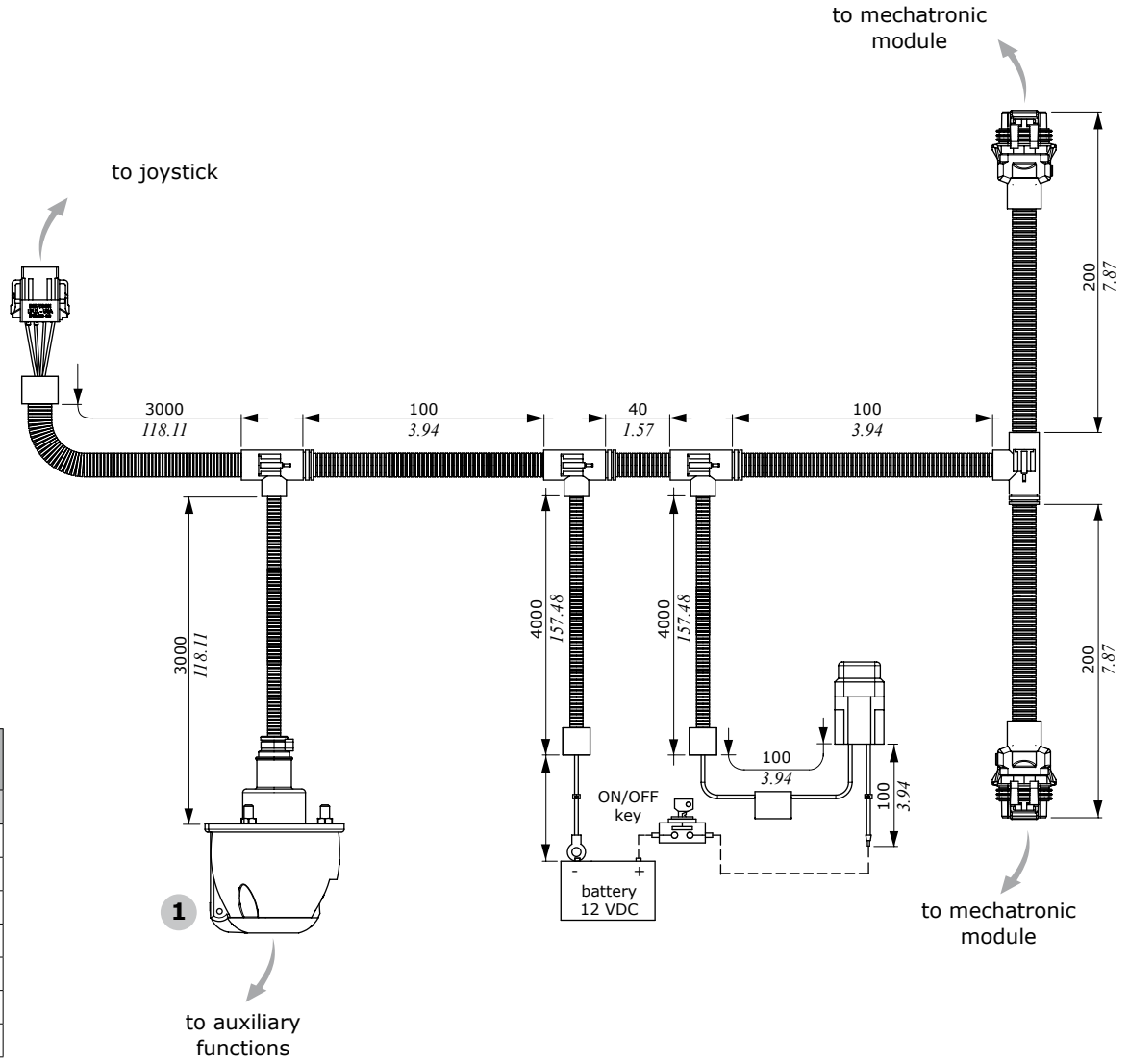
P3
On-Off momentary push-button for direct activation of On-Off 4.

L1
On steady when system is ok.
Flash quickly when float is active.
Flash slowly when system is in error state.

Configuration example

CAN-bus control

KCD05 cables kit



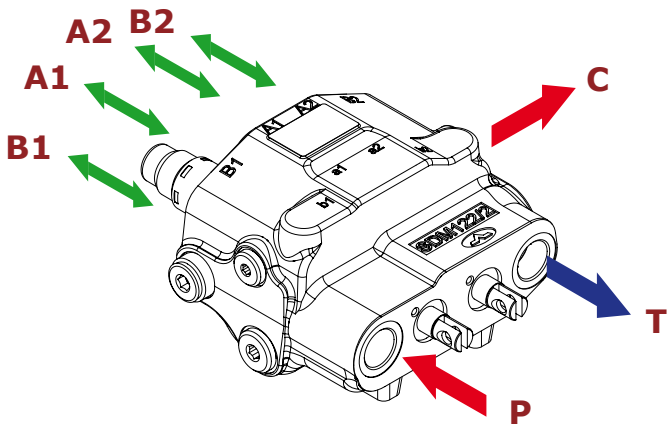
1

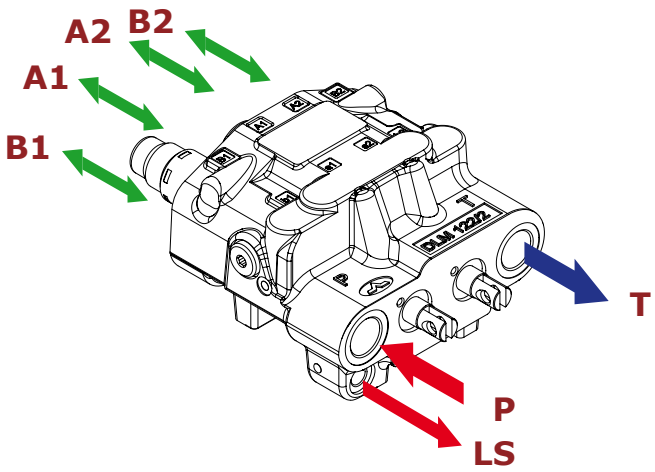
"Caravan" connector	
Pin	**Function**
1	/
2	/
3	ON/OFF 3
4	ON/OFF 4
5	/
6	/
7	GND

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 re commendations:

- 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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