



MSB-5 SERIES

Monoblock Directional Control Valves

FOR MOBILE AND INDUSTRIAL
HYDRAULIC APPLICATIONS



Innovative Designs
Professional Quality
Customer Satisfaction !



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MSB-5 Chapters

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For Mobile And Industrial Hydraulic Applications.



MB-2

ONLY ONE SECTION AVAILABLE

Nominal flow rate	45 l/min	12 US gpm
Operating pressure (maximum)	250 bar	3600 psi
Back pressure (maximum) on outlet port T	25 bar	360 psi



MB-3

AVAILABLE SECTIONS FROM 1 TO 7

Nominal flow rate	45 l/min	12 US gpm
Operating pressure (maximum)	315 bar	4600 psi
Back pressure (maximum) on outlet port T	25 bar	360 psi



MB-4

AVAILABLE SECTIONS FROM 1 TO 6

Nominal flow rate	60 l/min	16 US gpm
Operating pressure (maximum)	315 bar	4600 psi
Back pressure (maximum) on outlet port T	25 bar	360 psi



MB-5

AVAILABLE SECTIONS FROM 1 TO 6

Nominal flow rate	80 l/min	21 US gpm
Operating pressure (maximum)	315 bar	4600 psi
Back pressure (maximum) on outlet port T	25 bar	360 psi

MONOBLOCK DIRECTIONAL CONTROL VALVES

MB-2 / MB-3 / MB-4 / MB-5 / MSB-5

SECTIONAL DIRECTIONAL CONTROL VALVES

SN-3 / SN-4 / SN-6



MSB-5

AVAILABLE SECTIONS FROM 1 TO 6

With Independent load check valve in each section, and optional port relief.

Nominal flow rate	80 l/min	21 US gpm
Operating pressure (maximum)	315 bar	4600 psi
Back pressure (maximum) on outlet port T	25 bar	360 psi



SN-3

AVAILABLE SECTIONS FROM 1 TO 12

Nominal flow rate	50 l/min	13 US gpm
Operating pressure (maximum)	315 bar	4600 psi
Back pressure (maximum) on outlet port T	25 bar	360 psi



SN-4

AVAILABLE SECTIONS FROM 1 TO 12

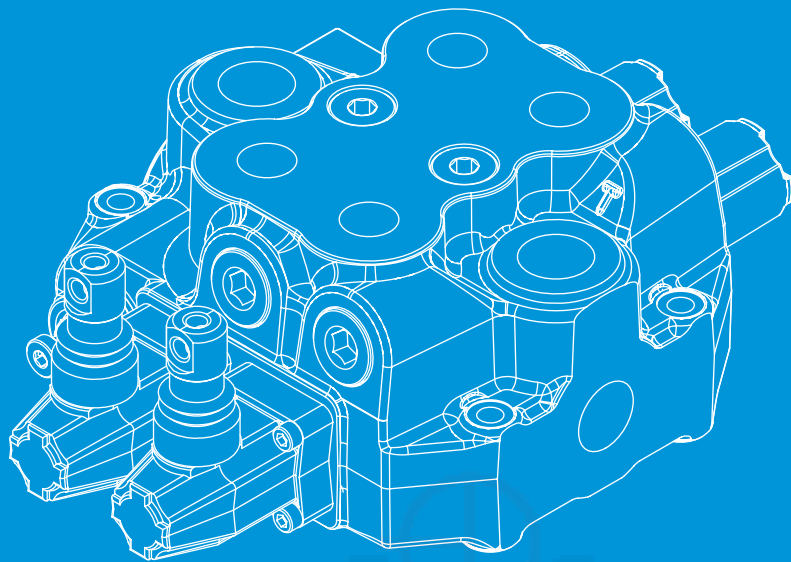
Nominal flow rate	80 l/min	21 US gpm
Operating pressure (maximum)	315 bar	4600 psi
Back pressure (maximum) on outlet port T	25 bar	360 psi



SN-6

AVAILABLE SECTIONS FROM 1 TO 12

Nominal flow rate	140 l/min	37 US gpm
Operating pressure (maximum)	315 bar	4600 psi
Back pressure (maximum) on outlet port T	25 bar	360 psi



Innovative Designs
Professional Quality
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AVAILABLE SECTIONS FROM

1 TO 6

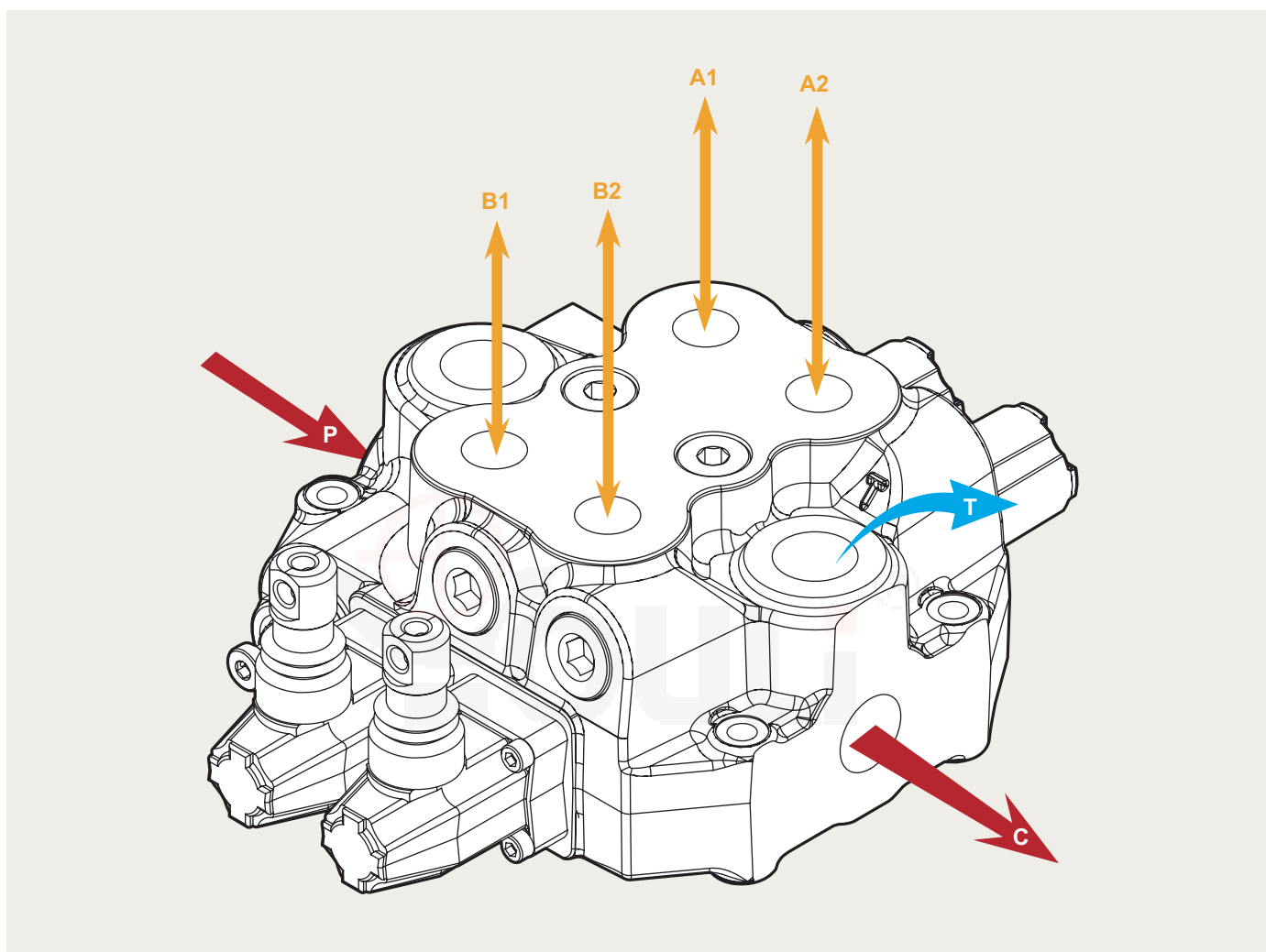
MSB-5

Monoblock Directional Control Valves



MSB-5

Monoblock Directional Control Valves



MSB-5 Specifications

Nominal flow rate		80 l/min	21 US gpm
Operating pressure (maximum)		315 bar	4600 psi
Back pressure (maximum)	on outlet port T	25 bar	360 psi
Fluid temperature range	with NBR(BUNA-N) seals	from - 20° to 80°C	from - 4° to 176° F
	with FPM(VITON) seal	from - 20° to 100°C	from - 4° to 212° F
Viscosity	operating range	from 15 to 75 mm ² /s	from 15 to 75 cst
	min.	12 mm ² /s	12 cst
	max.	400 mm ² /s	400 cst
Ambient temperature range		from - 40° to 60°C	from - 40° to 140° F

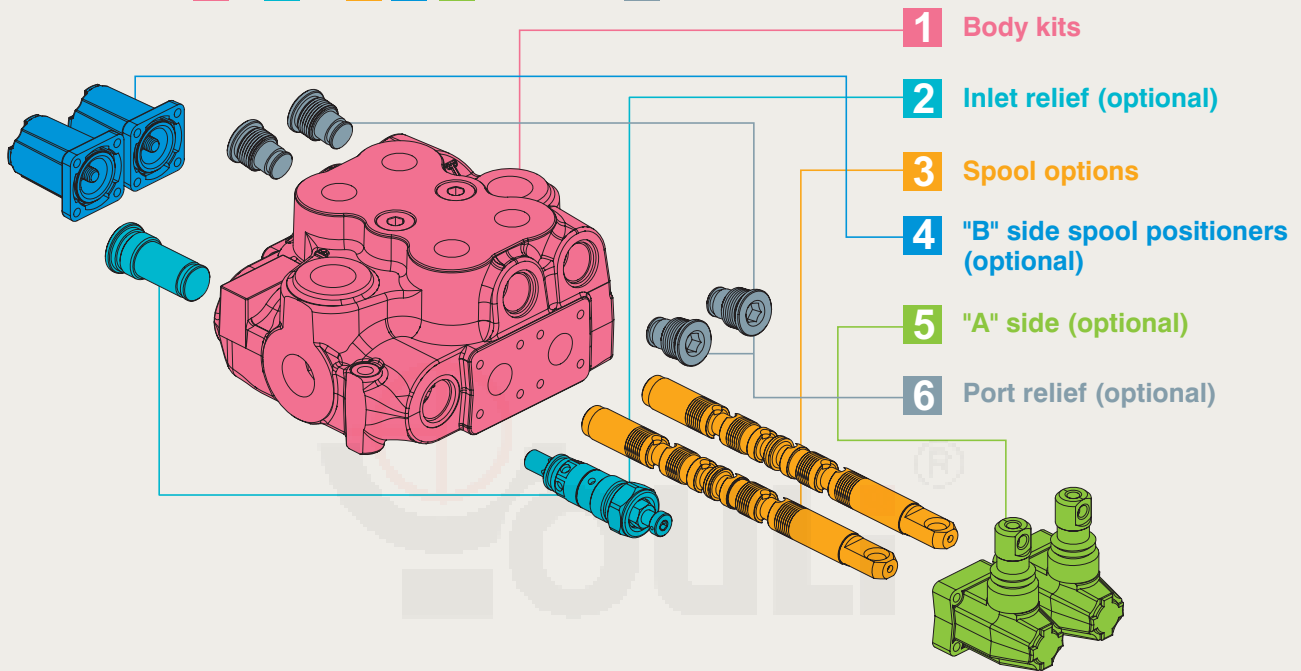
• All specifications, dimensions and design characteristics shown in this catalogue are subject to change without notice.

MSB-5

Monoblock Directional Control Valves

MSB-5 / **2S** - **3** / **1 8 L** / **P1(G3-100)** / **G 6-4-6** / **M3**

1 2 3 4 5 6



1: Body Kits WITHOUT SERVICE PORT VALVES PREARRANGEMENT (INCLUDE BODY, SEALS, RINGS AND LOAD CHECK VALVE.)

TYPE	DESCRIPTION
1 - S	1 section
2 - S	2 sections
3 - S	3 sections
4 - S	4 sections
5 - S	5 sections
6 - S	6 sections

2: Inlet Relief (Optional)

TYPE	CODE	DESCRIPTION	PAGE
XWG	YLMSB52001	Pilot operated pressure relief valve Range 25 to 315 bar/ 360 to 4600 psi, standard setting 125 bar/ 1800 psi	P. 11
WG-2	YLMSB52002	Direct pressure relief valve Range 80 to 160 bar/ 1150 to 2300 psi, standard setting 125 bar/ 1800 psi	P. 11
WG-3	YLMSB52003	Direct pressure relief valve Range 125 to 250 bar/ 1800 to 3600 psi, standard setting 175 bar/ 2500 psi	P. 11
WG-4	YLMSB52004	Direct pressure relief valve Range 200 to 315 bar/ 2900 to 4600 psi, standard setting 220 bar/ 3200 psi	P. 11
SV	YLMSB52100	Relief valve blanking plug	P. 11

3: Spool Options			
TYPE	CODE	DESCRIPTION	PAGE
1	YLMSB53001	Double acting, 3 positions, with A, B closed in neutral position	P. 12
2	YLMSB53002	Double acting, 3 positions, with A, B open to Tank in neutral position	P. 12
3	YLMSB53003	Single acting on A closed in neutral position, 3 positions, B plugged	P. 13
4	YLMSB53004	Single acting on B closed in neutral position, 3 positions, A plugged	P. 13
5	YLMSB53005	Double acting, 3 positions, with B open to Tank in neutral position	P. 14
6	YLMSB53006	Double acting, 3 positions, with A open to Tank in neutral position	P. 14
7	YLMSB53007	Single acting on A open to Tank in neutral position, 3 positions, B plugged	P. 15
8	YLMSB53008	Single acting on B open to Tank in neutral position, 3 positions, A plugged	P. 15

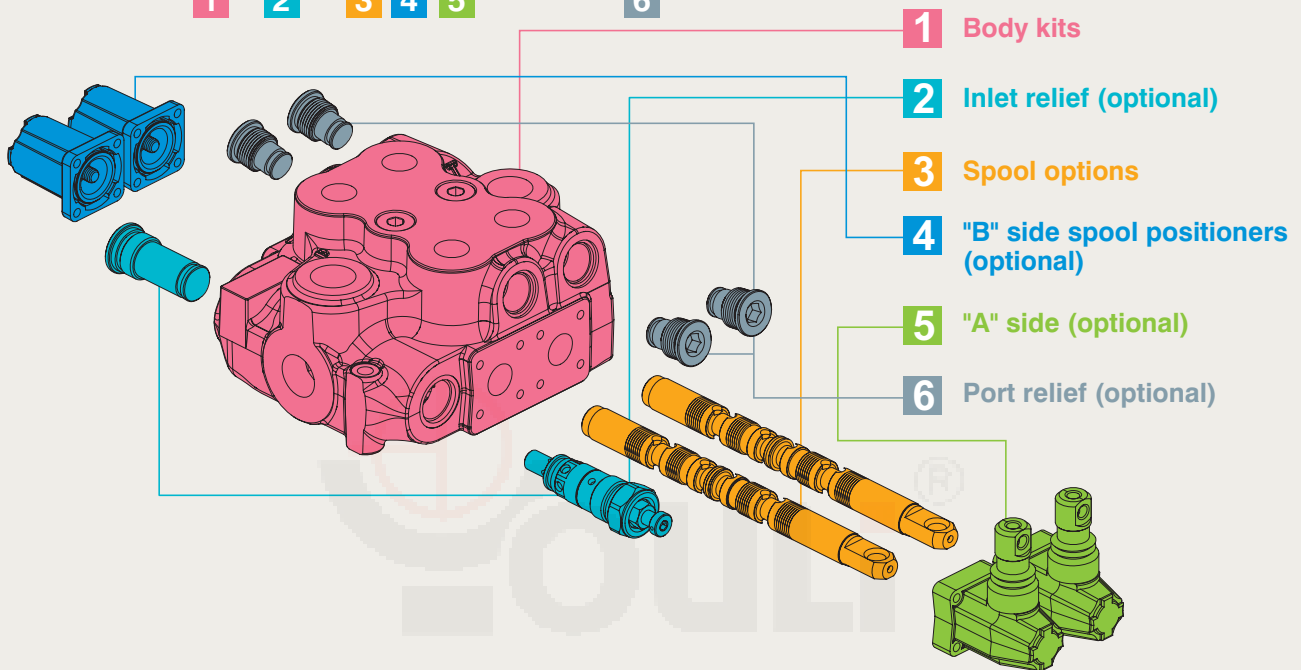
4: B Side Spool Positioners			
TYPE	CODE	DESCRIPTION	PAGE
6-1	YLWSN43061	Detent in pos. 1-0-2, without spring centered	P. 20
6-2	YLWSN43062	2 positions, detent in pos. 0-2, without spring centered	P. 20
6-3	YLWSN43063	2 positions, detent in pos. 1-0, without spring centered	P. 20
8D2	YLWSN43082	With spring return to neutral position and pin with M8 male thread for dual control	P. 20
8EP3	YLWSN44300	ON/OFF Electro-Pneumatic actuator	P. 21
8P	YLWSN43080	ON/OFF Pneumatic actuator	P. 21
8MG1 (NO)	YLWSN43801	Microswitch kit operated in pos. 1 (Normally Open)	P. 24
8MG2 (NO)	YLWSN43802	Microswitch kit operated in pos. 2 (Normally Open)	P. 24
8MG3 (NO)	YLWSN43803	Microswitch kit operated in pos. 1&2 (Normally Open)	P. 24
MG (NO)	YLWSN43804	Microswitch with NO terminal	P. 24
8MG1 (NC)	YLWSN438011	Microswitch kit operated in pos. 1 (Normally Closed)	P. 24
8MG2 (NC)	YLWSN438021	Microswitch kit operated in pos. 2 (Normally Closed)	P. 24
8MG3 (NC)	YLWSN438031	Microswitch kit operated in pos. 1&2 (Normally Closed)	P. 24
MG (NC)	YLWSN438041	Microswitch with NC terminal	P. 24
8	YLWSN43008	With spring return to neutral position	P. 25
8-1	YLWSN44801	2 positions, with spring centered from pos. 1	P. 25
8-2	YLWSN44082	2 positions, with spring centered from pos. 2	P. 25
9-1	YLWSN43091	Detent in pos. 1, 2 with spring centered	P. 25
9-2	YLWSN43092	Detent in pos. 2 with spring centered	P. 25
9-3	YLWSN43093	Detent in pos. 1 with spring centered	P. 25
8ED3+RV-KE1R3	YLMSB54201	1S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)	P. 22
8ED3+RV-KE2R3	YLMSB54202	2S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)	P. 22
8ED3+RV-KE3R3	YLMSB54203	3S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)	P. 22
8ED3+RV-KE4R3	YLMSB54204	4S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)	P. 22
8ED3+RV-KE5R3	YLMSB54205	5S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)	P. 22
8ED3+RV-KE6R3	YLMSB54206	6S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)	P. 22
8ER3+KE1S0	YLMSB54401	1S: ON/OFF Electro-hydraulic control kit with collector kit for external pilot and drain	P. 23
8ER3+KE2S0	YLMSB54402	2S: ON/OFF Electro-hydraulic control kit with collector kit for external pilot and drain	P. 23
8ER3+KE3S0	YLMSB54403	3S: ON/OFF Electro-hydraulic control kit with collector kit for external pilot and drain	P. 23
8ER3+KE4S0	YLMSB54404	4S: ON/OFF Electro-hydraulic control kit with collector kit for external pilot and drain	P. 23
8ER3+KE5S0	YLMSB54405	5S:ON/OFF Electro-hydraulic control kit with collector kit for external pilot and drain	P. 23
8ER3+KE6S0	YLMSB54406	6S: ON/OFF Electro-hydraulic control kit with collector kit for external pilot and drain	P. 23

MSB-5

Monoblock Directional Control Valves

MSB-5 / **2S** - **3** / **1 8 L** / **P1(G3-100)** / **G 6-4-6** / **M3**

1 **2** **3** **4** **5** **6**



5: A Side (Optional)

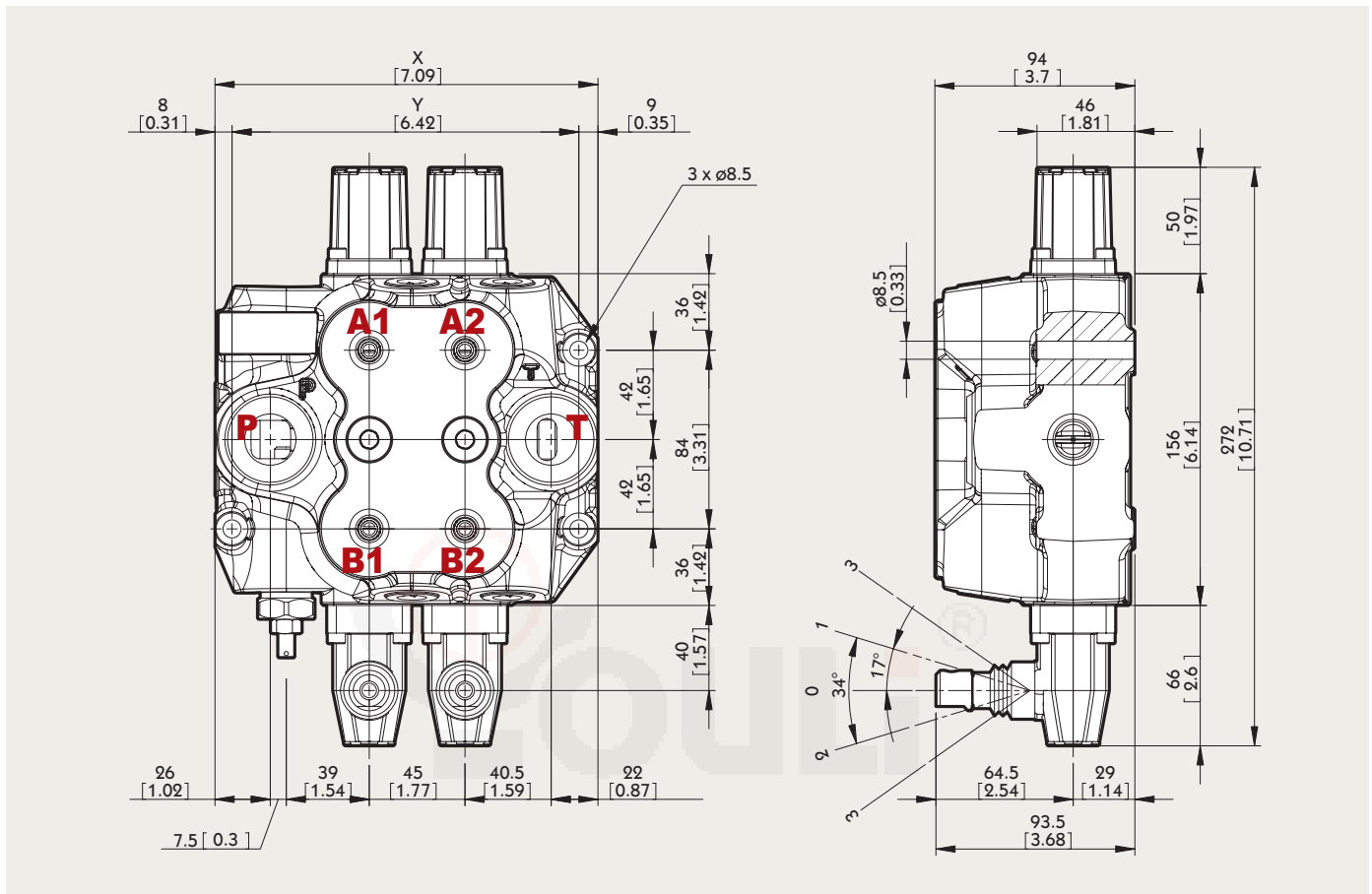
TYPE	CODE	DESCRIPTION	PAGE
L	YLWSN44000	Standard lever box	P. 16
SLP	YLWSN44001	Without lever box, with dust-proof plate	P. 16
LCB	YLWSN45002	Joystick lever for 2 section operation	P. 17
TQ	YLWSN44003	Flexible cable connection	P. 18

6: Port Relief (Optional)

TYPE	CODE	DESCRIPTION	PAGE
P (G2-63)	YLWSN45002	Anti-shock valve, range 63 to 125 bar / form 900 to 1800 psi standard setting 63 bar / 900 psi	P. 26
P (G3-100)	YLWSN45003	Anti-shock valve, range 100 to 250 bar / form 1450 to 3600 psi standard setting 100 bar / 1450 psi	P. 26
P (G4-200)	YLWSN45004	Anti-shock valve, range 200 to 315 bar / form 2900 to 4600 psi standard setting 200 bar / 2900 psi	P. 26
PM (G2-63)	YLWSN45005	Anti-shock valve, range 63 to 125 bar / form 900 to 1800 psi standard setting 63 bar / 900 psi, for low setting	P. 26
U (G2-63)	YLWSN45012	Anti-shock valve and Anti-cavitation valve, range 63 to 125 bar / form 900 to 1800 psi standard setting 63 bar / 900 psi	P. 26
U (G3-100)	YLWSN45013	Anti-shock valve and Anti-cavitation valve, range 100 to 250 bar / form 1450 to 3600 psi standard setting 100 bar / 1450 psi	P. 26
U (G4-200)	YLWSN45014	Anti-shock valve and Anti-cavitation valve, range 200 to 315 bar / form 2900 to 4600 psi standard setting 200 bar / 2900 psi	P. 26
C	YLWSN45100	Anti - cavitation	P. 26

MSB-5 Dimensions

Monoblock Directional Control Valves



Standard threads

Ports	Inlet P	A and B ports	Outlet T and poewr beyond C
BSP	G3/4	G1/2	G3/4
UN-UNF	1" 1/16-12 UN (SAE 12)	7/8-14 UNF (SAE 10)	1" 1/16-12 UN (SAE 12)
METRIC	M27x2	M22x1.5	M27x2

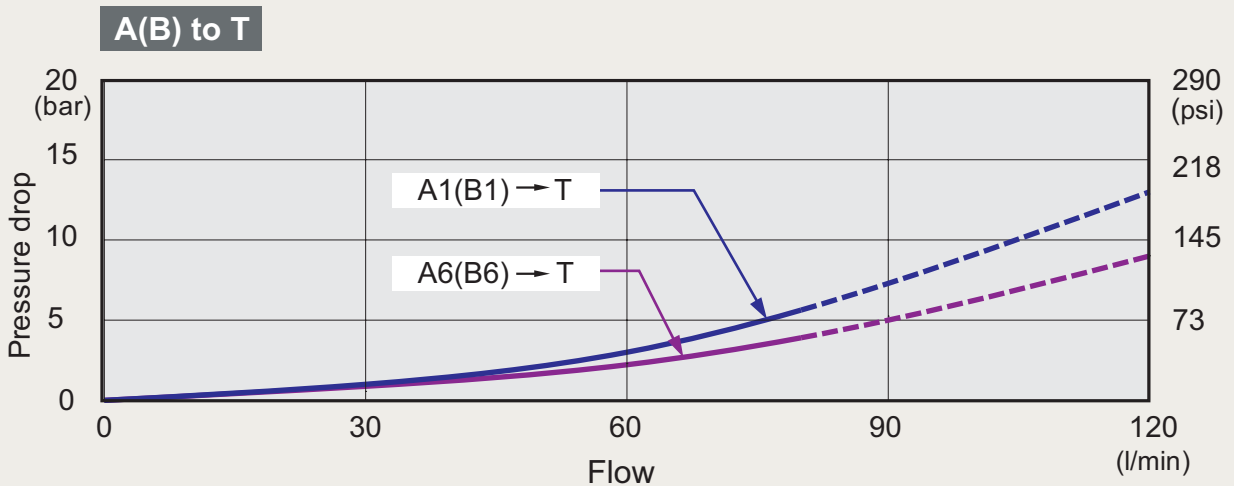
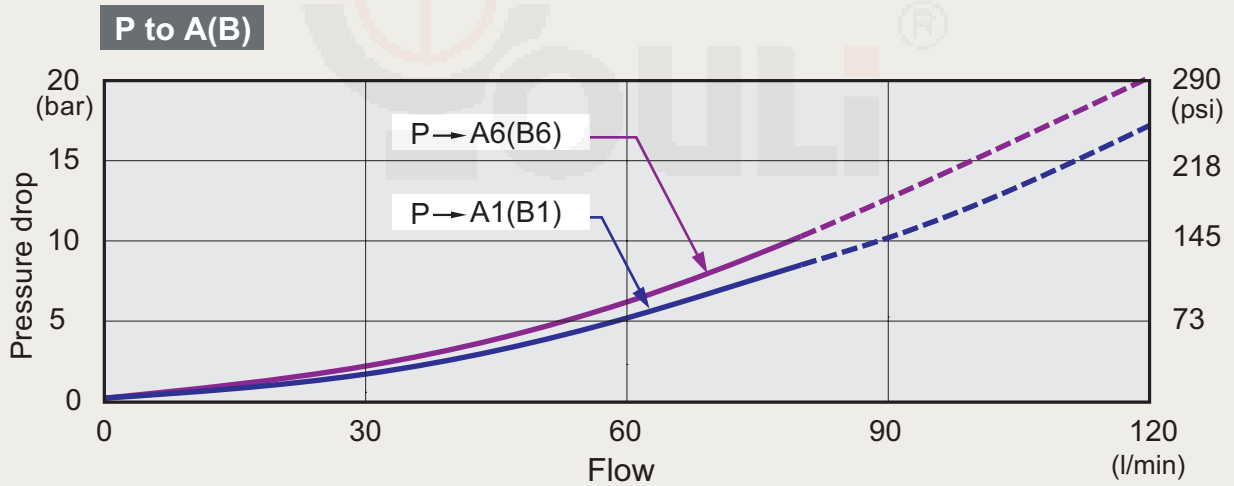
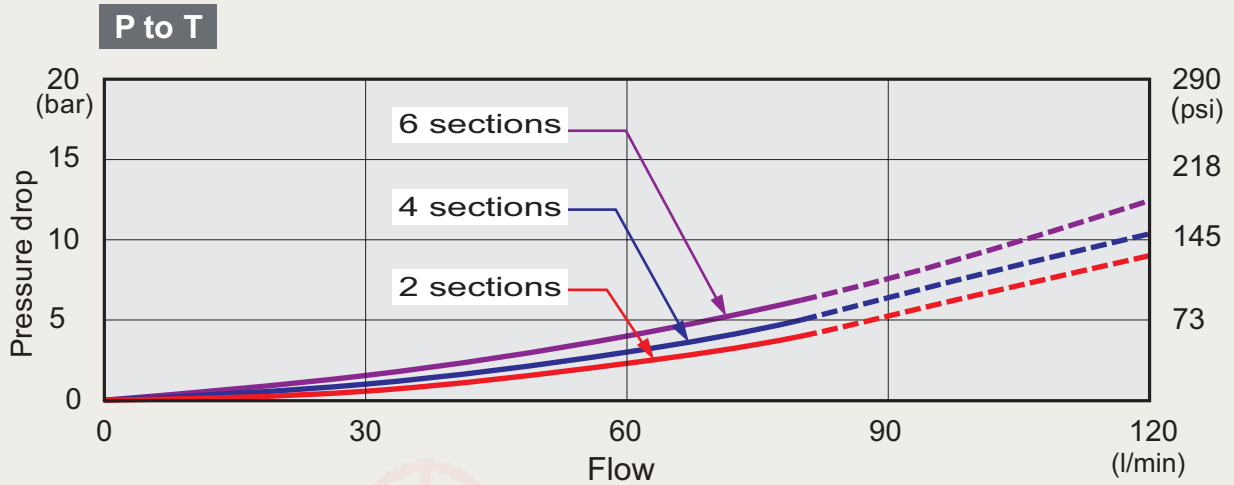
• G-1/2 : G4 G-3/8 : G3 G-3/4 : G6
 • SAE 8: E8 SAE 10: E10 SAE 12: E12 SAE 16: E16

Standard dimensions

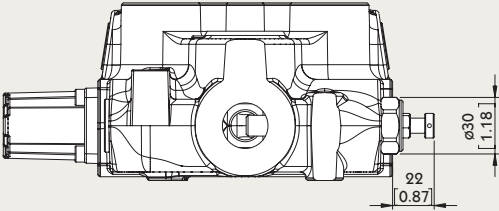
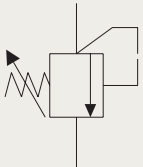
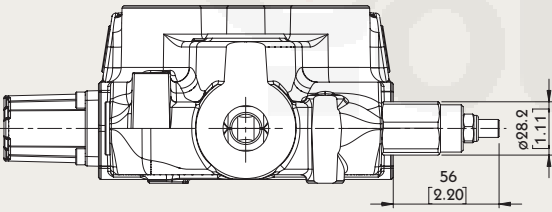
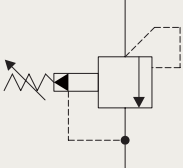
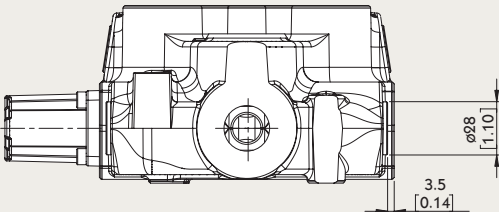

TYPE	X		Y	
	mm	in	mm	in
MSB5 /1S	135	5.32	118	4.65
MSB5 /2S	180	7.09	163	6.42
MSB5 /3S	225	8.86	208	8.19
MSB5 /4S	270	10.63	253	9.96
MSB5 /5S	315	12.40	298	11.73
MSB5 /6S	360	14.17	343	13.50

MSB-5 Performance Curve Chart

Monoblock Directional Control Valves



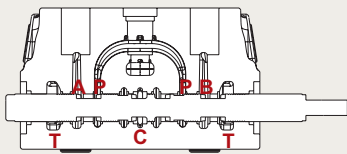
MSB-5 Inlet Relief (Optional) Monoblock Directional Control Valves

<p>Type WG</p>	
	<p>Direct pressure relief valve:</p> 
<p>Type XWG</p>	
	<p>Pilot operated pressure relief valve:</p> 
<p>Type SV</p>	
	<p>Relief valve blanking plug:</p> 

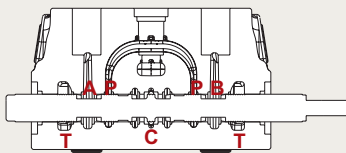
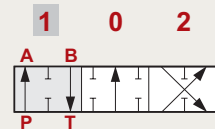
MSB-5 spool Options

Monoblock Directional Control Valves

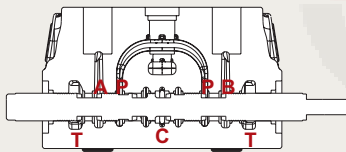
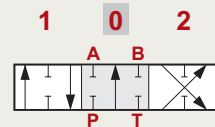
TYPE 1



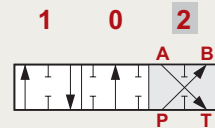
P → A
 B → T
 C closed



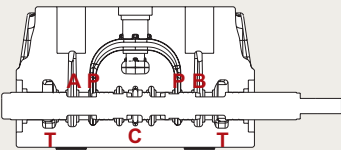
P & T & A & B closed
 C open



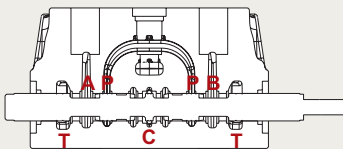
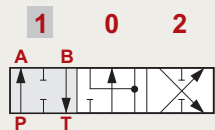
P → B
 A → T
 C closed



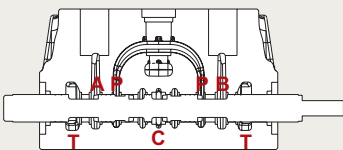
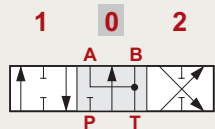
TYPE 2



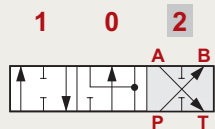
P → A
 B → T
 C closed



A & B → T
 P closed
 C open



P → B
 A → T
 C closed



MSB-5 spool Options

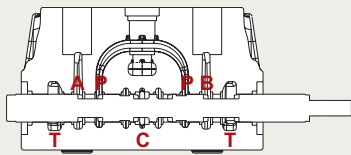
Monoblock Directional Control Valves

TYPE 3		
	<p>P → A C closed</p>	<p>1 0 2 A P T "B" port plugged</p>
	<p>P & T & A closed C open</p>	<p>1 0 2 A P T "B" port plugged</p>
	<p>A → T C open</p>	<p>1 0 2 A P T "B" port plugged</p>
TYPE 4		
	<p>B → T C closed</p>	<p>1 0 2 B P T "A" port plugged</p>
	<p>P & T & B closed C open</p>	<p>1 0 2 B P T "A" port plugged</p>
	<p>P → B C closed</p>	<p>1 0 2 B P T "A" port plugged</p>

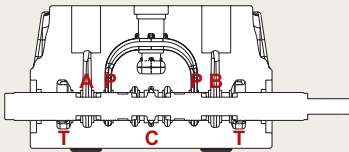
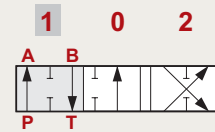
MSB-5 Spool Options

Monoblock Directional Control Valves

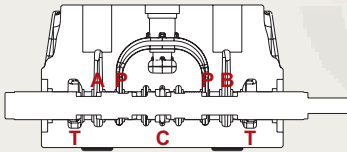
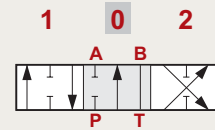
TYPE 5



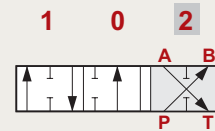
P → **A**
B → **T**
C closed



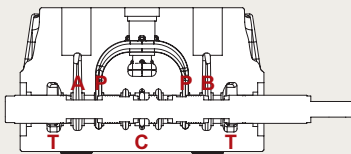
B → **T**
P & A closed
C open



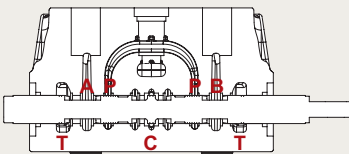
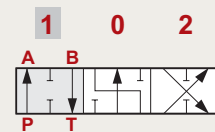
P → **B**
A → **T**
C closed



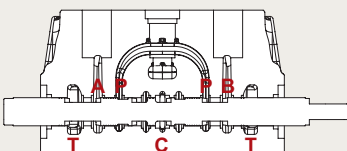
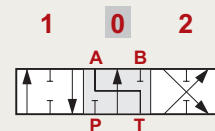
TYPE 6



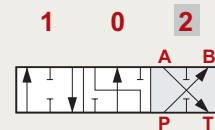
P → **A**
B → **T**
C closed



A → **T**
P & B closed
C open

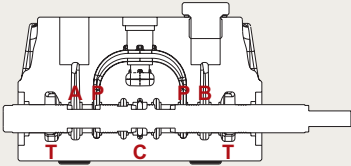
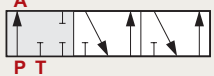
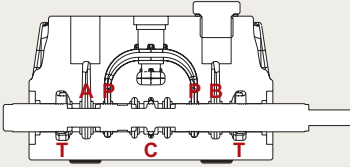

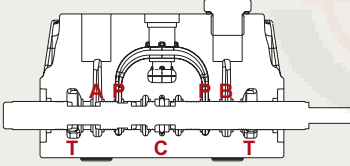
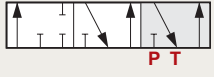
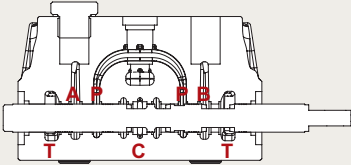
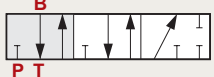
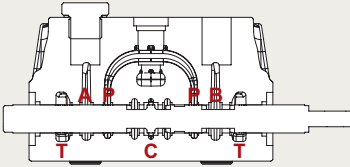
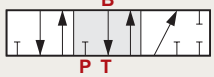
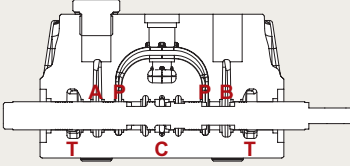
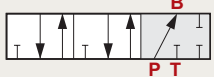


P → **B**
A → **T**
C closed



MSB-5 spool Options

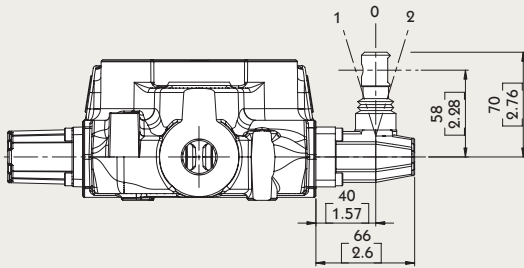
Monoblock Directional Control Valves

TYPE 7		
	<p>A → T P closed C open</p>	<p>1 0 2 A P T "B" port plugged</p> 
	<p>P → A P closed C open</p>	<p>1 0 2 A P T "B" port plugged</p> 
	<p>A → T P closed C open</p>	<p>1 0 2 A P T "B" port plugged</p> 
TYPE 8		
	<p>B → T P closed C open</p>	<p>1 0 2 B P T "A" port plugged</p> 
	<p>B → T P closed C open</p>	<p>1 0 2 B P T "A" port plugged</p> 
	<p>P → B C & T closed</p>	<p>1 0 2 B P T "A" port plugged</p> 

MSB-5 A Side

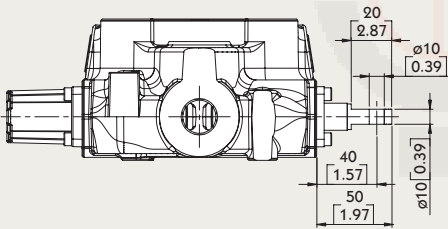
Monoblock Directional Control Valves

Type L



Type L :
STANDART LEVER KIT

Type SLP

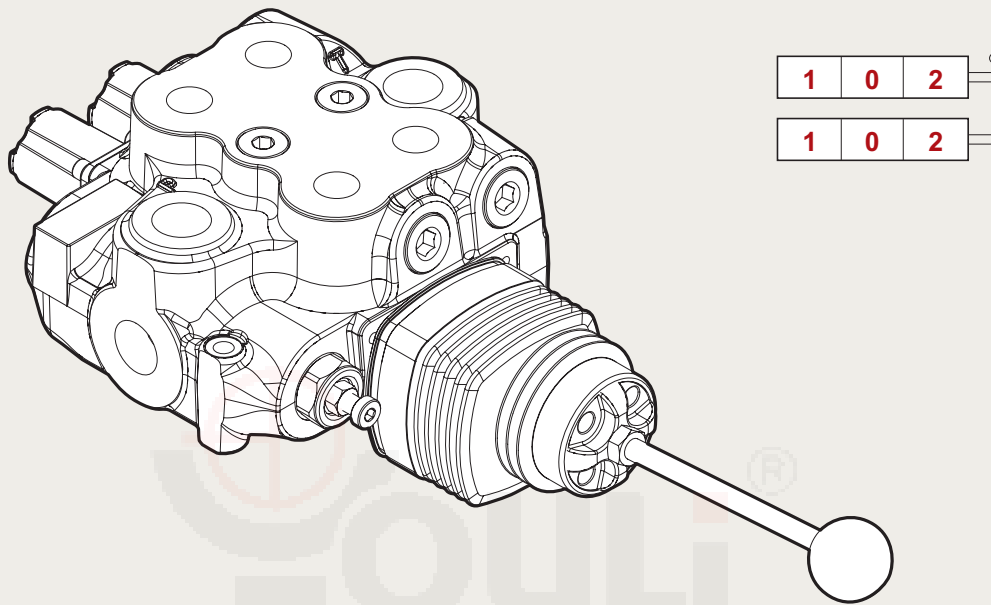


Type SLP :
WITH DUST-PROOF PLATE

MSB-5 A Side

Monoblock Directional Control Valves

LCB: Joystick control

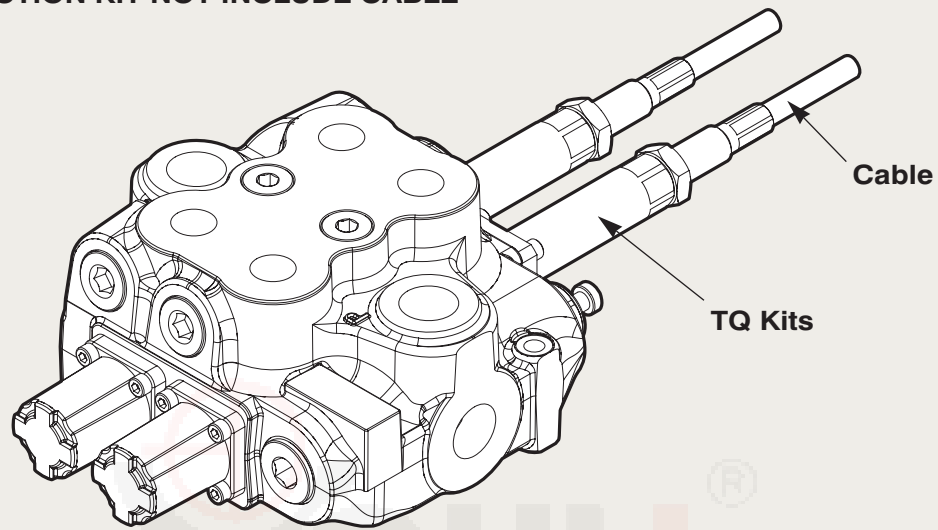


Type LCB	LCB1	LCB2
Type LCB	LCB3	LCB4

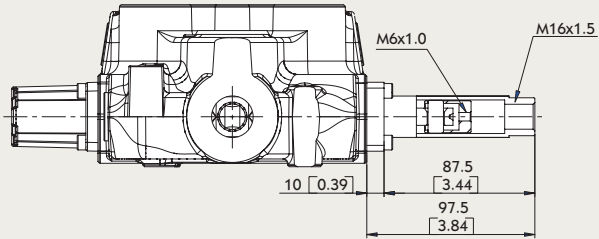
MSB-5 A Side

Monoblock Directional Control Valves

Note : CONNECTION KIT NOT INCLUDE CABLE



Type TQ

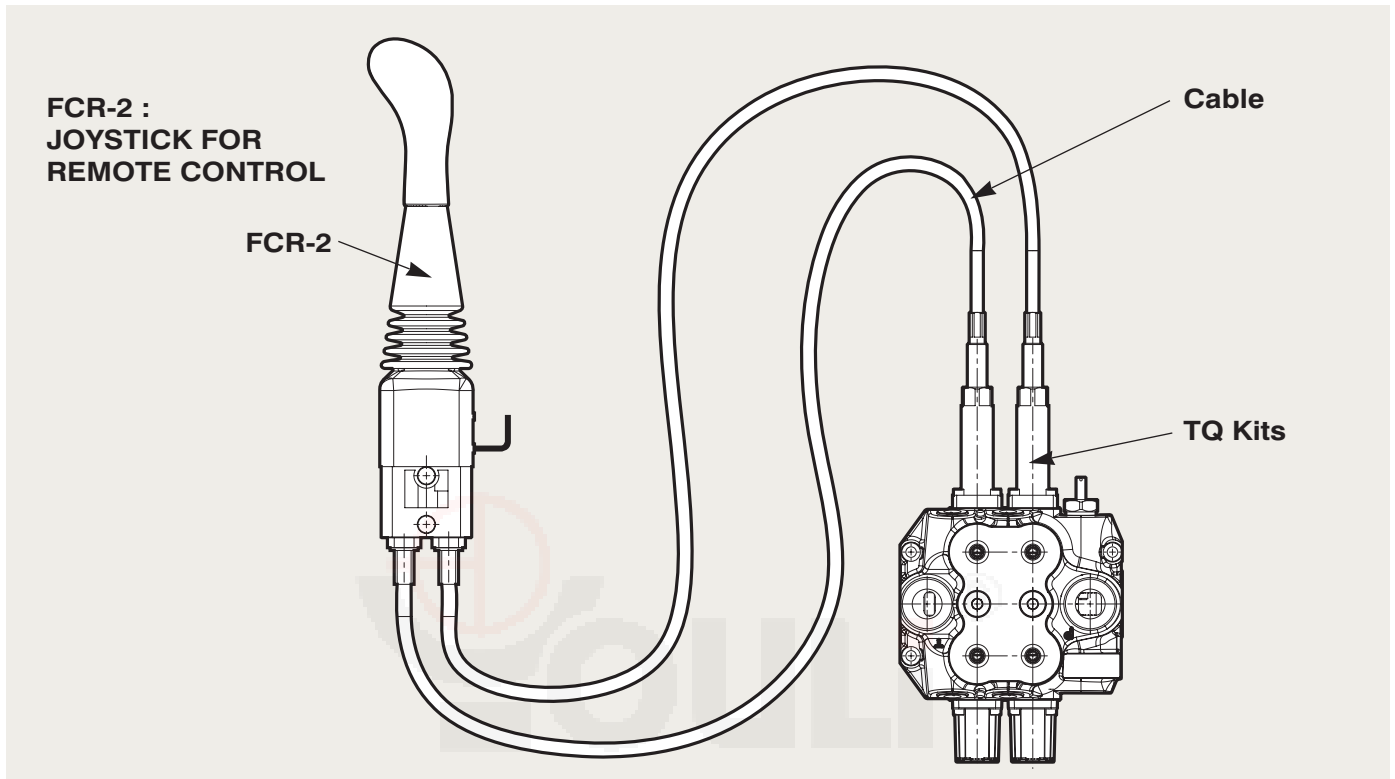


TQ Kit:

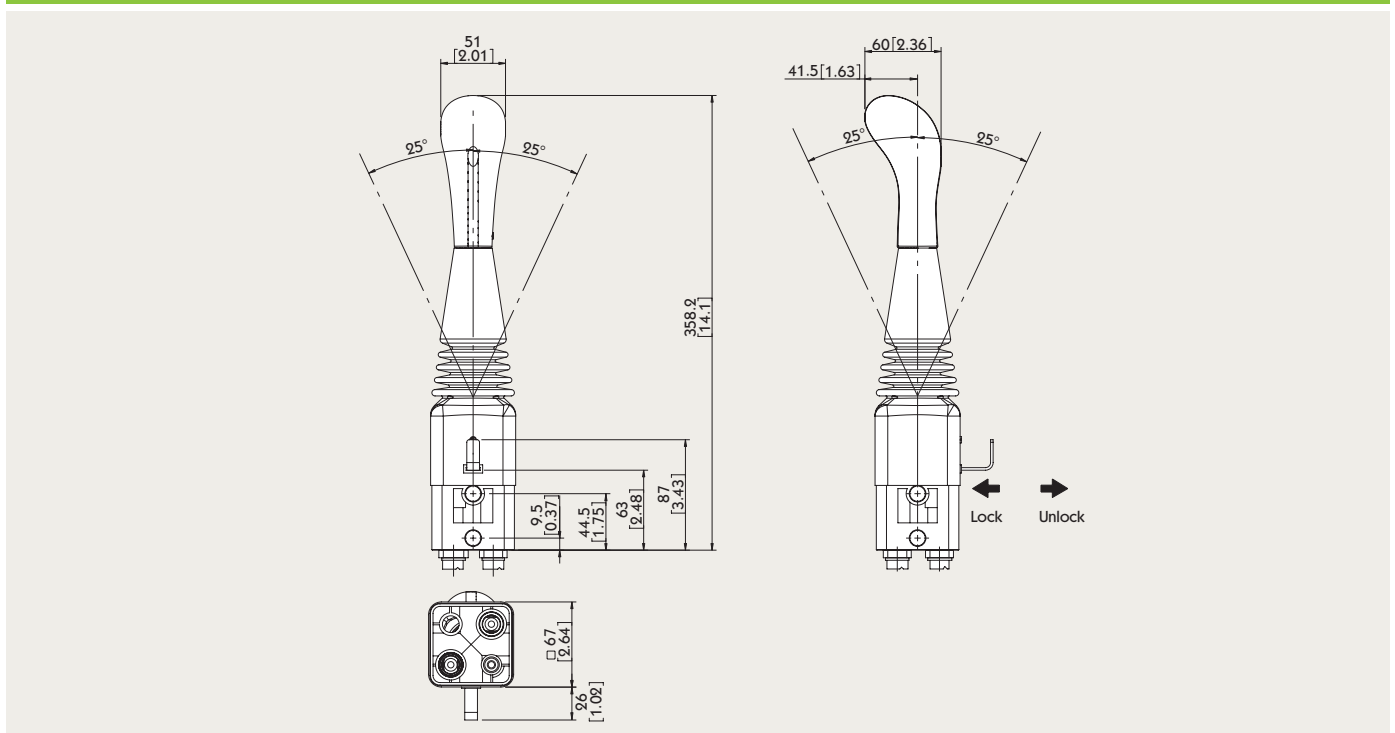


MSB-5 A Side

Monoblock Directional Control Valves



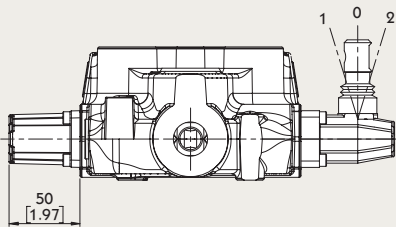
Type FCR-2



MSB-5 B Side

Monoblock Directional Control Valves

Type 6



6-1 Kit:

DETENT IN POS. 1-0-2, WITHOUT SPRING CENTERED



6-2 Kit:

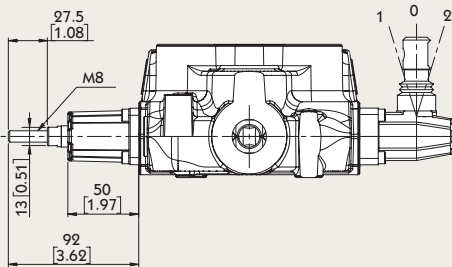
2 POSITIONS, DETENT IN POS. 0-2, WITHOUT SPRING CENTERED



6-3 Kit:

2 POSITIONS, DETENT IN POS. 1-0, WITHOUT SPRING CENTERED

Type 8D2



8D2 Kit:

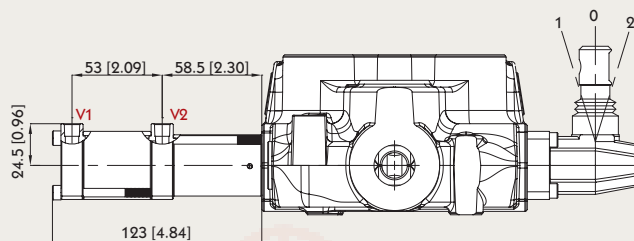
WITH SPRING RETURN TO NEUTRAL POSITION AND PIN WITH M8 MALE THREAD FOR DUAL CONTROL

MSB-5 B Side

Monoblock Directional Control Valves

Type 8P

V1 & V2: NPT 1/8 - 27



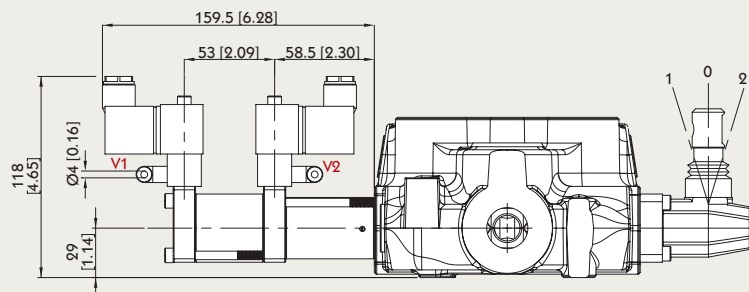
Operating feature :

PILOT PRESSURE (MIN.): 6 BAR / 87 PSI
 PILOT PRESSURE (MAX.): 12 BAR / 174 PSI

ON/OFF PNEUMATIC KIT

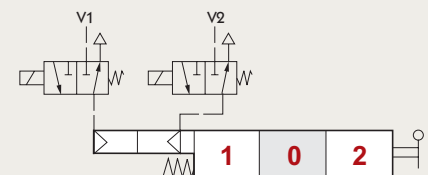


Type 8EP3



Solenoid operating features :

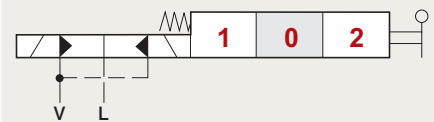
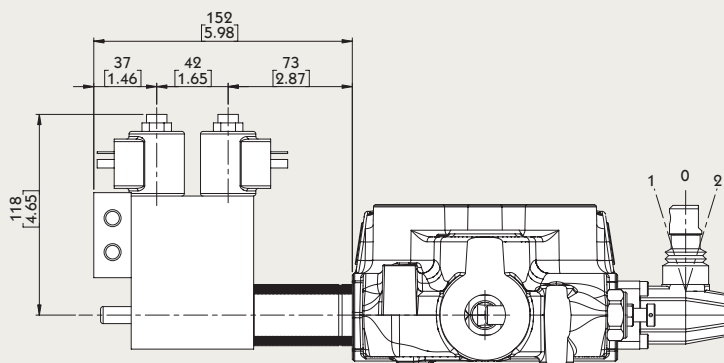
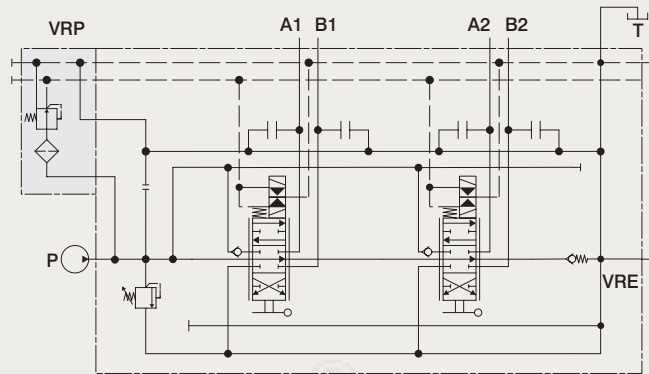
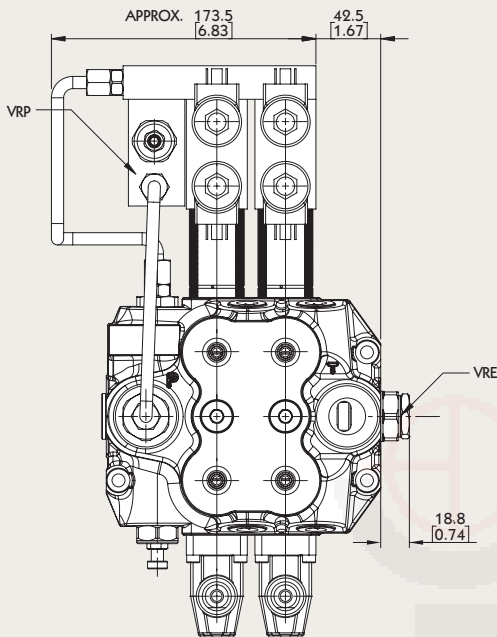
NOMINAL VOLTAGE: 24VDC
 NOMINAL VOLTAGE TOLERANCE: $\pm 10\%$
 POWER RATING: 5W



MSB-5 B Side

Monoblock Directional Control Valves

Type 8ED3



Operating features :

- PILOT PRESSURE: • MIN. 10 BAR / 145 PSI
 • MAX. 50 BAR / 725 PSI
- MAX. BACKPRESSURE ON DRAIN L: 25 BAR / 360PSI

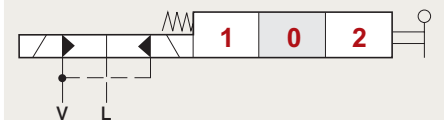
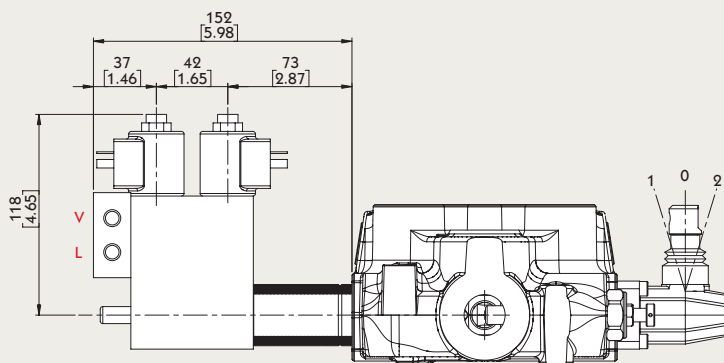
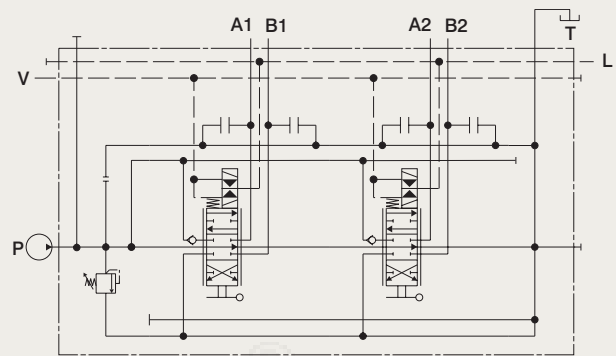
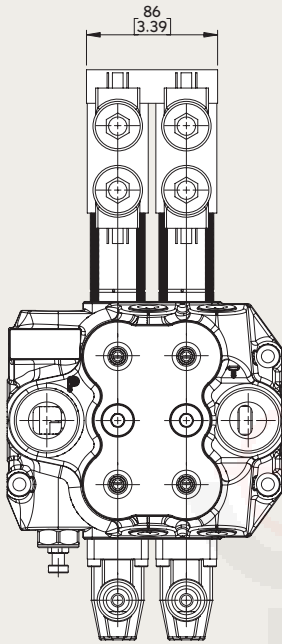
Coil features :

- NOMINAL VOLTAGE TOLERANCE: $\pm 10\%$
- ELECTRIC POWER: 21 W
- STANDARD VOLTAGE: 12 VDC / 24 VDC

MSB-5 B Side

Monoblock Directional Control Valves

Type 8ER3



Operating features :

PILOT PRESSURE: • MIN. 10 BAR / 145 PSI
 • MAX. 50 BAR / 725 PSI

MAX. BACKPRESSURE ON DRAIN L: 25 BAR / 360PSI

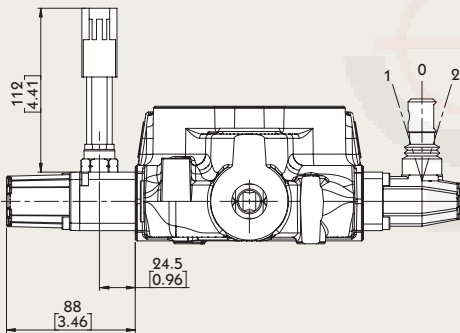
Coil features :

NOMINAL VOLTAGE TOLERANCE: $\pm 10\%$
 ELECTRIC POWER: 21 W
 STANDARD VOLTAGE: 12 VDC / 24 VDC

MSB-5 B Side

Monoblock Directional Control Valves

Type 8MG



MICROSWITCH

Operating features :

MECHANICAL LIFE: 5X10⁶ OPERATIONS

ELECTRICAL LIFE (RESISTIVE LOAD):

- 10⁶ OPERATIONS - 7A / 13.5 VDC
- 5x10⁴ OPERATIONS - 10A / 12 VDC
- 5x10⁴ OPERATIONS - 3A / 28 VDC



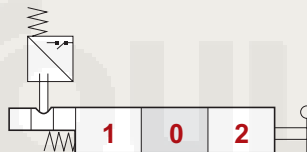
8MG1 Kit:

MICROSWITCH WITH MALE/FEMALE CONNECTOR, OPERATED IN POS. 1



8MG2 Kit:

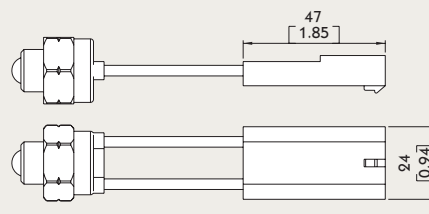
MICROSWITCH WITH MALE/FEMALE CONNECTOR, OPERATED IN POS. 2



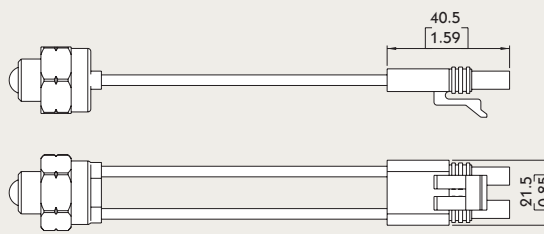
8MG3 Kit:

MICROSWITCH WITH MALE/FEMALE CONNECTOR, OPERATED IN POS. 1 AND POS. 2

With NO contact (female connector with male end)



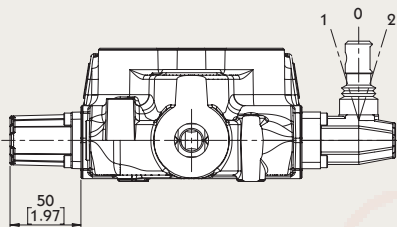
With NC contact (male connector with female end)



MSB-5 B Side

Monoblock Directional Control Valves

Type 8



8 Kit:

SPRING RETURN TO NEUTRAL POSITION.



8-1 Kit:

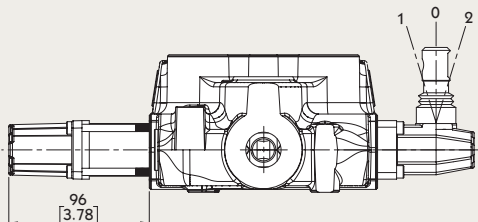
SPRING RETURN TO NEUTRAL POSITION.
(2 POSITIONS)



8-2 Kit:

SPRING RETURN TO NEUTRAL POSITION.
(2 POSITIONS)

Type 9



9-1 Kit:

DETENT IN POS. 1, 2 WITH SPRING CENTERED



9-2 Kit:

DETENT IN POS. 2 WITH SPRING CENTERED



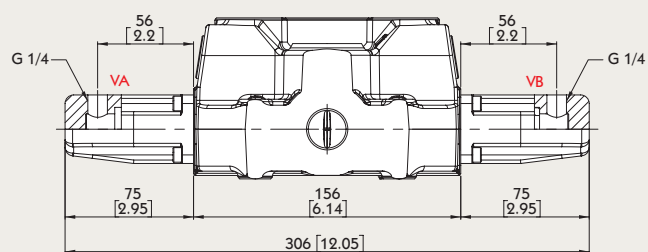
9-3 Kit:

DETENT IN POS. 1 WITH SPRING CENTERED

MSB-5 B Side

Monoblock Directional Control Valves

Type 81M



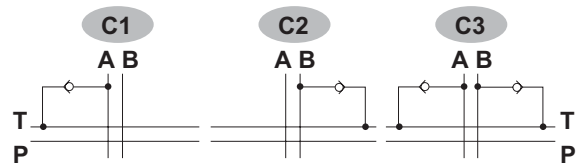
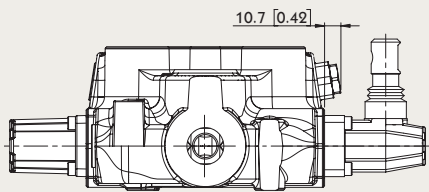
Operating features :

PILOT PRESSURE : MAX. 50 BAR

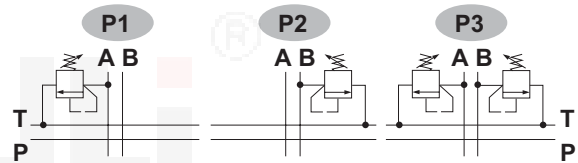
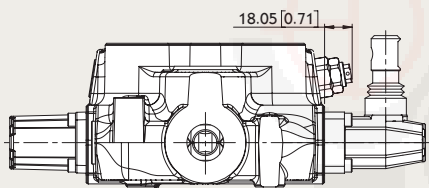
INTERNAL LEAKAGE A(B) -> T : MAX. 6 CM³/MIN
(100 BAR / 40°C)

MSB-5 Port Relief Monoblock Directional Control Valves

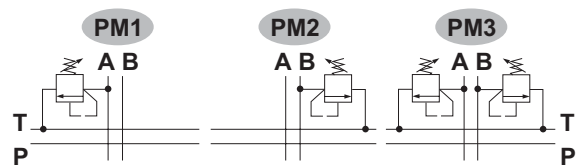
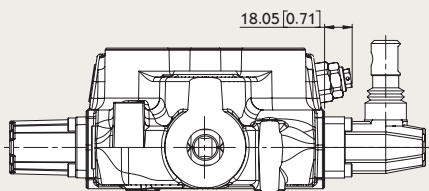
TYPE C



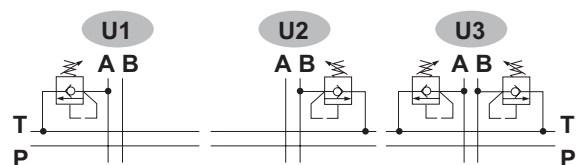
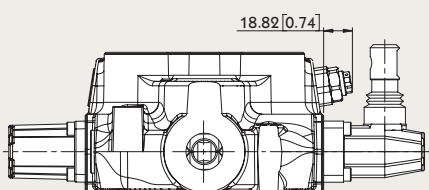
TYPE P



TYPE PM



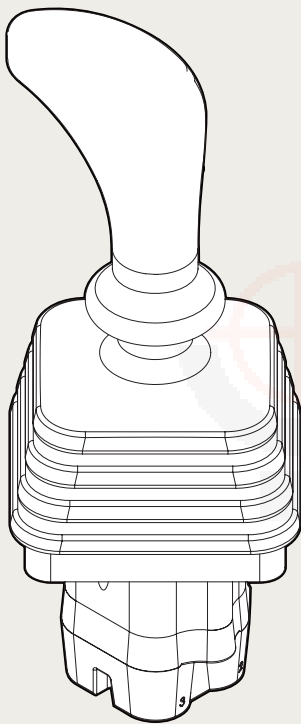
TYPE U



MSB-5 Accessories

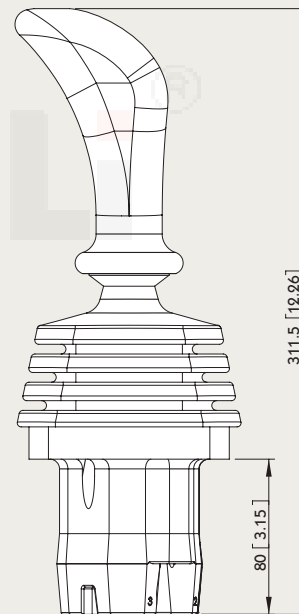
Monoblock Directional Control Valves

Type JHP-2

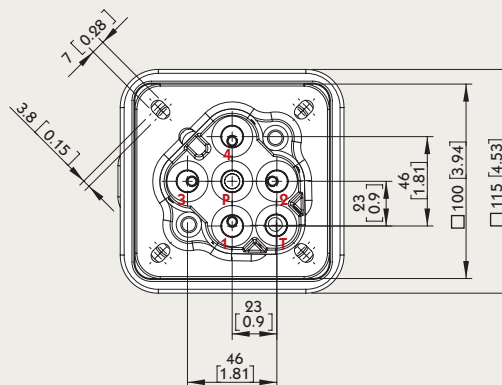
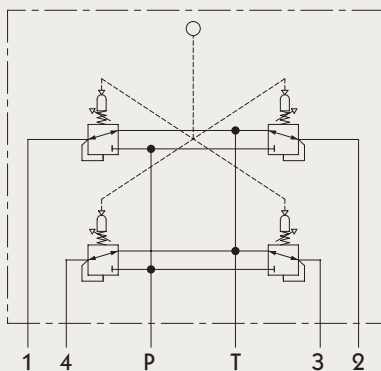


Specifications:

- This data sheet shows technical spec. with mineral oil of 46 mm²/s (cSt) viscosity at 40°C (104°F)
- Flow : 5 ~ 20 LPM
- Feeding pressure : 30 ~ 100 bar
- Max. backpressure : 3 bar
- Internal leakage at 30 bar : 10 ~ 18 cm³/min
- Fluid : mineral oil
- Fluid temperature : - 10 ~ 80°C
- Ambient temperature : - 40 ~ 60°C



HYDRAULIC SCHEME:



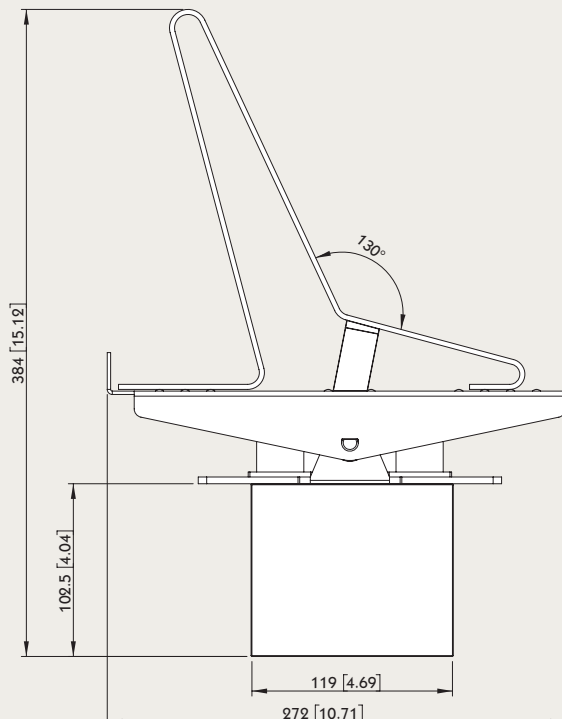
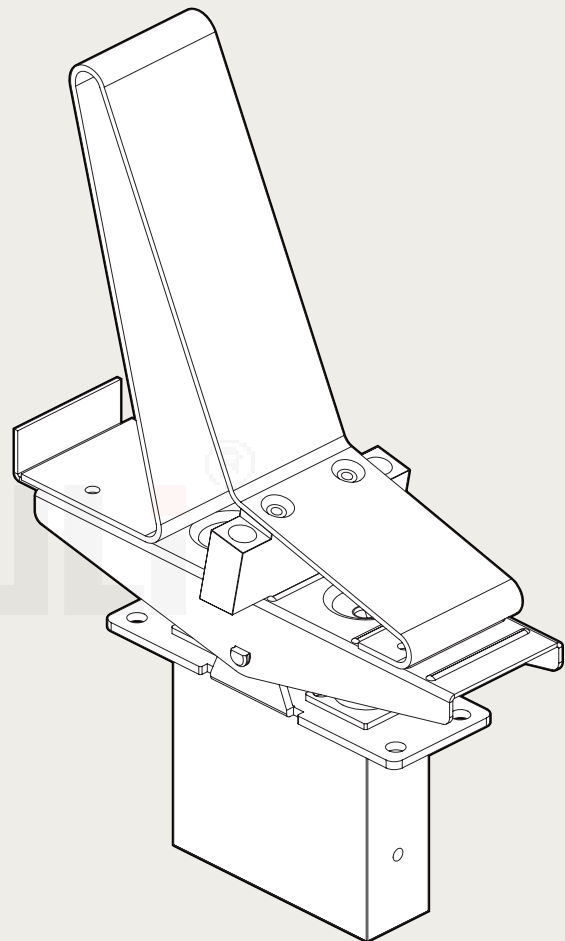
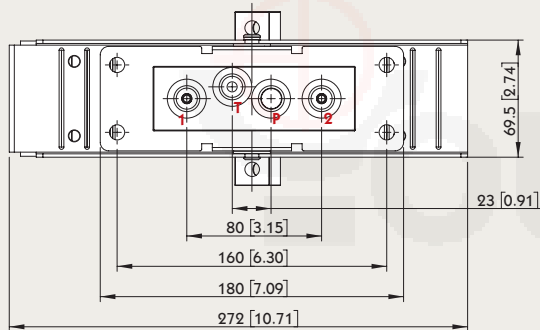
MSB-5 Accessories

Monoblock Directional Control Valves

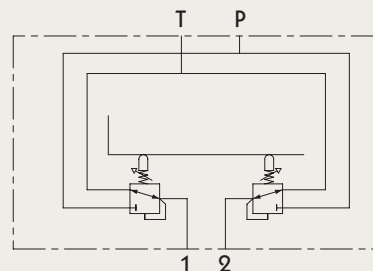
Type PHP-1

Specifications:

- This data sheet shows technical spec. with mineral oil of 46 mm²/s (cSt) viscosity at 40 °C (104 °F)
- Flow : 5 ~ 20 LPM
- Feeding pressure : 30 ~ 100 bar
- Max. backpressure : 3 bar
- Internal leakage at 30 bar : 10 ~ 18 cm³/min
- Fluid : mineral oil
- Fluid temperature : - 10 ~ 80 °C
- Ambient temperature : - 40 ~ 60 °C



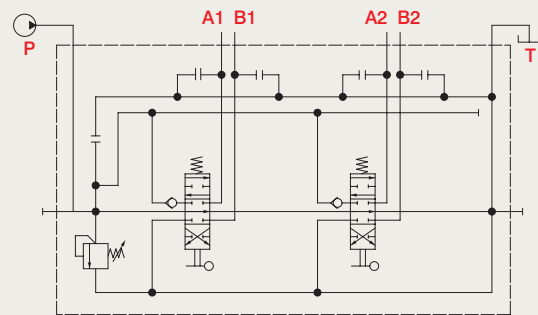
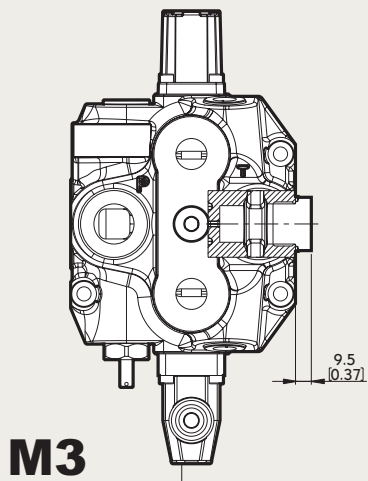
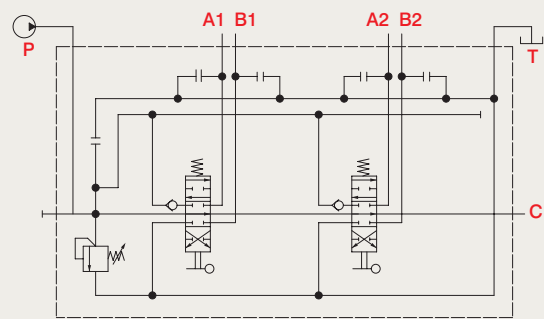
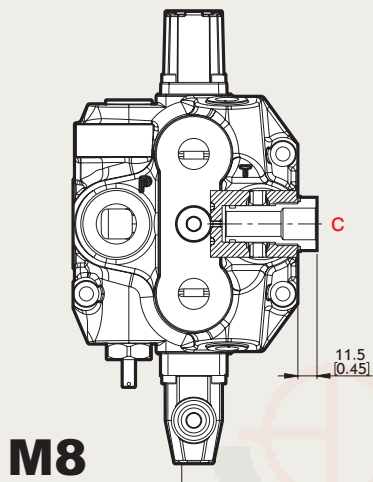
HYDRAULIC SCHEME:



MSB-5 Outlet

Monoblock Directional Control Valves

Power Beyond Conversion plug
(Closed center plug)



Memo

