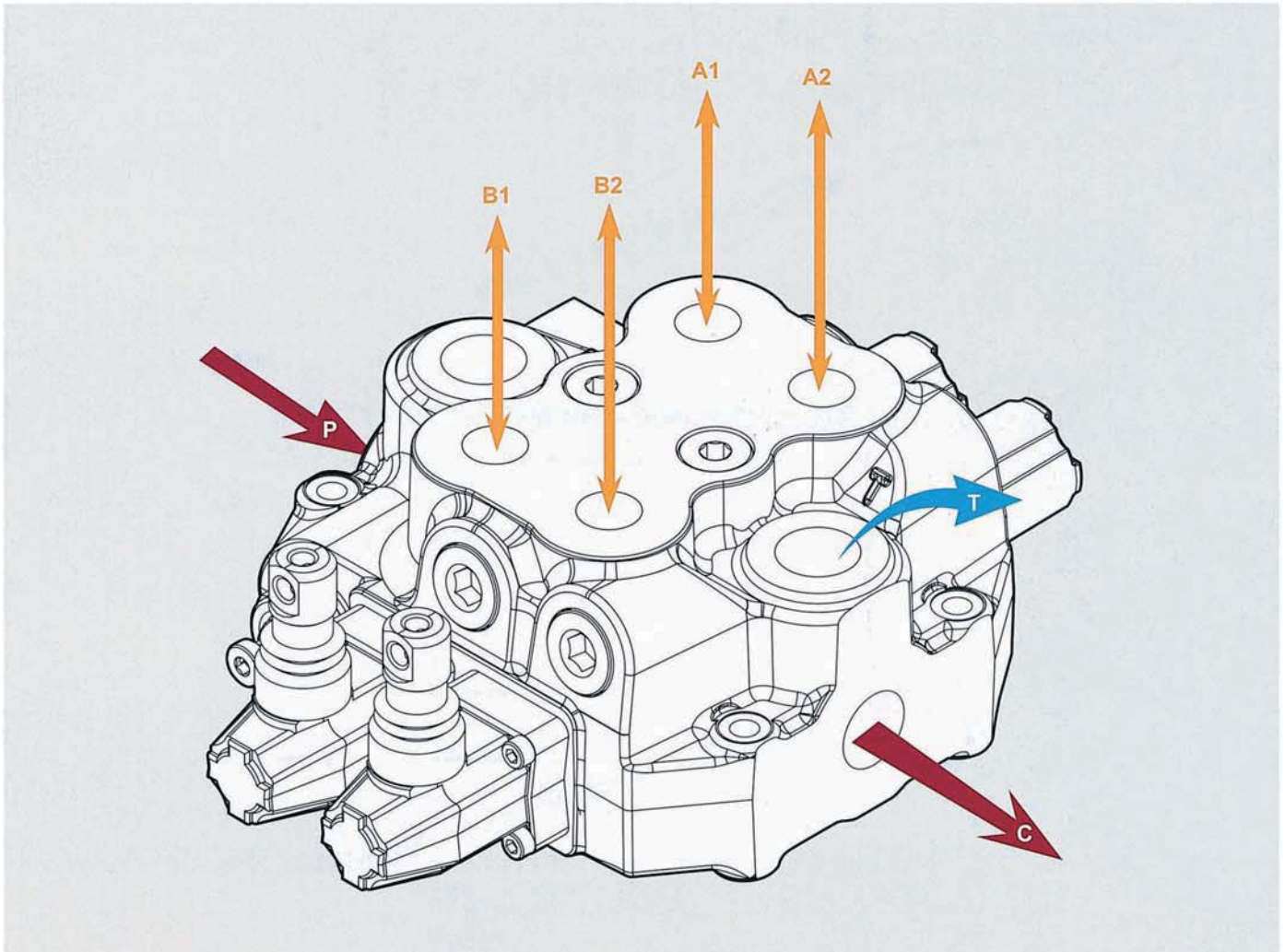


# MSB-5

## Monoblock Directional Control Valves

MSB-5



### MSB-5 Specifications

Nominal flow rate		80 l/min	21 US gpm
Operating pressure (maximum)	parallel or tandem circuit	315 bar	4600 psi
	series circuit	250 bar	3600 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 <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
Ambient temperature range		from - 40° to 60°C	from - 40° to 140° F

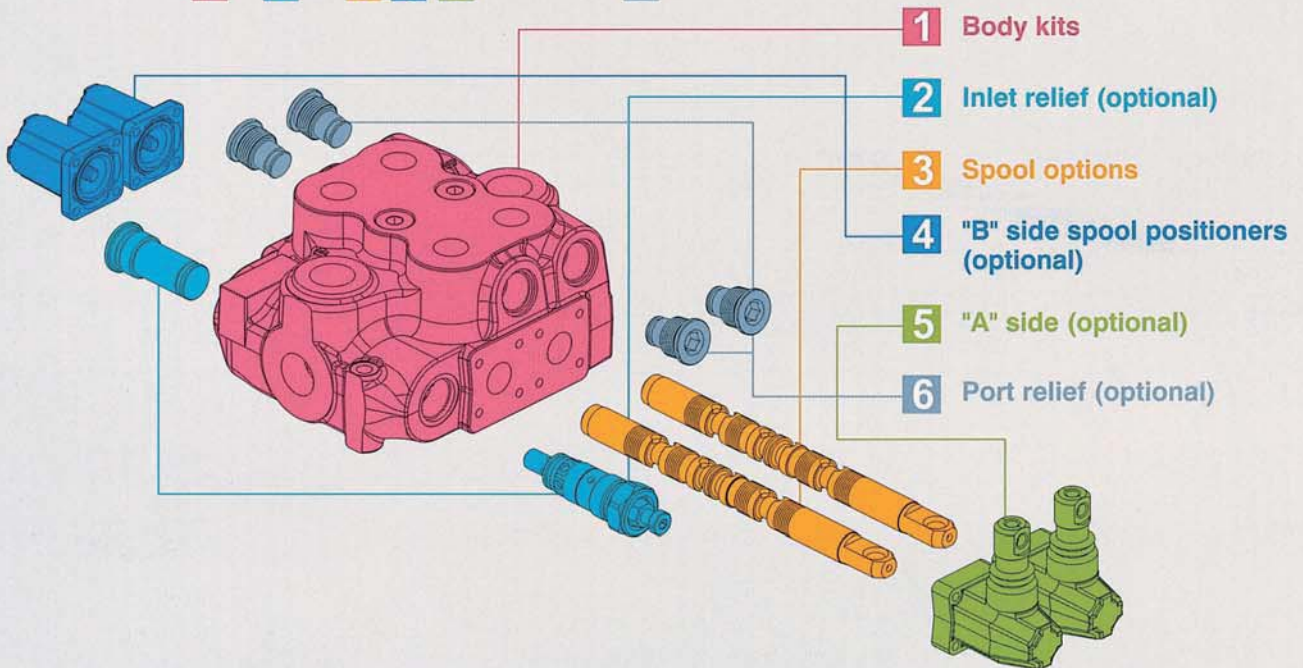
• All specifications, dimensions and design characteristics shown in this catalogue are subject to change without notice.

# 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



MSB-5

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. 114
WG-2	YLMSB52002	Direct pressure relief valve Range 80 to 160 bar/ 1150 to 2300 psi, standard setting 125 bar/ 1800 psi	P. 114
WG-3	YLMSB52003	Direct pressure relief valve Range 125 to 250 bar/ 1800 to 3600 psi, standard setting 175 bar/ 2500 psi	P. 114
WG-4	YLMSB52004	Direct pressure relief valve Range 200 to 315 bar/ 2900 to 4600 psi, standard setting 220 bar/ 3200 psi	P. 114
SV	YLMSB52100	Relief valve blanking plug	P. 114

3: Spool Options			
TYPE	CODE	DESCRIPTION	PAGE
1	YLMSB53001	Double acting, 3 positions, with A, B closed in neutral position	P. 115
2	YLMSB53002	Double acting, 3 positions, with A, B open to Tank in neutral position	P. 115
3	YLMSB53003	Single acting on A closed in neutral position, 3 positions, B plugged	P. 116
4	YLMSB53004	Single acting on B closed in neutral position, 3 positions, A plugged	P. 116
5	YLMSB53005	Double acting, 3 positions, with B open to Tank in neutral position	P. 117
6	YLMSB53006	Double acting, 3 positions, with A open to Tank in neutral position	P. 117
7	YLMSB53007	Single acting on A open to Tank in neutral position, 3 positions, B plugged	P. 118
8	YLMSB53008	Single acting on B open to Tank in neutral position, 3 positions, A plugged	P. 118

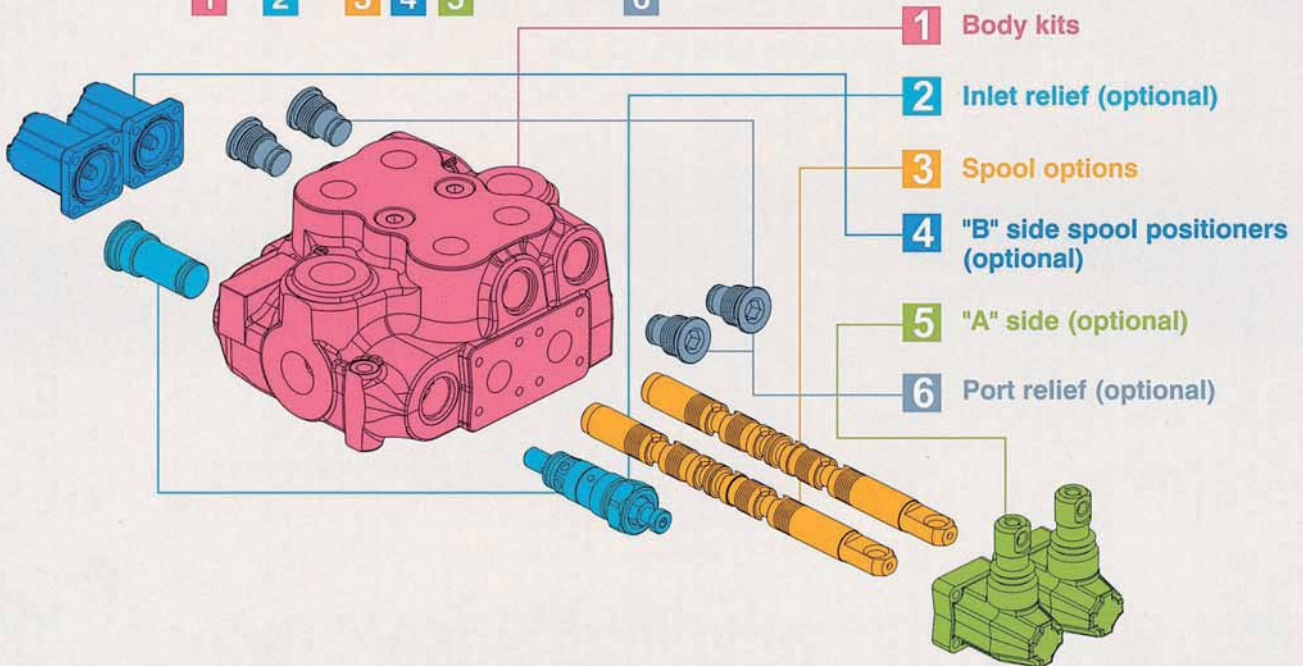
4: B Side Spool Positioners			
TYPE	CODE	DESCRIPTION	PAGE
6-1	YLWSN43061	Detent in pos. 1-0-2, without spring centered	P. 123
6-2	YLWSN43062	2 positions, detent in pos. 0-2, without spring centered	P. 123
6-3	YLWSN43063	2 positions, detent in pos. 1-0, without spring centered	P. 123
8D2	YLWSN43082	With spring return to neutral position and pin with M8 male thread for dual control	P. 123
8EP3	YLWSN44300	ON/OFF Electro-Pneumatic actuator	P. 124
8P	YLWSN43080	ON/OFF Pneumatic actuator	P. 124
8MG1 (NO)	YLWSN43801	Microswitch kit operated in pos. 1 (Normally Open)	P. 127
8MG2 (NO)	YLWSN43802	Microswitch kit operated in pos. 2 (Normally Open)	P. 127
8MG3 (NO)	YLWSN43803	Microswitch kit operated in pos. 1&2 (Normally Open)	P. 127
MG (NO)	YLWSN43804	Microswitch with NO terminal	P. 127
8MG1 (NC)	YLWSN438011	Microswitch kit operated in pos. 1 (Normally Closed)	P. 127
8MG2 (NC)	YLWSN438021	Microswitch kit operated in pos. 2 (Normally Closed)	P. 127
8MG3 (NC)	YLWSN438031	Microswitch kit operated in pos. 1&2 (Normally Closed)	P. 127
MG (NC)	YLWSN438041	Microswitch with NC terminal	P. 127
8	YLWSN43008	With spring return to neutral position	P. 128
8-1	YLWSN44801	2 positions, with spring centered from pos. 1	P. 128
8-2	YLWSN44082	2 positions, with spring centered from pos. 2	P. 128
9-1	YLWSN43091	Detent in pos. 1, 2 with spring centered	P. 128
9-2	YLWSN43092	Detent in pos. 2 with spring centered	P. 128
9-3	YLWSN43093	Detent in pos. 1 with spring centered	P. 128
8ED3+RV-KE1R3	YLMSB54201	1S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)	P. 125
8ED3+RV-KE2R3	YLMSB54202	2S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)	P. 125
8ED3+RV-KE3R3	YLMSB54203	3S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)	P. 125
8ED3+RV-KE4R3	YLMSB54204	4S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)	P. 125
8ED3+RV-KE5R3	YLMSB54205	5S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)	P. 125
8ED3+RV-KE6R3	YLMSB54206	6S: ON/OFF Electro-Hydraulic control kit with pilot and drain line+backpressure valve (12/24 VDC)	P. 125
8ER3+KE1S0	YLMSB54401	1S: ON/OFF Electro-hydraulic control kit with collector kit for external pilot and drain	P. 126
8ER3+KE2S0	YLMSB54402	2S: ON/OFF Electro-hydraulic control kit with collector kit for external pilot and drain	P. 126
8ER3+KE3S0	YLMSB54403	3S: ON/OFF Electro-hydraulic control kit with collector kit for external pilot and drain	P. 126
8ER3+KE4S0	YLMSB54404	4S: ON/OFF Electro-hydraulic control kit with collector kit for external pilot and drain	P. 126
8ER3+KE5S0	YLMSB54405	5S:ON/OFF Electro-hydraulic control kit with collector kit for external pilot and drain	P. 126
8ER3+KE6S0	YLMSB54406	6S: ON/OFF Electro-hydraulic control kit with collector kit for external pilot and drain	P. 126

# 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)

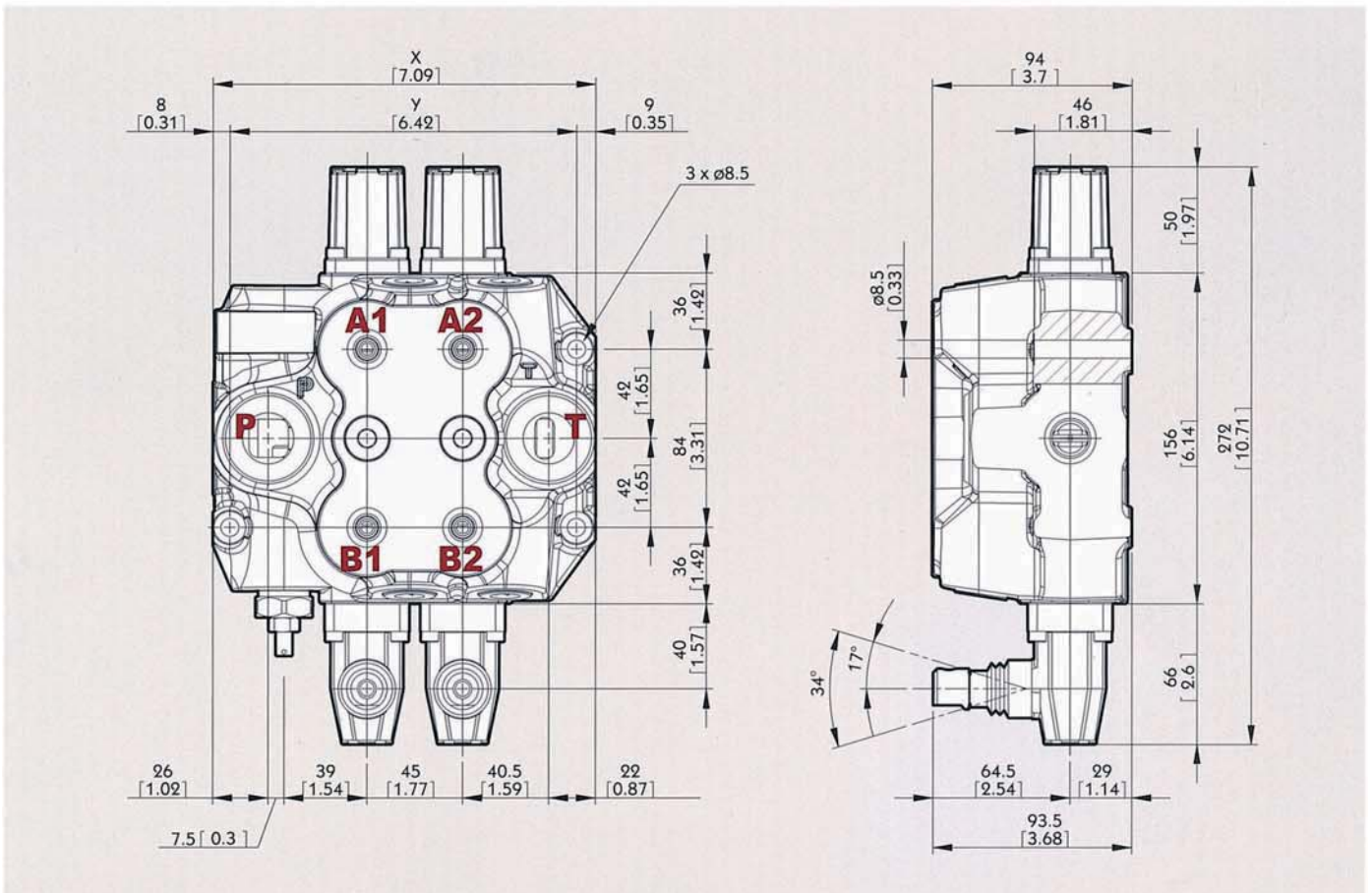
TYPE	CODE	DESCRIPTION	PAGE
L	YLWSN44000	Standard lever box	P. 119
SLP	YLWSN44001	Without lever box, with dust-proof plate	P. 119
LCB	YLWSN45002	Joystick lever for 2 section operation	P. 120
TQ	YLWSN44003	Flexible cable connection	P. 121

### 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. 130
P (G3-100)	YLWSN45003	Anti-shock valve, range 100 to 250 bar / form 1450 to 3600 psi standard setting 100 bar / 1450 psi	P. 130
P (G4-200)	YLWSN45004	Anti-shock valve, range 200 to 315 bar / form 2900 to 4600 psi standard setting 200 bar / 2900 psi	P. 130
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. 130
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. 130
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. 130
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. 130
C	YLWSN45100	Anti - cavitation	P. 130

# MSB-5 Dimensions

## Monoblock Directional Control Valves



MSB-5

### 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

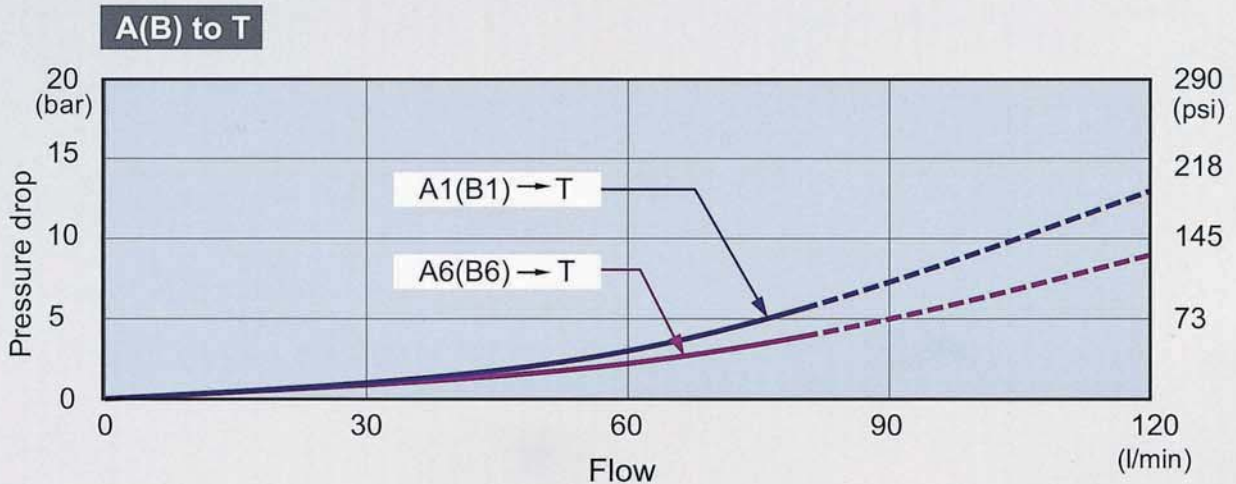
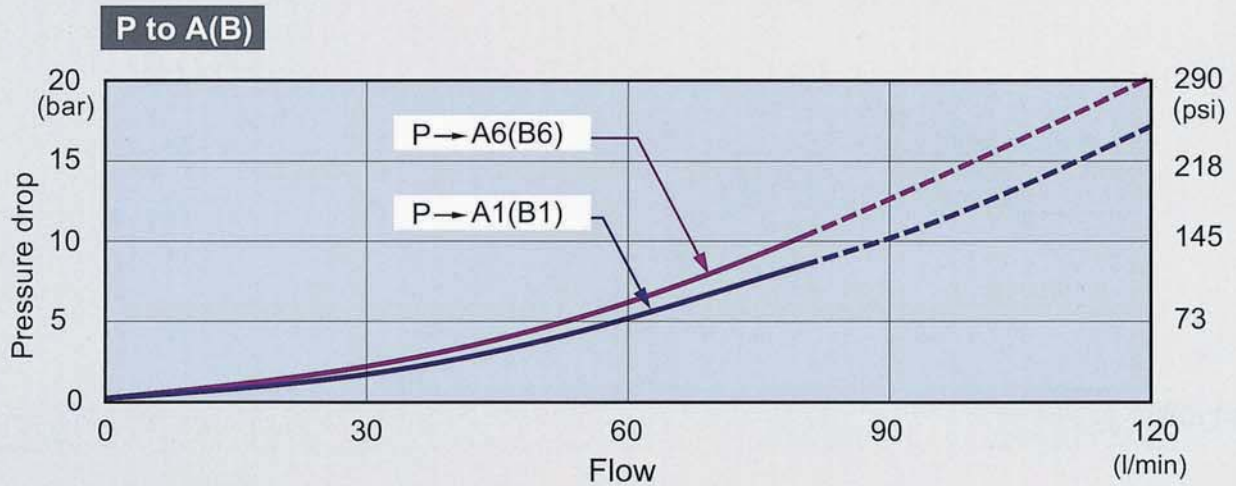
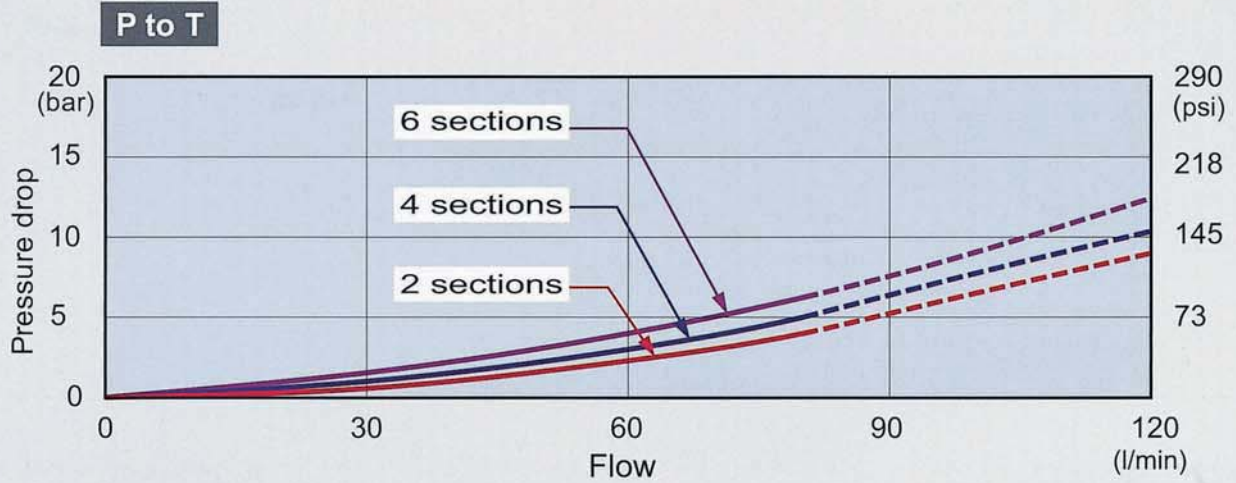
### Standard dimensions

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

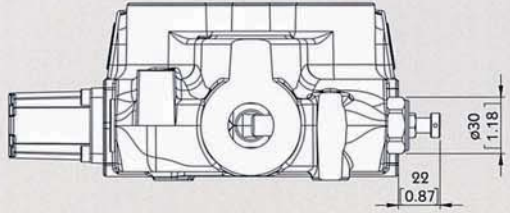
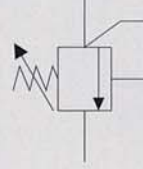
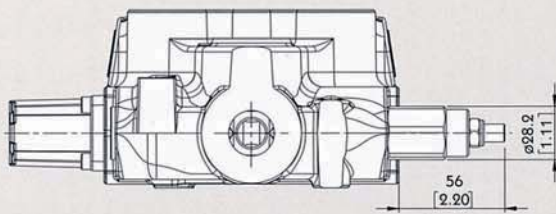
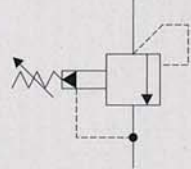
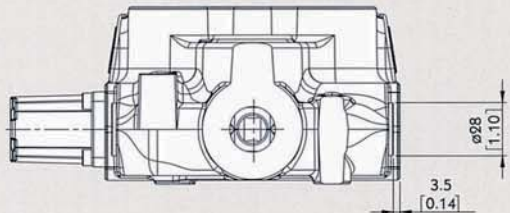

## Monoblock Directional Control Valves

MSB-5



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

MSB-5

<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

MSB-5

TYPE 1		
	<p>P &amp; T &amp; A &amp; B closed C open</p>	
	<p>P → A B → T C closed</p>	
	<p>P → B A → T C open</p>	
TYPE 2		
	<p>A &amp; B → T P closed C open</p>	
	<p>P → A B → T C closed</p>	
	<p>P → B A → T C open</p>	



# MSB-5 Spool Options

## Monoblock Directional Control Valves

MSB-5

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

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

# MSB-5 Spool Options

## Monoblock Directional Control Valves

MSB-5

TYPE 5		
	<p>P → A</p> <p>B → T</p> <p>C closed</p>	
	<p>B → T</p> <p>P &amp; A closed</p> <p>C open</p>	
	<p>P → B</p> <p>A → T</p> <p>C closed</p>	
TYPE 6		
	<p>P → A</p> <p>B → T</p> <p>C closed</p>	
	<p>B → T</p> <p>P &amp; A closed</p> <p>C open</p>	
	<p>P → B</p> <p>A → T</p> <p>C closed</p>	

# MSB-5 spool Options

## Monoblock Directional Control Valves

MSB-5

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

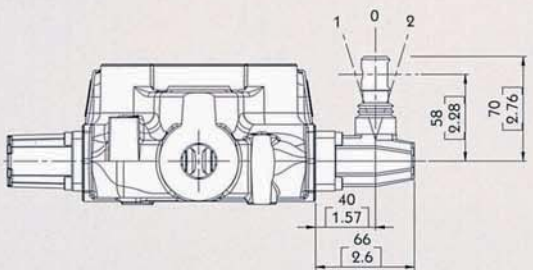
TYPE 8		
	<p>B → T P closed C open</p>	<p>1 0 2 B P T "A" port plugged</p>
	<p>B → T P closed C open</p>	<p>1 0 2 B P T "A" port plugged</p>
	<p>B → T C closed</p>	<p>1 0 2 B P T "A" port plugged</p>

# MSB-5 A Side

## Monoblock Directional Control Valves

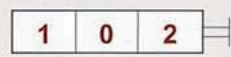
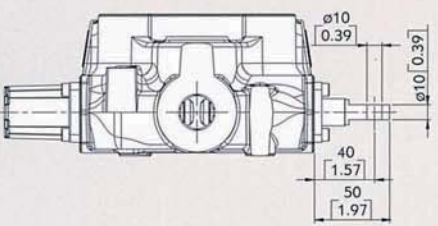
MSB-5

### Type L



**Type L :**  
STANDART LEVER KIT

### Type SLP



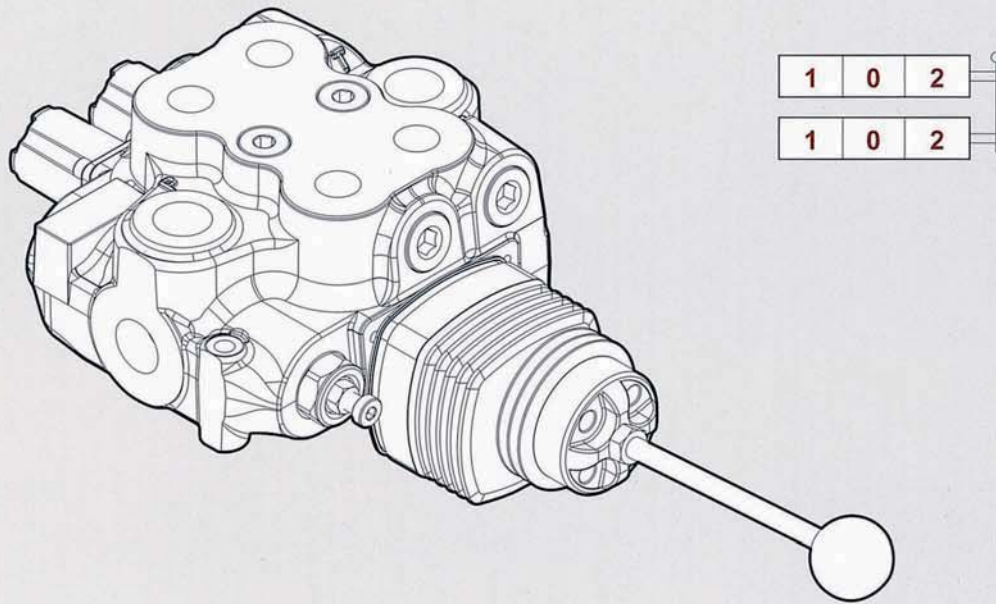
**Type SLP :**  
WITH DUST-PROOF PLATE

# MSB-5 A Side

## Monoblock Directional Control Valves

MSB-5

LCB: Joystick control



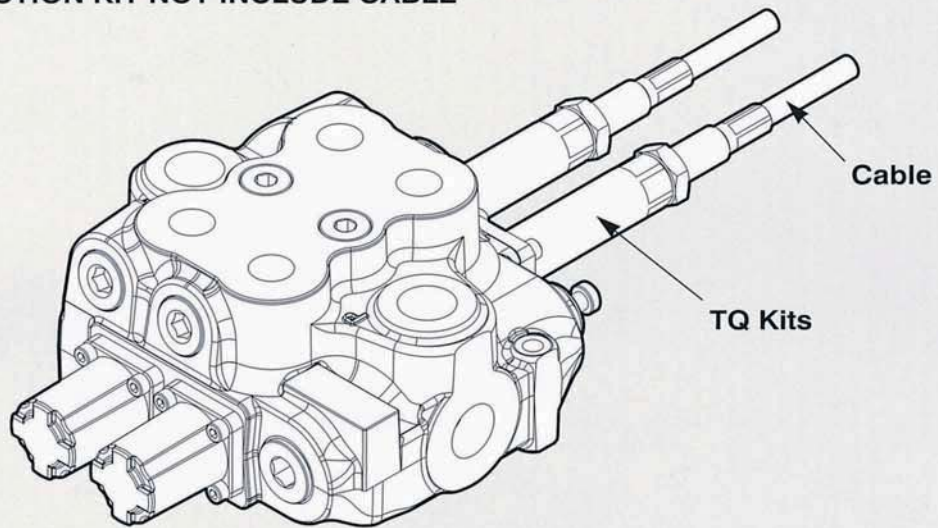
Type LCB	LCB1	LCB2
Type LCB	LCB3	LCB4

# MSB-5 A Side

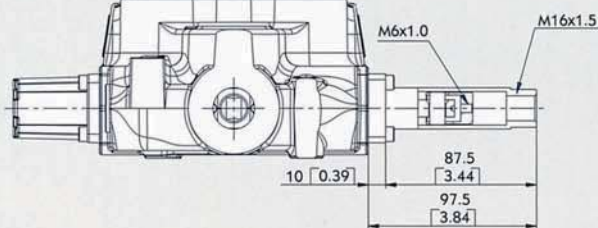
## Monoblock Directional Control Valves

MSB-5

Note : CONNECTION KIT NOT INCLUDE CABLE



### Type TQ



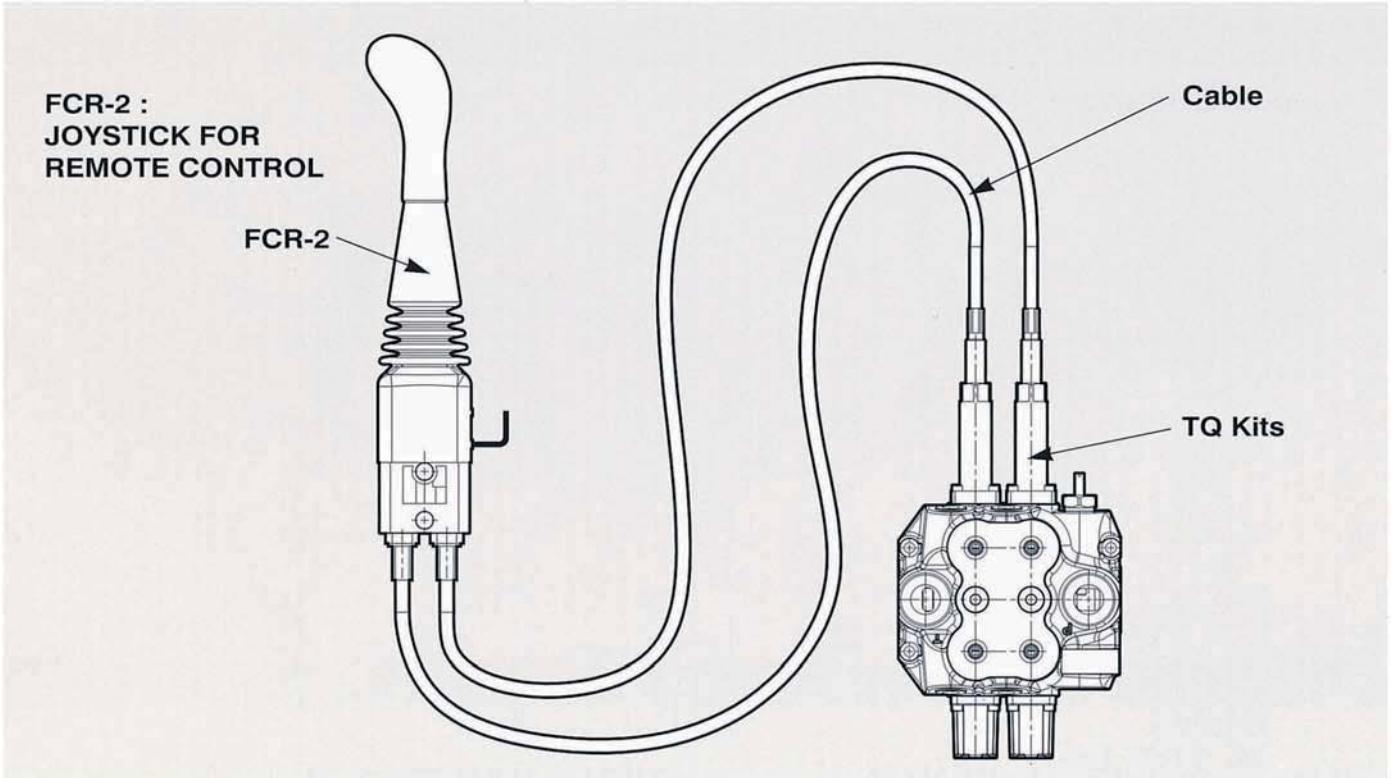
TQ Kit:



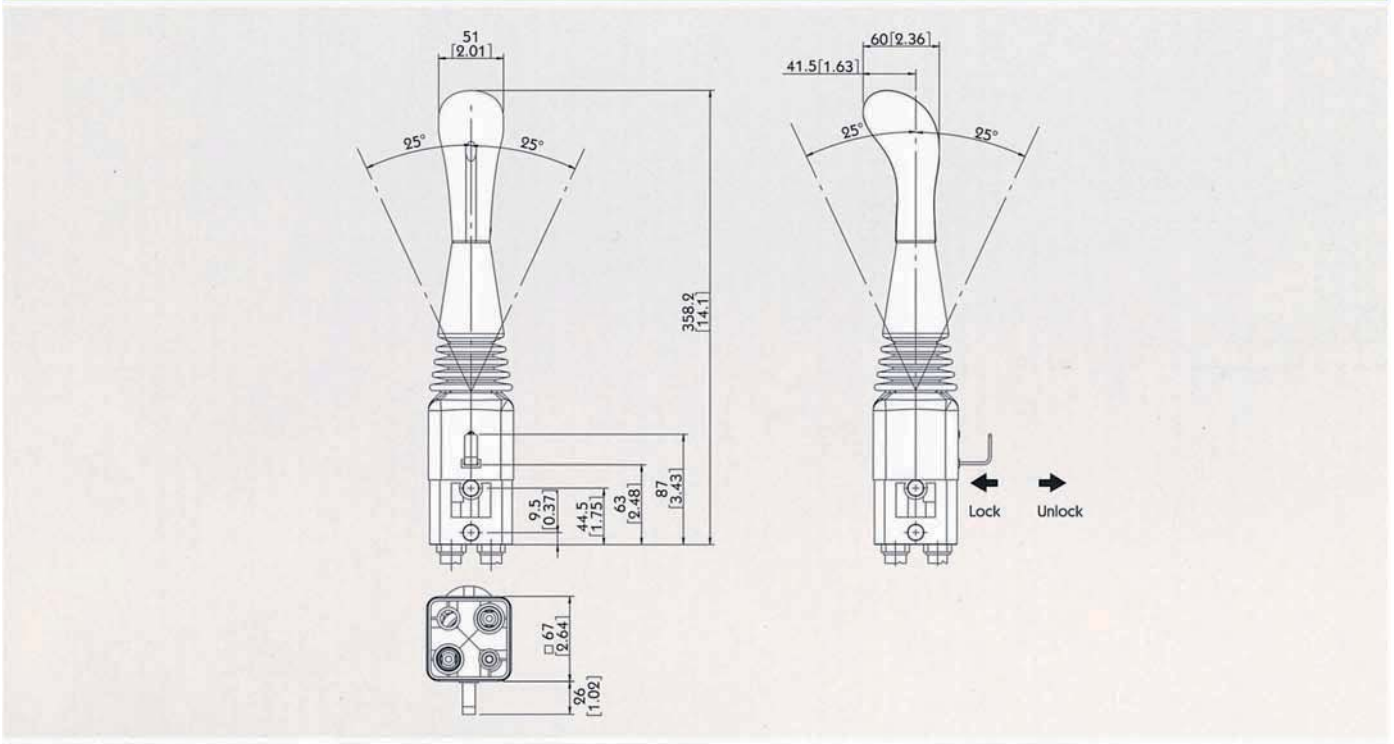
# MSB-5 A Side

## Monoblock Directional Control Valves

MSB-5



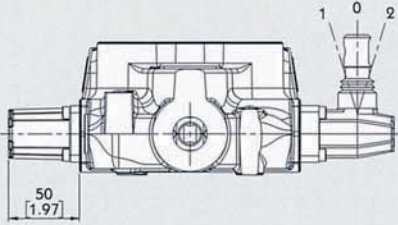
Type FCR-2



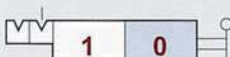


# MSB-5 B Side Monoblock Directional Control Valves

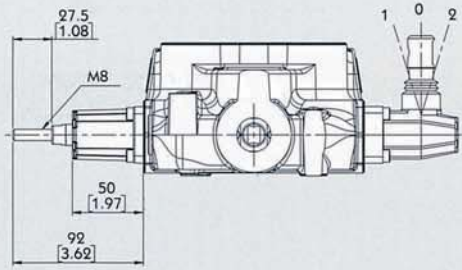
MSB-5

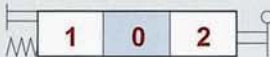
**Type 6**



	<p><b>6-1 Kit:</b> DETENT IN POS. 1-0-2, WITHOUT SPRING CENTERED</p>
	<p><b>6-2 Kit:</b> 2 POSITIONS, DETENT IN POS. 0-2, WITHOUT SPRING CENTERED</p>
	<p><b>6-3 Kit:</b> 2 POSITIONS, DETENT IN POS. 1-0, WITHOUT SPRING CENTERED</p>

**Type 8D2**



	<p><b>8D2 Kit:</b> WITH SPRING RETURN TO NEUTRAL POSITION AND PIN WITH M8 MALE THREAD FOR DUAL CONTROL</p>
--	--

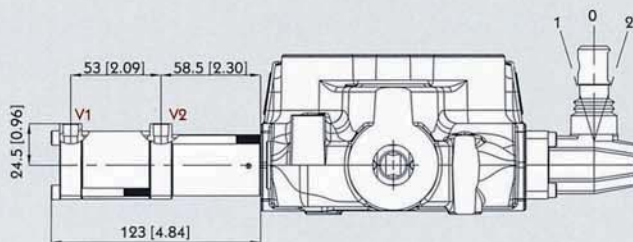


# MSB-5 B Side

## Monoblock Directional Control Valves

### Type 8P

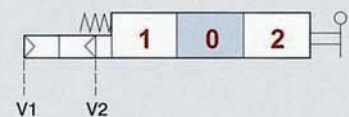
V1 & V2: NPT 1/8 - 27



**Operating feature :**

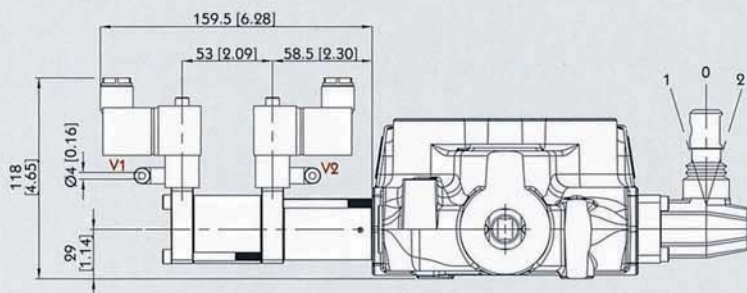
PILOT PRESSURE (MIN.): 6 BAR / 87 PSI  
 PILOT PRESSURE (MAX.): 12 BAR / 174 PSI

ON/OFF PNEUMATIC KIT



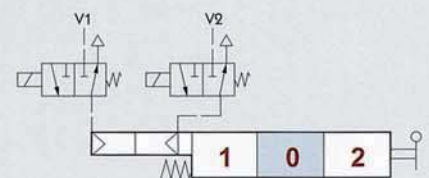
MSB-5

### Type 8EP3



**Solenoid operating features :**

NOMINAL VOLTAGE: 24VDC  
 NOMINAL VOLTAGE TOLERANCE: ±10%  
 POWER RATING: 5W

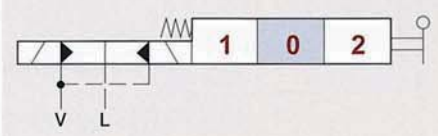
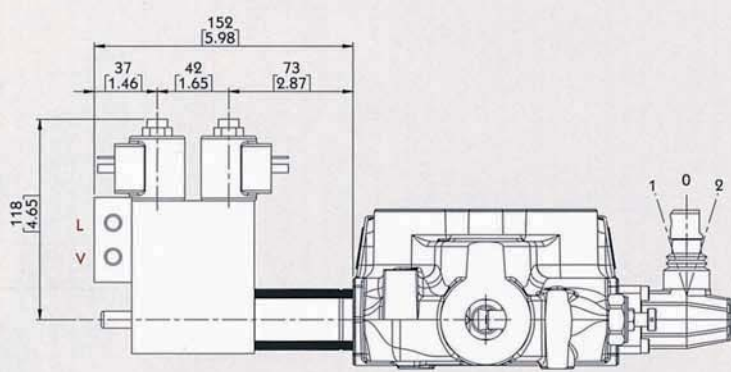
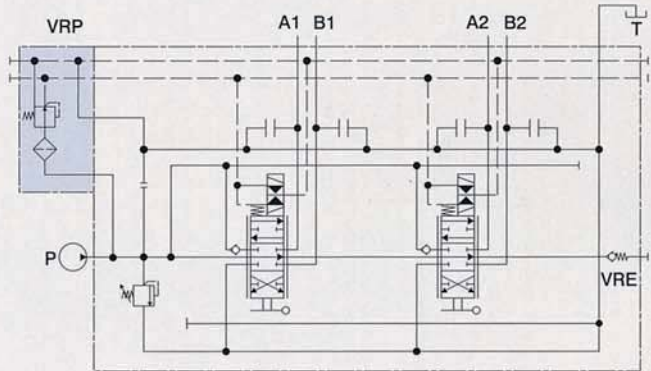
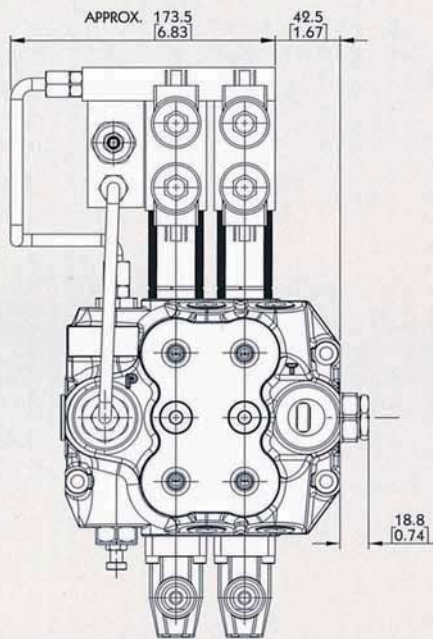


# MSB-5 B Side

## Monoblock Directional Control Valves

MSB-5

### Type 8ED3



**Operating features :**

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

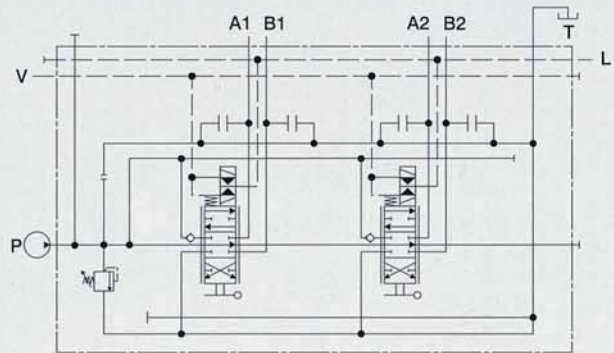
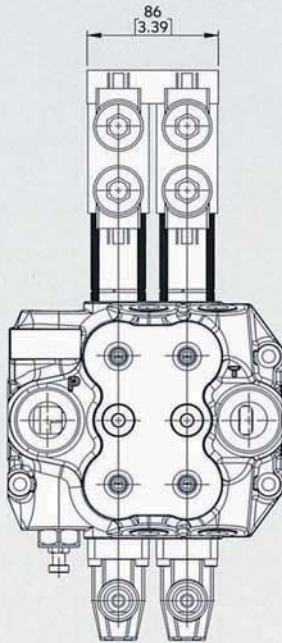
**Coil features :**

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

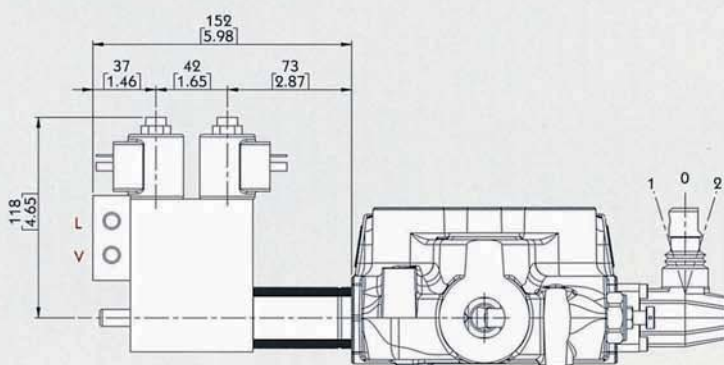
# MSB-5 B Side

## Monoblock Directional Control Valves

Type 8ER3



MSB-5



**Operating features :**

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

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

**Coil features :**

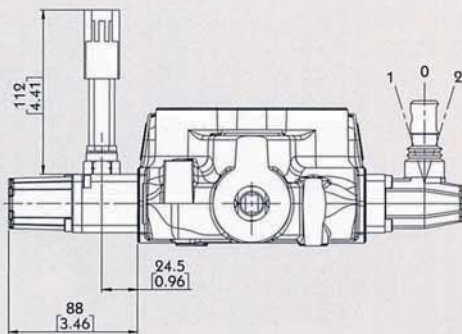
NOMINAL VOLTAGE TOLERANCE: ±10%  
 ELECTRIC POWER: 21 W  
 STANDARD VOLTAGE: 12 VDC / 24 VDC

# MSB-5 B Side

## Monoblock Directional Control Valves

MSB-5

Type 8MG



**MICROSWITCH**  
Operating features :

MECHANICAL LITE: 5X10<sup>6</sup> OPERATIONS

ELECTRICAL LITE (RESISTIVE LOAD):

- 10<sup>6</sup> OPERATIONS - 7A / 13.5 VDC
- 5x10<sup>4</sup> OPERATIONS - 10A / 12 VDC
- 5x10<sup>4</sup> OPERATIONS - 3A / 28 VDC



**8MG1 Kit:**

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



**8MG2 Kit:**

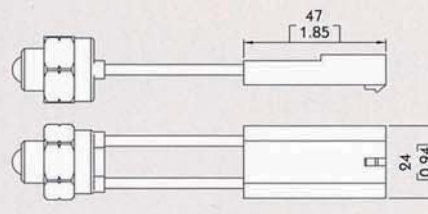
MICROSWITCH WITH MALE/FEMALE CONNECTOR, OPERATED IN POS. 2



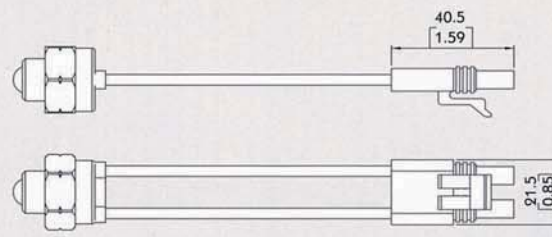
**8MG3 Kit:**

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

**With NO contact (female connector with male end)**



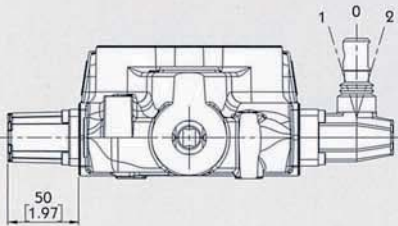



**With NC contact (male connector with female end)**

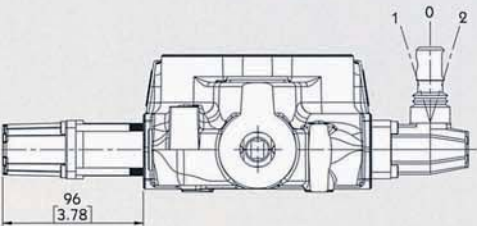
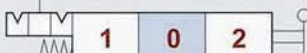
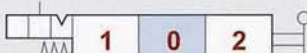
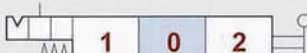


# MSB-5 B Side

## Monoblock Directional Control Valves

MSB-5

Type 8		
		<p><b>8 Kit:</b> SPRING RETURN TO NEUTRAL POSITION.</p>
		<p><b>8-1 Kit:</b> SPRING RETURN TO NEUTRAL POSITION. (2 POSITIONS)</p>
		<p><b>8-2 Kit:</b> SPRING RETURN TO NEUTRAL POSITION. (2 POSITIONS)</p>

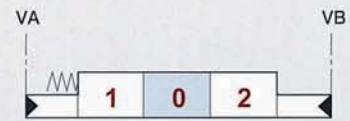
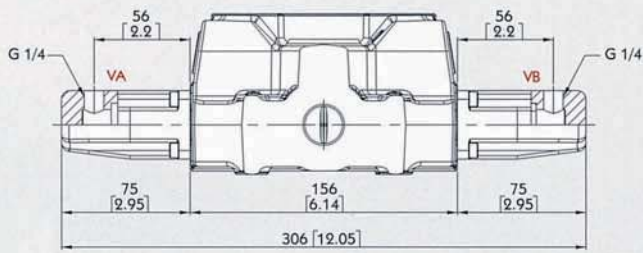
Type 9		
		<p><b>9-1 Kit:</b> DETENT IN POS. 1, 2 WITH SPRING CENTERED</p>
		<p><b>9-2 Kit:</b> DETENT IN POS. 2 WITH SPRING CENTERED</p>
		<p><b>9-3 Kit:</b> DETENT IN POS. 1 WITH SPRING CENTERED</p>

# MSB-5 B Side

## Monoblock Directional Control Valves

Type 8IM

MSB-5



### Operating features :

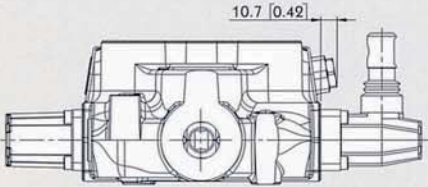
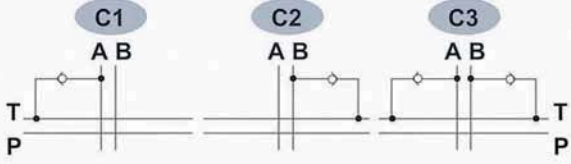
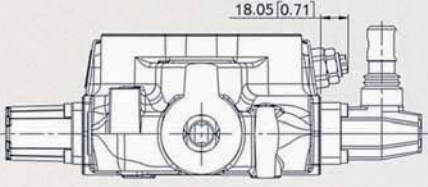
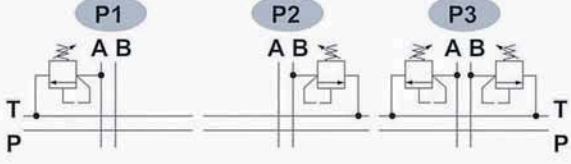
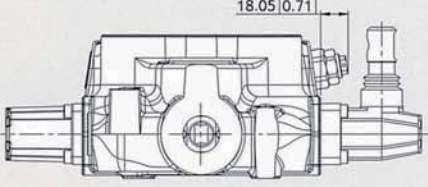
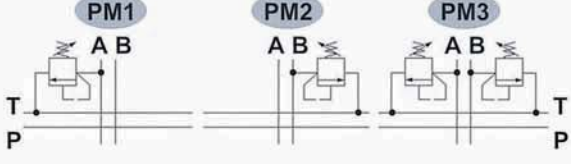
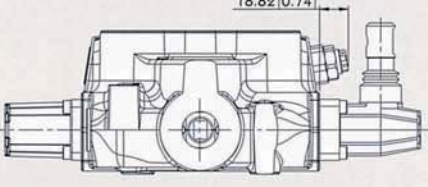
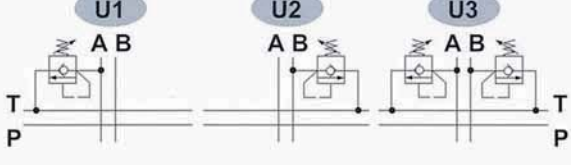
PILOT PRESSURE : MAX. 50 BAR

INTERNAL LEAKAGE A(B) -> T : MAX. 6 CM<sup>3</sup>/MIN  
(100 BAR / 40°C)

# MSB-5 Port Relief

## Monoblock Directional Control Valves

MSB-5

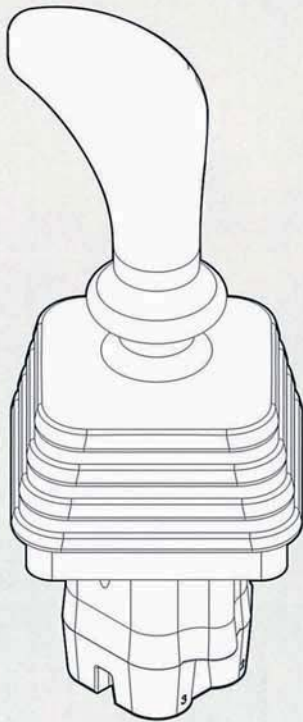
TYPE C	
	
TYPE P	
	
TYPE PM	
	
TYPE U	
	

# MSB-5 Accessories

## Monoblock Directional Control Valves

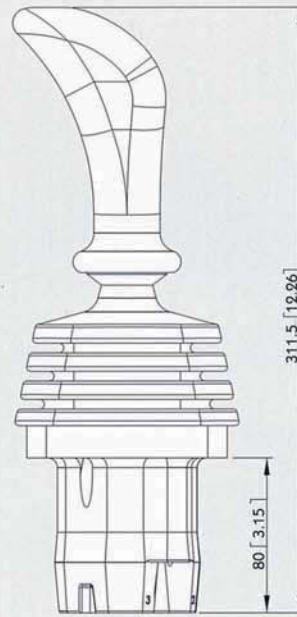
Type JHP-2

MSB-5

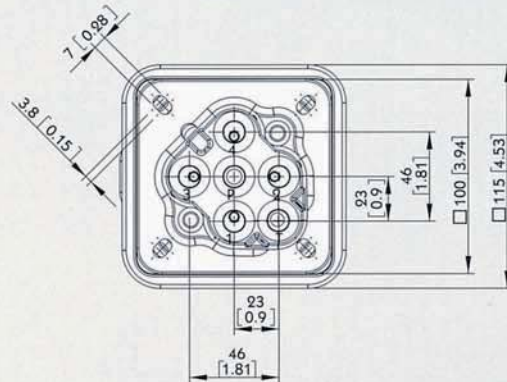
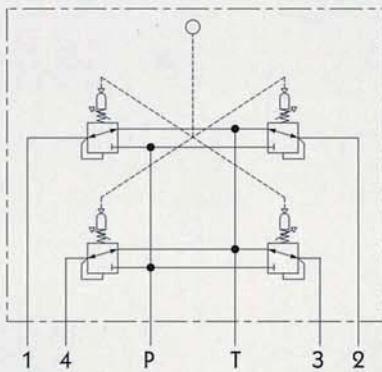


### Specifications:

- This data sheet shows technical spec. with mineral oil of 46 mm<sup>2</sup>/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 cm<sup>3</sup>/min
- Fluid : mineral oil
- Fluid temperature : - 10 ~ 80°C
- Ambient temperature : - 40 ~ 60°C



### HYDRAULIC SCHEME:





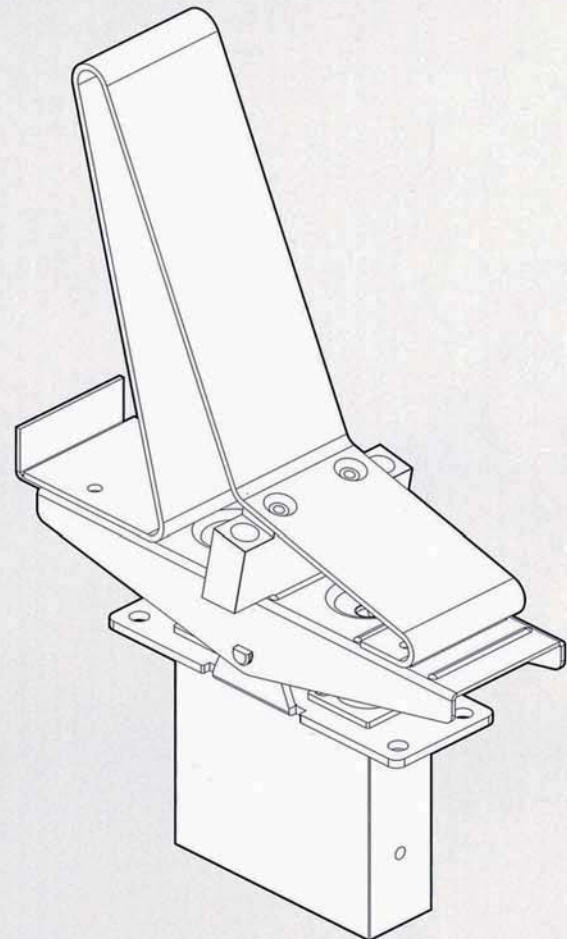
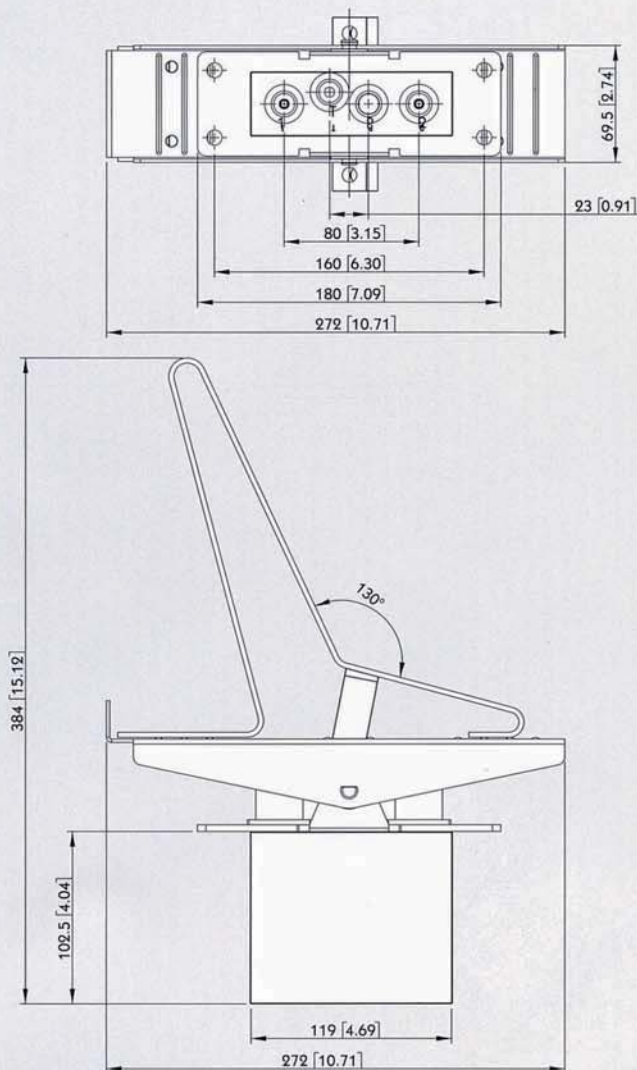
# MSB-5 Accessories

## Monoblock Directional Control Valves

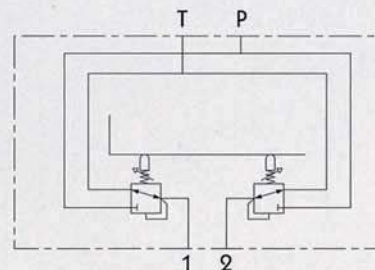
### Type PHP-1

#### Specifications:

- This data sheet shows technical spec. with mineral oil of 46 mm<sup>2</sup>/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 cm<sup>3</sup>/min
- Fluid : mineral oil
- Fluid temperature : - 10 ~ 80°C
- Ambient temperature : - 40 ~ 60°C



#### HYDRAULIC SCHEME:



MSB-5

# MSB-5 Outlet

## Monoblock Directional Control Valves

MSB-5

Power Beyond Conversion plug  
(Closed center plug)

