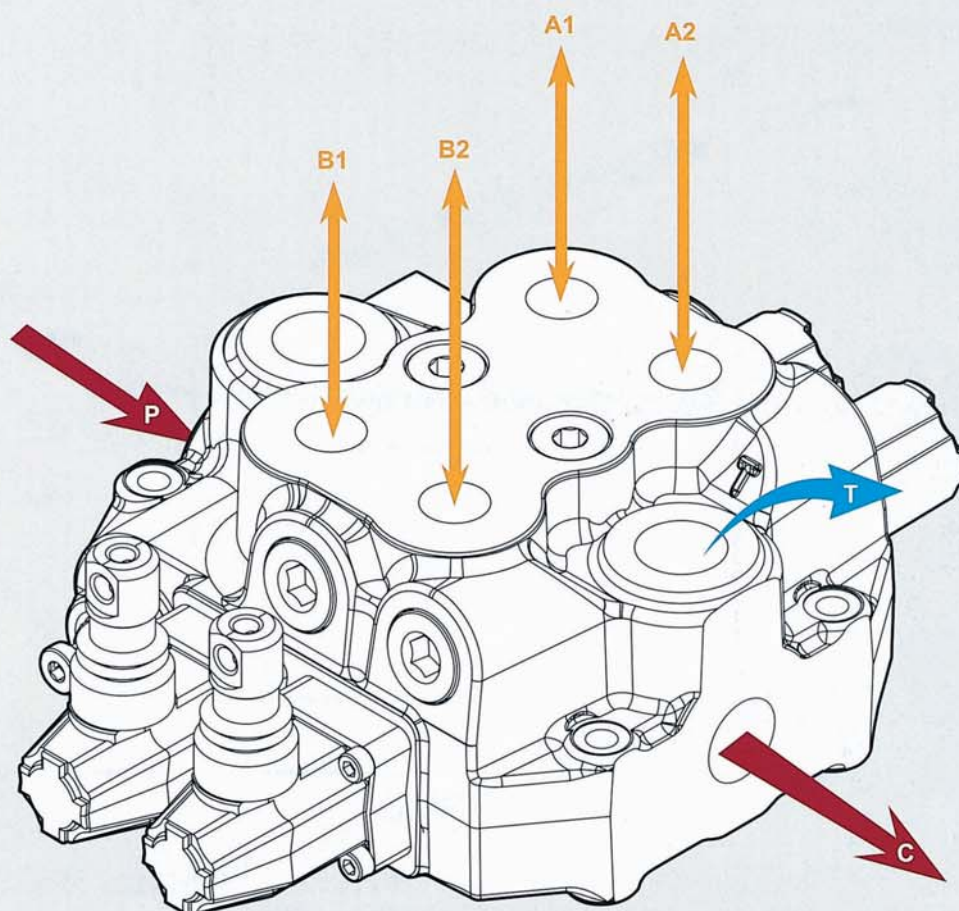


# MSB-5

## 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 mm²/s	from 15 to 75 cst
	min.	12 mm²/s	12 cst
	max.	400 mm²/s	400 cst
Ambient temperature range		from - 40° to 60°C	from - 40° to 140° F

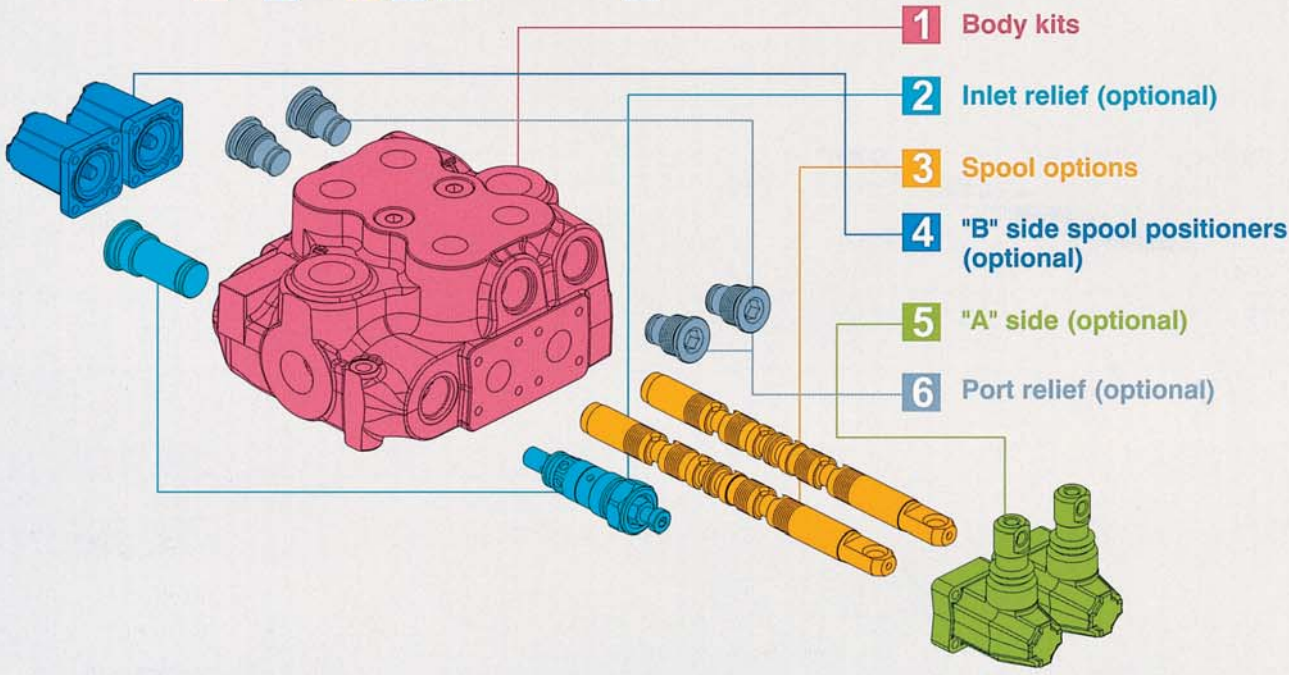
• All specifications, dimensions and design characteristics shown in this catalogue are subject to change without notice.

# 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	PAGE
XWG		YLMSB52001	P. 114
WG-2		YLMSB52002	P. 114
WG-3		YLMSB52003	P. 114
WG-4		YLMSB52004	P. 114
SV		YLMSB52100	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

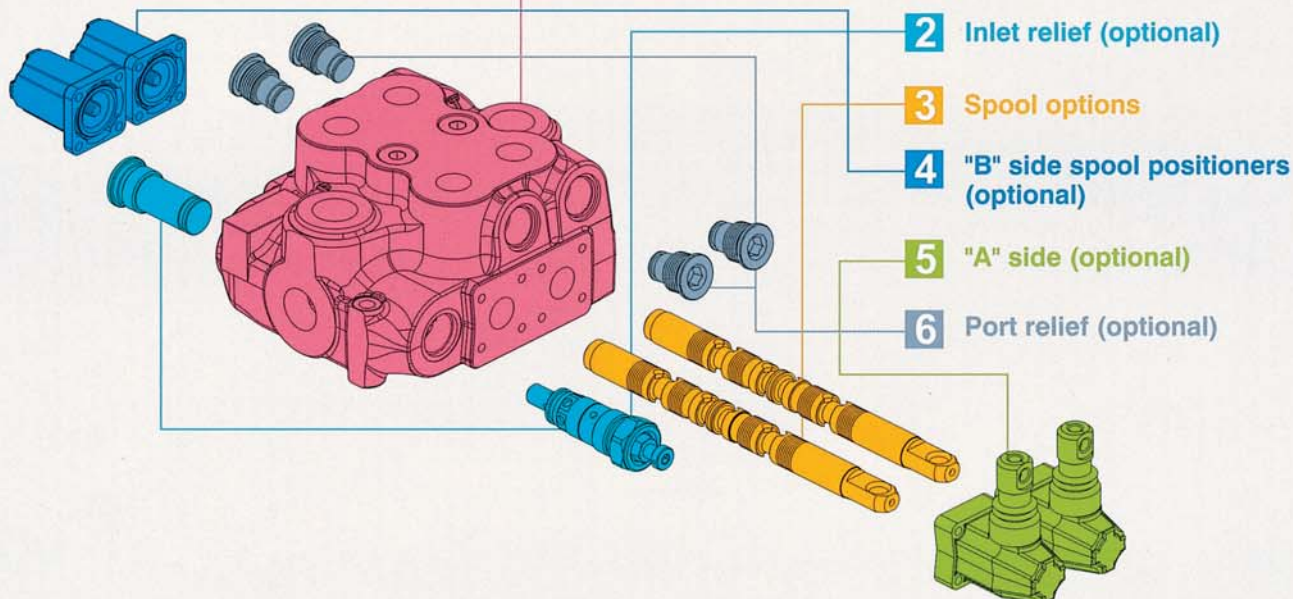


# MSB-5

## 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)

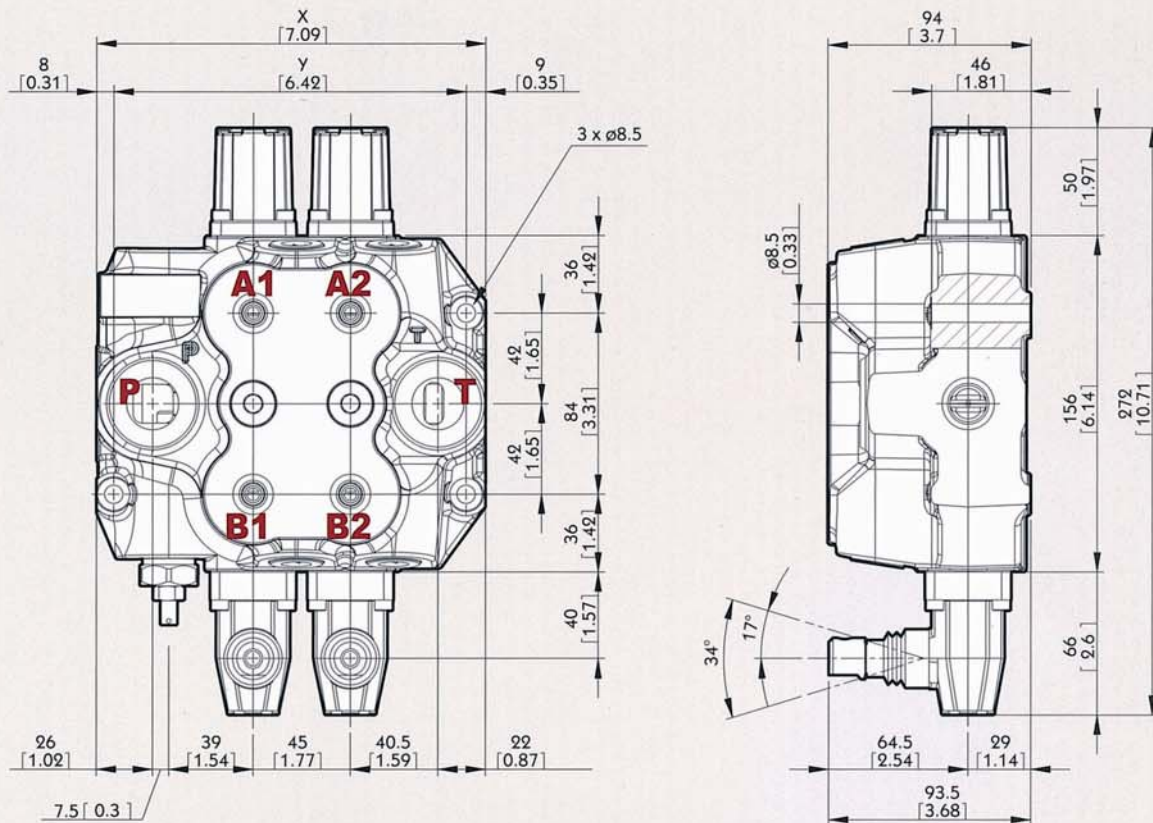
TYPE	CODE	DESCRIPTION	PAGE
L	YLWSN44000	Standard lever box	P. 119
SLP	YLWSN44001	Without lever box, with dust-proof plate	P. 119
LCB	YLWSN45002	Joystick lever for 2 section operation	P. 120
TQ	YLWSN44003	Flexible cable connection	P. 121

### 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



### 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

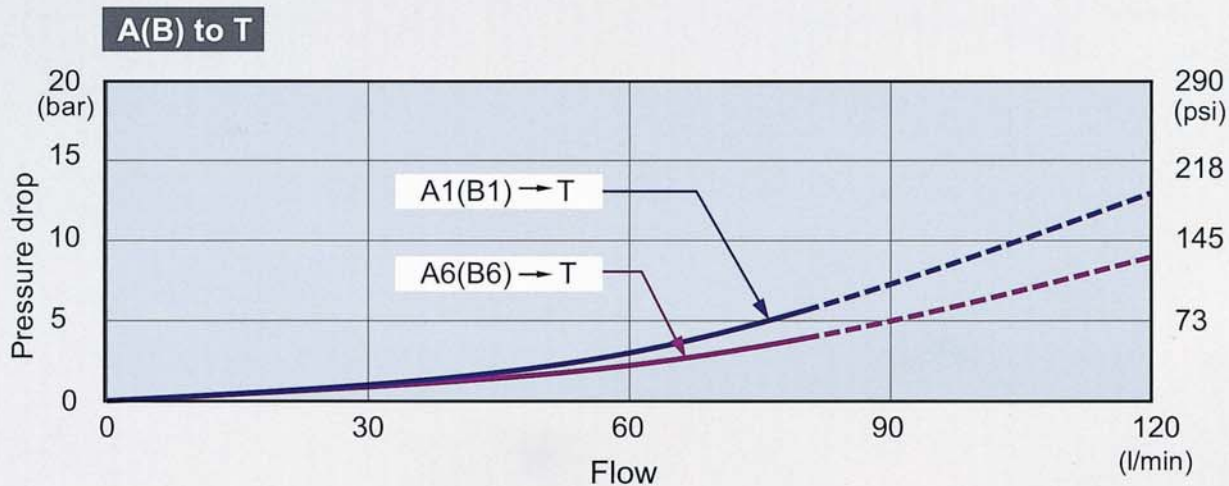
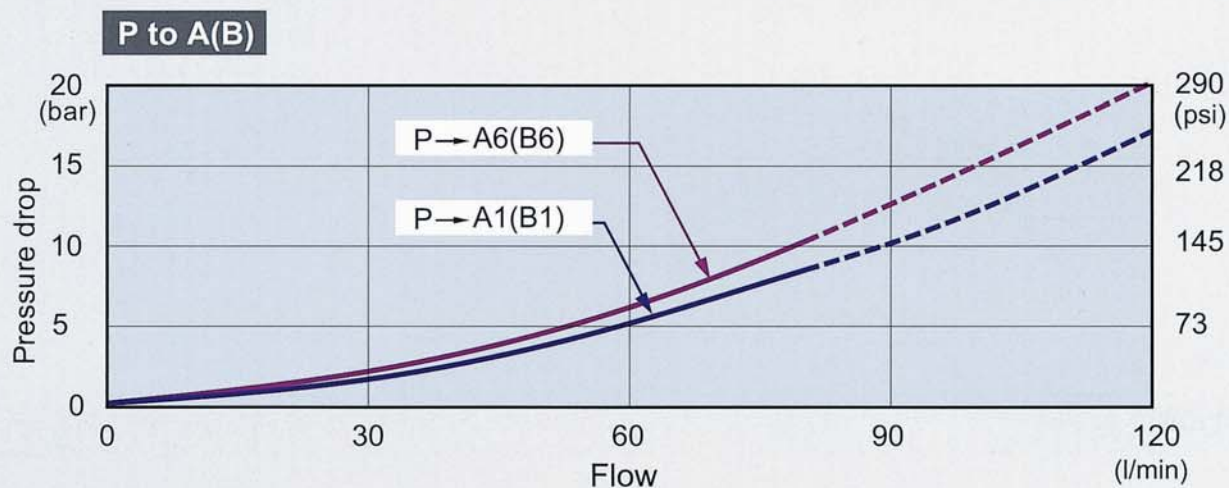
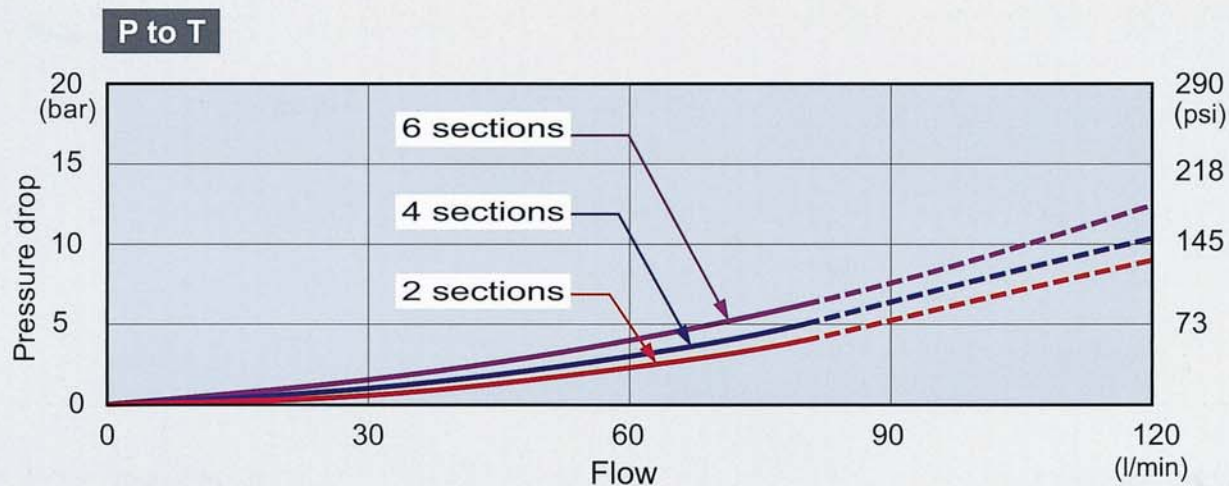
### Standard dimensions

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

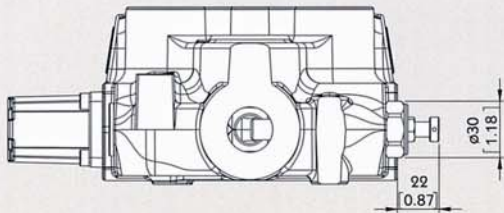
## Monoblock Directional Control Valves



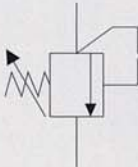
# MSB-5 Inlet Relief (Optional)

## Monoblock Directional Control Valves

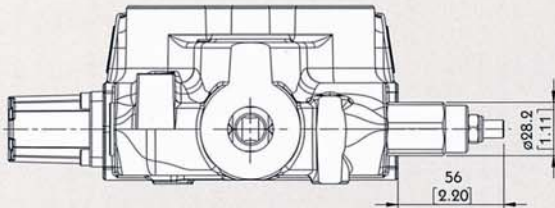
Type WG



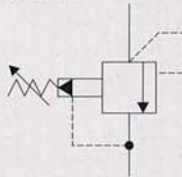
Direct pressure relief valve:



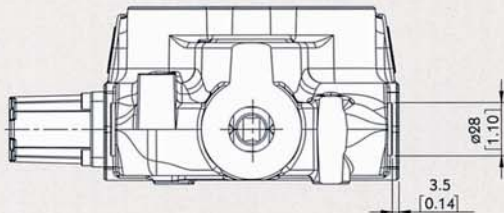
Type XWG



Pilot operated pressure relief valve:



Type SV



Relief valve blanking plug:

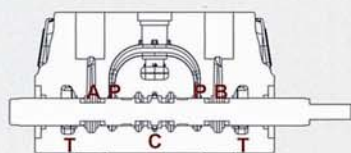


MSB-5

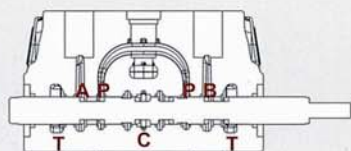
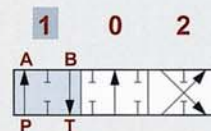
# MSB-5 spool Options

## Monoblock Directional Control Valves

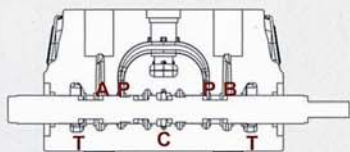
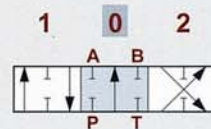
### TYPE 1



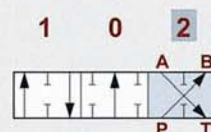
P & T & A & B closed  
C open



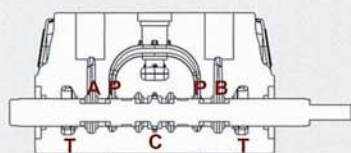
P → A  
B → T  
C closed



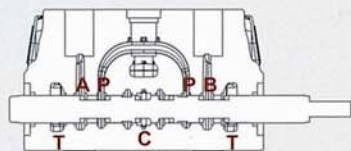
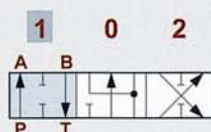
P → B  
A → T  
C open



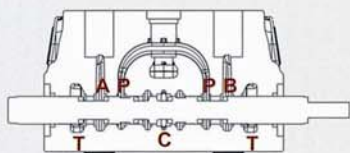
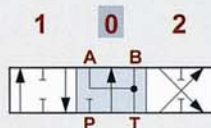
### TYPE 2



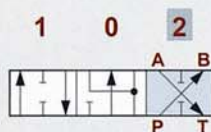
A & B → T  
P closed  
C open



P → A  
B → T  
C closed



P → B  
A → T  
C open

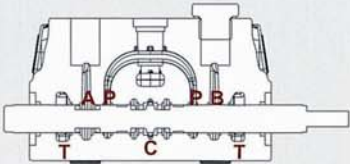
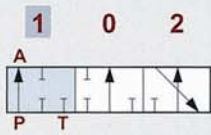
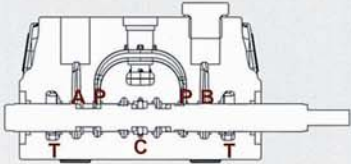
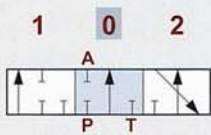
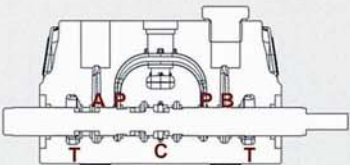
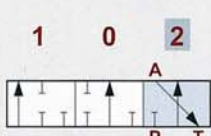




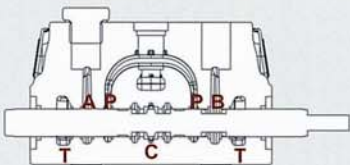
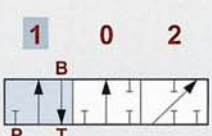
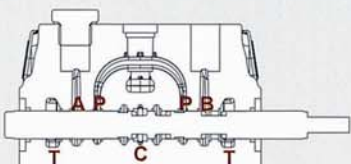
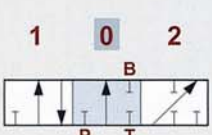
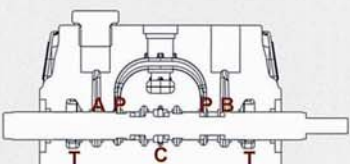
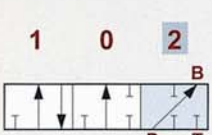
# MSB-5 spool Options

## Monoblock Directional Control Valves

### TYPE 3

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

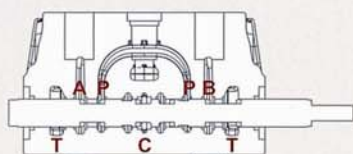
### TYPE 4

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

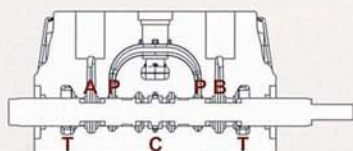
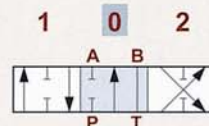
# MSB-5 spool Options

## Monoblock Directional Control Valves

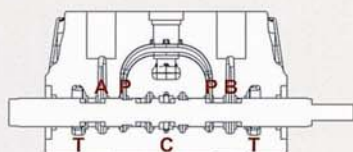
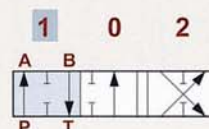
### TYPE 5



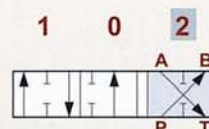
P → A  
B → T  
C closed



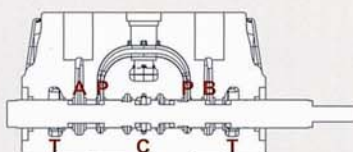
B → T  
P & A closed  
C open



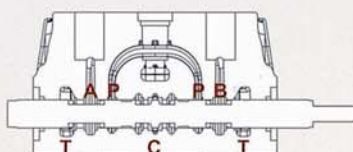
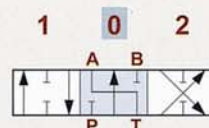
P → B  
A → T  
C closed



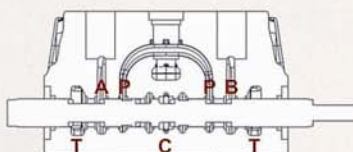
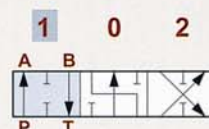
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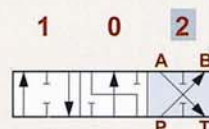
P → A  
B → T  
C closed



B → T  
P & A closed  
C open



P → B  
A → T  
C closed

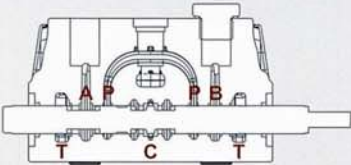

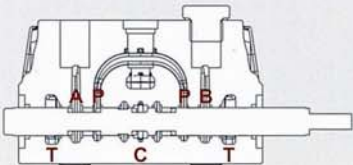
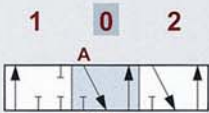
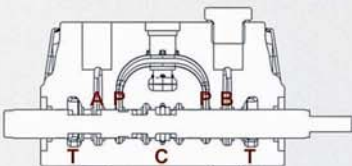
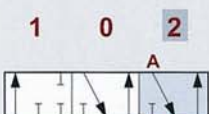




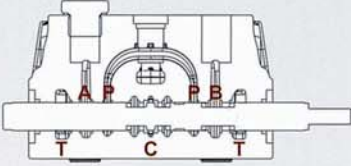

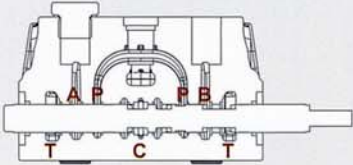
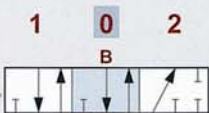
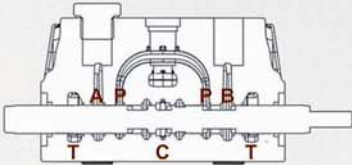
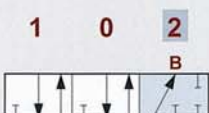
# MSB-5 spool Options

## Monoblock Directional Control Valves

### TYPE 7

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

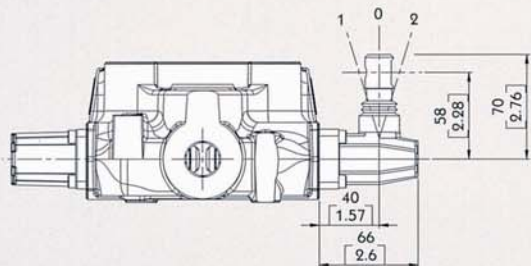
### TYPE 8

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

# MSB-5 A Side

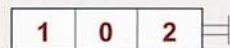
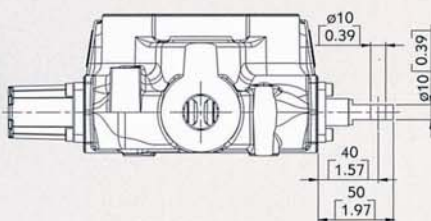
## Monoblock Directional Control Valves

### Type L



**Type L :**  
STANDART LEVER KIT

### Type SLP



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

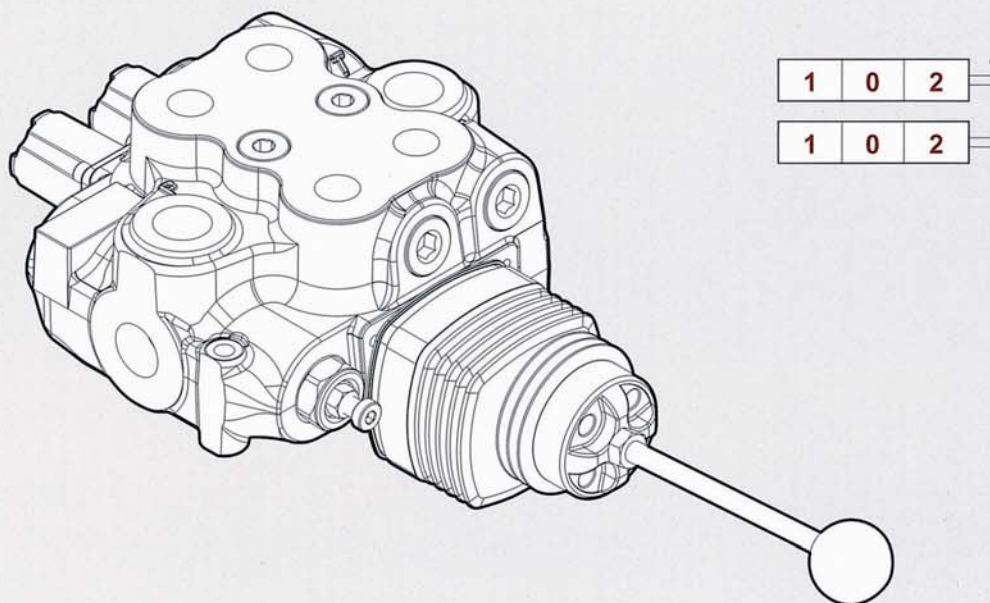


# MSB-5 A Side

## Monoblock Directional Control Valves

MSB-5

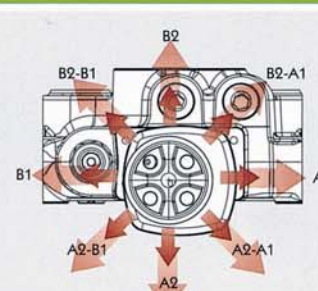
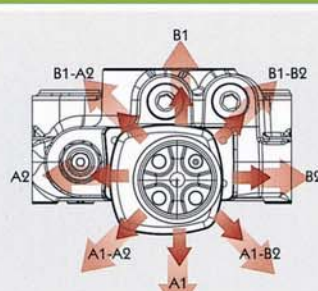
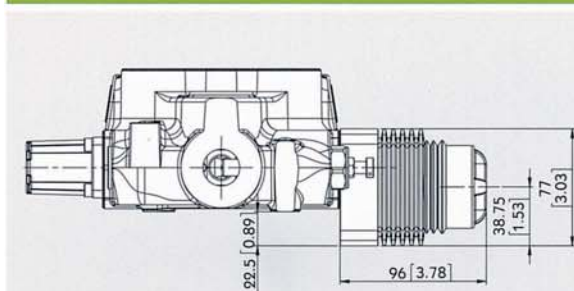
### LCB: Joystick control



#### Type LCB

#### LCB1

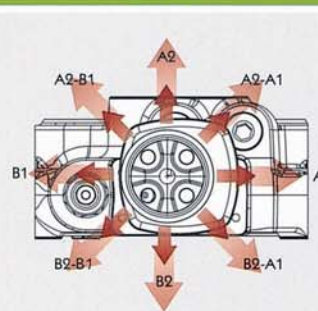
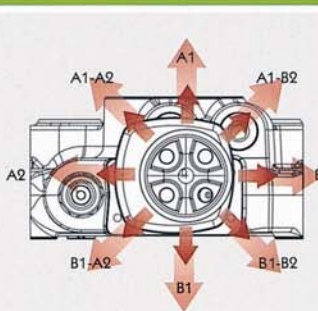
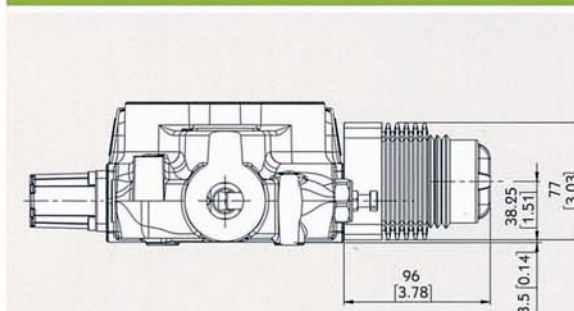
#### LCB2



#### Type LCB

#### LCB3

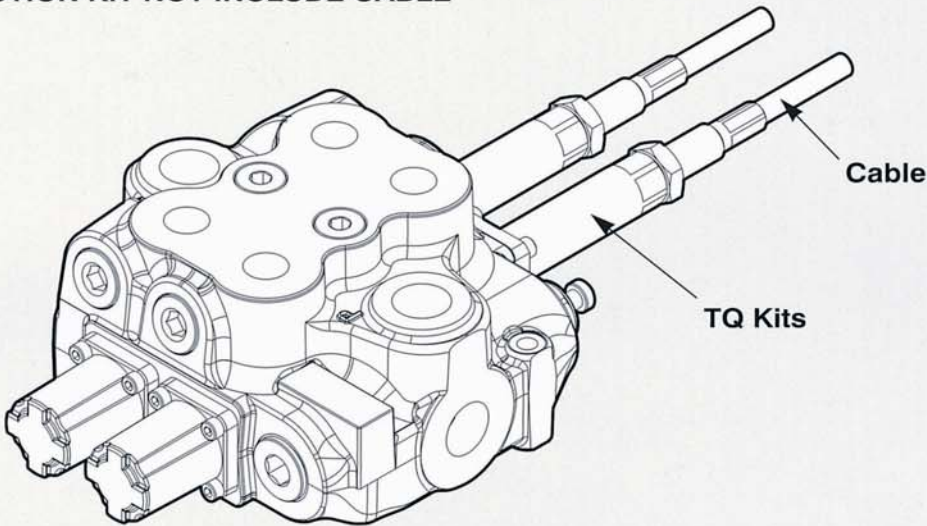
#### LCB4



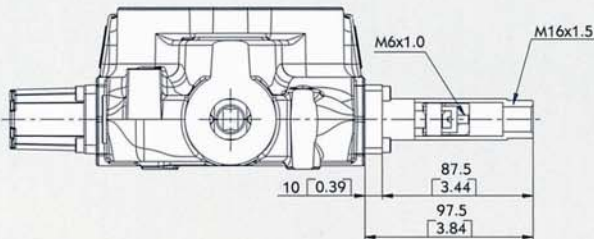
# MSB-5 A Side

## Monoblock Directional Control Valves

Note : CONNECTION KIT NOT INCLUDE CABLE



### Type TQ



TQ Kit:

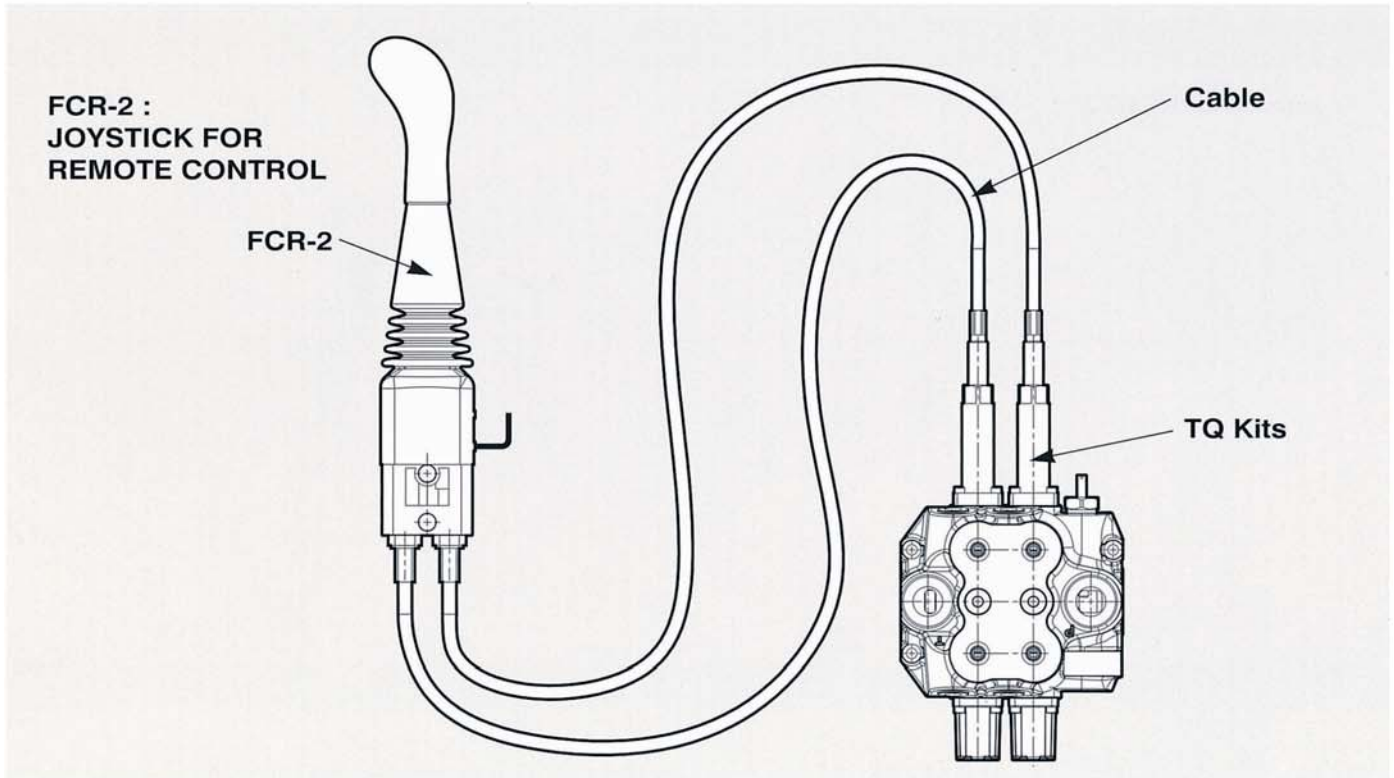




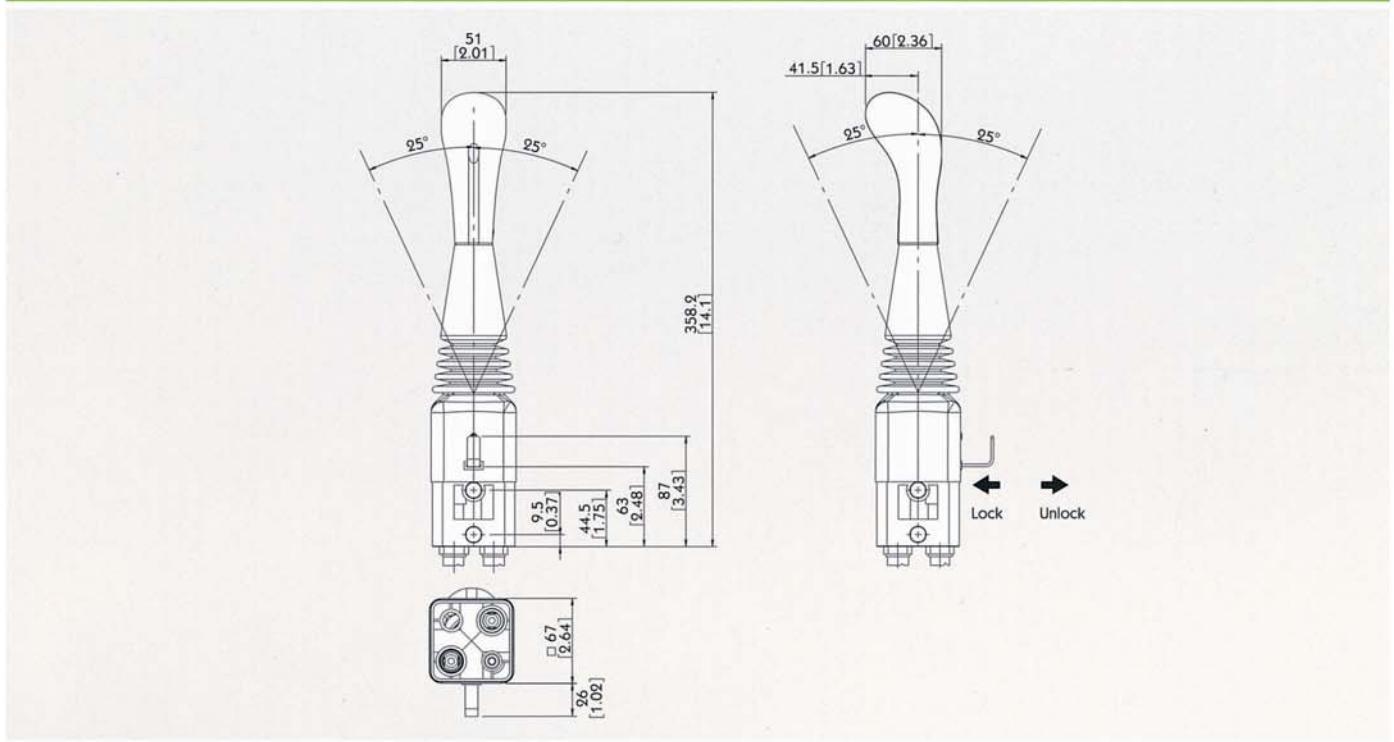
# MSB-5 A Side

## Monoblock Directional Control Valves

MSB-5



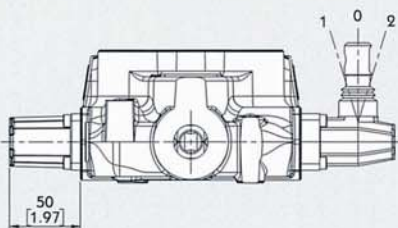
### Type FCR-2



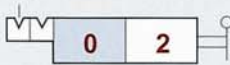
# MSB-5 B Side

## Monoblock Directional Control Valves

### Type 6



**6-1 Kit:**  
DETENT IN POS. 1-0-2, WITHOUT SPRING CENTERED

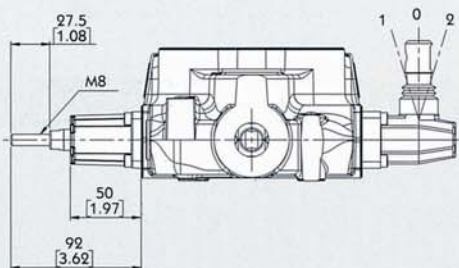


**6-2 Kit:**  
2 POSITIONS, DETENT IN POS. 0-2, WITHOUT SPRING CENTERED



**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

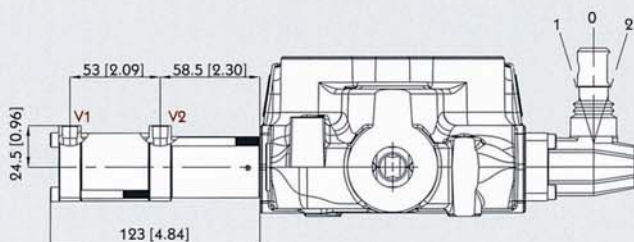


# MSB-5 B Side

## Monoblock Directional Control Valves

### Type 8P

V1 & V2: NPT 1/8 - 27

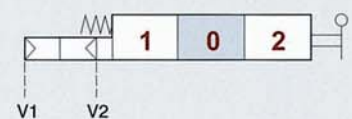


#### Operating feature :

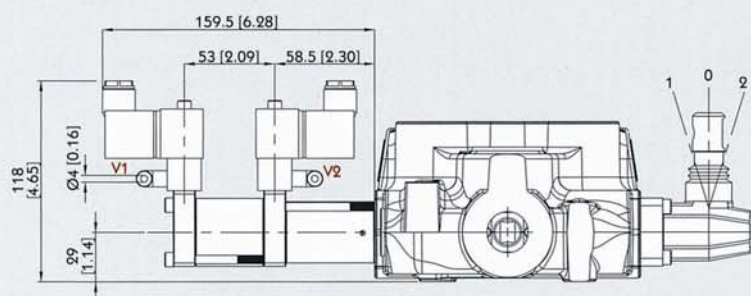
PILOT PRESSURE (MIN.): 6 BAR / 87 PSI

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

ON/OFF PNEUMATIC KIT



### Type 8EP3

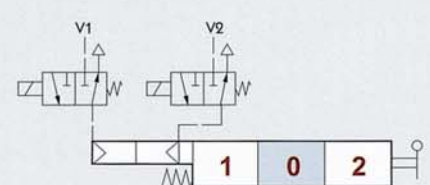


#### Solenoid operating features :

NOMINAL VOLTAGE: 24VDC

NOMINAL VOLTAGE TOLERANCE:  $\pm 10\%$

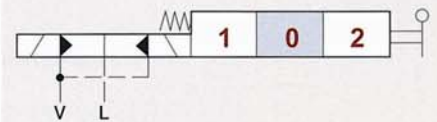
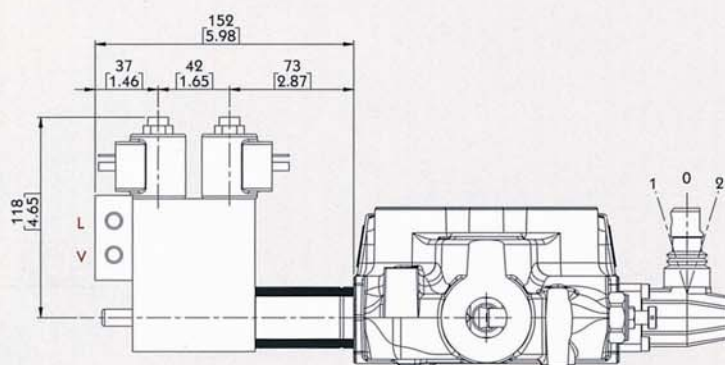
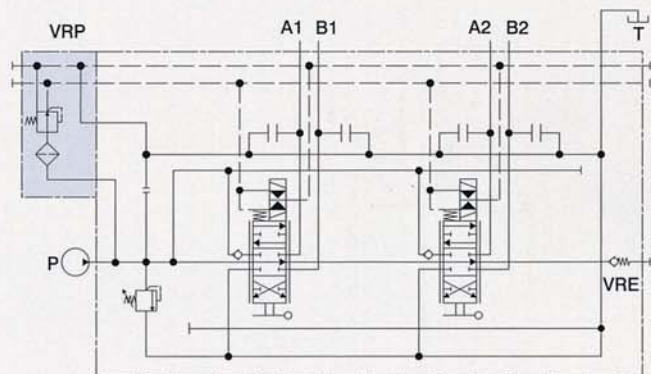
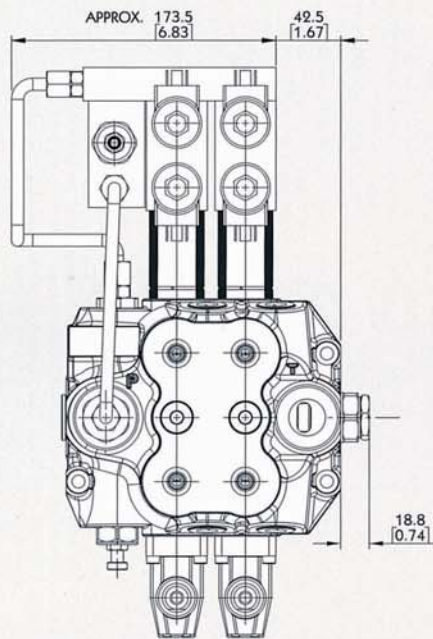
POWER RATING: 5W



# 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 :

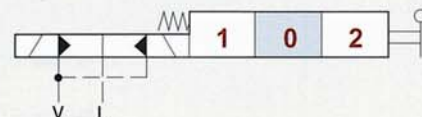
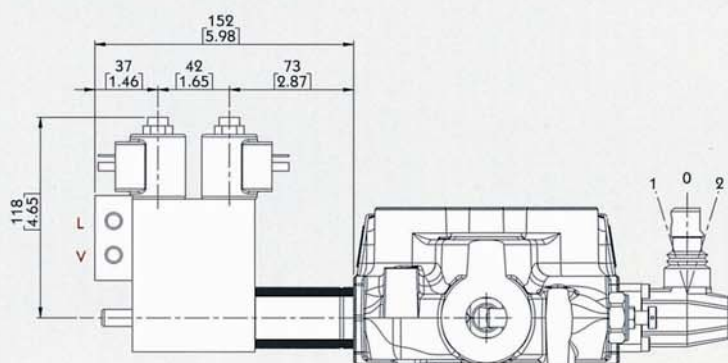
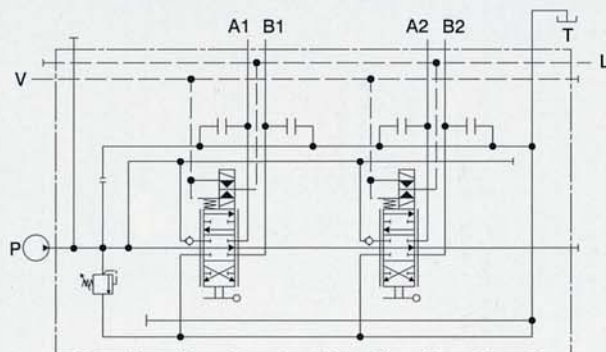
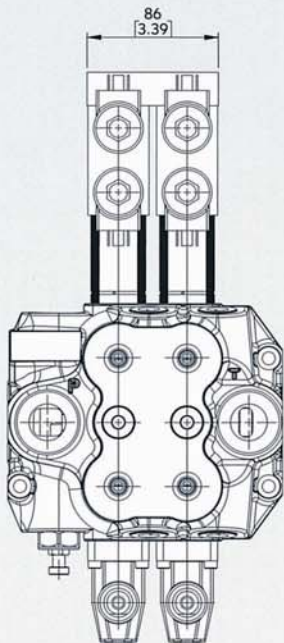
- NOMINAL VOLTAGE TOLERANCE:  $\pm 10\%$
- ELECTRIC POWER: 21 W
- STANDARD VOLTAGE: 12 VDC / 24 VDC



# 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

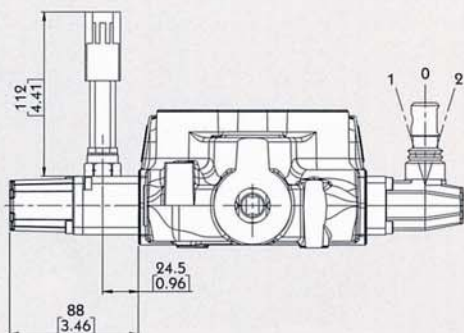
#### Coil features :

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: 5X10<sup>5</sup> OPERATIONS

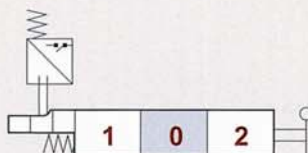
ELECTRICAL LIFE (RESISTIVE LOAD):

- 10<sup>5</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:

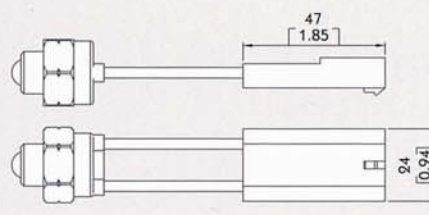
MICROSWITCH WITH MALE/FEMALE CONNECTOR, OPERATED IN POS. 2



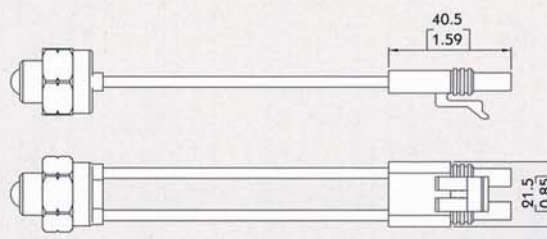
#### 8MG3 Kit:

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)



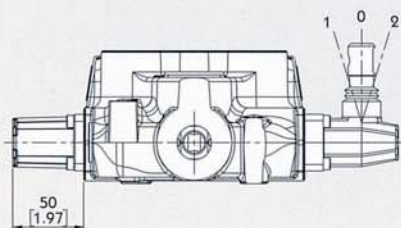


# MSB-5 B Side

## Monoblock Directional Control Valves

MSB-5

### Type 8



**8 Kit:**  
SPRING RETURN TO NEUTRAL POSITION.

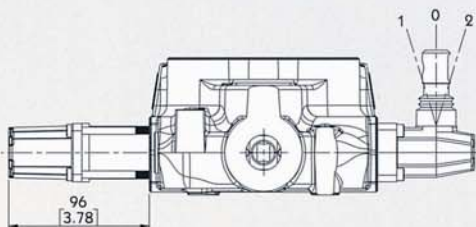


**8-1 Kit:**  
SPRING RETURN TO NEUTRAL POSITION.  
(2 POSITIONS)



**8-2 Kit:**  
SPRING RETURN TO NEUTRAL POSITION.  
(2 POSITIONS)

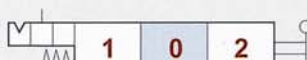
### Type 9



**9-1 Kit:**  
DETENT IN POS. 1, 2 WITH SPRING CENTERED



**9-2 Kit:**  
DETENT IN POS. 2 WITH SPRING CENTERED

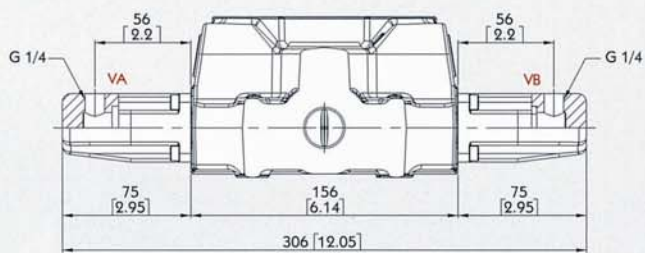


**9-3 Kit:**  
DETENT IN POS. 1 WITH SPRING CENTERED

# MSB-5 B Side

## Monoblock Directional Control Valves

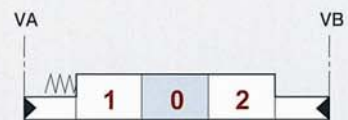
### Type 8IM



#### Operating features :

PILOT PRESSURE : MAX. 50 BAR

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

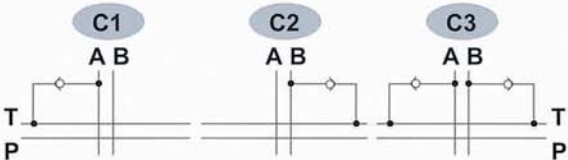
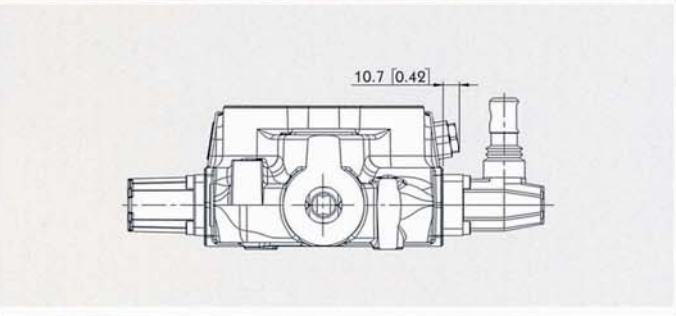




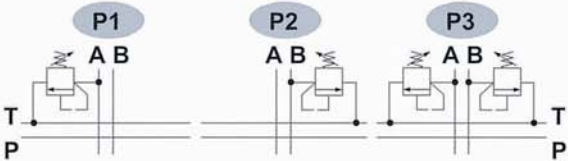
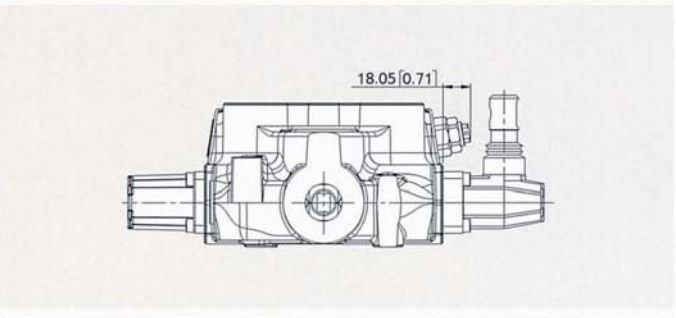
# MSB-5 Port Relief

## Monoblock Directional Control Valves

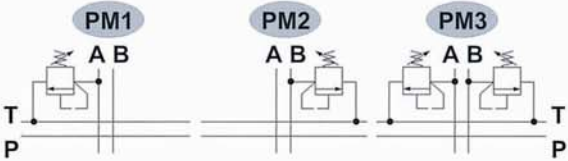
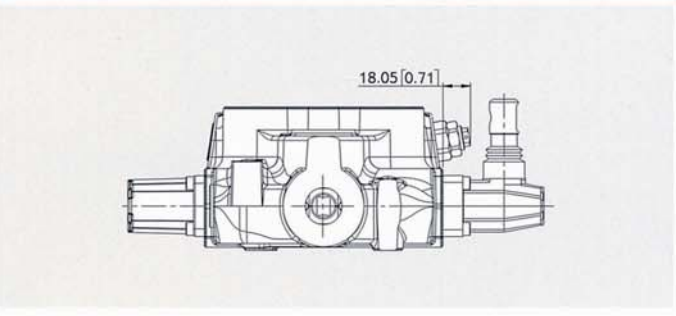
TYPE C



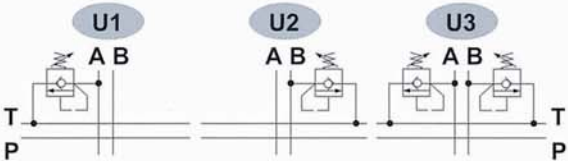
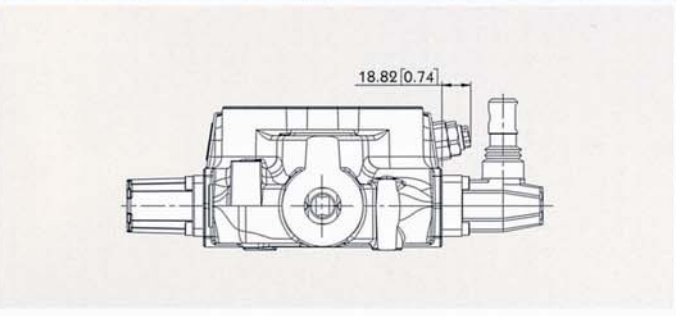
TYPE P



TYPE PM



TYPE U

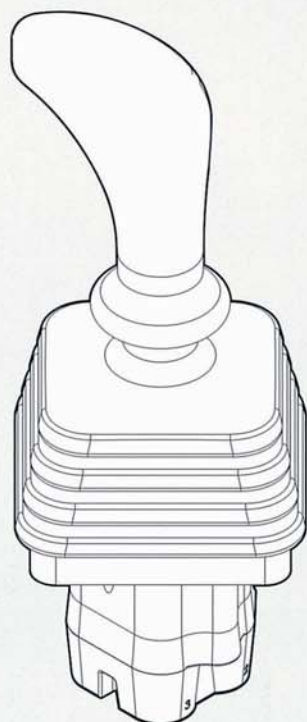


MSB-5

# MSB-5 Accessories

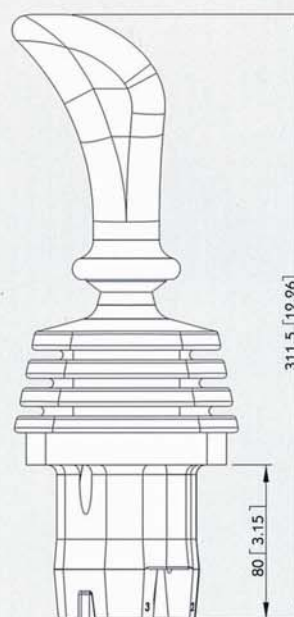
## Monoblock Directional Control Valves

Type JHP-2

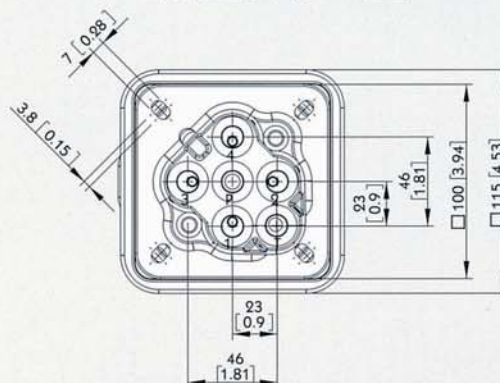
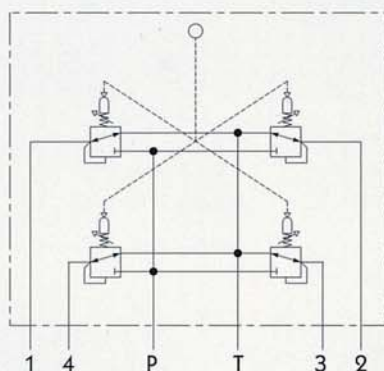


### Specifications:

- 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:



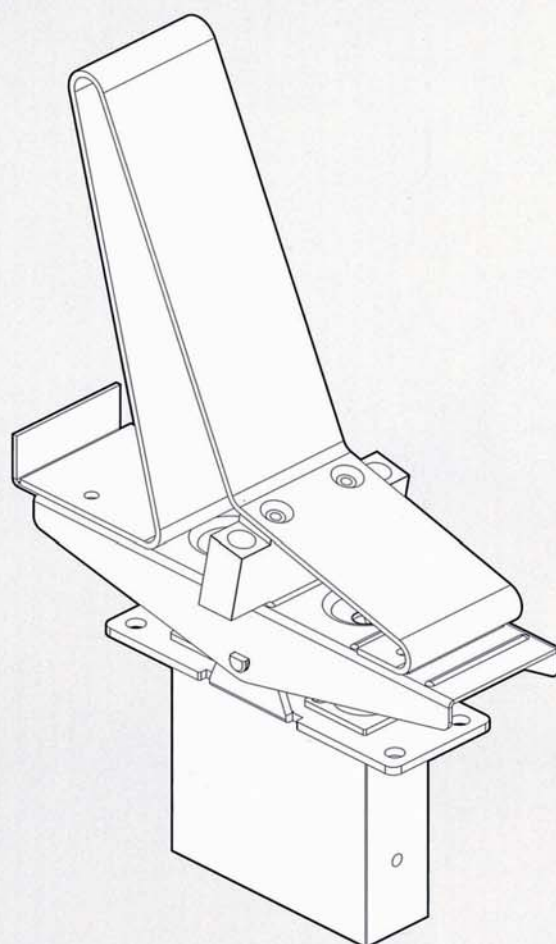
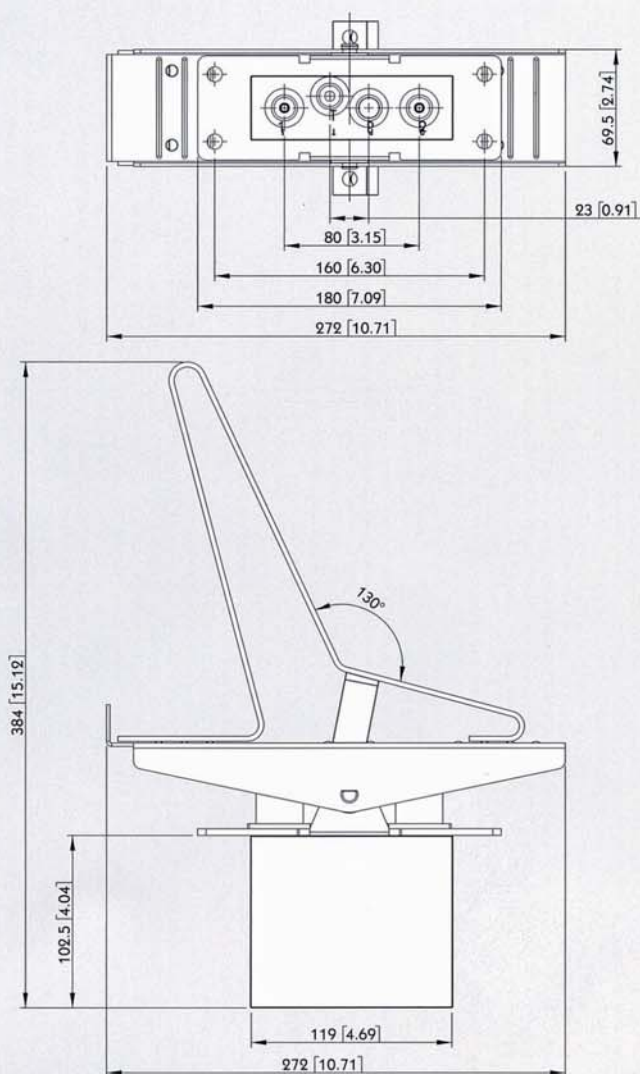
# MSB-5 Accessories

## Monoblock Directional Control Valves

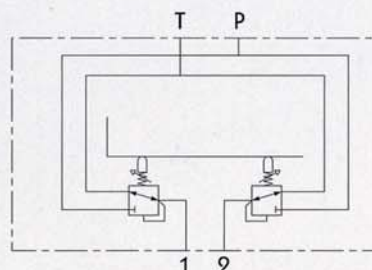
### Type PHP-1

#### 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 Outlet

## Monoblock Directional Control Valves

Power Beyond Conversion plug  
(Closed center plug)

