



**BRAND**  
HYDRAULICS Co.

Made in the Heartland of America  
Serving the World

Engineering & Manufacturing Solutions

# MB

Monoblock Directional  
Control Valve

## Specifications:

- FLOW RATINGS:
  - MB21 & MB22 – 10 gpm (38 lpm)
  - MB23 – 8 gpm (30 lpm)
- Rated up to 4000 psi (275 bar).
- Port Sizes:
  - Inlet/Outlet #8 SAE.
  - Work Ports #8 SAE.
- 25 Micron Filtration Recommended.
- Weight
  - MB21 = 8.1 lbs (3.7 kg)
  - MB22 = 10.9 lbs. (4.9 kg)
  - MB23 = 14.2 lbs (6.4 kg)



PMB22TSTSAB



PMB21TDLB

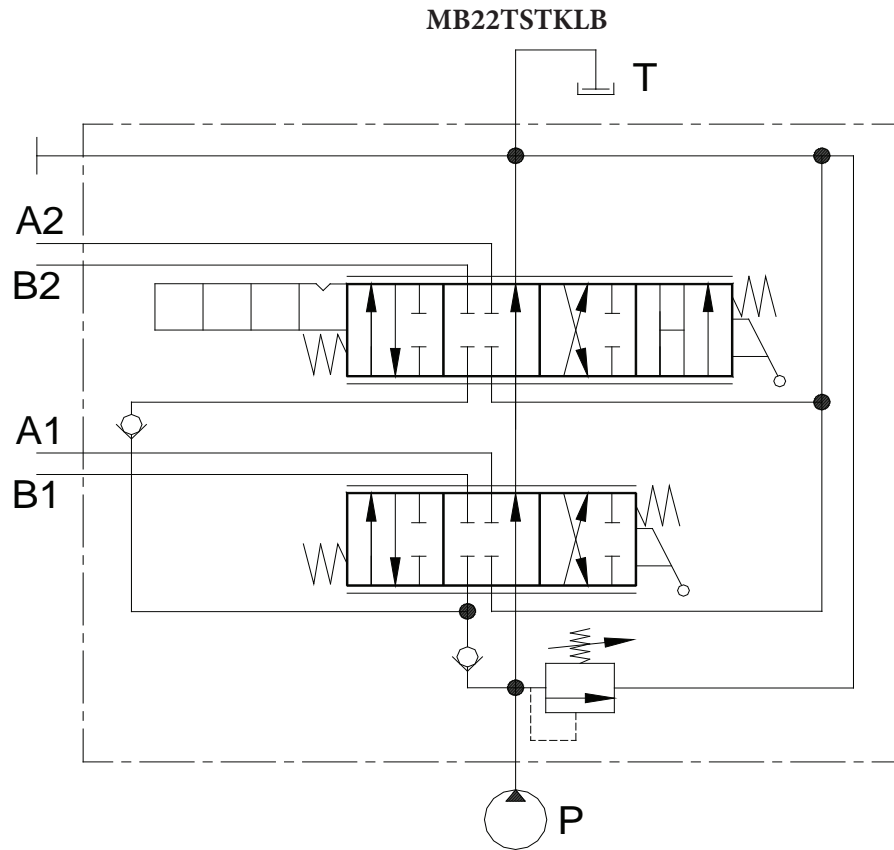
PMB23TSTSTSLB



ISO 9001:2008 WITH DESIGN  
Certificate #02.002.1



402.344.4434 • [www.brand-hyd.com](http://www.brand-hyd.com)



**PMB21TDLB**



**PMB22TSTSAB**



**PMB23TSTSTSLB**

#### MATERIALS:

- Cast Iron Body
- Buna N O'Rings
- IOSSO Plated Steel Spools
- Black Nylon Ball Knob

#### FEATURES:

- O'RING PORTS to eliminate leakage.
- POWER BEYOND CAPABILITY to fit your multi valve circuits.
- PRECISION GROUND IOSSO PLATED SPOOLS that assure long life.
- INDIVIDUAL DROP LOAD CHECKS prevent the load from dropping when the spool is shifted.
- FOURTH POSITION FLOAT allows spool movement to a fourth position and makes all ports common to each other

## MB – GENERAL INFORMATION:

The Brand MB, monoblock directional control valve, is a superbly designed mono-block spool valve suitable for applications requiring one valve to perform up to three separate functions. The MB valve is available in one (MB21), two (MB22) or three (MB23) spool configurations. The valve is also field convertible to closed center or power beyond with the appropriate cartridge.

## SPOOL TYPE –

Tandem center 4-way **T**, in model code) powers a cylinder or a motor in both directions. Open center 4-way (**O**, in model code) connects all ports to tank in neutral. Tandem center 3-way (**T3**, in model code) powers a cylinder in one direction. For more information, see the Spool Schematics.

## HANDLE OPTIONS –

- **Standard joystick handle** (**A**, in model code) is used to actuate two adjacent spools with one handle.
- **Optional joystick handles** (**A1**, **A2** & **A3**, in model code) also actuate two adjacent spools with one handle, but have different actuation patterns (See Joystick Diagram).
- **Enclosed lever handle** (**L**, in model code) pressurizes the “B” port when the handle is pushed towards the valve body and is convertible from the vertical to the horizontal position.
- **No actuator** (**N**, in model code) is used when it is necessary to connect the spool to an external actuator.

## SPOOL ACTION –

- **Three-position detent** (**D**, in model code) holds the spool in neutral and both active positions.
- **Friction detent** (**F1**, in model code) applies friction to the spool so the spool does not move when the handle is released; a detent groove clearly indicates neutral position.
- **Spring-to-center** (**S**, in model code) returns the handle to neutral when the handle is released.
- **Spring detent** (**SD**, in model code) springs back to neutral from P→B (pushing the handle) and is held in detent while P→A (pulling the handle) is engaged.
- **Fourth position float** (**K**, in model code) is similar to spring-to-center except it has a fourth position detent that makes all ports common to each other (used with tandem center spool only).

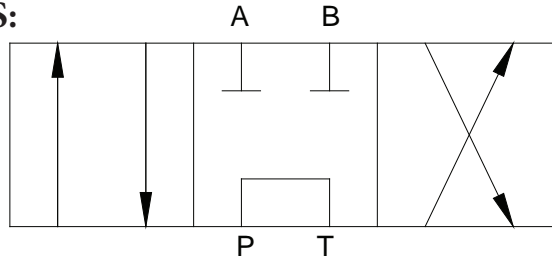
## OPTIONS -

Power beyond (W, in model code) offers high pressure carryover for valves downstream. The MB valve is also field convertible to power beyond with the LV2-W power beyond cartridge kit. Closed center (C, in model code) blocks the neutral flow path and is required in pressure compensating, i.e. closed center systems. The MB valve is also field convertible to closed center with the LV2-C closed center cartridge kit. Adjustable relief (B, in model code) is factory preset at 2000psi (137 bar), but is adjustable from 1200 to 3100 psi (83 to 214 bar).

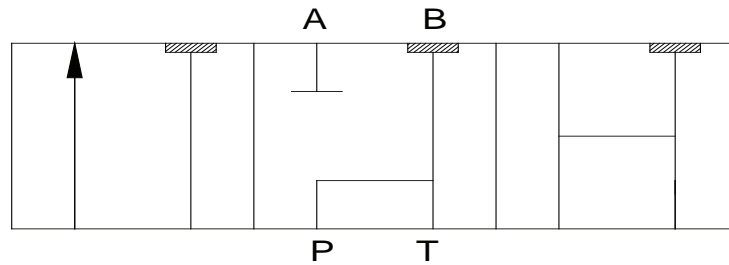
For additional pressure setting ranges:

- 500-1200 PSI use spring P/N “S065”
- 3100-400 PSI use spring P/N “S064”

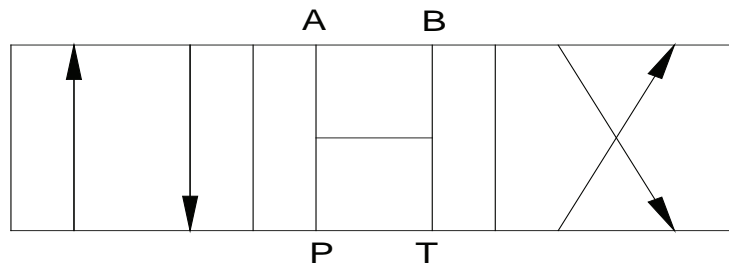
**SPOOL SCHEMATICS:**



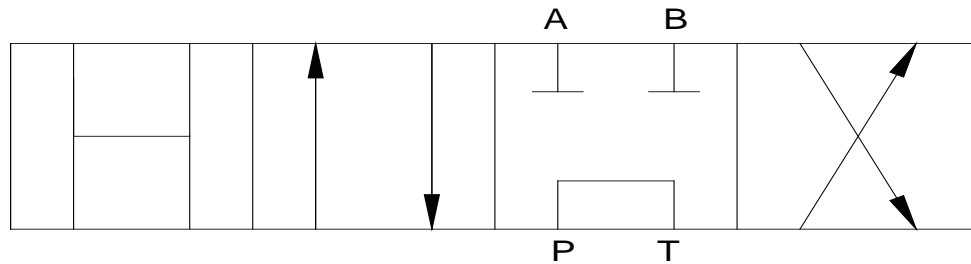
**Tandem Center (T)** - Powers cylinder or motor in both directions. Pump unloads to tank when spool is in neutral. Cylinder or motor blocked when spool in neutral.



**Tandem Three Way (T3)** - Powers the cylinder in one direction. Pump unloads to tank when spool is in neutral, or when spool is being reversed. Cylinder is blocked when spool is in neutral. Port "B" is plugged. Second spool only.

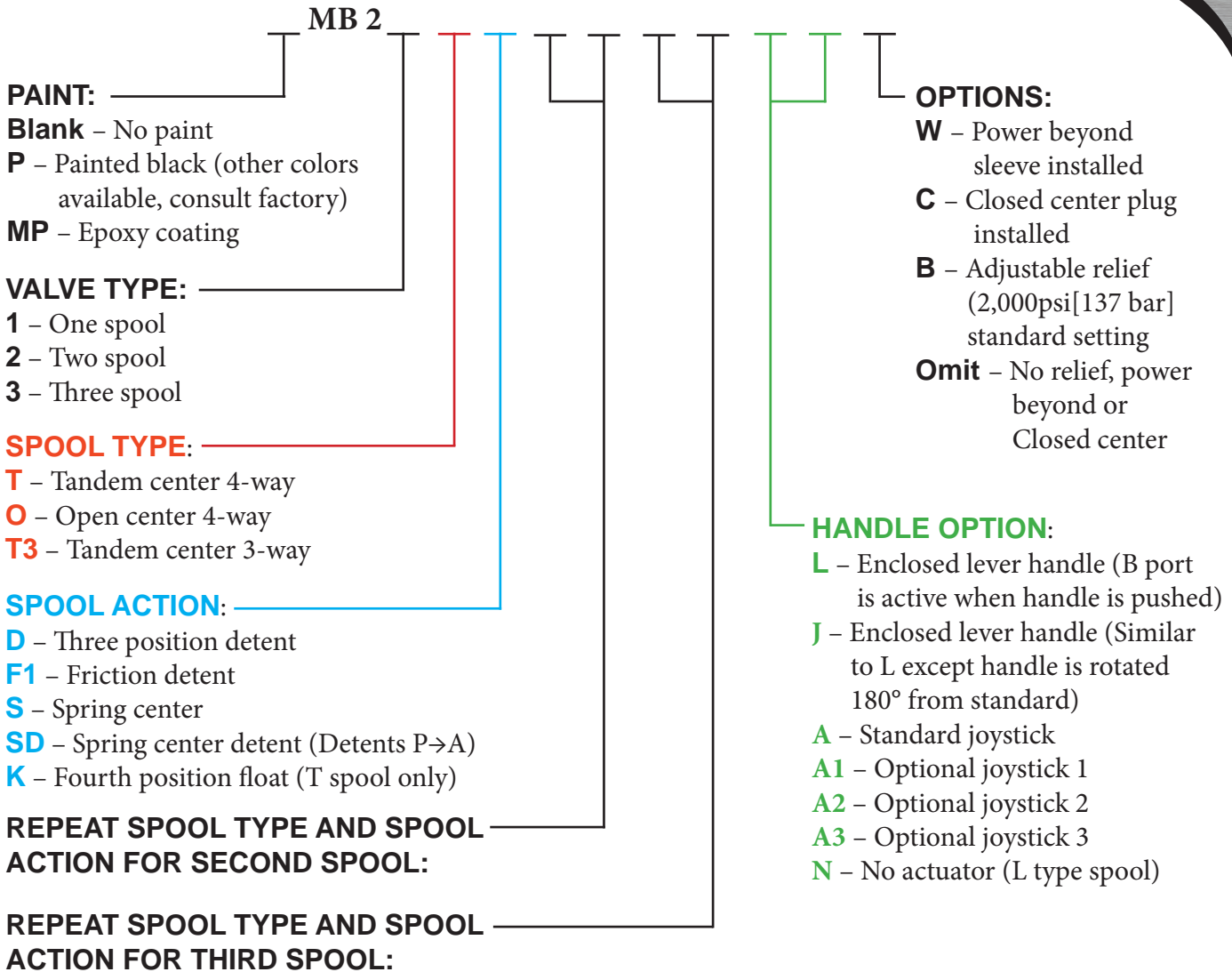


**Open Center (O)** - All of the ports are connected to tank when the spool is in neutral. Allows cylinder to move or motor to rotate when spool is in neutral.



**Float (K)** - Same as Tandem spool in standard three positions. Detented Fourth position allows cylinder to move or motor to rotate when spool is detented.

**MB – CREATING A MODEL CODE FOR MB’S:**



**MB – EXAMPLES OF COMMON MODEL CODES:**

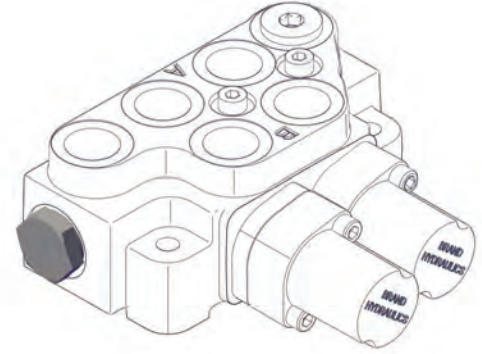
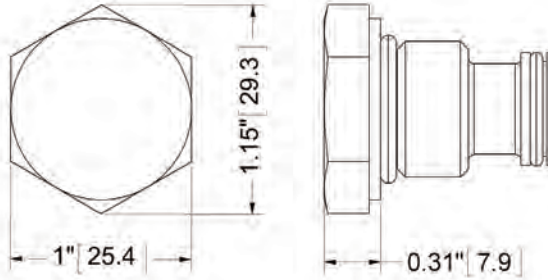
**MB21TKLBW.....**One spool valve, tandem center spool (T), fourth position float (K), enclosed handle assembly (L), adjustable relief (B) 2000 psi (138 bar) setting and power beyond (W).

**MB22TSTSLBC.....**Two spool valve, tandem center (T), spring centering (S), tandem center (T), spring centering (S), enclosed handle assembly (L), adjustable relief (B) 2000 psi (138 bar) setting and closed center (C).

**MB23OF1TSDTKLA.....**Three spool valve, open center spool (O), friction detent (F1), tandem center spool (T), spring detent (SD), tandem spool, fourth position float (K), enclosed handle on first work section (L), joystick assembly on work sections two and three (A)

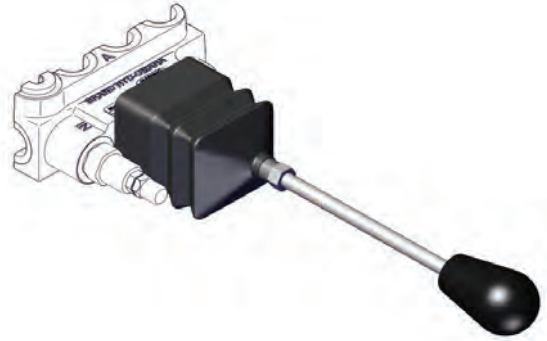
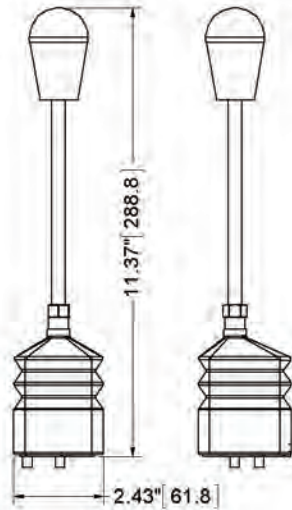
## MB - COMPLETE LIST OF OPTIONS AND ACCESSORIES:

LV2-C.....Closed center cartridge kit.



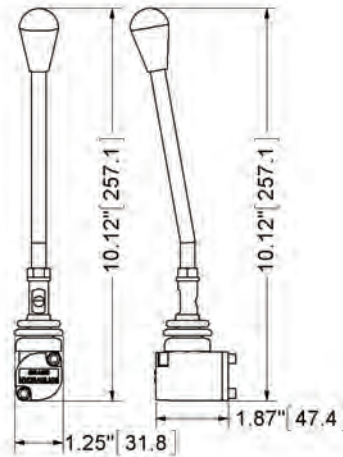
LV2-HA.....A and A1-style joystick kit (Operates two spools simultaneously)

LV2-HA2.....A2 and A3-style joystick kit (Operates two spools simultaneously)



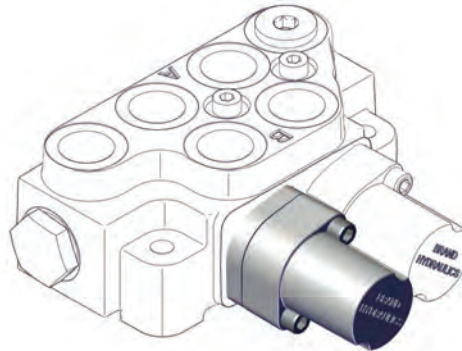
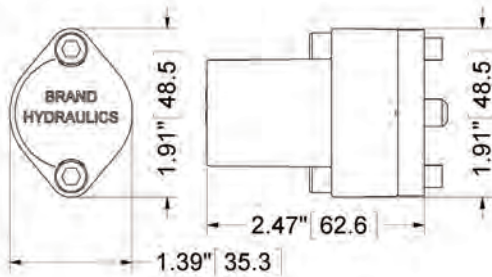
**External dimensions are the same for all kits listed above.**

LV2-HL.....L-style enclosed handle kit (Operates one spool only).



**LV – COMPLETE LIST OF OPTIONS AND ACCESSORIES:**

LV2-K..... Fourth position float (Use with Tandem spool).

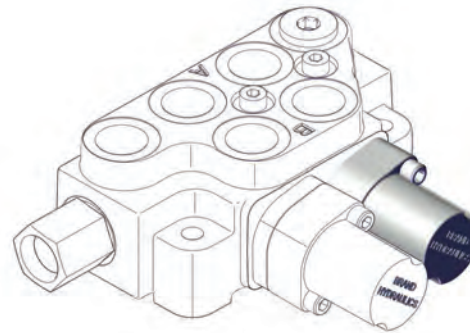
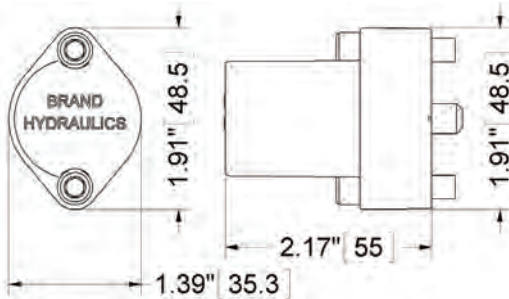


LV2-SD..... Spring center detent kit (P to A in detent)

LV2-S..... Spring centering kit.

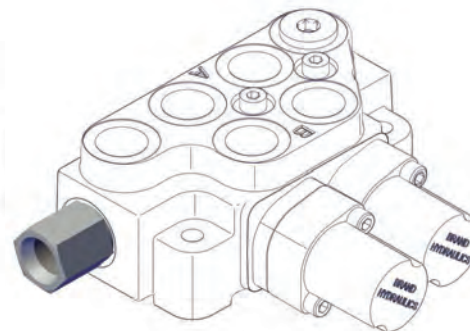
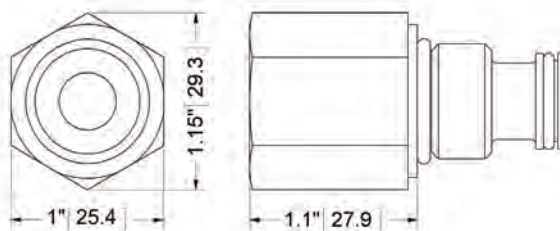
LV2-D..... Three-position detent kit.

LV2-F1..... Ball friction detent kit.



External dimensions are the same for all kits listed above.

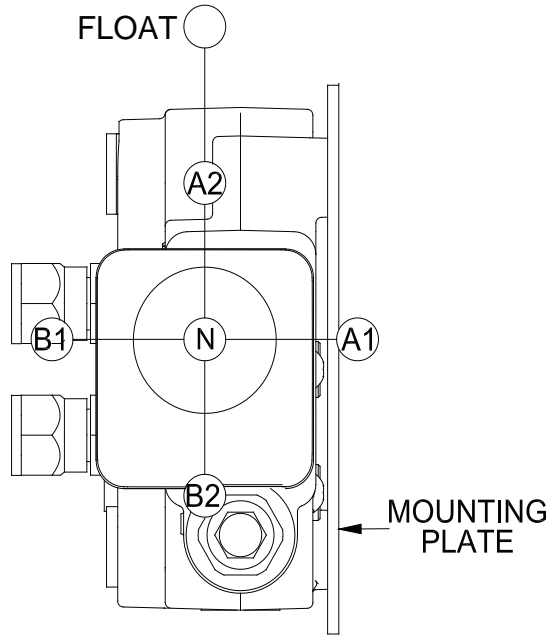
LV2-W..... Power beyond cartridge kit.



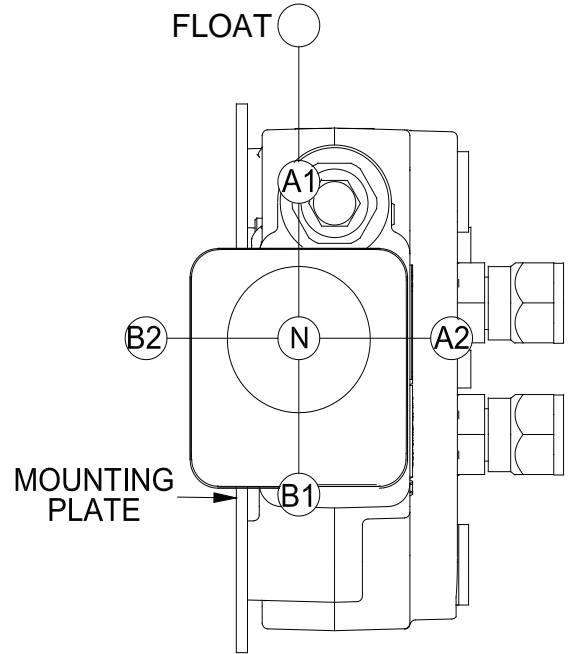
MB2-SK..... Seal kit for MB series (One, Two, or Three spool valves).

## MB - JOYSTICK MOVEMENTS SCHEMES:

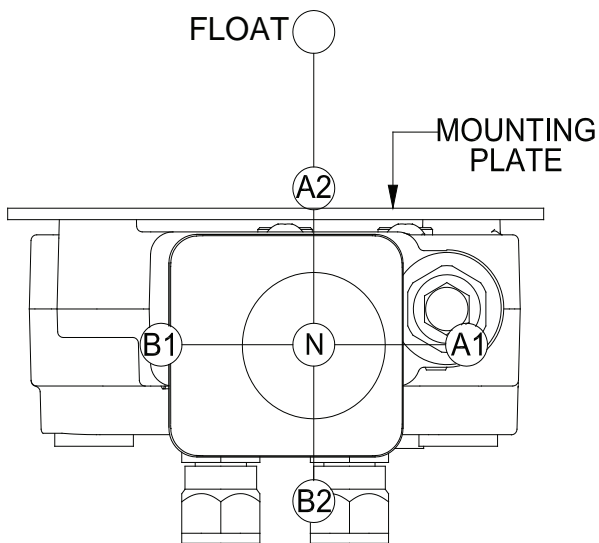
**MB22TSTKAB**



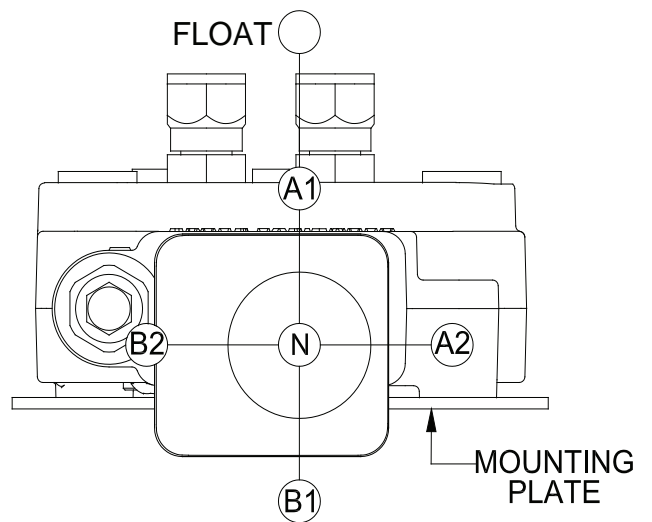
**MB22TKTSA1B**



**MB22TSTKA2B**



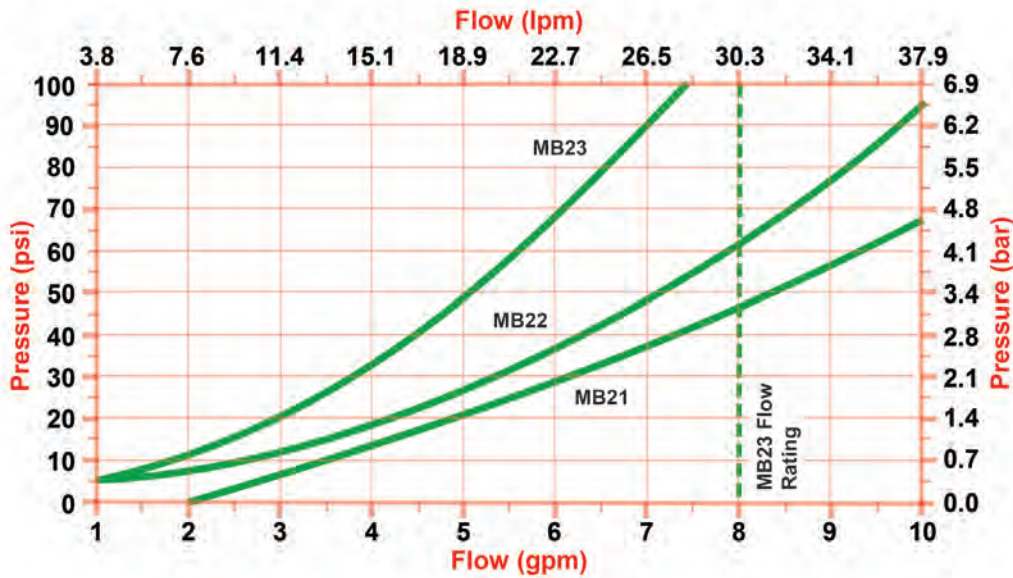
**MB22TKTSA3B**



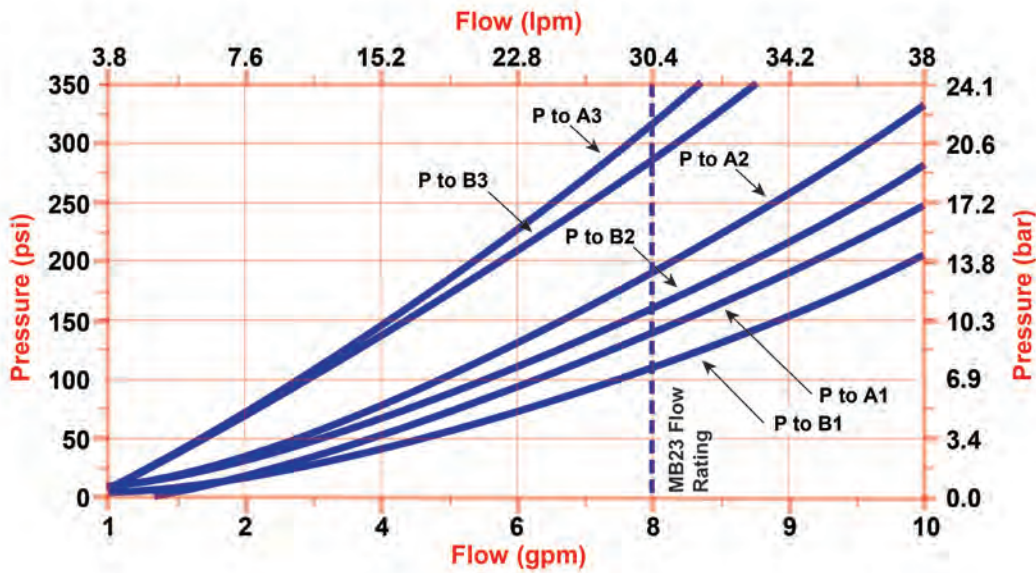


MB – FLOW AND PRESSURE INFO:

Neutral Flow Pressure Drop

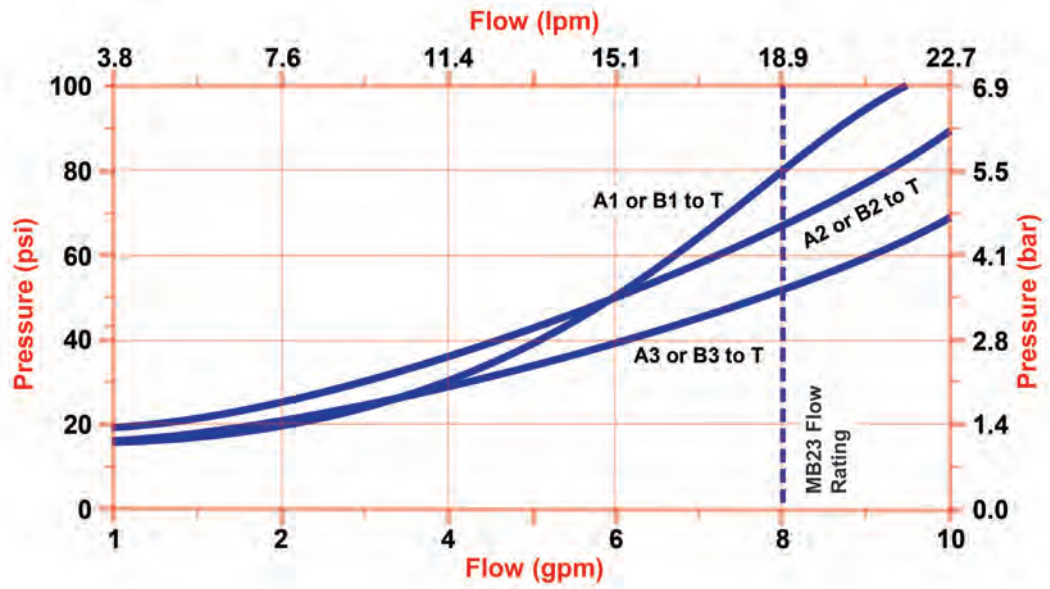


Pressure Drop VS. Flow for P to A or B

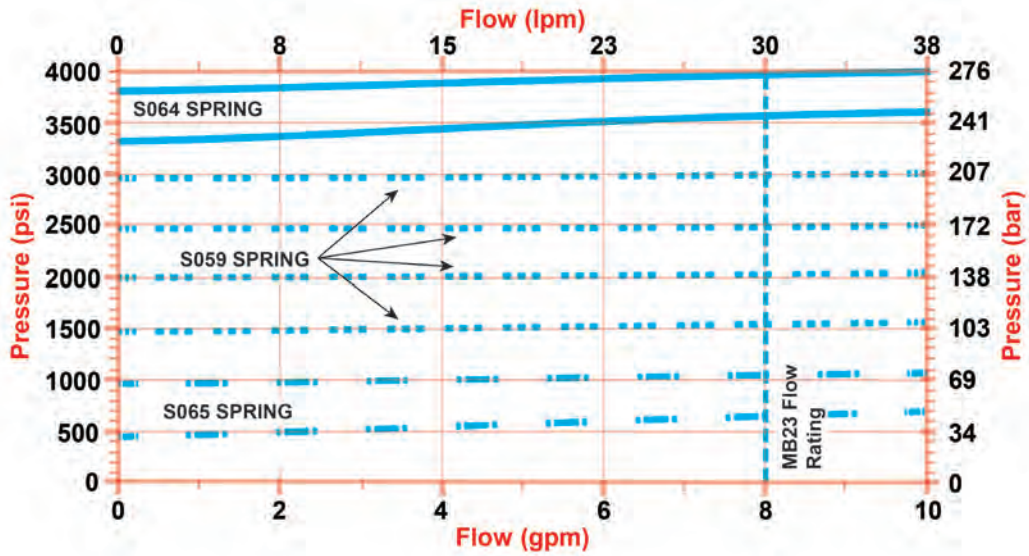


LV - FLOW AND PRESSURE INFO:

Pressure Drop VS. Flow for A or B to T

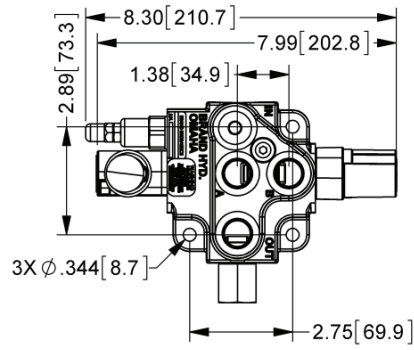
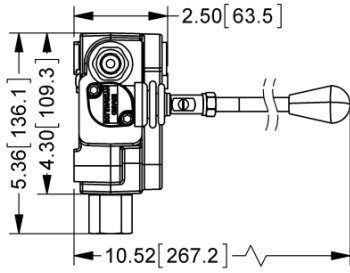


Pressure VS. Flow for LV Relief

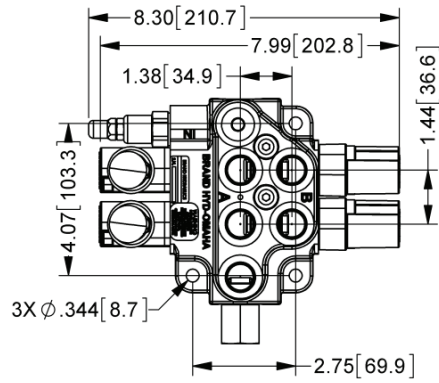
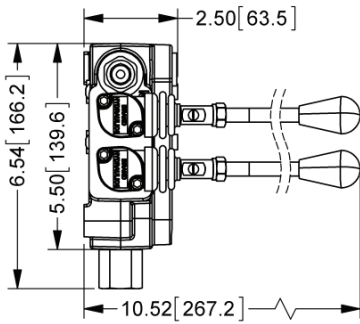


DIMENSIONAL DATA: inches & [millimeters]

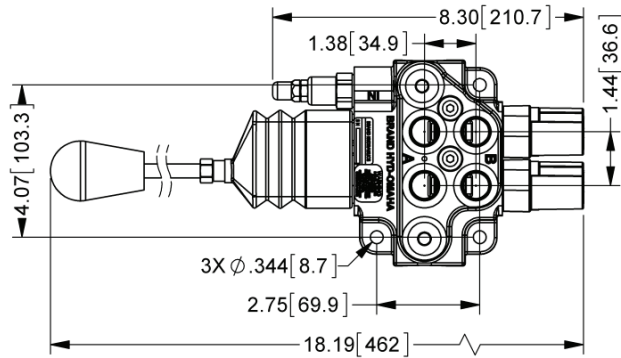
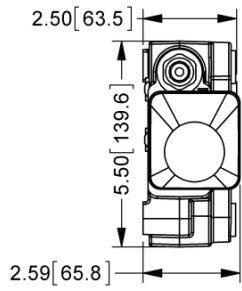
MB21TSLBW



MB22TSTSLBW



MB22TSTSAB



MB23TSTSTSLB

