



**MITE 85**  
**Snap-Acting 3-Way Valve**  
**with Two Trip Points**

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## GENERAL

The MITE 85 is an instrument consisting of two basic units:

- (1) a 3-way valve and
- (2) a pilot operator

An increasing pressure signal to the pilot operator at port “A” opens the 3-way valve to supply the outlet (port “I” open to port “H”).

A decreasing pressure signal at port “A” shuts the 3-way valve to vent the outlet (port “G” open to port “H”).

## 3-WAY VALVE

The valve consists of three ports:

- (1) “G” - vent port: this port should always be vented.
- (2) “H” - outlet port: this is the common port and its pressure will never exceed the supply pressure at “I”.
- (3) “I” - supply port: 50 PSIG max. for Mite-85Lo; 50-90 PSIG for Mite-85Hi.

Note: this port also supplies pressure to the supply pilot valve “B”.

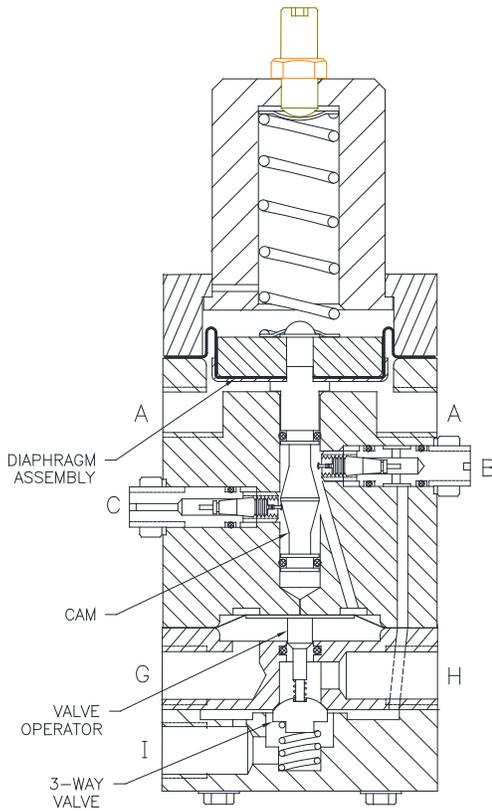
This 3-way valve is controlled by the pilot operator. When shut, outlet port “H” is vented through vent port “G”; and when open, outlet port “H” is pressurized through supply port “I”.

## PILOT OPERATOR

The operator consists of four basic segments:

- (1) Cam - The cam is modulated by a spring opposed diaphragm assembly. The diaphragm assembly receives the operator pressure signal via port ‘A’. The operator signal pressure to be between 3-15 psig. The minimum signal span is 1.5 psig and the maximum span is 6 psig.
- (2) Supply Adjustment “B” - The supply pilot valve when actuated by the modulating cam provides a pressure signal to open the 3-way valve. The pressure source for this supply pilot valve is routed from supply port “I” of the 3-way valve.
- (3) Vent Adjustment “C” - The vent pilot valve when actuated by the cam, vents a pressure signal to shut the 3-way valve.
- (4) Valve Operator - The valve operator uses the pressure signal from either supply pilot “B” to open or vent pilot “C” to shut the 3-way valve.

There is a minimum dead band between the open trip pressure and the shut trip pressure. This dead band is a function of instrument friction, supply pressure at port “I” and the amount of bleed allowable through vent adjustment “C”. This dead band is approximately 10 percent of the supply adjustment “B” setting.



A: OPERATOR SIGNAL PRESSURE  
 B: SUPPLY PILOT VALVE  
 C: VENT PILOT VALVE  
 G: VENT PORT  
 H: OUTLET PORT  
 I: SUPPLY PORT

### ADJUSTMENT PROCEDURE

The open and close set points for the MITE 85 are obtained as follows:

- (1) Connect the operator signal pressure source at port "A".
- (2) Connect the 3-way valve supply source at port "I".
- (3) Connect a pressure gauge at the outlet port "H".
- (4) Loosen locknuts on both the supply adjusting screw "B" and the vent adjusting screw "C".
- (5) Turn both "B" and "C" approximately 2 turns counter-clockwise.
- (6) Increase operator signal pressure at "A" until the pressure required to open the 3-way valve is reached; hold this pressure.
- (7) Turn "B" clockwise slowly until the 3-way valve opens and pressure is observed at the outlet port "H".
- (8) Decrease operator signal pressure at "A" until the pressure required to shut the 3-way valve is reached; hold this pressure.
- (9) Turn "C" clockwise slowly until the 3-way valve shuts and outlet port "H" is vented.
- (10) Repeat steps (6) and (8) above to insure proper operation; make minor adjustments at "B" and "C" if required.
- (11) Without disturbing the "B" and "C" settings, tighten locknuts.

### LIMITED WARRANTY & DISCLAIMER

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