CONTENTS

MITECH BULK MATERIAL VALVES
CARBON STEEL OR STAINLESS STEEL BODY

INSTALLATION, OPERATION, MAINTENANCE AND REPAIR INSTRUCTIONS (Refer to specific valve drawing supplied for your order).

1. SCOPE

This manual covers the general operation, installation and maintenance of Mitech Bulk Material Handling Valves. These valves are designed to handle liquids, slurries or dry powders. Please contact your Mitech Valve representative or our factory for any clarification of this manual.

2. INFORMATION ON USAGE

Proper Installation and Maintenance will insure trouble free valve operation. Misuse of this valve may result in damage or injury. The Manufacturer provides the following instructions for use and relies upon the purchaser to see to it that these instructions are given to the person who will actually be using these valves. It is important to inspect the valves for any damage that may have occurred in shipment. Notify carrier and factory of any such damages as early as possible.

3. VALVE TYPES

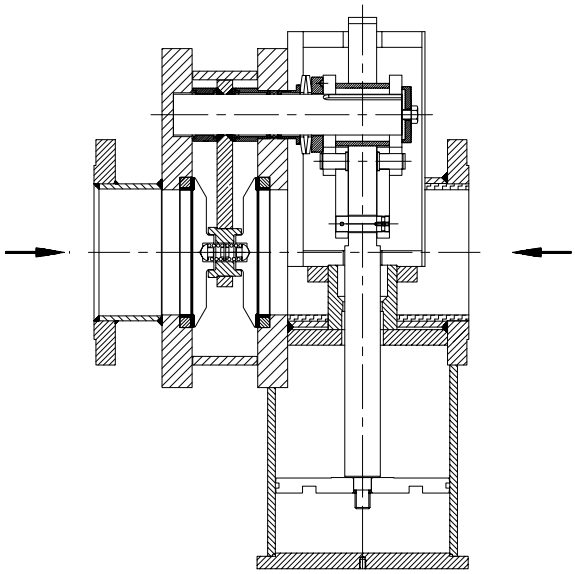
There are four basic valve configurations:

- Double disc
- Lens disc

All valve types are designed for open or close applications and not for throttling applications. Each valve type suits particular applications as listed below.

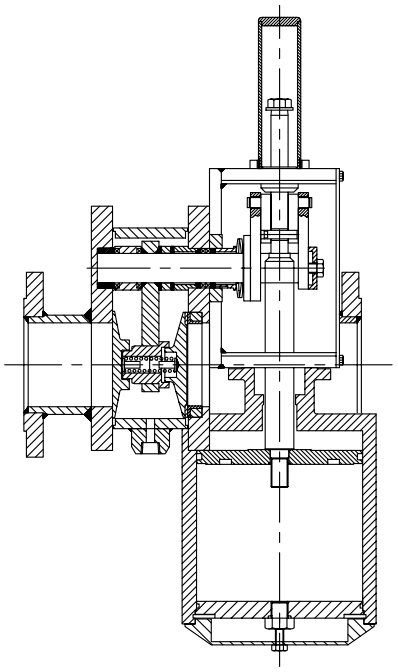
- **Double Disc Valve.**

The Double Disk valves are designed to seal against pressure from either direction.



- **Lens Disc Valve.**

The lens disc valves are designed to handle pressure and flow vertically downwards onto the back of the disc. The lens disc stops material from entering the valve body when the valve is in the closed position. This allows more room inside the valve body for easier valve action.



4. OPERATORS

Operators may be, Air or Hydraulic cylinder .

5. VALVE CONSTRUCTION

The valves are designed and tested in accordance with the following specifications:

- ASME / ANSI B16.34
- ANSI B16.1
- ANSI B16.5
- ANSI B16.24

Valve pressure and temperature limits generally follow ANSI B16.34 guidelines or in accordance with ASME section VIII of the "Boiler & Pressure Vessel" Code that is also stamped on the ID plate.

The valve body is Carbon Steel or Stainless Steel with a trim suitable for the fluids being handled. The Valves have purge connections on the distance ring that prevent clogging up in the valve chamber.

6. INSTALLATION AND OPERATION

All the valves are carefully inspected and tested before leaving the factory. Valves should be inspected for any damage that may have occurred during shipment. Valves should be checked to see that they meet the ANSI and flange ratings required.

6.1 Flow direction.

6.1.1 All valves.

The valves should be installed in accordance with the tag showing the flow direction. The Double disc valve can be installed in the pipeline facing either way. The Single disc valves will seal in one direction only and should be installed with the disk upstream of the seat ring.

6.2 Horizontal and Inclined pipelines.

6.2.1 All valves.

When installing a valve in a horizontal line, the valve chamber must be located at the top. In slurry applications this arrangement allows the slurry to flow back into the pipeline. If this is impractical other orientations with the valve body inclined may be used , however the angle of the body should not be less than 45 degrees .

6.3 Vertical pipelines.

6.3.1 Lens Disc Valves.

When a Lens disc valve is installed in a vertical pipeline, the normal flow direction is downwards . The Lens disc is designed to handle pressure on the face of the lens disc and the back of the disc with the flow downwards with gravity.

6.4 Screw End Valves.

For screwed end valves, the pipe threads must be tightened up using a suitable compound to seal the thread. Do not use Teflon tape. Please note the temperature rating of the sealant. Tighten up all threads fully .

6.5 Weld End Valves.

For weld end valves, a ground wire should be connected to the body half being welded so as not to pass current through the seal faces. This could possibly destroy the faces.

6.6 Flange End Valves.

On making up flanged connections, care should be taken to select the correct gasket and use a suitable sealing compound or lubricant. Carbon steel bolts may be used for ANSI #150 and #300 flanges, provided the temperature does not exceed 200ºC. Alloy steel ASTM A193-B7 bolts or equal should be used for higher pressure or temperature applications. Pipe line flanges should be correctly aligned and the flange bolts tightened up evenly to the correct torque to prevent leakage.

6.7 Purge Connections.

6.7.1 The purge connection is supplied to provide a means of removing unwanted media or fluidizing de-watered slurries on an intermittent basis. The purging fluid depends on the application, but cold fluids should generally not be used on hot valves. Examples of purging fluids are steam, hot or cold water, carbon dioxide and nitrogen.

6.7.2 Use the purge connections only when media stagnation causes difficulties in normal valve operation. The purge connection is not to be used to introduce air for conveyance or pressurising. Constant use of the purge may adversely effect valve maintenance requirements.

6.8 Valve Operation.

Always shut the valve fully; this will provide tight closure of seats for the longest possible life of the valve. Leaving the valve in the mid-stroke position will reduce the disc and seat life considerably.

6.9 Note.

REVIEW Maintenance notes after installation.

7. MAINTENANCE

Before performing any maintenance checks on the valve, be aware of the potential dangers inherent in the sealing and shearing action of the disc as it closes off the port area. NEVER reach inside the valve when any air supply is available to the actuator. This could result in serious injury.

7.1 Body Leakage.

When system is on-stream and has reached maximum operating temperature, inspect the valve for possible leaks at the body gasket and the stuffing box packing. Torque up body bolts evenly if a leak appears at body gasket, DO NOT OVER-TIGHTEN.

7.2 Packing Adjustment.

7.2.1 The packing gland is either manually adjusted or self adjusting. After being in service for some time, it may be necessary to adjust the packing gland flange if leakage appears at stuffing box. Take care not to over-tighten gland flange nuts.

7.2.2 When the packing gland has been adjusted all the way down; an extra ring of packing may be added to the top of the stuffing box as a temporary measure. If time permits, replace the packing in the stuffing box. USE ONLY packing suitable for the service as recommended in the parts list.

7.2.3 The self adjusting packing gland uses disc springs to adjust the packing load.

7.3.4 Packing leaks can sometimes be an indication of worn shaft due to your valve being cycled many times.

7.3 Seat Leakage.

7.3.1 Many small seat leaks can be fixed without removing the valve from service. Operate the valve a few times to dislodge any foreign particles lodged between the sealing faces of the seat and the disc. Sometimes the process materials tend to "plate out" and leave deposits on the seat surface. This can be cleaned of by cycling the valve a few times. If for any reason valve does not perform satisfactorily, please notify the factory.

7.4 Air Cylinder.

Refer to MITECH Factory for Air and Hydraulic Cylinder maintenance.

8. REPAIR

8.1 Shut off the line and supply pressures before removing valve from the pipeline.

8.2 Take valve apart and clean all parts thoroughly. Scrape out all the old packing from stuffing box. Relap both the disc and seat faces. If these faces cannot be cleaned up by lapping, they should be re-faced by surface grinding prior to final lapping. Check for smear metal due to grinding, scraping may be necessary to remove this wire edge. Use fine silicon carbide paper (240 grit) to obtain final edge finish. Loose or rough edges will cause the seat to fail.

8.3 If valve is fitted with seat bushing which are press fitted to the port of the bonnets, check to be sure that they are securely in place.

8.4 Recommended repair parts are indicated by asterisk on parts list of drawing supplied for your order. Assembly must be done in a clean environment.

9. ASSEMBLY

9.1. Clamp inlet bonnet to bench top. Position disk over seat. Locate lever assembly, and insert driver into , disk with spring and spring button.

9.2. Apply anti seize grease to body gaskets if spiral wound, or gasket adhesive to klingerite gaskets. Position distance ring with both body gaskets in place.

9.3. Balance second disk if required on second spring button. Carefully lower outlet bonnet onto distance ring checking that the second disk and body gaskets remain in position.

19.4. Hand tighten four evenly spaced body studs and nuts. Check valve to verify parts have been assembled correctly and that the Disks are centrally located over the bonnet outlets .

19.5 Body bolts must be pulled up evenly and alternately across. First hand tighten them all up evenly.

19.6 Install gland packings or seal depending on valve sealing arrangement .

19.7 Fit air cylinder operator . Check for proper centring of disc when valve is fully shut. A slight over travel is preferred. Adjust by screwing the piston rod in or out of the operating shaft .

19.8 If you do not have the proper facilities to make the repair, send the valve to the factory and we will repair it for you.

10. TESTING

Valve body and seat should be tested for tightness - consult the factory.