

INSTALLATION, OPERATION & MAINTENANCE MANUAL FOR AIL-FORGED STEEL GATE, GLOBE & CHECK VALVES (INCLUDES 'Y' TYPE VALVES)

1.0 STORAGE OF VALVES

On receipt, check the valve is in fully assembled condition.

End protectors on the valve should be kept intact and removed only at the time of installation. Valve performance depends on prevention of damage to the seating surfaces.

Valves should be stored in a covered area. If covered area is not available any water proof covering material should be spread over the valves and the valves should be kept on a wooden pallet at least 6" above the ground level.

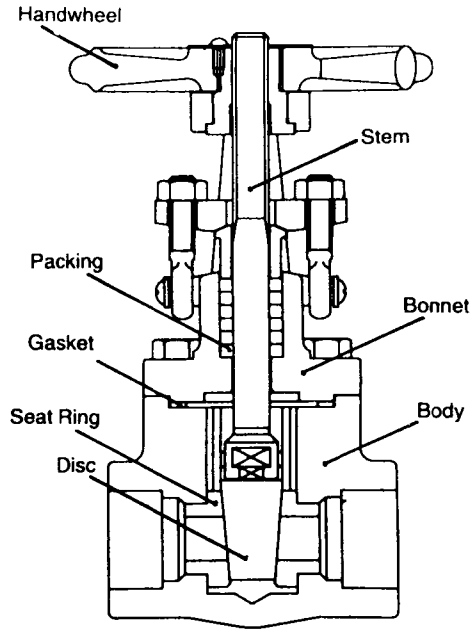
Do not apply tar, paint, grease or any other material inside the valve or on the stem, as this could impair the performance of the valve.

2.0 CONSTRUCTION

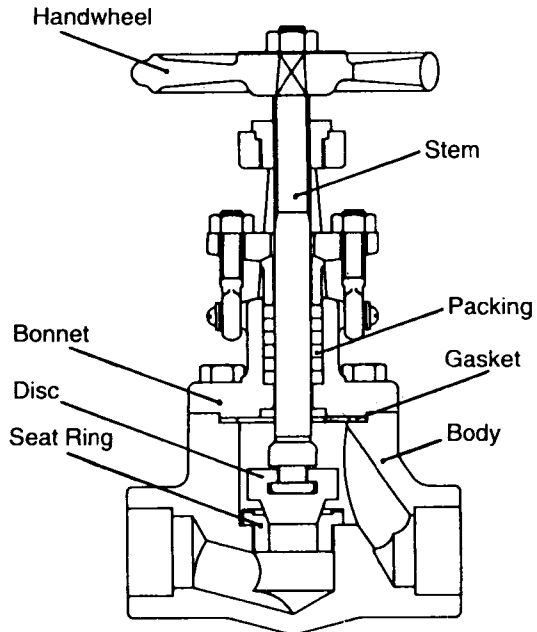
AIL forged steel Gate, Globe and Check valves are of rugged design and give tight sealing against varied pressure and temperature of the line fluid.

All gate and globe valves are of outside screw and yoke (OS&Y) type. This manual covers also 'Y' type globe valves and 'Y' type check valves.

Gate Valve



Globe Valve



3.0 INSTALLATION

Before installation, remove all foreign matter in the pipeline by flushing the line with water or compressed air.

End connections of the valve should be carefully checked and cleaned before installation. Taper threaded end fittings should not be overtightened. Flanged end valves should be checked for proper alignment of gasket before tightening the flange joint.

Gate and Globe valves work best when standing upright, with stem pointing straight up. Any stem position from straight up to horizontal is satisfactory. Installing a valve with its stem down is not recommended.

Check valves should be installed in the direction of flow such that the disc opens with the flow. The arrow marking on the body of the valve indicates the flow direction.

Instructions for Gate Valve

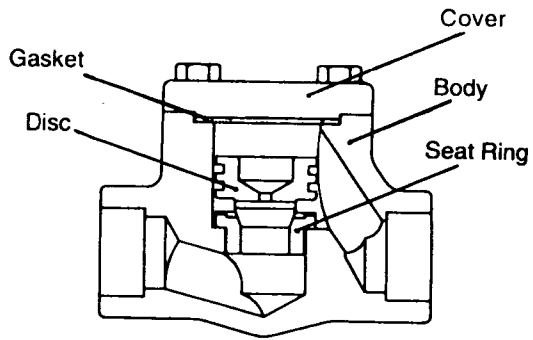
The flow through the gate valve is bi-directional.

Instructions for Globe Valves

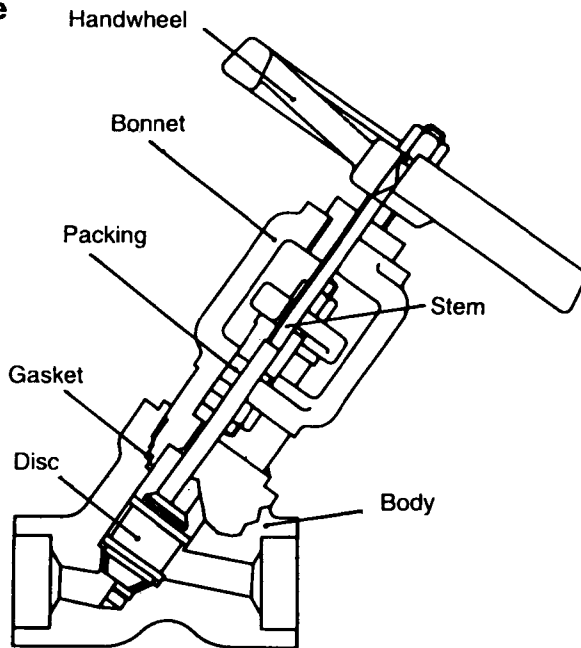
In general, Globe valves can be installed either with flow over or under the disc as influenced by the service condition. However, when used in hot services (including drain lines) Globe valves must be installed with flow over the disc to avoid unseating caused by differential thermal expansion resulting in leakage and consequent wire drawing.

However, in lines where continuous flow is desired, it is safer to have pressure under the disc. For example, a disc may

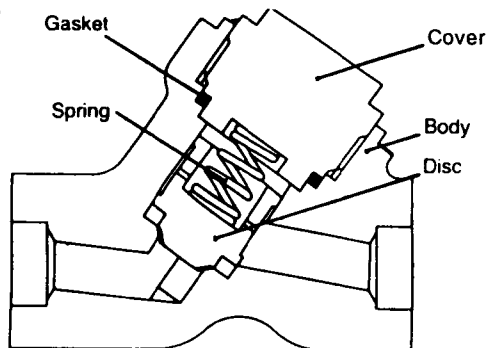
Check Valve



'Y' type Globe Valve



'Y' type Check Valve



become separated from its stem and automatically shut-off flow if pressure is above the disc. If this is not acceptable for certain installations, then the pressure should be under the disc.

Instructions for Check Valves

Check valve must be installed with the inlet in the direction of flow. This has to be checked carefully before installation of the valve. Otherwise check valve will stop the flow.

Lift check valve should be installed only in horizontal pipeline as the disc closes only by gravitational force. 'Y' type check valves are provided with spring loaded discs. They may be installed in either horizontal or vertical pipeline.

Swing type check valve can be installed either in horizontal or vertical pipelines. In vertical pipelines the flow should be in the upward direction.

Weld End Valves

While welding the valves with the pipeline, ensure absolute cleanliness as dirt can enter the body and damage the sealing of the stem guide and seats.

Gate valves and globe valves to be *in fully closed position* while welding on to pipe lines to prevent weld splatter from falling directly on to the seating faces.

4.0 OPERATION

Before putting new valve into service, check the size, ends, material and pressure temperature limitation of the valve with the operating parameters for capacity and compatibility.

Seen from above, looking down on the hand wheel, the gate & globe valves are closed by turning in the clockwise direction and opened by turning in the anti-clockwise direction.

Gate valve is to be operated either in fully open or fully closed and *should not be used for regulation*.

Globe valve is normally used for regulation.

The proper functioning of the installed valve should be checked by opening and closing several times. When the medium charges the gland packing with the operating pressure and temperature, the tightness of the stuffing box should be checked. If necessary, the nuts on the gland cover should be retightened exerting the same pressure on both sides.

Ensure that pressure surges (water hammer) do not exceed the nominal operating pressure.

5.0 MAINTENANCE

Parts of the valves are generally maintenance free. The materials of the sliding parts have been selected to keep wear to a minimum. However, for reasons of safety and to reduce maintenance and repair costs, all valves, especially those which are operated occasionally should be inspected at least 4 times a year.

Lubricating the moving parts such as stem and stuffing box screws with oil or grease and repacking or replacing the gland packing and cover gaskets in proper time will ensure long service life of the valves.

Dismantling

If the valves do not seal tight, indicating the body, disc or wedge seat is damaged, the valve must be dismantled.

Before removing the complete valve from the pipeline or prior to repair of the valve in the pipeline itself, the entire valve must be depressurised and sufficiently cooled down so that the temperature is below the evaporation temperature of the flow medium (in stuffing box too) and scalding prevented.

The seating surfaces should then be examined, ground and lapped. The grinding and lapping to be done by qualified personnel, using suitable equipment.