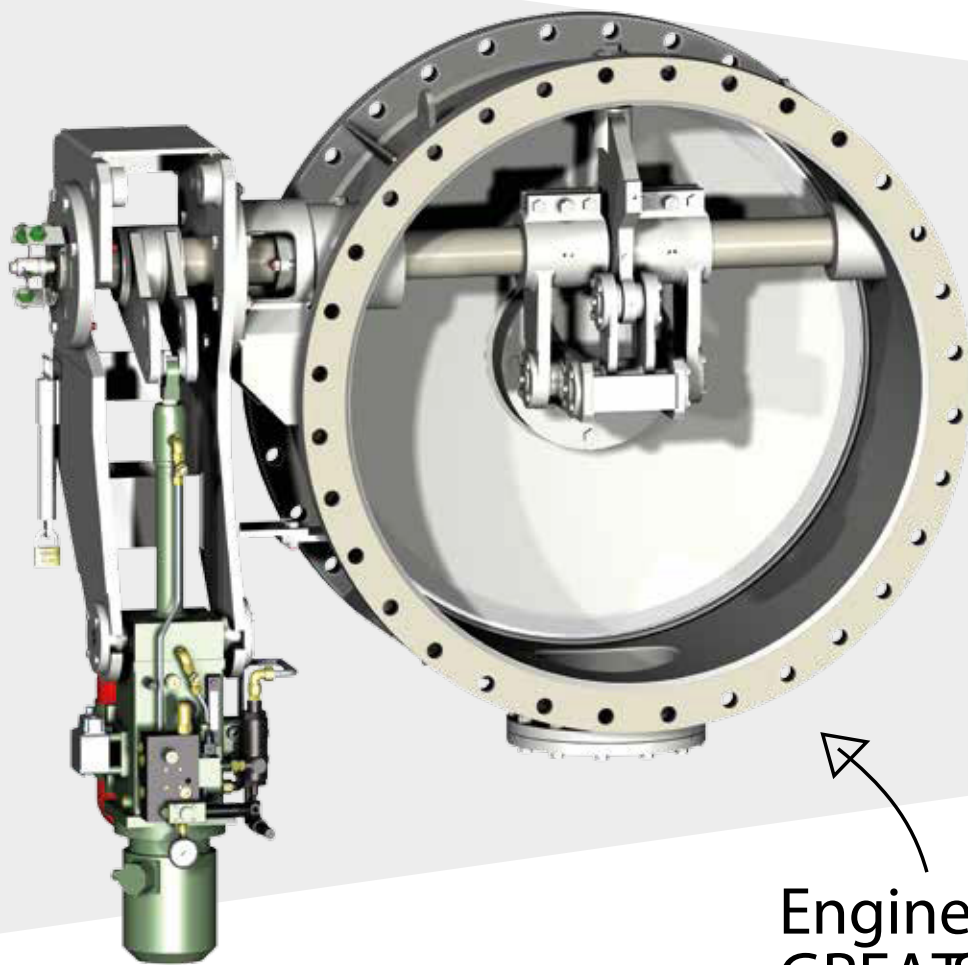


# Three Lever Valves



Engineering  
GREATSolutions

Pure shut-off valve

# Three Lever Valves

IMI TH Jansen has over 60 years experience with over 8,000 specialist valves installed worldwide. The Three Lever Valve is a pure shut-off valve for gaseous media, especially when used with high operating frequency. The main fields of application are where gaseous media have to be isolated and the valve is operated under quite low differential pressures (up to approximately 200 mbar) whereas the static pressure can be higher in the opened or closed position. It is used in the iron and steel industry, air separation units, gas-fired power plants, the chemical industry and other plants with similar shut-off requirements for gaseous media.



Three-lever valve with hydraulic cylinder

## Key features

The valve disc is centrally suspended transfer the clamping forces at the periphery uniformly onto the seat. The bearings of the turning and articulated points in the valve interior can be completely sealed and filled with temperature and acid-resistant paste (standard at type 440). The actuating shaft is housed in slide bearings in the body including an axial fixation on the actuator side, regreasable from outside.

### > Two shaft designs

- Internal shaft (Type 440). The valve shaft is located inside the cross-section of the pipe. This effects a higher pressure drop, but due to the short length of the levers a relative low torque at the shaft is required. Due to the small free cross-section on small nominal diameters not recommended below DN 600 (24").
- External shaft (Type 450). The valve shaft is located outside the cross-section of the pipe. Due to the long levers, the required torques increase significantly, whereas the pressure drop decreases slightly. Nominal diameters from DN 200 (8").

### > Actuation options

- Worm gear box with hand / chain wheel or electric actuator.
- Hydraulic / Pneumatic actuators. Cylinders or rotary actuators, including safety function (spring or counter weight) if desired.
- Electro-hydraulic actuator. Independent actuation system, including safety function by hydraulic accumulator if requested.



Internal shaft

### External shaft design



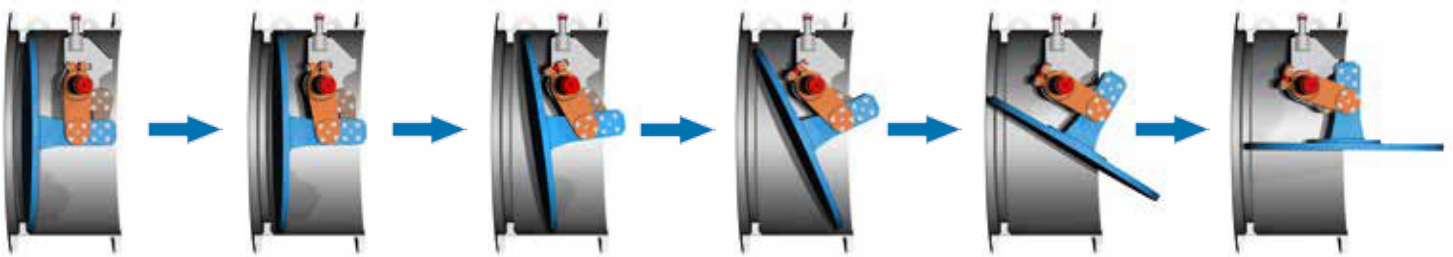
## Benefits

- > Choice of shaft location depending upon application
- > Locked grease holes for easy regreasing
- > Maintenance free operation
- > Good performance under high static pressure
- > Choice of actuation
- > Strong reference base for installed valves.

## Execution of shaft designs

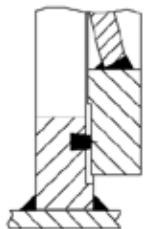
In the closed position the valve disc is pressed tightly against the body seat by the actuator force, possibly supported by the medium pressure. When the valve is opened, the disc is moved parallel first. This avoids frictional wear of the seats

- > Execution with internal shaft-type 440.  
A turning motion of approx. 70° at the actuation shaft effects a tilting motion of 90° of the valve disc
- > Execution with external shaft - Type 450.  
Only a turning motion of approx. 42° is necessary for a 90°- movement of the valve disc.

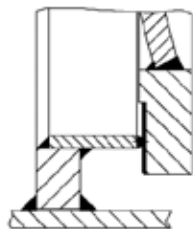


## Seal types

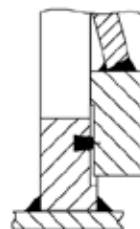
Depending on the flow medium and temperature there are different sealing types available.



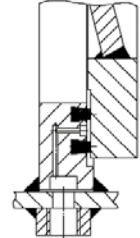
Type I  
Encased special tissue fibre,  
temperature up to approx.  
300 °C



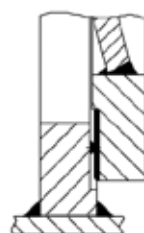
Type II  
Elastomer sealing (e.g. CR,  
FKM/FPM, VMQ), temperature  
up to approx. 200 °C



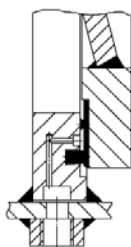
Type III  
Hardfaced Morton edge  
and disc sealing surface,  
temperature up to approx.  
500 °C



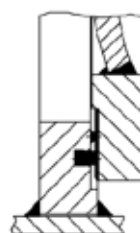
Type IV  
Double sealing comprising  
Morton edge with soft sealing,  
temperature up to approx.  
300 °C



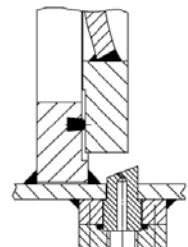
Type V  
Advanced Morton edge for dust  
loaded fluids, temperature up to  
approx. 500 °C



Type VI  
Double sealing with chamber  
for sealing agent or suction  
arrangement, temperature  
up to approx. 200 °C



Type VII  
Double sealing with chamber  
for sealing agent or suction  
arrangement, temperature  
up to approx. 300 °C



Type VIII  
Seat with additional purge  
arrangement for steam or  
pressurized water



**Maroc Sealing**  
FLUID CONTROL



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