ABZolute Seal Series 400 Valve Standard

1.0 Application Range

This document is applicable to design of butterfly valve sold by our company.

1.1 Double Eccentric High Performance Butterfly Valve

1.2 Wafer, Lug, Flange and Butt-Welded Type

2.0 Applicable Code

Code	Description
API 598	Valve Inspection and Test
API 609	Lug and Wafer Type Butterfly Valve
ASME B 16.5	Pipe Flanges and Flanged Fittings, NPS 1/2 Through NPS 24
ASME B 16.10	Face-To-Face and End-To-End Dimensions of Valves
ASME B 16.25	Butt-Welding Ends
ASME B 16.34	Valves-Flanged, Threaded and Welding End
ASME B 16.47	Large Diameter Steel Flanges, NPS 26 Through NPS 60
MSS SP-6	Standard Finishes for Contact Faces of Pipe Flanges and Connecting End flanges of Valve and Fittings
MSS SP-9	Spot Facing for Bronze, Iron and Steel Flanges
MSS SP-25	Standard Marking System for Valves
NSS SP-55	Quality Standard for Steel Casting for Valves, Flanges and Fittings and other Piping Components by Visual Method
MSS SP-68	High Pressure-Offset Seat Butterfly Valve
BS 3293	Steel Wedge Gate Valve (Flanged and Butt-Welded Ends) for the Petro, Petrochemical and Allied Industries
BS 5155	Steel Globe and Globe Stop and Check Valves (Flanged and Butt-Welded Ends) for the Petroleum, Petrochemical and Allied Industries
ISO 5211	Part-Turn Valve Actuator Attachment
ISO 5752	Metal Valves for in Flanged Pipe Systems-Face-To-Face and Center-to-Face Dimensions

3.0 Relation between Max. Temperature and Pressure

Relation between max. temp. and pressure depends on body material to follow by ASME B16.34

4.0 Applicable Class

Applicable range of proessure and diameter for valves are complied by the following box, and over size of each class are available.

Class	150	300	600
Diameter	3" – 24"	3" – 24"	3" – 12"

5.0 Materials

5.1 Trim

5.1.1 ANSI Class 150 and 300 of body seat are welded by overlay welding.
ANSI Class 600 and Cryogenic are overlaid with Stellite No. 6

5.2 Disc

5.2.1 For corrosion, the disc touched by fluid is overlaid with ENP (Min 20μm) plating
Or used high quality material (More than 304 SS)

5.3 Stem

5.3.1 Is standard (17-4 Ph SS) if not special ordered.

5.4 Others

5.4.1 Pin and Key should be of a quality to compare to valve stem.

5.4.2 The standard packing will be flexible graphite or Teflon.

5.4.3 The other parts shall be by our standard unless otherwise specified.

6.0 Shape and Dimension

6.1 Shape

6.1.1 Casting should be without pin-holes, casting dust and ect. by visual inspection.

6.1.2 The machined surface should be without cracks.

6.1.3 The disc should rounded edge and no cracks

6.1.4 The inside surface is to have a smooth surface

6.1.5 The surface of the seat will have a precision smooth face

6.2 Body

6.2.1 The thickness of body to follow ASME B 16.34

6.2.2 The end of the inside diameter should be over 95% of the inside diameter (ASME B 16.34)

6.2.3 The Standard for Face-To-Face

Wafer and Lug: ASME B 16.10, API 609, MSS SP-68
Double Flange: AWWA C504, BS 5155, ISO 5752, MSS SP-67

6.2.4 Valve shall follow 125 ~ 200AARH (Screw Type)

6.2.5 Packing section should follow lantern ring type.

6.2.6 The basic structure of valve shall have the same diameter regardless of wafer, lug, double flanged and butt-welded end type in ANSI class 150 and 300. The inside and outside shape shall be of the same basic structure.

6.2.7 The inside diameter of the body should be 10mm over the seat diameter.

6.2.8 The bolt for the flange should be the penetrating type.

6.2.9 The bolt hole of the lug, flange should be machined and tapped.

6.3 Disc

6.3.1 The back side shall be of the flat type.

6.3.2 It shall use a welded in taper pin.

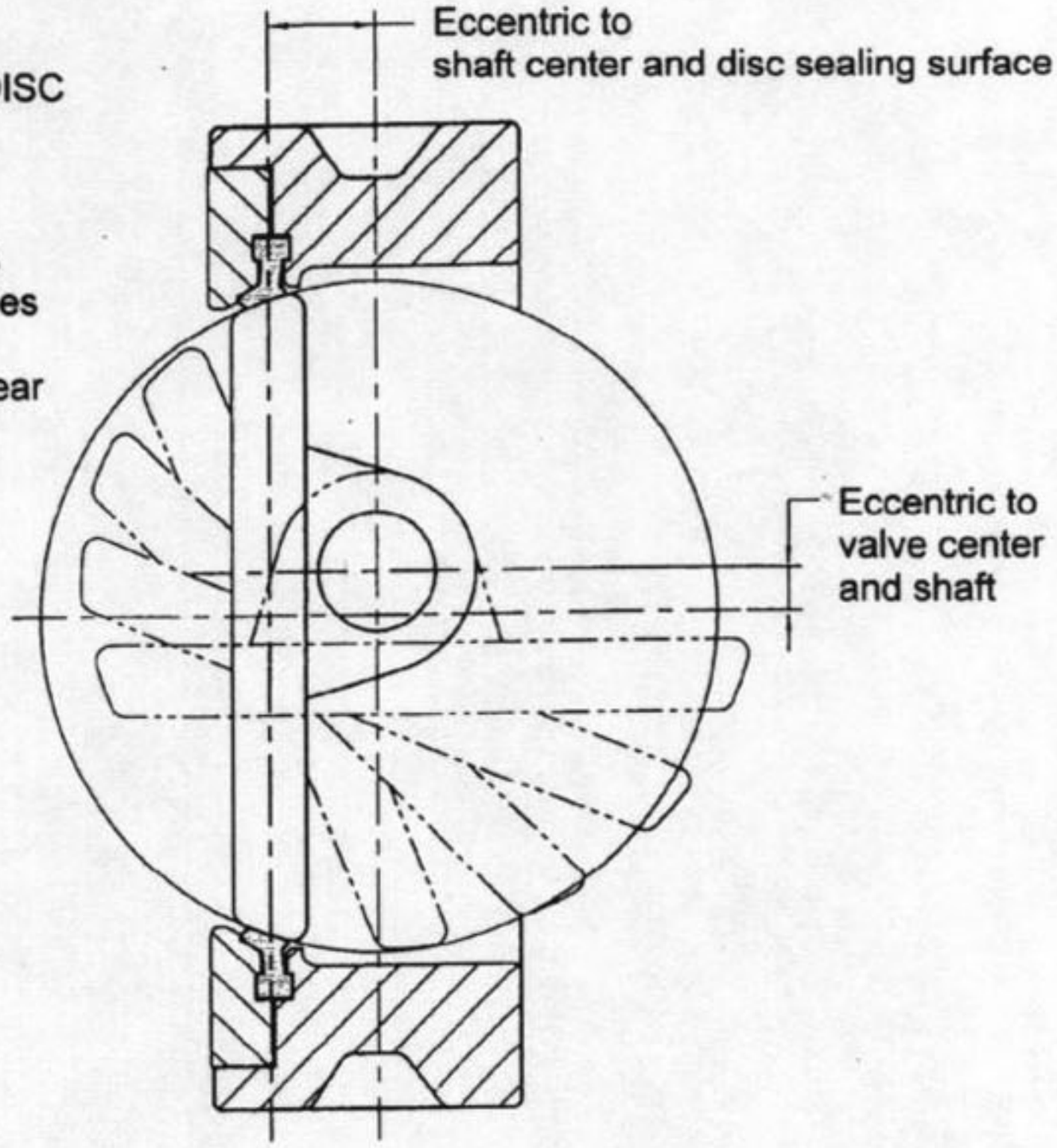
6.4 Stem

6.4.1 Stem Material and Type Should be our standard 17-4 Ph SS

DISC

* DOUBLE ECCENTRIC DISC

Double eccentric disc
moves entirely away
from the seat at all points
in the first very few degrees
of rotation.
This eliminates pivotal wear
and allows far longer life
and sealing capability.

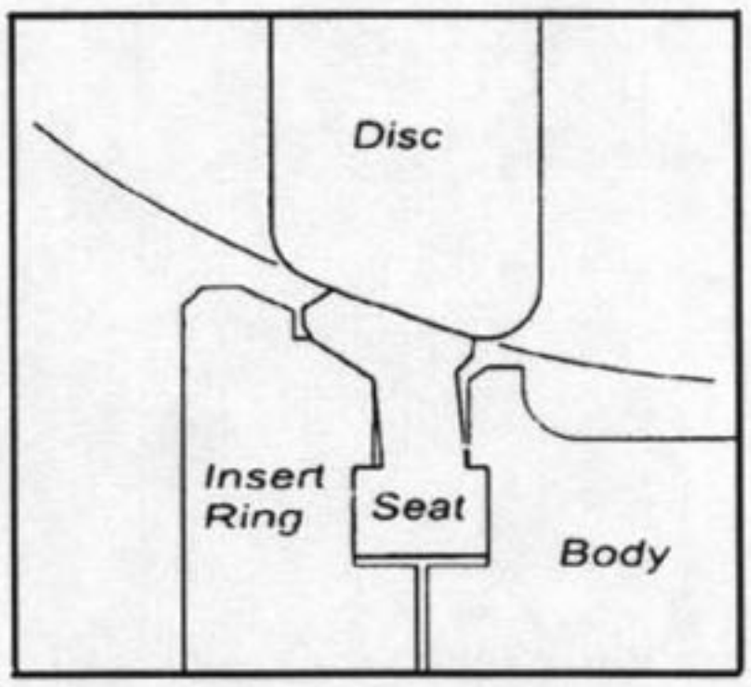


* SPHERICAL DISC SEALING SURFACE

Sealing zone becomes larger because
of the spherical form, better sealing
capability.

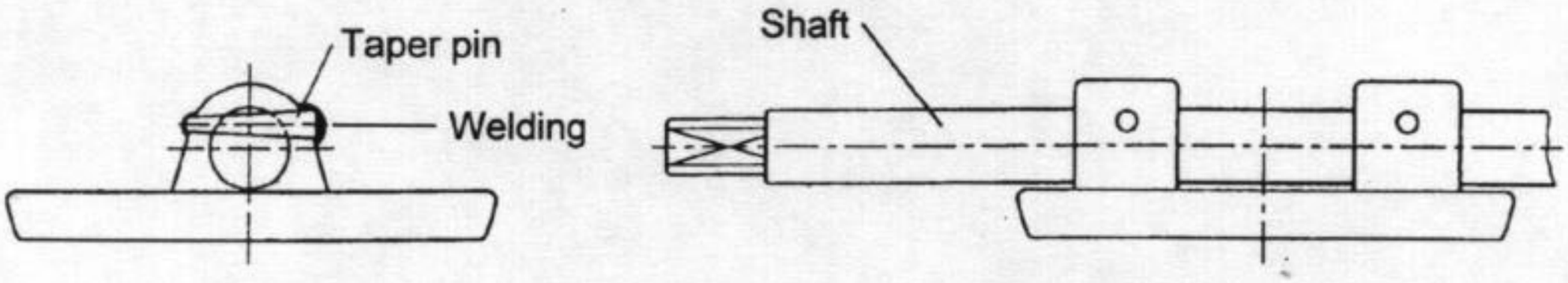
The seat contacts the spherical disc
surface smoothly eliminating seat wear.

With the spherical surface, the opening
and closing torque is significantly reduced.



DISC / SHAFT ASSEMBLY

* Disc and shaft are assembled as illustrated here by the tapered pins. The top of the pins are welded to obtain fixed and firm connections to each other.

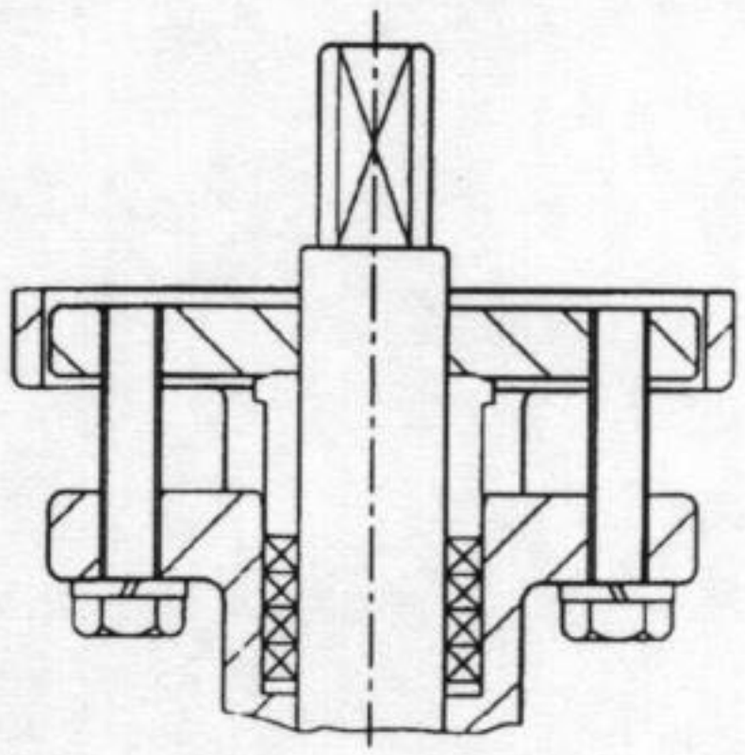


GLAND PACKING

* CONSTRUCTION OF THE GLAND PACKING

The gland packing provides a superior stem and body seal.

Packing material is inserted through the gland ring and it is compressed firmly by the gland flange. This allows the packing to seal off internally and externally.



* MAXIMUM WORKING TEMPERATURE

PTFE: 200 Deg C
Graphite: 800 Deg C

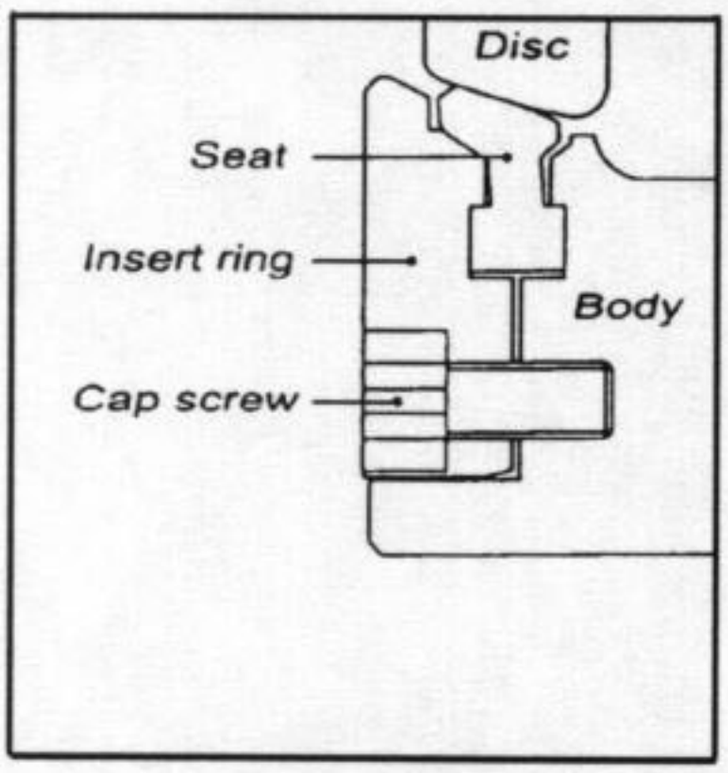
INSERT RING

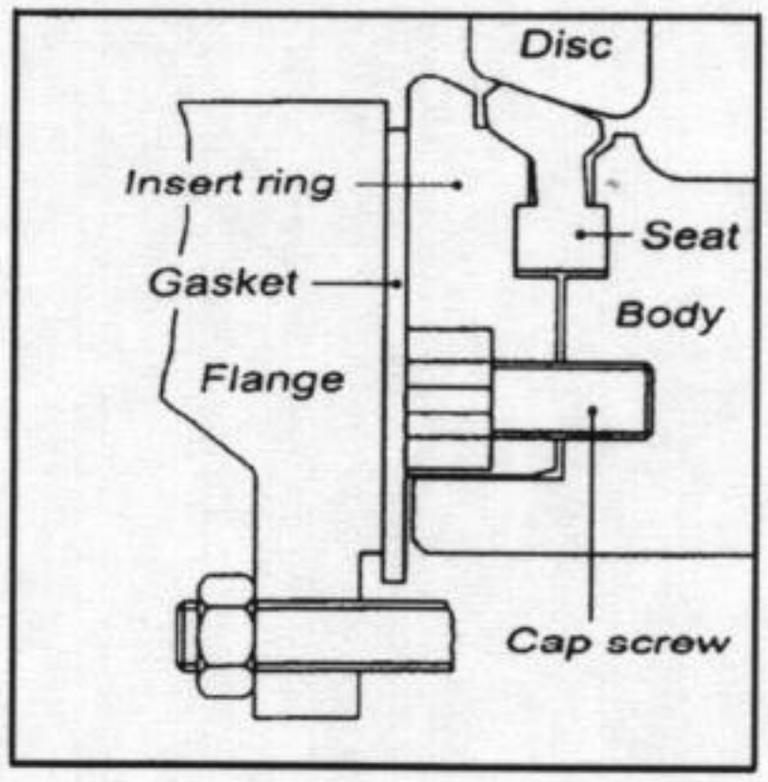
* SETTING OF THE INSERT

The seat is set by the body and the insert ring.
It is fixed temporarily by the cap screw as illustrated here.

The final seat setting condition can be obtained when the valve is installed to piping by tightening the flange bolt.

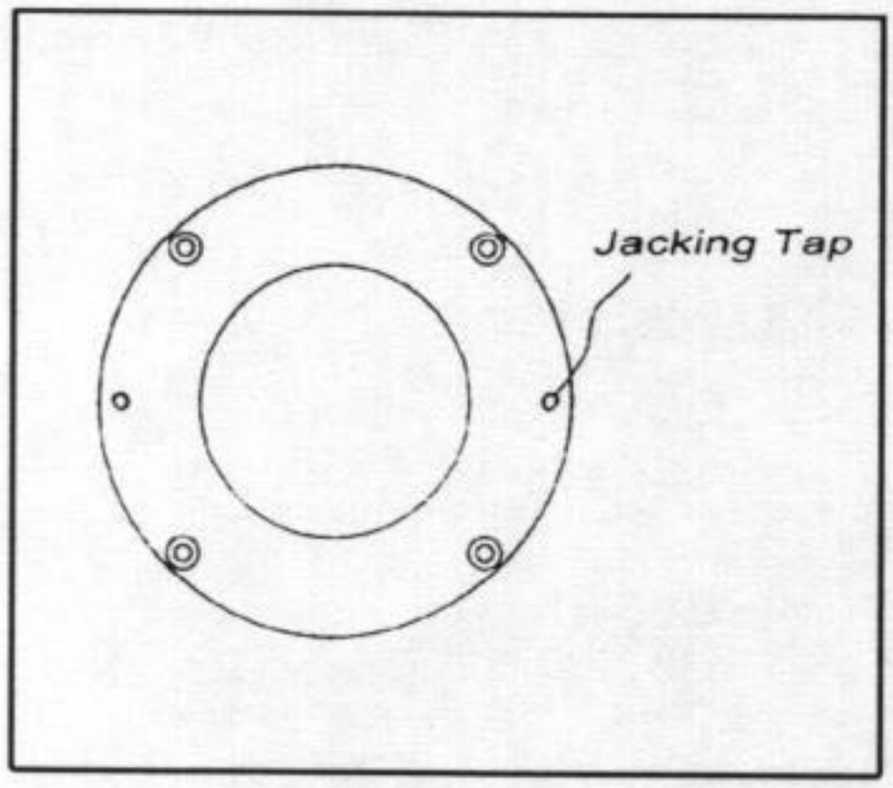
The insert ring prevents the seat from wear and corrosion.

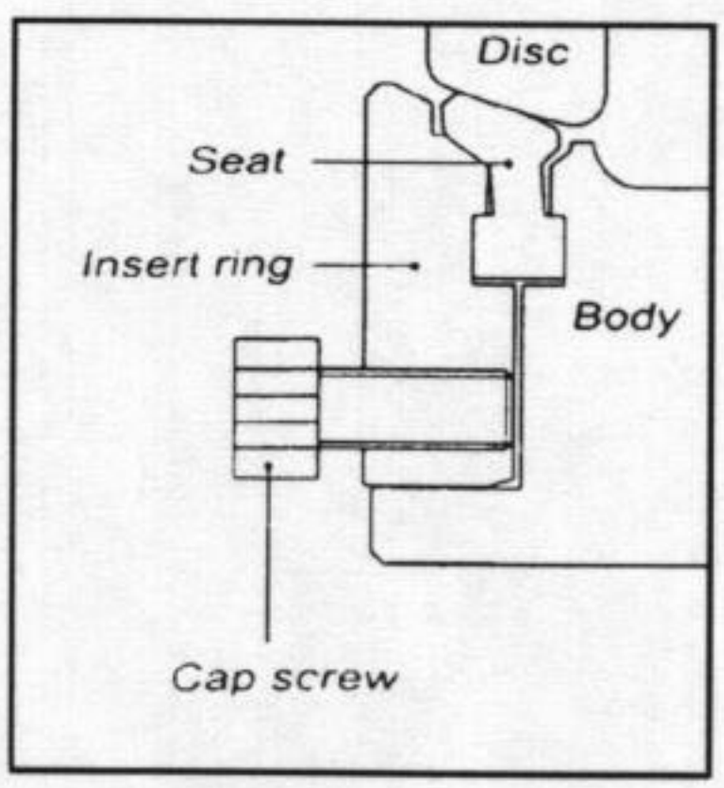




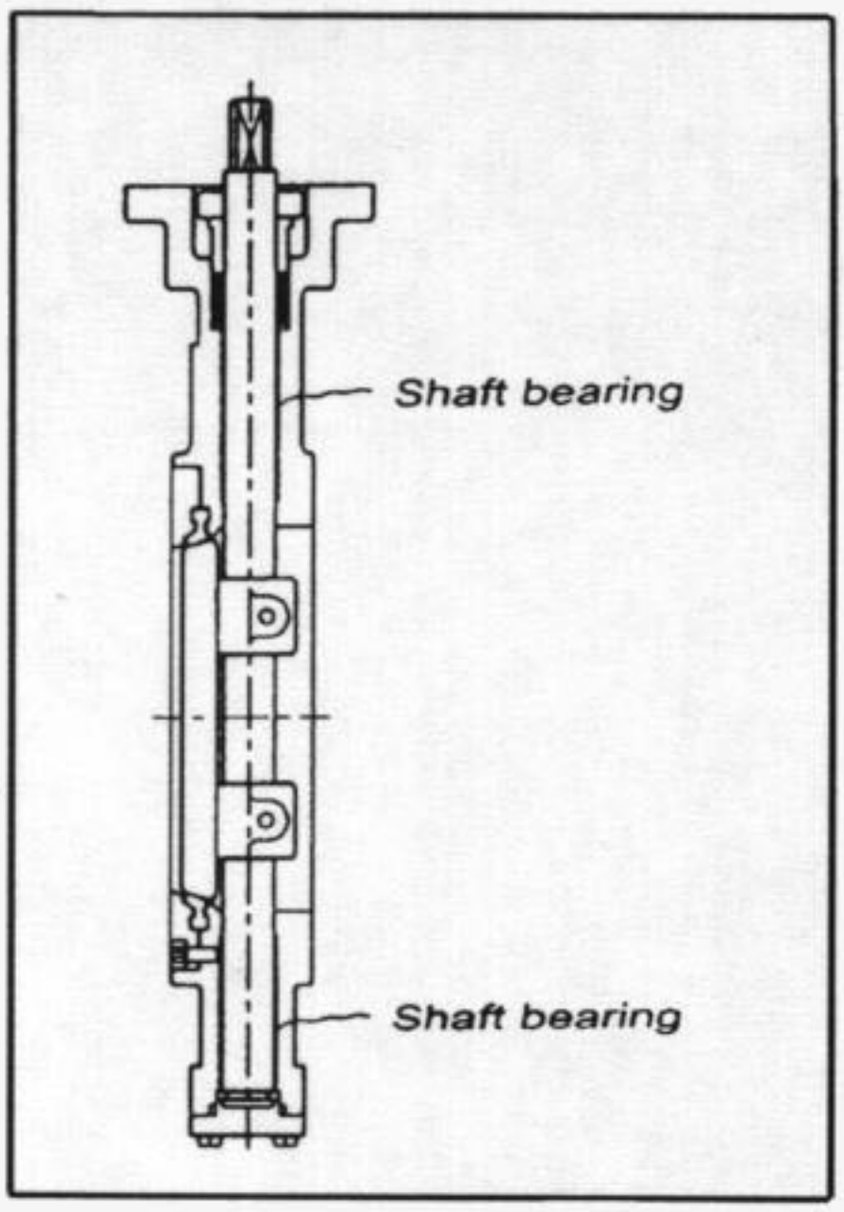
* JACKING SCREWS

For removing the insert ring from the valve body, the two cap screws shall be screwed in.

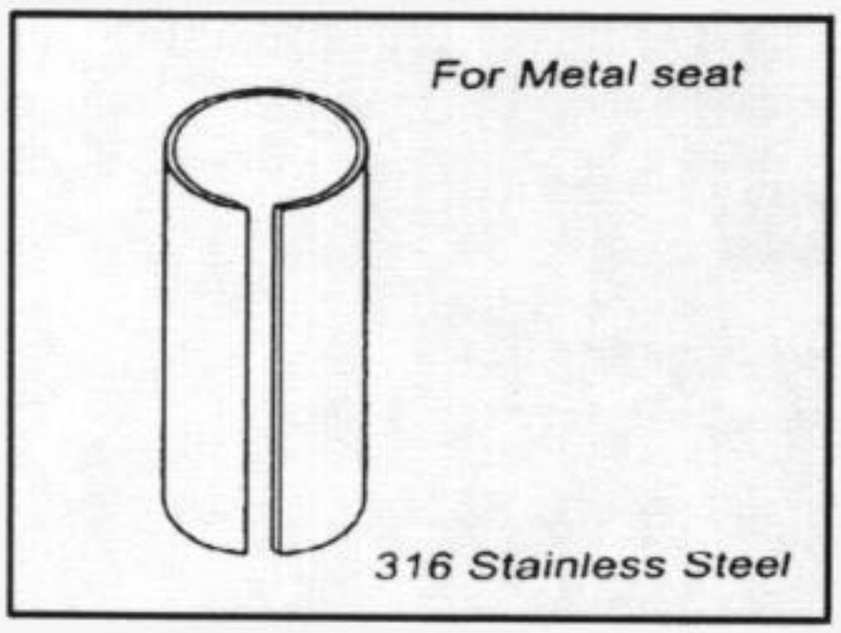




SHAFT BEARING



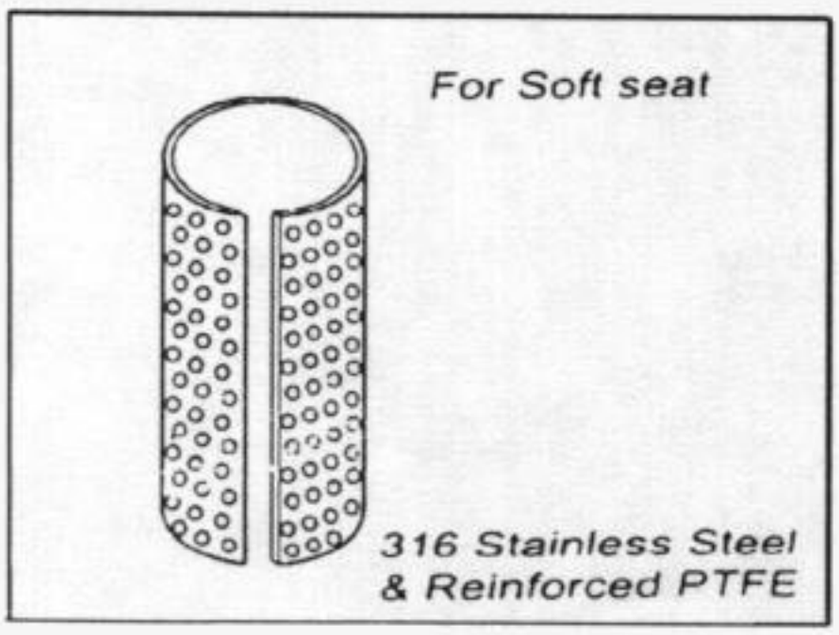
* LOCATION OF THE SHAFT BEARING



* SHAFT BEARING FOR METAL SEATED VALVE.

It's material is 316 ss with the surface hardened and it makes the shaft movement smooth and prevents galling when used for high temperature.

Max. working temperature: 650 Deg C



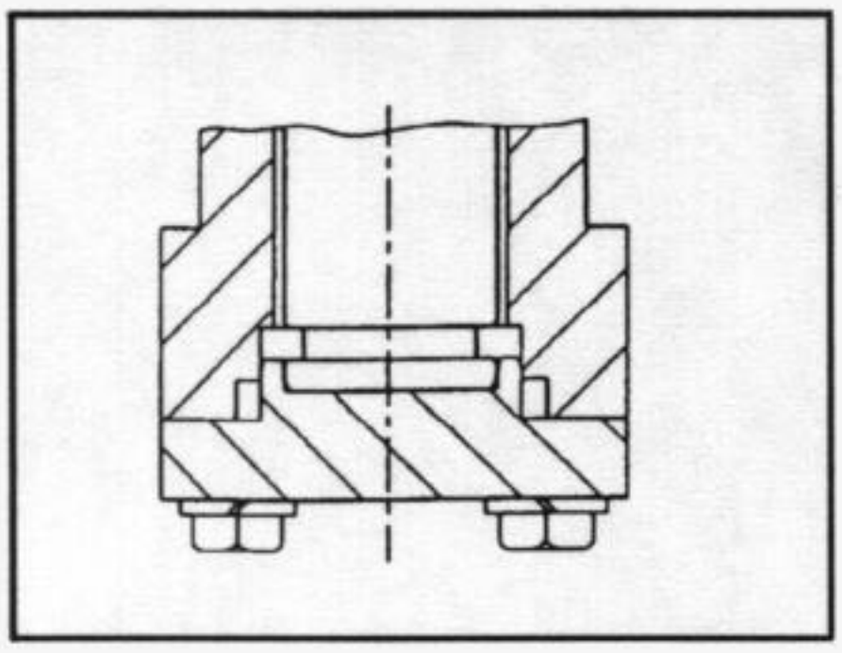
* SHAFT BEARING FOR SOFT SEATED VALVE.

Perforated 316 ss, with reinforced PTFE film adhered inside of 316 ss plate. It is a non-lubricated bearing with high antisurface-pressure, high resistance against high pressure, and low resistance to friction which makes the shaft movement quite smooth.

Max. working temperature: 260 Deg C

SHAFT RETAINER

* CONSTRUCTION AT THE BOTTOM PORTION OF VALVE BODY



* If the seat and the disc are not coxial to each other, uneven wear of the material occurs which may cause leaks.

  Because of its construction, a movement of the shaft upwards and downwards could happen.

  In order to avoid this inconvenient movement, the retainer is set to have the disc at the correct position in the center of the seat.

* SHAPE