Ball Valve Series 71R3 / 71F3
Class 600/800, Regular/Full Port, Screwed, Socket, Butt Weld Floating Design

3-PIECE BALL VALVE / 2-WAY

- 3-Piece swing-Out Design, Easy inline maintenance.
- ISO 5211 mounting Pad.
- Maintenance free live loaded double sealing stem packing ensures high cycle life and positive sealing.
- Blow-Out Proof Design

The 3-piece design is available for various schedule pipes. This type of construction is of swing-out design and easy inline maintenance. By removing body bolts & nuts the complete valve may be lifted out of the line or swing-out by keeping one bolt. The valve can easily swing out of the line providing complete entry and fast disassembly or maintenance. The swing away feature also maintains pipe alignment during inline maintenance. The 3-piece design offers the function of both valve as well as a union. It can be used in screw pipe ends, socket weld pipe ends, butt weld ends, extended butt weld pipe ends. These ball valves can be easily used for automation by using pneumatic and electric actuators.

Conformity to codes & standards:

General design and manufacturing: BS EN ISO - 17292/API-608/API-6D
Valve face to face dimensions: Manufacturers standard
Valve inspection & testing: EN 12266-1

Special feature:
- Metal to Metal Seat

Technical Specifications:

Valve type: Floating design ball valve
Body type: 3 pc
Seat type: Soft / Metal
End connection: Screwed, socket & butt weld ends / Nipple Extru.
Size range: 15NB to 50NB
Pressure rating: Class 800
Seat leakage: Class VI - soft seat, Class V-Metal seat
Operation: Hand lever / Gear / Actuator (Electrical / Pneumatic)

Standard Material of Construction:

1. Body: A105, WCB, CF8, CF8M, CF3, CF3M, F304, F316, CN7M
2. Pipe End: A105, WCB, CF8, CF8M, CF3, CF3M, F304, F316, CN7M
4. Ball: SS410, 304, 316, 316L, MONEL, ALLOY20, HAST-B, C.
5. Stem: SS410, 304, 316, 316L, MONEL, ALLOY20, HAST-B, C.
6. Seat: PTFE, GPT, CFT / Metal to Metal / Delrin, Nylon/PEEK.
7. Stem Seal: GFT
10. Gland Nut: Carbon Steel
12. Bellows Spring: Spring Steel.
13. Antistatic Spring: SS 304

Valves above 50mm size will be offered in 2-Piece Design on request, solid ball on request. All sizes of Ball Valves can also be provided with Gear, Actuator (Electric / Pneumatic).
For Cast Valves, Pressure rating will be class 600 / 300.
For Forged Valves, Pressure rating will be class 800.
Ball Valve Series 74R2 / 74F2
Class 150, Regular/Full Port, Flanged Ends, Floating Design

These are high performance ball valves in Class 150 – 2 pc construction. With the floating seal design, the ball diameter is greatest in the close position and the seat is free to expand on closing and contract on opening. This continuous ball to seat contact ensures proper adjustment and continual sealing. Since the seat is allowed to float in open position, fluids and debris do not accumulate around and behind the seat. This results in self-cleaning action, reduced wear and smoother operation. These valves are with built in antistatic features & double seal design and can be offered in soft Seated as well as metal Seated design.

2/3-PIECE BALL VALVES / 2-WAY
+ Maintenance free live loaded double sealing stem packing ensures high cycles life and positive sealing.
+ Blow-Out Proof Stem.
+ ISO5211 Mounting Pad Allows for mounting of actuator.

Conformity to codes & standards:
- General design & manufacturing: BS EN ISO -17292/API-608/API-6D
- Valve dimensions: ASME B 16.10 / B 16.5.
- Valve inspection & testing: EN 12266-1
- Special features: Fire safe to API-607/6FA Metal to Metal Seat

Technical specification:
- Valve type: Floating design ball valve
- Body type: 2 pc / 3 pc
- Seat type: Soft / Metal.
- End connection: Flanged.
- Size range: 15NB to 300NB
- Pressure rating: Class 150.
- Seat leakage: Class VI-soft seat, Class V-Metal seat.
- Operation: Hand lever/Gear/Actuator(Electrical/Pneumatic)

Standard Material of Construction:
- Body: WCB,CF8,CF8M,CF3,CF3M,CN7M.
- Side Piece: WCB,CF8,CF8M,CF3,CF3M,CN7M.
- Gland: SS 410,304,316,316L,304L,Monel,Alloy20,Hast-B.C.
- Ball: SS 410,304,316,316L,304L,Monel,Alloy20,Hast-B.C.
- Stem: SS 410,304,316,316L,304L,Monel,Alloy20,Hast-B.C.
- Seat: PTFE,GFT,CFT/Metal to Metal/Delrin, Nylon.
- Stem seal: GFT.
- Gland Packing: PTFE, GFT, CFT.
- Gland nut: Carbon steel.
- Body stud/nut: B7/2H, B8/B8M.
- Belleville spring: Spring steel.
- Antistatic spring: SS 304.

*NOTE: Valves up to 50mm with lever. Ball valves can also be provided with Gear, Actuator (Electrical / Pneumatic). Other material available on request.
**Ball Valve Series 75R2 / 75F2**

Class 300, Regular/Full Port, Flanged Ends, Floating Design

**2-PIECE BALL VALVES / 2-WAY.**

- Maintenance free live loaded double sealing stem packing ensures high cycles life and positive sealing.
- ISO 5211 Mounting Pad Allows for mounting of actuator
- Blow-Out Proof Stem.

These High performance floating design Ball Valves have the following advantages:

**Superior sealing:** Seat to ball sealing is further improved by allowing both the ball and seat to move. This provides a leak tight seal even at low pressures. The floating ball increases compression against the seat as system pressure increases.

**Self Cleaning:** The floating design allows entrapped fluid to be continually drain from the valve cavity. The internal washing action keeps the seats free of contaminated ingredients and guarantees superior valve performance.

**Self adjusting:** The seat and ball interface allows the seat to expand and contract in order to maintain proper ball contact at all times thus resulting in self adjustment.

**Smooth operation & reduced wear:** There is reduced friction on the seat when it comes in contact with the ball during opening and closing and thus enhances the valve life.

**Conformity to codes & standards:**
- General design & manufacturing: BS EN ISO -17292/API-608/API-6D
- Valve dimensions: ASME B 16.10 / B 16.5
- Valve inspection & testing: EN 12266-1
- Special features: Fire safe to API-607 Metal to Metal Seat

**Technical specification:**
- Valve type: Floating design ball valve
- Body type: 2 pc.
- Seat type: Soft / Metal.
- End connection: Flanged.
- Size range: 15 NB to 300 NB for reduced port/full port.
- Pressure rating: Class 300
- Seat leakage: Class VI-soft seat, Class V-Metal seat.
- Operation: Hand lever/Gear/Actuator (Electrical / Pneumatic)

**Dimensional Data In mm**

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**Ball Valve Series 75R2 / 75F2**

Class 300, Regular/Full Port, Flanged Ends, Floating Design

**Standard material of construction:**
- 1. Body: WCB,CF8,CF8M,CF3,CF3M,CN7M.
- 2. Side Piece: WCB,CF8,CF8M,CF3,CF3M,CN7M.
- 4. Ball: SS 410,304,316,316L,304L,Mone,Alloy20,Hast-B,C.
- 5. Stem: PTFE, GPT, CFT/Metal to Metal/ Delrin, Nylon.
- 7. Stem seal: PTFE, Graph.
- 11. Body stud/nut: B7/2H, B8/B8M.

*NOTE: Valves up to 50mm with lever.
Ball valves can also be provided with Gear, Actuator (Electrical / Pneumatic).
Other material available on request.*
Ball Valve Series 74R2T / 74F2T / 75R2T / 75F2T
Class 150/300, Regular/Full Port, Flanged Ends, Trunnion Mounted Design

2/3-PIECE 2-WAY – TRUNNION MOUNTED BALL VALVES.
+ Spring Loaded Seat Design
+ ISO 5211 Mounting Pad Allows for mounting of actuator
+ Maintenance free live loaded double sealing stem
+ packing ensures high cycles life and positive sealing.
+ Blow-Out Proof Stem.

The trunnion design high performance ball valves use the upper and lower supports to retain the ball under pressure. It allows the valve to be installed in either direction. This valve can be used in applications with reversing flow. Another feature of trunnion design is that it allows the ball valve to act as a true union. This allows down stream piping to be disconnected under full upstream pressure (provided the downstream piping is drained of liquid and that the valve is indeed closed and secured to upstream piping). The trunnion on a two way ball valve supports the ball in much the same way as the stem does on top.

Conformity to codes & standards:
: BS EN ISO-17292/API-608/API-6D
: ASME B 16.10 / B 16.5.
: EN 12266-1

#ASA150 #ASA300
Hydro shell : 31 kg/sq.cm : 77 kg/sq.cm
Seat test : 23 kg/sq.cm : 51 kg/sq.cm
Air seat : 7 kg/sq.cm : 7 kg/sq.cm

Special features
: Fire safe to API-607
: Metal to Metal Seat
: Block and Bleed.
: Sealant Injection

Technical specification:
Valve type : Trunnion Mounted ball valve
: 2 pc standard / 3 pc optional.
: Spring Loaded Seat design in Soft/Metal Seated.
Body type : Flanged.
: 50 NB to 750 NB
Size range :
: Class 150 / 300
: Class VI-soft seat, Class V-Metal seat.
Pressure rating:
: Gear / Actuator (Electrical / Pneumatic)

Note: Other material available on request

Ball Valve Series 74R2T / 74F2T / 75R2T / 75F2T
Class 150/300, Regular/Full Port, Flanged Ends, Trunnion Mounted Design

Conformity to codes & standards:
: BS EN ISO-17292/API-608/API-6D
: ASME B 16.10 / B 16.5.
: EN 12266-1

Standard material of construction:
½. Body /Side Piece
3/4/5. Trunnion/ Seat Retainer/ Stuffing Box
6. Gland
7. Ball
8. Stem
9. Seat
10. Seat Spring
11. ‘O’ ring
12. Stem Washer
13. Gland Packing
14. Body seal
15. Check Nut
16. Thrust Washer
17. Body Stud/Nut
18/19. Stuffing Box Bearing/ Trunnion Bearing
20/21. Stuffing Box Seal/ Trunnion Seal
22. Bracket
23. Gland nut
24. Belleville spring
25. Artistic spring
26. Gear Box

General design & manufacturing.
: WCB,CF8,CF8M,CF3,CF3M,CF7M.
: WCB,CF8,CF8M,CF3,CF3M,CF7M.
: SS 410,304,316,316L,304L,Monel,Alloy20,Hast-B,C.
: SS 316 Metal.
: Valen, ANSI 304.
: GFT.
: PTFE, GFT, CF8.
: Carbon steel, A304.
: GFT.
: 304L, 304.

Note: Other material available on request
### Ball Valve 3 Way Class 150 / 300 / 600 / 800

Regular/Full Port, Flanged Ends, Screwed, SW Ends Floating Design

#### 3-WAY BALL VALVES:

- Maintenance free live loaded double sealing stem packing ensures high cycles life and positive sealing.
- ISO 5211 Mounting Pad Allows for mounting of actuator
- Blow-Out Proof Stem.

Multipurpose 3-way ball valves offer superior performance and reliability required to optimize manual and automation process performance. This versatile, high performance multi-port ball valves offer solutions to mixing and diverting, with various available flow patterns and end configurations. It can be maintained in line, leaving the end pieces intact. The direct mounting design makes automation easier. These can be offered in flanged, socket weld, threaded and butt weld connections.

The special features included are: Superior smooth stem surface that reduces seal friction and operating torque. Blow out proof stem for maximum safety. Precisely machined, mirror polished solid ball for tight shut off with less operating torque.

#### Conformity to codes & standards

- General design & manufacturing: BS EN ISO - 17292
- ASME B 16.10 / B 16.5.
- EN-12266-1: Hydro shell:
  - Class 150: 211 kg/sq.cm
  - Class 300: 31 kg/sq.cm
  - Class 800: 77 kg/sq.cm
- Seat test:
  - Class 150: 69 kg/sq.cm
  - Class 300: 23 kg/sq.cm
  - Class 800: 51 kg/sq.cm
- Special features:
  - Fire safe design
  - Metal to Metal Seat

#### Technical specification:

- Valve type: 3-Way Ball Valve, 2 Seat
- Body type: 2 pc. / 3 pc.
- Seat type: Soft / Metal
- End connection: Flanged / Screwed / Socket weld end.
- Size range: 15 NB to 150 NB for reduced port / full port
- Pressure rating: Class 150, 300 & 800
- Seat leakage: Class VI-soft seat, Class V-metal seat.
- Operation: Hand lever / Gear / Actuator (Electrical / Pneumatic)

#### Standard material of construction:

1. Body: WCB, CF8M, CF3M, CN7M.
2. Side Piece: WCB, CF8M, CF3M, CN7M.
4. Ball: SS 410, 304, 316, 316L, Monel, Alloy20, Hast-C.
5. Seat: PTFE, GDT, TFE, Metal to Metal.
6. Stem: PTFE, GDT, TFE.
7. Stem seal: GTF.

#### Ball valves can also be provided with Gear, Actuator (Electrical / Pneumatic).

Note: Other material available on request

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# Technical Data

### Ball Valve 3 Way Class 150 / 300 / 600 / 800

**Operation**: Hand lever / Gear / Actuator (Electrical / Pneumatic)

**Seat leakage**: Class VI-soft seat, Class V-metal seat.

**Size range**: 15 NB to 150 NB for reduced port / full port

**Pressure rating**: Class 150, 300 & 800

**End connection**: Flanged / Screwed / Socket weld end.

**Body type**: 2 pc. / 3 pc.

---
Cryogenic Service Ball Valves with Extd. Bonnet up to -196°C
Class 150 / 300 / 600 / 800 Regular / Full Port, Flanged Ends, Screwed, SW Ends
Special Service Ball Valves for Cryo Application.

These ball valves meet test specifications as per BS 6364. Applications such as deep freezing and cooling involve cryogenic technology based on nitrogen, oxygen and other gases. A special type of PTFE grade ensures excellent mechanical resistance and stable torques at low temperatures. The cryogenic stem extension is provided. It is manufactured as a one piece item with the stem for increased mechanical strength. This positions stem and stem packing away from cryogenic fluid to prevent stem seal freeze up and ensures superior performance. These ball valves can be provided with Integral mounting pad ISO 5211 and can be used for actuation.

- Maintenance free live loaded double sealing stem packing ensures high cycles life and positive sealing.
- ISO 5211 Mounting Pad Allows for mounting of actuator
- Blow-Out Proof Stem.

Conformity to codes & standards:
- General design & manufacturing: BS EN ISO - 17292/ API-6D
- Valve dimensions: ASME B 16.10 / B 16.5
- Valve inspection & testing: EN 12266-1
  - Hydro test: 211 kg/sq.cm / 31 kg/sq.cm / 7 kg/sq.cm
  - Air test: 7 kg/sq.cm / 7 kg/sq.cm
- Special features:
  - Fire safe to API-607
  - Metal to Metal Seat

Technical specification:
- Valve type: 2-Way / 3-Way Ball Valve
- Body type: 2 pc / 3 pc
- Seat type: Soft / Metal
- End connection: Flanged / Screwed / Socket weld end/butt weld
- Size range: 15 NB to 50 NB for reduced port / full port
- Pressure rating: Class 150, 300 & 800
- Seat leakage: Class VI-soft seat, Class V-Metal seat
- Operation: Hand lever / Gear / Actuator (Electrical / Pneumatic)

For Dimensional Details Contact us
Ball Valve SERIES 79F2/79R2/79F2T/79R2T/ 80F2/80R2/80F2T/80R2T

Class 900/1500 Regular/Full Port, Flanged / Butt Weld Ends, Floating / Trunnion Mounted.

+ Maintenance free live loaded double sealing stem
  packing ensures high cycles life and positive sealing.
+ ISO 5211 Mounting Pad Allows for mounting of actuator
+ Blow-Out Proof Stem.

These High Performance Ball Valves are available in Class 900 to 2500 for Floating as well as Trunnion Designs. A floating ball design offers efficient downstream sealing. When line pressure is applied to the closed ball, it moves slightly (or floats) downstream to maintain contact with the downstream seat, an inherent advantage for automatic remote control application. Floating ball valve offers effective bi-directional sealing.

Trunnion mounted design offers precise locational accuracy for the ball within the upstream and downstream seat, which ensures leak tight sealing with lower operative torques. The sealing takes place by allowing the seat to move towards the ball. This design ball valves can hold very high pressure.

Conformity to codes & standards:
General design & manufacturing: BS EN ISO -17292/API 6D
ASME B 16.10 / B 16.5.
Valve dimensions:
EN 12266-1 Class 1500
Hydro shell : 379 kg/sq.cm
Seat test : 281 kg/sq.cm
Air seat : 7 kg/sq.cm
Special features:
Fire safe to API-607
Metal to Metal Seat

Technical specification:
Valve type: Floating / Trunnion Mounted design ball valve
Body type: 2 pc standard / 3 pc optional.
Seat type: Soft / Metal.
End connection: Flanged, butt weld.
Size range: 15 NB to 300 NB for reduced port / full port
Pressure rating: Class 900, 1500, 2500
Seat leakage: Class VI-soft seat, Class V-Metal seat
Operation: Hand lever/Gear / Actuator (Electrical / Pneumatic)

Ball Valve SERIES 79F2/79R2/79F2T/79R2T/ 80F2/80R2/80F2T/80R2T

Class 900/1500 Regular/Full Port, Flanged / Butt Weld Ends, Floating / Trunnion Mounted.

Size

100
216
705
470

150
216
737
470

250
254
737
470

300
305
737
470

400
419
381
470

500
457
381
470

80
19
13
9.5

100
23
13
9.5

250
25
19
13

300
25
19
13

400
25
19
13

Standard material of construction:
1/2Body /Side Piece
3/4/5. Trunnion/ Seat Retainer/ Stuffing Box : WCB,CF8,CF8M,CF3,CF3M,CN7M.
18/19. Stuffing Box Bearing/ Trunnion Bearing : AISI 316 Backed PTFE.
15. Check Nut : Carbon steel, AISI304.
17. Body Stud/Nut : B7/2H, B8/B8M.
19/20. Stuffing Box Sealing Stem : AISI 316 Backed PTFE.
21. Stuffing Box Bearing : AISI 316 Backed PTFE.
22. Carbon steel.
28. Actuator (Electrical / Pneumatic) : Carbon steel.
29. PTFE, Grafoil, SWG.

Note: Other material available on request
15NB to 32NB Standard flaring design
Ball Valve SERIES 76F2/76R2/76F2T/76R2T/
Class 600 Regular/Full Port, Flanged / Butt Weld Ends, Floating / Trunnion Mounted.

- Maintenance free live loaded double sealing stem packing ensures high cycles life and positive seating.
- ISO 5211 Mounting Pad Allows for mounting of actuator
- Blow-Out Proof Stem.

These High Performance Ball Valves are available in Class 600 for Floating as well as Trunnion Designs. A floating ball design offers efficient sealing with simple construction. As the name indicates, the ball has some freedom to move along the axis of the pipeline, which offers efficient downstream sealing. When line pressure is applied to the closed ball it moves slightly (or floats) downstream to maintain contact with the downstream seat where primary sealing occurs. A quarter turn motion from full open to full close ensures quick open-close action, an inherent advantage for automatic remote control application. Floating ball valve offers effective bi-directional sealing.

Valve type: Floating / Trunnion Mounted design ball valve

Technical specification:
- Valve type:
  - Floating / Trunnion Mounted design ball valve
  - 2 pc standard / 3 pc optional.
- Body type:
  - WCB, CF8, CF8M, CF3, CF3M, C7M.
  - VCB, CF8, CF8M, CF3, CF3M, C7M.
- Seat type:
  - Viton.
- End connection:
  - Flanged, butt weld.
- Size range:
  - Class 600
  - Class VI-soft seat, Class V-Metal seat.
- Pressure rating:
  - 7 kg/sq.cm
- Seat leakage:
  - Soft / Metal
- Body seal:
  - PTFE, Grafoil, SWG
- Seat Spring:
  - Inconel, AISI 304
- Seat:
  - PTFE, Grafoil, CFT/B Metal to Metal/Delrin, Nylon.
- Weld
  - Blow-Out Proof Stem.
- Packing:
  - Maintenance free live loaded double sealing stem packing.

Valve inspection & testing:
- EN 12266-1

General design & manufacturing:
- BS EN ISO -17292/API-60
- ASME B 16.10 / B 16.5
- EN 12266-1
- Hydro shell: 152 kg/sq.cm
- Seat test: 112 kg/sq.cm
- Air seat: 7 kg/sq.cm
- Fire safe to API-607
- Metal to Metal Seat

Special features:
- Floating / Trunnion Mounted design ball valve
- Inlet / Outlet Spacing
- 3/4/5. Trunnion / Seat Retainer / Stuffing Box
- 1/2. Body / Side Piece
- 13. Gland Packing
- 14. Body seal
- 15. Check Nut
- 16. Thrust Washer
- 17. Body Stud / Nut
- 18/19. Stuffing Box Bearing / Trunnion Bearing
- 20/21. Stuffing Box Seal / Trunnion Seat
- 22. Bracket
- 23. Gland nut
- 24. Belleville spring
- 25. Anti-static spring
- 26. Gear Box

Valve dimensions:
- ASME B 16.10 / B 16.5
- BS EN ISO -17292/API-60
- EN 12266-1

Conformity to codes & standards:
- General design & manufacturing
- Valve dimensions
- Valve inspection & testing

Note: Other material available on request

Standard material of construction:
- Valve:
  - VCB, CF8, CF8M, CF3, CF3M, C7M
  - WCB, CF8, CF8M, CF3, CF3M, C7M
- Seat:
  - SS316, SS316L, SS304L, Monel, Hasteloy-C
- Stem:
  - SS304, 316, 316L, Monel, Hasteloy-C, Alloy 20
- Packing:
  - PTFE, Gland Packing
  - Soft / Metal
- Packing:
  - Soft / Metal

Ball valves can also be provided with Gear, Actuator (Electrical / Pneumatic).
Floating design

A floating ball design offers efficient sealing with simple construction. As the name indicates, the ball has some freedom to move along the axis of the pipeline, which offers efficient downstream sealing. When line pressure is applied to the closed ball, it moves slightly (or floats) downstream to maintain contact with the downstream seat where primary sealing occurs. A quarter turn motion from full open to full close ensures quick open-close action, an inherent advantage for automatic remote control application. Floating ball valve offers effective bidirectional sealing.

Trunnion Mounted design

Trunnion mounted design offers precise locational accuracy for the ball within the upstream and downstream seat, which ensures leak tight sealing with lower operative torques. The sealing takes place by allowing the seats to move towards the ball. This design ball valves can hold very high pressures.

Antistatic Design Feature

An antistatic design feature provided in the valve prevents any accidental fire due to static electric discharge. With the low resistance short circuit path created between the ball and the valve body, any build-up of static electricity on the ball due to constant rubbing within the PTFE seat is prevented. The ball valve is completely conductive between ball and body in which no static electricity may develop—a requirement essential to the treatment of such low flashing point fluids as gasoline, natural liquefied gas, propane gas etc.

Fire-safe

Valves exposed to the risk of accidental external fire need to have additional secondary metal sealing system to make it fire safe. Special design features are built into the valve to ensure continued sealing performance even after burn out of the soft sealing parts of the valve. A metal seat located on the body comes in direct contact with the ball on burnout of the soft parts ensuring continued sealing. Full range approved as per latest edition.

Blow out proof and self-compensating stem

Aqua Ball Valve have safe blow out proof stem Assembly, which eliminates the possibilities of hazards. With GT thrust washer the stem is inserted through the valve body cavity and rests against a shoulder machined in the valve body. PTFE / Graphite gland packings above the shoulder are held in place by a gland which is machined taper to give sealing between stem and packing.

Block and Bleed

This is a function for providing seal of fluids by upstream and downstream seats with the valve in closed position for draining the fluids accumulated in the body cavity. The benefits are—Leaks and damage to the seats are checked in advance. Contamination caused during changing fluid types is minimized. Parts of the gland seal can be changed under pressure.

Metal Seated Ball Valve

The metal seated ball valves are available in all ranges. Its quality starts with the sphericity of the ball and the surface finish. The ball is of mirror quality finish. This provides outstanding smoothness and roundness, resulting in a prime contribution to low torque and reduced leakage up to Class V. The metal seated ball valves typically can be used for higher temperature ranges & abrasive service.

Self-compensating Stem

Above the gland two Belleville washers (disc spring) and gland nut are provided. The gland nut allows gland packing adjustment, and disc spring automatically compensates for normal wear as well as seal expansion and contraction from temperature fluctuations. The gland nut is provided below the handle permitted the handle to be removed without disturbing the stem adjustment or causing an unsafe condition.

Pressure relief Slots

If the pressure of the fluid the valve body cavity exceeds the line pressure due to thermal expansion of the liquids entrapped in the valve body, seats provide automatic pressure relief, without the aid of the safety or vent valve. During closing of the valve, the maximum surge pressure occurs, during which the downstream seat can be forced to intlude into the ball port and can become inoperative. The pressure relief slots prevent this potential failure. When pressure causes the upstream seat to move against the ball the ball moves downstream, the pressure simply leaks in the ball port through the relief slot.