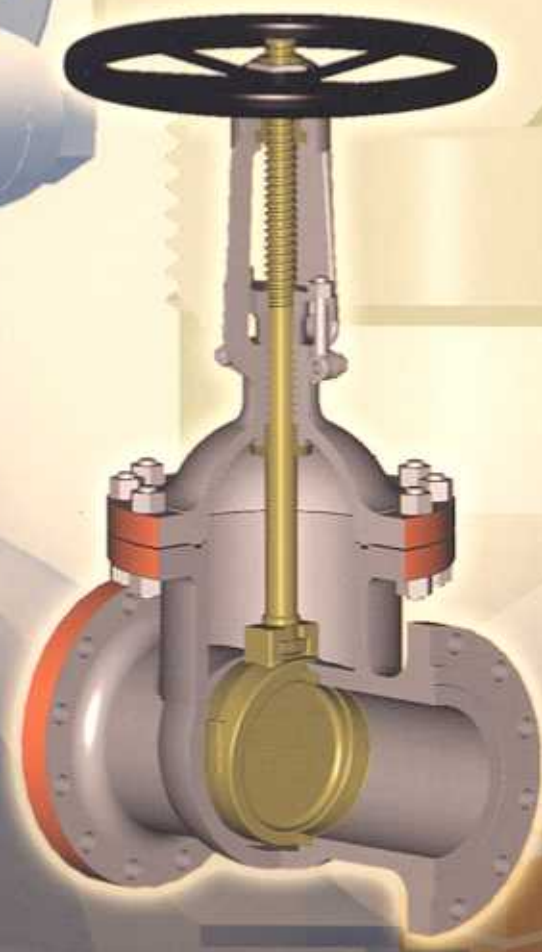




Hydrofluoric Acid Processing Valves



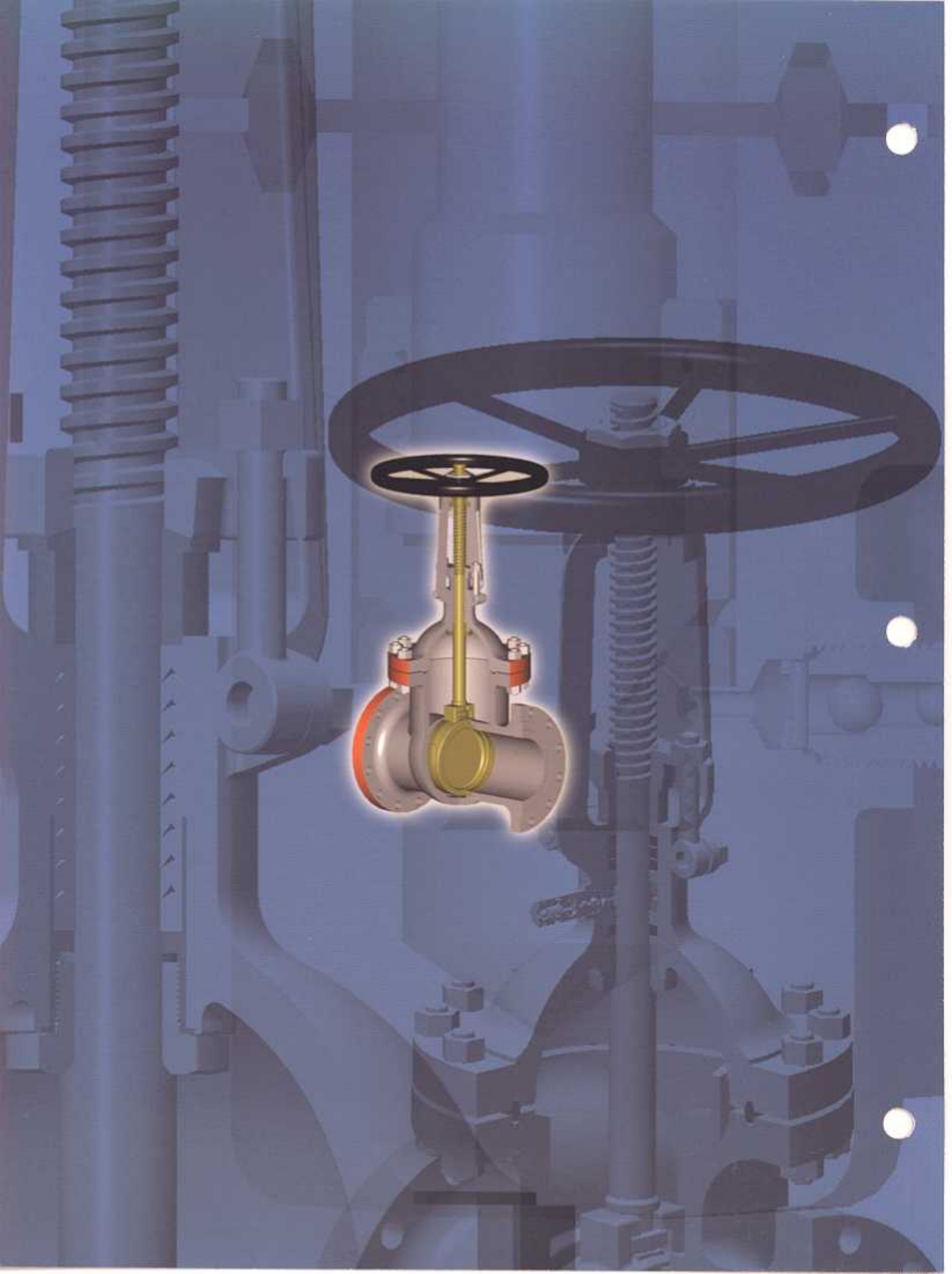


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PetrolValves

Hydrofluoric Acid Processing Valves

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PetrolValves is a leading manufacturer of valves for the oil and gas industry. Formed in 1956, PetrolValves is privately held and has grown to a middle size company with sales, service, and manufacturing facilities throughout the world. We have a direct presence in the following areas:



Our continuous investment in the development of new technology has resulted in the growth and ongoing success of our company. PetrolValves line of production includes some of the most sophisticated valve products in the world. Although we supply commodity valves, PetrolValves strategy has always been focused on the development of custom or niche products designed according to customers' specific requirements. By developing exclusive products we have distinguished ourselves and gained prominence within this competitive industry. Some of our clients include: Shell/Texaco, Exxon/Mobil, BP/Amoco, Esso, Statoil, YPF, Aramco, and PDVSA.



General Range of Production

Our scope of custom production is focused in the following areas: Refining, Petrochemical, Power Generation, Offshore Platform and Subsea, Oil and Gas Transportation, and Drilling.

Areas of specialization include Hydrofluoric Acid (Alkylation), Cryogenic (LNG), and Hydrogen Processes. PetrolValves production starts from 1/2" and extends to 110" valves with pressure ratings of ANSI 150 to 2500 and API 200 to 20,000. PetrolValves range of production includes the use of such unique materials as Super Duplex, Duplex St., 6MO, Monel, Incoloy 825, Inconel and many other alloys.

Engineering

PetrolValves in-house Engineering Department consists of 29 full-time engineers with diverse backgrounds to accommodate the custom needs of our clients. Our engineers use the latest technology software such as Finite Element Analysis (FEA), and 3-D stress calculation to execute the most sophisticated structural, thermal and thermohydraulic analyses.

Quality Control

In order to ensure that PetrolValves is meeting or surpassing all requirements and standards by the various governing entities, PetrolValves has had its comprehensive Quality System Manual qualified and certified by the Lloyd's Register to BS EN ISO 9001. This Quality System Manual, which clearly outlines internal procedures is available for review, as well as our ISO 9001, and our API 6D/6A certificates.

Enhanced HF Valve Design Features

By working with end users, the licensors at Phillips and UOP, and following API and ANSI standards, PetroValves has enhanced the HF Valve design in the following ways:

- Increased Body and Bonnet Wall Thickness - Offers Substantial Increase of Corrosion Allowance
- Oversized Bonnet Bolting and Gasket Seal Faces - Increases Integrity
- Renewable Seat Rings with Enhanced Thread Protection - Simplifies Maintenance
- Monel Stuffing Box Sleeve with Anti-Blow Out Design - Reduces corrosion and extends service life
- Gland Packing System, which Conform to the US 1990 Clean Air Act
- Monel Overlay of Seat Pockets and Back Seat Bush Area - Option for Critical Use Applications
- Complete Internal and External Fire-Safe design
- Special Sizes
- System to Determine Tolerances, Clearances - eliminates corrosion cracking and minimizes the effect of corrosion growth
- Design which allows for Simple, Low-Cost Maintenance and Extends Life
- Extended life Expectancy

HF Material Selection

All trim parts are constructed in solid Monel materials and only K500 Monel stems are used for increased strength to minimize stem bending. Combining Monel 400 seat rings with K500 solid forged Monel wedges eliminates the risk of galling between the critical sealing surfaces to insure long-term sealing performance. Carbon steel is not utilized as a base element in primary components, such as the wedge or seat rings, which have a Monel overlay. All Monel is procured from leading suppliers in the US or UK.

HF Valve Testing

All HF valves are tested at each stage of production. Castings, forged bodies and bonnets, and wedge parts are exposed to RT, UT, and visual testing procedures to verify pressure vessel integrity and to ensure that the items are suitable for production. All Monel trim materials are spot tested with acid prior to assembly. Finished HF valves are tested with Helium. Further pressure testing is executed in-line according to API 598 standards using Kerosene and compressed air for all seat seal and shell tests.

HF Valve Serviceability

PetroValves has designed all valve components to be renewable and to be readily available as spare parts. In addition, HF valves have been designed for easy disassembly and maintenance. Valve seats can be renewed while valve body remains in the pipeline. Valves that have Monel overlays in the seat pocket areas should perform for the extended lifetime of the valve. Since the effect of corrosion is greatly reduced in critical areas, standard replacement parts can be utilized during the life of the valve. PetroValves offers complete HF valve service and maintenance both on-site and at PetroValves service facilities. Our scope of activities encompasses service and reconditioning associated in minor and major shut-downs. Please contact the nearest PetroValves office (see back cover) to assist you in your service, maintenance, or reconditioning needs. All work come with a manufacture warranty and is consistent with Phillips or UOP requirements.

PetrolValves began producing valves for the processing of Hydrofluoric Acid in 1958. The engineering, design, production, manufacturing, and quality control departments have worked, in conjunction with the licensors, in a concerted effort to continuously improve the performance and reliability of the HF Valve. This evolution has been achieved by improving design features, machining standards, and upgrading the selection of material utilized, which meet or exceed applicable codes (API and ANSI). This combined with our in-line quality control system has resulted in PetrolValves being the leading supplier of valves for HF application worldwide. PetrolValves is the only European manufacturer that is certified by both Phillips and UOP for all sizes and classes. PetrolValves extends a full guarantee on the performance for its valves for HF acid process.



Small Bore

PHILLIPS

Used for open/close media flow control, the gate valve is the valve of choice for primary isolation double block and bleed. PetroValves manufactures HF acid gate valve with a number of available options to meet any specific requirements (see options section). The PetroValves gate valve is ideal in applications where the valve is exposed to fire situations internally (through pipeline) and externally (atmospheric), offering reliable isolation if exposed to fire. Gate valves can be operated by hand wheel, gear operated, or actuated depending on specific requirements.

Actuated or gear operated packs available.

- Grease nipple for yoke sleeve lubrication reduces wear and operating torques.

- Monel K500 Stem, with integral backseat seal, offers strength and durability in HF service.

- Self aligning two piece Monel 400 Gland with A105 Gland Flange.

- Monel 400 Stuffing Box sleeve option available.

- Body/Bonnet materials: WCB/LF2 carbon steel or full Monel.

- Seat rings in Monel 400 swagged into body. PTFE insert option for seat rings.

- Rising stem for positive open/close position.

- Large diameter hand wheel. Easy operation opening and closing.

- Yoke bush in Ni-Resist or Gunmetal.

- Stem: Monel K500 exceeds API 602 minimum stem diameter limitations.

- Gland bolting A194 B7M.
- Gland Nuts A193 2HM.

- Teflon rings (Chevron type) Gland packing.

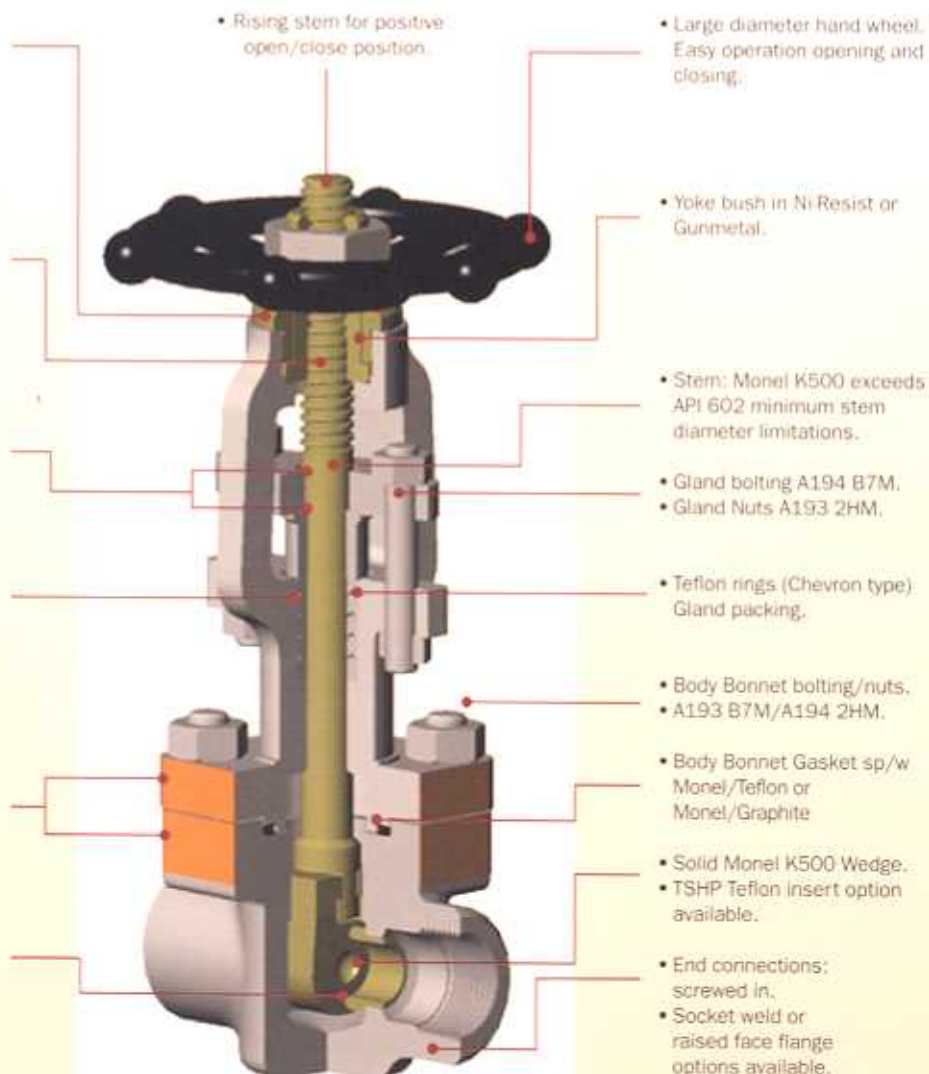
- Body Bonnet bolting/nuts, A193 B7M/A194 2HM.

- Body Bonnet Gasket sp/w Monel/Teflon or Monel/Graphite

- Solid Monel K500 Wedge.
- TSHP Teflon insert option available.

- End connections: screwed in.

- Socket weld or raised face flange options available.



Small Bore
UOP

Actuated or gear operated packs available.

- Grease nipple for yoke sleeve lubrication reduces wear and operating torques.

- Monel K500 Stem, with integral backseat seal, offers strength and durability in HF service.

- Self aligning two piece Monel 400 Gland with A105 Gland Flange.

- Monel 400 Stuffing Box sleeve option available.

- Body/Bonnet materials: WCB/A105 carbon steel or full Monel.

- Seat rings in Monel 400 swagged into body. PTFE insert option for seat rings.

- End connections: Socket weld.
- Screwed ends or raised face flange options available.

- Rising stem for positive open/close position.

- Large diameter hand wheel, Easy operation opening and closing.

- Yoke bush in Gunmetal.

- Stem: Monel K500 exceeds API 602 minimum stem diameter limitations.

- Gland bolting A194 B7M.
- Gland Nuts A193 2HM.

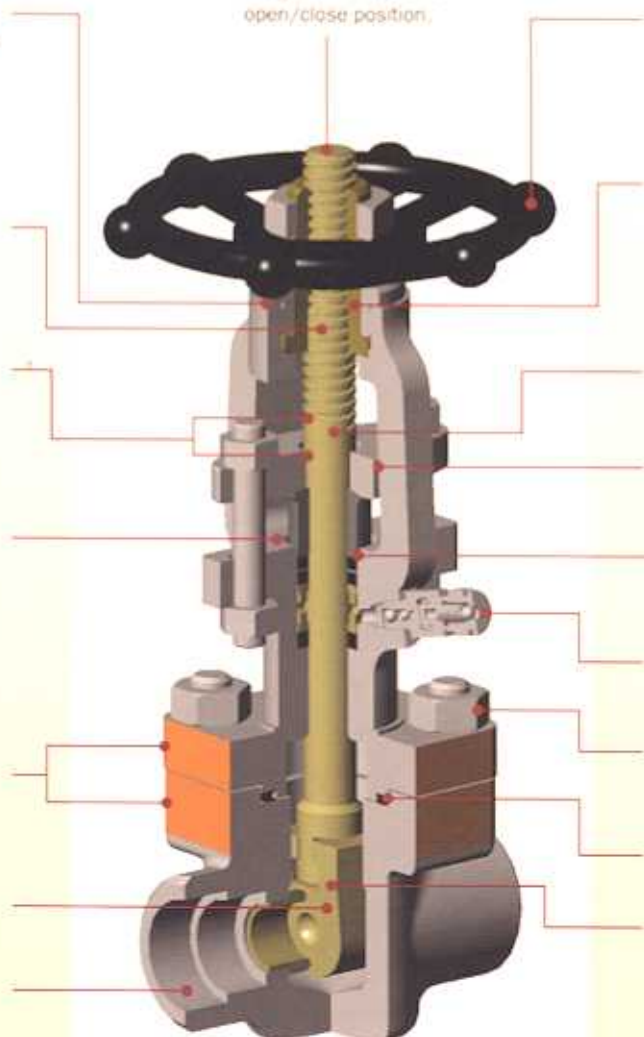
- Lantern ring in Monel 400 with Combination Graphitic Gland packing.

- Monel 400 Grease Injector with double ball isolation option available. Polymel 410 primed at factory.

- Body Bonnet bolting/nuts.
- A193 B7M/A194 2HM.

- Body Bonnet Gasket sp/w Monel/Graphite or Monel Ring Joint.

- Solid Monel K500 Wedge.



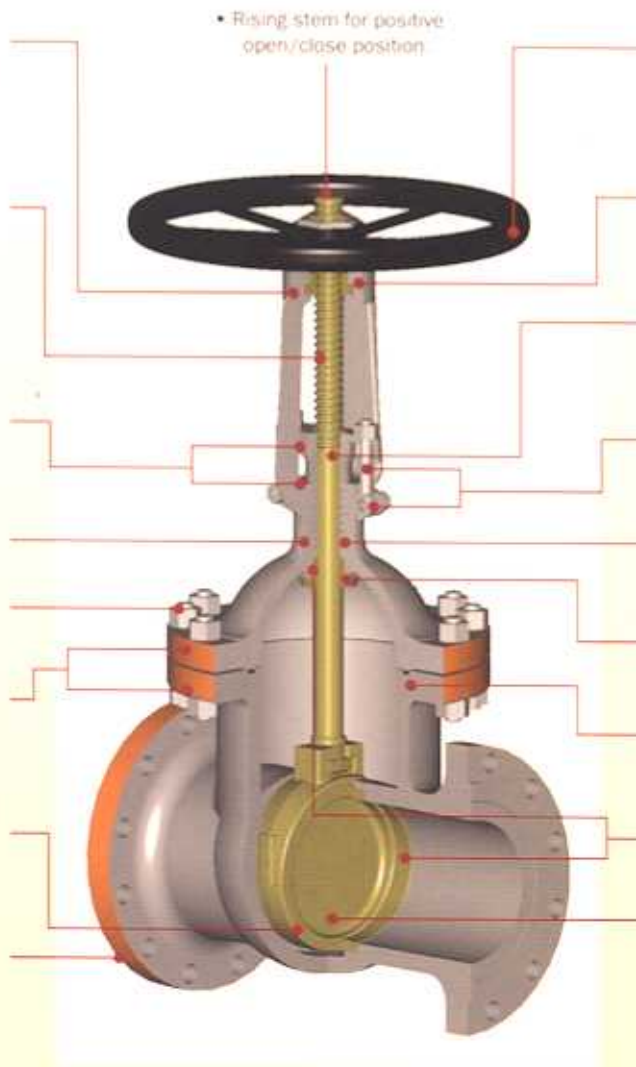
Large Bore

PHILLIPS

Gate Valves

Actuated or gear operated packs available.

- Grease nipple for yoke sleeve lubrication reduces wear and operating torques.
- Monel K500 Stem, with integral backseat seal, offers strength and durability in HF service.
- Self aligning two piece Monel 400 Gland with A105 Gland Flange.
- Monel 400 Stuffing Box sleeve option available.
- Body Bonnet bolting/Nuts: A194 B7M/A193 2HM.
- Body/Bonnet materials: WCB cast carbon steel or full Monel M35/1.
- Seat rings in Monel 400 screwed into body with dual teflon seals to prevent corrosion of threads. PTFE insert option for seat rings.
- End connections: Raised face flange-125/250 AARH or smooth finished.
- Ring joint type option available.
- Monel overlaid Stuffing Box option available.



• Rising stem for positive open/close position

• Large diameter hand wheel
Easy operation opening and closing.

• Yoke bush in Gunmetal.

• Stem: Monel K500 exceeds API 602 minimum stem diameter limitations.

• Gland bolting A194 B7M,
• Gland Nuts A193 2HM.

• Teflon chevron rings or combination Graphitic Gland packing option available.

• Renewable Monel 400 Backseat Bush.

• Body Bonnet Gasket sp/w Monel/Teflon or Monel/Graphite.

• Monel overlaid seat and backseat bush pockets option available.

• Solid Monel K500 Wedge.
• TSHP Teflon insert option available.

Large Bore
UOP

Actuated or gear operated packs available.

- Grease nipple for yoke sleeve lubrication reduces wear and operating torques.

- Monel K500 Stem, with integral backseat seal, offers strength and durability in HF service.

- Self aligning two piece Monel 400 Gland with A105 Gland Flange.

- Monel 400 Stuffing Box, sleeve option available.

- Monel 400 Grease injector with double ball isolation Polymel 410 primed at factory.

- Body/Bonnet materials: WCB cast carbon steel or full Monel M35/1.

- Seat rings in Monel 400 screwed into body coated with dual teflon seals to prevent corrosion of threads. PTFE insert option for seat rings.

- End connections: Raised face flange-125/250 AARH or smooth finished.
- Ring joint type option available.

- Rising stem for positive open/close position.

- Large diameter hand wheel. Easy operation opening and closing.

- Yoke bush in Gunmetal.

- Stem: Monel K500 exceeds API 602 minimum stem diameter limitations.

- Gland bolting A194 B7M, Gland Nuts A193 2HM.

- Lantern ring in Monel 400 with combination Graphitic Gland packing.

- Renewable Monel 400 backseat bush.

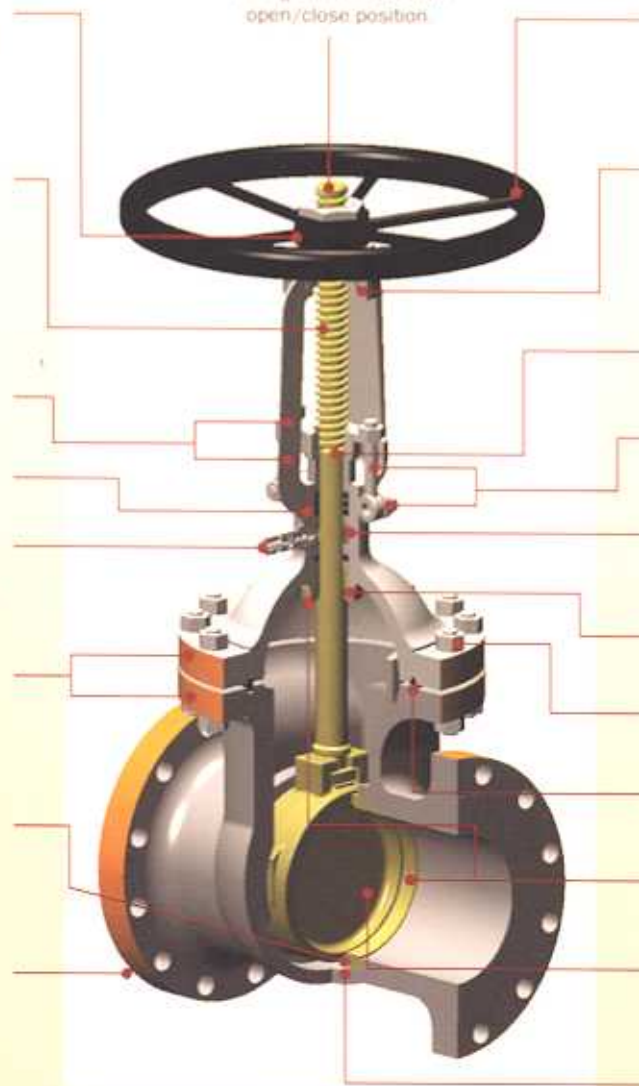
- Body Bonnet bolting/nuts, A193 B7M/A194 2HM.

- Body Bonnet Gasket Monel 400 ring joint.

- Monel overlaid seat and backseat bush pockets option available.

- Solid Monel K500 Wedge.
- TSHP Teflon insert option available.

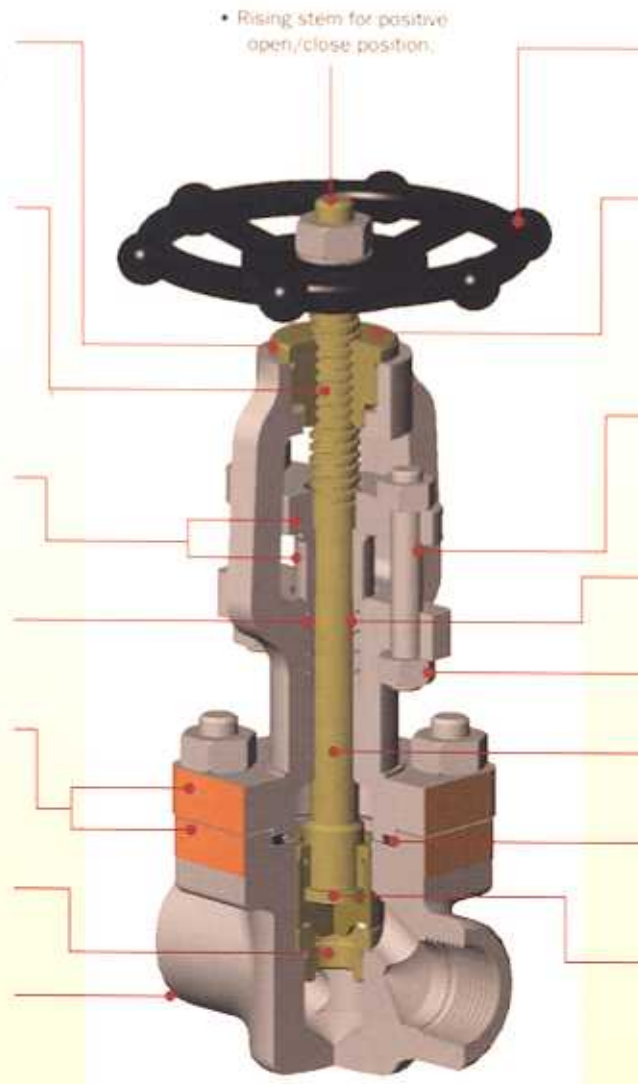
- Seat seals grease injectors Monel 400 with double ball isolation. See options.



The globe valve is utilized as a throttling device to regulate pressure. A 10% or greater open position permits throttling. The globe valve is also capable of flow control by using the open and close isolation device. The PetrolValves globe valve is ideal in applications where the valve is exposed to fire situations internally (through pipeline) and externally (atmospheric), offering reliable isolation if exposed to fire. Globe valves can be operated by hand wheel, gear operated, or actuated depending on specific requirements.

Actuated or gear operated packs available.

- Grease nipple for yoke sleeve lubrication reduces wear and operating torques.
- Monel K500 Stem, with integral backseat seal, offers strength and durability in HF service.
- Self aligning two piece Monel 400 Gland with A105 Gland Flange.
- Monel 400 Stuffing Box sleeve option available.
- Body/Bonnet materials: WCB/LF2 carbon steel or full Monel.
- Seat Rings in Monel 400 swagged into body.
- End connections: screwed ends. Socket weld or raised face flange options available.



- Rising stem for positive open/close position.
- Large diameter hand wheel, Easy operation opening and closing.
- Yoke bush in Gunmetal or Ni Resist.
- Gland bolting A194 B7M.
- Gland Nuts A193 2HM.
- Teflon Chevron ring or combination Graphitic Gland packing.
- Body Bonnet bolting/nuts. A193 B7M/A194 2HM.
- Stem: Monel K500 exceeds API 602 minimum stem diameter limitations.
- Body Bonnet Gasket sp/w Monel/Teflon or Monel/Graphite.
- Solid Monel K500 disc. Teflon insert option available.

Small Bore
UOP

Actuated or gear operated packs available.

- Grease nipple for yoke sleeve lubrication reduces wear and operating torques.

- Monel K500 Stem, with integral backseat seal, offers strength and durability in HF service.

- Self aligning two piece Monel 400 Gland with A105 Gland Flange.

- Monel 400 Stuffing Box sleeve option available.

- Monel 400 grease injector with double ball isolation option available. Polymel 410 primed at factory.

- Body/Bonnet materials: WCB/A105 carbon steel or full Monel.

- Seat rings in Monel 400 swagged into body.

- End connections: Socket weld, Screwed or raised face flange or ring joint type flange options available.

- Rising stem for positive open/close position.

- Large diameter hand wheel. Easy operation opening and closing.

- Yoke bush in Gunmetal.

- Gland bolting A194 B7M.
- Gland Nuts A193 2HM.

- Lantern ring in Monel 400 with combination Graphitic Gland packing.

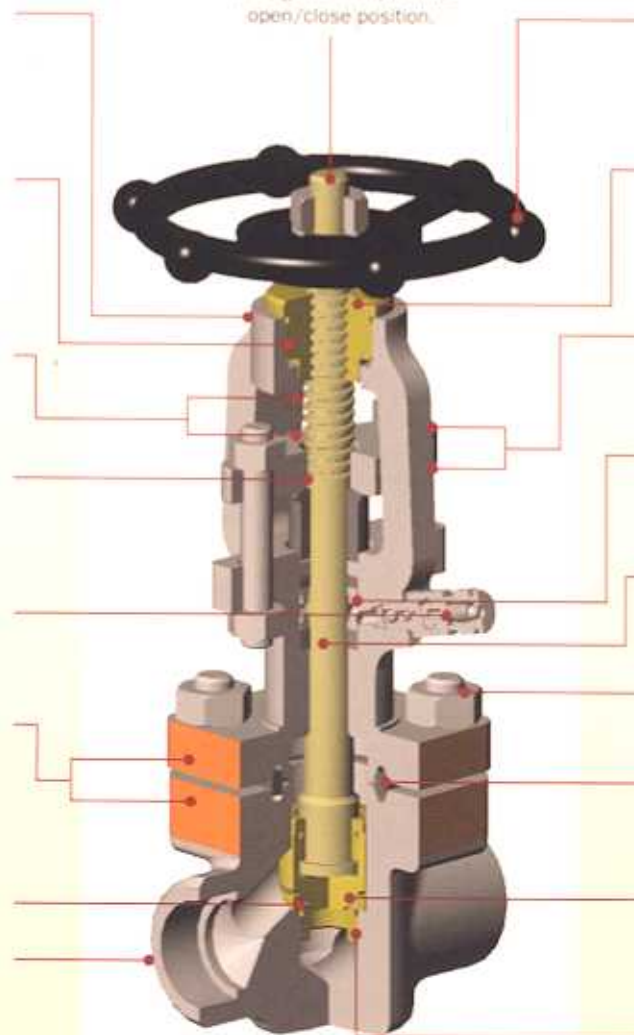
- Stem: Monel K500 exceeds API 602 minimum stem diameter limitations.

- Body Bonnet bolting/nuts.
- A193 B7M/A194 2HM.

- Body Bonnet Gasket sp/w Monel/Graphite or Monel Ring Joint.

- Solid Monel K500 Disc.
- Teflon insert option available.

- Seat seals grease injectors. Monel 400 with double ball isolation. See options.



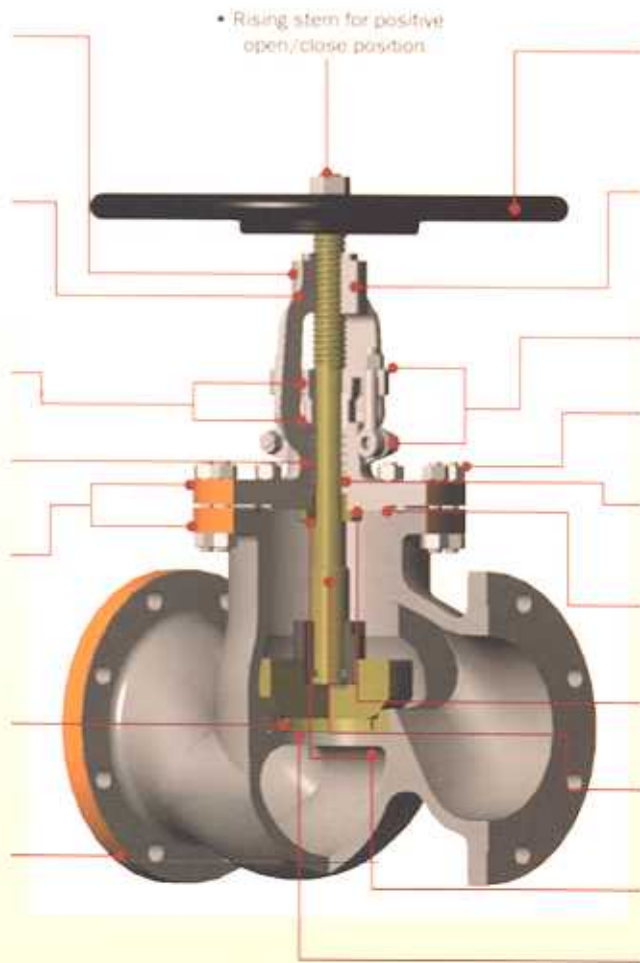
Large Bore

PHILLIPS

Globe Valves

Actuated or gear operated packs available.

- Grease nipple for yoke sleeve lubrication reduces wear and operating torques.
- Monel K500 Stem, with integral backseat seal, offers strength and durability in HF service.
- Self aligning two piece Monel 400 Gland with A105 Gland Flange.
- Monel 400 Stuffing Box sleeve option available.
- Body/Bonnet materials: WCB cast carbon steel or full Monel M35/1.
- Seat rings in Monel 400 screwed into body with dual teflon seals to prevent corrosion of threads.
- End connections: Raised face flange, 125/250 AARH or smooth finished.
- Ring joint type option available.
- Monel overlaid Stuffing Box option available.



• Rising stem for positive open/close position.

• Large diameter hand wheel. Easy operation opening and closing.

• Yoke bush in Gunmetal.

• Gland bolting A194 B7M.
• Gland Nuts A193 2HM.

• Body Bonnet bolting/nuts.
• A194 B7M/A193 2HM.

• Teflon Chevron Ring or combination Graphite Gland packing option available.

• Body Bonnet Gasket sp/w Monel/Teflon or Monel/Graphite.

• Renewable Monel 400 backseat bush.

• Stem: Monel K500 exceeds API 602 minimum stem diameter limitations.

• Monel overlaid seat and backseat bush pockets option available.

• Solid Monel K500 Disc.

**Large Bore
UOP**

Actuated or gear operated packs available

- Grease nipple for yoke sleeve lubrication reduces wear and operating torques.

- Monel K500 Stem, with integral backseat seal, offers strength and durability in HF service.

- Self aligning two piece Monel 400 Gland with A105 Gland Flange.

- Monel 400 grease injector with double ball isolation Polymel 410 primed at factory.

- Body/Bonnet materials: WCB cast carbon steel or full Monel M35/1.

- Monel 400 Stuffing Box sleeve option available.

- Seat rings in Monel 400 screwed into body.

- End connections: Raised face flange-125/250. AARH or smooth finished

- Monel overlaid Stuffing Box option available.

- Seat Seal Grease Injectors: Monel 400 with double ball isolation.

- Rising stem for positive open/close position.

- Large diameter hand wheel Easy operation opening and closing.

- Yoke bush in Gunmetal.

- Gland bolting A194 B7M.
- Gland Nuts A193 2HM.

- Lantern ring in Monel 400 with combination Graphite Gland packing.

- Body Bonnet bolting/nuts: A194 B7M/A193 2HM.

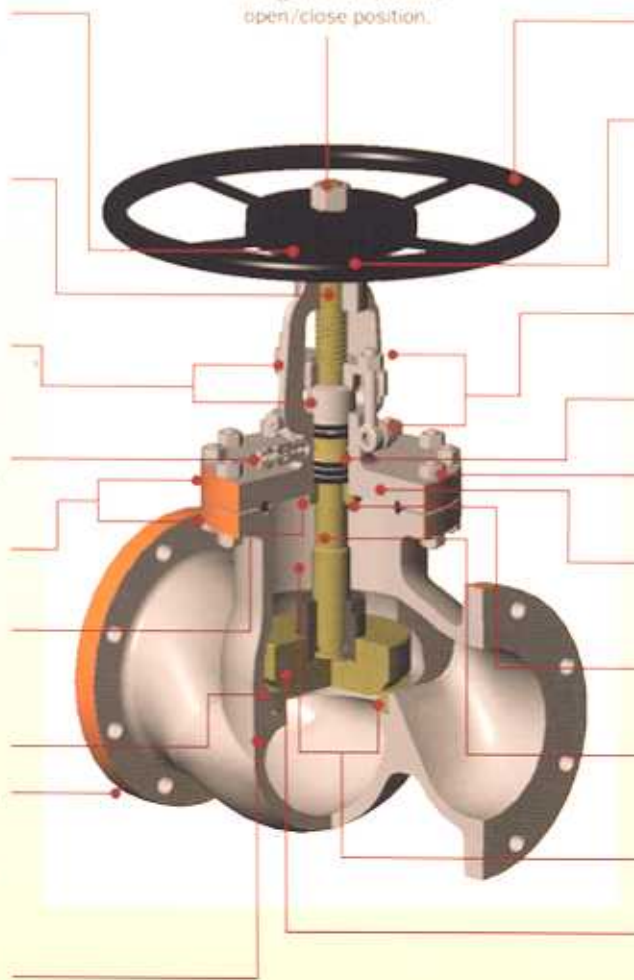
- Body Bonnet Gasket: Monel 400 ring joint or Monel/Graphite sp/w.

- Renewable Monel 400 backseat bush.

- Stem: Monel K500 exceed API 602 minimum stem diameter limitations.

- Monel overlaid seat and backseat bush pockets option available.

- Solid Monel K500 Disc.
- Teflon insert option available.



Small Bore Swing

PHILLIPS/UOP

Designed to prevent back flow, the PetroValves swing check valve has the flexibility to be installed in a horizontal or vertical orientation where conditions of the flow velocity is light to medium. The swing check valve is ideal for regular duty or in stand-by conditions, and will prevent re-circulation where the pump is out of service and the stand-by pump sets are discharging into a common header. The PetroValves Check valve is ideal in applications where the valve is exposed to fire situations internally (through pipeline) and externally (atmospheric), offering reliable isolation if exposed to fire.

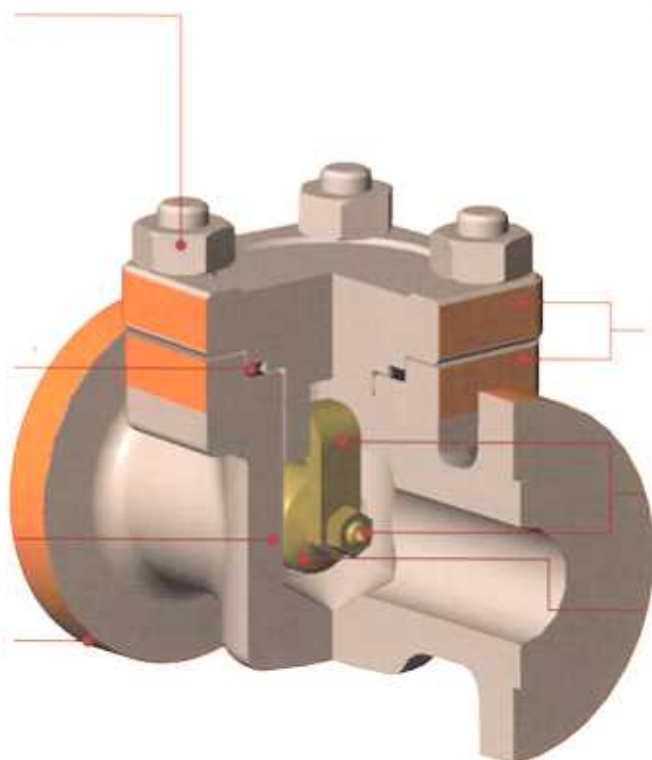
- Body Bonnet bolting/nuts.
- A194 B7M/A193 2HM,

- Body Bonnet Gasket sp/w Monel/Graphite-Monel/Teflon or Monel Ring Joint.

- Seat rings in Monel 400 swagged into body, Teflon insert option for seat ring.

- End connections: raised face flange-125/250 AARRH or smooth finished.

- Socket weld/screwed ends options available.



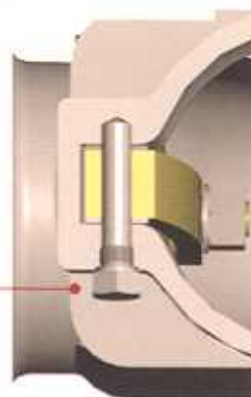
- Monel K 500 vent plug for Phillips valves only.

- Body/Bonnet materials: WCB cast carbon steel or full Monel M35/1.

- Monel K500 body plugs.

- Monel 400 hinge; hinge pin, disc nut, washer and disc cotter pin.

- Solid Monel K500 Swing Disc.



- Monel K500 Body plugs:

Small Bore
Lift

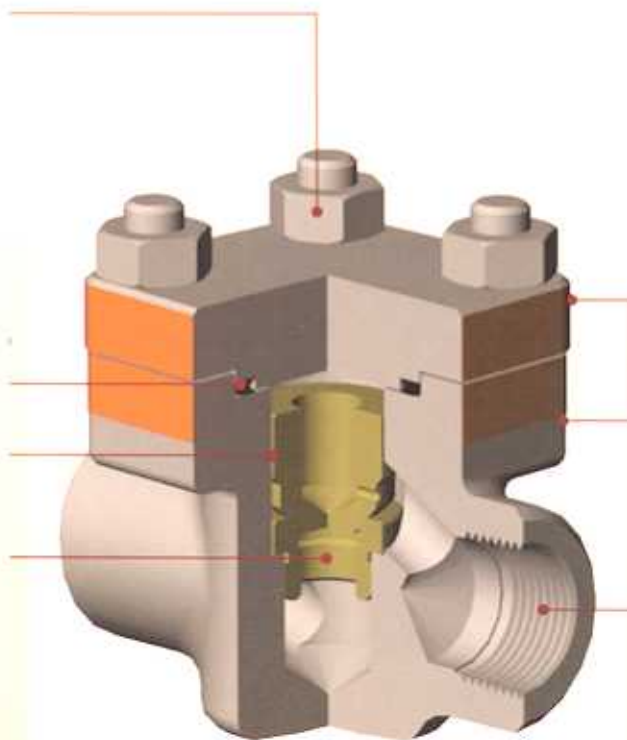
PHILLIPS/ UOP

- Body Bonnet bolting/nuts.
- A194 B7M/A193 2HM.

- Body Bonnet Gasket Monel 400 ring joint or Monel/Graphite-Monel/PTFE.

- K500 solid Monel disk.

- Seat ring in Monel 400, screwed into body.
- PTFE insert option available.



- Body/Bonnet materials; WCB cast carbon steel or full Monel M35/1.

- End connections: socket weld/screwed ends.
- Raised face flange. 125/250 AARH or smooth finished option available.

Check Valves

Large Bore Swing

PHILLIPS/UOP

- Body Bonnet bolting/nuts.
- A194 B7M/A193-2HM.

- Body Bonnet Gasket Monel 400 ring joint or Monel/Graphite-Monel/PTFE.

- Seat rings in Monel 400 screwed into body.
- Teflon insert option for seat ring.

- Monel overlayed seat ring pocket option available.

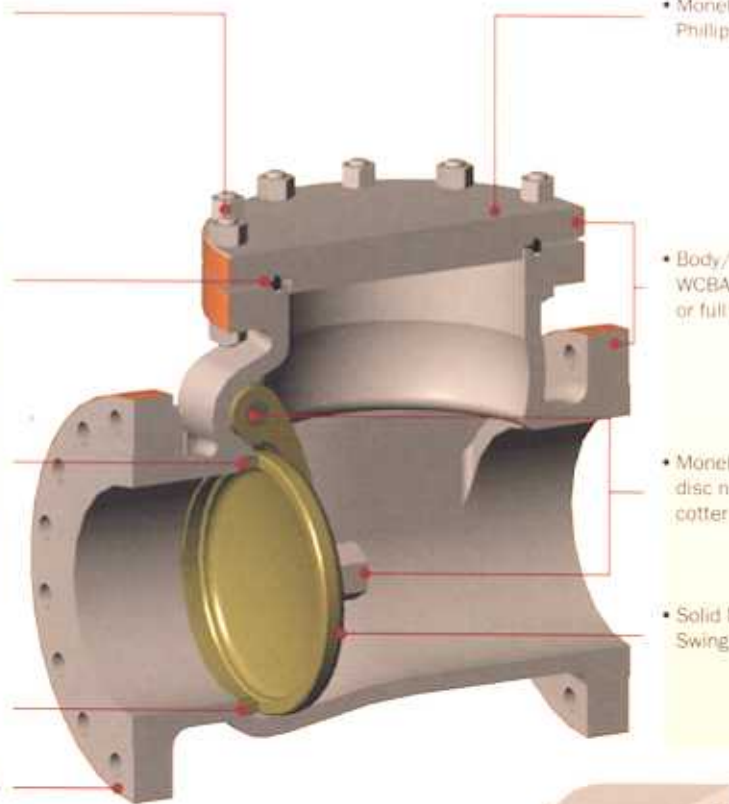
- End connections: raised face flange, 125/250 AARH or smooth finished.
- Ring joint type option available.

- Monel K 500 vent plug for Phillips valves only.

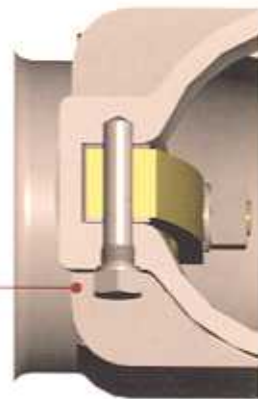
- Body/Bonnet materials: WCBA/105 carbon steel or full Monel.

- Monel 400 hinge, hinge pin, disc nut, washer and disc cotter pin.

- Solid Monel K500 Swing Disc.



- Monel K500 Body plugs.



Options / Special Feature

Options/Special Features

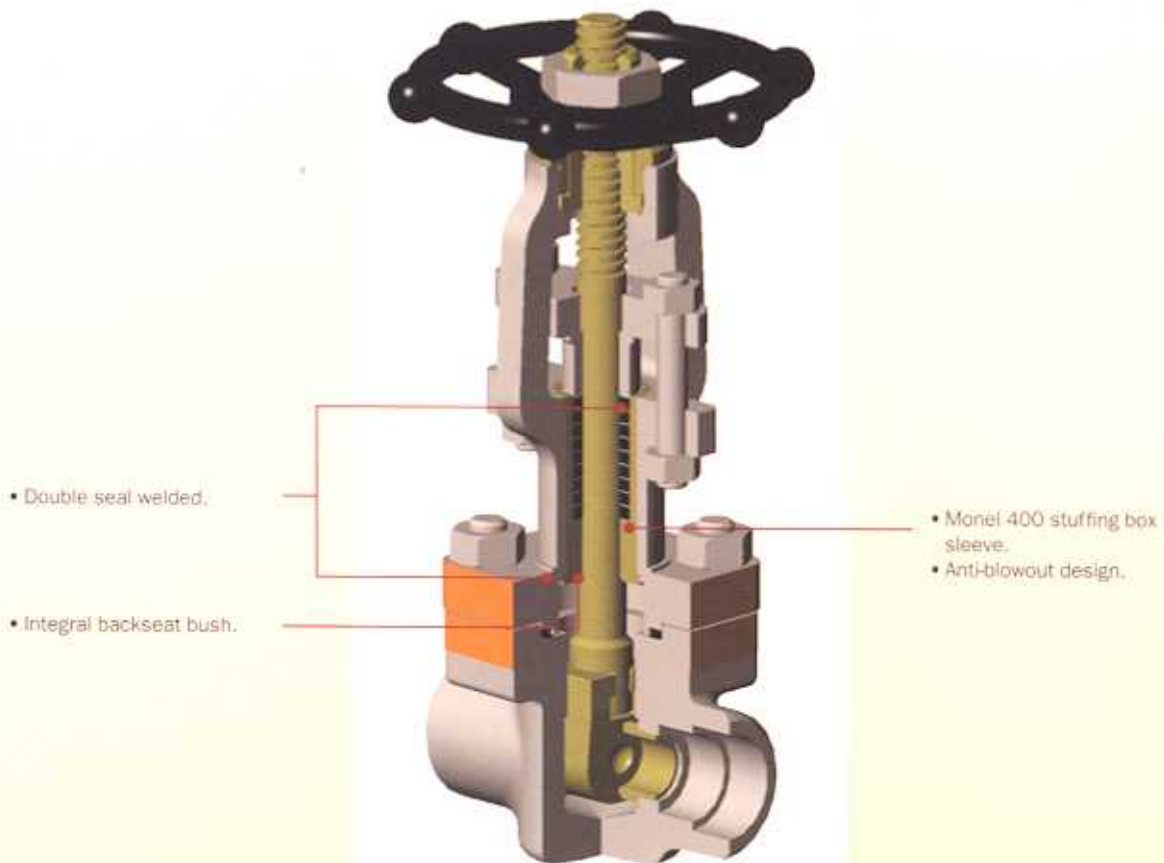
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Monel 400 Stuffing Box Sleeve

PHILLIPS/UOP

Monel Stuffing Box Sleeves with integrated Backseat Bush.

A one piece Monel 400 Sleeve, designed to fit into the backseat bush/Stuffing box bore, the Monel stuffing box sleeve is double seal welded after installation and has an anti-blowout feature. The sleeve provides a repair solution to corroded stuffing box bores and acts as an excellent corrosion control element in a critical area thereby extending the life of the valve using standard spare parts. The Monel Stuffing Box Sleeve can be easily replaced during the life cycle of the valve, if required.



TSHP

PHILLIPS/UOP

Tight Shut Off - High Performance, Seat Sealing System.

Where absolute bubble tight isolation is critical, TSHP offers unsurpassed integrity of design coupled with the capability to provide a tight shut off. The wedge is fitted with a Teflon insert leaving the seat as a solid Monel component. This design takes the Teflon seal out with the direct flow dynamics of the media thereby protecting the insert. No retaining rings or cap bolts are required to retain the Teflon insert, which helps to extend the life of the wedge and seat ring components, by reducing wear on the seal faces.



Monel Overlay Stuffing Box

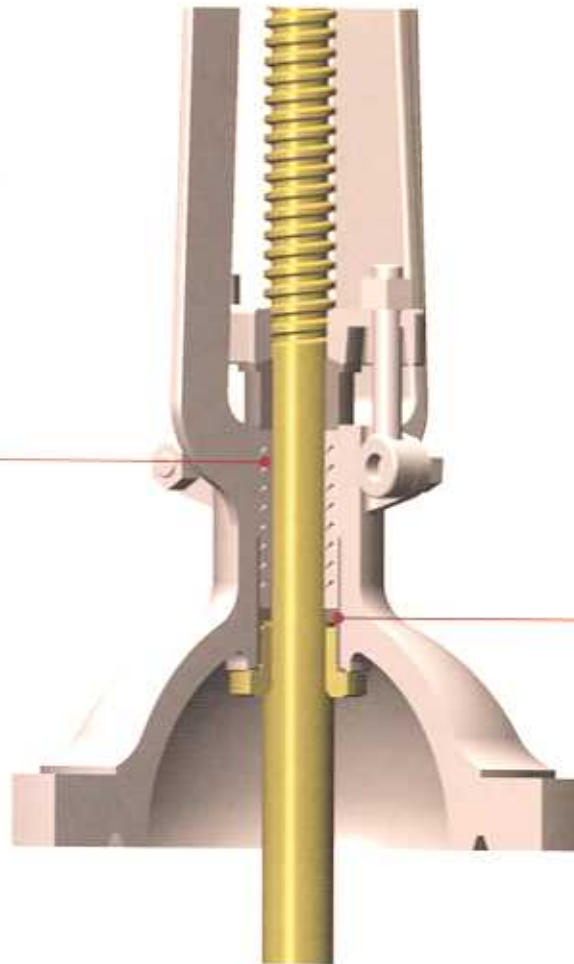
PHILLIPS/UOP

Options

Renewable Backseat Bush & Lower Stuffing Box, Monel Overlay

The Backseat Bush screws in as a renewable insert component. The 3D image below details the Monel overlay technique around the Backseat bush pocket and lower stuffing box walls. As this is where a great deal of corrosion occurs, the Monel overlaid threaded pocket offers a reliable long term solution to corrosion control in this critical area. The image also details the Teflon chevron gland packing system for some Phillips applications.

• Teflon Chevron rings or combination Graphitic Gland packing.



• Monel welding overlay option available.

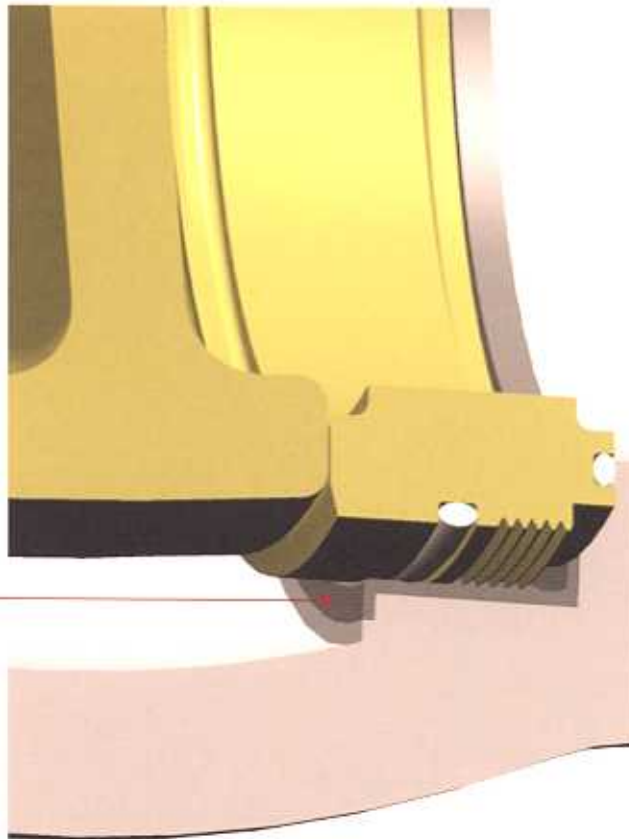
Seat Pocket Monel Overlay Gate Valve

PHILLIPS/UOP

Monel Overlay to Seat Pocket of a Gate Valve

PetrolValves has developed a technique for the overlay of monel on WCB Cast Carbon Steel. Our procedures have proven long-term to eliminate any risk of HF Acid attacking and cutting through the heat affected zone. This offers a high performance long-term solution for seat pocket corrosion.

- Welding Monel overlay.



Seat Pocket
Monel Overlay
Check Valve

PHILLIPS/UOP

Monel Overlay to Seat Pocket of a Check Valve

PetroValves has developed a technique for the overlay of Monel on WCB Cast Carbon Steel. Our procedures have been long-term to eliminate any risk of HF Acid attacking and cutting through the heat affected zone. This Offers a high-performance long term solution for seat pocket corrosion.



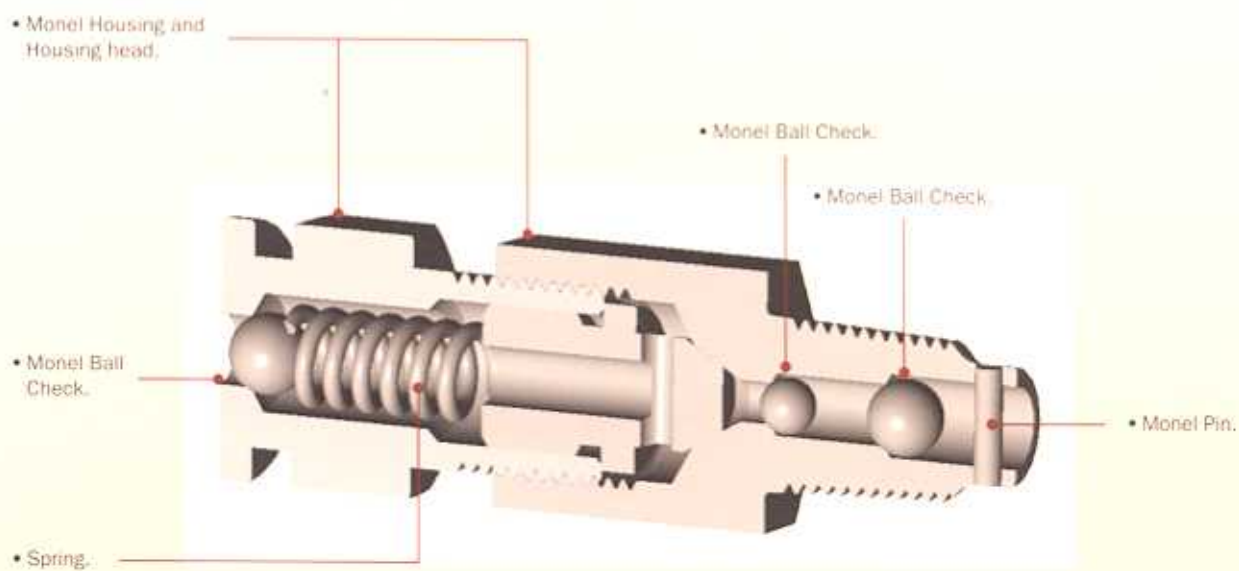
• Welding Monel overlay:

Grease Injector Gate/Globe Valves

UOP

Solid Monel 400 Grease Injectors.

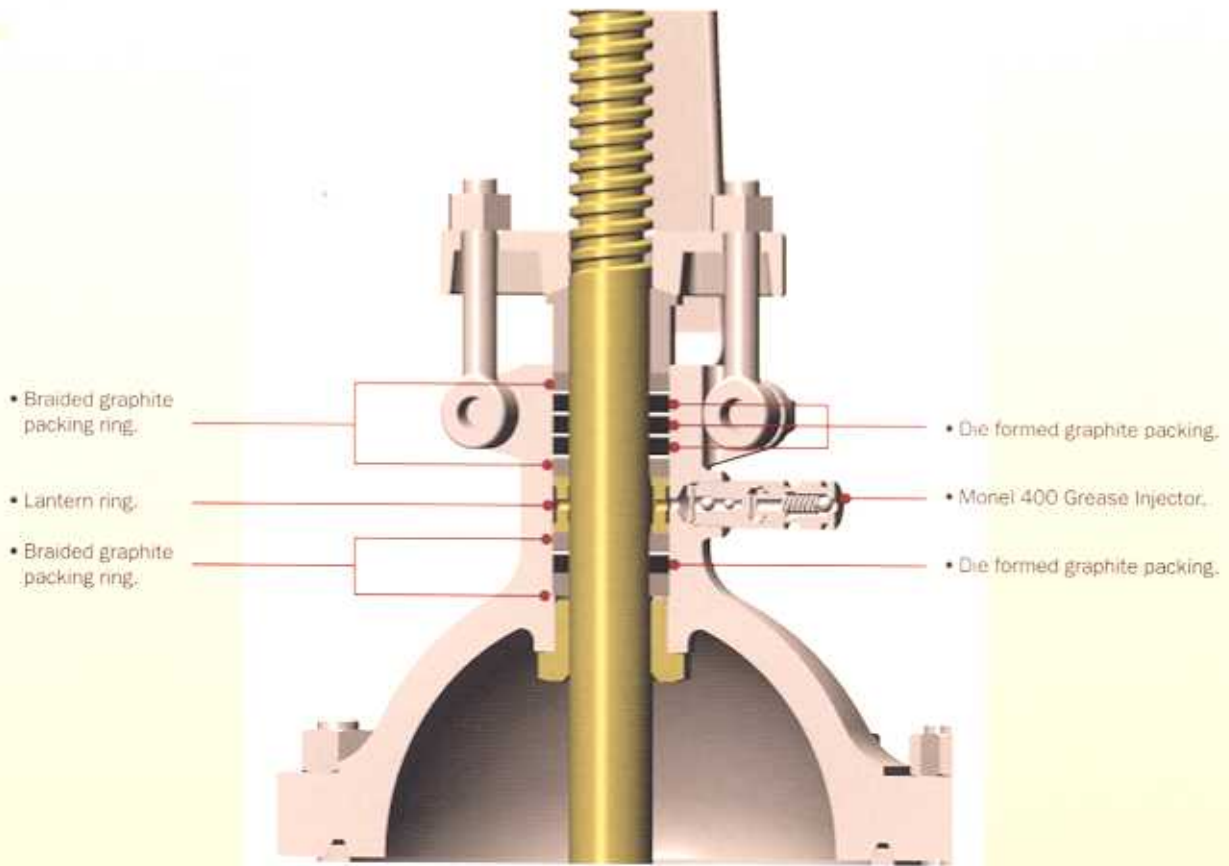
For all applications where grease injection is a requirement, PetroValves uses the above standardized construction for all factory fitted grease injectors. The double ball isolation system is employed for both gland and seat seal grease applications, where integrity must be assured. Each Injector is primed with Polymel 410 during construction.



Gland Grease
Injector
Gate/Globe
Valves

UOP

Options

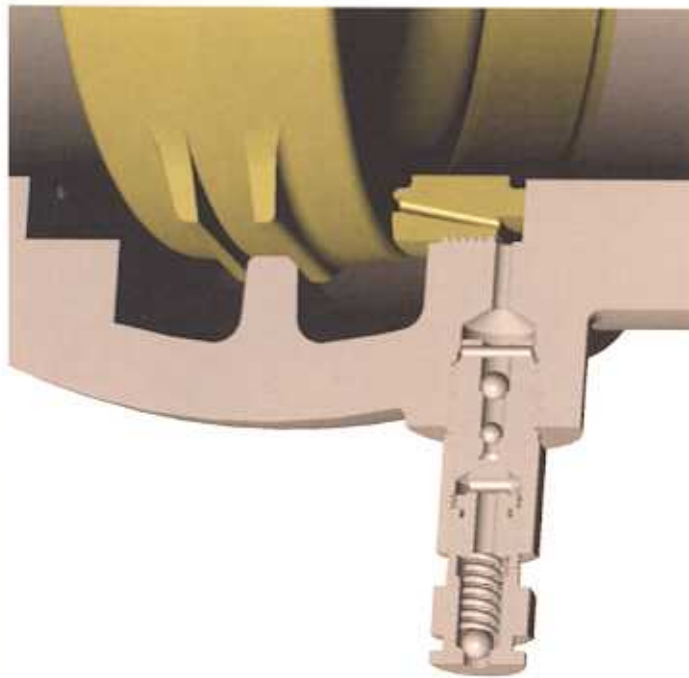


Grease Injector Seat Seal

UOP

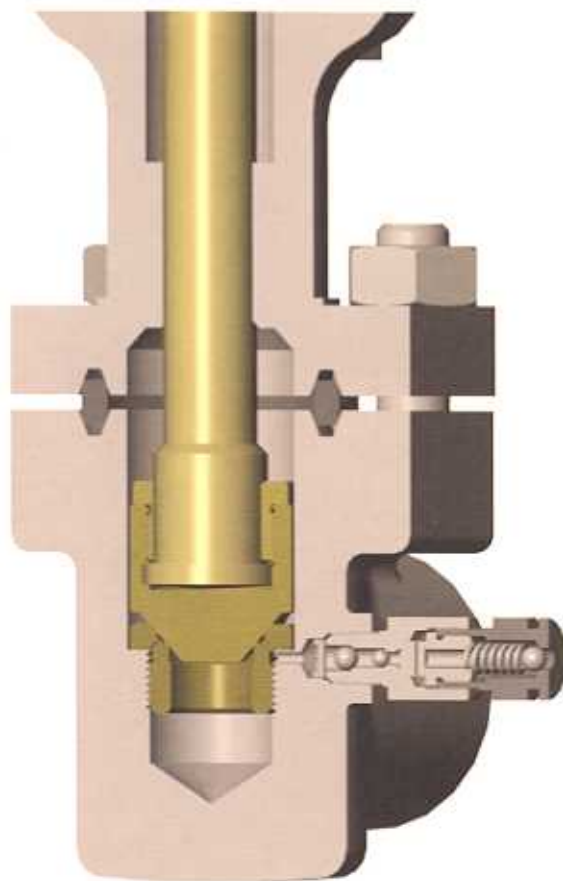
Class 300 Gate Valve Seat Seal Grease Injection system Detail

Monel 400 Grease Injector with double ball isolation feeds Polymel 410 through the precision grease ducts in the body to the radial groove machined into the seat rings. This ensures even distribution of grease to the seat sealing surfaces of the wedge and seat seals. The Monel Grease Injector is further detailed on page 24.



Class 600 Globe Valve Seat Seal Grease Injection system Detail

Monel 400 Grease Injector with double ball isolation feeds Polymel 410 through the precision grease ducts in the body to the radial groove machined into the seat rings. This ensures even distribution of grease to the seat sealing surfaces of the wedge and seat seals. The Monel Grease Injector is further detailed on page 24.



**Seat Inserts
Cast**

PHILLIPS/UOP

Monel 400 Seat Ring with Teflon insert.

The Monel 400 Screwed seat ring with an integral Teflon insert, is fitted using PetroValves unique retention system. Once fitted, it can be relied on to stay in place. As a primary seal, Teflon offers isolation integrity where bubble tight shut off is critical. Construction guarantees metal back-up to soft insert, therefore the valves are firesafe to atmosphere and through pipeline. While the teflon provides a dependable seal, the wedge life is extended as its wear ratio is reduced considerably. Two Teflon seals are employed to prevent corrosion of the threads in the seat pockets of the valve body.



Set Inserts Forged

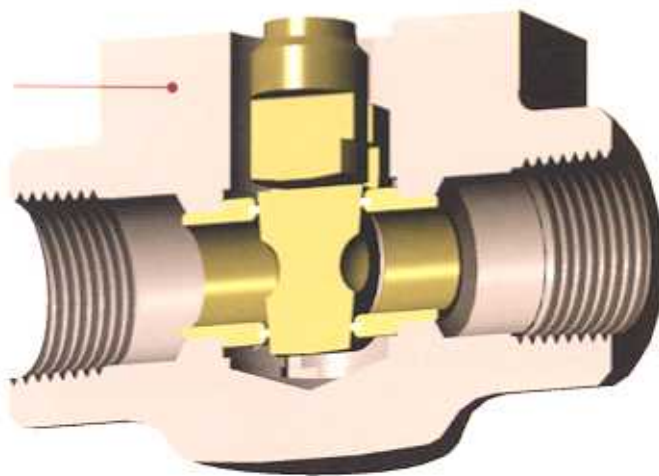
PHILLIPS/UOP

Options

Teflon Seat Seal Inserts:

The Monel 400 Swaged seat ring with an integral Teflon insert, is fitted using PetroValves unique retention system. Once fitted, it can be relied on to stay in place. As a primary seal, Teflon offers isolation integrity where bubble tight shut off is critical. Construction guarantees metal back-up to the soft insert, therefore the valves are fire-safe either to atmosphere and through pipeline. While the teflon provides a dependable seal, the wedge life is extended as its wear ratio is reduced considerably.

- Forged carbon steel, or Monel M35/1 Body + Bonnet construction.



Technical Support/Installation Suggestions

PetrolValves offers Clients world-wide technical assistance through a professional team of service engineers. Our multi-disciplined specialists provide effective service in accordance with rigorous procedures developed by Petrolvalves over the last 40 years.

We understand the true meaning of service. We are committed to the continuous improvement of our systems to respond to the constantly evolving standards and heightened requirements of our industry. Quality service has always been, and will remain, a significant priority for our company.

Our dedicated field support department conducts services operations in the following primary areas:

Maintenance & Operations of:

- 1 Valve repair
- 2 Structured technical training on special products repair techniques and procedures
- 3 Pre-turnaround - walkthrough HF plant survey
- 4 Turnaround repair valves, inspection and supervision
- 5 Maintenance history records system for individual valves
- 6 On-site service with local workshop in-line
- 7 In-house complete refurbishment works
- 8 Audits on preferred valve repair vendor facilities with status report
- 9 Selected refurbishing vendor training on repair

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