

United Process Valves

Tradition

Innovation

Commitment

GATE VALVES

GW & GS Series

WEDGE & SLAB GATE VALVES





United Process Valves

Tradition

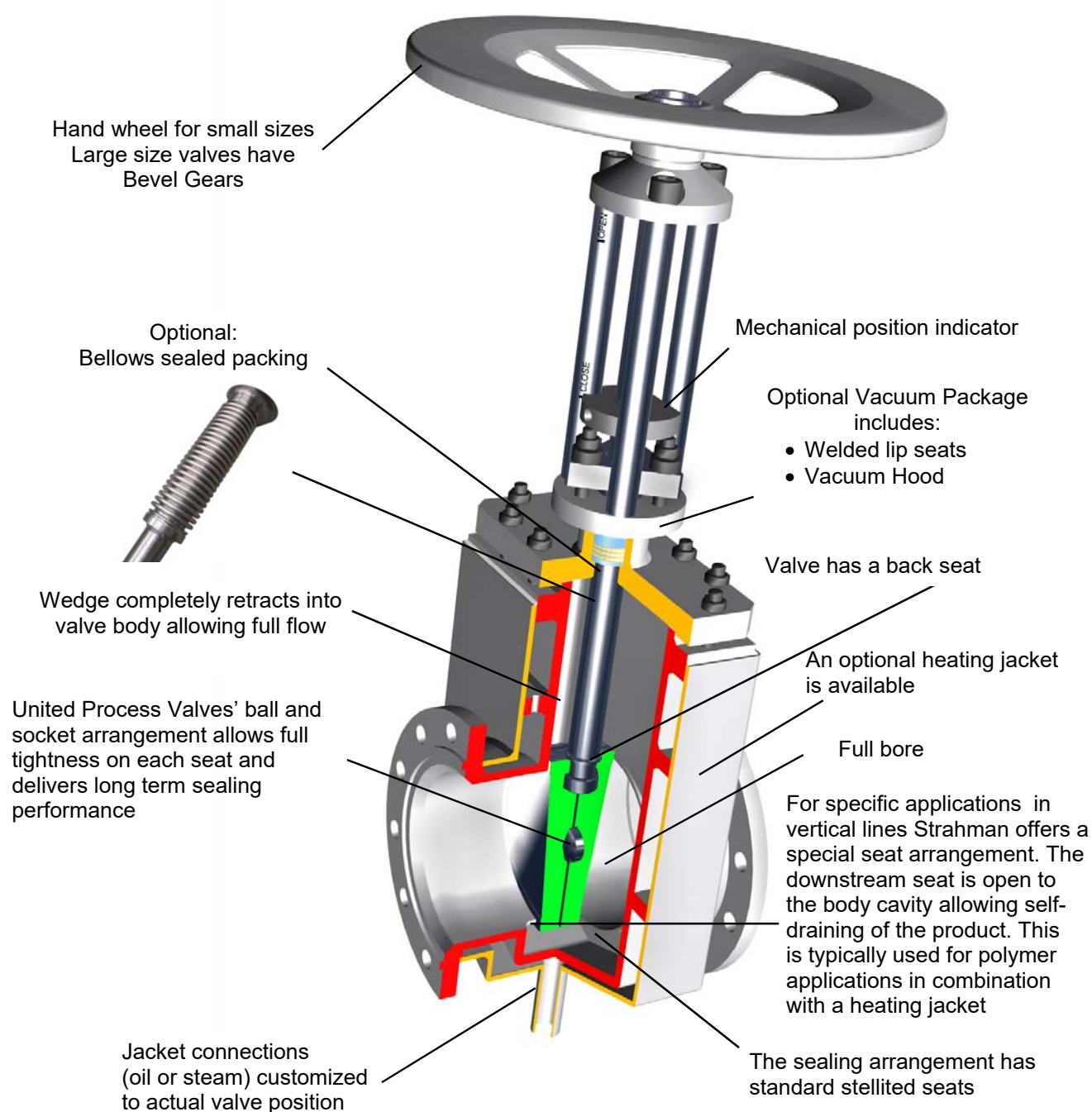
Innovation

Commitment

WEDGE GATE AND SLAB GATE VALVES FOR SPECIAL APPLICATIONS

Code: **GW2M**

Wedge gate Valves



Unites Process Valves' designs and manufactures gate valves for special applications. They include specific applications where large diameters, jacketing or special materials are necessary. Most of Strahman's gate valves are customized to meet specific process requirements. They are well suited as isolation valves for process lines in chemical and petrochemical applications.

The safety of process equipment often depends on the reliability of these "key equipment" valves. The main features include tight shut-off, full bore design, availability of metal or resilient sealing arrangements and the choice between wedge or parallel seated designs. Jacketed wedge gate valves are mainly used in the polymer industry. Bellow-sealed wedge gate valves with welded lip seals are suitable for toxic and lethal products. Slab gate valves are recommended for isolation of ethylene furnaces where heavy feedstocks are cracked.

Wafer type Slab Gate Valve

Code: **GSD**

Slab Gate Valve with Dismountable Sleeve

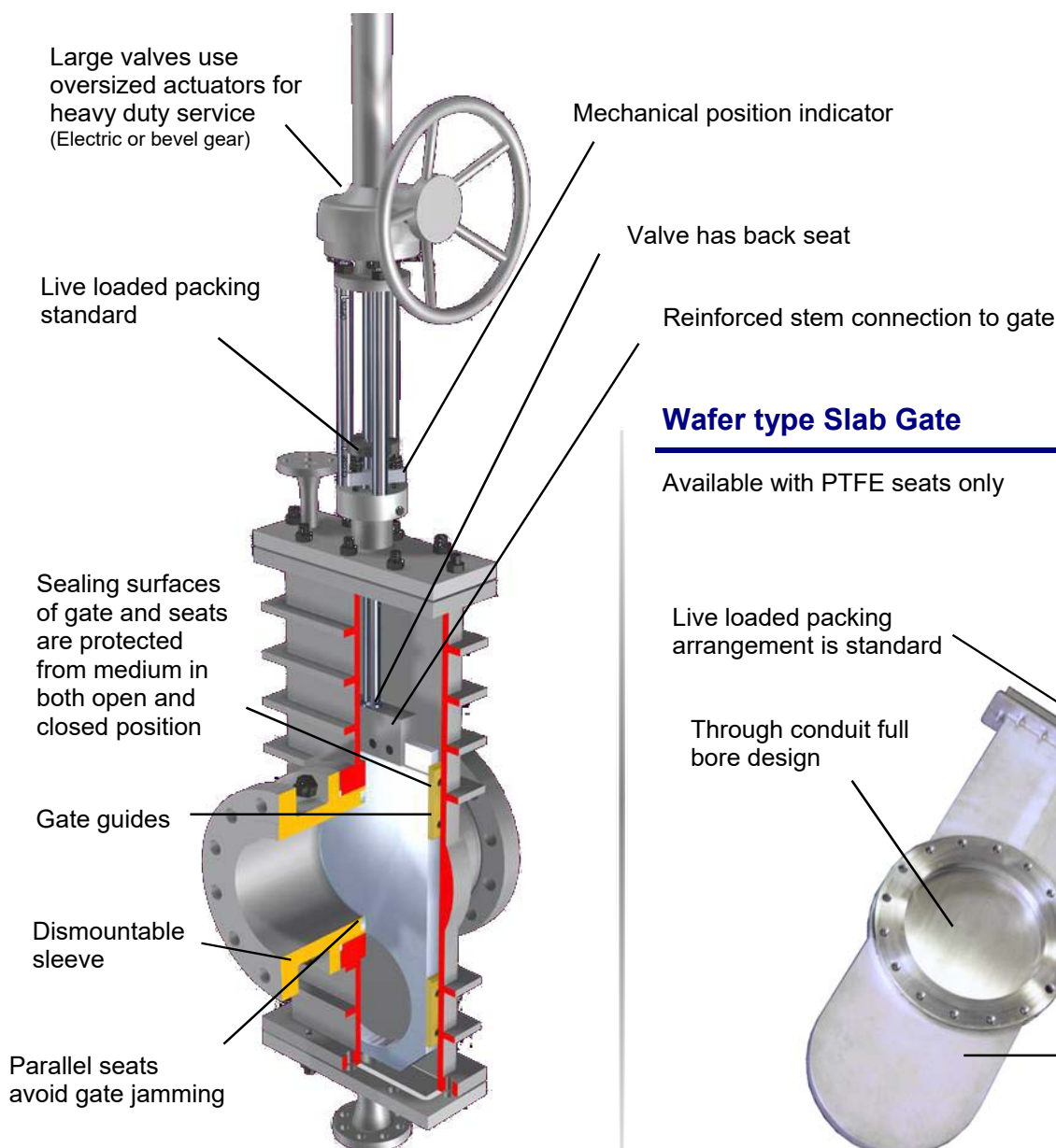


Fig. 074

Wafer type Slab Gate

Code: **GSD**

Available with PTFE seats only

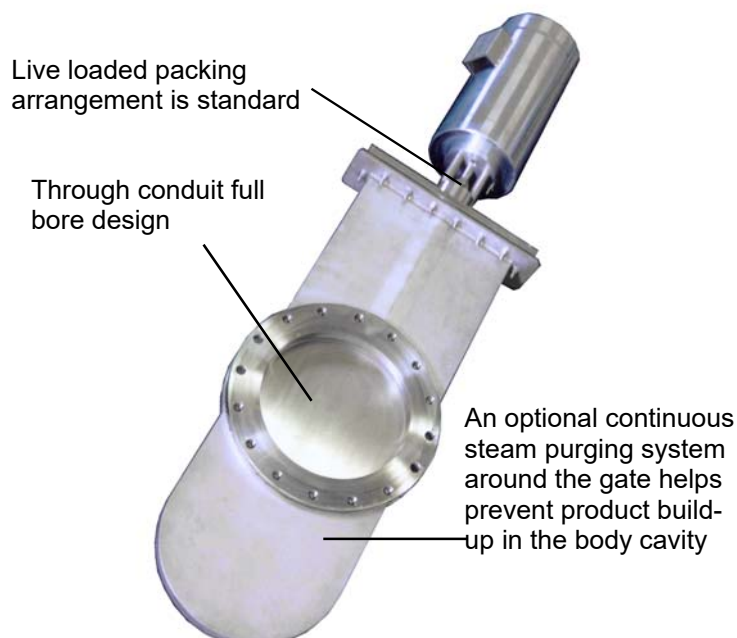
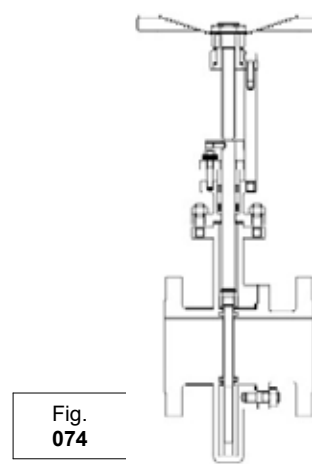
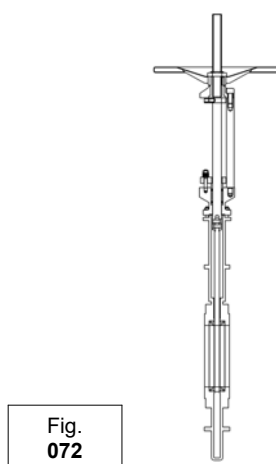
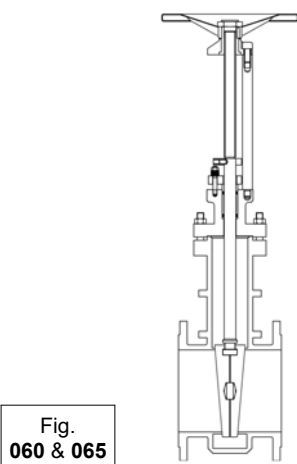


Fig. 072

BODY ARRANGEMENTS

Unites Process Valves Gate valves have three different configurations:

- **Fig. 060 or 065** is for Wedge gate valves
- **Fig. 072** is for Wafer type slab gate valves
- **Fig. 074** is for Slab gate valves with dismountable seats



RANGE DEFINITION

GW Manufacturing Range	PN 10	PN 16	PN 20-150 lbs.	PN 25	PN 40	PN 50 300 lbs.	PN64 400 lbs.	PN 100 600 lbs.	PN 150/160-900 lb	PN 250 -1500 lb	PN 320	PN 420-2500 lb	PN 630-4500 lb
3/8"- DIN10													
1/2"- DIN15													
3/4"- DIN20													
1"- DIN25													
1 1/4"- DIN32													
1 1/2"- DIN40													
2"- DIN50													
2 1/2"- DIN65													
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16"- DIN400													
18"- DIN450													
20"- DIN500													
24"- DIN600													
28"- DIN700													
32"- DN800													
36"- DN900													
40"- DN1000													
44"- DN1100													
48"- DN1200													

Fig. 060 & 065

GS Manufacturing Range	PN 10	PN 16	PN 20-150 lbs.	PN 25	PN 40	PN 50 300 lbs.	PN64 400 lbs.	PN 100 600 lbs.	PN 150/160-900 lb	PN 250 -1500 lb	PN 320	PN 420-2500 lb	PN 630-4500 lb
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48"- DN1200													

Fig. 072 & 074

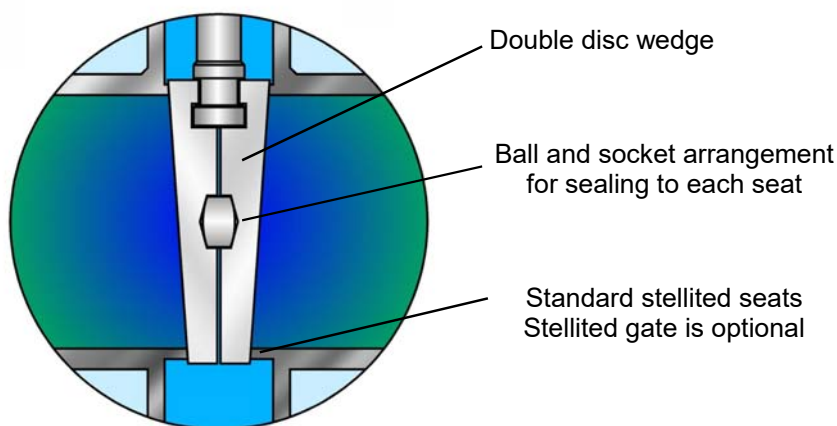
Fig.074 Only

SEALING SYSTEMS

Unites Process Valves Gate Valve sealing systems utilize different designs for wedge and slab valves. The following drawings illustrate the specific differences.

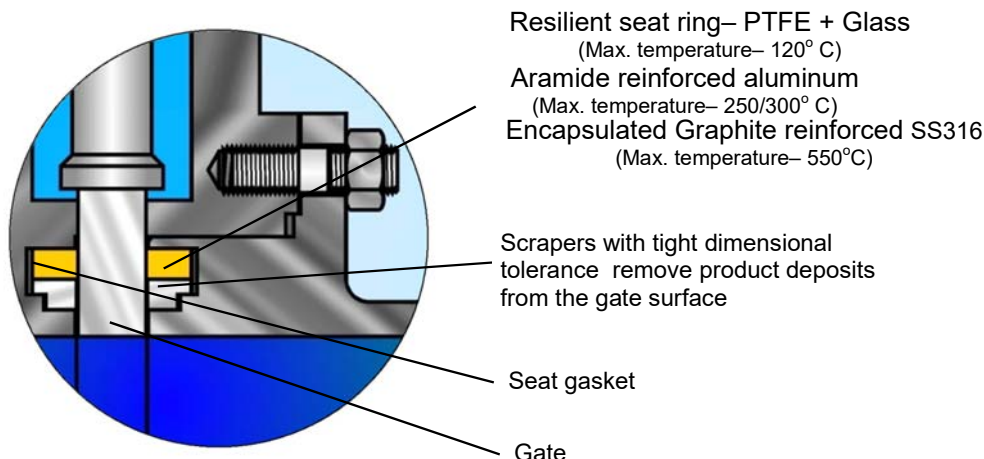
Wedge

- Metal to Metal Gate to body seat sealing
- Stellite coating standard on body seat
- Bi-directional valve



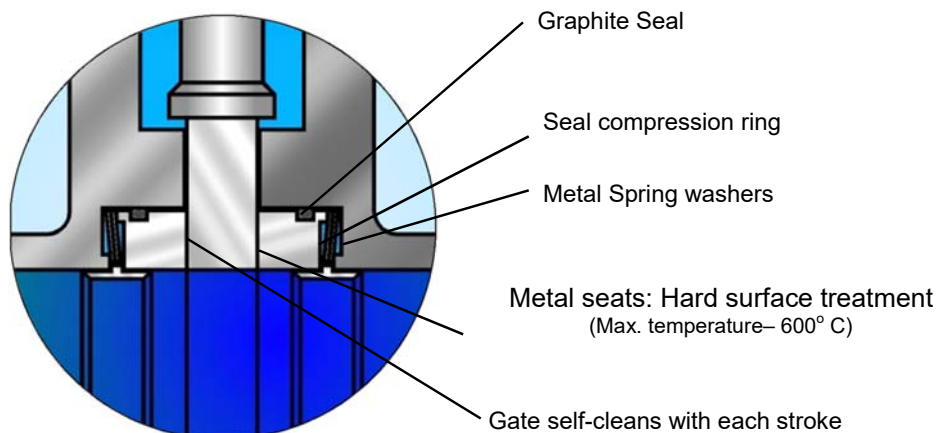
Resilient Seats with Scraper Ring

- Metal to resilient material Gate to seat sealing
- Bi-directional valve
- Replaceable seats



Resilient Seats with Scraper Ring

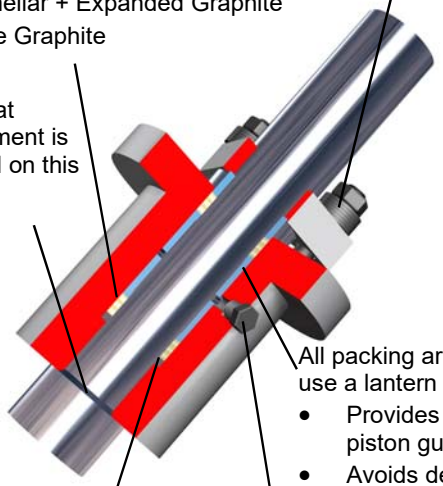
- Metal to resilient material Gate to seat sealing
- Bi-directional valve
- Replaceable seats



PACKING DEFINITION

Typical Packing Materials:

- PTFE
- PTFE / Aramide Braid
- Carbon / Graphite Braid
- Graphite Braid
- PTFE /Aramide Braid + Graphite
- Lamellar + Expanded Graphite
- Pure Graphite



Live loaded packing arrangement minimizes maintenance

Back seat arrangement is standard on this valve

All packing arrangements use a lantern ring that:

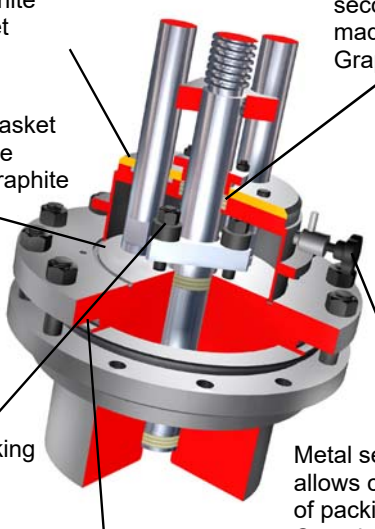
- Provides better stem piston guiding
- Avoids dead space in body cavities

Bottom ring material is selected with a differential hardness from the piston to prevent piston damage

Optional 1/4 inch NPTF can be used for leak detection or inert gas injection to atmosphere by creating an over pressure

VACUUM HOOD

For valves on full vacuum service United Process Valves offers a special **vacuum package** that maintains tightness to atmosphere. Valves with this package are usually equipped with an **M Ring Seal** design as process sealing. The system uses a replaceable aluminium or nickel seal ring and provides high vacuum performance. This special **vacuum package** provides zero leakage between atmosphere and process.



Viton or Graphite column gasket

Spring loaded secondary packing made of PTFE or Graphite

Vacuum hood gasket made of Aramide compound or Graphite

Live loaded packing arrangement is standard

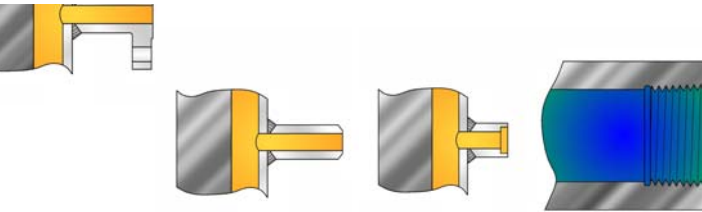
Welded lip seals

Metal seated test valve allows checking of packing performance. Can also be used for gas injection

STANDARD BODY GASKET RANGE

- PTFE
- Aramide / Nitrile
- Carbon / Aramide
- Laminated Graphite
- Laminated Graphite / 316
- Welded Lips

JACKET CONNECTIONS



Flanges
ANSI.DIN.JIS

Butt Weld

Socket Weld

Threaded connections

Valve Coding System

	G	W	2	\$	W	J
G Gate Valve						
W Wedge S Slab A Accessories						
2 Double Disc S Dismountable Sleeve D Dismountable Seat \$ Special						
S Soft Seated M Metal to Metal \$ Special						
F Flanged W Butt Weld A Wafer O Oversized Flange G Graylock \$ Special						
J Jacketed - Non-Jacketed						

NOTE: Some combinations may not be compatible

TECHNICAL & GENERAL INFORMATION

Design Code & Construction

- Design standard compliant with ASME B16.34
- International standards include ANSI, DIN, JIS, API etc.
- Wide range of material selections including carbon steel / stainless steel / Titanium / Hastelloy / Duplex / Monel / Tantalum / Zirconium
- Fabricated, cast, forged and bar stock designs
- Combinations of fabricated, sand and investment casings, and bar stock available

Surface Finish

- For polymer applications, United Process Valves recommends a surface facing of 300 (Ra 0.4) for all parts are in contact with the medium

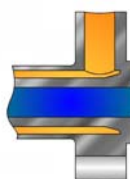
Quality assurance & testing

- ISO 9001 compliant
- ISO 15848 1 & 2, low emission testing and certification available
- PED / ATEX / CE marking
- Standard testing procedures

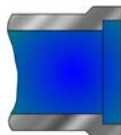
LINE & BRANCH CONNECTIONS



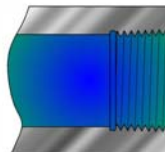
Flanges
ANSI, DIN, JIS



Heated
Flanges



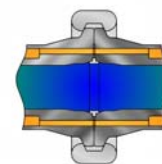
Socket
Weld



Threaded
connections
NPT & BSP



Butt
Weld



Fast Bolting Union
Graylock Securamax

ACTUATION OPTIONS



Hand Wheel



Bevel Gear



Electric Actuator



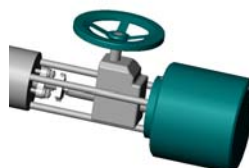
Air Motor



acting Air Cylinder



Cylinder with Safety Hand Wheel



Cylinder with side mounted
Safety Hand Wheel



Cylinder



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United Process Valves

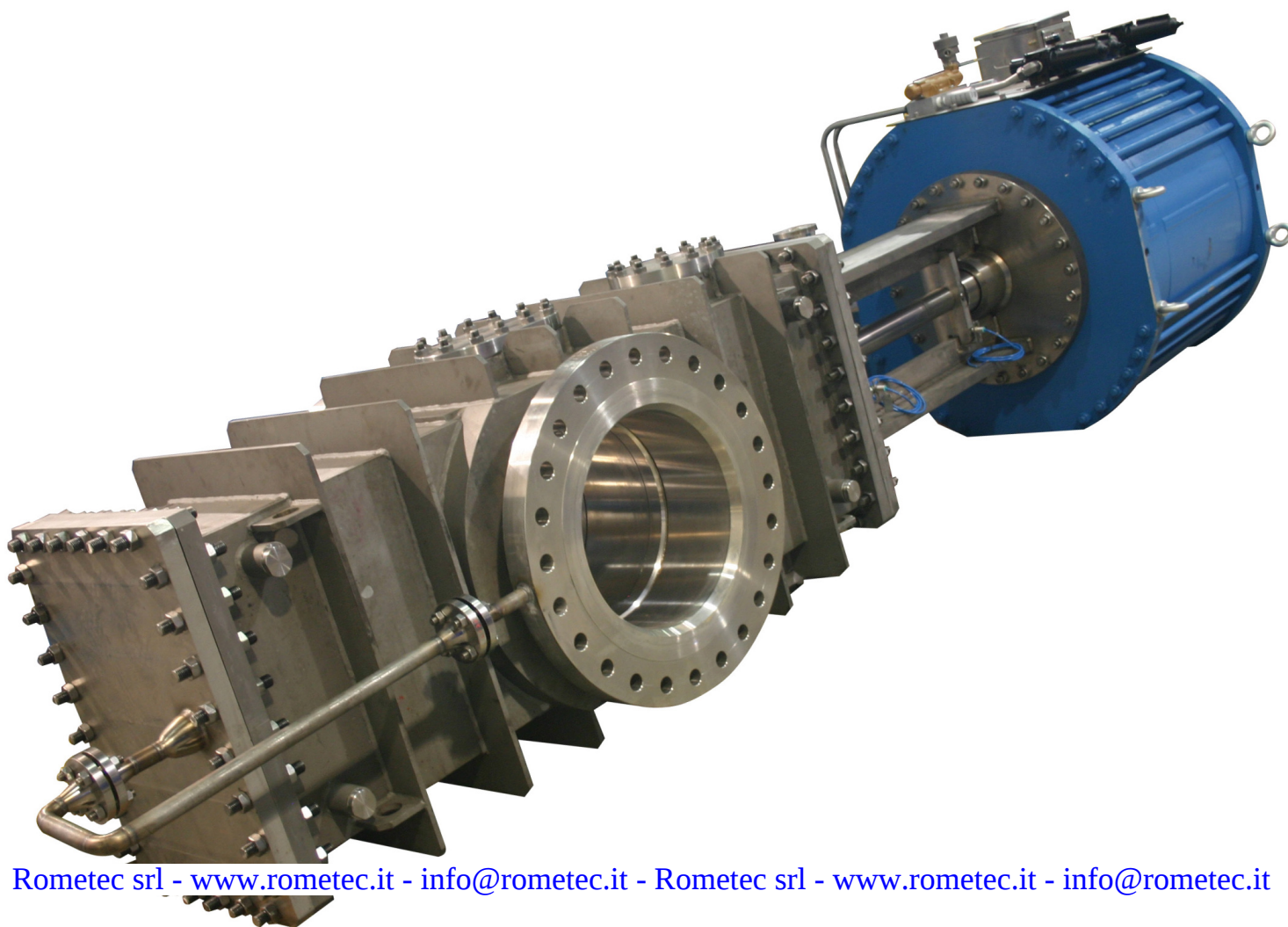
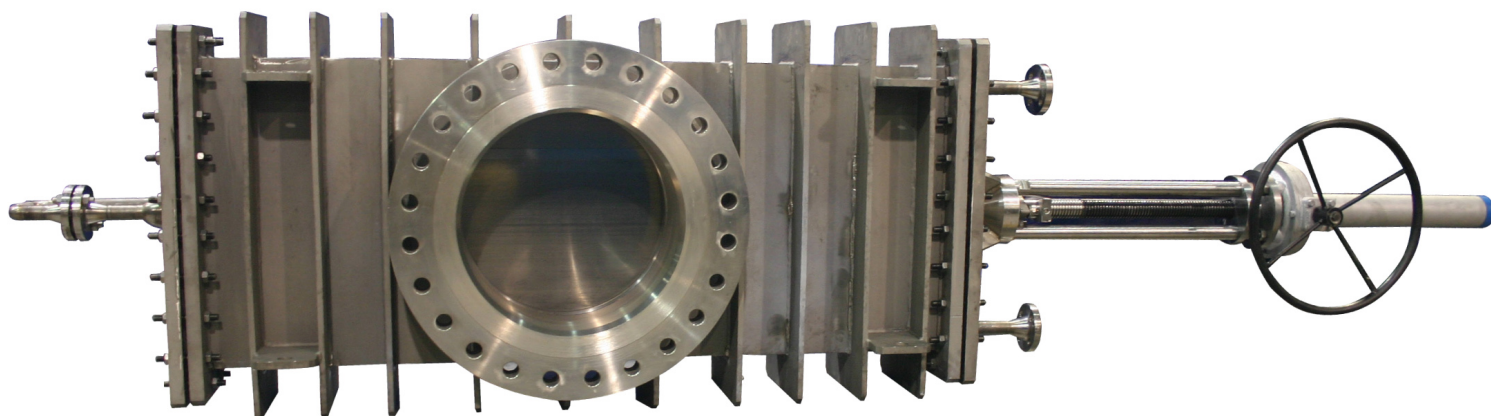
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VALVES FOR DELAYED COKING, ETHYLENE AND FCC CRACKING SERVICE

SINGLE AND DOUBLE DISC GATE VALVES



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TECHNICAL & GENERAL INFORMATION

DESIGN CODE & CONSTRUCTION

- Design flexibility due to fabricated construction
- Design according to ASME B16.34 as a standard
- United Process Valves designs to international standards like: ANSI, DIN, JIS, API etc.
- For product development, United Process Valves uses finite element calculations, in-house design and testing facilities and mechanical research laboratories for product development.

CERTIFICATIONS

- ISO 9001 Compliant
- PED/ATEX/CE
- GOST R Certificate
- ISO 15848 1 & 2, low emission testing and certification available

STANDARDS

- ASME B16.34 for design, manufacturing, control of raw materials and final testing of the valves
- ANSI/FCI 70-2 for leakage rates Class IV & V are available
- API 6 FA for fire tests
- ASTM for materials
- API and ANSI face to face are available

CUSTOMER SUPPORT

United Process Valves provides customer support in the following areas

- **Design:** specific recommendation can be made for valve selection, sizing in polymer control, reactor cleaning and high viscosity flow capacity.
- **On site service:** Plant start up support by trained engineers
- **After sales service:** United Process Valves after sales department and worldwide agent network are committed to our 1 day reaction time policy.

MATERIALS

Wide range of material selections like: Carbon Steel / Chromium Steel / Stainless Steel / Hastelloy® / Duplex.

PRODUCTION METHOD

- Fully fabricated design
- *cast design is also available

TYPICAL APPLICATIONS FOR UNITED PROCESS VALVES SLAB GATE VALVES

- Main transfer and decoking lines of ethylene units
- Coal gasification units
- Regenerated Catalyst Service
- Recirculation Catalyst Service
- Flue Gas Lines
- Over head vapor lines

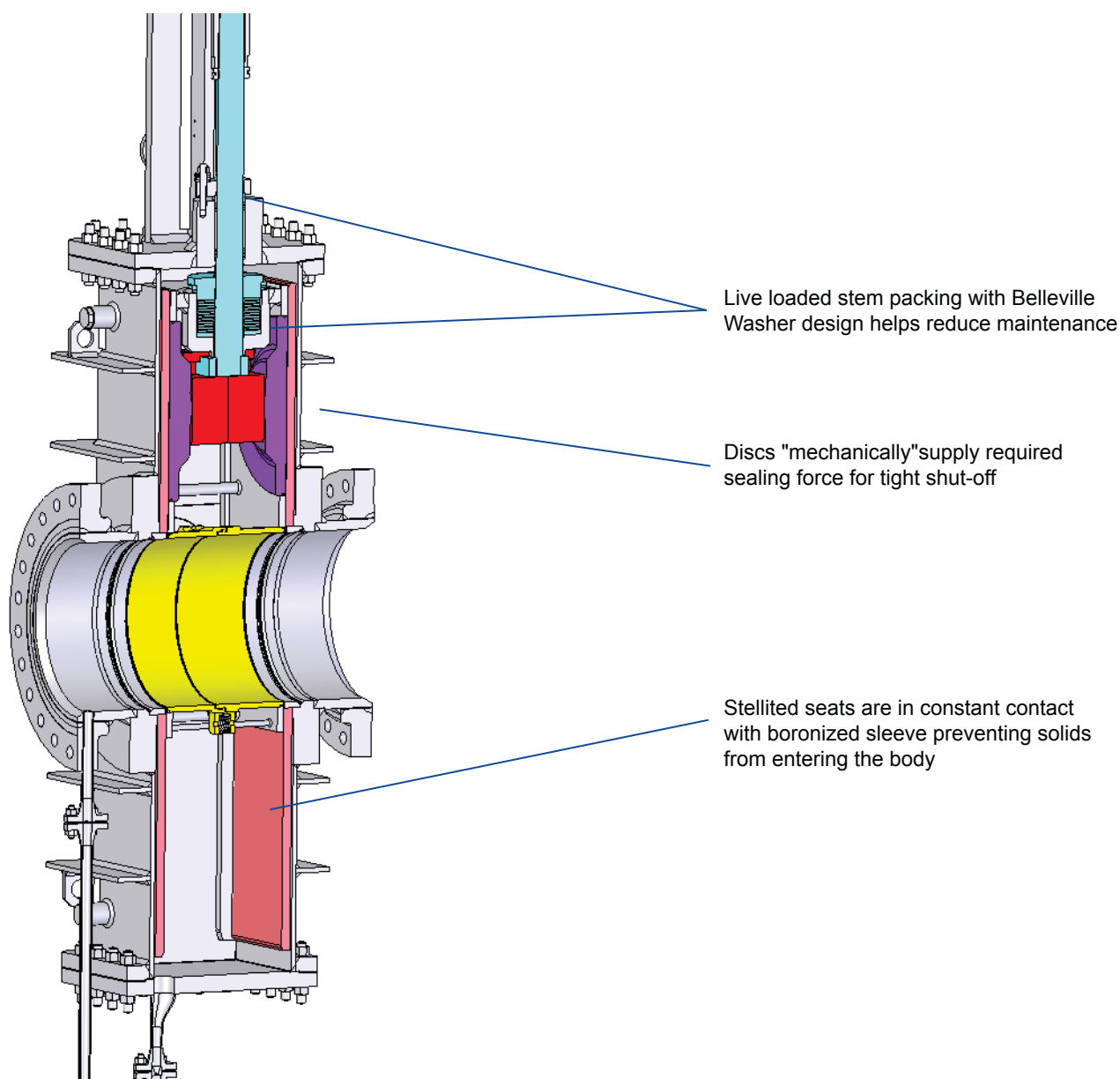
TYPICAL APPLICATIONS FOR DOUBLE DISC THROUGH CONDUIT VALVES

- Coal gasification units
- Reactor Overhead Line (Fractionator Inlet)
- Fractionator Bottom Line (Fractionator Outlet)
- Regenerator Pressure Control

UNITED PROCESS VALVES DOUBLE DISC DESIGN

DESIGN FEATURES OF THE UNITED PROCESS VALVES DOUBLE DISC DESIGN

- Two independent sealing discs for true "Block and Bleed" functionality
- Steam Purged for 100% positive shut-off and inability for particles to enter the valve body or atmosphere
- Capable of remote operation for complete personnel safety
- Low maintenance design for uninterrupted operations between turnarounds
- Mechanical spreading mechanism that requires no additional force for long-term sealing capability
- Capable of manual operation for immediate operation

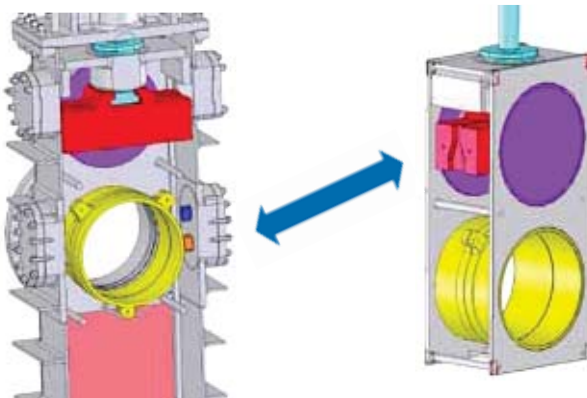




UNITED PROCESS VALVES DOUBLE DISC DESIGN

GENERAL DESCRIPTION FOR THROUGH CONDUIT VALVE DOUBLE DISC TYPE

- Designed for on/off service
- Fabricated body with full bore design
- Through conduit type in the open position: the body bore forms a straight tube eliminating dead space while creating a barrier keeping solids from entering the body cavity during operation of the valve
- Parallel metal stellited seats guarantees the tightness at high temperature along with weld resistant overlay on body seats provide the necessary corrosion protection. The discs are also hard surface treated to prolong service life
- Sealing surfaces on the seats and discs are protected from flow in the open position limiting erosion and deposits on the body seats
- Positive tight shut off in closed position
- Yoke type with out side screw and bolted bonnet



Double Disk Spreading Mechanism

THE UNITED PROCESS VALVES COMPETITIVE ADVANTAGE

The double disc gate valve has two separate stellited discs and two removable stellited seats rings; these discs are moving between two guides plates; when the two discs are in closed position, a flexible wedges system which is located and fixed on the side of the cavity body applies the necessary seating forces on the two discs to obtain the necessary tightness against the seats. This design feature offers the solution to other designs that are known to become jammed due to high temperatures and the “sticking” of the discs. These discs are then “dragged” along the seats without the proper release damaging the seats and making it very problematic to seat again without using excessive amounts of steam.

A superior purging system has also been implemented with additional steam paths around the wedges system to eliminate possible coke build-up. Additional purging ports can be designed as recommended during the design phase for maximum purging efficiency.

When the valve is in open position the flexible bellow located on the pipe is reinforced by 3 outside graphite rings

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common problem with other designs having the body cavity filled with coke blocking the discs in half position.



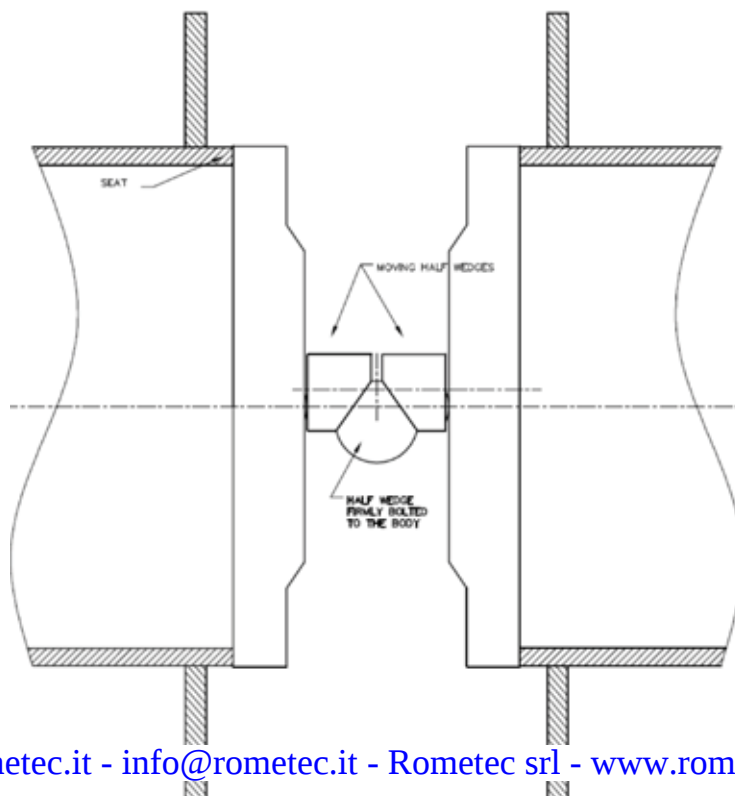
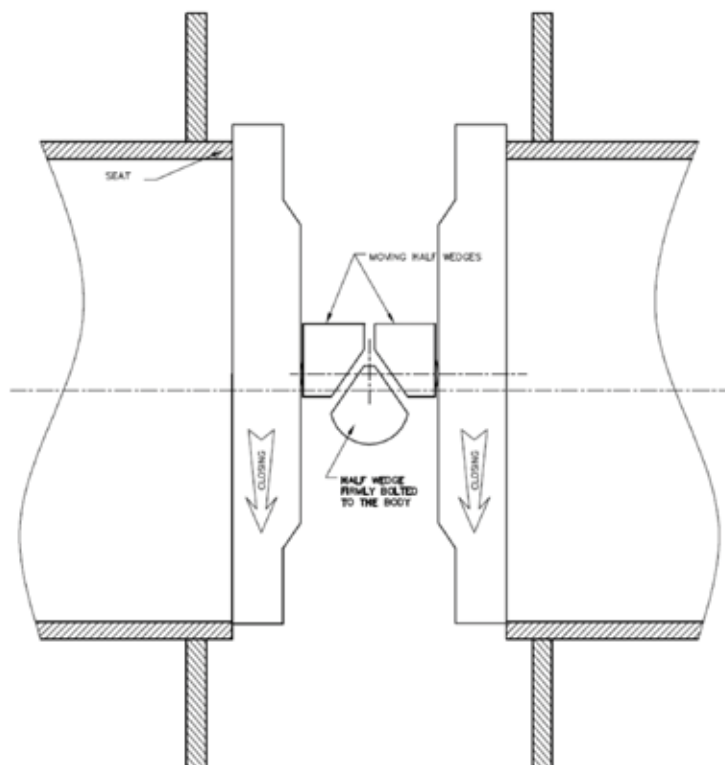
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UNITED PROCESS VALVES DOUBLE DISC DESIGN





UNITED PROCESS VALVES DOUBLE DISC DESIGN TECHNICAL & GENERAL INFORMATION

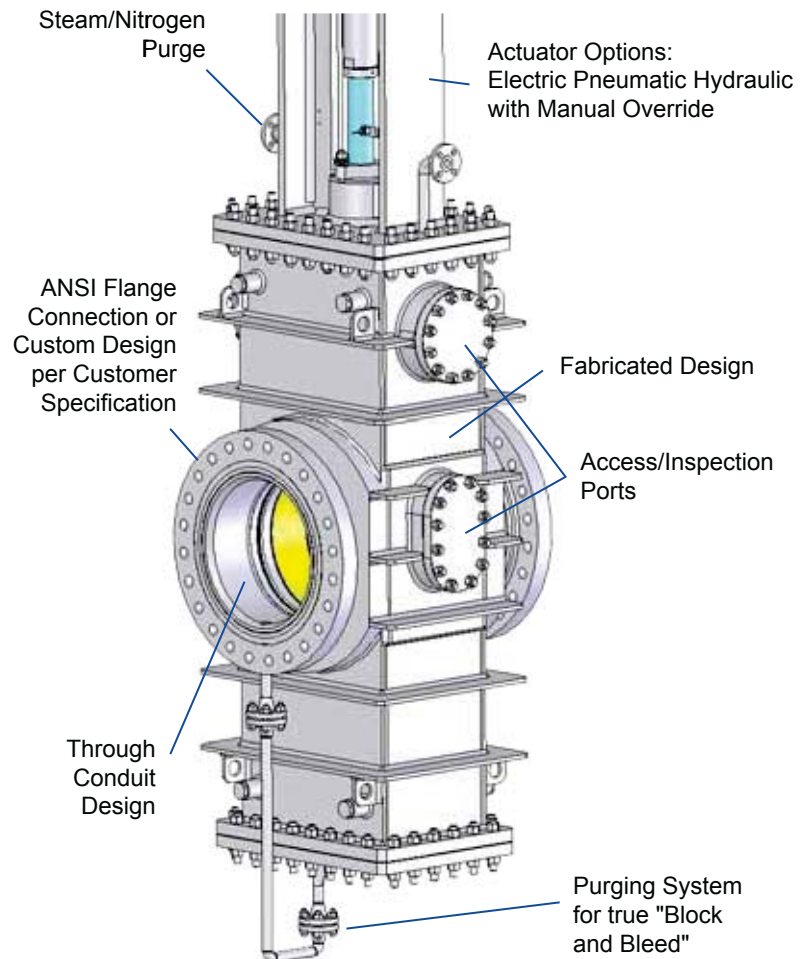
PROCESS MEDIUM

Suitable for Gases and fluids with high solid particle content reaching temperatures of 815°C (1500°F)

RANGE DEFINITION

MANUFACTURING RANGE	PN 10/20 - 150 lb	PN 40/50 - 300 lb	PN 100 - 600 lb	PN 150/160 - 900 lb	PN 250 - 1500 lb	PN 420 - 2500 lb	PN 630 - 4500 lb
3/8" - DIN10							
1/2" - DIN15							
3/4" - DIN20							
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28" - DIN700							
32" - DN800							
36" - DN900							
40" - DN1000							
44" - DN1100							
48" - DN1200							

STRAHMAN DOUBLE DISC DESIGN





UNITED PROCESS VALVES SINGLE SLAB GATE DESIGN TECHNICAL INFORMATION

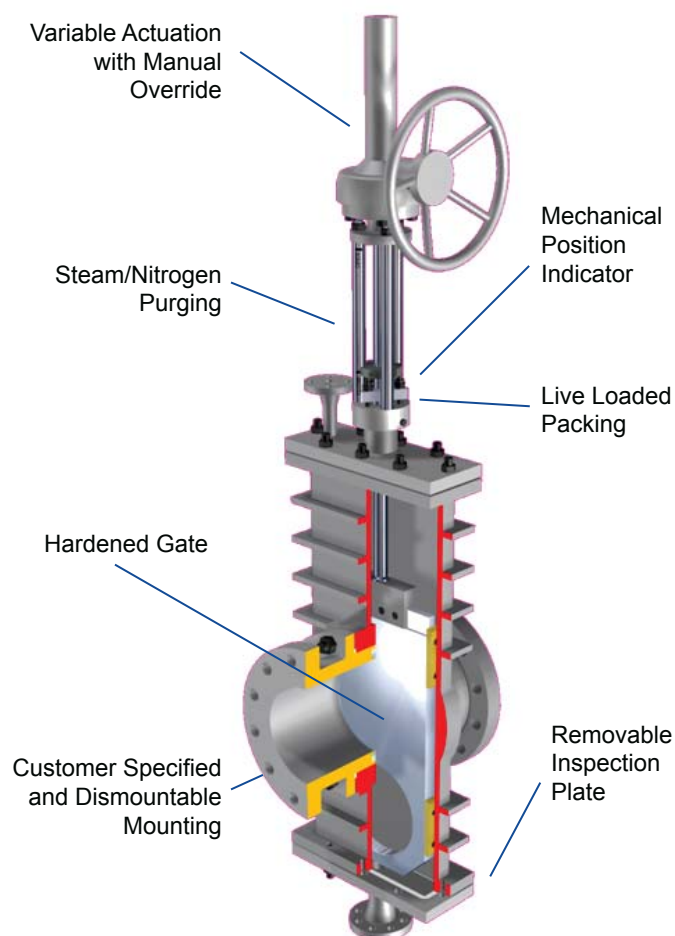
DESIGN FEATURES OF THE STRAHMAN SINGLE DISC DESIGN

- The gate and seats are in constant contact to keep particles out of the valve body
- Steam purged for 100% positive shut off
- Capable of remote operation for complete personnel safety
- Low maintenance design for uninterrupted operations between turnarounds
- Can be electric, hydraulic, or even pneumatically operated with Manual override

RANGE DEFINITION

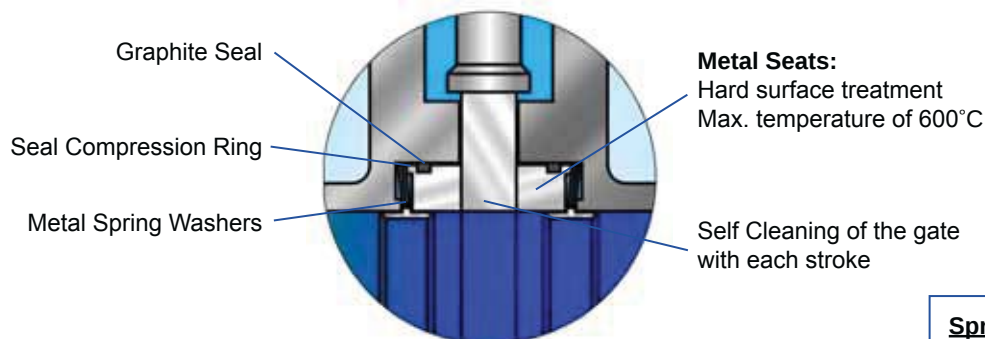
MANUFACTURING RANGE	PN 10/20 - 150 lb	PN 40/50 - 300 lb	PN 100 - 600 lb	PN 150/160 - 900 lb	PN 250 - 1500 lb	PN 420 - 2500 lb	PN 630 - 4500 lb
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UNITED PROCESS VALVES SINGLE DISC DESIGN





UNITED PROCESS VALVES SINGLE SLAB GATE DESIGN



Spring-loaded seats

Gate to seat sealing: metal to metal
Spring arrangement: Metal spring washers
Bi-directional valve
Replaceable seats

THE UNITED PROCESS VALVES COMPETITIVE ADVANTAGE

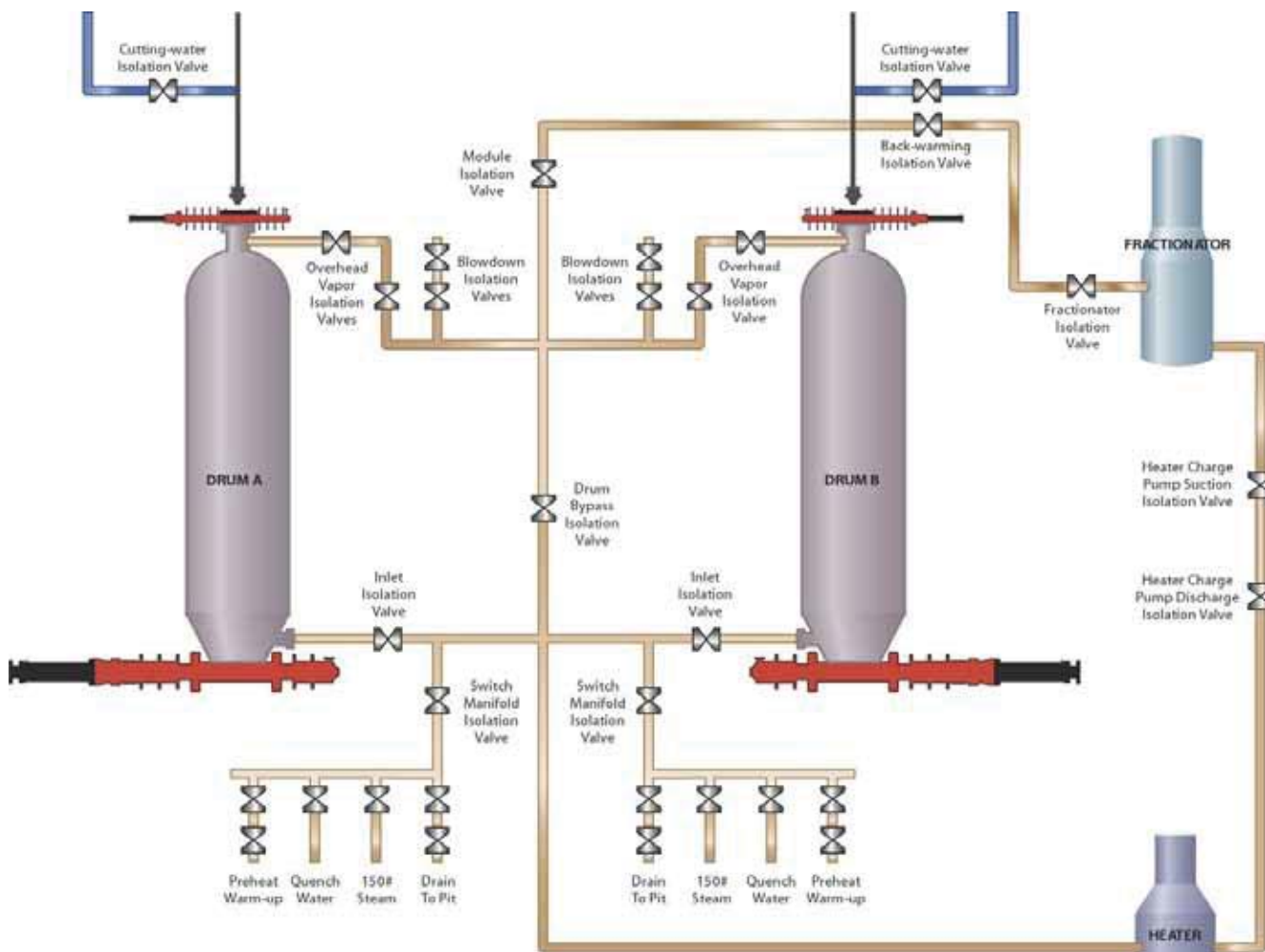
Our Single or "Slab" gate design provides the end user with a long term reliable solution for line isolation. The flexibility of the slab gate design including flange connections, materials of construction, and the choice of actuation whether it is best suited for hydraulic, electric, pneumatic, or hand wheel gear operation will fit the needs of design engineers. The slab gate design also offers a much smaller footprint and can bring a substantial weight savings over the traditional ball valves and wedge style gate valves. These valves also eliminate the concerns of failure caused by a "sticky" ball or wedge gate and can be repaired at a much lower cost and much less frequently as traditional valves. The combination of the constant cleaning of the gate surface with every stroke along with the constant steam purge system plays a significant role in the low maintenance design and longevity of the valve.





UNITED PROCESS VALVES DOUBLE DISC AND SLAB GATE DESIGNS

THE TYPICAL DESIGN OF THE MODERN DELAYED COKING UNIT



DOUBLE DISC AND SLAB GATE REFINERY APPLICATIONS INCLUDE:

- Transfer Lines
- Quench Oil Lines
- Blow Down Isolation
- Regenerator Flue Gas
- Furnace Isolation
- Flue Gas Pressure Control
- Inlet Feed Line Isolation
- Decoking Lines
- Over Head Vapor Lines
- Cutting Water Isolation
- Fractionator Isolation
- Catalyst Shutoff
- Cutting Water Isolation
- Ethylene Service



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UNITED PROCESS VALVES DOUBLE DISC AND SLAB GATE DESIGNS

THE TYPICAL DESIGN OF THE MODERN FLUID CATALYTIC CONVERTER UNIT

