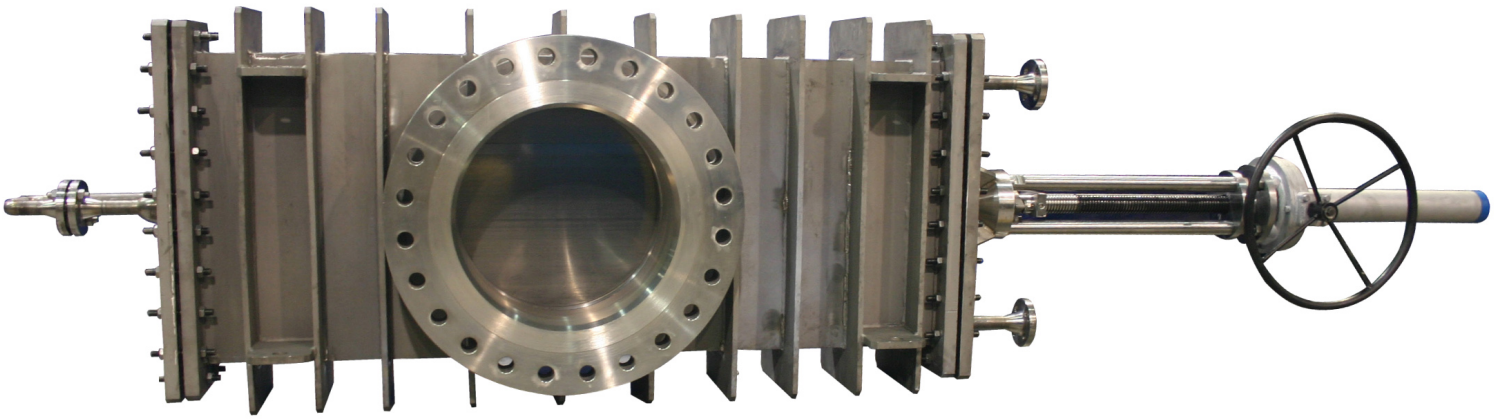
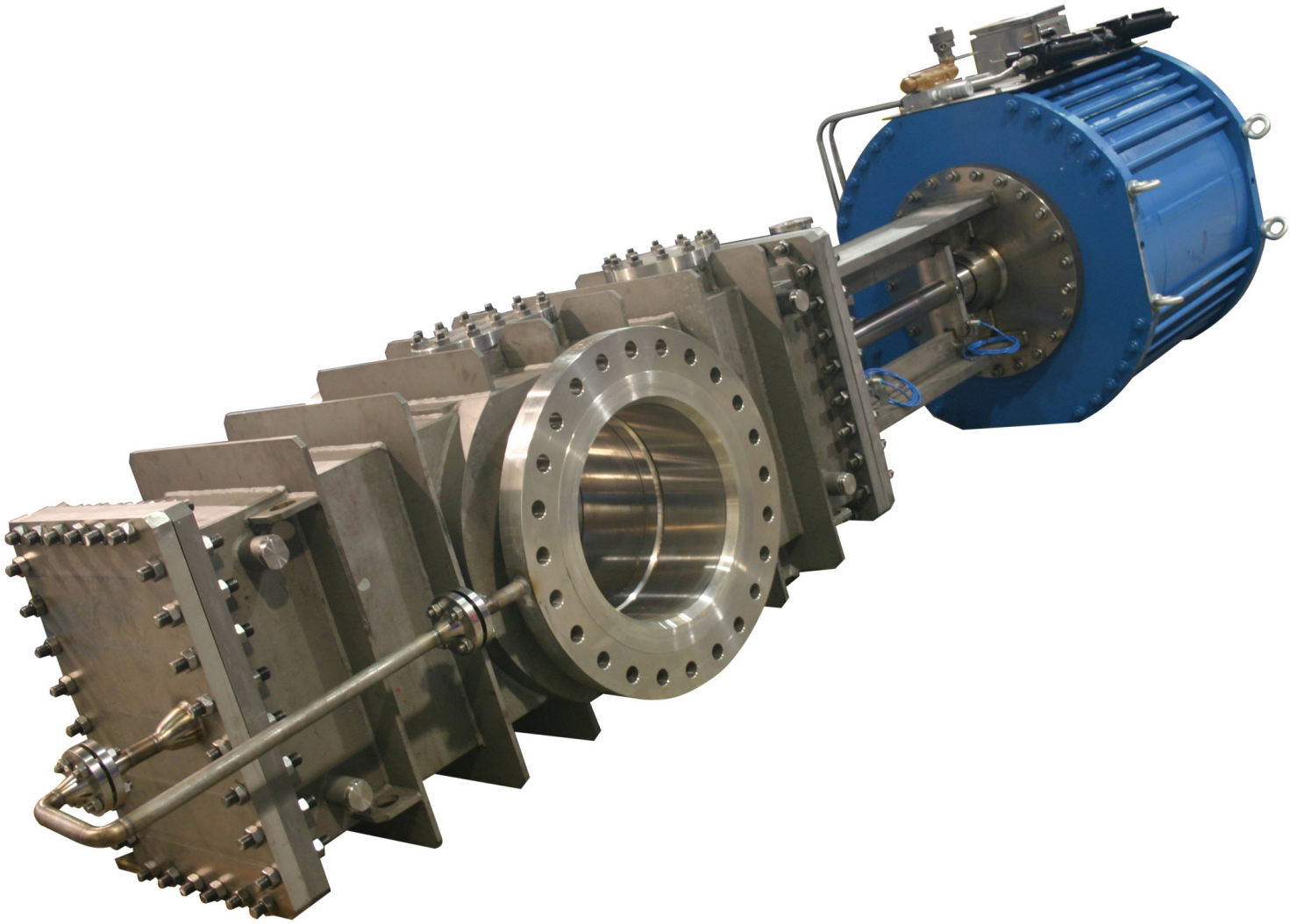
United Process Valves

Tradition Innovation Commitment

VALVES FOR DELAYED COKING, ETHYLENE AND FCC CRACKING SERVICE

SINGLE AND DOUBLE DISC GATE VALVES





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HISTORY & MILESTONES

2023 — June 2023, the Strahman Valves France management team acquires Strahman Valves France and Strahman MGS. Name is changed to United Process Valves.

2019 — Feb 2019, Strahman Valves France acquires MGS in Vaux Sous Aubigny. Name of this add on company becomes Strahman MGS.

Strahman MGS

2004 — Strahman Valves Inc USA, founded in 1921 acquires MG Process Valves. Name is changed to Strahman Valves France.

Strahman VALVES France

2000 — Original French founders acquire the company from Fetterolf Corp. USA Name changed to MG Process Valves.

MG PROCESS VALVES
The answer !

1998 — MG-Fetterolf moves into a new constructed building in Mery, France.

1992 — Name change to MG-Fetterolf after acquisition by Fetterolf USA.

FETTEROLF

1986 — MG Industries is founded by two French partners.

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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 APPLICATIONSFOR 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
- FCCU-Overhead Line Isolation (Fractionators inlet)
- Bottom Line Isolation (Fractionators Bottom)
- Any Hot Gas or Catalyst Service

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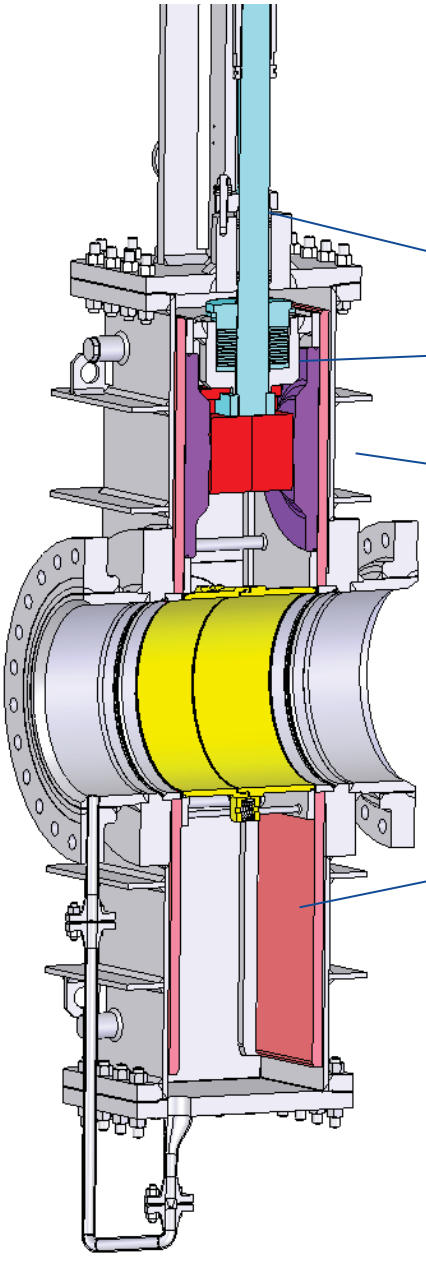
UNITED PROCESS VALVES DOUBLE DISC DESIGN

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



Live loaded stem packing with Belleville Washer design helps reduce maintenance

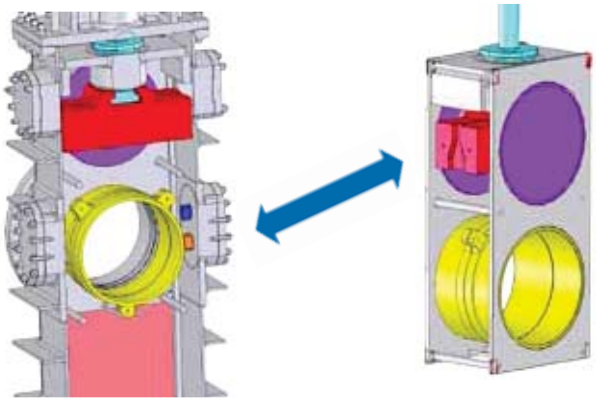
Discs "mechanically"supply required sealing force for tight shut-off

Stellited seats are in constant contact with boronized sleeve preventing solids from entering the body

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 which push the 2 parts of the pipe against the body seats creating a tight seal. This design improvement solves the common problem with other designs having the body cavity filled with coke blocking the discs in half position.

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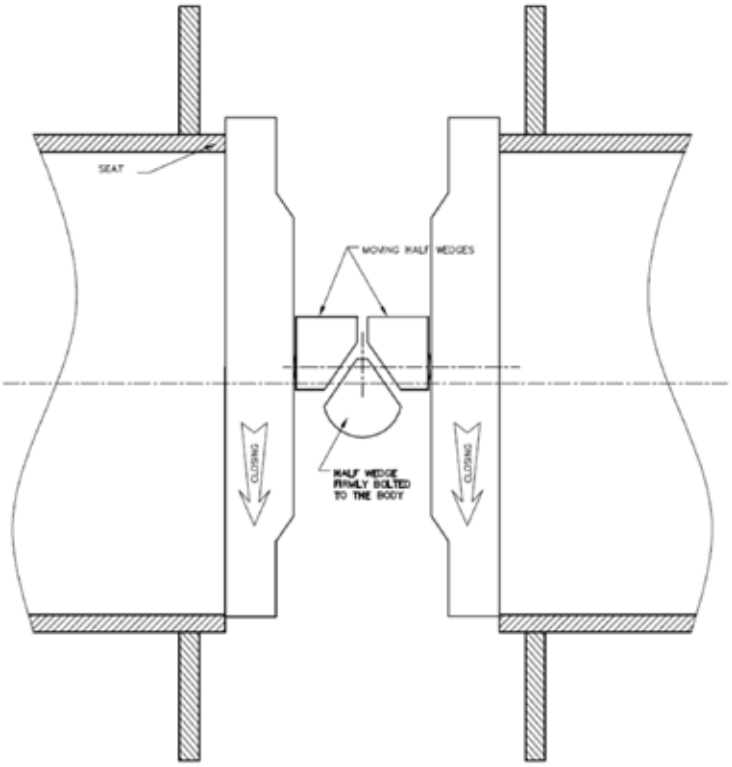
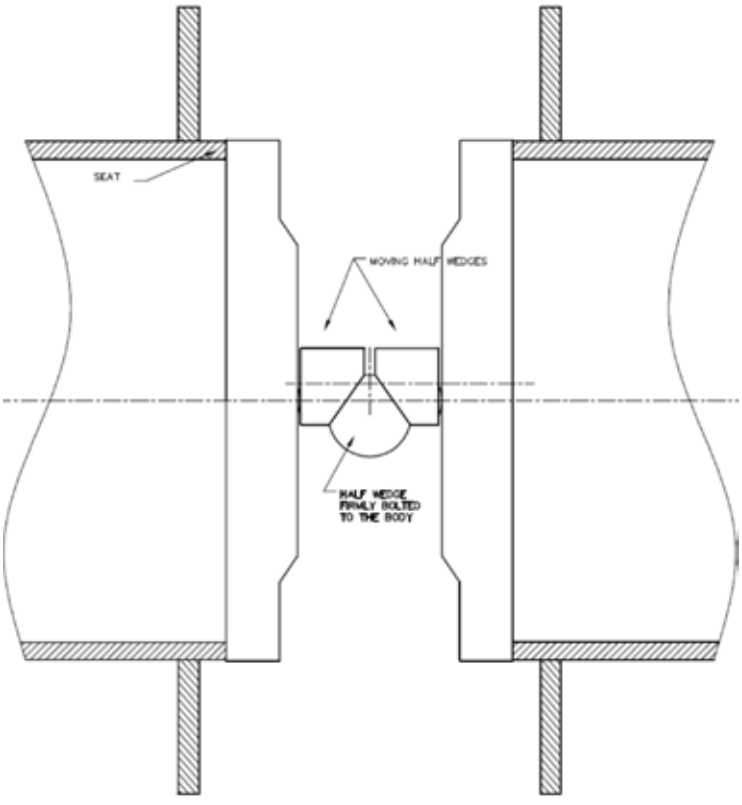
UNITED PROCESS VALVES DOUBLE DISC DESIGN





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UNITED PROCESS VALVES DOUBLE DISC DESIGN TECHNICAL & GENERAL INFORMATION

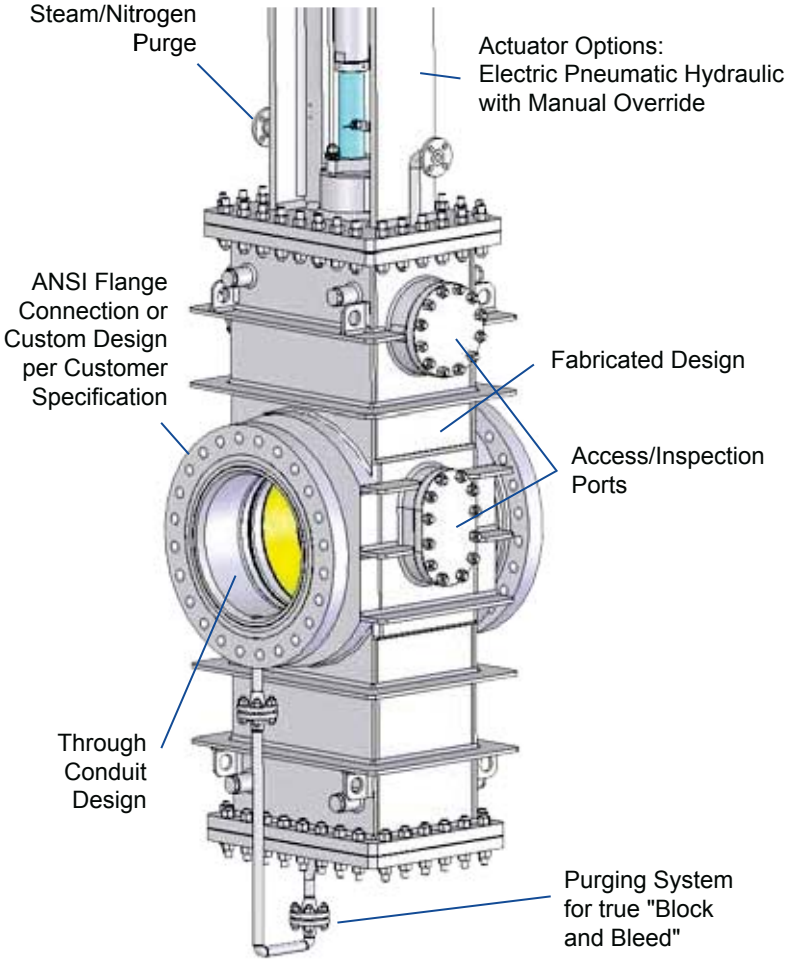
PROCESS MEDIUM

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
⅜" - DIN10							
½" - DIN15							
¾" - DIN20							
1" - DIN25							
1¼" - DIN32							
1½" - DIN40							
2" - DIN50							
2½" - DIN65							
3" - DIN80							
4" - DIN100							
5" - DIN125							
6" - DIN150							
8"- DIN200							
10" - DIN250							
12" - DIN300							
14" - DIN350							
16" - DIN400							
18" - DIN450							
20" - DIN500							
24" - DIN600							
28" - DIN700							
32" - DN800							
36" - DN900							
40" - DN1000							
44" - DN1100							
48" - DN1200							

STRAHMAN DOUBLE DISC DESIGN



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UNITED PROCESS VALVES SINGLE SLAB GATE DESIGN TECHNICAL INFORMATION

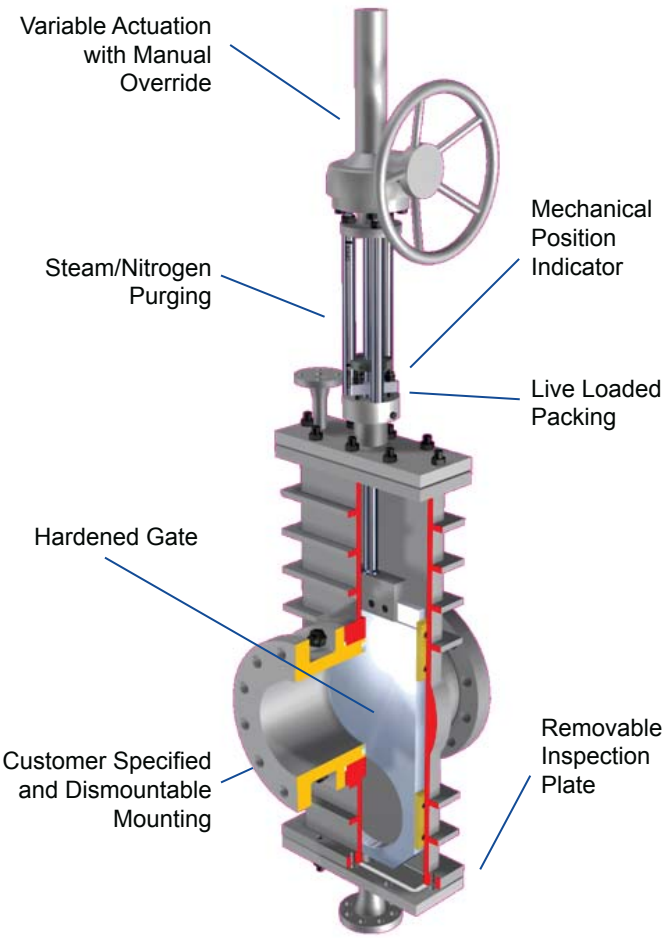
DESIGN FEATURES OF THE STRAHMAN SINGLE DISC DESIGN

- 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

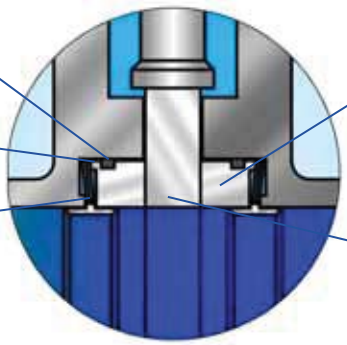
RANGE DEFINITION

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
⅜" - DIN10							
½" - DIN15							
¾" - DIN20							
1" - DIN25							
1¼" - DIN32							
1½" - DIN40							
2" - DIN50							
2½" - DIN65							
3" - DIN80							
4" - DIN100							
5" - DIN125							
6" - DIN150							
8"- DIN200							
10" - DIN250							
12" - DIN300							
14" - DIN350							
16" - DIN400							
18" - DIN450							
20" - DIN500							
24" - DIN600							
28" - DIN700							
32" - DN800							
36" - DN900							
40" - DN1000							
44" - DN1100							
48" - DN1200							

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.

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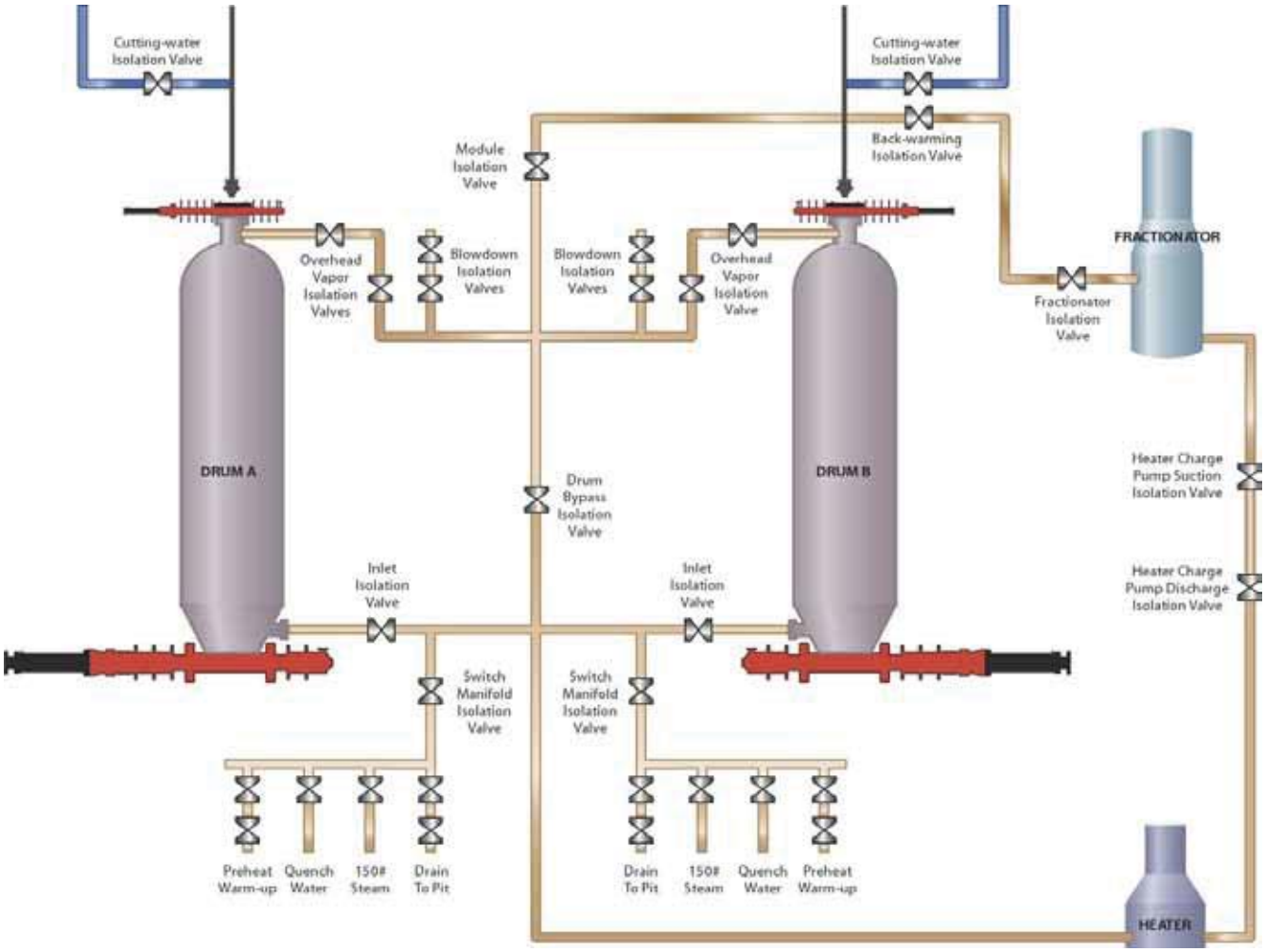
UNITED PROCESS VALVES DOUBLE DISC AND SLAB GATE DESIGNS

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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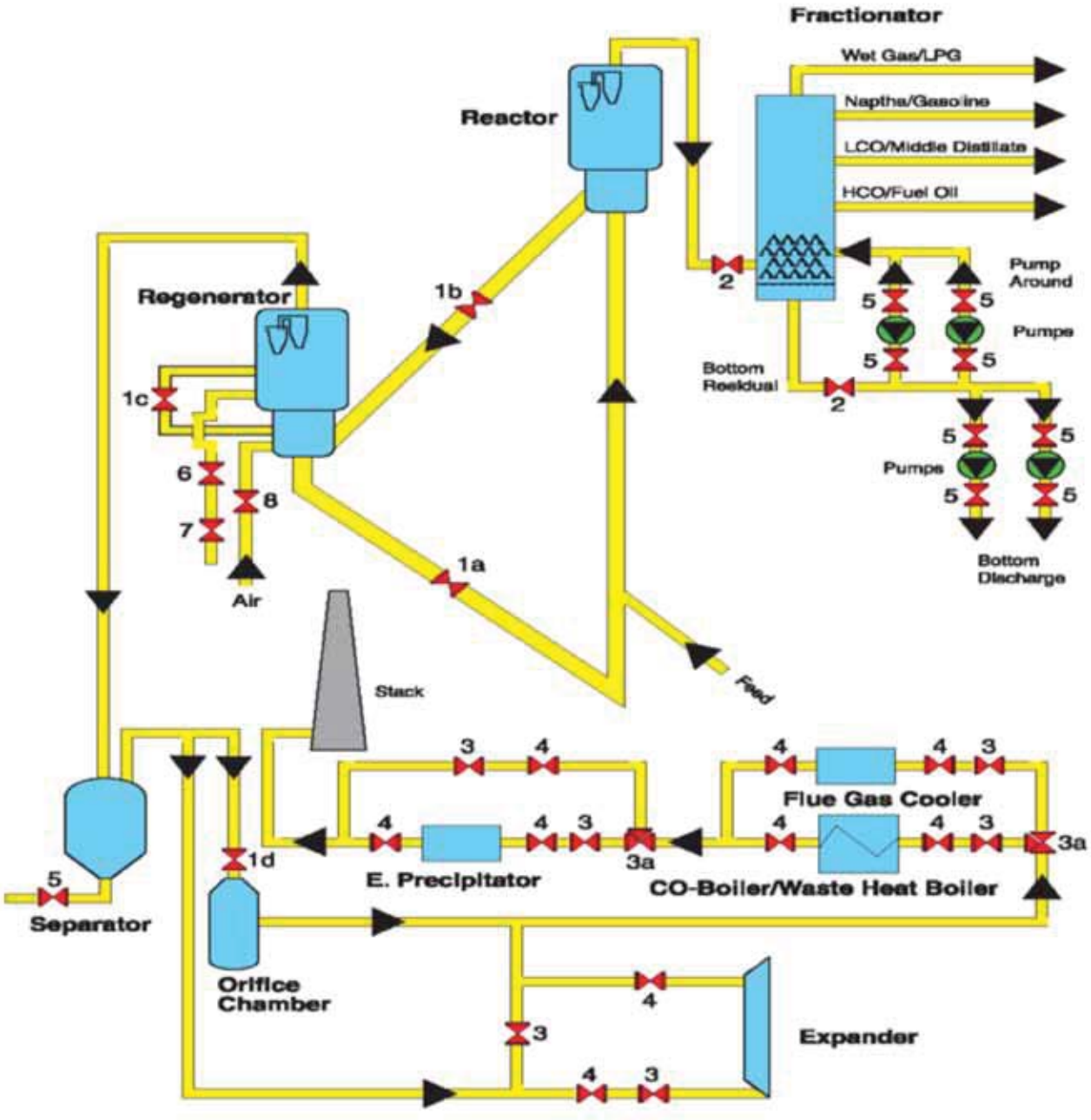
UNITED PROCESS VALVES DOUBLE DISC AND SLAB GATE DESIGNS

THE TYPICAL DESIGN OF THE MODERN FLUID CATALYTIC CONVERTER UNIT



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United Process Valves products include:

PISTON TYPE SAMPLING VALVES

United Process Valves has a full line of sampling valves that produce live samples without exception. Our sampling valves unique design prevents failure caused by sediment or clogging.

PISTON TYPE DRAIN VALVES

United Process Valves Drain Valves are designed to prevent clogging. They are ideal for use in liquid and gas services or with slurries, polymers, and high viscosity fluids that tend to solidify at room temperature.

PISTON & DISC TYPE IN-LINE VALVES

United Process Valves Piston and Disc Type In-Line Valves alternative to a failing ball, plug or gate valve. With a wide range of positive sealing systems like M Seal, M Ring Seal and M Control, these valves provide superior in-line tightness. When opening the piston or disc it retracts completely into the valve body providing an unrestricted full flow

PISTON & DISC TYPE DIVERTER VALVES

United Process Valves Diverter Valves are designed to divert process flows with high and low viscosity. They are dead space free to prevent clogging. They are ideal for use in liquid and gas services or with slurries, polymers, and high viscosity fluids that tend to solidify at room temperature.

SINGLE- & DOUBLE DISC SLAB GATE VALVES

United Process Valves Diverter Valves are designed to divert process flows with high and low viscosity. They are dead space free to prevent clogging. They are ideal for use in liquid and gas services or with slurries, polymers, and high viscosity fluids that tend to solidify at room temperature.

LINE BLINDS

United Process Valves Line Blinds provide zero leakage downstream and total isolation on process pipelines, vessels, and maritime applications. No pipeline movement is required when blind position is changed.

www.unitedprocessvalves.com

United Process Valves, France
136 rue Sommeiller, ZA Savoie Hexapole
F-73420, Mery, France
Tel: + 33 (0) 4 79 35 78 00
E-mail: upvsales@upvalves.com

United Process Valves, German Office
Allerheiligenstrasse 69
D-77855 Achern, Germany
Tel: +49 (0) 170 9766629

Shanghai United Process Valves Co.,Ltd. (UPV China)
Add: Building 1, No. 665 Jinbi Road, Jinhui Town,
Fengxian District, 201404,Shanghai - CHINA
Tel: +86 (0) 21-5713 3539

ISO 9001:2015 BUREAU VERITAS Certification