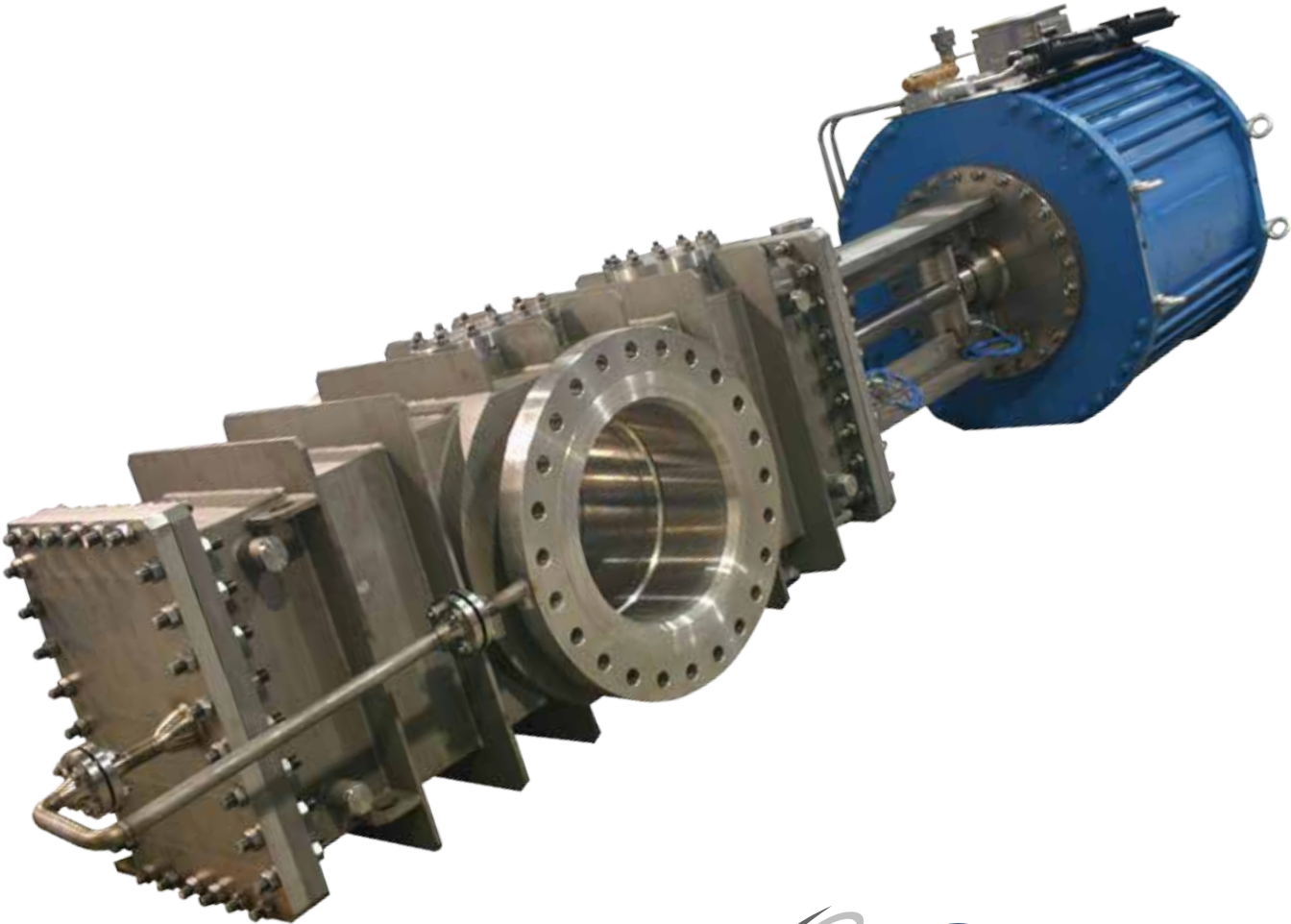
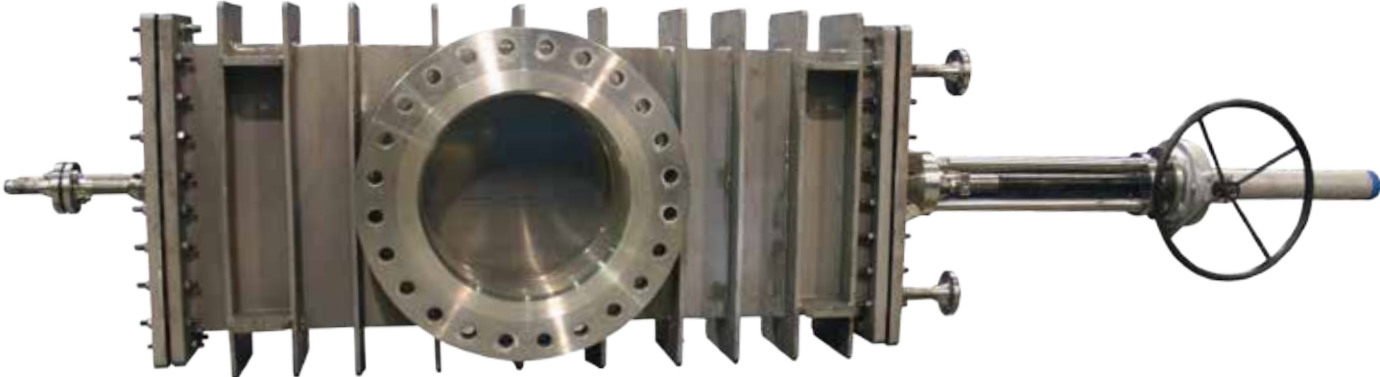


# ISOLATION VALVES FOR CRITICAL APPLICATIONS

## SINGLE AND DOUBLE DISC GATE VALVES



# STRAHMAN VALVES, INC.

## CORPORATE MILESTONES

- Founded in New York in 1921
- Relocated to New Jersey to meet market demands in 1958
- Merged with MG Process, formerly MG Fetterolf, in 2004
- Relocated from New Jersey to current location in Bethlehem, PA in 2006
- Strahman now has a global presence with locations in the USA, France and Germany with sales personnel located around the globe



Strahman Valves, Inc. designs and manufactures a wide range of custom valves for special applications. These applications demand reliable performance where high temperature, large diameters, jacketing, and/or special materials are required. Our solutions include metal-seated single gate slab gate valves, as well as double disc slab gate valves. These valves are primarily used for process isolation in the chemical and petro-chemical industries.

Typical applications include transfer line and decoking valves for ethylene cracking units and isolation applications in FCCU (fluid catalytic cracking unit) and DCU (delayed coker unit) plants. The safety and continuous production of process plants often depend on the reliability of these "key-equipment" valves.

## OUR MANUFACTURING CAPABILITIES

Strahman Valves has been in the manufacturing business for over 90 years, and we have been designing and manufacturing special application gate valves for the last 20 years. Our two full service facilities located in Bethlehem, Pennsylvania and Mery, France are fully capable of performing every part of the manufacturing process in house. This gives us the flexibility to meet our customers' schedules as well as allows us to closely monitor the quality of our products every step of the way.

Strahman's Slab Gate Valves are designed by our experienced US and European engineering staffs using rigid flow analysis calculations. Every valve meets the customer's specific needs, with each design being the optimum solution for an application's unique specifications. Then, Strahman achieves the world's highest product quality through our ISO 2001 manufacturing processes.



**Strahman shop in Bethlehem, Pennsylvania**



**Machining work is performed in our Bethlehem, PA shop. Valves are manufactured to ASME Codes and customer specifications.**

# SINGLE AND DOUBLE DISC GATE VALVES

## TECHNICAL AND GENERAL INFORMATION

### DESIGN CODE & CONSTRUCTION

- Design flexibility due to fabricated construction
- Design according to ASME B16.34 as a standard
- Strahman designs to international standards like: ANSI, DIN, JIS, API etc.
- For product development, Strahman 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
- TUV/HPO/TA Luft

### 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

Strahman 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:** Strahman 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

- Fabricated and cast designs

### TYPICAL APPLICATIONS FOR STRAHMAN 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

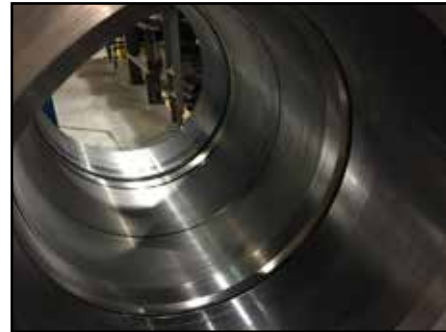
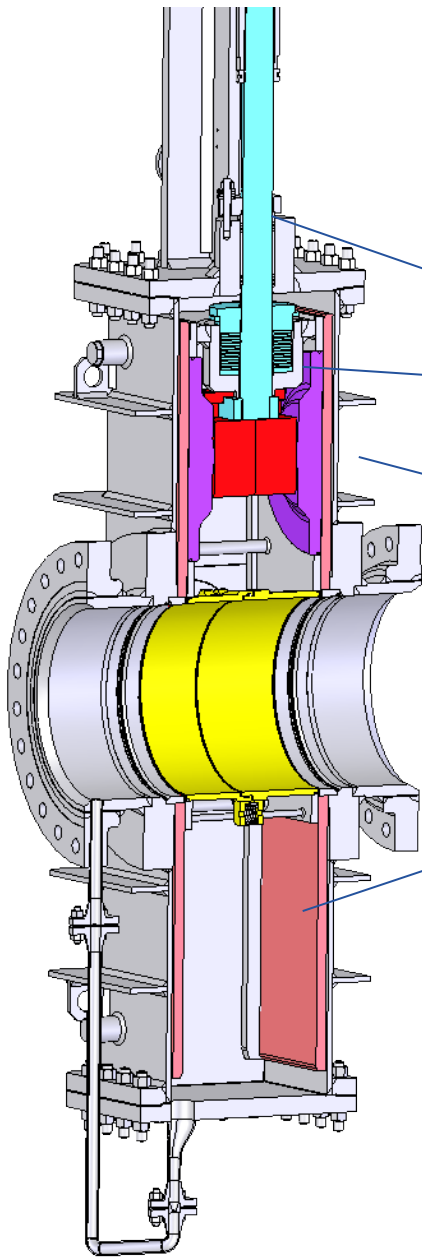
### TYPICAL APPLICATIONS FOR DOUBLE DISC THROUGH CONDUIT VALVES

- 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

# STRAHMAN DOUBLE DISC DESIGN

## DESIGN FEATURES OF THE STRAHMAN 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

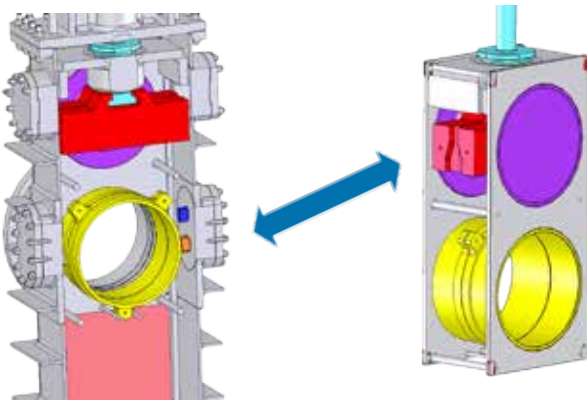


Double Disc Valve  
in FCC Service

## STRAHMAN 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



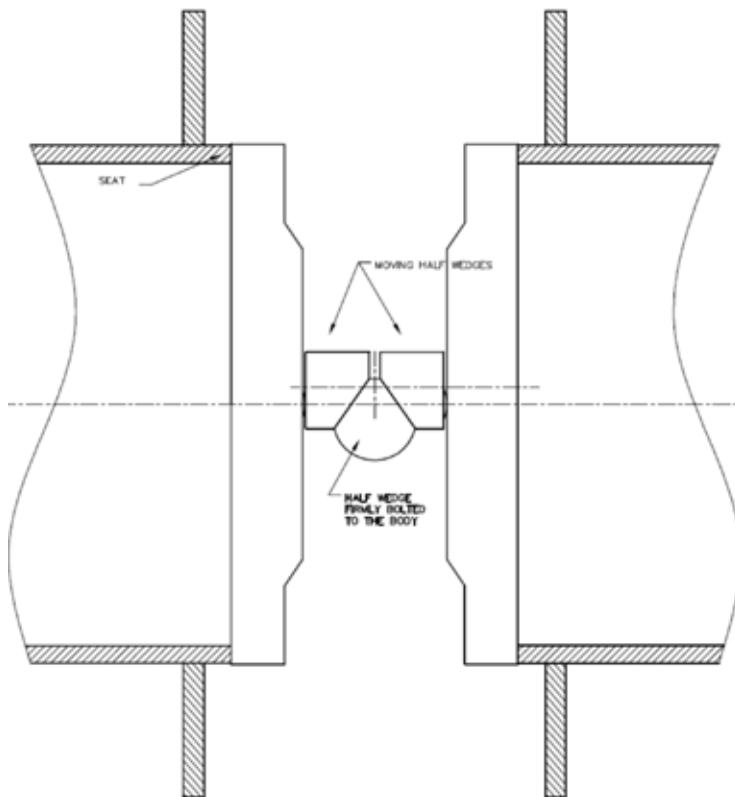
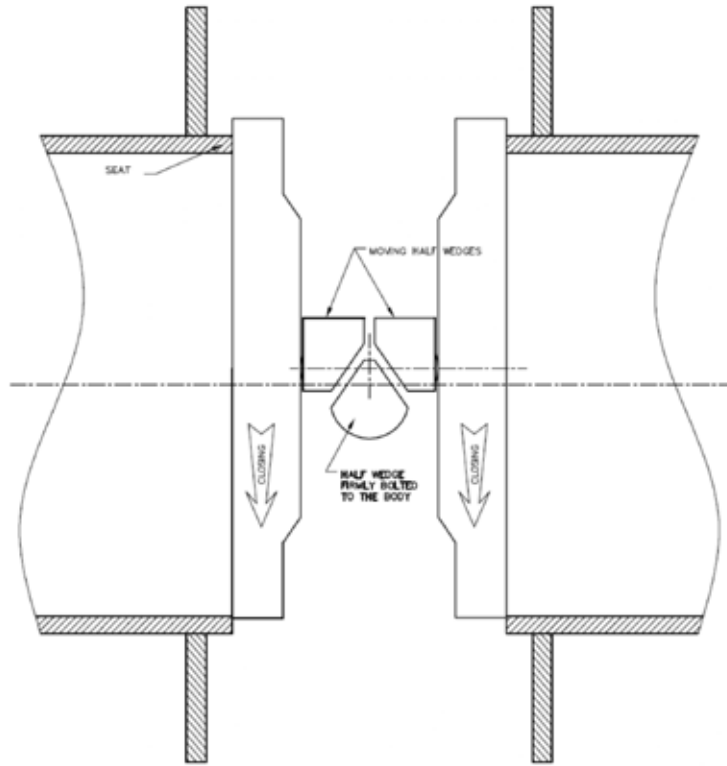
### THE STRAHMAN COMPETITIVE ADVANTAGE

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.

# STRAHMAN DOUBLE DISC DESIGN



# STRAHMAN DOUBLE DISC DESIGN

## PROCESS MEDIUM

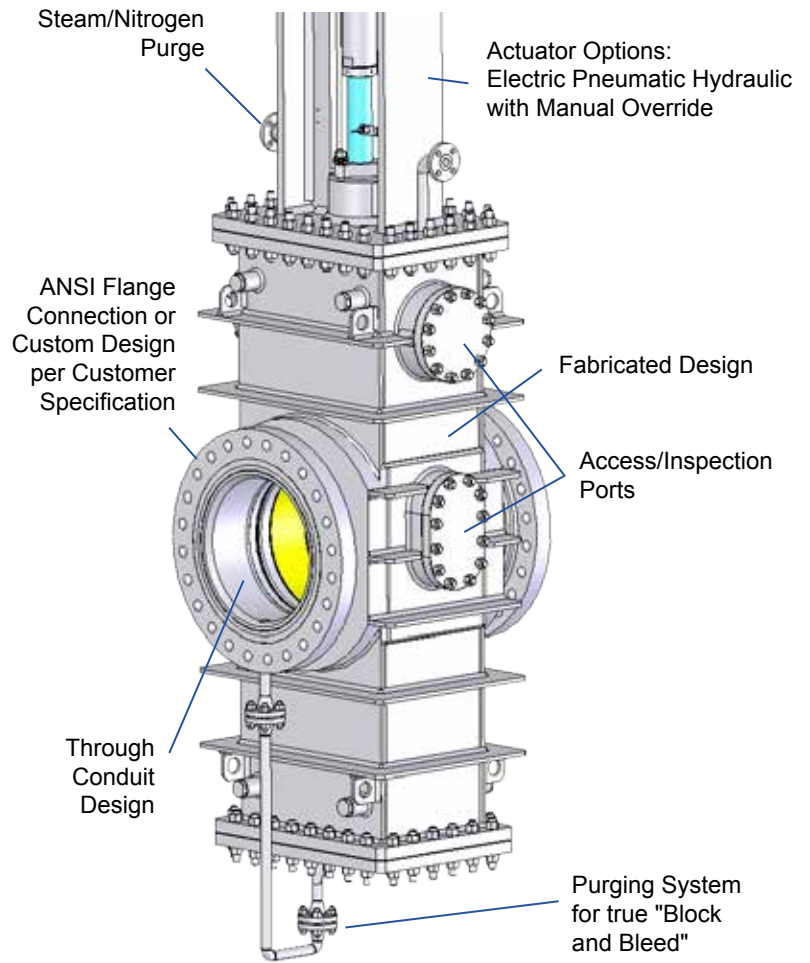
Suitable for Gases and fluids with high solid particle content reaching temperatures of 815°C (1500°F)

### RANGE DEFINITION

Manufacturing Range	PN 10/20 - 150 lbs.	PN 40/50 - 300 lbs.	PN 100-600 lbs.	PN 150/160 - 900 lbs.	PN 250 - 1500 lbs.	PN 420 - 2500 lbs.	PN 630 - 4500 lbs.
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							
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" - DIN600							
32" - DIN600							
36" - DIN600							
40" - DIN600							
44" - DIN600							
48" - DIN600							

Above 48" upon request.

### STRAHMAN DOUBLE DISC DESIGN



# STRAHMAN SINGLE SLAB GATE DESIGN

## TECHNICAL INFORMATION

### DESIGN FEATURES OF THE STRAHMAN SINGLE DISC DESIGN

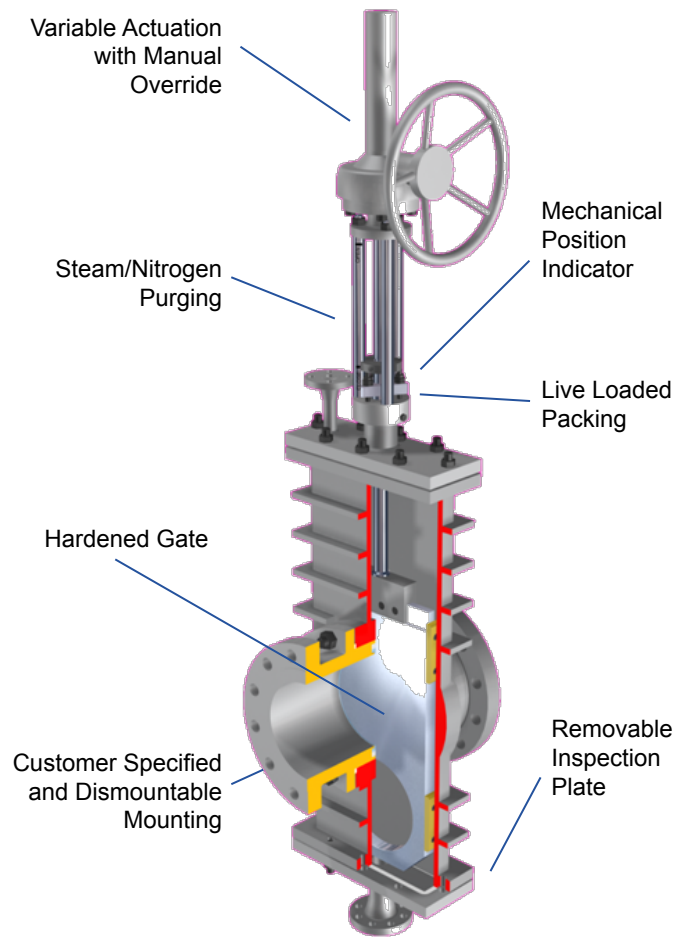
- The gate and seats are in constant contact to keep particles out of the valve body
- Steam purged for 100% positive shut off
- Capable of remote operation for complete personnel safety
- Low maintenance design for uninterrupted operations between turnarounds
- Can be electric, hydraulic, or even pneumatically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

### RANGE DEFINITION

Manufacturing Range	PN 10/20 - 150 lbs.	PN 40/50 - 300 lbs.	PN 100-600 lbs.	PN 150/160 - 900 lbs.	PN 250 - 1500 lbs.	PN 420 - 2500 lbs.	PN 630 - 4500 lbs.
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24" - DIN600							
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32" - DIN600							
36" - DIN600							
40" - DIN600							
44" - DIN600							
48" - DIN600							

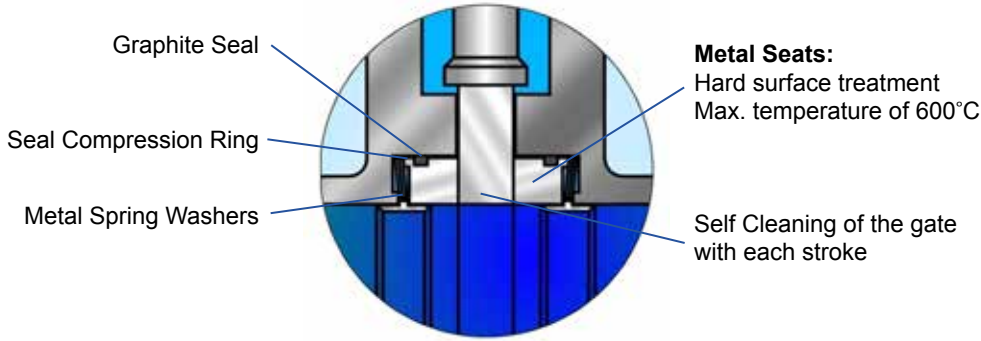
Above 48" upon request.

### STRAHMAN SINGLE DISC DESIGN

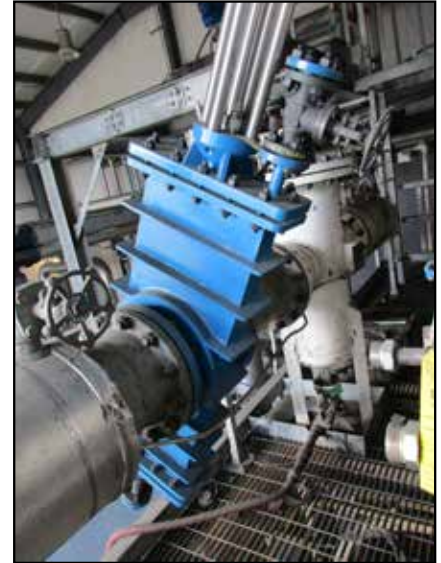




# STRAHMAN SINGLE SLAB GATE DESIGN



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



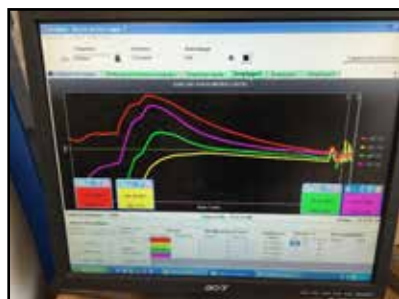
## THE STRAHMAN COMPETITIVE ADVANTAGE

The Strahman 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.



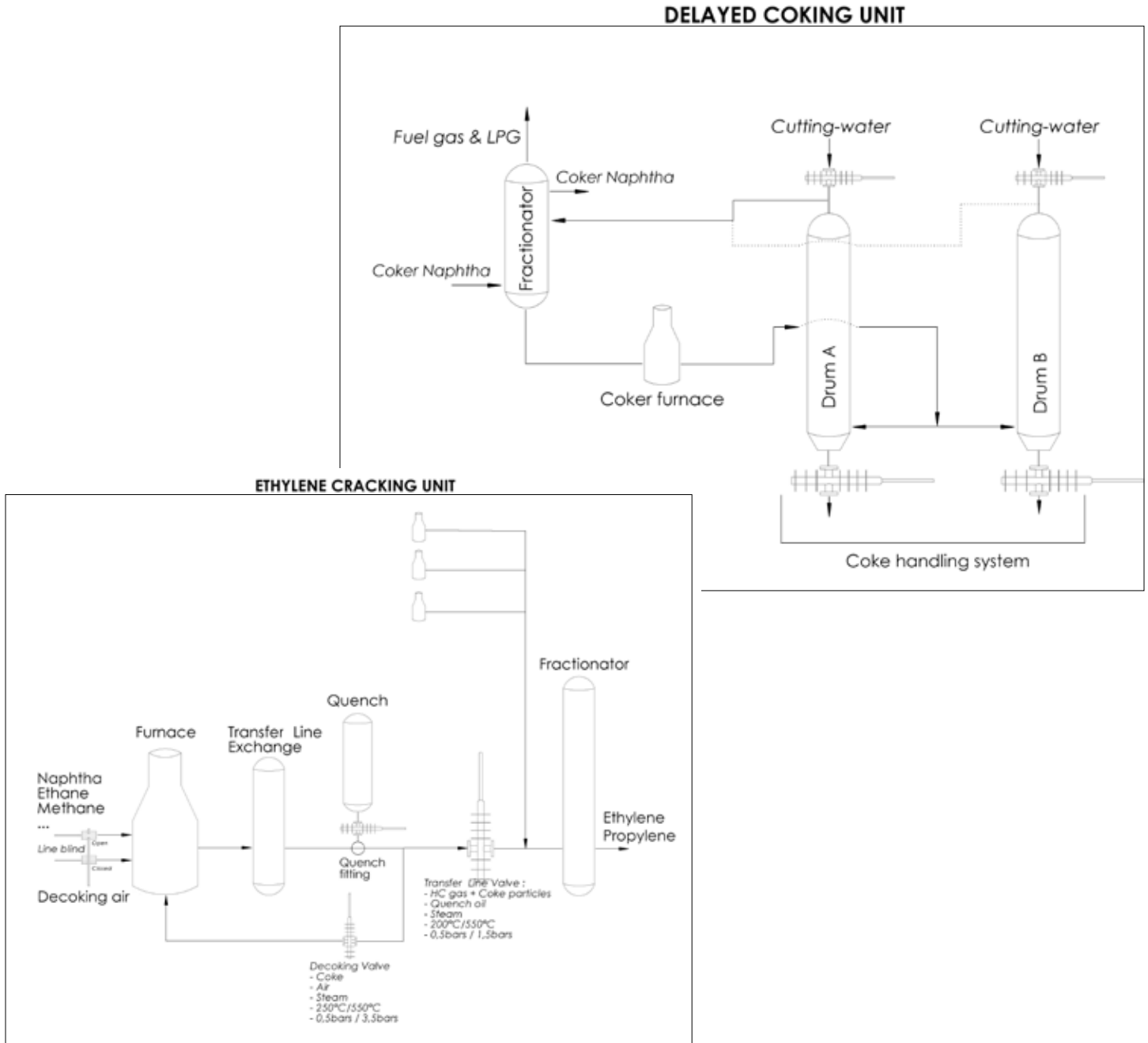
## THE STRAHMAN FLEXIBILITY OF DESIGN

Strahman understands there are needs for custom designs to fit in custom applications. One of our customers had a very short end to end requirement for a 36" isolation valve application so our engineering team designed a rack and pinion style slab gate with gear boxes above bonnet to fit 45 pieces of these in a tight circular configuration. This particular valve was also successfully cryo-tested for operation at subzero temperature of -85°C (-121°F).



# STRAHMAN DOUBLE DISC AND SLAB GATE DESIGNS

## THE TYPICAL DESIGN OF THE MODERN DELAYED COKING UNIT



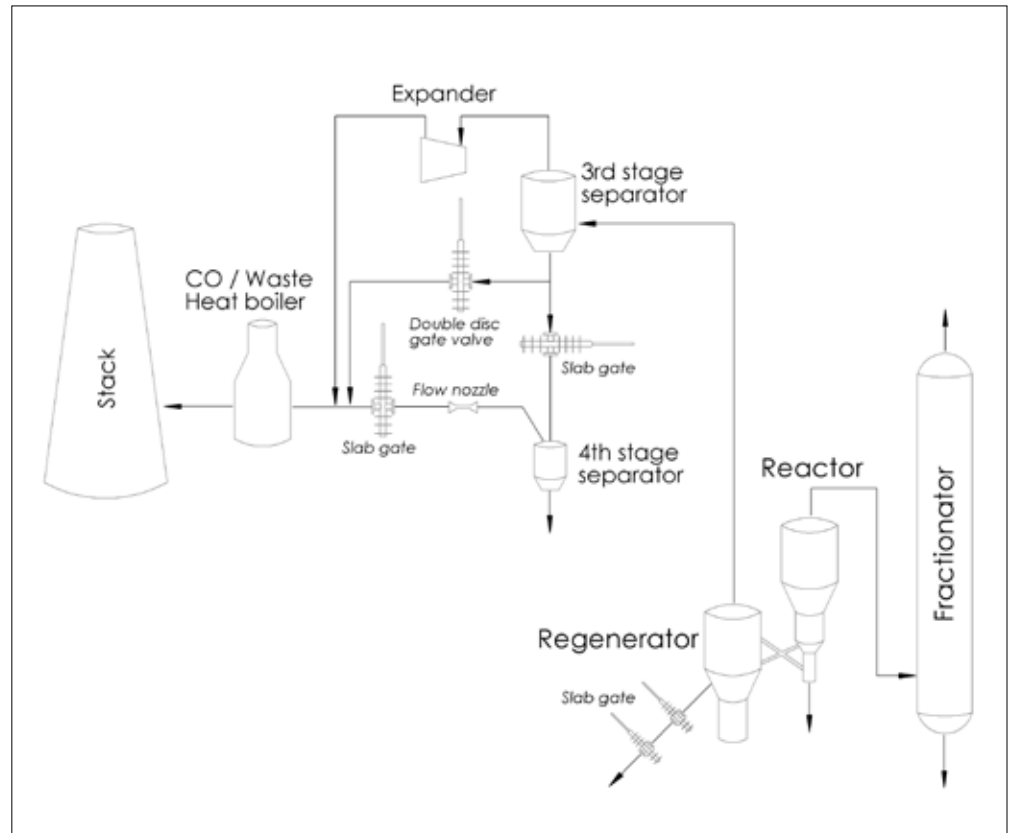
### DOUBLE DISC AND SLAB GATE REFINERY APPLICATIONS INCLUDE:

- 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

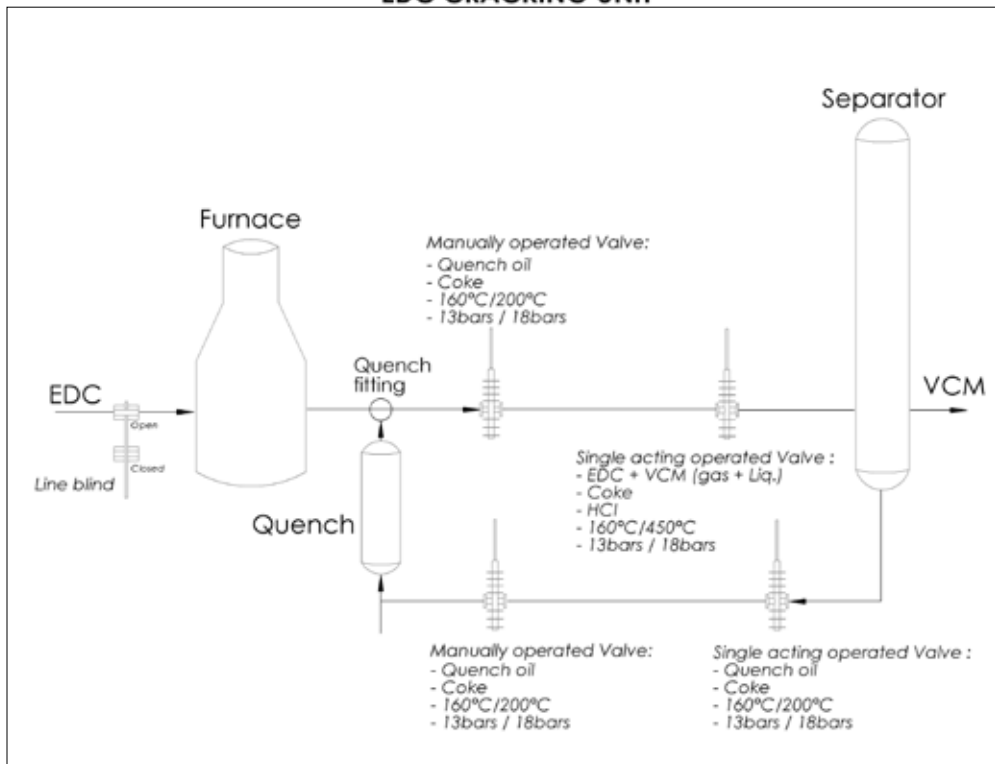
# STRAHMAN DOUBLE DISC AND SLAB GATE DESIGNS

THE TYPICAL DESIGN OF THE MODERN FLUID CATALYTIC CONVERTER UNIT

## FLUID CATALYTIC CRACKING UNIT



## EDC CRACKING UNIT



## The Strahman family of products include:

### SAMPLING VALVES

Strahman has a full line of sampling valves that produce live samples without exception. Our sampling valves unique designs prevent failure caused by sediment or clogging.

### DRAIN VALVES

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

### LINE BLINDS

Strahman Line Blinds provide zero leakage down stream and total isolation on process pipelines, vessels and maritime applications. No pipeline movement is required when blind position is changed.

### AUTOMATED VALVES & FIRE SAFE PRODUCTS

Strahman automated valve packages with floating ball valves and resilient seated butterfly valves come complete with electric or pneumatic actuators for a wide array of industrial applications. Additionally, a full suite of API 607 fire safe valve products are offered as actuated units or to be used in conjunction with our FM approved thermal shut-off assemblies. Resettable Emergency Block Valves (R-EBV) are also available for the oil & gas and chemical industries.

### WASH DOWN EQUIPMENT

Strahman offers a full line of mixing units, hose stations, hoses, nozzles and wash down accessories. Our wash down line is designed for industrial use and is used in a wide variety of industries including food, beverage, pharmaceutical, chemical and other applications.

Please contact your local Strahman representative for further details or visit our website: [www.strahmanvalves.com](http://www.strahmanvalves.com)



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ISO 9001  
QMI-SAI Global

Last Updated: October, 2015