

# FLOWSEAL<sup>MS</sup>

brands you trust.



FLOWSEAL<sup>®</sup> MS - Triple Offset Valves

**CRANE**<sup>®</sup>

[www.cranecpe.com](http://www.cranecpe.com)

## Key Features



**Proven triple offset design for a variety of applications requiring zero leakage\* performance. This design offers quality and reliability with superior customer service and support.**

## Key Features

- 1 Metal seated, triple offset design provides bi-directional zero leakage\* shutoff
- 2 Self-centering disc prevents binding due to thermal shaft expansion
- 3 Clamped seal ring with flat gasket provides even compression and consistent sealing performance
- 4 Supported shaft prevents shaft deflection and seal leakage
- 5 Inherently fire-safe design

\*Zero Leakage - in accordance with the following standards: API 598 (Soft Seat), API 6D (Soft Seat), FCI 70-2 Class VI.

## Overview & Applications



### Overview

<b>Size:</b>	DN 80 - 600 NPS 3" to 24"
<b>Class:</b>	PN 10-40 Class 150-300
<b>Materials:</b>	Carbon steel Stainless steel High alloys
<b>Body Types:</b>	Lug Double Flange
<b>Temperature Range:</b>	-120°C to +550°C -184°F to +1000°F
<b>Fire-Safe tested:</b>	acc. API 607 Rev. 4

### Applications

#### Refineries

Crude oil / Product tank storage  
Crude unit  
Dock / Marine  
FC Cracking unit  
Hydro-treating  
Hydrogen plant  
Isomerization  
Product blending & loading rack  
Reforming  
Steam systems  
Vacuum unit  
Visbreaker

#### Chemical Plants

Process  
Utilities

#### Power Industry

District heating  
Steam and water applications

#### Offshore/Onshore

Gas and oil storage tanks  
Petrochemicals  
Process in treatment and purification plants  
Process on platforms  
Tank Farms

#### Pulp and Paper

Reduction process  
Steam applications  
Water applications

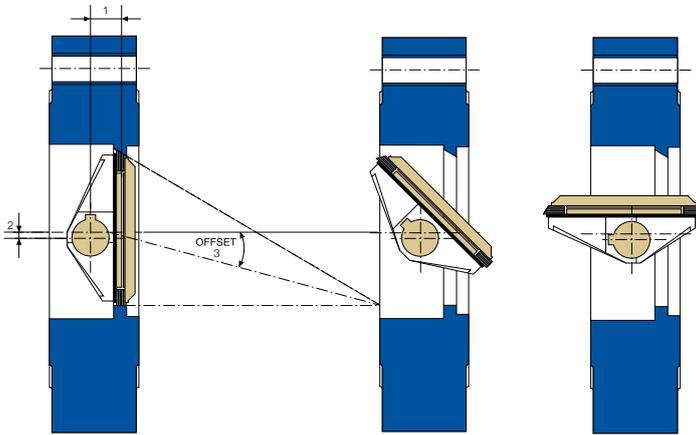
#### Steel Mills

Hot gas and steam applications

#### Water Industry

Desalination  
Water  
Water treatment  
Waste water

## Triple Offset Design



As the name implies, there are three separate offsets designed into the valve. Two of the offsets apply to the location of the shaft with respect to the center line of the bore and the center line of the disc/seat sealing surfaces.

The third offset in the design is the axis of the seat cone angle that is inclined from the center line of the valve bore to minimize rubbing of the seat/seal contact surfaces during operation and to preserve sealing integrity over the cycle life of the valve. This wide angle seat also eliminates wedging or binding of the disc.

The Flowseal MS features unique designs in the disc /shaft engagement and in the precision-machined seat and seal ring of identical eccentric shape. These features, combined with the eccentric movement, provide longer cycle life, lower operating torque, and increased temperature capability. Additionally, the torque-seated resilient metal seal ring assures consistent bi-directional zero leakage\* performance.

## A Superior Solution to Gates and Globes

**In comparison to gate and globe valves, Flowseal Metal Seated TOV provides users with the following benefits:**

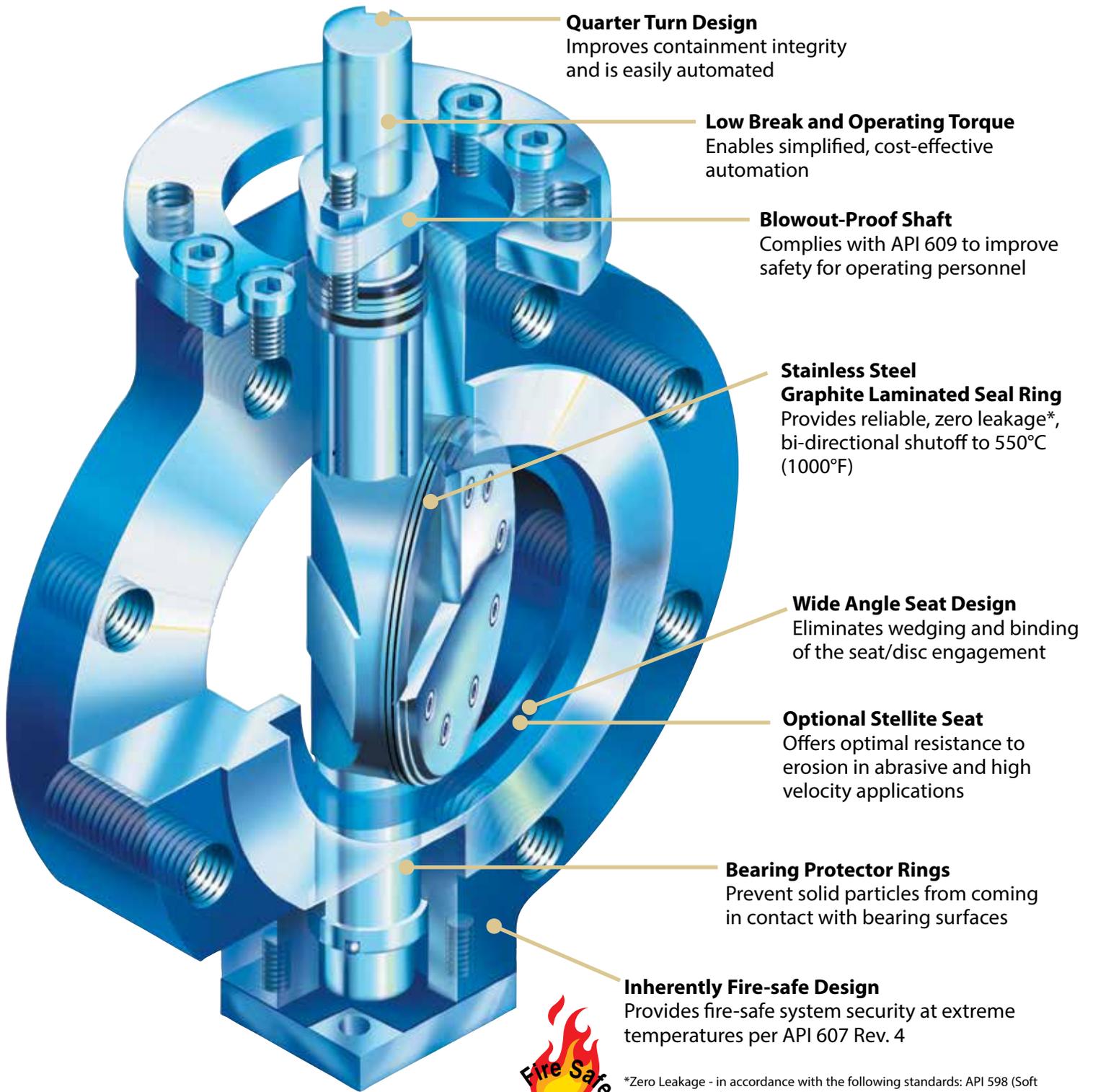
- 1 Exceptional flow control, high Kv (Cv), and low Delta P in a single valve
- 2 Zero leakage\* capability that results in enhanced performance and safety
- 3 Longer in-service life leading to lower costs of maintenance and replacement
- 4 Replaceable seal ring which allows for quick, easy repair
- 5 Lower operating torque and quarter-turn design requiring minimal actuation
- 6 Smaller, lighter valve resulting in lower shipping, handling, and installation costs



\*Zero Leakage - in accordance with the following standards: API 598 (Soft Seat), API 6D (Soft Seat), FCI 70-2 Class VI.

## Key Design Features

### Key Design Features



**Quarter Turn Design**  
Improves containment integrity and is easily automated

**Low Break and Operating Torque**  
Enables simplified, cost-effective automation

**Blowout-Proof Shaft**  
Complies with API 609 to improve safety for operating personnel

**Stainless Steel Graphite Laminated Seal Ring**  
Provides reliable, zero leakage\*, bi-directional shutoff to 550°C (1000°F)

**Wide Angle Seat Design**  
Eliminates wedging and binding of the seat/disc engagement

**Optional Stellite Seat**  
Offers optimal resistance to erosion in abrasive and high velocity applications

**Bearing Protector Rings**  
Prevent solid particles from coming in contact with bearing surfaces

**Inherently Fire-safe Design**  
Provides fire-safe system security at extreme temperatures per API 607 Rev. 4



\*Zero Leakage - in accordance with the following standards: API 598 (Soft Seat), API 6D (Soft Seat), FCI 70-2 Class VI.

## Product Range

Flowseal MS product range offers three face-to-face dimension options which gives both cost savings and greater flexibility in piping design or retrofit opportunities.

- **Lug Design**  
**Flanges acc. to DIN EN 10290-1 / ASME 16.5**  
**Face to face acc. DIN EN 558-1 series 16 / API 609 table 3 category B / ASME B16.10**  
 Interchangeable with most butterfly valves
  
- **Flanged Design - Short Pattern**  
**Flanges acc. to DIN EN 10290-1 / ASME 16.5**  
**Face to face acc. DIN EN 558-1 series 13 / API 609 table 3 category B / ASME B16.10**  
 Most common face-to-face dimensions for triple-offset rotary valves



### Lug Pattern

EN 558-1	API 609/ ASME B16.10
DN 80 to 600 - PN 10 - 40	3" to 24" - class 150/300
DN 80 to 400 - PN 63 - 100	3" to 16" - class 600
DIN EN 10920-1	ASME B16.5

*Other sizes available upon request.*

### Flanged Design Short Pattern

EN 558-1	API 609/ ASME B16.10
DN 80 to 600 - PN 10 - 40	3" to 24" - class 150/300
DN 80 to 400 - PN 63 - 100	3" to 16" - class 600
DIN EN 10920-1	ASME B16.5

*Other sizes available upon request.*

## Product Standards & Cryogenic Valves

Design:	EN593 ASME B16.34 ASME SEC VIII ASME B31.1 and B31.3 API 609
Face to Face Dimensions:	EN558-1 Series 16 EN558-1 Series 13 API 609 ASME B16.10
Flange Dimensions:	EN / DIN Std. acc. EN1092-1 ASME B16.5 ISO 7005
Testing:	DIN 3230 leakage rate 1BS 6755 leakage rate AAPI 598ANSI/ FCI 70-2 class VI
Fire Testing:	API 607 Rev. 4
Marking:	MSS SP-25 EN19
Quality Assurance:	ISO 9001 PED
TA- Luft Certificate:	Assessment of the equivalence of the spindle seal by means of packing gland against a bellows-type sealing and downstream safety

## Cryogenic (Low Temperature) Valves

- For fluid temperatures below -60°C to -120°C (-76°F to -184°F)
- Body stainless steel
- Disc stainless steel
- Shaft AISI Type 660 SS/1.4980
- Low temperature extension:
  - Prevents ice from forming at the top of the shaft
  - Isolates and insulates the stuffing box



- Length of the extension:

DN	80	100	125	150	200	250	300	350	400	450	500	600
H (mm)	250	300	300	300	300	300	350	450	450	450	450	450

NPS	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
H (inch)	3	3	3	3	4	4	4	5	6	6	6	7

Maximum: -120°C (-184°F) at max. 25% of nominal pressure.



# FLOWSEAL<sup>MS</sup>

Crane ChemPharma & Energy

Crane Energy Global Headquarters  
4526 Research Forest Drive, Suite 400  
The Woodlands, Texas 77381 U.S.A.  
Tel.: +1 936-271-6500  
Fax.: +1 936-271-6510

Flowseal MS Customer Service  
Marburger Straße 364  
57223 Kreuztal, Germany  
Tel.: +49 2732/520-00  
Fax.: +49 2732/520-100

[www.cranecpe.com](http://www.cranecpe.com)

**CRANE**<sup>®</sup>



**COMPAC-NOZ**<sup>®</sup>

**CRANE**<sup>®</sup>

**DEPA**<sup>®</sup>

**ELRO**<sup>®</sup> **DUO-CHEK**<sup>®</sup>



**FK**<sup>®</sup>  
**KROMBACH**  
ARMATUREN

**NOZ-CHEK**<sup>®</sup>



**RESISTOFLEX**<sup>®</sup>



**Saunders**<sup>®</sup>  
the science inside

**STOCKHAM**<sup>®</sup>



**UNI-CHEK**<sup>®</sup>

**w.ta.**<sup>®</sup>

**XOMOX**<sup>®</sup>

Crane Co. and its subsidiaries cannot accept responsibility for possible errors in catalogues, brochures, other printed materials, and website information. Crane Co. reserves the right to alter its products without notice, including products already on order provided that such alteration can be made without changes being necessary in specifications already agreed. All trademarks in this material are property of the Crane Co. or its subsidiaries. The Crane and Crane brands logotype, in alphabetical order, (ALOYCO<sup>®</sup>, CENTER LINE<sup>®</sup>, COMPAC-NOZ<sup>®</sup>, CRANE<sup>®</sup>, DEPA<sup>®</sup>, DUO-CHEK<sup>®</sup>, ELRO<sup>®</sup>, FLOWSEAL<sup>®</sup>, JENKINS<sup>®</sup>, KROMBACH<sup>®</sup>, NOZ-CHEK<sup>®</sup>, PACIFIC VALVES<sup>®</sup>, RESISTOFLEX<sup>®</sup>, REVO<sup>®</sup>, SAUNDERS<sup>®</sup>, STOCKHAM<sup>®</sup>, TRIANGLE<sup>®</sup>, UNI-CHEK<sup>®</sup>, WTA<sup>®</sup>, and XOMOX<sup>®</sup>) are registered trademarks of Crane Co. All rights reserved.