

# FLOWSEAL<sup>MS</sup>

brands you trust.



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

**CRANE**<sup>®</sup>

Energy Flow Solutions

[www.craneenergy.com](http://www.craneenergy.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>	3" to 24"
<b>Class:</b>	150-600
<b>Materials:</b>	Carbon steel Stainless steel High alloys
<b>Body Types:</b>	Lug Double Flange - Short Pattern Double Flange - Long Pattern
<b>Temperature Range:</b>	-320°F to +1000°F
<b>Fire Tested:</b>	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

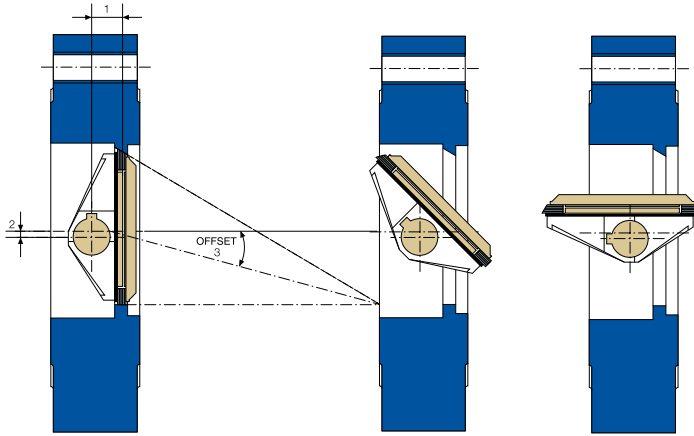
#### Steel Mills

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:**

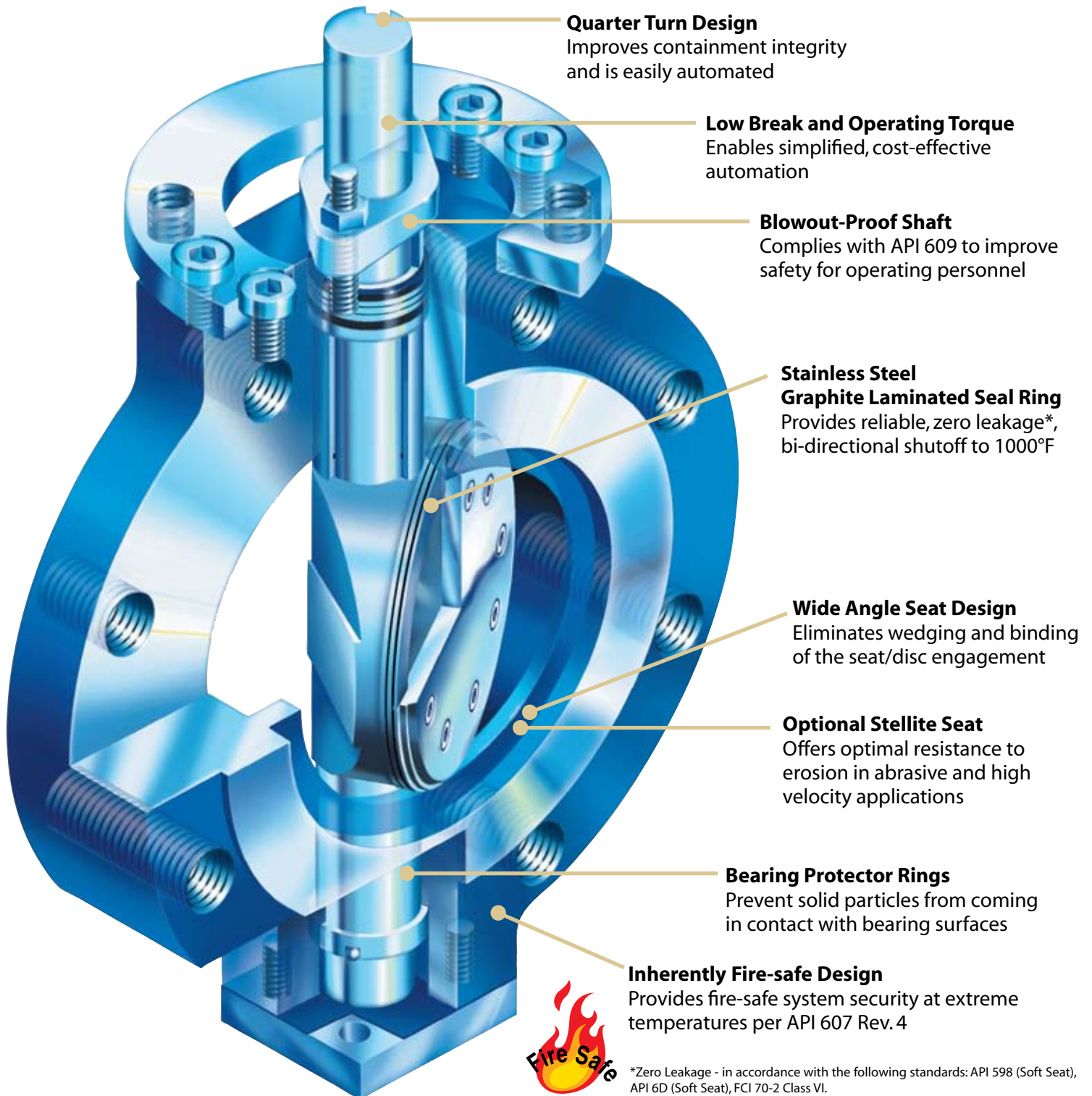
- 1 Exceptional flow control, high Cv, and low Delta P in a single valve
- 2 Zero leakage\* capability that results in enhanced performance and safety
- 3 Longer in-service life leading to lower costs of maintenance and replacement
- 4 Replaceable seal ring which allows for quick, easy repair
- 5 Lower 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 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



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## 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 - API 609**  
Interchangeable with most butterfly valves
- **Flanged Design - Short Pattern - ISO 5752**  
Most common face-to-face dimensions for triple-offset rotary valves
- **Flanged Design - Long Pattern - ASME B16.10**  
Direct replacement of gate valves and ball valves without piping modifications



**Lug Pattern**

API 609  
Table 2  
3" to 24" - 150/300 Class  
3" to 16" - 600 Class

*Other sizes available on request.*



**Double Flange  
Short Pattern**

ISO 5752  
Table 4 Short  
3" to 24"  
150/300 Class

*Other sizes available on request.*



**Double Flange  
Long Pattern**

ASME B16.10  
Tables 1 & 2 (Gate)  
4" to 12"  
150/300 Class

*Other sizes available on request.*

## Product Standards & Cryogenic Valves

**Design:** ASME B16.34  
ASME SEC VIII  
ASME B31.1 and B31.3  
API 609

**Face to Face Dimensions:** ASME B16.10  
ISO 5752  
API 609

**Flange Dimensions:** ASME B16.5  
ISO 7005

**Testing:** API 598 (Soft Seat)  
API 6D (Soft Seat)  
FCI 70-2 Class VI  
TA-Luft acc. VDI 2440

**Fire Testing:** API 607 Rev. 4

**Marking:** MSS SP-25  
EN 19

**Quality Assurance:** ISO 9001  
PED



## Cryogenic (Low Temperature) Valves



- For fluid temperatures below -76°F to -328°F
- Stainless steel body
- Stainless steel disc
- AISI Type 660 shaft
- Low temperature extension:
  - Prevents ice from forming at the top of the shaft
  - Isolates and insulates the stuffing box
- Length of the extension:

Inch	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
H	← 11.8 in →						← 19.7 in →					

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**NUCLEAR**

**VALVE SERVICES**

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