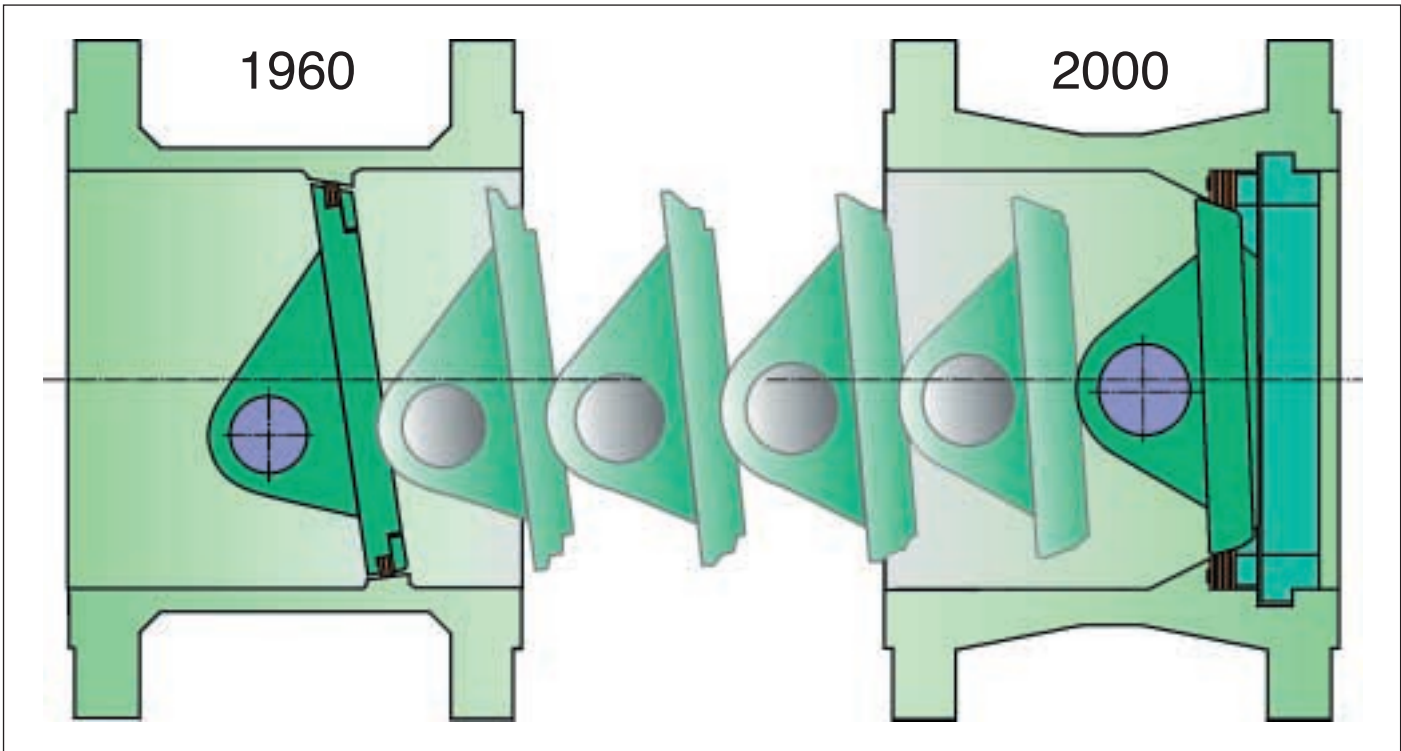




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**Rotary Tight Shut-Off Valves**

# Development of Rotary Valve Technology



created the Inclined Conical Sealing System and remains the leader in Rotary Tight Shut-Off Valve Technology

valves, designed for critical requirements, have proven their reliability and efficiency since 1960 in a wide range of applications throughout the world.

The manufacturing range includes sizes from 80 mm / 3 inches to 3600 mm / 144 inches, operating temperatures from -196°C / -320°F to 950°C / 1742°F, and pressure ratings up to 400bar / 6000 psi.

valves are designed to comply with accepted international standards: ANSI, API, ASME, MSS, DIN/EN/ISO, BS, AFNOR, GOST, etc.

A variety of materials allow tailored construction and complete adaptability to meet customers' requirements.



# Rotary Tight Shut-Off Valve

Rotary valve technology, with metal-to-metal torque seating, offers exceptional performance, durability and reliability. Our valves have proven their longevity in the most critical applications, under extreme working conditions and millions of cycles.

When comparing to gate, plug, ball or position seated conventional butterfly valves, you will discover the “low cost of ownership” benefits over the life of your system.



## Technical Features

- Metal-to-Metal Torque Seating
- Symmetrical Seal Ring in Body
- Triple eccentric Sealing
- Flanged or Butt-Weld Construction
- Body Length to: DIN EN 558 and ISO 5752 Series 13 + 14, ASME B 16.10, API 609
- Inherently Fire-Safe
- Low Fugitive Emissions
- German “TA-Luft”-Specification
- Compact Size / Low Weight
- Save Piping Space
- Reduced Piping Loads
- Reduced Installation Cost
- Stable Control Characteristics
- Replaceable internal parts
- Bi-Directional
- Zero Leakage

## Design

### Nominal Diameters:

80 mm / 3 inches to 2000 mm / 80 inches

### Temperature Range:

#### Laminated Seal:

-196°C / -320°F to 500°C / 932°F

#### L2 Seal:

-46°C / -50°F to 600°C / 1112°F

#### Solid Seal:

-46°C / -50°F to 600°C / 1112°F

### Pressure Class:

ASME 150/300/600/(900 on special request)

PN 10/16/25/40/64/100

### Actuator Options:

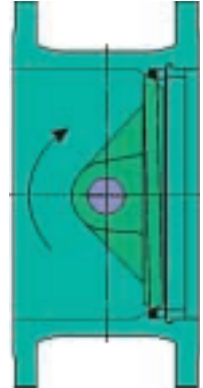
Manual Gear, Pneumatic, Electric, Hydraulic



# Sealing System

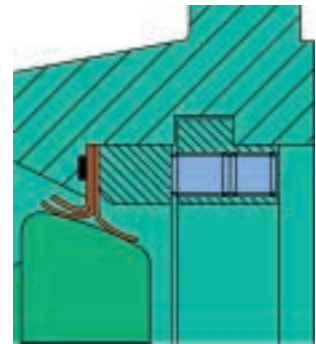
Due to the **Unique Seat Geometry**, the disc moves without any jamming even at High Temperature Differentials and under Full Rated Pressure.

In the closed position, **torque applied to the shaft is transferred by keyed- or splined-connection to the disc** which is firmly pressed against the seal ring.



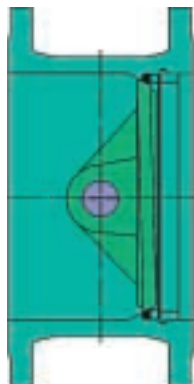
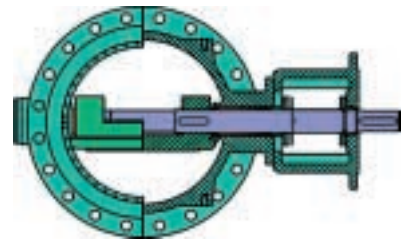
With the **laminated seal ring** held statically in place, **no flexing or movement** occurs. This rugged system produces high sealing loads, **without rubbing**, assuring the most dependable **zero-leakage** shut-off in critical applications.

Utilizing a pure metallic, pressure assisted sealing system, the patented **L2 design** provides **class VI** shut-off, while reducing the operating valve torque.



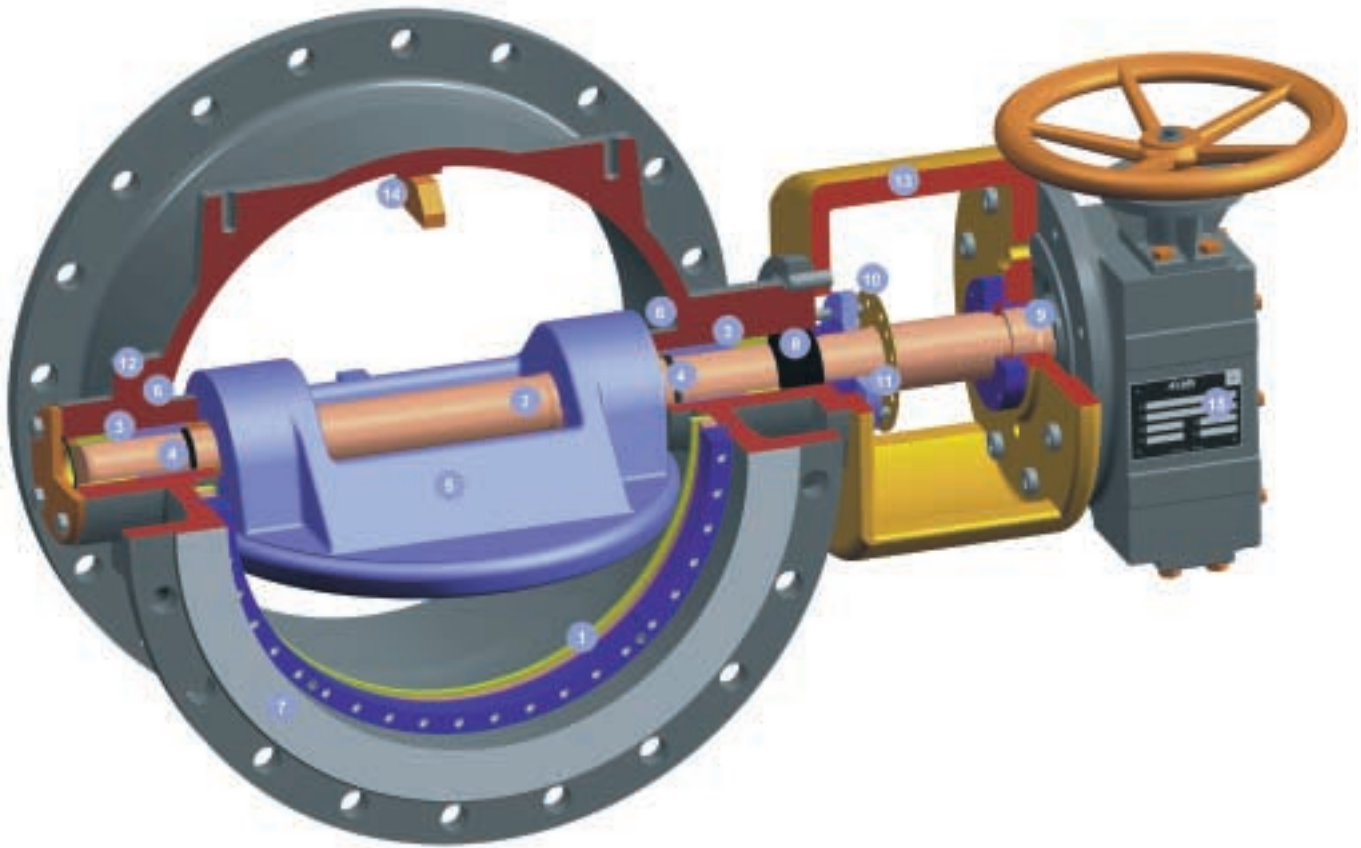
A **solid metal sealing ring** provides positive shut-off capability at **high temperatures** and with **abrasive media**.

With no contact between seal and disc throughout the travel, the valve is now in the full open position. The MAK shaft is supported by **extremely robust and highly engineered bearings** which provide a long trouble-free life. An important aspect of the MAK's rotary motion and packing is the control of **fugitive emissions**.

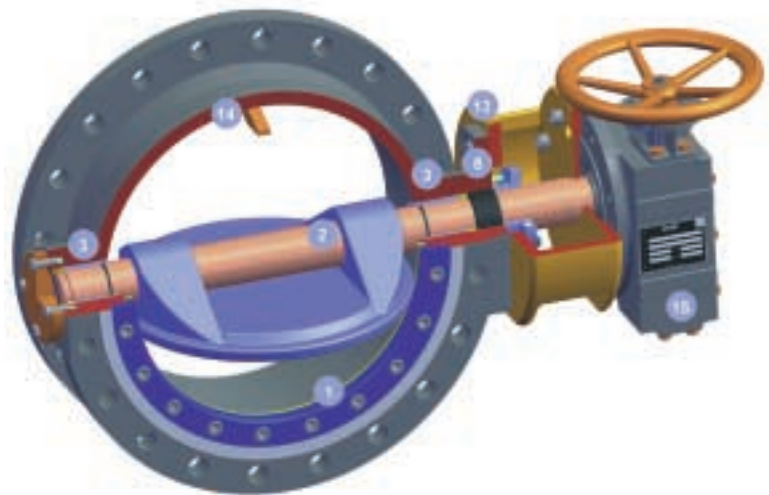


The ultimate advantage is its zero leakage, bi-directional shut-off in gases, steam and liquids even when particulates are present. Its metal-to-metal sealing system, and the protected seal in the body, combining patented technology with conservatively engineered design, provides critical **bi-directional** shut-off in the most aggressive and challenging applications.

# Responsive Engineering Meets the Most Demanding Requirements of Today's Users

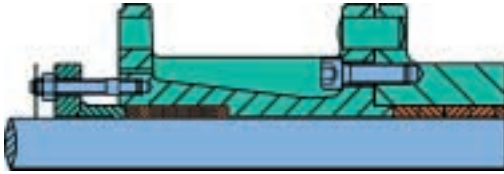


1. Unique field-replaceable seal system in body
2. Keyed or splined disc-to-shaft connection
3. Robust top and bottom shaft bearings
4. Energized bearing protectors
5. Rigid disc design minimizes deflection
6. Extended body hubs
7. Full face flanges
8. Emission tight packing system
9. External blowout prevention and bearing system
10. External valve position indication
11. Self-centering packing gland (four studs minimum)
12. Integrally cast purge / grease port bosses
13. Heavy duty cast operator mounting bracket rigidly pinned and registered to body
14. Disc over-travel stop (safety feature)
15. Manual operators specifically engineered



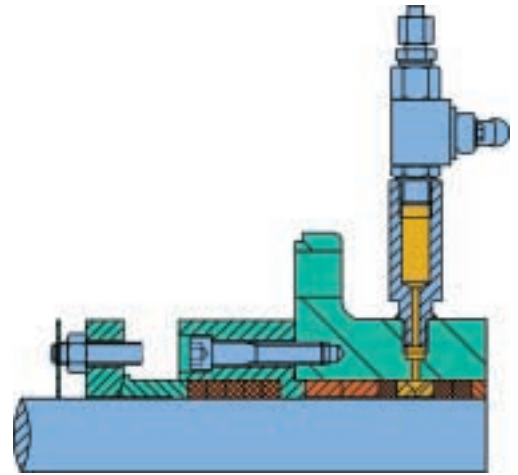
## Optional Configurations

The following options are available for applications requiring modification from our “standard design”. Please consult factory for further information.



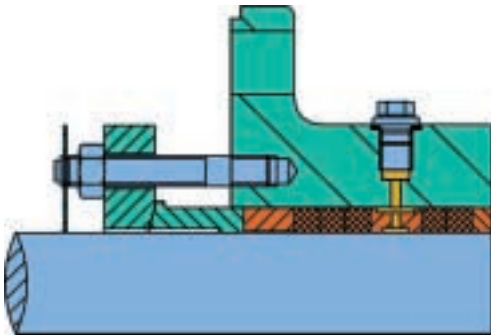
### Cryogenic Extension

- Liquefied Natural Gas Plants
- Air Separation
- to  $-196^{\circ}\text{C}$  /  $-320^{\circ}\text{F}$



### Safety Packing

- Change Primary Packing with Valve in Service

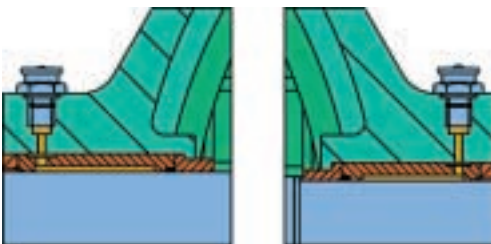


### Lantern Ring and Purge Systems

- For Special Shaft Sealing Applications

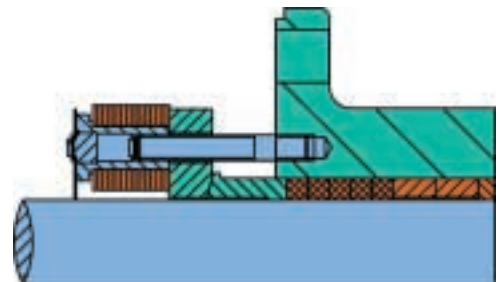
### Additional Options

- Body Jacketing (Heating / Cooling)
- Special Cleaning Options
- Disc Edge Protection
- NACE Design
- Hard-Facing of Disc or Shaft
- High Temperature Extensions
- Out-Board Bearings
- Shaft Steam Tracing
- Top Entry / Access Port for In-Line Maintenance



### Lubricated Bearings

- Media with High Particulate Content
- Ultra-High Cycle Applications



### Live Loaded Packing

- Extended Maintenance Cycle