

Rotary Tight Shut-Off Valves MAK

Made in Germany

## MAK





Tailor made triple offset technology



DN 600 #1500 Isolation HP Steam Turbine

Tight shut-off valve MAK

## Mature technology for a broad range of applications

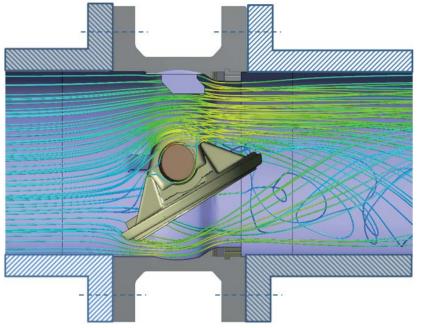
Our MAK valves are universally utilisable products with triple-eccentric valve technology, suitable for extreme operating conditions and a high number of actuations. This type of valve has been successfully used since the 70s and is the further developed version of the original Adams patent.

Our MAK valves are so outstanding due to their high degree of reliability. This type of valve has proven its worth in a wide range of applications over decades. This not only means that we have been using the MAK with great success worldwide for almost 40 years, it also means that quite a number of customers are using valves we supplied decades ago, which are still in good working order in their plants. That is reliability.

#### One-hundred-per-cent tightness "Solid Disc"

We have remained true to the basic principle of the triple-eccentric design, which enables the valve to close one-hundred-per-cent tight. Despite this, we have continued enhancing details of this design over the years. For example, the MAK is equipped with a seal in the valve body. This protects the seal from the flowing medium, making maintenance intervals longer and increasing its service life. The special design of the seal enables the valve to be opened and closed without friction, even when working under great differences in temperature and full nominal pressure.

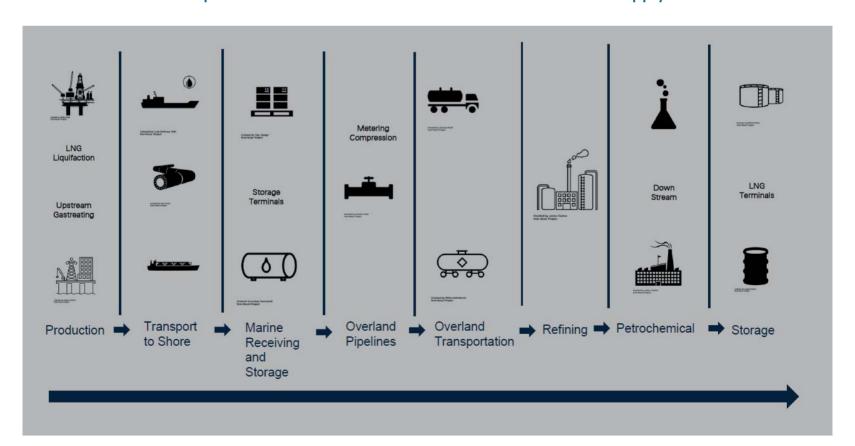
### MAK - reliable in its simplicity



- Light weight
- Field reparable, seat placed in body
- Solid Disc
- 100% bi-directional tight shut off
- Minimal pressure loss
- Excellent control function

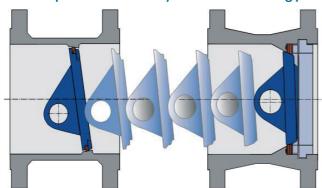
CFD Flow simulation at 60° opening

#### Scope of MAK installed base in the Global Oil and Gas Supply Chain



# MAK

#### **Development of Rotary Valve technology**



This revolutionary improvement in valve technology has set new standards for seal life, tightness and temperature range. The advanced features of this sealing system allows rapid development of special valve designs to meet critical requirements in diverse applications.

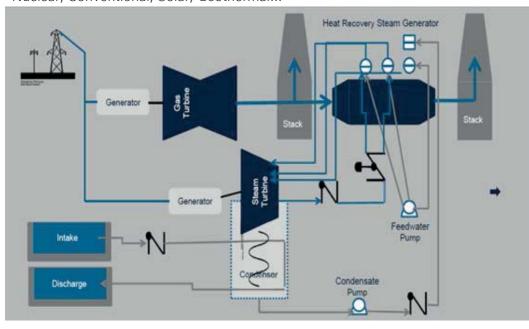
MAK ESD Valve



#### MAK installed base power stations

#### **Power Stations:**

Nuclear, Conventional, Solar, Geothermal...



## Applications (not limited)

- Turbine ESD and Control valves
- Cold and reheat isolation
- On / Off and Control valves
- Steam: LP, MP and HP
- Blast Furnace Gas
- Heat Recovery
- District Heating

#### Range of applications

The MAK can be used for a broad range of temperatures and pressures. The MAK has proven to be highly efficient under conditions such as:

- Steam
- High temperature
- Low temperature
- High medium flow speeds
- High pressures
- Aggressive media
- Abrasive media

#### **Types**

The MAK is available either as a cast or a welded design with flange or butt-welded ends. The welded designs can be implemented in all commonly used materials. Depending on customers' requirements, we adapt the valves to suit special needs and also equip them with additional options. That is how a custom-made valve comes into being. That is one of our strengths.

#### A summary of the benefits:

- Solid Disc
- Low-friction function
- High resilience to temperatures
- Fire-Safe tested
- Excellent control characteristics
- Light Weight
- Compact, robust design
- Easy to maintain, on site / replaceable seat
- Optional installation length
- Low emission
- TA Luft

#### Facts & Figures

#### NPS

DN 80 / 3 inches to DN 2400 / 96 inches Further nominal widths on request

#### Temperature range

-196 °C / -320 °F to 600 °C / 1112 °F

#### **Pressure Class**

PN 10/16/25/40/64/100 ANSI 150/300/600/900/1500

#### Construction lengths in accordance with

ISO 5752 BS 13 (F16) ISO 5752 BS 14 (F4) ASME B 16.10, API 609

### Valves designed in accordance with international standards, e. g.

AD technical instructions, ANSI, API, ASME, ATEX, BS, DGRL / PED, DIN EN / ISO, GOST, KTA, MSS, NACE, Norsok, RCC-M

#### Optional

Steam Tracing

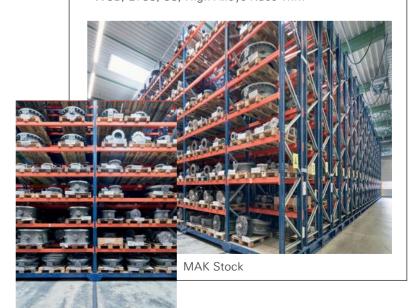
#### Operation

Manual, pneumatic, electric, hydraulic

### Comprehensive Stockrange STOCK DELIVERIES

#### Materials

WCB, LTCS, SS, High Alloys Nace Trim









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