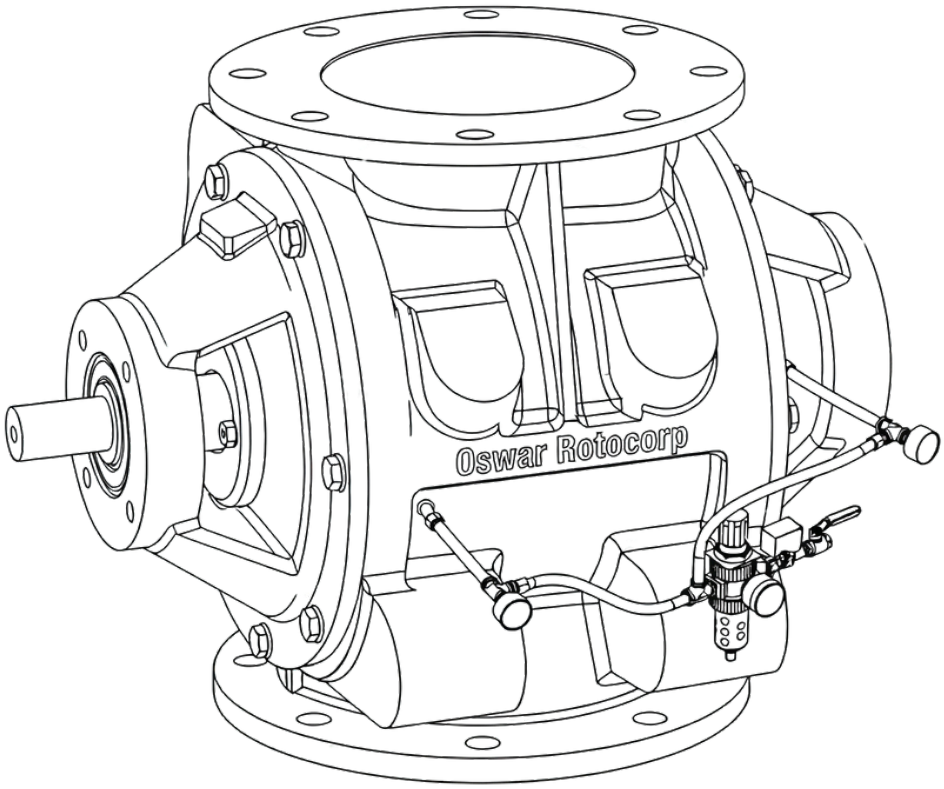
ROTARY AIR LOCK

HIGH TEMPERATURE DESIGN GUIDE



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Rotary Valves operating in high-temperature environments—such as cement plants, boilers, kilns, dryers, furnaces, and mineral processing systems—are exposed to elevated thermal loads that directly impact dimensional stability, sealing efficiency, and mechanical integrity.

TYPICAL HIGH-TEMPERATURE APPLICATIONS

- KILN FEED & DISCHARGE SYSTEMS
- BOILER ASH HANDLING
- HOT GAS PNEUMATIC CONVEYING
- FURNACE DUST COLLECTION

THERMAL EXPANSION & STRUCTURAL INTEGRITY

Technical Analysis:
High-temperature Rotary Valve design must address the following engineering parameters:

1. Differential Thermal Expansion
Rotor and housing materials expand at different rates. Clearances must be calculated considering maximum operating temperature.

2. Controlled Rotor Tip Clearance
Cold clearances are intentionally designed to accommodate expansion at operating temperature.

3. Material Selection
Use of heat-resistant alloys and reinforced castings enhances structural stability under thermal stress.

4. Shaft & Bearing Isolation
Thermal barriers and extended shaft configurations reduce heat transfer to bearings.

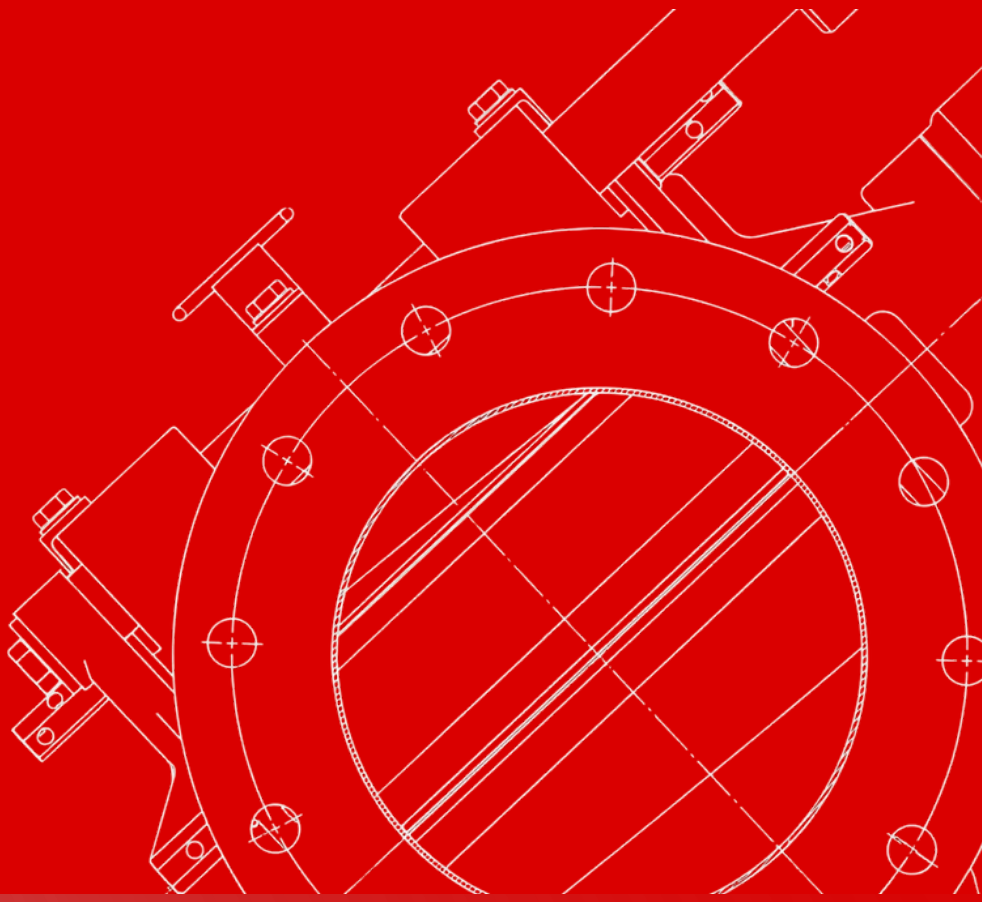
DESIGN OBJECTIVES

- Maintain airlock integrity
- Prevent rotor binding
- Ensure structural rigidity
- Minimize thermal distortion
- Extend operational lifespan

ENSURING RELIABLE OPERATION IN EXTREME HEAT

Engineering Solutions:

- **Increased internal clearances based on thermal calculations**
- **External bearing configurations**
- **Heat-dissipation housing designs**
- **High-temperature-resistant coatings**
- **Reinforced end covers**
- **Application-specific rotor geometry**



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