

# THE TRIDENT AIRLOCK VALVE INFORMATION SHEET

## INTRODUCTION:

Trident Alloys, Inc. built its reputation providing quality castings for the demanding work of general industry and paper mills with large pumps, valves, and power generation components. Today, Trident Alloys is also involved nationally in the expanding renewable energy industries, including wind power, clean coal, biomass and severe duty process control. Trident Airlock Valves are the natural companion and complement to the foundry. They are rugged, cost-effective, low maintenance workhorses for dry process control in the harshest applications.

Together, Trident Alloys, Inc. and Trident Airlock Valves serve the OEM, Engineering and End User markets; providing full service for original parts and replacement wear castings, value added machining, and airlock flap valves for dry process, material handling and environmental control.

## THE TRIDENT AIRLOCK FLAP GATE VALVE:

The Trident airlock is engineered for hot and abrasive material handling applications. It is also engineered to handle the costly problems caused by external environmental conditions - dust and moisture in the atmosphere which may result in corrosive seizing, damage to moving parts, and high maintenance and replacement costs for standard equipment.

- Ash Handling • Bio-Mass • Cement • Cyclones
- Environmental Dust • Iron Ore Pelletizing • Mining
- Waste to Energy ... *all the tough jobs.*

## THE TRIDENT BENEFITS:

**1. Handle Abrasive Materials and Maintain an Airlock Without Wear:** The Trident cast alloy airlock valve is engineered for controlling the material flow and process of difficult-to-handle, abrasive materials over a wide range of temperatures and pressure / vacuum differentials. The double flap gate valve design uses alternating non-wearing flaps mated to seats that provide long term, maintenance free production performance.

**2. Solves Problems of Misapplied Valves:** The flap gate design often outperforms and outlasts alternative valve equipment by a wide margin in both working life and cost for performance efficiency. While every design has its advantages in light duty applications, each is victim to inherent design limits with abrasive materials. The screw conveyor and rotary valve seals are dependent on maintaining minimal clearances between the rotating vanes and the external housing. With abrasive materials and pressure / vacuum differentials, the constant 360° sweep creates a grinding and sandblasting condition at the edges that can quickly destroy the seal and internal parts. This is the cause of chronic high maintenance cost and part replacement. In contrast, the flap gate design maintains the airlock seal with a non-moving, non-wearing contact seal that greatly reduces maintenance costs and downtime.

**3. Packing, Bridging, Jamming:** The flap gate design also solves problems of difficult materials that tend to pack, bridge or jam the pockets of rotary vanes. The unobstructed throughput of the flap gate is often the solution where material flow characteristics,

material degradation, temperatures and moisture are factors and is crucial for applications where non uniform or tramp materials might pack or jam as in waste incineration, tire chips pyrolysis, environmental remediation and resource recovery.

**4. High Operating Temperatures:** The cast alloy flap gate design is the prudent choice for high temperature applications where internal expansion may render fabricated or rotary designs inoperable.

**5. Production and Energy Efficiency:** The flap gate airlock design is often more efficient to use with equipment such as cyclones that benefit from the superior long term seal to reach designed operating efficiencies to move a given amount of material, while at the same time reducing energy costs.

## THE TRIDENT FEATURES:

**1. Cast alloy valves are available in standard High Profile and Low Profile models:** Non-wearing flap gate airlock design in single, double and triple configurations cover widest range of applications. Low Profile designs mount in restricted space and allow replacement of misapplied or failing rotary valves.

**2. Wide choice of alloys available for high abrasion, high temperature and reactive materials:** Ductile iron, Ni-Resist iron, 316 SS, Hi Chrome, Grade HT SS. Special alloys are available.

**3. Highest quality castings, shafts, drives, bearings and controls:** Assures highest quality, reliable long term performance, and cost effective working life. Precision ground stainless shafts with self aligning shaft seals. Outboard mounted shaft bearings for cool operation.

**4. Heavy duty, extended shafts standard:** For quick and easy mounting of a second drive assembly for double the power, or for change of the drive to either side for system design and installation clearance.

**5. Standard parts, no odd sizes:** Low cost, easy replacement. NFPA Standard air cylinders.

**6. Direct access to internal seat, shaft, and arm assembly:** For inspection, flushing or change out - dual covers with optional choice of high pressure mounting bolts or quick cam lock cover releases for high or low pressure applications and inspection access. Internal assemblies are easily accessible with no blind reaching to disassemble.

**7. Easy in-line removable and re-grindable seats and flaps:** Working life extended for years at minimal cost. No need to remove valve from service for change out.

**8. Choice of Drives:** Pneumatic, electric and gravity/counterweight options available for widest range of material, pressure and power considerations.

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