APPLICATION CASE STUDIES

RFS SERIES

THE TOUGH, HARD WEARING AIRLOCK OR METERING SOLUTION

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CLICK HERE to build the valve to suit your application

RFS SERIES

Jet Mill Grinding

Alumina Processing

Client

Our client is the largest integrated producer of Alumina in Asia, operating a cradle to grave process for its global client base.

Anval were asked to supply a superior product to the one that had already been installed at one of its largest Aluminia production facilities; the existing valves were becoming operationally defunct in less than three months.

High Wear Application

High Pressure Differential

Existing Leakage Issues

Particle Size

<45 Micron

Abrasiveness

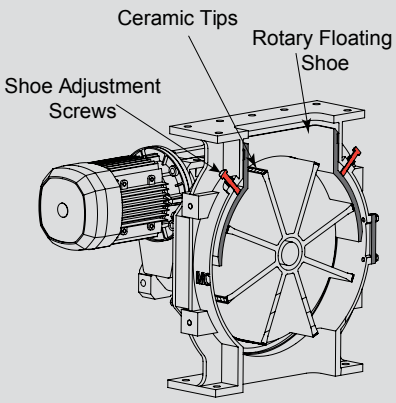
Very High

Material

Alumina

Pressure

15KPa



Plant Capacity

Increased overall plant performance and product consistency

Venting Line

Reduced by 70% and converted from continuous to compact intermediate system, allowing for increased process control

Downtime

Reduced downtime caused by shaft seal failure and worn out rotor whilst body wear reduced to zero

Leakage

Drastic reduction in leakage from the inlet system through the use of direct contact between ceramic rotor tip and valve body

Anval's Rotary Floating Shoe Valve, or RFS for short, provides unmatched airlocking performance for high wear applications.

The RFS achieves 100% positive sealing through the use of a "Floating Shoe" which slides tightly into the top port flange of the main body and is held in place by gravitational force.

The shoe slide is sealed with a double 'O' ring between the shoe and the main body whilst the contact between the shoe and ceramic tipped rotor form a mechanical seal, ensuring a complete airlock.

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RFS SERIES

Fly Ash Boiler Feeding

Thermal Power Generation

Improper Dust Collection

Dust Leakage Hazard

Process Impairment

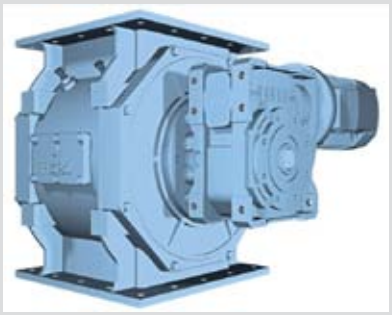
Boiler Temperature
> 950 ˚C
350 ˚C Fly Ash

Particle Size
<100 Micron

Abrasiveness
Very High

Material
Fly Ash

Pressure
25KPa



Process Efficiency

Higher sealing performance meant increased ash collection rate and has led to increased boiler performance.

Downtime

More effective sealing and the associated wear and leakage control has minimised plant downtime

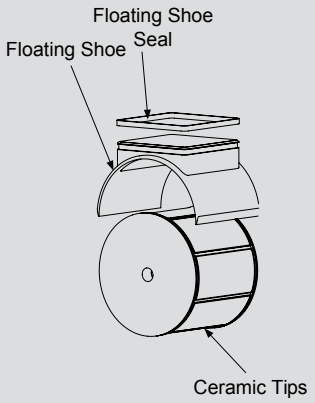
Material Loss

Reduced material losses through the more effective sealing arrangement found on the RFS

Client

The client is a large, multinational engineering organisation that provides energy and environmental solutions in over 75 countries worldwide.

Anval were approached by the client after the existing valve supplier had repeatedly failed to provide an effective solution for recycle the unburnt flyash into the fluidized bed of coal fired boiler. Previously they experienced heavy material leakage that was due to errosion and seizing of valve from the extreme temperature of 350 ˚C, high abrasiveness and pressure. This was leading to frequent valve replacements, reduction in the power generation.



Safety

Plant safety standards have been dramatically increased by eliminating hazardous material leakage

Throughput

Increased valve performance has enabled the plant to achieve its maximum power generation

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RFS
SERIES

Conveying & Bagging

Silicon Processing

Plant Efficiency

↑ When first installed, the valves were in 24/7 operation for 14 months before a different issue caused a shut down

Airlocking

↑ The floating shoe has help to maintain an effective airlock, improving material conveying by more than 50%

Standardisation

↑ For subsequent plant expansion projects, RFS was used as standard; a further 20 units installed for this application

Downtime

↓ Lower maintenance requirements have meant that the plant is in operation for significantly longer periods

OPEX

↓ Drastic reduction in valve related OPEX as the highly durable RFS requires little attention once installed

Leakage

↓ Low wear levels and the innovative floating shoe mean that high sealing performance is maintained throughout

High Wear Application

High Pressure Differential

Frequent Downtime

Client

Our Australian based client is one of the world's top silicon producers, taking to market some of the highest quality silicon in production from a plant that is widely regarded to be one of the most efficient on the globe.

Anval were invited to provide a technical solution to counter on-going maintenance issues; the existing valves were suffering extremely high wear, leading to frequent plant downtime.

Abrasiveness
Very High

Material
Silicon

Pressure
40KPa

Particle Size
<100 Micron

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RFS & SL SERIES

Furnace & ESP Discharge

Steel Production

Client

Our client is geographically diverse steel producer with a global presence that has been built up since the businesses inception over a century ago.

Anval were asked by their UK operations to provide technical support; the site requested a long term, practical solution to an on-going operational issue. The RFS Rotary valve and Slide Gate on top of it for isolation were sitting below a filter bin being used to manage the flow of fly ash from a large furnace. This meant that the valves could only be worked on during a furnace shut down period, which was proving problematic.

The valves in use would break down or cause the furnace to be tripped, on average, 4 times a month; each furnace shut down was estimated to cost the client between £8,000 and £10,000.

Downtime

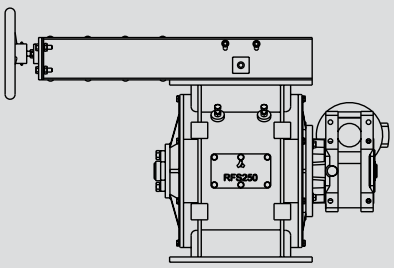
The RFS has low maintenance requirements; valve failures have been all but eliminated

Maintenance Cost

Service and maintenance cost have diminished and the impact of the any maintenance has been substantially reduced

Leakage

The highly effective sealing of the RFS and the reduced wear on the valve body has reduced leakage on site



Abrasiveness

High

Material

Fly Ash

Pressure

50KPa

Particle Size

<100 Micron

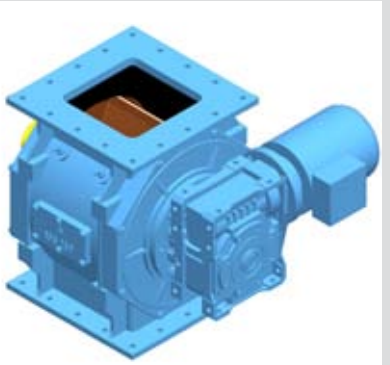
Ease of Access

The use of an SL Series Slide Gate valve above the RFS allows for easy access while the plant is still in operation

High Wear Application

High Pressure Differential

Access Requirements



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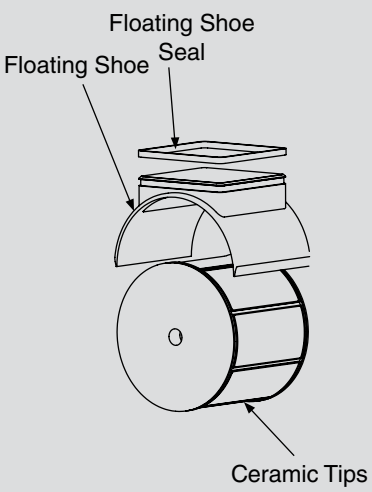
AQC Boiler

Fly Ash Handling in Cement Plant

Fly Ash

Process Efficiency

Leakage almost reduced to zero and in turn improved the airlocking efficiency



High Wear & Tear

Air Seal Critical

Severe Leakage Issues

Plant Output

Significantly decreasing inlet system leakage, leading to higher overall plant output

Client

Our client is is the tenth largest producer of grey cement in the world, anchored by an extraordinary force of over 120,000 employees, belonging to 42 nationalities.

Anval were approached to provide a air locking solution to handle fly ash material with more than 200°C that was causing significant blockages through the After Quenching Chamber (AQC) boilers for cement plant exhaust gas.

Client was advised to go with RFS rotary valve, specifically designed for high wear applications, to overcome their issues.

OPEX

Drastic reduction in valve related OPEX as the highly durable RFS requires little attention once installed

Particle Size

<4 mm

Abrasiveness

Very High

Material

Fly Ash

Pressure

15KPa

Temperature

200°C

Anval's RFS achieves 100% positive sealing through the use of a "Floating Shoe". This state of art technology built within the RFS effectively eliminates wear, leakage and ensures accurate flow of material in metering duty.

Material Buildup and Clogging

High Temperature Handling System

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RFS
SERIES

Klin Feed Weighing System

Coal Feeding for Clinker Processing

Process Excellence

Existing venting system with 200mm pipeline replaced to 50 mm, reducing the floor area and improving overall efficiency

Airlocking

The floating shoe helps in maintaining an effective airlock, reduce wear parts of rotary valve by more than 3 times.

Leakage

Leakage rate reduced by 70% which extended life of dosing element by 2 times and smother flow of material

Downtime

Lower maintenance requirements have meant that the plant is in operation for significantly longer periods

OPEX

Drastic reduction in valve related OPEX as the highly durable RFS requires little attention once installed

High Wear Application

High Pressure Differential

Frequent Downtime

90°C Handling System

Anval's RFS achieves 100% positive sealing through the use of a "Floating Shoe". This state of art technology built within the RFS effectively eliminates wear, leakage and ensures accurate flow of material in metering duty.

Client

Our client is a manufacturer of wide range of Industrial Weighing and Batching equipments. Globally, they are leading supplier of dynamic weighing system with sophisticated electronics which are integrated with material handling equipments.

Anval were approached to provide solution for rotary airlock valve failure due to improper dosing of coal to kiln. The client was experiencing wear in body and rotor of rotary airlock, heavy leakage to inlet which affect life of the dosing equipment.

Abrasiveness
Very High

Material
Coal

Pressure
80KPa

Particle Size
<95 Micron

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