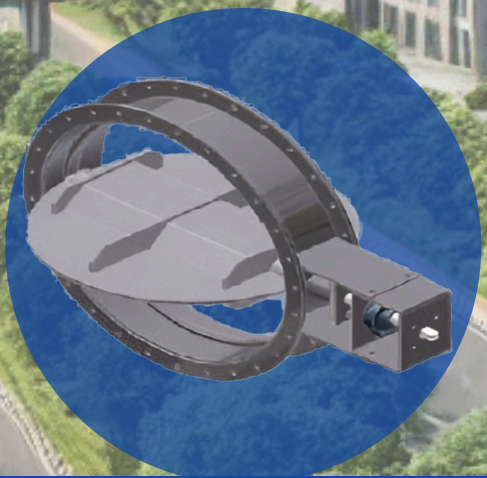
DHATRI
Engineering Solutions
Engineering Better Tomorrow



DHATRI ENGINEERING SOLUTIONS

INDUSTRIAL EQUIPMENT SUPPLIER & ENGINEERING SERVICES

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Introduction

At Dhatri Engineering, We have Expertise in the Design, Manufacturing, Supply of gas isolation and modulating equipment products for Industries like Thermal Power plants, Refineries, Steel plants, Food Processing, Cement, and Chemical Industries. Dhatri Engineering- An Entrepreneurship firm with Expert Engineers having deep knowledge and decades of Experience in the Design, Engineering, Service, and Modification of existing equipment.

Our Services

- *Modification, Erection, and Commissioning of all types of Dampers, diverters & valves.*
- *Plant shutdown activities & overhauling.*
- *Manpower supply (Skilled and Unskilled).*
- *Reverse Engineering.*
- *Supply of spares.*
- *Professional design modification.*
- *Annual Maintenance contract.*
- *Supervision activities*

Glandular Spade Guillotine Damper

- *Purpose: Our guillotine ensures 100% shut-off in gas ducts of continuous process plants, providing complete isolation of ancillary equipment.*

Advantages:

- *Allows safe on-load inspections or maintenance without halting the main process.*
- *Prevents unscheduled emergency outages due to auxiliary equipment issues.*

Design Features:

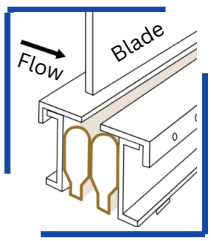
- *Steel plate blade slides between Glandular sealing system.*
- *Blade extends beyond seals on all sides, ensuring 100% gas-tight isolation.*
- *Suitable for differential pressures of +100 to -500 mmwc and temperatures up to 300°C.*
- *Sealing Efficiency: 100% on CSA without seal air.*
- *Duty: On/Off.*
- *Size: Supports duct sizes up to 4 meters, adaptable to square, rectangular, and circular cross-sections.*

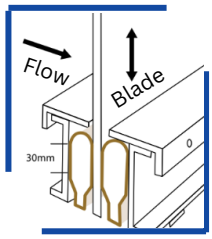
Dust Isolation & Clearance:

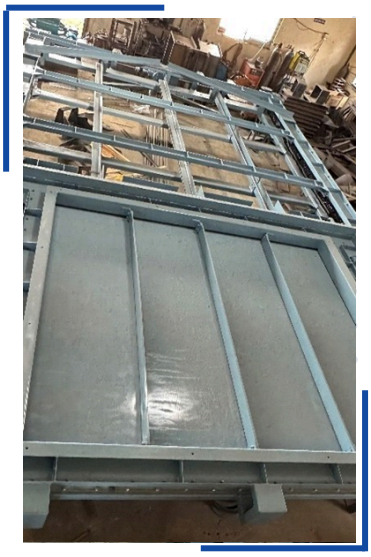
- *Blade contact area with seals is isolated from the gas stream, ensuring functionality in dusty environments.*
- *Self-cleaning action as the blade moves through accumulated dust.*

Seal Mechanism:

- *Flexible metallic bulb seal with loop[joints on the duct frame provide robust metal-to-metal sealing.*
- *30 mm wide sealing ensures 100% gas-tight isolation when the blade extends into the atmosphere.*







Glandular Guillotine Damper - 3180mm X3180mm

Guillotine Damper

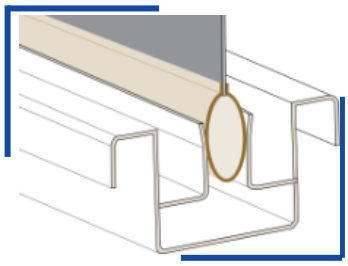
- *Our Guillotine Dampers are engineered to ensure 100% gas tightness with a Seal Air arrangement (Duplex) or 99.95% tightness on CSA without a Seal Air arrangement specifically for high-temperature gas ducts, facilitating safe access isolation of Boiler auxiliaries.*
- *These are capable of design for temperature up to 650'C and pressure difference up to 2000mmwc.*

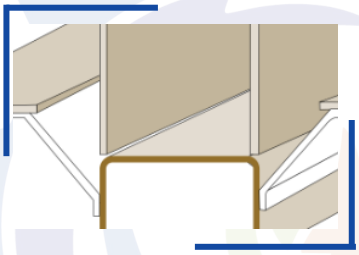
Sealing Efficiency:

- *99.95% on CSA without seal air. 100% with seal air.*
- *Duty: on/off*

Size :

- *Guillotine damper can accommodate duct sizes up to 4 meters and are designed for square, rectangular, and circular cross-sections when end plates are added.*
- *Dust Isolation/Dust Clearance - A flue dust clearance door is installed at the base of the duct framework to prevent dust accumulation and ensure the damper operates smoothly*
- *Seal Mechanism - The blade's edge is equipped with a series of flexible metallic looped and leaf-spring sealing elements. These components are engineered to effectively seal against continuous landing bars located within the duct framework of the unit, ensuring a sealing margin of at least 30 mm. The metallic seals alone achieve an impressive sealing efficiency of 99.95% or higher over the cross-sectional area (SIMPLEX). For applications requiring complete gas-tightness, a fan is employed to generate a pressurized air barrier within the interspace between the two sealing surfaces (DUPLEX)*



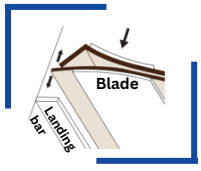


Sealing systems

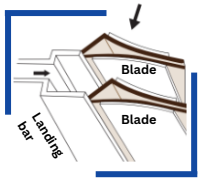
Louvre Dampers

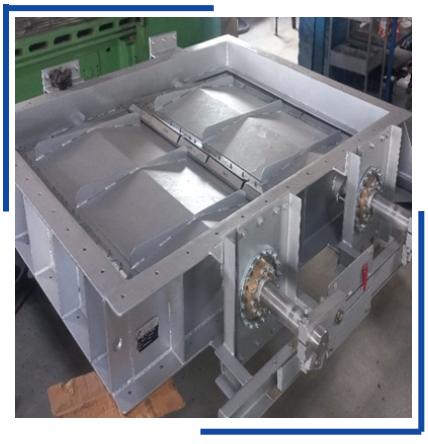
- *A balanced multi-louvre damper achieving a sealing efficiency of 99.95% or higher across the cross-sectional area.*
- *This design is particularly suitable for applications requiring precise gas flow regulation along with the capability to tightly seal a duct.*
- *It is also well-suited for environments where high temperatures or corrosion risks necessitate the use of specialized sealing materials.*
- *Sealing Efficiency - Multisystem units employ the same leaf-spring sealing mechanism as the flap isolator. A single seal row (SIMPLEX) achieves 99.8% leak-tightness on CSA, while a double seal row (DUPLEX) combined with an air barrier ensures complete 100% leak-tightness*
- *Duty - on/off and Control*

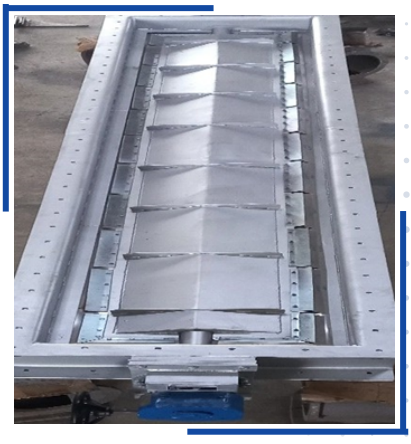
Simplex Sealing



Duplex Sealing







Butterfly Dampers with Metallic Seal

- *A Butterfly Damper is a type of damper used in ventilation and industrial applications to control the flow of air or gas through a duct or pipeline. It is named after the shape of its blade, which resembles the wings of a butterfly.*
- *The damper consists of a circular or disc-shaped blade that rotates within a duct or pipe to control the flow of air or gas.*
- *The blade typically pivots around a central axis, either vertically or horizontally, to adjust the amount of open space in the duct.*
- *Sealing-99.5% with single metallic seal 99.99% with duplex metallic seal.*
- *Duty-on/off/Control*

Butterfly Damper - 1000mmx1000mm

Butterfly Damper with Metallic Seal - 1200mm

Inlet Guide Vane Dampers

- *An Inlet Guide Vane Damper (IGV) is a critical component used in turbines, or industrial fans.*
- *Its primary function is to regulate the airflow into a fan or compressor, controlling the flow direction and volume to improve efficiency and performance.*
- *Sealing-98%*
- *Duty-On/off/Control*

GAS TIGHT EFFICIENCY

- *For safe on-load maintenance, achieving 100% gas-tight duct isolation is not just a goal but a necessity. Anything less compromises operational safety, efficiency, and reliability:*

Gas Tightness Is Critical:

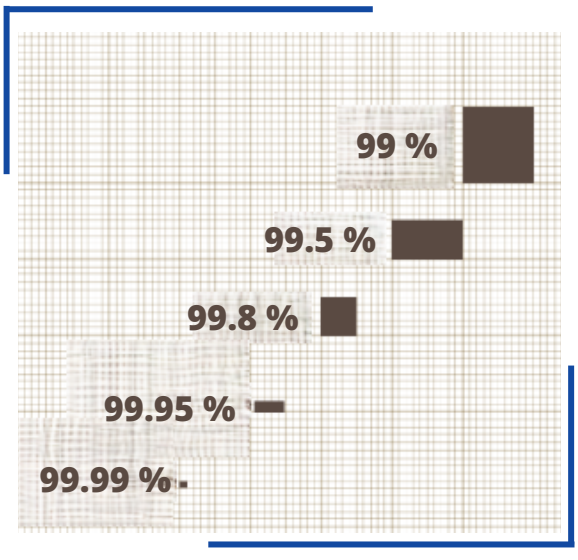
- *A 99% gas-tight seal might seem sufficient on paper, but it equates to a one-square-foot hole in a ten-by-ten-foot duct door, resulting in significant leakage.*
- *Even at 99.95%, the leakage area is comparable to a seven-inch square hole—still too large for critical operations.*
- *Such leakage can lead to pressure imbalances, heat losses, and operational inefficiencies, jeopardizing the safety of maintenance procedures and potentially causing costly downtime.*

Why 100% Matters:

- *During on-load maintenance, only a 100% gas-tight seal ensures that no gas escapes, providing complete isolation of ancillary systems.*
- *It eliminates the risk of exposure to hazardous gases or pressure surges, creating a safer environment for engineers and technicians.*

Commitment to Precision and Safety:

- *While achieving 100% gas tightness requires meticulous engineering and robust sealing mechanisms, it is the only way to ensure reliability and long-term performance in duct isolation.*
- *Our systems are designed with this standard in mind, ensuring that they deliver the highest level of safety and efficiency for critical operations.*
- *This approach reflects a strong commitment to safety, operational excellence, and the trust placed in modern engineering solutions to address the stringent demands of high-performance duct isolation systems.*



Gas Tight Efficiency Graph

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