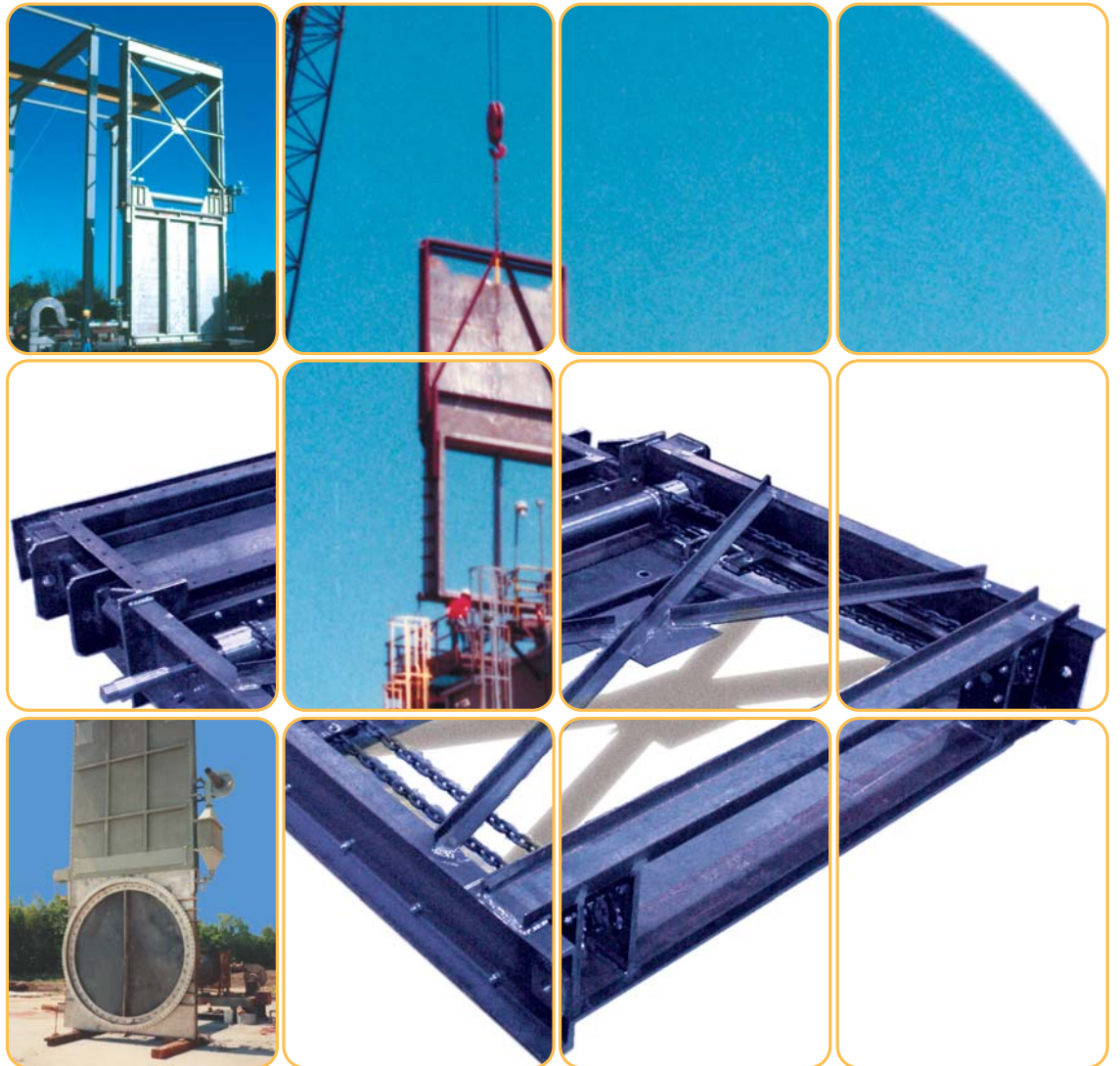


FIELD-PROVEN / PEAK PERFORMANCE

WARRIOR SERIES

GUILLOTINE DAMPERS

Flextech



WE MANUFACTURE EXCELLENCE

GUILLOTINE DAMPERS

Exemplary Isolation in hostile gas and particulate environments

**PATENTED
"BELLOWSEAL®"
THE TIGHTEST SEAL
IN THE INDUSTRY!**

Flextech Industries' Guillotine Dampers are preferred in applications where isolation (open/close operation) is critical and where service conditions can be severe. There is no "light-duty" guillotine damper.

Flextech Industries offers two basic types of custom-engineered - Warrior Series - Guillotine Dampers: the 'Low Leak' Structural Seal design and the 'Ultra Low Leak' patented Bellowseal® design.

Structural Seal Design

The Structural Steel Design uses a structural steel channel frame with a structural angle on the downstream side of the blade to create the duct seal. This design is a cost effective solution where moderate leakage rates are acceptable and the gas stream is relatively clean.

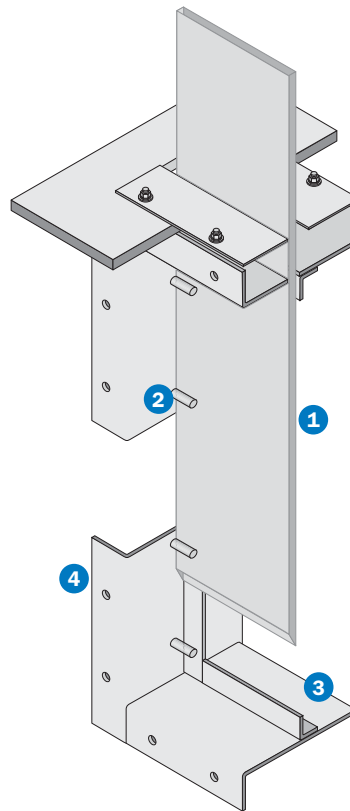
- 95 to 98% isolation
- Low operating / maintenance costs

Patented Bellowseal® Design

The patented Bellowseal® design uses a convoluted metal bellows on both the upstream and downstream side of the blade to form the seal. The Bellowseal® is a continuous perimeter seal with no gaps or overlaps and requires no bolting exposed to the gas stream. The result of this patented technological advancement is an area seal with reduced leak passages, lower seal air requirements and increased seal life expectancy. It is manufactured in both rectangular and round configurations without the need for transitions. This design is frequently used without seal for applications where 'Man Safe' isolation is not required.

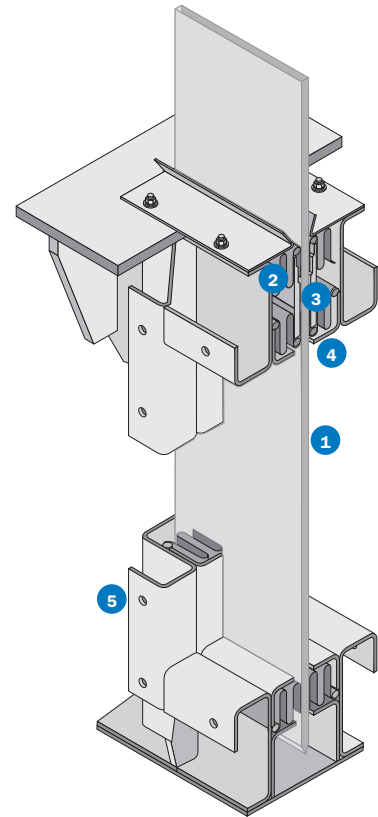
- High sealing efficiency for 99.5 to 99.9% isolation.
- Seal is 125-300% thicker than conventional leaf seal, and will last considerably longer under corrosive conditions.
- Seal has 300% greater contact area than conventional leaf seal, eliminating possibility of large inversion.
- Inverted-V leading edge.
- Particularly suited for applications where deposits of ash or other solids are anticipated.
- Externally cartridge-mounted for quick and easy removal/ replacement, with single point access. Cartridge design can be replaced in a matter of hours without scaffolding, and allows for removal and replacement of sections rather than the entire seal, for low operating and maintenance costs.

'Low Leak' Structural Seal Guillotine Cross Section



- 1 Blade
- 2 Guide Pin
- 3 Structural Angle Seal
- 4 Damper Frame

'Ultra Low Leak' Patented Bellowseal® Guillotine Cross Section



- 1 Blade
- 2 Bellowseal
- 3 Seal Support
- 4 Seal Cartridge
- 5 Damper Frame

Seal Air System

A Seal Air System is required for 'Man-Safe' isolation. The Bellowseal® Guillotine Damper requires significantly 'smaller' Seal Air Systems than all other types of Guillotine Dampers.

**MAN-SAFE
DESIGN
AVAILABLE**

Advantages of Flextech Guillotine Dampers

- Lower pressure drop than multi-bladed louver dampers
- Less space required in the duct (i.e. flange/flange)
Guillotine – 12" to 18" f/f
Double Louver – 36" and up f/f
- Improved capability to cut through deposits of particulate in the duct
- Fewer moving parts, less maintenance and lower down-time costs



GUILLOTINE APPLICATIONS INCLUDE:

– scrubbers – precipitators – oxidizers – heaters – incinerators – boiler breaching – burner fuel lines

Drive Systems

Flextech Industries offer three basic drive systems for Guillotine Dampers:

Dual Mining Chain and Pocket Sprocket Drive

The drive system is most commonly used in large Guillotine Dampers. The frame is constructed of heavy, rolled structural channel (A36) with cross bracing and lifting lugs to withstand all drive thrusts, wind, and handling loads without additional supports. Web-mounted bearings support torsionally rigid sprocket/torque tube assemblies utilizing high strength, corrosion-resistant stub shafts.

Long wall mining chain and pocket sprockets are standard, providing smooth, trouble-free blade movement. The chain has no tight clearances to promote corrosion, dirt accumulation, and subsequent binding (as conventional 'plate and pin' styles are subject to). The dual chains are linked by the drive tubes to ensure that the attached blade is always driven straight and its alignment is maintained when driving through uneven solid deposits. The dual chain drive is recommended for all applications in duct sizes larger than five feet on a side/diameter, and tends to be generally more economical than the jackscrew drive in sizes exceeding five feet.

- Positive positioning of the blade in both opening and closing directions
- Infrequent chain adjustment due to pre-stretching during manufacture
- Even tracking of the blade despite driving the blade through uneven solid deposits
- Designed to withstand the maximum output of the actuator
- Sealed bearings are web-mounted for proper support of torque tubes
- Direct drive actuator eliminates secondary reducers

Rack and Pinion Drive

A more economical drive system for small- to mid-size guillotine dampers. The torque is transferred directly to the blade from the drive pinion via rack cut into the blade edges. The holes are located so that, in the closed position, they are covered by the seals, and do not create a leak path.

- Suitable for dampers smaller than five feet and under on a side.
- Positive positioning of the blade in both opening and closing directions.

Linear Cylinder Drive

The most economical drive system for smaller guillotine dampers. It offers positive positioning of the blade in both opening and closing directions. It is provided with a standard four-way solenoid valve and end cushions for two position operation.

- Suitable for dampers smaller than five feet and under on a side.
- Positive positioning of the blade in both opening and closing directions

Actuators

Flextech offers three actuator systems for its guillotine dampers:

Manual - The manual handwheel and chainwheel actuators are available for direct drive applications on dual chain and rack & pinion systems. All are designed so that the actuation load does not exceed 80 pounds, and are self-locking.



Manual Actuator

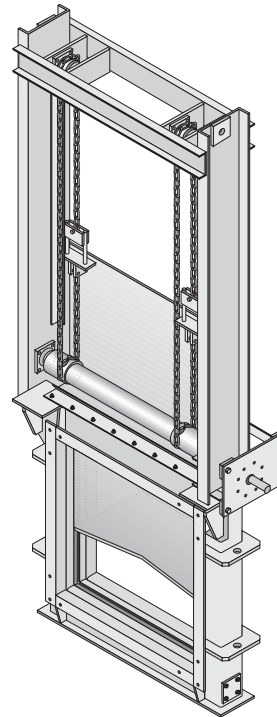


Electric Actuator

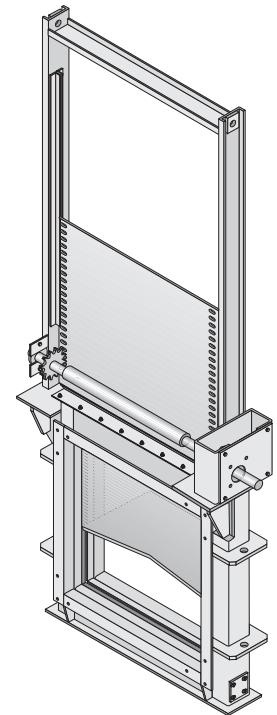


Pneumatic Actuator

Dual Mining Chain and Sprocket Drive



Rack and Pinion Drive



Pneumatic - The pneumatic linear cylinder is an 80-120 psig source with sufficient volume necessary to operate reliably.

Electric - The electric actuator may be used to drive the dual chain and rack & pinion systems. It consists

of a self-locking worm gearbox, limit and overtorque protection, and manual override handwheel. Electric actuators are available in a standard source voltage of 460v/3ph/60hz (other voltages available).



WE MANUFACTURE EXCELLENCE

Damper Inquiries: Clinton, Missouri, 64735. Toll Free 1.877.838.3539
In Canada call 1.800.830.3539



WE MANUFACTURE EXCELLENCE

FLEXTECH INDUSTRIES' PRODUCT LINE INCLUDES:

- metal bellows expansion joints
- fabric, rubber & teflon expansion joints
- flexible hose products
- piping accessories



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www.flextech-ind.com

DAMPER REPAIR AND REFURBISHMENT SERVICE

When regular inspection detects parts that need replacement contact Flextech Industries for damper refurbishment and parts maintenance service, including - controls, hose, fittings, bearings, packing and actuators. Ask us about any installed damper. Contact Flextech to discuss a site inspection or fax drawings, attention, "refurbishment" to: 660.885.6852



Ask for on-site demonstration.

We will bring a full-size Guillotine damper to your facility and demonstrate our patented Bellowseal® design - the tightest seal in the industry. Call **1.877.838.3539**

