Riley Air Control Systems Pty Ltd.

SSD Series

Ultra-Low Leakage

Smoke Control Dampers

SPECIFICATION DATA

General

The SSD Smoke Spill Control Damper is a safety device to control the spread of hot smoke in an emergency situation and to efficiently control the airflow in conventional air handling systems. The SSD is an ultra-low leakage damper, which operates safely up to 200 degree C and meets AS1668 requirements. It will be supplied with parallel blades as standard (opposed blades - optional).

Interlocking blade edges and spring steel side seals provide the basis for reduced leakage. For ultra-low leakage the blades are fitted with high temperature silicon-rubber seals that further reduce the leakage. Specially formed standard components and non-corrosive bearings conform to specifications required for high quality, low leakage, maximum rigidity and low operating torque. This allows the use of smaller or fewer actuators.

Multiple sections are inter-connected with a solid drive shaft and provide - together with individually adjustable internal blade linkages - a positive connection for optimum close-off sealing.

Total damper design and close manufacturing tolerances of Blendair dampers result in LONG DAMPER LIFE, SMOOTH & RELIABLE CONTROL AND ENERGY SAVING.

Features

- Spring stainless steel minimises blade end leakage
- Interlocking blades ensure rigidity and tighter close-off seal
- Ground stainless steel blade axles and Oilite bearings reduce friction and torque requirements, thus smaller actuators
- Rigid galvanised steel construction resists corrosion and extends damper life
- Corrosive-resistant internal blade linkage allows easy maintenance and field adjustment and interchangeable components
- High temperature silicone rubber for smoke control operation at 200 degree C on ultra-low leakage dampers
- Low leakage results in energy saving
- **Tested to AS 1530.7 on 19th June 2007**
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SSD High Temperature Smoke Control Dampers

DESCRIPTION & FUNCTION

The SSD Series SMOKE Control Damper is a safety device to control the spread of hot smoke in emergency situations; it also efficiently controls the airflow in conventional air handling systems. This ultra-low leakage damper meets AS 1668 requirements for operation at temperatures 200 degree C for two (2) hours.

Spring steel side seals and interlocking blade edges fitted with high temperature silicon-rubber seals are the principal design for ultra low leakage. Low friction internal blade linkages and blade bearings provide the basis for low torque and smooth and efficient modulating operation - it allows the use of smaller or fewer actuators.

Dampers are installed - as standard - with horizontal blade orientation. The opening, closing or modulation of the interconnected blades is effected by electric or pneumatic actuators initiated by control signals.

MODEL

SSD: Ultra low leakage SMOKE Damper, for high temperature applications requiring tight shut off. The Ultra Low Leakage damper is supplied as standard with silicon rubber blade seal and parallel blade configuration.

GUIDE SPECIFICATION (for the Engineer)

SMOKE Dampers installed shall be of design construction as the SSD series supplied by Blendair, meeting requirements of extra low leakage, low operating torque and smooth operation.

Dampers shall be of solid corrosive resistant steel construction (or S/S optional) to minimise distortion or twisting during transit, installation and operation. Blades shall be maximum 1200mm length and shall be individually adjustable to obtain optimum air shut-off. Drive blades over 800mm length shall be fitted with full-length stainless steel shaft to provide even torque distribution over blade length. Blades shall be pivoting on 12.7mm S/S shafts and 'Oilite' sintered bronze bearings.

DAMPER TYPES & APPLICATIONS

Dampers are supplied with two types of blade configuration:

Parallel Blade Dampers are constructed so that each blade rotates in parallel with or in the same direction as the blade next to it.

Opposed Blade Dampers are constructed so that adjacent blades rotate opposite to each other.

DAMPER SIZING SPECIFICATION

Modules are supplied in the following standard sizes:

Single Module: from 150mm x 150mm (min)
to 1200mm x 2400mm (max)

Size Increment: 50mm

Multi Modules and standard sizes available on request.

Note: *When specifying damper sizes (width and height), quote internal duct dimensions.*

SSD High Temperature Smoke Control Dampers

SHIPPING WEIGHTS (Kg)

(Galvanised construction)

Height (mm)	200	Width 600	(mm) 800	1000	1200
200	9	16	19	22	27
400	14	22	27	31	36
600	19	29	34	39	46
800	24	36	42	48	55
1000	30	43	50	56	65
1200	35	50	57	65	74
1400	40	57	65	73	84
1600	45	63	73	82	93
1800	50	70	80	90	103
2000	55	77	88	99	112
2200	61	84	95	107	122
2400	66	91	103	115	131

Note: For weights of multi modules, add total weight by interpolating with above weight table.

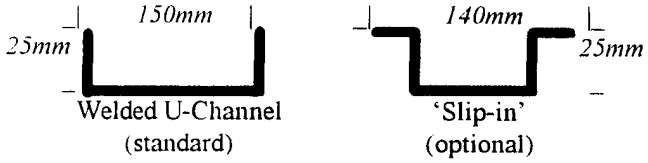
SPECIFICATIONS - Construction

Materials & Finishes

- Damper frame and blades: zinc-coated ('galvanised') steel sheet, complying with AS 1397 with a Coating Class not less than Z275. Damage to the zinc-coated. eg. through welding, is remedied by appropriate cleaning method and application of special 'galvanising' paint.

Frame:

Standard Construction: Press-formed Gal Steel
Material Thickness: 2.0mm



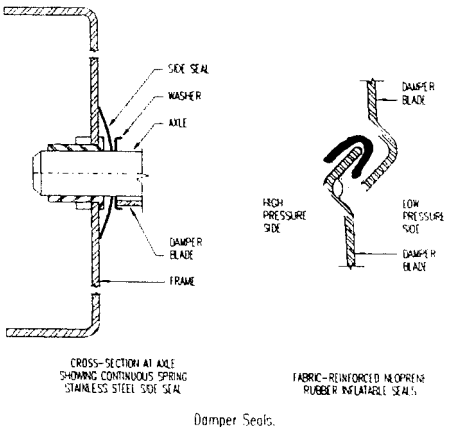
Blades:

Standard Construction: Roll or press-formed Gal Steel
Material Thickness: 1.6mm

Blade Seals:

Blade Ends: Spring stainless steel continuous strips (Side Seal)

Blade Edge: Clip-on, silicon rubber (optional 200ºC)



Damper Seals.

Blade Bearings:

Bearing Types: **'Oilite'** sintered bronze bearings for high temperature application (max 200ºC)

Blade Axle & Drive Shaft:

Material: 12.7mm diameter ground 303 Stainless Steel

Blade Axles: Blades are fastened to 50mm long axles with special self-locking, shake proof bolts.

Drive shaft: Drive Blade is fitted with 225 mm long drive shaft that extends outside the frame for external motor mounting, but is retracted for protection purpose during transit.

Dampers with over 800 mm blade length or over 0.6m^2 are fitted with full-length drive shaft.

Blade Linkage Hardware:

Linkage Bracket: Press-formed, zinc plated mild steel

Note: Optional extra heavy duty plating or stainless steel linkages are available for high corrosive atmosphere applications.

Linkage Connection Rod:

6.35mm 303 stainless steel.

Trunnions: Brass

Set Screws & Blade Mounting Bolts:

Zinc plated mild steel

Blade Orientation:

Dampers are available in two blade orientations (to be specified by customer):

Parallel (standard for SSD) and **Opposed** (optional)

SSD High Temperature Smoke Control Dampers

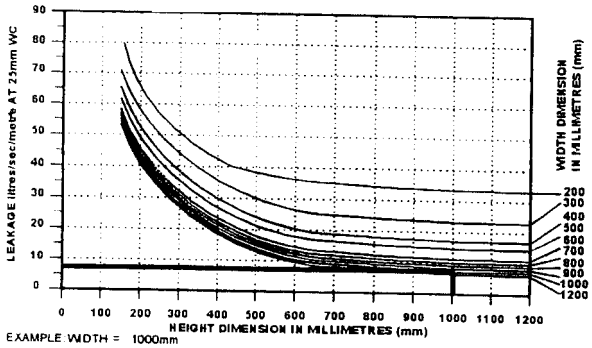
SPECIFICATIONS - Technical

INSTALLATION

Maximum Pressure Differential: 1.5kPa (6 Inch WC)
Maximum Approach Velocity: 20 m/sec (4000 fpm)
Temperature Range: -40 to +200 degree C

Leakage Characteristics:

ULTRA LOW LEAKAGE CURVE
SILICONE SEALS



EXAMPLE: WIDTH = 1000mm
HEIGHT = 1000mm
FROM THE GRAPH THE LEAKAGE IS 8 litres/sec/metre²
IF THE STATIC PRESSURE IS 50mm THEN THE LEAKAGE:
= 8 x 1.41
= 11.3 litres/sec/metre²

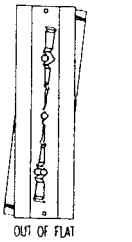
NOTES. 1. THE PERFORMANCE CURVES ON THIS GRAPH ARE TYPICAL.
2. ACTUATOR TORQUE REQUIRED = 7 Nm/metre².

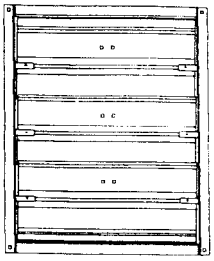
LEAKAGE AT STATICS OTHER THAN 25mm EQUALS LEAKAGE AT 25mm WC x F. (SEE CHART FOR F VALUE):

LEAKAGE MULTIPLIER (F)

STATIC	MULTIPLIER (F)
25mm	1.00
50mm	1.41
75mm	1.73
100mm	2.00

Important! Improperly installed dampers prevent blades from sealing (see sketch below). Gaps between the blades and frame indicate that the damper is installed 'out of square' or 'out of flat'. These misalignments will cause increased leakage and can result blade-to-linkage bind or non-closure of blades, thus overloading the damper actuator or render it inoperative.


OUT OF FLAT
BLADES WILL NOT FULLY CLOSE)


OUT OF SQUARE

Installation Hints:
1. Always observe and follow instructions on label affixed to damper.
2. Before installation, ensure that damper is not damaged and blades operate freely.
3. Allow sufficient space at side of damper for actuator mounting and min. 200 mm at front and back of damper for unimpeded blade rotation.
4. Install damper 'square and flat' as per warning above. Carry out final field adjustment to blade linkages and tighten all screws, ensuring that all damper close tightly.
5. Perform trial run of damper & actuator assembly, before attaching other end of duct work to damper.

OTHER DAMPER PRODUCTS
- **Volume Control Dampers:**
  High performance Volume Damper, Ultra Low Volume Control Damper, Min/Max Damper, Face & Bypass Damper, Zone Damper, Non Return & Barometric Damper.
- **Fire Dampers:**
  Multi blade Fire Damper, Single Blade Fire Damper, Circular Fire Damper, Volume-Fire Damper, Ceiling Fire Damper, Curtain Fire Damper.
- **Subducts**
- **Damper Accessories**

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