

Airwise Engineering

Multi-Blade Fire Damper

2- & 4-Hours Fire Integrity Rating

Heavy Duty – for wall and floor mounting application

Specification Data



GENERAL

The Blendair Multi-Blade Fire Damper is a Heavy-Duty Damper, designed to impede the spread of fire and/or combustible products (e.g. Smoke) through wall or floor openings to other fire compartments of an air-handling system.

This range of Fire Dampers finds its application in building construction and mining industry where ventilation, heating, cooling, or air-conditioning systems are employed.

The design concept is based on an interlinked set of blades that closes by gravity to form a tightly sealed barrier when a fusible thermal link breaks at a set temperature.

Blendair Multi-Blade Fire Dampers are certified by Standards Australia and meet AS 1682 and AS 1530 requirements.

FEATURES

- Rugged construction
- Tight manufacturing tolerances
- High strength and repeatable quality of roll-formed and fully welded frame
- Non-corrosive blade bearings
- Stainless steel version available as an option
- Suitable for masonry wall and floor mounting application
- Adjustable mounting angles
- Suitable for multi-module installation

DESCRIPTION AND FUNCTION

The Multi-Blade Fire Damper is designed to impede the spread of fire and or combustible products (e.g. smoke) to other fire compartments of an air-handling system. The design principle is based on a set of interlinked off-centre pivoted blades closing by gravity when a fusible thermos link breaks forming a tight barrier.

The damper is installed in a wall or floor opening separating two fire compartments with the blades housed within the damper frame, and when closed sealing against a rebate of the casing. The casing is of roll-formed galvanised steel construction.

Adjustable mounting flanges hold the complete damper assembly securely in the wall opening, with appropriate insulating material packed into the clearance space to meet installation Standards.

Multi-Blade Fire Dampers are certified by Standards Australia and meet AS 1682and AS1530 requirements.

Multi-Blade Fire Dampers for installation in brick or concrete walls for horizontal airflow with a 4 Hours Fire Integrity Rating.

Multi-Blade Fire Dampers for installation in floors or concrete slabs for vertical airflow with 2 Hours Fire Integrity Rating are fitted with a stainless-steel spring to assist closure.

Important Notes:

- 1. When specifying damper sizes (width x height), provide duct size dimensions! No allowance made.
- 2. When specifying wall opening sizes, allow sufficient space for insulation and expansion, use the following formulae:

External damper size + 10mm + 1% of linear length (width/height)

SPECIFICATIONS - Construction

- Damper frame, blades and mounting angles made of zinc-coated (Galvanised) steel sheet, complying with AS 1397 with a coating class not less than Z275.
- Damage to the zinc-coating, e.g. through welding, is remedied by appropriate cleaning method application of special 'galvanising' paint.
- Stainless steel version available as an option.

DAMPER ORDERING SPECIFICATION



Damper Frame:

Press formed 2.5mm galvanised steel, fully welded at all four corners, with 6 x 12mm rounded slots punched into casing to allow for variations in wall thickness.



Damper Blades:

Press-formed 1.6mm (nominal) galvanised steel with special joggle lips pressed not blade ends to allow perfect overlap of blades and sealing.



Blade Orientation/Location:

Horizontal: Individual blades are off-centre pivoted and interlinked via blade linkages and linkage rod. Blade set is held at top of damper by thermo-link assy. Blade closing by gravity, initiated by thermo-link.

Hinges & Bearings:

Each blade is pivoted on a set of hinge brackets and a "nut, pin & bush" assembly using sintered bronze bearings and stainless-steel ground pivot pins and retainer nuts.

Blade Retainer Clip:

1.0mm spring bronze material – press formed clip retains blade in closed position, allowing release from both end of damper.

Thermo-Link:

The thermo-link is a 'once only' used Fusible Solder Lind (70 degree C) Thermo-link assembly includes a turnbuckle which is attached to outrigger bolted to frame.

Access to Thermo-Link:

Available from both sides of damper for purposes of blade re-setting or re-fitting of Thermo-Link.

Mounting Hardware:

Zinc Plated ¼ ich cup head bolts and flanged washer for each set of slotted mounting holes in frame and mounting angles.

SPECIFICATIONS – Technical

Operation:

Damper closing is initiated by the breaking of the thermal fire link when temperature in the air stream reaches rated thermal link. The horizontally held interlinked set of blades stack will consequently fall and close by gravity forming a tight barrier and impede the spread of fire and/or combustible products to other compartments of the air-handling system.

Maximum Air Velocity:

IMPORTANT! It should be avoided to install Fire Dampers near the supply fan which may cause blade flutter and thus excessive wear of blade bearings.

Max. Velocity:

8m/s (without pressure relief fitted) 13m/s (with pressure relief fitted)

Note: Above values are recommendations from experimental tests carried out by CSIRO.

Air Flow Orientation:

Orientation of damper installation should be as per recommended airflow direction (label affixed to damper frame), so that damper closes with the assistance of airflow.

Standards Approval Listing:

Multi-Blade Fire Dampers have passed the test to meet the Leakage and Fire Integrity requirements to AS 1530-Part x and AS 1682-Part 1, with the dampers exposed to – 1100 degree Celsius for 4 hours / 2 hours periods.

INSTALLATION

IMPORTANT: The installation of Fire Dampers must comply with the requirements of AS 1682, Part 2. Deviation from any Clause of the Standards must be approved by a Regulatory Authority!

Basic Regulations.

- 1. Dampers shall be installed in the fully open position only! No intermediate blade position is allowed!
- 2. Damper frame (casing) must fully penetrate the wall opening.
- 3. Pivot point of damper blades must be fully contained within the penetrated wall element.
- Clearance between wall opening and damper body (frame) must be such to allow adequate of insulating material, PLUS expansion factor for fire situation. Recommended clearance formulae: 5mm + ½% of linear length dimension (width/height)
- The clearance space between the damper and the penetrated wall opening must be fully packed with approved insulating material to prevent free flow of combustible materials (e.g. Smoke). Material must maintain fire integrity up to 1000-degree C.
- 6. Mounting Flanges must cover clearance (2 x clearance). Contractor may have to fit larger flanges if clearance exceeds recommended sizes.
- 7. Ensure that access to damper is provided for maintenance purposes (e.g. access panel in duct).
- 8. Install damper according to label instruction re airflow direction.

Other Installation Hints:

- 1. Remove one set of mounting flanges from one side of damper.
- 2. Insert damper into wall opening
- 3. Pack clearance space between damper casing and wall opening with insulating material to meet above requirements.
- 4. Re-fit mounting flanges, nuts and bolts to damper and tighten, ensuring that flanges are butting tight against the wall and the damper is fitted squarely.
- 5. Ensure that damper closure is not impeded by any obstruction, incorrect installation (e.g. twisted, out of square). Damage to damper or contamination to blade bearings (e.g. building dust).
- 6. Check proper closing operation.
- 7. When fitting duct ensure that appropriate damper sleeve connections are used to allow proper duct 'breakaway' in a fire situation (refer to AS 1682, part 2 Appendix B: Examples).
- 8. Ensure that adequate access panel is fitted to duct to allow easy maintenance to damper.

Office:

Airwise Engineering Unit 3/5 Church Rd Maddington WA 6109 08 9493 5444

ABN: 98 160 501 673



Standard Wall Mounting



Wall Mounting with Grille



Floor Mounting