

Office & Factory:	5 Church Road
n	Vaddington WA 6109
Mailing Address:	PO Box 166
	Vaddington WA 6989
Phone: (08) 9493 5444
Fax: ((08) 94935344
Email:	marie@airwise.com.au

Curtain Fire Dampers

Vertical (CFD) & horizontal (SCFD) application



Blendair® Curtain Fire Damper Manufactured by Airwise Engineering

Overview

The Blendair® CFD – Curtain Fire Damper (vertical) and SCFD – Slab Curtain Fire Damper (horizontal) are simple and effective dampers, designed to impede the spread of fire and/or combustible materials through wall, partition, shaft wall or slab openings to other fire compartments of an airhandling system.

These ranges of damper find their application in commercial building construction where ventilation, heating, cooling or air-conditioning systems are employed.

The design principle is based on an integral, interlocking stack of blades that close by gravity (in vertical models) or with spring assistance (in horizontal models) to form a tightly sealed barrier. Closure in both vertical and horizontal versions is initiated when a fusible thermal link separates at a set temperature. The curtain is housed and guided in a press-formed and fully welded galvanised steel frame which ensures minimum distortion during transit, installation and operation.

Blendair® Curtain Fire Dampers are certified by Standards Australia and meet AS 1682 and AS 1530 requirements.

Specification Data

Curtain Fire Damper (CFD) Slab Curtain Fire Damper (SCFD)

• Damper frames are manufactured from press-formed 1.6mm zinccoated ("galvanised") steel, complying with AS 1397 with a coating class not less than Z275.



- Damper frames are welded at all four corners, 7 x 12mm rounded slots are punched into the casing where applicable to allow for the fitting of the fixing angles and accommodate variations in wall thickness.
- Blades consist of roll-formed 1.0mm zinc-coated ("galvanised") steel which interlocks to perform the blade pivoting function. This interlock allows the blades to form a concertina-type stack called the curtain or shutter.

- The 'once only' thermal link separates at a standard 70°C. Re-setting of the blade stack and replacement of this link can be affected from either side of the damper.
- Closure is initiated by the separation of the thermal link when the temperature in the airstream reaches the rated thermal limit. The blade stack will consequently unfold and form a curtain, impeding the spread of fire and/or combustible products.
- Mounting is via "false" roll-formed 2.0mm TDF or angle with 7 x 12mm slots to allow for minor variations in thickness and are spaced at a nominal 150mm.
- Mounting hardware ¼" zinc-plated cup-head bolts and serrated nuts for each set of slotted mounting holes in frame & mounting angles/"false" TDF's.
- Recommended air velocity: 8m/s (without relief fitted) 13m/s (with relief fitted). These values are recommendations from experimental tests carried out by the CSIRO. **IMPORTANT**! Curtain-type fire dampers should not be used in high velocity applications. Damper may not close, due to build-up of static pressure.

Blendair® Curtain Fire Dampers have been tested for bi-directional airflow closure at a maximum velocity of 19.5m/s and static pressure of 925pa.

- Orientation of the damper installation should be as per the direction labels affixed to damper. Blendair® Curtain Fire Dampers have been tested for closure and may be installed for bi-directional air-flow.
- Blendair® Curtain Fire Dampers have passed the test to meet the leakage and fire integrity requirements of AS 1530 and AS 1682 with the dampers exposed to ~ 1100°C for 121/241 minute periods.

Installation

Curtain Fire Damper

IMPORTANT: The installation of Fire Dampers must comply with the requirements of AS 1682 Part 2. Deviations 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/slab opening.
- 3. Pivot point of damper blades must be fully contained within the penetrated element.



4. Clearance between wall opening and damper body (frame) must be such to allow adequate insulating material, PLUS expansion factor for fire situation.

Recommended clearance formulae: $5mm + \frac{1}{2}\%$ 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 the 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 instruction labels regarding air-flow direction and orientation.

Other installation hints:

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

Inspection and Maintenance.

Fire dampers are a critical passive safety feature within a buildings HVAC system. Their maintenance and inspection is covered by Australian Standard 1851-2005. This standard requires building owners to inspect a minimum 20% of the fire dampers annually and rotate this inspection so that all dampers have been inspected by the end of the fifth year.

Maintenance: Is a component of this inspection procedure and Actions including cleaning, lubrication, adjustment and component replacement should be performed at the manufacturers recommended intervals (see Airwise O&M document; Maintenance) to minimize the risk of malfunction.

Inspection: Visual examination of the damper to establish its physical condition, installation, cleanliness, freedom from obstruction or damage and identity.

Testing: At each inspection the damper should also be tested for correct function. Where necessary thermal links should be released to ensure the damper closes and/or latches as it should – NOTE: thermal links have a lifespan and need periodical replacement.

After Inspection and/or testing a report should be provided. This report should include:

- A list of the location of the dampers inspected and their identity.
- Whether the damper passed or failed inspection.
- In the event of failure a detailed reason for that failure should be provided and if possible a recommendation for corrective action.



See Note; maximum velocity and static pressure in specifications.

