FIRE DAMPERS

aircontrol

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Contents

Fire Dampers

Celmec International

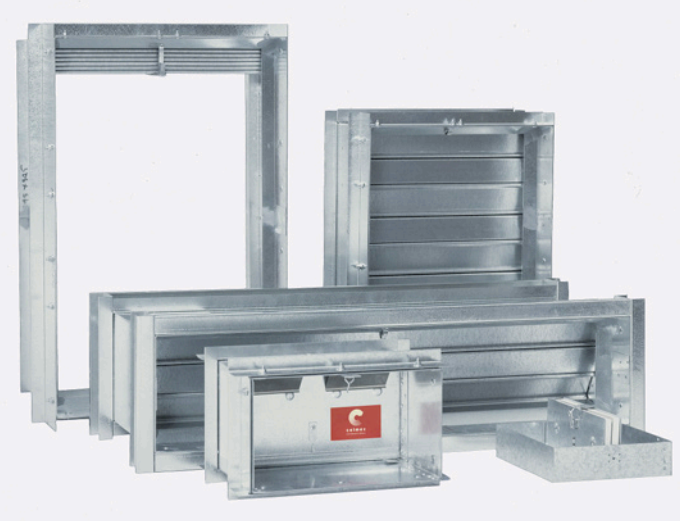
Leading the way in Air Control, Heating & Cooling

At Celmec International, it is our belief that working closely with our clients aids the mutual success of both organisations and for this reason we have adopted the following mission:

"To excel in the commercial and industrial building industry by setting new standards with innovative products through leadership, first class customer service and engineering excellence."

It is with confidence that we at Celmec International offer our Fire Dampers as part of our unique Aircontrol product range. Our Fire Dampers are tried and proven for well over two decades.

We trust that this concise brochure will assist all users in the area of damper selection, application design and installation techniques.



Curtain Blade

Features

- Easy to install and cost effective
- 4 hour fire rating
- Air leakage performance - conforms to AS 1682
- Standard fusible link - alternative link selections available
- All links supplied will not mechanically bind
- Suitable for low, medium and high velocity systems

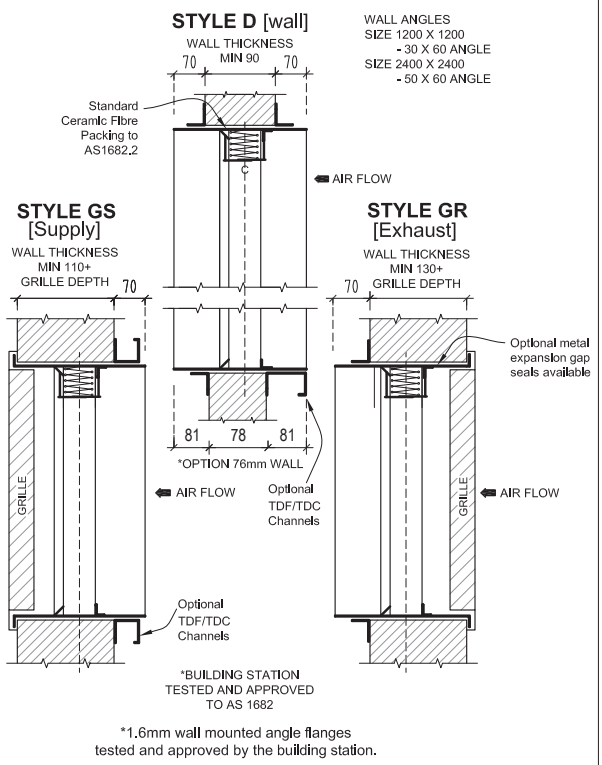
Installation notes

1. The casing of the damper must completely penetrate the wall.
2. The curtain of blades, when in the closed position, must be located in the plane of the wall (Vertical Damper). The plane through the pivot of the fire damper blades in the closed position must be at a distance of greater than 40mm from the wall face.
3. Dampers must be installed with airflow direction as indicated on the damper label.
4. The wall opening for the fire damper shall allow a clearance in accordance with AS1682.2.1990 (penetration size = 1.01 x Damper size + 10mm).
5. Install appropriate access panel in duct for future inspection and access to fusible link.

Wall mounted

Building Station
Sponsored Investigation
No. 1798

Approved up to 4800 x 4800

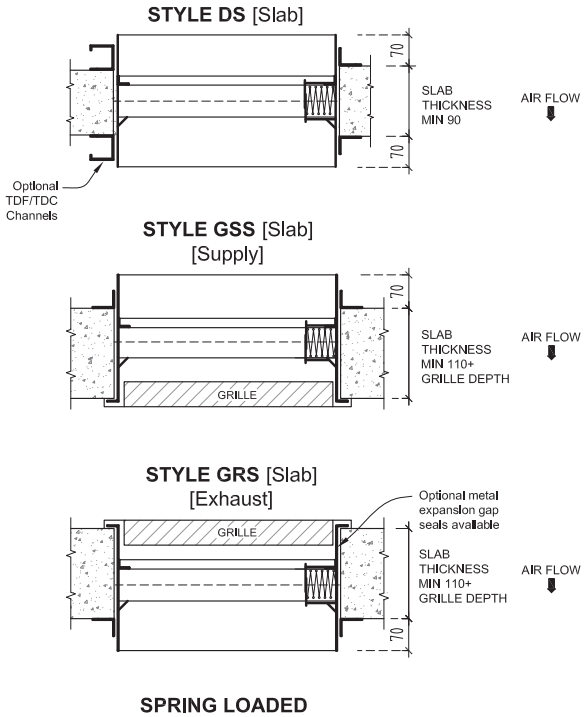


*1.6mm wall mounted angle flanges tested and approved by the building station.

Slab mounted

Building Station
Sponsored Investigation
No. 1864

TEST SIZE 755 x 755



Blade Type

Containment of fire wall in defined areas of a building is a mandatory safety requirement, governing structural penetrations associated with ductwork and grilles. Building codes specify the use of Fire Dampers requiring fire ratings of 1 to 4 hours depending on the application.

Features

The following patented hardware arrangements allow radical improvements to be incorporated in this product, assuring a lifetime of service with a minimum of costly maintenance.

- Linkage Pivot Pins are made of stainless steel to prevent any risk of seizure through rust over any period of time.
- Set screws are cup pointed, case hardened to eliminate any risk of slip.
- Bearing Saddle is formed so that the end of the oilite bronze brush projects past the end of the blade producing a thrust end and eliminating the risk of interference between the blade and frame.
- Shaft is manufactured from stainless steel and is formed to provide for angular misalignment of up to four degrees and still maintain minimum tolerance between shaft and bearing.

Arrangements

DUCT to DUCT

- Style D + DS (slab)
- Type 1 & 4

Order should be read as follows: Width x Height x Wall thickness.
Note: Wall thickness (refer drawings), special 76mm wall thickness is achievable.

DUCT to GRILLE

- Style GS (supply)
- Style GSS (slab supply)
- Type 2 & 5

Order should be read as follows: Width x Height x Wall thickness.
Note: Wall thickness (refer drawings) + Depth of Grille + O.B Damper (if applicable).

GRILLE to DUCT

- Style GR (exhaust)
- Style GRS (slab exhaust)
- Type 3 & 6

Order should be read as follows: Width x Height x Wall thickness.
Note: Wall thickness (refer drawings) + Depth of Grille + O.B Damper (if applicable).

Installation procedures

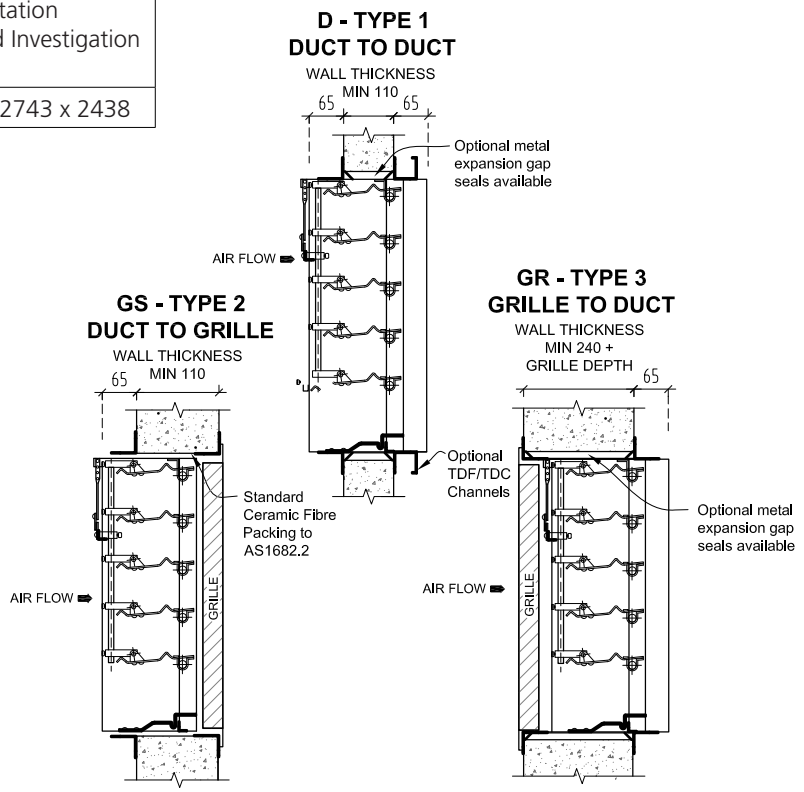
1. Remove one (1) set of slotted angles.
2. Insert damper into opening.
3. The space between the fire damper body and the opening in the wall and slab shall be filled with an approved compressible non-combustible material for the full thickness of the wall.
4. Fit ductwork to fire damper. Note: Duct to finish • 40mm from wall (curtain type)
   • 30mm from wall (blade type).
5. Align the removed slotted angles back into position.
6. Repeat steps 1,4 & 5 for ductwork on other side of wall.
7. Tighten both sets of slotted angles up to duct and wall.
   Refer AS 1688 - Part 1 - 1979 Page 15, section 4.3.
   Fire dampers must be maintained in accordance with AS 1851 - Part 6 - 1983.

Blade Type

Wall mounted

Building Station Sponsored Investigation No. 569

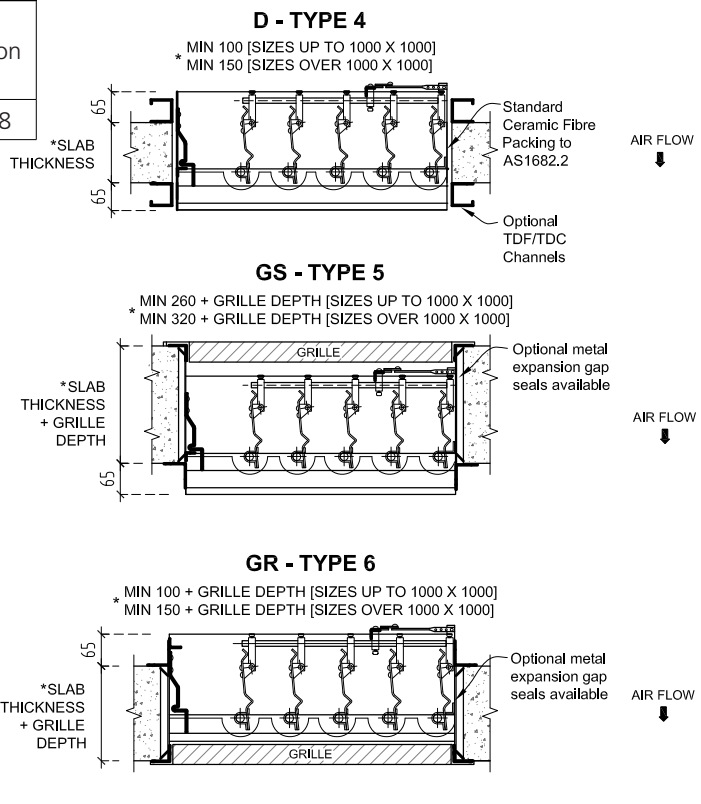
TEST SIZE 2743 x 2438



Slab mounted

Building Station Sponsored Investigation No. 855

TEST SIZE 2896 x 1448



Model 5691

Ceiling Radiation / Fire Damper

Ceiling Radiation / Fire Dampers protect the penetrations in the ceiling membrane portions of Fire rated Floor / Ceiling or Roof / Ceiling assemblies, shielding against fire and heat radiation.

The Model 5691 Ceiling Radiation / Fire Damper is test proven for 2 hours in a 120 / 120 / 120 / Boral Fire Rated ceiling system, and certified for 1 and 1.5 hour ceiling systems. The Damper capabilities must cover three important areas, Flame, Heat and Smoke:

1. Stop flames and combustible materials from entering the duct above and spreading throughout the building.
2. Reduce radiant heat which could ignite materials above the fire rated ceiling.
3. Reduce the transfer of smoke and dangerous hot gases form the fire zone to the non-fire zone.

Features

- Australian certified to AS1530.4 - 1997 by the CSIRO - Test#-FS3033/1516.
- Optional airflow tested by the CSIRO for blade closure in excess of 18m/s - Test#-FS3099/1691.
- Letter of opinion for 1 hour and 1.5 hour installations - #FCO-1601.
- All galvanised steel construction.
- Structurally strong "C" shaped centre pivot.
- Incorporates a high yield 2mm stainless steel spring (s).
- Single (UL33 rated) fusible link located for quick response to temperature rise.
- Heat resistant 13mm high density ceramic fibre board blade insulation.
- Readily available square and rectangular sizes from 150mm x 150mm up to 600mm x 600mm.
- 4 corner blade locking complying with AS1682.1-1990, section 3.4.

Typical Specifications

Openings in ceiling required to have a FRL, shall be protected by a Bullock Model 5691 ceiling radiation / fire damper.

The dampers shall be provided where shown on drawings and wherever required to meet local regulations and MUST comply with AS1682.1-1990, AS1668.1-1998, section 3.5.

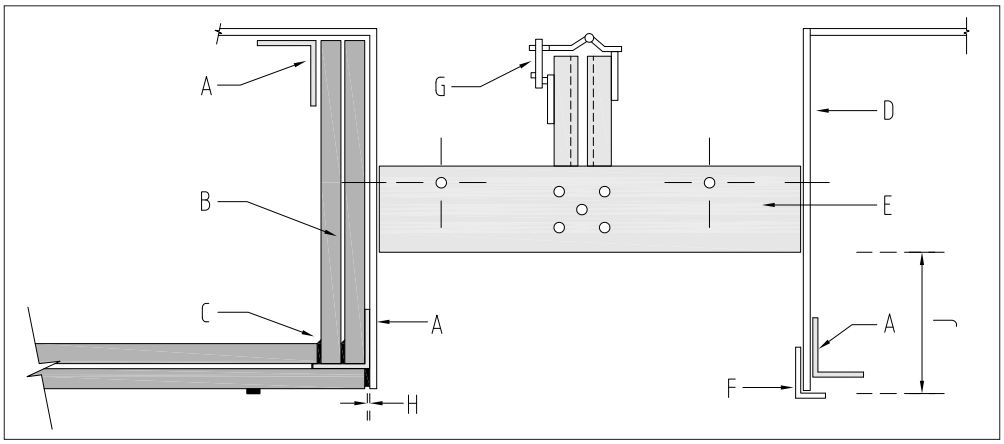
Dampers shall be mounted in strict accordance with the manufacture's installation instructions, to comply with the certificates of test furnished by the manufacturer.

The damper construction must be in compliance with the tested prototype containing features as: High yield stainless steel springs (s), four blade locking for positive closure to achieve low air/smoke leverage. Dampers installed in return air or exhaust applications must be capable of operation, at airflow rates in excess of the actual design application. (NOTE: Model 5691 dampers have a certifies closure rating of 18m/s). Radiant metal duct surface temperature directly above the damper to below 150˚C after 120mins exposure. Blades must easily be reset from the underside for testing and maintenance in accordance with AS1851.6-1997.

Model 5691

1 Hour Fire Rated Ceilings / Installation Instructions

1. INITIAL DAMPER TEST - Before installing damper into plenum, check damper closing operation. This can be achieved by sliding the closed damper blades towards the centre channel, then pivoting the blades upwards. Hold the two blades with one hand and supporting the frame on a solid surface, release the blades (USE CAUTION) to allow them to snap shut to the closed position.
2. Manufacture of duct dropper / plenum in 0.7mm galv. steel as per AS 4254-1995.
3. Check there is a 3mm maximum clearance between damper frame and the ducts inside surface prior to securing damper.
4. Drill holes to suit pre-punched holes in the damper frame, then secure with 5mm dia. tubular STEEL rivets. Seal any gaps with an approved fire rated mastic.
5. Plenum or Duct droppers must be firmly secured to the slab, floor / ceiling or roof above, independently from the suspended ceiling itself.
6. 'F' - 0.7mm retaining angles are mandatory if grilles or diffusers are manufactured from aluminium or plastic.
7. Once damper is installed REPEAT INITIAL DAMPER TEST as outlined in point #1 to ensure proper closing operation. Re-fit UL33 fusible link setting damper in the open position.



A - RONDO Part Nº 553. Continuous angle 35mm x 35mm x 0.75
B - BORAL 16mm 'Firestop' Plasterboard (3 x Layers Vertical).
C - Fire Rated Mastic is to be used in sealing all joining gaps.
D - 0.7mm Galvanised Steel Duct
E - Model 5691 Ceiling Radiation / Fire Damper
F - Duct retaining angle (Bottom turn out to be a minimum of 15mm)
G - UL33 Fusible Link
H - Max gap between duct drop underside sheet to be 5mm. Seal with fire-rated mastic.
J - Maximum distance is 92mm

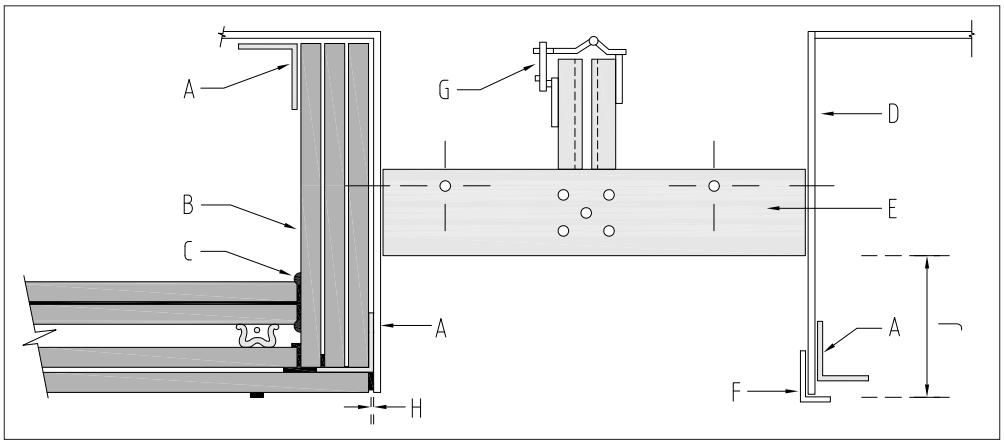
PLASTERERS NOTE: ANY SCREWS THAT PENETRATE THE DUCT OR PLENUM MUST NOT IMPEED THE DAMPERS CLOSING ABILITY. ALL JOINING GAPS IN AREAS 'C' & 'H' MUST BE FILLED USING A FIRE RATED MASTIC AS PER AS 1530. 4-1997.

Refer to BORAL Plasterboards brochure for Ceiling detail to suit this application.
Systems: RC3, RC4, RC5, RC6, RC7 and RC8.
Bullock Model 5691 is manufactured in accordance with CSIRO TEST Nº FS3033/1516, FS3099/1691. Installation instructions are in accordance with CSIRO TEST Nº FS3033/1516, FS3099/1691. Refer to covering brochure for more detailed product information.

Model 5691

2 Hour Fire Rated Ceilings / Installation Instructions

1. INITIAL DAMPER TEST - Before installing damper into plenum, check damper closing operation. This can be achieved by sliding the closed damper blades towards the centre channel, then pivoting the blades upwards. Hold the two blades with one hand and supporting the frame on a solid surface, release the blades (USE CAUTION) to allow them to snap shut to the closed position.
2. Manufacture of duct dropper / plenum in 0.7mm galv. steel as per AS 4254-1995.
3. Check there is a 3mm maximum clearance between damper frame and the ducts inside surface prior to securing damper.
4. Drill holes to suit pre-punched holes in the damper frame, then secure with 5mm dia. tubular STEEL rivets. Seal any gaps with an approved fire rated mastic.
5. Plenum or Duct droppers must be firmly secured to the slab, floor / ceiling or roof above, independently from the suspended ceiling itself.
6. 'F' - 0.7mm retaining angles are mandatory if grilles or diffusers are manufactured from aluminium or plastic.
7. Once damper is installed REPEAT INITIAL DAMPER TEST as outlined in point #1 to ensure proper closing operation. Re-fit UL33 fusible link setting damper in the open position.



A - RONDO Part Nº 553. Continuous angle 35mm x 35mm x 0.75
B - BORAL 16mm 'Firestop' Plasterboard (3 x Layers Vertical).
C - Fire Rated Mastic is to be used in sealing all joining gaps.
D - 0.7mm Galvanised Steel Duct
E - Model 5691 Ceiling Radiation / Fire Damper
F - Duct retaining angle (Bottom turn out to be a minimum of 15mm)
G - UL33 Fusible Link
H - Max gap between duct drop underside sheet to be 5mm. Seal with fire-rated mastic.
J - Maximum distance is 92mm

PLASTERERS NOTE: ANY SCREWS THAT PENETRATE THE DUCT OR PLENUM MUST NOT IMPEED THE DAMPERS CLOSING ABILITY. ALL JOINING GAPS IN AREAS 'C' & 'H' MUST BE FILLED USING A FIRE RATED MASTIC AS PER AS 1530. 4-1997.
Refer to BORAL Plasterboards brochure for Ceiling detail to suit this application.
Systems: FC2
Bullock Model 5691 is manufactured in accordance with CSIRO TEST Nº FS3033/1516, FS3099/1691. Installation instructions are in accordance with CSIRO TEST Nº FS3033/1516, FS3099/1691. Refer to covering brochure for more detailed product information.

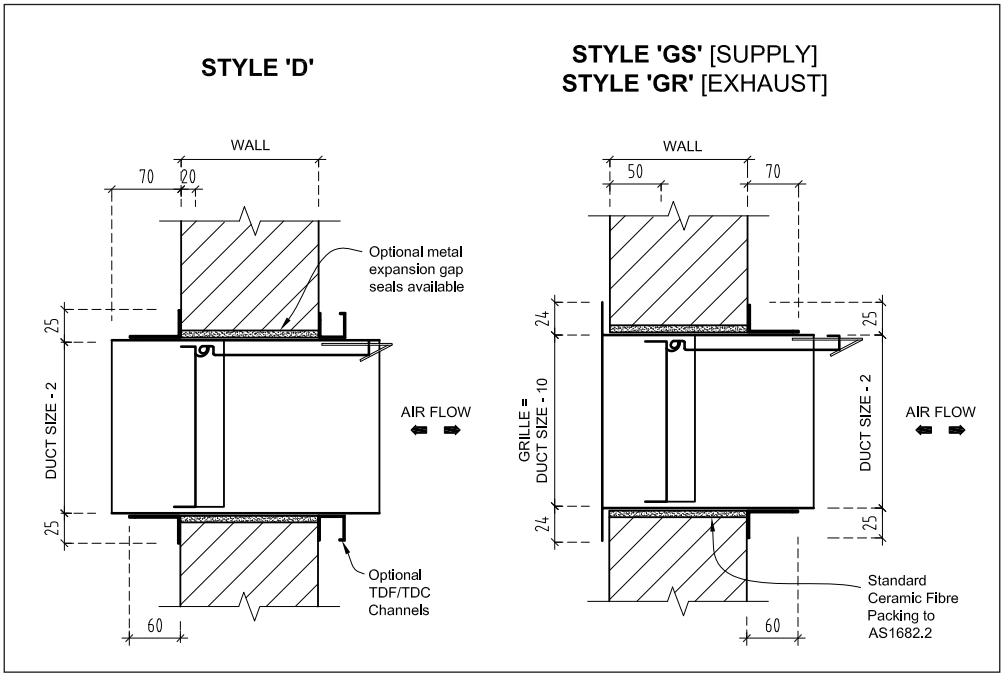
Model 5650

The Model 5650 Drop Lock type fire damper is light-weight with a superior closing ability. Complying with AS1682.1-1990 and AS1668.1-1998, the model 5650 is tested and certified for a four hour rating in a masonry wall or concrete slab, 2 hour rating in a steel stud plasterboard partiti0on and a 3x16mm plasterboard partition - all without the need for support rods or lintel beams.

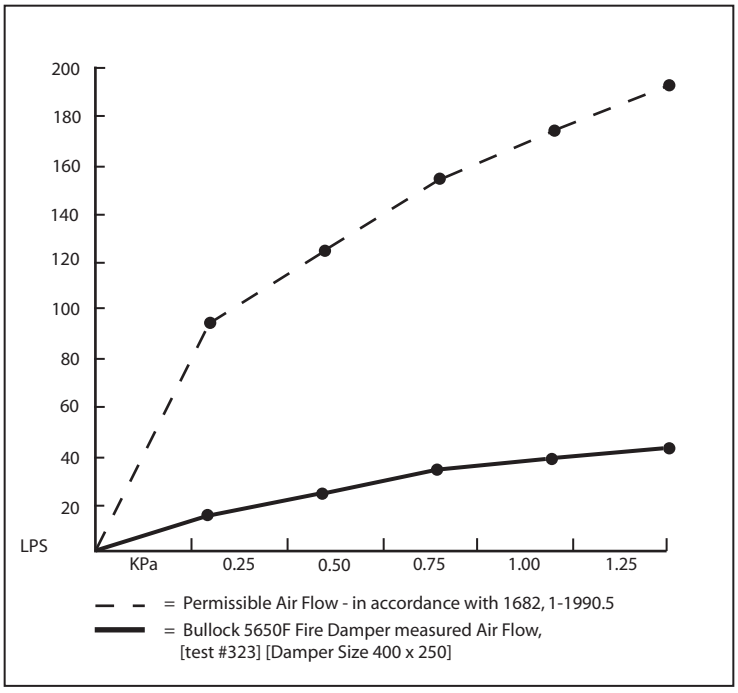
Features

- Australian certified AS1682.1-1990 by the CSIRO in:
  - Masonry walls for 4 hours. Test# - FSP-0145, FSP-0146
  - Concrete slabs for 4 hours. Test# - FSP-0505.
  - Steel stud plasterboard partition for 2 hours. Test# - FSV-0100.
  - Non-load bearing vent shaft partition (48mm) for 2 hours. Test# - FSV-0538.
- Optional airflow tested by the CSIRO for blade closure in excess of 8m/s. Test# - FS2946/1558.
- Single had reset from either side.
- Approved UL33 fusible link (165˚F - 74˚C) in a closed hook for easy replacement.
- Light-weight construction without welding ensures the integrity of the dampers galvanised coating.
- Recessed angle deisgn permits a raw edge easy duct attachment, with breakaway characteristics.
- Optional TDF/TDC flanges can be supplied to match 25mm or 35mm ductwork.
- Double action 301 stainless steel spring with blade dimples provide positive low leakage shut off.
- Has a low leakage rate of only 20% permissible air leakage as per AS11682.1 - 1990.
- Optional factory set 10mm Metal Expansion Gap Seals are available at the time of ordering, ensuring AS1682.2 - 1990 Section 5.2 is complied with.
- Side blade closure dampers available for specific building applications.
- Duct to Duct (D) and Duct to Grille (GS) configurations in sizes 100mm x 100mm up 400mm x 250mm available.

Drop Lock Fire Damper



The body style 'GS' & 'GR' is the same outside dimensions as style 'D'. Grilles or registers will need to fit in a clear opening 10mm less than nominal size (example: nominal 200 x 200 will have a clear opening of 190 x 190).



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