MADE IN BRITAIN

V12607

FD Series
Mechanical Curtain Blade Fire Damper

- Complies to BS EN 15650
- Tested installation methods in differing supporting constructions (BS EN 1366-2)
- E classified fire dampers complying with BS EN 13501-3
- FD-AF has been tested both vertically and horizontally. It is installed using single side access without the need to provide fire rated infill material
- Galvanised and stainless steel options
- Microswitch option for remote indication

FD Series

Fire Dampers – Introduction

Introduction

What is a fire damper and why might it be needed?

The FD Series Steel Curtain Fire Damper is designed to stop the spread of fire through ducts, walls, floors and ceilings. The product range has many features and options to meet the requirements of specifiers, contractors, local and national authorities. Dampers are available to suit all velocity applications.

What is the 'E' classification?

To achieve the classifications to EN13501-3, fire dampers and fire and smoke dampers shall be tested to EN1366-2 and a 300Pa pressure difference is applied across the damper. During the fire test period, the integrity of the seal between the damper and the structure shall not have any gaps larger than 150mm x 6mm. There shall not be any sustained flaming. The largest size of damper to be manufactured for sale as a single section shall be fire tested.

E = Integrity

The maximum leakage permissible at 300Pa corrected to 20°C is 360m^3/hr/m^2 (100 l/s/m^2) throughout the fire test period.

Fire dampers should be installed as tested.

BSB have a policy of continued testing and product certification to try and provide as broad a number of installation methods as possible.

BSB also follow regulation and standards development very carefully to provide input on changes and to be able to pass on relevant information to designers, specifiers, building control authorities (BCA's) and installers.

The FD Series Range

The BSB FD series is available in a variety of vertical or horizontal mounting configurations from 100mm x 100mm to 1200mm wide x 1000mm high.

Type FD Rectangular Spigot

A - Blades in airstream on heights greater than 300mm.
B - Blades held clear of the airstream.

Type FD Circular Spigot

C - Blades held clear of the airstream.

Type FD Flat Oval Spigot

O - Blades held clear of the airstream.

FD Features and Benefits

- Tested and classified installation variants of the FD are available to cover masonry walls, dry walls and concrete floors. These cover the majority of applications/supporting constructions that are required to maintain compartmentation.
- Angle frame methods, HEVAC frame methods and cleat and drop rod methods are available.
- Minimum size 100mm x 100mm.
- Maximum single section size 1200mm x 1000mm.
- In millimetre increments.
- Multi-section configurations are available to specific customer requirements, but will be subject to BCA approval.
- Standard construction is a fully welded galvanised steel case, which gives a casing leakage that complies with Class C ductwork leakage specifications.
- Other combinations of galvanised mild steel, type 1.4016 (430) and 1.4401 (316) stainless steels for the blades and case are available to specific customer requirements.
- The BSB FD has a strong and robust design to both meet the exacting fire testing requirements and be resilient to site handling. This is supported by sound production techniques which result in a quality product.
- All the above, supported with BSB's enviable delivery performance, provide an unbeatable combination.

Testing and Conformities

CE

See installations section for full details.

E Classification (BS EN 1366-2/BS EN 13501-3)

- Please refer to the right hand side chart for further information

- **E Classification (BS ISO 21925-1)**
- As BS EN 1366-2/BS EN 13501-3 above **Corrosion testing (ASTM B117)**

- Tested and satisfies LPS 1162

FD Blade leakage (BS EN 1751)

- Class 2

Classification	Supporting Construction	Drawing
E 120 (ho i→o)	Masonry Floor	FD M1
E 120 (ve i↔o)	Masonry Wall	FD M2
E 120 (ve i←o)	Drywall Partition	FD M6
E 120 (ve i↔o)	Drywall Partition	FD M9
E 90 (ve i↔o)	Drywall Partition	FD M9
E 120 (ve i↔o)	Masonry Wall	FD M10
E 120 (ho i←o)	Masonry Floor	FD M11
E 120 (ve i↔o)	Fire Curtain	FD M14
E 120 (ve i↔o)	Drywall Partition	FD M9 MULTI
E 120 (ve i↔o)	Masonry Wall	FD M10 MULTI
Refer to CE-DoP-FD for full detials		

Regulations and Standards

Approved Document B: Fire safety (ADB)
ADB is the UK government's guide to fulfilling the Building Regulations in terms of fire safety. It is available as a free download from the planning portal website.

It gives clear guidance on where fire dampers are to be used and what their performance or classification shall be. The BSB FD fulfils the E classification and reference should be made to the installation method to confirm exact time periods. These will generally up to 120 minutes.

Health Technical Memo 05/02 (HTM05/02)
HTM05/02 is the Department of Health Firecode - fire safety in the NHS: Guidance in support of functional provisions for healthcare premises.

It basically underlines the requirements stated in ADB, requiring fire damper testing to BS EN 1366-2 and classification to BS EN 13501-3.

It supersedes HTM81 and should be read in conjunction with HTM2025: Ventilation in healthcare premises, as it gives guidance on maintenance and testing.

Building Bulletin 100
BB100 is the Department for Children, Schools and Families document on Fire safety in schools.

It basically underlines the requirements stated in ADB, requiring fire damper testing to BS EN 1366-2 and classification to BS EN 13501-3.

Regulatory Reform (Fire safety) Order (RRFSO)
There are requirements for keeping testing and maintenance records for all passive fire protection equipment, which includes fire dampers.

BS EN 15650
Fire Damper product standard. Ventilation for Buildings.

BS EN 1366-2
The fire resistance test standard for fire dampers.

BS EN 13501-3
Classification standard for fire dampers.

BS EN 1751
The standard for aerodynamically testing dampers. This includes casing leakage.

Other publications

DW 144 (HVCA)
This states the general requirements for HVAC ductwork, including the use of fire dampers. It also states ductwork leakage limits. Normal operating conditions - not exceeding 1000Pa, Classes A & B of DW 144 2016 Specification will apply.

DW 145 (HVCA)
This document will give guidance on the whole process of the selection and installation of fire dampers, with responsibilities and project planning etc.

The Grey Book (ASFP)
This gives further guidance on the application and installation of fire dampers.

Scotland
These are technical standards (AMD's). They give similar guidance to ADB. They already include direct references to the application of European standards. They are obtainable as a free download from the Scottish Executive website.

Typical Tender/Specification Text

Dampers to comply with EN15650.

For maintenance of the integrity of compartmentation the fire dampers shall have an E classification to EN 13501-3.

Folding blade (E class) fire dampers shall not be used for protection of escape routes and areas with sleeping risk.

Refer to Approved Document B (ADB).

The interlocking ribbed blades shall be held out of the airstream against constant force springs by a fusible link.

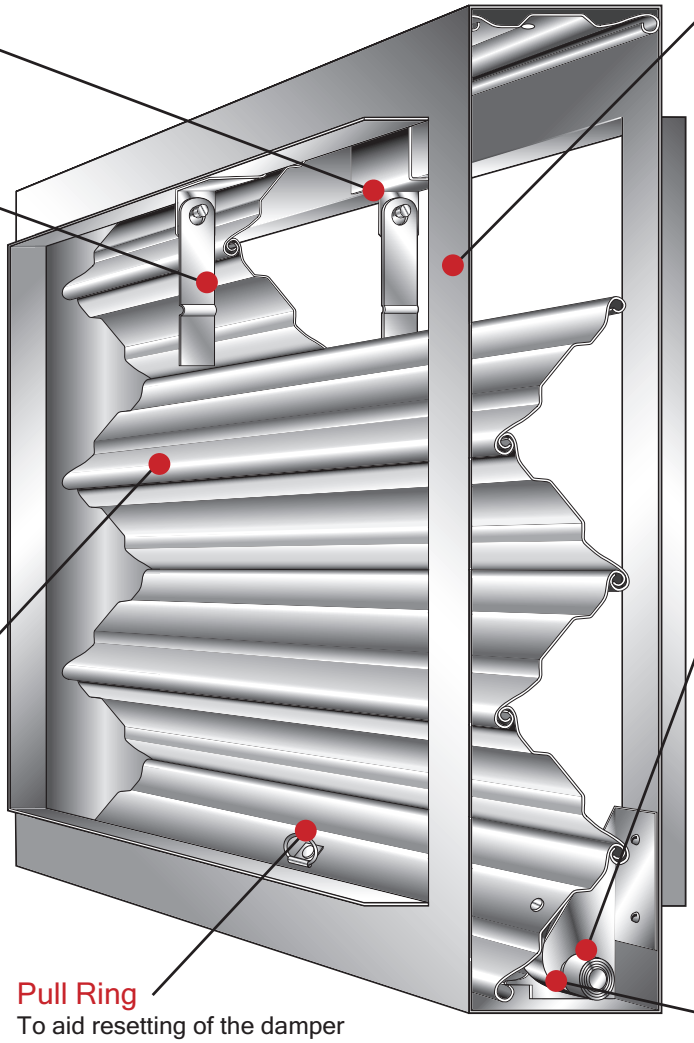
The fusible link shall have a melting temperature of 72°C. The link melting shall allow the springs to close the damper.

The fusible link assembly and bottom blade arrangement ring pull shall be installed so that test release may be made safely from either side of the damper.

The fire damper case shall be fully welded to meet the air tightness test requirements of HVCA. Normal operating conditions - not exceeding 1000Pa, Classes A & B of DW 144 2016 Specification will apply.

Fusible Link Bracket
The Fusible Link Bracket is manufactured from galvanised steel as standard.

Fusible Link
Blades are held in the open position by a straight bar link (fitted as standard) rated at 72°C (162°F) with a formed reinforcing swage and two location holes.



Casing
Formed to provide two continuous internal flanges not less than 30mm. Casing and components not less than 1.2mm thick cold reduced hot dipped galvanised mild steel to BS EN 10346 Grade DX51D + Z275.

Casing material options to order are Ferritic 430 type 1.4016 grade or Austenitic 316 type 1.4401 grade to BS EN 10088-2.

Blades
Formed to provide a continuous interlocking hinge extending the full length with dual swages providing maximum strength and rigidity. Nominally 0.7mm (22swg) thick cold reduced hot dipped galvanised mild steel to BS EN 10346 Grade DX51D + Z275.

Blade material options to order are Ferritic 430 type 1.4016 grade or Austenitic 316 type 1.4401 grade to BS EN 10088-2.

Closure Springs
Dampers are supplied with two constant force coil springs exerting a pull of not less than 35N, with one end fixed to the leading blade by rivets and the coil fitted on the spindle of the locking ramp. The spring is manufactured from Grade 302 stainless steel to BS EN 10151.

Pull Ring
To aid resetting of the damper blade pack, the bottom closing blade will be fitted with a single pull ring centrally to the width for dampers up to and including 500mm wide or 500mm diameter. For all dimensions above this, two equally spaced pull rings will be fitted.

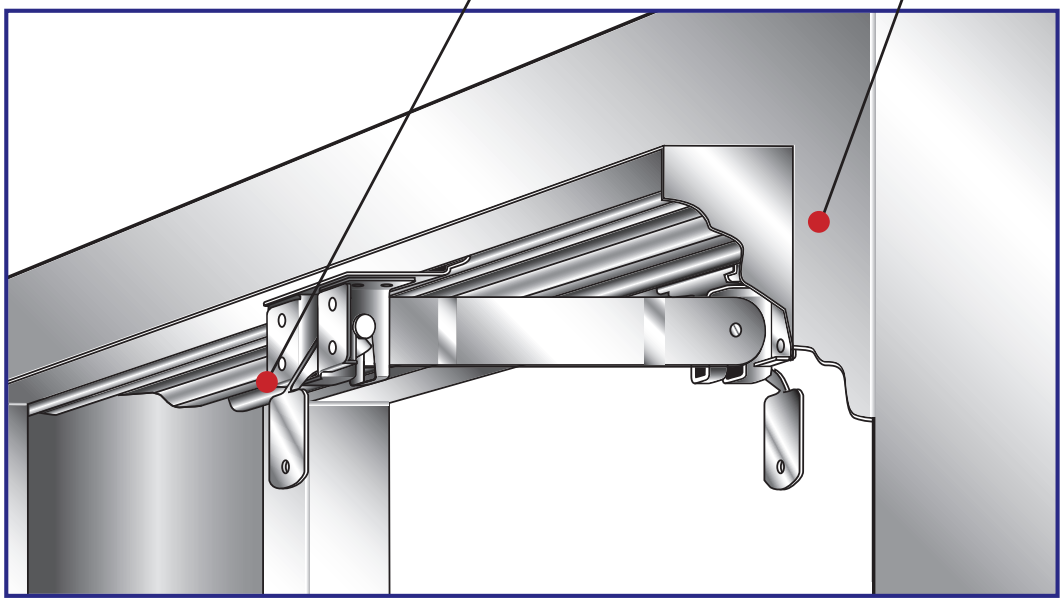
Locking Ramps
Dual locking ramps ensure positive closing action of the blade pack in horizontal or vertical installations.

Gate Latch Release
Optional mechanism for electrical release when required. Rated 72°C (162°F),

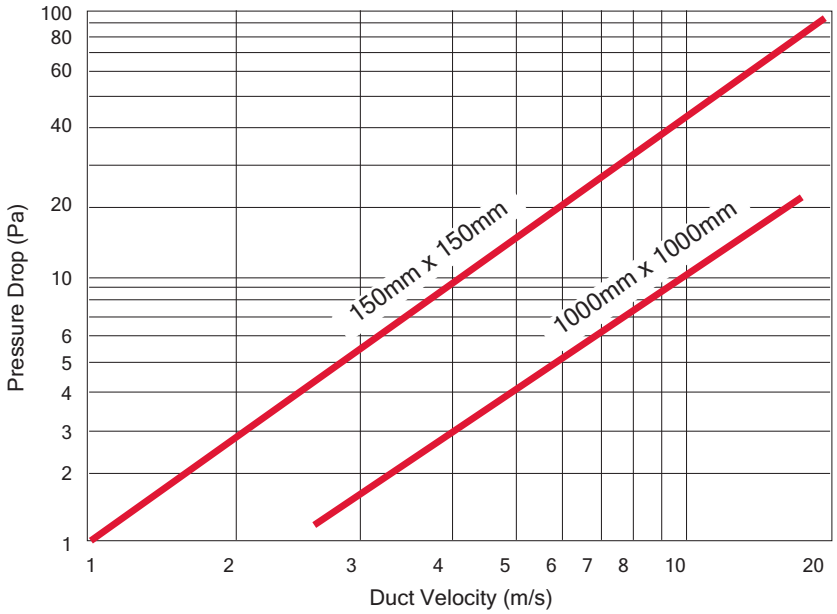
Paint
All welds are cleaned and sprayed with commercial grade water based protective paint.

Microswitches
All BSB FD Fire Dampers are available with factory fitted single pole microswitches as optional extras. (See page 13)

Mechanical Visual Indicator
Local visual indication of the blade status is available as an optional extra.
(See page13)



Performance Data

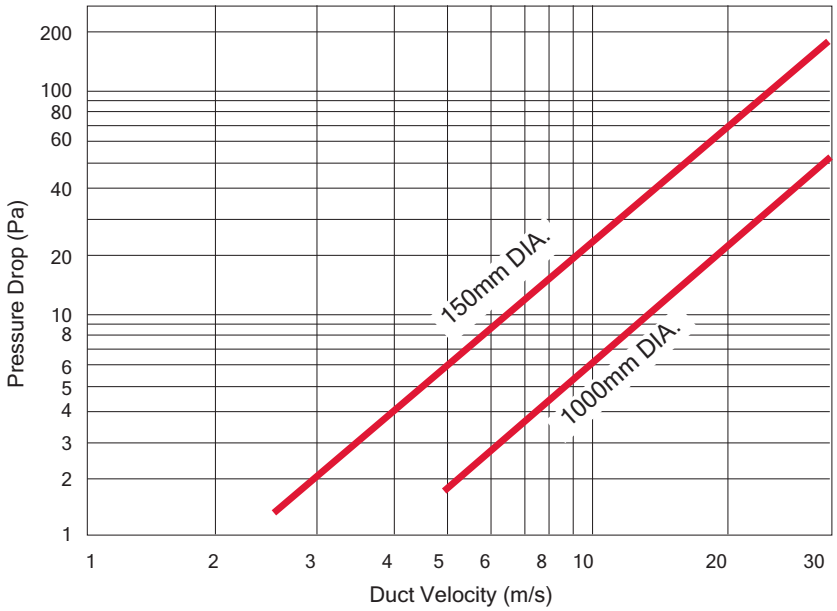


Pressure Drop Graph

Type A

Minimum free area = 91%

Velocity range 0 to 12.5 m/s

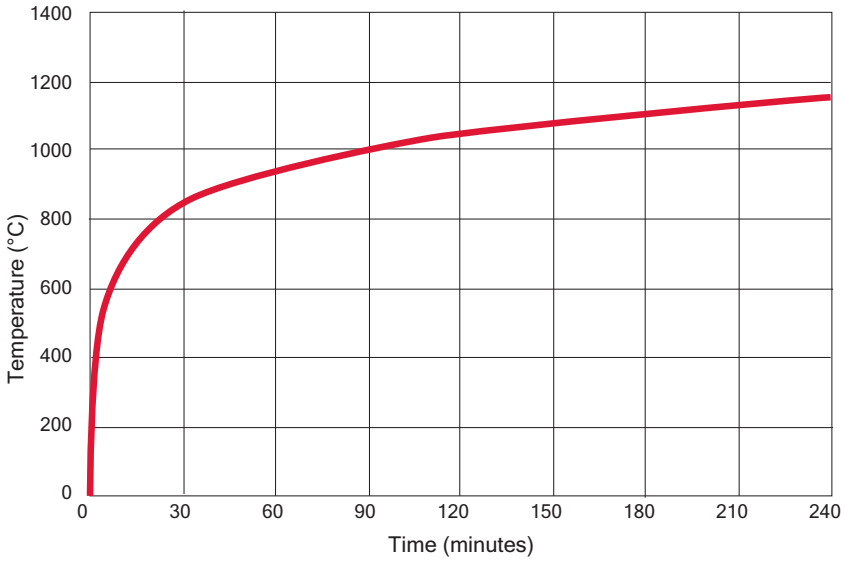


Pressure Drop Graph

Type B, Type C and Type O

Maximum unrestricted airflow

Velocity range 0 to 30 m/s



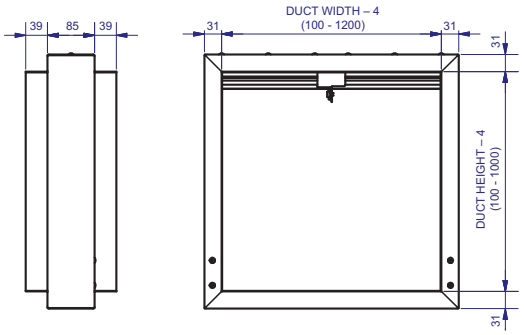
Standard Time/Temp. Curve (4 hours)

As specified in EN 1363-1

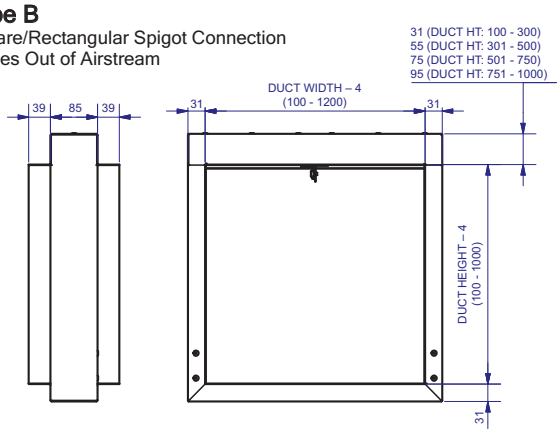
FD Series
Fire Dampers - Dimensions

NOTES:
1. All dimensions are in mm.
2. Rectangular spigoted models are supplied with actual spigot dimensions nominal less 4mm ± 1mm.
3. Circular and Flat Oval spigoted models are supplied with actual spigot dimensions nominal less 3mm ± 1mm.
4. For sizes greater than detailed maximum sizes, multiple section units will be supplied.
5. Where gate latches are fitted on dampers below 150mm in height or diameter release testing is only possible from opposite to ramp side. Please refer to our sales office.
6. Dimensions with * apply for a type A damper at any height.

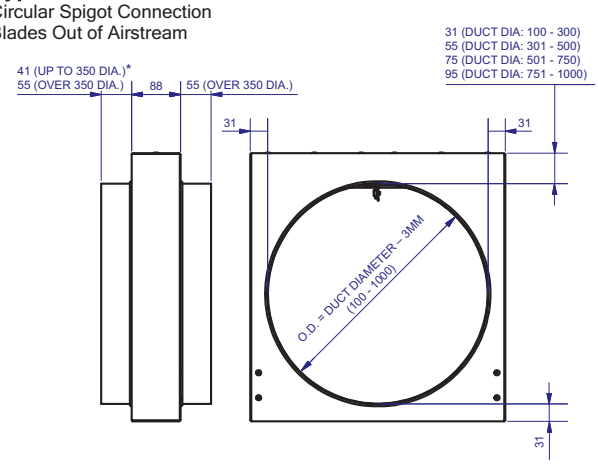
Type A
Square/Rectangular Spigot Connection
Blades Partially in Airstream on heights greater than 300mm



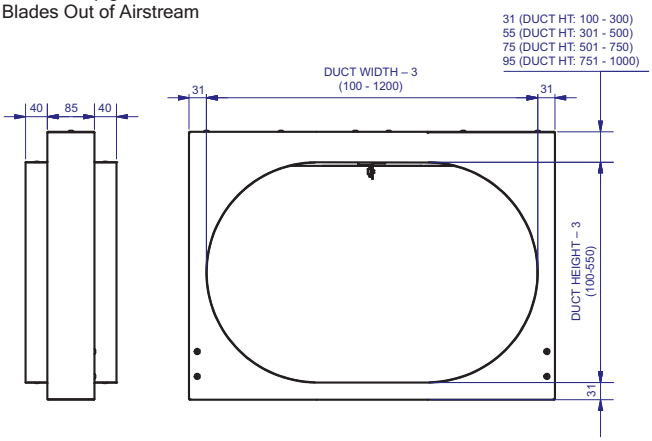
Type B
Square/Rectangular Spigot Connection
Blades Out of Airstream



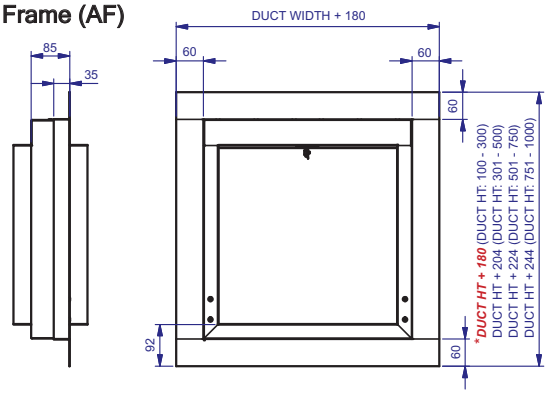
Type C
Circular Spigot Connection
Blades Out of Airstream



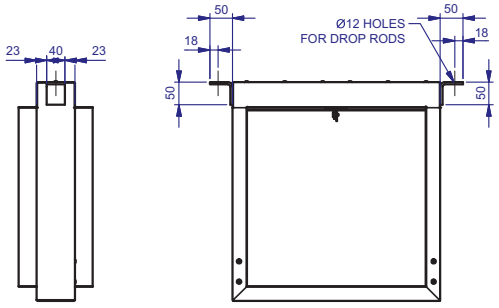
Type O
Flat/Oval Spigot Connection
Blades Out of Airstream



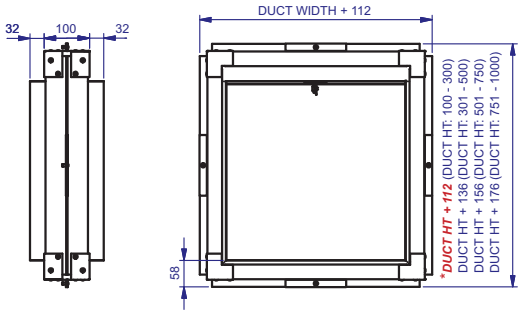
Angle Frame (AF)



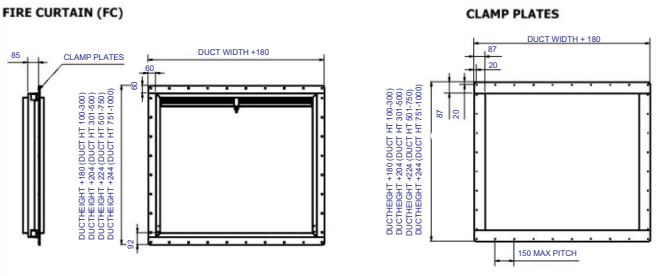
Cleats for Drop Rods (CL)



HEVAC Frame (HF)



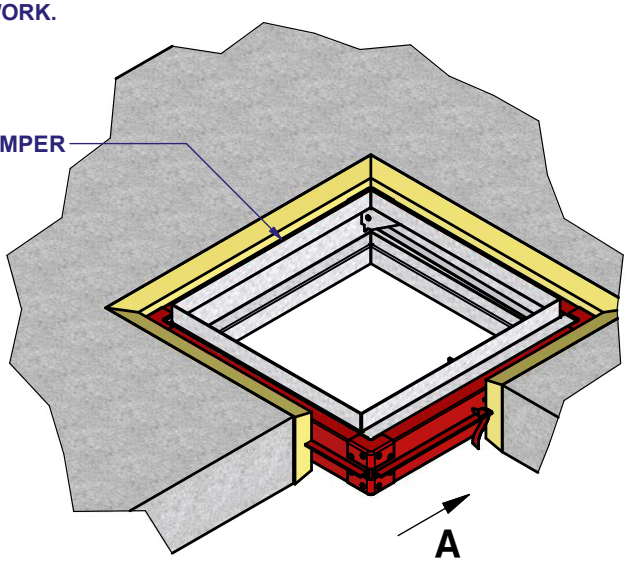
Fire Curtain



INSTALLATION METHOD
FD-HF MASONRY FLOOR

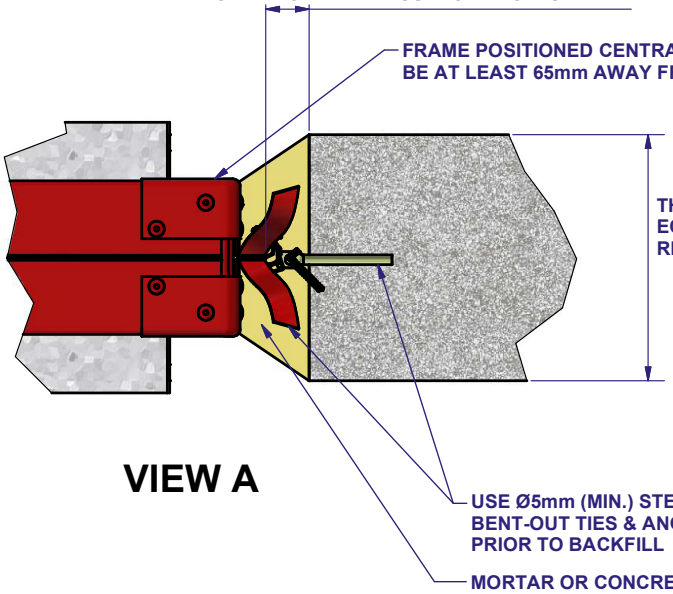
FD M1-r8

PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.
I, O & M AVAILABLE FROM QR CODE IN FOOTER.
USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.
CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.



$25\ ^{+13}_{-0}$ mm GAP ALL AROUND

FOR LARGER GAPS, FIRE RESISTING REFRACTORY
MORTAR PERMITTED WITH RELEVANT TEST
EVIDENCE WITH REGARD TO FILL AND SUPPORTING DISTANCE



VIEW A

CLASSIFICATION		
MINIMUM CONSTRUCTION	CASE / BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
150mm Thick Concrete Density 580kg/m³	Galvanised Steel or 430 Stainless Steel	E 120 (ho i→o)

ECN 302

A MINIMUM OF 75mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 200mm BETWEEN SINGLE SECTION DAMPERS.

TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS, MUST BE ACCEPTED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED I, O & M IN ORDER TO CONSIDER APPROVAL.

Damper size (Wmm x Hmm) 100 x 100 to 1200 x 1000

BSB FD-HF

CE DoP-FD-09

www.bsb-dampers.co.uk

SCAN ME
I,O&M

TESTED TO EN 1366-2
CLASSIFIED TO EN 13501-3

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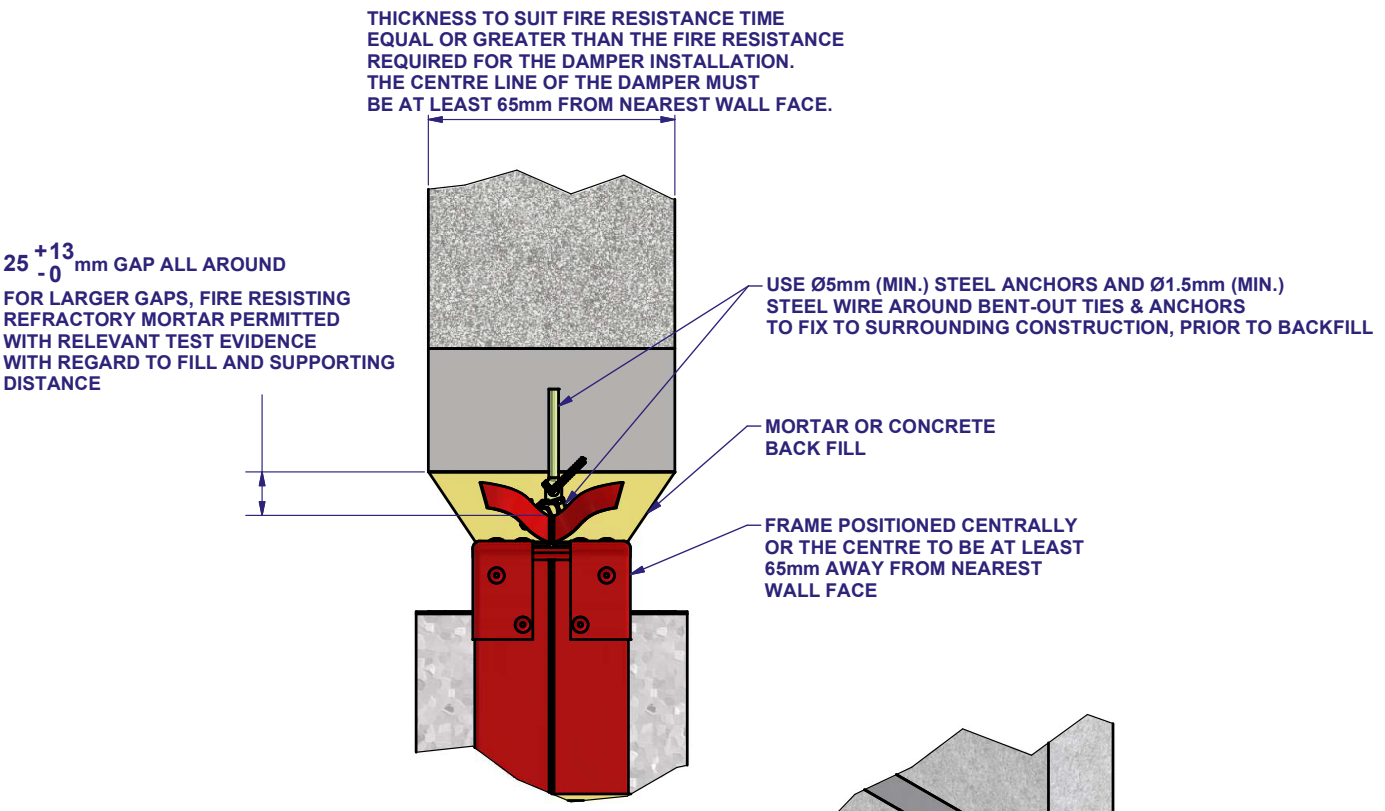
CE

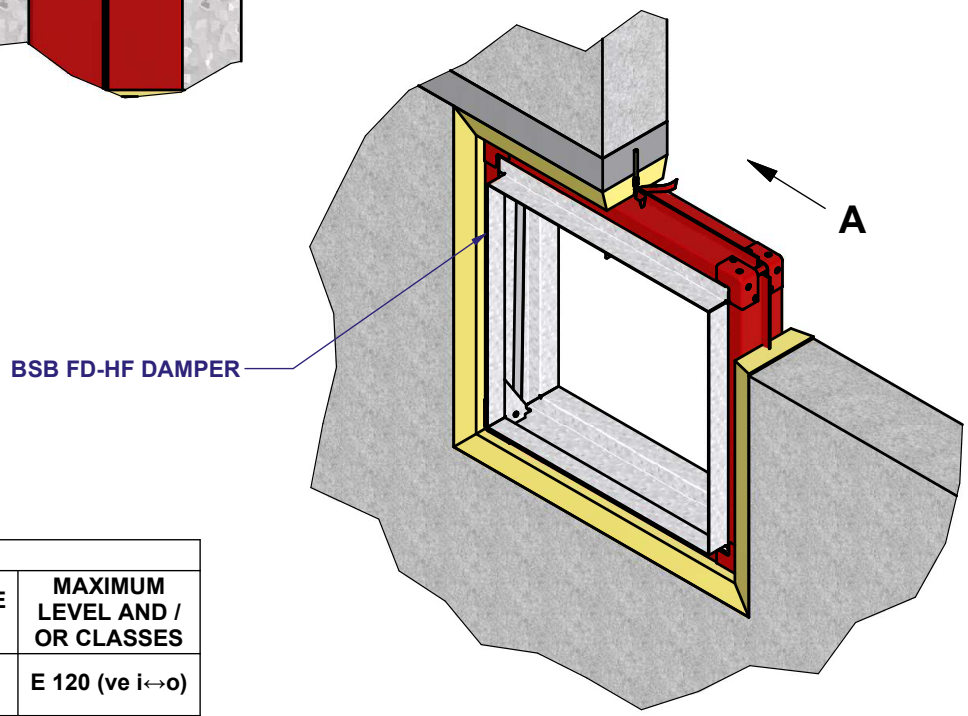
INSTALLATION METHOD
FD-HF MASONRY WALL

FD M2-r8

PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.
I, O & M AVAILABLE FROM QR CODE IN FOOTER.
USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.
CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.



VIEW A



ECN 302

CLASSIFICATION		
MINIMUM CONSTRUCTION	CASE / BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
150mm Thick Masonry Density 650kg/m³	Galvanised Steel	E 120 (ve i↔o)
150mm Thick Masonry Density 650kg/m³	430 Stainless Steel	E 120 (ve i←o)

A MINIMUM OF 75mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 200mm BETWEEN SINGLE SECTION DAMPERS.

TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS, MUST BE ACCEPTED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED I, O & M IN ORDER TO CONSIDER APPROVAL.

Damper size (Wmm x Hmm) 100 x 100 to 1200 x 1000

BSB FD-HF

CE DoP-FD-09

www.bsb-dampers.co.uk

SCAN ME
I,O&M

TESTED TO EN1366-2
CLASSIFIED TO EN13501-3

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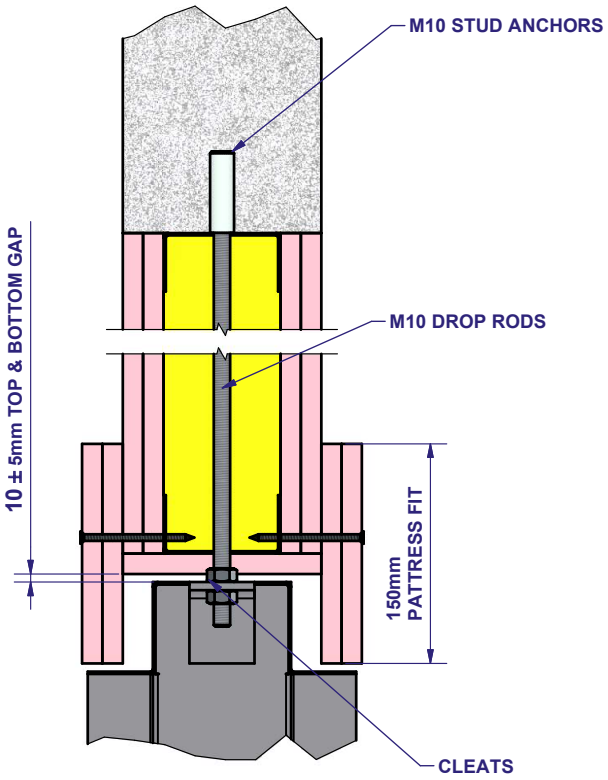
CE

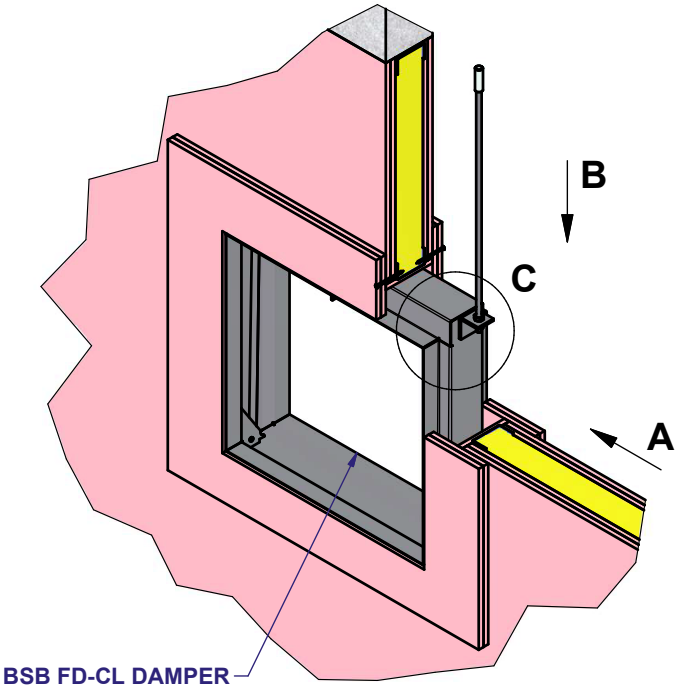
INSTALLATION METHOD
FD-CL DRY WALL

FD M6-r7

PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.
I, O & M AVAILABLE FROM QR CODE IN FOOTER.
USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.
CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.
DAMPER TO BE POSITIONED AND SUSPENDED ON DROP RODS PRIOR TO WALL CONSTRUCTION.



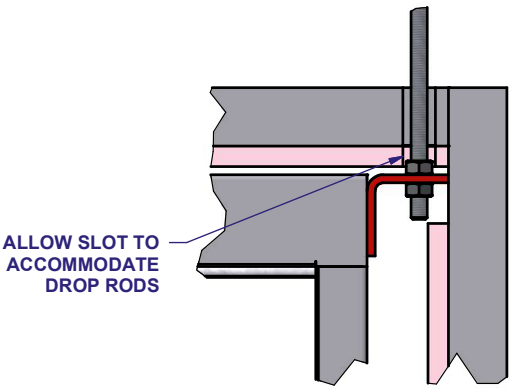
VIEW A



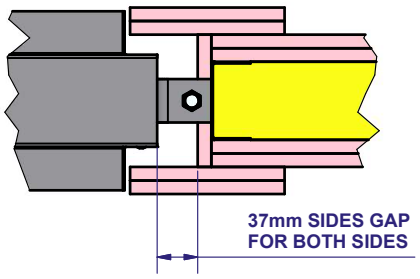
THE DAMPER IS CLASSIFIED TO BE INSTALLED IN EI 90 AND EI 120 SYMMETRICAL WALLS, WITH AND WITHOUT ACOUSTIC INSULATION.

THE SUPPORTING CONSTRUCTION MUST BE OF THE SAME TYPE WITH A FIRE RESISTANCE EQUAL TO EI 90 OR GREATER THAN THAT OF THE SUPPORTING CONSTRUCTION USED IN THE TEST (THICKER, DENSER, MORE LAYERS OF BOARD, AS APPROPRIATE).

CLASSIFICATION		
MINIMUM CONSTRUCTION	CASE / BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
Group B 70mm Steel Stud 2 Layers of 12.5mm Type F Board Each Side (EI 90 Fire Resistance)	Galvanised Steel	E 120 (ve i←o)



VIEW C



VIEW B

ECN 302

THE OPENING IN THE WALL MUST BE LINED.
THERE IS NO NEED TO FILL THE OPENING VOID.

CLEATS:
THE INSTALLATION SHOWN REFERS TO A PATTRESS INSTALLATION METHOD WITH CLEATS FITTED AS AN ACCESSORY.

A MINIMUM OF 75mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 200mm BETWEEN SINGLE SECTION DAMPERS.

TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS, MUST BE ACCEPTED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED I, O & M IN ORDER TO CONSIDER APPROVAL.

Damper size (Wmm x Hmm) 100 x 100 to 1200 x 1000

BSB FD-CL

CE DoP-FD-09

www.bsb-dampers.co.uk

SCAN ME
I,O&M

TESTED TO EN1366-2
CLASSIFIED TO EN13501-3

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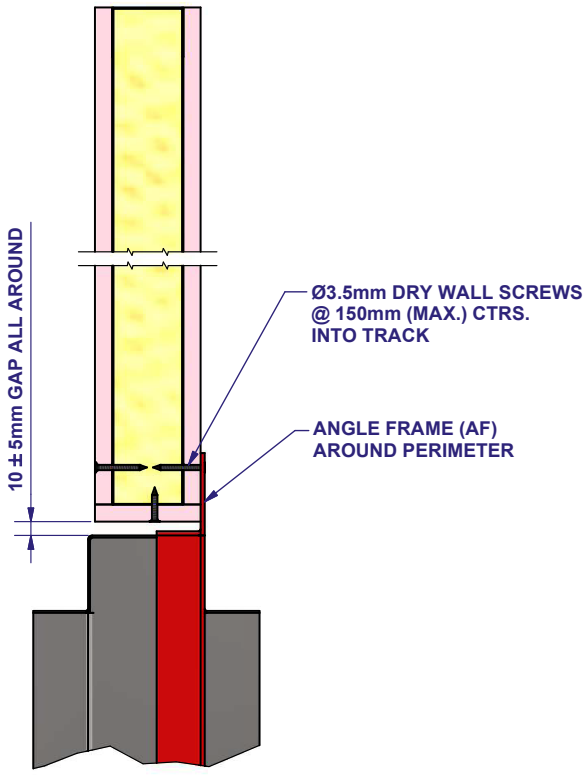
INSTALLATION METHOD
FD-AF DRYWALL

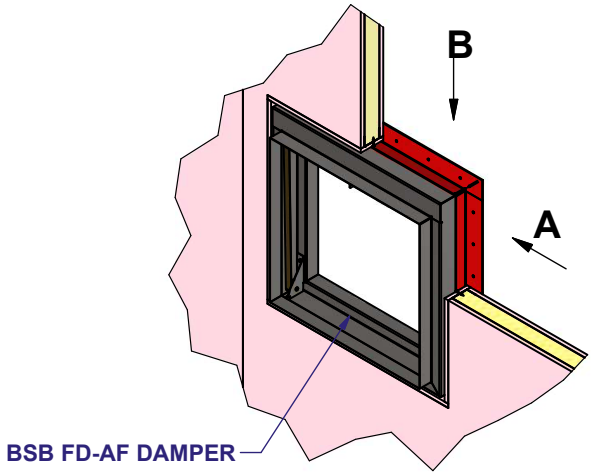
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.
I, O & M AVAILABLE FROM QR CODE IN FOOTER.
USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.
CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.

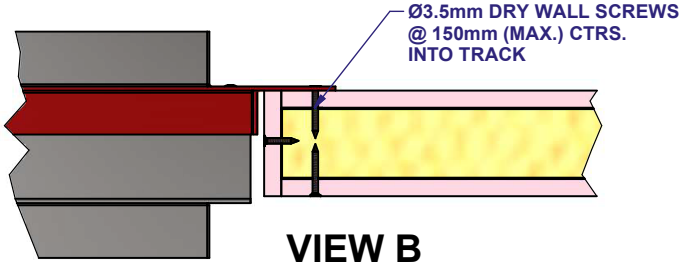
FD M9-r6

INSTALLATION METHOD	
SHEET	METHOD
1	SINGLE SKIN
2	DOUBLE SKIN



VIEW A





VIEW B

THE DAMPER IS CLASSIFIED TO BE INSTALLED IN EI 30, EI 60 AND EI 90 SYMMETRICAL WALLS, WITH AND WITHOUT ACOUSTIC INSULATION.

THE SUPPORTING CONSTRUCTION MUST BE OF THE SAME TYPE WITH A FIRE RESISTANCE EQUAL TO EI 30 OR GREATER THAN THAT OF THE SUPPORTING CONSTRUCTION USED IN THE TEST (THICKER, DENSER, MORE LAYERS OF BOARD, AS APPROPRIATE).

CLASSIFICATION		
MINIMUM CONSTRUCTION	CASE / BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
Group A 50mm Steel Stud 1 Layer of 12.5mm Type F Board Each Side (EI 30 Fire Resistance)	Galvanised Steel	E 90 (ve i↔o)

THE OPENING IN THE WALL MUST BE LINED.
THERE IS NO NEED TO FILL THE OPENING VOID.

OPTIONAL SUPPORT CLEATS WELDED TO ANGLE FRAME ARE AVAILABLE.

A MINIMUM OF 75mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 200mm BETWEEN SINGLE SECTION DAMPERS.

ECN 302

TESTED INSTALLATION METHOD SHOWN. ANY DEVIATION FROM THIS INSTALLATION METHOD, MUST BE ACCEPTED BY BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DRAWING AND ASSOCIATED I, O & M IN ORDER TO CONSIDER APPROVAL.

Damper size (Wmm x Hmm) 100 x 100 to 1200 x 1000

BSB FD-AF

www.bsb-dampers.co.uk

SCAN ME
I,O&M

CE DoP-FD-09

TESTED TO EN1366-2
CLASSIFIED TO EN 13501-3

© THE CONTENT OF THIS DRAWING MUST NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF BSB ENGINEERING SERVICES LTD.

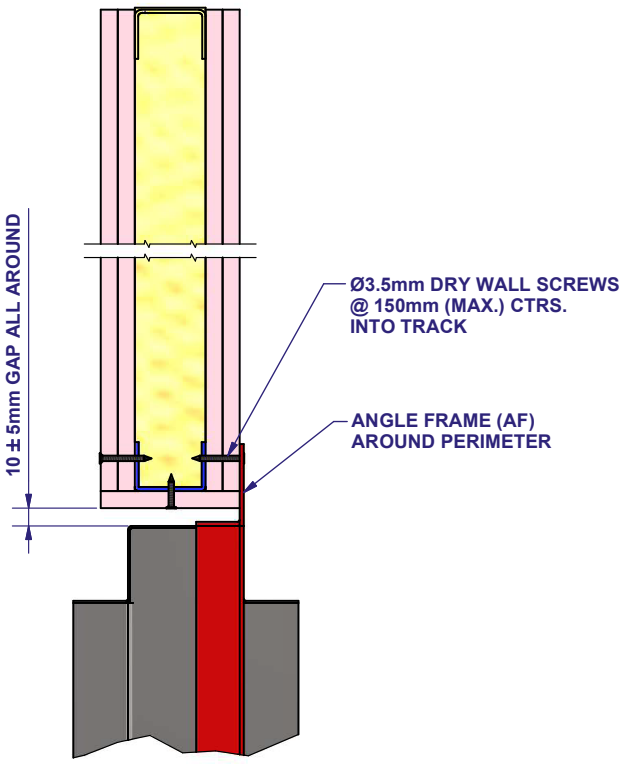
CE

INSTALLATION METHOD
FD-AF DRYWALL

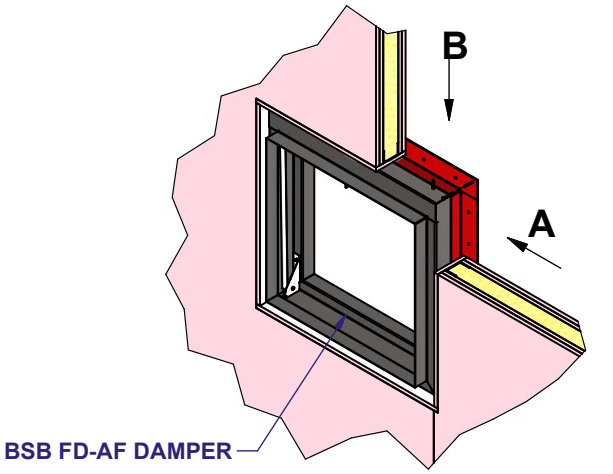
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.
I, O & M AVAILABLE FROM QR CODE IN FOOTER.
USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.
CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.

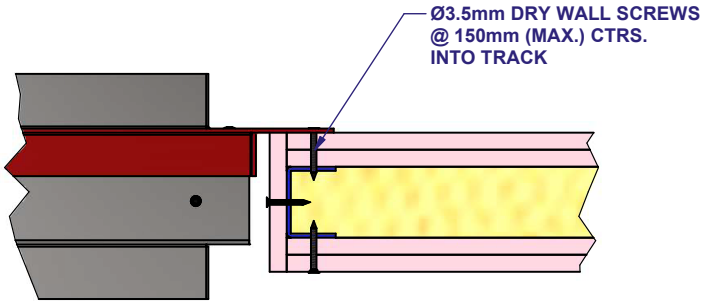
FD M9-r6

INSTALLATION METHOD	
SHEET	METHOD
1	SINGLE SKIN
2	DOUBLE SKIN



VIEW A





VIEW B

THE DAMPER IS CLASSIFIED TO BE INSTALLED IN EI 90 AND EI 120 SYMMETRICAL WALLS, WITH AND WITHOUT ACOUSTIC INSULATION.

THE SUPPORTING CONSTRUCTION MUST BE OF THE SAME TYPE WITH A FIRE RESISTANCE EQUAL TO EI 90 OR GREATER THAN THAT OF THE SUPPORTING CONSTRUCTION USED IN THE TEST (THICKER, DENSER, MORE LAYERS OF BOARD, AS APPROPRIATE).

CLASSIFICATION		
MINIMUM CONSTRUCTION	CASE / BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
Group B 70mm Steel Stud 2 Layers of 12.5mm Type F Board Each Side (EI 90 Fire Resistance)	Galvanised Steel	E 120 (ve i↔o)

ECN 302

THE OPENING IN THE WALL MUST BE LINED.
THERE IS NO NEED TO FILL THE OPENING VOID.

OPTIONAL SUPPORT CLEATS WELDED TO ANGLE FRAME ARE AVAILABLE.

A MINIMUM OF 75mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 200mm BETWEEN SINGLE SECTION DAMPERS.

TESTED INSTALLATION METHOD SHOWN. ANY DEVIATION FROM THIS INSTALLATION METHOD, MUST BE ACCEPTED BY BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DRAWING AND ASSOCIATED I, O & M IN ORDER TO CONSIDER APPROVAL.

Damper size (Wmm x Hmm) 100 x 100 to 1200 x 1000

BSB FD-AF

CE DoP-FD-09

www.bsb-dampers.co.uk

SCAN ME
I,O&M

TESTED TO EN1366-2
CLASSIFIED TO EN 13501-3

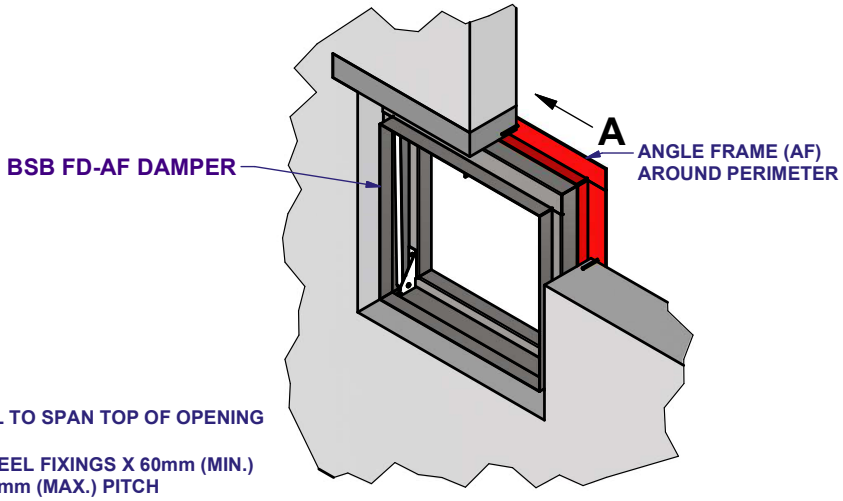
© THE CONTENT OF THIS DRAWING MUST NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF BSB ENGINEERING SERVICES LTD.

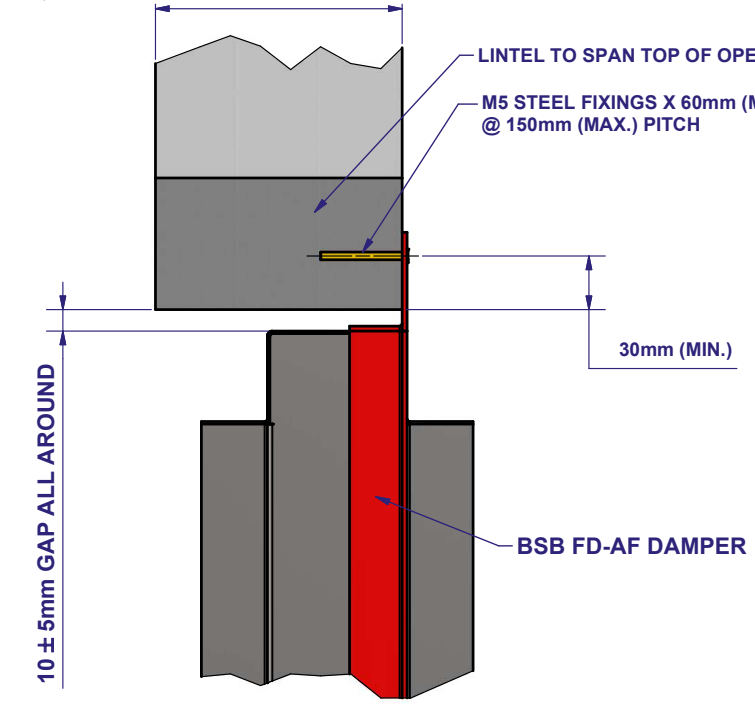
CE

INSTALLATION METHOD
FD-AF MASONRY WALL

FD M10-r2

PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.
I, O & M AVAILABLE FROM QR CODE IN FOOTER.
USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.
CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.





VIEW A

ECN 302

CLASSIFICATION		
MINIMUM CONSTRUCTION	CASE / BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
150mm Thick Masonry Density 650kg/m³	Galvanised Steel	E 120 (ve i↔o)
150mm Thick Masonry Density 650kg/m³	430 Stainless Steel	E 60 (ve i↔o)

THERE IS NO NEED TO FILL THE OPENING VOID.
A MINIMUM OF 75mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 200mm BETWEEN SINGLE SECTION DAMPERS.

TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS, MUST BE APPROVED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED I, O & M IN ORDER TO CONSIDER APPROVAL. CERTIFICATE OF CONSTANCY: 2831-CPR-P0006

Damper size (Wmm x Hmm) 100 x 100 to 1200 x 1000

BSB FD-AF

CE DoP-FD-09

www.bsb-dampers.co.uk

SCAN ME
I,O&M

TESTED TO EN1366-2*
CLASSIFIED TO 13501-3
*BY DIRECT FIELD OF APPLICATION

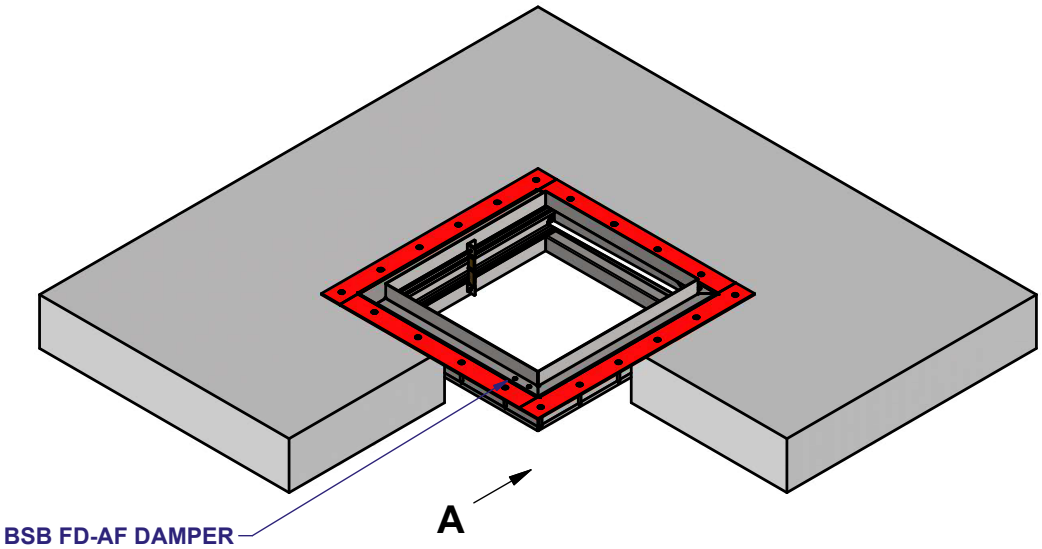
© THE CONTENT OF THIS DRAWING MUST NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF BSB ENGINEERING SERVICES LTD.

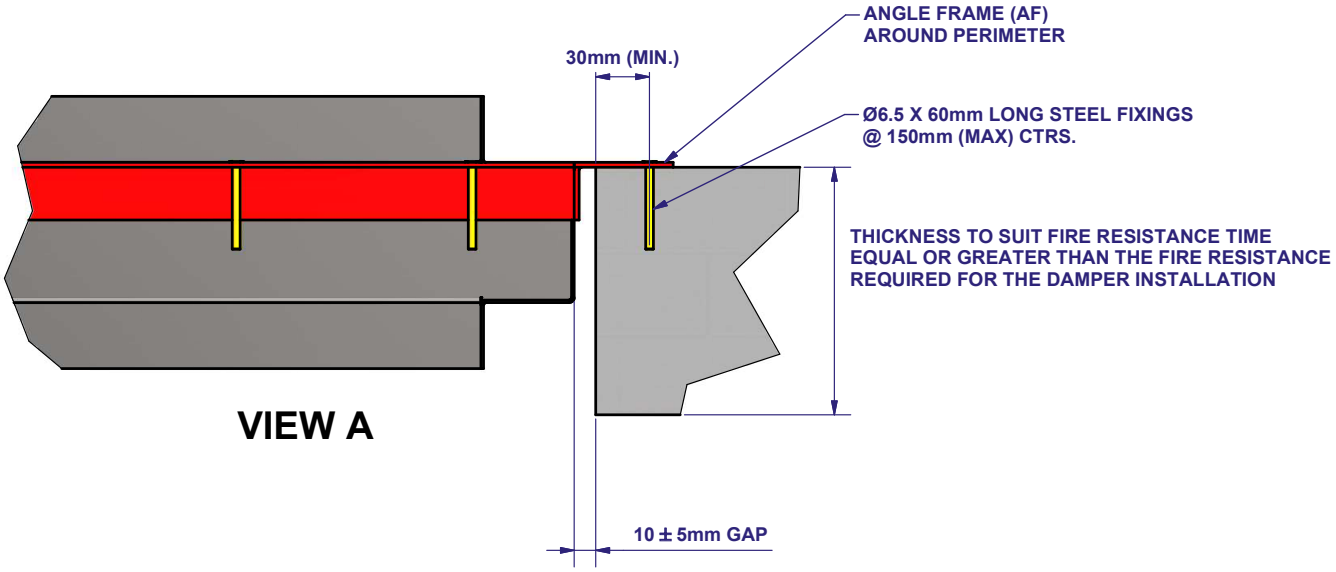
CE

INSTALLATION METHOD
FD-AF MASONRY FLOOR

FD M11-r2

PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.
I, O & M AVAILABLE FROM QR CODE IN FOOTER.
USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.
CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.





VIEW A

ECN 302

CLASSIFICATION		
MINIMUM CONSTRUCTION	CASE / BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
150mm Thick Masonry Density 580kg/m³	Galvanised Steel or 430 Stainless Steel	E 120 (ho i←o)

THERE IS NO NEED TO FILL THE OPENING VOID.
A MINIMUM OF 75mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 200mm BETWEEN SINGLE SECTION DAMPERS.

TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS, MUST BE ACCEPTED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED I,O&M IN ORDER TO CONSIDER APPROVAL.

Damper size (Wmm x Hmm) 100 x 100 to 1200 x 1000

BSB FD-AF

CE DoP-FD-09

www.bsb-dampers.co.uk

SCAN ME
I,O&M

TESTED TO EN1366-2
CLASSIFIED TO 13501-3

© THE CONTENT OF THIS DRAWING MUST NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF BSB ENGINEERING SERVICES LTD.

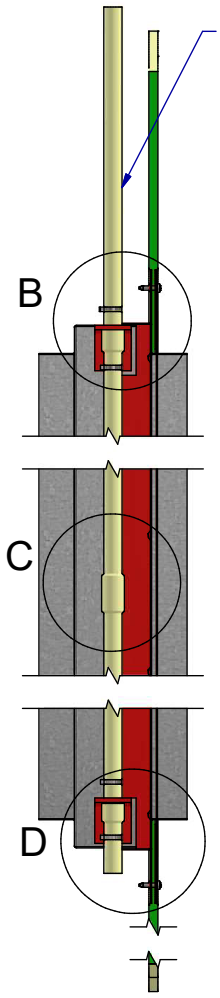
CE

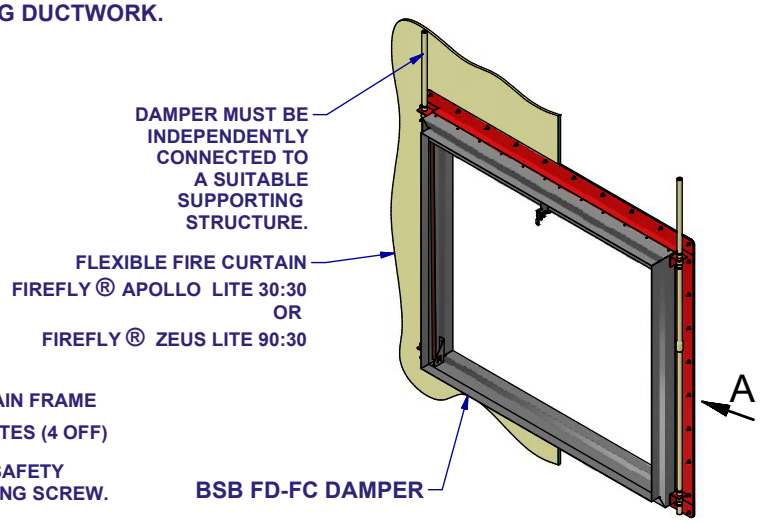
INSTALLATION METHOD
FD-FC FIRE CURTAIN FRAME

FD M14-r0

PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANACE DOCUMENT FOR DETAILED INFORMATION. FLEXIBLE FIRE CURTAIN TO BE INSTALLED TO FIREFLY ® INSTALLATION GUIDE.
I, O & M AVAILABLE FROM QR CODE IN FOOTER.
USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.
CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.

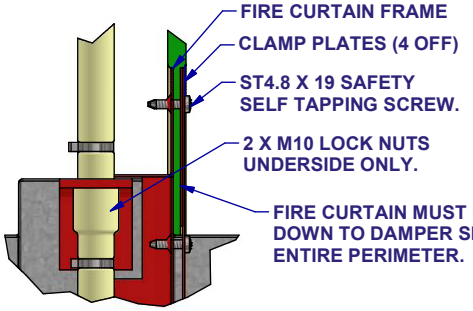
VIEW A





VIEW B

PENOWRAP OMITTED



VIEW C

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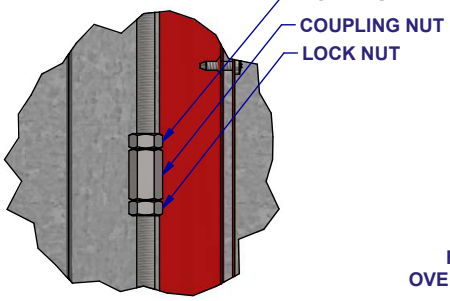
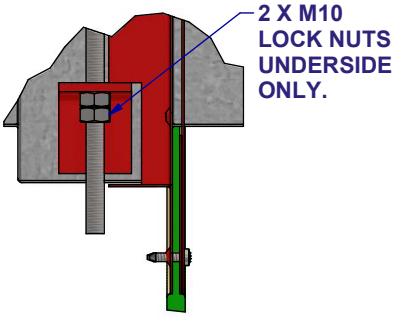
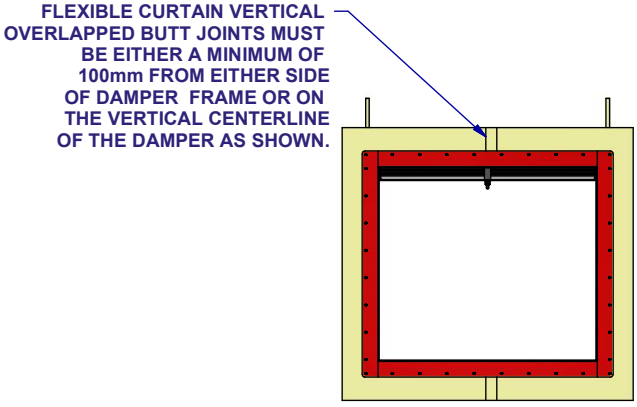


VIEW D

PENOWRAP OMITTED





CLASSIFICATION		
MINIMUM CONSTRUCTION	CASE / BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
Apollo Lite 30:30 Minimum Thickness 6mm	Galvanised Steel	E 60 (ve i↔o)
Zeus Lite 90:30 Minimum Thickness 6mm	Galvanised Steel	E 120 (ve i↔o)

ECN 307

ALL FIXING SCREWS MUST BE SECURELY FIXED TO FIRE CURTAIN FRAME.
IT IS ACCEPTABLE TO USE A COUPLING NUT + LOCK NUT SHOWN IN VIEW C, POSITIONED ANYWHERE BETWEEN CLEATS.
A MINIMUM OF 75mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 200mm BETWEEN SINGLE SECTION DAMPERS.

TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS, MUST BE ACCEPTED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED I, O & M IN ORDER TO CONSIDER APPROVAL.

Damper size (Wmm x Hmm) 100 x 100 to 1200 x 1000

BSB FD-FC

www.bsb-dampers.co.uk

SCAN ME
I,O&M

CE DoP-FD-09

TESTED TO EN1366-2
CLASSIFIED TO EN13501-3

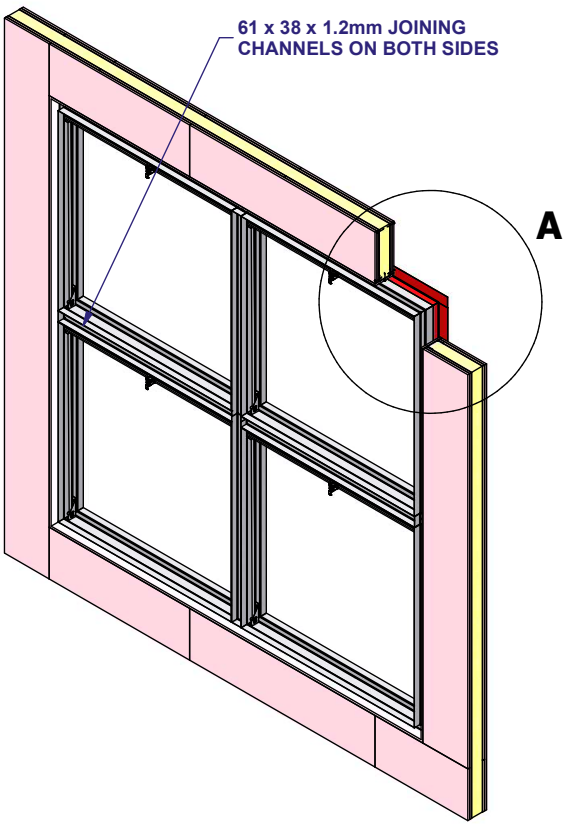
© THE CONTENT OF THIS DRAWING MUST NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF BSB ENGINEERING SERVICES LTD.

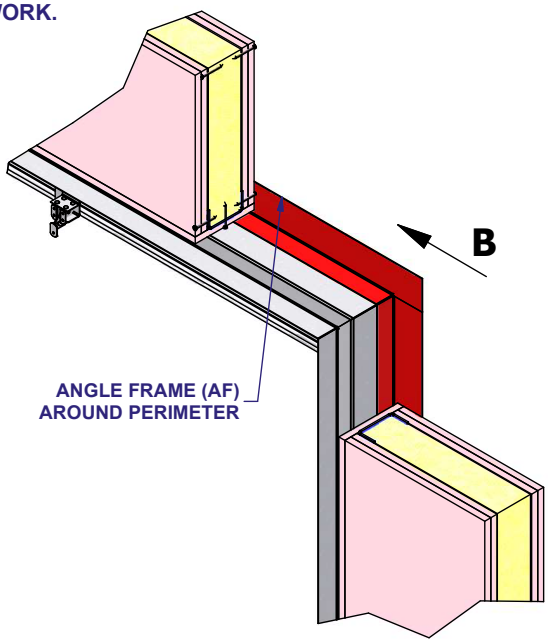
CE

INSTALLATION METHOD
MULTIPLE FD-AF DRY WALL

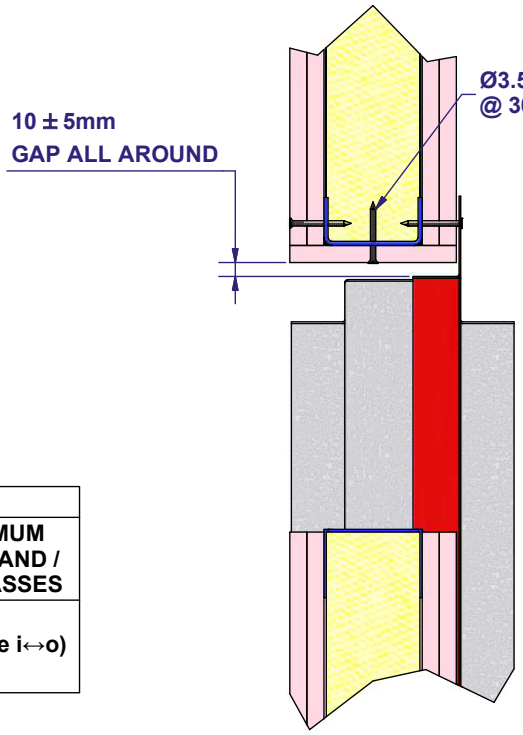
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.
I, O & M AVAILABLE FROM QR CODE IN FOOTER.
USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.
CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.

FD M9 MULTI-r1





VIEW A



VIEW B

PERMITTED MULTIPLE ARRANGEMENT:
ANY QUANTITY OF UNITS HIGH AND ANY QUANTITY OF UNITS WIDE, PROVIDING THAT THEY ARE STRUCTURALLY SUPPORTED TO A FIRE-SAFE DESIGN PROVIDED BY STRUCTURAL ENGINEERS.

THE DAMPER IS CLASSIFIED TO BE INSTALLED IN EI 90 AND EI 120 SYMMETRICAL WALLS, WITH AND WITHOUT ACOUSTIC INSULATION.

THE SUPPORTING CONSTRUCTION MUST BE OF THE SAME TYPE WITH A FIRE RESISTANCE EQUAL TO EI 90 OR GREATER THAN THAT OF THE SUPPORTING CONSTRUCTION USED IN THE TEST (THICKER, DENSER, MORE LAYERS OF BOARD, AS APPROPRIATE).

CLASSIFICATION		
MINIMUM CONSTRUCTION	CASE / BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
Group B 70mm Steel Stud 2 Layers of 12.5mm Type F Board Each Side (EI 90 Fire Resistance)	Galvanised Steel	E 120 (ve i↔o)

THE OPENING IN THE WALL MUST BE LINED.
THERE IS NO NEED TO FILL THE OPENING VOID.
A MINIMUM OF 75mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 200mm BETWEEN DAMPER ARRAYS.

ECN 302

TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS MUST BE ACCEPTED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED I, O & M IN ORDER TO CONSIDER APPROVAL.

For sizes larger than 1200mm x 1000mm single section dampers

BSB FD-AF MULTIPLE DAMPER ARRANGEMENT

CE DoP-FD-09

www.bsb-dampers.co.uk

SCAN ME
I,O&M

TESTED TO EN 15882-2
CLASSIFIED TO EN13501-3

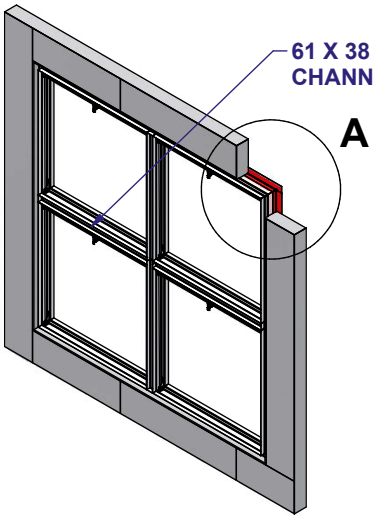
© THE CONTENT OF THIS DRAWING MUST NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF BSB ENGINEERING SERVICES LTD.

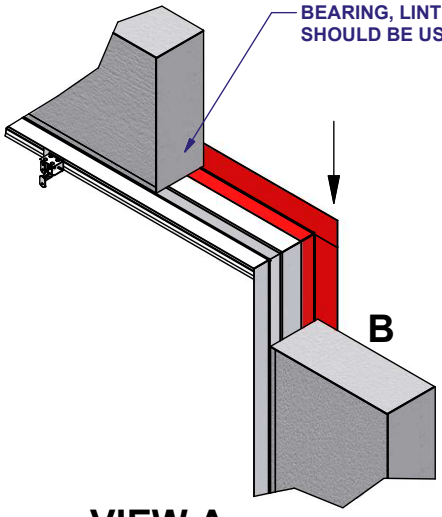
CE

INSTALLATION METHOD
MULTIPLE FD-AF MASONRY WALL

PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.
I, O & M AVAILABLE FROM QR CODE IN FOOTER.
USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.
CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.

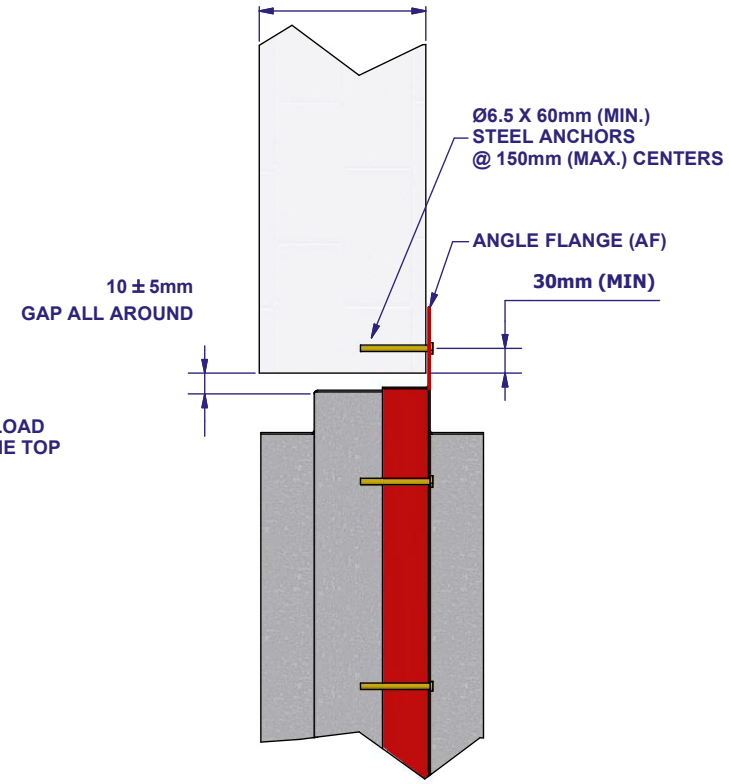
FD M10 MULTI-r1





VIEW A

THICKNESS TO SUIT FIRE RESISTANCE TIME
EQUAL OR GREATER THAN THE FIRE RESISTANCE
REQUIRED FOR THE DAMPER INSTALLATION



VIEW B

ECN 302

CLASSIFICATION		
MINIMUM CONSTRUCTION	CASE / BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
150mm Thick Masonry Density 650kg/m³	Galvanised Steel	E 120 (ve i↔o)

THERE IS NO NEED TO FILL THE OPENING VOID.
A MINIMUM OF 75mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 200mm BETWEEN DAMPER ARRAYS.

PERMITTED MULTIPLE ARRANGEMENT:
ANY QUANTITY OF UNITS HIGH AND ANY QUANTITY OF UNITS WIDE, PROVIDING THAT THEY ARE STRUCTURALLY SUPPORTED TO A FIRE-SAFE DESIGN PROVIDED BY STRUCTURAL ENGINEERS.

TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS MUST BE ACCEPTED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED I, O & M IN ORDER TO CONSIDER APPROVAL.

For sizes larger than 1200mm x 1000mm single section dampers

BSB FD-AF MULTIPLE DAMPER ARRANGEMENT

www.bsb-dampers.co.uk

SCAN ME
I,O&M

CE DoP-FD-09

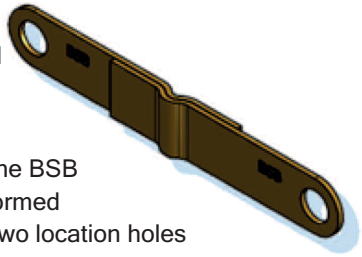
TESTED TO EN 15882-2*
CLASSIFIED TO EN13501-3
*BY DIRECT FIELD OF APPLICATION

© THE CONTENT OF THIS DRAWING MUST NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF BSB ENGINEERING SERVICES LTD.

CE

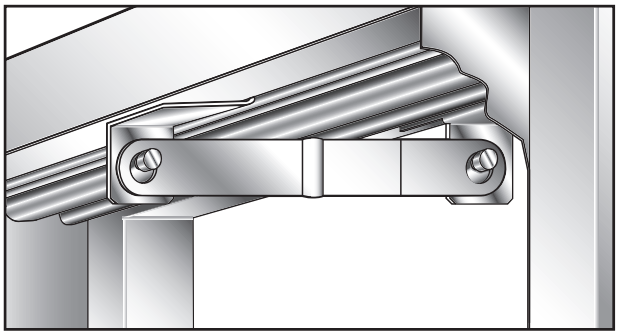
Fire Dampers – Fusible Link Release and Multiple Assemblies

Straight Bar Standard Fusible Link Release

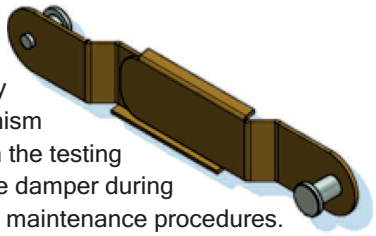


The standard fusible link will be supplied and rated at 72°C unless otherwise specified.

Supplied as standard, the BSB straight bar link has a formed reinforcing swage and two location holes (125mm long x 18mm wide, with 2 off 10mm diameter holes at 107mm centres).



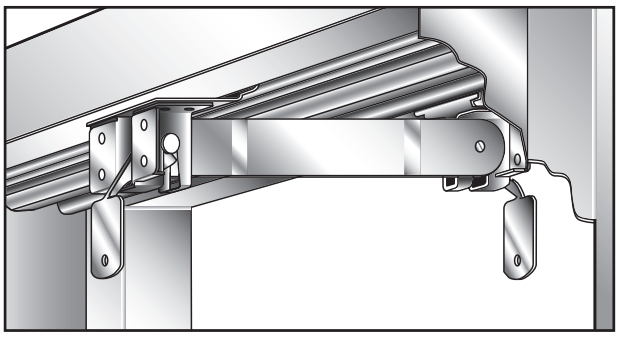
Gate Latch Fusible Link Release



Providing a trigger release option, this self-locating and easily resettable link mechanism assists the engineer in the testing and resetting of the fire damper during regular inspection and maintenance procedures.

Below 150mm in height or diameter release testing only possible from opposite to ramp side.

Used with the Gatelatch release mechanism. 120mm long x 23mm wide with 2 x 10mm dia flange pins at 103mm centres.



BSB FD series folding blade fire dampers are supplied with fusible links rated and designed to operate at 72°C as standard and as tested.

Fire dampers fitted with links rated at any other temperature other than 72°C will not be CE marked and will require BCA approval.

Replacement links for existing fire dampers will need to match the type of link bracket that has been supplied (please see above). If in doubt, please refer to our Sales Office.

Multiple Assemblies

Vertical Mounting

FD Series fire dampers can be supplied in multiple module sections to achieve requested sizes larger than the maximum manufactured single section tested unit. Please refer to drawing FD-AF M12 for vertical wall mounting. This drawing refers to a CE marked fire damper assembly with an AF fixing frame, 2 sections wide by 2 sections high.

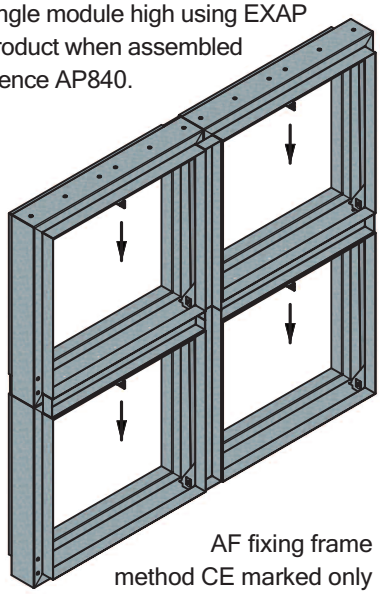
Suitable for both Dry Line walls and Blockwork/Concrete walls as tested.

Also available in any size wide by a single module high using EXAP rules to EN 15725, as a CE marked product when assembled on site to the BSB detail drawing reference AP840.

Consideration must be given to additional structural steelwork that may be needed to support the weight of the damper and position within the wall aperture. BSB cannot offer or approve supporting structures for multiple assemblies.

The drawing to the right shows a multiple of four dampers for Vertical Installation and the correct blade path of each damper section.

The installation fixing method has been purposely removed for clarity of assembly.



AF fixing frame method CE marked only

Transportation

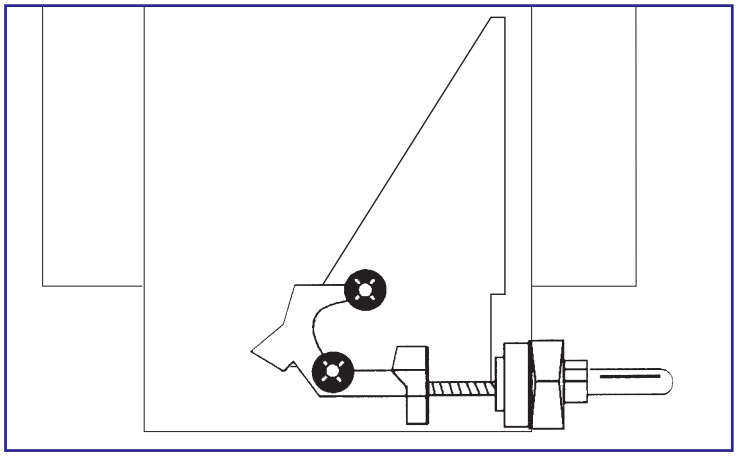
When there are transportation restrictions, large multiple units will be shipped in individual sections for site assembly by others, using un-drilled joining channels provided. Large multiple assemblies required to be shipped fully assembled will incur additional packing/shipping costs.

Please contact our sales office for further information.

Mechanical Visual Indicator

To provide local indication of the blade status.

When the indicator appears in the bulb, this shows that the blades are closed.



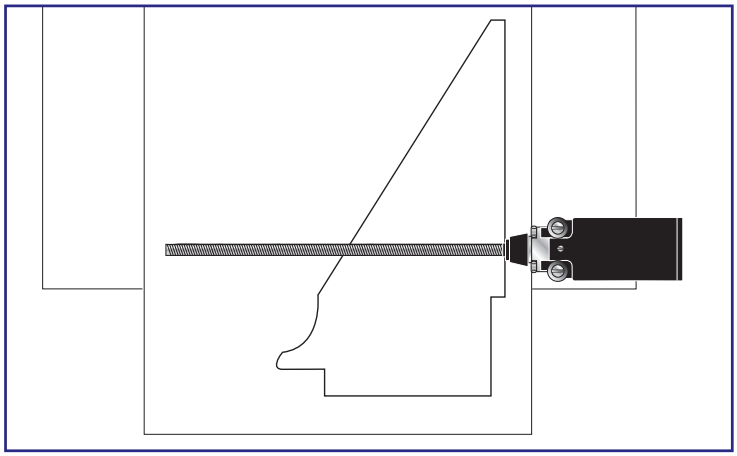
Single Pole Microswitch

To provide remote indication of the blade status. As the leading blade travels close towards the locking ramp, it makes contact with the arm and operates the change over switch to provide a remote closed signal.

The Single Pole Microswitch is supplied as a dependent snap action contact 1NO + 1NC.

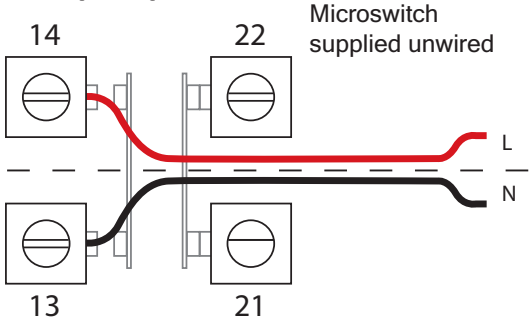
For indication of damper closed, terminals 13 and 14 should be used.

Degree of protection: IP66.

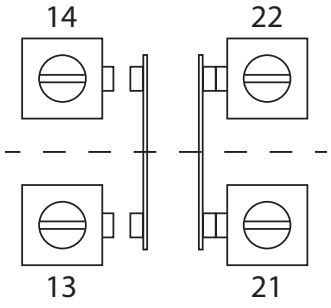


Wiring Diagram

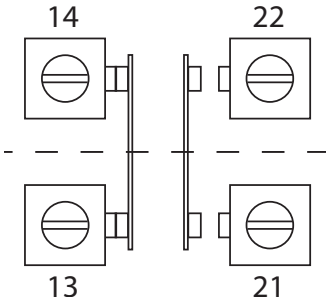
Please Note:
Microswitch supplied unwired



Open Indication



Closed Indication



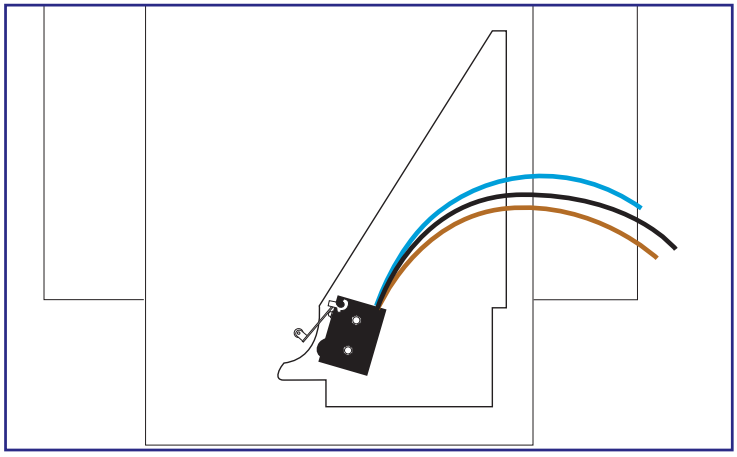
V4 Sealed Microswitch

To provide remote indication of the blade status.
As the leading blade travels over the locking ramp, the lever is depressed and operates the switch. Factory fitted.

Degree of protection: Casing and Outlet IP67
Lead Length: 460mm

Connection details:

Common (1)	Black lead
Normally open (4)	Blue lead
Normally closed (2)	Brown lead



Weight Chart (kg approx.)

Height (mm)	Width (mm)											
	100	200	300	400	500	600	700	800	900	1000	1100	1200
100	2.0	2.5	3.0	4.0	4.5	5.0	5.5	6.5	7.0	8.0	8.5	9.0
200	2.5	3.0	4.0	4.5	5.0	6.0	6.5	7.5	8.0	9.0	9.5	10.5
300	3.0	4.0	4.5	5.5	6.0	7.0	8.0	9.0	9.5	10.5	11.0	12.0
400	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5
500	4.5	5.5	6.5	7.5	8.5	9.5	10.5	12.0	13.0	14.0	15.0	16.0
600	5.0	6.0	7.5	8.5	9.5	11.0	12.0	13.5	14.5	16.0	17.0	18.5
700	5.5	6.5	8.0	9.0	10.5	11.5	13.0	14.5	15.5	17.0	18.0	19.5
800	6.0	7.5	9.0	10.5	11.5	13.0	14.5	16.0	17.5	19.0	20.5	21.5
900	6.5	8.0	9.5	11.0	12.5	14.0	15.5	17.5	19.0	20.5	22.0	23.5
1000	7.0	9.0	10.5	12.0	13.5	15.0	17.0	18.5	20.5	22.0	23.5	25.0

Weight Chart + Hevac Frame (kg approx.)

Height (mm)	Width (mm)											
	100	200	300	400	500	600	700	800	900	1000	1100	1200
100	3.5	4.5	5.5	6.5	7.5	8.5	8.5	11.0	12.0	13.0	14.0	15.0
200	4.5	5.5	6.5	7.5	8.5	10.0	11.0	12.0	13.5	14.5	15.5	16.5
300	5.5	6.5	8.0	9.0	10.0	11.5	12.5	14.0	15.0	16.0	17.5	18.5
400	6.5	8.0	9.0	10.5	11.5	13.0	14.5	16.0	17.5	18.5	20.0	21.5
500	7.5	9.0	10.5	11.5	13.0	14.5	16.0	17.5	19.0	20.5	22.0	23.5
600	8.5	10.0	11.5	13.0	14.5	16.5	18.0	19.5	21.5	23.0	24.5	26.0
700	9.5	11.0	12.5	14.0	15.5	17.5	19.0	21.0	22.5	24.0	26.0	27.5
800	10.5	12.0	14.0	15.5	17.5	19.0	21.0	23.0	24.5	26.5	28.5	30.0
900	11.5	13.0	15.0	17.0	18.5	20.5	22.5	24.5	26.5	28.5	30.5	32.5
1000	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.5	30.5	32.5	34.5

Weight Chart FD + Fire Curtain Angle Frame + Clamp plate (kg approx.)

Height (mm)	Width (mm)											
	100	200	300	400	500	600	700	800	900	1000	1100	1200
100	3.5	4.8	6.0	6.8	8.0	8.7	10.0	11.2	12.5	13.2	14.5	15.7
200	4.8	6.0	6.8	8.0	9.2	10.0	11.2	12.5	13.7	15.0	16.2	16.9
300	5.5	6.8	8.0	9.2	10.5	11.7	13.0	14.2	15.5	16.7	17.9	19.2
400	6.8	8.0	9.7	11.0	12.2	13.5	14.7	16.5	17.7	19.4	20.7	21.9
500	8.0	9.2	11.0	12.2	13.5	15.2	16.5	18.2	19.9	21.2	22.9	24.2
600	8.7	10.5	12.2	14.0	15.2	17.0	18.7	20.4	22.2	23.9	25.2	26.9
700	10.0	11.7	13.0	14.7	16.5	18.2	19.9	21.7	23.4	25.2	26.9	28.7
800	10.7	13.0	14.7	16.5	18.2	19.9	21.7	23.9	25.7	27.4	29.2	31.4
900	12.0	13.7	16.0	17.7	19.4	21.7	23.4	25.7	27.4	29.7	31.4	33.1
1000	13.2	15.0	17.2	18.9	21.2	22.9	25.2	27.4	29.7	31.4	33.6	35.4

Weight Chart Circular (kg approx.)

Nom. dia. (mm)	Width (mm)		
	FDC	FDC+HF	FDC+AF
100	1.5	3.5	3.0
150	2.5	4.5	4.0
200	3.0	5.5	4.0
250	3.5	6.5	5.0
300	4.5	7.5	6.0
350	6.5	10.0	8.0
400	8.0	11.5	10.0
450	9.0	13.5	11.0
500	10.5	15.0	13.0
550	12.0	17.0	15.0
600	13.5	19.0	16.0
650	15.0	21.0	18.0
700	16.5	22.5	20.0
750	18.0	24.5	22.0
800	20.5	27.5	24.0
850	22.5	29.5	26.0
900	24.5	32.0	28.0
950	26.5	34.5	31.0
1000	28.5	37.0	33.0

Fire Dampers - Testing and Maintenance

It is a requirement for fire protection systems to be regularly inspected, tested and maintained. as integral components of such systems, BSB FD Series fire dampers should be subjected to a planned maintenance programme.

In accordance with BS 9999 Annex W.1, inspection should be undertaken every year, though local regulations may override this, with periodic inspection being carried out more frequently where corrosive or dirty conditions prevail.

BSB recommend a maximum of one year between inspections. We also recommend that inspections begin more frequently and are only reduced to one year if conditions are proven to allow. The maintenance log should be reviewed at each inspection and the frequency adjusted as required dependent upon findings.

Testing and resetting will need to be undertaken through an access panel. The internal damper elements will need to be checked for corrosion, obstructions and accumulated dirt/dust. Cleaning should be undertaken using a soft cloth with a light application of light lubricant. Only a thin film of lubricant should be applied.

Please refer to our Operation and Maintenance details for further information and instructions for drop testing.

A regular test and maintenance programme will extend the working life of the fire safety system.

BSB are pleased to offer a comprehensive fire damper maintenance service. Please contact our Sales Office for details.

FD Series dampers are designed for normal dry filtered air systems and should be included within a programme of planned inspections.

Records of each damper installation and location are recommended and should include the condition of the dampers at each inspection with any action taken recorded and kept in an accessible location, as these products come under the requirements of the Regulatory Reform (Fire safety) Order (RRFSO).

Inspection and maintenance programmes may need to be repeated more regularly if the dampers are exposed to inclement and dusty conditions or fresh air intakes where the frequency of such checks should be developed based on site experience.

Special Note:
All fire damper installations should be carried out to the satisfaction of the appropriate district surveyor, fire officer, building control authority and/or specifying authority as other approved methods of installation may well be used.

Installation Parameters

FD Series Fire Dampers are designed for application in normal dry filtered air systems. If exposed to fresh air intakes and/or inclement conditions the damper should be subject to a planned inspection programme.

Installations involving corrosive and/or aggressive hostile environmental conditions (e.g. swimming pools) may invalidate our warranty and should be referred to our Sales Office.

Separation between fire dampers and between fire dampers and construction elements

In accordance with EN 1366-2 and the direct application rules, where two fire dampers are installed side by side within a fire separating element. There must be 200mm clear separation between damper casings.

Dampers installed must also be a minimum of 75mm between the damper casing and the construction element.

Please refer to EN 1366-2 section 13.6.

Storage

Dampers received on site should be stored in a purpose made storage area, where they can be protected from moisture, dust and impact damage until required.

Recycling

BSB recognises the need to preserve resources and reduce emissions and are actively working towards and introducing more efficient ways of manufacturing.

BSB supports and recommends that good waste management practice be adopted on all new and refurbishment projects, regardless of size. This not only reduces emissions, preserves raw materials and saves energy, but also reduces costs long term.

BSB are proud that their dampers are 95% minimum recyclable.

FD Series
Mechanical Curtain Blade Fire Damper - Order Codes

FD A G HF SS

FD Fire Damper

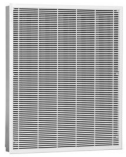
Case Type
- A Square/Rectangular - Low/Medium Velocity
- B Square/Rectangular - High Velocity
- C Circular - High Velocity
- O Flat Oval - High Velocity

Blade Material
- G Galvanised Mild Steel
- S 430 grade Stainless Steel
- * 316 grade Stainless Steel available on request

Installation Frame
- HF HEVAC/HVCA Installation Frame
- AF Angle Frame
- CL Cleats
- FC Fire Curtain

Accessories
- VI Visual Indicator
- GL Gate Latch Release Mechanism
- MS Single Pole Microswitch Factory Fitted

Other Air, Fire and Smoke Control Products in the BSB Range:



LD and LDN Series
Lobby Dampers

FD Series
Fire Dampers

FD-C Series
Circular Fire Dampers

FSD-C Series
Circular Dampers

FSD-TD Series
Fire/Smoke Dampers

BD Series
Backdraught Dampers

HD Series
Heavy Duty Dampers

SS Series
SlimSeal Dampers

A60 Series
Marine Fire Damper

Control Systems

For full details of the complete BSB Product Range, please refer to our individual product brochures, sales office or website.

BSB Engineering Services Ltd.
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Kent, ME20 7NA, UK, Tel: +44 (0)1795 422609

For purchase orders and order related enquiries, please email: orders@bsb-dampers.co.uk
For pricing, technical and general enquiries, please email: enquiries@bsb-dampers.co.uk

Website: www.bsb-dampers.co.uk · A member of the Maico group

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Assessed to ISO 9001:2015
Cert. No. 1464