

## FD-R Series



### Single Blade Externally Resettable Rectangular Fire Damper

- Conforms to fire damper product standard BS EN 15650
- ES classified fire damper with reduced smoke leakage characteristics BS EN 13501-3
- Tested installation methods in differing supporting constructions BS EN 1366-2
- Integrated volume control capability
- Replaceable fusible link from outside of the ductwork
- Commissioning friendly
- External blade position indicator



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MANUFACTURERS OF AIR, FIRE AND SMOKE CONTROL PRODUCTS

# FD-R Series

## Single Blade Rectangular Fire Dampers - Introduction

### The FD-R Series

The FD-R Single Blade Rectangular Fire Damper with volume control facility has been designed specifically for installations where space is at a premium.

The testing and resetting of the damper and thermal fuse external of the duct allows for ease of commissioning and maintenance.

NB: Access panels may be required to comply with DW145 G.3.1.5.

The angle frame, with its integral fixing holes, acts as a template to allow the marking of the fixing positions on the surface of the structure to which the frame will be affixed, allowing for a quick and efficient install.



### Introduction

What is a fire damper and why might they be needed?  
The FD-R Single Blade Rectangular Fire Damper is designed to stop the spread of fire through ducts, walls and floors.

The product range has many features to meet the requirements of specifiers, contractors, local and national authorities.

Dampers are available to suit both low and medium velocity applications.

What are the 'E' and 'ES' classifications?

To achieve the classifications to EN13501-3, fire dampers shall meet product standard EN 15650 and be tested to EN1366-2 where 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 6mm x 150mm. There shall not be any sustained flaming. The largest size of damper to be manufactured for sale shall be fire tested.

E = Integrity

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

ES = Integrity with Smoke Leakage Performance

The maximum leakage permissible at 300Pa corrected to 20°C is 200m<sup>3</sup>/hr/m<sup>2</sup> (55.5 l/s/m<sup>2</sup>) at ambient prior to the fire test and throughout the fire test period.

In addition, for the ES classification to be attained, the smallest damper must also meet the 200m<sup>3</sup>/hr/m<sup>2</sup> maximum ambient leakage with a 300Pa pressure across the damper.

Fire dampers should be installed as tested.

### Testing and Conformities

CE marked to BS EN 15650

See installation details for full details.

Tested and achieved classification to:  
ES Classification (BS EN 13501-3)

Classification	Supporting Construction	Drawing
E 120 (ve i ↔ o)	Drywall Partition/ Masonry Wall	FD-R M9 FD-R M10
E 60 (ve i ↔ o) S		
*E 120 (ve i → o) S		
E 120 (ho i ↔ o) S	Masonry Floor	FD-R M11
*Vertical Blade Axis only Refer to CE-DoP-FD-R for full details		

FD-R Case leakage (BS EN 1751) - Class C

### Leakage Classification

Case leakage classification is given using capital letters A - C of EN1751 (sections C.2 and C.3).

The FD-R series damper meets Class C case leakage section C.3 of the EN1751 standard, section C.2 refers.

Normal operating conditions - not exceeding 1100Pa, Classes A, B & C of DW 144 2016 Specification will apply.

### The FD-R Series Range

The BSB FD-R series is available in the following nominal duct size range: -

Nominal Width 100mm to 300mm

Nominal Height 100mm to 300mm

Width and height available in 50mm increments.

### Typical Tender/ Specification Text

The BSB FD-R combination Fire and Volume Control Damper shall pass the test requirements stated in EN 1366-2 and conforms to the product standard for fire dampers EN15650.

For maintenance of the integrity of compartmentation, the fire damper shall have an E classification to EN 13501-3. The damper shall have an ES classification complying with EN1366-2 and EN 13501-3 and have a minimum ES60 rating.

For the protection of escape routes and areas with sleeping risk, the FD-R can be used where there is no requirement for a smoke detector controlled automatic release mechanism. Where smoke detector activation is required along a secondary thermal device the FSD-TD or FSD-C should be used. Please refer Approved Document B (ADB).

The single blade layered design shall be held open against a torsion spring that is released via a fusible link having an alloy component that melts at 72°C allowing the spring mechanism to close the damper.

The damper assembly and fusible link shall be safely tested (released closed and reset open) externally to the damper without the need for specialist tools or access panels. NB: Access panels may be required to comply with DW145 G.3.1.5.

The fire damper body shall be sealed and rivetted to meet the air tightness test requirements of HVCA specification.

Normal operating conditions - not exceeding 1000Pa, Classes A & B of DW 144 2016 Specification will apply.

The closed blade shall meet the air tightness test requirement of BS EN 1751 Class 2.

### FD-R Series Dampers - Testing and Maintenance.

FD-R Series dampers are designed for normal dry filtered air systems.

A programme of planned inspections should be carried out to include full operational checks, correct interface with, and function of, any control systems, cleaning, and light lubrication.

As a guide this should take place on a maximum of six-monthly intervals.

Reference should be made to BS 9999 for more information.

Records of damper installation and blade position shall be kept.

Records of the condition of the dampers and their functionality/repair etc should be kept as these products come under the requirements of the Regulatory Reform (Fire Safety) Order (RRFSO).

These inspection and maintenance programmes may need to be repeated more frequently if the dampers are exposed to inclement/dusty conditions or fresh air intakes and the frequency of such checks should be reviewed based on site experience.

### 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.

### Weight chart (kg approx.)

Height (mm)	Width (mm)				
	100	150	200	250	300
100	1.5	1.9	2.3	2.7	3.1
150	2.0	2.5	2.9	3.4	3.9
200	2.5	3.0	3.6	4.2	4.8
250	3.0	3.6	4.3	5.0	5.6
300	3.5	4.3	5.0	5.8	6.5

### Damper Free Area (Fully Open)

Height (mm)	Width (mm)				
	100	150	200	250	300
100	82%	84%	85%	84%	85%
150	89%	90%	90%	90%	90%
200	92%	92%	93%	92%	93%
250	93%	94%	94%	94%	94%
300	94%	95%	95%	95%	95%

# FD-R Series

## Single Blade Rectangular Fire Dampers - Product Specification

### Case

Galvanised mild steel to BS EN 10346 DX 51D Z275 0.9 ±0.1mm.

### Fusible Link

The Fusible link is externally replaceable rated at 72°C has been designed to eliminate linear creep of the solder joint. The thermal link is screwed into position via the 12.5mm diameter brass holder activating the locking assembly from outside the case in any position from fully open to fully closed, allowing air balancing during the commissioning of the ducted system.

### Handle

The handle is an 8mm dia. preformed 400 series ferritic stainless steel rod that allows the setting of the damper to any set point or fully open position. The blade angle is shown via the graduated label

### Angle frame

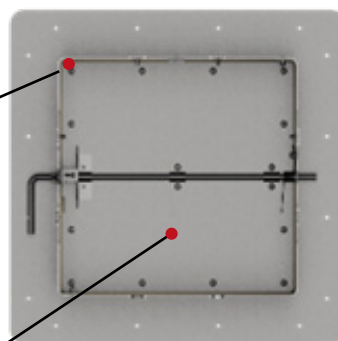
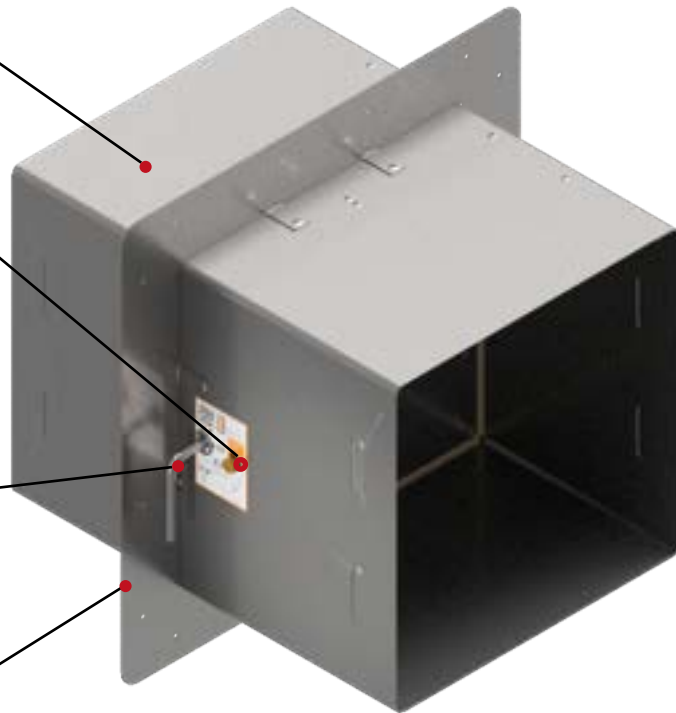
The angle frame with pre-punched installation fixing holes, allows the damper to be fixed into place from one side only without infill material being required. Use all the 5mm dia. fixing holes to secure the plate into position.

### Blade Seal (Patented)

Layered glass woven sheets and central intumescent layer that allows the blade assembly to be of minimal thickness, thus minimising pressure loss across fully open damper. Additionally, an effective seal when fully closed to comply with EN 1366-2 achieving ES classification

### Blade

1.2mm Galvanised steel plates, either side of the patented seal design providing a thin assembly, affixed by blade brackets to the reset handle.



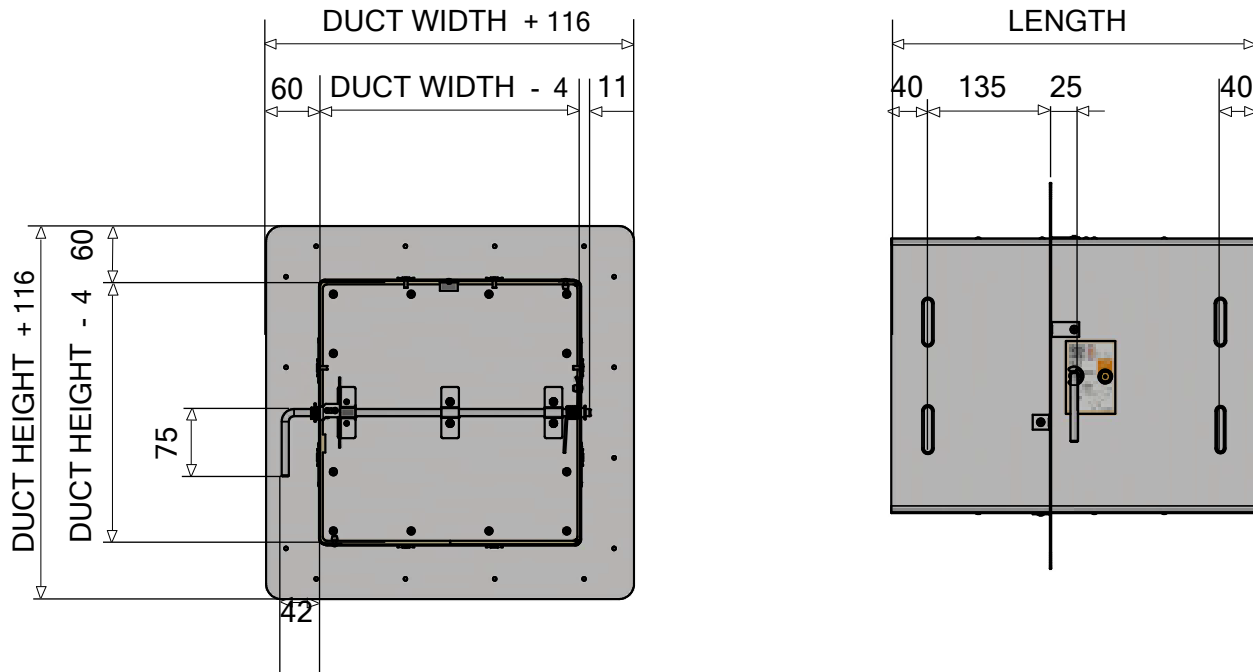
Blade Closed



Blade Open

# FD-R Series

## Single Blade Rectangular Fire Dampers - Product Dimensions



### Dimensions

Duct Height (mm)	Length (mm)
100	300
150	325
200	350
250	375
300	400



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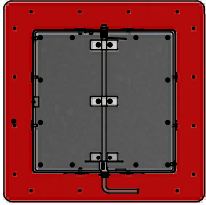
# INSTALLATION METHOD FD-R DRYWALL



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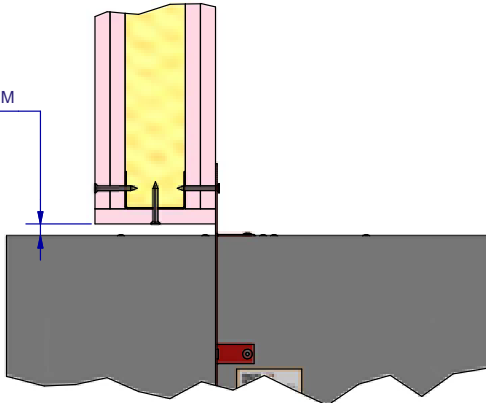
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.  
I, O & M AVAILABLE FROM QR CODE IN FOOTER  
USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.  
CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.

FD-R M9-r0

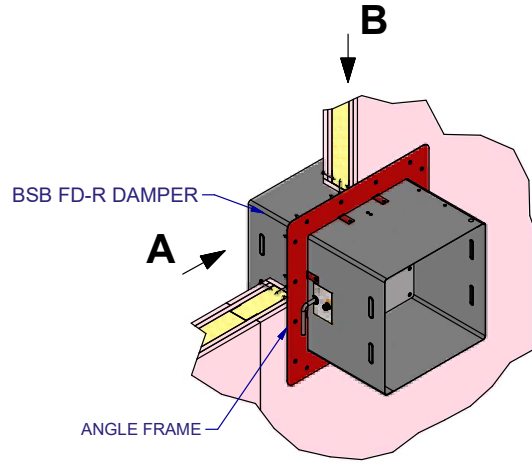


\* BLADE AXIS IN  
VERTICAL ORIENTATION

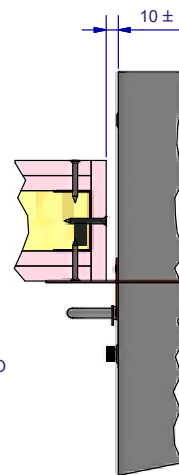
10 ± 5mm GAP  
ON TOP/BOTTOM



**VIEW A**



10 ± 5mm GAP ON SIDES



**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 A 50mm Steel Stud 2 Layers of 12.5mm Type F Board Each Side (EI 90 Fire Resistance)	Galvanised Steel	E 120 (ve i↔o) E 60 (ve i↔o) S *E 120 (ve i→o) S

\* APPLIES TO VERTICAL BLADE AXIS.

TO SECURE THE DAMPER TO THE DRYWALL ALL FIXING HOLES MUST BE USED.  
ALL FIXING SCREWS SHOULD BE SECURELY SCREWED TO THE TRACK LINING THE OPENING.  
THE OPENING IN THE WALL MUST BE LINED.  
THERE IS NO NEED TO FILL THE OPENING VOID.  
DAMPER MAY BE INSTALLED WITH HANDLE IN ANY ORIENTATION.

A MINIMUM SEPARATION OF 75mm BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR OR CEILING & 200mm BETWEEN 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 300 x 300

**BSB FD-R**



I,O&M

**CE DoP-FD-R**

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

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ECN 310



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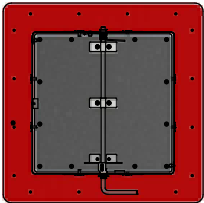
# INSTALLATION METHOD FD-R MASONRY WALL



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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-R M10-r0

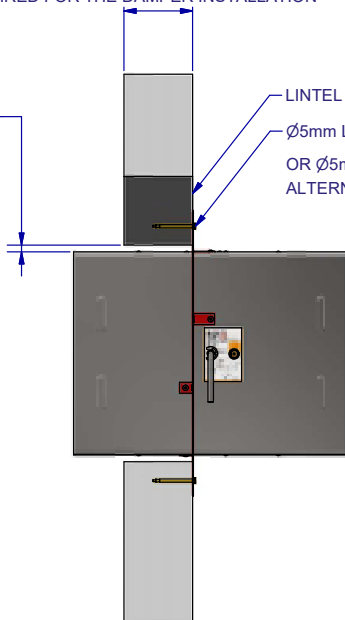


\* BLADE AXIS IN  
VERTICAL ORIENTATION

## VIEW A

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

10mm ± 5mm  
GAP ALL 4 SIDES



LINTEL TO SPAN TOP OF OPENING

A

ANGLE FRAME

BSB FD-R DAMPER

LINTEL TO SPAN TOP OF APERTURE  
Ø5mm LODEN ANCHORS  
OR Ø5mm X 50mm  
ALTERNATIVE FIXINGS.

CLASSIFICATION		
MINIMUM CONSTRUCTION	CASE / BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
100mm Thick Masonry Density 600kg/m <sup>3</sup>	Galvanised Steel	E 120 (ve i↔o) E 60 (ve i↔o) S *E 120 (ve i→o) S

\* APPLIES TO VERTICAL BLADE AXIS.

TO SECURE THE DAMPER TO THE MASONRY WALL ALL FIXING HOLES MUST BE USED.  
THERE IS NO NEED TO FILL THE OPENING VOID.  
DAMPER MAY BE INSTALLED WITH HANDLE IN ANY ORIENTATION.

A MINIMUM SEPARATION OF 75mm BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR OR CEILING & 200mm BETWEEN 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 300 x 300

**BSB FD-R**



I,O&M

**CE DoP-FD-R**

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

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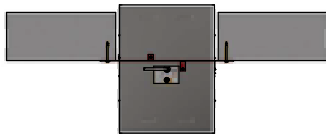
# INSTALLATION METHOD FD-R MASONRY FLOOR



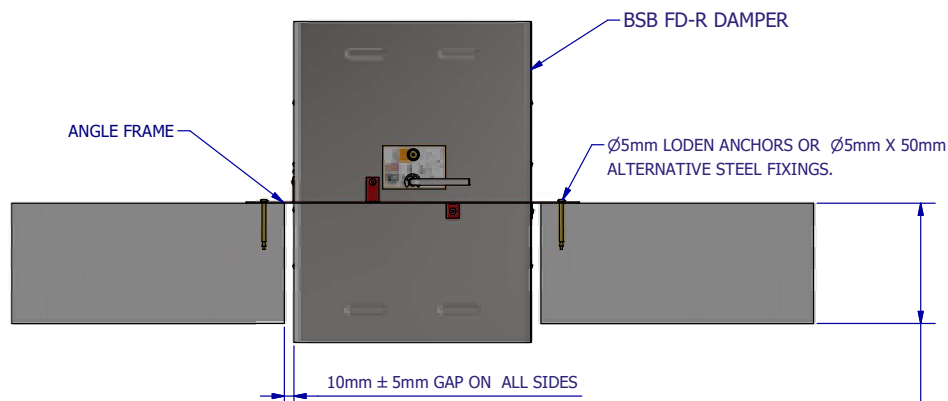
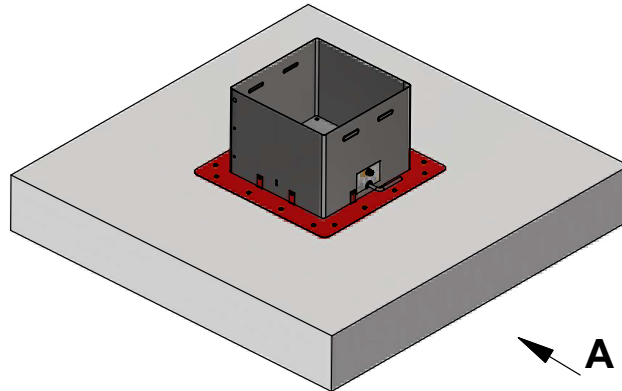
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PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.  
I, O & M AVAILABLE FROM QR CODE IN FOOTER.  
USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.  
CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.

FD-R M11-r0



CEILING MOUNTED



**VIEW A**

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

CLASSIFICATION		
MINIMUM CONSTRUCTION	CASE / BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
150mm Thick Masonry Density 600kg/m <sup>3</sup>	Galvanised Steel	E 120 (ho i↔o) S

TO SECURE THE DAMPER TO THE MASONRY FLOOR ALL FIXING HOLES MUST BE USED.  
THERE IS NO NEED TO FILL THE OPENING VOID.  
DAMPER MAY BE INSTALLED WITH HANDLE IN ANY ORIENTATION.

A MINIMUM SEPARATION OF 75mm BETWEEN FIRE DAMPER AND ADJACENT FLOOR & 200mm BETWEEN 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 300 x 300

**BSB FD-R**



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**CE DoP-FD-R**

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

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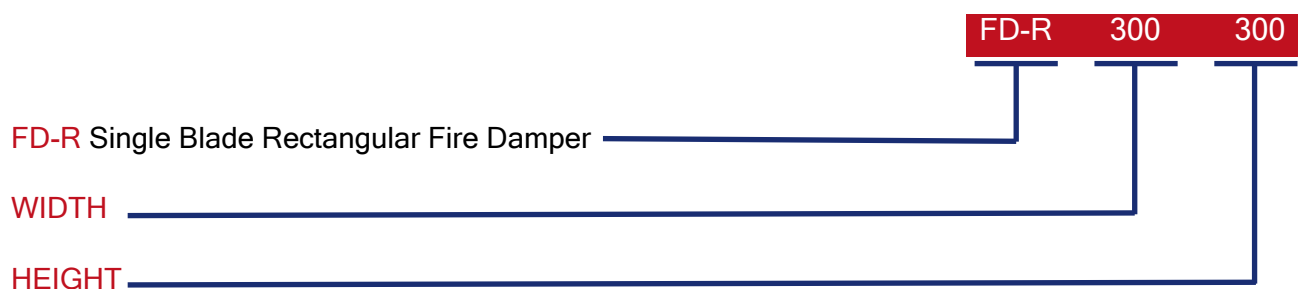


ECN 310



# FD-R Series

## Single Blade Rectangular Fire Dampers



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



### BSB Engineering Services Limited

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