

# FSD-C Series



## Circular Single Blade Fire and Smoke Damper

- ES classified fire dampers with reduced smoke leakage characteristics to BS EN 1366-2 (test standard) and BS EN 13501-3 (extended field of application)
- Aerodynamically Air Control tested to BS EN 1751
- Tested and assessed installation methods in differing support constructions BS EN 1366-2
- Rotatable cleats®
- Can be installed from one side of the fire separation without the need to fit a secondary installation plate or provide fire-rated infill material
- Replaceable thermal fuse element from outside of the duct.
- Commissioning friendly
- Blade Position Indicator
- IP54 degree of protection
- Test switch for periodic damper testing
- LED green indication when lit indicates that a supply voltage is present and that the temperature fuses are operational
- New "FSD-C-FC" Installation method



A brand of  
**MAICO**

MANUFACTURERS OF AIR, FIRE AND SMOKE CONTROL PRODUCTS

### Introduction

The FSD-C Motorised Failsafe Single Blade Fire and Smoke Damper has been designed specifically for installations where space is at a premium.

The FSD-C Single Blade Fire/Smoke Damper provides greater free area than comparable sized conventional multi blade fire/smoke dampers.

The installation plate, with its engineered installation perforations, acts as a template to allow the marking of the fixing positions on the surface structure to which the plate will be affixed, allowing for a quick and efficient install.

### FSD-C Features and Benefits

- Tested and certified installations variants for the FSD-C are available for drywall partitions, masonry walls/ floors, masonry floors with Batt Infill and flexible fire curtain installations.
- All BSB tested installation methods give at least a E60 classification.
- Unique patented blade design.
- Halogen free LSF cable
- Exceeds the requirements of EN1366-2
- Reduced commissioning time
- Thermal fuse replaceable external to the duct.
- Test switch integral to the thermal fuse allowing the damper to be tested locally and individually.
- LED indication that power is available to the actuator and the thermal fuse is intact.
- Installation plate with template location holes to allow easy installation.

### Introduction

#### What is a fire damper and why might they be needed?

The FSD-C Series Single Blade Circular Fire Damper is designed to stop the spread of fire through ducts passing through walls and floors.

The product range has many features and options to meet the requirements of specifiers, contractors, local and national authorities. Dampers are available to suit both low/medium and high velocity applications.

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

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<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 leakage with a 300Pa pressure across the damper. (This is equivalent to just 0.55 l/s on a 100x100 damper)

Fire dampers should be installed as tested.

Some applications (fan off) allow the use of tests undertaken to BS 476-20/22 and this is also allowed worldwide in areas outside of the EU. Test reports showing testing to EN 1366-2 should be acceptable to meet the requirements of BS 476-20/22, but the reverse is definitely not the case and no classifications are available.

However, as a word of caution, in whichever case, the correct model must be selected, to match fire resistance time with installation method and with the supporting construction (wall or floor).

To ensure that all testing and assessments are traceable back to initial fire test reports, the BSB FSD-C series is product certificated by the Loss Prevention Certification Board (LPCB). This means that in addition to normal BS EN ISO 9001 compliance, the product is also checked to ensure that same product is being manufactured that has been tested or assessed.

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.

# FSD-C Series

## Single Blade Circular Fire Dampers - Introduction



### Testing and Conformities

See installations section for full details. Tested to EN1366-2. Damper casings conform to BS EN 506  
Tested/assessed and achieved equivalent classification to:

Classification	Supporting Construction	Drawing
E 120 (ho i↔o) S	Masonry Floor with Batt Infill	FSD-C M7
E 120 (ho i↔o) S	Masonry Floor with Batt Infill	FSD-C M8
E 90 (ve i↔o) S	Drywall Partition	FSD-C M9
E 120 (ve i↔o) S	Drywall Partition	FSD-C M9
E 120 (ve i↔o) S	Masonry Wall	FSD-C M10
E 60 (ve i↔o) S	Masonry Floor	FSD-C M11
E 90 (ve i↔o) S	Fire Curtain	FSD-C M14
Refer to CE-DoP FSD-C for further details		

### ES Classification (BS EN 1366-2/BS EN 13501-3)

#### Integrity only (BS 476-20/22 - ADB)

Meets the requirements of BS 476-20/22 -  
Refer to BS 476-10.6.6.3

#### FSD-C Blade leakage (BS EN 1751)

- Class 2

#### Corrosion Testing

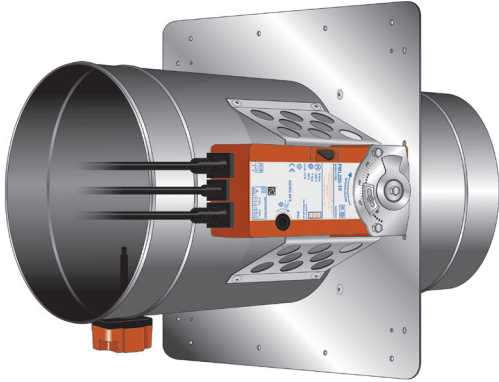
BBA test report 50447 issue 2 refers  
• Tested to BS EN 60068-2-11:1999

## Single Blade Fire and Smoke Dampers - Introduction

### The FSD-C Series Range

The BSB FSD-C series is available in the following case diameters:

FSD-C100 - 100mm dia.	FSD-C200 - 200mm dia.
FSD-C125 - 125mm dia.	FSD-C250 - 250mm dia.
FSD-C150 - 150mm dia.	FSD-C300 - 300mm dia.
FSD-C160 - 160mm dia.	FSD-C315 - 315mm dia.



### Thermal Fuse

The BSB PML24-TF and PML230-TF actuators incorporate a thermal fuse (TF), which operates at 72°C.

The thermal fuse will be factory fitted to the FSD-C series damper.

The thermal fuse has a green LED indicator which provides a quick visual check that the fitted actuator is receiving power and that the thermal fuse is intact.



A momentary push test switch is included within the thermal fuse head for periodic testing of the damper.

For reasons of safety the thermal fuse is designed to operate only once upon reaching the activation temperature. Cutting the cable to the thermal fuse with the power on will trip an electrical fuse within the actuator, rendering it inoperable.

### Damper Control Panels

BSB offer two alternative damper control panels when monitoring and controlling dampers. The Electro Mechanical System and the Fully Addressable System. Please contact our sales office or consult relevant product brochures for further information.

### Damper Weight Chart Including Actuator (kg approx.)

Nom. Dia. (mm)	320mm with inst. plate	320mm with inst. plate	420mm no inst.plate	Damper + Clamp plate	Total Weight
100	0.7	2.7	2.5	+0.8	2.8
125	1.0	3.0	2.7	+0.9	3.2
150	1.2	3.3	3.1	+1.1	3.5
160	1.2	3.3	3.2	+1.1	3.5
200	1.8	4.0	3.7	+1.4	4.3
250	2.6	4.9	4.6	+1.7	5.3
300	3.7	6.2	5.7	+2.1	6.6
315	4.0	6.6	6.1	+2.1	7.0

### Typical Tender/Specification Text

The BSB FSD- Fire and Smoke Damper shall pass the test requirements stated in EN 1366-2.

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 E60 and ES60 rating.

For the protection of escape routes and areas with sleeping risk, the FSD-C fire/smoke damper should be used. Please refer Approved Document B (ADB).

The single blade layered design shall be held open against the constant force of the fitted actuator that is released to spring closed via the activation of the fitted thermal fuse rated at 72°C.

The damper actuator assembly shall be safely tested and released closed externally to the damper without the need for specialist tools.

The fire damper body shall be fully welded to meet the air tightness test requirements of HVCA specification DW144 to class A B & C to a maximum of 1000Pa and comply with EN1751.

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

The BSB FSD-C Fire and Smoke Damper shall have a tested or assessed installation method that matches the requirement of the supporting construction. DW145 Method 4 Blockwork Walls and Partition Walls refers.

### Leakage Classification

Blade leakage classification is given numerically and case leakage classification is given using capital letters.

- Class 4, 3, 2 or 1 refers to blade leakage - EN1751 section C.2 refers
- Class 4 achieving the lowest leakage.
- Class A, B or C refers to casing leakage - EN1751 section C.3 refers
- DW144 part 8 table 17 and figure 178 refers.
- Class C achieving the lowest leakage at elevated pressures.

The above references are illustrated in the graphs on Pages 10, 11 and 13 of this brochure.

# FSD-C Series

## Single Blade Fire and Smoke Dampers - Product Specification

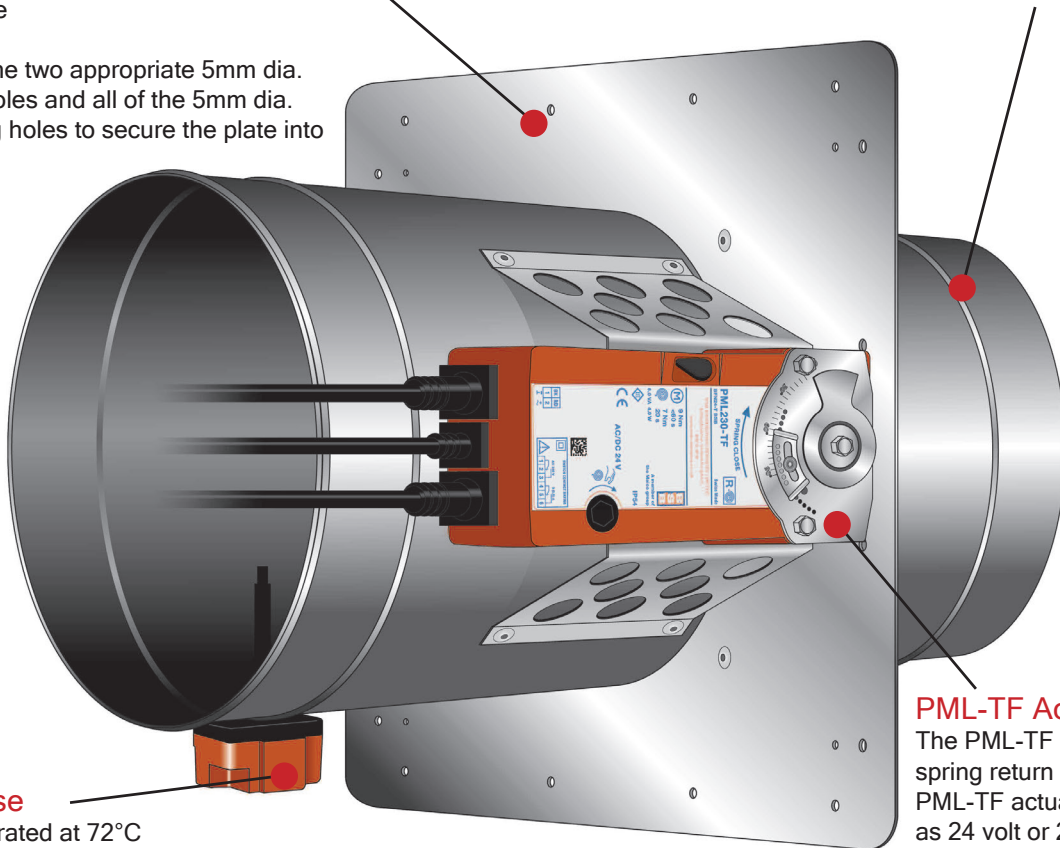
### Installation Plate

The installation plate allows the damper to be fixed into place from one side only with no infill material being required on the other open side

Use either of the two appropriate 5mm dia. corner fixing holes and all of the 5mm dia. mid span fixing holes to secure the plate into position.

### Case

Galvanised mild steel to BS EN 10346 DX 51D Z275  $0.8 \pm 0.1$ mm  
Damper casing conforms to BS EN 1506.



### Thermal Fuse

Thermal Fuse rated at 72°C is factory fitted and is replaceable external to the damper case. The thermal fuse is fitted with a green LED indication light which provides a quick visual check that the actuator is receiving power and that the thermal fuse is operational. A manual momentary push test switch for periodic testing of the damper is also included

### PML-TF Actuator

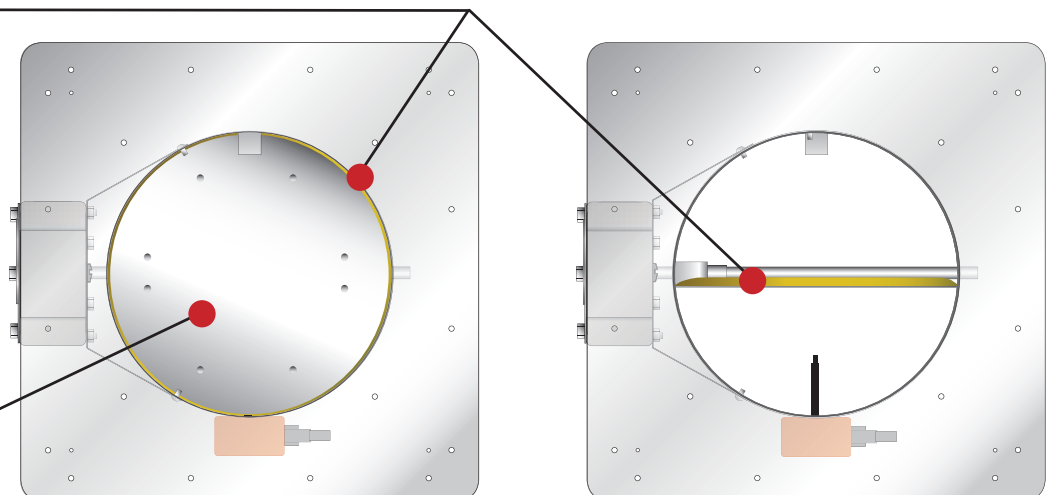
The PML-TF actuator is a spring return actuator. The PML-TF actuator is available as 24 volt or 230 volt.

### Blade Seal (patented)

Layered glass woven sheets and central intumescent disc to a patented design that allows the blade assembly to be of minimal thickness, thus minimising pressure loss, providing an effective seal to comply with EN 1366-2 achieving ES classification.

### Blade

Galvanised 1.2mm one piece circular steel discs either side of the patented seal design providing a 5mm thick assembly affixed by blade brackets to the drive spindle. Grade 430 stainless steel blade option available.



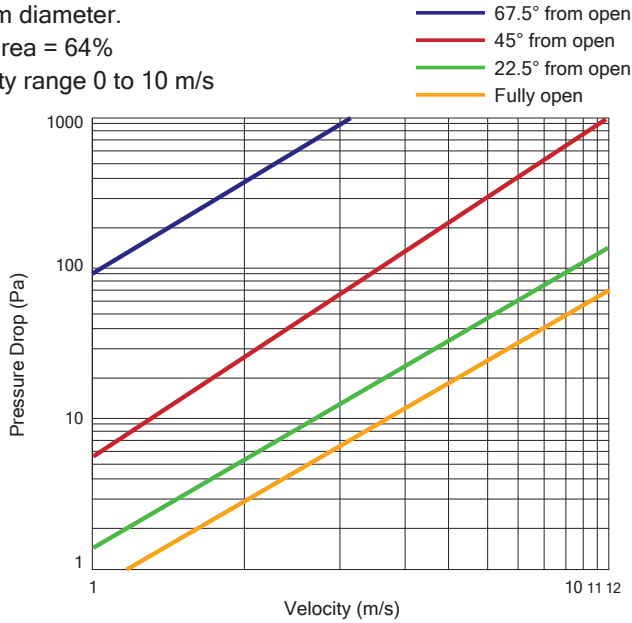
### Performance Data

#### Pressure Drop Graph - Model FSD-C100

100mm diameter.

Free area = 64%

Velocity range 0 to 10 m/s

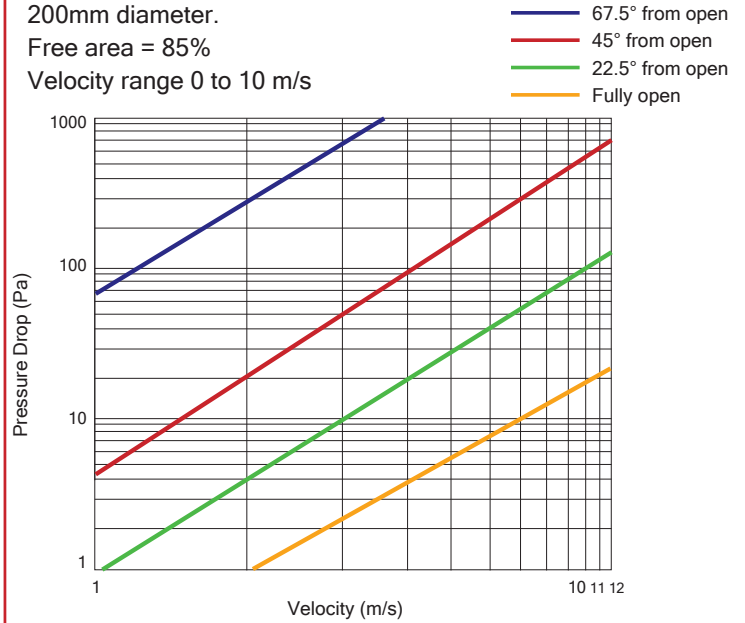


#### Pressure Drop Graph - Model FSD-C200

200mm diameter.

Free area = 85%

Velocity range 0 to 10 m/s

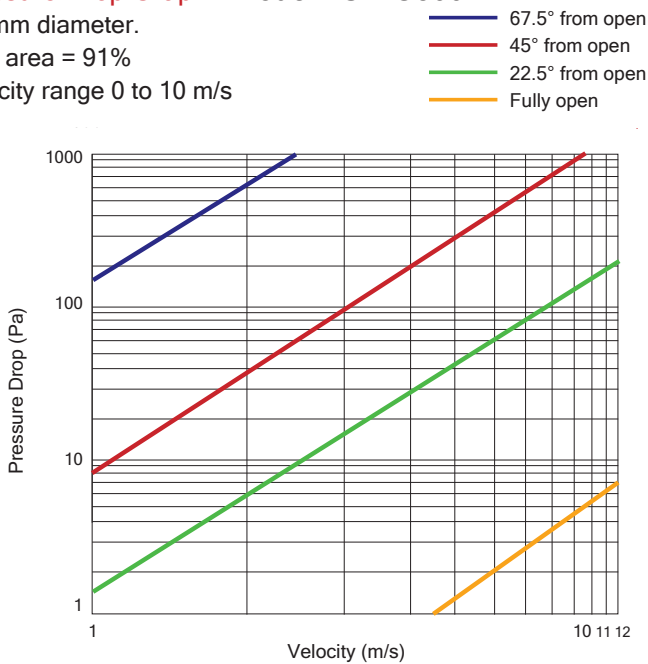


#### Pressure Drop Graph - Model FSD-C300

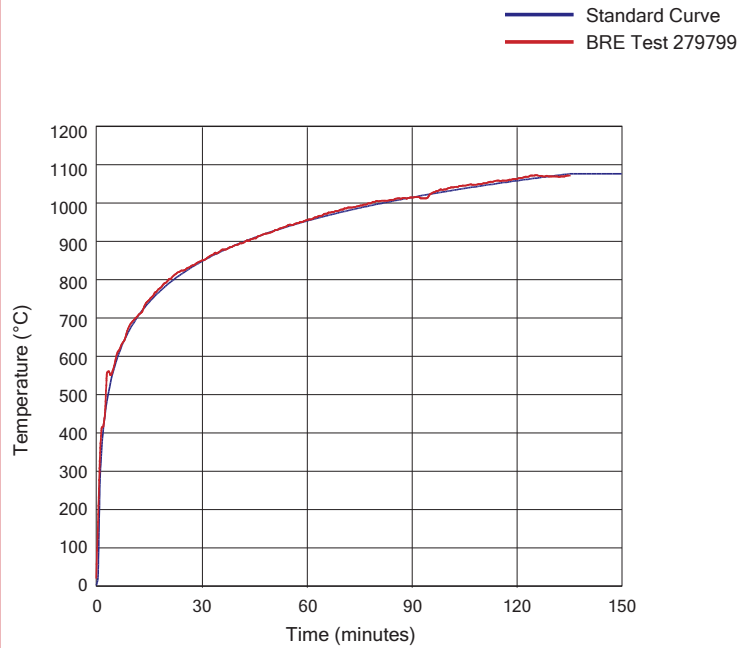
300mm diameter.

Free area = 91%

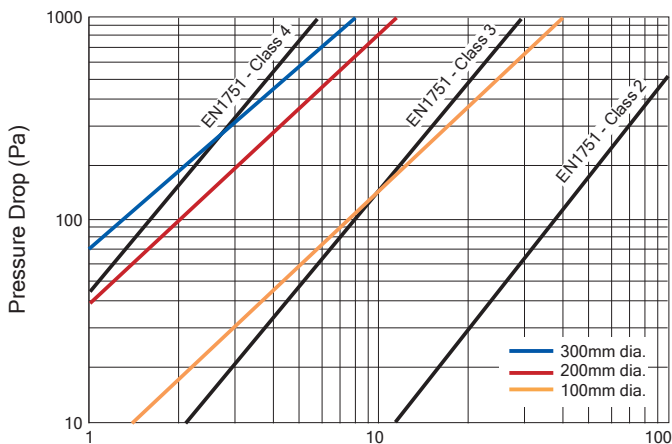
Velocity range 0 to 10 m/s



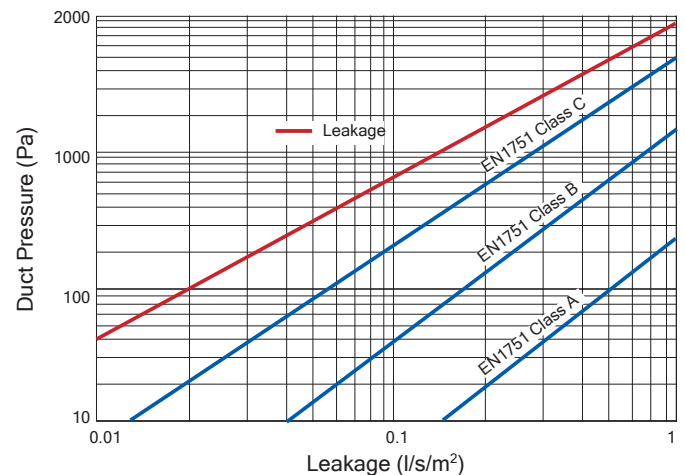
#### Time / Temperature Curve - EN13501-4:2007



#### Blade Leakage Graph



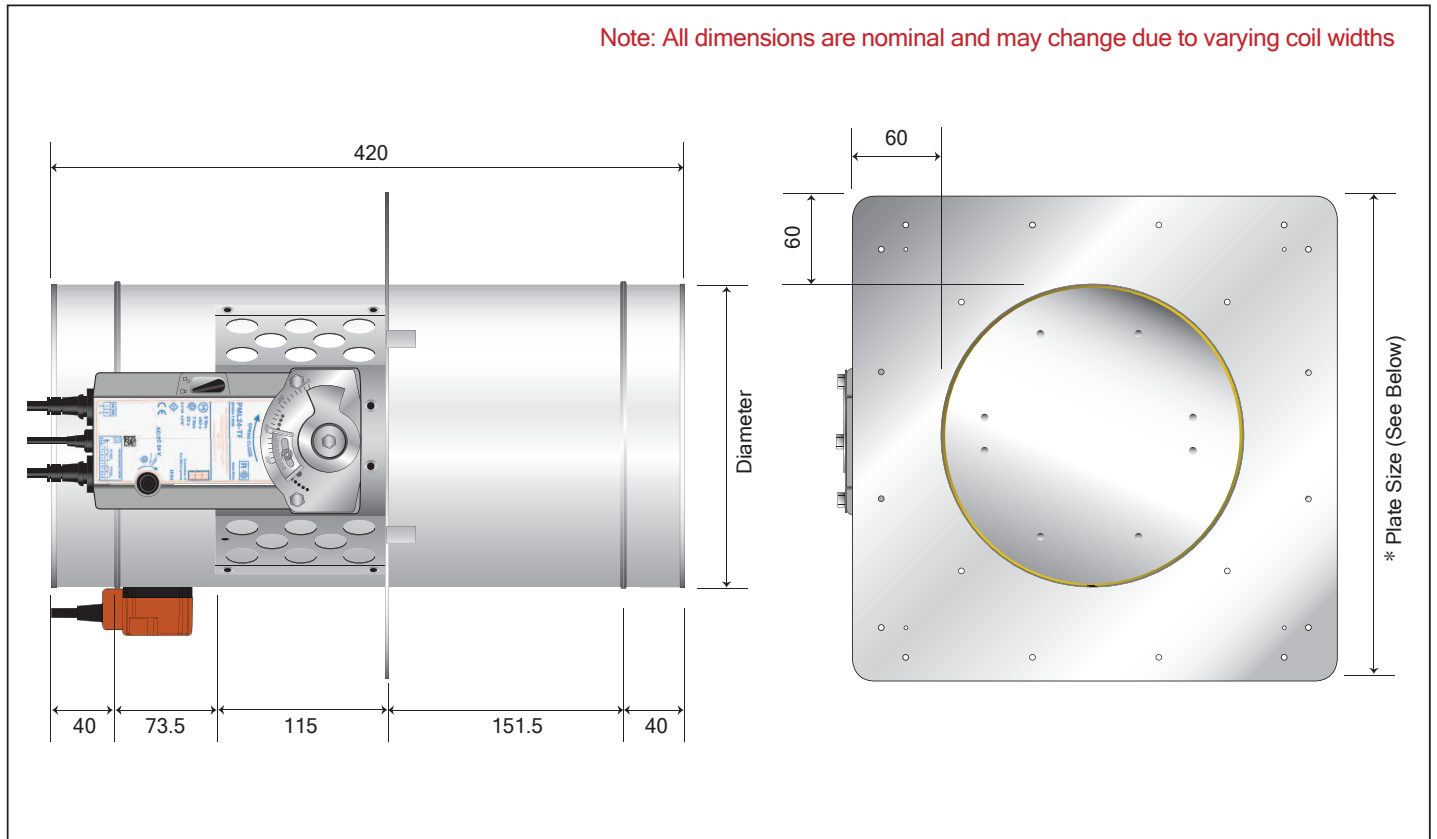
#### Case Leakage Graph - Model FSD-C100



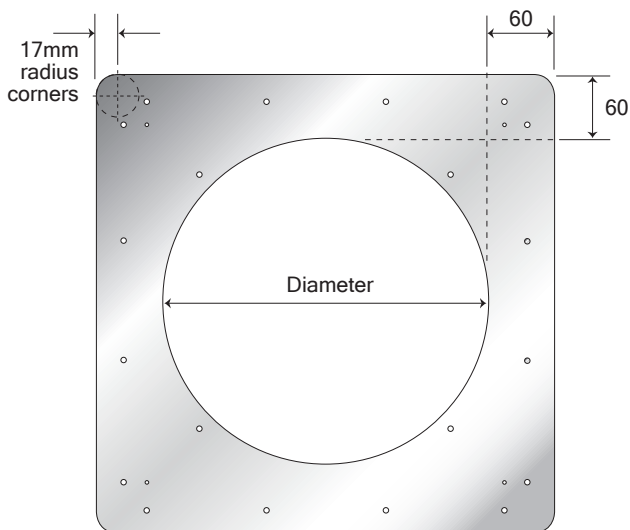
# FSD-C Series

## Single Blade Fire and Smoke Dampers - Product Dimensions

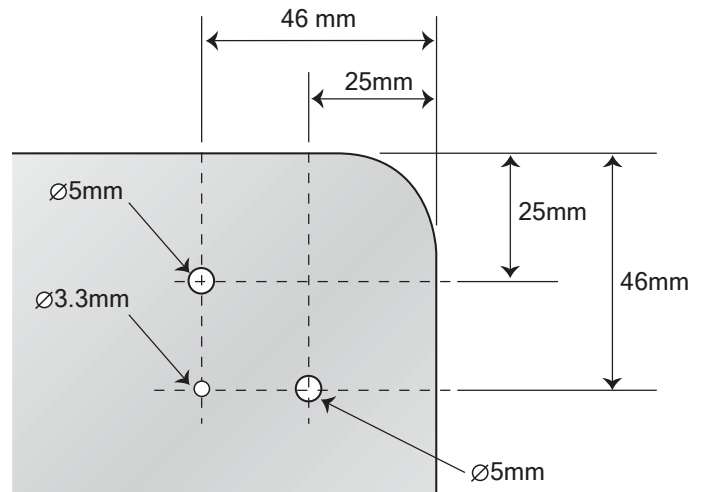
### The FSD-C Series - Fire/Smoke Damper



### Installation Plates



### Installation Plate Fixing Hole Detail



### Damper Free Area

Model	Free Area	Model	Free Area
FSD-C100	74%	FSD-C200	88%
FSD-C125	80%	FSD-C250	90%
FSD-C150	84%	FSD-C300	92%
FSD-C160	85%	FSD-C315	92%

Model	Dia. (mm)	Plate Size (mm <sup>2</sup> )	Flange Size (mm)	Spigot Length (mm)
FSD-C100	100	220	60	40
FSD-C125	125	245	60	40
FSD-C150	150	270	60	40
FSD-C160	160	280	60	40
FSD-C200	200	320	60	40
FSD-C250	250	370	60	60
FSD-C300	300	420	60	60
FSD-C315	315	435	60	60

# FSD-C Series

## Single Blade Fire and Smoke Dampers - Product Dimensions

### Clamp Plate Flexible Fire Curtain (FFC)

In addition to the installation plate secured to the damper, the FSD-C-FC damper has an additional clamp plate for installation within Flexible Fire Curtain.

The clamp plate has thread forms to receive the safety self-tapping screws through the Fire curtain material.





# FSD-C Series

## Single Blade Fire and Smoke Dampers - Cleats

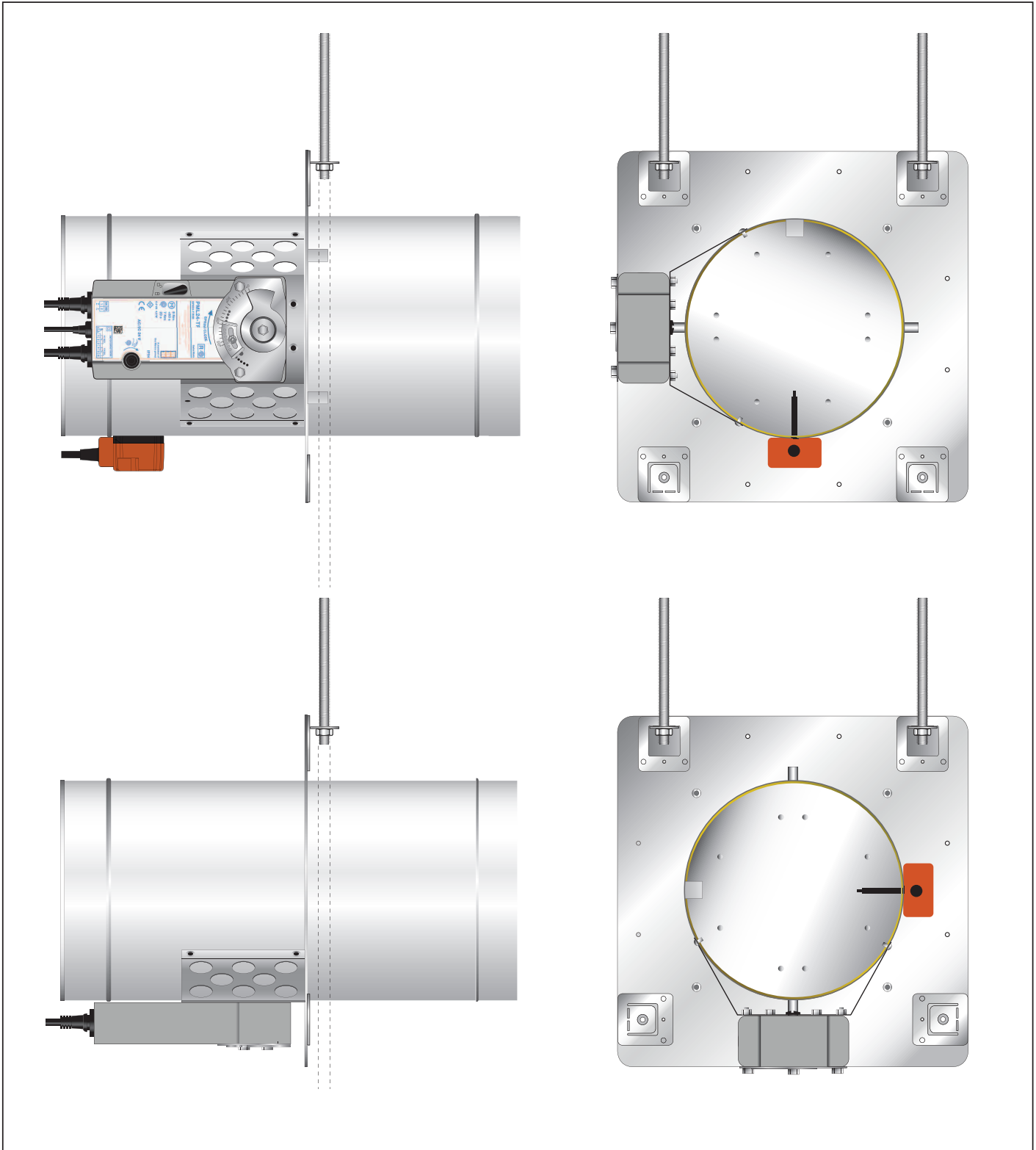
### Rotatable Easy Bend Cleats ( Not FC )

The optional Rotatable Cleat Easy Fix System will be supplied factory fitted to the FSD-C Series dampers.

The installation plate should be fitted to the fire separation barrier to ensure test conformity is maintained. The Easy Bend Cleat is available factory fitted four per plate. The cleats should only be used where the fire separation element is not yet in place, offering a temporary installation support. The cleats must not be the sole independent method of supporting the fire damper.

The cleats can easily be bent out using a flat head screwdriver. Supporting drop rods are used in the normal way.

The cleats can be rotated through 90 degrees to suit handle position where the damper requires to be installed with the handle either left, right, top or bottom giving full flexibility during installation.



### Cleats (Not FC)

Rotatable cleats are available as an optional accessory where requested and will be provided factory fitted as shown right.

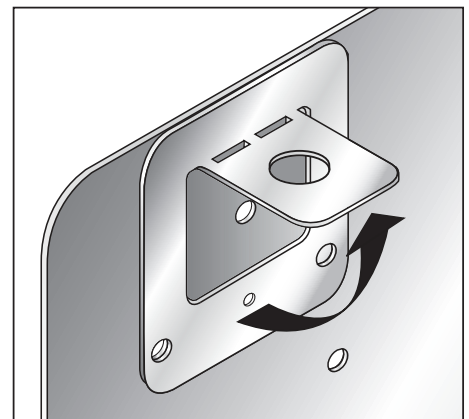
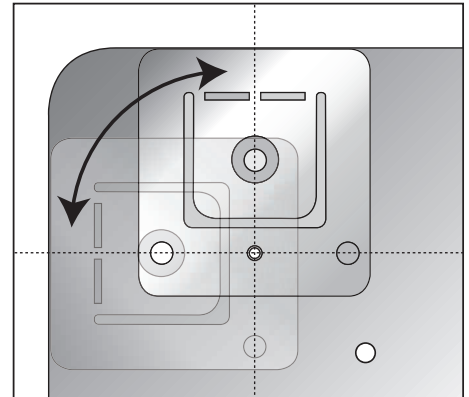
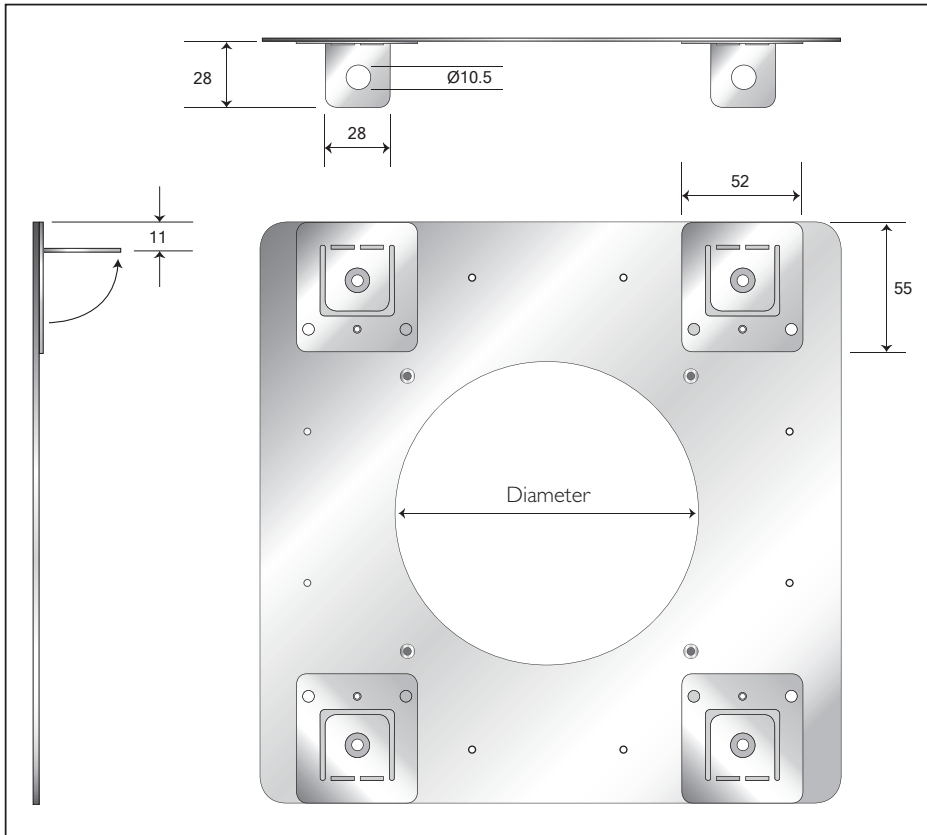
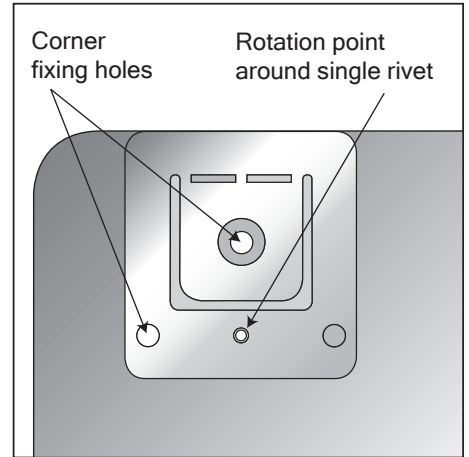
The FD-C series damper must be installed as per BSB installation, operating and maintenance document to comply with CE marking.

The use of cleats as the sole installation/support method will not comply with CE marking rules.

Where cleats are requested to be fitted and local authority approval has been given, the drop rod system will be the responsibility of others.

### Fixing Kit

Fixing cleat (4) kits are available for retro fixing, please refer to the sales office.



### FSD-C-FC cleats

These cleats are supplied factory fitted for the FD-FC damper. These cleats are specific only to the Fire Curtain installation type.



#### Drop Rod load bearing specification for Fire rating:

Drop Rod Size	MAX LOAD PER PAIR OF STUDS (kg)		
	E60	E120	E240
M10	159	106	63

## Single Blade Fire and Smoke Dampers - Actuators


### BSB FSD-C-TF Electric Actuator Specifications

#### BSB PML24-TF

DAMPER ENERGISED OPEN / SPRING CLOSED

Supply 24V AC/DC 50/60 Hz

- Wiring diagram shows switch positions based on no power to actuator
- Power On - Damper blades drive open
- Power Off - Damper to spring closed
- Electric thermal release rated at 72°C
- External position indicator
- Adjustable blade position stop

 Connect via safety isolation transformer

Release Time: 15 secs ; Reset Time: 40 secs

7VA Typically 5W motoring, 2.5W holding

For wiring size - I<sub>max</sub> 5.8A @ 5ms

Operating temperature range -30° to +50° continuous.

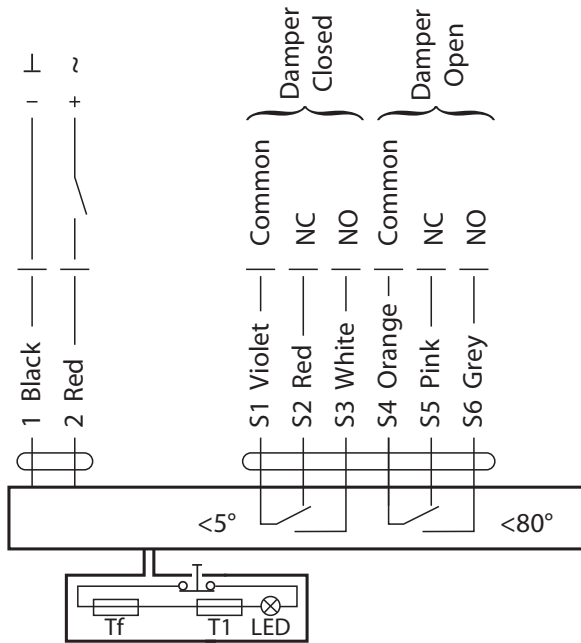
Connecting cables need to be protected from sharp edges

Unused cores should be isolated

For damper closed indication use terminals 1 & 2

For damper open indication use terminals 4 & 6

Terminals 1 & 4 can be linked where required as an option



#### BSB PML230-TF

DAMPER ENERGISED OPEN / SPRING CLOSED

Supply 230V AC 50/60 Hz

- Wiring diagram shows switch positions based on no power to actuator
- Power On - Damper blades drive open
- Power Off - Damper to spring closed
- Electric thermal release rated at 72°C
- External position indicator
- Adjustable blade position stop

For disconnection from the supply, a separate device must be incorporated in the fixed wiring (at least 3mm contact gap in all poles)

Release Time: 15 secs ; Reset Time: 40 secs

7VA Typically 5W motoring, 4W holding

For wiring size - I<sub>max</sub> 5.8A @ 5ms

Operating temperature range -30° to +50° continuous.

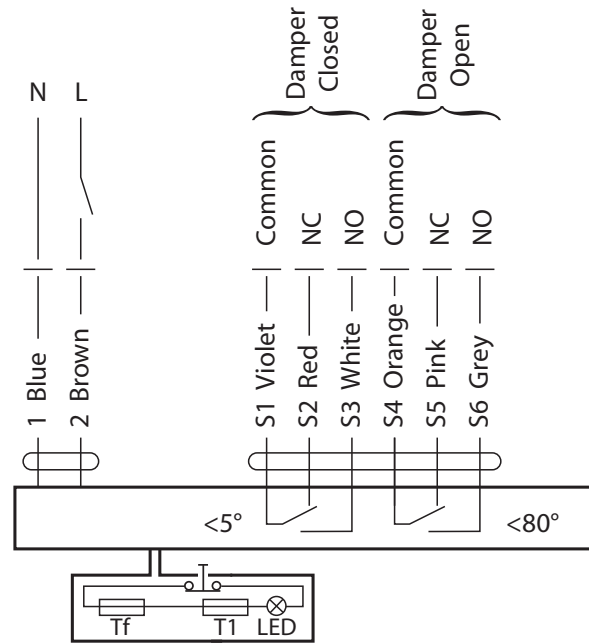
Connecting cables need to be protected from sharp edges

Unused cores should be isolated

For damper closed indication use terminals 1 & 2

For damper open indication use terminals 4 & 6

Terminals 1 & 4 can be linked where required as an option



Where the manual adjustment is required and fitted, open indication to be provided by contacts 1 and 3.

**Motor Weights:** PML24-TF / PML230-TF: 1.5kg PML24-NTF / PML230-NTF: 1.8kg

The FSD-C FS Fire/Smoke Damper is supplied fitted with either a PML24-TF or PML230-TF spring return actuator where the damper fail safe operation is via a thermal fuse or purpose supplied damper control panel

	PML24-TF (as illustrated)	PML230-TF
Voltage	24volt AC/DC	230volt AC
Power Consumption	Operating: 4W (watts); At rest: 1.4W (watts)	Operating: 5W (watts); At rest: 2.1W (watts)
Cable Fitted Power:	1m, 2 x 0.75mm <sup>2</sup>	1m, 2 x 0.75mm <sup>2</sup>
Cable Fitted Aux. Switch: (Cables are halogen free)	1m, 6 x 0.75mm <sup>2</sup>	1m, 6 x 0.75mm <sup>2</sup>
Control	Spring return closed	Spring return closed
Torque	Motor: 9Nm	9Nm
	Spring Return: 7Nm	7Nm
Running Time:	Motor: 40 seconds	40 seconds
	Spring Return: 15 seconds	15 seconds
Sound Power Level	55dB (A)	55dB (A)
	Spring Return: 67dB (A)	67dB (A)
Operating Temp. Range	-30°C to +55°C	-30°C to +55°C
Degree of Protection	IP54	IP54

**Mounting** Actuator coupling is located onto a 12mm square of a 8mm dia shaft. This is then secured by two bolts through the actuator into Hex rivet nuts, which in turn is affixed to the three-position mounting bracket. A centre bolt and pointer are also used.

# INSTALLATION METHOD

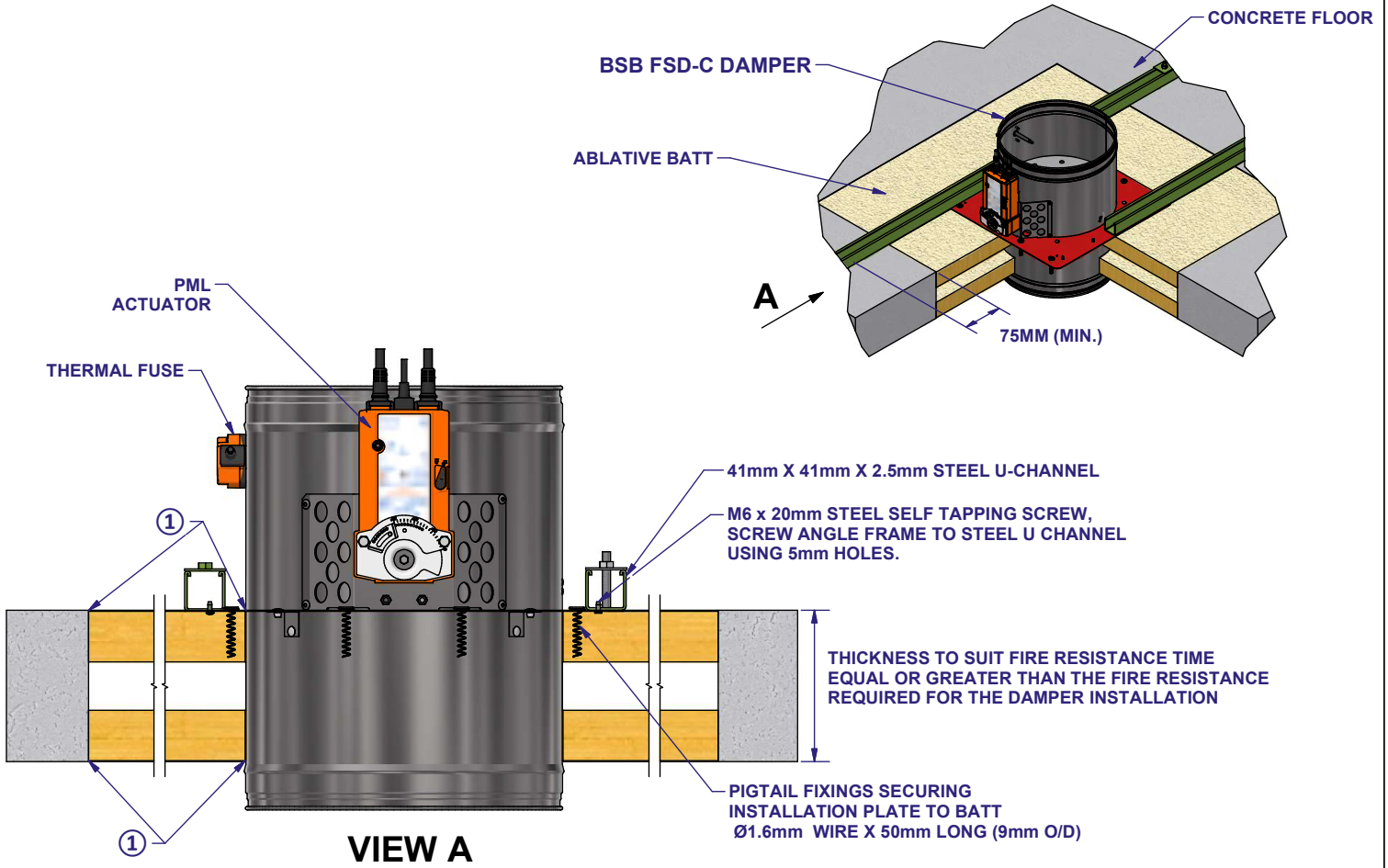
## FSD-C MASONRY FLOOR BATT

PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.

FSD-C M7-r1

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.



**CLASSIFICATION**

MINIMUM CONSTRUCTION	CASE / BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
150mm Thick Masonry Density 580kg/m <sup>3</sup> 2 x Layers of 50mm Ablative Coated Batt Density 140kg/m <sup>3</sup>	Galvanised Steel	E 120 (ho i-o) S

① 10-15mm BEAD OF INTUMESCENT MASTIC AROUND PERIMETERS.  
A MINIMUM OF 60mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 60mm BETWEEN SINGLE SECTION DAMPERS.

GREEN COLOURED ITEMS MUST BE STEEL AND ARE NOT SUPPLIED BY BSB. TESTED EXAMPLE SHOWN, HOWEVER CONSTRUCTION CAN DEVIATE TO A FIRE-SAFE DESIGN PROVIDED APPROVAL FROM A STRUCTURAL ENGINEER HAS BEEN ACQUIRED.

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 Ø100mm to Ø315mm

**BSB FSD-C**



**I,O&M**

**CE DoP-FSD-C-06**

TESTED TO EN1366-2  
CLASSIFIED TO EN13501-3

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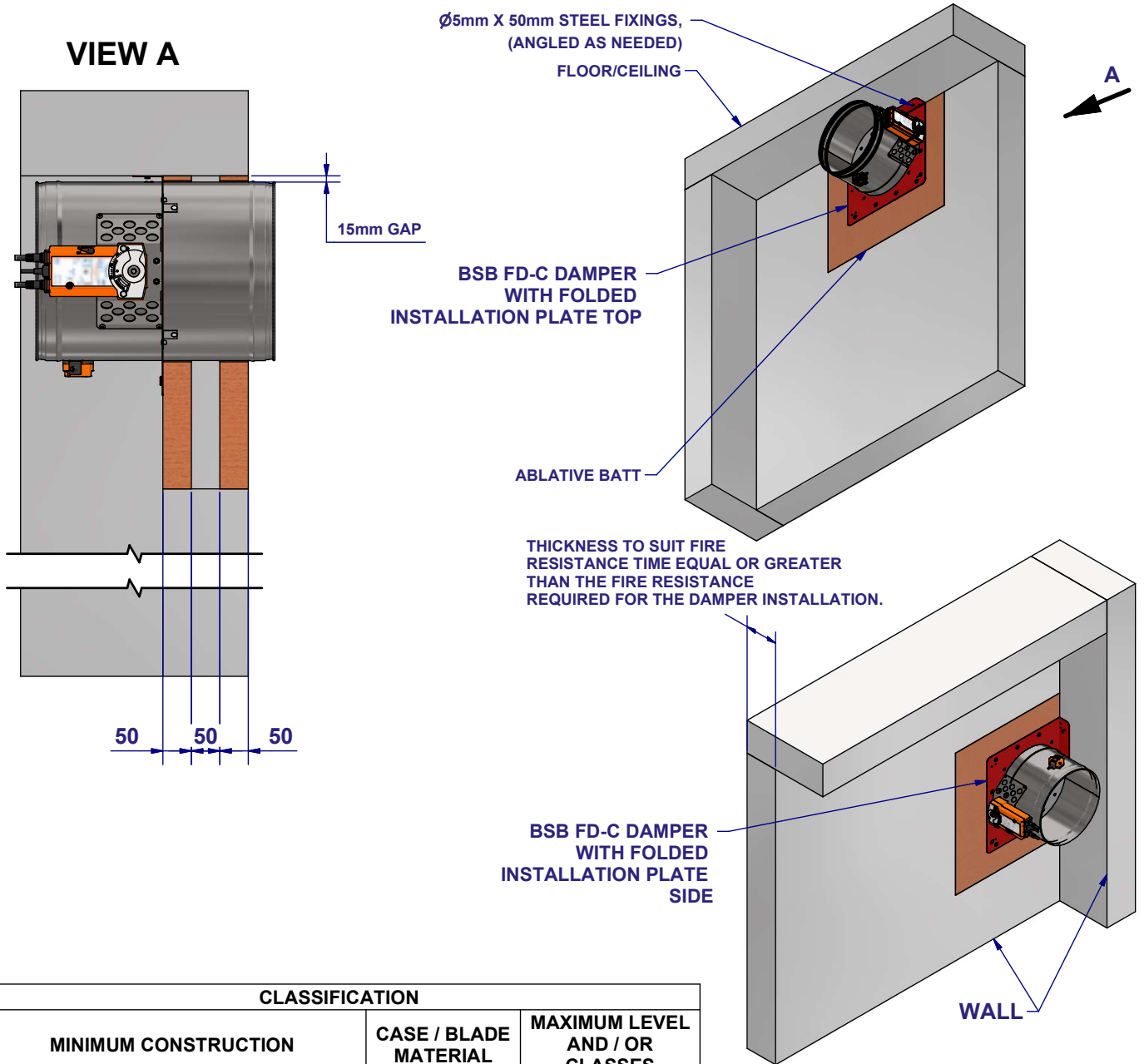
# INSTALLATION METHOD FSD-C MASONRY WALL / BATT

PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.  
I, O & M AVAILABLE FROM QR CODE IN FOOTER.

FSD-C M8-r3

USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.  
CONNECTING DUCTWORK AND FIRE BATT HAVE BEEN OMITTED FOR CLARITY.  
DAMPER INCLUDES ABLATIVE BATT PENETRATION SEAL.

**VIEW A**



CLASSIFICATION		
<b>MINIMUM CONSTRUCTION</b>	<b>CASE / BLADE MATERIAL</b>	<b>MAXIMUM LEVEL AND / OR CLASSES</b>
150mm Thick Masonry Density 650kg/m <sup>3</sup> 2 x Layers of 50mm Ablative Coated Batt Density 140kg/m <sup>3</sup>	Galvanised Steel	E 120 (ve i↔o) S

ALL FIXINGS HOLES ARE TO BE USED TO SECURE THE DAMPER TO THE ABLATIVE BATT/ WALL/CEILING.  
DAMPER MAY BE INSTALLED WITH ACTUATOR IN ANY ORIENTATION.

IT IS ACCEPTABLE TO INSTALL WITH A CUT DOWN PLATE AND 40 X 40 X 2mm MILD STEEL ANGLE, CONTACT BSB FOR FURTHER DETAILS.

A MINIMUM OF 10mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 60mm 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  $\varnothing$ 100mm to  $\varnothing$ 315mm

**BSB FSD-C**



SCAN ME  
**I, O & M**

[www.bsb-dampers.co.uk](http://www.bsb-dampers.co.uk)

**CE DoP-FSD-C-06**

TESTED TO EN1366-2  
CLASSIFIED TO EN13501-3

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ECN 302

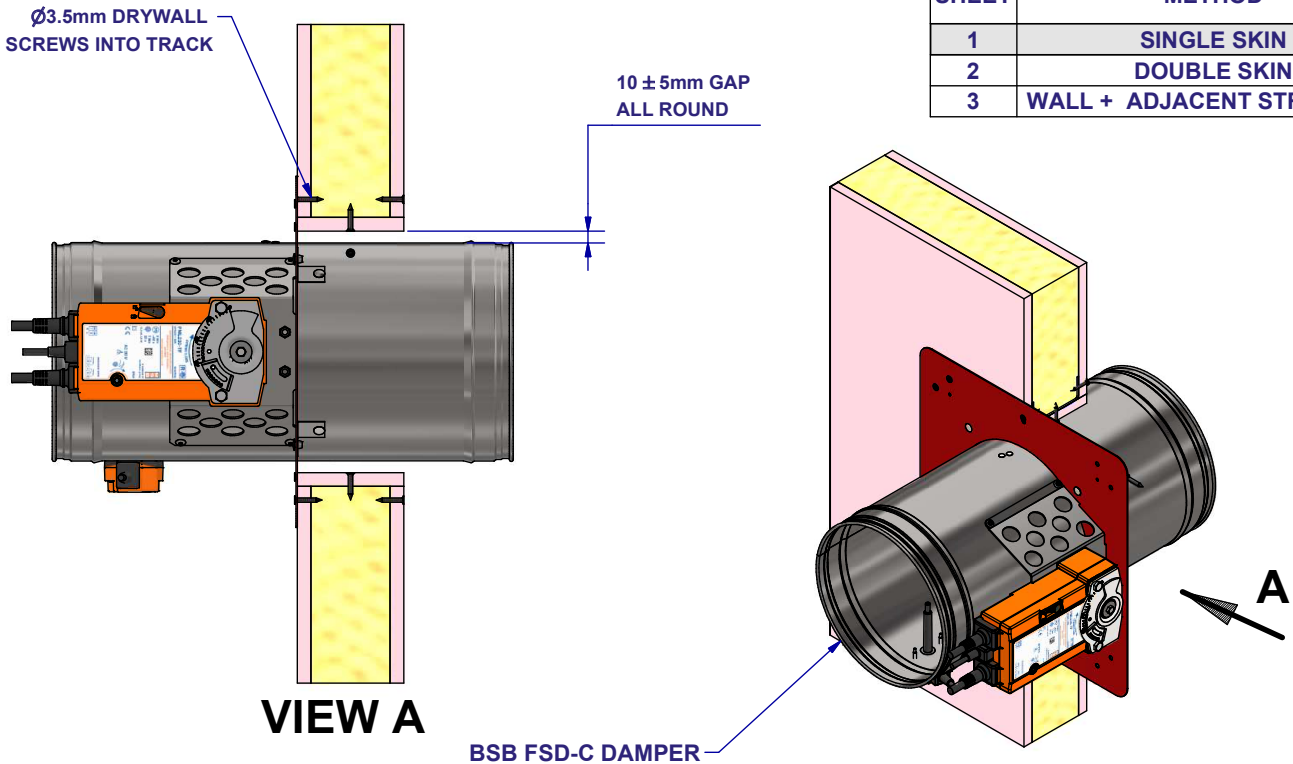
# INSTALLATION METHOD

## FSD-C 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.

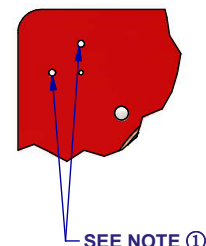
FSD-C M9-r2

INSTALLATION METHOD	
SHEET	METHOD
1	SINGLE SKIN
2	DOUBLE SKIN
3	WALL + ADJACENT STRUCTURE



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) S

① ONLY ONE FIXING IS REQUIRED PER CORNER. ALL INTERMEDIATE FIXING HOLES ARE TO BE USED, EXCLUDING BEHIND ACTUATOR BRACKET. 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.

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 Ø100mm to Ø315mm

**BSB FSD-C**



**I, O & M**

[www.bsb-dampers.co.uk](http://www.bsb-dampers.co.uk)

**CE DoP-FSD-C-06**

TESTED TO EN1366-2  
CLASSIFIED TO EN13501-3

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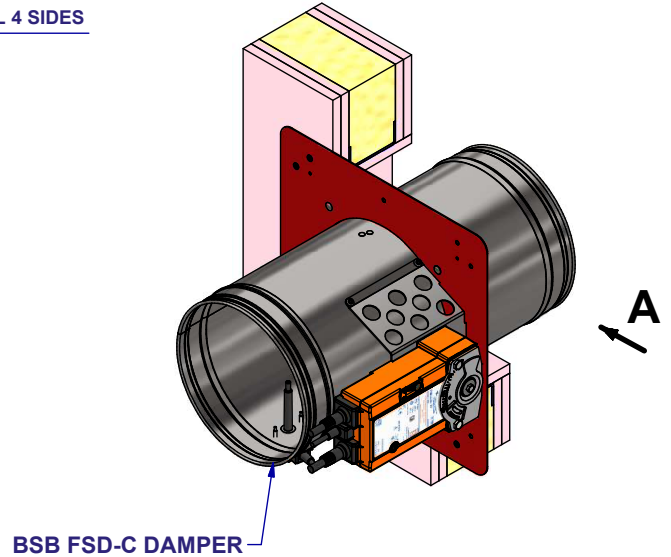
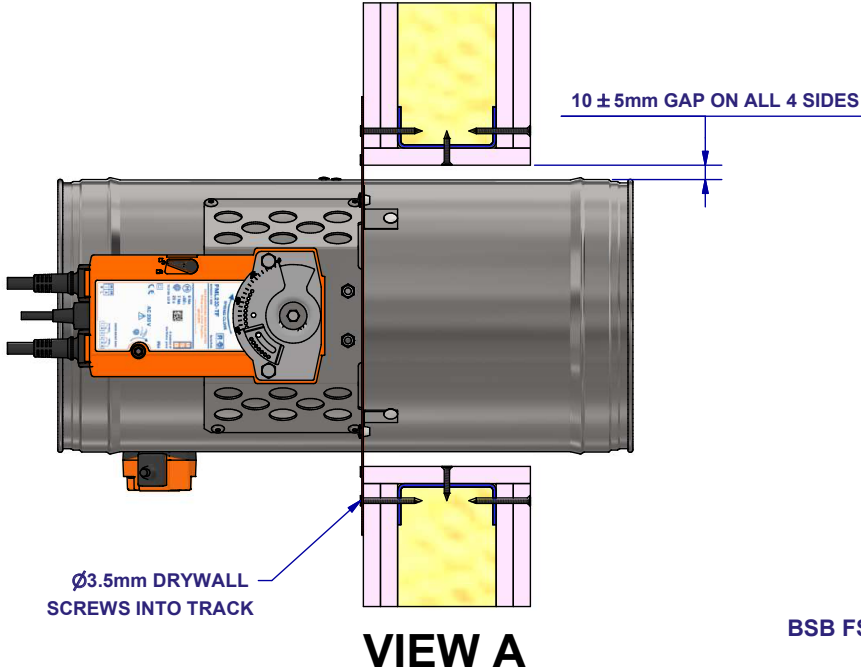
# INSTALLATION METHOD

## FSD-C 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.

FSD-C M9-r2

INSTALLATION METHOD	
SHEET	METHOD
1	SINGLE SKIN
2	DOUBLE SKIN
3	WALL + ADJACENT STRUCTURE



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

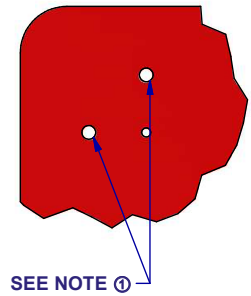
THE SUPPORTING CONSTRUCTION *MUST BE* OF THE SAME TYPE WITH A FIRE RESISTANCE EQUAL TO EI 90 OR GREATER THAN THAT OF THE SUPPORTING CONSTRUCTION USED IN THE TEST (THICKER, DENSER, MORE LAYERS OF BOARD AS APPROPRIATE).

CLASSIFICATION		
MINIMUM CONSTRUCTION	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) S
Group B 70mm Steel Stud 2 Layers of 12.5mm Type F Board Each Side (EI 90 Fire Resistance)	430 Stainless Steel	E 120 (ve i↔o) S*

\* For reduced case length option, use 430 stainless steel classification.

① ONLY ONE FIXING IS REQUIRED PER CORNER. ALL INTERMEDIATE FIXING HOLES ARE TO BE USED, EXCLUDING BEHIND ACTUATOR BRACKET. 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 THE ACTUATOR AT THE BOTTOM.

A MINIMUM OF 60mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 60mm BETWEEN SINGLE SECTION DAMPERS.



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.

Damper size  $\phi$ 100mm to  $\phi$ 315mm

**BSB FSD-C**



SCAN ME  
**I, O & M**

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**CE DoP-FSD-C-06**

TESTED TO EN1366-2  
CLASSIFIED TO EN13501-3

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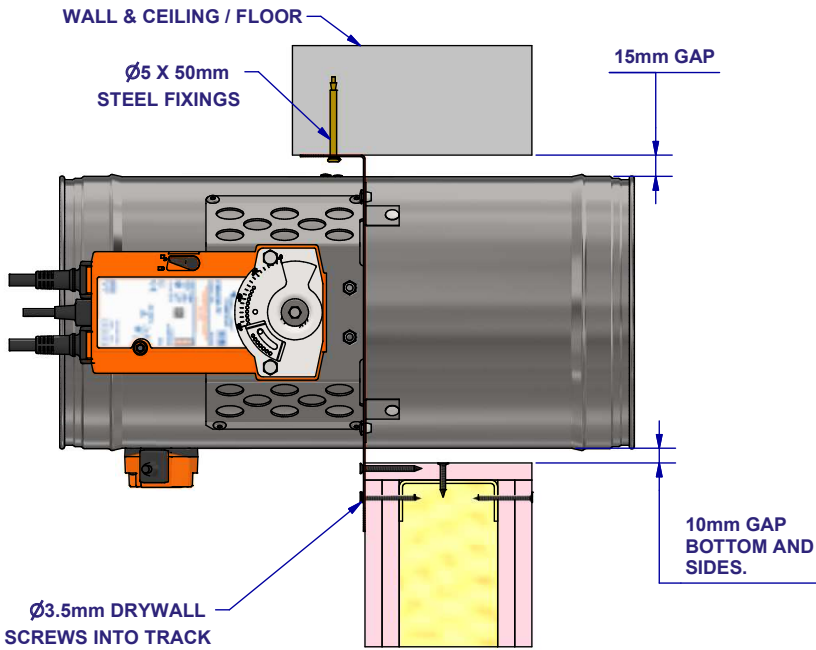
# INSTALLATION METHOD

## FSD-C DRY WALL

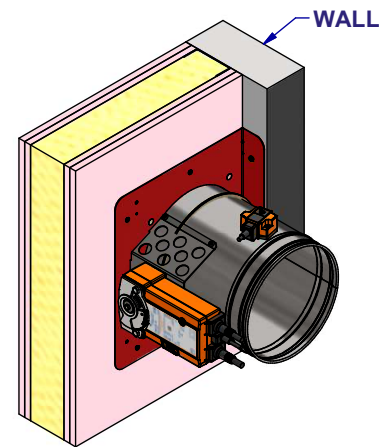
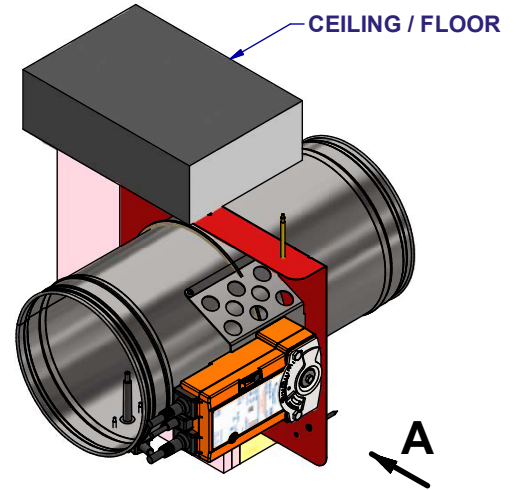
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.  
 I, O & M AVAILABLE FROM QR CODE IN FOOTER.  
 USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.  
 CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.

FSD-C M9 r2

INSTALLATION METHOD	
SHEET	METHOD
1	SINGLE SKIN
2	DOUBLE SKIN
3	WALL + ADJACENT STRUCTURE



**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	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) S
Group B 70mm Steel Stud 2 Layers of 12.5mm Type F Board Each Side (EI 90 Fire Resistance)	430 Stainless Steel	E 120 (ve i↔o) S*

\* For reduced case length option, use 430 stainless steel classification.

① ONLY ONE FIXING IS REQUIRED PER CORNER. ALL INTERMEDIATE FIXING HOLES ARE TO BE USED, EXCLUDING BEHIND ACTUATOR BRACKET. THE OPENING IN THE WALL MUST BE LINED. THERE IS NO NEED TO FILL THE OPENING VOID. DAMPER MAY BE INSTALLED WITH THE ACTUATOR AT THE BOTTOM.

A MINIMUM OF 15mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 60mm 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  $\phi 100\text{mm}$  to  $\phi 315\text{mm}$

**BSB FSD-C**

[www.bsb-dampers.co.uk](http://www.bsb-dampers.co.uk)



SCAN ME  
I, O & M

**CE DoP-FSD-C-06**

TESTED TO EN1366-2  
CLASSIFIED TO EN13501-3

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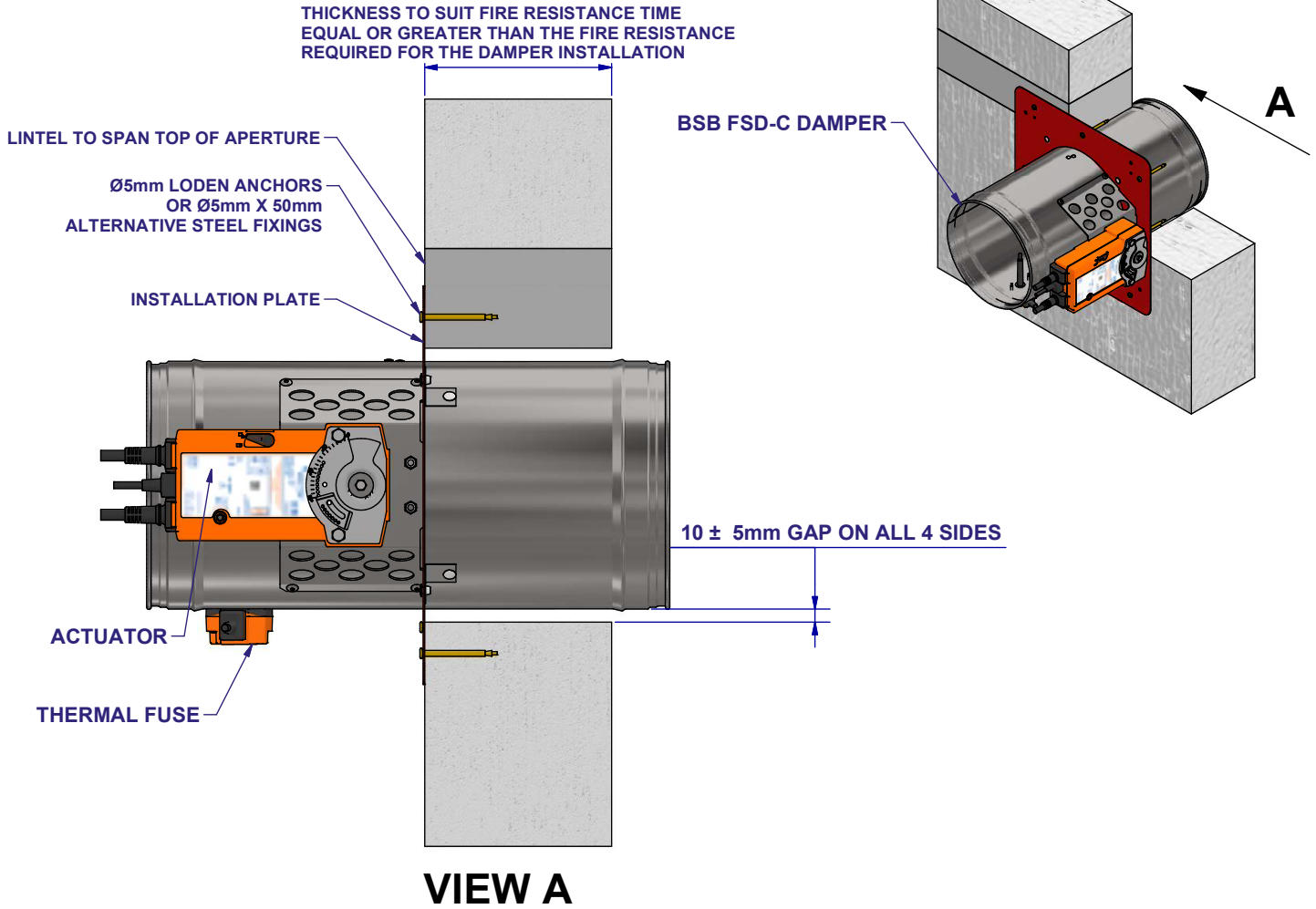
ECN 302



# INSTALLATION METHOD FSD-C 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.

FSD-C M10 r2



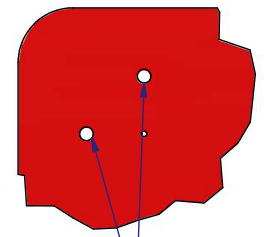
CLASSIFICATION		
MINIMUM CONSTRUCTION	BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
150mm Thick Masonry Density 650kg/m <sup>3</sup>	Galvanised Steel	E 120 (ve i↔o) S
150mm Thick Masonry Density 650kg/m <sup>3</sup>	430 Stainless Steel	E 120 (ve i↔o) S*

\* For reduced case length option, use 430 stainless steel classification.

① ONLY ONE FIXING IS REQUIRED PER CORNER. ALL INTERMEDIATE FIXING HOLES ARE TO BE USED, EXCLUDING BEHIND ACTUATOR BRACKET. THERE IS NO NEED TO FILL THE OPENING VOID. DAMPER MAY BE INSTALLED WITH THE ACTUATOR AT THE BOTTOM.

A MINIMUM OF 60mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 60mm 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.



SEE NOTE ①

ECN 302

Damper size  $\varnothing$ 100mm to  $\varnothing$ 315mm

**BSB FSD-C**



SCAN ME  
I,O&M

**CE DoP-FSD-C-06**

TESTED TO EN1366-2\*  
CLASSIFIED TO EN13501-3

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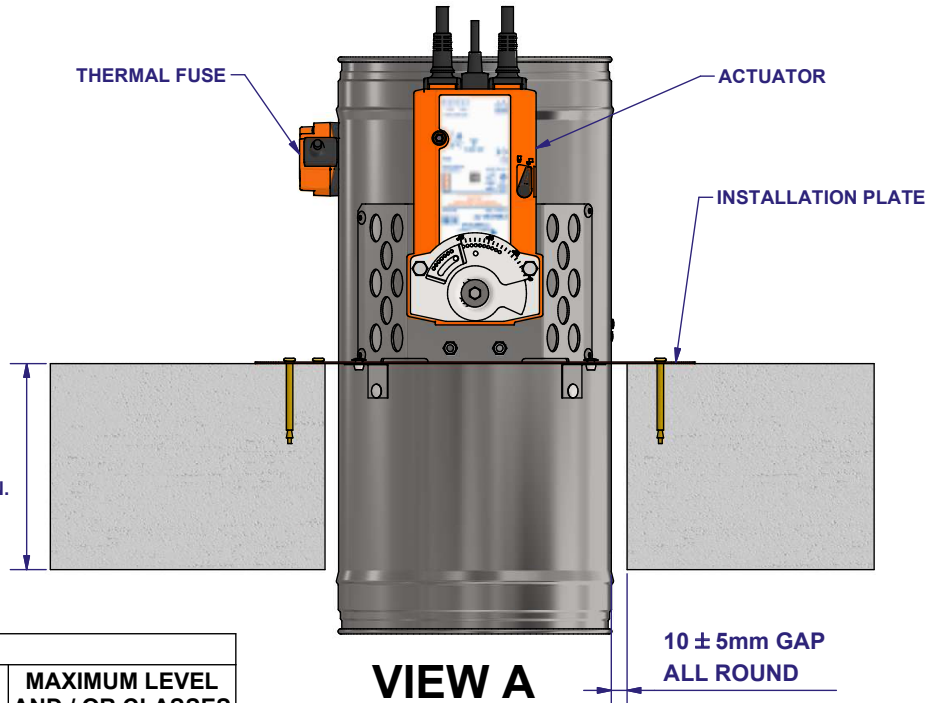
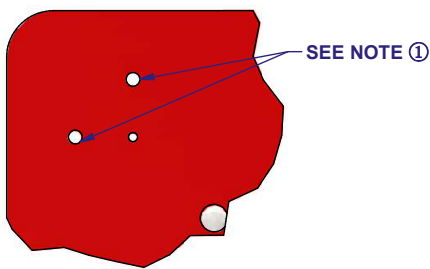
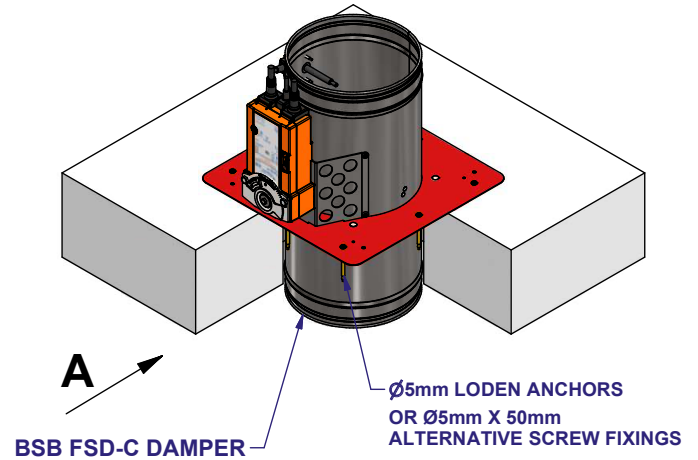
# INSTALLATION METHOD FSD-C MASONRY FLOOR

PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.

FSD-C M11-r3

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.



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

CLASSIFICATION		
MINIMUM CONSTRUCTION	BLADE MATERIAL	MAXIMUM LEVEL AND / OR CLASSES
150mm Thick Masonry Density 580kg/m <sup>3</sup>	Galvanised Steel	E 120 (ho i←o) S
150mm Thick Masonry Density 580kg/m <sup>3</sup>	430 Stainless Steel	E 90 (ho i←o) S*

\* For reduced case length option, use 430 stainless steel classification.

① ONLY ONE FIXING IS REQUIRED PER CORNER. ALL INTERMEDIATE FIXING HOLES ARE TO BE USED. ALL FIXING SCREWS SHOULD BE SECURELY SCREWED TO THE TRACK LINING THE OPENING. THERE IS NO NEED TO FILL THE OPENING VOID. DAMPER MAY BE INSTALLED WITH ACTUATOR IN ANY ORIENTATION.

A MINIMUM OF 60mm SEPARATION BETWEEN FIRE DAMPER AND ADJACENT WALL, FLOOR, OR CEILING & 60mm 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  $\varnothing$ 100mm to  $\varnothing$ 315mm

**BSB FSD-C**



I,O&M

**CE DoP-FSD-C-06**

TESTED TO EN1366-2  
CLASSIFIED TO EN13501-3

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# INSTALLATION METHOD FSD-C-FC FIRE CURTAIN FRAME

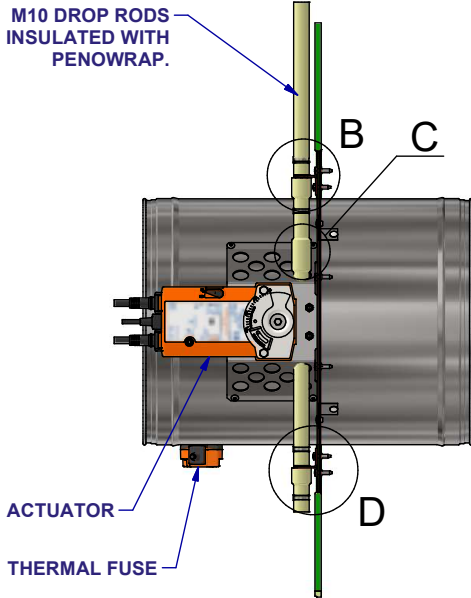
A brand of  
**MAICO**

A brand of  
**MAICO**

PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE 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.

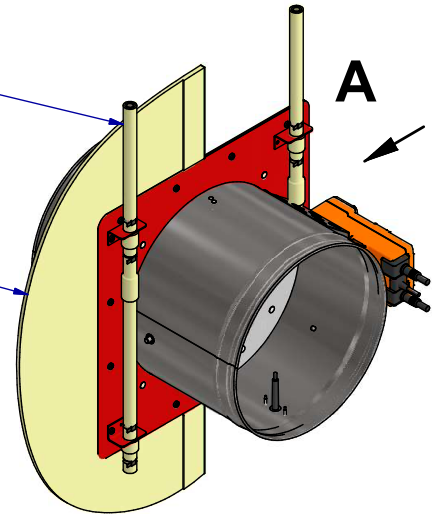
FSD-C M14-r0

**VIEW A**



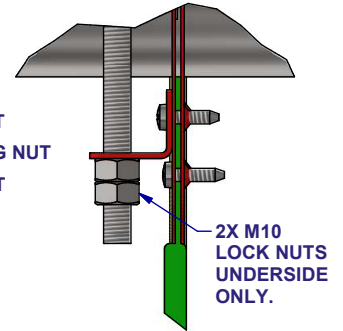
DAMPER MUST BE INDEPENDENTLY CONNECTED TO A SUITABLE SUPPORTING STRUCTURE.

FIRE CURTAIN  
FIREFLY® APOLLO LITE 30:30  
OR  
FIREFLY® ZEUS LITE 90:30.



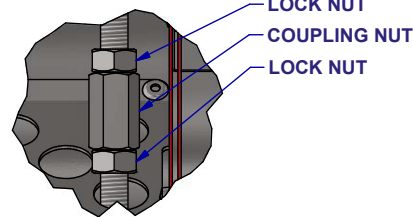
**VIEW D**

PENOWRAP OMITTED



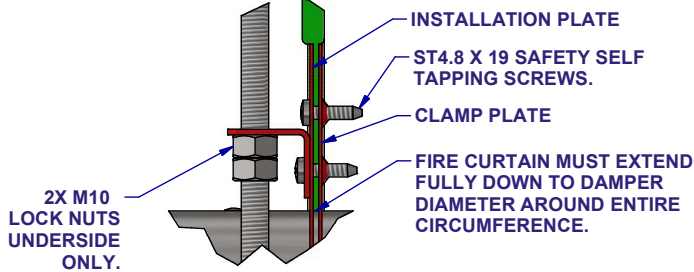
**VIEW C**

PENOWRAP OMITTED



**VIEW B**

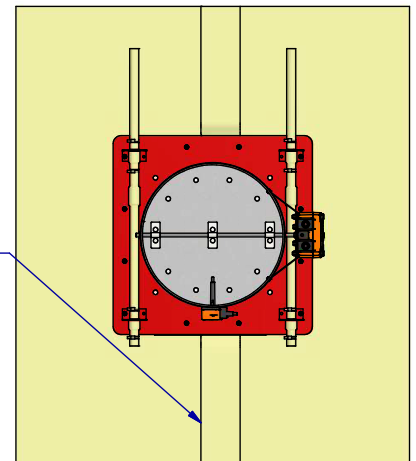
PENOWRAP OMITTED



**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) S
Zeus Lite 90:30 Minimum Thickness 6mm	Galvanised Steel	E 90 (ve i↔o) S

FLEXIBLE CURTAIN VERTICAL OVERLAPPED BUTT JOINTS MUST BE EITHER A MINIMUM OF 100mm FROM EITHER SIDE OF DAMPER FRAME OR ON THE VERTICAL CENTERLINE OF THE DAMPER AS SHOWN.



ALL FIXING SCREWS MUST BE SECURELY FIXED TO CLAMP PLATE.  
IT IS ACCEPTABLE TO USE A COUPLING NUT + LOCK NUT SHOWN IN VIEW C, POSITIONED ANYWHERE BETWEEN CLEATS.  
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  $\phi$ 100mm to  $\phi$ 315mm

**BSB FSD-C-FC**



**I,O&M**

**CE DoP-FSD-C-06**

TESTED TO EN1366-2  
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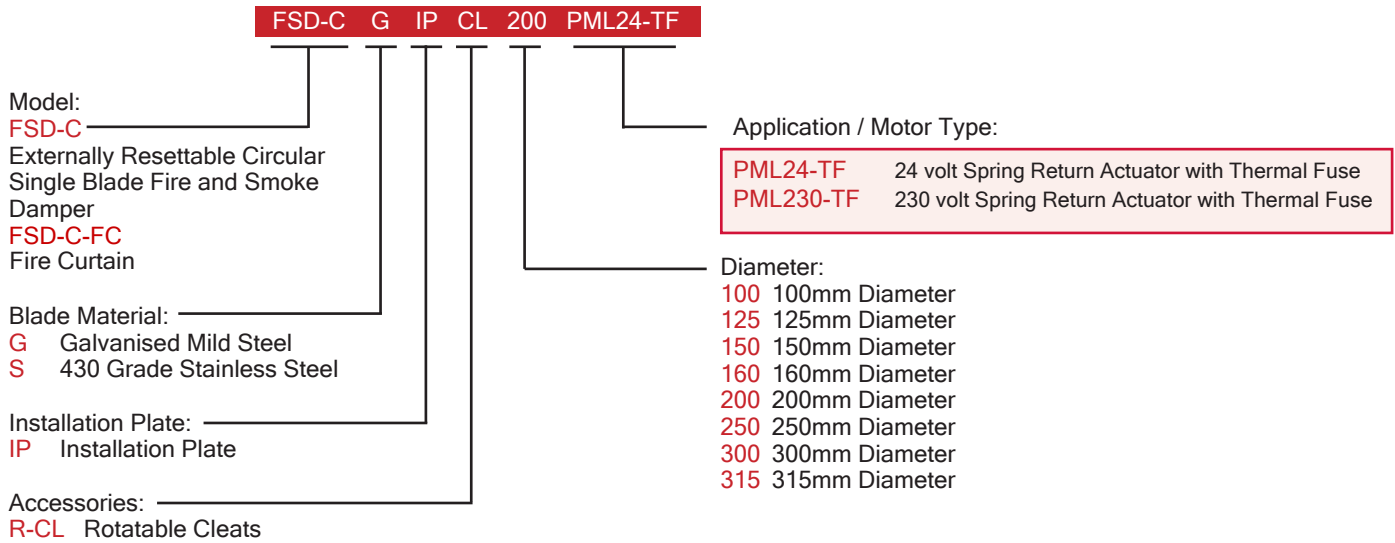


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ECN 307

# FSD-C Series

## Single Blade Circular Fire Dampers - Ordering Codes



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

## BSB Engineering Services Limited

Unit 56, Trinity Trade Centre, Mill Way, Sittingbourne, Kent ME10 2PD, UK • Tel: +44 (0)1795 422609

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For pricing, technical and general enquiries, please email: [enquiries@bsb-dampers.co.uk](mailto:enquiries@bsb-dampers.co.uk)

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