AIRTECHNIC
www.airtechnic.gr
Air-Conditioning & Ventilation Components & Systems

V21910

CE marked Fire & Fire/Smoke damper installation manual

Conforming to the requirements of BS EN 15650

Fire resistance testing to BS EN 1366-2

Classified to BS EN 13501-3

- As referenced in Approved Document B (ADB) and other relevant technical and guidance documents

For the latest version go to the BSB web site

www.bsb-dampers.co.uk

MAICO
VENTILATION

AIRTECHNIC
www.airtechnic.gr
Air-Conditioning & Ventilation Components & Systems

BSB

Contents:

Building Regulations:

The Approved Documents provide guidance on ways to meet the building regulations. (Approved Document B (fire safety) volume 2: Buildings other than dwellings, 2019 edition)
The Ministry of Housing, Communities and Local Government publishes guidance called 'Approved Documents' on ways to meet building regulations. These contain:

- general guidance on the performance expected of materials and building work in order to comply with the building regulations
- practical examples and solutions on how to achieve compliance for some of the more common building situations

Fire safety
Approved document B (ADB) Vol 2, 2019 edition, requirement B3 Mechanical ventilation and air-conditioning systems;

10.8 A fire and smoke damper should be provided where ductwork enters or leaves each section of the protected escape route it serves. It should be operated by a smoke detector or suitable fire detection system. Fire and smoke dampers should close when smoke is detected.

10.16 An ES classified fire and smoke damper which is activated by a suitable fire detection system (method 4) may also be used for protected escape routes. Installation and specification of fire dampers;

10.17 Both fire dampers and fire and smoke dampers should be all of the following.

a. Sited within the thickness of the fire-separating elements.
b. Securely fixed.
c. Sited such that, in a fire, expansion of the ductwork would not push the fire damper through the structure.

10.18 Access to the fire damper and its actuating mechanism should be provided for inspection, testing and maintenance.

10.19 Fire dampers should meet both of the following conditions.

a. Conform to BS EN 15650.
b. Have a minimum E classification of 60 minutes or to match the integrity rating of the fire resisting elements, whichever is higher.*

10.20 Fire and smoke dampers should meet both of the following conditions.

a. Conform to BS EN 15650.
b. Have a minimum ES classification of 60 minutes or to match the integrity rating of the fire resisting elements, whichever is higher.*

10.21 Smoke detectors should be sited so as to prevent the spread of smoke as early as practicable by activating the fire and smoke dampers. Smoke detectors and automatic release mechanisms used to activate fire dampers and/or fire and smoke dampers should conform to BS EN 54-7 and BS 5839-3 respectively. Further information on fire dampers and/or fire and smoke dampers is given in the ASFP Grey Book

* Please Note: Currently the maximum 'E' classification within EN classification standard EN13501-3:2005+A1:2009 is 120 minutes. However, this is soon to be rectified to 240 minutes in the next version. Contact BSB for further advice.

ADB continued

Sleeping risks;

10.22Where the use of the building involves a sleeping risk, fire dampers or fire and smoke dampers should be actuated by both of the following.

a. Smoke detector-controlled automatic release mechanisms.
b. Thermally actuated devices.

However, in a situation where both of the following are true:

a. all occupants of the building can be expected to make an unaided escape
b. an L1 fire detection and alarm system is installed in accordance with BS5839-1

then both of the following exceptions may be made.

i. If, on the detection of smoke, the fire alarm system signals the immediate evacuation of all the occupants of the building, then fire dampers and/or fire and smoke dampers do not need to be actuated by smoke detectors.

ii. If the building is divided into fire compartments and the alarm system is arranged to signal the immediate evacuation of the occupants of the fire compartment in which the fire has been detected, then smoke detector-operated fire dampers or fire and smoke dampers need only be provided where ductwork enters or leaves the fire compartment.

BS 9999:2017 2017 - Code of Practice for the Fire Safety in the Design, Management and Use of Buildings

BS 9999 gives recommendations and guidance on the design, management and use of buildings to achieve reasonable standards of fire safety for all people in and around them. It also provides guidance on the on-going management of fire safety within a building throughout its entire life cycle, including guidance for designers to ensure that the overall design of a building assists and enhances the management of fire safety.

Annex W
Routine inspection and maintenance of ventilation and air conditioning ductwork
W1 Inspection and maintenance.

NOTE 1 Maintenance of air conditioning and ventilating equipment, including air filters, motors, fire dampers and their controls, smoke detectors and alarms, is of paramount importance both in preventing fire and in ensuring that measures taken to mitigate its consequences are effective when needed.

Before any works of maintenance are carried out, the extent of any fire hazards involved, and the potential effect of any fire on the occupants or operation of the building, should be assessed. Appropriate precautionary measures should be taken where necessary, e.g. temporarily relocating occupants who might be put at risk in the event of a fire, and it is essential that fire escape routes are kept unobstructed. All reasonable precautions should be taken to avoid the outbreak of fire. Smoking should be prohibited in ducts, and maintenance workers should be instructed to observe "No Smoking" rules applicable to other areas of the building. Portable fire extinguishers should be readily available.

As filters, etc. become contaminated they become a progressively greater fire hazard, and hence they should be cleaned and/or replaced as recommended by the manufacturer or supplier. Similarly, deposits of combustible material (including any dust} should not be allowed to build up within the ductwork itself. Panels forming ceiling voids used for the extraction of air from non-domestic kitchens and from deep fat fryers should be cleansed frequently to avoid the build-up of grease deposits.

NOTE 2 The provision of access panels facilitates such cleansing, other maintenance, and also, firefighting.

Arrangements should be made for all fire dampers to be tested by a competent person on completion of the installation and at least annually, and to be repaired or replaced immediately if found to be faulty. Spring-operated fire dampers should be tested annually, and fire dampers situated in dust-laden and similar atmospheres should be tested much more frequently, at periods suited to the degree of pollution.
Arrangements should be made for periodic maintenance of any smoke detector system used to operate fire dampers and for such system(s} to be tested by a competent person after installation to determine whether detection occurs at the appropriate design smoke density. Any smoke detector system that is found to be faulty should be either repaired or replaced immediately.

Annex I.3.5 Smoke Control Systems For means of escape.

Actuation of the system should be simulated once a week. It should be ensured that any fans and powered exhaust ventilators operate correctly, smoke dampers close (or open in some systems), natural exhaust ventilators open, automatic smoke curtains move into position, etc.

NOTE On large multi-zone installations it might be acceptable, with agreement from the relevant authorities, to rotate the equipment tested so that a system is tested every week and individual items are operated at intervals of no more than three months.

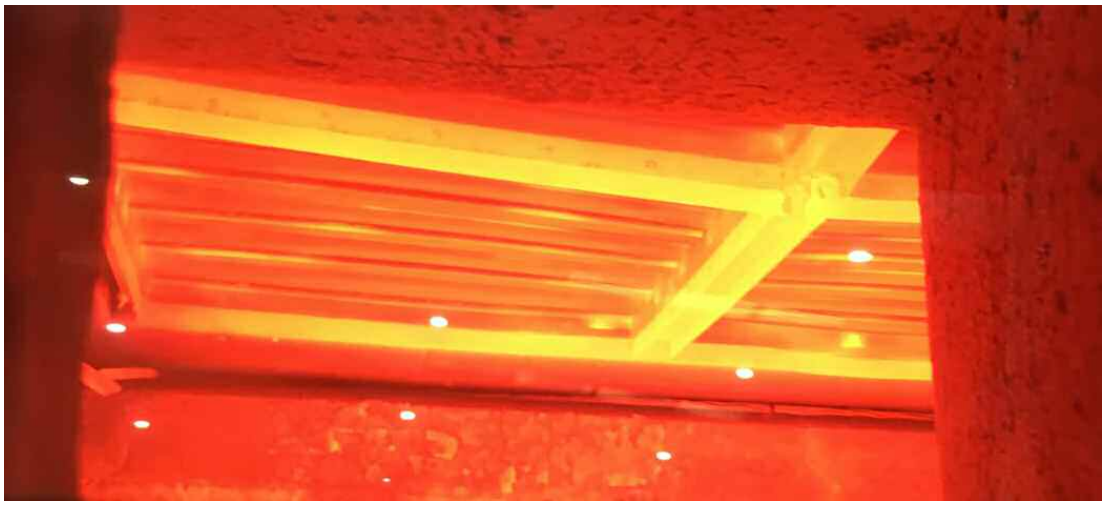
I.5 Three-monthly
In addition to the checks recommended in 1.2, 1.3 and 1.4, the actuation of all smoke control systems should be simulated once every three months. All zones should be separately tested and it should be ensured that any fans and powered exhaust ventilators operate correctly, smoke dampers close (or open in some systems), etc.

I.7 Yearly
In addition to the checks recommended in 1.2, 1.3, 1.4, 1.5 and 1.6, arrangements should be made for annual inspections and performance tests of the following to be carried out by competent persons, for any defects to be logged and the necessary action taken, and for certificates of testing to be obtained:
NOTE Attention is drawn to the testing and inspection requirements of BS 7671.

Fire & Fire Smoke Damper EN standards:

BS EN 15650 – Ventilation for buildings – Fire dampers.
This harmonised product standard contains the basic performance and requirements for fire dampers, such as testing, performance criteria, leakage testing, operational reliability, factory production control, test records, inspection criteria and more!

BS EN 1366-2 – Fire resistance tests for service installations – Fire Dampers.
The purpose of this test standard is to evaluate the ability of a fire damper or fire / smoke damper to prevent fire and smoke spreading from one fire compartment to another through the air ductwork system that penetrates fire separating walls and floors.
It is achieved by attaching the dampers to walls and floors, starting with the damper in the open position in a manner representative of practice. Dampers are required to close automatically within 2 minutes from the start of the fire resistance test. Leakage of the fire damper system is measured continuously whilst maintaining a 300Pa pressure differential across the damper.



Multiple Fire / Smoke damper in a floor, during test (+1000ºC)

BS EN 13501-3 – Fire classification of construction products and building elements. Classification using data from fire resistance tests on products and elements used in building service installations: fire resisting ducts and fire dampers.
Specifies procedure for classifying the resistance to fire performance using data from fire resistance tests – Using leakage to determine integrity and smoke leakage, time etc.

BS EN 15882-2 – Extended application of results from fire resistance tests for service installations. Part 2: Fire dampers
This standard identifies the parameters that affect the fire resistance of dampers. It also identifies the factors that need to be considered when deciding whether, or by how much, the parameter can be extended when contemplating the fire resistance performance of an untested, or untestable variation in the construction.

Approved Document B states (10.19 & 10.20);

Both fire dampers and fire smoke dampers should conform to BS EN 15650

Health, Safety & good practice.

These are applicable to all product & installation methods shown throughout.

Health and Safety

Only competent personnel may carry out the work outlined within this document. The wearing of appropriate Personal Protective Equipment (gloves, footwear, high vis clothing, safety glasses, etc.) is required for safe working and as the site dictates.

Where dampers are only accessible with the need for additional elevation, any equipment used should be done so with due consideration to current Work at Height regulations and site rules.

All work should be carried out by in accordance with HSE guidelines and regulations and any specific local site rules.

Dampers may be heavy. Large dampers will require suitable lifting and supporting equipment, with due consideration given for manual handling.
Dampers may close without warning. Do not introduce limbs/fingers in the path of blade travel.
Never pull the side springs off their locking ramp pin. The springs are very strong and sharp and will damage fingers even when gloves are being worn!

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.

Ductwork connection

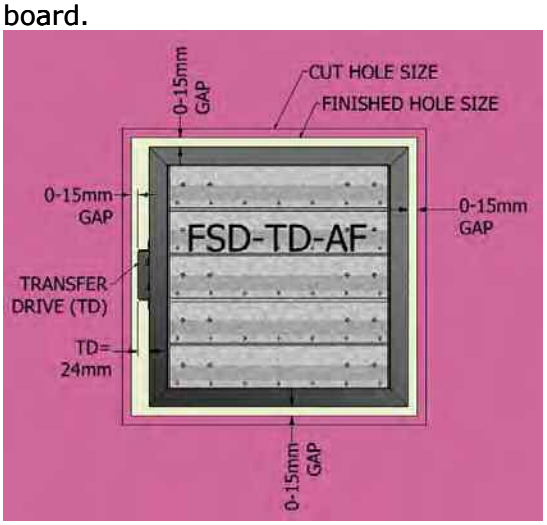
Ductwork to be fitted and connected in accordance with DW 144 (9.9) & DW145 (B.2.2);
Break away duct joint connecting a fire damper spigot or sleeve to the attached ductwork which will allow collapse of the ductwork during a fire without affecting the integrity of the fire damper. Break-away and flexible joints incorporate materials, fixings, clamps etc. that are manufactured from a non – fire resistant material with a low melting point such as aluminium.

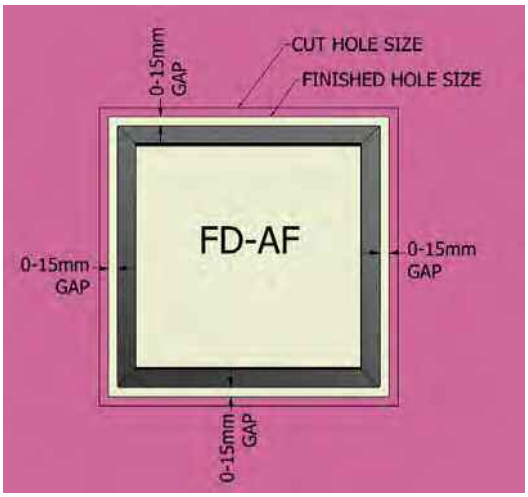
If connecting to fire resisting ductwork, use specific fire tested fixings tested with the fire resisting ductwork system being used.

Angle Flange installation method into dry walls

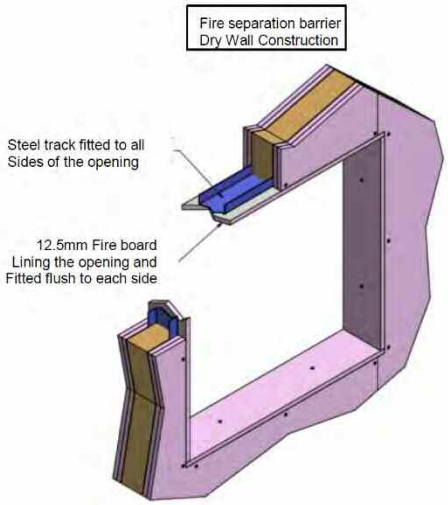
Fire (FD-AF) & Fire Smoke dampers (FSD-TD-AF)

1. To calculate **finished hole size**, measure overall damper casing (not the angle flange) Opening size = Damper casing size + 0mm → 30mm clearance around perimeter of outer casing as shown;
   Important - this includes the transfer drive if installing the FSD-TD damper. See below.
2. Calculate the **cut hole size** by adding two board thicknesses to the finished hole width and height, because the cut hole needs lining with a single layer of plaster board.





3. Mark the position and size of the hole on the partition wall and cut it out
4. Line the perimeter of aperture with steel track, securing in place with dry wall screws on both sides at 300mm (max) centers.
5. Cut 4 lengths of board to suit the aperture. Screw in place at 300mm (max) centers, ensuring boards are flush with both sides of the wall.
6. It is advisable to pre-drill 4mm diameter holes in the angle frame of the FD damper before fitting within opening. Note the position of the internal track in the wall and mark nominal hole fixing positions at 150mm maximum centers. FSD-TD-AF has 2 rows of pre-punched pilot holes, to aid this process. Use inner row of holes for dry wall installation. Position the damper centrally in wall opening (width/height), with blade pack at the top for FD dampers. To aid positioning vertically, position a pair of 10mm 'spacers' on the bottom of the opening 50mm from each corner to stand the damper on.

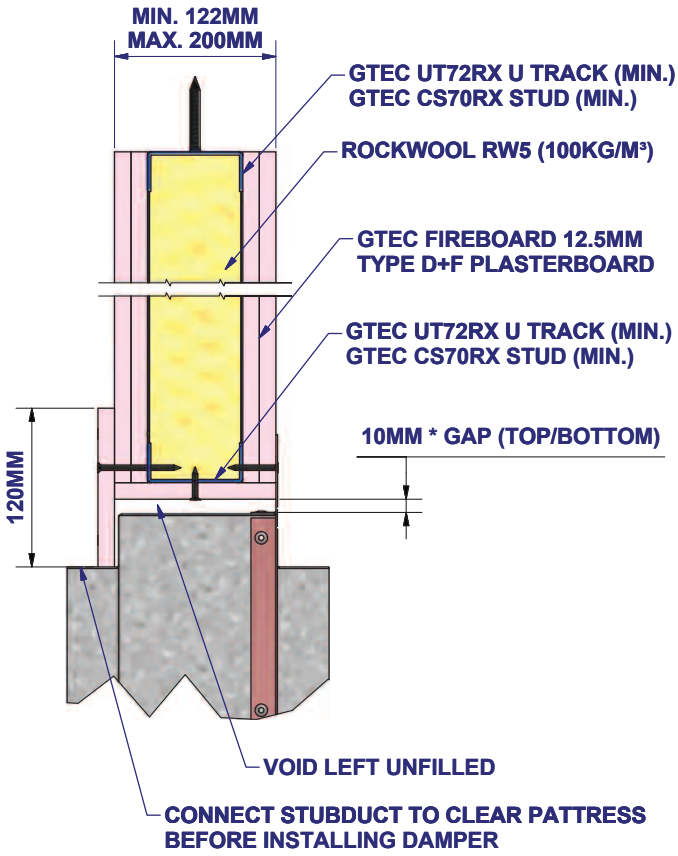


7. Position the damper centrally in wall opening (width/height), with blades running horizontally screw the angle frame to the wall using drywall screws.
8. For the FD damper it is not a necessity to fill the void behind the angle frame, but suitable fire rated infill may be used if considered required for insulation purposes
9. **Important:** Ensure the screws 'pick up' the track lining the hole, so that the proper fire integrity of the installation will not be compromised.
10. On the reverse side for FSD-TD only, fit a pattress around the damper spigot using drywall screws of appropriate length to screw into the steel tracking around the opening It is not a necessity to fill the void behind the angle frame or fit a pattress to the underside.
11. Ductwork to be fitted and connected in accordance with DW 144/145;
    Break away duct joint connecting a fire damper spigot or sleeve to the attached ductwork which will allow collapse of the ductwork during a fire without disturbing the integrity of the fire damper. Breakaway and flexible joints incorporate materials, fixings, clamps etc. that are manufactured from a non – fire resistant material with a low melting point such as aluminium, plastic etc.
12. If connecting to fire resisting ductwork, use the fire tested fixings associated with the fire resisting ductwork system being used.

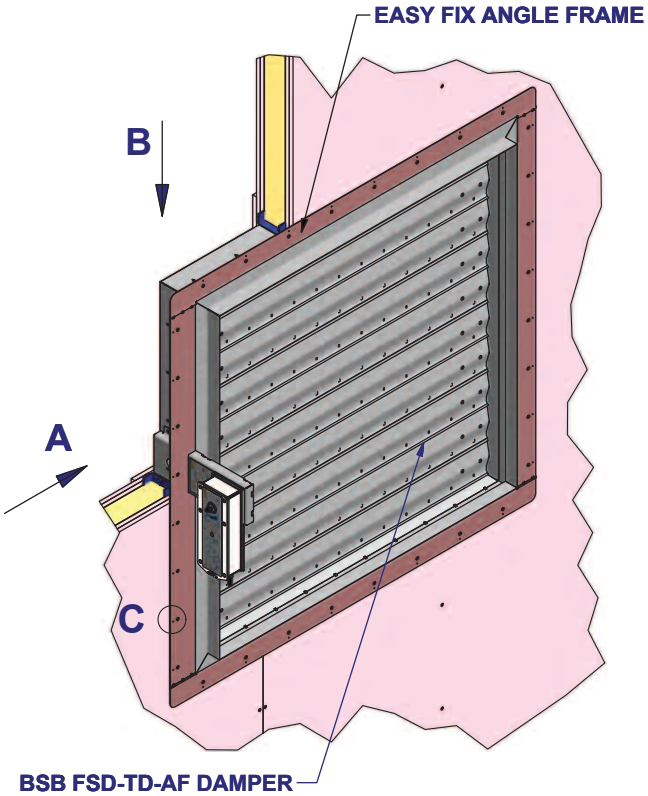
INSTALLATION METHOD

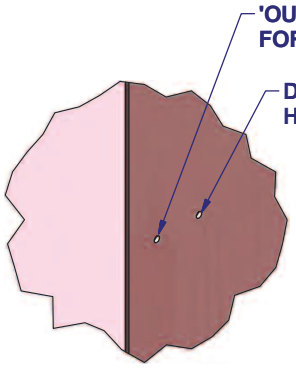
FSD-TD M9-r11

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY. USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS).
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION
* TOLERANCE FOR GAP BETWEEN DAMPER AND EDGE OF OPENING + 50% (RULE X.45 OF EN 15882-2)



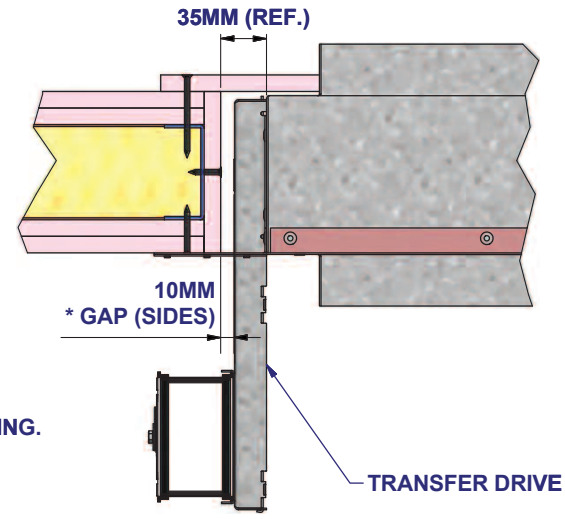
VIEW A





VIEW C

** PILOT HOLES ARE POSITIONED
ASSUMING DAMPER POSITIONED
CENTRALLY IN CORRECTLY SIZED OPENING.
REFER TO I, O & M FOR FULL DETAILS



VIEW B

TESTED FROM BOTH SIDES

FOR LARGE HEAVY DAMPERS, ADDITIONAL DAMPER SUPPORT MAY BE NEEDED. CONSULT WITH DRY WALL MANUFACTURE FOR ADVICE. OPTIONAL SUPPORT CLEATS WELDED TO FLANGE ARE AVAILABLE.

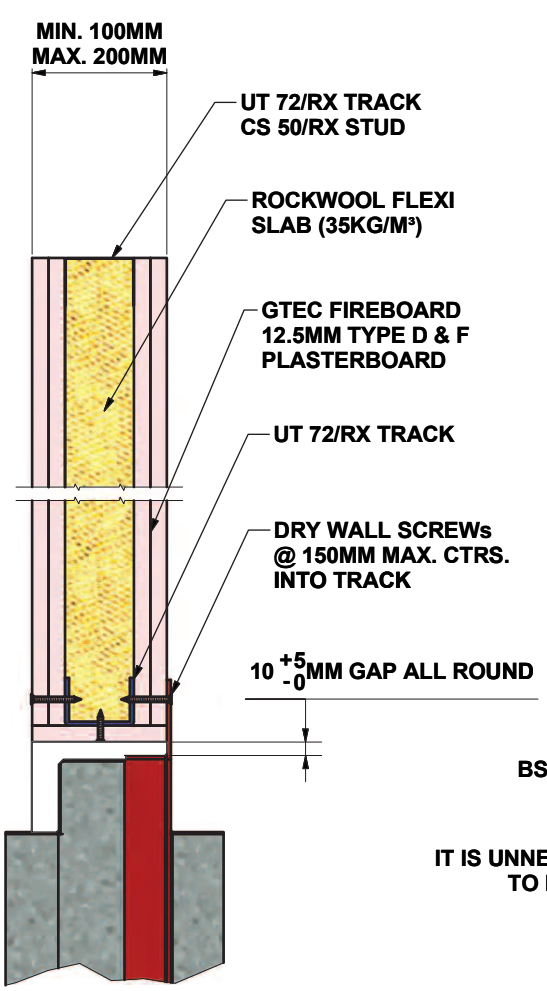
TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS MUST BE APPROVED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

DRY WALL	CE **120 MINUTES FIRE RESISTANCE**
BSB FSD-TD-AF ANGLE FRAME Fitted	**E 120 (ve i ↔ o) S**
Single section sizes(mm) 100 x 100 to 1000 x 1000	**TESTED TO EN1366-2 & CLASSIFIED TO EN13501-3**
ECN: 0187 DATE: 02/08/2019	www.bsb-dampers.co.uk

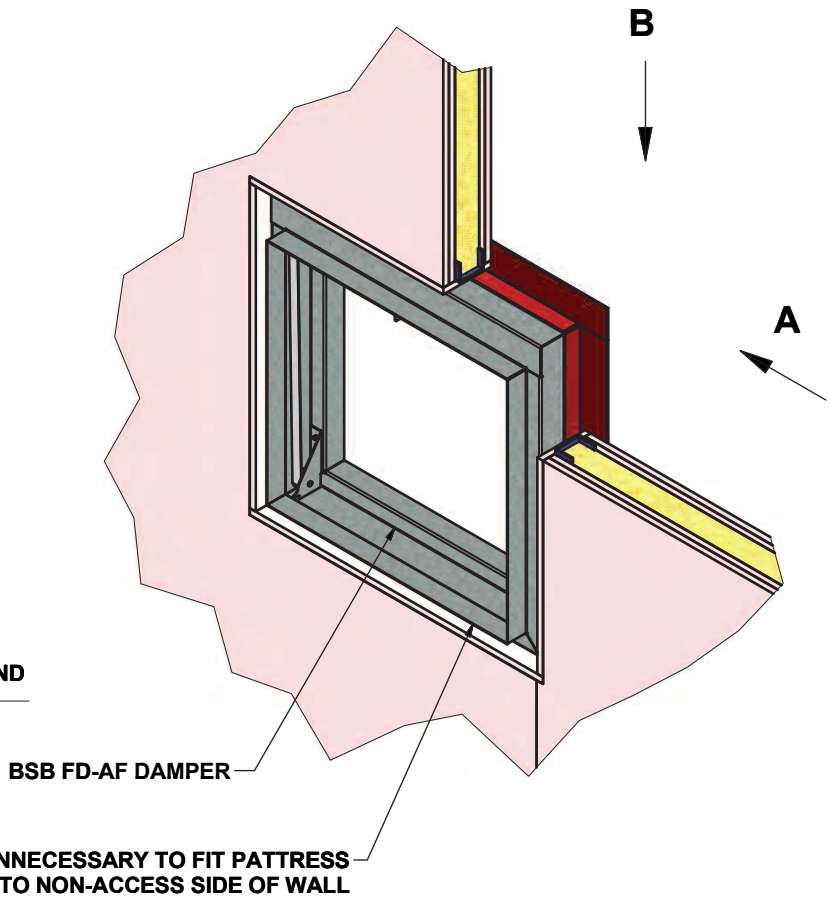
INSTALLATION METHOD

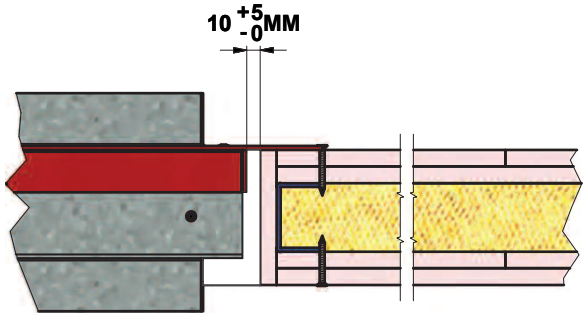
FD M9-r3

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION



VIEW A





VIEW B

TESTED FROM BOTH SIDES

OPTIONAL SUPPORT CLEATS WELDED TO FLANGE ARE AVAILABLE.

TESTED/ASSESSED 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 FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

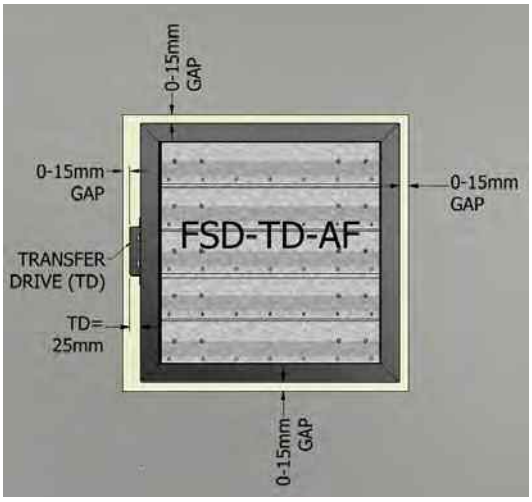
DRY WALL	CE 120 MINUTES FIRE RESISTANCE E 120 (ve i ↔ o)
BSB FD-AF ANGLE FRAME Fitted	
Single section sizes(mm) 100 x 100 to 1200 x 1000	BS EN1366-2 TEST REFERENCE: 284776 AND 303868 BRE CERTIFICATE OF CONSTANCY 0832-CPR-P0006

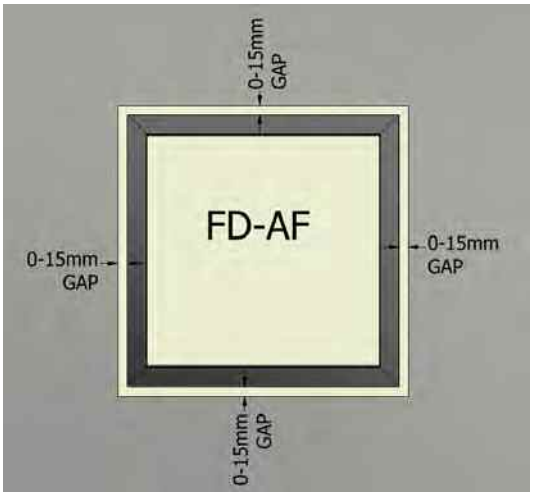
www.bsb-dampers.co.uk

AIRTECHNIC
www.airtechnic.gr
Air-Conditioning & Ventilation Components & Systems

Angle Flange installation method in masonry & concrete walls
Fire (FD-AF) & Fire Smoke dampers (FSD-TD-AF)

1. Preferably, correct sized holes should be cast / built into walls at construction stage. If not cut the correct sized aperture in the masonry / concrete wall.
2. To calculate aperture measure overall damper casing (not the angle flange) Opening size = Damper casing size + 0mm → 30mm clearance around perimeter of outer casing as shown;
   Important - this includes the transfer drive if installing a FSD-TD damper. See below.



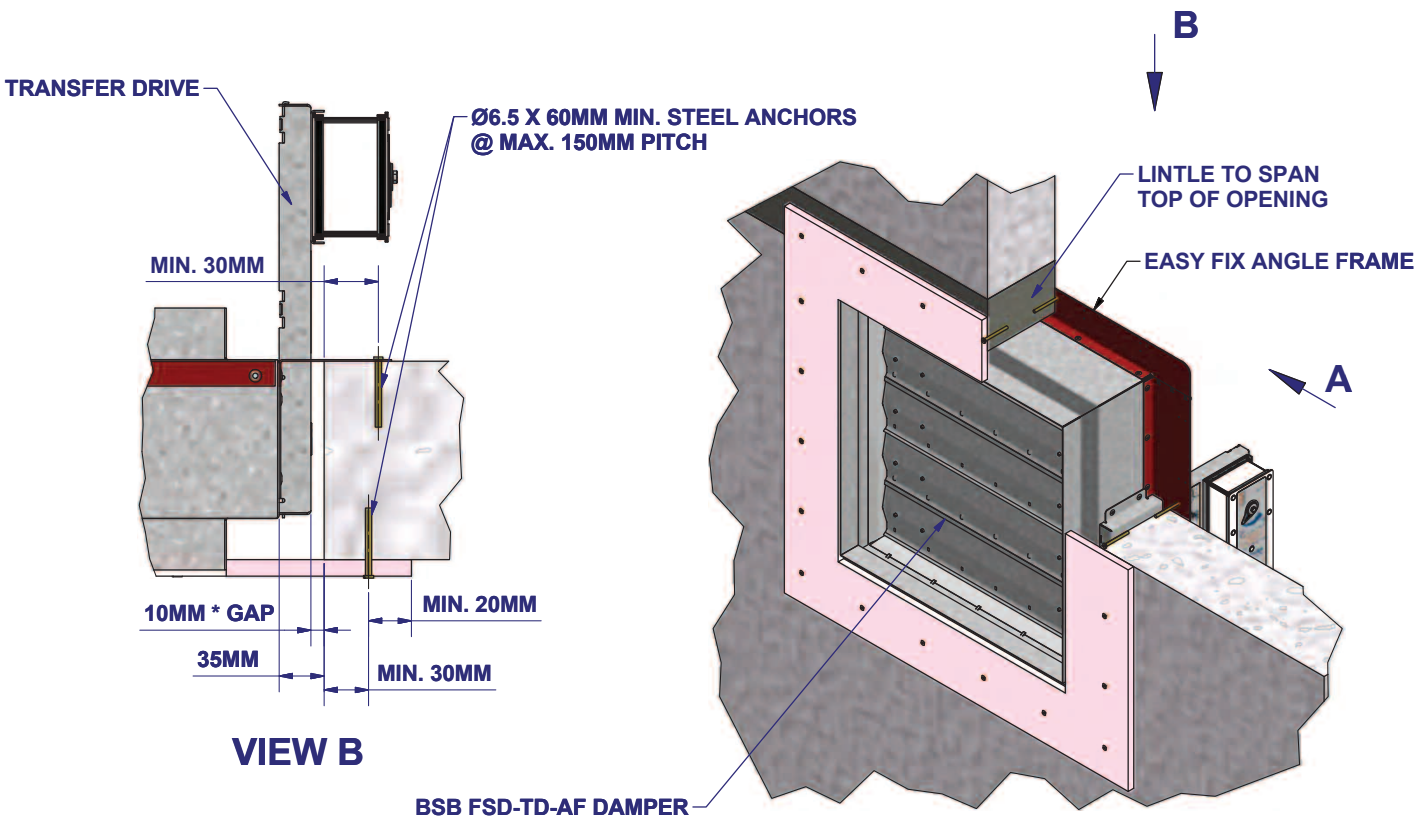


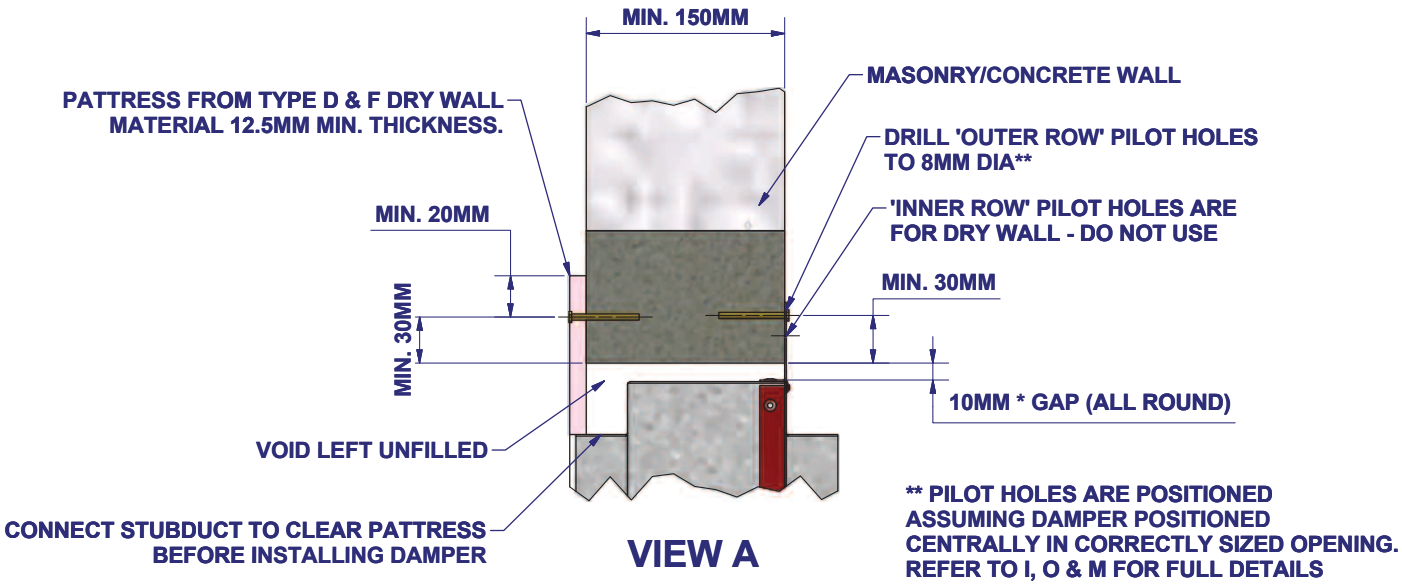
3. The dampers are not load bearing so in walls lintel supports should be used where required.
4. Pre-drill fixing clearance holes in the angle flange of the damper before installing damper, 10mm in from the extremities and at 150mm max centers, before installing damper. FSD-TD-AF has 2 rows of pre-punched pilot holes, to aid this process. Use outer row of holes for masonry / concrete wall installations.
5. Position the damper centrally into the opening. Drill the required sized fixing holes into the concrete. Please note, to access fixing holes close to the actuator it is necessary to temporarily remove the actuator. Follow instructions shown within this manual to refit the actuator.
6. Using Ø6.5mm x 60mm (Minimum) fire resisting steel fixings, carefully fix damper flange to concrete floor, taking care not to crack the masonry or concrete wall.
7. For FSD-TD-AF dampers fix plasterboard pattress to rear as per drawing FSD-TD M10
8. For FD-AF dampers it is not a necessary to fit a pattress to the rear.
9. Ductwork to be fitted and connected in accordance with DW 144/145; Break away duct joint connecting a fire damper spigot or sleeve to the attached ductwork which will allow collapse of the ductwork during a fire without disturbing the integrity of the fire damper. Breakaway and flexible joints incorporate materials, fixings, clamps etc. that are manufactured from a non – fire resistant material with a low melting point such as aluminium.
10. If connecting to fire resisting ductwork, use the fire tested fixings associated with the fire resisting ductwork system being used.

INSTALLATION METHOD

FSD-TD M10-r3

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY. USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS).
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION
* TOLERANCE FOR GAP BETWEEN DAMPER AND EDGE OF OPENING + 50% (RULE X.45 OF EN 15882-2)





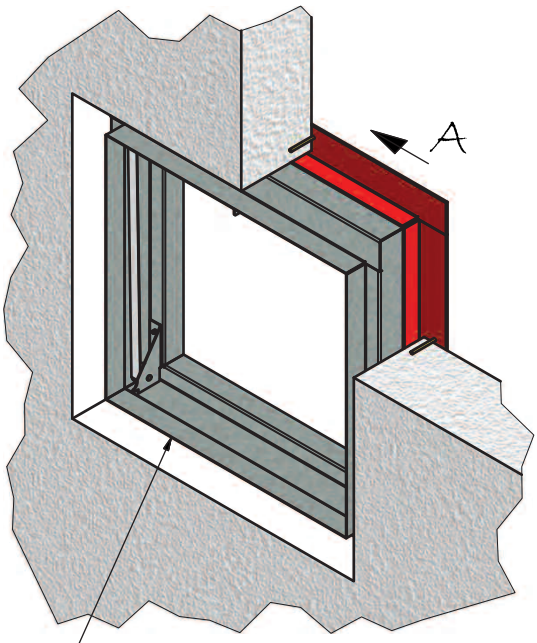
TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS MUST BE APPROVED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

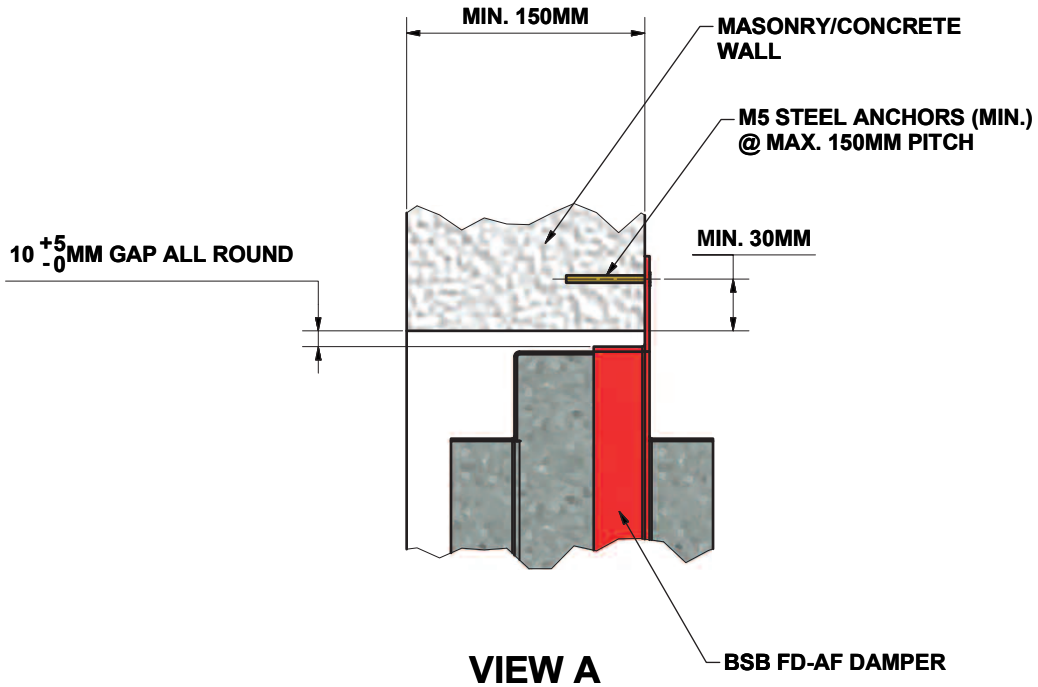
MASONRY WALL	**120 MINUTES FIRE RESISTANCE**
BSB FSD-TD-AF ANGLE FRAME Fitted	**E 120 (ve i ↔ o) S**
Single section sizes(mm) 100 x 100 to 1000 x 1000	**TESTED TO EN1366-2 & CLASSIFIED TO EN13501-3**
ECN: 0187 DATE: 02/08/2019	www.bsb-dampers.co.uk

INSTALLATION METHOD

FD M10

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION





VIEW A

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 FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

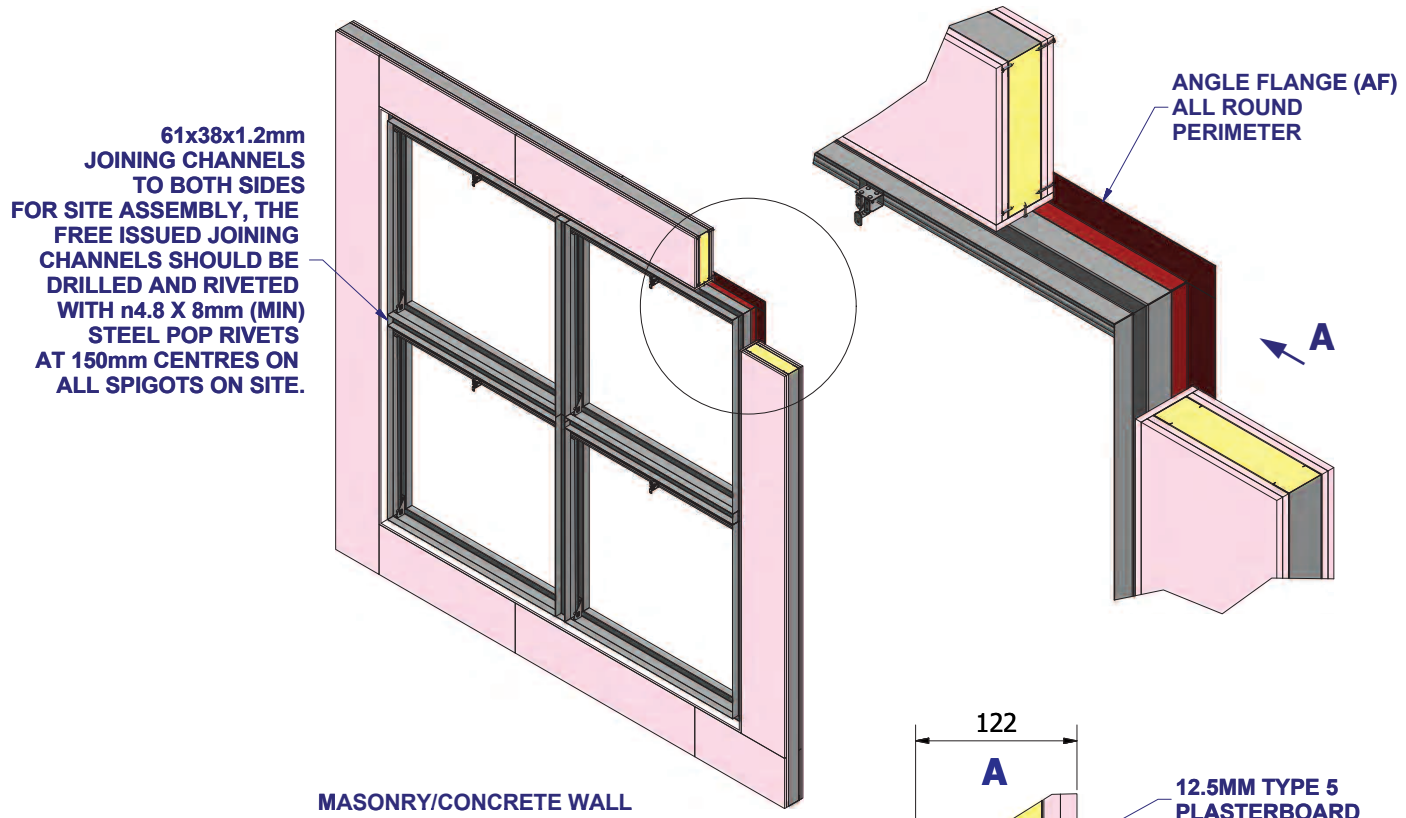
MASONRY WALL	**CE 120 MINUTES FIRE RESISTANCE**
BSB FD-AF ANGLE FRAME Fitted	**E 120 (ve i ↔ o)**
Single section sizes(mm) 100 x 100 to 1200 x 1000	**BS EN1366-2 TEST REFERENCE: 284776 AND 303868 BRE CERTIFICATE OF CONSTANCY 0832-CPR-P0006**

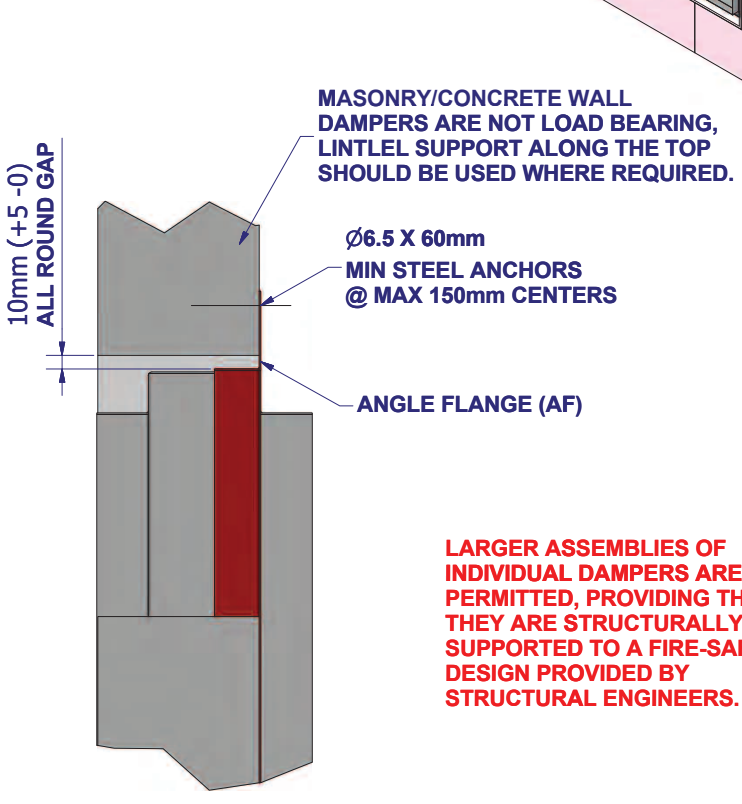
www.bsb-dampers.co.uk

INSTALLATION METHOD

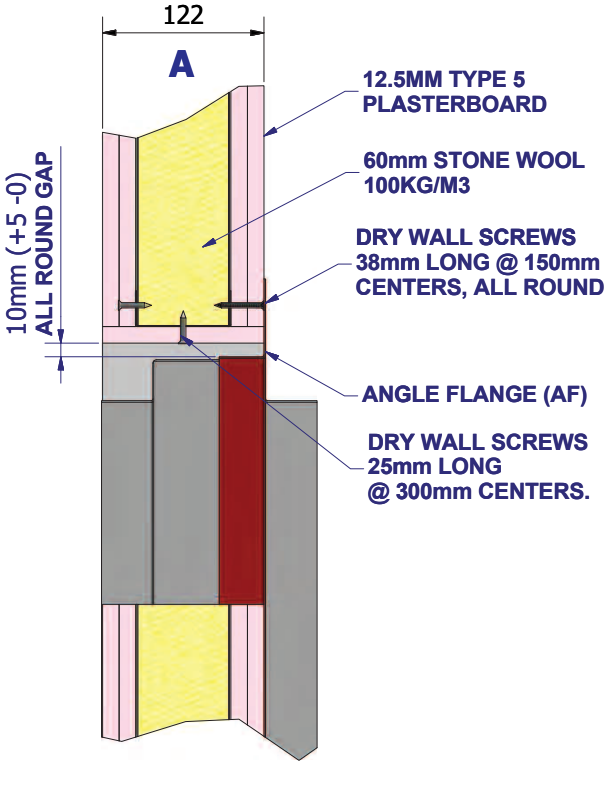
FD-AF M12

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY. USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS).
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.
* TOLERANCE FOR GAP BETWEEN DAMPER AND EDGE OF OPENING +50% (RULE X.45 OF EN15882-2)





MASONRY / CONCRETE WALL



PLASTERBOARD WALL

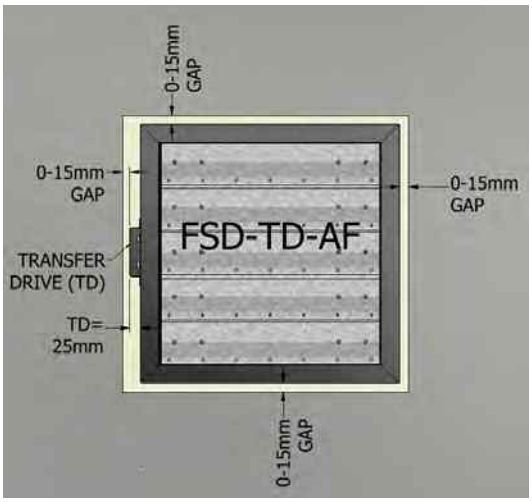
LARGER ASSEMBLIES OF INDIVIDUAL DAMPERS ARE PERMITTED, PROVIDING THAT THEY ARE STRUCTURALLY SUPPORTED TO A FIRE-SAFE DESIGN PROVIDED BY STRUCTURAL ENGINEERS.

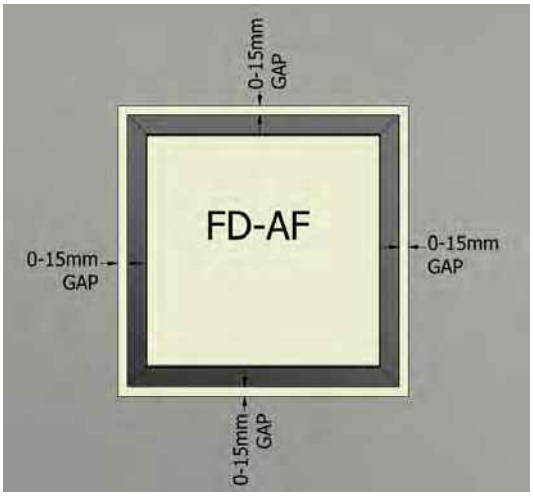
TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS MUST BE APPROVED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

DRY WALL PARTITION AND MASONRY WALLS **BSB FD-AF MULTIPLE DAMPER ARRANGEMENTS ANGLE FRAME**	CE **120 MINUTES FIRE RESISTANCE** **E 120 (ve i↔o)**
Single section sizes(mm) **100 x 100 to 1200 x 1000**	**TESTED IN ACCORDANCE WITH EN 1588-2** **GENERALLY AS EN1366-2 & CLASSIFIED TO EN13501-3**
ECN: 0190 DATE: 19/09/2019	www.bsb-dampers.co.uk

Angle Flange, one side installation method into concrete floors
Fire (FD-AF) & Fire Smoke dampers (FSD-TD-AF)

1. Preferably, correct sized holes should be cast into floors at construction stage. If not cut the correct sized aperture in the concrete floor.
2. To calculate aperture measure overall damper casing (not the angle flange)
   Opening size = Damper casing size **+** 0mm → 30mm clearance around perimeter of outer casing as shown;
   Important - this includes the transfer drive if installing the FSD-TD damper. See below.



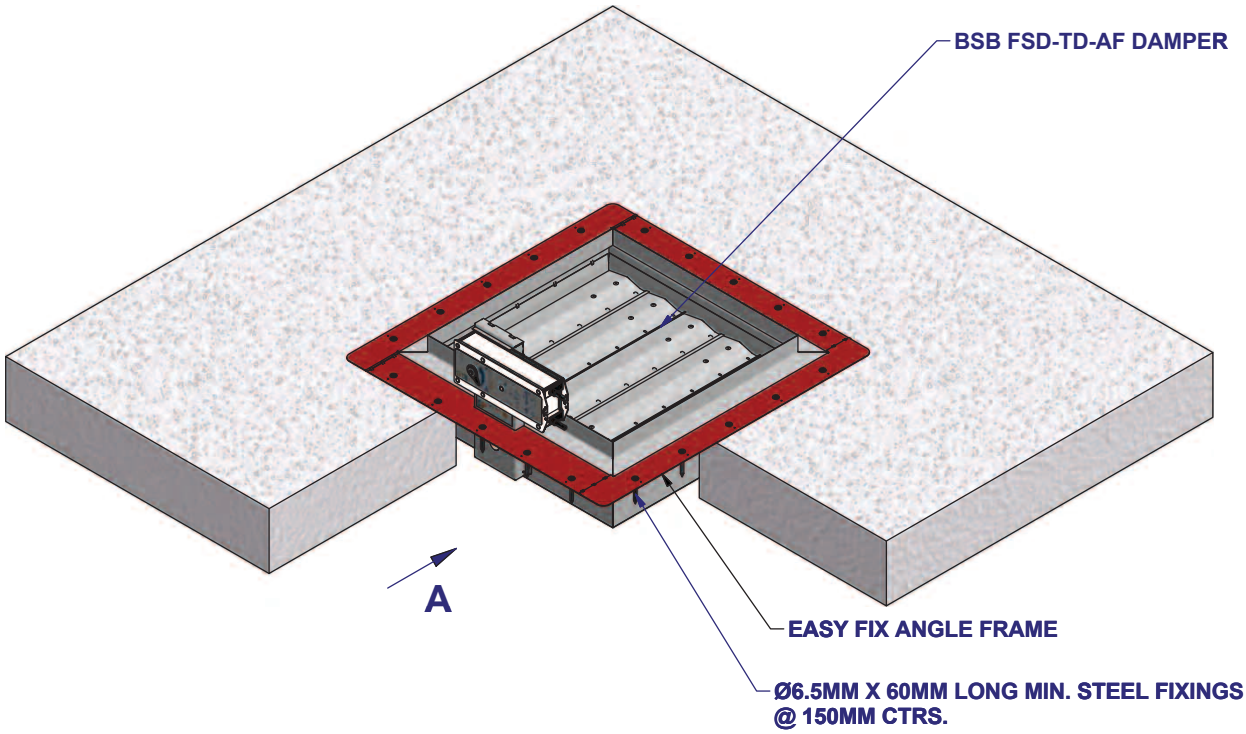


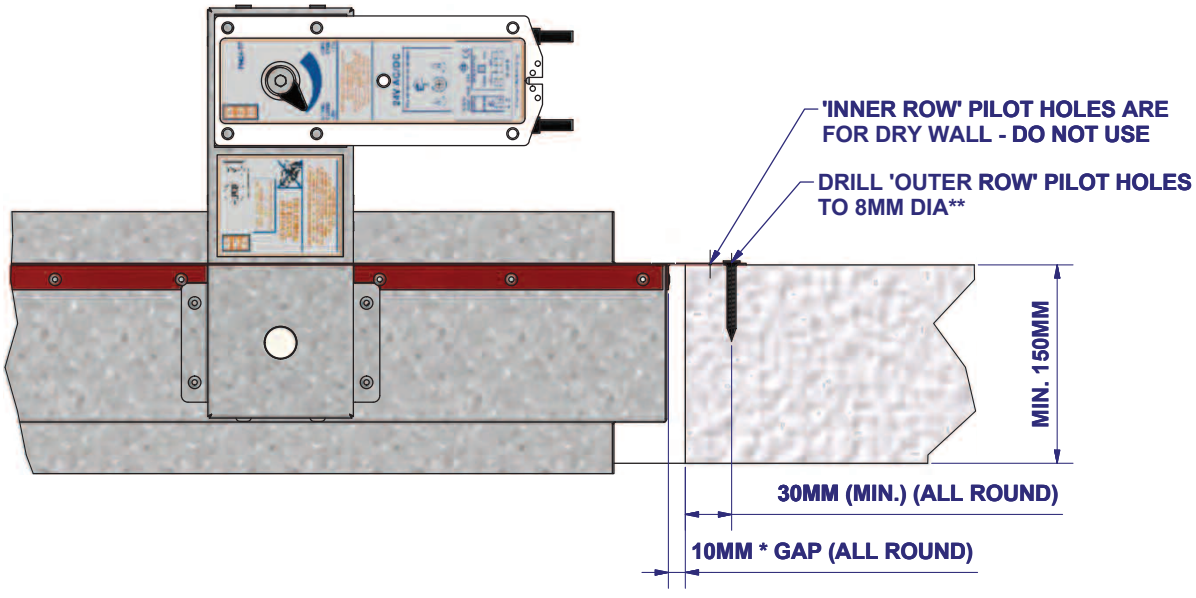
3. Pre-drill fixing clearance holes in the outer set of pre-punched pilot holes on the angle flange of the damper 10mm in from the extremities at 150mm max centers, before installing damper.
4. Position the damper centrally into the opening. Drill the required sized fixing holes into the concrete. Please note, to access fixing holes close to the actuator it is necessary to temporarily remove the actuator. Follow instructions within this manual to remove & refit the actuator.
5. Using Ø6.5mm x 60mm (Minimum) fire resisting steel fixings, fix damper flange to concrete floor, taking care not to crack the concrete.
6. It is not a necessity to fill the void behind the angle flange or fit a pattress to the underside.
7. Ductwork to be fitted and connected in accordance with DW 144/145; Break-away duct joint connecting a fire damper spigot or sleeve to the attached ductwork which will allow collapse of the ductwork during a fire without affecting the integrity of the fire damper. Breakaway and flexible joints incorporate materials, fixings, clamps etc. that are manufactured from a non – fire resistant material with a low melting point such as aluminium.
8. If connecting to fire resisting ductwork, use the fire tested fixings associated with the fire resisting ductwork system being used.

INSTALLATION METHOD

FSD-TD M11-r4

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY. USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS).
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION
* TOLERANCE FOR GAP BETWEEN DAMPER AND EDGE OF OPENING + 50% (RULE X.45 OF EN 15882-2)





VIEW A

** PILOT HOLES ARE POSITIONED
ASSUMING DAMPER POSITIONED
CENTRALLY IN CORRECTLY SIZED OPENING.
REFER TO I, O & M FOR FULL DETAILS

4 HOUR TESTED:
EN13501-3 LIMITS ES RATING TO A MAXIMUM OF 120 MINUTES.
HOWEVER, THIS INSTALLATION WAS SUCCESSFULLY TESTED FOR 4 HOURS.

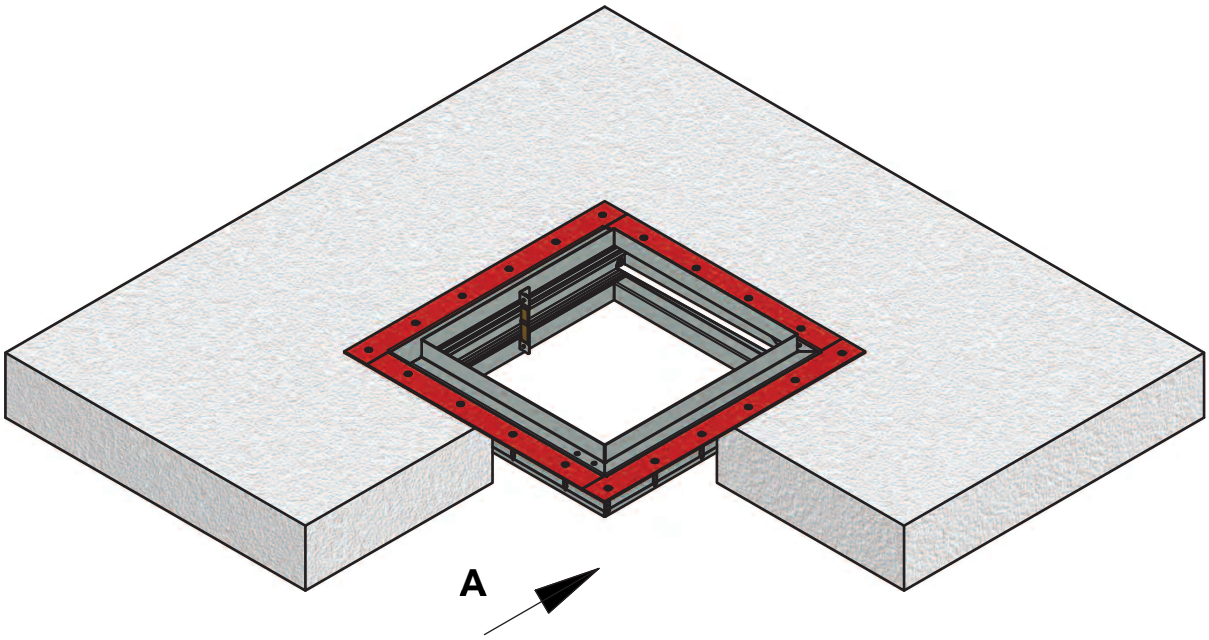
TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS MUST BE APPROVED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

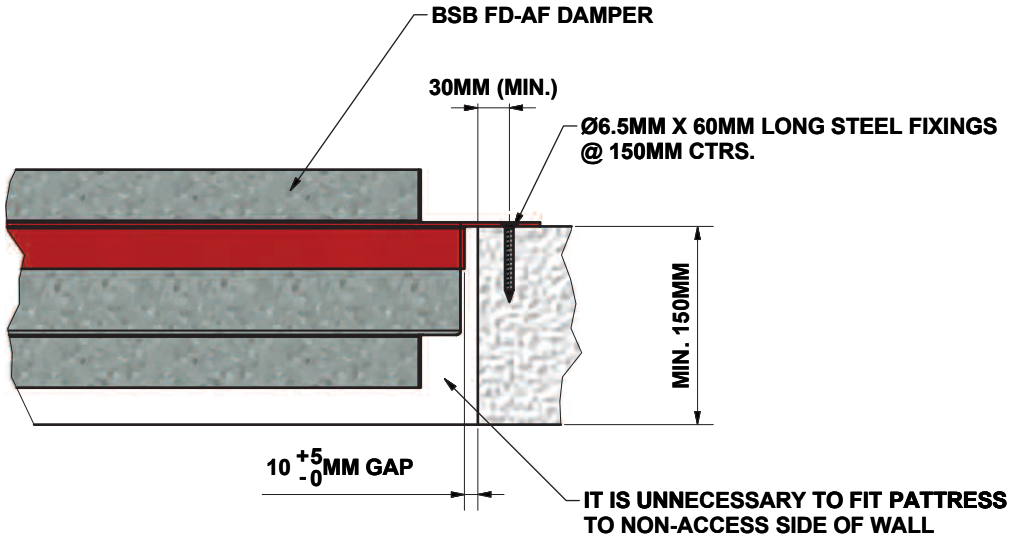
CONCRETE FLOOR	**CE 120 MINUTES FIRE RESISTANCE**
BSB FSD-TD-AF ANGLE FRAME Fitted	**E 120 (ho i → o) S**
Single section sizes(mm) 100 x 100 to 1000 x 1000	**TESTED TO EN1366-2 & CLASSIFIED TO EN13501-3**
ECN: 0187 DATE: 02/08/2019	**www.bsb-dampers.co.uk**

INSTALLATION METHOD

FD M11

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION





VIEW A

NOTE: THIS INSTALLATION WAS FIRE TESTED FOR 4 HOURS SUCCESSFULLY.

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 FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

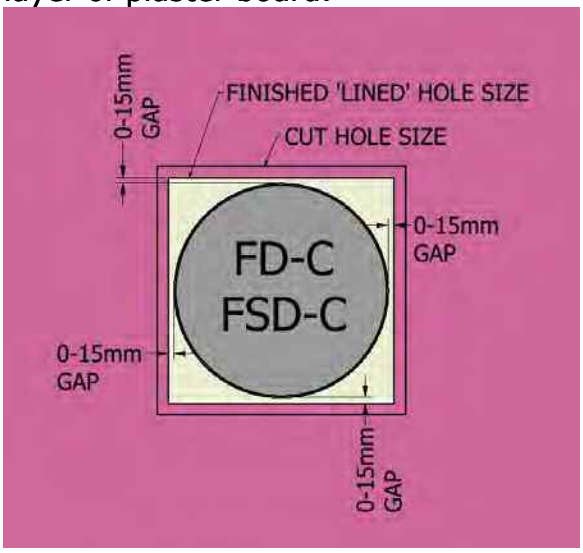
CONCRETE FLOOR	CE 120 MINUTES FIRE RESISTANCE
BSB FD-AF ANGLE FRAME Fitted	E 120 (ho i → o)
Single section sizes(mm) 100 x 100 to 1200 x 1000	BS EN1366-2 TEST REFERENCE: 282572 BRE CERTIFICATE OF CONSTANCY 0832-CPR-P0006

www.bsb-dampers.co.uk

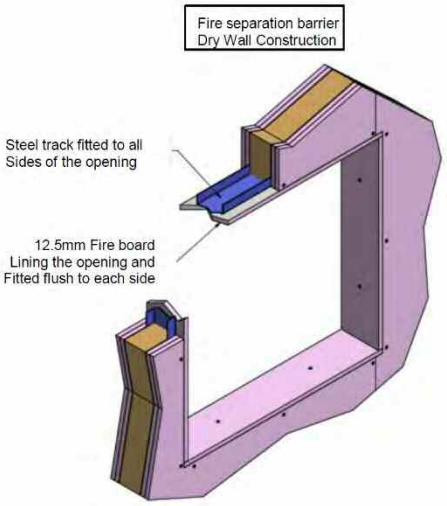
FD-C & FSD-C one side installation method into dry walls

Fire (FD_C) & Fire Smoke dampers (FSD-C)

1. **Finished 'lined' hole size** is square, and **+** 0mm → 30mm larger than the diameter damper casing
2. Calculate the **cut hole size** by adding two board thicknesses to the finished hole width and height, because the cut hole needs lining with a single layer of plaster board.



3. Mark the position and size of the hole on the partition wall and cut it out
4. Line the perimeter of aperture with steel track, securing in place with dry wall screws on both sides at 300mm (max) centers.
5. Cut 4 lengths of board to suit the aperture. Screw in place at 300mm (max) centers, ensuring boards are flush with both sides of the wall.
6. Position the damper centrally in wall opening (width/height), with blade running horizontally.
7. Using 38mm dry wall screws, fix the installation plate to the wall. **Important:** Ensure the screws 'pick up' the track lining the hole, so that the proper fire integrity of the installation will not be compromised.

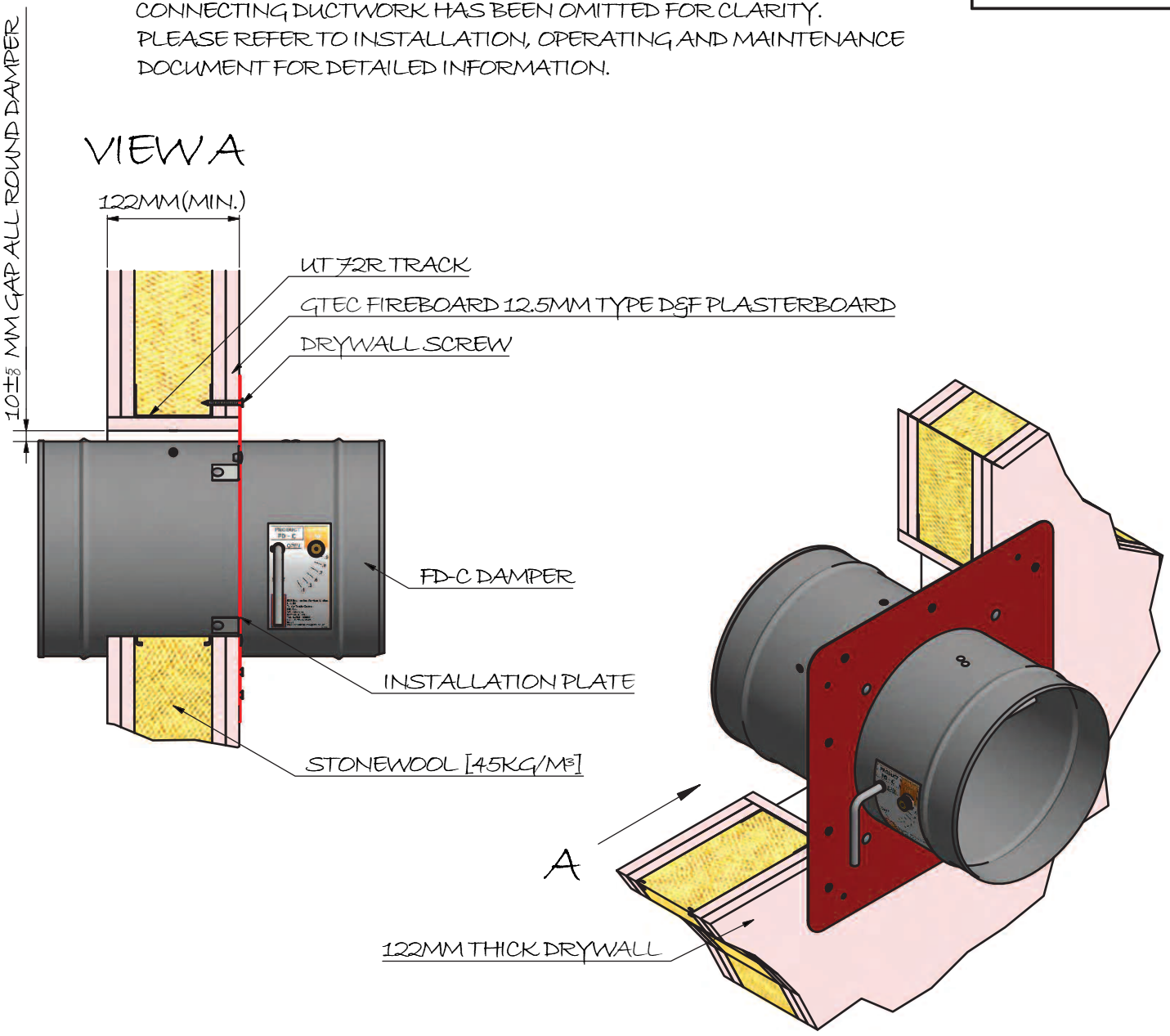


8. There is a pair of fixing holes at each of the installation plate corners, but only one fixing is required per corner. On larger dampers, there are also midspan fixing holes that must be used. ALL Ø5mm fixing holes, except the 4off unused corner fixings must be used.
9. It is not a necessity to fill the void behind the angle frame, but suitable fire rated infill may be used if considered required for insulation purposes.
10. Ductwork to be fitted and connected in accordance with DW 144/145; Break away duct joint connecting a fire damper spigot or sleeve to the attached ductwork which will allow collapse of the ductwork during a fire without disturbing the integrity of the fire damper. Breakaway and flexible joints incorporate materials, fixings, clamps etc. that are manufactured from a non – fire resistant material with a low melting point such as aluminium, plastic etc.
11. If connecting to fire resisting ductwork, use the fire tested fixings associated with the fire resisting ductwork system being used.

INSTALLATION METHOD

FD-C M9

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.



SECURING INSTALLATION PLATE

THE OPENING IN THE WALL MUST BE SQUARE WITH A FINISHED OPENING SIDE LENGTH = DAMPER DIAMETER + 20± MM.

THE OPENING MUST BE LINED WITH A SINGLE LAYER OF FIREBOARD BACKED BY TRACK ALL WAY ROUND.

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 CORNER VOIDS OF THE OPENING.

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 FIRE TESTS / ASSESSMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

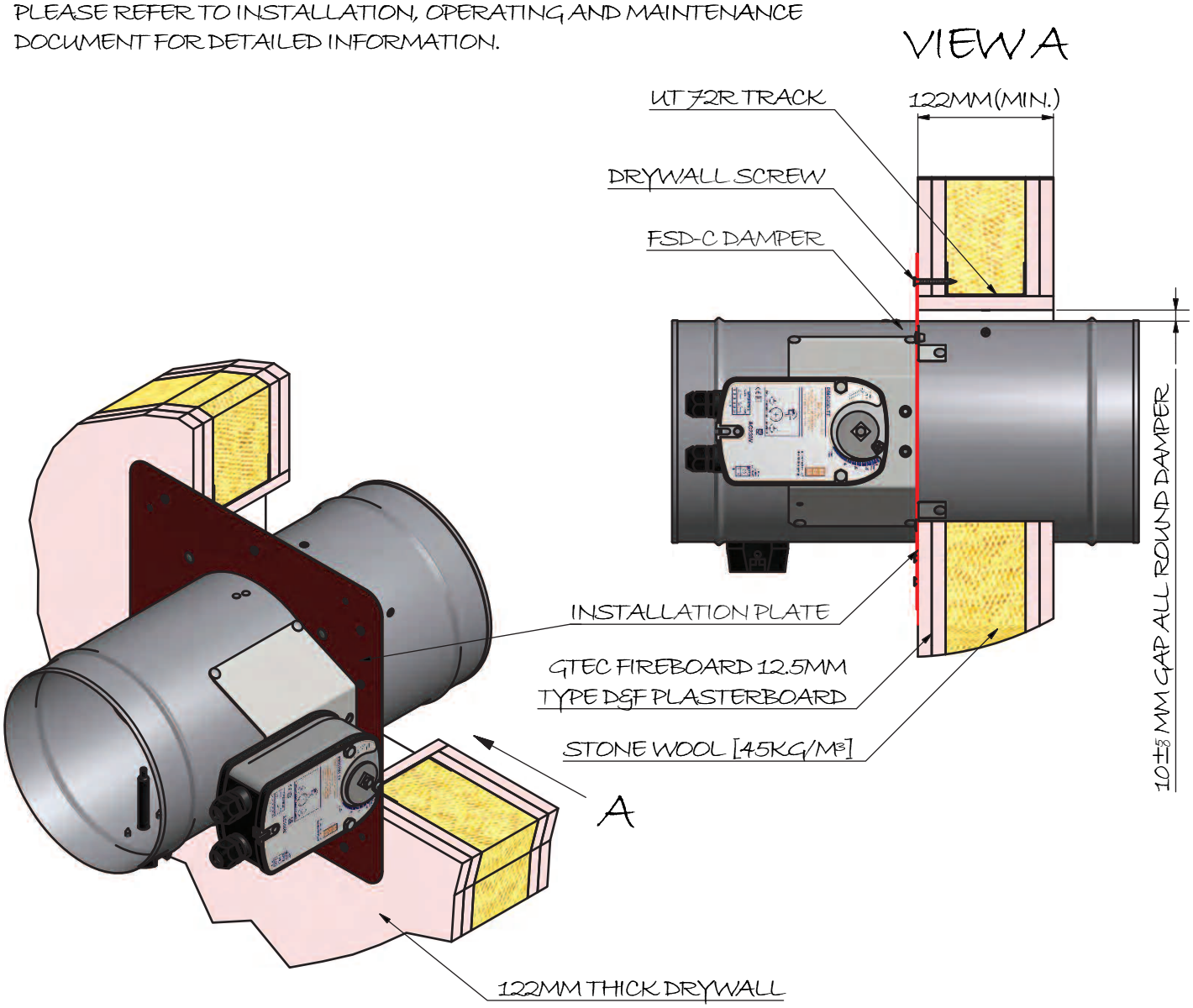
DRYWALL	**120 MINUTES FIRE RESISTANCE**
FD-C	***E 90 (ve i ↔ o) S***
Damper sizes (mm) **Ø100 to Ø315**	**BS EN1366-2 TEST REFERENCE 276643** **BRE CERTIFICATE OF CONSTANCY 0832-CPR-P0008**

www.bsb-dampers.co.uk

INSTALLATION METHOD

FSD-C M9

CONNECTING DUCTWORK AND CABLES HAVE BEEN OMITTED FOR CLARITY.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.



SECURING INSTALLATION PLATE

THE OPENING IN THE WALL MUST BE SQUARE WITH A FINISHED OPENING SIDE LENGTH = DAMPER DIAMETER + 20 +10 -0 MM.
THE OPENING MUST BE LINED WITH A SINGLE LAYER OF FIREBOARD BACKED BY TRACK ALL THE WAY ROUND.
ONLY ONE FIXING IS REQUIRED PER CORNER. ALL INTERMEDIATE FIXING HOLES TO BE USED.
ALL FIXING SCREWS SHOULD BE SECURELY SCREWED TO THE TRACK LINING OF THE OPENING.
THERE IS NO NEED TO FILL THE CORNER VOIDS OF THE OPENING.

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 FIRE TESTS / ASSESSMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

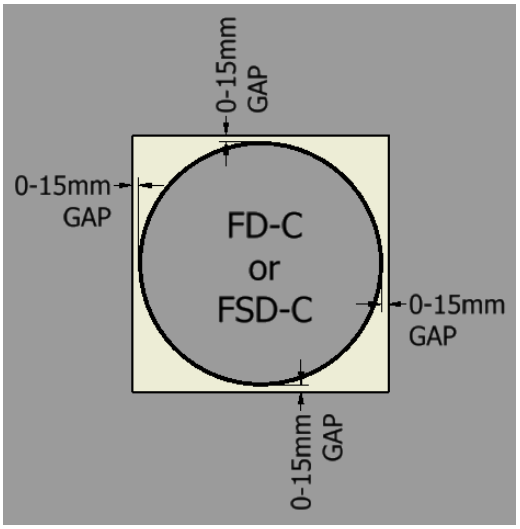
DRYWALL	**CE 120 MINUTES FIRE RESISTANCE**
FSD-C	***E 120 (ve i ↔ o) S***
Damper sizes (mm) **Ø100 to Ø315**	**BS EN1366-2 TEST REFERENCE 279799** **BRE CERTIFICATE OF CONSTANCY 0832-CPR-P0009**

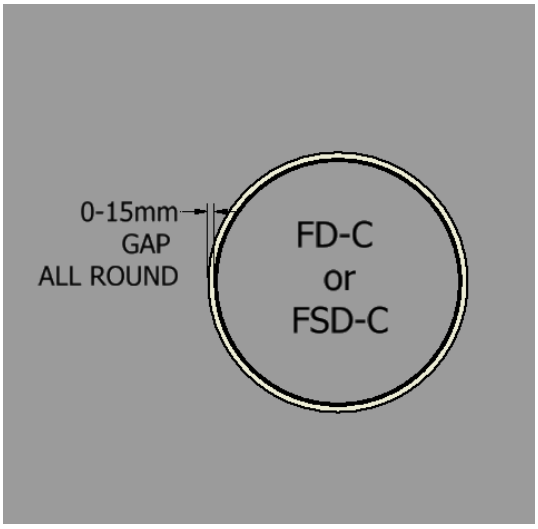
www.bsb-dampers.co.uk

FD-C & FSD-C one side installation method into masonry/concrete walls and floors

Fire (FD-C) & Fire Smoke dampers (FSD-C)

1. Preferably, correct sized holes should be cast / built into walls and floors at construction stage. If not cut the correct sized aperture, either a square aperture or a core drilled hole is acceptable.
2. To calculate aperture, measure the damper casing diameter (not the angle flange)
   Opening size = Damper casing size + 0mm → 30mm clearance around perimeter of outer casing as shown;



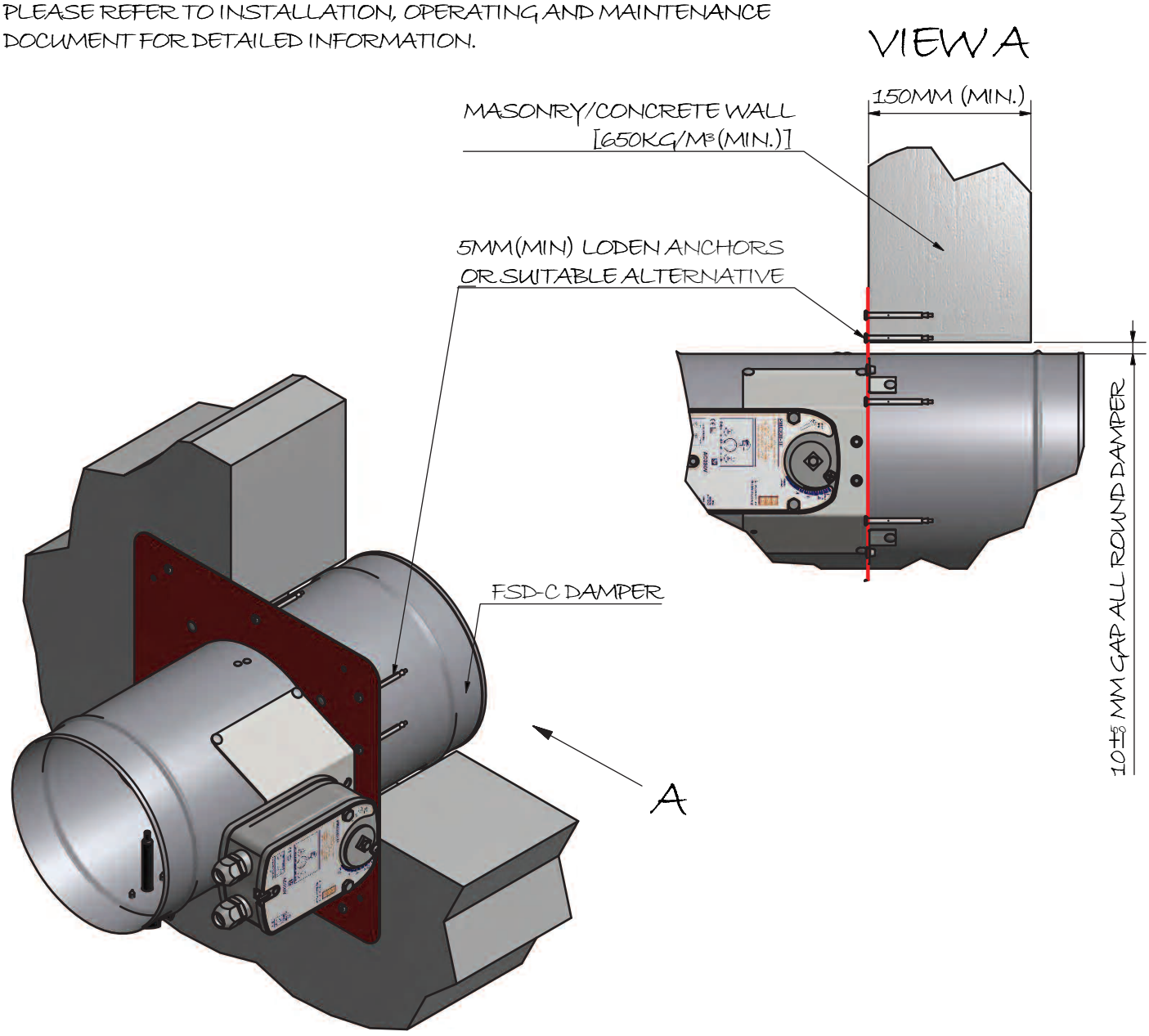


3. The dampers are not load bearing so in walls lintel supports should be used where required.
4. Using Ø5mm x 50mm (Minimum) fire resisting steel fixings, carefully fix damper flange to concrete floor or wall, taking care not to crack the structure.
5. It is not a necessity to fill the void behind the angle frame or fit a pattress to the underside.
6. Ductwork to be fitted and connected in accordance with DW 144/145;
   Break away duct joint connecting a fire damper spigot or sleeve to the attached ductwork which will allow collapse of the ductwork during a fire without affecting the integrity of the fire damper. Breakaway and flexible joints incorporate materials, fixings, clamps etc. that are manufactured from a non – fire resistant material with a low melting point such as aluminium.
7. If connecting to fire resisting ductwork, use the fire tested fixings associated with the fire resisting ductwork system being used.

INSTALLATION METHOD

FSD-C M10

CONNECTING DUCTWORK AND CABLES HAVE BEEN OMITTED FOR CLARITY.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.



SECURING INSTALLATION PLATE

THE OPENING IN THE WALL MUST BE SQUARE WITH SIDE LENGTH = DAMPER DIAMETER + 20 +10 -0 MM.
ONLY ONE FIXING IS REQUIRED PER CORNER. ALL INTERMEDIATE FIXING HOLES TO BE USED.
THERE IS NO NEED TO FILL THE CORNER VOIDS OF THE OPENING.

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 FIRE TESTS / ASSESSMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

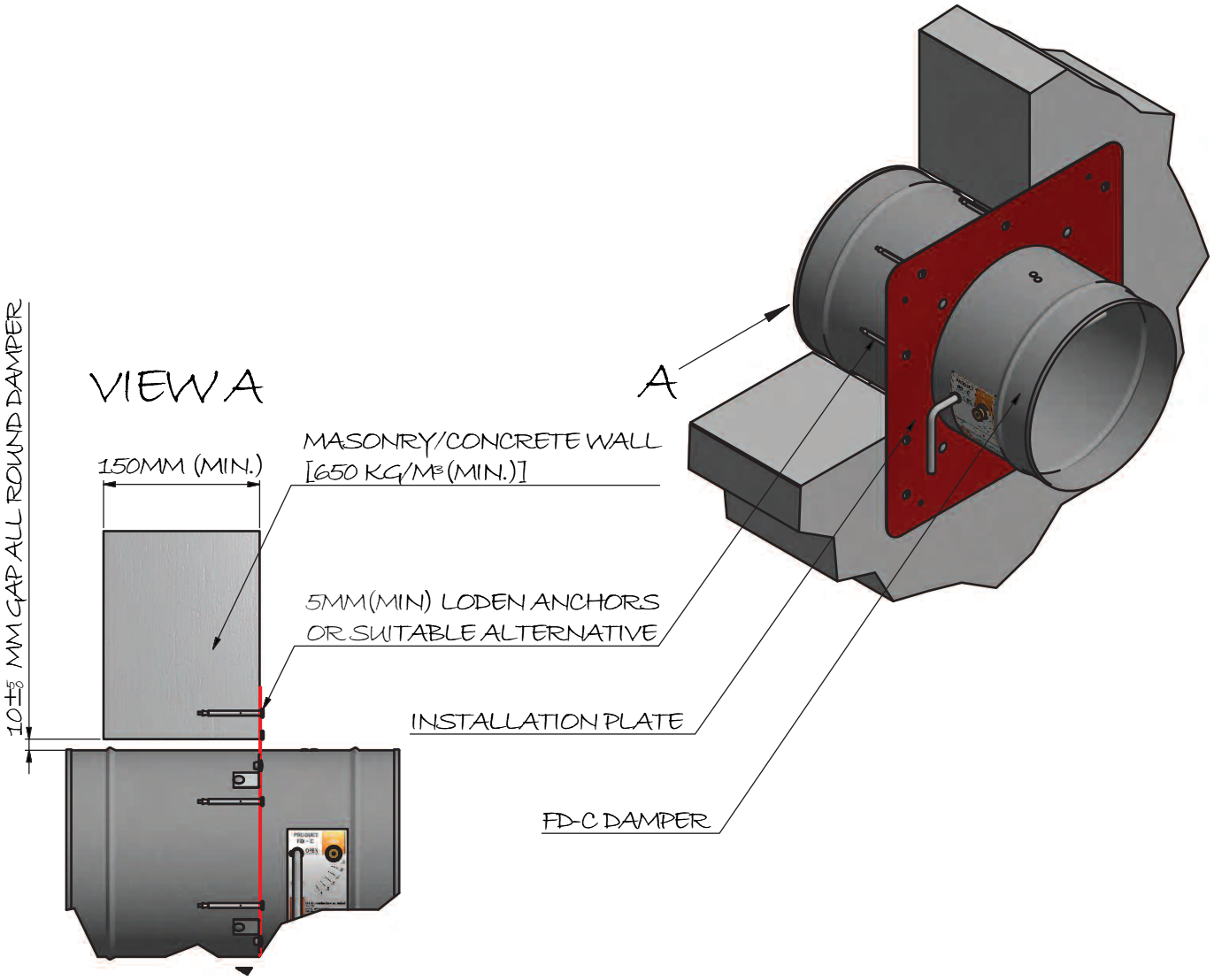
MASONRY WALL	**CE 120 MINUTES FIRE RESISTANCE**
FSD-C	***E 120 (ve i ↔ o) S***
Damper sizes (mm) **Ø100 to Ø315**	**BS EN1366-2 TEST REFERENCE 279799** **BRE CERTIFICATE OF CONSTANCY 0832-CPR-P0009**

www.bsb-dampers.co.uk

INSTALLATION METHOD

FD-C M10

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.



SECURING INSTALLATION PLATE

THE OPENING IN THE WALL MUST BE SQUARE WITH SIDE LENGTH = DAMPER DIAMETER + 20 +4 -0 MM.
ONLY ONE FIXING IS REQUIRED PER CORNER. ALL INTERMEDIATE FIXING HOLES ARE TO BE USED.
THERE IS NO NEED TO FILL THE CORNER VOIDS OF THE OPENING.

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 FIRE TESTS / ASSESSMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

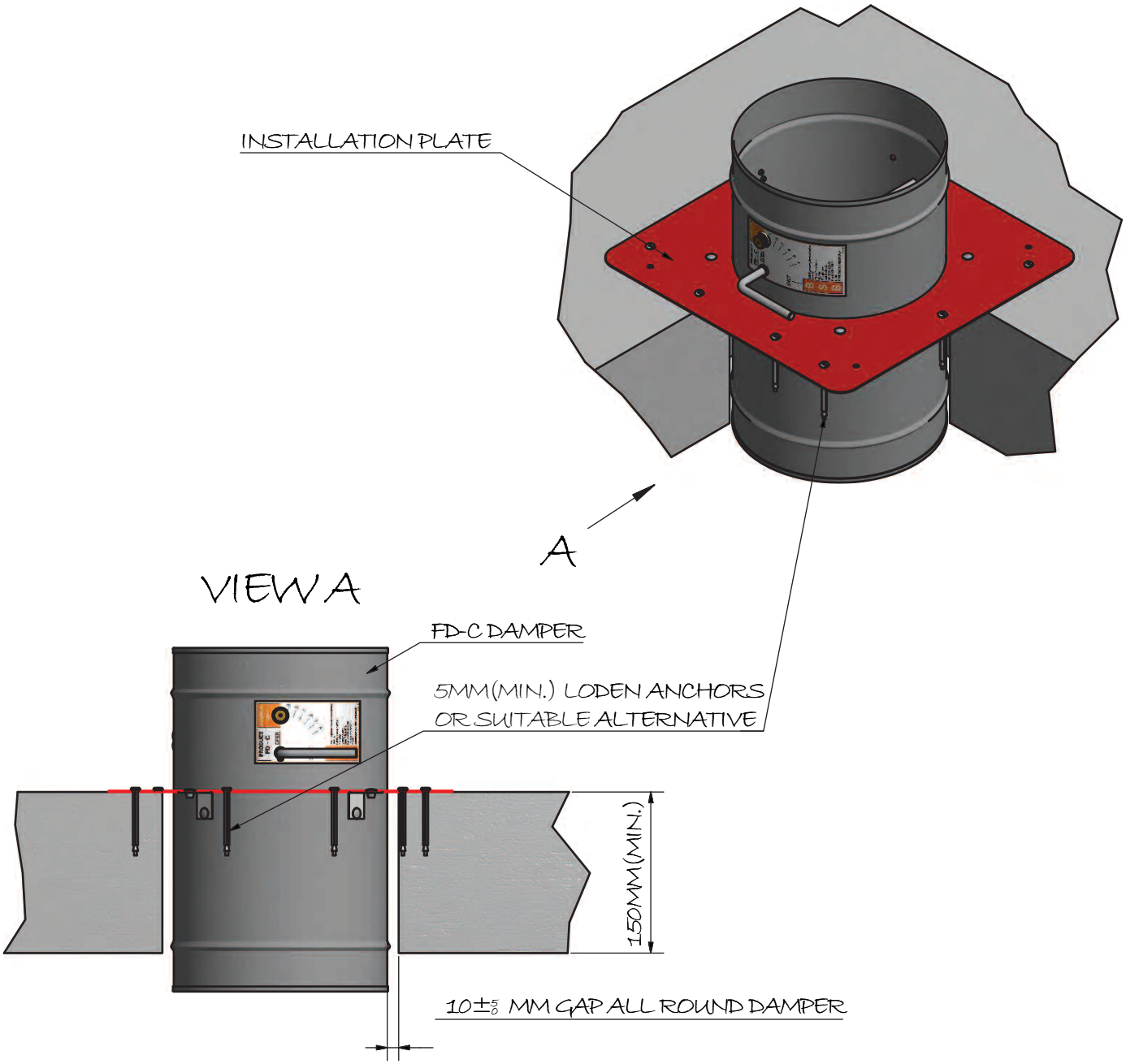
MASONRY WALL	CE **120 MINUTES FIRE RESISTANCE**
FD-C	***E 120 (ve i ↔ o) S***
Damper sizes (mm) **Ø100 to Ø315**	**BS EN1366-2 TEST REFERENCE 276065, 281585A** **BRE CERTIFICATE OF CONSTANCY 0832-CPR-P0008**

www.bsb-dampers.co.uk

INSTALLATION METHOD

FD-C M11

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.



SECURING INSTALLATION PLATE

THE OPENING IN THE FLOOR MUST BE SQUARE WITH SIDE LENGTH = DAMPER DIAMETER + 20±10 MM.
ONLY ONE FIXING IS REQUIRED PER CORNER. ALL INTERMEDIATE FIXING HOLES ARE TO BE USED.
THERE IS NO NEED TO FILL THE CORNER VOIDS OF THE OPENING.

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 FIRE TESTS / ASSESSMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

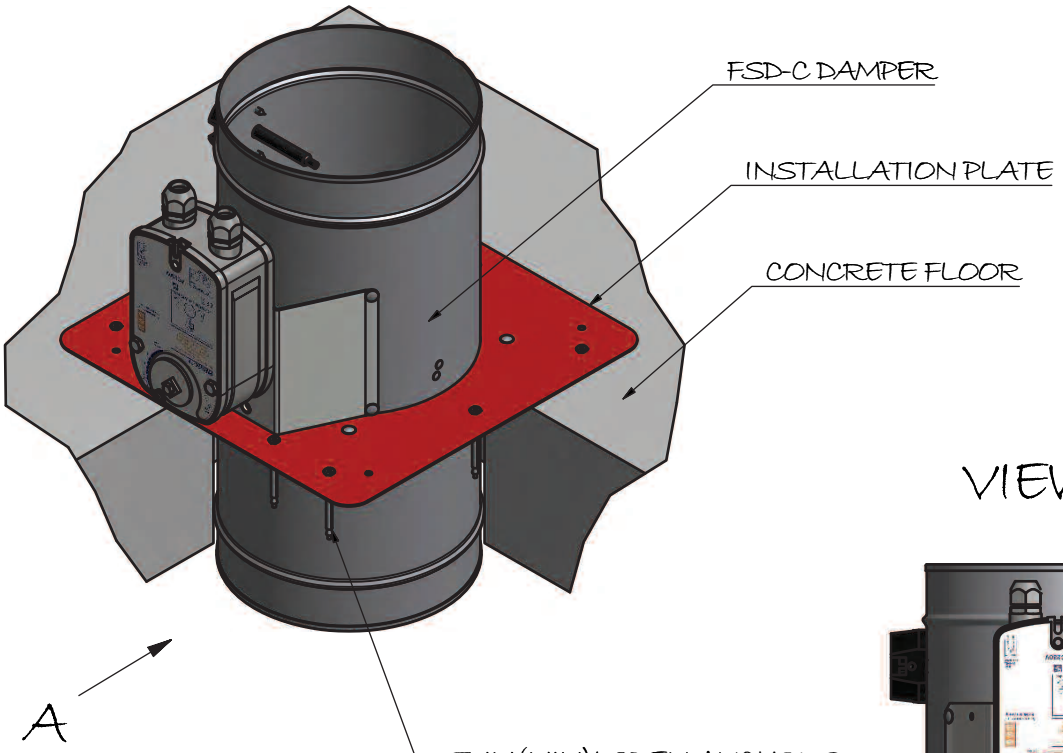
CONCRETE FLOOR	**CE 120 MINUTES FIRE RESISTANCE**
FD-C	***E 120 (ho i → o) S***
Damper sizes (mm) **Ø100 to Ø315**	**BS EN1366-2 TEST REFERENCE 102289-1000** **BRE CERTIFICATE OF CONSTANCY 0832-CPR-P0008**

www.bsb-dampers.co.uk

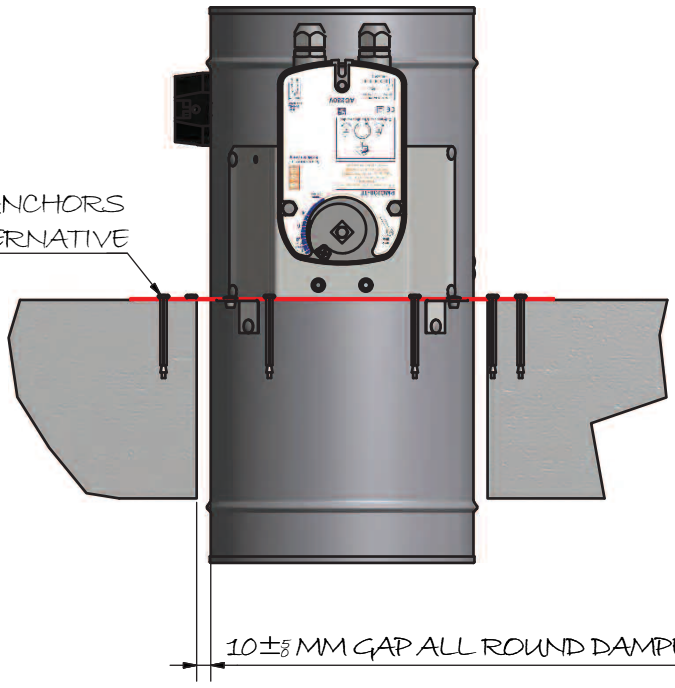
INSTALLATION METHOD

FSD-C M11

CONNECTING DUCTWORK AND CABLES HAVE BEEN OMITTED FOR CLARITY.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.



VIEW A



SECURING INSTALLATION PLATE

THE OPENING IN THE FLOOR MUST BE SQUARE WITH SIDE LENGTH = DAMPER DIAMETER + 20±10MM.
ONLY ONE FIXING IS REQUIRED PER CORNER. ALL INTERMEDIATE FIXING HOLES TO BE USED.
THERE IS NO NEED TO FILL THE CORNER VOIDS OF THE OPENING.

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 FIRE TESTS / ASSESSMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

MASONRY WALL	**CE 90 MINUTES FIRE RESISTANCE**
FSD-C	***E 90 (ho i → o) S***
Damper sizes (mm) **Ø100 to Ø315**	**BS EN1366-2 TEST REFERENCE 281585B** **BRE CERTIFICATE OF CONSTANCY 0832-CPR-P0009**

www.bsb-dampers.co.uk

FD-C Externally resettable circular fire dampers Installation method into ablative BATT surround under slab & up against masonry wall.

IMPORTANT
The fire tested installation methods shown in drawings FD-C M8 sheets 1, 2 & 3 consider some of the common site installation issues faced on site;
1; Limited space – cutting down the installation plate size.
2; Limited space - Fixing direct to underside of slab by folding the installation plate.
3; Dampers installed close to each other - Overlapping installation plates.
4; Installing tight up into corners.
5; Reset handle positioned at the bottom of the duct for ease of access.
6; Large service penetrations / openings – filled by Ablative BATT firestopping materials.
With the above in mind the installation procedures below may change to suit site conditions and particular installation.
Differing & mixing a variety of installations other than that shown, require Building control, client, etc. approvals prior to installation.

Damper A with folded installation plate;

1. Position the damper up against the slab and mark and drill appropriately sizes fixing holes.
2. Using Ø5mm x 40mm (Minimum) fire resisting steel fixings, fix damper flange to concrete floor

Damper B with folded installation plate;

1. Position 40x40x2mm (min) mild steel angle (supplied by others) up against the slab and mark and drill appropriately sizes fixing holes.
2. Using Ø5mm x 40mm (Minimum) fire resisting steel fixings, fix angle up into soffit / concrete floor.
3. Using Ø3.2mm (Min) steel rivets fix the damper installation flange to the angle fitted to soffit.

Damper A & B

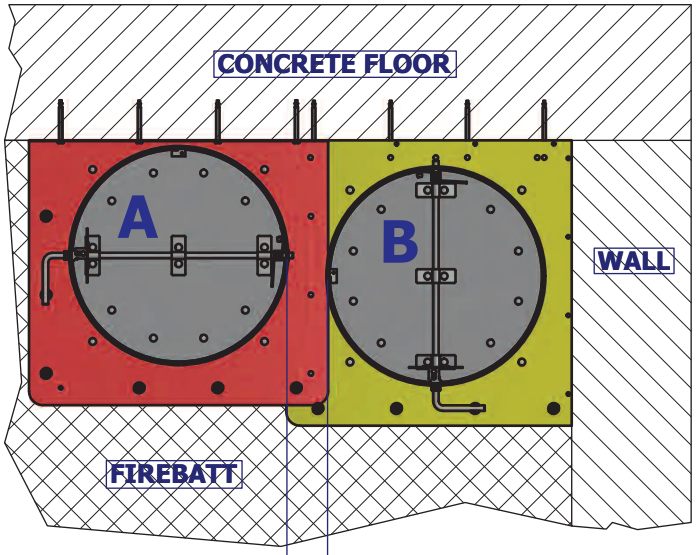
4. If installation plates are overlapping, fix both plates together using Ø3.2mm (Min) steel rivets.
5. Tightly install two layers of 50mm thick Firetherm intubatt around dampers and into the opening, as shown, using the intumescent sealant behind the installation plates, batt to batt joints (if required) and around the perimeter of batt to wall interface.
6. Using Batt pigtail fixings secure installation plate to the Batt.

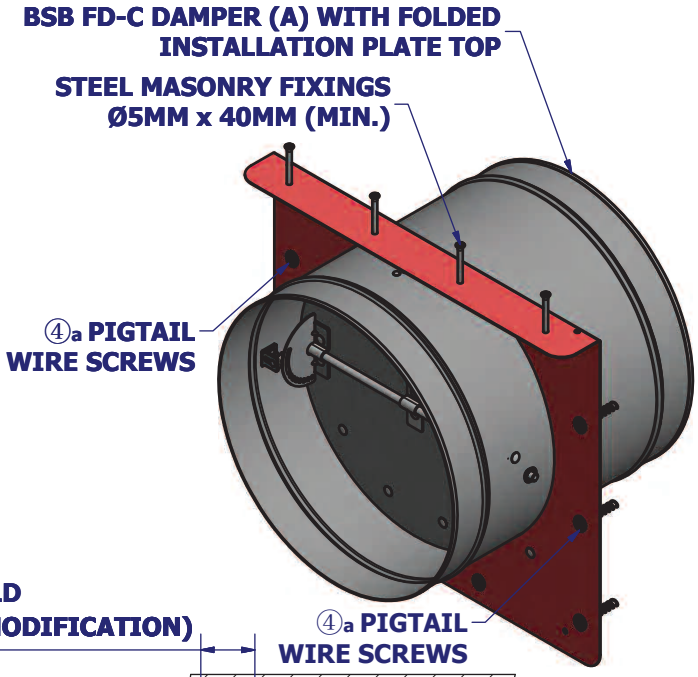
7. Ductwork to be fitted and connected in accordance with DW 144/145; Break away duct joint connecting a fire damper spigot or sleeve to the attached ductwork which will allow collapse of the ductwork during a fire without disturbing the integrity of the fire damper. Breakaway and flexible joints incorporate materials, fixings, clamps etc. that are manufactured from a non – fire resistant material with a low melting point such as aluminium, plastic etc.
8. If connecting to fire resisting ductwork, use the fire tested fixings associated with the fire resisting ductwork system being used.

INSTALLATION METHOD

CONNECTING DUCTWORK AND FIREBATT HAVE BEEN OMITTED FOR CLARITY. USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION

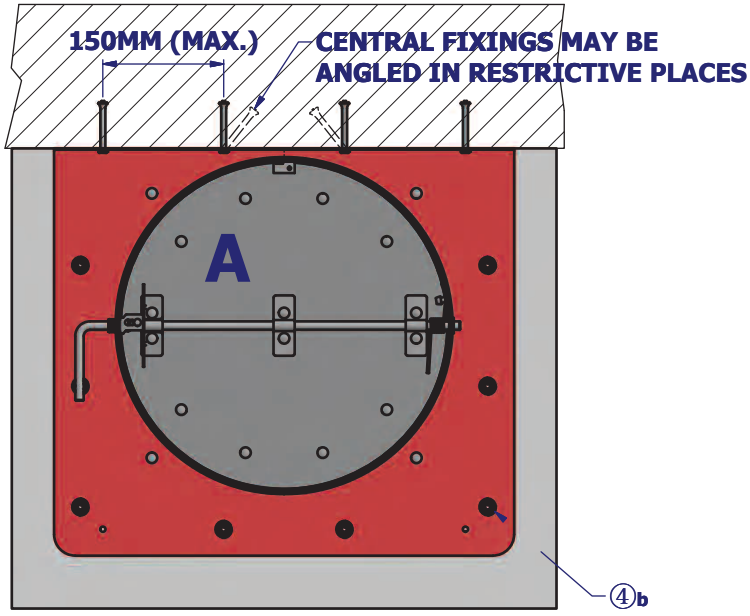
FD-C M8

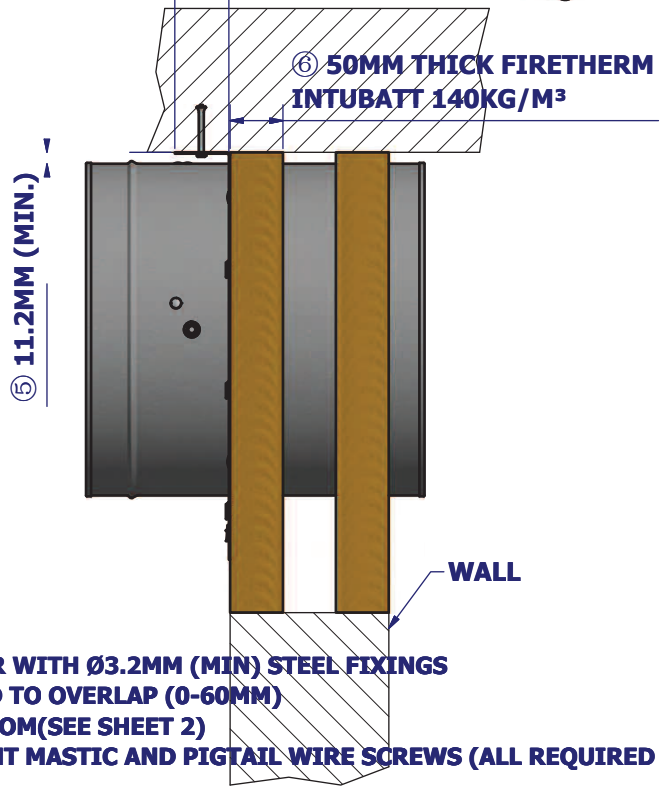




① OVERLAPPED INSTALLATION PLATES

⑤ 50MM INSIDE (MAX.) FOLD (PRE-ASSEMBLY FACTORY MODIFICATION)





① OVERLAPPING INSTALLATION PLATES TO BE FIXED TOGETHER WITH Ø3.2MM (MIN) STEEL FIXINGS
② INSTALLATION PLATES OF MULTIPLE DAMPERS ARE ALLOWED TO OVERLAP (0-60MM)
③ DAMPER MAY BE INSTALLED WITH THE HANDLE ON THE BOTTOM(SEE SHEET 2)
④ INSTALLATION PLATE FIXED TO FIREBATT WITH INTUMESCENT MASTIC AND PIGTAIL WIRE SCREWS (ALL REQUIRED FIXING HOLES MUST HAVE FIXINGS)(SEE PAGE 3)
⑤ 50MM (MAX.) FOLD APPLIED TO TOP OF INSTALLATION PLATE FOR FIXING TO MASONRY CEILING
⑥ HOLES PRE-CUT IN FIREBATT TO SUIT DAMPER DIAMETER, BEFORE FITMENT OF FIREBATT

2 OFF FD-C DAMPERS TESTED WITH COMMON AND SPECIFIC SITE NUANCES, I.E. 1/ REDUCED INSTALLATION PLATE WIDTH/HEIGHT. 2/ FOLDED (TOP) INSTALLATION PLATE. 3/ OVERLAPPING INSTALLATION PLATES. 4/ VERTICAL BLADE-AXIS INSTALLATIONS. 5/ INSTALLATION INTO CORNERS OF CAVITIES. DIFFERING INSTALLATIONS WILL REQUIRE THE BCA TO REFER TO THIS DOCUMENT AND ASSOCIATED FIRE TESTS/DOCUMENTS CONTAINED HEREIN, IN ORDER TO CONSIDER APPROVAL.

FIRE BATT	CE 120 MINUTES FIRE RESISTANCE
BSB FD-C MODIFIED INSTALLATION PLATE	E 120 (ve i → o) S
Sizes(mm) Ø100mm to Ø315mm	BS EN1366-2 TEST REFERENCE 107602-1004 BRE CERTIFICATE OF CONSTANCY XXXX-XXX-XXXXX

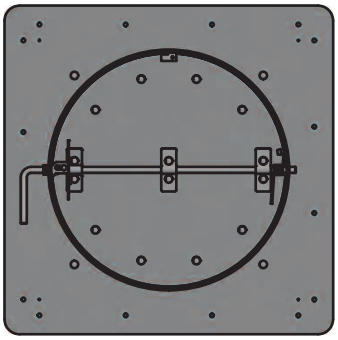
www.bsb-dampers.co.uk

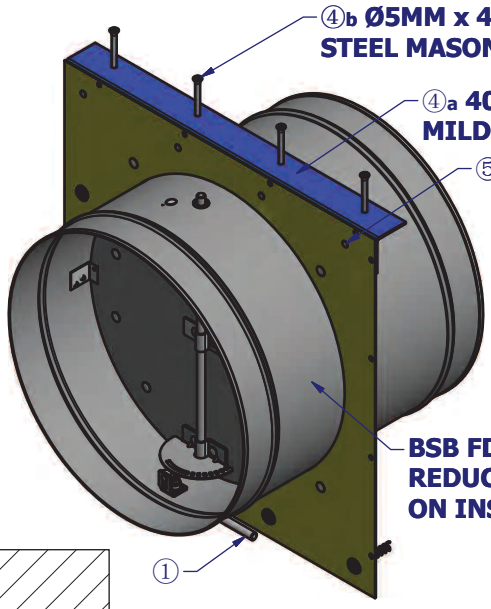
INSTALLATION METHOD

CONNECTING DUCTWORK AND FIREBATT HAVE BEEN LARGELY OMITTED FOR CLARITY. USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS) ON CONNECTING DUCTWORK.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION

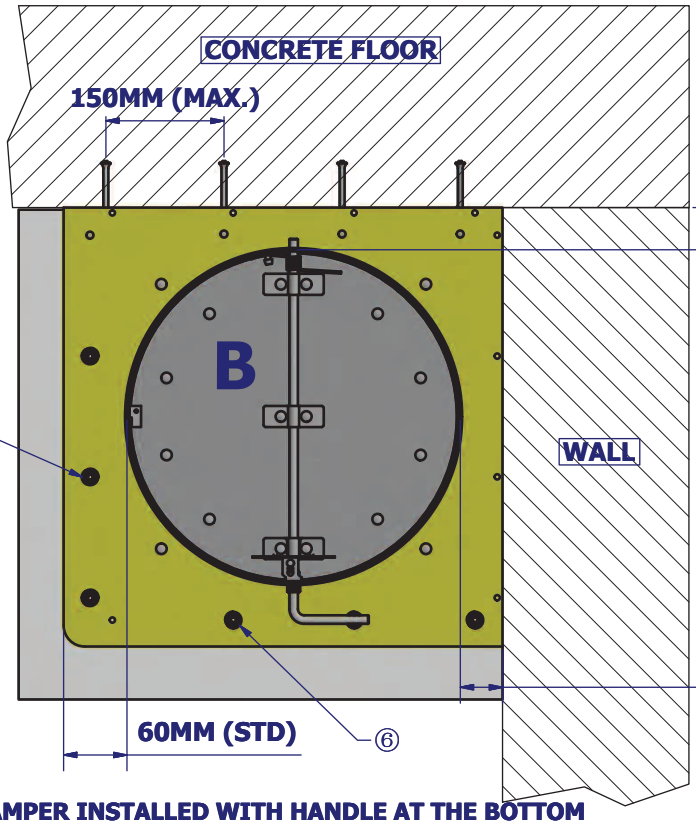
FD-C M8

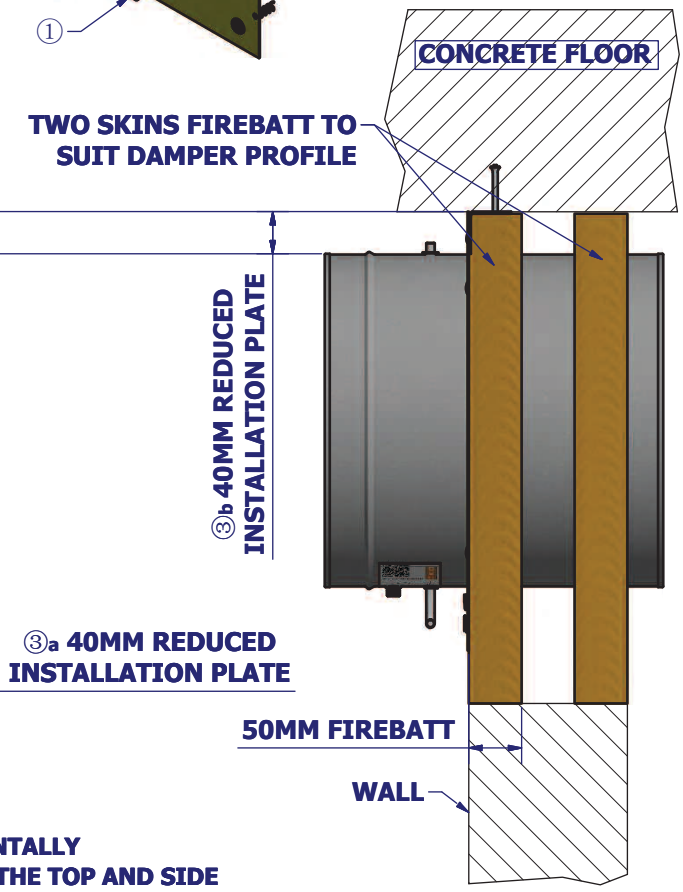
② STANDARD BLADE AXLE ORIENTATION





IF NO OVERLAPPING PLATE IS PRESENT THEN PIGTAIL SCREWS ARE REQUIRED





① DAMPER INSTALLED WITH HANDLE AT THE BOTTOM
② DAMPER MAY BE INSTALLED WITH THE BLADE AXLE HORIZONTALLY
③ INSTALLATION PLATE MAY BE TRIMMED DOWN TO 40MM AT THE TOP AND SIDE
④ ANGLE FIXED TO MASONRY USING Ø5 x 50MM DIA STEEL MASONRY FIXINGS
⑤ INSTALLATION PLATE FIXED TO MILD STEEL ANGLE USING 3.2MM DIA FIXINGS
⑥ INSTALLATION PLATE FIXED TO FIREBATT WITH INTUMESCENT MASTIC AND PIGTAIL WIRE SCREWS (ALL REQUIRED FIXING HOLES MUST HAVE FIXINGS)(HOLES NEXT TO SIDE WALL CAN BE LEFT UNFIXED)

2 OFF FD-C DAMPERS TESTED WITH COMMON AND SPECIFIC SITE NUANCES, I.E. 1/ REDUCED INSTALLATION PLATE WIDTH/HEIGHT. 2/ FOLDED (TOP) INSTALLATION PLATE. 3/ OVERLAPPING INSTALLATION PLATES. 4/ VERTICAL BLADE-AXIS INSTALLATIONS. 5/ INSTALLATION INTO CORNERS OF CAVITIES. DIFFERING INSTALLATIONS WILL REQUIRE THE BCA TO REFER TO THIS DOCUMENT AND ASSOCIATED FIRE TESTS/DOCUMENTS CONTAINED HEREIN, IN ORDER TO CONSIDER APPROVAL.

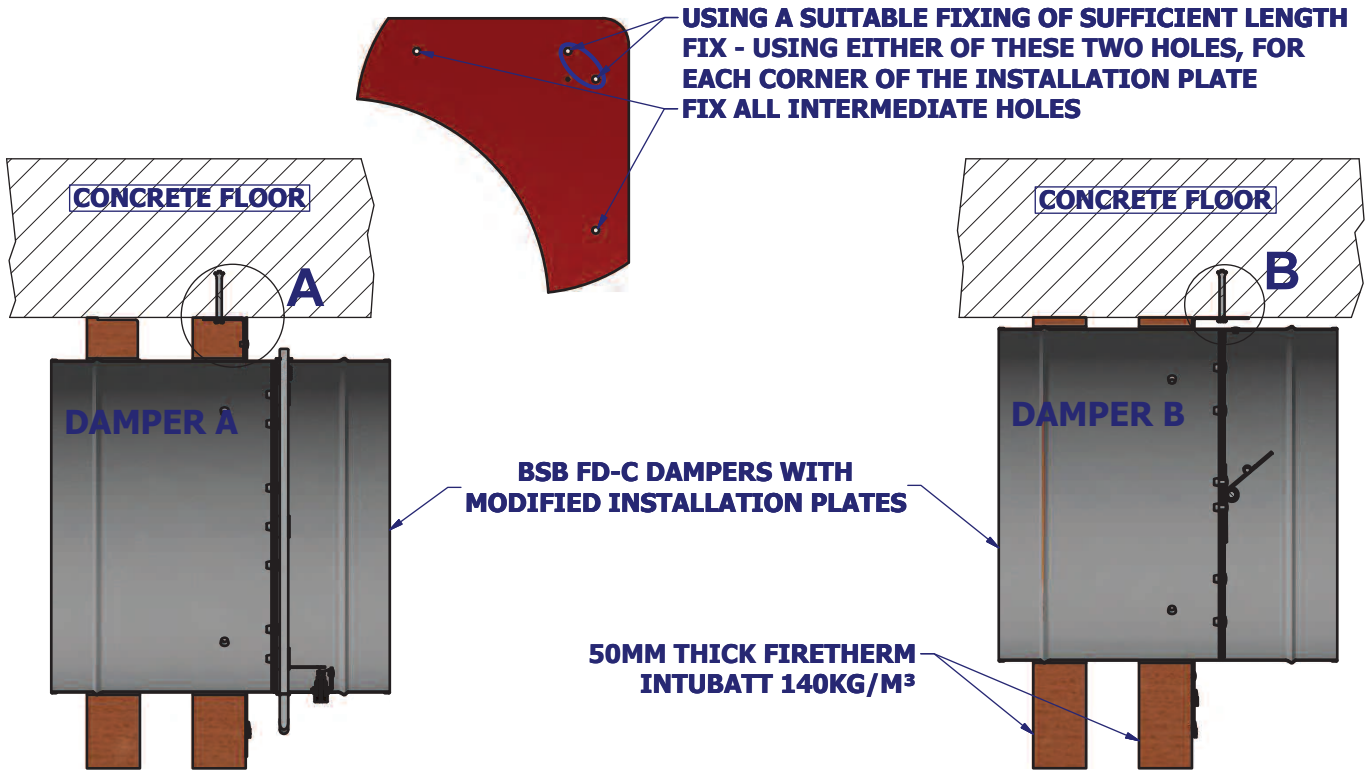
FIRE BATT	CE 120 MINUTES FIRE RESISTANCE
BSB FD-C MODIFIED INSTALLATION PLATE	E 120 (ve i → o) S
Sizes(mm) Ø100mm to Ø315mm	BS EN1366-2 TEST REFERENCE 107602-1004 BRE CERTIFICATE OF CONSTANCY XXXX-XXX-XXXXX

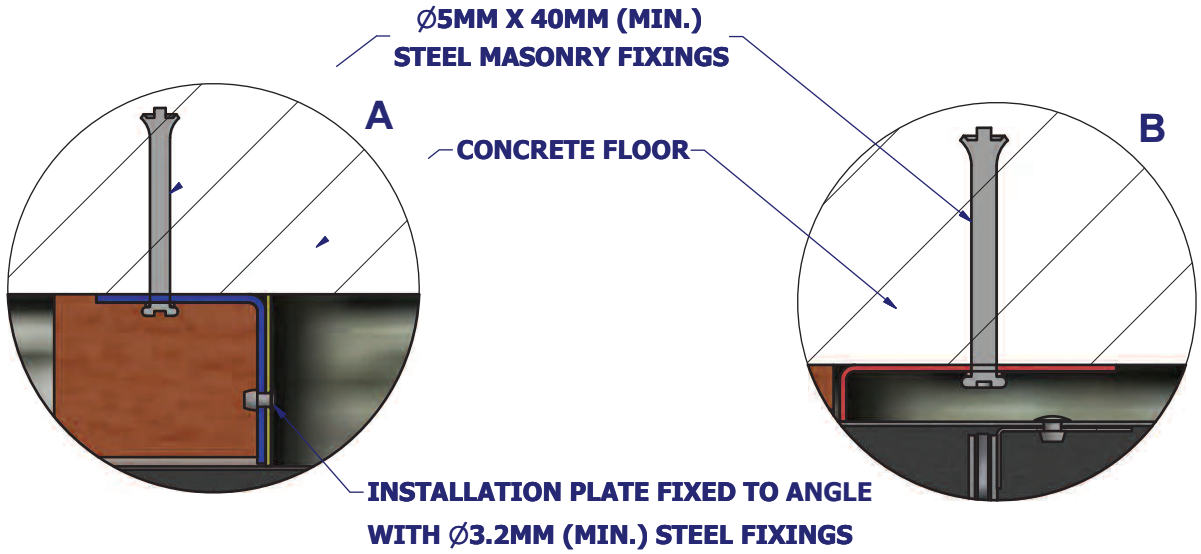
www.bsb-dampers.co.uk

INSTALLATION METHOD

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLAITY. USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS).
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION

FD-C M8





FIREBATT UNSUPPORTED BY FRAMEWORK - 1200MM X 1200MM (MAX)
FIREBATT SEALED WITH INTUMESCENT MASTIC AROUND ALL SEAMS, EDGES AND DAMPERS
FIREBATT'S SEAMS STAGGERED BETWEEN SKINS
INSTALLATION PLATES AND FIREBATT FIXED WITH INTUMESCENT MASTIC AND PIGTAIL WIRE SCREWS

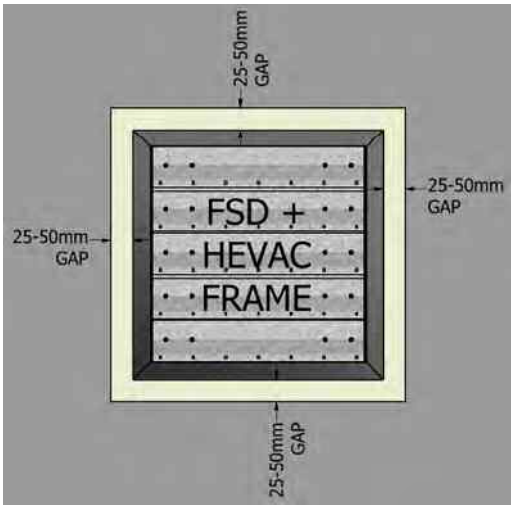
2 OFF FD-C DAMPERS TESTED WITH COMMON AND SPECIFIC SITE NUANCES, I.E. 1/ REDUCED INSTALLATION PLATE WIDTH/HEIGHT. 2/ FOLDED (TOP) INSTALLATION PLATE. 3/ OVERLAPPING INSTALLATION PLATES. 4/ VERTICAL BLADE-AXIS INSTALLATIONS. 5/ INSTALLATION INTO CORNERS OF CAVITIES. DIFFERING INSTALLATIONS WILL REQUIRE THE BCA TO REFER TO THIS DOCUMENT AND ASSOCIATED FIRE TESTS/DOCUMENTS CONTAINED HEREIN, IN ORDER TO CONSIDER APPROVAL.

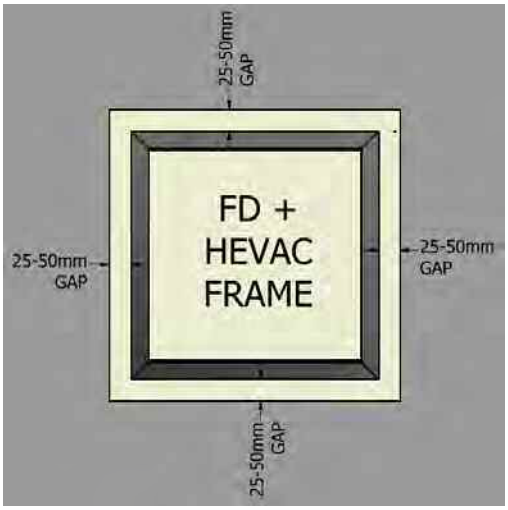
FIRE BATT	CE 120 MINUTES FIRE RESISTANCE
BSB FD-C MODIFIED INSTALLATION PLATE	E 120 (ve i → o) S
Sizes(mm) Ø100mm to Ø315mm	BS EN1366-2 TEST REFERENCE 107602-1004 BRE CERTIFICATE OF CONSTANCY XXXX-XXX-XXXXX

www.bsb-dampers.co.uk

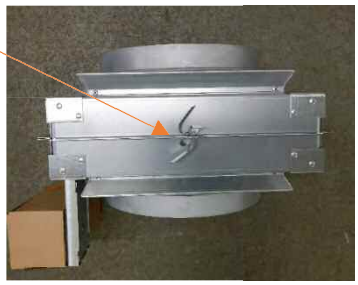
HEVAC Frame (HF) Installation into masonry or concrete walls and floors Fire (FD-HF) & Fire Smoke dampers (FSD-TD-HF)

1. Preferably, correct sized holes should be cast / built into walls or floors at construction stage. If not cut the correct sized aperture in the concrete wall or floor.
2. To calculate aperture measure overall HEVAC Frame sizes.
   Opening size = HEVAC frame size + 50mm → 100mm clearance around perimeter of HEVAC frame as shown;





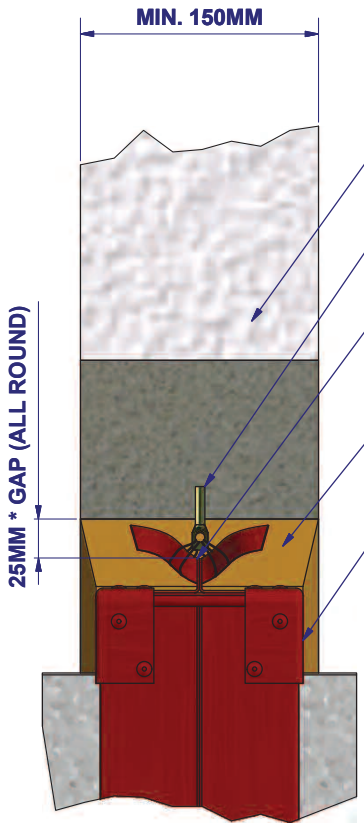
3. The dampers are not load bearing so in walls lintel supports should be used where required.
4. Fit looped fire resisting steel fixings, Ø6.5mm x 60mm (Minimum) inside the opening in corresponding positions to the HEVAC frame builder's ties.
5. Bend out the builder's ties.
6. For wall application place spacer blocks to centralize the damper in the opening.
7. While supporting the damper centrally in the opening, secure the builders ties to the looped wall anchors with 1.5mm galvanized steel wire. (The loops must be tight and a minimum of 3 loops is recommended).
8. Fill the gaps around with 4:1 sand cement mortar mix.
9. Ductwork to be fitted and connected in accordance with DW 144/145;
   Break away duct joint connecting a fire damper spigot or sleeve to the attached ductwork which will allow collapse of the ductwork during a fire without affecting the integrity of the fire damper.
   Breakaway and flexible joints incorporate materials, fixings, clamps etc. that are manufactured from a non – fire resistant material with a low melting point such as aluminium.
10. If connecting to fire resisting ductwork, use the fire tested fixings associated with the fire resisting ductwork system being used.



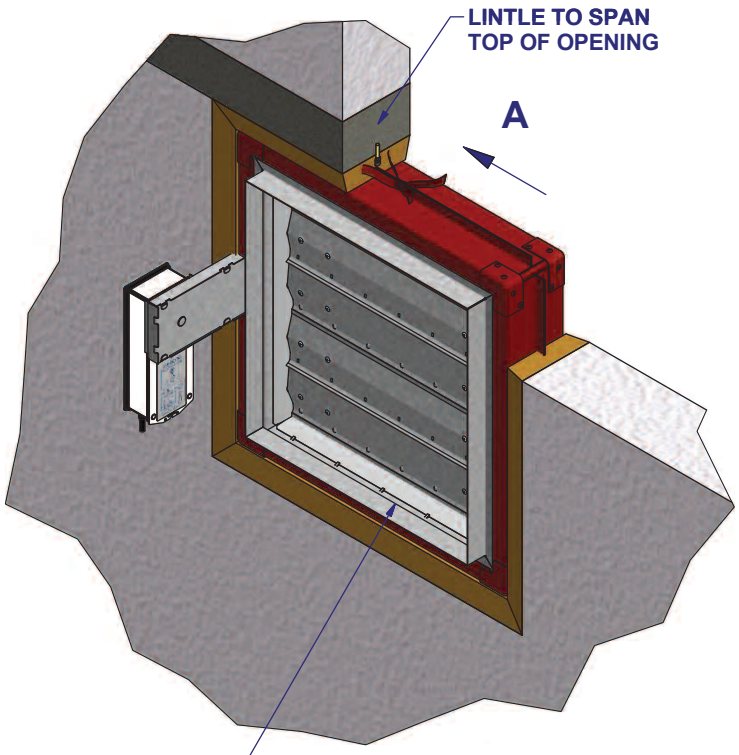
INSTALLATION METHOD

FSD-TD M2-r8

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY. USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS).
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION
* TOLERANCE FOR GAP BETWEEN DAMPER AND EDGE OF OPENING + 50% (RULE X.45 OF EN 15882-2)



VIEW A



4 HOUR TESTED:
EN13501-3 LIMITS ES RATING TO A MAXIMUM OF 120 MINUTES.
HOWEVER, THIS INSTALLATION WAS SUCCESSFULLY TESTED FOR 4 HOURS.

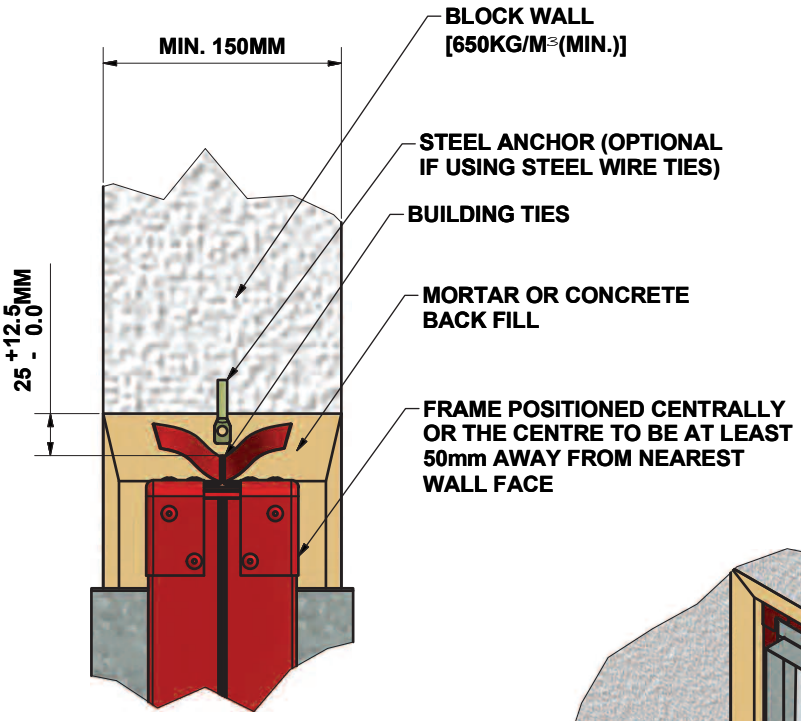
TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS MUST BE APPROVED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

MASONRY WALL	CE **120 MINUTES FIRE RESISTANCE E 120 (ve i → o) S**
BSB FSD-TD-HF HEVAC FRAME Fitted	
Single section sizes(mm) 100 x 100 to 1000 x 1000	**TESTED TO EN1366-2 & CLASSIFIED TO EN13501-3**
ECN: 0176 DATE: 24/07/2019	**www.bsb-dampers.co.uk**

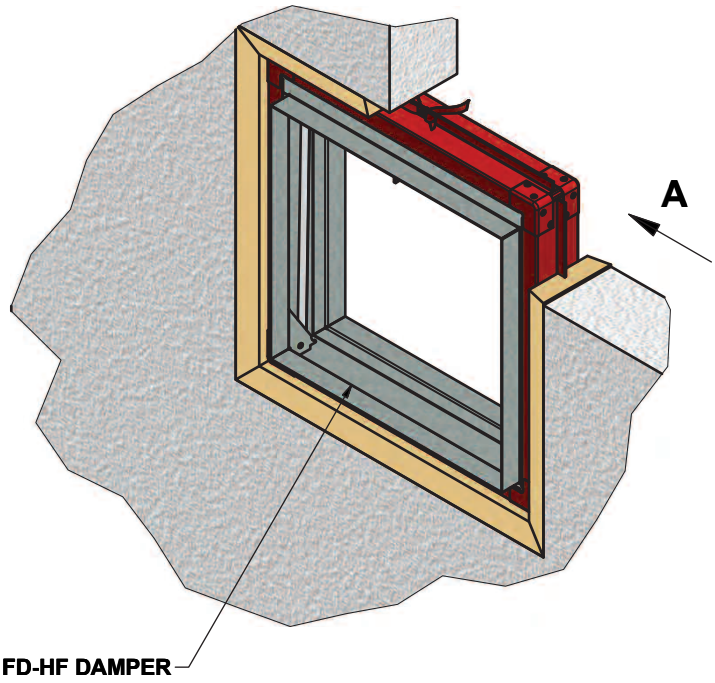
INSTALLATION METHOD

FD M2-r4

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION



VIEW A



SECURING OF BUILDING TIES:
EITHER, CUT 150MM LONG X 50MM DEEP POCKETS INTO SURROUNDING CONSTRUCTION, BEND OUT TABS INTO POCKETS AND BACKFILL.
OR, USE 5MM DIA STEEL ANCHORS (MIN) AND 1.5MM DIA STEEL WIRE (MIN) AROUND BENT-OUT TABS & ANCHORS TO FIX TO SURROUNDING CONSTRUCTION, PRIOR TO BACKFILL.

NOTE: THIS INSTALLATION WAS FIRE TESTED FOR 4 HOURS SUCCESSFULLY.

TESTED/ASSESSED 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 FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

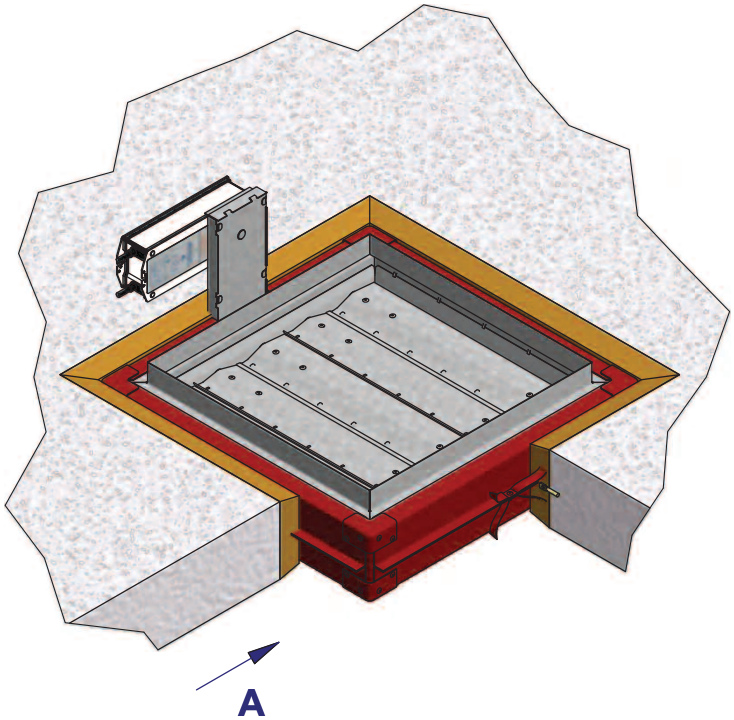
MASONRY WALL	CE 120 MINUTES FIRE RESISTANCE E 120 (ve ho i ↔ o)
BSB FD-HF HEVAC FRAME Fitted	
Single section sizes(mm) 100 x 100 to 1200 x 1000	BS EN1366-2 TEST REFERENCE: 201633, 285321 BRE CERTIFICATE OF CONSTANCY 0832-CPR-P0006

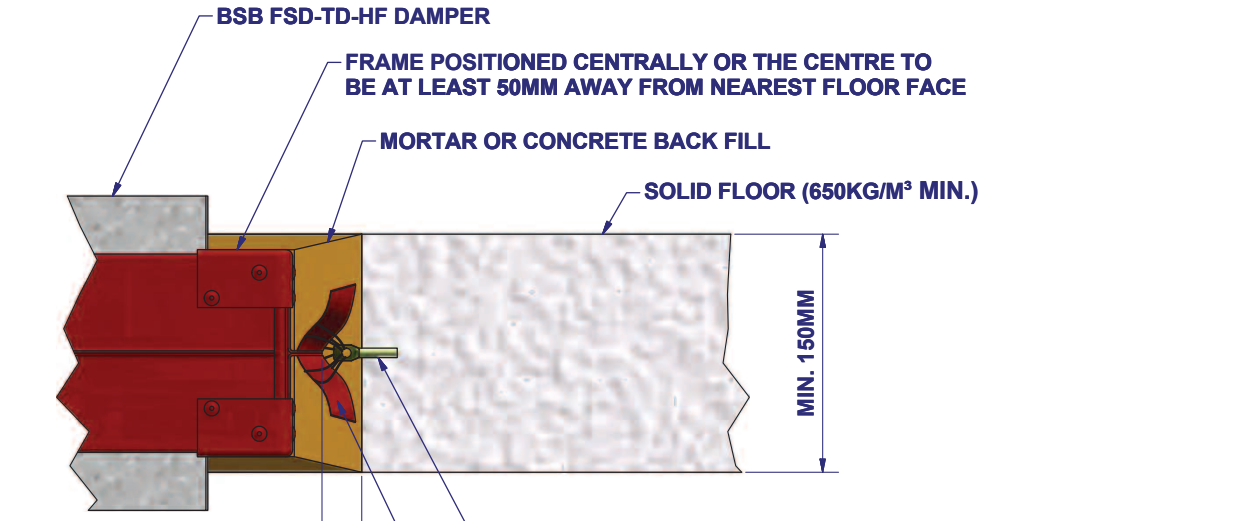
www.bsb-dampers.co.uk

INSTALLATION METHOD

FSD-TD M1-r8

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY. USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS).
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION
* TOLERANCE FOR GAP BETWEEN DAMPER AND EDGE OF OPENING + 50% (RULE X.45 OF EN 15882-2)





VIEW A

4 HOUR TESTED:
EN13501-3 LIMITS ES RATING TO A MAXIMUM OF 120 MINUTES.
HOWEVER, THIS INSTALLATION WAS SUCCESSFULLY TESTED FOR 4 HOURS.

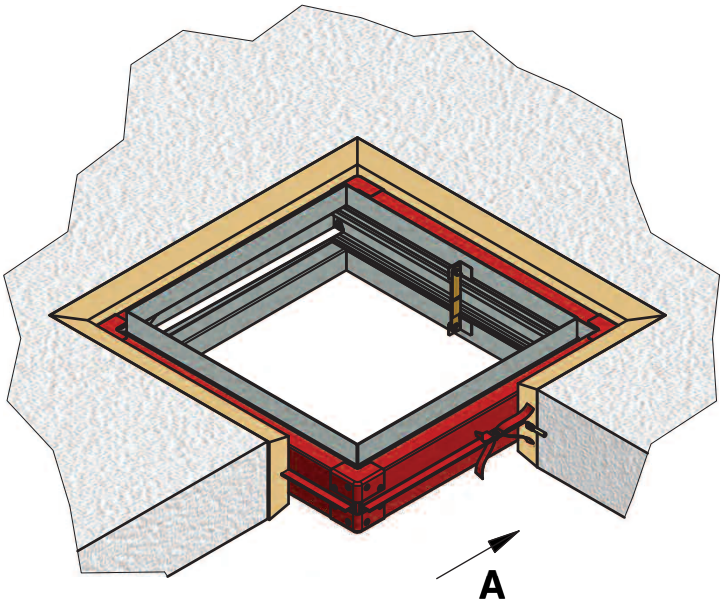
TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS MUST BE APPROVED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

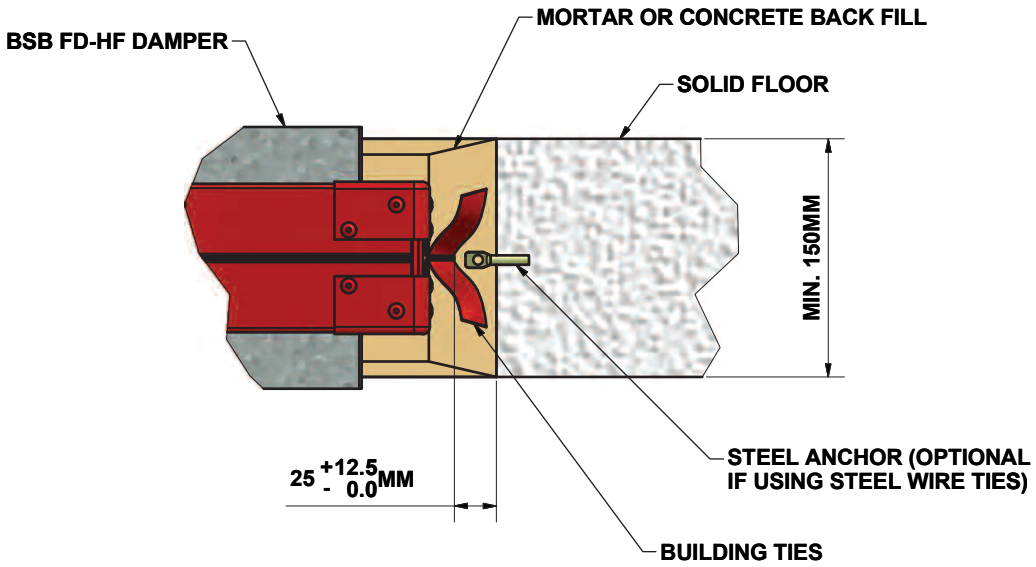
CONCRETE/MASONRY FLOOR	CE **120 MINUTES FIRE RESISTANCE**
BSB FSD-TD-HF HEVAC FRAME Fitted	**E 120 (ho i → o) S**
Single section sizes(mm) 100 x 100 to 1000 x 1000	**TESTED TO EN1366-2 & CLASSIFIED TO EN13501-3**
ECN: 0176 DATE: 24/07/2019	**www.bsb-dampers.co.uk**

INSTALLATION METHOD

FD M1-r4

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION





VIEW A

SECURING OF BUILDING TIES:
EITHER, CUT 150MM LONG X 50MM DEEP POCKETS INTO SURROUNDING CONSTRUCTION, BEND OUT TABS INTO POCKETS AND BACKFILL.
OR, USE 5MM DIA STEEL ANCHORS (MIN) AND 1.5MM DIA STEEL WIRE (MIN) AROUND BENT-OUT TABS & ANCHORS TO FIX TO SURROUNDING CONSTRUCTION, PRIOR TO BACKFILL.

NOTE: THIS INSTALLATION WAS FIRE TESTED FOR 4 HOURS SUCCESSFULLY.

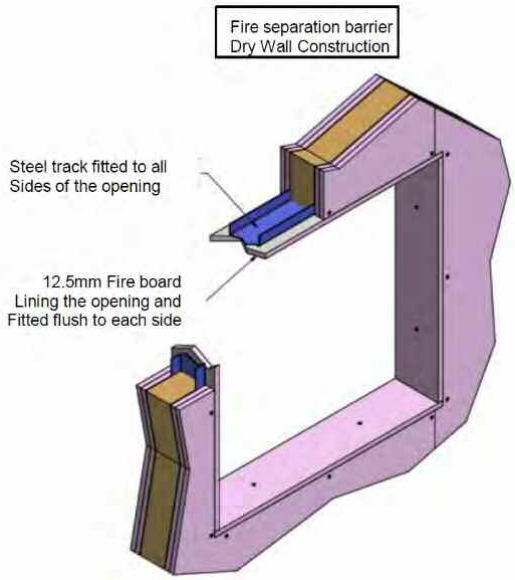
TESTED/ASSESSED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS, MUST BE APPROVED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

CONCRETE/MASONRY FLOOR	**CE 120 MINUTES FIRE RESISTANCE**
BSB FD-HF HEVAC FRAME Fitted	**E 120 (ve ho i → o)**
Single section sizes(mm) 100 x 100 to 1200 x 1000	**BS EN1366-2 TEST REFERENCE: 201814 BRE CERTIFICATE OF CONSTANCY 0832-CPR-P0006**

www.bsb-dampers.co.uk

Cleated (CL) installation method installation into dry walls.

Fire (FD-CL) & Fire Smoke (FSD-CL) dampers with cleats

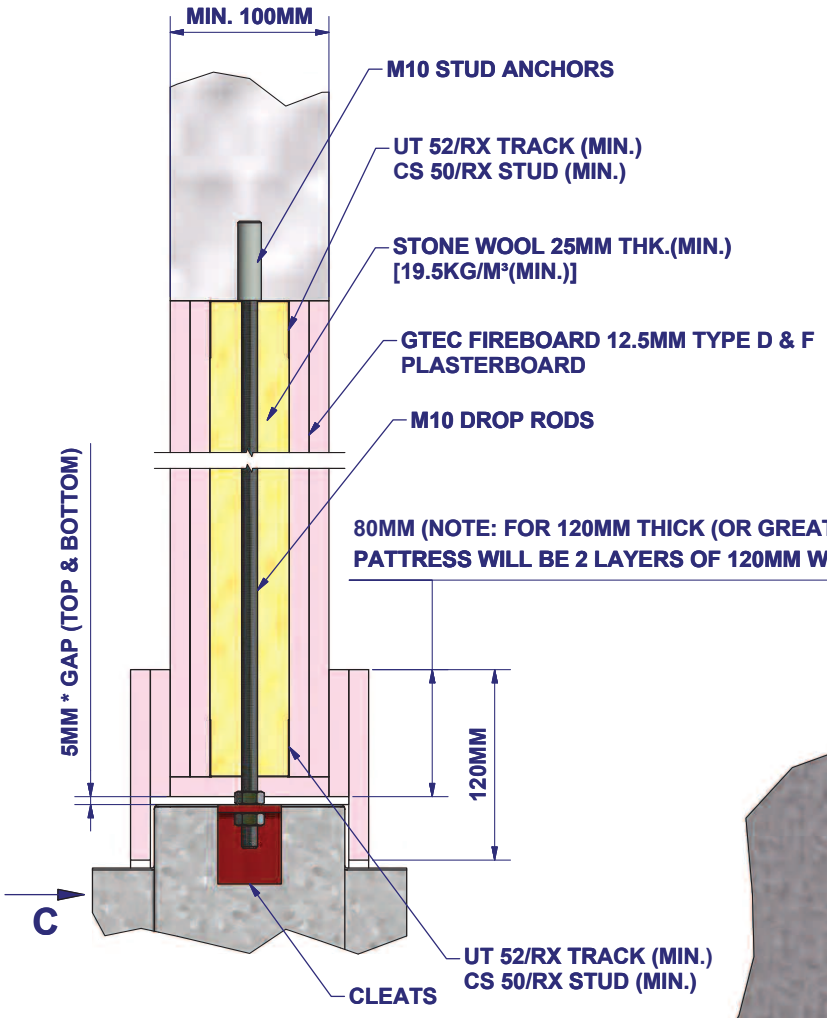


1. Preferably, prepare the opening whilst building the dry wall, or cut out an aperture if drywall already exists.
2. The finished aperture size must be 'lined out'.
3. Ensure drop rods are anchored/fastened into the top supporting structure.
4. Depending on wall thickness it may ease connection of ductwork, if connecting ductwork is attached to damper spigots prior to fabricating the wall.
5. Plasterboard pattress (16-off pieces on the same material as the main wall construction) should be sufficiently wide to butt up to the damper spigots/duct and overlap the outer edge of the track lining the opening by at least 10mm, and long enough to form neat corners.
6. Two layers of pattress are required each side of the wall. Corners should be staggered to form overlaps, between the first and second layers.
7. Apply intumescent sealant to the pattress parts and fit snugly up against the damper spigot.
8. It is not a necessity to fill the void between the pattresses, but it can be done for insulation purposes if desired.
9. It's <u>important</u> to ensure the drywall screws 'pick up' the tracking, lining the aperture to not to compromise fire integrity of the installation.
10. Ductwork to be fitted and connected in accordance with DW 144/145; Break away duct joint connecting a fire damper spigot or sleeve to the attached ductwork which will allow collapse of the ductwork during a fire without affecting the integrity of the fire damper. Breakaway and flexible joints incorporate materials, fixings, clamps etc. that are manufactured from a non – fire resistant material with a low melting point such as aluminium, plastic etc.
11. If connecting to fire resisting ductwork, use the fire tested fixings associated with the fire resisting ductwork system being used.

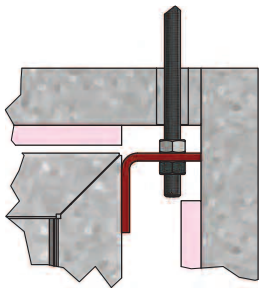
INSTALLATION METHOD

FSD-TD M6-r8

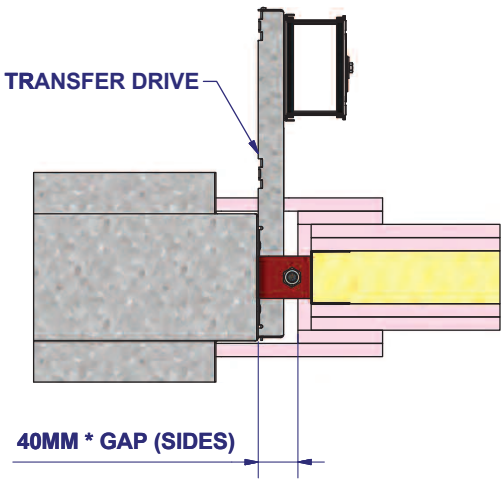
CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY. USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS). PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION
*** TOLERANCE FOR GAP BETWEEN DAMPER AND EDGE OF OPENING + 50% (RULE X.45 OF EN 15882-2)**



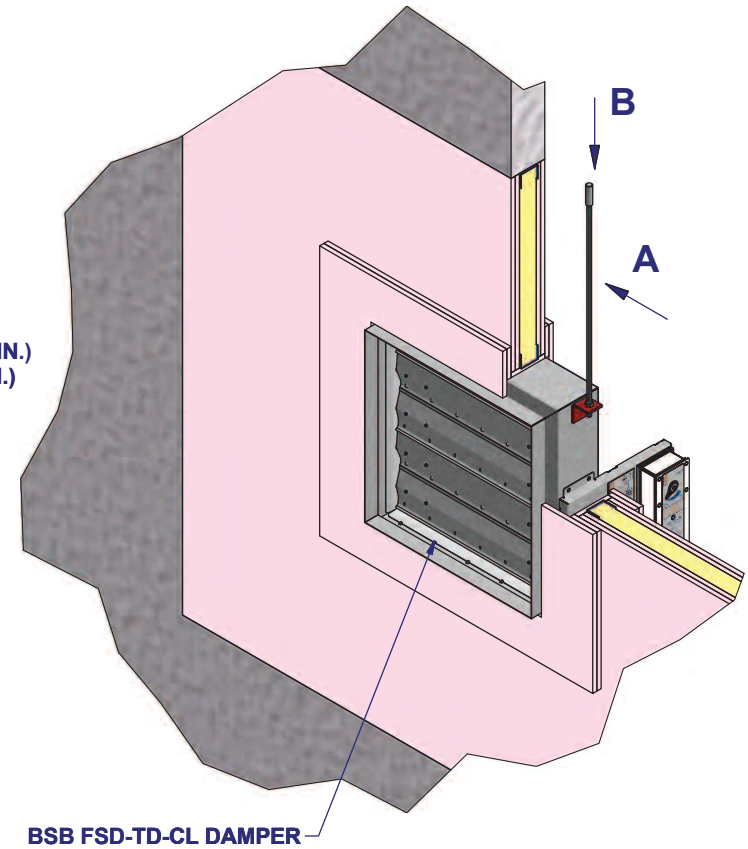
VIEW A



VIEW C



VIEW B



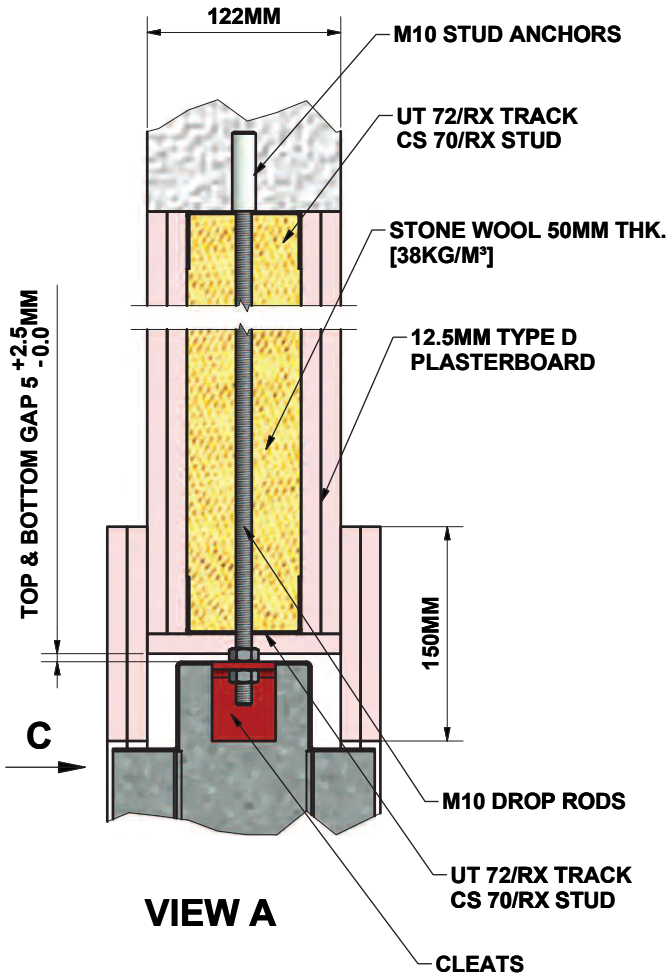
TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS MUST BE APPROVED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND ASSOCIATED FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

DRY WALL	**CE 120 MINUTES FIRE RESISTANCE**
BSB FSD-TD-CL CLEATS Fitted	**E 120 (ve i → o) S**
Single section sizes(mm) 100 x 100 to 1000 x 1000	**TESTED TO EN1366-2 & CLASSIFIED TO EN13501-3**
ECN: 0176 DATE: 24/07/2019	**www.bsb-dampers.co.uk**

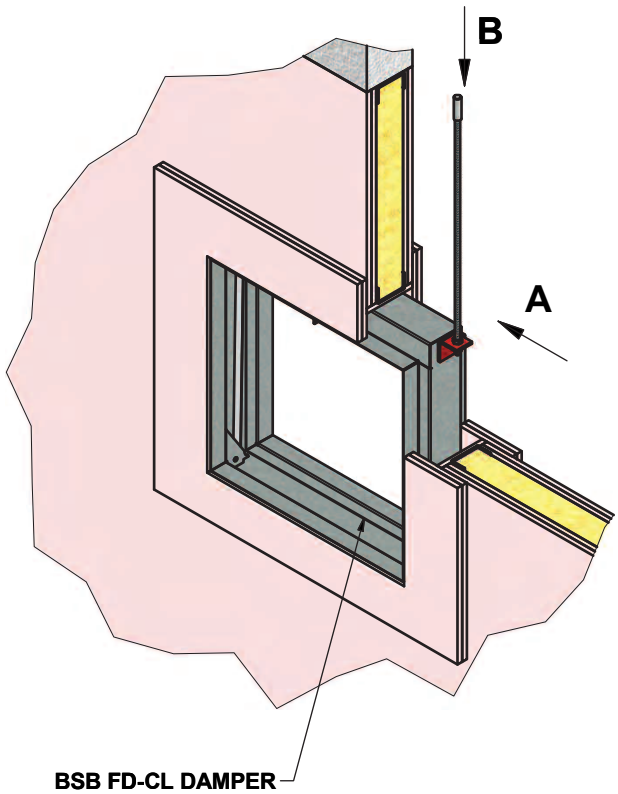
INSTALLATION METHOD

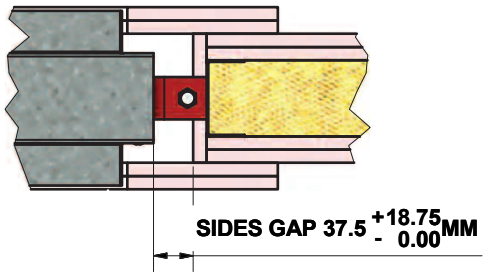
FD M6-r5

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY.
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION

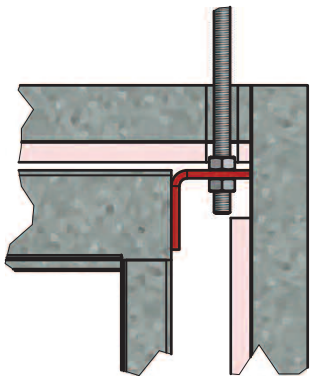


VIEW A





VIEW B



VIEW C

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

TESTED/ASSESSED 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 FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

DRY WALL	**CE 120 MINUTES FIRE RESISTANCE**
BSB FD-CL	**E 120 (ve i → o)**
Single section sizes(mm) **100 x 100 to 1200 x 1000**	**BS EN1366-2 TEST REFERENCE: 285320** **BRE CERTIFICATE OF CONSTANCY 0832-CPR-P0006**

www.bsb-dampers.co.uk

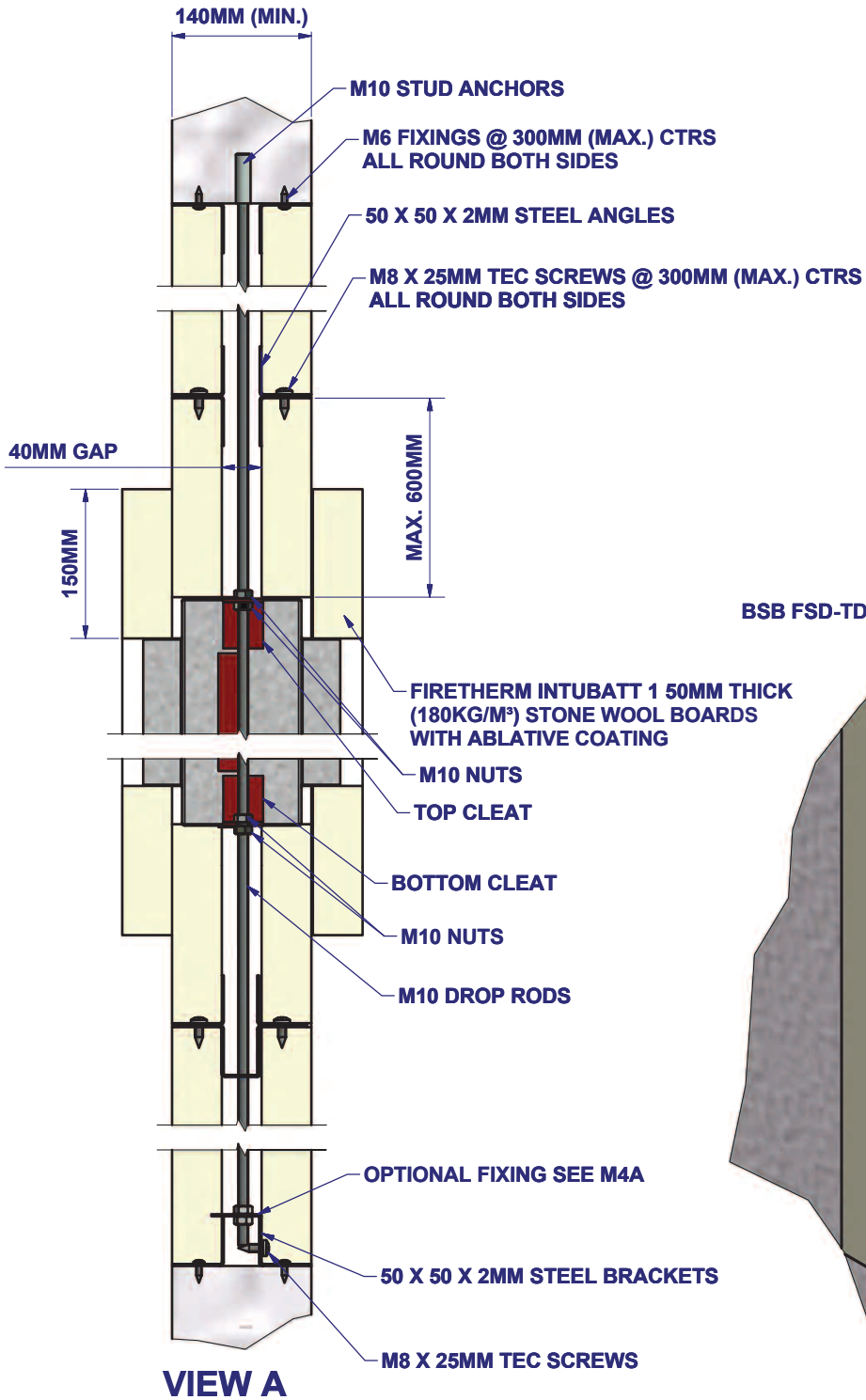
BATT Frame installation method installation into masonry walls
Fire Smoke dampers (FSD-TD-BF) dampers with BATT frame.

1. The opening perimeter needs to be doubly framed with angled steel (50x50x2mm) 40mm apart.
2. Extra steel angle support struts to be added if the gap between the damper and surrounding structure is over 600mm wide.
3. Ensure that M10 drop rods are correctly positioned between the steel angles and that they are securely anchored/fastened in the structure.
4. Fit the damper to the drop rods via the cleat lugs and secure at the required height.
5. Ensure that the cleat lugs at the bottom of the damper are engaged and fastened to the drop rods. (Top and bottom rods do not need to be one piece.) Bottom drop rods are secured in angled steel (50x50x2mm, 50mm long), fastened to the bottom frame via Tek screws or similar fixings.
6. Fix the ablative BATT to the steel angle (50x50x2) from both sides of the structure as per manufacturer's instructions.
7. Fit ductwork to damper spigots prior to fitting 150mm wide strips of fire batt to form a pattress, both sides around the damper.
8. Ductwork to be fitted and connected in accordance with DW 144/145; Break away duct joint connecting a fire damper spigot or sleeve to the attached ductwork which will allow collapse of the ductwork during a fire without disturbing the integrity of the fire damper. Breakaway and flexible joints incorporate materials, fixings, clamps etc. that are manufactured from a non – fire resistant material with a low melting point such as aluminium, plastic etc.
9. If connecting to fire resisting ductwork, use the fire tested fixings associated with the fire resisting ductwork system being used.

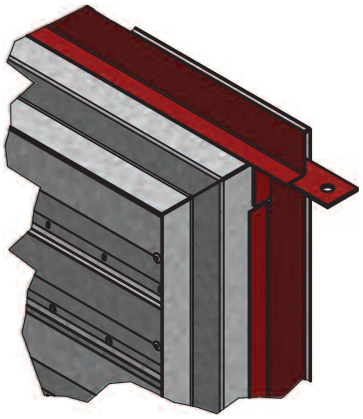
INSTALLATION METHOD

CONNECTING DUCTWORK HAS BEEN OMITTED FOR CLARITY. USE BREAK-AWAY JOINTS (ALUMINIUM RIVETS).
PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION

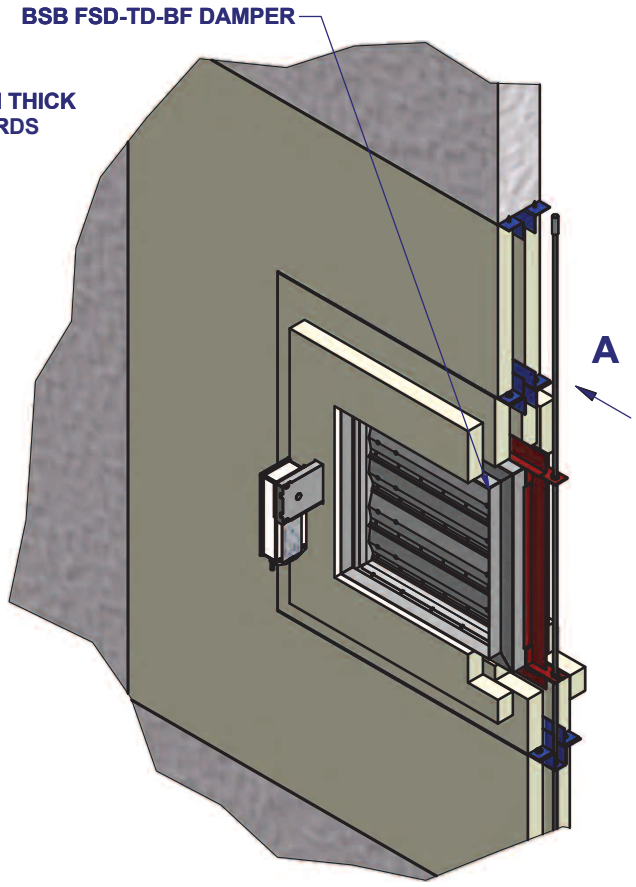
FSD-TD M4B-r8



VIEW A



BSB FSD-TD-BF DAMPER



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 FIRE TESTS / DOCUMENTS CONTAINED HEREIN IN ORDER TO CONSIDER APPROVAL.

MASONRY WALL - INFILL ABOVE 600MM	CE 120 MINUTES FIRE RESISTANCE
BSB FSD-TD-BF BATT FRAME Fitted	E 120 (ve i → o) S
Single section sizes(mm) 100 x 100 to 1000 x 1000	TESTED TO EN1366-2 & CLASSIFIED TO EN13501-3
ECN: 0176 — DATE: 24/07/2019	www.bsb-dampers.co.uk

Additional actuator general information.

Please refer to comprehensive IO&M's on BSB website;
http://bsb-dampers.co/Home/installation_methods/installation.aspx

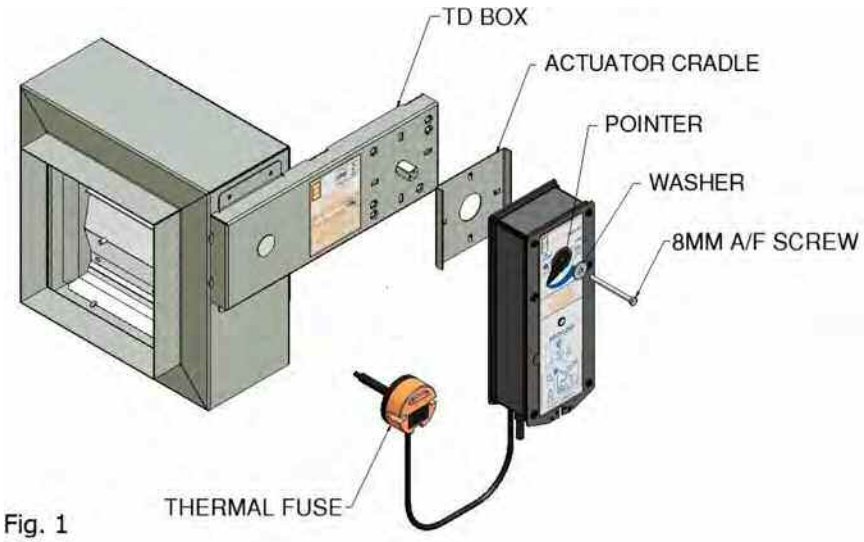


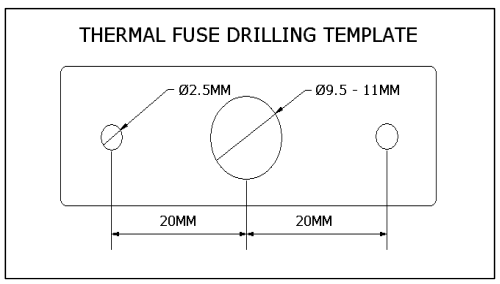
Fig. 1

Instructions for Fitting the FSD-TD actuator (fail-safe closed)

Actuators are normally factory fitted, but optionally may be assembled on site. When fitting the actuator for the first time, check the actuator voltage is correct and the required motor spring-return travel direction is known. Refer to the actuator label for spring/drive directions.
Ensure actuator is in 'spring closed' position by inserting crank handle (provided) as shown on label and 'unlocking' the mechanism. Then, manually wind and lock the actuator with the crank handle, 1.5 turns only to relieve the pre-set tension.
Damper must be in closed position
Fit actuator cradle in desired orientation and then slide actuator into position. Fit indication pointer, large washer and 8mm A/F screw (all provided) and tighten to 5Nm max torque

Instructions for fitting Thermal Fuse (TF)

Fix self-adhesive TF template (supplied) onto the duct and mark the holes with a marker. This should typically be above the actuator. For round ducts, the three drilled holes must be in-line with the duct axis. (For ductless installations, a TF bracket is available from BSB and can be fixed to the damper casing).
Drill holes in duct (sizes/positions are detailed on template label)
Remove burrs. Fit the TF to the duct with the two screws provided using Philips №2 screwdriver / bit.



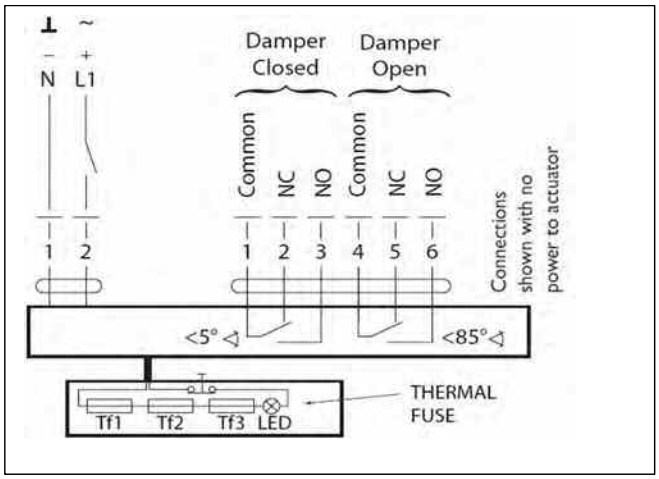
Actuators.

PM24-TF, PMC24-TF, PM230-TF & PMC230-TF Electrical connections

Spring return – fail safe close actuators
Wiring diagram shows switch positions based on no power to actuator
Damper normally open, spring closes on removal of power, or thermal fuse activates due to temperature in excess of 72ºC.

Only 3 core cables are required on site for full indication.

24V AC/DC: Connect via safety isolation transformer.
230V A/C: For disconnection from the power supply, a separate device must be incorporated in the fixed wiring (at least 3mm contact gap in all poles).



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.
Unused cores should be isolated.

Connecting cables need to be protected from sharp edges.

Commissioning

The damper cannot be commissioned unless it is fully installed and connected to mains power in compliance with regulations.
Dampers controlled by programmable panels need to be commissioned by a commissioning engineer.
Electro-mechanically operated dampers can be tested/commissioned by a locally appointed, competent person.
The installation needs to be inspected thoroughly, before the damper actuation is tested.

Installation Inspection and hand over check list;

Having established that all parties must be made aware of the intended final inspection and certification regime, the final inspection must be checked for compliance by the nominated CDM (construction Design & Management Regulations) coordinator or the system designer. The completed installation forms part of the building's life support strategy and nothing should be left to chance with every aspect of the installation being checked against the system designers project specific certified drawings, and damper manufacturers tested, and CE marked installation methods. All final inspections must be documented in a register that must be retained by both the system designer and the installation contractor.

DAMPER REFERENCE NO.:	DAMPER LOCATION:	
DAMPER SIZE: WIDTH HEIGHT		✓
WALL/FLOOR APERTURE SIZE ('OPENING SIZE') WIDTH HEIGHT		✓
DAMPER INSTALLED BY: ..... (Print name) Signature:	Company:	Date:
ACTUATOR ELECTRICALLY CONNECTED BY: ..... (Print name) Signature:	Company:	Date:
THERMAL FUSE FITTED BY: ..... (Print name) Signature:	Company:	Date:
FINAL INSPECTION BY: ..... (Print name) Signature:	Company:	Date:

ASFP grey book - Fire & Fire Smoke resisting dampers;

Fire/smoke resisting dampers are used to prevent fire and smoke from passing from one compartment to another through Heating, Ventilation and Air Conditioning (HVAC) systems. It is important that such dampers are adequately fire tested and are installed in accordance with the damper manufacturer's instruction which must consider site conditions and the variable order of different trades from contract to contract. The 'Grey Book' document provides practical advice so that damper manufacturers, system designers and installers can consider the appropriate issues and at the design stage, to make the necessary decisions to ensure that dampers will function as intended by current regulations.

clear reference tables.

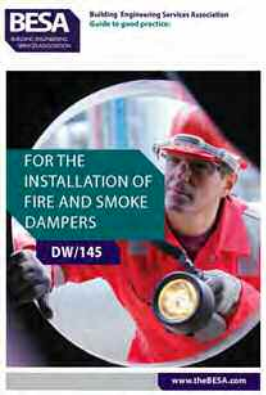
CDM regulations;

The Construction (Design and Management) Regulations 2015 (CDM 2015) came into force on 6 April 2015, replacing CDM 2007. The publication provides guidance on the legal requirements for CDM 2015 and is available to help anyone with duties under the Regulations. It describes:

- the law that applies to the whole construction process on all construction projects, from concept to completion
- what each duty holder must or should do to comply with the law to ensure projects are carried out in a way that secures health and safety.

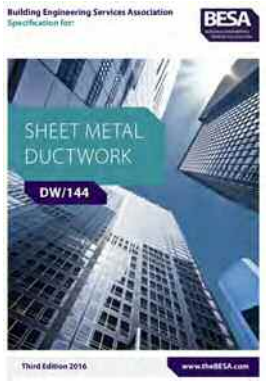
DW145 – Guide to good practice for the installation of fire and smoke dampers

Highlighting the basic principles in the design and installation process, this guide also identifies the responsibilities of designers, builders, manufacturers, local authorities, mechanical services, ductwork and other specialist contractors. It identifies, clearly and concisely, the matters that must be addressed when fire and/or smoke dampers are to be installed within a building's ventilation ductwork system.



DW144 – Specification for sheet metal ductwork

DW/144 is the Standard Specification for ductwork manufacture and installation and is aligned to all current BS, BS EN ISO and other standards and regulations. It defines specifications for sheet metal ductwork for low, medium and high pressure/velocity air systems and covers ductwork application, materials, classification and air leakage.



AIRTECHNIC
www.airtechnic.gr
Air-Conditioning & Ventilation Components & Systems

MAICO

The MAICO brands

Using several strong brands, the Maico Group can serve different customers by meeting their particular needs. Each brand has its own identity and may stand on its own; but is linked to an active network in which the brand Maico serves as an umbrella brand. In this way, customers know that they have access to a wide variety of products, all coming from the same group.

AEREX
HALLSTECHNIKSYSTEME

airmaster

Brooke Air

BSB

DYNAIR
INDUSTRIAL VENTILATION

elicent
advanced ventilation

MAICO

BSB Engineering Services Limited

Unit 56, Trinity Trade Centre, Mill Way, Sittingbourne, Kent ME10 2PD, 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 • www.maico-group.com

ADCAS
THE VOICE OF THE DUCTWORK INDUSTRY
Member of ADCAS Association

HEVAC
Member of HEVAC Association

Assessed to ISO 9001:2015
Cert. No. 1464

INVESTORS IN PEOPLE | Accredited Until 2020

MADE IN BRITAIN
SOLD TO THE WORLD