FSD-TD Series

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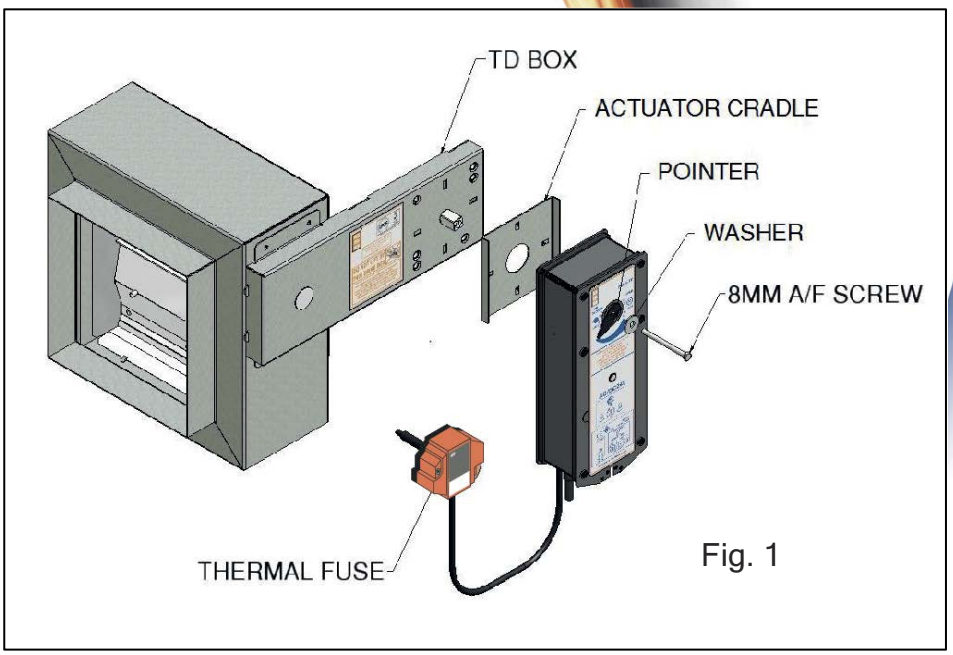

Fig. 1

Installation, Operation and Maintenance Instructions

These instructions must be left with the damper

MANUFACTURERS OF AIR, FIRE AND SMOKE PRODUCTS

MADE IN BRITAIN

FSD-TD Fire and Smoke Damper

1. Health and Safety

1.1 Only competent personnel may carry out the work outlined within this document.
1.2 The wearing of appropriate Personal Protective Equipment (gloves, footwear, safety glasses etc.) is required for safe working and as the site dictates.
1.3 Dampers may be heavy. Large dampers will require suitable lifting and supporting equipment, with due consideration given for manual handling.
1.4 Dampers may close without warning. Do not introduce limbs/fingers between blades whilst the actuator is fitted.
1.5 Where dampers are only accessible with the need for additional elevation, any equipment used should be done so with due consideration to the Work at Height regulations 2005 and current site rules.
1.6 All work should be carried out in accordance with HSE guidelines and regulations and any specific local site rules.

2. Important

2.1 These instructions should be read in its entirety before commencing work. The installer must be Competent with the manufacturer's fire barrier separating element construction.
2.2 Actuators are IP54 rated - Check actuator connection box is suitably located.
2.3 Do not cut/shorten the Thermal Fuse lead (-TF Actuators). This will render the unit inoperable and invalidate the warranty.
2.4 Where an actuator is supplied with a Thermal Fuse (TF), the TF MUST be fitted in accordance with Section 15. Failure to meet this requirement will invalidate the warranty and the damper will fail to respond as designed/tested.
2.5 All Fire / Smoke Damper installations must be installed to a BSB tested method and carried out to the satisfaction of the appropriate Building Control officer and/or specifying authority.

2. Important continued

2.6 Refer to actuator label for wiring of actuator and page 12.
2.7 Refer to section 19 for testing. Complete Installation Check List (at end of this document) and retain for future reference.
2.8 For existing dry walls – When cutting the opening for damper, and (partial) removal of stud is unavoidable, ensure the structure is sufficiently supported to conform to the design specification. See Page 2.
2.9 Dry wall openings must be lined. Please see page 2.
2.10 Ensure that appropriate 'fire-rated' plasterboard is used throughout the construction of drywall partitions that need to act as fire separation barriers.
2.11 Ductwork to be fitted and connected to the damper spigot in accordance with DW 144/145. Aluminum rivets should be used (to act as breakaway joint).
2.12 Where more than one duct penetrates a wall or floor, adjacent fire damper assemblies should be separated by a structural element with a minimum width of 200mm (to comply with BS EN1366-2 13.6).
2.13 Minimum distance from adjacent dampers and structures.
Fire dampers must be separated by a structural 200mm minimum distance between cases and have a minimum 75mm between the fire damper case and a construction element (wall/floor). Other services should not share the same opening as the installed damper.

3. Equipment Required

3.1 Equipment and tools will vary dependent upon the fire barrier construction that the damper is being installed within. Standard equipment normally used for the building of the particular barrier should suffice.
3.2 Access-equipment as necessary.
3.3 Temporary support equipment (to retain damper in position).
3.4 Cordless drill with 2,5mm and 10mm drill bits for fitting TF.
3.5 4mm (drywall) and 8mm (concrete/masonry) drill bits as required, for the AF fixing frame fixing holes.
3.6 Phillips №2 screwdriver to suit thermal fuse screws.
3.7 Screwdriver to suit junction box terminals.
3.8 8mm A/F spanner for motor fixing bolt.
3.9 12mm A/F Spanner for TD drive shaft.

4. Preparation for Installation

4.1 For each damper installation type, refer to the relevant installation detail below.
4.2 Remove packaging materials with the exception of the actuator packaging - leaving this in place will protect the actuator wiring / thermal fuse whilst the damper is being installed.
4.3 Before installation, the damper should be inspected to ensure that it has not been damaged and is in good condition.
4.4 Check damper (label) reference and size to site specification.
4.5 Determine required position of damper. Check sufficient space exists to fit the product. Ensure any services (e.g. electrical/plumbing) within the structure or running close to the structure will not be affected.
4.6 Consideration should be given to the depth of the wall, relative to damper case length, ensuring that the case is not exposed once fitted.
4.7 Drill the relevant peripheral EASY FIX ® pilot holes for the wall type.

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5. Dry Wall Preparation - Fig.2

5.1 Preferably, prepare the opening whilst building the fire separation barrier, or cut opening if barrier already exists. (see 2.8)

5.2 **(CL) Cleated and Frameless Installations**

5.2.1 The finished aperture size to be nominal duct width +160mm and nominal duct height +100mm.

5.3 **(AF) EASY FIX ® Angle Frame Installations**

5.3.1 The finished aperture sizeshould have an allowance of 10mm between the damper case and the finished aperture size top and bottom. An allowance of 10mm on the non actuator side and 35mm on the actuator side between the damper case and finished aperture size to be nominal duct width +125mm and nominal duct height +100mm.

5.3.2 Ensure that the metal track is fitted between the plasterboard as shown in Fig. 2 and that the aperture is lined out with 12.5mm minimum fire board providing the finished aperture size.

5.3.3 Mark out the position and size required on the wall, taking into account the fire board thickness used for lining out.

5.4 Using appropriate means (e.g. jig saw), cut the hole in the wall, removing each layer and any infill that is present.

5.5 Cut 2 pieces of steel track equal opening width.

5.6 Fit track to top and bottom of opening, screwing in position from both sides of wall at each end of track with drywall screws and at maximum 300mm centers.

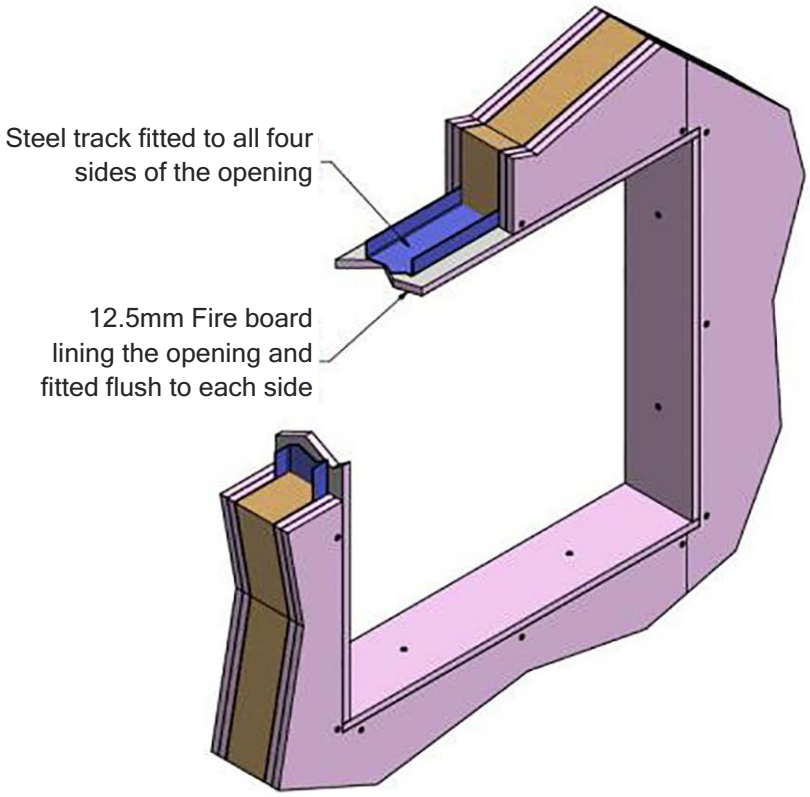
5.7 Cut 2 more pieces of track, equal to the opening height.

5.8 Fit track to sides of opening, screwing in position in a similar manner as above.

5.9 Cut 4 ‘batons’ of board to suit opening. Screw each baton with 25mm drywall screws @max 300mm pitch to the track that is lining the opening. Ensure batons are flush with the surfaces of the wall.

Fig. 2

Fire separation barrier
Dry Wall Construction



6. Dry Wall – (AF) EASY FIX® Angle Frame Installation – Fig. 3

6.1 Drill out the **inner** row of 2mm diameter angle frame pilot holes to 4mm diameter.

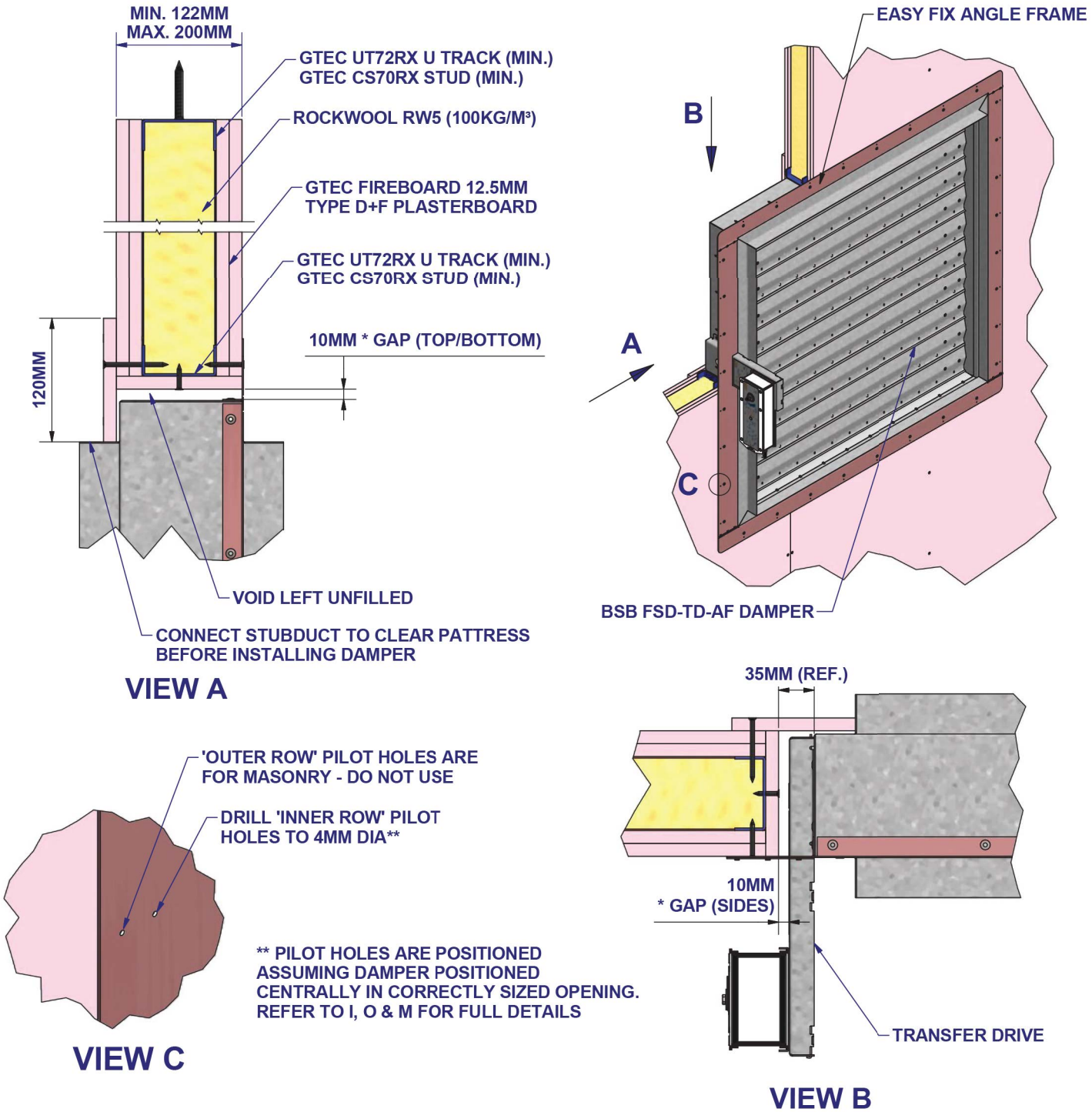
6.2 Position the damper centrally in wall opening (width/height), with blades running horizontally. Using the inner row of pilot holes, screw the EASY FIX® angle frame to the wall using drywall screws @ 150mm max pitch.

6.3 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.

6.4 **Important:** Ensure the screws 'pick up' the track lining the hole, so that the proper fire integrity of the installation will not be compromised.

6.5 On the reverse side, fit a single layer pattress around the damper spigot using drywall screws of appropriate length to screw into the steel tracking around the opening.

Fig. 3



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7. Masonry Wall – (AF) EASY FIX® Angle Frame Installation – Fig. 4

7.1 Preferably, prepare the opening whilst building the wall, or cut an opening if the wall already exists.

7.2 The damper is not load-bearing and additional support for the top of the wall opening is achieved by means of a lintel or other approved method.

7.2.1 The finished aperture size to be nominal duct width +125mm and nominal duct height +100mm.

7.3 Mark out the position and size of the required cut size on the wall.

7.4 Make the hole in the wall. Oversizing the hole will require BCO approval to install the damper.

7.5 Prepare a pair of spacing blocks, (approx. 10mm high x 25mm square) from any available material (such as drywall boards). Position spacing blocks within the opening at extremities of damper and stand the damper (with blades running horizontally) on blocks so that damper is central in opening.

7.6 Drill out the outer row of 2mm diameter angle frame pilot holes to the appropriate size.

7.7 Fix the angle frame to the wall using suitable steel sleeved wall anchors in the drilled holes.

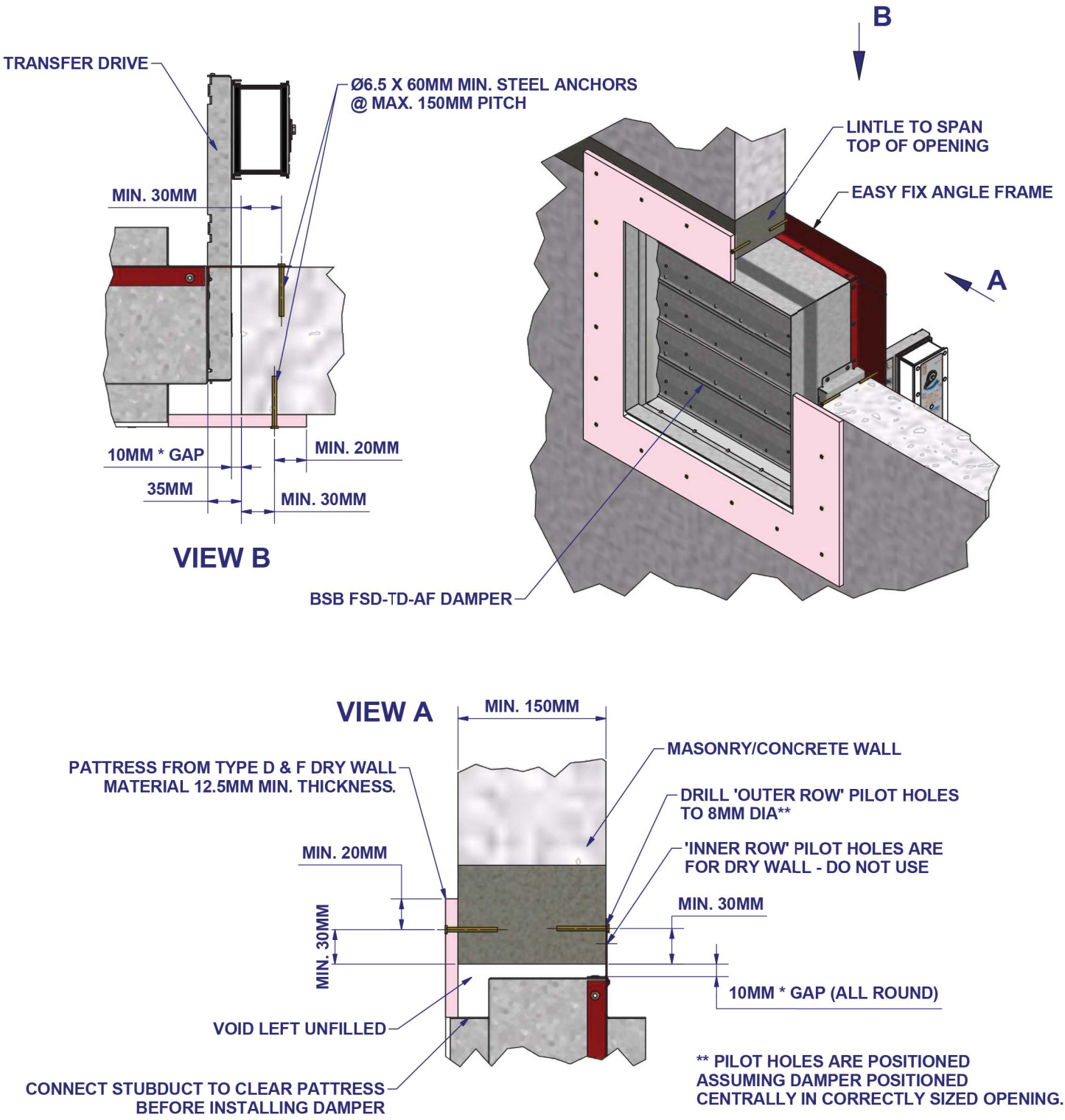
7.8 It is not a necessity to fill the void behind the angle frame.

7.9 **Important:** Ensure that the fixing anchors are located 20mm min from the opening's edges, so that the proper fire integrity of the installation will not be compromised. Using the EASY FIX® flange system and following the instructions for making the aperture will ensure a correct fit is achieved.

7.10 On the reverse side, fit a single pattress layer.

7. Masonry Wall – (AF) EASY FIX® Angle Frame Installation – Fig. 4 continued

Fig. 4



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8. Concrete Floor – (AF) EASY FIX® Angle Frame Installation – Fig. 5

8.1 Preferably, the opening would have already been formed. If not, cut an opening in the floor ensuring that the correct finished size is achieved.

8.2 Mark out the position and size of the required cut size on the floor.

8.3 Make the hole in the floor.

8.4 Check that the prepared finished opening before placing the damper in the floor

8.4.1 The finished aperture size to be nominal duct width +125mm and nominal duct height +100mm.

8.5 When placing the damper into the hole, ensure that it sits central in both width and depth.

8.6 With damper in place, drill the 2mm diameter outer pilot holes (View A) out and into the concrete floor to the appropriate size.

8.7 Place damper in prepared hole and secure in place.

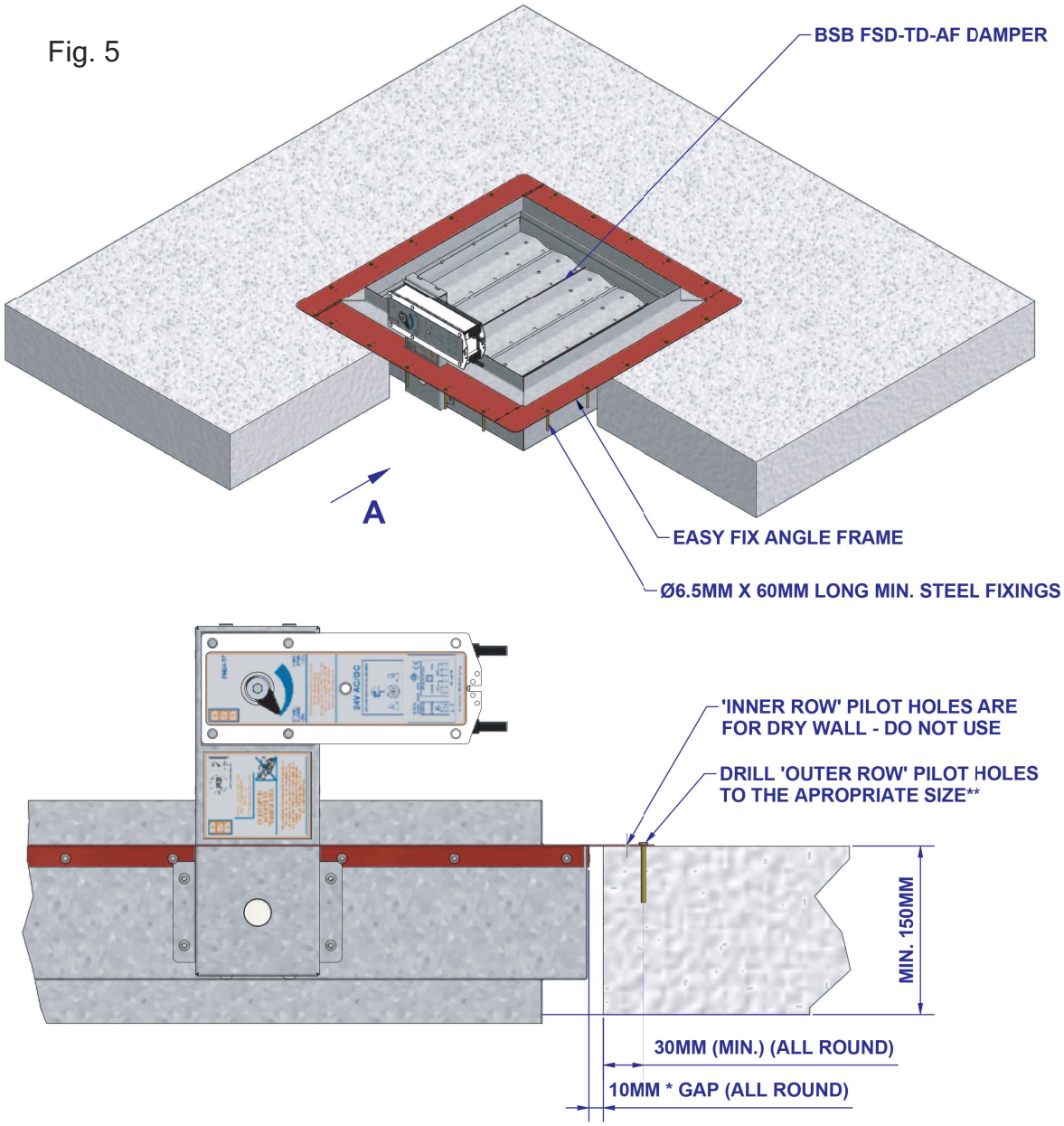
8.8 Fix the angle frame to the floor using suitable steel sleeved anchors min Ø6.5mm.

8.9 It is not a necessity to fill the void behind the angle frame.

8.10 **Important:** Ensure that the fixing anchors are located 20mm min from the opening's edges, so that the proper fire integrity of the installation will not be compromised.

Using the EASY FIX® flange system and following the instructions for making the aperture will ensure a correct fit is achieved.Ø

Fig. 5



VIEW A

** PILOT HOLES ARE POSITIONED ASSUMING DAMPER POSITIONED CENTRALLY IN CORRECTLY SIZED OPENING.

9. (HF) HEVAC Frame Installation (wall and floor) Procedure - Figs. 6-8

9.1 Preferably, prepare opening whilst building the wall/floor (or cut an opening if the wall/floor already exists).

9.2 Finished sizes should be 50mm min to 75mm max > HEVAC frame assembly extremities.

9.3 The damper is not load-bearing and additional support for the top of the wall opening is achieved by means of a lintel or other approved method.

9.4 Fit looped steel wall anchors (6mm Ø min) all round the inside of the opening in corresponding positions to the HEVAC frame builder's ties.

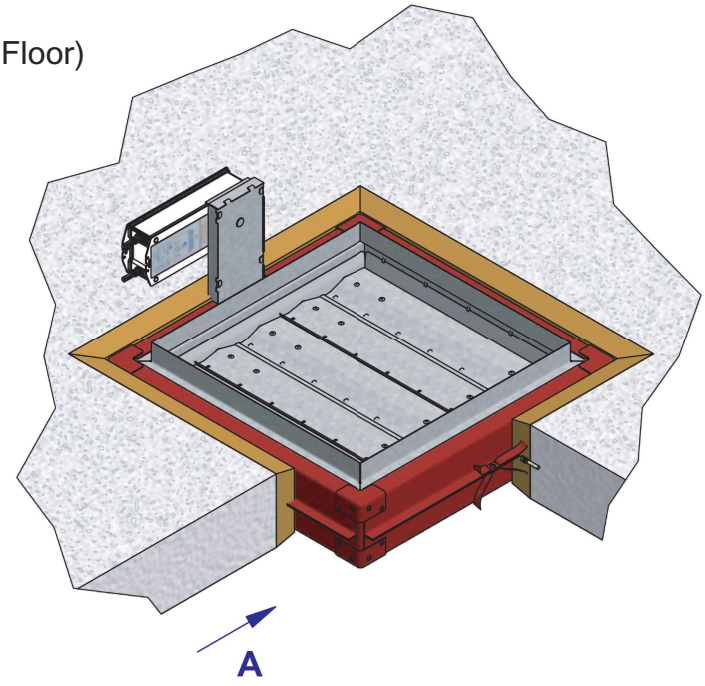
9.5 Bend the builder's ties out. (See Fig. 6)

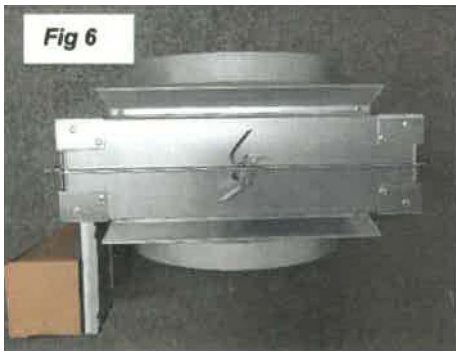
9.6 (Vertical installation only) Prepare a pair of spacing blocks, (approx. 25mm cubed) from any available material (such as drywall boards). Position spacing blocks within the opening at extremities of damper and stand the damper on blocks so that damper is central in opening.

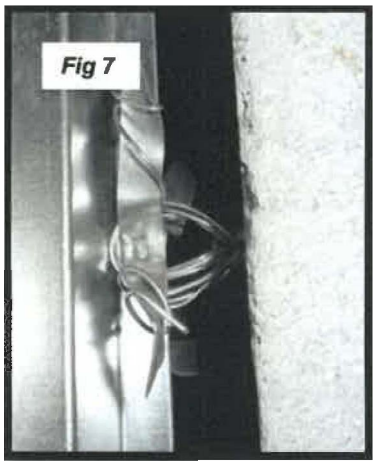
9.7 While supporting the damper centrally in the cavity, secure the builders ties to the looped wall anchors with 1.5mm galvanized steel wire. (The loops must be tight and a minimum of 3 loops is recommended). (See Fig. 7)

9.8 Fill the surrounding cavity with 4:1 mortar and finish to desired standard.

Fig. 8 (Floor)

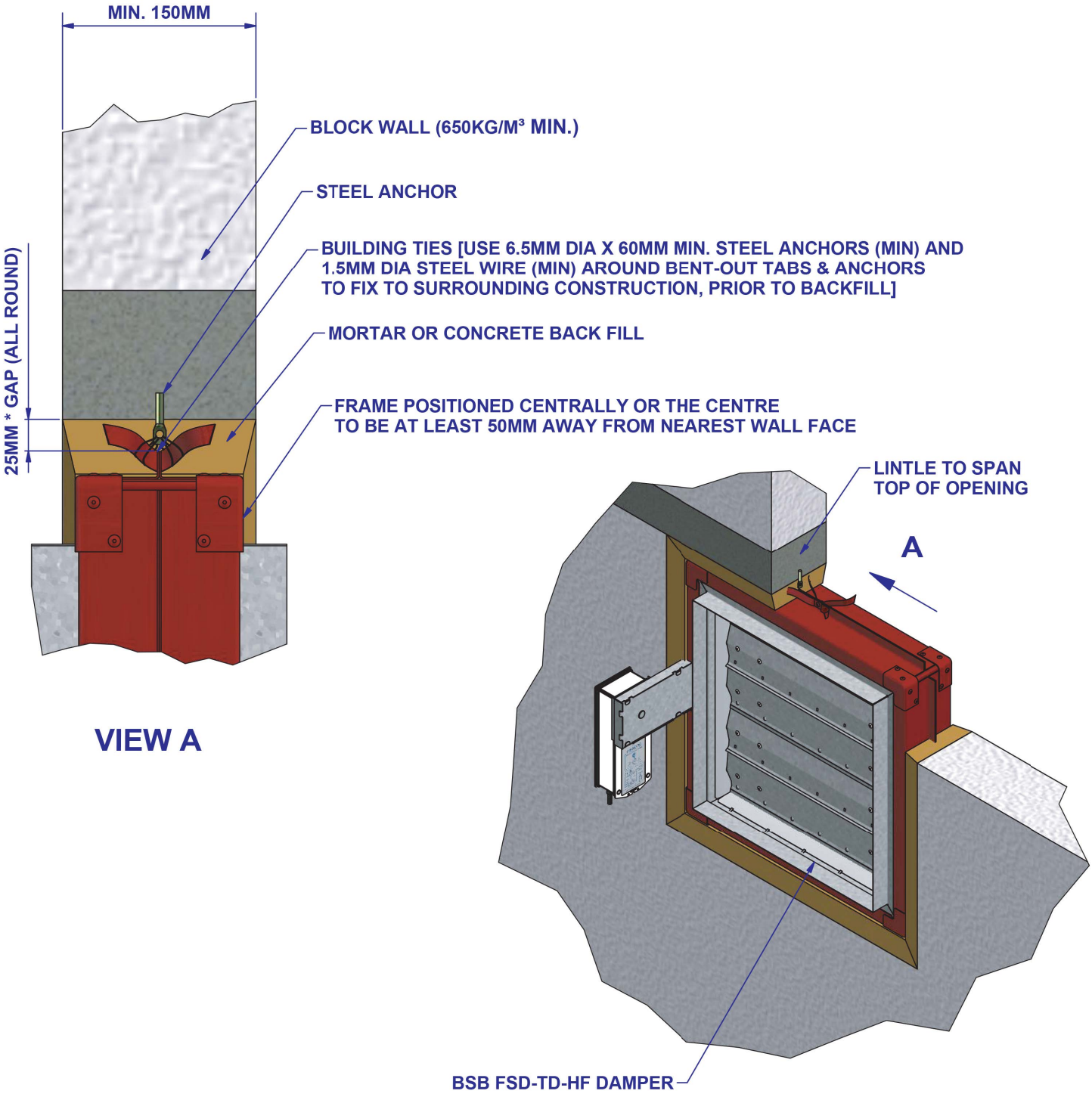






9. (HF) HEVAC Frame Installation (wall and floor) Procedure - Figs. 6-8 continued

Fig. 8 (Wall)



10. Rockwool Ablative Batt Penetration Seal - Fig. 9

10.1 Prepare the Dry Line Wall section as shown. Two layers of fire board either side of the metal track forming the aperture and line with a single layer of fire board.

10.2 Using threaded drop rods of the correct length affixed to the underside of the slab/soffit, pass the other end through the damper cleat hole to provide support prior to fitting the fire batt into position. See Fig.12 for general connection detail.

10.3 Ensure the damper is level and will align with any connecting ductwork.

10.4 Ensure that all connecting edges including the perimeter of the fire batt and between the AF return and fire batt have Fire Pro glue applied as directed by the manufacturers directions.

10.5 The Fire Batt is better to be slightly over sized that allows for a firm push into place, than fitted loosely.

10.6 Once the Fire Batt has been fitted, apply a 10-15mm bead of Rockwool FirePro acoustic intumescent sealant around the perimeter on both sides. please see Fig. X.

10.7 It is preferable to allow the intumescent sealant to cure before connecting any ductwork.

10.8 Ensure that the Thermal Fuse that is wired into the fitted actuator remains protected until fitted into the ductwork.

Fig. 9

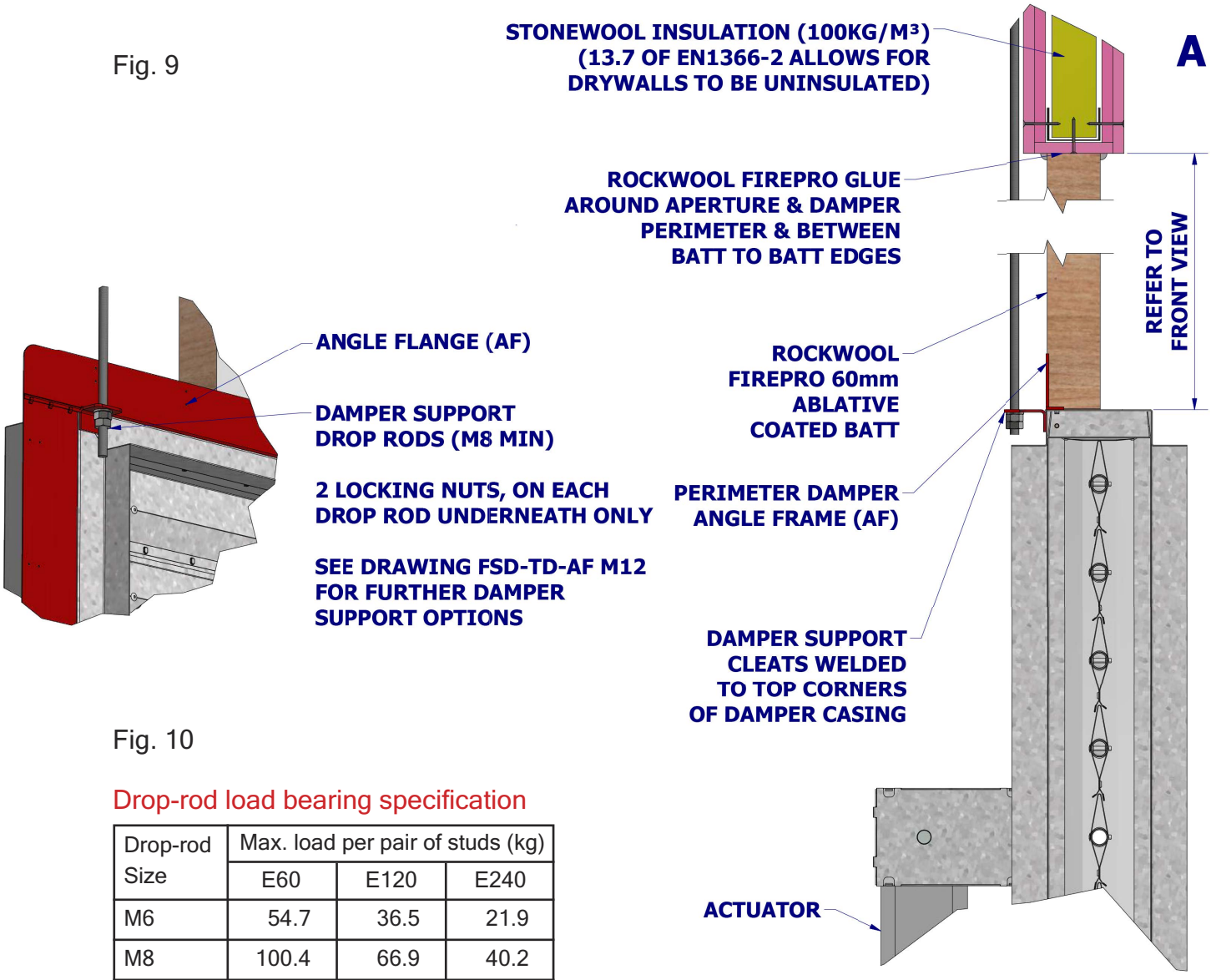


Fig. 10

Drop-rod load bearing specification

Drop-rod Size	Max. load per pair of studs (kg)		
	E60	E120	E240
M6	54.7	36.5	21.9
M8	100.4	66.9	40.2
M10	159.8	106.6	63.9
M12	233.1	155.4	93.2

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11. {SA) Sleeve and Angle Installation Procedure - Fig. 11

11.1 This installation method is suitable for all wall structures (the installation shown here is in a dry wall for information purposes).

11.2 If need be, to ease connection to ductwork, connect stub duct(s) to damper spigot(s) before positioning damper in wall opening.

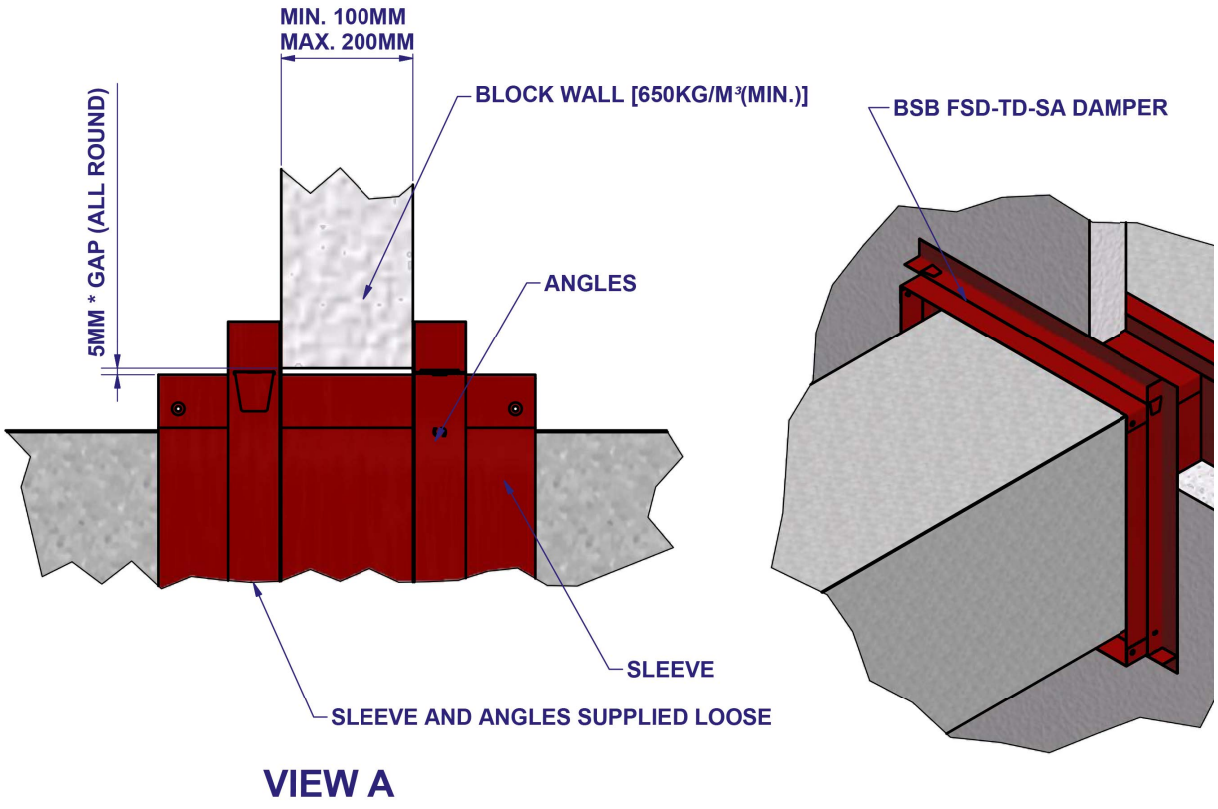
11.3 Fit sleeve around damper using 16off steel pop rivets (provided).

11.4 Fit sleeve around damper using 16off steel pop rivets (provided).

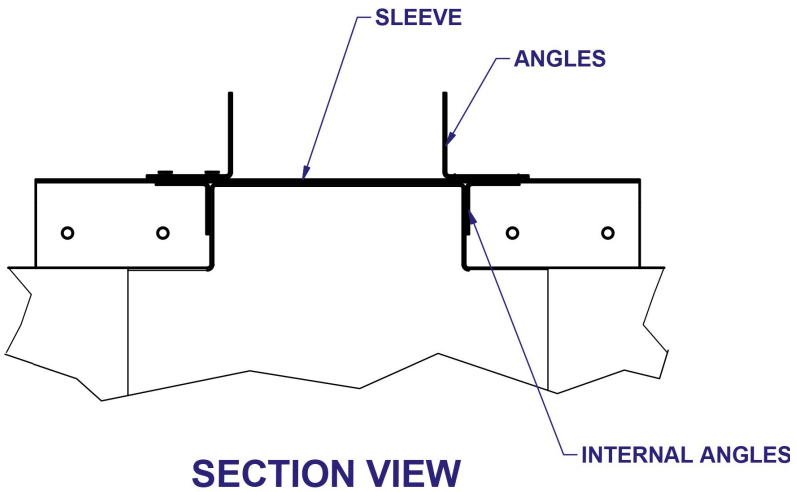
11.5 Drywalls must be 'lined' so cut hole size is Sleeve OAL + 2 x wall board thickness+10mm (it is acceptable to have zero gap at bottom and 20mm gap at top). Also refer to 2.8

11.6 Block Work Walls, cut size = finished size.

Fig. 11



VIEW A



SECTION VIEW
(DAMPER AND FRAME ONLY)

11. {SA) Sleeve and Angle Installation Procedure - Fig. 11 continued

11.7 By using appropriate means, make and finish hole in wall. Ensure both surfaces of wall around perimeter of opening are flat and smooth to allow angle to be fitted without gaps in excess of 2mm.

11.8 Position and temporarily support damper centrally in wall opening.

11.9 There are 8 off 'angle' pieces provided, 4off for the 'sides' and 4 for top/bottom of the sleeve. The 'sides' are identified with an 'S' close lo 1st tabbed end of each piece. Be especially careful when the lengths of T/B nearly are same as the sides.

11.10 Fit to one side of wall, 1st angle assembly. Fit this to sleeve by positioning around sleeve, fitting tabs through slots, and bending tabs lightly with hammer to begin with, and when all are positioned correctly, and 1st angle assembly is flush up to wall, knock all four down fully to secure.

11.11 Rivet 1st angle assembly to sleeve with 3mm min steel pop rivets at max 150mm centres all round, tight and flush against surface of wall. Check gaps (if any) between angle and wall are less than 2mm.

11.12 Fit second angle in similar manner to 1st making sure both angles are tight up against wall surfaces and all gaps (if any) are less than 2mm.

11.13 Do not fix angles to wall, as damper should be free to move within opening.

11.14 Connect ductwork as required.

12. Dry wall - (CL) Cleated Installation Procedure - Fig. 12

12.1 Refer to section 5 for wall preparation instructions.

12.2 This installation method is to be followed when extra support is required due to the damper size (weight) or other factors.

12.3 Ensure that the supporting drop rods are suitably sized for the damper. (Refer Fig. 9)

12.4 Ensure that the drop rods are anchored/fastened in the top-supporting structure.

12.5 Depending on wall thickness, it may ease connection of ductwork, if connecting ductwork is attached to damper prior to fabricating the wall.

12.6 Plasterboard pattress (16 off piece of the same material as main wall construction), should be sufficiently wide to butt up to damper spigots/duct and overlap the outer edge of the track lining the opening by at least 10mm. They need to be long enough to form neat comers.

12.7 Two layers of pattress are required each side of wall and the corners should 'overlap' between the first and second layers.

12.8 Fit second pattress to other side of wall in similar manner.

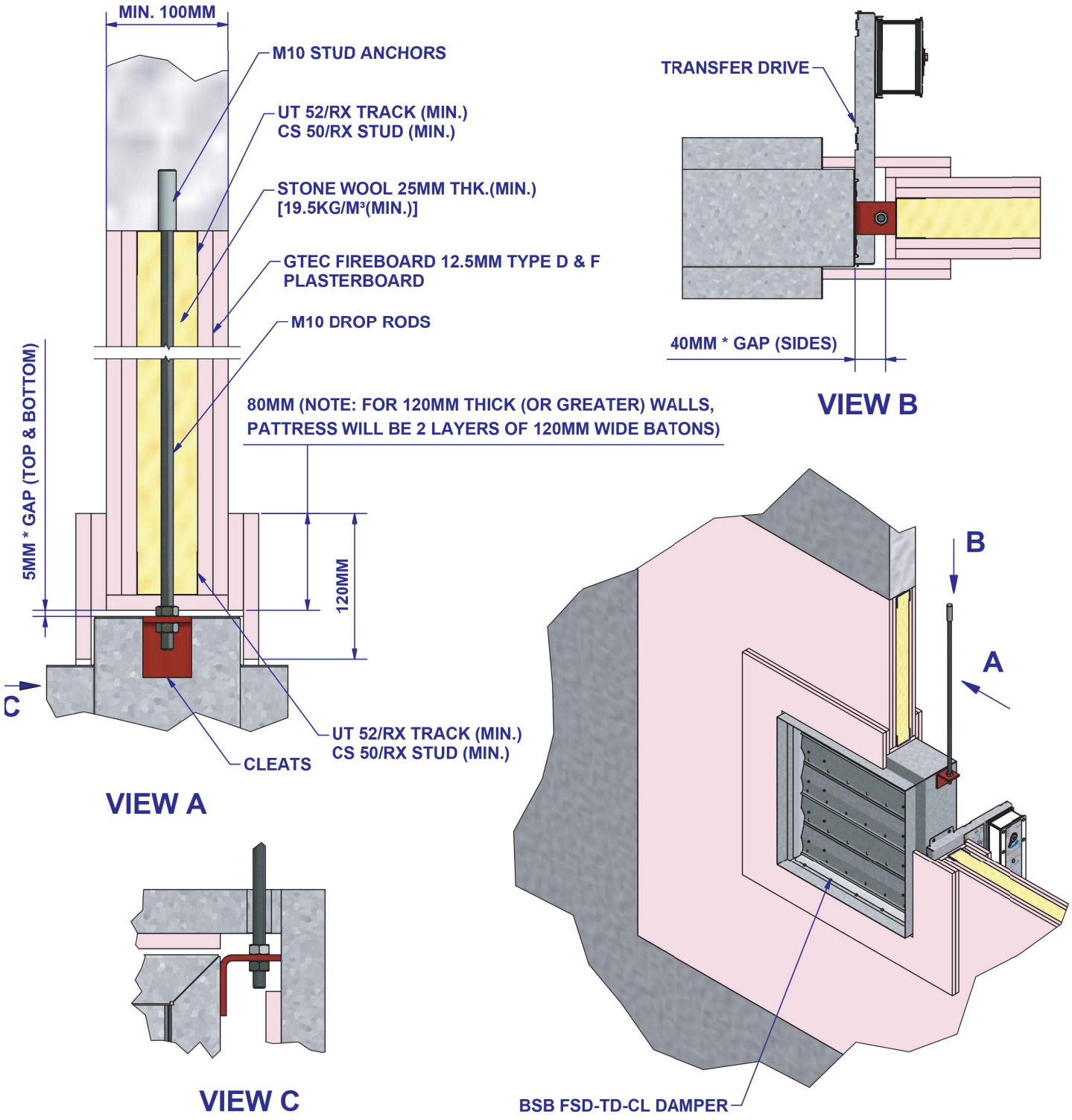
12.9 Apply intumescent sealant to the pattress parts and fit snugly up against the spigot.

12.10 It is not a necessity to fill the void between the pattresses, but it can be done for insulation purposes if desired.

12.11 **Important:** Ensure the drywall screws 'pick up' the track lining the hole, so that the proper fire integrity of the installation will not be compromised.

12. Dry wall - (CL) Cleated Installation Procedure - Fig. 12 continued

Fig. 12



13. Dry wall - Frameless Installation Procedure – Fig. 13

13.1 This is similar to Cleated installation. Refer to section 12 for this recommended detail. Also, refer to section 5 for wall preparation instructions.

13.2 Depending on wall thickness, it may ease connection of ductwork, if connecting ductwork is attached to damper prior to fitting pattress around damper.

13.3 Prepare a pair of spacing blocks, (approx. 10mm high x 25mm square) from any available material (such as drywall boards). Position spacing blocks within the opening at extremities of damper, and stand the damper on blocks so that damper is central in opening, with blades running horizontally.

13.4 Position and temporarily support damper centrally in wall opening.

13.5 Prepare 16 off pattress pieces from plasterboard of same material as main construction). Plasterboard pattress should be sufficiently wide to butt up to damper spigots/duct and overlap the outer edge of the track lining the opening by at least 10mm. They need to be long enough to form neat comers.

13.6 Two layers of pattress are required each side of wall and the corners should 'overlap' between the first and second layers.

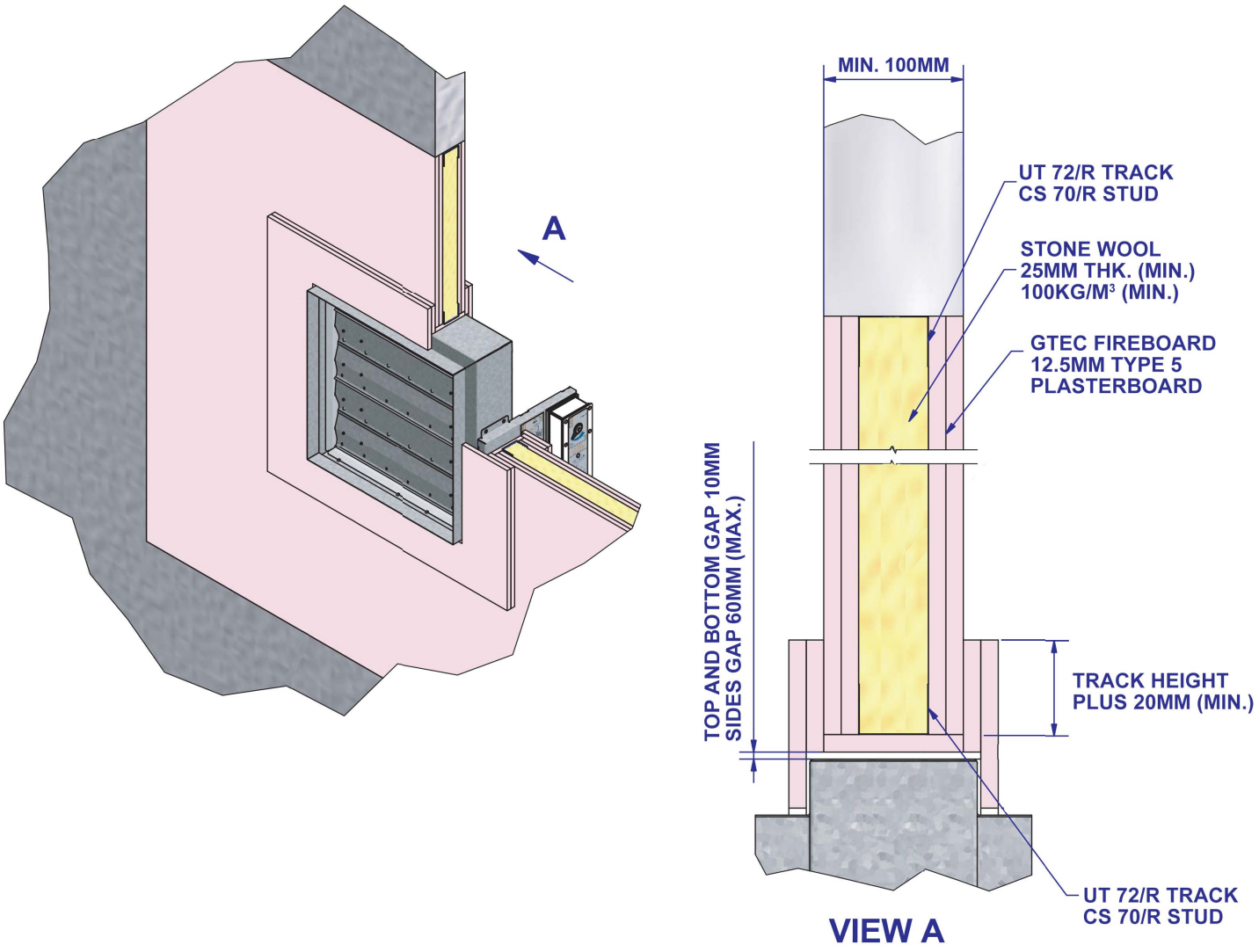
13.7 Fit second pattress to other side of wall in similar manner.

13.8 Apply intumescent sealant to the pattress parts and fit snugly up against the spigot.

13.9 It is not a necessity to fill the void between the pattresses, but it can be done for insulation purposes if desired.

13.10 **Important:** Ensure the drywall screws 'pick up' the track lining the hole, so that the proper fire integrity of the installation will not be compromised.

Fig. 13



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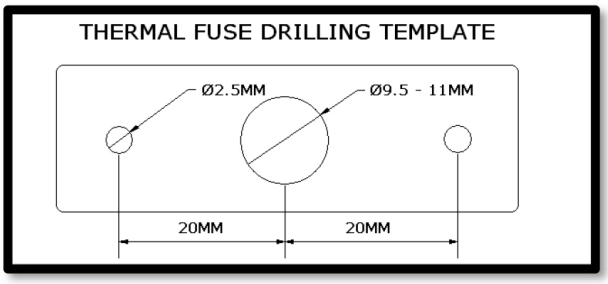
14. Actuator General Information

14.1 Actuators are fitted to the 12mm A/F square shaft on the Transfer Drive (TD) box.
14.2 Check that the actuator, thermal fuses (where present) and wires are undamaged.
14.3 Check the actuator label to for correct voltage and operation as below:
- 24V AC/DC or 230V AC
- Spring Closed
- With Thermal Fuse (TF)

15. Instructions for fitting Thermal Fuse (TF)

15.1 For dampers fitted with TF actuators - Fix self-adhesive TF template (supplied) onto the duct. 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).
15.2 Drill holes in duct (sizes/positions are detailed on template label - see fig. 14). Remove burrs.
15.3 Fit the TF to the duct with the two screws provided using Philips No.2 screwdriver/bit.

Fig. 14



16. Instructions for Fitting the FSD-TD actuator (fall-safe closed) - Fig. 1

16.1 Actuators are normally factory fitted, but optionally may be supplied loose for fitting on site.
16.2 When fitting the actuator for the first time, check the actuator voltage.
16.3 Damper must be in the closed position.
16.4 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. See Fig. 1
16.5 When power is applied, the damper blades will start to travel to the open position.
16.6 Dampers can be manually wound open to allow duct work systems to be tested.
Manually wind the actuator, using the crank handle (provided) fully to the 'reset open' position, and lock into position by turning the key in reverse sharply a quarter tum. (Due care should be taken to stop winding when slight resistance is encountered - over-winding can result in permanent damage to the damper/ actuator which may invalidate the wamanty). It is important that you use the manual winding key provided. The use of a powered drill or screwdriver is not permitted.

17. Instructions for Wiring the FSD-TD actuator

17.1 Terminate wires within a junction box (supplied by others) compliant with site rules and Electrical Installation Regulations (8S7671) in close proximity to actuator, also referring to wiring diagram on actuator label. Please refer to Page XX for wiring detail.
17.2 Due care should be taken to stop winding when slight resistance is encountered – over-winding can result in permanent damage to the damper/ actuator which may invalidate the warranty.
17.3 Test the unit. (see section 22)

18. 18 Removing/replacing or repositioning the FSD-TD actuator - Fig. 1

18.1 Ensure that the power has been isolated from the actuator and that the damper is now in the failsafe position, this would normally be with the blades in the closed position.

18.2 Using the 8mm spanner, undo the centre-bolt anti-clockwise and remove along with the washer keeping safe and close to hand.

18.3 Lift the actuator and cradle and place in a safe secure place within the limitations of the attached wiring. Ensure that the actuator is not supported/left hanging solely by the connected wiring.

18.4 For repositioning the actuator, tum cradle through 90° to the desired position and then relocate actuator, pointer, washer 8mm A/F screw into position and tighten to 5Nm max torque.

19. Routine Inspection. Testing and Maintenance

19.1 In accordance with BS 9999 Annex W.1, inspection should be undertake annually. Local regulations/conditions may override this with periodic Inspection being carried out more frequently where corrosive or dirty conditions prevail. The maintenance log should be reviewed at each inspection and the frequency adjusted as required dependent upon findings. (BSB recommend a maximum of 1 year between inspections and to start more frequently initially and reduce frequencies only if conditions are proven to allow).

19.2 For actuators fitted with a thermal fuse), check TF is correctly fitted to duct. (Refer to section 15)

19.3 Where a thermal fuse is present, the LED on the thermal fuse will be illuminated when the actuator is powered. Refer to Section 20.1, if it is not illuminated.

19.4 Remove access door to reveal damper's internal elements.

19.5 Visually inspect the internal damper elements for signs of corrosion, obstruction or accumulated dirt/dust.

19.6 If there are any obstructions or if the damper's blades/gasket seals are dirty, they need to be cleaned. It is recommended to remove the actuator before cleaning the internal elements to avoid trapping your fingers. (Refer to section 20)

19.7 Visually check that the damper is in its 'powered state' (opposite to fail-safe position). If the damper is not in its 'powered state', refer to fault finding chart, otherwise continue.

19.8 Temporarily remove electrical power to the actuator (either by using the test switch on the thermal fuse (TF actuator), or by isolating power to actuators without a thermal fuse).

19.9 The actuator should reach its SPRING-END (fail-safe position) in <30 seconds. Confirm visually that the blade position and indication pointer on the actuator corresponds.

19.10 Release the TF test switch (TF) and ensure it reaches its DRIVE END in <60 seconds. Confirm visually that blade position and indication pointer on the actuator corresponds.

19.11 If the damper has seized (failing to reach either drive end or spring end):-

- 19.11.1 Isolate and remove actuator.
- 19.11.2 Spray a light lubricant into blade end bearings through the holes on the side gaskets.
- 19.11.3 Using the 12mm A/F spanner on the TD box Drive Shaft, begin to progressively operate the blades manually.

19. Routine Inspection. Testing and Maintenance - continued

19.12 Open the damper using a 12mm A/F spanner on the TD box. Check for foreign items in and around blades, paying particular attention to blade fishtails. Remove any obstructions.

19.12.1 Clean the inside of the damper case where the blades make contact with the gasket seals. Use a soft cloth with a light application of light lubricant. (Connect Duck Oil recommended).

19.12.2 Lightly apply a light lubricant into blade axle bearings depressing the side gaskets to allow access. It may be necessary to re-apply lubricant a couple of times, whilst operating the damper using the 12mm A/F spanner, until the torque has reduced to less than 5Nm for mid-range travel, and 10Nm for full damper closure.

19.12.3 There should be no more than a thin film of lubricant applied. Remove all excess lubricant. It is particularly important as excess oil will tend to collect dirt and dust which will have a negative effect on dampers remaining clean.

19.12.4 Refit the actuator (Refer to section 16).

19.12.5 Switch on power to the actuator.

19.12.6 The actuator should reach its 'powered state' position in <60 seconds. If it does not. refer to sections 20 and 22.

19.12.7 Replace access doors, and ensure the damper is left in its 'powered state'.

19.12.8 Record all work that has been undertaken in the maintenance log.

19.12.9 It is important to log and review maintenance frequency based on inspections and test history.

19.12.10 The actuator is maintenance-free.

20. Fault Finding

20.1 TF Actuator

SYMPTOM	FAULT	ACTION
Green LED on the thermal fuse (TF) is not illuminated	No power / incorrect supply	Check supply
	TF tripped. Remove TF from duct, separate two halves, continuity check the two contacts within the probe section (or test with new probe)	If open circuit, replace probe
	Actuator faulty	Replace actuator
Blades do not travel fully open / closed	Synchronization of actuator and damper incorrect	Remove actuator and refit. (Refer to sec1ions 16 and 17)
	Damper seized	Refer to section 21.1
Noisy damper during operation	Lack of maintenance to the blade bearings	Apply DEB duck oil or similar to the side gasket and blade bearing and wipe away any dirt/dust with a soft cloth

21. Actuator orientation change

21.1 Refer to sections 16 and 18. Position the actuator to the required position as necessary.

22. Commissioning

22.1 The damper cannot be commissioned unless it is fully installed and connected to mains power in compliance with regulations.

22.2 Dampers should be fully inspected and checked in accordance with the inspection handover check sheet prior to the dampers and panel being commissioned.

22.3 Electro-mechanically operated dampers can be tested/commissioned by a locally appointed, competent person.

22.4 The installation needs to be inspected thoroughly, before the damper actuation is tested.

22.5 Actuation testing should be completed as follows:

22.5.1 Isolate the power.

22.5.2 Remove access door(s).

22.5.3 Test manually, using the crank handle provided, to set the damper to the 'normal state' (powered state). A quarter turn in the opposite direction locks it. Visually confirm that the damper is in its 'normal state'.

22.5.4 Release the motor if it is locked by turning the crank handle a quarter turn in the winding direction and allow the damper to travel to 'fail-safe' position.

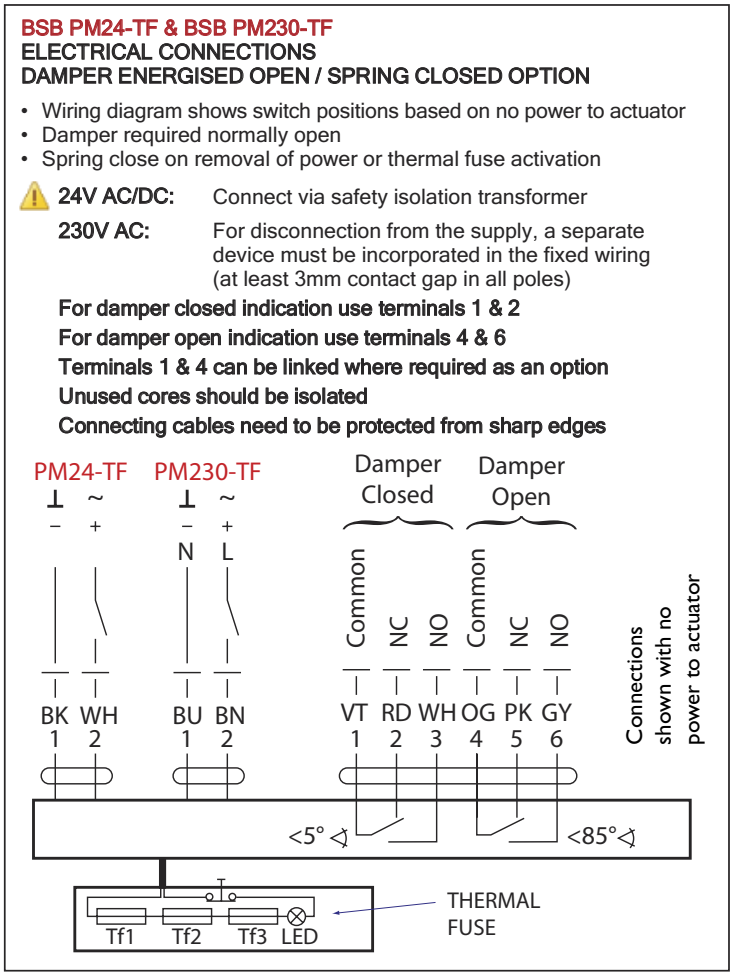
22.5.5 Visually confirm that the damper is in the correct position.

22.5.6 Switch on power to actuator. LED on TF (where present) will illuminate. The actuator will start to travel to the DRIVE-END (normal state) position, reaching it within 60 seconds, visually check that the damper blade-position and signal corresponds.

22.5.7 **IMPORTANT:** Press and hold test switch lever on TF to allow to allow actuator to travel to its SPRING END position. Visually check that the damper blade position and signal corresponds. (This is to ensure that the actuator functions electrically and overrides the manual reset facility -should it have been used-, as it is feasible to leave the damper inadvertently reset without the TF being functional if this test is not carried out!)

22.6 Ensure the damper is left in its 'normal state' (powered) before re-fitting access doors.

23. Electrical Connections



FSD-TD - Inspection and handover check sheet

A brand of MAICO

Project Name:

This check sheet only applies to the BSB Fire and Fire/Smoke dampers.
The installer should complete this handover check sheet to ensure installation is in accordance with BSB installation guides and is compliant before handover.

No.	Question	Guidelines	Confirmed
01	Are the dampers the correct type?	Confirm the damper is the correct type and model.	YES / NO
02	Are the dampers individually correctly identified?	Unique system identification and location reference aids commissioning and must be clearly indicated on the damper or agreed location.	YES / NO
03	Are the dampers located correctly	The damper position shall be checked against the installation drawings/details.	YES / NO
04	Is the installation method tested and approved for the type of barrier that is being protected?	Ensure modifications have not been made to the tested method.	YES / NO
05	Is the damper installed & fixed in accordance with the manufacturers tested and approved method?	Check the damper has been fixed correctly to the fire barrier and is independently supported from the ductwork	YES / NO
06	Have access doors been fitted to the ductwork allowing the damper blades to be inspected?	Access doors are required for commissioning and servicing.	YES / NO
07	Is access through the ductwork, to the damper unhindered?	Unobstructed space shall be provided for safe access to damper. Also consider access through ceiling voids and adjacent services.	YES / NO
08	Is the penetration only used by the damper and not used for the passage of other services?	The presence of other services will invalidate the approved installation method.	YES / NO
09	Using the access opening provided. has the damoer been left in the open position?	Check blade position	YES / NO
10	Is the correct power supply wired to the actuator and power is on? (if motorised)	Check power is on to actuated damper to ensure testing can be carried out	YES / NO
11	Is the Thermal Fuse/link correctly installed?	Confirm fitted correctly to ductwork/damper	YES / NO
12	Have the damper blades been released to simulate failure of thermal release mechanism (damper 'drop test')?	Test button on thermal fuse probe shall be used or fusible link removed to drop test	YES / NO
13	Have the dampers been checked for internal cleanliness and free from damage and debris?	With the damper in the closed position inspect for damaoe and contamination.	YES / NO
14	Have the dampers blades been re-set following the drop test and the access panel replaced?	After re-setting the damper blades, check position of blades to ensure correct.	YES / NO
15	At the time of the damper handover, is the fire damper installation completed in accordance with the above check list?	Damper installer to record, on the register, any incomplete works relevant to the damper installation.	YES / NO
16	Is the damper installation completed and available for handover prior to system commissioning?	Obtain relevant acceptance of the damper installation from the system designer	YES / NO
17	Is the completed handover register cross referenced back to the identification codes listed in the system designer's damper schedule?		YES / NO

Manufacturers Product model(s): .....

Damper Reference I.D: ..... Damper Reference I.D: .....

I the undersigned confirm that the damper referenced above has been checked and is installed to the manufacturers tested installation method.

Company Name: Installers name:

Installers Telephone Number: E-mail:

Installers signature: Print Name:

www.bsb-dampers.co.uk

FSD-TD Series

Fire and Smoke Dampers - Ordering Codes

FSD-TD S C1 B1 HF PM230-TF

Model
FSD-TD Fire and Smoke Damper

Case Type
S Rectangular Spigot Connection
C Circular Spigot Connection
O Flat Oval Spigot Connection

Case Material
C1 Galvanised Steel
C2 430 Stainless Steel - Ferritic (430) type 1.4016
C3 316 Stainless Steel - Austenitic (316) type 1.4401

Blade Material
B1 Galvanised Steel
B2 430 Stainless Steel - Ferritic (430) type 1.4016
B3 316 Stainless Steel - Austenitic (316) type 1.4401

Actuator Options
PM24-TF 24 volt spring return actuator with thermal fuse
PM230-TF 230 volt spring return actuator with thermal fuse

Installation Method
AF-BATT Batt Frame
AF Angle Frame
HF HEVAC Frame
CL Cleats

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

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

BSB Engineering Services Limited

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