FSD-TD Damper
Installation, Operating and Maintenance Instructions

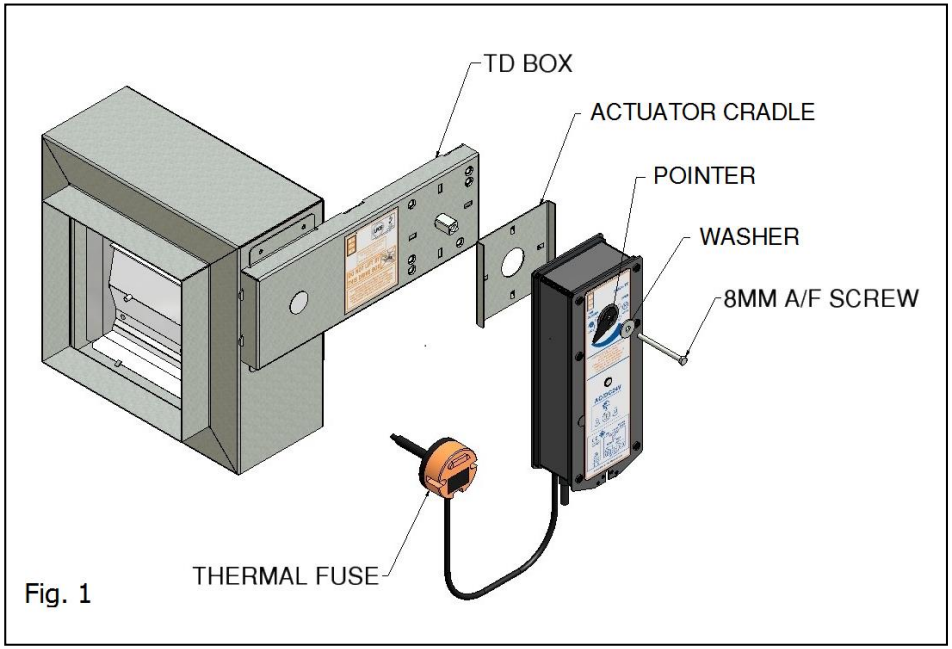


Fig. 1

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 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 instructions. 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 carried out to the satisfaction of the appropriate Building Control officer and/or specifying authority.

2.6 Refer to actuator label for wiring of actuator.

2.7 Refer to section 20 for testing. Complete Insp Check List (at end of this document)

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 design specification

2.9 Dry wall openings must be lined.

2.10 Ensure that appropriate 'fire-rated' plasterboard is used throughout the construction of drywall partitions that need to act as fire-barriers.

2.11 Ductwork to be fitted and connected in accordance with DW 144/145. Aluminium rivets should be used (to act as breakaway joint).

2.12 All installations are subject to local Building Control Approval (BCA). Tested Installations are detailed herein. If the proposed installation has minor variations to that shown, acceptance from BCA should be sought before proceeding. Manufacturers are not able to 'approve' specific installation methods

2.13 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).

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 that are 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 Phillips №2 screwdriver to suit thermal fuse screws

3.6 Screwdriver to suit junction box terminals.

3.7 8mm A/F spanner for motor fixing bolt
3.8 12mm A/F Spanner for TD drive shaft.

4 Preparation for Installation

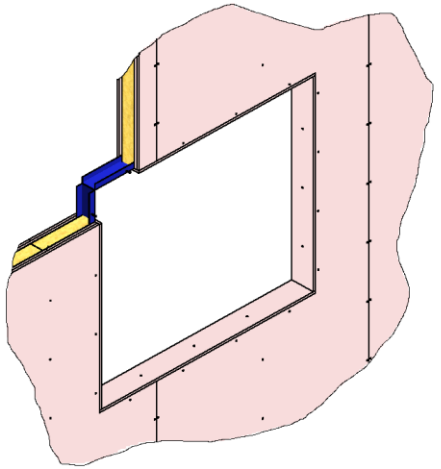
4.1 For each damper installation type, refer to the relevant installation detail below.
4.2 Before installation, the damper should be inspected to ensure that it has not been damaged and is in good condition.
4.3 Remove packaging materials with the exception of the actuator packaging - leaving this in place will protect the actuator wiring / thermal fuse whilst the damper is being installed.
4.4 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.

5 Dry wall preparation - Fig. 2

5.1 Preferably, prepare the opening whilst building wall, or cut opening if wall already exists. (see 2.8)
5.2 **Cleated and Frameless Installations**
5.2.1 The finished hole must be 'lined out'. 10mm clearance for top/bottom and 60mm clearance for sides to be allowed for.
5.2.2 Cut size = nominal damper width. + 196mm + (2 x wall board thickness) by nominal damper height + 96mm + (2 x wall board thickness).
5.2.3 Example: for 500x300 damper, and 12.5mm wall board, cut hole should be 721mm x 421mm (500 + 196 + (2x12.5) x 300 + 96 + (2x12.5)).

5.3 **Angle Frame Installations**
5.3.1 The hole must be 'lined out'. The finished opening should have 10mm clearance each side (allow an extra 25mm on the drive side for TD drive box).
5.3.2 Cut size = nominal damper width. + 121mm + (2 x wall board thickness) by nominal damper height + 96mm + (2 x wall board thickness).
5.3.3 Example: for 500x300 damper, and 12.5mm wall board, cut hole should be 646mm x 421mm (500 + 121 + (2x12.5) x 300 + 96 + (2x12.5)).

5.4 Mark out the position and size of required cut size on the wall.
5.5 Using appropriate means (e.g. jig saw), cut the hole in the wall, removing each layer and any infill that is present.
5.6 Cut 2 pieces of steel track equal opening width.
5.7 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.
5.8 Cut 2 more pieces of track, equal to the opening height.
5.9 Fit track to sides of opening, screwing in position in a similar manner as above.
5.10 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.

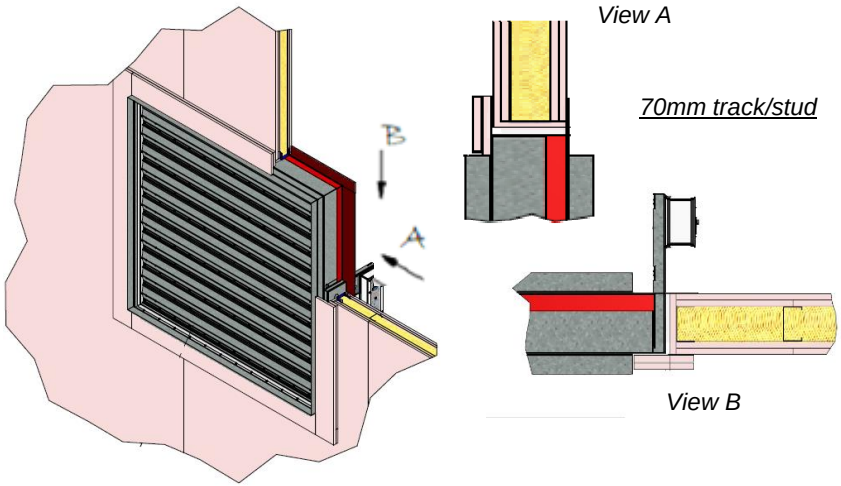


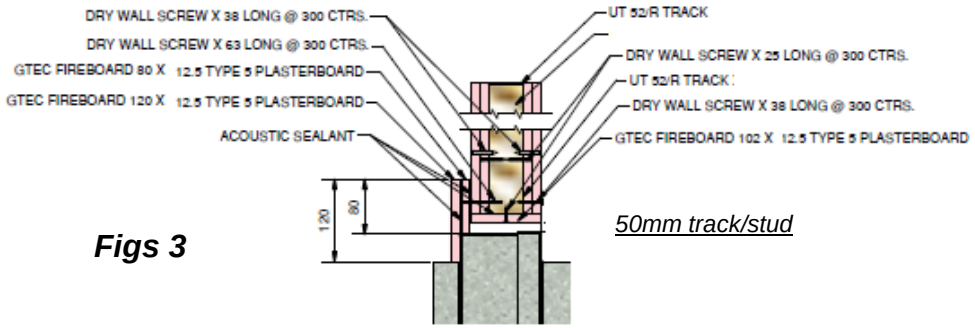
Cut-away illustration of a typical drywall. Partially cut-away to show internal detail

Fig 2

6 Dry wall - Angle Frame Installation Procedure – Fig. 3

6.1 Position the damper centrally in wall opening (width/height), with blades running horizontally. Screw the angle frame to the wall using drywall screws @ 150mm max pitch.
6.2 It is not necessity to fill the void behind the angle frame, but suitable fire rated infill may be used if considered required for insulation purposes.
6.3 **Important:** Ensure the screws 'pick up' the track lining the hole, so that the proper fire integrity of the installation will not be compromised.
6.4 On the reverse side, fit a double layer pattress around the damper spigot using drywall screws of appropriate length to screw into the steel tracking around the opening





Figs 3

7 Block work wall/Floor - Angle Frame Installation Procedure – 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 opening should have 10mm clearance each side (allow an extra 25mm on the drive side for TD drive box)

7.2.2 Finished size = nominal damper width + 121mm by nominal damper height + 96mm

7.2.3 E.g. for 500x300 damper, hole should be 621mm x 396mm - (500 + 121) x (300 + 96)

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

7.4 Make the hole in the wall.

7.5 (Wall only) 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.

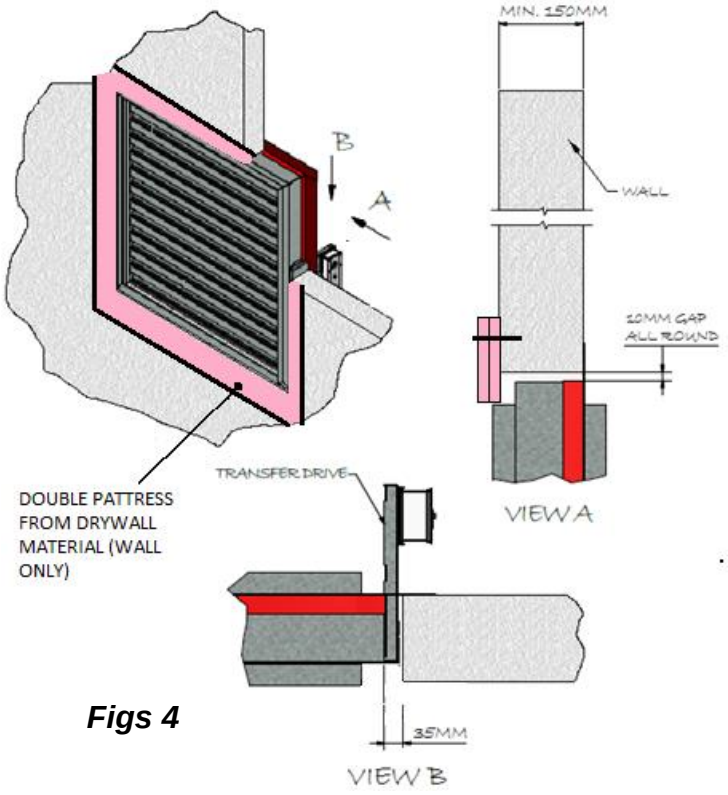
7.6 Fix the angle frame to the wall using suitable expansion bolt steel sleeved anchors min Ø5mm x 40mm @ max 150mm pitch.

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

7.8 **Important:** Ensure the anchors are a minimum of 20mm from the opening's edges to minimise breakout, and so that the proper fire integrity of the installation

7.9 will not be compromised.

(Wall only) On the reverse side, fit a double pattress layer as per 6.4. Pattress is not required for horizontal installation.



Figs 4

8 HEVAC Frame Installation (wall and floor) Procedure – Figs. 5-7

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

8.2 Finished sizes should be 50mm min to 100mm max > HEVAC frame assembly extremities.

8.3 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.

8.4 Fit looped steel wall anchors (Ø6mm min) all round the inside of the opening in corresponding positions to the HEVAC frame builder's ties.

8.5 Bend the builder's ties out. (See Fig. 5)

8.6 (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.

8.7 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. 6)

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

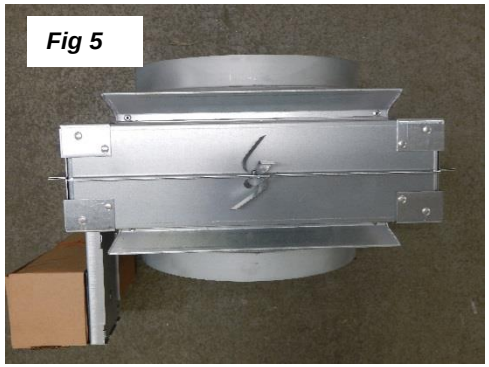


Fig 5

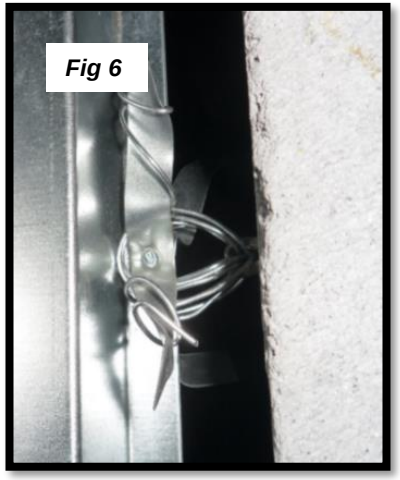
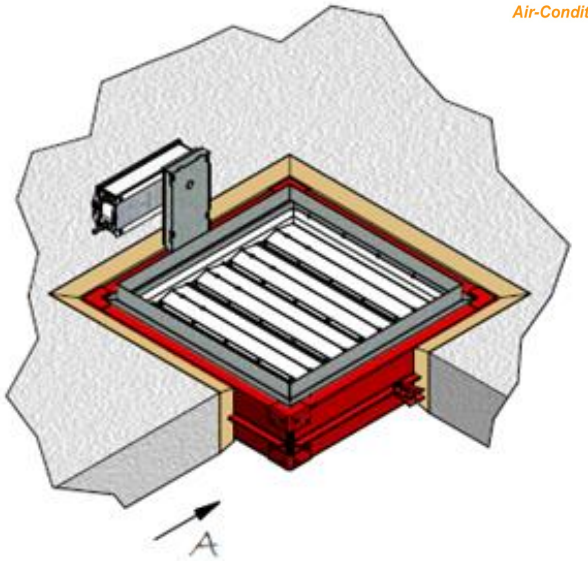
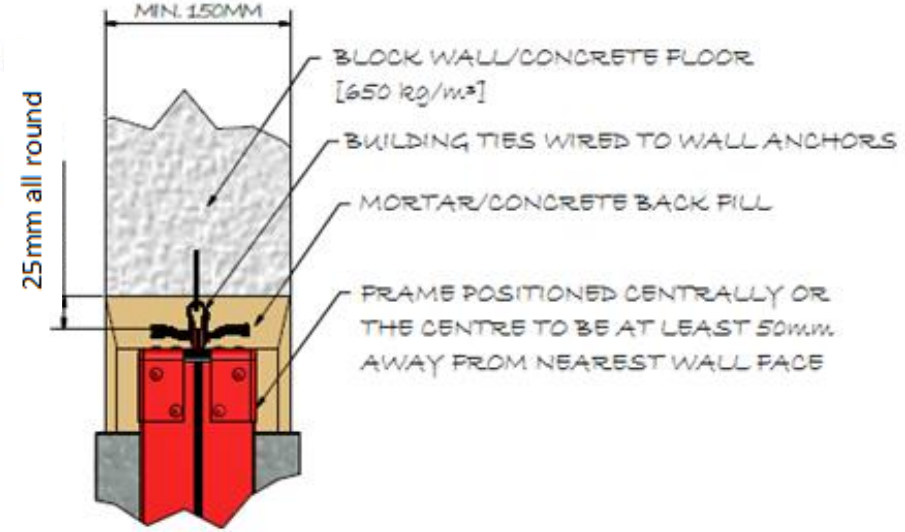


Fig 6



Figs 7



9 Batt Frame Installation Procedure – Fig. 9

9.1 The opening perimeter needs to be doubly framed with angled steel (50x50x2mm) 40mm apart. Extra steel angle support struts to be added if the gap between the damper and surrounding structure is over 600mm wide.

9.2 Ensure that the supporting drop rods are suitably sized for the damper. (Refer Fig. 8)

9.3 Ensure that the drop rods are correctly positioned between the steel angles and that they are securely anchored/fastened in the structure.

9.4 Fit the damper to the drop rods via the cleat lugs and secure at the required height.

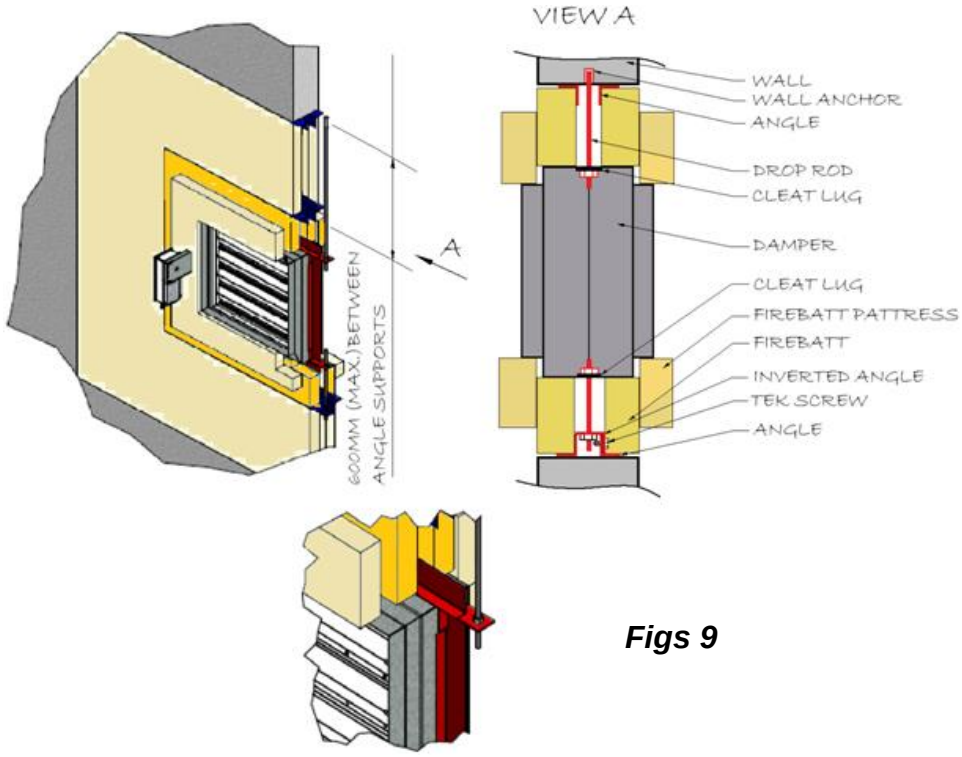
9.5 Ensure that the cleat lugs at the bottom of the damper are engaged and fastened to the drop rods. (Top and bottom rods do not need to be one piece.) Bottom drop rods are secured in angled steel (50x50x2mm, 50mm long), fastened to the bottom frame via Tek screws or similar fixings.

9.6 Fix the firebatt to the steel angle (50x50x2) from both sides of the structure as per manufacturer's instructions.

9.7 From both sides overlap and affix 150mm wide strips of firebatt to form a pattress around the damper.

Fig 8 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



Figs 9

10 Sleeve and Angle Installation Procedure – Fig. 10

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

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

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

10.4 Finished opening size = fitted sleeve extremity + 10mm.

10.5 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 10mm gap at top). Also refer to 2.8

10.6 Block Work Walls, cut size = finished size

10.7 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

10.8 Position and temporarily support damper centrally in wall opening.

10.9 There are 8off ‘angle’ pieces provided, 4off for the ‘sides’ and 4 for top/bottom of the sleeve. The ‘sides’ are identified with an ‘S’ close to the tabbed end of each piece. Be especially careful when the lengths of T/B nearly are same as the sides!

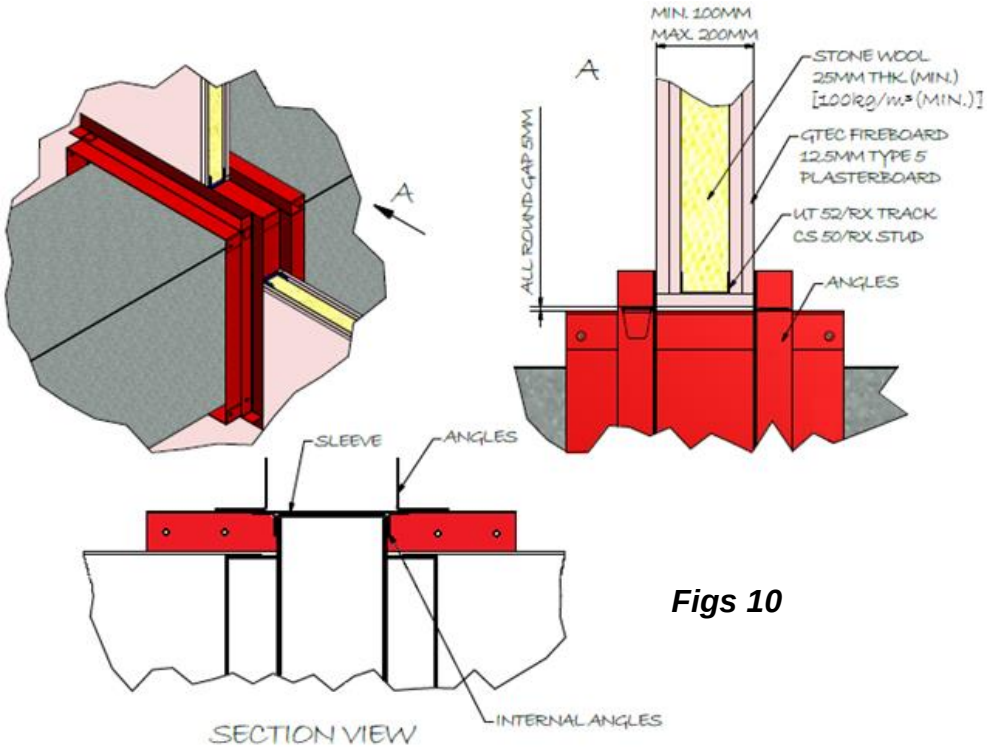
10.10 Fit to one side of wall, 1st angle assembly. Fit this to sleeve by positioning around sleeve, fitting tabs through slots, and bending tabs lightly with hammer to begin with, and when all are positioned correctly, and 1st angle assembly is flush up to wall, knock all four down fully to secure.

10.11 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.

10.12 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

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

10.14 Connect ductwork as required.



Figs 10

11 Dry wall – Cleated Installation Procedure – Fig. 11

11.1 Refer to section 5 for wall preparation instructions.

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

11.3 Ensure that the supporting drop rods are suitably sized for the damper. (Refer Fig. 8)

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

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

11.6 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 corners.

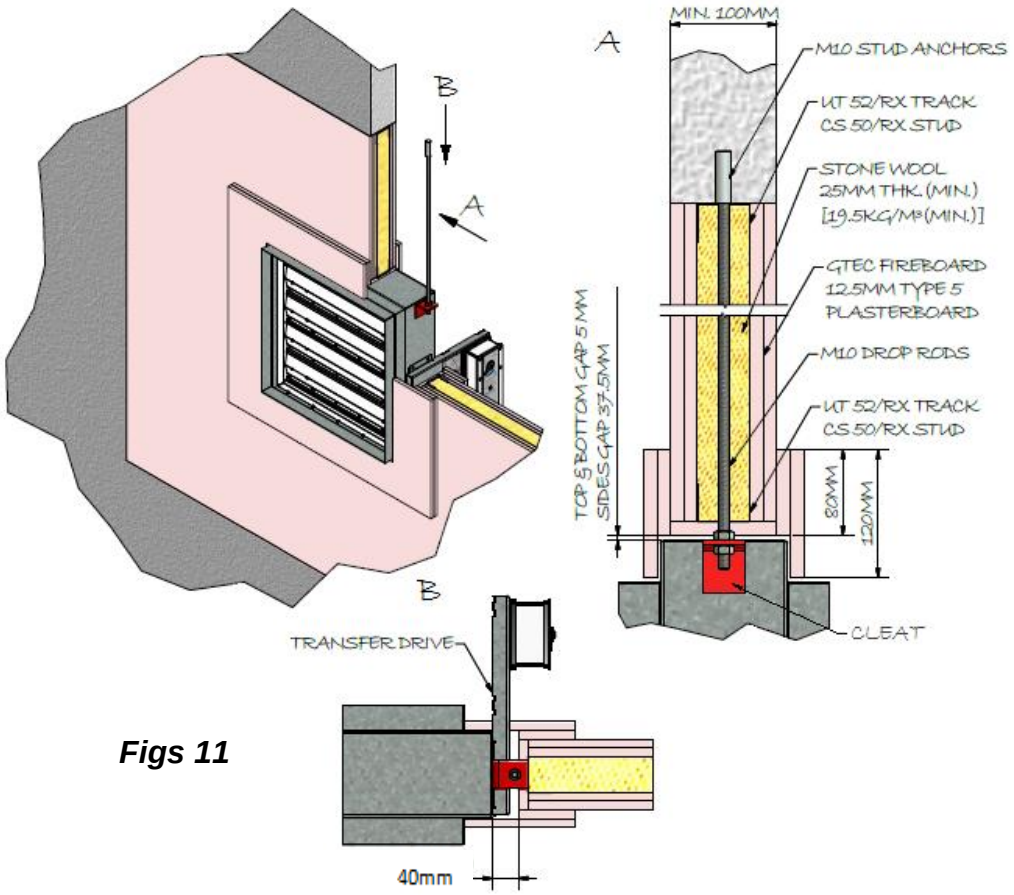
11.7 Two layers of pattress are required each side of wall and the corners should ‘overlap’ between the first and second layers.

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

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

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

11.11 **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.



Figs 11

12 Dry wall - Frameless Installation Procedure – Fig. 12

12.1 This is similar to Cleated installation. Refer to section 11 for this recommended detail. Also, refer to section 5 for wall preparation instructions.

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

12.3 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

12.4 Position and temporarily support damper centrally in wall opening.

12.5 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 corners.

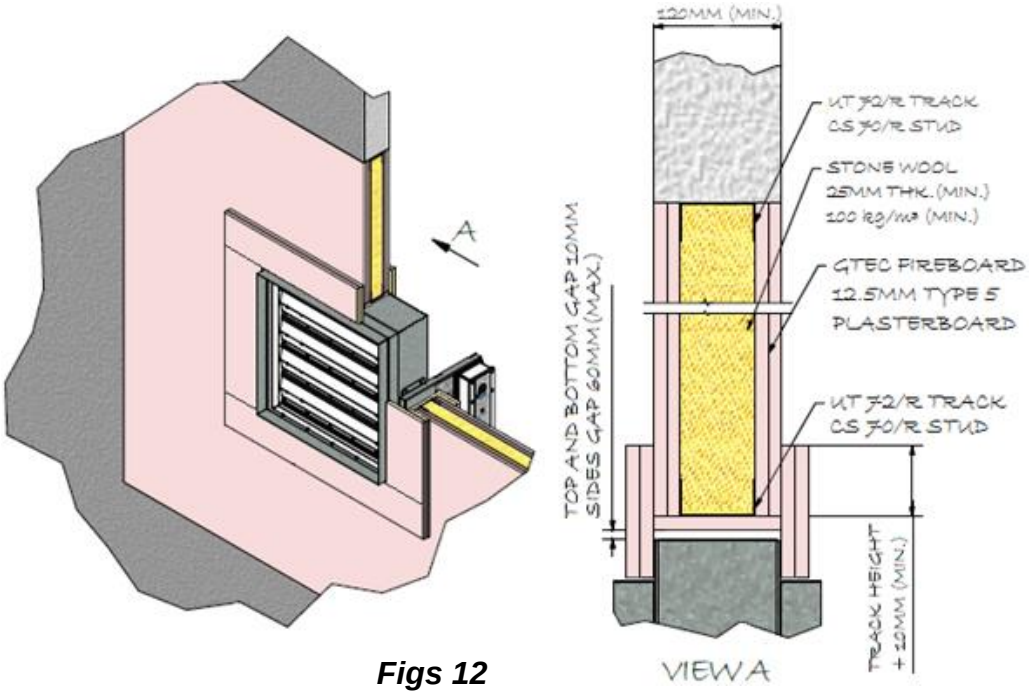
12.6 Two layers of pattress are required each side of wall and the corners should ‘overlap’ between the first and second layers.

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

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

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

12.10 **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.



Figs 12

13 Actuator General Information

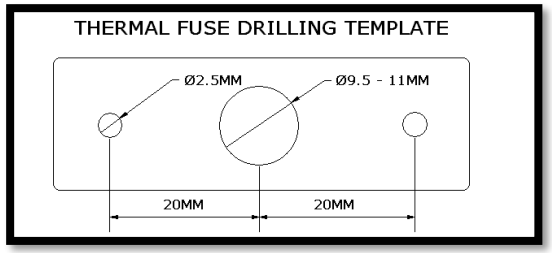
13.1 Actuators are fitted to the 12mm A/F square shaft on the Transfer Drive (TD) box.
13.2 Check that the actuator, thermal fuses (where present) and wires are undamaged.
13.3 Check the actuator label to for correct voltage and operation as below:

- 24V AC/DC OR 230V AC
- Spring Closed OR Spring Open
- With thermal fuse (TF) or without thermal fuse (NTF).

14 Instructions for fitting Thermal Fuse (TF)

14.1 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).
14.2 Drill holes in duct (sizes/positions are detailed on template label – see fig. 13). Remove burrs.
14.3 Fit the TF to the duct with the two screws provided using Philips №2 screwdriver/bit.

Fig 13



15 Instructions for Fitting the FSD-TD actuator (fail-safe closed) – Fig. 1

15.1 Actuators are normally factory fitted, but optionally may be assembled on site.
15.2 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.
15.3 Ensure actuator is in 'released' state 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.
15.4 Damper must be in closed position
15.5 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

16 Instructions for Fitting the SEVAC actuator (fail-safe Open) – ref fig. 1

16.1 Actuators are normally factory fitted, but optionally may be assembled on site.
16.2 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.
16.3 Manually wind the actuator, using the crank handle (provided) fully to the 'reset' position, and lock into position. (**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**)
16.4 Damper must be in closed position
16.5 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

17 Instruction for mechanically testing Damper/Actuator assembly

17.1 Test manually using the crank handle provided. (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). Check damper blades move to same position as the actuator is indication. Ensure fail-safe position of damper blades.

18 Instructions for Wiring the FSD-TD actuator

18.1 Terminate wires within a junction box (supplied by others) compliant with site rules and Electrical Installation Regulations (BS7671) in close proximity to actuator, also referring to wiring diagram on actuator label.
18.2 As a pre-check BEFORE power is established, the actuator should be wound manually using the crank handle provided. (**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**)
18.3 Test the unit (see section 20)

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

19.1 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.
19.2 Using the 8mm spanner, undo the centre-bolt anti-clockwise and remove along with the washer keeping safe and close to hand.
19.3 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.
19.4 For repositioning, turn cradle through 90° to the desired position, and then relocated actuator, pointer, washer 8mm A/F screw into position and tighten to 5Nm max torque.

20 Routine Inspection, Testing and Maintenance

20.1 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).

20.2 For actuators fitted with a thermal fuse), check TF is correctly fitted to duct (Refer to section 14)

20.3 Where a thermal fuse is present, the LED on the thermal fuse will be illuminated when the actuator is powered. Refer to Section 21.1, if it is not illuminated.

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

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

20.6 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 19)

20.7 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.

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

20.9 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.

20.10 Release the TF toggle (TF) or Turn power back on to the actuator (NTF)and ensure it reaches its DRIVE END in <60 seconds. Confirm visually that blade position and indication pointer on the actuator corresponds.

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

20.11.1 Isolate and remove actuator. (Refer to section 19)

20.11.2 Spray a light lubricant into blade end bearings through the holes on the side gaskets.

20.11.3 Using the 12mm A/F spanner on the TD box Drive Shaft, begin to progressively operate the blades manually.

20.11.4 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.

20.11.5 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)

20.11.6 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.

20.11.17 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.

20.11.7 Refit the actuator (Refer to sections 15 or 16).

20.11.8 Switch on power to the actuator.

20.11.9 The actuator should reach its 'powered state' position in <60 seconds. If it does not, refer to section 21.

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

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

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

20.11.13 It is important to log and review maintenance frequency based on inspections and test history.
The use of heavy oil is not recommended, as this can lead to a build-up of dust/dirt on damper surfaces.

20.11.14 The actuator is maintenance-free.

21 Fault finding

21.1 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 sections 15 and 16)
	Damper seized	Refer to section 20.11

21.2 NTF actuator

Symptom	Fault	Action
Actuator does not motor when powered	No power / incorrect supply	Check supply
	Actuator faulty	Replace actuator
Blades do not travel fully open / closed	Synchronization of actuator and damper incorrect	Remove actuator and refit (Refer to sections 15 and 16)
	Damper seized	Refer to section 20.11

22 Actuator orientation/drive direction change

22.1 Refer to sections 15, 16 and 19. Position the actuator to the required position as necessary.

23 Commissioning

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

23.2 Dampers controlled by programmable panels need to be commissioned by a commissioning engineer.

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

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

23.5 Actuation testing should be completed as follows:

- 23.5.1 Isolate the power.
- 23.5.2 Remove access door(s).
- 23.5.3 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'.
- 23.5.4 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.
- 23.5.5 Visually confirm that the damper is in the correct position.
- 23.5.6 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.
- 23.5.7 IMPORTANT: Press and hold test switch lever on TF (where present) to allow actuator to travel to its SPRING END position. For NTF actuators the power must be removed from the actuator to travel to its SPRING END. 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!)

23.6 Ensure the damper is left in its 'normal state' (powered) before re-fitting access door/s.

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Installation Check List

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:

FAIL-SAFE POSITION (POWER OFF position) – Tick appropriate box

OPEN ☐ SHUT ☐

FINAL INSPECTION BY: .....
(Print name)

Signature: Company: Date:

BSB PM24-TF & BSB PM230-TF ELECTRICAL CONNECTIONS
DAMPER ENERGISED OPEN / SPRING CLOSED OPTION

- Wiring diagram shows switch positions based on no power to actuator
- Damper required normally open
- Spring close on removal of power or thermal fuse activation

⚠ **24V AC/DC:** Connect via safety isolation transformer

230V AC: For disconnection from the supply, a separate device must be incorporated in the fixed wiring (at least 3mm contact gap in all poles)

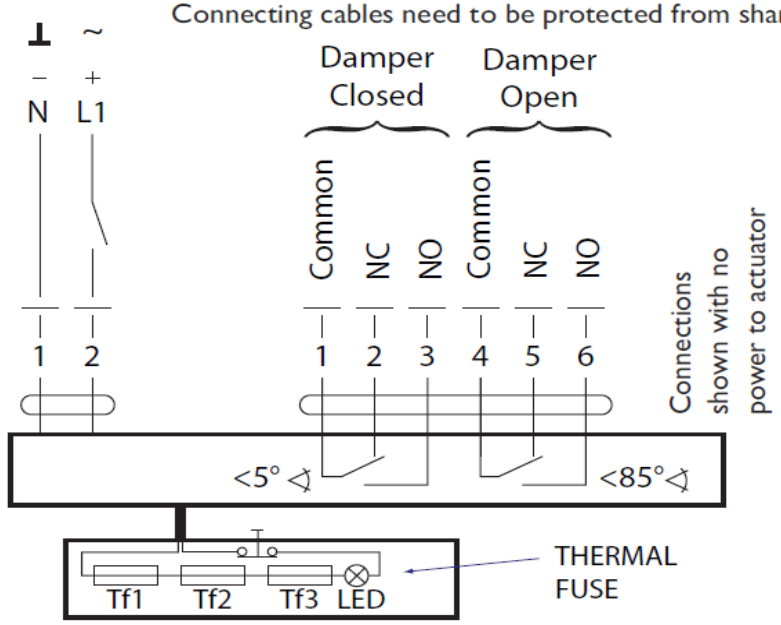
For damper closed indication use terminals 1 & 2

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



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