

FD-C Damper Installation, Operating & Maintenance Instructions

1 Health and Safety

- 1.1 Only competent personnel may carry out the work outlined in this document.
- 1.2 Wear appropriate Personal Protective Equipment as required for safe working conditions and as site rules dictate.
- 1.3 Do not introduce fingers across the open blade.
- 1.4 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.

2 Important

- 2.1 These instructions should be read in their entirety before commencing work. The installer must be competent with the manufacturer's fire separating element construction.
- 2.2 Do not over-tighten Fusible Link (FL). Do not force handle when FL assembly is set. Refer to section 9 for testing.
- 2.3 It is recommended that the damper blade is set in position once the damper has been installed into the fire barrier and ductwork is connected. If set and locked open before installation, rough handling of the casing on largest sizes can cause the fusible link mechanism to actuate and close the damper.
- 2.4 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
- 2.5 Dry wall openings must be lined.
- 2.6 Ensure that appropriate 'fire-rated' plasterboard is used throughout the construction of drywall partitions that need to act as fire-barriers. Ductwork to be fitted and connected in accordance with DW 144/145. Aluminium rivets should be used (to act as breakaway-joint).
- 2.8 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.
- 2.9 Refer to main product brochure for full details and specification.
- 3.0 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

- 31 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.
- 32 Access-equipment as necessary.
- 33 Cordless drill and 4mm dia. drill bit (suitable for Installation Plate fixings).

4 Preparation for Installation

- 41 Before installation, the damper should be inspected to ensure that it has not been damaged and is in good condition following transportation and/or storage.
- 42 Check damper reference and size to site specification.
- 43 Perform Quick Test, noting 2.3
 - 4.3.1 The damper is supplied with blade in closed position and the Fusible Link held in place by orange transit tape. Remove the tape.
 - 4.3.2 Unscrew fusible link (FL) anti-clockwise a couple of turns. Open damper using handle. Release the handle quickly and check damper closes fully.
- 44 Install damper to site specification details and building codes of practice. (Refer to Tested Installation Methods contained herein)
- 45 Ensure that the ductwork is to be independently and adequately supported.
- 46 Note: All Fire / Smoke Damper installations must be carried out to the satisfaction of the appropriate Building Control officer and/or specifying authority.
- 47 Test damper (Refer to section 9)

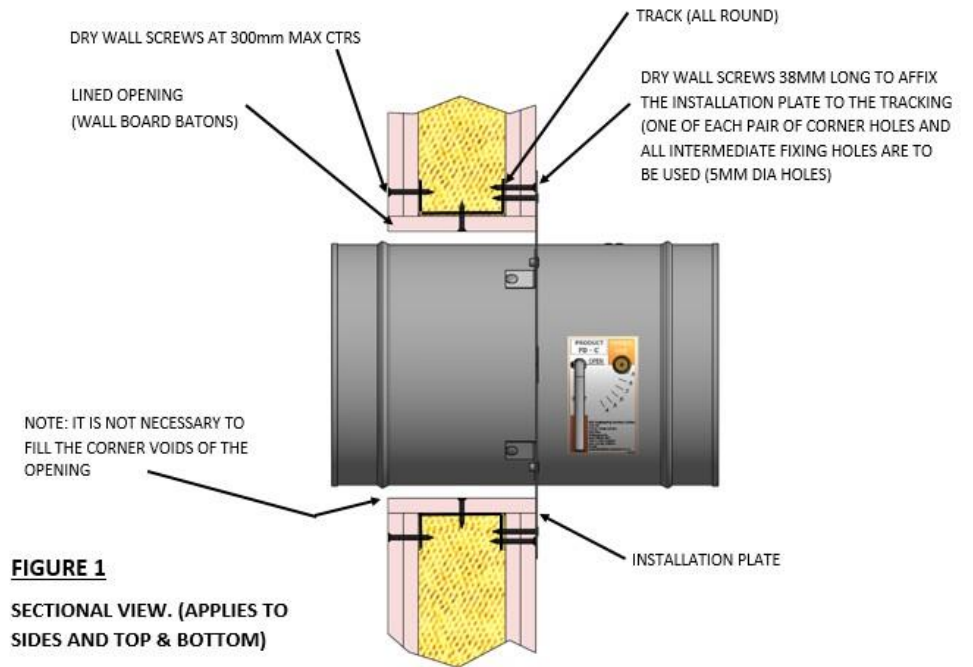
Tested Installation Methods

5 Preparation

- 51 The installation method contained herein assumes the wall has been built prior to the damper opening preparation. Optionally, the opening may already be present, in which case verify suitability, size and position accordingly.
- 52 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. If existing stud/track is avoidable, ensure the structure is sufficiently supported to conform to design specification and that the opening is lined.
- 53 Where the structure is deeper than the casing length it may be necessary to connect ducting to the non-access side of the damper through the opening, before final fitting of the damper. Once this is done, slide the damper and ductwork assembly back through the opening until the Installation Plate butts up to the structural surface ready to be fixed.

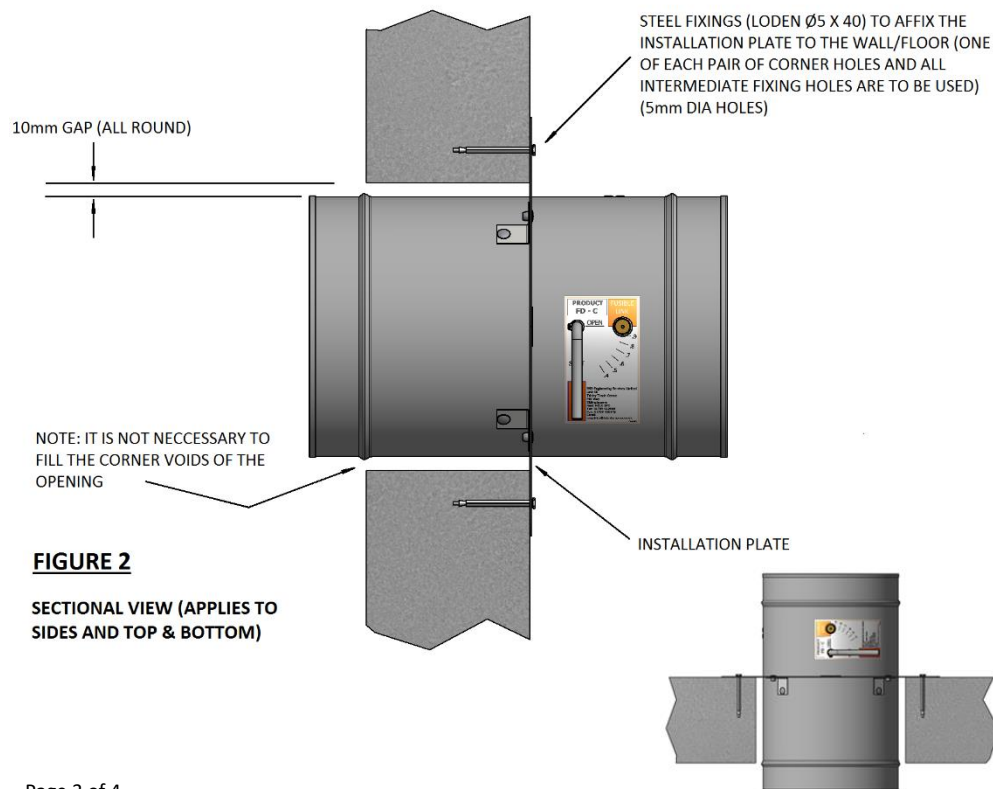
6 Dry wall Installation Procedure (refer to figure 1)

- 61 Finished opening size is to be square and 20mm larger than the nominal damper diameter. This leaves 10mm nominal gap all round.
- 62 Preferably, prepare opening whilst building wall, or cut opening if wall already exists.
- 63 The hole must be 'lined out'.
- 64 Cut size = damper size + (2 x nominal gap size) + (2 x wall board thickness).
e.g. for 150mm dia. damper, and 12.5mm wall board, cut hole should be 195mm (150+(2x10)+(2x12.5))
- 65 Mark out position and size of required cut size on the wall.
- 66 Using appropriate means, cut the hole in the wall.
- 67 Position damper centrally in wall opening with blade axle running horizontally. Fix Installation Plate to wall.
- 68 There are a variety of proprietary fixings available. Fixings must be fire rated (steel, NOT aluminium or plastic). Check minimum dimension specification between fixing and edge of opening. BSB recommend steel anchor type bolts Ø5mm minimum).
- 69 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 mid-span fixing holes that must be used. ALL Ø5mm fixing holes, except the 4off unused corner fixings must be used.
- 6.10 Install from ONE side. There is no need to fill void or add pattress on non-access side.
- 6.11 Test unit - (refer to commissioning section 8).



7 Block wall and Floor Installation Procedure (refer to figure 2)

- 7.1 Finished opening size is to be square and 20mm larger than the nominal damper diameter. This leaves 10mm nominal gap all round.
- 7.2 Preferably, prepare opening whilst building wall/floor, or cut opening if wall/floor already exists.
- 7.3 Cut size = finished size.
- 7.4 E.g. for 250 dia. damper, cut hole should be 270mm square (250+20)
- 7.5 Mark out the position and size of opening on the wall/floor.
- 7.6 Using appropriate means, cut the hole in the wall/floor.
- 7.7 Position damper centrally in wall/floor opening with blade axle running horizontally for wall installation. Fix Installation Plate to wall/floor.
- 7.8 There are a variety of proprietary fixings available. Fixings must be fire rated (steel, NOT aluminium or plastic). Check minimum dimension specification between fixing and edge of opening. BSB recommend steel anchor type bolts Ø5mm minimum).
- 7.9 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 mid-span fixing holes that must be used. ALL Ø5mm fixing holes, except the 4 off unused corner fixings must be used.
- 7.10 Test Unit - (refer to section 8).



8 Commissioning

- 8.1 It is recommended that the blade is only opened and locked in position once the damper has been installed into the fire barrier and ductwork is connected. If set and locked open before installation, handling of the casing can cause the fusible link mechanism to actuate and close the blade. Dampers should always be checked that they are open and set correctly after installation.
- 8.2 **Do not over-tighten Fusible Link (FL).** Use light finger pressure only. The mechanism relies on engaging toothed spring into retention slots to hold blade in position. Rotate handle whilst tightening FL 'feeling' for slots. Once engaged, it is only necessary to rotate a further ¼ turn.
- 8.3 **Do not force handle when FL assembly is set.** This will result in damage to mechanism rendering unit inoperable.
- 8.4 Check the Installation conforms to specification. Refer to DW/145 E.2 and E.3
- 8.5 Test Damper
 - 8.5.1 Remove access doors/flexible duct as appropriate.
 - 8.5.2 Unscrew fusible link (FL) anti-clockwise a couple of turns. Open damper using handle and set to desired blade position. Retighten the FL.
 - 8.5.3 Keeping hands and fingers out of way of the spring-loaded handle, Unscrew the FL quickly. Check visually that the damper blade closes fully.
 - 8.5.4 Reset the damper blade in the required position. If no 'volume control' requirement is required, set damper to fully open position.
 - 8.5.5 If damper operates satisfactorily, go to section 11.
- 8.6 It is important to log and review maintenance frequency based on inspections and test history.

9 Maintenance and Test

- 9.1 **Do not over-tighten Fusible Link (FL).** Use light finger pressure only. The mechanism relies on engaging toothed spring into retention slots to hold blade in position. Rotate handle whilst tightening FL 'feeling' for slots. Once engaged, it is only necessary to rotate a further ¼ turn.
- 9.2 **Do not force handle when FL assembly is set.** This will result in damage to mechanism rendering unit inoperable.
- 9.3 In accordance with BS 9999 Annex W.1, inspection should be undertaken 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).

- 94 Before starting, note the damper blade position.
- 95 Inspection and Test
 - 9.5.1 Remove access doors/flexible duct as appropriate. Check damper is clean and free of dust and debris, clean if necessary, using lightly oiled rag to clean inside of the damper case and - blade.
 - 9.5.2 Test damper operation. Keeping hands and fingers out of the way of the spring-loaded handle, Unscrew the FL quickly. Check visually that the damper blade closes fully.
 - 9.5.3 Reset the damper blade to its previously set-position at the start of this exercise.
 - 9.5.4 If damper operates satisfactorily, go to section 11.

10 Fault Finding

Symptom	Fault	Corrective Action
Damper does not travel fully open / close smoothly or has become stuck.	Internal foreign object fouling blade	Inspect / remove items Clean and lubricate. (Refer to section 9)
	Casing dented/damaged or not round	Minor damage may be corrected carefully with a soft mallet. (BSB always recommend replacement of damaged dampers)
	Damper internals have been exposed to moisture	Gently apply pressure to blade by hand to move open. Use Scotch Bright pad RED 07447 grade, wet and clean the damper internally at the point where the blade closes. Wipe dry and leave clean. Massage duck oil into the exposed peripheral blade seal until pliable, remove all residue.
Damper not in expected 'normal' state	Fusible link missing,	Fit Fusible Link
	Fusible link not tightened properly	Tighten Fusible Link
	Fusible Link (FL) has activated	Measure FL overall length, which is normally 29.5mm. If less than 28mm, replace with new link.
Fusible Link Mechanism too sensitive	Fusible Link (FL) has activated	Measure FL overall length, which is normally 29.5mm. If less than 28mm, replace with new link.

Fusible Link Mechanism too sensitive	Damper case damaged/not round	Check roundness. Reshape if minor adjustment needed. (BSB always recommend replacement of damaged dampers).
	Circlip on the handle lost/damaged	Contact BSB Tech Sales.
	Releases prematurely	Refer to 2.3
Not possible to set damper to open position.	FL has activated	Measure FL overall length, which is normally 29.5mm. If less than 28mm, replace with new link.

For all other symptoms not listed, please refer to the BSB Sales office.

11 Installation Check List

DAMPER SIZE & REFERENCE NO.:	DAMPER LOCATION:	
WALL/FLOOR APERTURE SIZE ('OPENING SIZE')		
WIDTH	HEIGHT	
DAMPER INSTALLED BY:		
(Print name)		
Signature:	Company:	Date:
FINAL INSPECTION BY:		
(Print name)		
Signature:	Company:	Date:



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