

FD-R Series



Installation, Operation and Maintenance Instructions

THESE INSTALLATION INSTRUCTIONS MUST BE READ IN THEIR ENTIRETY BEFORE COMMENCING WORK TO ENSURE COMPLIANCE.

Dampers will only be CE marked if:

- Installed as tested
- No deviation to design
- These instructions are followed

Third party approval will be required for any non-tested proposal.

Before commencing installation, the "Installation Check List" within DW/145 should be referred to. See "Damper Installation Certificate" within section 11.



A brand of
MAICO



MANUFACTURERS OF AIR, FIRE AND SMOKE CONTROL PRODUCTS

FD-R Series

FD-R Damper Installation, Operation & Maintenance Instructions.

1. 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. Dampers are designed for installation within internal normal dry filtered H&V systems.

2. Health and Safety

- 2.1. Only competent personnel may carry out the work outlined in this document.
- 2.2. Wear appropriate Personal Protective Equipment as required for safe working conditions and as site rules dictate.
- 2.3. Do not introduce fingers across the open blade or near to the spring-loaded handle when releasing.
- 2.4. 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.

3. Important

- 3.1. These instructions should be read in their entirety before commencing work. The installer must be familiar with the fire separating element construction detail that is produced by that manufacturer, and the "as tested" damper installation method, as appropriate for that fire separation barrier.
- 3.2. Do not over-tighten Fusible Link. Do not force handle when Fusible Link assembly is set. Refer to section 9 for testing.
- 3.3. Check internally that any debris has been removed and ductwork is connected.
- 3.4. In accordance with TR/19 and BESA DW144 and DW145 access doors/panels/flexi-duct should be fitted adjacent to the damper to allow commissioning, servicing, and cleaning. Access doors should not be obstructed.
- 3.5. All installations are subject to local Building Control Approval (BCA). Tested Installations are detailed herein. If the proposed installation deviates to that shown, acceptance from the BCA should be sought before proceeding.
- 3.6. Refer to main product brochure for full details and specification.
- 3.7. Where more than one duct penetrates a wall, adjacent fire damper assemblies must have a minimum clear separation of 200 mm between damper casings to comply with BS EN1366-2, Section 13.6.
- 3.8. A minimum separation of 75mm between the fire damper and adjacent construction element is required e.g. wall/floor to comply with BS EN1366-2, Section 13.6.

4. Equipment required

- 4.1. Equipment and tools will vary dependent upon the fire barrier construction that the damper is being installed within. Standard equipment that is normally used for the building of the construction element should suffice.
- 4.2. Appropriate access equipment must be used.
- 4.3. Cordless drill and various dia. drill bits / drivers to suit Angle Frame fixings, and duct connection fixings.

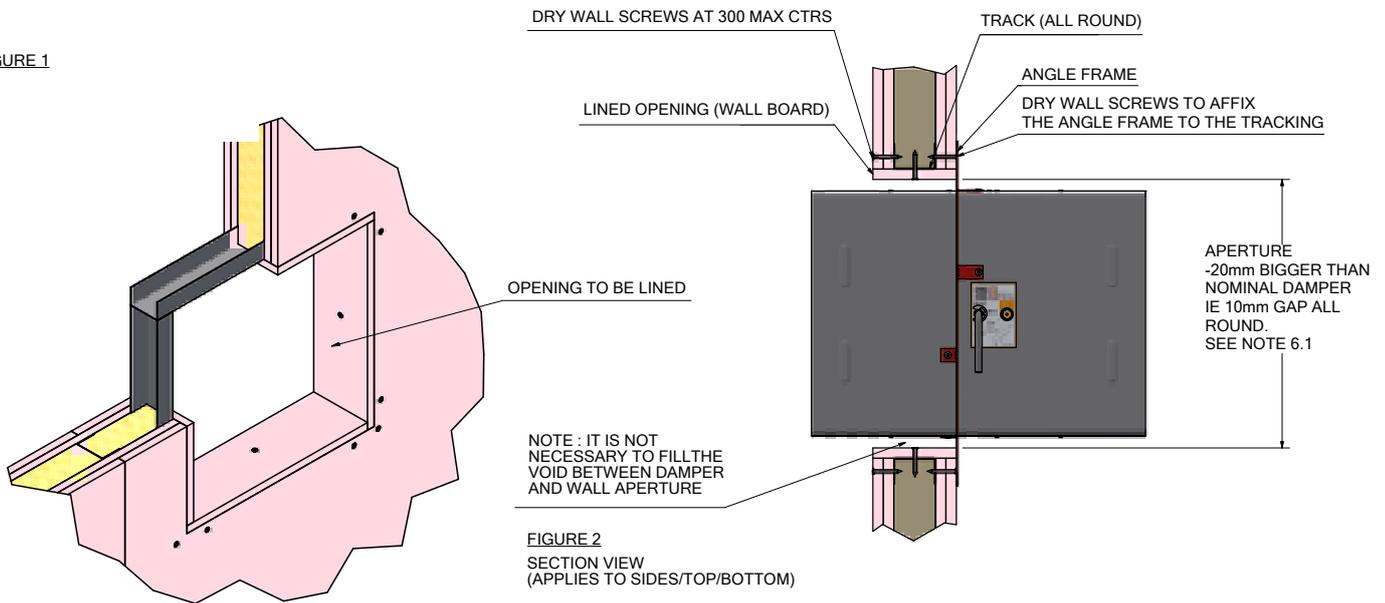
5. Preparation for Installation and General Notes

- 5.1. 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.
- 5.2. Check damper reference and size to site specification.
- 5.3. The damper is supplied with blade in the closed position and the Fusible Link held in place by orange transit tape.
- 5.4. Remove the tape. Unscrew Fusible Link anti-clockwise a couple of turns.
- 5.5. Perform quick test to check damper opens and self closes keeping fingers away from moving blade/handle.
- 5.6. Install damper to site specification details and building codes of practice. (Refer to Tested Installation Methods contained herein).
- 5.7. Ensure that the ductwork is independently and adequately supported in accordance with DW144/145.
- 5.8. All Fire / Smoke Damper installations must be carried out to the satisfaction of the appropriate Building Control Officer and/or specifying authority.
- 5.9. The installation methods contained herein assumes that the wall has been built prior to the damper opening preparation. If the opening has already been formed, verify suitability, size, and position accordingly.
- 5.10. Ensure any services (e.g., electrical/plumbing) within the structure or running close to the structure will not be affected.
- 5.11. 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 installation of the damper. If this is done, slide the damper and ductwork assembly back through the opening until the Angle Frame butts up to the structural surface ready to be affixed.

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6. Dry wall Installation Procedure

FIGURE 1



- 6.1 . For existing dry walls - When cutting the opening for a damper, if (partial) removal of stud is unavoidable, ensure the structure is sufficiently supported to conform to design specification.
- 6.2. Ensure that appropriate 'fire-rated' plasterboard (Type D or Type F in accordance with EN520) is used throughout the construction of the drywall partition.
- 6.3. Finished aperture size is to be 20mm larger than the nominal damper width and height. This leaves 10mm nominal gap all round.
- 6.4. Dry wall openings must be lined with a single layer of type D or F fire rated board.
- 6.5. Cut size = damper size + (2 x nominal gap size) + (2 x board thickness). See Figure 2. And table below:

Example 300mm x 200mm damper							
Damper Size (mm)		2 x nominal gap size		2 x board thickness		Cut Size (mm)	Finished Size (mm)
300 x 200	+	2 x 10mm (20mm)	+	2 x 12.5mm (25mm)	=	345 x 245	320 x 220

- 6.6. Mark out position and size required, cut the hole in the wall using appropriate means, add track and fix into position.
- 6.7. Dry wall openings must be lined with a single layer of type D or F fire rated board. See Figure 1.
- 6.8. The Finished size should be in accordance with the table above.
- 6.9. Position damper centrally in opening and fix Angle Frame to wall using drywall screws of sufficient length to engage with track.
- 6.10. All Ø5mm fixing holes must be used.
- 6.11. Install from one side. There is no need to fill void.
- 6.12. Test unit in accordance with the Commissioning requirements within section 8.
- 6.13. Ductwork to be fitted and connected in accordance with DW 144 / DW145. Aluminium rivets should be used (to act as breakaway-joint). If fire resisting ductwork is being fitted to the dampers, use the appropriate tested fire resisting fastenings. The use of Teck Screws is not permitted.
- 6.14. Complete Installation check list within section 11.

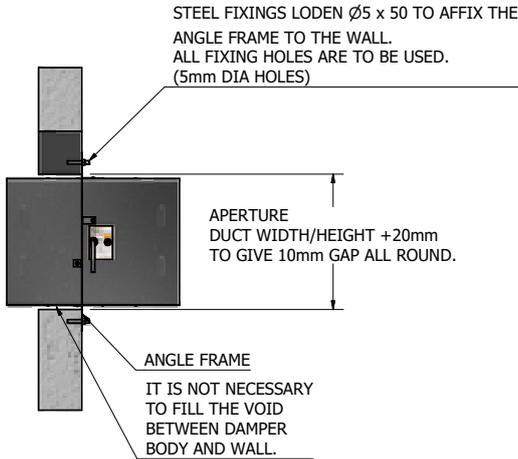
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7. Masonry wall and floor Installation Procedure

MASONRY WALL

SECTION VIEW
(APPLIES TO SIDES/TOP/BOTTOM.)



MASONRY FLOOR

SECTION VIEW
(APPLIES TO SIDES/TOP/BOTTOM)

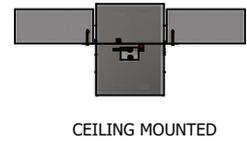
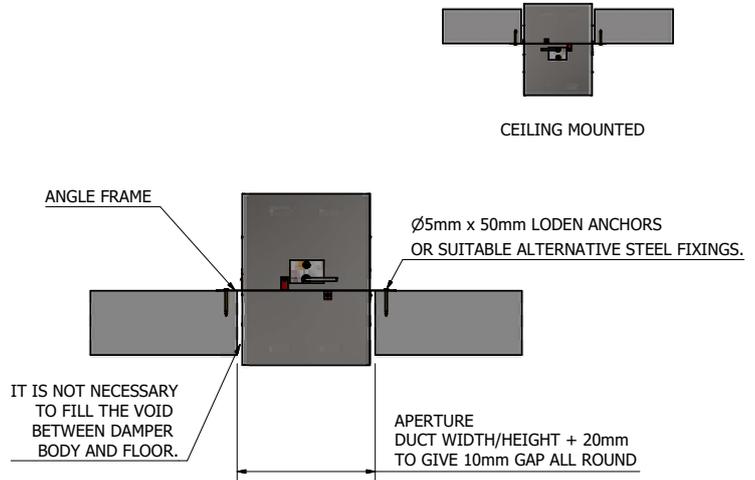


FIGURE 3

- 7.1. Finished aperture size is to be rectangular and 20mm larger than the nominal damper width and height. This leaves 10mm nominal gap all round.
- 7.2. Cut size (finished) = damper size + (2 x nominal gap size). See Figure 3. And table below:

Example 300mm x 200mm damper cut size				
Damper Size	+	2 x nominal gap size	=	Cut Size
300 x 200mm		2 x 10mm (20mm)		320 x 220mm

- 7.3. Mark out the position and size of the required aperture on the wall / floor. Using appropriate means, cut the aperture in the wall / floor.
- 7.4. Position damper centrally in aperture. Fix Angle Frame to wall / floor.
- 7.5. It is possible to install the damper to the underside of a masonry floor (ceiling). See Figure 3.
- 7.6. 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 aperture. BSB recommend Loden Anchors or steel anchor type bolts (Ø5mm minimum).
- 7.7. ALL Ø5mm fixing holes must be used.
- 7.8. Test unit in accordance with the Commissioning requirements within section 8.
- 7.9. Ductwork to be fitted and connected in accordance with DW 144 / DW145. Aluminium rivets should be used (to act as breakaway-joint). If fire resisting ductwork is being fitted to the dampers, use the appropriate tested fire resisting fastenings. The use of Teck Screws is not permitted.
- 7.10. Complete Installation check list within section 11.

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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 the Fusible Link. Use light finger pressure only. The mechanism relies on engaging toothed spring into retention slots to hold blade in position. Rotate handle whilst tightening Fusible Link 'feeling' for slots. Once engaged, it is only necessary to rotate a further ¼ turn.
- 8.3. Do not force handle when Fusible Link 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 appendix E, E.2 and E.3 (check lists). Test the damper as follows:
 - 8.4.1. Remove access doors/flexible duct as appropriate.
 - 8.4.2. Check internally that any debris has been removed and the damper internals are clean.
 - 8.4.3. Unscrew the Fusible Link anti-clockwise a couple of turns. Open damper using handle and set to desired blade position. (Only set blade position if being used additionally as an air balance damper, otherwise set to fully open). Retighten the Fusible Link.
 - 8.4.4. Keeping hands and fingers out of way of the spring-loaded blade and handle, Unscrew the Fusible Link quickly. Check visually that the damper blade closes fully.
 - 8.4.5. Reset the damper blade to the required open position.
 - 8.4.6. If damper operates satisfactorily, go to section 11 to complete checklist. If not, see Fault Finding Section 10.
 - 8.4.7. It is important to log, and review maintenance frequency based on inspections and test history.

9. Maintenance and Test

- 9.1. 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).
- 9.2. Before starting, note the damper blade position so that it can be left in same position after test.
- 9.3. 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. DEB "duck oil" is recommended.
- 9.4. If corrosion is observed on the blade axle, apply 2 drops of oil on each axis bearing and operate a few times to free up the operation.
- 9.5. Now test damper operation. Keeping hands and fingers out of the way of the spring-loaded handle, unscrew the Fusible Link quickly. Check visually that the damper blade closes fully.
- 9.6. Reset the damper blade to its previously set position at the start of this exercise.
- 9.7. Do not over-tighten the Fusible Link. Use light finger pressure only. The mechanism relies on engaging toothed spring into retention slots to hold blade in position. Rotate handle whilst tightening Fusible Link 'feeling' for slots. Once engaged, it is only necessary to rotate a further ¼ turn.
- 9.8. Do not force handle when Fusible Link assembly is set. This may result in damage to mechanism rendering unit inoperable.
- 9.9. If damper operates satisfactorily, complete maintenance log (this should be retained by facilities management).
- 9.10. If damper does not operate correctly, go to fault-finding section (section 10). Recording findings and corrective action necessary to facilitate repair in maintenance log.
- 9.11. IMPORTANT. When using powered duct cleaning equipment, with a powered rotary head, it is important that contact with the installed damper is not made, as this could result in damage to the damper internals.

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10. Fault Finding

Symptom	Fault	Corrective Action
Damper blade does not travel fully open / close smoothly or has become stuck.	Internal foreign object fouling blade.	Inspect / remove items. Clean and lubricate. (Maintenance and test section 9).
	Casing dented/damaged or not rectangular.	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 with duck oil and clean the damper internally at the point where the blade closes. Wipe dry and leave clean. 'Massage' exposed peripheral blade seal until pliable.
Damper not in expected 'normal' state.	Fusible Link missing.	Fit Fusible Link - Part No: 201448.
	Fusible Link not tightened properly.	Tighten Fusible Link.
	Fusible Link has activated.	Measure Fusible Link overall length, which is normally 29.5mm. If less than 28mm, replace with new link- Part No: 201448.
Fusible Link Mechanism too sensitive / not possible to set damper in open position.	Fusible Link has activated.	Measure Fusible Link overall length, which is normally 29.5mm. If less than 28mm, replace with new link- Part No: 201448.
	Damper case damaged/not rectangular.	Minor damage may be corrected carefully with a soft mallet. BSB always recommend replacement of damaged dampers.
	Circlip on the handle lost/damaged.	Contact BSB Tech Sales.

For other symptoms not listed, please refer to BSB Technical Sales Office.

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11. Installation Checklist

Project Name: Date of Installation:.....

Installation Address Postcode:

Location Identification (Section/Floor/Room):

The installer should complete this installation certificate when installing BSB Engineering dampers. A separate certificate must be completed for each individual damper. This certificate applies only to BSB dampers.

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 correctly identified individually?	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 and/or instructions	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 and fixed in accordance with the manufacturer's tested and approved methods?	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's voids and adjacent service	YES / NO
08	Using the access opening provided, has the damper been left in the open position?	Check the blade position	YES / NO
09	Have the damper blades been released to simulate failure of thermal release mechanism (damper 'drop test')?	Confirm fitted correctly to ductwork/damper	YES / NO
10	Have the dampers been checked for internal cleanliness free from damage and debris?	Test button on thermal fuse probe shall be used or fusible link removed to drop test	YES / NO
11	Have the dampers blades been re-set following the drop test and the access panel replaced?	With the damper in the closed position inspect for damage and contamination	YES / NO
12	At the time of the damper handover, is fire damper installation completed in accordance with this checklist?	Damper installer to record, on the register, any incomplete works relevant to the damper installation	YES / NO
13	Is the damper installation completed and available for handover prior to system commissioning?	Damper Installer to record, on the register, any incomplete works relevant to the damper installation	YES / NO
14	Is the completed handover register cross-referenced back to the identification codes listed in the system?	Obtain relevant acceptance of the damper installation from the system designer	YES / NO

Damper reference ID: Damper product type:

Notes/Considerations (Please use an additional sheet if applicable):

Company name:

Company address: Postcode:

Company telephone: Company website:

Installer's first name: Installer's Last name:

Installer's mobile: Email address :.....

Please provide the full name, contact number and email address of additional installers on a separate sheet.

I, the undersigned, confirm that the damper referenced in this certificate has been checked and installed to the manufacturer's tested method.

Signature: Name: Date:

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



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