Complete Collection of CE Marked Installation Methods for Actionair SmokeShield PTC™, FireShield and CSS Dampers
Introduction

Over the years there have been lots of attempts to provide generic information with regard to damper installations. These have come from the old GLC regulations, which were adopted by industry bodies and supported by test houses and trade associations. However, with the publication of BS EN 1366-2:1999 the European standard for the fire testing of dampers (no specific standard existed before) and revisions to the guidance from the UK regulators (Approved Document B - ADB) it has been difficult for manufacturers to provide such generic information.

The method of damper installation is important as it is the interface between the damper and the supporting construction. It plays a significant role on the final result of the test and thus the classification of the damper. Manufacturers products cannot be assumed to perform the same in every installation, more importantly different manufacturers products will have their own performance classification.

The classification states the performance of the fire damper, for the installation method, as a time. This indicates the suitability of the damper in that particular installation method for its Integrity (E) and if available for the specific product, the damper leakage to achieve a Smoke Classification (S). The SmokeShield and CSS ranges, both have E and ES classifications, and the FireShield has E classification, but the performance in time can vary with differing methods of installation. Therefore manufacturers must provide specific data as it represents what has been tested or assessed.

Previously assessments to meet the requirements of BS476 were most common, but these are not easy to come by with regard to the BS EN 1366-2:1999 test methods. It is important to check that your proposed installation method meets one of those described. Guidance is also available in the HVAC document DW145 that outlines the industry standard for the installation of dampers. Regulatory requirements have changed and are changing, use this document along with DW145 to make sure your design and installation meets the current requirements as fire dampers are life safety products.

We are not able to approve specific installations that vary from those tested and described in this publication. You may seek assessment from bodies such as BRE/LPC or WFR who will require fully dimensioned drawings with material details for your proposed installation, together with any copies of our test reports for the product.

Our products are third party certificated, in addition to full ISO 9001:2008 quality assurance. The notified body check the products to ensure that they are still being manufactured as tested or assessed, that components are traceable back to the fire tests, assessments and product design files. The Loss Prevention Certification Board (LPCB) performs our QA and product audits.

While we have undertaken extensive testing, we continue to carry out tests to reflect industry practices. Supplement test reports are available from the actionair sales office.
Requirements

The Building Regulations

This is the law.

Approved Documents

These are published guides described as practical guidance to meeting the requirements of the building regulations.

British & European Standards

These are published standards on product definition, testing and classification, system requirements, recommendations and maintenance.

Certification Standards

These are standards published by certification bodies to ensure products have undergone the necessary third party testing.

They are then used by a notified body as the basis to ensure that products remain as tested, and that changes are re-tested or assessed by qualified personnel. There are further documents available, which are referenced in ADB that give details to designers to allow the consideration of business risk issues from smoke and fire - i.e. financial loss and is sponsored by insurers, to help assess premiums.
Building Regulations

By following the instructions in the approved documents you will fulfil the requirements of the regulations. If you can prove (with evidence or calculation) that another method is satisfactory you may use this, this is called fire engineering, but must be approved by a Building Control Authority (BCA) before use.

England & Wales

The document that gives an interpretation of the rules for Fire Safety is Approved Document B (ADB). This is available as a free download from the Planning Portal website.

It recommends the use of products meeting independent certification schemes, such schemes certifying compliance with the requirements of a recognised document, which is appropriate to the purpose for which the material is to be used. In addition to life safety it mentions the protection of property, including the building itself, stating that this may require additional measures, and insurers may seek their own higher standards, before accepting the insurance risk.

There have been a considerable number of changes with regard to fire dampers. They now have their own section giving very specific guidance.

- Paragraphs 5.46 to 5.48 Mechanical ventilation and air conditioning systems state that fire dampers protecting escape routes should respond to a smoke detector or suitable fire detection system, a fusible link alone is not acceptable and this implies that some type of actuator be used. The purpose of this is to ensure early closure to prevent passage of smoke. It also states that a damper with an ES classification may be used.

- Paragraphs 10.11 to 10.15 Fire dampers are more specific and also require actuation for fire dampers in buildings where there are levels of sleeping risk. The note that fusible link only dampers being unsuitable to protect escape routes is repeated together with the suitability of an ES rated product. 10.15 explains the requirements for E and ES classifications, to achieve any classification fire dampers must be tested to BS1366-2. A Fire Damper has an E (Integrity) classification. A Leakage Rated Fire Damper has an E (Integrity) and an S (Reduced Leakage) classification.

SmokeShield dampers fulfil the ES requirements for escape routes and areas with sleeping risk. FireShield fulfil the E requirements and can be used in all other areas for run out ducting etc.

ADB states that dampers should be mounted within the structure that they are seeking to protect and should be installed as tested.

A statement saying that fire dampers tested only to BS476 may only be appropriate for fan off situations.

For the purposes of application, what are presently known as combination fire and smoke dampers, providing that they have an ES classification to BS EN 13501-3:2005, now termed leakage rated fire dampers, actuated via a smoke detection system will fulfil the requirements for the protection of escape routes and the protection of areas with sleeping risk. Curtain fire dampers and other dampers having an E classification to BS EN 13501-3:2005 will fulfil the general requirements for all other applications and areas.

Scotland

These exist as technical standards (AMDs). They give very similar guidance to ADB. They already include direct references to the application of European standards. They are available as a free download from the Scottish Executive website.
Standards

Fire Damper Standards
BS EN 1366-2:2015 (Test standard)
Gives requirements for testing dampers to the standard time/temperature curve with a requirement to close within two minutes of the start of the test. After closure a 300Pa pressure differential is applied to the damper and the damper leakage (corrected to 20°C) is recorded throughout the rest of the test. The largest size of damper to be offered for sale must be fire tested. Pass and fail criteria is included in the standard.

- **Integrity E** - The damper must leak no more than 360m³/hr/m² at any point during the test.
- **Optional Integrity and Leakage ES** - the damper must leak no more than 200m³/hr/m² at any point during the fire test. This also applies to the largest and smallest size of damper to be offered for sale at ambient temperatures for the ES criteria to be applicable.
- **Optional Insulation I** - insulation rating not required by legislation for dampers in the UK.

BS EN 13501-3:2005 (Classification Standard)
States times and performance to enable the classification of fire dampers (E, ES and I requirements).

BS EN 15650:2010 (Product standard)
Contains the basic performance and requirements for fire dampers.

System Design & Related Standards
BS 9999:2008 code of practice for fire safety in the design, management and the use of buildings provides guidance on the ongoing management of fire safety in a building throughout the entire life cycle of the building, including guidance for designers to ensure that the overall design of a building assists and enhances the management of fire safety. It can be used as a tool for assessing existing buildings, although fundamental change in line with the guidelines might be limited or not practicable.

The standard builds on government guidance to legislative requirements, providing an advanced approach to fire safety in the design, management and use of buildings. It promotes a more flexible approach to fire safety design through use of structured risk based design where designers take account of varying human factors.

BS EN 12101-6:2005 Smoke and heat control systems. Specification for pressure differential systems gives test procedures for the systems used, as well as describing relevant and critical features of the installation and commissioning procedures needed to implement the calculated design in a building. It covers systems intended to protect means of escape such as stairwells, corridors and lobbies, as well as systems intended to provide a protected fire fighting bridgehead for the Fire Services.

Certification Standards
LPS 1162 is a typical product certification standard. It contains all the tests that the Loss Prevention Certification Board (LPCB) requires the product to undergo, before certification may be offered. It also states that to meet it, a company must have full BS EN ISO 9001 accreditation. The LPCB visit the factory at least once a year to confirm by measurement that the certificated products maintain all the tested dimensions, and confirm that the products still comply with any assessments that may have been made. Using certificated products mean less time needs to be taken checking up that products meet the required standards, as a third party is making sure that this is the case.

Extended Fields of Application (Assessments)
Under BS EN 1366-2 etc specific documents are being drafted for the extended field of application for all products. It is becoming clear that assessments for small component changes and the use of units smaller than those tested are allowable. However the use of methods of installation other than that tested will lead to problems, with assessments being difficult to acquire. The reason for this is the fact that the test is passed or failed based on the leakage of the unit during the test, as well as any failure at the boundary between the damper and the supporting construction. The damper closing is just the start of the test. The laboratories are unwilling to state that a change in building in method will not affect the leakage performance. Previously, under the BS 476 ad-hoc testing, assessments were forthcoming with respect to installation, this was because the test pass or fail criteria were purely mechanical with gap gauges etc, not leakage measurement.
### INSTALLATION METHODS, CLASSIFICATION AND TEST REPORT SUMMARY

<table>
<thead>
<tr>
<th>E- Fire Integrity</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES - Fire Integrity with restricted leakage - 200 m³/hr/m² @ 300Pa at ambient temperature (smallest and largest single sections) and during the fire test (largest single section)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DIAGRAM</th>
<th>Product &amp; Classification</th>
<th>BSEN 1366-2 Test / Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>DWFX-F</td>
<td>SmokeShield PTC (AA/F10704)</td>
<td>SmokeShield PTC - BRE 256493</td>
</tr>
<tr>
<td>Flange + Cleats Dry wall</td>
<td>E120S</td>
<td></td>
</tr>
<tr>
<td>Pages 24, 25 &amp; 26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DWFX-F</td>
<td>SmokeShield PTC (AA/F10706)</td>
<td>SmokeShield PTC - BRE 256493</td>
</tr>
<tr>
<td>Masonry wall</td>
<td>E120S</td>
<td></td>
</tr>
<tr>
<td>Pages 27, 28 &amp; 29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DWFX-F</td>
<td>SmokeShield PTC (AA/F10710)</td>
<td>SmokeShield PTC - BRE 267924</td>
</tr>
<tr>
<td>BATT Dry wall</td>
<td>E120S</td>
<td></td>
</tr>
<tr>
<td>Pages 35, 36 &amp; 37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DWFX-F</td>
<td>SmokeShield PTC (AA/F10712)</td>
<td>SmokeShield PTC - BRE 267924</td>
</tr>
<tr>
<td>BATT Masonry wall</td>
<td>E120S</td>
<td></td>
</tr>
<tr>
<td>Pages 38, 39 &amp; 40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FireShield (AA/F10705)</th>
<th>FireShield - BRE 259932</th>
</tr>
</thead>
<tbody>
<tr>
<td>FireShield (AA/F10707)</td>
<td>FireShield - BRE 259932</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FireShield (AA/F10711)</th>
<th>FireShield - BRE P100726-1001</th>
</tr>
</thead>
<tbody>
<tr>
<td>FireShield (AA/F10713)</td>
<td>FireShield - BRE P100726-1001</td>
</tr>
</tbody>
</table>
## INSTALLATION METHODS, CLASSIFICATION AND TEST REPORT SUMMARY

**E - Fire Integrity**

ES - Fire Integrity with restricted leakage - 200 m³/hr/m² @ 300Pa at ambient temperature (smallest and largest single sections) and during the fire test (largest single section)

<table>
<thead>
<tr>
<th>Diagram</th>
<th>Product &amp; Classification</th>
<th>BSEN 1366-2 Test / Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="HEVAC / HVCA Installation frame HORIZONTAL" /></td>
<td>SmokeShield PTC (AA/F10700 AA/F8018) E240 E120S</td>
<td>SmokeShield PTC - BRE 231740</td>
</tr>
<tr>
<td><img src="image2" alt="HEVAC / HVCA Installation frame VERTICAL" /></td>
<td>SmokeShield PTC (AA/F10702) E240 E120S</td>
<td>SmokeShield PTC - BRE 259933</td>
</tr>
<tr>
<td><img src="image3" alt="DWFX-C Cleats Dry wall" /></td>
<td>SmokeShield PTC (AA/F10708) E120S</td>
<td>SmokeShield PTC - BRE 231741</td>
</tr>
<tr>
<td><img src="image4" alt="CSS Dry Wall" /></td>
<td>CSS (AA/F10718) E120S</td>
<td>CSS - BRE 238072</td>
</tr>
<tr>
<td><img src="image5" alt="CSS Masonry Wall" /></td>
<td>CSS (AA/F10720) E120S</td>
<td>CSS - BRE 238072</td>
</tr>
<tr>
<td><img src="image6" alt="CSS HORIZONTAL" /></td>
<td>CSS (AA/F10719) E180 E120S</td>
<td>CSS - BRE 246994</td>
</tr>
<tr>
<td>Diagram</td>
<td>Product &amp; Classification</td>
<td>BSEN 1366-2 Test / Assessment</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td><img src="image" alt="Diagram of S&amp;A Sleeve &amp; Angle Dry wall" /></td>
<td>SmokeShield PTC (AA/F10714) E120 ES120</td>
<td>SmokeShield PTC - BRE 267924</td>
</tr>
<tr>
<td><img src="image" alt="Diagram of S&amp;A Sleeve &amp; Angle Masonry wall" /></td>
<td>SmokeShield PTC (AA/F10716) E120 ES120</td>
<td>SmokeShield PTC - BRE 267924</td>
</tr>
<tr>
<td><img src="image" alt="Diagram of S&amp;A Sleeve &amp; Angle + BATT HORIZONTAL" /></td>
<td>SmokeShield PTC (AA/F10724) E120 E90S</td>
<td>SmokeShield PTC - BRE 267924</td>
</tr>
</tbody>
</table>
What is BIM?
BIM stands for Building Information Modelling a process for managing information produced during a construction project, in a common format, from the earliest feasibility stage through to design, construction, operation and finally demolition, in order to make the best and most efficient use of that information.

Consistent, Conventional Labelling
This is to help tracking and finding data throughout its life and will ensure everyone else working on a project is working in the same way.

Storing Information
A method for storing and manipulating information involving the use of a three-dimensional representative in a building and all of its components virtually with software.

Information Exchange
A method of exchanging and issuing information about a building includes its construction, operation, performance and maintenance. Traditionally this is done via the use of drawings, schedules and paper or electronic manuals. The difference with this method is that the information needed is already available as it is generated from the BIM instead of separate documents making it more precise and accurate.

Why BIM?
The use of BIM allows for better internal management of technical data along with the integration of multiple data sources into one place. This allows virtual designs to be created in three dimensions, all building elements can be found within a model and any spatial clashes can be identified and resolved before proceeding to site.
BIM can provide an aid to troubleshooting within a building. Large/fully integrated buildings where there is a building management system can allow engineers to check when a building isn’t performing correctly, whereas smaller buildings don’t often have these systems and a well co-ordinated BIM offers a troubleshoot guide to evaluate the systems within the building.

BIM Legislation
In January 2016 it was made mandatory in the UK that all public building construction projects are to supply BIM objects for all products used, working alongside this is the Government Soft Landing Policy. This policy identifies the need to recognise early end-user engagement in the design and construction process to best optimise the buildings performance.

What we offer
We offer a wide selection of BIM objects that are free to download and use from our website, we continuously add BIM object files to our technical library which are tried and tested by professionals. Sizes have been limited to ensure that when loaded into any Building Information Model they do not compromise the operability.
Our 3D models each contain key data which defines the products physical characteristics, materials and properties. Each model includes data which gives the object a recognisable appearance and behavioural data which enables the object to be positioned or behave exactly as the product itself would in reality.
CE Marking & Third Party Certification

Certain European member states, including the UK & Ireland, have until now chosen not to make CE marking mandatory for products sold within their boundaries, despite the fact that under the Construction Products Directive (CPD) it has been mandatory to ‘CE’ mark construction products placed on the European market. In 2011 the CPD was replaced by the Construction Products Regulation (CPR) which does not allow any member state to ‘opt out’ of mandatory CE marking. Consequently, from 1st July 2013 the CPR states that all products that fall within scope of Harmonised European Standards (hENs) will have to be CE marked.

The installation methods contained within this manual are third party tested or assessed, and certified, by our Notified Body (LPCB), as prescribed within the CPR.

The message is simple from 1st July 2013, ensure that every product specified is properly certified (CE marked) and installed correctly. It is also important to be wary or avoid products that use phrases such as designed to meet and complies with, the key word to look out for is certification.

Installation Methods

The following sections deal with the installation methods. There are dimensional drawings and a detailed description of each method.

In each case the classifications are shown, together with the fire test reference. Fire test reports are available in full from the actionair sales office. They are large documents, we are not permitted to abridge them, they are available as a PDF document.

Alternative partition systems to those shown within this installation manual can be used if they have been shown by test to have at least the same fire resistance when tested to BS EN 1364-1:1999 as is required of the damper. If the partition system has been successfully tested without stone mineral wool, it does not have to be used in practice when only considering the fire performance of the complete system. The mineral wool may still be needed for other reasons e.g. acoustic performance.

The mortar used in the tests shown within this installation manual had a standard sand/cement mix in the ratio of 4:1. Alternative fire resisting refractory mortars may be used providing that they have been tested in accordance with BS EN 1366-3:2009 for the required period when installed around the damper.

DW145

Guide to good practice, for the installation of fire and smoke dampers. The DW145 guide is intended to highlight and clarify the important aspects of fire and smoke barrier/damper installation, including the responsibilities of all parties involved in the overall sequence from system specification through to a compliant installation. Emphasis is placed on the need for all parties to work as a team by recognising not only their individual responsibilities, but also those of all other parties in achieving this goal.

The guidance only relates to the installation of fire dampers and leakage rated fire smoke dampers as used in ventilation systems to maintain fire compartments and/or protect means of escape from buildings and does not cover the installation of powered smoke control dampers.

The importance of installing damper arrangements that have been selected/specified by the system designer and that have been successfully fire tested by an independent body on behalf of the damper manufacturer is emphasised throughout the guide.

Communication between team members and the need for consistency in both design and approach are key factors in achieving a compliant design. The guide recommends that check lists are utilised and adapted to suit the specific requirements of an individual project. Typical check sheet are included in appendix E of the guide and we have developed check lists for inspection and handover (E3 in the guide) specifically for our dampers.
**DW145 Inspection & Handover Check Sheet**

**Damper Installation Certificate**

The installer must complete this installation certificate when installing fire and smoke dampers. A separate certificate must be completed for each individual fire and smoke damper.

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Action</th>
<th>Tick</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Are the dampers the correct type?</td>
<td>Confirm damper is correct type e.g. SmokeShield, CSS or Fire Shield</td>
<td>☐</td>
</tr>
<tr>
<td>2</td>
<td>Are the dampers located correctly?</td>
<td>Damper location is to be checked against installation drawings &amp; details</td>
<td>☐</td>
</tr>
<tr>
<td>3</td>
<td>Are the dampers correctly identified?</td>
<td>Unique system ID to clearly indicate on damper or other agreed location.</td>
<td>☐</td>
</tr>
<tr>
<td>4</td>
<td>Have supports for both the damper and the adjacent ductwork been installed in accordance with the approved manner?</td>
<td></td>
<td>☐</td>
</tr>
<tr>
<td>5</td>
<td>Are the dampers fitted in the correct orientation?</td>
<td>Confirm the damper installed is correct way up and relative to airflow and or access.</td>
<td>☐</td>
</tr>
<tr>
<td>6</td>
<td>Is access through the ductwork, to the damper unobstructed?</td>
<td>Unobstructed space should be provided for safe access to the damper. This must include access through ceiling voids and adjacent services. Damper installer to advise the system designer if problems are foreseen.</td>
<td>☐</td>
</tr>
<tr>
<td>7</td>
<td>Has the space around the damper and within the opening been left clear and not been used for other services?</td>
<td>Other services within the installation opening will invalidate the installation method. Damper installer to advise the lead contractor if problems are foreseen.</td>
<td>☐</td>
</tr>
<tr>
<td>8</td>
<td>Using the access opening provided, are the damper blades in the open position?</td>
<td>Check position of damper blades.</td>
<td>☐</td>
</tr>
<tr>
<td>9</td>
<td>Has the damper been checked for internal cleanliness, free from damage and that vertical casings in particular are free from debris?</td>
<td>With the damper in the closed position, inspect for damage.</td>
<td>☐</td>
</tr>
<tr>
<td>10</td>
<td>Has the damper been released to simulate operation of the thermal release? (Damper drop test)</td>
<td>Ensure damper operation is free from interference.</td>
<td>☐</td>
</tr>
<tr>
<td>11</td>
<td>Have the damper blades been re-set following drop test and the access panel replaced?</td>
<td>After re-setting the damper, check the position shown on the blade position indicator is correct.</td>
<td>☐</td>
</tr>
<tr>
<td>12</td>
<td>At the time of damper handover, is the fire barrier and penetration seal complete?</td>
<td>Damper installer to record on the handover register if any following trades are still to complete their activities.</td>
<td>☐</td>
</tr>
<tr>
<td>13</td>
<td>Is the damper installation complete and available for handover prior to system commissioning?</td>
<td>Obtain the relevant acceptance of the damper installation from the CDM coordinator.</td>
<td>☐</td>
</tr>
<tr>
<td>14</td>
<td>Is the completed handover register cross-referenced back to the identification codes listed in the system designer’s damper schedule?</td>
<td></td>
<td>☐</td>
</tr>
</tbody>
</table>

**Damper Unique System I.D.**

Name of Installation Location: ____________________________

Address: ____________________________

Installation Location Identification (section/floor/room): ____________________________

Damper Product Type: ____________________________

Release Fuse Temperature: ____________________________

Notes/Considerations: ____________________________

Installed by: ____________________________

Company Name: ____________________________

Address: ____________________________

Company Telephone No: ____________________________

Installers Name(s): ____________________________

Installers Telephone No: ____________________________

Date of installation: ____________________________

It is hereby verified the damper detailed has been installed and tested according to the manufacturers recommendations

Installers Signature: ____________________________

Date: ____________________________
Periodic Maintenance

BS EN 15650:2010 - Ventilation for Buildings - Fire Dampers
Section 8.3 states regular testing/inspection should be undertaken to meet regulatory requirements, or at intervals not exceeding six months. A comprehensive example of the maintenance procedure is given in Annex D of the standard. Some automatic systems may allow more frequent testing (48hr or less) and this may be required by a national standard.

Approved Document B, Volume 2
Clause 10.12 states adequate means of access must be provided to allow inspection, testing and maintenance of both fire damper and its actuating mechanism.

V.3.5 Smoke Control Systems
For means of escape states actuation of the system should be simulated once a week. It should be ensured that any fans and powered exhaust ventilators operate correctly, smoke dampers close (or open in some systems), natural exhaust ventilators open, automatic smoke curtains move into position, etc.

V.5 Three Monthly
In addition to the checks recommended in V.2, V.3 and V.4, the actuation of all smoke control systems should be simulated once every three months. All zones should be separately tested and it should be ensured that any fans and powered exhaust ventilators operate correctly, smoke dampers close (or open in some systems) etc.

V.7 Yearly
In addition to the checks recommended in V.2 to V.6 arrangements should be made for annual inspections and tests of the following to be carried out by competent persons, for any defects to be logged and the necessary action taken, and for certificates of testing to be obtained.

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

Arrangements should be made for all fire dampers to be tested by a competent person on completion of the installation and at regular intervals not exceeding 2 years. They are to be repaired or replaced immediately if found to be faulty. Spring operated fire dampers should be tested annually and fire dampers in dust laden and similar atmospheres should be tested much more frequently, at periods suited to the degree of pollution.
Test Facility

The Test Centre at Whitstable provides state of the art facilities for testing a complete range of products. It was designed in accordance with BSRIA recommendations and benefits from third party annual assessment. It has a well equipped demonstration area where tests can be witnessed by contractors, consultants and end clients. Third party witnessing by BSRIA is available if required.

The test facility is fitted with the latest equipment and exceeds the requirements of BS EN 12238:2001 (for air terminal devices aerodynamic testing and rating for mixed flow applications) with a test room size of 7.5m long x 5.6m wide x 2.8m high. Ceiling heights and floor voids can also be adjustable depending on the test regime required.

A purpose designed air handling system is able to supply conditioned air across a wide temperature range in both heating and cooling modes with volumes up to the equivalent of 20 air changes per hour being available.

Sophisticated measuring and logging equipment is able to monitor air volumes, velocities, pressures and temperatures as well as airflow pattern visualisation via the use of smoke generation within the test laboratory.
Horizontal in Floor Slab HEVAC/HVCA Installation Frame (IF)

Health & Safety
This process must be undertaken by competent persons. More than one person may be required to ensure the safe handling of large dampers and other materials.

Use of access equipment must be used to ensure unsafe practices are not approached for walls or difficult access areas.

Standard site PPE should be used (minimum steel toe cap boots, hard hat) together with protective eyewear, gloves and masks, when drilling or cutting is being undertaken. The latter should also be used when handing the wall construction materials, as defined by the material suppliers. If loud equipment is being used, hearing protection should be worn.

All waste materials should be collected and disposed of as defined by the relevant supplier.

Damper Installation Method
1) Measure the positions of the building ties on the HEVAC frame.
2) Mark up the inside edges of the hole in the slab to give positions that match to the building ties. Drill into the floor slab and fit stud anchors (or similar) leaving them protruding into the opening.
3) Turn out the building ties on the damper offer the damper into position.
4) Using steel wire (min ø1.5mm) wrap this round the building ties and the stud anchors to hold the damper in position (Note: This will also maintain the quality of the link between the damper, the infill mortar and the floor slab should a fire occur).
5) Shutter beneath the damper (if required) and add mortar from the top of the slab and infill to the HEVAC frame. Take care not to infill past the line on the interface shroud if the motor is to be fitted above the slab.
6) When the mortar is firm remove the shuttering (if applied) and infill with more mortar to the HEVAC frame from below the slab. Do not infill past the line on the interface shroud if the motor is to be fitted below the slab.

Ductwork
Ductwork to be fitted and connected to damper spigots in accordance with DW144 & DW145. Aluminium rivets should be used to act as a breakaway joint, unless fire resisting ductwork is being used where fire resting fixings should be used.

Actuator Fitting (If required)
1) The control mode/actuator should then be fitted using the instructions supplied with it.
2) Using the supplied drilling template, drill into the ductwork and fit the Electrical Thermal Release (ETR) into the duct.
3) A special feature of the actionair SmokeShield modes is that they may be adjusted from pointing straight out along the duct (standard configuration) through 90° to point either up or down if required.
4) The mode should be wired into the system using the site wiring detail, plus the details shown on the label. Note: If the mode/actuator fitting instructions are missing, please contact the actionair sales office.

Commissioning
The procedure detailed under periodic maintenance should be followed.

Periodic Maintenance
Please see Page 12

Procedure
1) The manually resettable fire damper should be carefully inspected, cleaned and lubricated with light oil, if required, released and reset.
2) The motorised fire damper control mode should be operated to ensure that it is moving the blades from open to close and vice versa.
3) If the end switches (in the control mode) are being used, it must be checked at commissioning stage that they are actually indicating that the blades are open or closed. If using an automatic control system this can be achieved by running a test cycle and checking the blades (open and closed) and the status indication at the control system.
Connecting ductwork omitted for clarity.

Ductwork must be independently supported.

There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminum rivets or plastic cleats, clips, clamps and bolts etc should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

Applicable Test Report to
BS EN1366-2:
BRE 231740

E 240 MINUTES
Fire Resistance Integrity

ES 120 MINUTES
Fire Resistance Integrity and Leakage

SMOKE SHIELD DAMPER
BUILDING TIES BENT OUTWARDS

AERATED CONCRETE SLAB
(MIN 580Kg/m²)

MINIMUM Ø6.5mm X 60mm FIRE RATED ANCHORS

15mm UPSTAND
5mm - 75mm ALL ROUND FROM THE INSTALLATION FRAME UPSTAND FLANGE TO THE APERTURE FACE

Ø1.5mm STEEL WIRE SECURING DAMPER BUILDING TIES, TO STUD ANCHORS

HORIZONTAL APPLICATION
SMOKE SHIELD & INSTALLATION FRAME

Damper Size Range (mm)
200 x 200 to 1000 x 1000
If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity.

Ductwork must be independently supported.

There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly.

Aluminium rivets or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).
If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity. Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly.

Aluminium rivets or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).
If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity.
Ductwork must be independently supported.
There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly.
Aluminium rivets or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/ floor).

Applicable Test Report to
BS EN1366-2:
BRE 209934
E240 MINUTES
Fire Resistance
Integrity

<table>
<thead>
<tr>
<th>Description</th>
<th>Damper Size Range (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORIZONTAL APPLICATION</td>
<td>100 x 100 to 1250 x 1000</td>
</tr>
</tbody>
</table>

© Swegon Air Management Limited
South Street, Whitstable, Kent CT5 3DU
Tel: +44 (0)1227 276100
Fax: +44 (0)1227 264262
www.swegonair.co.uk
**Vertical in Block Work/Masonry Wall HEVAC/HVCA Installation Frame**

**Health & Safety**

This process must be undertaken by competent persons. More than one person may be required to ensure the safe handling of large dampers and other materials.

Use of access equipment must be used to ensure unsafe practices are not approached for walls or difficult access areas.

Standard site PPE should be used (minimum steel toe cap boots, hard hat) together with protective eyewear, gloves and masks, when drilling or cutting is being undertaken. The latter should also be used when handing the wall construction materials, as defined by the material suppliers. If loud equipment is being used, hearing protection should be worn.

All waste materials should be collected and disposed of as defined by the relevant supplier.

**Damper Installation Method**

1) Measure the positions of the building ties on the HEVAC frame.

2) Mark up the lintel at the top of the hole in the wall to give positions that match to the building ties. Drill into the lintel and fit stud anchors or similar steel fixings (min ø6.5mm x 60mm).

3) Turn out the building ties on the damper and offer the damper into position, supporting from underneath with a block of wood or board, which will need to be removed when the mortar is in position. If 4 hour Integrity is required (E240) pockets in the wall will be required and wall ties turned out into them.

4) Using a steel wire, wrap this round the building ties and the stud anchors in the lintel at the top, to hold the damper in position (Note: This will also maintain the quality of the link between the damper, the infill mortar and the wall should a fire occur).

5) Add mortar from both sides of the damper and infill to the HEVAC frame. Take care not to infill past the line on the interface shroud.

**Ductwork**

Ductwork to be fitted and connected to damper spigots in accordance with DW144 & DW145. Aluminium rivets should be used to act as a breakaway joint, unless fire resisting ductwork is being used where fire resting fixings should be used.

**Actuator Fitting (If required)**

1) The control mode/actuator should then be fitted using the instructions supplied with it.

2) Using the supplied drilling template, drill into the ductwork and fit the Electrical Thermal Release (ETR) into the duct (as good practice, this should be towards the top of the duct).

3) A special feature of the actionair SmokeShield modes is that they may be adjusted from pointing straight out along the duct (standard configuration) through 90° to point either up or down if required.

4) The mode should be wired into the system using the site wiring detail, plus the details shown on the label. Note: If the mode/actuator fitting instructions are missing, please contact the actionair sales office.

**Commissioning**

The procedure detailed under periodic maintenance should be followed.

**Periodic Maintenance**

Please see Page 12

**Procedure**

1) The manually resettable fire damper should be carefully inspected, cleaned and lubricated with light oil, if required, released and reset.

2) The motorised fire damper control mode should be operated to ensure that it is moving the blades from open to close and vice versa.

3) If the end switches (in the control mode) are being used, it must be checked at commissioning stage that they are actually indicating that the blades are open or closed. If using an automatic control system this can be achieved by running a test cycle and checking the blades (open and closed) and the status indication at the control system.
If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity. Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminium rivets or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

Applicable Assessment to BS EN 1366-2:
BRE 259933

ES 120 MINUTES
Fire Resistance Integrity and Leakage
VERTICAL BLADES; DAMPER CAN BE INSTALLED WITH THE BLADES IN THE VERTICAL ORIENTATION WITH THE ACTUATOR MOUNTED AT EITHER THE TOP OR BOTTOM

- LINTEL
- Ø6.5mm (MIN) STEEL ANCHORS (TOP EDGE ONLY)
- 4:1 SAND : CEMENT MIX MORTAR OR WITH A MORTAR APPROPRIATE FOR THE EXPECTED FIRE RESISTANCE PERIOD
- Ø1.5mm STEEL WIRE SECURING DAMPER BUILDING TIES, TO STUD ANCHORS (TOP EDGE ONLY)
- INSTALLATION FRAME
- SMOKE SHIELD DAMPER
- BUILDING TIES BENT OUT INTO WALL POCKETS ON SIDES & BOTTOM

NOTE:
- DIMENSION IS FLEXIBLE; BEAR IN MIND BUILDING TIE WALL POCKETS DIMENSIONS USED TO ATTAIN 4 HOUR RATING

VIEW A
(ALL ROUND DETAIL)

WALL POCKET DETAIL

APPROX
25mm - 100mm

NOTE:
- BUILDING TIE WALL POCKETS ON THE SIDES AND BOTTOM, ONLY REQUIRED FOR 4 HOUR INTEGRITY

INSTALLATION FRAME UPSTAND FLANGE

ACTUATOR

AERATED BLOCKWORK WALL

VERTICAL APPLICATION
SMOKE SHIELD & INSTALLATION FRAME

Damper Size Range (mm):
200 x 200 to 1000 x 1000

Reference No:
AAF10702

Sheet
2 of 2

Rev
E
If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity. Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminum rivets or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

Applicable Test Report to BS EN1366-2:
BRE 231739
E 120 MINUTES Fire Resistance Integrity

<table>
<thead>
<tr>
<th>Install Dimension</th>
<th>FIRE SHIELD &amp; INSTALLATION FRAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damper Size Range (mm)</td>
<td>100 x 100 to 1250 x 1000</td>
</tr>
</tbody>
</table>

© Swegon Air Management Limited
South Street, Whitstable, Kent CT5 3DU
Tel: +44 (0)1227 276100
Fax: +44 (0)1227 264262
www.swegonair.co.uk

CONNECTING DUCTWORK OMITTED FOR CLARITY
NOTE:
DIMENSIONS FLEXIBLE;
BEAR IN MIND BUILDING TIE WALL POCKETS DIMENSIONS USED TO ATTAIN 4 HOUR RATING

VIEW A
(ALL ROUND DETAIL)

INSTALLATION FRAME
UPSTAND FLANGE

A

BUILDING TIE WALL POCKETS

NOTE:
BUILDING TIE WALL POCKETS ON THE SIDES AND BOTTOM, ONLY REQUIRED FOR 4 HOUR INTEGRITY

LINTEL

ø6.5mm (MIN) STEEL ANCHORS (TOP EDGE ONLY)

4:1 SAND : CEMENT MIX MORTAR OR WITH A MORTAR APPROPRIATE FOR THE EXPECTED FIRE RESISTANCE PERIOD

ø1.5mm STEEL WIRE SECURING DAMPER BUILDING TIES, ANCHORS

INSTALLATION FRAME

FIRE DAMPER

BUILDING TIES BENT OUT INTO WALL POCKETS ON SIDES & BOTTOM

Connecting ductwork omitted for clarity. Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminium rivets or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

Aluminimum rivets or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

Applicable Test Report to
BS EN1366-2:
BRE 267925
E 240 MINUTES
Fire Resistance Integrity

D amper Size Range (mm)
100 x 100 to 1250 x 1000

C

Reference No:
AAF10703
Sheet
2 of 2
Rev. D

If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Fire Resistance & Installation

Vertical Application
FIRE SHIELD & INSTALLATION FRAME

Swegon Air Management Limited
South Street, Whistable, Kent CT5 3DU
Tel: +44 (0)1227 276 100
Fax: +44 (0)1227 294 262
www.swegonair.co.uk

NOTE:
BUILDING TIE WALL POCKETS ON THE SIDES AND BOTTOM, ONLY REQUIRED FOR 4 HOUR INTEGRITY
Health & Safety

This process must be undertaken by competent persons. More than one person may be required to ensure the safe handling of large dampers and other materials.

Use must be made of access equipment to ensure unsafe practices are not used to approach walls or difficult access areas.

Standard site PPE should be used (minimum steel toe cap boots, hard hat) together with protective eyewear, gloves and masks, when drilling or cutting is being undertaken. The latter should also be used when handing the wall construction materials, as defined by the material suppliers. If loud equipment is being used, hearing protection should be worn.

All waste materials should be collected and disposed of as defined by the relevant supplier.

Damper Installation Method

1) Measure the overall damper casing size, include the PTC shroud but do not include the peripheral flange.
2) Calculate the finished hole size by adding 25mm ± 5mm to both width and height.
3) Calculate the hole to cut size by adding two board thicknesses to the finished hole width and height.
4) Mark out the hole on the partition and cut it out, cutting the top and bottom edges first to maintain stability.
5) Frame out the hole with stud and track and cover this with board. Finish edges with joint filler.
6) Drill clearance holes in the damper flange at 150mm centres and such that they will allow screws to pull into the stud and track around the hole.
7) Install the damper and fasten.
8) Back fill with mineral/stone wool and patress over this down to the spigot.

Ductwork

Ductwork to be fitted and connected to damper spigots in accordance with DW144 & DW145. Aluminium rivets should be used to act as a breakaway joint, unless fire resisting ductwork is being used where fire resisting fixings should be used.

Actuator Fitting (If required)

1) The control mode/actuator should then be fitted using the instructions supplied with it.
2) Using the supplied drilling template, drill into the ductwork and fit the Electrical Thermal Release (ETR) into the duct (as good practice, this should be towards the top of the duct).
3) A special feature of the actionair SmokeShield modes is that they may be adjusted from pointing straight out along the duct (standard configuration) through 90° to point either up or down if required.
4) The mode should be wired into the system using the site wiring detail, plus the details shown on the label. Note: If the mode/actuator fitting instructions are missing, please contact the actionair sales office.

Commissioning

The procedure detailed under periodic maintenance should be followed.

Periodic Maintenance

Please see Page 12

Procedure

1) The manually resettable fire damper should be carefully inspected, cleaned and lubricated with light oil, if required, released and reset.
2) The motorised fire damper control mode should be operated to ensure that it is moving the blades from open to close and vice versa.
3) If the end switches (in the control mode) are being used, it must be checked at commissioning stage that they are actually indicating that the blades are open or closed. If using an automatic control system this can be achieved by running a test cycle and checking the blades (open and closed) and the status indication at the control system.
VERTICAL BLADES:
DAMPER CAN BE INSTALLED WITH THE BLADES IN THE VERTICAL ORIENTATION WITH THE ACTUATOR MOUNTED AT EITHER THE TOP OR BOTTOM. FOR CLEAT LOCATIONS OF MOTORS MOUNTED ON TOP REFER TO DRAWING AA-SS-2005 AND FOR MOTORS MOUNTED ON THE BOTTOM REFER TO DRAWING AA-SS-2006.

VIEW A

12.5 x THICK GYPSUM FIRE BOARDS TYPE F (EN520) ALL ROUND, FIXED WITH DRYWALL SCREWS (@300 CTRS) INTO UDT72 STUD CHANNELS

GAP PACKED WITH STONE MINERAL WOOL ALL ROUND MIN 45kg/m²

DAMPER CASING

2-OFF 12.5mm GYPSUM FIRE BOARDS TYPE F (EN520) BOTH SIDES

STONE WOOL MIN 45kg/m²

UDT72 STUD CHANNEL ARROUND PERIMETER

ANGLE CLEATS

M10 DROP RODS

DWFX-F FLANGE (TACK WELDED TO DAMPER CASING) FIXED WITH DRYWALL SCREWS (@ 150mm CTRS) INTO STUD CHANNEL, ALL ROUND.

VIEW B

(SIDE DETAIL)

INTERFACE SHROUD

2-OFF 12.5mm GYPSUM FIRE BOARDS TYPE F (EN520) BOTH SIDES

UP TO 60mm INFILL

ON ACTUATOR SIDE ONLY

28mm

MIN 12.5mm (TYPE F) PLASTERBOARD ALL ROUND

72 STUD CHANNEL

DATE: 20/03/18

REFERENCE NO: AAF10704

Sheet 1 of 1

E

Installaton Detail

If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity.

Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminium rivets or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

Applicable Test Report to BS EN1366-2:
BRE 256493

ES 120 MINUTES
Fire Resistance Integrity and Leakage

DESCRIPTION:
SMOKE SHIELD DWFX-F

Damper Size Range (mm)
200 x 200 to 1000 x 1000

Reference No: AAF10704
Sheet 1 of 1
Rev E
12.5 x THICK GYPSUM FIRE BOARDS TYPE F (EN520) ALL ROUND, FIXED WITH DRYWALL SCREWS (@300 CTRS) INTO UDT52 STUD CHANNELS

12.5mm GYPSUM FIRE BOARDS TYPE F (EN520) ALL ROUND

GAP PACKED WITH STONE WOOL ALL ROUND MIN 45kg/m³

DAMPER CASING

12.5mm GYPSUM FIRE BOARDS TYPE F (EN520) BOTH SIDES

STONE WOOL MIN 45kg/m³

72 STUD CHANNEL

ANGLE CLEATS

DWFX-F FLANGE (TACK WELDED TO DAMPER CASING) FIXED WITH DRYWALL SCREWS (@ 150mm CTRS) INTO STUD CHANNEL, ALL ROUND.

2-OFF 12.5mm GYPSUM FIRE BOARDS TYPE F (EN520) BOTH SIDES

VIEW A

72 STUD CHANNEL

2-OFF 12.5mm GYPSUM FIRE BOARDS TYPE F (EN520) BOTH SIDES

5mm - 20mm ALL ROUND

VIEW B (SIDE DETAIL)

If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity. Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminium rivets or plastic cleats, clips, clamps and bolts etc., should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

Acceptance of this solution must be sought by the system designer (in writing) from the appropriate LEVITATIONAL APPLICATION.

The damper must be installed in accordance with the manufacturer's recommendations and HEVAC/HVCA publication HVC6/5/83 rev 1 APRIL 2002.

This solution has been assessed by BRE to BS476 PT 20 for 2 hours and tested by BRE to BS-EN1366-2.

Fire Resistance Integrity

Applicable Assessment to BS EN1366-2: BRE 259932

E 120 MINUTES

Damper Size Range (mm)

100 x 100 to 1250 x 1000

© Swegon Air Management Limited
South Street, Whitstable, Kent CT5 3DU
Tel: +44 (0)1227 278100
Fax: +44 (0)1227 264282
www.swegonair.co.uk

EXPLANATION:

2 Hour fire, smoke rating, & 2 hour fire integrity.
Masonry Wall & Flange

Health & Safety

This process must be undertaken by competent persons. More than one person may be required to ensure the safe handling of large dampers and other materials.

Use must be made of access equipment to ensure unsafe practices are not used to approach walls or difficult access areas.

Standard site PPE should be used (minimum steel toe cap boots, hard hat) together with protective eyewear, gloves and masks, when drilling or cutting is being undertaken. The latter should also be used when handing the wall construction materials, as defined by the material suppliers. If loud equipment is being used, hearing protection should be worn.

All waste materials should be collected and disposed of as defined by the relevant supplier.

Damper Installation Method

1) Drill clearance holes in the damper flange at 150mm centres.
2) Install the damper and fix through flange using steel anchors min ø6.5mm.
3) Back fill between damper casing and wall, with mineral/stone wool and secure in place with angle retaining flanges, fixed in corners, or with Z shaped retaining flanges, to give the option of face fixing onto wall. Note: either angle or Z retaining flanges to be supplied by others.

Ductwork

Ductwork to be fitted and connected to damper spigots in accordance with DW144 & DW145. Aluminium rivets should be used to act as a breakaway joint, unless fire resisting ductwork is being used where fire resting fixings should be used.

Actuator Fitting (If required)

1) The control mode/actuator should then be fitted using the instructions supplied with it.
2) Using the supplied drilling template, drill into the ductwork and fit the Electrical Thermal Release (ETR) into the duct (as good practice this should be towards the top of the duct).
3) A special feature of the actionair SmokeShield modes is that they may be adjusted from pointing straight out along the duct (standard configuration) through 90° to point either up or down if required.
4) The mode should be wired into the system using the site wiring detail, plus the details shown on the label. Note: If the mode/actuator fitting instructions are missing, please contact the actionair sales office.

Commissioning

The procedure detailed under periodic maintenance should be followed.

Periodic Maintenance

Please see Page 12

Procedure

1) The manually resettable fire damper should be carefully inspected, cleaned and lubricated with light oil, if required, released and reset.
2) The motorised fire damper control mode should be operated to ensure that it is moving the blades from open to close and vice versa.
3) If the end switches (in the control mode) are being used, it must be checked at commissioning stage that they are actually indicating that the blades are open or closed. If using an automatic control system this can be achieved by running a test cycle and checking the blades (open and closed) and the status indication at the control system.
**VERTICAL BLADES:**

DAMPER CAN BE INSTALLED WITH THE BLADES IN THE VERTICAL ORIENTATION WITH THE ACTUATOR MOUNTED AT EITHER THE TOP OR BOTTOM. FOR CLEAT LOCATIONS OF MOTORS MOUNTED ON TOP REFER TO DRAWING AA-SS-2005 AND FOR MOTORS MOUNTED ON THE BOTTOM REFER TO DRAWING AA-SS-2006.

**NOTES:**

- **DAMPER SUPPLIED WITH CLEATS WELDED TO TOP FLANGE TO ASSIST WITH INSTALLATION ONLY**

**Connects ductwork omitted for clarity.**

Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminium rivets or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

Acceptance of this solution must be sought by the system designer from the appropriate LA prior to installation. (In writing).

The damper must be installed in accordance with the manufacturer's recommendations and HEVAC/HVCA publication HVC6/5/83 rev 1 APRIL 2002.

This solution has been assessed by BRE to BS476 PT 20 for 2 hours and tested by BRE to BS-EN1366-2.

Acceptance of this solution must be sought by the system designer from the appropriate LA prior to installation. (In writing).

Applicable Test Report to BS EN1366-2:

BRE 256493

**ES 120 MINUTES**

Fire Resistance, Integrity and Leakage

- **Verticle Application (AAF10706)**
  - **DAMPER SIZE RANGE (mm)**
    - 200 X 200 to 1000 x 1000

Reference No: AAF10706
NOTE:
DAMPERS SUPPLIED
WITH CLEATS WELDED
TO TOP FLANGE
TO ASSIST WITH
INSTALLATION ONLY

VIEW A

INSULATION RETAINER
FLANGES SUPPLIED BY
OTHERS EITHER ANGLE
OR ‘Z’ SHAPED TO RETAIN
INSULATION ALL ROUND

MIN 45kg/m²
STONE WOOL
INSULATION
FILLING GAPS
ALL ROUND

BLOCK / MASONRY WALL

FLAT FLANGE
FIXED TO WALL USING
STEEL ANCHORS
(@ 150mm CTRS)
ALL ROUND

DAMPER

0mm - 25mm GAP
ALL ROUND

VIEW B

ANGLE FLANGES
SUPPLIED BY OTHERS
FIXED AT ENDS

0mm - 25mm GAP
ALL ROUND

Installation Detail

If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity. Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminium rivets or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/roof).

Applicable Test Report to
BS EN1366-2:
BRE 259932

E 120 MINUTES
Fire Resistance
Integrity

Damper Size Range (mm)
100 x 100 to 1250 x 1000
Enclosure by Drywall Partition (DWFX-C)

Health & Safety
This process must be undertaken by competent persons. More than one person may be required to ensure the safe handling of large dampers and other materials.

Use must be made of access equipment to ensure unsafe practices are not used to approach walls or difficult access areas.

Standard site PPE should be used (minimum steel toe cap boots, hard hat) together with protective eyewear, gloves and masks, when drilling or cutting is being undertaken. The latter should also be used when handing the wall construction materials, as defined by the material suppliers. If loud equipment is being used, hearing protection should be worn.

All waste materials should be collected and disposed of as defined by the relevant supplier.

Damper Installation Method
1) Fit track (of partition) to the ceiling.
2) Suspend the damper from the ceiling through the centre of the partition ceiling track using 10mm studding drop rods.
3) Frame out the damper using tracks and studs lined with board. This is done with a lined track above the damper crossing between the nearest two full height studs, two vertical lined studs as close to the damper as possible (outside the cleats) from the top cross track to the floor and a lined cross track below the damper between the two vertical studs.
4) Build the partition to the track and stud framework, coming as close to the damper as possible.
5) Insulate the wall with mineral/stone wool.
6) Seal the damper to the partition with intumescent sealant and add patresses to both sides down to the damper spigot, seal to the damper spigot with intumescent sealant.
7) Finish the wall as standard practice.

Ductwork
Ductwork to be fitted and connected to damper spigots in accordance with DW144 & DW145. Aluminium rivets should be used to act as a breakaway joint, unless fire resisting ductwork is being used where fire resting fixings should be used.

Actuator Fitting (If required)
1) The control mode/actuator should then be fitted using the instructions supplied with it.
2) Using the supplied drilling template, drill into the ductwork and fit the Electrical Thermal Release (ETR) into the duct (as good practice, this should be towards the top of the duct).
3) A special feature of the actionair SmokeShield modes is that they may be adjusted from pointing straight out along the duct (standard configuration) through 90° to point either up or down if required.
4) The mode should be wired into the system using the site wiring detail, plus the details shown on the label. Note: If the mode/actuator fitting instructions are missing, please contact the actionair sales office.

Commissioning
The procedure detailed under periodic maintenance should be followed.

Periodic Maintenance
Please see Page 12

Procedure
1) The manually resettable fire damper should be carefully inspected, cleaned and lubricated with light oil, if required, released and reset.
2) The motorised fire damper control mode should be operated to ensure that it is moving the blades from open to close and vice versa.
3) If the end switches (in the control mode) are being used, it must be checked at commissioning stage that they are actually indicating that the blades are open or closed. If using an automatic control system this can be achieved by running a test cycle and checking the blades (open and closed) and the status indication at the control system.
**Installation Detail**

If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity. Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminium feet or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm construction element (wall/floor) between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

Applicable Test Report to BS EN1366-2:
BRE 231741
ES 120
Minutes
Fire Resistance
Integrity and Leakage

**Description:**

**SMOKE SHIELD DWFX-C**

**Damper Size Range (mm)**
200 x 200 to 1000 x 1000

**Reference No:**
AAF10708

**Sheet of 1 of 1**
Installation Detail

If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity. Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminium cleats or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resistive ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm construction element (wall/floor) between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

Applicable Test Report to
BS EN1366-2;
BRE 275927

E 120 MINUTES
Fire Resistance Integrity

<table>
<thead>
<tr>
<th>Description</th>
<th>D</th>
<th>EC1830</th>
<th>RTC</th>
<th>20/03/18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rev. Comments:</td>
<td>C</td>
<td>EC1776</td>
<td>MIR</td>
<td>20-02-18</td>
</tr>
<tr>
<td>Drawn By:</td>
<td></td>
<td></td>
<td>Qty</td>
<td>Date</td>
</tr>
<tr>
<td>Checked By:</td>
<td></td>
<td></td>
<td></td>
<td>20/03/18</td>
</tr>
<tr>
<td>Approved By:</td>
<td></td>
<td></td>
<td></td>
<td>20/03/18</td>
</tr>
<tr>
<td>FIRE OPERATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIRE SHIELD DWFX-C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Damper Size Range (mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 x 100 to 1250 x 1000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reference No: AAF10709 Sheet 1 of 1 Rev D
Installation Detail

If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity. Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminium rivets or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm construction element (wall) between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall).

Applicable Test Report to BS EN1366-2:
WF4636
ES120 MINUTES
Fire Resistance Integrity and Leakage

200 x 200 to 1000 x 1000

Vertical Blades: Damper can be installed with the blades in the vertical orientation mounted at the bottom, refer to drawings for cleat locations. Standard DWFX-C = AAF/0244DWFX-C damper at bottom = AA-SS-2001

12.5mm x 125mm Gypsum Fire Board Type F (EN520) on three sides, fixed with drywall screws (500mm CTRS) into UDT52 stud channels

Angle cleats (shown dotted for clarity).

2-off 12.5mm Gypsum Fire Boards Type F (EN520) both sides

Stone wool min 33kg/m²

12.5mm Gypsum Fire Boards Type F (EN520) up to 60mm infill
**Health & Safety**

This process must be undertaken by competent persons. More than one person may be required to ensure the safe handling of large dampers and other materials. Use must be made of access equipment to ensure unsafe practices are not used to approach walls or difficult access areas. Standard site PPE should be used (minimum steel toe cap boots, hard hat) together with protective eyewear, gloves and masks, when drilling or cutting is being undertaken. The latter should also be used when handling the wall construction materials, as defined by the material suppliers. If loud equipment is being used, hearing protection should be worn. All waste materials should be collected and disposed of as defined by the relevant supplier.

**Damper Installation Method**

1) Mark out the hole on the partition and cut it out, cutting the top and bottom edges first to maintain stability.
2) Frame out the hole with stud and track and cover this with 2 layers of board. Finish edges with joint filler.
3) Rivet steel duct (by others) to damper spigot on non access side, using steel rivets.
4) Suspend the damper from the ceiling, using 10mm studding drop rods, and support the damper from lateral movement.
5) Make sure the area within the aperture and the damper casing is free from any debris and remove any dust.
6) Where the coated BATT will contact the surrounding aperture apply Rockwool acoustic intumescent sealant to the outer edges of the BATT. Where two coated BATTS are in contact use Rockwool fire pro glue as the joint adhesive. In both cases ensure that an even cover is achieved over the entire thickness of the BATT.
7) Continue installation of Rockwool ablative coated BATT, until aperture is completely filled.
8) Apply a bead of Rockwool acoustic sealant to both sides of the wall, approximately 15mm wide, around the perimeter of the aperture between dry wall and BATT, ensuring that any gaps between the BATT and surrounding edges are fully filled.
9) Allow 12 hours for BATT penetration seal to cure prior to removing any lateral damper supports.

**Ductwork**

Ductwork to be fitted and connected to damper spigots in accordance with DW144 & DW145. Aluminium rivets should be used to act as a breakaway joint, unless fire resisting ductwork is being used where fire resting fixings should be used.

**Actuator Fitting (If required)**

1) The control mode/actuator should then be fitted using the instructions supplied with it.
2) Using the supplied drilling template, drill into the ductwork and fit the Electrical Thermal Release (ETR) into the duct (as good practice, this should be towards the top of the duct).
3) A special feature of the actionair SmokeShield modes is that they may be adjusted from pointing straight out along the duct (standard configuration) through 90° to point either up or down if required.
4) The mode should be wired into the system using the site wiring detail, plus the details shown on the label. Note: If the mode/actuator fitting instructions are missing, please contact the actionair sales office.

**Commissioning**

The procedure detailed under periodic maintenance should be followed.

**Periodic Maintenance**

Please see Page 12

**Procedure**

1) The manually resettable fire damper should be carefully inspected, cleaned and lubricated with light oil, if required, released and reset.
2) The motorised fire damper control mode should be operated to ensure that it is moving the blades from open to close and vice versa.
3) If the end switches (in the control mode) are being used, it must be checked at commissioning stage that they are actually indicating that the blades are open or closed. If using an automatic control system this can be achieved by running a test cycle and checking the blades (open and closed) and the status indication at the control system.
Vertical Blades:
Damper can be installed with the blades in the vertical orientation with the actuator or mounted at either the top or bottom. For cleat locations of motors mounted on top refer to drawing AA-SS-2005 and for motors mounted on the bottom refer to drawing AA-SS-2006.

2 OFF 12.5mm Gypsum Fire Boards Type F (EN520) Both Sides
Stone Wool Min 45kg/m³
Drywall Studding UT72 Top & Bottom CS70 Verticals 600mm Ctrs
2 OFF 12.5mm Gypsum Fire Boards Type F (EN620) Lining Perimeter of Aperture
Approx 10-15mm bead Rockwool Acoustic Intumescent sealant both sides, all round
Rockwool Firepro glue around perimeter & also when joining batt to batt edges

For ref. up to 2400mm Rockwool Ablative Batt refer to dimensions on section A-A

Section through A-A
2-OFF 12.5mm GYPSUM FIRE BOARDS TYPE F (EN520) BOTH SIDES

STONE WOOL MIN 45kg/m³

DRYWALL STUDDING UT72 TOP & BOTTOM CS70 VERTICALS 600mm CTRS

2-OFF 12.5mm GYPSUM FIRE BOARDS TYPE F (EN520) LINING PERIMETER OF APERTURE

APPROX 10mm BEAD ROCKWOOL ACCOUTOMIC INTUMESCENT SEALANT BOTH SIDES, ALL ROUND

ROADKOVL FIREPRO GLUE AROUND PERIMETER & ALSO WHEN JOINING BATT TO BATT EDGES

M10 WASHERS AND NUTS TO UNDERSIDE OF CLEATS ONLY

DAMPER SUPPORT CLEATS FOR M10 DROP RODS

FLANGE PLATE TACK WELDED TO DAMPER CASING

FOR REF. UP TO 2400mm ROCKWOOL ABLATIVE BATT REFER TO DIMENSIONS ON SECTION A-A

FOR REF. UP TO 2400mm ROCKWOOL ABLATIVE BATT REFER TO DIMENSIONS ON SECTION A-A

SECTION THROUGH A-A
Health & Safety

This process must be undertaken by competent persons. More than one person may be required to ensure the safe handling of large dampers and other materials.

Use must be made of access equipment to ensure unsafe practices are not used to approach walls or difficult access areas.

Standard site PPE should be used (minimum steel toe cap boots, hard hat) together with protective eyewear, gloves and masks, when drilling or cutting is being undertaken. The latter should also be used when handing the wall construction materials, as defined by the material suppliers. If loud equipment is being used, hearing protection should be worn.

All waste materials should be collected and disposed of as defined by the relevant supplier.

Damper Installation Method

1) Rivet steel duct (by others) to damper spigot on non-access side, using steel rivets.

2) Suspend the damper from the ceiling, using 10mm studding drop rods, and support the damper from lateral movement.

3) Make sure the area within the aperture and the damper casing is free from any debris and remove any dust.

4) Where the coated BATT will contact the surrounding aperture apply Rockwool acoustic intumescent sealant to the outer edges of the BATT. Where two coated BATTS are in contact, use Rockwool fire pro glue as the joint adhesive. In both cases ensure that an even cover is achieved over the entire thickness of the BATT.

5) Continue installation of Rockwool ablative coated BATT, until aperture is completely filled.

6) Apply a bead of Rockwool acoustic sealant to both sides of the wall, approximately 15mm wide around perimeter of the aperture between wall and BATT, ensuring that any gaps between the BATT and surrounding edges are fully filled.

7) Allow 12 hours for BATT penetration seal to cure prior to removing any lateral damper supports.

Ductwork

Ductwork to be fitted and connected to damper spigots in accordance with DW144 & DW145. Aluminium rivets should be used to act as a breakaway joint, unless fire resisting ductwork is being used where fire resting fixings should be used.

Actuator Fitting (If required)

1) The control mode/actuator should then be fitted using the instructions supplied with it.

2) Using the supplied drilling template, drill into the ductwork and fit the Electrical Thermal Release (ETR) into the duct (as good practice, this should be towards the top of the duct).

3) A special feature of the actionair SmokeShield modes is that they may be adjusted from pointing straight out along the duct (standard configuration) through 90° to point either up or down if required.

4) The mode should be wired into the system using the site wiring detail, plus the details shown on the label. Note: If the mode/actuator fitting instructions are missing, please contact the actionair sales office.

Commissioning

The procedure detailed under periodic maintenance should be followed.

Periodic Maintenance

Please see Page 12

Procedure

1) The manually resettable fire damper should be carefully inspected, cleaned and lubricated with light oil, if required, released and reset.

2) The motorised fire damper control mode should be operated to ensure that it is moving the blades from open to close and vice versa.

3) If the end switches (in the control mode) are being used, it must be checked at commissioning stage that they are actually indicating that the blades are open or closed. If using an automatic control system this can be achieved by running a test cycle and checking the blades (open and closed) and the status indication at the control system.
VERTICAL BLADES;
DAMPER CAN BE INSTALLED WITH THE
BLADES IN THE VERTICAL ORIENTATION
WITH THE ACTUATOR MOUNTED AT
EITHER THE TOP OR BOTTOM. FOR
CLEAT LOCATIONS OF MOTORS MOUNTED
ON TOP REFER TO DRAWING AA-SS-2005
AND FOR MOTORS MOUNTED ON THE
BOTTOM REFER TO DRAWING AA-SS-2006.

SUITABLE FIRE
RESISTING FIXINGS

MINIMUM
M10 STUDDING

APPROX 10-15mm BEAD
ROCKWOOL ACoustIC
INTUMESCENT SEALANT
BOTH SIDES, ALL ROUND

M10 WASHERS
AND NUTS TO UNDERSIDE OF
CLEATS ONLY

DAMPER SUPPORT
CLEATS

FLANGE PLATE
TACK WELDED TO DAMPER CASING

SECTION
THROUGH A-A

FOR REF. UP TO 2400mm
ROCKWOOL ABLATIVE BATT
REFER TO DIMENSIONS
ON SECTION A-A

FOR REF. UP TO 2400mm
ROCKWOOL ABLATIVE BATT
REFER TO DIMENSIONS
ON SECTION A-A

BLOCK WORK /
MASONRY WALL

ROCKWOOL ABLATIVE BATT

60mm MAX ALL ROUND
75mm MAX ALL ROUND

ROCKWOOL FIREPRO
GLUE AROUND
PERIMETER & ALSO
WHEN JOINING BATT TO
BATT EDGES

APPROX 10-15mm BEAD
ROCKWOOL ACoustIC
INTUMESCENT SEALANT
BOTH SIDES, ALL ROUND

FOR REF. UP TO 2400mm
ROCKWOOL ABLATIVE BATT
REFER TO DIMENSIONS
ON SECTION A-A
If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity. Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminium nuts or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/door).

**Applicable Test Report to BS EN1366-2:**

**BRE P100726-1001**

**E 120 MINUTES**

**Fire Resistance Integrity**

<table>
<thead>
<tr>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERTICAL APPLICATION</td>
<td>20/03/18</td>
</tr>
<tr>
<td>FIRE SHIELD + DWFX-F</td>
<td>100 x 100 to 1250 x 1000</td>
</tr>
</tbody>
</table>

Reference No: AAF10713

Sheet 1 of 1
Drywall Partition - Sleeve & Angle (S&A)

Health & Safety

This process must be undertaken by competent persons. More than one person may be required to ensure the safe handling of large dampers and other materials.

Use must be made of access equipment to ensure unsafe practices are not used to approach walls or difficult access areas.

Standard site PPE should be used (minimum steel toe cap boots, hard hat) together with protective eyewear, gloves and masks, when drilling or cutting is being undertaken. The latter should also be used when handing the wall construction materials, as defined by the material suppliers. If loud equipment is being used, hearing protection should be worn.

All waste materials should be collected and disposed of as defined by the relevant supplier.

Damper Installation Method

1) Measure the overall damper casing size, if Smoke shield, include the PTC shroud, but do not include the peripheral flange.

2) Calculate the hole to cut size by adding two board thicknesses, +10mm tolerance, to the finished hole width and height.

3) Mark out the hole on the partition and cut it out, cutting the top and bottom edges first to maintain stability.

4) Frame out the hole with stud and track and cover this with a layer of board. Finish edges with joint filler.

5) Rivet steel duct, (by others) to damper spigot on non access side, using steel rivets.

6) Rivet support angle cleats supplied by actionair to duct section.

7) Suspend the damper from the ceiling using 10mm studding drop rods.

8) Fix 4-off angles to steel duct, non access side, using steel rivets.

Ductwork

Ductwork to be fitted and connected to damper spigots in accordance with DW144 & DW145. Aluminium rivets should be used to act as a breakaway joint, unless fire resisting ductwork is being used where fire resting fixings should be used.

Actuator Fitting (If required)

1) The control mode/actuator should then be fitted using the instructions supplied with it.

2) Using the supplied drilling template, drill into the ductwork and fit the Electrical Thermal Release (ETR) into the duct (as good practice, this should be towards the top of the duct).

3) A special feature of the actionair SmokeShield modes is that they may be adjusted from pointing straight out along the duct (standard configuration) through 90° to point either up or down if required.

4) The mode should be wired into the system using the site wiring detail, plus the details shown on the label. Note: If the mode/actuator fitting instructions are missing, please contact the actionair sales office.

Commissioning

The procedure detailed under periodic maintenance should be followed.

Periodic Maintenance

Please see Page 12

Procedure

1) The manually resettable fire damper should be carefully inspected, cleaned and lubricated with light oil, if required, released and reset.

2) The motorised fire damper control mode should be operated to ensure that it is moving the blades from open to close and vice versa.

3) If the end switches (in the control mode) are being used, it must be checked at commissioning stage that they are actually indicating that the blades are open or closed. If using an automatic control system this can be achieved by running a test cycle and checking the blades (open and closed) and the status indication at the control system.
VERTICAL BLADES;
 DAMPER CAN BE INSTALLED WITH THE BLADES IN THE VERTICAL ORIENTATION WITH THE ACTUATOR MOUNTED AT EITHER THE TOP OR BOTTOM. FOR CLEAT LOCATIONS OF MOTORS MOUNTED ON TOP REFER TO DRAWING AA-SS-2005 AND FOR MOTORS MOUNTED ON THE BOTTOM REFER TO DRAWING AA-SS-2006.

SUITE FIRE RESISTING FIXINGS

MINIMUM M10 STUDDING

GAP PACKED WITH STONE MINERAL WOOL ALL ROUND MIN 45kg/m³

M10 WASHERS AND NUTS TO UNDERSIDE OF CLEATS ONLY

DAMPER SUPPORT CLEATS

FLANGE PLATE TACK WELDED TO DAMPER CASING

ACTUATOR THIS SIDE

DAMPER

SUITABLE FIRE RESISTING FIXINGS

DRYWALL STUDDING

UT72 TOP & BOTTOM

CS70 VERTICALS
600mm CTRS

VOID FILLED WITH ROCKWOOL RW5

DRYWALL STUDDING CS70 AROUND PERIMETER OF APERTURE

1.2mm STEEL ANGLES - 60x110mm TOP
60x85mm SIDES & BOTTOM

STEEL DUCT (BY OTHERS)
FIXED TO DAMPER SPIGOT
BY MEANS OF STEEL RIVETS

ANGLES TO BE FIXED TO STEEL DUCT ON SITE BY OTHERS BY MEANS OF STEEL RIVETS

M10 DROP RODS SUPPORTING DUCT (ALL DROP RODS BY OTHERS) M10 NUTS & WASHERS TO UNDERSIDE OF CLEATS ONLY

ANGLE CLEATS STEEL RIVETED TO DUCT

SECTION THROUGH A-A

500mm (MAX) STEEL DUCT

Connecting ductwork omitted for clarity.
Ductwork must be independently supported.
This drawing requires the approval of the
Authority.

Applicable Test Report to
BS EN1366-2:
BRE 267924

ES 120 MINUTES
Fire Resistance
Integrity and Leakage

Vertical Application
Smoke Shield + S & A
Drywall

Damper Size Range (mm):
200 x 200 to 1000 x 1000

Reference No: AAF10714
Sheet 1 of 1
Rev G
Masonry Wall - Sleeve & Angle (S&A)

Health & Safety

This process must be undertaken by competent persons. More than one person may be required to ensure the safe handling of large dampers and other materials.

Use must be made of access equipment to ensure unsafe practices are not used to approach walls or difficult access areas.

Standard site PPE should be used (minimum steel toe cap boots, hard hat) together with protective eyewear, gloves and masks, when drilling or cutting is being undertaken. The latter should also be used when handing the wall construction materials, as defined by the material suppliers. If loud equipment is being used, hearing protection should be worn.

All waste materials should be collected and disposed of as defined by the relevant supplier.

Damper Installation Method

1) Rivet steel duct, (by others) to damper spigot on non access side, using steel rivets.
2) Rivet support angle cleats supplied by actionair to duct section.
3) Suspend the damper from the ceiling, using 10mm studding drop rods.
4) Fix 4-off angles to steel duct, non access side using steel rivets.

Ductwork

Ductwork to be fitted and connected to damper spigots in accordance with DW144 & DW145. Aluminium rivets should be used to act as a breakaway joint, unless fire resisting ductwork is being used where fire resting fixings should be used.

Actuator Fitting (If required)

1) The control mode/actuator should then be fitted using the instructions supplied with it.
2) Using the supplied drilling template, drill into the ductwork and fit the Electrical Thermal Release (ETR) into the duct (as good practice, this should be towards the top of the duct).
3) A special feature of the actionair SmokeShield modes is that they may be adjusted from pointing straight out along the duct (standard configuration) through 90° to point either up or down if required.
4) The mode should be wired into the system using the site wiring detail, plus the details shown on the label. Note: If the mode/actuator fitting instructions are missing, please contact the actionair sales office.

Commissioning

The procedure detailed under periodic maintenance should be followed.

Periodic Maintenance

Please see Page 12

Procedure

1) The manually resettable fire damper should be carefully inspected, cleaned and lubricated with light oil, if required, released and reset.
2) The motorised fire damper control mode should be operated to ensure that it is moving the blades from open to close and vice versa.
3) If the end switches (in the control mode) are being used, it must be checked at commissioning stage that they are actually indicating that the blades are open or closed. If using an automatic control system this can be achieved by running a test cycle and checking the blades (open and closed) and the status indication at the control system.
Connecting ductwork certified for fire safety. Ductwork must be independent: supported, insulated and separated from combustible construction elements or fire resisting fixings should be used. A minimum of 200 mm rigid construction element should be used in the plant room. Fire resisting fixings should be used in the ductwork and construction element.

If your proposed installation differs from the documentation shown below, please discuss this with the Building Control Authority (BCA). Referencing the documentation shown below is not an approval to install the Air Damper.

**Flange Plate Tack Welded to Damper Casings**

- 12 mm steel angles 630 x 110 mm top
- 6x185 mm sides & bottom

**BRE 287/254**

- ES: 120 minutes fire resistance
- Integrity and leakage

**Vertical Application**

- Fire resistance
- Integrity and leakage
- Smoke shield & a Masonry Wall

**Notes:**

- Suitable fire resisting fixings
- M10 Studs
- M10 washer and nuts to underside of cleats only
- Damper support cleats
- Damper support
- Actuator
- Section through A-A
- Gap at 50 m
- 500 mm (max) steel duct
- Damper Size Range (mm)
  - 200 x 200 to 1000 x 1000

**For Project:**

- Fire damper with certified fire resistance (fire rated)
- Fire damper with certified fire resistance (fire rated)
- Fire damper with certified fire resistance (fire rated)

**Components:**

- Damper
- Damper support cleats
- Damper support
- Actuator
- Section through A-A
- Gap at 50 m
- 500 mm (max) steel duct
- Damper Size Range (mm)
  - 200 x 200 to 1000 x 1000

**Date:**

- 20/03/18

**Builder:**

- N. Gore

**Drawn By:**

- Swegon Air Management Limited
Horizontal in Floor Slab Sleeve & Angle (S&A)

Health & Safety
This process must be undertaken by competent persons. More than one person may be required to ensure the safe handling of large dampers and other materials.

Use must be made of access equipment to ensure unsafe practices are not used to approach walls or difficult access areas.

Standard site PPE should be used (minimum steel toe cap boots, hard hat) together with protective eyewear, gloves and masks, when drilling or cutting is being undertaken. The latter should also be used when handing the wall construction materials, as defined by the material suppliers. If loud equipment is being used, hearing protection should be worn.

All waste materials should be collected and disposed of as defined by the relevant supplier.

Damper Installation Method
1) Fix section of duct to the damper spigot on the Non Access side (if the actuator is located upwards).
2) Lower the damper and duct section into the aperture, and rest the damper flange onto the floor.
3) Using suitable M10 steel anchors, securely fix through damper flange into floor slab.
4) From the underside fill all gaps between damper casing and sides of the aperture with stone wool insulation (Min60kg/m³). Then using suitable M10 steel anchors, securely fix angle flanges to floor slab and rivet to stub duct.

Ductwork
Ductwork to be fitted and connected to damper spigots in accordance with DW144 & DW145. Aluminium rivets should be used to act as a breakaway joint, unless fire resisting ductwork is being used where fire resting fixings should be used.

Actuator Fitting (If required)
1) The control mode/actuator should then be fitted using the instructions supplied with it.
2) Using the supplied drilling template, drill into the ductwork and fit the Electrical Thermal Release (ETR) into the duct.
3) A special feature of the actionair SmokeShield modes is that they may be adjusted from pointing straight out along the duct (standard configuration) through 90° to point either up or down if required.
4) The mode should be wired into the system using the site wiring detail, plus the details shown on the label. Note: If the mode/actuator fitting instructions are missing, please contact the actionair sales office.

Commissioning
The procedure detailed under periodic maintenance should be followed.

Periodic Maintenance
Please see Page 12

Procedure
1) The manually resettable fire damper should be carefully inspected, cleaned and lubricated with light oil, if required, released and reset.
2) The motorised fire damper control mode should be operated to ensure that it is moving the blades from open to close and vice versa.
3) If the end switches (in the control mode) are being used, it must be checked at commissioning stage that they are actually indicating that the blades are open or closed. If using an automatic control system this can be achieved by running a test cycle and checking the blades (open and closed) and the status indication at the control system.
If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity. Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminum rivets or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm construction element (wall/floor) between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

Applicable Test Report to BS EN1366-2:
BRE 275926
E 120 MINUTES
Fire Resistance Integrity and Leakage

ES 90 MINUTES
Fire Resistance Integrity

E 120
EC1630
RTC 30-03-18

D 01170
MBS 30-03-18

Drawn By: swehrle
Date: 20/03/18

Check By: N. Harris
Date: 20/03/18

Approved By: S. Gore
Date: 20/03/18

Description:
HORIZONTAL APPLICATION
SMOKE SHIELD + S & A & ABLATIVE BATT SEAL

Damper Size Range (mm)
200 x 200 to 1000 x 1000

© Swegon Air Management Limited
South Street, Whitstable, Kent CT5 3DU
Tel: +44 (0)1227 276100
Fax: +44 (0)1227 264262
www.swegonair.co.uk

© Swegon Air Management Limited
South Street, Whitstable, Kent CT5 3DU
Tel: +44 (0)1227 276100
Fax: +44 (0)1227 264262
www.swegonair.co.uk
Rigid Wall or Floor Construction (CSS)

Health & Safety

This process must be undertaken by competent persons. More than one person may be required to ensure the safe handling of large dampers and other materials.

Use must be made of access equipment to ensure unsafe practices are not used to approach walls or difficult access areas.

Standard site PPE should be used (minimum steel toe cap boots, hard hat) together with protective eyewear, gloves and masks, when drilling or cutting is being undertaken. The latter should also be used when handing the wall construction materials, as defined by the material suppliers. If loud equipment is being used, hearing protection should be worn.

All waste materials should be collected and disposed of as defined by the relevant supplier.

General

This method of installation is effectively suitable for most wall types of rigid construction, where they are of an equal or greater density to the lightweight board partition tested. Details shown are essentially for an existing dry wall partition. However this installation method may be used for masonry or block work walls or concrete floors, as long as they have a greater density than the partition shown. Also a drywall partition may be built around the damper, as long as the clearances are followed.

Damper Installation Method

1) Measure the overall damper casing diameter. Calculate the finished square hole size by adding 10mm ± 5mm to both width and height (For drywall partitions, calculate the hole to cut size by adding two board thicknesses to the finished hole width and height).

2) Mark out the hole on the partition and cut it out, cutting the top and bottom edges first to maintain stability.

3) For drywall partitions, frame out the hole with stud and track and cover this with board. Finish edges with joint filler.

4) Install the damper and fasten one Installation Flange so that the blade in it’s closed position is in the centre of the wall.

5) Fill the 4 triangular voids between the damper and the edges of the hole with fire rated stone wool.

6) Fit the remaining Installation Flange.

Ductwork

Ductwork to be fitted and connected to damper spigots in accordance with DW144 & DW145. Aluminium rivets should be used to act as a breakaway joint, unless fire resisting ductwork is being used where fire resting fixings should be used.

Actuator Fitting (If required)

1) The control mode/actuator is supplied fitted. This should be checked for damage and the manual operation of the damper checked.

2) Check that the Electrical Thermal Release (ETR) is still firmly connected through the damper case. If it is not, the actuator/control mode may not work electrically.

3) A special feature of the actionair CSS modes is that they may be adjusted from pointing straight out along the duct (standard configuration) through 90° to point either up or down if required.

4) The mode should be wired into the system using the site wiring detail, plus the details shown on the label. Note: If the mode/actuator fitting instructions are missing, please contact the actionair sales office.

Commissioning

The procedure detailed under periodic maintenance should be followed.

Periodic Maintenance

Please see Page 12

Procedure

1) The manually resettable fire damper should be carefully inspected, cleaned and lubricated with light oil, if required, released and reset.

2) The motorised fire damper control mode should be operated to ensure that it is moving the blades from open to close and vice versa.

3) If the end switches (in the control mode) are being used, it must be checked at commissioning stage that they are actually indicating that the blades are open or closed. If using an automatic control system this can be achieved by running a test cycle and checking the blades (open and closed) and the status indication at the control system.
If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Installation Detail

Connecting ductwork omitted for clarity. Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminium nuts or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm construction element (wall/floor) between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

NOTE:
DAMPERS SUPPLIED WITH CLEATS WELDED TO TOP FLANGE TO ASSIST WITH INSTALLATION ONLY

Applicable Test Report to
BS EN1366-2:
BRE 238072

ES 120 MINUTES
Fire Resistance
Integrity and Leakage
If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity.
Ductwork must be independently supported.
There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly.
Aluminium rivets or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire-resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm construction element (wall/floor) between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

NOTE:
DAMPERS SUPPLIED WITH CLEATS WELDED TO TOP FLANGE TO ASSIST WITH INSTALLATION ONLY
If your proposed installation details differ from that shown here, please discuss this with the Building Control Authority (BCA), referencing this documentation, associated fire tests, assessments, and other documentation shown below. Deviation from this drawing requires the approval of the relevant authority.

Connecting ductwork omitted for clarity. Ductwork must be independently supported. There must be an appropriate break-away joint between the damper and connecting ductwork on both sides of assembly. Aluminum nails or plastic cleats, clips, clamps and bolts etc. should be used for this, unless fire resisting ductwork is being used where fire resisting fixings should be used. A minimum of 200 mm construction element (wall/floor) between fire dampers installed in separate ducts and 75 mm between fire damper and a construction element (wall/floor).

Applicable Test Report to
BS EN1366-2:
BRE 246994

ES 120 MINUTES
Fire Resistance Integrity and Leakage

<table>
<thead>
<tr>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS - CIRCULAR SMOKE SHIELD</td>
<td>20/03/19</td>
</tr>
</tbody>
</table>

Damper Size Range (mm)
Ø100mm - Ø355mm.
Useful Contact Information

BRE Certification (part of BRE Global)
BRE, Bucknalls Lane, Watford, Hertfordshire, WD25 9XX
+44 (0)3333 218811
enquiries@bre.co.uk
www.bre.co.uk

LPCB (part of BRE Global)
lpcb@bre.co.uk
www.redbooklive.com

Association For Specialist Fire Protection (ASFP)
Kingsley House, Ganders Business Park, Kingsley, Bordon, Hampshire, GU35 9LU
+ 44 (0)1420471612
info@asfp.org.uk
www.asfp.org.uk

BESA - The Building Engineering Services Association
Lincoln House, 137-143 Hammersmith Road, London, W14 0QL
+44 (0)20 7313 4900
enquires@thebesa.com
www.thebesa.com

Exova
Holmesfield Road, Warrington, Cheshire WA1 2DS
+44 (0) 1925 646669
info@exova.com
www.exova.com

Exova BMTRADA
Stocking Lane, Hughenden Valley, High Wycombe, Buckinghamshire HP14 4ND
+44 (0) 1494 569745
cert.admin@exova.com
www.exovabmtrada.com

International Fire Consultants Ltd
20 Park Street, Princes Risborough, Buckinghamshire, HP27 9AH
+44 (0)1844 275 500
ifc-enquires@ifcgroup.com
www.ifcgroup.com
The Association was formed in 1976, and represents UK manufacturers and contractors of specialist passive fire protection products such as fire resisting and smoke control dampers, with associate members from regulatory, certification, testing and consulting bodies. The ASFP seeks to increase awareness and understanding of the nature of fire and the various forms, functions and benefits provided by passive fire protection. They are willing to make available their specialist knowledge on all aspects of fire protection and can assist specifiers and main contractors in identifying products suitable for specific requirements, both in the UK and related overseas markets. The Association encourages experimental work related to passive fire protection and promotes consideration and discussion of all issues affecting the fire protection of buildings.

Major publication/coloured books are referenced in Approved Document B - Fire safety, the government guidance to Building Regulations for England & Wales. Coloured books are comprehensive documents on the use and evaluation of passive fire protection products in buildings. Many contain lists of products which have had their performance verified by third party certification. They do not cover installation.

**ASFP Grey Book: Fire & Smoke Resisting Dampers**

Fire/Smoke resisting dampers prevent fire and smoke from passing from one compartment to another through (HVAC) systems. This document provides practical advice for system designers, manufacturers and installers to consider the appropriate issues at the design stage, to ensure that dampers will function as intended by current regulations. All products have to be third party certificated before they can be listed in the book.

**ASFP Blue Book (BS): Fire Resisting Ductwork**

An industry guide for those involved in the specification, installation, inspection and verification of fire rated ductwork. It provides comprehensive information on fire resisting ductwork and includes diagrams of types and functions of various systems. All products have to be third party certificated before they can be listed in the book.

**ASFP Blue Book (EN): Fire Resisting Ductwork**

A new version of the Blue Book for products evaluated using BS EN test methods. All products are required to be third party certificated before they can be listed in the book.
The statements made in this brochure or by our representatives in consequence of any enquiries arising out of this document are given for information purposes only. They are not intended to have any legal effect and the company is not to be regarded as bound thereby. The company will only accept obligations, which are expressly negotiated for and agreed and incorporated into a written agreement made with its customers.

Due to policy of continuous product development the specification and details contained herein are subject to alteration without prior notice.