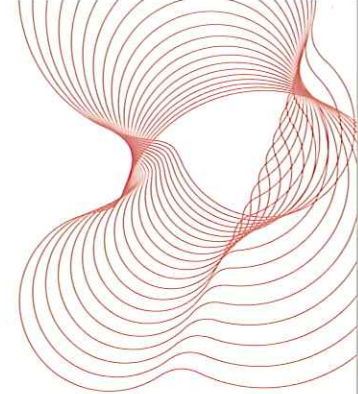


**An assessment of the  
fire performance of  
Actionair series FB  
uninsulated folding  
blade fire dampers  
mounted in  
concrete/masonry walls  
and concrete floors**

Prepared for:  
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2 March 2009

**Assessment report number  
CC 214482 Review 2**



**Prepared on behalf of BRE Testing by**

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**Approved on behalf of BRE Testing by**

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Position Associate Director

Date 02/03/09

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**Date of original report** 4 March 2004

**Date of this review report** 2 March 2009

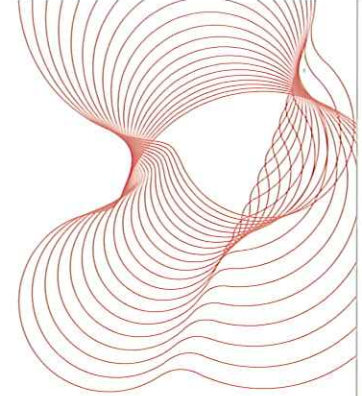
**Date of next review** 4 March 2014

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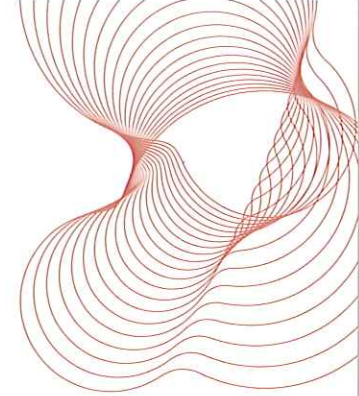
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## 1 Introduction

An ad-hoc indicative fire resistance test has been carried out using the furnace heating conditions of BS 476: Part 20, and the appropriate procedures and criteria of BS 476: Part 22: 1987, on an Actionair FBL uninsulated folding blade fire damper mounted in a reinforced lightweight aerated concrete floor. This report covers the assessment of the series FB uninsulated folding blade dampers when mounted in concrete/masonry walls and concrete floors.

## 2 Scope

This assessment report covers the fire resistance of the Actionair series FB uninsulated folding blade fire dampers, up to a maximum size of 1000mm high x 1000mm wide, mounted in concrete/masonry walls and concrete floors, for up to 240 minutes in terms of the adopted integrity criterion of BS 476: Part 22: 1987, when exposed to fire from either direction.

## 3 Supporting Data

### 3.1 BRE Test Report No. TE 214030

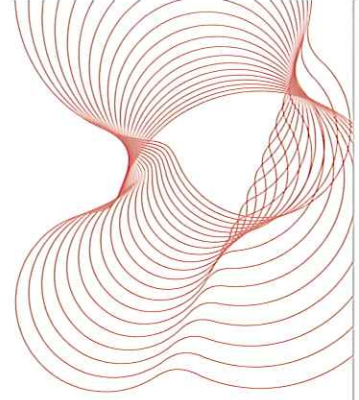
An Actionair FBL uninsulated folding blade fire damper, nominally 1000mm x 1000mm, mounted into a reinforced lightweight aerated concrete floor, nominally 3m x 2.4m x 150mm thick, was submitted to an ad-hoc fire resistance test of 250 minutes duration on 17 September 2003. In the test the heating conditions specified in BS 476: Part 20: 1987 and the appropriate procedures and integrity criteria of BS 476: Part 22:1987 were used.

The damper comprised a galvanised-steel curtain housed within a galvanised steel casing and was mounted using a HEVAC/HVCA installation frame.

The test was started with the damper latched into its open position. During the fire test the damper triggered itself to close fully after 36 seconds from the start of the test. After closing there was no failure of integrity either within the damper assembly or at the junction between the supporting construction and the damper installation system; therefore, in the orientation tested, the specimen satisfied the adopted criteria as follows:

Integrity: 250 minutes

See BRE test report no. TE 214030 for full details.



## 4 Description of Proposed Dampers

The differences between the proposed FBH, FBC and FBO dampers and the tested FBL damper are detailed in figure 1. In the cases of the FBH, FBC and FBO dampers, the blades are effectively out of the air stream when the damper is in the open position, whereas with the FBL damper they are not. The other difference is that the FBH and FBL dampers have square or rectangular spigots, while the FBC damper has a circular spigot, and the FBO damper has an oval spigot.

## 5 Assessment

### 5.1 Dampers Installed in Concrete/Masonry Walls

The tested damper maintained its integrity against the adopted standard, BS 476: Part 22: 1987, for the duration of the 250-minute heating period. The damper closed after 36 seconds of the test, and thereafter there was no appreciable change in its appearance. It was noted after 85 minutes that the blades had bowed downwards by approximately 5mm.

A vertically installed damper would be expected to close slightly later than a horizontally installed damper, as the furnace gases tend to vent through a horizontally installed specimen. However, empirical evidence suggests that any difference is minor and that the damper would still close properly.

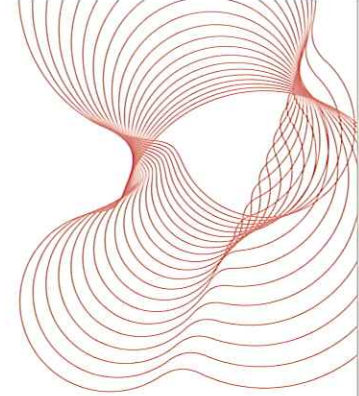
During the test there was no evidence of any gap development between the blades or between the blades and the casing. As a horizontally mounted damper would be expected to bow more than a vertically mounted damper due to the effect of the blades self-weight, a vertically mounted damper would, if anything, be expected to perform better in this respect. This means that the development of through gaps is no more likely.

We are therefore of the opinion that a vertically mounted damper would perform at least as well as the tested specimen.

### 5.2 Alternative Spigot Designs

As stated above, during the test there was no evidence of any gap development between the blades or between the blades and casing. In our opinion, the geometric shape of the spigot will not have any influence on the performance of the blades and casing and will therefore not affect the integrity of the damper.

We are therefore of the opinion that the FBH, FBC and FBO fire dampers would achieve the same performance as the tested FBL damper.



## 6 Conclusion

Therefore, in our opinion, Actionair series FB uninsulated folding blade fire dampers, up to a maximum size of 1000mm high x 1000mm wide, mounted in concrete/masonry walls and concrete floors, as described in sections 3 and 4 of this report, are suitable for installations where a fire resistance of up to 240 minutes is specified in accordance with the adopted integrity criterion of BS 476: Part 22: 1987, for fire exposure from either direction.

## 7 Validity of the Assessment

### 7.1 Declaration by Applicant

- We the undersigned confirm that we have read and complied with the obligations placed on us by the UK Fire Test Study Group Resolution No. 82 : 2001.
- We confirm that the component or element of structure, which is the subject of this assessment, has not to our knowledge been subjected to a fire test to the Standard against which this assessment is being made.
- We agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test to the Standard against which this assessment is being made.
- We are not aware of any information that could adversely affect the conclusions of this assessment.
- If we subsequently become aware of any such information we agree to cease using the assessment and ask BRE Testing to withdraw the assessment.

Signed: \_\_\_\_\_

For and on behalf of: \_\_\_\_\_

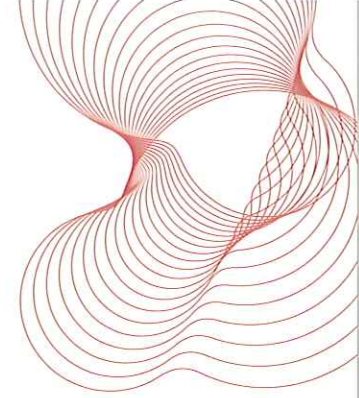
RUSKIN AIR MANAGEMENT

This assessment report is not valid unless it incorporates the declaration duly signed by the applicant.

### 7.2 BRE Testing Declaration

This assessment was reviewed on 2 March 2009. We have received written confirmation from Actionair that there have been no changes in the specification of their series FB uninsulated folding blade fire dampers since the original date of the assessment. There have been no changes in the fire test procedures or methods of assessment, which would adversely affect the fire performance of the dampers. We are therefore satisfied that the validity of this assessment may be extended for a further five years.

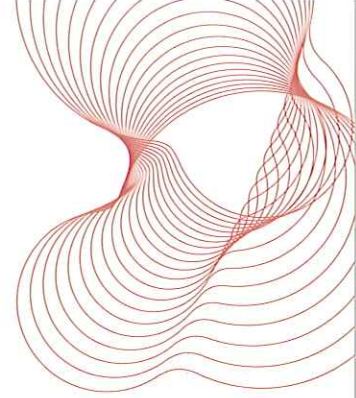
This assessment is based on test data, experience and the information supplied. If contradictory evidence becomes available to BRE Testing the assessment will be unconditionally withdrawn and the applicant will



be notified in writing. Similarly the assessment is invalidated if the assessed construction is subsequently tested since actual test data is deemed to take precedence over an expressed opinion. The assessment is valid for a period of five years after which it should be returned for review to consider any additional data, which has become available or any changes in the fire test procedures. Any changes in the specification of the product will invalidate this assessment.

This assessment has been carried out in accordance with Fire Test Study Group Resolution No. 82. It relates to the fire performance of the product and does not cover aspects of quality, durability, maintenance nor service requirements. This assessment relates only to the specimen(s) assessed and does not by itself infer that the product is approved under any Loss Prevention Certification Board approval or certification scheme or any other endorsements, approval or certification scheme.

Next review date: 4 March 2014



## 8 Figures

### Product Details

#### Casing

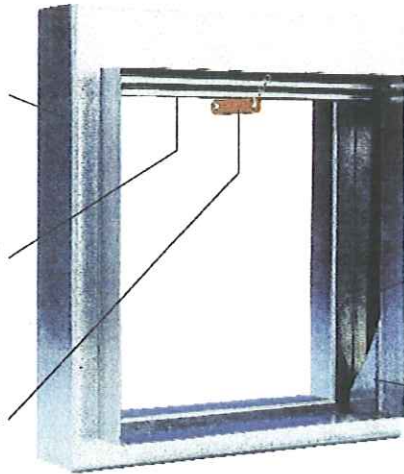
Manufactured from 1.2mm (18swg) galvanised steel casings in accordance with HVCA ductwork specification DW144.

#### Blades

Roll formed interlocking blades manufactured from 0.7mm galvanised steel.

#### Fusible Link

The chain and bar type link is supplied at a temperature rating of 72°C.



#### Springs

Stainless steel constant tension springs positioned out of the airstream to ensure positive closure of blades when the damper is installed either vertically or horizontally.

#### Locking Ramp

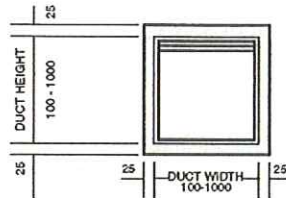
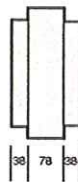
Manufactured from 1.6mm (16swg) galvanised steel. The locking ramp is designed to ensure the blade pack is closed off and remains locked in position until manually reset.

### Dimensional Data Basic Dampers

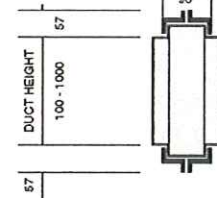
### Dampers with Installation Frames

#### Type FBL

Blades partly in airstream. Square/Rectangular spigot connection. Vertical or horizontal mounting

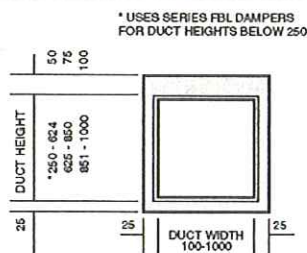
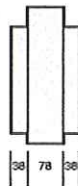


OVERALL WIDTH OF INSTALLATION FRAME IS DUCT WIDTH + 114



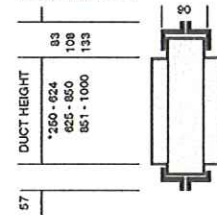
#### Type FBH

Blades effectively outside airstream. Square/Rectangular spigot connection. Vertical or horizontal mounting



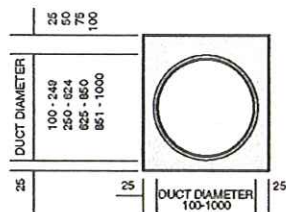
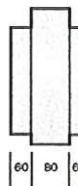
\* USES SERIES FBL DAMPERS FOR DUCT HEIGHTS BELOW 250

OVERALL WIDTH OF INSTALLATION FRAME IS DUCT WIDTH + 114

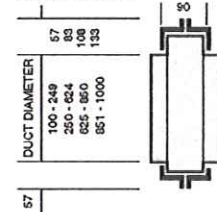


#### Type FBC

Blades effectively outside airstream. Circular spigot connection. Vertical or horizontal mounting



OVERALL WIDTH OF INSTALLATION FRAME IS DUCT WIDTH + 114



**Type FBO** Flat Oval Dampers, (not illustrated) blade effectively outside airstream. Minimum size from 300 x 100 mm upto a maximum 1000 x 500mm.

Optional single pole change-over micro switch available.

Figure 1

=====REPORT ENDS=====