Product Safety

Sponsor:

Protecta AS
Ravneveien 7
Linnestad Næringsområde
N-3174 Revetal,
Norway

Prepared by:
UL International (UK) Ltd

Notified body No.:
0843

Product Name:
Protecta Firedamper

Project No.:
4786829699

Issue number:
01

Date of Issue:
20th September 2016

Copyright © 2016 Underwriters Laboratories LLC.

UL International (UK) Ltd.
220, Cygnet Court, Centre Park, Warrington. WA1 1PP

This classification report consists of thirteen pages and may only be used or reproduced in its entirety.

TABLE OF CONTENTS

1. Introduction

This report provides a classification for the element Protecta Firedamper, in terms of 'E' Integrity and 'I' Insulation, as defined in BS EN 13501-3: 2005+A1: 2009.

It should be noted that the product has been tested in accordance with EN 1366-12: 2014 - Non-mechanical fire barrier for ventilation ductwork, a newer standard than BS EN 13501-3: 2005+A1: 2009 and therefore formal classification against BS EN 13501-3: 2005+A1: 2009 or any other standard is not yet formally possible. BS EN 13501-3: 2005+A1: 2009 does however include provision for classification of tests results from EN 1366-2: Fire dampers, mechanical items that perform an identical function in the event of a fire and therefore, the requirements for the classification of such results have been adopted for this report.

The classifications given in this report should therefore be considered to be the opinion of UL International (UK) Limited, based upon the EN 1366-12: 2014 test and the classification codes given in EN 13501-3: 2005+A1: 2009, Clause 7.2.3, but do not represent formal classification against EN 13501-3: 2005+A1: 2009 and are superseded by future publications of the EN 13501-3 standard or additional part to EN 13501 that may reference EN 1366-12.

2. Details of classification product

2.1 General

The element Protecta Firedamper is defined as a non-mechanical fire barrier for ventilation ductwork, for preventing fire and smoke spreading from one fire compartment to another through the air ductwork system which may penetrate fire separating walls and floors.

2.2 Product description

The element Protecta Firedamper is fully described in the test reports provided in support of classification detailed in clause 3.1.

3. Test reports in support of classification

3.1 Summary of test reports

Name of laboratory	Name of sponsor	Test and Date	Test method
BM Trada - Notified Body No. 1314	Polyseam Ltd	F15024 / 24th April 2015	EN 1366-12: 2014
		F15025 / 30th April 2015	
		F15026 / 21st July 2015	
		F15027 / 26th August 2015	
		F15052 / 20th May 2015	
		F15053 / 11th June 2015	
		F15094 / 30th July 2015	
		F15095 / 10th September 2015	

3.2 Results

Summary of report No.: F15024

A test in accordance with BS EN 1366-12: 2014, on a specimen of 400 mm Ø Protecta Firedamper, mounted within a mortar seal in a rigid floor supporting construction.

Integrity (E)	
From 5 minutes after the test start, the time at which leakage exceeded 360 $m_3/(h\ m_2)$	183 minutes
Cotton pad	183 minutes
Continuous flaming	183 minutes
Gap gauges	183 minutes
Insulation (I)	
Average set	173 minutes
Maximum set	173 minutes

Summary of report No.: F15025

A test in accordance with BS EN 1366-12: 2014, on a specimen of 1000 x 600 mm Protecta Firedamper, mounted within a mortar seal in a rigid floor supporting construction.

Integrity (E) From 5 minutes after the test start, the time at which leakage exceeded 360 $m^3/(h\ m^2)$ Cotton pad Continuous flaming Gap gauges	 91minutes 91 minutes 91 minutes 91 minutes
Insulation (I) Average set Maximum set	 76 minutes 77 minutes

Summary of report No.: F15026

A test in accordance with BS EN 1366-12: 2014, on a specimen of 1000 x 1000 mm Protecta Firedamper, mounted within a mortar seal in a rigid floor supporting construction.

Integrity (E) From 5 minutes after the test start, the time at which leakage exceeded 360 $m^3/(h\ m^2)$ Cotton pad Continuous flaming Gap gauges	 110 minutes 110 minutes 110 minutes 110 minutes
Insulation (I) Average set Maximum set	 110 minutes 110 minutes

Summary of report No.: F15027

A test in accordance with BS EN 1366-12: 2014, on a specimen of 1000 x 1000 mm Protecta Firedamper, mounted within a mortar seal in a rigid floor supporting construction.

Integrity (E) From 5 minutes after the test start, the time at which leakage exceeded 360 $m^3/(h\ m^2)$ Cotton pad Continuous flaming Gap gauges	 111 minutes 113 minutes 113 minutes 113 minutes
Insulation (I) Average set Maximum set	 91 minutes 94 minutes

Summary of report No.: F15052

A test in accordance with BS EN 1366-12: 2014, on a specimen of 1250 mm Ø Protecta Firedamper, mounted within a coated board seal in a flexible wall supporting construction.

Integrity (E) From 5 minutes after the test start, the time at which leakage exceeded 360 $m^3/(h\ m^2)$ Cotton pad Continuous flaming Gap gauges	 103 minutes 103 minutes 103 minutes 103 minutes
Insulation (I) Average set Maximum set	 80 minutes 87 minutes

Summary of report No.: F15053

A test in accordance with BS EN 1366-12: 2014, on a specimen of 1700 x 1500 mm Protecta Firedamper, mounted within a coated board seal in a flexible wall supporting construction.

Integrity (E) From 5 minutes after the test start, the time at which leakage exceeded 360 $m^3/(h\ m^2)$ Cotton pad Continuous flaming Gap gauges	 121 minutes 121 minutes 96 minutes 121 minutes
Insulation (I) Average set Maximum set	 96 minutes 95 minutes

Summary of report No.: F15094

A test in accordance with BS EN 1366-12: 2014, on a specimen of 1000 x 600 mm Protecta Firedamper, mounted within a coated board seal in a flexible wall supporting construction.

Integrity (E) From 5 minutes after the test start, the time at which leakage exceeded 360 $m^3/(h\ m^2)$ Cotton pad Continuous flaming Gap gauges	 132 minutes 132 minutes 132 minutes 132 minutes
Insulation (I) Average set Maximum set	 132 minutes 132 minutes

Summary of report No.: F15095

A test in accordance with BS EN 1366-12: 2014, on a specimen of 400 mm Ø Protecta Firedamper, mounted within a coated board seal in a flexible wall supporting construction.

Integrity (E)	
From 5 minutes after the test start, the time at which leakage exceeded 360 $m_3/(h\ m_2)$	132 minutes
Cotton pad	132 minutes
Continuous flaming	132 minutes
Gap gauges	132 minutes
Insulation (I)	
Average set	132 minutes
Maximum set	132 minutes

3.3 Discussion

In addition to the Integrity and Insulation criteria of the test, the following test parameter is also required:

10.2.5 *During the first 2 min of the test closure of the non-mechanical fire barrier shall be assumed when the under pressure inside the connecting duct increases by at least 50 Pa over a 5 second time period. When this occurs the pressure difference across the non-mechanical fire barrier shall be adjusted to 300 Pa ± 15 Pa. An observation shall be recorded.*

If an abrupt pressure increase inside the connecting duct does not happen within the first 2 min of the test, the non-mechanical fire barrier shall be deemed to have not closed and the test failed.

The increase in under pressure of at least 50 Pa of a 5 second time period was not achieved in the above tests however, BM TRADA conducted a simulated damper closure prior to commencing the test by setting the required pre test flow of 0.15ms-1 and manually sealing the duct on the exposed side. During this trial it was found that the maximum achievable under pressure at full closure, when also taking account of expected test furnace pressure, could not reach -50pa and therefore it would not be possible to achieve a 50Pa pressure change over 5 seconds (Report F15024).

Therefore on the basis that the performance criteria have been satisfied and an abrupt pressure change observed (albeit, less that 50Pa in 5 seconds), it is considered that the results may be used for classification.

CEN TC127 WG2 have been informed of the discrepancy in the test standard and are conducting an investigation.

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out utilising the principles of Clause 7 of EN 13501-3: 2005+A1: 2009.

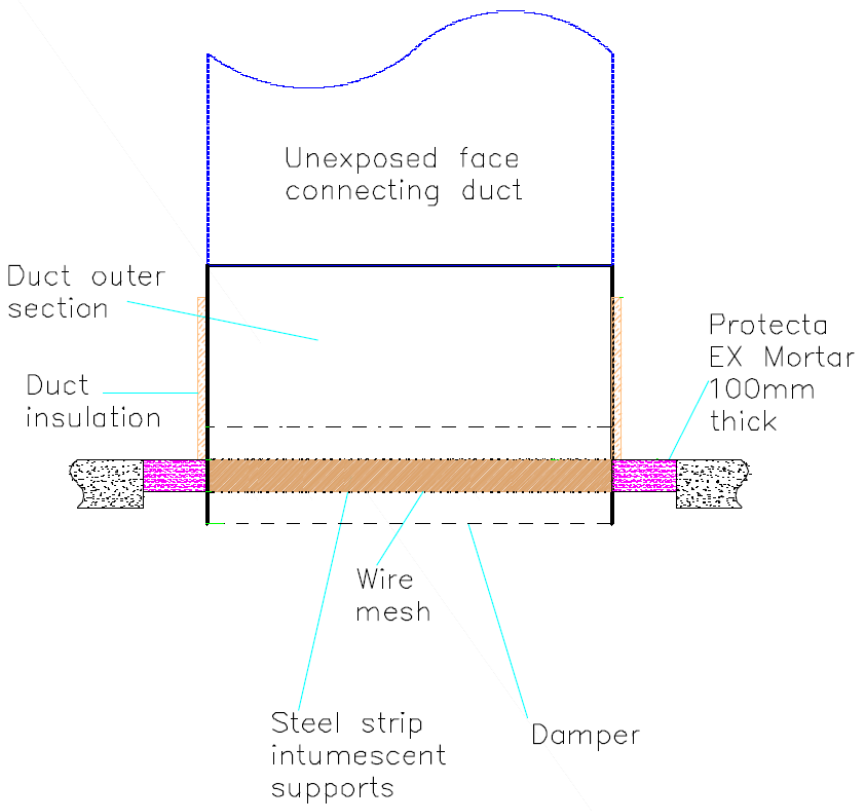
4.2 Classification

The element, product name Protecta Firedamper is classified according to the following combinations of performance parameters and classes as appropriate.

E	**I**		**t**	**t**		**(**	**i**	**↔**	**o**	**)**		**S**

Protecta Firedamper: Installed into min. 100 mm thick Protecta EX Mortar seal in a min. 150 mm thick concrete floor and supported on the top face.

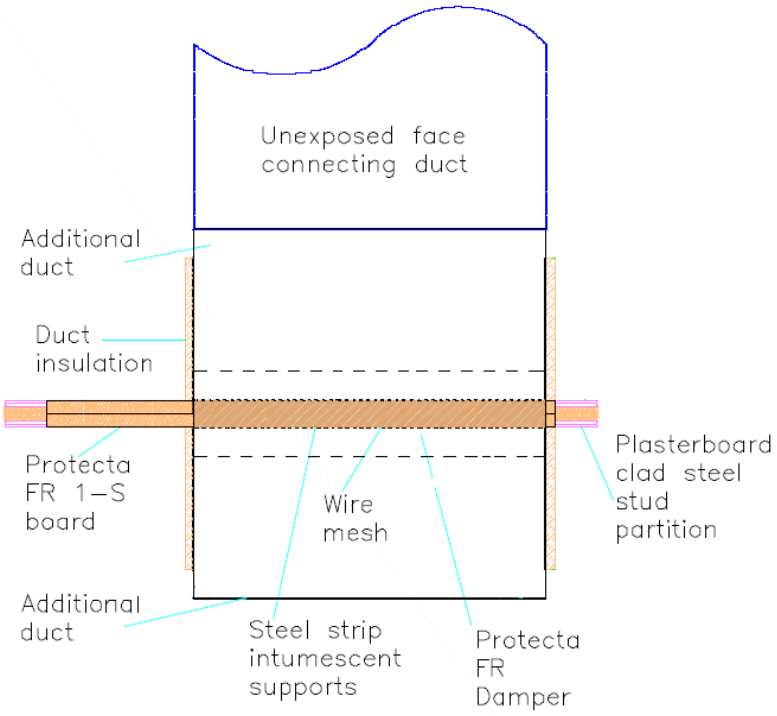
Construction details:



Maximum damper size (mm)	Damper length through the element/coaming to top faces (mm)	Number of intumescent Lined Fins	Coaming insulation – Local Interrupted (LI)	Classification
100 Ø	200/200	3	Min. 30mm thick Rockwool Alu Brandmatte, Min. 150 mm long to the top side	E 180 (ve i↔o) EI 120 (ve i↔o)
125 Ø		3		
160 Ø		5		
200 Ø		7		
250 Ø		7		
315 Ø		9		
400 Ø		13		
1000 x 600	200/500	21	Min. 30mm thick Rockwool Alu Brandmatte, Min. 500 mm long the top side	E 90 (ve i↔o) EI 60 (ve i↔o)
500 Ø	300/500	15		EI 90 (ve i↔o)
630 Ø		19		
800 Ø		25		
1000 Ø		32		
1000 x 1000				

Protecta Firedamper: Installed into min. 100 mm thick Protecta FR Board 1-S seal (2 x 50 mm layers) in a min. 100 mm thick steel stud flexible or rigid wall and supported on both faces.

Construction details:



Maximum damper size (mm)	Damper length through the element/coaming to top faces (mm)	Number of intumescent Lined Fins	Coaming insulation – Local Interrupted (LI)	Classification
100 Ø	100/200	3	Min. 30mm thick Rockwool Alu Brandmatte, Min. 200 mm long to both sides	EI 120 (ho i↔o)
125 Ø		3		
160 Ø		5		
200 Ø		7		
250 Ø		7		
315 Ø		9		
400 Ø		13		
1000 x 600	300/500	19	Min. 30mm thick Rockwool Alu Brandmatte, Min. 500 mm long to both sides	EI 120 (ho i↔o)
500 Ø		15		E 90 (ho i↔o)
630 Ø		19		EI 60 (ho i↔o)
800 Ø		25		
1250 Ø		40		
1700 x 1500		39		EI 90 (ho i↔o)

Note: Smaller dampers than tested are included as permitted in Clause 13.1 on EN 1366-12 (number of fins also reduced proportionately). Additionally the Protecta Firedampers are symmetrical and therefore may be exposed from either side.

4.3 Field of Application

This classification is valid for the following end use applications (as defined in EN1366-12: 2014, referencing the following appropriate clauses of EN1366-12: 2014).

4.4.1 General Rules

13.1 Size of non-mechanical fire barrier

A test result obtained for the largest non-mechanical fire barrier is applicable to all non-mechanical fire barriers of the same type (including any aspect ratio) provided that the maximum dimensions (height and width) do not exceed those tested and that the components remain in the same orientation as those tested.

13.2 Non-mechanical fire barriers installed within structural openings

A test result obtained for a non-mechanical fire barrier installed within a structural opening is only applicable to non-mechanical fire barriers of the same type installed in the same orientation and position in relation to the supporting construction as that tested.

13.3 Non-mechanical fire barriers installed onto the face of a wall or a floor

A test result obtained for a non-mechanical fire barrier installed onto the face of a wall or floor is only applicable to non-mechanical fire barriers of the same type installed onto the face of a separating element in the same orientation and position in relation to the supporting construction as that tested.

13.4 Non-mechanical fire barriers remote from a wall or floor

A test result obtained for a non-mechanical fire barrier remote from a wall or floor is applicable to nonmechanical fire barriers of the same type installed with the same ductwork details:
a) mounted remote from a wall and attached to a length of a horizontal fire resisting ductwork when tested remote from a wall (two tests, see Figures 6 and 7);
b) mounted remote from a floor and attached to a length of vertical fire resisting ductwork on the side above the floor when tested above the floor;
c) mounted remote from a floor and attached to a length of vertical fire resisting ductwork on the side below the floor when tested below the floor;
d) mounted up to the same distance that was tested from the wall/floor and up to the same width and height of duct tested.

A test result obtained with the duct passing through a standard supporting construction is applicable to a supporting construction with a fire resistance equal to or greater than that of the standard supporting construction used for the test (thicker, denser, more layers of board, as appropriate).

Test results obtained with duct passing through flexible vertical supporting constructions may be applied to rigid supporting constructions of a thickness equal to or greater than that of the element used in the tests, provided that the classified fire resistance of the rigid supporting construction is greater than or equal to the one used for the test.

To be applicable for use away from a wall on an unexposed side, both the largest and smaller size of nonmechanical fire barrier shall be tested under fire conditions (see 6.2.5).

13.5 Fire from above

Non-mechanical fire barrier tested horizontally in floors with fire from below are acceptable in installations where fire might come from above.

13.6 Separation between non-mechanical fire barriers and between non-mechanical fire barriers and construction elements

A test result obtained for only one non-mechanical fire barrier or for two non-mechanical fire barriers with a minimum clear separation of 200 mm is applicable to a minimum separation in practice of:

a) 200 mm between non-mechanical fire barriers installed in separate ducts – Figures 10 and 11;
b) 75 mm between non-mechanical fire barriers and a construction element (wall/floor)) – e.g. for a nonmechanical barrier in a wall, this is the distance between the non-mechanical barrier casing (largest dimension) mounted in the supporting construction and a wall or floor adjacent to that supporting construction.

13.7 Supporting constructions

A test result obtained for a non-mechanical fire barrier mounted in or on the face of a standard supporting construction is applicable to a supporting construction of the same type with a fire resistance equal to or greater than that of the standard supporting construction used in the test (thicker, denser, more layers of board, as appropriate).

The test result can also apply to cellular or hollow masonry blocks or slabs that have a fire resistance time equal or greater than the fire resistance required for the non-mechanical fire barrier installation.

Test results obtained with non-mechanical fire barriers installed in flexible vertical supporting constructions may be applied to rigid supporting constructions of a thickness equal to or greater than that of the element used in the tests, provided that the classified fire resistance of the rigid supporting construction is greater than or equal to the one used for the test. The sealants used shall be the same as those tested. Any fasteners used shall be fire rated to suit the supporting construction that is used.

Test results obtained with non-mechanical fire barriers installed in insulated flexible vertical supporting constructions may be applied to applications where the flexible vertical supporting construction is uninsulated (less onerous as per EN 1363-1) – aperture framing shall be used using the same materials as used in the test partition construction, using the same number of boards as was tested.

Test results obtained with non-mechanical fire barriers installed in flexible vertical supporting constructions made with steel studs are not applicable to flexible vertical supporting constructions made using timber studs.

Test results obtained with non-mechanical fire barriers installed in aerated concrete are applicable to rigid constructions made from hollow blocks, provided that the holes are filled/closed before the addition of the final penetration seal.

If a specific supporting construction different from those described in 7.2 is selected, the test results obtained are applicable only to that specific wall, partition or floor having a thickness and/or density equal or greater than that tested.

5. Limitations

The classifications given in this report should therefore be considered to be the opinion of UL International (UK) Limited, based upon the EN 1366-12: 2014 test and the classification codes given in EN 13501-3: 2005+A1: 2009, Clause 7.2.3, but do not represent formal classification against EN 13501-3: 2005+A1: 2009 and are superseded by future publications of the EN 13501-3 standard or additional part to EN 13501 that may reference EN 1366-12.

This report does not represent type approval or certification of the product.

6. Signatories

Report by:

Chris Johnson
Staff Engineer
Building and Life Safety Technologies

Reviewed by:

Steven Harms
Engineering Leader
Building and Life Safety Technologies

For and on behalf of UL International (UK) Ltd