Project number: 4788672804

XX April 2019

ASSESSMENT REPORT

On Protecta FR ASF

Title

The Performance of Protecta FR ASF
in Accordance with AS 4072.1: 2005 &
AS 1530.4 2005/14

Polyseam Ltd
15 St Andrews Road
Huddersfield
West Yorkshire
HD1 6SB
United Kingdom

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

TABLE OF CONTENTS

1. Introduction

This report considers the expected fire resistance performance of Protecta FR ASF, as detailed in Certificate UL-EU-00871 and ETA-18/0903, to be used as penetration seals around specific, single insulated metal pipes, uninsulated metal pipes and specific electrical cables, single or in a bundle to form a penetration seal to reinstate the fire resistance performance of wall and floor constructions.

For plastic pipes, AS1530.4: 2014 requires the external projection away from the furnace to be increased to a minimum of 2000 mm. Since all of the supporting test data used in support of Certificate UL-EU-00871-CPR was conducted upon specimens comprising services lengths of 500 mm long on each side of the supporting construction, this assessment does not allow for the use of plastic pipe services.

The data which forms the basis of this assessment was obtained from tests in accordance with EN 1366-3: 2009.

The penetration seals discussed are required to provide up to 120 minutes integrity and insulation performance, depending on size and configuration, with respect to AS 4072.1: 2005 & AS 1530.4 2005/14.

2. Assumptions

It is assumed that the walls and floors into which the penetration seals are installed have been proven via test to provide at least the same performance as that required of the seal.

It is assumed that the proposed penetration seals will be installed by competent installers and will be of the configurations described in Appendix 2.

3. Assessment – Performance to AS 4072.1: 2005 & AS 1530.4 2005/14

The proposed Protecta FR ASF is certificated by UL and is authorised to bear the UL-EU Mark. The basic requirements for this certification are as follows:

- Verification of the manufacture of test samples
- Testing in accordance with EN 1366-3
- Evaluation against EAD 350454-00-1104, September 2017.
- Continuous factory surveillance and verification
- Eligibility to bear the ‘CE Mark’ via compliance with Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC - OJ L 88 of 4 April 2011 (The Construction Products Regulation)

The requirements for UL-EU Certification therefore go far beyond those of simple type testing, however since the products have been tested in accordance with EN 1366-3: 2009, it is necessary to consider any significant differences between this standard and the required AS 4072.1: 2005 & AS 1530.4 2005/14.

It is noted that the requirements of the 2005 and 2014 versions of the AS 1530.4 standard are the same for the proposed applications and therefore this report is considered applicable to both versions.

The following aspects of the test are considered relevant to the performance of the seals:

- Mounting and installation – Both AS1530.4: 2014 and EN 1366-3: 2009 require that service penetrations are installed and tested in a manner representative of the intended application.
- Heating conditions – Both standards use the same specified heating conditions ($T = 345 \log_{10} (8t + 1) + 20$) and instrumentation (Plate Thermometer required by EN 1366-3: 2009 is an option in AS1530.4: 2014)
- Dimensions – Both AS1530.4: 2014 and EN 1366-3 requires a minimum service length of 500 mm on each side of the supporting construction, of which at least 200 mm shall extend beyond the extremities of the penetration sealing system however, for plastic pipes, AS1530.4: 2014 requires the external projection away from the furnace to be increased to a minimum of 2000 mm. Since all of the supporting test data used in support of Certificate UL-EU-00871-CPR was conducted upon specimens comprising services lengths of 500 mm long on each side of the supporting construction, this assessment does not allow for the use of plastic pipe services.
- Pressure conditions – Both standards require that the test specimens be subjected to identical pressure conditions
- Instrumentation of specimens – The instrumentation of the specimens is of the same type and is applied at similar positions however, AS 1530.4: 2014 requires instrumentation to be applied in at least two positions 25 mm from the interface of the separating element and the main penetration seal. Since EN 1366-3: 2009 specifies instrumentation to be applied to the top edge of the penetration seal and the penetration service, it would be reasonable to considered that instrumentation is applied to a worst case position and as such, is expected to result in the same performance.
- Failure criteria – The failure criteria of both tests for Integrity and Insulation are identical, with the exception of the omission of gap gauges from the AS1530.4 standard. Although integrity performance for gap gauges is used for penetration seals under the EN 1366-3: 2009 standard, the formation of gaps was not observed in any of the supporting tests, for the performance periods given.

The parameters discussed above indicate that the EN 1366-3: 2009 test is equivalent to, and of equal severity to a AS1530.4: 2014 test, and therefore based upon the above, it is considered that Protecta FR ASF, as detailed in Appendix 2, would provide up to 120 minutes (depending upon specification) integrity and insulation performance, if subjected to a test in accordance with AS1530.4: 2014 and AS 4072.1: 2005.

4. Limits of Applicability

The conclusions of this report only apply to Protecta FR ASF penetration seals as described in Appendix 2 of this report.

5. Conclusions

It can be concluded that Protecta FR ASF, installed as penetration seals, as described in Appendix 2 of this report, would provide the performances given in Appendix 2 of this report, if subjected to a test in accordance with AS 4072.1: 2005 & AS 1530.4 2005/14.

However, for plastic pipes, AS1530.4: 2014 requires the external projection away from the furnace to be increased to a minimum of 2000 mm. Since all of the supporting test data used in support of Certificate UL-EU-00871-CPR was conducted upon specimens comprising services lengths of 500 mm long on each side of the supporting construction, this assessment does not allow for the use of plastic pipe services.

6. Validity

This assessment is issued on the basis of test data and information available at the time of issue.

If contradictory evidence becomes available to UL International (UK) Ltd the assessment will be unconditionally withdrawn and POLYSEAM LTD will be notified in writing. Similarly the assessment is invalidated if the assessed construction is subsequently tested because actual test data is deemed to take precedence over an expressed opinion.

The assessment is valid initially for a period of five years i.e. until 1st May 2024, after which time it is recommended that it be returned for re-appraisal.

The appraisal is only valid provided that no other modifications are made to the tested construction other than those described in this report.

7. Declaration by POLYSEAM LTD

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 the 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 UL International (UK) Ltd to withdraw the assessment.

Signed:

For and on behalf of:

---

8. Signatories

Report by:

David Yates*
Project Engineer
Building and Life Safety Technologies

Reviewed by:

Chris Johnson*
Staff Engineer
Building and Life Safety Technologies

*For and on behalf of Underwriters Laboratories International (UK) Ltd

The assessment report is not valid unless it incorporates the declaration duly signed by the applicant. This is included in Section 7 to this report.

REPORT ISSUED: XX April 2019

Appendix 1: Summary of Primary Supporting Evidence

WF No. 191491
A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 130 mm thick flexible wall supporting construction.

The test demonstrated the ability of the specimens to provide up to 120 minutes integrity and insulation performance.

WF No. 392646
A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 100 mm thick flexible wall supporting construction.

The test demonstrated the ability of the specimens to provide up to 132 minutes integrity and insulation performance.

WF No. 401855
A fire resistance test in accordance with BS EN 1366-3: 2009, on penetration seals installed in a 100 mm thick flexible wall supporting construction.

The test demonstrated the ability of the specimens to provide up to 127 minutes integrity and insulation performance.

ETA 18/0903

A European Technical Assessment of Protecta FR ASF in accordance with EAD 350454-00-1104, September 2017.

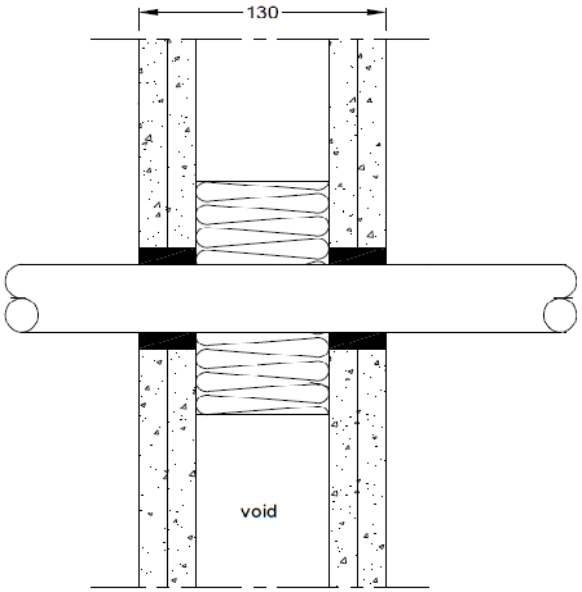
UL-EU-000871-CPR

A UL certificate which relates to the use of Protecta FR ASF for fire stopping where there are service penetrations through walls and floors.

Appendix 2: Summary of Assessed Scope

Flexible and rigid wall constructions with wall thickness of minimum 130 mm

Double side penetration seal

Penetration Seal: Pipe (single) fitted centrally within the aperture, with 30 mm deep Protecta FR ASF Sealant to both sides of the wall, backed to full depth (min. 70 mm), stone wool insulation minimum 33kg/m^3.
Flexible wall construction: Minimum 2 layers of 15 mm thick Type F (EN520) gypsum board on both sides of 70 mm deep steel studs, with no cavity insulation.
Construction details: 

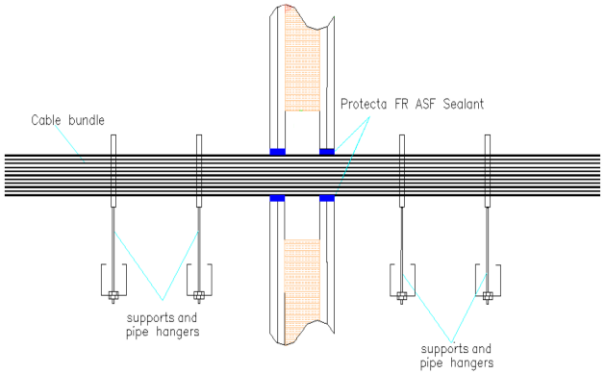
Substrate	Min. Wall thickness (mm)	Opening Size (mm)	Penetrating Services	Seal Depth (mm)	Backing	Performance	
						Integrity (mins)	Insulation (mins)
Drywall/ Masonry/ concrete	130	Pipe + 20 annular gap	Steel pipe 42 -219 mm diameter and 7.5 – 14.2 mm wall	30	Full depth (min. 70 mm) stone wool insulation minimum 33kg/m3	**120**	**15**
			Copper pipe 28 mm diameter and 1.0 – 14.0 mm wall			**120**	**90**
			Copper pipe 42 mm diameter and 1.0 – 14.0 mm wall			**120**	**0**

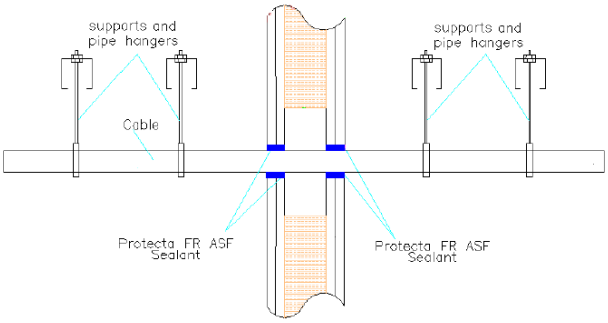
Flexible and rigid wall constructions with wall thickness of minimum 100 mm

Double side penetration seal with cables

Penetration Seal: Cables (single or in bundles) fitted at any position within the aperture, with 25 mm Protecta FR ASF to both sides of the wall. Minimum annular space 10 mm (A1) and minimum separation between penetration seals 30 mm (A2).

Construction details:



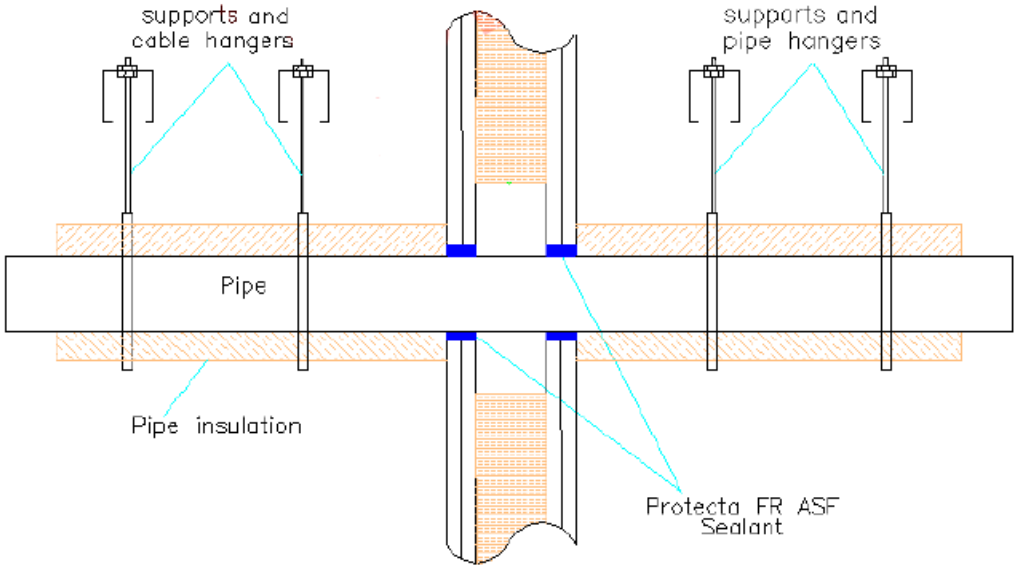


Substrate	Min. Wall thickness (mm)	Opening Size (mm)	Penetrating Services	Seal Depth (mm)	Performance	
					Integrity (mins)	Insulation (mins)
Drywall/ Masonry/ concrete	100	Cable bundle + 10 annular gap	Cables up to 21 mm diameter in tied bundles up to 50 mm diameter	25	**120**	**120**
			Electrical cables up to 21 mm Ø, single		**120**	**60**
			Electrical cables up to 50 mm Ø, single		**120**	**30**

Double side penetration seal with metallic pipes

Penetration Seal: LI (Local Interrupted) of minimum length stated below or CI (Continuous Interrupted) insulated metallic pipes fitted at any position within the aperture, with 25 mm Protecta FR ASF to both sides of the wall. Minimum annular space 10 mm (A1) and minimum separation between penetration seals 30 mm (A2).

Construction details:



Substrate	Min. Wall thickness (mm)	Opening Size (mm)	Penetrating Services	Seal Depth (mm)	Insulation LI or CI	Performance	
						Integrity (mins)	Insulation (mins)
Drywall/ Masonry/ concrete	100	Pipe + 10 annular gap	Steel or copper pipes up to 54 mm diameter/1.2-14.2	25	Minimum 600 mm long and minimum 20 mm thick glass- or stonewool insulation at minimum 75 kg/m3	**120**	**60**