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Astroflame Fireseals Ltd
Unit 8 The I O Centre
Stephenson Road
Segensworth, Fareham
Hampshire, PO15 5RU

14

1121-CPR-JA5013

ETA-14/0047

ETAG 026-Part 1
ETAG 026-Part 2

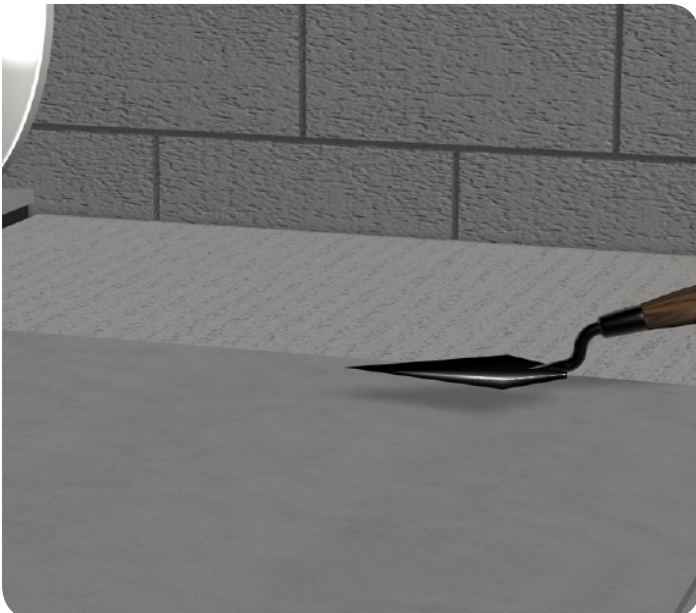
ASTRO HS FM Compound
"see ETA-14/0047 for
relevant characteristics"



APPROVED
CF613

EN13501-2
EN1026:2000
EN10140-2:2010

EN1366-3:2009
BS476 part 20&22



Technical Data Sheet

Astro HS FM Compound®

UIC of product-type: HSFMC

Issue: 1
Aug 2015

ASTRO HS FM COMPOUND®

ETA 14 -0047
CE-1121-CPR-JA5013



Unique identification code of product-type: HSFMC

Astro HS FM Compound is a gypsum based mortar material, used to reinstate the fire resistance performance of floor constructions where they have been provided with apertures for the penetrations of multiple services

Astro HS FM Compound is supplied as a dry material, and is mixed with water to the required ratio prior to installation

Astro HS FM Compound when mixed is self-supporting in a floor to a maximum of 700mm x 700mm. Temporary shutting is required to support the wet weight of the Astro HS FM Compound

Installation of the Astro HS FM Compound

Internal use-ETAG 026-2 (used as European Assessment Document EAD) Type Z₁

Intended Use

The intended use of Astro HS FM Compound is to reinstate the fire resistance performance of rigid floor constructions where they are penetrated by various cables and metallic pipes

The specific elements of construction that the system Astro HS FM Compound may be used to provide a penetration seal in, are as follows:

Rigid Floors

The floor must have a minimum thickness of 150mm and comprise concrete, aerated or masonry, with a minimum density of 650kg/m³

The supporting construction must be classified in accordance with EN 13501-2 for the required fire resistance period

The Astro HS FM Compound may be used to provide a penetration seal with cables and cable trays

The total amount of cross sections of services (including insulations) should not exceed 60% of the penetration area

The system Astro HS FM Compound may be used to seal apertures in the separating element up to 700mm long in a floor. The minimum permitted separation between adjacent seals/apertures is 200mm. Services within the system Astro HS FM Compound do not require a minimum separation

Services in floors shall be supported at maximum 100mm and 400mm from the un-exposed face

The provisions made in this European Technical Assessment are based on an assumed working life of the Astro HS FM Compound of 25 years, provided that the conditions laid down in sections 4.2/5.1/5.2 for the packaging/transport/storage/installation/use/repair are met. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works

Use Category

Type Z₁: Intended for use in internal conditions with humidity equal to or higher than 85% RH excluding temperatures below 0°C, without exposure to rain or UV



Astroflame Ltd
Unit 8, The I O Centre
Stephenson Road
Segensworth, Fareham
Hampshire, PO15 5RU

Tel: +44 (0) 1329 844500
Fax: +44 (0) 1329 844600
Email: sales@astroflame.com
Website: www.astroflame.com



**ASTRO HS
FM COMPOUND®**ETA 14 -0047
CE-1121-CPR-JA5013

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Reaction to Fire

System Astro HS FM Compound is classified 'F' in accordance with EN 13501-1

Resistance to fire

System Astro HS FM Compound has been tested in accordance with BS EN 1366-3: 2009 based upon the test results and the field of direct application specified within EN 1366-3: 2009, the system Astro HS FM Compound has been classified in accordance with EN 13501-2:

The service support only be penetrated by the services, other parts or support constructions must not penetrate the seal

The service support construction must be fixed to the building element containing the penetration seal or a suitable adjacent building element, and the unexposed side for floors, in such a manner that in the case of fire, no additional load is imposed on the seal. Furthermore it is assumed that the unexposed face support is maintained for the required period of fire resistance

Astro HS FM Compound seals in floors must be installed over a shutter that is capable of supporting the weight of the mortar, the shutter should then be removed

Cables should be insulated with minimum 300mm long, 6mm thick Astroflame Thermal Defence Wrap

Pipes must be perpendicular to the seal Surface

It is assumed that compressed air systems are switched off by other means in case of fire

The function of the pipe seal in case of pneumatic dispatch systems, pressurised air systems etc. is guaranteed only when the systems are shut off in case of fire

The assessment does not cover the avoidance of destruction of the seal or of the abutting building element(s) by forces caused by temperature changes in case of fire. This has to be considered when designing the piping system

The approval does not address any risks associated with leakage of dangerous liquids or gases caused by failure of the pipe(s) in case of fire

The durability assessment does not take account of the possible effect of substances permeating through the pipe on the penetration seal



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Air Permeability

System Astro HS FM Compound at 50mm deep has been tested in accordance with EN ISO 1026:2000 to provide the following results

Product tested			Astro HS FM Compound	
	Results under positive chamber pressure		Results under negative chamber pressure	
Pressure (Pa)	Leakage (m ³ /h)	Leakage (m ³ /M ² /h)	Leakage (m ³ /h)	Leakage (m ³ /m ² /h)
50	0.1	0.14	0.3	0.42
100	0.6	0.83	0.1	0.14
150	0.7	0.97	0.2	0.28
200	1.2	1.67	0.3	0.42
250	1.3	1.81	0.6	0.83
300	1.6	2.22	0.6	0.83
450	1.7	2.36	0.4	0.56
600	2.5	3.47	0.3	0.42

Dangerous Substances

Astroflame has presented a declaration that Astro HS FM Compound does not contain any substance of high concern with regards to REACH Regulations and are compliant with the requirements reference to <http://ec.europa.eu/enterprise/construction/cpd-ds/index.cfm>

Confirmation has further been declared that all dangerous chemical substances $\geq 1.0\%$ w/w as well as all toxic, carcinogenic, toxic for reproduction and mutagenic chemical substances $\geq 0.1\%$ w/w (Status: 29. adaption - 2004/73/EG - of the EU directive 67/548/EEC - classification, packaging and labelling of dangerous substances) are stated in the Astro HS FM Compound material safety data sheets (according labelling of dangerous substances) are stated in the Astro HS FM Compound material safety data sheets (according to 91/155/EEC including amendments) and have been considered for the classification of the products according to the directive 1999/45/EG (classification of preparations, including amendments)

All dangerous chemical substances are below the classification limits of 67/548/EEC

In addition to the specific clauses relating to dangerous substances contained in this European technical approval, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulations, there requirements need also to be complied with, when and where they apply

Durability and Serviceability

Astro HS FM Compound has been tested in accordance with EOTA Technical Report - TR024 - Edition November 2006, for the type Z₁ use category specified in ETAG 026-2 (used as European Assessment Document, EAD), and the results of the tests have demonstrated suitability for penetration seals intended for use in internal conditions with humidity equal to or higher than 85% RH excluding temperatures below 0°C, without exposure to rain or UV



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Assessment And Verification Of Constancy Of Performance (Hereinafter AVCP) System Applied, with references To Its Legal base

According to the decision 1999/454/EC of the European Commission the system of assessment and verification of constancy of performance (see the Regulation (EU) No 305/2011) given in the following table apply

Products	Intended uses	Level or Class	System
Fire stopping and fire sealing products	For fire compartmentation and / or fire protection or fire performance	Any	System 1

Astro HS FM Compound

A detailed specification of the product is contained in document "Evaluation Report" relating to the European Technical Approval ETA - 14/0047 issued on 13/12/13, of Astro HS FM Compound which is a non-public part of this ETA



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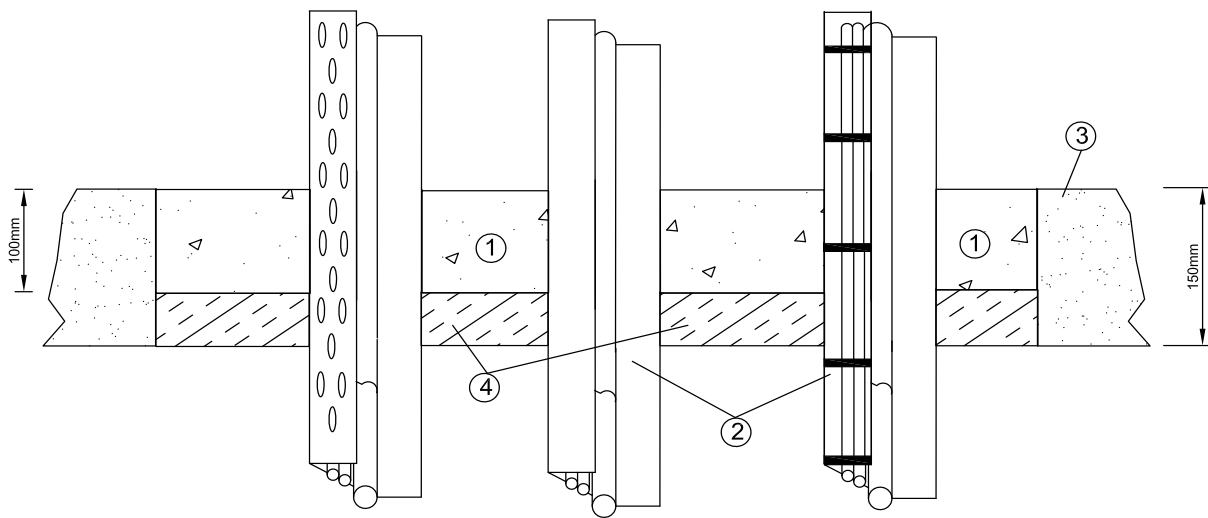
Rigid floor constructions according with floor thickness of minimum 150mm

Penetration seal with Astro HS FM Compound installed the 100mm depth of the floor, maximum seal size 700mm x 700mm

Penetration Seal: Various cable and cable tray (insulated) penetration through a rigid floor construction. Astro HS FM Compound flush with the upper surface of the floor

Astro HS FM Compound is applied to seal around the services and gaps of service penetration

**TYPICAL FLOOR PENETRATION SEALED WITH
ASTRO HS FM COMPOUND AND SHUTTERING**



- NOTES :**
- 1 - ASTRO HS FM COMPOUND SYSTEM 100mm THICKNESS
 - 2 - STANDARD CONFIGURATION CABLES AND CABLE TRAYS
 - 3 - RIGID SUBSTRATE 150mm THICKNESS
 - 4 - SHUTTERING 50mm STONE WOOL

	FILE NAME:	DET 16-0002	Astroflame (Fireseals) Limited Intumescent House Unit 8 The IO Centre Stephenson Road Segensworth Fareham, PO15 5RU	ASTROFLAME has provided this specification on the basis of data, information & site conditions given to ASTROFLAME by the client, the respective ASTROFLAME product information & the existing level of technical knowledge. This specification relates to the expected performance of the proposed detail, were it to be subjected to the standardised tests against which the judgement was made. The accuracy of this specification can only be guaranteed provided: 1. Only original ASTROFLAME products as defined within this specification are used 2. These specific products are used & installed only by a competent, experienced installer & by strictly following the conditions & calculations mentioned in this specification, as well as all relevant technical instructions, operating manuals, setting manuals, installation manuals & all other ASTROFLAME data sheets. 3. The proposed performance, listed prerequisites & criteria conform with actual existing site conditions & have been checked & agreed by the installer & client.
	DATE:	20/08/15		



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Separation of openings minimum 200mm

Services	Classification
Electrical cables up to 50mm \varnothing^*	E 120 EI 90
Electrical cables up to 51-80mm \varnothing^*	E 120 EI 60
Non-sheathed wire up to 24mm \varnothing^*	E 120 EI 60
Up to 21mm telecomm cables in bundles of up to 100mm diameter*	EI 60
Plastic (any) conduits and tubes up to 16mm \varnothing^*	E 120 EI 120
Steel or Copper conduits and tubes up to 16mm \varnothing^*	E 120 EI 20
Cable trays and ladders	E120 EI90

* A single layer of Astroflame Thermal Defence Wrap 6mm thick. To the exposed and Unexposed faces 300mm interrupted at the seal



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Notified body No. 1121
Warrington Certification Limited, Holmesfield Road, Warrington, Cheshire, WA1 2DS, UK

Certificate of constancy of performance

1121-CPR-JA5013

In compliance with *Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011* (the Construction Products Regulation or CPR), this certificate applies to the construction product

Astro HS-FM Compound

Intended use: Penetration Seals

Essential characteristics	Performance according to	Technical specification
Reaction to fire	ETA 14/0047	ETAG 26-02 (Used as EAD)
Resistance to fire	ETA 14/0047	ETAG 26-02 (Used as EAD)
Dangerous substances	ETA 14/0047	ETAG 26-02 (Used as EAD)

Page 1 of 2

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Astroflame Ltd
Unit 8, The I O Centre
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Hampshire, PO15 5RU

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ASTRO HS
FM COMPOUND®

ETA 14 -0047
CE-1121-CPR-JA5013

ASTROFLAME
MANUFACTURERS OF PASSIVE FIRE STOP PRODUCTS

Unique identification code of product-type: HSFMC





Certificate of constancy of performance

1121-CPR-JA5013

produced for

Astroflame (fireseals) Limited
Unit 8 The IO Centre
Stephenson Road
Segensworth
Fareham
Hampshire
PO15 5RU
UK

and produced in the manufacturing plant

E/055

This is coded form and the information is held by the Notified Body

This certificate attests that all provisions concerning the assessment and verification of constancy of performance and the performances described in the European Technical Approval referenced

ETA 14/0047

under system 1 of AVCP are applied and that

the product fulfils all the prescribed requirements set out above.

This certificate was first issued on 28/02/14 and will remain valid as long as the test methods and/or factory production control requirements included in the harmonised standard, used to assess the performance of the declared characteristics, do not change, and the product, and the manufacturing conditions in the plant are not modified significantly.

CE



Paul Duggan
Certification Manager
Warrington Certification Ltd

Page 2 of 2

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**ASTRO HS
FM COMPOUND®****TECHNICAL SCHEDULE
No. CF613**

Unique identification code of product-type: HSFMC

**Astro HS FM Compound**

This approval relates to the use of Astro HS FM Compound for the fire protection where services are penetrating walls and floors. The detailed scope is given in the Approval Matrix included in this Certificate. This shows the thickness and acceptable services for Astro HS FM Compound required to provide fire resistance periods in accordance with BS 476; Part 20: 1987 of up to 240 minutes for differing services and wall/floor constructions. The scope of certification complies with the guidelines stated in the ASFP Red Book: 3rd Edition for 3rd party certification schemes

This certification is designed to demonstrate compliance of the product or system specifically with Approved Document B (England and Wales), Section 2 of the Technical Standards (Scotland), Technical Booklet E (N.Ireland). If compliance is required to other regulatory or guidance documents there may be additional considerations or conflict to be taken into account.

The product is approved on the basis of:

- i) Initial type testing
- ii) Audit testing at the frequency specified in TS03
- iii) A design appraisal against TS03
- iv) Inspection and surveillance of factory production control

The concrete floors and/or masonry or concrete walls shall be at least as thick as the sealing system as shown in the Approval matrix and have at least the same fire rating as that required for the penetration seal.

The services which may be fitted through the seals are electrical cables of various sizes from communication cables to power cables. The cables may be mounted in steel trunking or conduits. If fitted in trunking, the inside of the trunking around the cables must be filled with Astro HS FM Compound where it passes through the seal

Other services which may be fitted through the seals are steel, copper or plastic pipes.

Plastic pipes must be fitted with intumescent closing devices, or similar, which have been shown by certification in the required orientation to be suitable for use with this type of penetration sealing system and suitable for the fire rating specified

The approval relates to ongoing production. Product and/or its immediate packaging is identified with the manufacturer's name, the product or number, the CERTIFIRE name or name and mark, together with the CERTIFIRE certificate number and application where appropriate



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Product Name:		Astro HS FM Compound				
Coating/WFT:		Not applicable				
Penetrating Services			Fire Rating (min)			
		Maximum Aperture Dimension (mm)	Minimum Seal Depth (mm)		Integrity	Insulation
			loadbearing	Non-loadbearing		
Walls or floors	No services	1200	100	75	120	120
		1200	150	100	240	240
	Cables or Trunking or Dampers or Pipes ** (<60mm dia)	1200	100	75	120	0*
		1200	150	100	240	0*
Maximum Opening Area:		1.44m2 with a maximum service loading of 25% within each penetration seal				
Wall thickness:		The floors and walls shall be a minimum of 100mm thick. The minimum density for the concrete of the floor or wall is 780kg/m3 and for walls made of concrete blocks is 600kg/m3				
Application Technique:		<p>Floors: Temporary or permanent shuttering will be required. In all instances where the span of the Astro HS FM Compound exceeds 600mm, additional reinforcement e.g. rebars will be necessary. for the floor seals fitted with reinforcement, the bars shall be 12mm diameter at 150mm centres. they shall be positioned at midthickness and supported at their ends on steel angles, typically 30mm x 30mm x 1.2mm thick, which are fastened to the concrete floor with all steel expanding anchors, at maximum 500mm centres.</p> <p>Walls: Astro HS FM Compound should be progressively built up in order to avoid slumping. Usually a single shuttering board is used</p>				
Service Coat-Back:		Depends upon the service and insulation value required which is not evaluated by this approval		U Value	Not Known	
Service Support requirements:		In all cases the services shall be supported adjacent to either face of the penetration seal				
Air Permeability: EN1026		Pressure (Pa)	Positive pressure (m ³ /h/m ²)	Negative pressure (m ³ /h/m ²)	Weather Capability	Not evaluated by this approval
		50	0.14	0.42		
		100	0.83	0.14		
Acoustic Rating: BS EN ISO 10140-2: 2010		Not evaluated by this approval			Load-bearing Capability	See BCAL Report 3269


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