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Authorised and notified
according to Article 29 of the
Regulation (EU)
No 305/2011 of the European
Parliament and of the Council
of 9 March 2011

MEMBER OF EOTA



European Technical Assessment ETA-21/0355 of 2021/03/19

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:

Astro HS Compound

Product family to which the above construction product belongs:

Fire Stopping, Fire Sealing & Fire Protective Products.
Fire Retardant Products

Manufacturer:

Astroflame Fireseals Limited
Intumescent House
Unit 8 The IO Centre
Stephenson Road
Segensworth
Fareham
Hampshire
PO15 5RU

Manufacturing plant:

E/122

This European Technical Assessment contains:

12 pages including 1 annex which form an integral part of the document

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:

EAD 350454-00-1104 Firestopping and fire sealing products, Penetration Seals, Issued September 2017

This version replaces:

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1 Technical Description of the Product

- 1) Astro HS 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.
- 2) Astro HS Compound is supplied as a dry material, and is mixed with water to the required ratio prior to installation.
- 3) Astro HS Compound when mixed is self-supporting in a floor to a maximum of 1800mm x 1800mm. Temporary shuttering is required to support the wet weight of the Astro HS Compound.

2 Specification Of The Intended Use In Accordance With The Applicable European Assessment Document (EAD)

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

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

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

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

- 2) The Astro HS Compound may be used to provide a penetration seal with cables, cable trays and metallic pipes with insulation (for details see Annex C).
- 3) The total amount of cross sections of services (including insulation) should not exceed 60% of the penetration area.
- 4) The system Astro HS Compound may be used to seal apertures in the separating element up to 1800mm wide by 1800mm long in a floor. The minimum permitted separation between adjacent seals/apertures is 200mm. Services within the Astro HS Compound do not require a minimum separation.
- 5) Services in floors shall be supported at maximum 150mm and 300mm from the exposed face.
- 6) The provisions made in this European Technical Approval are based on an assumed working life of the Astro HS 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 or the Technical Assessment Body, 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.

2.1 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.

3 Performance of The Product And References To The Methods Used For Its Assessment

BWR	Characteristic	Assessment of characteristic
2	Safety in case of fire	
	Reaction to fire	See clause 1.1
	Resistance to fire	See clause 1.2
3	Hygiene, Health and the Environment	
	Content and release of Dangerous substances	See clause 2.1
4	Safety and accessibility in use	
	Durability and serviceability	See Clause 3.1
5	Protection against noise	
	Airborne sound insulation	See Clause 4.1

3.1 Safety in case of fire

3.1.1 Reaction to Fire

No performance assessed.

3.1.2 Resistance to fire

Astro HS Compound has been tested in accordance with EN 1366-3 and EN 1366-3 based upon the test results and the field of direct application specified within EN 1366-3, the Astro HS Compound has been classified in accordance with EN 13501-2, as given in Annex C:

The seals may only be penetrated by the services described in Annex C; 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 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 in accordance with 4.2.

Cables should be insulated with minimum 45kg/m³ Rockwool Duct Wrap minimum 25mm thick 500mm long to the unexposed face

Pipes should be insulated with minimum 150kg/m³ Rockwool H&V Pipe Section minimum 50mm thick 500mm long to the unexposed face (CI)

Pipes must be perpendicular to the seal surface.

It is assumed that compressed air systems are switched off by other means in the 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 assessment 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.

The classifications relate to C/U (capped inside /uncapped outside the furnace) for metallic pipes, insulated. For further information refer to national regulations.

3.2 Hygiene, Health and the Environment

3.2.1 Dangerous substances

Astroflame Fireseals Limited has presented a declaration that Astro HS 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>

In addition to the specific clauses relating to dangerous substances contained in this European technical assessment, 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 Directive, these requirements need also to be complied with, when and where they apply.

3.3 Safety and Accessibility in use

3.3.1 Durability

Astro HS Compound has been tested in accordance with EOTA Technical Report - TR024 – Edition November 2006, for the type Z₁ use category specified in EAD 350454-00-1104 – Fire Stopping and fire sealing products – Penetration Seals , 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.

3.4 Protection against noise

3.4.1 Airborne sound insulation

The results of the test provided the following single number rating:

$D_{n,e,w} (C;Ctr) = 52(-4;-8)$

4 Assessment and Verification Of Constancy Of Performance (Hereinafter AVCP) System Applied, With References To Its Legal base

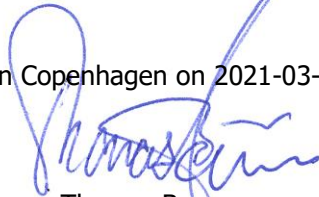
According to the decision 1999/454/EC of the European Commission the system of assessment and verification of constancy of performance (see Annex V to the Regulation (EU) No 305/2011) given in the following table apply:

Products	Intended use/s	AVCP System
Fire stopping and fire sealing products	For fire compartmentation and/or fire protection or fire performance	System 1

5. Technical Details Necessary for The Implementation of The AVCP System, As foreseen in The Applicable EAD.

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark A/S prior to CE marking

Issued in Copenhagen on 2021-03-19 by



Thomas Bruun
Managing Director, ETA-Danmark

Annex A

Reference Documents

EN 13501-1	Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests
EN 13501-2	Fire classification of construction products and building elements – Part 2: Classification using test data from fire resistance tests
EOTA TR 024	Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products

Annex B

Description of Product

Astro HS Compound

A detailed specification of the product is contained in document "Evaluation Report" and "Control Plan of 7th March 2013" relating to this ETA for Astro HS Compound which is a non-public part of this ETA.

Annex C

Resistance to Fire Classification of Astro HS Compound

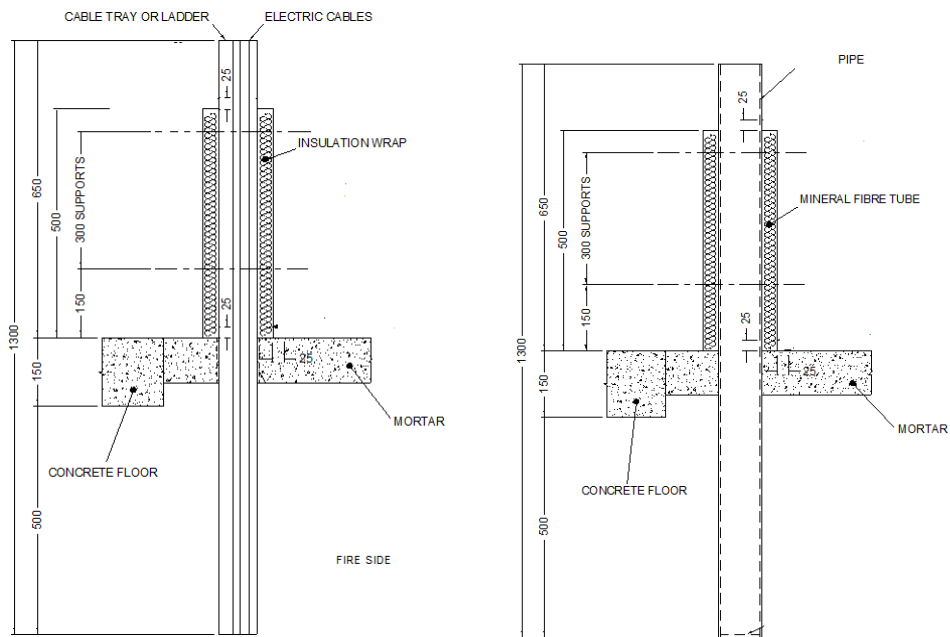
C.1 Rigid floor constructions according to 1.2.1 with floor thickness of minimum 150 mm

C.1.1 Penetration seal with Astro HS Compound installed the 100mm depth of the floor, maximum seal size 1800mm x 1800mm

Penetration Seal: Metallic pipes (insulated) and various cables (insulated) penetrating through a rigid floor construction. Astro HS Compound flush with the upper surface of the floor.

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

Construction details:



C1.1.1 Separation of openings minimum 200 mm

Services	Classification
Copper pipe 40-107 mm Ø and 1.5 – 14.2 mm wall, insulated with 'LI' (local interrupted 500mm) 50 mm thick Rockwool H&V Pipe Section min 150kg/m ³	E 60 C/U EI 15 C/U
Steel pipe 40-115 mm Ø and 3.5 – 14.2 mm wall, insulated with 'LI' (local interrupted 500mm) 50 mm thick Rockwool H&V Pipe Section min 150kg/m ³	EI120 C/U
Steel pipe 160 mm Ø and 5– 14.2 mm wall, insulated with 'LI' (local interrupted 500mm) 50 mm thick Rockwool H&V Pipe Section min 150kg/m ³	E 120 C/U EI 90 C/U
Electrical cables up to 80 mm Ø, insulated with 25mm thick Rockwool Duct Wrap 500mm long min 45kg/m ³	E 120 EI 60
Non-sheathed wire up to 24 mm Ø insulated with 25mm thick Rockwool Duct Wrap 500mm long min 45kg/m ³	EI 120

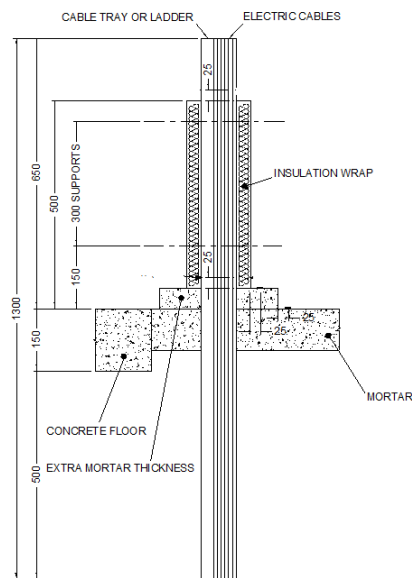
C.2 Rigid floor constructions according to 1.2.1 with floor thickness of minimum 150 mm

C.2.1 Penetration seal Astro HS Compound installed the 150mm depth of the floor, maximum seal size 1800mm x 1800mm

Penetration Seal: Various cables (insulated) penetrating through a rigid floor construction. Astro HS Compound flush with the upper surface of the floor. An additional 50mm thickness of compound is applied round the upper side of the cables.

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

Construction details:



C.2.1.1 Separation of openings minimum 200 mm

Services	Classification
Telecomm cables in bundles of up to 100 mm diameter with 25mm thick Rockwool Duct Wrap 500mm long min 45kg/m ³	EI120