Notified body No. 2812

Certificate of Type Approval

164.112/ERO2812/MED0494TE

(EC Certificate of Type Examination-2014/90/EU Directive Module B)

Manufacturer:	**AFS BORU SANAYI A.S**	**Authorised Representative – AFS BORU SANAYI A.S**
Address:	**Ivedik Organize Sanayi Bölgesi 1468. Cadde No:153 OSTIM ANKARA**	**Ivedik Organize Sanayi Bölgesi 1468. Cadde No:153 OSTIM ANKARA**

This is to certify that the manufacturer has submitted details of a surface material with low flame-spread and low smoke and toxic fume characteristics (Item No. MED/3.18f), known and designated as:-

"SONOAFS-ALU.FB ECOSOFT MARINE"

having the technical specification given in the schedule of equipment on this certificate which has been tested and complies with the recommended criteria given in the following methods, published by the International Maritime Organisation, and which are contained in the relevant parts of the International Code for Application of Fire Test Procedures (FTP Code) namely:-

IMO Resolution MSC 307(88): Annex 1: Part 5
IMO Resolution MSC 307(88): Annex 1: Part 2. Smoke and Toxicity is satisfied by meeting the total heat release (Q_t) and peak heat release (Q_p) requirement as stated Paragraph 2.2 of Annex 2 to IMO Resolution MSC 307(88).

The system complies with the relevant international testing standards under which legislation (The Merchant Shipping Marine Equipment) Regulations 2016 and also the Marine Equipment Directive 2014/90/EU as amended) and the Commission Implementing Regulation 2020/1170/EU of 16th July 2020, the certificate is issued.

This equipment is covered by the scope of the "Agreement between the European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment signed February 27th, 2004 and amended by Decision No.1/2018 dated February 18th, 2019. The manufacturer is allowed to affix the U.S. Coast Guard approval number 164.112/ERO 2812/MED0494.

Janet Murrell
Certification Manager - Marine

Date of issue: 2021-01-01
Valid until: 2021-11-08

ERO project reference EROMED10009
ERO EC Distinguishing No. 2812

This certificate is not valid for equipment, the design or manufacture of which, has been varied or modified from the specimens tested

CSF402-NL 0.1

Certificate of Type Approval Schedule of Equipment

The applicant declared that the following comprises an accurate description of the system type to which this certificate applies:

General description			Acoustically & thermally insulated aluminium flexible air duct
Product reference of overall composite			**SONOAFS-ALU.FB ECOSOFT MARINE**
Name of manufacturer of overall composite			AFS BORU SANAYI A.S.
Thickness of overall composite			25 – 50 mm 36.48mm (determined by **Warringtonfire**)
Weight per unit area of overall composite			629 g/m² (stated by sponsor) 646.0g/m² (determined by **Warringtonfire**)
Product configuration			• Flexible air duct (test face) (micro-perforated ALUAFS.F MARINE) • Barrier • Insulation • Jacket
Micro Perforated Flexible air duct	General description		Non-insulated aluminium flexible air duct
	Product reference of overall composite		ALUAFS.F MARINE (micro-perforated)
	Name of manufacturer of overall composite		AFS Boru Sanayi A.S.
	Thickness of overall composite		74 micron
	Density/weight per unit area of overall composite		153 g/m2
	Aluminium	Generic type	Aluminium foil
		Product reference	**See Note 1**
		Detailed description/composition details	Aluminium foil
		Name of manufacturer	**See Note 1**
		Thickness	16 micron
		Density/weight per unit area	2.72 g/cm^3
		Colour reference	Aluminium
		Trade name of flame retardant	**See Note 2**
		Generic type of flame retardant	**See Note 2**
		Amount of flame retardant	**See Note 2**
	Adhesive	Generic type	**See Note 3**
		Product reference	**See Note 1**
		Name of manufacturer	**See Note 1**
		Colour reference	Transparent
		Application rate/thickness	**See Note 1**
		Application method	**See Note 1**
		Trade name of flame retardant	**See Note 2**
		Generic type of flame retardant	**See Note 2**
		Amount of flame retardant	**See Note 2**
		Curing process	**See Note 1**
	Poly	Generic type	Polyester film
		Product reference	**See Note 1**
		Detailed description/composition details	Polyester film
		Name of manufacturer	**See Note 1**
		Thickness	9 micron
		Density/weight per unit area	1.40 g/m^2
		Colour reference	Transparent
		Trade name of flame retardant	**See Note 2**

		Generic type of flame retardant	**See Note 2**
		Amount of flame retardant	**See Note 2**
	Adhesive	Generic type	**See Note 3**
		Product reference	**See Note 1**
		Name of manufacturer	**See Note 1**
		Colour reference	transparent
		Application rate/thickness	**See Note 1**
		Application method	**See Note 1**
		Trade name of flame retardant	**See Note 2**
		Generic type of flame retardant	**See Note 2**
		Amount of flame retardant	**See Note 2**
		Curing process	**See Note 1**
	Aluminium	Generic type	Aluminium foil
		Product reference	**See Note 1**
		Detailed description/composition details	Aluminium foil
		Name of manufacturer	**See Note 1**
		Thickness	16 micron
		Density/weight per unit area	2.72 g/cm^3
		Colour reference	Aluminium
		Trade name of flame retardant	**See Note 2**
		Generic type of flame retardant	**See Note 2**
		Amount of flame retardant	**See Note 2**
	Adhesive	Generic type	**See Note 3**
		Product reference	**See Note 1**
		Name of manufacturer	**See Note 1**
		Colour reference	transparent
		Application rate/thickness	**See Note 1**
		Application method	**See Note 1**
		Trade name of flame retardant	**See Note 2**
		Generic type of flame retardant	**See Note 2**
		Amount of flame retardant	**See Note 2**
		Curing process	**See Note 1**
	Aluminium	Generic type	Aluminium foil
		Product reference	**See Note 1**
		Detailed description/composition details	Aluminium foil
		Name of manufacturer	**See Note 1**
		Thickness	16 micron
		Density/weight per unit area	2.72 g/cm^3
		Colour reference	Aluminium
		Trade name of flame retardant	**See Note 2**
		Generic type of flame retardant	**See Note 2**
		Amount of flame retardant	**See Note 2**
	Brief description of manufacturing process		**See Note 1**

Barrier		Generic type	Compact polyethylene barrier
		Product reference	**See Note 2**
		Name of manufacturer	**See Note 3**
		Thickness	0.012 mm
		Density	0.933 kg/m^3
		Colour reference	Transparent
		Flame retardant details	**See Note 4**
Insulation		Generic type	Glass wool insulation
		Product reference	**See Note 2**
		Name of manufacturer	KNAUF INSULATION
		Colour reference	Brown
		Thickness	25 mm
		Density	16 kg/m^3
		Flame retardant details	**See Note 4**
JACKET	Poly	Generic type	Polyester
		Product reference	**See Note 1**
		Name of manufacturer	**See Note 1**
		Thickness	12 micron
		Density	1.40 g/cm^3
		Colour reference	Transparent
		Flame retardant details	**See Note 4**
	Poly	Generic type	Polyester
		Product reference	**See Note 1**
		Name of manufacturer	**See Note 1**
		Thickness	12 micron
		Density	1.40 g/cm^3
		Colour reference	Transparent
		Flame retardant details	**See Note 4**
	Aluminium	Generic type	Aluminium foil
		Product reference	**See Note 1**
		Name of manufacturer	**See Note 1**
		Colour reference	Aluminium
		Thickness	9 micron
		Density / weight per unit area	2.72 g/cm^3
		Flame retardant details	**See Note 4**
Brief description of manufacturing process			**See Note 1**

Note 1 - The sponsor was unwilling to provide this information.
Note 2 - The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the product / component.
Note 3. - The sponsor of the test has provided this information but at the specific request of the sponsor, these details have been omitted from the report and are instead held on the confidential file relating to this investigation.

The under noted documents have been approved for compliance with the relevant requirements of International Conventions and European Union Legislation for the EC Type examination of Marine Equipment for use on Ships Registered in the European Economic Area.

Approved Documents - Test Reports

(1) WARRES No. 369728 (dated August 2016). Surface Flammability test to IMO Resolution MSC 307(88) Annex 1 Part 5 and annex 2 of the Fire Test Procedures Code.

(2) Smoke and Toxicity is satisfied by meeting the total heat release (Q_t) and peak heat release (Q_p) as stated in IMO Fire Test Procedures Code, Annex 2 Section 2.2

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