

Notified body No. 2812

Certificate of Type Approval

164.112/ERO2812/MED0495TE

(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	Address:	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:-

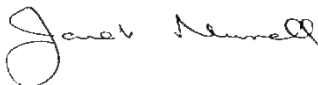
“ISOAFS-ALU.F ECOSOFT MARINE”

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/MED0495.



Janet Murrell
Certification Manager - Marine

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

ERO project reference: **EROMED10011**
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		Thermally insulated aluminium flexible air duct		
Product reference of overall composite		ISOAFS-ALU.F ECOSOFT MARINE		
Name of manufacturer of overall composite		AFS BORU SANAYI A.S.		
Thickness of overall composite		25 – 50 mm		
Weight per unit area of overall composite		618 g/m ²		
Product configuration		<ul style="list-style-type: none"> • Flexible air duct (ALUAFS.F MARINE) • Insulation • Jacket 		
Flexible air duct	General description		Non-insulated aluminium flexible air duct	
	Product reference of overall composite		ALUAFS.F MARINE	
	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/m ²	
	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 4
		Generic type of flame retardant		See Note 4
		Amount of flame retardant		See Note 4
	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 4
		Generic type of flame retardant		See Note 4
		Amount of flame retardant		See Note 4
		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	1.4 g/cm ³
	Colour reference	Transparent
	Trade name of flame retardant	See Note 4
	Generic type of flame retardant	See Note 4
	Amount of flame retardant	See Note 4
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 4
	Generic type of flame retardant	See Note 4
	Amount of flame retardant	See Note 4
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 4
	Generic type of flame retardant	See Note 4
Amount of flame retardant	See Note 4	
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 4
	Generic type of flame retardant	See Note 4
	Amount of flame retardant	See Note 4
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 4	
	Generic type of flame retardant	See Note 4	
	Amount of flame retardant	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
	Aluminium	Flame retardant details	See Note 4
		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	
Brief description of manufacturing process		See Note 1	

Note 1. - The sponsor was unwilling to provide this information.

Note 2. - The sponsor was unable to provide this information.

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.

Note 4 - The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the product / component.

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) WARRES No. 369722 (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.
- (3) 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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