



MARINE DIVISION

Certificate number: 21438/A2 BV

File number: ACE01/784/01

Product code: 2502I

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

**PRYSMIAN SPAIN SA - Planta SANTA PERPETUA-  
VILANOVA I LA GELTRÚ(BCN) - SPAIN**

*for the type of product*

**CABLES (MEDIUM/HIGH VOLTAGE)**

6/10 kV

Type: AFUMEX NAU DHA1TCuA1

**Requirements:**

BUREAU VERITAS Rules for the Classification of Steel Ships

IEC 60092-350/351/359/354, IEC 60228, IEC 60332-1, IEC 60332-3-22 (Cat.A), IEC 60754-2, IEC 61034-1/2

*This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 29 Jul 2015**

**For BUREAU VERITAS,**

At BV MADRID, on 07 May 2013,

Montserrat Espin



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION:

Flame retardant, low smoke and Halogen Free Marine and Offshore Power cables.

#### 1.1 - Specifications:

Rated voltage: 6/10 kV according to IEC 60092-354  
 Temperature class: 90°C according to IEC 60092-351  
 Flame retardant: IEC 60332-1 and IEC 60332-3-22 (Cat. A)  
 Halogen Free: IEC 60754-2  
 Low smoke: IEC 61034-1/2

#### 1.2 - Construction:

Conductor: Bare or tinned copper - Class 2 or Class 5  
 Conductor Screen: Extruded semi-conducting layer  
 Insulation: Ethylene Propylene Rubber - EPR  
 Insulation Screen: Extruded semi-conducting layer + Bare copper tape(s)  
 Inner Sheath: Thermoplastic Halogen Free Compound -SHF1  
 Armour: Bare copper braid  
 Outer Sheath: Thermoplastic Halogen Free Compound - SHF1

#### 1.3 - Product Range:

Type	Number of Core	Cross-Sect. area (mm <sup>2</sup> )	Remarks
AFUMEX NAU	1C	16 to 300	Flame retardant according to: IEC 60332-1 & IEC 60332-3-22( Cat.A)
DHA1TCuA1	3C	16 to 240	

### 2. DOCUMENTS AND DRAWINGS:

#### PRYSMIAN:

Technical specifications Nos NCP-412/A3-CE1 Rev. 01 and NCP-412/A4-CE1 Rev. 01 both dated 11/08

### 3. TEST REPORTS:

#### PRYSMIAN:

Test Reports Nos. di6316, di6317 and di6318 all dated 06/04/2009  
 Test Reports Nos. di6397 and di6398 both dated 22/05/2009  
 Test Reports No. LPE-05-08 and LPE-06-08 both dated 01-12-2008  
 Test Report LT (drum No. 635342V) dated 22-05-2009.

**LGAI Technological Center:** Test Report No. 1235/08/5648 dated 11/08.

### 4. APPLICATION / LIMITATION:

BUREAU VERITAS Rules for the Classification of Steel Ships and IEC 60092 Series.

### 5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The cables are to be supplied by **PRYSMIAN SPAIN SA - Planta SANTA PERPETUA** in compliance with the type and the requirements described in this certificate.

5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.

5.3 - BV product certificate is required.

### 6. MARKING OF PRODUCT:

The cable shall be marked on the surface outer sheath, in a durable legible and visible manner, with the following information through the length of cable:

- 1) - Voltage grade.
- 2) - Cable symbol and temperature class.
- 3) - Number of conductors and conductor size.
- 4) - Applicable standard(s) to flame retardant.
- 5) - Manufacturer's name or trademark.
- 6) - Year of manufacture.

**7. OTHERS:**

7.1 - This approval is given with the understanding that the Society reserves the right to require check tests to be carried out on the cables at any time and that **PRYSMIAN SPAIN SA - Planta SANTA PERPETUA** will accept full responsibility for informing shipbuilders, ship-owners or their sub-contractors of the proper methods of use and general maintenance of the cables and the conditions of this approval.

7.2 - This Certificate supersedes the Type Approval Certificate n° 21438/A1 BV issued on 23/11/2011 by the Society.

**\*\*\* END OF CERTIFICATE \*\*\***