

MARINE DIVISION

17 bis Place des Reflets - La Défense 2
92400 Courbevoie - France

Tel. 33 1 42 91 52 91
Fax. 33 1 42 91 28 94
www.veristar.com



Certificate number: 10151/B0 BV

File number : ACE 01/101/04

Product code : 25011

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

COFIBAM

DOCUMENTO ESCANEADO
CÓPIA NÃO-CONTROLADA

TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Classification Rules

This certificate is issued to

COFIBAM CONDUTORES ELÉTRICOS LTDA.

Carapicuíba - SP - BRAZIL

for the type of product

CABLES (LOW VOLTAGE)

150/250V: COFINAV R90X BC or BIC and R90XTFX BC or BIC.
0.6/1 kV: COFINAV R90X, R90XTF and R90XTFX.

Regulations and standards :

BUREAU VERITAS Rules for the Classification of Steel Ships.

IEC 60092-350/351/353/359/376, IEC 60228, IEC 60811, IEC 60332-1, IEC 60332-3-22 cat. A, IEC 61754-1/2, IEC 60502.

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 of the Regulations and standards mentioned above.

This certificate is valid until : 22 Jun 2012

At Paris la Défense, on : 22 Jun 2007

For BUREAU VERITAS,
By order of the Secretary

Approval office

Local office : BV RIO DE JANEIRO
Surveyor : F. Assis

L.COURREGELONGUE



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. 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 :

COFINAV R90X series: Flame Retardant, Halogen Free Marine and Offshore Power and Instrumentation cables.

1.1 - Specifications:

Rated voltage: 0.6/1 kV according to IEC 60092-353 or 150/250V according to IEC 60092-376
 Temperature class: 90°C
 Flame retardant: IEC 60332-1 and IEC 60332-3-22 Cat. A
 Halogen Free: IEC 60754-1/2

1.2 - Construction:

Conductor: Plain or Tinned stranded copper (Class 2)
 Insulation: Halogen Free Ethylene Propylene Rubber (HF EPR)
 Separator: Polyester tape
 Inner Sheath: Halogen Free Compound - SHF1 (if any)
 Armouring: Galvanized Steel braiding (TF Type)
 Outer Sheath: Halogen Free Compound - SHF1 (X and XTFX Types)
 Screen: Aluminium Polyester backed tape (150/250V X and XTFX Types)
 Collective (BC Type) or Individual and Collective (BIC Type)



1.3 - Product Range:

| Type | Number of core | Cross sect. area [mm ²] | Rated Voltage | Remarks |
|---|------------------------------------|-------------------------------------|---------------|---|
| COFINAV R90X COFINAV R90XTF COFINAV R90XTFX | 1 to 4 | 1.0 to 240 | 0.6/1 kV | Flame retardant according to IEC 60332-1 & 60332-3-22 Cat.A |
| COFINAV R90X BC COFINAV R90XTF BC COFINAV R90XTFX BC | 1P, 1T, 1Q | 1.5 to 2.5 | 150/250 V | Flame retardant according to IEC 60332-1 & 60332-3-22 Cat.A |
| COFINAV R90X BIC COFINAV R90XTF BIC COFINAV R90XTFX BIC | 2P to 20P 2T to 14T 2Q to 8Q | 1.5 to 2.5 | 150/250 V | Flame retardant according to IEC 60332-1 & 60332-3-22 Cat.A |

2. DOCUMENTS AND DRAWINGS :

According manufacturer's specifications filed in ACE 01/101/04.

3. TEST REPORTS :

Test reports dated 02 Aug. 1990 issued by the Manufacturer.

COFIBAM: Data Book No: 61104 issued on 28/12/2006.

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 manufactured, examined and tested by **COFIBAM CONDUTORES ELÉTRICOS LTDA.** in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.

5.2 - Arrangements shall be made for a Society's Surveyor to attend the relevant tests and examinations at manufacturer's works or to perform the relevant audits when an alternative survey scheme (BV Mode I) has been agreed. Relevant Bureau Veritas certificate will be issued after satisfactory completion of the procedure.



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 trade mark.
- 6) - Year of manufacture.

7. OTHERS :

7.1 - This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the cables at any time and that:

**COFIBAM CONDUTORES ELÉTRICOS LTDA.
RUA GAL. ATALIBA LEONEL, 220
06311-080 Carapicuíba - SP
BRAZIL**

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° 10151/A0 BV issued on 14/12/2001 by the Society.

*** END OF CERTIFICATE ***

