



MARINE DIVISION

Certificate number: 33493/A0 BV

File number: ACE1/821/1

Product code: 2505H

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

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TYPE APPROVAL CERTIFICATE

The certificate is issued to

Caledonia Cables Ltd.

1000 Stirling - Orkney

for the type of product

INSTRUMENTATION AND COMMUNICATION CABLES

Models BFOU, BFOU & UTP/FTP series

Requirements

Bureau Veritas Rules for the Classification of Steel Ships

SEC 40000 00001-070000, SEC 40000, SEC 40001-21, SEC 40000-1, SEC 40000 0-20 C&A, SEC 40704-10, SEC 41004-10

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: 08 Nov 2018

For BUREAU VERITAS,

At Stirling, Scotland, on 08 Nov 2015.

Jessica Zhang



This certificate remains valid until the date stated above, unless suspended or revoked, provided the conditions indicated in the subsequent pages are complied with and the product remains substantially 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 applicant require any standards to be amended during the validity of this certificate, the product may cease to be approved and it may cease to carry the approved signature or standards mark. The certificate is issued under the scope of the General Conditions of BUREAU VERITAS Marine Division available on the internet site www.veristar.com. Any dispute over a party to the contract concerned in which the document is delivered may not appeal to court against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, in the scope of judgment, fact or negligence committed by personnel of the Society or of its agents in establishment or delivery of this document, and in connection with any activities for which it has provided.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Intercommunication and communication cables for Marine applications.

1.1 - Specifications

| | |
|------------------|--|
| Rated voltage | 100/200 V AC/50 (60) Hz (MVC) (P type only) |
| Temperature | 0°C for intercommunication cables -5°C for communication cables |
| Power conductors | 0.5C 0.110 1/1 & 0.5C 0.110 1/22 C&A |
| Core conductors | 0.5C 0.110 1/1 (MVC type only) |
| Shielding foil | 0.5C 0.114 1/1 |
| Core shield | 0.5C 0.114 1/2 |

1.2 - Intercommunication cable construction

| | |
|---------------------|--|
| Conductor | Tinned stranded copper conductors (Class 2) |
| Core shielding foil | None (type only) |
| Insulation | 0.5C 0.114 0.114 PVC (P type only) |
| Shield | Subdivided 7 conductor type or 44 conductor type (P type only) Tinned 7 conductor type or 44 conductor type (MVC type only) |
| Core shielding | None (type only) |
| Shield | Tinned copper wire braid |
| Outer sheath | 0.5C 1 |

1.3 - Transmission cable construction

| | |
|--------------|--|
| Conductor | Stranded copper conductors (Class 2) |
| Insulation | 0.5C 1 |
| Shield | Subdivided aluminium tape, with tinned copper drain wire (0.5C 1/10, 0.5C 1/15) Stranded aluminium tape, with tinned copper drain wire (0.5C 1/10, 0.5C 1/15) |
| Core shield | 0.5C 1 |
| Shield | Copper wire braid |
| Outer sheath | 0.5C 1, 0.5C 2 |

1.4 - Braid

| Intercommunication cable type | Number of cores | Cross-section area (mm ²) |
|-------------------------------|--------------------|---------------------------------------|
| MVC0.110 & MVC0.110 | 17 x 17 17 x 17 | 0.75 x 23 |
| MVC0.110 & MVC0.110 | 17 x 17 17 x 17 | 0.75 x 23 |
| MVC0.110 C/P | 1 x 17 | 1.7 x 16 |

| Transmission cable type | Cross-section area | Frequency (MHz) |
|--|--------------------|-----------------|
| Cap 6 0.5C 1/10, 0.5C 1/15, 0.5C 1/10, 0.5C 1/15, 0.5C 1/10 | 2x0.75 & 2x0.75 | 1 x 100 |
| Cap 4 0.5C 1/10, 0.5C 1/15, 0.5C 1/10, 0.5C 1/15, 0.5C 1/10 | 2x0.75 & 2x0.75 | 1 x 100 |
| Cap 3 0.5C 1/10, 0.5C 1/15, 0.5C 1/10 | 2x0.75 | 1 x 100 |
| Cap 7 0.5C 1/10, 0.5C 1/15 | 2x0.75 | 1 x 100 |

2. DOCUMENTS AND DRAWINGS

Construction data sheet N° 0000771 V01, 2013.

3. TEST REPORTS

China National Center

- Test report N° CT12-010, dated 2012-11-02
- Test report N° CT12-010-01, dated 2012-09-22
- Test report N° CT12-010-02, dated 2012-09-22
- Test report N° CT12-010-03, dated 2012-09-22
- Test report N° CT12-010-04, dated 2012-09-22
- Test report N° CT12-010-05, dated 2012-09-22

4. APPLICATION / LIMITATION:

IEC 60332-10 IEC 60332-11 Rules and Regulations for the Classification of Heat Stages

5. PRODUCTION SERIES REQUIREMENTS:

- 5.1 - The above products are to be supplied by **Calcabonite Cables Ltd.** in compliance with the type described in this certificate.
 5.2 - This type of product is within the category IEC 60 of Bureau Veritas Rule No. 18120.
 5.3 - **Calcabonite Cables Ltd.** has to make the necessary arrangements to have its works recognized by Bureau Veritas in compliance with the requirements of 18120 for IEC products.

Calcabonite Cables Ltd.
 No. 16 Shuang Road, Lucha District,
 Shanxi Prov., Shanxi Province, China
 Shanxi Shuang
 030100

6. MARKING OF PRODUCT:

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

- 1- Voltage grade
- 2- Cable model and temperature class
- 3- Number of conductors and conductor size
- 4- Applicable standards or flame retardant and the existence of any
- 5- Manufacturer's name or trade mark
- 6- Year of manufacture

7. GENERAL:

This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the units at any time and that **Calcabonite Cables Ltd.**, will accept full responsibility for informing shipbuilders, designers or their sub-contractors of the proper methods of use and general maintenance of the units and the conditions of this approval.

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