



Marine & Offshore

Certificate number: 25658/B0 BV

File number: ACE1/86/9

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

This certificate is issued to

TWENTSCHE KABELFABRIEK BV
 HAAKSBERGEN - NETHERLANDS

for the type of product

INSTRUMENTATION AND COMMUNICATION CABLES

150/250V

Marine(2)Com X-FR series

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships

IEC 60092-350 (2014), IEC 60092-360 (2014), IEC 60092-376 (2017)

IEC 60228 (2004)

IEC 60331-1/2 (2009)

IEC 60332-1-2 (2015), IEC 60332-3-22 (Ed1.0:2000 + A1:2008)

IEC 60754-1/2 (2011)

IEC 61034-1/2 (2013)

This certificate is issued to attest that Bureau Veritas Marine & Offshore 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: 15 Oct 2023

For Bureau Veritas Marine & Offshore,

At BV ROTTERDAM, on 15 Oct 2018,

Erwin Poortvliet



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 Marine & Offshore. 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 & Offshore 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 Marine & Offshore 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 electronic version is available at: <http://www.veristarnb.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=vkn38u7v7z>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

1.1 - Specifications:

Rated voltage:	150/250 V
Temperature class:	90°C
Flame retardant:	IEC 60332-1 and IEC 60332-3-22 (Cat.A)
Fire resistant:	IEC 60331-1/2(X-FR type only)
Halogen free:	IEC 60754-1/2
Low smoke:	IEC 61034-2

1.2 - Construction:

Conductor:	Plain copper conductor (Class 2)
Fire proof layer:	Mica Tape
Insulation:	Crosslinked polyethylene HF 90
Armour:	- Two HF binder tape layers & copper wire or tinned copper wire braiding (c type) - One HF binder tape layer + tinned copper drainwire in contact with Alu/Pet tape screen & one HF binder layer tape (2c type)
Sheath:	Halogen free outer sheath SHF1

1.3 - Product Range:

Types	Number of Cores	Cross-Sectional Area (mm ²)
MarineCom YOZc X-FR Marine2Com YOZ2c X-FR	1P to 37P	0.5 to 1.5

2. DOCUMENTS AND DRAWINGS:

Document referenced R&D - TKF, dated October 2012.

3. TEST REPORTS:

BRE Global:

- Report N° 265592-2, dated 15 November 2010.
- Report N° 265592-1, dated 15 November 2010.
- Report N° P108509-1000a, dated 8 Nov 2017.
- Report N° P109452-1001, dated 1 May 2018.

TWENTSCHE KABELFABRIEK BV:

- Report dated 06 Jun 2017.
- Report N° RD000693-2, dated 06 September 2017.

4. APPLICATION / LIMITATION:

BUREAU VERITAS Rules for the Classification of Steel Ships and IEC60092 Series.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The INSTRUMENTATION AND COMMUNICATION CABLES are to be supplied by **TWENTSCHE KABELFABRIEK BV** in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3 - **TWENTSCHE KABELFABRIEK BV** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

5.4 - For information, **TWENTSCHE KABELFABRIEK BV** has declared to Bureau Veritas the following production site(s):

TWENTSCHE KABELFABRIEK BV
Spinnerstraat 15
Postbus 6
7480 AA HAAKSBERGEN
NETHERLANDS

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:

- 6.1 - Voltage grade,
- 6.2 - Cable symbol and temperature class
- 6.3 - number of conductors and conductor size
- 6.4 - Applicable standard(s) to flame retardant and fire resistant (if any)
- 6.5 - Manufacturer's name or trademark.
- 6.6 - Year of manufacture.

7. OTHERS:

7.1 - It is **TWENTSCHE KABELFABRIEK BV**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate N° 25658/A0 BV issued on 05 Nov 2012 by the Society.

*** END OF CERTIFICATE ***