



Marine & Offshore
Division

Certificate number: 09881/D0 BV

File number: ACE 01/003/49

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

Nexans Deutschland GmbH

Mönchengladbach - GERMANY

for the type of product

INSTRUMENTATION AND COMMUNICATION CABLES

TCX series.

150/250V

Requirements:

BV Rules for the Classification of Steel Ships and Offshore Units.

IEC 60092-350 (2014), 376 (2003), 360 (2014), IEC 60228 (2004), IEC 60332-1 (2004), IEC 60332-3-22 Cat.A (2009), IEC 60331-1/2 (2009), IEC 60754-1/2 (2011), IEC 61034-1/2 (2013), IEC 60684-2 (2011).

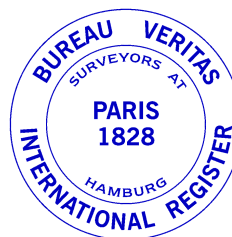
This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 11 Jan 2021

For BUREAU VERITAS,

At BV HAMBURG, on 11 Jan 2016,

Dirk Hoepfner



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 & Offshore 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.

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BV Mod. Ad.E 530 October 2014

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

The **TCX series** are instrumentation and communications cables for Marine and Offshore applications.

1.1 - Specifications:

Rated voltage:	150/250V
Rated temperature:	90°C
Flame retardant:	IEC 60332-1 & IEC 60332-3-22 Cat.A
Fire resistant:	IEC 60331-1/2
Halogen free:	IEC 60754-1/2 & IEC 60684-2
Low smoke:	IEC 61034-1/2

1.2 - Construction:

Conductor:	Plain or tinned copper (Class 2 or 5 for FLEXISHIP types)
Fire resisting layer:	Mica tape (TCX331 types only)
Insulation:	XLPE
Individual screen:	Alu/Polyester tape with tinned copper drain wire (TCX(I), TCX(I)331, TCX(I) FLEXISHIP and TCX331(I) FLEXISHIP Types)
Armouring:	Plain or tinned copper braid with or tinned copper drain wire
Outer sheath:	Halogen free thermoplastic SHF1

1.3 - Approval range:

Type	Number of cores	Cross Sectional Areas (mm ²)
TCX(I) 150/250V	1 to 37 pairs	0.5 - 0.75 - 1.0 - 1.5
TCX(I) FLEXISHIP 150/250V	1 to 21 triples	0.5 - 0.75 - 1.0 - 1.5
TCX(C) 150/250V	1 to 37 pairs	0.5 - 0.75 - 1.0 - 1.5
TCX(C) FLEXISHIP 150/250V	1 to 21 triples	0.5 - 0.75 - 1.0 - 1.5
TCX(I) 331 150/250V	1 to 37 pairs	0.75 - 1.0 - 1.5
TCX(I)331 FLEXISHIP 150/250V	1 to 21 triples	0.75 - 1.0 - 1.5
TCX(C)331 150/250V	1 to 37 pairs	0.75 - 1.0 - 1.5
TCX(C)331 FLEXISHIP 150/250V	1 to 21 triples	0.75 - 1.0 - 1.5

2. DOCUMENTS AND DRAWINGS:

Specifications refs. MG-S-102/103/106, all dated 09.Jul.2015.

Specification ref. MG-S-107, dated 10.Jul.2015.

3. TEST REPORTS:

Alcatel Test reports:

Issued by Alcatel in house laboratory on 23.09.96 and witnessed by GL (for Drum N° E95A324798)

N° L 03194/8 issued by Alcatel in house laboratory on 14.05.98 and witnessed by DNV

Issued by Alcatel in house laboratory on 29.09.96 and witnessed by GL

N° 191678 issued by Alcatel in house laboratory on 26.10.95 and witnessed by DNV & GL

N° 03257/6 issued by Alcatel in house laboratory on 14.05.98 and witnessed by DNV

N° X 71518/5 issued by Alcatel in house laboratory on 07.05.98 and witnessed by DNV

N° X 71518/3 issued by Alcatel in house laboratory on 07.05.98 and witnessed by DNV

N° X 71286 issued by Alcatel in house laboratory on 28.11.97 and witnessed by DNV

N° X 71542/1 issued by Alcatel in house laboratory on 07.05.98 and witnessed by DNV

N° CS 001 800 issued by Alcatel in house laboratory on 17.09.98

N° 98.0574 issued by Alcatel in house laboratory on 10.09.98 and witnessed by LRS

N° X71649/1 issued by Alcatel in house laboratory on 10.09.98 and witnessed by LRS

N° X71649/2 issued by Alcatel in house laboratory on 10.09.98 and witnessed by LRS

N° X71649/2 issued by Alcatel in house laboratory on 26.01.99 and witnessed by ABS.

Nexans Test reports:

Nexans test reports dated 15/12/2003, 03/12/2004, 05/07/2004.

Nexans test report N°09-101 dated 25/Nov./2009

Test report N°QUAL/LM/10-131 dated 15/12/2010.

Test report N°QUAL/LM/11/-036 dated 21/01/2011.

Tests report No. TMP-SRV-2015-80/79-02, dated 02.Oct.2015.

Tests report No. TMP-SRV-2015-80-01, dated 02.Oct.2015.

Tests report No. TMP-SRV-2015-79-03, dated 02.Oct.2015.

4. APPLICATION / LIMITATION:

According to BV Rules for the Classification of Steel Ships and Offshore Units.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The **TCX series** are to be supplied by **Nexans Deutschland GmbH** 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.

5.3 - **Nexans Deutschland GmbH** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products :

**Nexans Deutschland GmbH
Bonnenbroicher Str. 2 - 14
41238 Mönchengladbach
GERMANY**

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 trade mark
- 6.6 - 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 **Nexans Deutschland GmbH**, will accept the responsibility for informing shipbuilders 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° 09881/C2 BV issued on 19.Jun.2015. by the Society.

*** END OF CERTIFICATE ***