



Marine &amp; Offshore

Certificate number: 11732/D1 BV

File number: ACE 01/126/03

Product code: 2505I

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

**UNTEL KABLOLARI SANAYI VE TICARET A/S**  
KOCAELI - TURKEY

for the type of product

**INSTRUMENTATION AND COMMUNICATION CABLES**

150/250 V

Types : FMGC & FM2X series

### Requirements:

BUREAU VERITAS Rules for the Classification of Steel Ships.

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

IEC 60228 (2004)

IEC 60332-1-2 (2015), IEC 60332-3-22 Cat.A (2018)

IEC 60331-1/2 (2018), IEC 60331-21 (1999)

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: 28 Mar 2023**

**For Bureau Veritas Marine & Offshore,**

At BV ISTANBUL, on 01 Oct 2019,

Gurcan Yilmaz



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.veristarm.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=eoxiywemcf>

BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION:

Flame Retardant and Fire Resistant (FFR Type only) Marine and Offshore Telecommunication and Signal cables.

#### 1.1 - Common 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 60331-1/2/21 (FFR type)
Halogen Free:	IEC 60754-1/2 (H type only)
Low Smoke:	IEC 61034-1/2 (H type only)
Fire and water spray resistant:	IEC 60331-2 + EN 50200 (WSR/WJR type)
Fire and water jet resistant:	IEC 60331-1 + BS 8491 (WSR/WJR type)

#### 1.2 - Construction:

Conductor:	Plain or tinned stranded copper - Class 2 or 5 (flex type)
Fire protection:	Mica glass tape (FFR Type)
Insulation:	XLPE ( 2X without WSR/WJR type) HEPR (G type) HF90 (WSR/WJR type)
Individual screen:	Aluminium tape screen (CC & (i+c) & AA types)
Collective screen:	Plastic coated aluminium tape and a tinned copper drain wire ((i+c) & A types)
Screen:	Electrolytic copper braided screen (except FM2XAH & FM2XAAH types)
Outer Sheath:	SHF1 (H type) ST2 (Y type)

#### 1.3 - Product Range:

Type	Number of pairs	Cross sectional areas [mm <sup>2</sup> ]
<b>FMGCH</b>	1 to 37	0.5 to 2.5
<b>FMGCH-FFR</b>	1 to 24	0.5 to 2.5
<b>FMGCCH</b>	1 to 24	0.5 to 2.5
<b>FM2XCH</b>	1 to 24	0.5 to 2.5
<b>FM2XCH-FFR</b>	1 to 24	0.5 to 2.5
<b>FM2XCCH</b>	1 to 24	0.5 to 2.5
<b>FM2XCXY-FFR</b>	1 to 24	0.5 to 2.5
<b>FM2XCCH-FFR WSR/WJR</b>	1 to 24	0.5 to 2.5
<b>FM2XCH-FFR WSR/WJR</b>	1 to 24	0.5 to 2.5
<b>FM2XCH-FFR (i+c) WSR/WJR</b>	1 to 24	0.5 to 2.5
<b>FM2XAH-FFR WSR/WJR</b>	1 to 24	0.5 to 2.5
<b>FM2XAAH-FFR WSR/WJR</b>	1 to 24	0.5 to 2.5
<b>FM2XACH-FFR WSR/WJR</b>	1 to 24	0.5 to 2.5

### 2. DOCUMENTS AND DRAWINGS:

Specification Ref: FR 70-042, Rev. 01, dated 18 Jul 2019  
 Specification Ref: FR 70-043, Rev. 02, dated 18 Jul 2019  
 Specification Ref: FR 70-052, Rev. 02, dated 18 Jul 2019  
 Specification Ref: 2019\_07-TS\_73, Rev. 0, dated 18 Jul 2019  
 Specification Ref: 2019-07-TS-74, Rev. 0, dated 18 Jul 2019  
 Specification Ref: 2019\_07-TS\_75, Rev. 0, dated 18 Jul 2019  
 Specification Ref: 2019-07-TS-94, Rev. 0, dated 24 Jul 2019  
 Specification Ref: 2019-02-TS-92, Rev. 0, dated 10 Apr 2019  
 Specification Ref: 2019-02-TS-71, Rev. 0, dated 10 Apr 2019  
 Specification Ref: 2019-02-TS-91, Rev. 0, dated 10 Apr 2019  
 Specification Ref: 2019-02-TS-97, Rev. 0, dated 10 Apr 2019  
 Specification Ref: 2019-02-TS-99, Rev. 0, dated 10 Apr 2019  
 Specification Ref: 2019-02-TS-100, Rev. 0, dated 10 Apr 2019

**3. TEST REPORTS:****VDE:**

Test report Ref. 17730-9020-0001 / 32ZFM, dated 22 Aug 2001.

**TSE:**

Test report Ref. 016.01.05/05-1166, dated 14 Jun 2005.

Test report Ref. 13/10/08-0.16.40.01.05/30076, dated 13 Oct 2008.

Test report Ref. 471761/05-19, dated 27 May 2019.

**UNTEL KABLOLARI SANAYI VE TICARET A/S:**

Test report Ref. 01/09/301/1, dated 12 Sep 2001.

Test report Ref. 03/11/602, dated 08 Dec 2003.

Test report Ref. 03/11/602, dated 26 May 2005.

Tests on rubber and elastomer, dated 26 May 2005.

3 test reports unreferenced and dated 26 Jun 2008.

Test report on FM2X cables, dated 28 Dec 2012.

Test report Ref. D172480, dated 26 Jan 2018.

Test report Ref. TT-2018-07, dated 12 Mar 2018.

Test report Ref. P11732-1901-R0, dated 27 Feb 2019.

Test report Ref. T11732-1901-R0, dated 14 Mar 2019.

Test report Ref. P11732-1902-R0, dated 27 Feb 2019.

Test report Ref. T11732-1902-R0, dated 27 Feb 2019.

Test report Ref. P11732-1903-R0, dated 27 Feb 2019.

Test report Ref. T11732-1903-R0, dated 27 Feb 2019.

Test report Ref. P11732-1904-R0, dated 27 Feb 2019.

Test report Ref. T11732-1904-R0, dated 27 Feb 2019.

Test report Ref. P11732-1905-R0, dated 05 Apr 2019.

Test report Ref. T11732-1905-R0, dated 22 Mar 2019.

Test report Ref. P11732-1906-R0, dated 05 Apr 2019.

Test report Ref. T11732-1906-R0, dated 05 Apr 2019.

Test report Ref. P11732-1907-R0, dated 05 Apr 2019.

Test report Ref. T11732-1907-R0, dated 05 Apr 2019.

Test report Ref. P11732-1908-R0, dated 05 Apr 2019.

Test report Ref. T11732-1908-R0, dated 22 Mar 2019.

Test report Ref. MT1901-R0, dated 16 May 2019.

Test report Ref. MT1902-R0, dated 16 May 2019.

Test report Ref. MT1903-R0, dated 16 May 2019.

Test report Ref. MT1904-R0, dated 16 May 2019.

**4. APPLICATION / LIMITATION:**

BUREAU VERITAS Rules for the Classification of Steel Ships.

**5. PRODUCTION SURVEY REQUIREMENTS:**

5.1 - The INSTRUMENTATION AND COMMUNICATION CABLES are to be supplied by **UNTEL KABLOLARI SANAYI VE TICARET A/S** 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.

5.4 - For information, **UNTEL KABLOLARI SANAYI VE TICARET A/S** has declared to Bureau Veritas the following production site:

**UNTEL KABLOLARI SANAYI VE TICARET A/S  
DEMIRCILER KOYU  
MAKINE OSB  
6.CADDE NO.4 41455  
DILOVASI  
KOCAELI  
TURKEY**

**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 and fire resistance if any.
- 5) - Manufacturer's name or trade mark.
- 6) - Year of manufacture.

**7. OTHERS:**

7.1 - It is **UNTEL KABLOLARI SANAYI VE TICARET A/S**'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° 11732/D0 BV, issued on 28 Mar 2018 by the Society.

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