



Marine &amp; Offshore

Certificate number: 11732/D0 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*

www.veristar.com

## 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

FMGCH, FMGCCH and FMGCH-FFR  
FM2XCH, FM2XCCH, FM2XCH-FFR and FM2XCCY-FR.

### 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 (2009)  
IEC 60331-1/21 (2009)  
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 28 Mar 2018,

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.veristarp.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=vmbppixlInn>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 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 (All Types)
Fire resistant:	IEC 60331-1 & IEC 60331-21 (FFR Type only)
Halogen Free:	IEC 60754-1/2 (H type only)
Low Smoke:	IEC 61034-1/2 (H type only)

#### 1.2 - Construction:

Conductor:	Plain or tinned stranded copper (Class 2 or 5)
Fire protection:	Fire Resistant Foil (FFR Type only)
Insulation:	Cross-Linked PolyEthylene (XLPE for 2X Type) Ethylene Propylene Rubber (HEPR for G Type)
Individual Screen:	Al foil and drain wire over each pair if any
Foil:	Halogen Free polyester tape
Bedding and/or inner sheath and/or filler:	Bedding/Inner sheath: Halogen free & flame retardant compound Filler: Flame retardant & non hygroscopic material
Overall Screen:	Plain copper wires braiding if any
Outer Sheath:	Halogen Free Thermoplastic compound - SHF1 (H type) PVC based compound - (Y type)

"FLEX" name called for class 5 conductor types only.

Option: Bedding and/or inner sheath and/or filler.

#### 1.3 - Product Range:

Type	Number of pairs	Cross sectional areas [mm <sup>2</sup> ]	Remark
<b>FMGCH</b>	1 to 37	0.5 to 2.5	
<b>FMGCH-FFR</b>	1 to 24	0.5 to 2.5	Fire Resistant according to IEC 60331-1/21
<b>FMGCCH</b>	1 to 24	0.5 to 2.5	Overall Screen
<b>FM2XCH</b>	1 to 24	0.5 to 2.5	
<b>FM2XCH-FFR</b>	1 to 24	0.5 to 2.5	Fire Resistant according to IEC 60331-1/21
<b>FM2XCCH</b>	1 to 24	0.5 to 2.5	Overall Screen
<b>FM2XCCY-FFR</b>	1 to 24	0.5 to 2.5	Overall Screen - PVC Sheathed

### 2. DOCUMENTS AND DRAWINGS:

According to documents filed in ACE 01/126/03-04.

### 3. TEST REPORTS:

VDE test report ref. 17730-9020-0001 / 32ZFM dated 2001-08-22.

Manufacturer's test report ref. 01/09/301/1 dated 2001-09-12.

Manufacturer's test report ref. 03/11/602, dated 2003-12-08, stamped by G.L.

Manufacturer's test report ref. 03/11/602, dated 26.05.2005, stamped by BV.

Untel KABLO A.S.: Tests on rubber and elastomer, dated 26/05/2005.

TSE Test Report, ref. 016.01.05/05-1166, dated 14/06/2005.

3 Manufacturer's test reports unreferenced and dated 26.06.2008, stamped by BV.

TSE Test Report, ref. 13/10/08-0.16.40.01.05/30076 dated 13/10/2008.

Manufacturer's test report on FM2X cables, dated 28.12.2012, stamped by BV.

Manufacturer's test report ref D172480, dated 26.01.2018, stamped by BV.

Manufacturer's test report ref TT-2018-07, dated 12.03.2018, stamped by BV.

### 4. APPLICATION / LIMITATION:

BUREAU VERITAS Rules for the Classification of Steel Ships; IEC 60092 series.

**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(s):

**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/C1 BV, issued on 31.03.2015 by the Society.

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