



Marine & Offshore  
Division

Certificate number: 21709/B1 BV

File number: ACE 01/785/01

Product code: 2501H

*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*  
**ERSE KABLO SAN VE TIC A.S.**  
ISTANBUL - TURKEY

*for the type of product*  
**CABLES (LOW VOLTAGE)**  
MYx, MXx & MHx series.  
0.6/1 kV

### Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.

IEC 60092-350 (2014), 353 (2014), 360 (2014), IEC 60228 (2004), IEC 60754-1/2 (2011), IEC 61034-1/2 (2013), IEC 60331-1/2 (2009), IEC 60332-1 (2004), IEC 60332-3-22 Cat.A (2009).

*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: 23 Sep 2019**

**For BUREAU VERITAS,**

At BV ISTANBUL, on 23 May 2016,

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. 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 :

Flame Retardant, Halogen Free, Low Smoke (H Type only) and fire resistant (-FR type only) Marine and Offshore Power cables.

#### 1.1 - Common specifications:

Rated voltage:	0.6/1 kV according to IEC 60092-353
Temperature class:	90°C
Flame retardant:	IEC 60332-1 and IEC 60332-3-22 Cat. A (All Types)
Fire resistant	IEC 60331-1 (-Fr type only) and IEC 60331-2
Halogen Free:	IEC 60754-2 (H Type only)
Low Smoke:	IEC 61034-1/2 (H Type only)

#### 1.2 - Construction:

Conductor:	Plain copper or tinned copper - Class 2 or Class 5 according to IEC 60228
Fire resistant layer	Mica tape (-Fr type only)
Insulation:	PolyVinyl Chloride - PVC (Y Type) Cross-Linked PolyEthylene - XLPE (X Type) Halogen Free Compound - HFFR/HF90 (H Type)
Filler:	Extruded or tape
Armour:	Copper wires (C Type) or Galvanized Steel wires (S Type) braid
Outer Sheath:	PolyVinyl Chloride - PVC (Y Type) Thermoplastic Halogen Free compound - HFFR/SHF1 (H Type)

#### 1.3 - Product Range:

Type	Number of Cond.	Cross section [mm <sup>2</sup> ]	Remarks
MYCY, MYY	1 1 to 4 1 to 36	0.5 to 240 6 to 120 1.5 to 4	Flame retardant according to IEC 60332-1 & 60332-3-22 Cat.A
MXH,MHH, MXCH,MHCH			Flame retardant according to IEC 60332-1 & 60332-3-22 Cat.A Low smoke according to IEC 61034-1/2 Halogen Free according to IEC 60754-1/2
MX	1	0.5 to 240	Flame retardant according to IEC 60332-1 & 60332-3-22 Cat.A Low smoke according to IEC 61034-1/2 Halogen Free according to IEC 60754-1/2
MXCH-FR MXH-FR	2C to 36C	1.5 to 4	Flame retardant according to IEC 60332-1 & 60332-3-22 Cat.A Low smoke according to IEC 61034-1/2 Halogen Free according to IEC 60754-1/2 Fire resistant according to IEC 60331-1 and IEC 60331-2
	1C to 4C	6 to 120	
	1C	150 to 240	

### 2. DOCUMENTS AND DRAWINGS :

- Technical Specification No E.TS.20, dated 20.06.2008.
- Technical Specification No E.TS.22 dated 30/Oct./2008

### 3. TEST REPORTS:

- ERSE KABLO Quality Control Test Reports dated 22.04.2009 and witnessed by BV Surveyor:  
Nos: 09/0015/01, 09/0013/01, 09/0009/01, 09/0018/01, 09/0010/01, 09/0008/01, 09/0014/01, 09/0016/01, 09/0011/01 and 09/0019/01.
- ERSE KABLO Quality Control Test Report unreferenced dated 21/Apr./2010 and witnessed by BV Surveyor
- ERSE KABLO tests reports N°1000/1001/1002/1003/1004/1005/1006/1007/1008/1009/1010/1011, dated 20.08.2014, witnessed by BV's Surveyor.

### 4. APPLICATION / LIMITATION :

- 4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships.
- 4.2 - Approval also valid for units having to comply with IMO Resolution A649 (The "MODU Code").

**5. PRODUCTION SURVEY REQUIREMENTS:**

5.1 - The **MY/MX/MH Cable Series** are to be supplied by **ERSE KABLO SAN VE TIC A.S** 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 - **ERSE KABLO SAN VE TIC LTD STI** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products :

**ERSE KABLO SAN VE TIC A.S**  
**ORTAKOY SAN. BOLGESI**  
**ELIF SK. No: 12**  
**SELIMPASA SILIVRI**  
**ISTANBUL**  
**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:

- Voltage grade
- Cable symbol and Temperature Class
- Applicable standard(s) to flame retardant and fire resistance (if any)
- Number of conductors and conductor size
- Manufacturer's name or trademark, 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 **ERSE KABLO SAN VE TIC A.S** will accept full responsibility for informing shipbuilders, ship-owners 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° 21709/B0 BV issued on 23.Sep.2014. by the Society.

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