

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Low Voltage Cable**with type designation(s)
FR-FA-TTPYC

Issued to

Hien Electric Industries, Ltd.
Fukuchiyama Kyoto Pref., Japanis found to comply with
DNV GL rules for classification – Ships and offshore units
IEC 60092-376 (2003-05)
IEC 60332-3-22 (2009-02)
IEC 60331-1 (2009-05)
IEC 60331-21 (1999-04)**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Voltage class (V) 150/250**
Temp. class (°C) 90This Certificate is valid until **2021-10-16**.Issued at **Busan** on **2016-10-17**DNV GL local station: **Kobe**Approval Engineer: **Byoung So Lee**for **DNV GL**-----
Baeg Soon Choi
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

Type: FR-FA-TTPYC
Construction:
Conductor: Tinned annealed copper wires
Insulation: EP rubber
Fire resistant layer: Mica tape
Inner sheath: PVC(ST2)
Metal covering: Steel wire braid

Products:

No. of P/T/Q	No of cores	Conductor size(mm2)
1P*	2	0.75
1T*	3	
1Q*	4	
4P*	8	
7P**	14	
10P**	20	
P: Pair, T: Triple, Q: Quad * : Tested based on IEC60331-21 **: Tested based on IEC60331-1		

Application/Limitation

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

This type of cable is fire resistant in accordance with IEC Publication 60331-1(Only for the cable having out diameter 20mm and more), 60331-21(Only for the cable having outdiameter less than 20 mm)

Type Approval documentation

Tests carried out

Type tests according to IEC 60092-350, IEC60092-360, IEC 60092-376, IEC 60332-3-22, IEC60331-1(Only for the cable having out diameter 20mm and more), IEC60331-21(Only for the cable having outdiameter less than 20 mm)

Marking of product

In accordance with Ch.8.20 in IEC60092-350, Ch.7 in IEC60092-376 and Ch.11 of IEC60331-1(Only for the cable having out diameter 20mm and more), IEC60331-21(Only for the cable having outdiameter less than 20 mm)

Job Id: **262.1-018512-1**
Certificate No: **TAE00001DA**

Periodical assessment

The scope of the retention/renewal survey is to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the survey are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Survey to be performed at least every second year.

END OF CERTIFICATE