DNV·GL

Certificate No:
TAE00001CE

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
0,6/1kV EICI,EIOI,EIBI,EICI(C),EIOI(C),EIBI(C)

Issued to
Kukdong Electric Wire Co., Ltd.
Chungcheongbuk-do, Republic of Korea

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft
IEC 60092-353 (2011-08)

Application :

General power, lighting and control. Fire resistant. Flame retardant Cat.A. Low smoke. Halogen free. Cold bending (-40°C). Cold impact (-35°C).

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Voltage class (kV) **0,6/1**
Temp. class (°C) **90**

This Certificate is valid until **2021-10-18**.

Issued at **Busan** on **2016-10-19**

for **DNV GL**

DNV GL local station: **Seoul**

Approval Engineer: **Dong Ho Park**

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.

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Product description

Type : 0,6/1kV EICI, EIOI, EIBI, EICI(C), EIOI(C), EIBI(C)

Conductor:	Stranded tinned annealed copper, Class 2
Fire proof layer:	Mica/glass tape
Insulation:	HF-HEPR
Common screen(option):	Al/PS mylar tape with drain wire
Inner sheath:	Halgen free thermoplastic compound, SHF1
Amour:	Metal wire braided B(Bronze), C(Galvanized steel), O(Copper)
Outer sheath:	Halgen free thermoplastic compound, SHF1

Number of cores x conductor cross-section mm²	Number of cores x conductor cross-section mm²	Number of cores x conductor cross-section mm²	Number of cores x conductor cross-section mm²
1 x 1,5*	2 x 50	3 x 25	4 x 10
1 x 2,5*	2 x 70	3 x 35	4 x 16
1 x 4*	2 x 95	3 x 50	4 x 25
1 x 6*	2 x 120	3 x 70	4 x 35
1 x 10	2 x 150	3 x 95	4 x 50
1 x 16*	2 x 185	3 x 120	4 x 70
1 x 25*	2 x 240	3 x 150	4 x 95
1 x 35*	2 x 300	3 x 185	4 x 120
1 x 50*		3 x 240	4 x 150
1 x 70*	2 x 25 + E(16)	3 x 300	4 x 185
1 x 95*	2 x 35 + E(25)		4 x 240
1 x 120*	2 x 50 + E(25)	3 x 25 + E(16)	4 x 300
1 x 150*	2 x 70 + E(35)	3 x 35 + E(25)	
1 x 185*	2 x 95 + E(50)	3 x 50 + E(25)	4 x 25 + E(16)
1 x 240*	2 x 120 + E(70)	3 x 70 + E(35)	4 x 35 + E(25)
1 x 300*	2 x 150 + E(95)	3 x 95 + E(50)	4 x 50 + E(25)
1 x 400*	2 x 185 + E(95)	3 x 120 + E(70)	4 x 70 + E(35)
	2 x 240 + E(120)	3 x 150 + E(95)	4 x 95 + E(50)
2 x 1,5	2 x 300 + E(150)	3 x 185 + E(95)	4 x 120 + E(70)
2 x 2,5		3 x 240 + E(120)	4 x 150 + E(95)
2 x 4	3 x 1,5	3 x 300 + E(150)	4 x 185 + E(95)
2 x 6	3 x 2,5		4 x 240 + E(120)
2 x 10	3 x 4	4 x 1,5	4 x 300 + E(150)
2 x 16	3 x 6	4 x 2,5	
2 x 25	3 x 10	4 x 4	
2 x 35	3 x 16	4 x 6	

*) EIOI, EIBI, EIOI(C) and EIBI(C) only

The requirements of SOLAS Chapter II-1 Part D Reg. 45.5.2 to limit Fire Propagation along Bunches of Cables or Wires are fulfilled without any additional measures.

Type Approval documentation

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Tests carried out

Standard	Release	General description	Limitation
IEC 60092-353	2011-08	Power cables for rated voltages 1kV and 3kV	
IEC 60092-360	2014-04	Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation, telecommunication cables	
IEC 60331-21	1999-04	Fire with shock-Electric cables under fire conditions-Circuit integrity	@750°C (90min)
IEC 60331-1/-2	2009-05	Fire with shock-Electric cables under fire conditions	@830°C(120min) with shock
IEC 60332-3-22	2009-02	Test for vertical flame spread of vertically mounted bunched wires or cables	Cat. A
IEC 60754-1/2	2011-11	Determination of the amount of halogen acid gas/ Determination of acidity (by pH measurement) and conductivity	Low Halogen <0,5% Halogen free ≥4,3pH, ≤10µS/mm
IEC 60684-2	2011-08	Determination of low levels of fluorine	fluorine content <0.1%
IEC 61034-1/2	2005-04	Measurement of smoke density of cables burning under defined conditions	Low smoke >60%
CSA C22.2 No. 03	2009-09	5.11 Flexibility at any specified temperature	Cold bend: -40°C
CSA C22.2 No. 03	2009-09	5.12 Abnormal low temperature – impact	Cold impact: -35°C

Marking of product

0.6/1 kV - Cable type - Size - KUKDONG - IEC 60332-3 A - IEC 60331 - Year - Length

Periodical assessment

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

The main elements of the survey are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Check of results from Production Sample Tests (PST) and Routine Tests (RT) (if not available, PST and RT are to be carried out)
- Review of type approval documentation
- Review of possible changes in design, material and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Survey is to be performed at least every second year.

END OF CERTIFICATE