

TYPE APPROVAL CERTIFICATE

This is to certify:**That the High Voltage Cable**with type designation(s)
PCY, PBY

Issued to

Kukdong Electric Wire Co., Ltd.
Jincheon-gun, 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 60092-354 (2014-08)**Application :****Power****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Rated voltage (kV) 3.6/6, 6/10, 8.7/15, 12/20****Temp. class (°C) 90**Issued at **Busan** on **2019-04-10**This Certificate is valid until **2024-03-26**.for **DNV GL**DNV GL local station: **Seoul**Approval Engineer: **Eun Jin Lee**

Andreas Kristoffersen
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 : PCY, PBY

Conductor:	Stranded tinned annealed copper conductor, Class 2
Conductor screen:	Semi-conducting tape and/or compound
Insulation:	EPR
Insulation screen:	Semi-conducting compound and/or tape
Metallic screen:	Copper tape
Inner sheath :	PVC(ST2)
Armour:	Metal wire braided B(Bronze), C(Galvanized steel)
Outer sheath :	PVC(ST2)

Type	No. of cores x conductor cross-section
3.6/6kV PBY	1C x 10~300mm ²
3.6/6kV PCY	3C x 10~300mm ²
6/10kV PBY	1C x 16~300mm ²
6/10kV PCY	3C x 16~300mm ²
8.7/15kV PBY	1C x 25~300mm ²
8.7/15kV PCY	3C x 25~300mm ²
12/20kV PBY	1C x 35~300mm ²
12/20kV PCY	3C x 35~300mm ²

Application/Limitation

The requirement 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

Tests carried out

Standard	Release	General description	Limitation
IEC 60092-354	2014-08	Single- and three-core power cables with extruded solid insulation for rated voltages 6kV($U_m=7.2kV$) up to 30kV($U_m=36kV$)	
IEC 60092-360	2014-04	Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation, telecommunication cables	
IEC 60332-1	2015-07	Test for vertical flame propagation for a single insulated wire or cable	
IEC 60332-3-22	2009-02	Test for vertical flame spread of vertically mounted bunched wires or cables	Cat. A
IEC 60811-504	2012-03	Bending tests at low temperature for insulations and sheaths	@-30 °C
IEC 60811-506	2012-03	Impact test at low temperature for insulations and sheaths	@-30 °C
IEEE1580	2010	Recommended practice for Marine cable for Use on shipboard and fixed or floating facilities	Oil resistant 70 °C /4 hrs

Marking of product

Voltage rating – PCY or PBY - Size - KUKDONG - IEC 60332-3 A - Year - Length

Job Id: **262.1-027832-2**
Certificate No: **TAE00003H0**

Periodical assessment

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

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine tests (RT) and selected type tests (ref. to applicable class programs) checked (if not available these tests shall 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.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE