

# TYPE APPROVAL CERTIFICATE

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

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.



Job Id: **262.1-027832-2**  
Certificate No: **TAE00003GZ**

## Product description

Type : PXY

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  
Outer sheath : PVC(ST2)

| Type         | No. of cores x conductor cross-section |
|--------------|----------------------------------------|
| 3.6/6kV PXY  | 1C, 3C x 10~300mm <sup>2</sup>         |
| 6/10kV PXY   | 1C, 3C x 16~300mm <sup>2</sup>         |
| 8.7/15kV PXY | 1C, 3C x 25~300mm <sup>2</sup>         |
| 12/20kV PXY  | 1C, 3C x 35~300mm <sup>2</sup>         |

## 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 <sub>m</sub> =7.2kV) up to 30kV(U <sub>m</sub> =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<br>70 °C /4 hrs |

## Marking of product

Voltage rating - PXY - Size - KUKDONG - IEC 60332-3 A - Year - Length

## 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)



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- 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