

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
0.6/1 kV EXY & EXY(C)

Issued to

TMC Co., Ltd
Cheonan-si, Chungcheongnam-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 (2016-09)

Application :

General power and lighting.

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

Rated voltage (kV) 0.6/1
Temp. class (°C) 90

Issued at **Busan** on **2019-04-11**

This Certificate is valid until **2023-12-31**.

DNV GL local station: **Seoul**

for **DNV GL**

Approval Engineer: **Eun Jin Lee**

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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: 0.6/1 kV EXY & EXY(C)

Conductors: Stranded tinned annealed copper wires, Class 2
Fire resistant layer: Mica/glass tape
Core insulation: HEPR
Collective screen: AL/PS tape with drain wire(C)
Outer sheath: ST2

Number of cores x conductor cross-section mm ²	Number of cores x conductor cross-section mm ²	Number of cores x conductor cross-section mm ²	Number of cores x conductor cross-section mm ²	Number of cores x conductor cross-section mm ²
1x1.5	2x35	3x2.5	3x150+E	4x25+E
1x2.5	2x50	3x4	3x185+E	4x35+E
1x4	2x70	3x6	3x240+E	4x50+E
1x6	2x95	3x10	3x300+E	4x70+E
1x10	2x120	3x16		4x95+E
1x16	2x150	3x25	4x1.5	4x120+E
1x25	2x185	3x35	4x2.5	4x150+E
1x35	2x240	3x50	4x4	4x185+E
1x50	2x300	3x70	4x6	4x240+E
1x70	2x1.5+E	3x95	4x10	4x300+E
1x95	2x2.5+E	3x120	4x16	
1x120	2x4+E	3x150	4x25	5x1.5
1x150	2x6+E	3x185	4x35	5x2.5
1x185	2x10+E	3x240	4x50	5x4
1x240	2x16+E	3x300	4x70	5x6
1x300	2x25+E	3x1.5+E	4x95	
1x400	2x35+E	3x2.5+E	4x120	6x1.5
1x500	2x50+E	3x4+E	4x150	6x2.5
1x630	2x70+E	3x6+E	4x185	6x4
	2x95+E	3x10+E	4x240	6x6
2x1.5	2x120+E	3x16+E	4x300	
2x2.5	2x150+E	3x25+E	4x1.5+E	10x1.5
2x4	2x185+E	3x35+E	4x2.5+E	10x2.5
2x6	2x240+E	3x50+E	4x4+E	10x4
2x10	2x300+E	3x70+E	4x6+E	10x6
2x16		3x95+E	4x10+E	
2x25	3x1.5	3x120+E	4x16+E	

Application/Limitation

This type of cable is fire resistant in accordance with IEC Publication 60331.

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

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
IEC 60092-350	2014-08	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2014-04	Insulating and sheathing materials for shipboard and offshore units, power, control,	

Job Id: **262.1-007118-3**
Certificate No: **TAE00003GN**

Standard	Release	General description	Limitation
		instrumentation and telecommunication cables	
IEC 60092-353	2016-09	Single and multicore non-radial field power cables with extruded solid insulation for rated Voltages of 1 kV and 3 kV	
IEC 60331-21	1999-04	Fire resistance / Circuit Integrity – test for fire alone of at least 750 °C	90 min. test
IEC 60331-1/-2	2018-03	Tests for electric cables under fire conditions. Part 1 : Test method for fire with shock at a temperature of at least 830°C for cables of rated voltage up to and including 0.6/1.0kV and with an overall diameter exceeding 20mm. Part 2 : Test method for fire with shock at a temperature of at least 803°C for cables of rated voltage up to and including 0.6/1.0kV and with an overall diameter not exceeding 20mm.	120 min. test
IEC 60332-3-22	2018-07	Flame retardance in bunch	Cat. A
IEC 60811-504	2012-03	Bending tests at low temperature for insulation and sheaths	@-30°C
IEC 60811-506	2012-03	Impact test at low temperature for insulations and sheaths	@-30°C
CSA C22.2 No.03	2009	4.12 Flexibility at any specified temperature	Cold bend: -40°C
CSA C22.2 No.03	2009	4.13 Abnormal low temperature – impact	Cold impact: -35°C

Marking of product

0.6/1 kV – EXY or EXY(C) – size – IEC 60332-3-2 CAT-A – IEC 60331-2(120) – TMC – year – length

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

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