

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Electric Power Cable**with type designation(s)
0.6/1 kV ECY, EOY, EBY, ECY(C), EOY(C) & EBY(C)

Issued to

TMC Co., Ltd
Cheonan-si, Chungcheongnam-do, Republic of Koreais 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) 90Issued at **Busan** on **2019-04-11**This Certificate is valid until **2023-12-31**.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 : 0.6/1kV EOY, ECY, EBY, EOY(C), ECY(C) & EBY(C)

Conductor: Stranded tinned annealed copper wires, Class 2
Fire resistant layer: Mica/glass tape
Core insulation: HEPR
Screen: AL/PS tape with drain wire(C)
Metal covering: C_Galvanized steel wire braid
O_Plain copper wire braid
B_Bronze wire braid
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
EOY, EBY, EOY(C), EBY(C)	2x2.5	2x185+E	3x50+E	4x6+E
1x1.5	2x4	2x240+E	3x70+E	4x10+E
1x2.5	2x6	2x300+E	3x95+E	4x16+E
1x4	2x10		3x120+E	4x25+E
1x6	2x16	3x1.5	3x150+E	4x35+E
1x10	2x25	3x2.5	3x185+E	4x50+E
1x16	2x35	3x4	3x240+E	4x70+E
1x25	2x50	3x6	3x300+E	4x95+E
1x35	2x70	3x10		4x120+E
1x50	2x95	3x16	4x1.5	4x150+E
1x70	2x120	3x25	4x2.5	4x185+E
1x95	2x150	3x35	4x4	4x240+E
1x120	2x185	3x50	4x6	4x300+E
1x150	2x240	3x70	4x10	
1x185	2x300	3x95	4x16	5x1.5
1x240	2x350	3x120	4x25	5x2.5
1x300	2x400	3x150	4x35	5x4
1x400	2x480	3x185	4x50	5x6
1x500	2x560	3x240	4x70	
1x630	2x700	3x300	4x95	6x1.5
		3x350	4x120	6x2.5
		3x420	4x150	6x4
		3x480	4x185	6x6
		3x560	4x240	
		3x630	4x300	10x1.5
		3x700	4x350	10x2.5
		3x780	4x420	10x4
		3x840	4x480	10x6
		3x900	4x540	
		3x960	4x600	
		3x1020	4x660	
		3x1080	4x720	
		3x1140	4x780	
		3x1200	4x840	
		3x1260	4x900	
		3x1320	4x960	
		3x1380	4x1020	
		3x1440	4x1080	
		3x1500	4x1140	
		3x1560	4x1200	
		3x1620	4x1260	
		3x1680	4x1320	
		3x1740	4x1380	
		3x1800	4x1440	
		3x1860	4x1500	
		3x1920	4x1560	
		3x1980	4x1620	
		3x2040	4x1680	
		3x2100	4x1740	
		3x2160	4x1800	
		3x2220	4x1860	
		3x2280	4x1920	
		3x2340	4x1980	
		3x2400	4x2040	
		3x2460	4x2100	
		3x2520	4x2160	
		3x2580	4x2220	
		3x2640	4x2280	
		3x2700	4x2340	
		3x2760	4x2400	
		3x2820	4x2460	
		3x2880	4x2520	
		3x2940	4x2580	
		3x3000	4x2640	
		3x3060	4x2700	
		3x3120	4x2760	
		3x3180	4x2820	
		3x3240	4x2880	
		3x3300	4x2940	
		3x3360	4x3000	
		3x3420	4x3060	
		3x3480	4x3120	
		3x3540	4x3180	
		3x3600	4x3240	
		3x3660	4x3300	
		3x3720	4x3360	
		3x3780	4x3420	
		3x3840	4x3480	
		3x3900	4x3540	
		3x3960	4x3600	
		3x4020	4x3660	
		3x4080	4x3720	
		3x4140	4x3780	
		3x4200	4x3840	
		3x4260	4x3900	
		3x4320	4x3960	
		3x4380	4x4020	
		3x4440	4x4080	
		3x4500	4x4140	
		3x4560	4x4200	
		3x4620	4x4260	
		3x4680	4x4320	
		3x4740	4x4380	
		3x4800	4x4440	
		3x4860	4x4500	
		3x4920	4x4560	
		3x4980	4x4620	
		3x5040	4x4680	
		3x5100	4x4740	
		3x5160	4x4800	
		3x5220	4x4860	
		3x5280	4x4920	
		3x5340	4x4980	
		3x5400	4x5040	
		3x5460	4x5100	
		3x5520	4x5160	
		3x5580	4x5220	
		3x5640	4x5280	
		3x5700	4x5340	
		3x5760	4x5400	
		3x5820	4x5460	
		3x5880	4x5520	
		3x5940	4x5580	
		3x6000	4x5640	
		3x6060	4x5700	
		3x6120	4x5760	
		3x6180	4x5820	
		3x6240	4x5880	
		3x6300	4x5940	
		3x6360	4x6000	
		3x6420	4x6060	
		3x6480	4x6120	
		3x6540	4x6180	
		3x6600	4x6240	
		3x6660	4x6300	
		3x6720	4x6360	
		3x6780	4x6420	
		3x6840	4x6480	
		3x6900	4x6540	
		3x6960	4x6600	
		3x7020	4x6660	
		3x7080	4x6720	
		3x7140	4x6780	
		3x7200	4x6840	
		3x7260	4x6900	
		3x7320	4x6960	
		3x7380	4x7020	
		3x7440	4x7080	
		3x7500	4x7140	
		3x7560	4x7200	
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		3x8160	4x7800	
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		3x8280	4x7920	
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		3x9180	4x8820	
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		3x9360	4x9000	
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		3x9480	4x9120	
		3x9540	4x9180	
		3x9600	4x9240	
		3x9660	4x9300	
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		3x9840	4x9480	
		3x9900	4x9540	
		3x9960	4x9600	
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		3x10080	4x9720	
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		3x10380	4x10020	
		3x10440	4x10080	
		3x10500	4x10140	
		3x10560	4x10200	
		3x10620	4x10260	
		3x10680	4x10320	
		3x10740	4x10380	
		3x10800	4x10440	
		3x10860	4x10500	
		3x10920	4x10560	
		3x10980	4x10620	
		3x11040	4x10680	
		3x11100	4x10740	
		3x11160	4x10800	
		3x11220	4x10860	
		3x11280	4x10920	
		3x11340	4x10980	
		3x11400	4x11040	
		3x11460	4x11100	
		3x11520	4x11160	
		3x11580	4x11220	
		3x11640	4x11280	
		3x11700	4x11340	
		3x11760	4x11400	
		3x11820	4x11460	
		3x11880	4x11520	
		3x11940	4x11580	
		3x12000	4x11640	
		3x12060	4x11700	
		3x12120	4x11760	
		3x12180	4x11820	
		3x12240	4x11880	
		3x12300	4x11940	
		3x12360	4x12000	
		3x12420	4x12060	
		3x12480	4x12120	
		3x12540	4x12180	
		3x12600	4x12240	
		3x12660	4x12300	
		3x12720	4x12360	
		3x12780	4x12420	
		3x12840	4x12480	
		3x12900	4x12540	
		3x12960	4x12600	
		3x13020	4x12660	
		3x13080	4x12720	
		3x13140	4x12780	
		3x13200	4x12840	
		3x13260	4x12900	
		3x13320	4x12960	
		3x13380	4x13020	
		3x13440	4x13080	
		3x13500	4x13140	
		3x13560	4x13200	
		3x13620	4x13260	
		3x13680	4x13320	
		3x13740	4x13380	
		3x13800	4x13440	
		3x13860	4x13500	
		3x13920	4x13560	
		3x13980	4x13620	
		3x14040	4x13680	
		3x14100	4x13740	
		3x14160	4x13800	
		3x14220	4x13860	
		3x14280	4x13920	
		3x14340	4x13980	
		3x14400	4x14040	
		3x14460	4x14100	
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		3x14700	4x14340	
		3x14760	4x14400	
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		3x14940	4x14580	
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		3x15120	4x14760	
		3x15180	4x14820	
		3x15240	4x14880	
		3x15300	4x14940	
		3x15360	4x15000	
		3x15420	4x15060	
		3x15480	4x15120	
		3x15540	4x15180	
		3x15600	4x15240	
		3x15660	4x15300	
		3x15720	4x15360	
		3x15780	4x15420	
		3x15840	4x15480	
		3x15900	4x15540	
		3x15960	4x15600	
		3x16020	4x15660	
		3x16080	4x15720	
		3x16140	4x15780	
		3x16200	4x15840	
		3x16260	4x15900	

Job Id: **262.1-007118-3**
Certificate No: **TAE00003GR**

Standard	Release	General description	Limitation
		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, 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 – Type designation – 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