DNV·GL

Certificate No:
TAE00001EF

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
0.6/1kV FR-(FA-)DPY(C), FR-(FA-)DPYE(C), FR-(FA-)TPY(C), FR-(FA-)TPYE(C), FR-(FA-)FPY(C), FR-(FA-)FPYE(C), FR-(FA-)5PY(C), FR-(FA-)DPYSLA(C), FR-(FA-)DPYESLA(C), FR-(FA-)TPYSLA(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
JIS C 3410:2010

Application :

General power and lighting. Fire resistant. Flame retardant.

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 **2021-10-11**.

Issued at **Busan** on **2016-10-12**

DNV GL local station: **Seoul** for **DNV GL**

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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Job Id: **262.1-015062-2**
Certificate No: **TAE00001EF**

Product description

Type : 0.6/1kV FR-(FA-)DPY(C*), FR-(FA-)DPYE(C*), FR-(FA-)TPY(C*), FR-(FA-)TPYE(C*), FR-(FA-)FPY(C*), FR-(FA-)FPYE(C*), FR-(FA-)5PY(C*), FR-(FA-)DPYSLA(C*), FR-(FA-)DPYESLA(C*), FR-(FA-)TPYSLA(C*)

Conductor :	Stranded tinned annealed copper wires
Fire resisting layer :	Mica/glass tape
Insulation :	EPR
Common shield :	AL/PS tape with tinned copper drain wire ('SLA' type only)
Sheath :	PVC

* Cable type with 'C' for cold resistant characteristic (option)

Number of cores x conductor cross-section
mm²
FR-(FA-)DPY(C)
2x1.5
2x2.5
2x4
2x6
2x10
2x16
2x25
2x35
2x50
2x70
2x95
2x120
2x150
2x185
FR-(FA-)DPYE(C)
2x1.5+E
2x2.5+E
2x4+E
2x6+E
2x10+E
2x16+E
2x25+E
2x35+E
2x50+E
2x70+E
2x95+E
2x120+E
2x150+E
2x185+E
FR-(FA-)DPYE(C) (Reduced earth conductor)
2x1.5+E(1.5)
2x2.5+E(2.5)
2x4+E(4)
2x6+E(6)
2x10+E(10)
2x16+E(16)
2x25+E(16)

Number of cores x conductor cross-section
mm²
2x35+E(25)
2x50+E(25)
2x70+E(35)
2x95+E(50)
2x120+E(70)
2x150+E(95)
2x185+E(95)
FR-(FA-)TPY(C)
3x1.5
3x2.5
3x4
3x6
3x10
3x16
3x25
3x35
3x50
3x70
3x95
3x120
3x150
3x185
FR-(FA-)TPYE(C)
3x1.5+E
3x2.5+E
3x4+E
3x6+E
3x10+E
3x16+E
3x25+E
3x35+E
3x50+E
3x70+E
3x95+E
3x120+E
3x150+E
3x185+E
FR-(FA-)FPY(C)
4x1.5

Number of cores x conductor cross-section
mm²
4x2.5
4x4
4x6
4x10
4x16
4x25
4x35
4x50
4x70
4x95
4x120
4x150
4x185
FR-(FA-)FPYE(C)
4x1.5+E
4x2.5+E
4x4+E
4x6+E
4x10+E
4x16+E
FR-(FA-)5PY(C)
5x1.5
5x2.5
5x4
5x6
5x10
5x16
FR-(FA-)DPYSLA(C)
2x1.5
2x2.5
2x4
FR-(FA-)DPYESLA(C)
2x1.5+C
2x2.5+C
2x4+C
FR-(FA-)TPYSLA(C)
3x1.5
3x2.5
3x4

Application/Limitation

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

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 for 'FA-' type only.

Type Approval documentation

Tests carried out

Standard	Issued	Limitation
JIS 3410	2010	
IEC 60331-1/-2 (As JIS 3410, 7.8)	2009	
IEC 60331-21(As JIS 3410, 7.8)	1999	
IEC 60332-1(As JIS 3410, 7.6)	2004	
IEC 60332-3-22 (As JIS 3410, 7.7)	2009	'FA-' type only
CSA C22.2 No.03	2009	'C' type only

Marking of product

0.6/1kV – Cable type – Size – IEC 60331 – TMC – Year of manufacture – Length or
0.6/1kV – Cable type – Size – IEC 60331 – IEC 60332-3 CAT.A – TMC – Year of manufacture – 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 the results from Production Sample Tests(PST) and Routine Tests(RT) (if not available, PSTand 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