DNV·GL

Certificate No:
TAE000002D

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
TOXFREE MARINE XTCuZ1-K (AS) VFD EMC 0,6/1kV, TOXFREE MARINE ROZ1-K(AS) VFD EMC 0,6/1 kV, TOXFREE MARINE XTCuZ1-K (AS) VFD EMC 1,8/3kV, TOXFREE MARINE ROZ1-K(AS) VFD EMC 1,8/3 kV

Issued to
TOP CABLE, S.A.
Rubi Barcelona, Spain

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards
IEC 60092-353 (2011-08)
IEC 60332-3-22 (2009-02)
IEC 60754-1 (2011-11)
IEC 60754-2 (2011-11)
IEC 61034-1/2 Ed. 3.1 (2013-06)

Application :

General power and lighting, for marine and offshore applications.
Halogen free. Low smoke. Flame retardant Cat. A.

Type	Voltage class (kV)	Temp. class (°C)
TOXFREE MARINE XTCuZ1-K (AS) VFD EMC 0,6/1kV	0,6/1	90
TOXFREE MARINE ROZ1-K(AS) VFD EMC 0,6/1 kV	0,6/1	90
TOXFREE MARINE XTCuZ1-K (AS) VFD EMC 1,8/3kV	1,8/3	90
TOXFREE MARINE ROZ1-K(AS) VFD EMC 1,8/3 kV	1,8/3	90

This Certificate is valid until **2019-07-09**.

Issued at **Høvik** on **2015-07-10**

for **DNV GL**

DNV GL local station: **Barcelona**

Approval Engineer: **Georgy Abramenko**

Marit Laumann
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: **262.1-007672-3**
Certificate No: **TAE000002D**

Product description

Type: TOXFREE MARINE XTCuZ1-K(AS) VFD EMC 0,6/1 kV;
TOXFREE MARINE ROZ1-K(AS) VFD EMC 0,6/1 kV;
TOXFREE MARINE XTCuZ1-K(AS) VFD EMC 1,8/3 kV;
TOXFREE MARINE ROZ1-K(AS) VFD EMC 1,8/3 kV.

Construction:	
Conductors:	Annealed, stranded copper class 5
Core insulation:	HF XLPE
Inner covering:	Halogen free filler
Metal covering:	Copper wire braid, Aluminum-polyester tape (VFD type only)
Outer sheath:	SHF1

0,6/1 kV cables:

Number of cores x conductor cross-section
1 x 1,5
1 x 2,5
1 x 4
1 x 6
1 x 10
1 x 16
1 x 25
1 x 35
1 x 50
1 x 70
1 x 95
1 x 120
1 x 150
1 x 185
1 x 240
1 x 300
2 x 1,5
2 x 2,5
2 x 4
2 x 6
2 x 10
2 x 16
2 x 25
2 x 50
2 x 70
2 x 95
2 x 120
2 x 150
2 x 185
2 x 240
2 x 300
3 x 1,5
3 x 2,5

Number of cores x conductor cross-section
3 x 4
3 x 6
3 x 10
3 x 16
3 x 25
3 x 35
3 x 50
3 x 70
3 x 95
3 x 120
3 x 150
3 x 185
3 x 240
3 x 300
4 x 1,5
4 x 2,5
4 x 4
4 x 6
4 x 10
4 x 16
4 x 25
4 x 35
4 x 50
4 x 70
4 x 95
4 x 120
4 x 150
4 x 185
4 x 240
4 x 300
5 x 1,5
5 x 2,5
5 x 4

Number of cores x conductor cross-section
5 x 6
5 x 10
5 x 16
5 x 25
5 x 35
5 x 50
7 x 1,5
7 x 2,5
10 x 1,5
12 x 1,5
12 x 2,5
14 x 1,5
16 x 1,5
19 x 1,5
19 x 2,5
24 x 1,5
27 x 1,5
27 x 2,5
VFD cables:
3 x 16 + 3 x 25
3 x 25 + 3 x 4
3 x 35 + 3 x 6
3 x 50 + 3 x 10
3 x 70 + 3 x 10
3 x 95 + 3 x 16
3 x 120 + 3 x 16
3 x 150 + 3 x 25
3 x 185 + 3 x 35
3 x 240 + 3 x 50
3 x 300 + 3 x 50

1,8/3kV cables:

Number of cores x conductor cross-section
3 x 50
3 x 70
3 x 95
3 x 120
3 x 150
3 x 185

Number of cores x conductor cross-section
3 x 240
3 x 300
VFD cables:
3 x 50 + 3 x 10
3 x 70 + 3 x 10

Number of cores x conductor cross-section
3 x 95 + 3 x 16
3 x 120 + 3 x 16
3 x 150 + 3 x 25
3 x 185 + 3 x 35
3 x 240 + 3 x 50
3 x 300 + 3 x 50

Application/Limitation

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

Type Approval documentation

Tests carried out

Type tests according to IEC 60092-350, IEC 60092-353, IEC 60332-3-22, IEC 60754 1/2 and IEC 61034 1/2.

Marking of product

TOP CABLE - TOXFREE MARINE XTCuZ1-K (AS) VFD EMC - 0,6/1 kV – size - IEC 60092-353 - IEC 60332-3,
TOP CABLE - TOXFREE MARINE ROZ1-K(AS) VFD EMC – 0,6/1 kV - IEC 60092-353 - IEC 600332-3,
TOP CABLE - TOXFREE MARINE XTCuZ1-K (AS) VFD EMC - 1,8/3 kV – size - IEC 60092-353 - IEC 60332-3,
TOP CABLE - TOXFREE MARINE ROZ1-K(AS) VFD EMC – 1,8/3 kV - IEC 60092-353 - IEC 600332-3

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.

Survey to be performed at least every second year.

END OF CERTIFICATE