

TYPE APPROVAL CERTIFICATE

This is to certify:**That the High Voltage Cable**

with type designation(s)

SECPE 100%/133%, TECPE 100%/133%, SECPE 100%/133%, TECPE 100%/133%, SECPE 100%/133%, TECPE 100%/133%, TECPEVFD 133%, TECPEVFD 133%

Issued to

**AmerCable Inc.
Houston, United States**

is found to comply with

**Det Norske Veritas' Rules for Classification of Ships
IEEE 1580 (2010)****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**

Type	Voltage (kV)	Temp. class (°C)
SECPE 100%/133%, TECPE 100%/133%	5 kV	90
SECPE 100%/133%, TECPE 100%/133%	8 kV	90
SECPE 100%/133%, TECPE 100%/133%	15 kV	90
TECPEVFD 133%	8 kV	90
TECPEVFD 133%	15 kV	90

This Certificate is valid until **2019-06-28**.Issued at **Høvik** on **2015-06-29**DNV GL local station: **Houston**for **DNV GL**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.

Product description

SECPE 100%/133% 5 kV, TECPE 100%/133% 5 kV, SECPE 100%/133% 8 kV, TECPE 100%/133% 8kV, SECPE 100%/133% 15 kV, TECPE 100%/133% 15 kV, TECPEVFD 133% 8 kV, TECPEVFD 133% 15 kV.

Construction:

Conductor:
Conductor, ground (VFD cables only)

Insulation:

Shielding:

Shielding (VFD cables):

Sheath:

Rope bunched compressed tinned copper

Unilay tinned copper with polyester separator and insulated with XLPO

EPR

Semi-conducting tape helically applied and lapped, composite braid of tin-coated copper wires and nylon yarn

Braided tinned copper wires and poly/aluminum tape

CPE

Number of cores x conductor cross-section	
SQMM	AWG
SECPE 5 kV	
1 x 7.6	8
1 x 12.5	6
1 x 21	4
1 x 34	2
1 x 43	1
1 x 54	1/0
1 x 70	2/0
1 x 86	3/0
1 x 109	4/0
1 x 132	262
1 x 159	313
1 x 189	373
1 x 227	444
1 x 273	535
1 x 326	646
1 x 394	777
1 x 562	1111
TECPE 5 kV	
3 x 7.6	8
3 x 12.5	6
3 x 21	4
3 x 34	2
3 x 43	1
3 x 54	1/0
3 x 70	2/0
3 x 86	3/0
3 x 109	4/0
3 x 132	262
3 x 159	313
3 x 189	373
3 x 227	444
3 x 273	535
3 x 326	646
3 x 394	777

Number of cores x conductor cross-section	
SQMM	AWG
SECPE 100% 8 kV	
1 x 12.5	6
1 x 21	4
1 x 34	2
1 x 43	1
1 x 54	1/0
1 x 70	2/0
1 x 86	3/0
1 x 109	4/0
1 x 132	262
1 x 159	313
1 x 189	373
1 x 227	444
1 x 273	535
1 x 326	646
1 x 394	777
1 x 562	1111
SECPE 133% 8 kV	
1 x 12.5	6
1 x 21	4
1 x 34	2
1 x 43	1
1 x 54	1/0
1 x 70	2/0
1 x 86	3/0
1 x 109	4/0
1 x 132	262
1 x 159	313
1 x 189	373
1 x 227	444
1 x 273	535
1 x 326	646
1 x 394	777
1 x 562	1111
TECPE 100% 8 kV	

Number of cores x conductor cross-section	
SQMM	AWG
3 x 12.5	6
3 x 21	4
3 x 34	2
3 x 43	1
3 x 54	1/0
3 x 70	2/0
3 x 86	3/0
3 x 109	4/0
3 x 132	262
3 x 159	313
3 x 189	373
3 x 227	444
3 x 273	535
3 x 326	646
3 x 394	777
TECPE 133% 8 kV	
3 x 12.5	6
3 x 21	4
3 x 34	2
3 x 43	1
3 x 54	1/0
3 x 70	2/0
3 x 86	3/0
3 x 109	4/0
3 x 132	262
3 x 159	313
3 x 189	373
3 x 227	444
3 x 273	535
3 x 326	646
TECPEVFD 133% 8 kV	
3 x 12.5	6
3 x 21	4
3 x 34	2
3 x 43	1

Number of cores x conductor cross-section	
SQMM	AWG
3 x 54	1/0
3 x 70	2/0
3 x 86	3/0
3 x 109	4/0
3 x 132	262
3 x 159	313
3 x 189	373
3 x 227	444
3 x 273	535
SECPE 100% 15 kV	
1 x 34	2
1 x 43	1
1 x 54	1/0
1 x 70	2/0
1 x 86	3/0
1 x 109	4/0
1 x 132	262
1 x 159	313
1 x 189	373
1 x 227	444
1 x 273	535
1 x 326	646
1 x 394	777
1 x 562	1111
SECPE 133% 15 kV	

Number of cores x conductor cross-section	
SQMM	AWG
1 x 34	2
1 x 43	1
1 x 54	1/0
1 x 70	2/0
1 x 86	3/0
1 x 109	4/0
1 x 132	262
1 x 159	313
1 x 189	373
1 x 227	444
1 x 273	535
1 x 326	646
1 x 394	777
1 x 562	1111
TECPE 100% 15 kV	
3 x 34	2
3 x 43	1
3 x 54	1/0
3 x 70	2/0
3 x 86	3/0
3 x 109	4/0
3 x 132	262
3 x 159	313
3 x 189	373
3 x 227	444
3 x 273	535

Number of cores x conductor cross-section	
SQMM	AWG
TECPE 133% 15 kV	
3 x 34	2
3 x 43	1
3 x 54	1/0
3 x 70	2/0
3 x 86	3/0
3 x 109	4/0
3 x 132	262
3 x 159	313
3 x 189	373
3 x 227	444
3 x 273	535
TECPEVFD 133% 15 kV	
3 x 34	2
3 x 43	1
3 x 54	1/0
3 x 70	2/0
3 x 86	3/0
3 x 109	4/0
3 x 132	262
3 x 159	313
3 x 189	373
3 x 227	444

Type Approval documentation

Tests carried out

Type tests according to IEEE1580-2010.

Marking of product

AMERCABLE - SECPE 5 kV or TECPE 5 kV or SECPE 100% 8 kV or SECPE 133% 8 kV or TECPE 100% 8 kV or TECPE 133% 8 kV or TECPEVFD 133% 8 kV or SECPE 100% 15 kV or SECPE 133% 15 kV or TECPE 100% 15 kV or TECPE 133% 15 kV or TECPEVFD 133% 15 kV- Size – Lot no.

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.



Job Id: **262.1-005495-1**
Certificate No: **TAE000003E**

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