

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Data transmission cables and systems**

with type designation(s)

P/N S670T-NN-XXY Armored and Sheathed

Issued to

**Draka Cableteq USA, Inc.
North Dighton MA, United States**

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Signalling, Communication and Data Transmission****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2017-03-07**This Certificate is valid until **2021-12-31**.DNV GL local station: **New York**for **DNV GL**Approval Engineer: **Marta Alonso Pontes**

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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 P/N S670T-NN-XXY, Armored and sheathed

Optical fibre: In accordance with IEC-60793
Tight buffer: Polyester elastomer
Strength member: Aramid Yarn
Filler: Polyolefine – SHF1
Inner Sheath: Polyolefine – SHF1
Metal covering: 28 AWG bronze armor
Outer sheath: Polyolefine – SHF1

Part number	Diameter (mm)
S670T-02R-XXY	11,23±0,25
S670T-04-XXY	12,45±0,25
S670T-06-XXY	13,34±0,25
S670T-08-XXY	14,33±0,25
S670T-10-XXY	16,23±0,25
S670T-12-XXY	17,42±0,25

Part number	Diameter (mm)
S670T-16-XXY	17,83±0,38
S670T-18-XXY	17,83±0,38
S670T-24-XXY	19,51±0,38
S670T-36-XXY	22,35±0,51
S670T-48-XXY	28,91±0,51

Fiber types	Single-mode 9/125	Multi-mode 50/125	Multi-mode 62,5/125	Multimode 200/230
"XXY" Designation	010	50	62	200
Core diameter	8,3 µm	50±2,5 µm	62,5±2,5 µm	200±5,0 µm
Mode field diameter 1310 nm 1550 nm	9,1±0,5 µm 10,2±1,0 µm	N/A	N/A	N/A
Cladding diameter	125±1,0 µm	125 ± 2,0 µm	125±2,0 µm	230±10,0 µm
Primary coating diameter	242±7 µm	245± 10 µm	245±10 µm	500±30,0 µm
Attenuation 820 nm 850 nm 1300 nm 1310 nm 1550 nm	≤ 0,70 dB/km ≤ 0,70 dB/km	≤ 3,50 dB/km ≤ 1,50 dB/km	≤ 3,50 dB/km ≤ 1,00 dB/km	≤ 12 dB/km
Bandwidth 820 nm 850 nm 1300 nm	N/A	≥ 500 MHz·km ≥ 500 MHz·km	≥ 200 MHz·km ≥ 500 MHz·km	≥20 MHz·km
Dispersion 1285-1310 nm 1550 nm	<3,2 ps/nm·km <18 ps/nm·km	N/A	N/A	N/A
Numerical aperture	N/A	0,200±0,015	0,275±0,015	0,37 Nominal

Application/Limitation

Temperature window

Operation: -20°C to +80°C

Storage: -40°C to +80°C

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

Standard	Release	General description	Limitation
IEC 60794-1-1	2015-11	Optical fibre cables – Part 1-1: Generic specification – General	

Job Id: **262.1-002542-6**
Certificate No: **TAE00001U0**

IEC 60794-1-2	2013-09	Optical fibre cables - Part 1-2: Generic specification - Cross reference table for optical cable test procedures	
IEC 60794-2-20	2013-11	Optical fibre cables - Part 2-20: Indoor cables - Family specification for multi-fibre optical cables	
IEC 60332-3-22	2009-02	Tests on electric and optical fibre cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category A	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2011-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2011-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm
IEC 61034-1/2	2005-04	Measurement of smoke density of cables burning under defined conditions - Test apparatus, procedure and requirements	Low smoke Light transmittance >60%

Marking of product

Product making: Draka Comteq, Inc. – S670T-NN-XXY

NN – number of fibres

XXY – fibre type

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to 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