

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Category cables**

with type designation(s)

DK4 STX UC500 HS23 Cat.6A S/FTP 4P LSHF-FR**DK4 STX UC500 HS23 Cat.6A S/FTP 2x4P LSHF-FR**

Issued to

Draka Comteq Germany GmbH & Co. KG
Köln, Germany

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Ethernet cable for horizontal wiring in marine environments.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Hamburg** on **2018-03-20**This Certificate is valid until **2023-03-19**.for **DNV GL**DNV GL local station: **Essen**Approval Engineer: **Carsten Hunsalz**

Arne Schaarmann
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

Foam-skin polyethylene insulated and LSHF-FR sheathed twisted pairs data transmission cables Cat.6A

Conductor: Bare copper wire, (AWG 23/1)
Insulation: Foam-skin Polyethylene
Twisting: 2 cores to the pair
Pair screen: High Performance-FTP: Al-laminated plastic foil,
patented wrapping of two pairs each
Cable lay up: 2x2 pairs to the core
Screen: Copper braid, tinned
Sheath: LSHF-FR

Loop resistance: $\leq 165 \text{ Ohm/km}$
Mutual capacitance: Nom. 43 nF/km (at 800 Hz)
Character. impedance: $100 \Omega \pm 5$ (at 100MHz)

Frequency MHz	1	10	100	200	250	300	400	500
Attenuation dB/100m	1,8	5,4	17,4	25,0	28,1	30,9	38,3	43,0
NEXT dB	100	100	100	92	90	89	87	86

Application/Limitation

Temperature range: -20°C to +60°C (during operation)
Bending radius: $\geq 40 \text{ mm}$ without load
 $\geq 80 \text{ mm}$ with load

In order to achieve a transmission compliant with Category 6A, cables shall be installed with suitable termination equipment according to manufacturer's recommendations.

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

Test report : DRAKA dated 27.10.+15.12.2017, 31.01.+09.02.+12.02.+13.02.2018
3P Third Party Testing No. 1186652c dated 2018-02-15 and
No. 1186652e dated 2018-03-02
Specification: DRAKA DK4 STX uc05_hs23s-ftp_e, Version 1.4, 11.04.2016

Tests carried out

Standard	Release	General description	Limitation
DNVGL-CP-0403	2015-12	DNV GL Type approval program for data communication cables – category cables	Ref. IEC 61156-5 standard Category 6A
IEC 61156-5	2009-02	Multicore and symmetrical pair/quad cables for digital communications – Part 5: Symmetrical pair/quad cables with transmission characteristics up to 1 000 MHz – Horizontal floor wiring – Sectional specification	Reference to requirement for Category cable: 6A (500MHz),

Job Id: **262.1-026154-1**
Certificate No: **TAE00002SC**

Standard	Release	General description	Limitation
IEC 60332-1-2	2015-07	Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame	
IEC 60332-3-24	2009-02	Tests on electric and optical fibre cables under fire conditions – Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables – Category C	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
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	2013-07 2013-09	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance >60%

Marking of product

DK4 STX SC000060 Cat.6A S/FTP 4p LSHF-FR IEC 60332-3-24 <factory code/batch no./date-time> <meter> m

DK4 STX SC000061 Cat.6A S/FTP 2x4p LSHF-FR IEC 60332-3-24 <factory code/batch no./date-time> <meter> m

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