

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Fiber optical cable

with type designation(s)

04-.../CWJSNHIH-...20; 08-.../CWJSNHIH-...20 and 12-.../CWJSNHIH-...20

Issued to

Huber + Suhner AG
Herisau AR, Switzerland

is found to comply with

DNV GL rules for classification – Ships and offshore units

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **2021-05-26**.

Issued at **Hamburg** on **2016-07-27**

DNV GL local station: **Augsburg**

Approval Engineer: **Carsten Hunsalz**

for **DNV GL**

Duy Nam Le
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

Fire resistant low smoke, halogen free and self -extinguishing breakout fiber optic cable with compact tube and LSFH sheaths

Breakout-fiber optic cable 04-.../CWJSNHIH-...20; 08-.../CWJSNHIH-...20 and 12-.../CWJSNHIH-...20

Fire resistant breakout-fiber optics cable with 2,0 mm simplex fiber cables LSFH for direct connector assembly.

Construction:	Strength member	1 mm; 3,2 mm; 5,8 mm
	Optical fiber	245 micro meter
	Compact tube	0,9 mm
	Reinforcement/aramide yarn	
	Single fiber cables	2 mm
	Inner sheath:	PE / flame retardant
	Flame barrier:	2 mica tape cross wrapped
	Outer sheath:	PE / flame retardant

Mechanical data :	During installation	In operation
Min. bend radius:	145/175/220 mm	95/115/145 mm
Tensile strength:	1200/2400/4000 N	400/800/1200 N
Compressive strength:	400N/cm	200N/cm
Temperature range:	-10 up to +60°C	-25 up to +70°C

Construction	Cable Type	Article Number
Breakout 4way	04-E9/CWJSNHIH-E20	84018102
	04-G50/CWJSNHIH-D20	84018103
	04-G62/CWJSNHIH-D20	84018104
	04-G50/CWJSNHIH-L20-G	84150417
	04-G62/CWJSNHIH-D20_CCM	85007793
	04-G50/CWJSNHIH-D20-F	85015713
	04-G50/CWJSNHIH-A20-G	85021323
Breakout 8way	08-E9/CWJSNHIH-E20	84018106
	08-G50/CWJSNHIH-D20	84018107
	08-G62/CWJSNHIH-D20	84018108
	08-G50/CWJSNHIH-L20-G	85001062
	08-E9/CWJSNHIH-D20	85015714
	08-G50/CWJSNHIH-D20-F	85021966
Breakout 12way	12-E9/CWJSNHIH-E20	84018109
	12-G50/CWJSNHIH-D20	84018110
	12-G62/CWJSNHIH-D20	84018111
	12-G50/CWJSNHIH-L20-G	84150427
	12-G50/CWJSNHIH-D20-F	85024285

Application/Limitation

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

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

Job Id: **262.1-022540-1**
Certificate No: **TAE0000192**

Type Approval documentation

Test report: Huber + Suhner DOC-0000226109, dated 11.01.2005
Doc.No. DOC-0000237683 A; 85 A and 86 A
Data sheets: Huber + Suhner DOC-0000228438 E; DOC-0000228440 F;
DOC- 0000228441 E dated 14.11.2005

Tests carried out

IEC 60794-1-2 E1; E3; E4; E6; E11:2003; 60332-1:1993; 60332-3-24:2000;
IEC 61034-2:1997; IEC 60331-31 (EN 50200):2000

Marking of product

Batch no. ♦ ♦*Item no./Year* ♦ ♦HUBER+SUHNER ♦FIBEROPTIC ♦ ♦*Fiber count x Fiber type* LSFH
jacket material fire resistance ♦ IEC 60332-3-24 / IEC 60331-31 (EN 50200) FE180 ♦DNV GL Type
approved ♦ *meter marking* ♦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.

Assessment to be performed at least every second year.

END OF CERTIFICATE