

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

SH-CI-U-A-F S95, SH-CI-C-A-F S95, SH-CI-I-A-F S95, SH-CI-IC-A-F S95

Issued to

UNIKA S.p.A.**Cologna Veneta VR, Italy**

is found to comply with

DNV GL rules for classification – Ships and offshore units**Application :****Control and Instrumentation.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**

Type	Voltage class (V)	Temp. class (°C)
SH-CI-U-A-F S95	150/250	95
SH-CI-C-A-F S95	150/250	95
SH-CI-I-A-F S95	150/250	95
SH-CI-IC-A-F S95	150/250	95

This Certificate is valid until **2021-01-10**.Issued at **Høvik** on **2016-01-11**for **DNV GL**DNV GL local station: **Venice**Approval Engineer: **Ivar Bull**

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: **262.1-018020-1**
Certificate No: **TAE00000M3**

Product description

Type: SH-CI-U-A-F S95,
Construction:

Conductor: Plain or tinned copper Class 2 or Class 5
Insulation: S95
Inner covering: Suitable fillers and non-hygroscopic tape(s)
Armour: Plain or tinned copper wire braid
Outer sheath: SHF1

No of cores:	Cross sectional area [mm ²]
2, 3, 4, 7, 10, 14, 19, 24, 30, 37 Multicores	0,50 0,75 1,0 1,5 2,5

Type: SH-CI-C-A-F S95 (collective screen)
SH-CI-I-A-F S95 (individual screen)
SH-CI-IC-A-F S95 (individual and collective screen)

Construction:

Conductor: Plain or tinned copper Class 2 or Class 5
Insulation: S95
Screen: Aluminium/polyester tape with drain wire
Inner covering: Suitable fillers and non-hygroscopic tape(s)
Armour: Plain or tinned copper wire braid
Outer sheath: SHF1

No of cores:	Cross sectional area [mm ²]
2, 3, 4, 7, 10, 14, 19, 24, 30, 37 Pairs	0,50 0,75 1,0 1,5 2,5
4, 7, 12, Triples	0,50 0,75 1,0 1,5 2,5
3, 5, 7 Quads	0,50 0,75 1,0 1,5 2,5

Application/Limitation

This type of cable is fire resistant according to IEC 60331-1/2 and IEC 60331-21

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.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
IEC 60092-350	2014-08	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-376	2003-05	Cables for control and instrumentation circuits 150/250 V (300 V)	
IEC 60331-1/2	2009-05	Fire resistance / Circuit integrity – Test for method for fire with shock at temperature of at least 830°C for cables rated up to and including 0,6/1 kV	Minimum 90 min+15 min cooling down time
IEC 60332-1-2	2006-07	Tests on electric cables under fire conditions.	IEC 60332-1-2

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Standard	Release	General description	Limitation
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	Bunch test Category A
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 60684-2	2003-05	Flexible insulating sleeving – Part 2: Methods of test.	Fluorine content < 0,1%
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

UNIKA (Italy) – SH-CI-U-A-F S95 or SH-CI-C-A-F S95 or SH-CI-I-A-F S95 or SH-CI-IC-A-F S95 - 150/250 V 95°C (n° cores) x (n° units) x cross-section – IEC 60092-376 – IEC 60331-1/2 – IEC 60331-21 - IEC 60332-3-22 – traceability code – meter marking

Periodical assessment

The scope of the periodical assessment 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 periodical assessment 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.

Periodical assessment to be performed at least every second year.

END OF CERTIFICATE