DNV·GL

Certificate No:
TAE00003U9

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
RFOU P101 0,6/1kV

Issued to
Habia Cable AB
Söderfors, Sweden

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Control, lighting and power.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.
Rated voltage (kV) 0,6/1
Temp. class (°C) 90

Issued at **Høvik** on **2019-11-29**
This Certificate is valid until **2024-11-28**.
DNV GL local station: **Stockholm**

Approval Engineer: **Ivar Bull**

for **DNV GL**

Trond Sjåvåg
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.

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Job Id: **262.1-028728-1**
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Product description

Type: RFOU P101 0,6/1kV
Construction:

Conductors:	Tinned, stranded copper class 2 or class 5
Core insulation:	EPR
Bedding:	Halogen-free compound
Tape:	Polyester foil
Metal covering:	Tinned copper wire braid min 85% coverage
Tape:	Polyester foil
Outer sheath:	SHF2 or SHF2 Mud

No of cores:	Cross sectional area [mm$^{2]}$
2, 3, 4, 5	1,0 – 70
7, 12, 19, 27, 32, 37	1,0 1,5 2,5

Application/Limitation

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	Issued	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 60092-360	2014-04	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables.	
IEC 60092-353	2016-09	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV	
IEC 60332-3-22	2018-07	Tests on electric 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 – Determination of the amount of halogen acid gas	Low Halogen: <0,5% Halogen
IEC 60754-2	2011-11	Test on gases evolved during combustion of materials from cables – Determination of the degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS
IEC 61034-1/2	2013-07/09	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke

Standard	Issued	General description	Limitation
NEK TS 606 Ed5	2016	Cables for offshore installations. Halogen-free and/or mud resistant. Technical specification.	Mud resistance test: Required Max variations ±: IRM902 & 903 100°C 7d. TS & E@B, weight & vol.: ±30% Calc. Bromide 70°C 56d. TS & E@B: ±25%, weight: ±15%, vol.: ±20% Oil based mud: EDC 95/11 70°C 56d TS & E@B ±30%, weight & vol.: ±25%

Marking of product

HABIA CABLE AB – RFOU P101 or RFOU P101 MUD - 0,6/1kV - size – IEC 60332-3-22 –Year – Batch code

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) and selected type tests (ref. to applicable class programs) checked (if not available these tests shall 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