



TYPE APPROVAL CERTIFICATE

Certificate No:
TAE0000147
Revision No:
1

This is to certify:

That the Electric Power Cable

with type designation(s)
SABIX BL 412 C FRNC

Issued to

SAB Bröckskes GmbH & Co. KG
Viersen, Germany

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

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 **Hamburg** on **2021-06-21**

This Certificate is valid until **2026-06-20**.

DNV local station: **Essen**

for **DNV**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2021-03

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Product description

Halogen free flame retardant energy cable with screen

Rated voltage: 0,6 / 1 kV
Maximum operating conductor temperature: 90° C
Conductor: Bare or tinned copper, fine stranded class 5 or class 6
Insulation: FRNC Thermoplastic insulation acc. EN 50290-2-26
Screen/Armour: Copper
Outer sheath: FRNC Thermoplastic jacket acc. EN 50290-2-27

Number of cores: Cross-sectional area:
2 to 61 1 mm² to 50 mm²

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

Test reports: SAB 121/11 dated 15.03.2011, SAB 041/11 dated 25.01.2011,
VDE 493200-9021-0001/144041 dated 21.01.2011,
Currenta 09/1302, 09/1303, 09/1304, 09 /1298, 09/1299, 09/1300, 09 /1310,
09/1311, 09/1312, 19/1486, 19/1577, 19/1578, 20/0709, 20/0712, 20/0751,
20/0754, 20/0766, 20/0769

Tests carried out

Standard	Release	General description	Limitation
IEC 60092-353	2016-09	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV	partly
EN 50290-2-26	2007-10	Common design rules and construction – Halogen free flame retardant insulation compounds	
EN 50290-2-27	2007-10	Communication cables Part 2-27: Common design rules and construction Halogen free flame retardant thermoplastic sheathing compounds	
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 60332-3-22	2018-07	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 60332-3-25	2018-07	Tests on electric and optical fibre cables under fire conditions – Part 3-25: Test for vertical flame spread of vertically-mounted bunched wires or cables – Category D	Bunch test Category D
IEC 60754-1	2019-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen

Standard	Release	General description	Limitation
IEC 60754-2	2019-11	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	2011-08	Clause 45.2 Methods of determination of low levels of fluorine	Fluorine content < 0,1%
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance ≥60%

Marking of product

>0000m **DNV** • BRÖCKSKES • D-Viersen • SABIX BL 412 C FRNC n x A mm² - IEC 60332-3-22 - 0,6/1kV DNV ...
 CE identno.

Legend:

> 0000m meter marking

n: number of cores/pairs

A: cross section

...: space for type approval marking of other classification societies (ABS, LR, RINA, RS)

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