DNV·GL

Certificate No:
TAE00001A1

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Low Voltage Cable

with type designation(s)
FXFQ-HF(c) & FXFQ-HF(i)(c) & RXFQ-HF(c) & RXFQ-HF(i)(c) 250 V,
FXAQ-HF(c) & FXAQ-HF(i)(c) & RXAQ-HF(c) & RXAQ-HF(i)(c) 250 V,
FXQ or RXQ 250V

Issued to
amo specialkabel AB
ALSTERMO, Sweden

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft
DNV GL class programme DNVGL-CP-0399 – Type approval – Electric cables

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)
FXFQ-HF(c) & FXFQ-HF(i)(c) & RXFQ-HF(c) & RXFQ-HF(i)(c) 250 V	250	90
FXAQ-HF(c) & FXAQ-HF(i)(c) & RXAQ-HF(c) & RXAQ-HF(i)(c) 250 V	250	90
FXQ or RXQ 250V	250	90

This Certificate is valid until **2021-07-01**.

Issued at **Høvik** on **2016-11-01**

for **DNV GL**

DNV GL local station: **Malmö**

Approval Engineer: **Ivar Bull**

Andreas Kristoffersen
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: **262.1-012026-5**
Certificate No: **TAE00001A1**

Product description

Type: **FXFQ-HF(c) & FXFQ-HF(i)(c) & RXFQ-HF(c) & RXFQ-HF(i)(c) 250 V, FXAQ-HF(c) & FXAQ-HF(i)(c) & RXAQ-HF(c) & RXAQ-HF(i)(c) 250 V, FXQ or RXQ 250V**

Conductors: Plain or tinned, stranded copper class 2 (F) or class 5 (R)
Core insulation: XLPE
Individual screen (if any) AL foil w/tinned copper drain wire or copper wire braid
Inner covering
Metal Covering: FXFQ type: Plain copper wire braid
FXAQ type: Aluminium backed polyester tape with copper drain wire
Outer sheath: SHF1

FXFQ

No of cores:	Cross sectional area [mm2]
1, 2, 4, 7, 10, 14, 19, 24 pairs	0,75
1 Quad	0,75
2, 4, 8 pairs	1
4 Triple	1

FXAQ

No of cores:	Cross sectional area [mm2]
5, 6, 7, 8 Cores	0,5 0,75
1, 5, 7, 14 Pairs	0,75
1, 2, 7 Triples	0,75
1 Quad	0,75
2, 4, 8 Pairs	1
4 Triple	1

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	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 60092-360	2014-04	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables.	
IEC 60092-376	*2003-05*	*Cables for control and instrumentation circuits 150/250 V (300 V)*	
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	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 - 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 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%
BS EN 60811 1-4, Clause 8.2	1995-12	Insulating and sheathing materials of electric cables. Common test methods. General application. Tests at low temperature	YD = 7,41mm, 4-5 ggr x YD = 29,6 – 37mm 35mm mandrel Test temp. : -30°C
IEC 60092-350, 8.8 IEC60811-1-4	1995-12	Insulating and sheathing materials of electric cables. Common test methods. General application. Tests at low temperature	Weight of hammer: 300g Height = 100mm Test temp. : -30°C

Marking of product

Amokabel - FXFQ-HF(c) or FXFQ-HF(i)(c) or RXFQ-HF(c) or RXFQ-HF(i)(c) or FXAQ-HF(c) or FXAQ-HF(i)(c) or RXAQ-HF(c) or RXAQ-HF(i)(c) or FXQ or RXQ – 150/250V – 90ºC – Size – IEC 60332-3-22 – Lot no.

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