

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Low Voltage Cable

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

Issued to
AMO Specialkabel AB
ALSTERMO, Sweden

is found to comply with
Det Norske Veritas' Rules for Classification of Ships and Mobile Offshore Units
IEC 60092-376 (2003-05)
IEC 60332-3-22 (2009-02)
IEC 60754-1/2 (2011-11)
IEC61034-1/2 (2005-04/2005-04)

Application :

Control and instrumentation.

Flame retardant in bunch, cat. A. Halogen free. Low smoke.

Type	Voltage class (V)	Temp. class (°C)
FXFQ-HF(c) & FXFQ-HF(i)(c) 250 V	250	90
FXAQ-HF(c) & FXAQ-HF(i)(c) 250 V	250	90
RXQ	250	90

This Certificate is valid until **2016-06-30**.

Issued at **Høvik** on **2014-11-14**

for **DNV GL**

DNV GL local station: **Malmö**

Approval Engineer: **Ivar Bull**

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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.

Certificate No: **E-11391**
 File No: **827.20**
 Job Id: **262.1-012026-4**

Product description

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

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

Number of cores x conductor cross-section mm ²
1x2x0,75
1x4x0,75
2x2x0,75
4x2x0,75
7x2x0,75
10x2x0,75

Number of cores x conductor cross-section mm ²
14x2x0,75
19x2x0,75
24x2x0,75
2x2x1,0
4x2x1,0
4x3x1,0

Number of cores x conductor cross-section mm ²
8x2x1,0

FXAQ

FXAQNumber of cores x conductor cross-section mm ²
1x2x0,75
1x4x0,75
1x5x0,75
1x6x0,75
1x7x0,75

FXAQNumber of cores x conductor cross-section mm ²
7x2x0,75
14x2x0,75
1x3x0,75
2x3x0,75
7x3x0,75

FXAQNumber of cores x conductor cross-section mm ²
2x2x1,0
4x2x1,0
4x3x1,0
8x2x1,0

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

Data sheets.

Test reports.

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Tests carried out

Standard	Release	General description	Limitation
IEC 60092-350	2008-02	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-351	2004-04	Insulating materials for shipboard and offshore units, power, control, instrumentation, telecommunication and data cables	
IEC 60092-376	2003-05	<i>Cables for control and instrumentation circuits 150/250 V (300 V)</i>	
IEC 60092-359	1999-08	Sheathing materials for shipboard power and telecommunication cables	
IEC 60332-3-22	2009-02	Flame retardance in bunch, cat. A	
IEC 60754-1	1994-01	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	1997-04	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/mm
IEC 61034-1/2	2005-04	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	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

Alstermo Produktion - FXFQ-HF(c) or FXFQ-HF(i)(c) or FXAQ-HF(i)(c) or RXQ – 150/250V – 90°C – 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 is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the survey 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.

Survey to be performed at least every second year.

END OF CERTIFICATE