DNV·GL

Certificate No:
TAE0000027

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
MARINE BICC - Halogen free HF90 insulated switchboard wire 0,6/1kV

Issued to
Ducab
Dubai, United Arab Emirates

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application :

Switchboard wire for low voltage power.
Halogen free. Low smoke.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Voltage class (kV) **0,6/1**
Temp. class (°C) **90**

This Certificate is valid until **2019-09-20**.

Issued at **Høvik** on **2015-09-21**

for **DNV GL**

DNV GL local station: **Dubai**

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.

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Job Id: **262.1-016506-1**
Certificate No: **TAE0000027**

Manufacturing place

Ducab M1 or M2, Mussafah
Abu Dhabi
UAE

Product description

Type: HF90 insulated switchboard wire 0,6/1kV

Construction:

Conductor: Plain or tinned copper Class 2 or Class 5
Insulation: HF90 (XL-LSZH)

No of cores:	Cross sectional area [mm$^{2]}$
1	1 - 300

Application/Limitation

Switchboard wire for low voltage power.

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 60092-353	2011-08	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV	0,6/1 kV
IEC 60332-1-2	2004-07	Tests on electric and optical fibre cables under fire conditions – Part 1-1:Test for vertical flame propagation for a single insulated wire or cable – Apparatus	Flame retardant small scale
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%

Marking of product

DUCAB (B or C) – MARINE BICC – HF90 – size – 0,6/1 kV – IEC 60332-1 – Year of manufacture

A = Ducab Jebel Ali, Dubai
B = Ducab M1, Abu Dhabi
C = Ducab M2, Abu Dhabi

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