DNV·GL

Certificate No:
MEDB00006YU

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Fixed fire detection and fire alarm systems components for control stations, service spaces, accommodation spaces, cabin balconies, machinery spaces and unattended machinery spaces: Cables

with type designation(s)
BIOI, BIOI (c), BIOI (ic)

Issued to
Suzhou Draka Cable Co. Ltd.
SUZHOU, JIANGSU, China

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2020/1170,**
item No. MED/3.51i. SOLAS 74 as amended, Regulation II-2/7 & X/3, 1994 HSC Code 7, 2000 HSC Code 7, FSS Code 9, IGF Code 11 and IMO MSC.1/Circ.1242

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2026-01-04**.
Issued at **Hamburg** on **2021-01-05**

DNV GL local station:
Shanghai

Approval Engineer:
Carsten Hunsalz

Notified Body
No.: **0098**

for **DNV GL SE**

Christine Mydlak-Roeder
Head of Notified Body

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.
This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL SE of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.
Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.

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Job Id: **344.1-010890-1**
Certificate No: **MEDB00006YU**

Product description

Type:	BIOI & BIOI (c) & BIOI (ic) 150/250 V (300 V)
Conductors:	Plain/tinned, stranded copper class 2 or class 5
Core insulation:	Mica tape + XLPE
Screen:	Al foil w/tinned copper drain wire
Inner sheath:	SHF1
Metal Covering:	Plain or tinned copper wire braid
Outer sheath:	SHF1

Number of cores x conductor cross-section	Number of cores x conductor cross-section	Number of cores x conductor cross-section	Number of cores x conductor cross-section	Number of cores x conductor cross-section
mm^2	mm^2	mm^2	mm^2	mm^2
1 × 2 × 0,75	37 × 2 × 0,75	6 × 2 × 1	12 × 3 × 1	14 × 2 × 1,5
2 × 2 × 0,75	1 × 3 × 0.75	7 × 2 × 1	1 × 4 × 1	19 × 2 × 1,5
3 × 2 × 0,75	3 × 3 × 0.75	10 × 2 × 1	3 × 4 × 1	24 × 2 × 1,5
4 × 2 × 0,75	7 × 3 × 0.75	12 × 2 × 1	7 × 4 × 1	30 × 2 × 1,5
6 × 2 × 0,75	12 × 3 × 0.75	14 × 2 × 1	1 × 2 × 1,5	37 × 2 × 1,5
7 × 2 × 0,75	1 × 4 × 0.75	19 × 2 × 1	2 × 2 × 1,5	1 × 3 × 1,5
10 × 2 × 0,75	3 × 4 × 0.75	24 × 2 × 1	3 × 2 × 1,5	3 × 3 × 1,5
12 × 2 × 0,75	7 × 4 × 0.75	30 × 2 × 1	4 × 2 × 1,5	7 × 3 × 1,5
14 × 2 × 0,75	1 × 2 × 1	37 × 2 × 1	6 × 2 × 1,5	12 × 3 × 1,5
19 × 2 × 0,75	2 × 2 × 1	1 × 3 × 1	7 × 2 × 1,5	1 × 4 × 1,5
24 × 2 × 0,75	3 × 2 × 1	3 × 3 × 1	10 × 2 × 1,5	3 × 4 × 1,5
30 × 2 × 0,75	4 × 2 × 1	7 × 3 × 1	12 × 2 × 1,5	7 × 4 × 1,5

Application/Limitation

This type of cable is fire resistant in accordance with IEC Publication 60331.

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.

Control and Instrumentation.
Fire resistant. Flame retardant Cat. A. Halogen free. Low smoke.

Type Examination documentation

Test report: CT16-7118-2, CT16-7604-4, CT19-00904-2, CT19-00905-1, CT19-00905-2, CT19-06963Y1, CT19-06964Y1, TN19-0816E, TN19-2533E

Tests carried out

-EN 60332-1-2:2004+A1:2015 and A11:2016
-IEC 60332-1-2:2004+A1:2015
-IEC 60092-376:2017
-IEC 60331-1:2018
-IEC 60331-2:2018

The following standards are fulfilled in addition:

Standard	Release	General description	Limitation
IEC 60092-350	2020-01	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-376	2017-05	Cables for control and instrumentation circuits 150/250 V (300 V)	
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 60332-1-2	2016-09	Tests on electric cables under fire conditions. Test for vertical flame propagation for a single insulated wire or cable.	
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	
IEC 60331-1	2018-03	Tests for electric cables under fire conditions - Circuit integrity - Part 1: Test method for fire with shock at a temperature of at least 830°C for cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter exceeding 20 mm	
IEC 60331-2	2018-03	Tests for electric cables under fire conditions - Circuit integrity - Part 2: Test method for fire with shock at a temperature of at least 830°C for cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter not exceeding 20mm	
IEC 60331-21	1999-04	Tests for electric cables under fire conditions Circuit integrity Part 21: Procedures and requirements. Cables of rated voltage up to and including 0,6/1,0 kV	
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 60684-2	2011-08	Flexible insulating sleeving – Part 2: Methods of test. Fluorine	Fluorine content < 0,1%
IEC 61034-1/2	2013-06	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance >60%

Marking of product

For identification to this type examination certificate the product or packing is to be marked with:

- Manufacturer's name
- Type designation and fire-technical rating

Example:

Suzhou Draka Cable Co. Ltd. - BIOI - 150/250V - size - IEC 60332-3-22 - IEC 60331-1/2 –
Lot no.

- Mark of Conformity According to Article 10 of the Council Directive (MED)

END OF CERTIFICATE