



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. E-10439

This is to certify that the
Electric Bus Bar


with type designation(s)
Cu-Flex

Manufactured by
CUBIC-Modulsystem A/S
BRØNDERSLEV, Denmark

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

Application
Flexible bus bar trunking system for installation inside switchboard/enclosures onboard ships and offshore units.

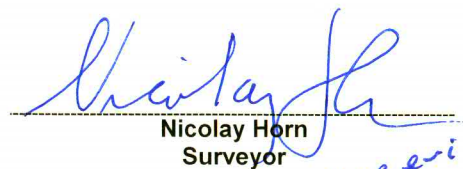
Høvik, 2010-10-26
for Det Norske Veritas AS


Marit Laumann
Head of Section



DNV local office:
Aalborg

This Certificate is valid until
2014-06-30


Nicolay Horn
Surveyor
Sveeri

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.
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Certificate No.: E-10439
File No.: 811.91
Job Id.: 262.1-001605-4

Product description

Cu-flex: Flexible single phase insulated bus-bar system, insulation voltage 1000 V, flammability in accordance to UL 94 VO.

| Type name | Type description | Current* (A) | Joule- integrale (A ² s) | Rated short-circuit peak I _{pk} (kA) |
|-----------|------------------------|-----------------|--|--|
| FB 25 | One Cu –flex bus-bar | 155 | 8.3 x 10 ⁶ | 24 |
| FB 50 | One Cu –flex bus-bar | 245 | 3.3 x 10 ⁷ | 64 |
| FB 50 | Two Cu –flex bus-bar | 420 | 1.3 x 10 ⁸ | 64 |
| FB 50 | Three Cu –flex bus-bar | 480 | 3.0 x 10 ⁸ | 64 |
| FB 100 | One Cu –flex bus-bar | 380 | 1.3 x 10 ⁸ | 64 |
| FB 100 | Two Cu –flex bus-bar | 610 | 5.3 x 10 ⁸ | 64 |
| FB 240 | One Cu –flex bus-bar | 635 | 7.6 x 10 ⁸ | 64 |
| FB 240 | Two Cu –flex bus-bar | 975 | 3.0 x 10 ⁹ | 105 |

* Connection: Busbar to electrical component. Air temperature around Cu-flex 45 °C.

Application/Limitation

To be used inside switchboards.

Cu-flex bus bar used for one outgoing circuit may be rated on the basis of the reduced short-circuit stress occurring on the load side of the respective short-circuit productive device as stated in IEC 61439-1 item 8.6.1 part 1 while Cu-flex bus-bar used as a connection from the main bus-bar to a dropper with several outgoing circuits shall be designed in accordance with the requirements IEC 60439-1 item 7.5.5.1.1 and 61439-1 item 8.6.1 part 2.

To be installed in accordance with the manufacturer's instruction. Max. 300 mm between the supports.

Type Approval documentation

Data sheet: "Cu-flex bus bar" P 891.1 - P 891.4 dated 2005-07-01.

Test reports: KEMA Attestation of Conformity no. 2124073.01A dated 2009-09-16, KEMA test reports 2075018.01-QUA/IND dated 2006-03-27 & 2004-06-28. SP Vibration test report P400870 dated 2004-03-18. KEMA 99.7163-KRQ/IBA dated 1999-10-18, Moeller TR 4600-088-001 dated 2001-12-19, UL letter ref. 133033-Q1, dated 2002-09-11.

Tests carried out

Short-circuit test after IEC 60439-1, IEC 61439-1 and UL 845. Voltage test in accordance with IEC 60092-350 § 10.3 and § 12.4.

Marking of product

Cu-flex - Cubic - Type designation



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Certificate Retention Survey

The scope of the retention/renewal 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 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

COPY