



Marine & Offshore

Certificate number: 19785/D0 BV

File number: ACE 02/039/33

Product code: 2633H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

MITSUBISHI ELECTRIC CORPORATION Fukuyama Works
Fukuyama - JAPAN

for the type of product

CIRCUIT BREAKERS (LOW VOLTAGE)

AE4000-SW, AE5000-SW, AE6300-SW

Requirements:

BV Rules for the Classification of Steel Ships.
IEC 60947-1 (2014), IEC 60947-2 (2019)

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 01 Apr 2029

For Bureau Veritas Marine & Offshore,

At BV KOBE, on 01 Apr 2024,
Shinichi Takemoto

This certificate was created electronically and is valid without signature



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: <http://www.veristarm.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=hkrdtj6czi>

BV Mod. Ad.E 530 June 2017

This certificate consists of 2 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Type	AE4000-SW	AE5000-SW	AE6300-SW
Number of pole	3	3	3
Rated Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Rated current In (A)	2000 to 4000	2500 to 5000	3150 to 6300
Rated insulation voltage Ui (VAC)	1000	1000	1000
Rated operational voltage Ue (VAC)	500 / 690	500 / 690	500 / 690
Utilisation category	B	B	B
Rated short-circuit breaking capacity Ics/Icu with INST (kA) r.m.s	690 VAC	85 / 85	85 / 85
	500 VAC	138 / 138	138 / 138
Rated short-time withstand current Icw 1s (kA)	690 VAC	85	85
	500 VAC	100	100

2. DOCUMENTS AND DRAWINGS:

Specifications and construction RBD 0037, dated 28 Dec 2006.

3. TEST REPORTS:

Test reports N°s:

- IEC 60947-2 ed.3rd test report dated 14/Mar./2007
- KGA070001-A dated 11/Jan./2007
- Performance tests N° KGA070314 dated 19/Sept/2007 (IEC 60947-2 Ed. 4.0, 2006)
- Environmental test report N° KGA070307 dated 05/Oct./2007
- EMC test report N° KGA070322 dated 26/Sep./2007
- KGA130043, dated 20.02.2013, stamped by BV' Surveyor.
- EMC test report N° ETR-21-171-03, dated 25 Mar 2021.
- EMC test report N° KGA070322-D, dated 28 Oct 2022.
- Dry heat test report KGA230304, dated 19 Dec 2023.
- Performance tests report N° KGA150163-B, dated 27 Apr 2021.

4. APPLICATION / LIMITATION:

- 4.1 - According to BV Rules for the Classification of Steel Ships and IEC 60947 specifications.
- 4.2 - Approval also valid for ships to be granted with the notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**
- 4.3 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev 8.

5. PRODUCTION SURVEY REQUIREMENTS:

- 5.1 - The above products are to be supplied by **mitsubishi electric corporation Fukuyama Works** in compliance with the type described in this certificate.
- 5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.
- 5.3 - **mitsubishi electric corporation Fukuyama Works** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.
- 5.4 - For information, **mitsubishi electric corporation Fukuyama Works** has declared to Bureau Veritas the following production site:

mitsubishi electric corporation Fukuyama Works
1-8 Midori-machi,
720-8647 Fukuyama
JAPAN

6. MARKING OF PRODUCT:

According to IEC 60947 specifications.

7. OTHERS:

- 7.1 - It is **mitsubishi electric corporation Fukuyama Works's** responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.
- 7.2 - This certificate supersedes the Type Approval Certificate N° 19785/C0 BV issued on 21 Dec 2018 by the Society.

*** END OF CERTIFICATE ***