



Marine & Offshore  
Division

Certificate number: 14415/C0 BV

File number: ACE 02/039/32

Product code: 2633H

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

www.veristar.com

## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

**MITSUBISHI ELECTRIC CORPORATION Fukuyama Works**

Fukuyama - JAPAN

*for the type of product*

**CIRCUIT BREAKERS (LOW VOLTAGE)**

Type: AE630-SW, AE1000-SW, AE1250-SW, AE1600-SW, AE2000-SWA, AE2000-SW, AE2500-SW, AE3200-SW & AE4000-SWA.

**Requirements:**

BV Rules for the Classification of Steel Ships.  
IEC 60947-2 (2013).

*This certificate is issued to attest that BUREAU VERITAS 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: 19 Mar 2020**

For BUREAU VERITAS,  
At BV KOBE, on 19 Mar 2015,  
Yasuo Hiramatsu



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. 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 Division 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 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.veristarp.com/veristamb/jsp/viewPublicPdfTypepec.jsp?id=yvq9opiq6k>

BV Mod. Ad.E 530 October 2014

This certificate consists of 3 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION :

#### 1.1 - Approval's range:

Product Type	Number of poles	Rated Voltage (V AC)	Maximum operating current (A)	Breaking capacity (kA, rms)			Remarks
				Icu	Ics	Ue	
		Ue	45°C at A.T	Icu	Ics	Ue	Characteristics as per IEC 60947-2. C.B.'s have been equipped with Electronic trip relay type WS1G1-P WS2G1-P WM1G1-P WM2G1-P WS1NA-P WS2NA-P WM1NA-P WM2NA-P
AE630-SW <sub>2</sub> (3)	3	690	125 ~ 630	65	65	690V AC	
AE1000-SW <sub>2</sub> (3)	3	690	400 ~ 1000	65	65	690V AC	
AE1250-SW <sub>2</sub> (3)	3	690	625 ~ 1250	65	65	690V AC	
AE1600-SW <sub>2</sub> (3)	3	690	800 ~ 1600	65	65	690V AC	
AE2000-SWA <sub>2</sub> (3)	3	690	1000 ~ 2000	65	65	690V AC	
AE2000-SW <sub>1</sub> (2)	3	690 500	625 ~ 2000	75 85	75 85	690V AC 500V AC	
AE2500-SW <sub>1</sub> (2)	3	690 500	1250 ~ 2500	75 85	75 85	690V AC 500V AC	
AE3200-SW <sub>1</sub> (2)	3	690 500	1600 ~ 3200	75 85	75 85	690V AC 500V AC	
AE4000-SWA <sub>1</sub> (2)	3	690 500	2000 ~ 4000	75 85	75 85	690V AC 500V AC	

(1) I<sub>cw</sub> 1s = 75 kA. with U<sub>e</sub> = 500/600/690 V AC

(2) Utilization category = B

(3) I<sub>cw</sub> 1s = 65 kA. with U<sub>e</sub> = 500/600/690 V AC

### 2. DOCUMENTS AND DRAWINGS :

As per constructional drawings and details filed in ACE 02/039/32.

### 3. TEST REPORTS :

Mitsubishi Electric Corporation test reports dated: 12/Nov./2004, 04/Nov./2004,

N° LEN046085 dated 05/Nov./2004,

N° LEN040107 dated 14/Feb./2005.

Dekra's certificate No. 3305692.01, dated 17.Oct.2014.

Dekra's certificate No. 3305693.01, dated 17.Oct.2014.

### 4. APPLICATION / LIMITATION :

According to BV Rules for the Classification of Steel Ships.

### 5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The above products are to be supplied by **ITSUBISHI 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.

5.3 - **ITSUBISHI 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 :

**MITSUBISHI ELECTRIC CORPORATION Fukuyama Works**  
1-8 Midori-machi,  
720-8647 Fukuyama  
JAPAN

5.2 - Each equipment is to be supplied with manual(s) for installation, use and maintenance.

ORIGINAL PRINTING

**6. MARKING OF PRODUCT :**

According to IEC 60947 specifications.

**7. OTHERS :**

7.1 - This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the units at any time, and that **mitsubishi electric corporation Fukuyama Works, Fukuyama - Japan**, will accept full responsibility for informing shipbuilders, shipowners or their sub-contractors of the proper methods of use and general maintenance of the units and the conditions of this approval.

7.2 - This Certificate supersedes The Type Approval Certificate n° 14415/B0 BV issued on 10.03.2010. by the Society.

\*\*\* END OF CERTIFICATE \*\*\*



ORIGINAL PRINTING