



Marine & Offshore

Certificate number: 07656/E0 BV

File number: ACE 02/039/26

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)

Type: NF400, NF600, NF630, NF800, NF1000, NF1250.

Type: DSN400, DSN630, DSN800.

Requirements:

BV Rules for the Classification of Steel Ships.

EC Code: 31.

IEC60947-3 (2008). amd. 1 (2012) & amd.2 (2015)

IEC60947-2 (2009)

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: 02 Mar 2023

For Bureau Veritas Marine & Offshore,

At BV KOBE, on 02 Mar 2018,

Shinichi Takemoto



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.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

The **NF** and **DSN** series are low voltage circuit breakers for Marine applications.

1.1 - Approval range:

PRODUCT TYPE	Number of pole	Rated voltage (V) U _i	Maximum operating current (A)	Breaking capacity KA - V I _{cu} /I _{cs} - U	Remarks
NF400-CP	2-3	600 AC 250 DC	400	(20/10 DC) 25/13 - 440 50/25 - 230	Ambient temp: 45°C Frequency: 50/60 Hz
NF400-CW	2-3	690 AC 250 DC	400	(20/10 DC) 25/13 - 450 50/25 - 230	
NF400-CEP	3	600 AC	400	25/13 - 440 50/25 - 230	
NF400-CEW	3	690 AC	400	25/13-450 50/25-230	
NF400-SP	2-3	690 AC 250 DC	400	42/42 - 440 50/38-450 85/85 - 230	
NF400-SW	2-3	690 AC 250 DC	400	42/42 - 450 50/38 - 450 85/85 - 230 (40/40 DC)	
NF400-SEP	3	690 AC	400	42/42 - 440 50/38 - 450 85/85 - 230	
NF400-HEP	3	690 AC	400	65/65 - 440 100/100 - 230	
NF400-REP	3	690 AC	400	125/63 - 440 150/75 - 230	
NF400-UEP	3	690 AC	400	200/200 - 440 200/200 - 230	
NF400-SEW	3	690 AC	400	42/42 - 450 50/38 - 450 85/85 - 230	
NF400-HEW	3	690 AC	400	65/65 - 450 100/100 - 230	
NF400-REW	3	690 AC	400	125/63 - 450 150/75 - 230	
NF400-UEW	3	690 AC	400	200/200 - 450 200/200 - 230	
NF600-CP NF630-CP	2-3	600 AC 250 DC	600 630	36/18 - 440 50/25 - 230 (20/10 DC)	
NF630-CEP	3	600 AC	630	36/18 - 440 50/25 - 230	
NF600-SP NF630-SP	2-3	690 AC 250 DC	600 630	50/38 - 450 42/42 - 440 85/85 - 230	
NF600-SEP NF630-SEP	3	690 AC	630	50/38 - 450 42/42 - 440 85/85 - 230	

NF600-HEP NF630-HEP	3	690 AC	630	65/65 - 440 100/100 - 230	Ambient temp: 45°C Frequency: 50/60 Hz
NF600-REP NF630-REP	3	690 AC	630	125/63 - 440 150/75 - 230	
NF630-CW	2/3	690 AC 250 DC	630	36/18 - 450 50/25 - 230 (20/10 DC)	
NF630-CEW	3	690 AC	630	36/18 - 450 50/25 - 230	
NF630-SW	2/3	690 AC 250 DC	630	42/42 - 450 50/38 - 450 85/85 - 230 (40/40 DC)	
NF630-SEW	3	690 AC	630	42/42 - 450 50/38 - 450 85/85 - 230	
NF630-HEW	3	690 AC	630	65/65 - 450 100/100 - 230	
NF630-REW	3	690 AC	630	125/63 - 450 150/75 - 230	
NF600-UEP NF630-UEP	3	690 AC	630	200/200 - 440 200/200 - 230	
NF800-CEP	3	600 AC	800	36/18 - 440 50/25 - 230	
NF800-CEW	3	690 AC	800	36/18 - 450 50/25 - 230	
NF800-SEP	3	690 AC	800	42/42 - 440 50/38 - 450 85/85 - 230	
NF800-SEW	3	690 AC	800	42/42 - 450 50/38 - 450 85/85 - 230	
NF800-HEP	3	690 AC	800	65/65 - 440 100/100 - 230	
NF800-HEW	3	690 AC	800	65/65 - 450 100/100 - 230	
NF800-REP	3	690 AC	800	125/63 - 440 150/75 - 230	
NF800-REW	3	690 AC	800	125/63 - 450 150/75 - 230	
NF1000-SEW	3	690AC	1000	125/63 - 230 85/43 - 450	
NF1250-SEW	3	690AC	1250	125/63 - 230 85/43 - 230	

PRODUCT TYPE	Number of pole	Rated voltage (V) U _i	Maximum operating current (A)	Breaking capacity KA	Remarks
DSN400-CW	2/3	600AC 250DC	400	3.2AC 1.6 DC	Ambient temp: 45°C Frequency: 50/60 Hz
DSN400-SW	2/3/4	690AC 250DC	400	3.2AC 1.6 DC	
DSN630-CW	2/3	600AC 250DC	600/630	4.8/5.04AC 2.4/2.52DC	
DSN630-SW	2/3/4	690AC 250DC	600/630	4.8/5.04AC 2.4/2.52DC	
DSN800-CW	2/3	600AC 250DC	800	6.4AC 3.2DC	
DSN800-SW	2/3/4	690AC 250DC	800	6.4AC 3.2DC	

Note: - Both colours (Black and Ivory) of the Breaker Covers have the same material properties.

2. DOCUMENTS AND DRAWINGS:

- Constructional drawings LN 105 xxx / LN 211 xxx
- Specification of 9 February 1998.
- Specifications and drawings: BV ref. 07656/B1
- Information for application dated 2/Aug./2006
- KGA120102, Self Declaration of Conformity on IEC Standard (IEC60947-2: 2006+A1) dated 27/04/2012
- Specification ref. KGA150150, dated 05.Aug.2015.

Version D2:

- Specification of DSN type Ref LEN-170283 dated 28-Nov-2011

3. TEST REPORTS :

Mitsubishi Electric Corporation:

- Test report dated 31.Jul.2006 (based IEC 60947-2(2003)).
- Humidity test report ref. KGA150147-A, dated 01.Dec.2015.
- Type tests report No. KGA150148, dated 5.Aug.2015.
- Environmental & EMC tests report No. LEN060316-A, dated 27.Mar.2006.

Version D2:

- Type test ref KGA080235-B dated 06-Aug-2008, rev A dated 18-dec-2015, rev B 03-April-2017
- Type test ref KGA150241-A dated 18-dec-2015, rev A 03-April-2017
- Type test ref KGA150240-A dated 18-dec-2015, rev A 03-April-2017
- Environmental test ref KGA170279, dated 27-Oct-2017

4. APPLICATION / LIMITATION :

- 4.1 - According to BV Rules for the Classification of Steel Ships.
- 4.2 - BUREAU VERITAS Environmental Category, EC Code: 31.

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 - **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 :

- 6.1 - Trade name.
- 6.2 - Date of manufacture and serial number.
- 6.3 - Equipment type or model identification under which it was type-tested

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° 07656/D2 BV issued on 15 Feb. 2018 by the Society.

*** END OF CERTIFICATE ***