



Marine & Offshore

Certificate number: 23581/B1 BV

File number: ACE2/39/35

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: NF32, NF63, NF125, NF250

Type: DSN63, DSN125, DSN250.

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.

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

IEC 60947-2 (2016).

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: 10 Mar 2022

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:

1.1 - Molded-case Circuit Breakers (MCCB)

Type	Current Rating at 45°C (A)	Rated Voltage (V)	Breaking Current (RMS) Icu/Ics (kA)	Making Current Icm (kA)	Rated Insulation Voltage (V)	Rated Impulse withstand Voltage (V)
NF63-CV	3-63	AC500	2.5/2.5	3.8	600V	8kV
		AC450	2.5/2.5	3.8		
		AC240	7.5/7.5	14.4		
		DC250	2.5/2.5	2.5		
		DC125	5/5	5.0		
NF125-CVF	60-100	AC500	7.5/4	15.0	600V	8kV
		AC450	10/5	20.0		
		AC240	30/15	69.0		
		DC250	7.5/4	7.5		
NF125-CV	50-125	AC500	7.5/4	15.0	600V	8kV
		AC450	10/5	20.0		
		AC240	30/15	69.0		
		DC250	7.5/4	7.5		
NF250-CV	125-250	AC500	10/8	20.5	600V	8kV
		AC450	15/12	31.0		
		AC240	36/27	78.6		
		DC250	15/12	15		
NF32-SV	3-32	AC500	2.5/2.5	3.8	600V	8kV
		AC450	2.5/2.5	3.8		
		AC240	7.5/7.5	14.4		
		DC250	2.5/2.5	2.5		
		DC125	5/5	5.0		
NF63-SV	3-63	AC500	7.5/7.5	15	600V	8kV
		AC450	7.5/7.5	15		
		AC240	15/15	30.7		
		DC250	7.5/7.5	7.5		
NF125-SV	12.5-125	AC690	8/8	15.5	690V	8kV
		AC500	18/18	36		
		AC450	25/25	60.1		
		AC240	50/50	110		
		DC250	40/40	40		
NF250-SV	125-250	AC690	8/8	15.5	690V	8kV
		AC500	30/30	63		
		AC450	36/36	76.8		
		AC240	85/85	206		
		DC250	20/20	20		
NF63-HRV	15-50	AC690	2.5/1	3.8	690V	8kV
		AC500	20/10	40		
		AC450	30/15	73.3		
		AC240	85/43	206		
		DC250	40/20	40		
NF63-HV	10-63	AC690	2.5/2.5	3.8	690V	8kV
		AC500	7.5/7.5	15		
		AC450	10/8	20.0		
		AC240	25/19	53.4		
		DC250	7.5/7.5	7.5		
NF125-HV	15-125	AC690	10/8	19.9	690V	8kV
		AC500	30/23	63		
		AC450	50/38	115		
		AC240	100/75	234		

Type	Current Rating at 45°C (A)	Rated Voltage (V)	Breaking Current (RMS) Icu/Ics (kA)	Making Current Icm (kA)	Rated Insulation Voltage (V)	Rated Impulse withstand Voltage (V)
NF250-HV	125-250	AC690 AC500 AC450 AC240 DC250	10/8 50/38 65/65 100/00 40/40	19.9 115 144 234 40	690V	8kV
NF125-RV	15-125	AC450 AC240	125/125 150/150	284 354	690V	8kV
NF250-RV	125-250	AC450 AC240	125/125 150/150	284 354	690V	8kV
NF125-UV	15-125	AC690 AC500 AC450 AC240	10/10 200/200 200/200 200/200	19.9 498 498 498	690V	8kV
NF250-UV	125-250	AC690 AC500 AC450 AC240	15/15 200/200 200/200 200/200	31.5 498 498 498	690V	8kV

Utilization Category	A
Release type	Thermal - Magnetic
Number of Poles	2 or 3

1.2 - DSN type : switch without overcurrent trip .

PRODUCT TYPE	Number of poles	Rated voltage (V) U _i	Maximum operating current (A)	Breaking capacity KA (ac)	Remarks
DSN63-CV	2/3	500AC 250DC	50/60/63	0.4/0.48/0.504 AC 0.2/0.24/0.252 DC	Ambient temp: 45°C Frequency: 50/60 Hz
DSN63-SV	2/3/4	500AC 250DC	50/60/63	0.4/0.48/0.504 AC 0.2/0.24/0.252 DC	
DSN125-CV	2/3	500AC 250DC	100/125	0.8/1.0 AC 0.4/0.5 DC	
DSN125-SV	2/3/4	690AC 250DC	100/125	0.8/1.0 AC 0.4/0.5 DC	
DSN250-CV	2/3	500AC 250DC	225/250	1.8/2.0 AC 0.9/1.0 DC	
DSN250-SV	2/3/4	690AC 250DC	225/250	1.8/2.0 AC 0.9/1.0 DC	

2. DOCUMENTS AND DRAWINGS:

In accordance with the manufacturer's drawings and documents, at latest and at any subsequent issue endorsed by Bureau Veritas:

2.1 - Information for Application file dated 25-11-2010

2.2 - Operating Characteristics: LN852A626, 628, 629, 637, 638, 639, 640, 641

2.3 - Outline and dimension drawings

Version B0:

2.4 - IEC 60947-2 gap analysis, dated 27.Feb.2017.

Version B1:

2.5 - Technical specification Ref: LEN-170277-R1 dated 29 Aug. 2017.

3. TEST REPORTS:

- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF32-SV, NF63-CV types.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF63-SV type.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF63-HV type.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF63-HRV type.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF125-CVF type.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF125-CV type.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF125-SV type.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF125-HV type.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF250-CV type.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF250-SV type.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF250-HV type.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF125-RV type.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF250-RV type.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF125-UV type.
- Mitsubishi Electric Corp. Type Test Report dated 25.11.2010 for NF250-UV type.
- Mitsubishi Electric Corp. Environmental Test Report dated 25.11.2010.
- Mitsubishi Electric Corp. Environmental Test Report dated 16.02.2011.

Version B1:

- Environmental Test KGA170281, dated 27-Oct-2017
- Type Test Ref KGA170033, dated 01-Mar-2017.
- Type Test Ref KGA170034, dated 01-Mar-2017.
- Type Test Ref KGA170035, dated 01-Mar-2017.

4. APPLICATION / LIMITATION:

- 4.1 - Approval also valid for ships to be granted with the notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.
- 4.2 - According to BV Rules for the Classification of Steel Ships, IEC 60947-2.
- 4.3 - The manufacturer should be consulted if a circuit-breaker is to be located where the temperature may exceed 60 °C.

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:

According to IEC 60947 specifications.

7. OTHERS:

- 7.1 - It is **mitsubishi electric corporation Fukuyama Works** 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° **23581/B0 BV** issued on **10-Mar-2017** by the Society.

*** END OF CERTIFICATE ***