DNV·GL

Certificate No:
TAE00001C5

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Circuit Breaker

with type designation(s)
NF63CV to NF250-UV

Issued to
Mitsubishi Electric Corporation Fukuyama Works
Fukuyama City HIROSHIMA, Japan

is found to comply with
DNV GL rules for classification – Ships and offshore units

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Rated Voltage (V)	**AC240(DC125)/AC690(DC250)**
Rated Current (A)	**3 to 250**
Frequency (Hz)	**50/60**

This Certificate is valid until **2021-02-22**.

Issued at **Høvik** on **2016-08-30**

for **DNV GL**

DNV GL local station: **Hiroshima**

Approval Engineer: **Nicolay Horn**

Marit Laumann
Head of Section

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.

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Product description

Type	Number of poles	Rated voltage (V)	Current rating at 45ºC (A)	Rated frequency AC (Hz)	Breaking current rms. (KA) Icu/Ics	Making current(peak asymmetrical) (KA)	Power factor or Time constant
NF63-CV	2 and 3	AC500 AC450 AC240 DC250 DC125	3-63	50-60	2.5/2/5 2.5/2.5 7.5/7.5 2.5/2.5 5/5	3.8 3.8 14.4 2.5 5.0	0.9 0.9 0.5 5ms 5ms
NF125-CVF	2 and 3	AC500 AC450 AC240 DC250	60-100	50-60	7.5/4 10/5 30/15 7.5/4	15.0 20.0 69.0 7.5	0.5/0.8 0.5/0.7 0.25/0.3 5ms
NF125-CV	2 and 3	AC500 AC450 AC240 DC250	50-125	50-60	7.5/4 10/5 30/15 7.5/4	15.0 20.0 69.0 7.5	0.5/0.8 0.5/0.7 0.25/0.3 5ms
NF250-CV	2 and 3	AC500 AC450 AC240 DC250	125-250	50-60	10/8 15/12 36/27 15/12	20.5 31.0 78.6 15	0.5 0.3 0.25 10ms
NF32-SV	2 and 3	AC500 AC450 AC240 DC250 DC125	3-32	50-60	2.5/2.5 2.5/2.5 7.5/7.5 2.5/2.5 5/5	3.8 3.8 14.4 2.5 5.0	0.9 0.9 0.5 5ms 5ms
NF63-SV	2 and 3	AC500 AC450 AC240 DC250	3-63	50-60	7.5/7.5 7.5/7.5 15/15 7.5/7.5	15 15 30.7 7.5	0.5 0.5 0.3 5ms
NF125-SV	2 and 3	AC690 AC500 AC450 AC240 DC250	12.5-125	50-60	8/8 18/18 25/25 50/50 40/40	15.5 36 60.1 110 40	0.5 0.3 0.25 0.25 15ms
NF250-SV	2 and 3	AC690 AC500 AC450 AC240 DC250	125-250	50-60	8/8 30/30 36/36 85/85 20/20	15.5 63 76.8 206 20	0.5 0.25 0.25 0.2 10ms
NF63-HRV	2 and 3	AC690 AC500 AC450 AC240 DC250	15-50	50-60	2.5/1 20/10 30/15 85/43 40/20	3.8 40 73.3 206 40	0.9/0.95 0.3/0.5 0.25/0.3 0.2/0.25 15ms/10ms
NF63-HV	2 and 3	AC690 AC500 AC450 AC240 DC250	10-63	50-60	2.5/2.5 7.5/7.5 10/8 25/19 7.5/7.5	3.8 15 20.0 53.4 7.5	0.9 0.5 0.5 0.25/0.3 5ms

Type	Number of poles	Rated voltage (V)	Current rating at 45ºC (A)	Rated frequency AC (Hz)	Breaking current rms. (KA) Icu/Ics	Making current(peak asymmetrical) (KA)	Power factor or Time constant
NF125-HV	2 and 3	AC690 AC500 AC450 AC240	15-125	50-60	10/8 30/23 50/38 100/75	19.9 63 115 234	0.5 0.25 0.25 0.2
NF250-HV	2 and 3	AC690 AC500 AC450 AC240 DC250	125-250	50-60	10/8 50/38 65/65 100/100 40/40	19.9 115 144 234 40	0.5 0.25 0.2 0.2 15ms
NF125-RV	2 and 3	AC450 AC240	15-125	50-60	125/125 150/150	284 354	0.2 0..2
NF250-RV	2 and 3	AC450 AC240	125-250	50-60	125/125 150/150	284 354	0.2 0.2
NF125-UV	2 and 3	AC690 AC500 AC450 AC240	15-125	50-60	10/10 200/200 200/200 200/200	19.9 498 498 498	0.5 0.2 0.2 0.2
NF250-UV	2 and 3	AC690 AC500 AC450 AC240	125-250	50-60	15/15 200/200 200/200 200/200	31.5 498 498 498	0.3 0.2 0.2 0.2

Application/Limitation

Utilization Category: A
Pollution degree: 3
DNVGL Temperature class: B
DNVGL Vibration class: A
DNVGL Humidity class: B

Type Approval documentation

Tests carried out

IEC 60947-1, IEC 60947-2 Ed.4.1. Test sequence I,II,III and Annex H.
Environmental tests (Vibration, Damp heat and EMC).

Marking of product

MITSUBISHI – Type designation – Electrical data

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:
- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine tests (RT) checked (if not available tests according to 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.

Assessment to be performed at least every second year.

END OF CERTIFICATE