

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Circuit Breaker**

with type designation(s)
NF 400 to NF 1250

Issued to

Mitsubishi Electric Corporation Fukuyama Works
Fukuyama City HIROSHIMA, Japan

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Onboard ships and offshore installations.

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

Rated Voltage (V) 500/690

Rated Current (A) 200 to 1250

Frequency (Hz) 50/60 & DC

This Certificate is valid until **2022-01-22**.

Issued at **Høvik** on **2017-02-15**

DNV GL local station: **Hiroshima**

for **DNV GL**

Approval Engineer: **Nicolay Horn**

Andreas Kristoffersen
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.

Product description

Circuit Breakers type NF with specification as follows:

Series	C Series		S Series		H Series
Type	NF400-CW	NF400-CEW	NF400-SW	NF400-SEW	NF400-HEW
No. of poles AC	2/3	3	2/3/4	3/4	3/4
Rated insulation voltage AC (V)**	690	690	690	690	690
Rated operational voltage AC(V) **	500	500	690	690	690
Rated Current (A)	250 - 400	200 - 400*	200 - 400	200 - 400*	200 - 400*
Rated Frequency Hz	50 - 60	50 - 60	50 - 60	50 - 60	50 - 60
Rated SC. Capacity Icu/Ics at 690V (kA)	-	-	10/10	10/10	35/18
Rated SC. Capacity Icu/Ics at 500V (kA)	15/8	15/8	30/30	30/30	50/50
Rated SC. Capacity Icu/Ics at 440V (kA)	25/13	25/13	42/42	42/42	65/65
Rated SC. Capacity Icu/Ics at 400V (kA)	36/18	36/18	45/45	50/50	70/70
Rated SC. Capacity Icu/Ics at 380V (kA)	40/20	40/20	50/50	50/50	70/70
Rated SC. Capacity Icu/Ics at 230V(kA)	50/25	50/25	85/85	85/85	100/100
Rated SC. Capacity at 250 V DC (kA)	20/10	-	40/40	-	-
Rated Short time with-stand current Icw (kA)	-	5	-	5	5
Utilization category	A	B	A	B	B

Series	H Series	U Series	C Series		S Series
Type	NF400-REW	NF400-UEW	NF630-CW	NF630-CEW	NF630-SW
No. of poles AC	3	3/4	2/3	3	2/3/4
Rated insulation voltage AC (V)**	690	690	690	690	690
Rated operational voltage AC(V) **	500	500	500	500	690
Rated Current (A)	200 - 400*	200 - 400*	500 - 630	300 - 630*	500 - 630
Rated Frequency Hz	50 - 60	50 - 60	50 - 60	50 - 60	50 - 60
Rated SC. Capacity Icu/Ics at 690V (kA)	-	-	-	-	10/10
Rated SC. Capacity Icu/Ics at 500V (kA)	70/35	170/170	18/9	18/9	30/30
Rated SC. Capacity Icu/Ics at 440V (kA)	125/63	200/200	36/18	36/18	42/42
Rated SC. Capacity Icu/Ics at 400V (kA)	125/63	200/200	36/18	36/18	50/50
Rated SC. Capacity Icu/Ics at 380V (kA)	125/63	200/200	40/20	40/20	50/50
Rated SC. Capacity Icu/Ics at 230V(kA)	150/75	200/200	50/25	50/25	85/85
Rated SC. Capacity at 250 V DC (kA)	-	-	20/10	-	40/40
Rated Short time with-stand current Icw (kA)	5	5	-	7.6	-
Utilization category	B	B	A	B	A

Series	S Series	H Series		C Series	S Series
Type	NF630-SEW	NF630-HEW	NF630-REW	NF800-CEW	NF800-SEW
No. of poles AC	3/4	3/4	3	3	3/4
Rated insulation voltage AC (V)**	690	690	690	690	690
Rated operational voltage AC(V) **	500	690	500	500	690
Rated Current (A)	300 - 630*	300 - 630*	300 - 630*	400 - 800*	400 - 800*
Rated Frequency Hz	50 - 60	50 - 60	50 - 60	50 - 60	50 - 60
Rated SC. Capacity Icu/Ics at 690V (kA)	10/10	35/18	-	-	10/10
Rated SC. Capacity Icu/Ics at 500V (kA)	30/30	50/50	70/35	18/9	30/30
Rated SC. Capacity Icu/Ics at 440V (kA)	42/42	65/65	125/63	36/18	50/42
Rated SC. Capacity Icu/Ics at 400V (kA)	50/50	70/70	125/63	36/18	50/50
Rated SC. Capacity Icu/Ics at 380V (kA)	50/50	70/70	125/63	36/18	50/50
Rated SC. Capacity Icu/Ics at 230V(kA)	85/85	100/100	150/75	50/25	85/85
Rated SC. Capacity at 250 V DC (kA)	-	-	-	-	-
Rated Short time with-stand current Icw (kA)	7,6	7,6	7,6	9,6	9,6
Utilization category	B	B	B	B	B

Series	H Series		S Series	
Type	NF800-HEW	NF800-REW	NF1000-SEW	NF1250-SEW
No. of poles AC	3/4	3	3/4	3/4

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Rated insulation voltage AC (V)**	690	690	690	690
Rated operational voltage AC(V) **	690	690	500	690
Rated Current (A)	400 - 800*	400 - 800*	500 - 1000*	600 - 1250*
Rated Frequency Hz	50 - 60	50 - 60	50 - 60	50 - 60
Rated SC. Capacity Icu/Ics at 690V (kA)	15/15	-	25/13	25/13
Rated SC. Capacity Icu/Ics at 500V (kA)	50/50	70/35	65/33	65/33
Rated SC. Capacity Icu/Ics at 440V (kA)	65/65	125/63	85/43	85/43
Rated SC. Capacity Icu/Ics at 400V (kA)	70/70	125/63	85/43	85/43
Rated SC. Capacity Icu/Ics at 380V (kA)	70/70	125/63	85/43	85/43
Rated SC. Capacity Icu/Ics at 230V(kA)	100/100	150/75	125/63	125/63
Rated SC. Capacity at 250 V DC (kA)	-	-	-	-
Rated Short time with-stand current Icw (kA)	9,6	9,6	20	20
Utilization category	B	B	B	B

* Adjustable

** Limitation wrt. voltage for use in an IT-net. See under "Application /limitation".

Test results are given according to IEC 60947-1/2

Application/Limitation

Suitable for use in an IT system with a capacity of 1.2 times the maximum trip current at 500 V AC for NF400-CEW/SEW & NF630-CEW/SEW. Up to 450 V for NF800-CEW/SEW.

Location Classes:

Temperature: B (A for NF1000 & 1250), Humidity: B, Vibration: A.

Type Approval documentation

Tests carried out

Electrical tests according to IEC 60947-1 & IEC 60947-2. Test sequence I, II & IV.
Dry heat test, Vibration test & Damp heat test.

Marking of product

Label on product with technical data according to IEC 60947-2.

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 2 and 3,5 year.

END OF CERTIFICATE