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Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

| Manufacturer | Mitsubishi Electric Corporation, Fukuyama Works |
|---------------------|--|
| Address | 1-8 Midorimachi, Fukuyama-city, Hiroshima, 720-8647, Japan |
| Place of Production | Mitsubishi Electric Dalian Industrial Products Co., Ltd. |
| | Dongbei 3-5, Dalian Economic & Technical Development Zone, Dalian, 116600, China |
| Place of Production | Mitsubishi Electric Corporation, Fukuyama Works |
| | 1-8 Midorimachi, Fukuyama-city, Hiroshima, 720-8647, Japan |
| Туре | Circuit Breakers (Env Tested) |
| Description | NF125-SXV, NF125-LXV, NF125-HXV, NF160-SXV, NF160-LXV, NF160-HXV, NF250-SXV, NF250-LXV, NF250-HXV, NF125-SGV, NF125-LGV, NF125-HGV, NF250-SGV, NF-250-LGV, NF250-HGV, NF125-RGV, NF250-RGV, NF125-SEV, NF125-HEV, NF250-SEV, NF250-HEV |
| Trade Name | Molded case circuit breakers (2 and/or 3 poles) |
| Application | Marine and offshore applications for use in environmental categories ENV2 as defined in LR Type Approval System Test Specification No. 1-2002 where the Test Specification is satisfactory for the intended operation. |

Sachie Fujii

Senior Surveyor to Lloyd's Register Group Ltd A member of the Lloyd's Register group

71 Fenchurch Street, London, EC3M 4BS, United Kingdom



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Type Approval Certificate

Specified Standard IEC60947-2 : Edition 5.1

Ratings See Appendix for details

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register Group Ltd of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version: 12/10002(E2)

The Design Appraisal Document LR22158740TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

71 Fenchurch Street, London, EC3M 4BS, United Kingdom



Appendix

RATINGS

- (1) Mitsubishi Electric Corporation Fukuyama Works
- (2) Mitsubishi Electric Dalian Industrial Products Co. Ltd

RATINGS 1 : For product produced at both (1) & (2) in the above listed

| Туре | Current rating | Rated | Breaking | Making | Power | Over-current | Standard |
|-----------|------------------|---------|----------|-----------|-----------|--------------|--------------|
| | at 45°C | voltage | current | current | factor or | release | |
| | In | (V) | (RMS) | (peak | Time | | |
| | (A) | | (kA) | asym- | constant | | |
| | | | lcu/lcs | metrical) | | | |
| | | | | (kA) | | | |
| NF125-SXV | 15, 16, 20, 30, | AC690 | 8/8 | 15.5 | 0.5 | Thermal and | IEC60947-2 |
| | 32, 40, 50, 60, | AC500 | 23/23 | 50.1 | 0.25 | Magnetic | Utilization |
| | 63, 75, 80, 100, | AC450 | 36/36 | 76.8 | 0.25 | | category: A |
| | 125 | AC240 | 75/75 | 167 | 0.2 | | Pollution |
| NF125-LXV | 15, 16, 20, 30, | AC690 | 8/8 | 15.5 | 0.5 | | degree: 3 |
| | 32, 40, 50, 60, | AC500 | 36/36 | 83.3 | 0.25 | | Suitable for |
| | 63, 75, 80, 100, | AC450 | 50/50 | 115 | 0.25 | | isolation |
| | 125 | AC240 | 90/90 | 201 | 0.2 | | |
| | | DC300 | 20/20 | 20.0 | 10ms | | |
| NF125-HXV | 15, 16, 20, 30, | AC690 | 10/8 | 19.9 | 0.5 | | |
| | 32, 40, 50, 60, | AC500 | 50/38 | 114 | 0.25 | | |
| | 63, 75, 80, 100, | AC450 | 65/65 | 148 | 0.2 | | |
| | 125 | AC240 | 100/100 | 219 | 0.2 | | |
| | | DC300 | 40/40 | 40.0 | 15ms | | |
| NF160-SXV | 15, 16, 20, 30, | AC690 | 8/8 | 15.5 | 0.5 | | |
| | 32, 40, 50, 60, | AC500 | 30/30 | 63.0 | 0.25 | | |
| | 63, 75, 80, 100, | AC450 | 36/36 | 76.8 | 0.25 | | |
| | 125, 150, 160 | AC240 | 85/85 | 189 | 0.2 | | |
| | | DC300 | 20/20 | 20.0 | 10ms | | |
| NF160-LXV | 125, 150, 160 | AC690 | 8/8 | 15.5 | 0.5 | | |
| | | AC500 | 36/36 | 83.3 | 0.25 | | |
| | | AC450 | 50/50 | 115 | 0.25 | | |
| | | AC240 | 90/90 | 201 | 0.2 | | |
| | | DC300 | 20/20 | 20.0 | 10ms | | |



| Туре | Current | Rated | Breaking | Making | Power | Over- | Standard |
|-----------|--------------|---------|----------|-----------|-----------|----------|--------------|
| | rating at | voltage | current | current | factor or | current | |
| | 45°C | (V) | (RMS) | (peak | Time | release | |
| | In | | (kA) | asym- | constant | | |
| | (A) | | lcu/lcs | metrical) | | | |
| | | | | (kA) | | | |
| NF160-HXV | 125, 150, | AC690 | 10/8 | 19.9 | 0.5 | Thermal | IEC60947-2 |
| | 160 | AC500 | 50/38 | 114 | 0.25 | and | Utilization |
| | | AC450 | 65/65 | 148 | 0.2 | Magnetic | category: A |
| | | AC240 | 100/100 | 219 | 0.2 | | Pollution |
| | | DC300 | 40/40 | 40.0 | 15ms | | degree: 3 |
| NF250-SXV | 100, 125, | AC690 | 8/8 | 15.5 | 0.5 | | Suitable for |
| | 150, 175, | AC500 | 30/30 | 63.0 | 0.25 | | isolation |
| | 200, 225, | AC450 | 36/36 | 76.8 | 0.25 | | |
| | 250 | AC240 | 85/85 | 189 | 0.2 | | |
| | | DC300 | 20/20 | 20.0 | 10ms | | |
| NF250-LXV | 100, 125, | AC690 | 8/8 | 15.5 | 0.5 | | |
| | 150, 175, | AC500 | 36/36 | 83.3 | 0.25 | | |
| | 200, 225, | AC450 | 50/50 | 115 | 0.25 | | |
| | 250 | AC240 | 90/90 | 201 | 0.2 | | |
| | | DC300 | 20/20 | 20.0 | 10ms | | |
| NF250-HXV | 100, 125, | AC690 | 10/8 | 19.9 | 0.5 | | |
| | 150, 175, | AC500 | 50/38 | 114 | 0.25 | | |
| | 200, 225, | AC450 | 65/65 | 148 | 0.2 | | |
| | 250 | AC240 | 100/100 | 219 | 0.2 | | |
| | | DC300 | 40/40 | 40.0 | 15ms | | |
| NF125-SGV | 20, 25, 32, | AC690 | 8/8 | 15.5 | 0.5 | | |
| | 40, 50, 63, | AC500 | 30/30 | 63.0 | 0.25 | | |
| | 80, 100, 125 | AC450 | 36/36 | 76.8 | 0.25 | | |
| | (Variable) | AC240 | 85/85 | 189 | 0.2 | | |
| | | DC300 | 20/20 | 20.0 | 10ms | | |

RATINGS 1 (Cont.) : For product produced at both (1) & (2) in the above listed



RATINGS 1 (Cont.) : For product produced at both (1) & (2) in the above listed

| Туре | Current rating | Rated | Breaking | Making | Power | Over- | Standard |
|-----------|-----------------|---------|----------|-----------|-----------|----------|--------------|
| | at 45°C | voltage | current | current | factor or | current | |
| | In | (V) | (RMS) | (peak | Time | release | |
| | (A) | | (kA) | asym- | constant | | |
| | | | lcu/lcs | metrical) | | | |
| | | | | (kA) | | | |
| NF125-LGV | 20, 25, 32, 40, | AC690 | 8/8 | 15.5 | 0.5 | Thermal | IEC60947-2 |
| | 50, 63, 80, | AC500 | 36/36 | 83.3 | 0.25 | and | Utilization |
| | 100, 125 | AC450 | 50/50 | 115 | 0.25 | Magnetic | category: A |
| | (Variable) | AC240 | 90/90 | 201 | 0.2 | | Pollution |
| | | DC300 | 20/20 | 20.0 | 10ms | | degree: 3 |
| NF125-HGV | 20, 25, 32, 40, | AC690 | 10/8 | 19.9 | 0.5 | | Suitable for |
| | 50, 63, 80, | AC500 | 50/38 | 114 | 0.25 | | isolation |
| | 100, 125 | AC450 | 65/65 | 148 | 0.2 | | |
| | (Variable) | AC240 | 100/100 | 219 | 0.2 | | |
| | | DC300 | 40/40 | 40.0 | 15ms | | |
| NF250-SGV | 160, 200, 250 | AC690 | 8/8 | 15.5 | 0.5 | | |
| | (Variable) | AC500 | 30/30 | 63.0 | 0.25 | | |
| | | AC450 | 36/36 | 76.8 | 0.25 | | |
| | | AC240 | 85/85 | 189 | 0.2 | | |
| | | DC300 | 20/20 | 20.0 | 10ms | | |
| NF250-LGV | 160, 200, 250 | AC690 | 8/8 | 15.5 | 0.5 | | |
| | (Variable) | AC500 | 36/36 | 83.3 | 0.25 | | |
| | | AC450 | 50/50 | 115 | 0.25 | | |
| | | AC240 | 90/90 | 201 | 0.2 | | |
| | | DC300 | 20/20 | 20.0 | 10ms | | |
| NF250-HGV | 160, 200, 250 | AC690 | 10/8 | 19.9 | 0.5 | | |
| | (Variable) | AC500 | 50/38 | 114 | 0.25 | | |
| | | AC450 | 65/65 | 148 | 0.2 | | |
| | | AC240 | 100/100 | 219 | 0.2 | | |
| | | DC300 | 40/40 | 40.0 | 15ms | | |



RATINGS 2 : For product produced at both (1) in the above listed

| Туре | Current rating | Rated | Breaking | Making | Power | Over- | Standard |
|-----------|-----------------|---------|----------|-----------|-----------|------------|--------------|
| туре | at 45°C | voltage | current | current | factor or | current | Standard |
| | | - | | | Time | | |
| | | (V) | (RMS) | (peak | | release | |
| | (A) | | (kA) | asym- | constant | | |
| | | | lcu/lcs | metrical) | | | |
| | | | | (kA) | | | |
| NF125-RGV | 20, 25, 32, 40, | AC450 | 125/125 | 278 | 0.2 | Thermal | IEC60947-2 |
| | 50, 63, 80, | AC240 | 150/150 | 349 | 0.2 | and | Utilization |
| | 100, 125 | | | | | Magnetic | category: A |
| | (Variable) | | | | | | Pollution |
| NF250-RGV | 160, 200, 250 | AC450 | 125/125 | 278 | 0.2 | | degree: 3 |
| | (Variable) | AC240 | 150/150 | 349 | 0.2 | | Suitable for |
| NF125-SEV | 32, 63, 125 | AC690 | 8/8 | 15.5 | 0.5 | Electronic | isolation |
| | (Variable) | AC500 | 30/30 | 63.0 | 0.25 | | |
| | | AC450 | 36/36 | 76.8 | 0.25 | | |
| | | AC240 | 85/85 | 189 | 0.2 | | |
| NF125-HEV | 32, 63, 125 | AC690 | 10/8 | 19.9 | 0.5 | | |
| | (Variable) | AC500 | 50/38 | 114 | 0.25 | | |
| | | AC450 | 65/65 | 148 | 0.2 | | |
| | | AC240 | 100/100 | 219 | 0.2 | | |
| NF250-SEV | 160, 250 | AC690 | 8/8 | 15.5 | 0.5 | | |
| | (Variable) | AC500 | 30/30 | 63.0 | 0.25 | | |
| | | AC450 | 36/36 | 76.8 | 0.25 | | |
| | | AC240 | 85/85 | 189 | 0.2 | | |



RATINGS 2 (Cont.) : For product produced at both (1) in the above listed

| Туре | Current rating | Rated | Breaking | Making | Power | Over-current | Standard |
|-----------|----------------|---------|----------|-----------|-----------|--------------|--------------|
| | at 45°C | voltage | current | current | factor or | release | |
| | In | (V) | (RMS) | (peak | Time | | |
| | (A) | | (kA) | asym- | constant | | |
| | | | lcu/lcs | metrical) | | | |
| | | | | (kA) | | | |
| NF250-HEV | 160, 250 | AC690 | 10/8 | 19.9 | 0.5 | Electronic | IEC60947-2 |
| | (Variable) | AC500 | 50/38 | 114 | 0.25 | | Utilization |
| | | AC450 | 65/65 | 148 | 0.2 | | category: A |
| | | AC240 | 100/100 | 219 | 0.2 | | Pollution |
| | | | | | | | degree: 3 |
| | | | | | | | Suitable for |
| | | | | | | | isolation |

-End of Appendix-