DNV·GL

Certificate No:
TAE00001X2

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Circuit Breaker

with type designation(s)
HGM 400F/N/E/S/H/L

Issued to
Hyundai Electric & Energy Systems Co., Ltd.
ULSAN, Republic of Korea

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

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

Rated Voltage (V)	**220 / 240 / 380 / 415 / 440 / 460 VAC**
Rated Current (A)	**See page 2**
Frequency (Hz)	**50 / 60**

Issued at **Busan** on **2017-04-13**
This Certificate is valid until **2020-02-04**.
DNV GL local station: **Ulsan HHI**

for **DNV GL**

Approval Engineer: **Baeg Soon Choi**

Michael Jost Auf der Stroth
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

Moulded Case Circuit Breaker

Type: HGM 400F/N/E/S/H/L

Number of Poles : 2P, 3P and 4P (unprotected N pole)
Protected Pole : 2 or 3
Rated frequency : 50 / 60 Hz
Rated operational Voltage (Ue) : 220 / 240 / 380 / 415 / 440 / 460 VAC
Rated insulation Voltage (Ui) : 1000 VAC
Rated impulse withstand Voltage (Uimp) : 8 kV

Rated short-circuit-capacity:

Rated short-time making capacity : Icm (kA)
F series : 40,0 [380 / 415 /440 /460 V]
N series : 54,6 [380 / 415 /440 /460 V]
E series : 94,5 [380 / 415 V]
79,8 [440 / 460 V]
S series : 143,0 [380 / 415 V]
105,0 [440 / 460 V]
H series : 187,0 [380 / 415 V]
154,0 [440 / 460 V]
L series : 187,0 [380 / 415 /440 /460 V]

Rated ultimate short-circuit breaking capacity : Icu (kA)
F series : 20 [380 / 415 /440 /460 V]
N series : 26 [380 / 415 /440 /460 V]
E series : 45 [380 / 415 V]
38 [440 / 460 V]
S series : 65 [380 / 415 V]
50 [440 / 460 V]
H series : 85 [380 / 415 V]
70 [440 / 460 V]
L series : 85 [380 / 415 /440 /460 V]

Rated service short-circuit breaking capacity : Ics (kA)
Ics: 100% Icu

Rated current (In) (40°) : 250A up to 400A
Rated operational current (Ie) : 0,63 - 1,0 In or fixed
Type of release : Thermo-magnetic
Circuit Breaker for use in IT systems : Suitable
Utilization Category : A
Suitable for Insulation : Suitable
Method of Mounting : Fixed

Application/Limitation

Location Classes:

Temperature : B, Humidity : B, Vibration : A, Enclosure : A

Type Approval documentation

Tests carried out

Guidelines for the Performance of Type Approvals, Chapter 2- Test Requirements for Electrical / Electronic Equipment and Systems (VI-7-2), Edition 2012, IEC60947-2(Ed.4);am1;am2

This certificate is issued on the basis of GL Guidelines for the Performance of Type Approvals, Chapter 1 - Procedure (VI-7-1), Edition 2007.

Marking of product

Manufacturers label containing data and manufacturers type number.

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