

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 Koreais 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**Issued at **Busan** on **2020-02-04**for **DNV GL**This Certificate is valid until **2025-02-04**.DNV GL local station: **Ulsan HHI & HMD**Approval Engineer: **Baeg Soon Choi**

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.



Job Id: **262.1-033295-1**
Certificate No: **TAE00001X2**
Revision No: **1**

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

Job Id: **262.1-033295-1**
Certificate No: **TAE00001X2**
Revision No: **1**

Test report : IECEE CB Scheme NL-32171 dated 2014-08-01
Ontech R149R-036 dated 2014-09-17
Ontech R14NR-012 dated 2014-11-11

Type Approval Assessment Report dated 2020-02-14

Tests carried out

Type tests according to IEC60947-2

Environmental tests in accordance with DNVGL-CG-0339: Power supply variation, vibration, damp heat and dry heat.

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.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE