

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

HGM 100 C/R/E/S/H/L, HGM 60 C/R/E/S/H/L, HGM 50 C/R/E/S/H/L, HGM 30 C/R/E/S/H/L

Issued to

**Hyundai Heavy Industries Co., Ltd., Electro & Electric
Systems
ULSAN, Republic of Korea**

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)** 220 / 240 / 380 / 415 / 440 / 460
VAC**Rated Current (A)** 100 series : 15A up to 100A
60 series : 15A up to 63A
50 series : 15A up to 50A
30 series : 15A up to 32A**Frequency (Hz)** 50 / 60This Certificate is valid until **2020-02-04**.Issued at **Busan** on **2016-11-11**DNV GL local station: **Ulsan**Approval Engineer: **Jong Yun Kim**for **DNV GL**

Baeg Soon Choi
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

Molded Cases Circuit Breaker

Type: HGM 100C/R/E/S/H/L, HGM 60C/R/E/S/H/L, HGM 50C/R/E/S/H/L, HGM 30C/R/E/S/H/L

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

Rated short-circuit-capacity :

Rated short-time making capacity : Icm(kA)

C series:	52.5 [220 / 240V]	17.0 [380 / 415 / 440 / 460]
R series:	63.0 [220 / 240V]	28.0 [380 / 415 / 440 / 460]
E series:	73.5 [220 / 240V]	32.0 [380 / 415 / 440 / 460]
S series:	105.0 [220 / 240V]	40.0 [380 / 415 / 440 / 460]
H series:	105.0 [220 / 240V]	54.6 [380 / 415 / 440 / 460]
L series:	105.0 [220 / 240V]	63.0 [380 / 415 / 440 / 460]

Rated ultimate short-circuit breaking capacity : Icu(kA)

C series:	25.0 [220 / 240V]	10.0 [380 / 415 / 440 / 460]
R series:	30.0 [220 / 240V]	14.0 [380 / 415 / 440 / 460]
E series:	35.0 [220 / 240V]	16.0 [380 / 415 / 440 / 460]
S series:	50.0 [220 / 240V]	20.0 [380 / 415 / 440 / 460]
H series:	50.0 [220 / 240V]	26.0 [380 / 415 / 440 / 460]
L series:	50.0 [220 / 240V]	30.0 [380 / 415 / 440 / 460]

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

Ics: 100% Icu for C, R, E and S series
Ics: 100% Icu at 240V for H and L series
Ics: 75% Icu at 460V for H series
Ics: 50% Icu at 460V for L series

Rated current (In) (40°C) 100 series : 15A up to 100A

60 series : 15A up to 63A

50 series : 15A up to 50A

30 series : 15A up to 32A

Rated operational current(Ie) : 0,8 – 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, EMC: A and B, Enclosure: A



Job Id:
Certificate No: **TAE00001J0**

Type Approval documentation

Tests carried out

GL Guidelines for the Performance of Type Approvals, Chapter 2- Test Requirements for Electrical / Electronic Equipment and Systems(IV-7-2), Edition 2012, IEC 60947-2(Ed.4): am1;am2

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