

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

HGP 100 F/N/S/H/L/X, HGP 160 F/N/S/H/L/X, HGP 250 F/N/S/H/L/X, HGP 400 F/N/S/H/L/X, HGP 630 F/N/S/H/L/X, HGP 800 F/N/S/H/L/X

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) 380 / 415 / 440 / 460 / 480 / 500****Rated current (A) See page 2**Issued at **Busan** on **2018-08-31**This Certificate is valid until **2023-08-30**.for **DNV GL**DNV GL local station: **Ulsan**Approval Engineer: **Dong Ho Park**

**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

Moulded Case Circuit Breaker (Electronic type)

Type HGP 100 F/N/S/H/L/X, HGP 160 F/N/S/H/L/X, HGP 250 F/N/S/H/L/X, HGP 400 F/N/S/H/L/X, HGP 630 F/N/S/H/L/X, HGP 800 F/N/S/H/L/X

Number of Poles : 2P, 3P and 4P (unprotected N pole)

Protected Pole : 2 or 3

Rated frequency : 50 / 60 Hz

Rated operational Voltage (Ue) : 380 / 415 / 440 / 460 / 480 / 500 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 : 105 [380 / 415 V]
75,6 [440 / 460 V]
52.5 [480 / 500 V]
N series : 143 [380 / 415 V]
105 [440 / 460 V]
73.5 [480 / 500 V]
S series : 187 [380 / 415 V]
143 [440 / 460 V] for HGP 100/160/250
154 [440 / 460 V] for HGP 400/630/800
105 [480 / 500 V]
H series : 220 [380 / 415 V]
187 [440 / 460 V]
143 [480 / 500 V] for HGP 100/160/250
154 [480 / 500 V] for HGP 400/630/800
L series : 286 [380 / 415 / 440 / 460 V]
187 [480 / 500 V]
X series : 330 [380 / 415 / 440 / 460 V]
220 [480 / 500 V]

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

F series : 50 [380 / 415 V]
36 [440 / 460 V]
25 [480 / 500 V]
N series : 65 [380 / 415 V]
50 [440 / 460 V]
35 [480 / 500 V]
S series : 85 [380 / 415 V]
65 [440 / 460 V] for HGP 100/160/250
70 [440 / 460 V] for HGP 400/630/800
50 [480 / 500 V]
H series : 100 [380 / 415 V]
85 [440 / 460 V]
65 [480 / 500 V] for HGP 100/160/250
70 [480 / 500 V] for HGP 400/630/800
L series : 130 [380 / 415 / 440 / 460 V]
85 [480 / 500 V]
X series : 150 [380 / 415 / 440 / 460 V]
100 [480 / 500 V]

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

Ics: 100% Icu

Job Id: **262.1-029149-1**
Certificate No: **TAE0000340**

Rated current (In) (40°C) : 40A up to 800A
Rated operational current (Ie) : 0.4 – 1.0 In
Type of release : Electronic type
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

Type test according to IEC 60947-2:2016
Applicable tests according to Class Guidance DNVGL-CG-0339, November 2016.

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 these tests shall 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