Certificate No:
TAE00004S9

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric motor

with type designation(s)
Electric motor

Issued to
HYOSUNG HEAVY INDUSTRIES CORPORATION
Changwon-si, Gyeongsangnam-do, Korea, Republic of

is found to comply with
DNV 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.

Degree of protection	**IP44~55**
Insulation class	**F**
Ambient temp. (°C)	**Up to 50**
Voltage (V)	**440**
Power (kW)	**See on page 2**
Frequency (Hz)	**60**
Speed (RPM)	**See on page 2**

Issued at **Busan** on **2023-06-07**
This Certificate is valid until **2028-06-06**.
DNV local unit: **Gimhae Station**

Approval Engineer: **Eun Jin Lee**

for **DNV**

Hanwee Low
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

Duty	Frame	No. of pole	Power[kW]
S1	280S	2 / 4	110 / 110
	280M	2 / 4 / 6	125, 132 / 120, 125, 132, 140 / 110
	280L/315S/315M	2 / 4 / 6 / 8	150, 160, 187, 200 / 145, 150, 160, 165, 185, 200 / 125, 132, 150, 160 / 110
	315L	4 / 6	250 / 185
S2	250M	4	110
	280S	4	120, 125, 132
	280M	4	140, 160
S6	280S	4	110
	280M	4	125
	280L/315S/315M	6	125, 150, 160
	280M	4/8	110/18.5
	280L/315S/315M	4/8, 6/12	125/18.5, 150/22, 160/22

Type Approval documentation

Tests carried out
Winding resistance, No load, overload, Insulation resistance, High voltage, Degree of protection, Temperature rise

Marking of product
- Manufacturer's name
- Type designation
- Serial number
- Technical data(Voltage, Frequency, rpm, etc.)
- Rated power
- Winding insulation class
- Degree of protection

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 survey are:
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines.
- Ensuring that systems/components/materials used comply with type approved documents and/or referenced system/component/material specifications.
- Review of possible changes in design of materials and performance, and make sure that such changes do no affect the type approval given.
- Ensuring traceability between manufacturer's product type marking and the type approval certificate.
- Ensuring that type approved documentation is available.

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