

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Electric Motor**

with type designation(s)
LOD

Issued to

Rotor B.V.
EIBERGEN, Netherlands

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Degree of protection	IP 23
Insulation class	F
Temp. class (°C)	155
Voltage (V)	400-690V
Power (kW)	500 kW up to 2500 kW
Frequency (Hz)	50, 60
Speed (RPM)	750 and 1000 (50 Hz), 900 and 1200 (60Hz)

This Certificate is valid until **2024-02-27**.

Issued at **Høvik** on **2019-02-28**

DNV GL local station: **Rotterdam**

for **DNV GL**

Approval Engineer: **Nicolay Horn**

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Marta Alonso Pontes
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

3-phase induction motors with ratings as specified in page 1 of this type approval certificate.

Voltage [V]	400 - 690
Power [kW]	500 - 2500
Number of Poles:	6 and 8
Synchronous Speed [RPM]:	750 and 1000 (50 Hz), 900 and 1200 (60Hz)
Shaft heights [mm]:	355, 400, 450, 500 & 630
Frame material:	Cast iron
Duty type :	S1, S2-30min, S2-60min,
Ambient temperature :	45 °C,
Ex rating :	NA
Cooling :	IC411, IC416, IC410

Type Name	Frame size	Output power
LOD 4001-6	400	500
LOD 4002-6	400	560
LOD 4003-6	400	630
LOD 4501-6	450	710
LOD 4502-6	450	800
LOD 4503-6	450	900
LOD 5001-6	500	1000
LOD 5002-6	500	1120
LOD 5003-6	500	1250
LOD 5601-6	560	1400
LOD 5602-6	560	1600
LOD 6301-6	630	1800
LOD 6302-6	630	2000
LOD 6303-6	630	2240
LOD 6303-6	630	2500
LOD 5001-8	500	710
LOD 5002-8	500	800
LOD 5003-8	500	900
LOD 5601-8	560	1000
LOD 5602-8	560	1120
LOD 5603-8	560	1250
LOD 6301-8	630	1400
LOD 6302-8	630	1600
LOD 6303-8	630	1800

Application/Limitation

For use as propulsion motor documentation according to DNV GL Rules must be submitted for approval for each project.

Product certification shall be carried out for motors of 300kW and above, as required by DNVGL rules Pt.4 Ch.8 Sec.1 Table 3.

Type Approval documentation

Tests carried out

IEC 60034-1:2010-02.

Job Id: **262.1-029433-1**
Certificate No: **TAE00003CF**

Marking of product

Rotor B.V.– type designation – technical data including rated voltage, RPM, rated power, ambient temperature, rated current, rated frequency, insulation class, IP class.

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