

TYPE APPROVAL CERTIFICATE

This is to certify:
that the Electric Motor

with type designation(s)
Permanent Magnet Motor Series 1FZ1, 1FZ3, 1FZ5, 1FZ4

issued to
Innomotics GmbH
Nürnberg, Bayern, Germany

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	IP55, IP56, IP65, IP66
Insulation class	155 (F)
Temp. class (°C)	155 (F)
Voltage (V)	Input 380-660V
Power (kW)	0.37 to 288 kW
Frequency (Hz)	up to 300Hz Converter Duty only
Speed (RPM)	Rated Speed (RPM) up to 3600 rpm at 60Hz, converter operation up to 4500rpm

Issued at **Høvik** on **2025-02-01**

This Certificate is valid until **2030-01-31**.

for **DNV**

DNV local unit: **Augsburg**

Approval Engineer: **Maik Gagern**

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 USD 300 000.

Product description

Tests carried out

DNV Class Programme DNV-CP-0393 "Rotating electrical machines", Edition Jan. 2022 (partly).
IEC 60034 (Scope acc. to the test reports available)

Marking of product

According to IEC 60034-1, clause 10.2

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 Production Sample Tests (PST) and Routines (RT) checked (if not available, tests according to PST and 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