

TYPE APPROVAL CERTIFICATE

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

with type designation(s)
Series of 1PC3, 1TZ5 and 1TZ9

Issued to

Brammer AS
NYBORG, Norway

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	IP55. IP56. IP65, IP66
Insulation class	155 (F), 180 (H)
Temp. class (°C)	155 (F), 180 (H)
Voltage (V)	200 V up to 690 V
Power (kW)	0,06 kW up to 580 kW
Frequency (Hz)	50 Hz, 60 Hz, converter operation = 690V
Speed (RPM)	750 1/min up to 3600 1 / min

Issued at **Høvik** on **2019-07-02**

This Certificate is valid until **2023-12-31**.

for **DNV GL**

DNV GL local station: **Bergen**

Approval Engineer: **Nicolay Horn**

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Trond Sjøvåg
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.



Name and place of manufacturer

Siemens s.r.o.;
Markova 952, 744 01 Frenstat,
Czech Republic

Siemens s.r.o.;
Nadrazni 25, 789 85 Mohelnice,
Czech Republic

Product description

3-phase induction motor:

Types:

1TZ9.. 3-phase aluminium (1TZ90) or cast iron (1TZ95), self-ventilated or separate-ventilated
1TZ5... 3-phase cast iron motor, self-ventilated or separate-ventilated
1PC3... 3 phase induction Motor with customer-specific design

Type designation 1TZ9 Series	Technical Data
Frame size	63, 71, 80, 90, 100, 112, 132, 160, 180, 200, 225, 250, 280 and 315
Rated Power	S1 to S6, 0.06 kW up to 230 kW
Rated Voltage	220 V up to 690 V
Rated Frequency	50 Hz, 60 Hz, Converter operation ≤690V
No. of poles	2, 4, 6, 8 and pole changing types
Ambient Temperature	+45 °C, + 50°C, -50 °C with special measures
Thermal Class	155 (F), 180 (H)
Degree of Protection	IP55, IP56, IP65, IP66
Standard	IEC 60034-1 / 2010-02

Type designation 1TZ5 Series	Technical Data
Frame size	315 and 355
Rated Power	S1 to S6, 250 kW up to 580 kW
Rated Voltage	220 V up to 690 V
Rated Frequency	50 Hz, 60 Hz, Converter operation ≤690V
No. of poles	2, 4, 6, 8 and pole changing types
Ambient Temperature	+45 °C, + 50°C, -50 °C with special measures
Thermal Class	155 (F), 180 (H)
Degree of Protection	IP55, IP56, IP65, IP66
Standard	IEC 60034-1 / 2010-02

Type designation 1PC3 Series	Technical Data
Frame size	180, 225, 200, 250, 280 and 315
Rated Power	S1 to S6, 15 kW up to 335 kW
Rated Voltage	220 V up to 690 V
Rated Frequency	50 Hz, 60 Hz, Converter operation ≤690V
No. of poles	4 and 6
Ambient Temperature	+45 °C, + 50°C, -50 °C with special measures
Thermal Class	155 (F), 180 (H)
Degree of Protection	IP55, IP56, IP65, IP66
Standard	IEC 60034-1 / 2010-02

Application/Limitation

This Type Approval Certificate does not replace the requirement to DNV GL Product Certificate.
A Product Certificate is required for motors $\geq 300\text{kW}$.

The motors are intended for installation below deck, in case of IP56 or higher application on deck and optional with built-in units e.g. brakes, external fans, encoders according to Siemens catalogue D81.1-2013.

Type Approval documentation

Tests carried out

According to IEC 60034-1:2010-02, IEC 92-301-3rd ed. 1980 + Amd 1-1994 + Amd 2-1995

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 Routines (RT) checked (if not available, tests according 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