

TYPE APPROVAL CERTIFICATE

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

with type designation(s)
W20, W21

Issued to

WEG (Nantong) Electric Motor Manufacturing Co., Ltd.
Nantong, China

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft
DNV GL class programme DNVGL-CP-0393 – Type approval – Rotating electrical machines

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Type	Degree of protection	Insulation class	Temp. class (°C)	Voltage (V)	Power (kW)	Frequency (Hz)	Speed (RPM)
W20	IP(W)55	F/H	155/180	up to 690	up to 387	50/60	up to 3600
W21	IP(W)55/56/65/66	F/H	155/180	up to 690	up to 105	50/60	up to 3600

Issued at **Hamburg** on **2018-01-08**

This Certificate is valid until **2023-01-07**.

DNV GL local station: **Nantong**

for **DNV GL**

Approval Engineer: **Andreas Andrecht**

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Arne Schaarmann
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

W20 line, frame sizes 80, 90, 100, 112, 132, 160, 180, 200, 225, 250, 280, 315, 355

Degree of Protection:	IP(W)55
Number of Poles:	2 / 4 / 6 or 8
Rated Voltage:	up to 690V
Rated power:	0,25-387kW
Synchronous speed:	750-3600rpm
Insulation class:	F/H
Frequency:	50/60Hz
Duty Cycle:	S1 to S10

W21 line, frame sizes 63, 71, 80, 90, 100, 112, 132, 160, 180, 200, 225, 250, 280, 315

Degree of Protection:	IP(W)55, IP(W)56, IP(W)65 or IP(W)66
Number of Poles:	2 / 4 / 6 or 8
Rated Voltage:	up to 690V
Rated power:	0,12-105kW
Synchronous speed:	750-3600rpm
Insulation class:	F/H
Frequency:	50/60Hz
Duty Cycle:	S1 to S10

W21 additional design variation as Ex(n) explosion protected

Application/Limitation

All limitations and allowed configurations specified in the Ex certificate shall be followed.

The information related to Ex- Certification from recognized test institution is given as for information only. Ex installations to be approved in each case according to the Rules and Ex- Certification/ special conditions for safe use which are listed in valid Ex Certificate issued by a notified/ recognized certification body.

Place of production

WEG (Nantong) Electric Motor Manufacturing Co., Ltd. Nantong, China
WEG (Jiang Su) Electric Equipment Co., Ltd. Rugao, China

Type Approval documentation

Tests carried out

The following tests have been carried out:

1. Visual Inspection
2. Temperature rise at full load
3. Overspeed test 120%
4. Dielectric strength
5. Insulation resistance
6. Winding resistance
7. Verification of bearings
8. Verification of degree of enclosure protection (IP)
9. Measurement of speed vs load within speed range
10. Overload test 150%
11. No load current
12. Overtorque test 160%

Marking of product

For traceability of the product to this Type Approval Certificate the products are as a minimum to be marked as follows:

1. a) Serial number, b) Manufacturer's name, c) Model and d) Type Designation
2. a) Power (kW), b) Voltage, c) Current, d) Frequency, e) Speed, f) Power factor
3. Duty type (if other than S1)
4. a) Winding insulation class and b) Winding connection
5. Degree of protection
6. Ambient temperature
7. Performance standard
8. Total mass

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