

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

K1xR, K2xR, WExR, W2xR, W4xR 112... up to 355...**IE*-K1xR, IE*-K2xR, IE*-WExR, IE*-W2xR, IE*-W4xR, IE*-W6xR 112... up to 355...**

Issued to

VEM motors GmbH**Wernigerode Sachsen-Anhalt, Germany**

is found to comply with

DNV GL 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 GL.**

Enclosure class	IP 55, IP 56, IP 66
Insulation class	155 (F), optional 180 (H)
Temp. class (°C)	155 (F), optional 180 (H)
Voltage (V)	up to 750 V
Power (kW)	0,5 kW up to 500 kW
Frequency (Hz)	50 Hz, 60 Hz
Speed (RPM)	250 1/min up to 3600 1/min

Issued at **Hamburg** on **2017-08-01**for **DNV GL**This Certificate is valid until **2022-07-31**.DNV GL local station: **Magdeburg**Approval Engineer: **Heinz-Dieter Hesse**

Duy Nam Le
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

AC Induction Motors

Types: **K1xR, K2xR, WExR, W2xR, W4xR 112... up to 355...**
IE*-K1xR, IE*-K2xR, IE*-WExR, IE*-W2xR, IE*-W4xR, IE*-W6xR 112... up to 355...

Type Designation	Technical data
Sizes	112, 132, 160, 180, 200, 225, 250, 280, 315, 355
Rated power	0,5 kW up to 500 kW
Duty type	S1 - S9
No. of poles	2, 4, 6, 8, 10, 12, 16, 24 and combinations
Synchronous speed	250 1/min up to 3600 1/min
Rated frequency	50 Hz, 60 Hz
Thermal class	155 (F), optional 180 (H)
Degree of protection	IP 55, IP 56, IP 66
Standard	IEC 60034-1:2010-02 IEC 92-301-3 rd ed- 1980 + Amd 1:1994 + Amd 2:1995
	For Marine environments
Description of type	* = 1, 2, 3 or 4: Efficiency Class acc. to IEC x = 0, 1, 2, 3: Code for VEM construction type

Application/Limitation

This Type Approval Certificate does not replace the requirements to DNV GL Product Certificate

Type Approval documentation

Drawings ZA744/01.09.93, ZA745/10.09.93
IE3-W41R280M2, Rotor, 8174772.03 dated 27.02.2017
IE3-W41R280M2, Motor, SK280-755.03 dated 15.02.2017
IE4-W61R280M2, Rotor, 11893672.03 dated 27.02.2017
IE4-W61R280M2, Motor, SK280-75.03 dated 15.02.2017
Technical Data ZA744, Bl. 1-5/09.93; EW-N 1002, Bl. 13-01.2005
Datasheet / Comparison IE3 / IE4 dated 13.02.2017
VEM Catalogue "Three phase motors for marine use 2017". EN-2/17
VEM Instruction, operating and maintenance manual, Ed. 04.2016, Ident.-No. 68238-01

Tests carried out

According to test reports of
K10R, K20R dated 01.+02.12.1993 and K22R 355My4, Ser. No.137326/0001
IE4-W61R_280_M_2_420315_400_50_90kW dated 13.03.2017
IE4-W61R_315_LX_2_420317_690_50 dated 13.03.2017
IE4-W61R_315_M_2_375_50_132kW dated 13.03.2017
IE4-W61R_315_MX_2_420316_430_50_160kW dated 13.03.2017
IE4-W62R_355_MX_4_420323_624_50_400kW dated 13.03.2017



Job Id: **262.1-004833-4**
Certificate No: **TAE0000206**

Marking of product

According to IEC 60034-1, clause 10.2

Periodical assessment

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