



Marine & Offshore
Division

Certificate number: 05818/E0 BV

File number: ACE 04/840/01

Product code: 2584I

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

VEM motors GmbH
Wernigerode - GERMANY

for the type of product

ASYNCHRONOUS MACHINES (Power 100kW and over)

Type: K10R, K11R, K22R
Cage Induction Marine Motors

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.
IEC 60034-1: 2010 and IEC 60092-301: 1995

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 06 Mar 2020

For BUREAU VERITAS,

At BV HAMBURG, on 06 Mar 2015,

Sandro Schmidt



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine & Offshore Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 October 2014

This certificate consists of 2 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

The **K10R...**, **K11R...** and **K22R...** are three phase cage induction marine motors.

1.1 - Main characteristics:

Frame material	Grey cast iron
Number of poles:	2 to 8 with pole changing motors
Height of frame:	280, 315 and 355
Power supply:	220 to 690V / 50Hz - 460V / 60Hz
Enclosure	IP55 -IP56
Ambient temperature:	45°C
Duty type:	S1
Insulation class:	F
Temperature rise:	F

1.2 - Technical data: Rated power at S1

Motor type	Motor type	kW 2 poles 50Hz	kW 2 poles 60Hz	kW 4 poles 50Hz	kW 4 poles 60Hz	kW 6 poles 50Hz	kW 6 poles 60Hz	kW 8 poles 50Hz	kW 8 poles 60Hz
K10R 250 M	K11R 280 M	/	105	/	105	/	/	/	/
K10R 280 S	K11R 315 S	110	132	110	132	/	/	/	/
K10R 280 M	K11R 315 M	132	158	132	158	/	108	/	/
K10R 315 S	K11R 315 MX	160	190	160	190	110	132	/	108
K10R 315 M	K11R 315 MY	200	225	200	225	132	158	110	132
K10R 315 L	K11R 315 L2	250	280	250	280	160	190	132	158
K10R 315 LX	K11R 315 LX	280	310	280	310	200	230	160	190
K22R 355 M2		315	340	315	340	220	240	180	200
K22R 355 MX		355	390	355	390	250	270	200	220
K22R 355 LY		400	440	400	440	315	340	250	270
K22R 355 L		450	490	/	/	/	/	/	/

2. DOCUMENTS AND DRAWINGS:

Catalogue: EMW/03 - 172 E/0209.

3. TEST REPORTS:

VEM motors GmbH: V 208006 - AB301020 dated 15/07/2008



4. APPLICATION/LIMITATION:

- 4.1 - Bureau Veritas Rules and Regulations for the Classification of Steel Ships and IEC 60092 series.
- 4.2 - The installation shall comply with the Manufacturer's recommendation described in the above-referenced documentation.
- 4.3 - Each motor intended for essential service is to be tested with attendance of a BV surveyor or an alternative inspection scheme BV Mode I survey is to be agreed.

5. PRODUCTION SURVEY REQUIREMENTS:

- 5.1 - The above mentioned products are to be supplied by VEM motors GmbH in compliance with the type described in this certificate and in compliance with the requirements of Bureau Veritas Rules for the Classification of Steel Ships.
- 5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.
- 5.3 - Bureau Veritas product certificate is required.

6. MARKING OF PRODUCT:

- According to IEC 60034 specification
-  or  conformity marking, as relevant.

7. OTHERS:

- 7.1 - This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the units at any time and that VEM motors GmbH - GERMANY, will accept full responsibility for informing shipbuilders, ship owners or their sub-contractors of the proper methods of use and general maintenance of the units and the conditions of this approval.
- 7.2 - This certificate supersedes the Type Approval Certificate N° 05818/D0 BV issued on 02 Mar 2010 by the Society.

*** END OF CERTIFICATE ***