



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. E-6737

This Certificate consists of 3 pages

This is to certify that the

Electric Motor

with type designation(s)

K10R and K11R

Manufactured by

VEM motors GmbH

Wernigerode, Germany

is found to comply with

Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and
Mobile Offshore Units

Application

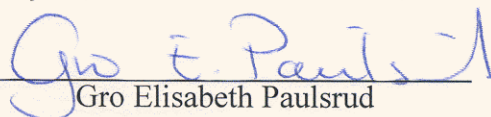
For installation in non hazardous area.

Enclosure class	IP55 - IP56
Insulation class	F
Temp. class (°C)	45
Voltage (V)	220 - 690
Power (kW)	7,8 - 310
Frequency (Hz)	50 - 60
Speed (RPM)	375 - 3600

Place and date

Høvik, 2003-11-19

for DET NORSKE VERITAS AS


Gro Elisabeth Paulsrud

Head of Section



Local Office

DNV Essen

This Certificate is valid until

2006-12-31



Nicolay Horn

Surveyor

Notice: 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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



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File No.: 821.20

Product description

Type K10R and K11R 3-phase induction motor:

Rated Voltage:	220V up to 690V
Rated Frequency:	50Hz, 60Hz
Number of poles:	2,4,6,8,10,12,14,16 and combinations
Duty type:	S1
Enclosure class:	IP55, IP56
Ambient air temp.:	45 deg. C
Construction:	IM B3, IM B35 and derived type, IM V1, IM B5
Insulation class:	F

Frame Sizes		Max.Power
K10R	K11R	kW
112		8,1
132	132	13,0
160	160	22,0
180	180	36,0
200	200	54,0
225	225	66,0
250	250	105,0
280	280	150,0
315	315	310,0

Type Approval documentation

Test protocols, product description EWM/03-104/E 0498 NGD.

Tests carried out

Temperature, Overload, Overspeed, Insulation resistance, Winding resistance, No load.

Marking of product

VEM motors – type designation – technical data

Certificate retention survey

The scope of the retention/renewal survey is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems/components/materials.



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The main elements of the survey are:

- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines.
- Ensuring that systems/components/materials used comply with type approved documents and/or referenced system/component/material specifications.
- Review of possible changes in design of systems/components/materials, software version and performance, and make sure that such changes do not affect the type approval given.
- Ensuring traceability between manufacturer's product type marking and the type approval certificate.
- Ensuring that type approved documentation is available.

Survey to be performed at renewal of this certificate

END OF CERTIFICATE