



MARINE DIVISION

Certificate number: 05990/D0 BV

File number: ACE 04/840/02

Product code: 2584H

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 Thurm GmbH
Zwickau - GERMANY

for the type of product

ASYNCHRONOUS MACHINES

Induction Motors below 100kW
KPR, KPER and IE*-KPR, IE*-KPER

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships
IEC 60034 series, IEC 60092-301

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: 16 May 2017

For BUREAU VERITAS,
At BV HAMBURG, on 16 May 2012,
Dirk Hoepfner



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 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.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

The KPR, KPER and IE*-KPR, IE*-KPER series are three phase low voltage asynchronous motors with squirrel-cage rotor.

Variants:

- thermal winding protection:	KPR...TPM, KPER...TPM..., KPR...TS..., KPER...TS..
- built in motors:	KPR...E, KPER...E
- fanmotors:	YP..., YPE...
- unventilated motors:	KPO..., KPEO...
- motors with built-on brakes:	BPR..., BPER..., BPRK..., BPERK...
- motors with separately driven fan:	KPRF..., KPERF...
- motors with tachometer or IGR:	KPR..., KPER..., KPO..., KPEO...
- motors with anti-condensations heater:	KPR...STH, KPER...STH
- reluctance motors:	KPR...syn, KPER...syn
- motors with special retormaterials:	KPRW..., KPERW..., BPRKW..., BPERKW...
- single phase motors:	EBPR(W)..., EBPER(W)..., EDPR..., EDPER...

Main characteristics:

Shaft height:	KPR, IE*-KPR: 56 - 63 - 71 - 80 - 90 - 100 KPER, IE*-KPER: 63 - 71 - 80 - 90 - 100 - 112 - 132
Material stator housing:	Grey cast iron
Number of poles:	2 - 4 - 6 - 8
Duty cycle rating:	S1
Protective degree:	IP54, IP55 or IP56
Insulation class:	155 (F)
Rated voltage:	up to 690V
Frequency:	50Hz/60Hz

Power (kW) at 45°C 50/60 Hz	2 pole		4 pole		6 pole		8 pole	
	KPR/ IE1-KPR	KPER/ IE1-KPER	KPR/ IE1-KPR	KPER/ IE1-KPER	KPR/ IE1-KPR	KPER/ IE1-KPER	KPR/ IE1-KPR	KPER/ IE1-KPER
0.09/0.105	-	-	-	-	56 K6	63 K6	63 K8	71 K8
0.12/0.14	-	-	56 K4	63 K4	56 G6	63 G6	63 G8	71 G8
0.18/0.21	56 K2	63 K2	56 G4	63 G4	63 K6	71 K6	71 K8	80 K8
0.25/0.3	56 G2	63 G2	63 K4	71 K4	63 G6	71 G6	71 G8	80 G8
0.37/0.44	63 K2	71 K2	63 G4	71 G4	71 K6	80 K6	80 K8	90 S8
0.55/0.65	63 G2	71 G2	71 K4	80 K4	71 G6	80 G6	80 G8	90 L8
0.75/0.9	71 K2	80 K2	71 G4	80 G4	80 K6	90 S6	90 L8	100 L8
1.1/1.3	71G2	80 G2	80 K4	90 S4	80 G6	90 L6	100 S8	100 LX8
1.5/1.8	80 K2	90 S2	80 G4	90 L4	90 L6	100 L6	100 L8	112 M8
2.2/2.6	80 G2	90 L2	90 L4	100 L4	100 L6	112 M6	100 LX8	112 MX8 132 S8T
3.0/3.6	90 L2	100 L2	100 S4	100 LX4	100 LX6	112 MX6 132 S6T	-	-
4.0/4.8	100 S2	112 M2	100 L4	112 M4	-	-	-	-
5.5/6.6	100L2	112 MX2 132 S2T	100 LX4	112 MX4 132 S4T	-	-	-	-
7.5/9.0	100 LV2	112 MV2 132 SX2T	-	-	-	-	-	-

Power (kW) at 45° C 50/60 Hz	2 pole		4 pole		6 pole	
	IE2-KPR	IE2-KPER	IE2-KPR	IE2-KPER	IE2-KPR	IE2-KPER
0.75/0.9	80 K2	-	80 G4	-	90 S6	-
1.1/1.3	80 G2	-	90 S4	-	90 L6	-
1.5/1.8	90 S2	-	90 L4	-	100 LX6	-
2.2/2.6	90 L2	-	100 L4	-	-	112 MV6
3.0/3.6	100 L2	-	100 LX4	-	-	-
4.0/4.8	-	112 MX2	-	112 MZ4	-	-
5.5/6.6	-	112 MV2, 132 SX2T	-	-	-	-

Power (kW) at 45° C 50 Hz	2 pole		4 pole	6 pole
	IE3-KPR	IE3-KPER	IE3-KPR	IE3-KPR
0.75	80 K2	-	80 G4	90 S6
1.1	80 G2	-	90 S4	90 L6
1.5	90 S2	-	90 L4	100 LV6
2.2	90 L2	-	100 L4	-
3.0	100 L2	-	100 LZ4	-
4.0	-	112 MV2	-	-

2. DOCUMENTS AND DRAWINGS :

- Catalogue: EMW/03-172 E/ 0209
- 05-0001:04 Rev. 02 dated 08.04.02; ET-N 111 153.03 dated 23.08.11; ET-N 111 153.04 dated 23.08.2011
- Technical documentation stored in file ACE 04/840/02.

3. TEST REPORTS :

VEM motors Thurm GmbH:

- F166-I 12 dated 12.04.2012; F167-I 12 dated 12.04.2012; M170-I 12 dated 12.04.2012
- A61480B0 dated 05/04/2006; A61484B4 dated 05/04/2006; A50739B8 dated 05/04/2006
- 45 test reports carried out between January 1991 and December 1992

4. APPLICATION / LIMITATION :

According to BV Rules for the Classification of Ships and IEC 60092 series.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The electric motors are to be manufactured, examined and tested by **VEM motors Thurm GmbH** in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.

5.2 - Production sites are to be recognized by Bureau Veritas as per NR320 for HBV products. To this end **VEM motors Thurm GmbH** has to make the necessary arrangements for a Society's Surveyor to perform visits and product audits at the production sites.

5.3 - **VEM motors Thurm GmbH** has declared to Bureau Veritas that the types of product described in this certificate are manufactured at the following production site:

VEM motors Thurm GmbH
Äußere Dresdner Str. 35
08066 Zwickau
GERMANY

6. MARKING OF PRODUCT :

- According to IEC 60034-1.

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 Thurm GmbH - GERMANY**, will accept full responsibility for informing shipbuilders, shipowners 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° 05990/C0 BV issued on 25 Oct 2006 by the Society

*** END OF CERTIFICATE ***



MARINE DIVISION

Certificate number: 10424/C0 BV

File number: ACE 04/840/03

Product code: 2584H

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

VEM motors Thurm GmbH
Zwickau - GERMANY

for the type of product

ASYNCHRONOUS MACHINES

Increased Safety Induction Motors below 100kW
KPR, KPER and IE*-KPR, IE*-KPER

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships
IEC 60034 series, IEC 60092-301
EN 60079-0:2006, EN 60079-7:2007

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: 16 May 2017

For BUREAU VERITAS,

At BV HAMBURG, on 16 May 2012,

Dirk Hoepfner



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THE SCHEDULE OF APPROVAL

I. PRODUCT DESCRIPTION :

The **KPR**, **KPER** and **IE*KPR**, **IE*-KPER** series are three phase low voltage asynchronous motors of increased safety type with squirrel-cage rotor.

Main characteristics:

Shaft height: KPR, IE*-KPR: 56 - 63 - 71 - 80 - 90 - 100
 KPER, IE*-KPER: 63 - 71 - 80 - 90 - 100 - 112 - 132

Material stator housing: Grey cast iron

Number of poles: 2 - 4 - 6 - 8

Duty cycle rating: S1

Protective degree: IP54, IP55 or IP65

Insulation class: 155 (F)

Rated voltage: up to 690V

Frequency: 50Hz/60Hz

Power (kW) at 45°C 50 Hz	2 pole		4 pole		6 pole		8 pole	
	KPR/ IE1-KPR	KPER/ IE1-KPER	KPR/ IE1-KPR	KPER/ IE1-KPER	KPR/ IE1-KPR	KPER/ IE1-KPER	KPR/ IE1-KPR	KPER/ IE1-KPER
0.12	-	-	56 K2	63 K4	-	-	-	-
0.18	56 K2	63 K2	56 G2	63 G4	-	-	71 K8	80 K8
0.25	56 G2, 63 KY2	63 G2, 63 GX2	63 K4	71 K4	-	-	71 G8	80 G8
0.37	63 K2, 63 G2	71 K2	63 G4, 71 KY4	71 G4	71 K6	80 K6	80 K8	90 S8
0.55	63 G2, 71 KY2	71 G2	71 K4	80 K4, 80 GY4	71 G6	80 G6	80 G8	90 L8
0.65	-	-	-	-	80 K6	90 S6	90 L8	100 L8
0.75	71 K2	80 K2	71 G4, 80 GY4	80 G4, 80 GX4	-	-	-	-
0.95	-	-	-	-	80 G6	90 L6	100 S8	100 LX8
1.0	-	-	80 K4	90 S4	-	-	-	-
1.1	71 G2, 80 KY2	80 G2	-	-	-	-	-	-
1.3	80 K2	90 S2	-	-	-	-	100 L8	112 M8
1.35	-	-	80 G4	90 L4	-	-	-	-
1.4	-	-	-	-	90 L6	100 L6	-	-
1.85	80 G2	90 L2	-	-	-	-	-	-
1.9	-	-	-	-	100 L6	112 M6	-	132 SX8T
2.0	-	-	90 L4	100 L4	-	-	-	-
2.5	90 L2	100 L2	100 S4	100 LX4	-	-	-	-
2.6	-	-	-	-	-	132 SX6T	-	-
3.3	100 S2	112 M2	-	-	-	-	-	-
3.6	-	-	100 L4	112 M4, 112 MX4	-	-	-	-
4.1	100 L2	112 MX2	-	-	-	-	-	-
4.4	-	-	-	132 S4T	-	-	-	-
4.6	-	132 S2T	-	-	-	-	-	-
5.5	-	132 SX2T	-	-	-	-	-	-

Power (kW) at 45°C, 50Hz	2 pole		4 pole		6 pole	
	IE2-KPR	IE2-KPER	IE2-KPR	IE2-KPER	IE2-KPR	IE2-KPER
0.75	80 K2	-	80 G4	-	90 S6	-
0.95	-	-	-	-	90 L6	-
1.0	-	-	90 S4	-	-	-
1.1	80 G2	-	-	-	-	-

2. DOCUMENTS AND DRAWINGS :

- Catalogue: VEM / 04-042 E / 10.00
- 05-0001:93 dated 03.06.2010; ET-N 113 420
- Technical documentation stored in file ACE 04/840/03.

3. TEST REPORTS :**Physikalisch - Technische Bundesanstalt (PTB):**

- PTB 99 ATEX 3308; PTB 99 ATEX 3309; PTB 99 ATEX 3310; PTB 99 ATEX 3311; PTB 99 ATEX 3314

IBExU Institut für Sicherheitstechnik GmbH:

- IBExU02ATEX1108U; IBExU02ATEX1112; IBExU02ATEX1113; IBExU02ATEX1114;
- IBExU02ATEX1115; IBExU02ATEX1116; IBExU06ATEXB001; IBExU06ATEXB002

VEM motors Thurm GmbH:

- F168112 dated 12.04.2012; F173 12 dated 12.04.2012
- K62268C0 dated 05/04/2006; K62272C1 dated 05/04/2006; K62273C2 dated 05/04/2006
- 442 650 112 dated 02/03/1992; 442 650 112 dated 02/04/1992; 368 804 111 dated 19/12/1991

4. APPLICATION / LIMITATION :

According to BV Rules for the Classification of Ships and IEC 60092 series.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The asynchrony motors are to be manufactured, examined and tested by **VEM motors Thurm GmbH** in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.

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Äußere Dresdner Str. 35
08066 Zwickau
GERMANY

6. MARKING OF PRODUCT :

- According to IEC 60034.1.
- Ex marking as relevant

7. OTHERS :

7.1 - This approval is given with 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 Thurm GmbH - GERMANY**, will accept full responsibility for informing shipbuilders, shipowners or their sub-contractors of the proper methods of use and general maintenance of the units and the conditions of this approval.

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*** END OF CERTIFICATE ***