



Marine & Offshore
Division

Certificate number: 21621/B1 BV

File number: ACE 4/853/1

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
Svend Hoyer A/S
Hadsten - DENMARK

for the type of product
ASYNCHRONOUS MACHINES (Power below 100kW)
Y2E2, HMC2 & HMC3 series.
Cage Induction Marine Motors

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships and Offshore Units.
IEC 60034 series (2010).

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: 26 Jan 2020

For BUREAU VERITAS,

At BV FREDERICIA, on 13 Feb 2017,

Jesper Jensen



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 5 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

The Y2E2, HMC2 & HMC3 series are motors for Marine and Offshore applications.

1.1 - Specification

Number of poles:	2, 4, 6, 2/4, 4/6, 4/8, 8
Power supply:	230 to 690 V 50 Hz – 60 Hz
Enclosure en cooling:	IP 55 or IP 56 - IC 411
Ambient temperature:	45°C
Duty type:	S1 to S9
Insulation class:	F or H
Temperature rise:	B or F

1.1.1 - Rated power at S1:

Motor type Y2E2	kW 2 poles 50 Hz	kW 2 poles 60 Hz	kW 4 poles 50 Hz	kW 4 poles 60 Hz	kW 6 poles 50 Hz	kW 6 poles 60 Hz	kW 8 poles 50 Hz	kW 8 poles 60 Hz
63 M1	0,17	0,21	0,12	0,14	/	/	/	/
63 M2	0,24	0,29	0,17	0,21	/	/	/	/
71 M1	0,36	0,43	0,24	0,29	0,17	0,21	/	/
71 M2	0,53	0,64	0,36	0,43	0,24	0,29	/	/
80 M1	0,73	0,87	0,53	0,64	0,36	0,49	0,17	0,24
80 M2	1,1	1,3	0,73	0,87	0,53	0,73	0,24	0,33
90 S	1,5	1,7	1,1	1,3	0,73	0,9	0,36	0,49
90 L	2,1	2,5	1,5	1,7	1,1	1,32	0,53	0,73
100 L	2,9	3,5	/	/	1,5	1,8	/	/
100 L1	/	/	2,1	2,5	/	/	0,73	0,87
100 L2	/	/	2,9	3,5	/	/	1,1	1,3
112 M	3,9	4,7	3,9	4,7	2,1	2,6	1,5	1,7
132S	/	/	5,3	6,4	2,9	3,5	2,1	2,5
132 S1	5,3	6,4	/	/	/	/	/	/
132 S2	7,3	8,7	/	/	/	/	/	/
132 M	/	/	7,3	8,7	/	/	2,9	3,5
132 M1	/	/	/	/	3,9	4,7	/	/
132 M2	/	/	/	/	5,3	6,4	/	/
160 M	/	/	10,7	12,8	7,3	8,7	/	/
160 M1	10,7	12,8	/	/	/	/	3,9	4,7
160 M2	14,6	17,5	/	/	/	/	5,3	6,4
160 L	17,6	21,5	14,6	17,5	10,7	12,8	7,3	8,7
160 LA	21,3	25,6	/	/	/	/	/	/
180 M	21,3	25,6	17,9	21,5	/	/	/	/
180 L	29,1	34,9	21,3	25,6	14,6	17,5	10,7	12,8
180 LA	/	/	29,1	34,9	/	/	/	/
200 L	/	/	29,1	34,9	/	/	14,6	17,5
200 L1	29,1	34,9	35,9	43,1	17,9	21,5	/	/
200 L2	35,9	43,1	/	/	21,3	25,6	/	/
225 S	/	/	35,9	43,1	/	/	17,9	21,5
225 M	43,7	52,4	43,7	52,4	29,1	34,9	21,3	25,6
225 M1	53,4	64,0	53,4	64,0	35,9	43,1	/	/
250 M	53,4	64,0	53,4	64,0	35,9	43,1	29,1	34,9
250 M1	72,8	87,3	72,8	87,3	/	/	/	/
280 S	72,8	87,3	72,8	87,3	43,7	52,4	35,9	43,1
280 M	87,3	/	87,3	/	53,4	64,0	43,7	52,4
280 M1	/	/	/	/	72,8	97,3	/	/
315 S	/	/	/	/	72,8	87,3	53,4	64,0
315 M	/	/	/	/	87,3	/	72,8	87,3
315 L1	/	/	/	/	/	/	87,3	/

Note: Power stated in the table above is power for S1 duty, power at S1 duty can be altered +- 20 %. Motors used for short time duty (S2, S3, S6) power is to be rated in accordance with manufacturer's instructions. Motor type is suitable for following build in units: brakes, external fans, encoders

1.2 - Three phase Cage Induction Marine Motors IE2 - Type HMC2:**1.2.1 - Rated power at S1:**

Motor type HMC2	kW 2 poles 50 Hz	kW 2 poles 60 Hz	kW 4 poles 50 Hz	kW 4 poles 60 Hz	kW 6 poles 50 Hz	kW 6 poles 60 Hz	kW 8 poles 50 Hz	kW 8 poles 60 Hz
63 M1	0,17	0,21	0,12	0,14	/	/	/	/
63 M2	0,24	0,29	0,17	0,21	/	/	/	/
71 M1	0,36	0,43	0,24	0,29	0,17	0,21		
71 M2	0,53	0,64	0,36	0,43	0,24	0,29		
80 M1	0,73	0,87	0,53	0,64	0,36	0,49	0,17	0,24
80 M2	1,1	1,3	0,73	0,87	0,53	0,73	0,24	0,33
90 S	1,5	1,7	1,1	1,3	0,73	0,87	0,36	0,49
90 L	2,1	2,5	1,5	1,7	1,1	1,3	0,53	0,73
100 L	2,9	3,5	/	/	1,5	1,7	/	/
100 L1	/	/	2,1	2,5	/	/	0,73	0,87
100 L2	/	/	2,9	3,5	/	/	1,1	1,3
112M	/	/	/	/	/	/	1,5	1,7
112 M1	3,9	4,7	3,9	4,7	/	/	/	/
112 M2	/	/	/	/	2,1	2,5	/	/
132 S	/	/	5,3	6,4	2,9	3,5	2,1	2,5
132 S1	5,3	6,4	/	/	/	/	/	/
132 S2	7,3	8,7	/	/	/	/	/	/
132M	/	/	/	/	/	/	2,9	3,5
132 M1	/	/	/	/	3,9	4,7	/	/
132 M2	/	/	7,3	8,7	5,3	6,4	/	/
160 M	/	/	10,7	12,8	7,3	8,7	/	/
160 M1	10,7	12,8	/	/	/	/	3,9	4,7
160 M2	14,6	17,5	/	/	/	/	5,3	6,4
160 L	17,9	21,5	14,6	17,5	10,7	12,8	/	/
180 M	21,3	25,6	17,9	21,5	/	/	/	/
180 L	/	/	21,3	25,6	14,6	17,5	10,7	12,8
200 L	/	/	29,1	34,9	/	/	14,6	17,5
200 L1	29,1	34,9	35,9	43,1	17,9	21,5	/	/
200 L2	35,9	43,1	/	/	21,3	25,6	/	/
225 S	/	/	35,9	43,1	/	/	17,9	21,5
225 M	43,7	52,4	43,7	52,4	29,1	34,9	21,3	25,6
250 M	53,4	64,0	53,4	64,0	35,9	43,1	21,9	34,9
280 S	72,8	87,3	72,8	87,3	43,7	52,4	35,9	43,1
280 M	87,3	/	87,3	/	53,4	64,0	43,7	52,4
315 S	/	/	/	/	72,8	87,3	53,4	64
315 M	/	/	/	/	87,3	/	72,8	87,3
315L1	/	/	/	/	/	/	87,3	/

Note: Power stated in the table above is power for S1 duty, power at S1 duty can be altered $\pm 20\%$. Motors used for short time duty (S2, S3, S6) power is to be rated in accordance with manufacturer's instructions. Motor type is suitable for following build in units: brakes, external fans, encoders

1.3 - Three phase Cage Induction Marine Motors IE3 - Type HMC3:**1.3.1 - Rated power at S1:**

Motor type	kW 2 poles 50 Hz	kW 2 poles 60 Hz	kW 4 poles 50 Hz	kW 4 poles 60 Hz	kW 6 poles 50 Hz	kW 6 poles 60 Hz
HMC3 80 M2	1.1	1.32	0.75	0.9	/	/
HMC3 90S	1.5	1.8	1.1	1.32	0.75	0.9
HMC3 90L	2.2	2.6	1.5	1.8	1.1	1.32
HMC3 100L	3	3.6	/	/	1.5	1.8
HMC3 100L1	/	/	2.2	2.6	/	/
HMC3 100L2	/	/	3	3.6	/	/
HMC3 112M	4	4.8	4	4.8	2.2	2.6
HMC3 132S	/	/	5.5	6.6	3	3.6
HMC3 132S1	5.5	6.6	/	/	/	/
HMC3 132S2	7.5	9	/	/	/	/
HMC3 132M	/	/	7.5	9	/	/
HMC3 132M1	/	/	/	/	4	4.8
HMC3 132M2	9.2	11	9.2	11	5.5	6.6
HMC3 160M	/	/	11	13.2	7.5	9
HMC3 160M1	11	13.2	/	/	/	/
HMC3 160M2	15	18	/	/	/	/
HMC3 160L	18.5	22.2	15	18	11	13.2
HMC3 180M	22	26.4	18.5	22.2	/	/
HMC3 180L	/	/	22	26.4	15	18
HMC3 200L	/	/	30	36	/	/
HMC3 200L1	30	36	/	/	18.5	22.2
HMC3 200L2	37	44.4	/	/	22	26.4
HMC3 225S	/	/	37	44.4	/	/
HMC3 225M	45	54	45	54	30	36
HMC3 250M	55	66	55	66	37	44.4
HMC3 280S	75	90	75	90	45	54

Note: Power stated in the table above is power for S1 duty, power at S1 duty can be altered +/- 20 %. Motors used for short time duty (S2, S3, S6) power is to be rated in accordance with manufacturer's instructions. Motor type is suitable for following build in units: brakes, external fans, encoders

2. DOCUMENTS AND DRAWINGS:**2.1 - Out-line drawings**

As per Hoyer motors catalogue Ver.3 2008(EFF2), catalogue 2011 (IE2 and HMC2 IE2 Motor list Feb 2012 HMC2-250-4,6p-B5

2.2 - Technical data

As per Hoyer motors catalogue Ver.3 2008(EFF2), catalogue 2011 (IE2 and HMC2 IE2 Motor list Feb 2012 IE2-Hoyer motors

For B1 version:

Drawing ref. 90090, dated 10.Sep.2014.

Drawing ref. 90176, dated 25.Sep.2014.

3. TEST REPORTS:

3.1 - Electrical tests:

Y2E2 802-4, Y2E2 100L-2, Y2E2 132S2-2, Y2E2 180M-2, Y2E2 225M-4, Y2E2 250M-4, Y2E2 280S-2.
HMC2-250M-4/250-C0440-01

3.2 - Degree of protection

Test report WJ10-290 dated 2010-1-15 and WM09-0193 dated 2007-06-01

For B1 version:**Hoyer motors:**

- Test report ref. HMC3315M4-A, dated 18.Jun.2015.
- Test report ref. HMC3280S6-A, dated 18.Jun.2015.
- Test report ref. HMC3160M22-A, dated 18.Jun.2015.
- Test report ref. HMC3315L12, dated 18.Jun.2015.
- Test report ref. HMC3315L16-A, dated 18.Jun.2015.
- Test report ref. HMC3250M4-A, dated 18.Jun.2015.
- Test report ref. QR/AEC130014A, dated 04.Apr.2014.
- Test report ref. 20140709-0001, dated 04.Dec.2014

4. APPLICATION / LIMITATION:

4.1 - Application / Limitation of use

According to BV Rules for the Classification of Steel Ships and Offshore Units.

4.2 - On board installation & Maintenance requirements

According to BV Rules for the Classification of Steel Ships and Offshore Units.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The above motors are to be supplied by **Svend Hoyer A/S** in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3 - **Svend Hoyer A/S** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

6. MARKING OF PRODUCT:

Name plate according to IEC 60034-1.

7. OTHERS:

7.1 - It is **Svend Hoyer A/S** responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This certificate supersedes the type approval certificate N°21621/B0 BV issued on 03.Sep.2014. by Bureau Veritas.

*** END OF CERTIFICATE ***