



Marine & Offshore

Certificate number: 09693/D0 BV

File number: ACE 4/400/5

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*

**KONCAR-MES Ltd.**

Zagreb - CROATIA

*for the type of product*

**ASYNCHRONOUS MACHINES (Power below 100kW)**

7ABZ and 5.XABZ series.

### Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.

IEC 60034-1 (2022)

IEC 60079-0 (2017), IEC 60079-7 (2017), IEC 60079-31 (2022)

*This certificate is issued to attest that Bureau Veritas Marine & Offshore 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: 02 Jan 2028**

**For Bureau Veritas Marine & Offshore,**

At BV RIJEKA, on 02 Jan 2023,

Slaven Celic

***This certificate was created electronically and is valid without signature***



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 Marine & Offshore. 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 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 Marine & Offshore 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 June 2017

This certificate consists of 5 page(s)

## **THE SCHEDULE OF APPROVAL**

### **1. PRODUCT DESCRIPTION:**

The **7ABZ** and **5.XABZ** series are electrical motors for marine applications.

#### **1.1.1 - Specifications for 7ABZ products:**

|                                     |  |
|-------------------------------------|--|
| Frame material:                     | Cast iron                                  |
| Number of poles:                    | 2 to 8 and multi poles                     |
| Frame sizes:                        | from 71 to 315mm                           |
| Cooling:                            | Air -Cooling method IC 411                 |
| Degree of protection of enclosures: | IP 54 - IP 55 - IP 56 - IP65 - IP66 - IP67 |
| Power supply:                       | 220 to 690 V                               |
| Frequency:                          | 50 Hz and 60 Hz                            |
| Speed:                              | 750 to 3600 RPM                            |
| Thermal class:                      | F  |
| Duty service:                       | S1 to S10                                  |
| Ambient temperature:                | 40°C to 50°C                               |

**1.1.2 - Approval range for 7ABZ products:**

| Motor type  | kW<br>2 poles<br>50 Hz | kW<br>2 poles<br>60 Hz | kW<br>4 poles<br>50 Hz | kW<br>4 poles<br>60 Hz | kW<br>6 poles<br>50 Hz | kW<br>6 poles<br>60 Hz | kW<br>8 poles<br>50 Hz | kW<br>8 poles<br>60 Hz |
|-------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| 7 ABZ 71A   | 0.37                   | 0.4                    | 0.25                   | 0.3                    | 0.18                   | 0.2                    | 0.09                   | 0.1                    |
| 7 ABZ 71B   | 0.55                   | 0.6                    | 0.37                   | 0.4                    | 0.25                   | 0.3                    | 0.12                   | 0.14                   |
| 7 ABZ 71C   | 0.75                   | 0.8                    | 0.55                   | 0.6                    | /                      | /                      | 0.18                   | 0.2                    |
| 7 ABZ 80A   | 0.75                   | 0.8                    | 0.55                   | 0.6                    | 0.37                   |                        | 0.18                   | 0.2                    |
| 7 ABZ 80B   | 1.1                    | 1.2                    | 0.75                   | 0.8                    | 0.55                   | 0.6                    | 0.25                   | 0.3                    |
| 7 ABZ 80C   | 1.5                    | 1.7                    | 1.1                    | 1.2                    | 0.75                   | 0.8                    | /                      | /                      |
| 7ABZ 90S    | 1.5                    | 1.7                    | 1.1                    | 1.2                    | 0.75                   | 0.8                    | 0.37                   | 0.4                    |
| 7ABZ 90L    | 2.2                    | 2.5                    | 1.5                    | 1.7                    | 1.1                    | 1.2                    | 0.55                   | 0.6                    |
| 7ABZ 90LC   | /                      | /                      | 2.2                    | 2.5                    | /                      | /                      | 1.75                   | 0.8                    |
| 7ABZ 100L   | 3                      | 3.4                    | /                      | /                      | 1.5                    | 7.7                    | /                      | /                      |
| 7ABZH 100L  | 4                      | 4.5                    | /                      | /                      | /                      | /                      | /                      | /                      |
| 7ABZ 100LA  | /                      | 2.2                    | 2.5                    | /                      | /                      | 0.75                   | 0.8                    | /                      |
| 7ABZ 100LB  | /                      | /                      | 3                      | 3.4                    | /                      | /                      | 1.1                    | 1.2                    |
| 7ABZH 100LB | /                      | /                      | 3.5                    | 4                      | /                      | /                      | /                      | /                      |
| 7ABZ 112M   | 4                      | 4.5                    | 4                      | 4.5                    | 2.2                    | 2.5                    | 1.5                    | 1.7                    |
| 7ABZH 112M  | 5.5                    | 6.2                    | 5.5                    | 6.2                    | /                      | /                      | /                      | /                      |
| 7ABZH 112MA | /                      | /                      | /                      | /                      | 3                      | 3.4                    | 2.2                    | 2.5                    |
| 7ABZ 132S   | /                      | /                      | 5,5                    | 6,2                    | 3                      | 3,4                    | 2,2                    | 2,5                    |
| 7ABZ 132SA  | 5,5                    | 6,2                    | /                      | /                      | /                      | /                      | /                      | /                      |
| 7ABZ 132SB  | 7,5                    | 8,5                    | /                      | /                      | /                      | /                      | /                      | /                      |
| 7ABZ 132M   | 9,5                    | 11                     | 7,5                    | 8,5                    | /                      | /                      | 3                      | 3,4                    |
| 7ABZH 132M  | 11                     | 12,5                   | /                      | /                      | /                      | /                      | /                      | /                      |
| 7ABZ 132MA  | /                      | /                      | 9,5                    | 11                     | 4                      | 4,5                    | /                      | /                      |
| 7ABZH 132MA | /                      | /                      | 11                     | 12,5                   | /                      | /                      | /                      | /                      |
| 7ABZ 132MB  | /                      | /                      | /                      | /                      | 5,5                    | 6,2                    | /                      | /                      |
| 7ABZ 160M   | /                      | /                      | 11                     | 12,5                   | 7,5                    | 8,2                    | /                      | /                      |
| 7ABZ 160MA  | 11                     | 12,5                   | /                      | /                      | /                      | /                      | 4                      | 4,5                    |
| 7ABZ 160MB  | 15                     | 17                     | /                      | /                      | /                      | /                      | 5,5                    | 6,2                    |
| 7ABZ 160L   | 18,5                   | 21                     | 15                     | 17                     | 11                     | 12,5                   | 7,5                    | 8,5                    |
| 7ABZH 160L  | 22                     | 25                     | /                      | /                      | /                      | /                      | /                      | /                      |
| 7ABZ 180M   | 22                     | 25                     | 18,5                   | 21                     | /                      | /                      | /                      | /                      |
| 7ABZ 180L   | 30                     | 33                     | 22                     | 25                     | 15                     | 17                     | 11                     | 12,5                   |
| 7ABZ 180LA  | /                      | /                      | 30                     | 34                     | 18,5                   | 21                     | 15                     | 17                     |
| 7ABZ 200L   | /                      | /                      | 30                     | 34                     | /                      | /                      | 15                     | 17                     |
| 7ABZ 200LA  | 30                     | 33                     | /                      | /                      | 18,5                   | 21                     | /                      | /                      |
| 7ABZ 200LB  | 37                     | 40                     | /                      | /                      | 22                     | 25                     | /                      | /                      |
| 7ABZ 225S   | /                      | /                      | 37                     | 42                     | /                      | /                      | 18,5                   | 21                     |
| 7ABZ 225M   | 45                     | 50                     | 45                     | 52                     | 30                     | 34                     | 22                     | 25                     |
| 7ABZ 250M   | 55                     | 60                     | 55                     | 63                     | 37                     | 42                     | 30                     | 34                     |
| 7ABZ 280S   | 75                     | 85                     | 75                     | 85                     | 45                     | 50                     | 37                     | 40                     |
| 7ABZ 280M   | 90                     | /                      | 90                     | /                      | 55                     | 60                     | 45                     | 50                     |
| 7ABZ 315S   | /                      | /                      | /                      | /                      | 75                     | 84                     | 55                     | 62                     |
| 7ABZ 315M   | /                      | /                      | /                      | /                      | 90                     | /                      | 75                     | 85                     |
| 7ABZ 315LA  | /                      | /                      | /                      | /                      | /                      | /                      | 90                     | /                      |

\* The power indicated in this table can be modified according to ambient temperature, duty type and other factors as per customer request

**1.2.1 - Specifications for 5.XABZ products:**

|                                     |  |
|-------------------------------------|--|
| Frame material:                     | Cast aluminium alloy                       |
| Number of poles:                    | 2 to 8 and multi poles                     |
| Frame sizes:                        | From 63 to 160mm                           |
| Cooling:                            | Air –Cooling method IC 411                 |
| Degree of protection of enclosures: | IP 54 - IP 55 - IP 56 - IP65 - IP66 - IP67 |
| Power supply:                       | 220 to 690V                                |
| Frequency:                          | 50 Hz and 60 Hz                            |
| Speed:                              | 750 to 3600 RPM                            |
| Insulation class:                   | F  |
| Temperature rise:                   | B or F                                     |
| Duty service:                       | S1 to S10                                  |
| Ambient temperature:                | 40°C to 50°C                               |

**1.2.2 - Approval range for 5.XABZ products:**

| Motor type    | kW<br>2 poles<br>50 Hz | kW<br>2 poles<br>60 Hz | kW<br>4 poles<br>50 Hz | kW<br>4 poles<br>60 Hz | kW<br>6 poles<br>50 Hz | kW<br>6 poles<br>60 Hz | kW<br>8 poles<br>50 Hz | kW<br>8 poles<br>60 Hz |
|---------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| 5.XABZ 63A    | 0.18                   | 0.2                    | 0.12                   | 0.12                   | 0.07                   | 0.07                   | /                      | /                      |
| 5.XABZ 63B    | 0.25                   | 0.3                    | 0.18                   | 0.2                    | 0.12                   | 0.12                   | 0.06                   | 0.06                   |
| 5.XABZH 63B   | 0.37                   | 0.4                    | 0.25                   | 0.3                    | /                      | /                      | /                      | /                      |
| 5.ABZH 63C    | 0.37                   | 0.4                    | /                      | /                      | /                      | /                      | 0.09                   | 0.09                   |
| 5.XABZ 71A    | 0.37                   | 0.4                    | 0.25                   | 0.3                    | 0.18                   | 0.2                    | 0.09                   | 0.09                   |
| 5.XABZ 71B    | 0.55                   | 0.6                    | 0.37                   | 0.4                    | 0.25                   | 0.3                    | 0.12                   | 0.12                   |
| 5.XABZH 71B   | 0.75                   | 0.8                    | 0.5                    | 0.55                   | /                      | /                      | /                      | /                      |
| 5.ABZH 71C    | /                      | /                      | 0.55                   | 0.6                    | /                      | /                      | 0.18                   | 0.2                    |
| 5.XABZ 80A    | 0.75                   | 0.8                    | 0.55                   | 0.6                    | 0.37                   | 0.4                    | 0.18                   | 0.2                    |
| 5.XABZ 80B    | 1.1                    | 1.2                    | 0.75                   | 0.8                    | 0.55                   | 0.6                    | 0.25                   | 0.3                    |
| 5.XABZH 80B   | 1.5                    | 1.7                    | 1                      | 1.1                    | /                      | /                      | /                      | /                      |
| 5.XABZH 80C   | /                      | /                      | 1.1                    | 1.2                    | 0.75                   | 0.8                    | /                      | /                      |
| 5.XABZ 90S    | 1.5                    | 1.7                    | 1.1                    | 1.2                    | 0.75                   | 0.8                    | 0.37                   | 0.4                    |
| 5.XABZ 90L    | 2.2                    | 2.5                    | 1.5                    | 1.7                    | 1.1                    | 1.2                    | 0.55                   | 0.6                    |
| 5.XABZH 90LC  | /                      | /                      | 2.2                    | 2.5                    | /                      | /                      | 0.75                   | 0.8                    |
| 5.XABZ 100L   | 3                      | 3.4                    | /                      | /                      | 1.5                    | 1.7                    | /                      | /                      |
| 5.XABZ 100LA  | /                      | /                      | 2.2                    | 2.5                    | /                      | /                      | 0.75                   | 0.8                    |
| 5.XABZ 100LB  | /                      | /                      | 3                      | 3.4                    | /                      | /                      | 1.1                    | 1.2                    |
| 5.XABZH 100LB | /                      | /                      | 3.5                    | 4                      | /                      | /                      | /                      | /                      |
| 5.XABZH 100L  | 4                      | 4.5                    | /                      | /                      | /                      | /                      | /                      | /                      |
| 5.XABZ 112M   | 4                      | 4.5                    | 4                      | 4.5                    | 2.2                    | 2.5                    | 1.5                    | 1.7                    |
| 5.XABZH 112M  | 5.5                    | 6.2                    | 5.5                    | 6.2                    | /                      | /                      | /                      | /                      |
| 5.XABZH 112MA | /                      | /                      | /                      | /                      | 3                      | 3.4                    | 2.2                    | 2.5                    |
| 5.XABZ 132S   | /                      | /                      | 5.5                    | 6.2                    | 3                      | 3.4                    | 2.2                    | 2.5                    |
| 5.XABZ 132SA  | 5.5                    | 6.2                    | /                      | /                      | /                      | /                      | /                      | /                      |
| 5.XABZ 132SB  | 7.5                    | 8.5                    | /                      | /                      | /                      | /                      | /                      | /                      |
| 5.XABZ 132M   | 9.5                    | 11                     | 7.5                    | 8.5                    | /                      | /                      | 3                      | 3.4                    |
| 5.XABZH 132M  | 11                     | 12.5                   | /                      | /                      | /                      | /                      | /                      | /                      |
| 5.XABZ 132MA  | /                      | /                      | 9.5                    | 11                     | 4                      | 4.5                    | /                      | /                      |
| 5.XABZH 132MA | /                      | /                      | 11                     | 12.5                   | /                      | /                      | /                      | /                      |
| 5.XABZ 132MB  | /                      | /                      | /                      | /                      | 5.5                    | 6.2                    | /                      | /                      |
| 5.XABZ 160M   | /                      | /                      | 11                     | 12.5                   | 7.5                    | 8.2                    | /                      | /                      |
| 5.XABZ 160MA  | 11                     | 12.5                   | /                      | /                      | /                      | /                      | 4                      | 4.5                    |
| 5.XABZ 160MB  | 15                     | 17                     | /                      | /                      | /                      | /                      | 5.5                    | 6.2                    |
| 5.XABZ 160L   | 18.5                   | 21                     | 15                     | 17                     | 11                     | 12.5                   | 7.5                    | 8.5                    |
| 5.XABZH 160L  | 25                     | 25                     | /                      | /                      | /                      | /                      | /                      | /                      |

\* The power indicated in this table can be modified according to ambient temperature, duty type and other factors as per customer request

**2. DOCUMENTS AND DRAWINGS:**

Technical description, Out-line drawings, Assembly drawing, Data and list of position as per KONCAR-MES documentation N° A44689/E, Annex 5, dated 25 Feb 2022. and KONCAR MES Catalogue O.K.E.10.00 and 1.K.E.10.00.

Operation & maintenance instructions ref. 2752514, dated Sep 2016.

Drawing ref. A44689/C7, dated 14 Sep 2015.

Drawing ref. A44689/C6, dated 14 Sep 2015.

Drawing ref. A44689/C4, rev.E, dated 11 Jan 2022.

Drawing ref. A44689/C5, dated 14 Sep 2015.

Drawing ref. A44689/C1, dated 14 Sep 2015.

Drawing ref. A44689/C3, rev.E, dated 11 Jan 2022.

**3. TEST REPORTS:**

Type tests carried out according to BV Rules Pt C, Ch 2, Sec 4, Table 1

Review of type tests reports N° 649828 – 687229 – 684378 – 684934 – 684951 – Br. 21572-05/631 EI

**KONCAR-MES Ltd.:**

- Winding resistance measurement reports, dated 19 Jan 2017 & 17 Jan 2017.
- Type & routine tests report dated 17 Jan 2017.
- Test report dated 03 Mar 2021.
- Test report dated 04 Mar 2021.

**ExAgencija:**

- Test report N° 17 TR 0023, dated 15 Mar 2017.

**4. APPLICATION / LIMITATION:**

4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships.

4.2 - The installation shall comply with the Manufacturer's recommendation described in the above-referenced documentation.

**5. PRODUCTION SURVEY REQUIREMENTS:**

5.1 - The above products are to be supplied by **KONCAR-MES Ltd.** 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 - **KONCAR-MES Ltd.** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

5.4 - For information, **KONCAR-MES Ltd.** has declared to Bureau Veritas the following production site:

**KONCAR-MES Ltd.**  
**Fallerovo setaliste 22**  
**10000 Zagreb**  
**CROATIA**

**6. MARKING OF PRODUCT:**

Name plate according to IEC 60034-1

**7. OTHERS:**

7.1 - It is **KONCAR-MES Ltd.** 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° 09693/C0 BV issue on 15 May 2017 by the Society.

\*\*\* END OF CERTIFICATE \*\*\*