



Marine & Offshore  
Division

Certificate number: 40993/A0 BV

File number: ACE4/883/1

Product code: 2572H

*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*

**SOGA S.P.A**

MONTECCHIO MAGGIORE (VI) - ITALY

*for the type of product*

**ALTERNATING CURRENT GENERATORS (Power below 100kW)**

SK & IB4 series.

**Requirements:**

Bureau Veritas Rules for the Classification of Steel Ships.  
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: 19 Mar 2020**

**For BUREAU VERITAS,**

At BV RIJEKA, on 19 Mar 2015,

Slaven Celic



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](http://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 3 page(s)

## THE SCHEDULE OF APPROVAL

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

Synchronous brushless generator - Type SK & IB4

Single bearing or double bearing

Self excited with exciter and AVR powered by auxiliary winding: (AVR BL4U)

#### **1.1 - Specifications:**

Number of phase:	1 - 3
Number of poles:	4
Rated frequency:	50/60Hz
Voltage:	400/231V - 450/260V, 230V/115V - 240/120V
Power factor:	0,8 - 1
Enclosure and cooling:	IP 23
Duty type:	S1
Insulation class:	H
Temperature rise:	F

#### **1.2 - Approval's range:**

MODEL	kVA	kW	kVA	kW
<b>1 PHASE</b>	<b>230V - 50Hz</b>		<b>240V - 60Hz</b>	
SK 160 SZ 1	5,5	5,5	7	7
SK 160 SA 1	7,5	7,5	9,5	9,5
SK 160 CA 1	9,5	9,5	11,5	11,5
SK 160 CB 1	11,5	11,5	14	14
SK 160 MA 1	14,5	14,5	17,5	17,5
SK 160 LA 1	17,5	17,5	21,5	21,5
<b>3 PHASE</b>	<b>400V - 50Hz</b>		<b>450V - 60Hz</b>	
SK 160 SA	7	5,6	8,5	68
SK 160 CA	9	7,2	11	88
SK 160 CB	11	8,8	13,5	10,8
SK 160 MA	14	11,2	17	13,6
SK 160 MB	16	12,8	19,5	15,6
SK 160 LA	20	16	24	19,2
SK 160 LB	24	19,2	29	23,2
SK 160 WA	29	23,2	35	28
SK 160 WB	32	25,6	38,5	30,8
IB4 SA	20	16	24	19,2
IB4 SB	24	19,2	29	23,2
IB4 MA	29	23,2	35	28
IB4 MB	36	28,8	43	34,4
IB4 LA	40	32	48	38,4
SK 225 SM	52	41,6	63	50,4
SK 225 MS	64	51,2	77	61,6
SK 225 MM	75	60	90	72
SK 225 ML	85	68	99	79,2

### **2. DOCUMENTS AND DRAWINGS:**

As per SINCRO technical description Z58979E Issue 1 dated Feb.2015.

### **3. TEST REPORTS:**

SINCRO:

- Tests report No. 607967, dated 04.Nov.2014.
- Tests report No. 33464, dated 25.Nov.2014.
- Tests report No. 608618, dated 11.Nov.2014.
- Tests report No. 453561, dated 10.Nov.2014.

### **4. APPLICATION / LIMITATION:**

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

**5. PRODUCTION SURVEY REQUIREMENTS:**

5.1 - The **SK & IB4 series** are to be supplied by **SOGA S.P.A** 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.

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

**SINCRO d.o.o.**  
**Industrijska zona Kukuljanovo**  
**Skrljevo**  
**CROATIA**

**SOGA S.P.A**  
**Via della Tecnica 15**  
**MONTECCHIO MAGGIORE (VI)**  
**ITALY**

**6. MARKING OF PRODUCT:**

6.1 - Trade name.

6.2 - Date of manufacture and serial number.

6.3 - Equipment type or model identification under which it was type-tested

**7. OTHERS:**

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 the **SOGA S.P.A** 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.

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