



Marine & Offshore

Certificate number: 43073/A3 BV

File number: ACE6/842/2

Product code: 2592I

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

Vacon Ltd

VAASA - FINLAND

for the type of product

FREQUENCY CONVERTERS (Power 50kW and over)

VACON 100 series.

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.

EC Code: 31.

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: 28 Jan 2021

For Bureau Veritas Marine & Offshore,

At BV TURKU (ABO), on 22 May 2019,

Roger Robertsson



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 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

The **VACON100** are frequency converters for Marine applications.

1.1 - VACON100 approval range:

1.1.1 - Mains voltage 208-240 V, 50-60 Hz

Frequency converter type	Module Drive	Enclosed Drive	45°C continuous current	Frame Size
0100-3L-0205-2-xxxx	IP00, IP21,IP54	-ED	187.5	MR8
0100-3L-0261-2-xxxx	IP00, IP21,IP54	-ED	236	MR9A
0100-3L-0310-2-xxxx	IP00, IP21,IP54	-ED	280.5	MR9A

1.1.2 - Mains voltage 380-500 V, 50-60 Hz

Frequency converter type	Module Drive	Enclosed Drive	45°C continuous current	Frame Size
0100-3L-0105-5-xxxx	IP21, IP54	-	96	MR7
0100-3L-0140-5-xxxx	IP00, IP21,IP54	-ED	122.5	MR8
0100-3L-0170-5-xxxx	IP00, IP21,IP54	-ED	155	MR8
0100-3L-0205-5-xxxx	IP00, IP21,IP54	-ED	187.5	MR8
0100-3L-0261-5-xxxx	IP00, IP21,IP54	-ED	233	MR9A
0100-3L-0310-5-xxxx	IP00, IP21,IP54	-ED	280.5	MR9A
0100-3L-0385-5-xxxx	IP00	-ED	347.5	MR10
0100-3L-0386-5-xxxx	IP00, IP21,IP54	-ED	347.5	MR9B
0100-3L-0460-5-xxxx	IP00	-ED	422.5	MR10
0100-3L-0520-5-xxxx	IP00	-ED	490	MR10
0100-3L-0590-5-xxxx	IP00	-ED	555	MR10
0100-3L-0650-5-xxxx	IP00	-ED	620	MR12
0100-3L-0651-5-xxxx	IP00, IP21,IP54	-ED	620	MR11
0100-3L-0730-5-xxxx	IP00	-ED	690	MR12
0100-3L-0731-5-xxxx	IP00, IP21,IP54	-ED	690	MR11
0100-3L-0820-5-xxxx	IP00	-ED	775	MR12
0100-3L-0920-5-xxxx	IP00	-ED	870	MR12
0100-3L-1040-5-xxxx	IP00	-ED	980	MR12
0100-3L-1180-5-xxxx	IP00	-ED	1050	MR12

1.1.3 - Mains voltage 525-600V, 50-60 Hz

Frequency converter type	Module Drive	Enclosed Drive	45°C continuous current	Frame Size
0100-3L-0080-6-xxxx	IP00, IP21,IP54	-ED	71	MR8
0100-3L-0100-6-xxxx	IP00, IP21,IP54	-ED	90	MR8
0100-3L-0125-6-xxxx	IP00, IP21,IP54	-ED	112.5	MR8
0100-3L-0144-6-xxxx	IP00, IP21,IP54	-ED	134.5	MR9A
0100-3L-0208-6-xxxx	IP00, IP21,IP54	-ED	189	MR9A
0100-3L-0261-6-xxxx	IP00	-ED	234.5	MR10
0100-3L-0262-6-xxxx	IP00, IP21,IP54	-ED	234.5	MR9B
0100-3L-0325-6-xxxx	IP00	-ED	293	MR10
0100-3L-0385-6-xxxx	IP00	-ED	355	MR10
0100-3L-0416-6-xxxx	IP00	-ED	400.5	MR10
0100-3L-0460-6-xxxx	IP00	-ED	438	MR12
0100-3L-0461-6-xxxx	IP00, IP21,IP54	-ED	438	MR11
0100-3L-0520-6-xxxx	IP00	-ED	490	MR12
0100-3L-0521-6-xxxx	IP00, IP21,IP54	-ED	490	MR11
0100-3L-0590-6-xxxx	IP00	-ED	555	MR12
0100-3L-0650-6-xxxx	IP00	-ED	620	MR12
0100-3L-0750-6-xxxx	IP00	-ED	700	MR12
0100-3L-0820-6-xxxx	IP00	-ED	735	MR12

1.1.4 - Mains voltage 525-690 V, 50-60 Hz

Frequency converter type	Module Drive	Enclosed Drive	45°C continuous current	Frame Size
0100-3L-0062-7-xxxx	IP21, IP54	-	57	MR7
0100-3L-0080-7-xxxx	IP00, IP21,IP54	-ED	71	MR8
0100-3L-0100-7-xxxx	IP00, IP21,IP54	-ED	90	MR8
0100-3L-0125-7-xxxx	IP00, IP21,IP54	-ED	112.5	MR8
0100-3L-0144-7-xxxx	IP00, IP21,IP54	-ED	134.5	MR9A
0100-3L-0170-7-xxxx	IP00, IP21,IP54	-ED	157	MR9A
0100-3L-0208-7-xxxx	IP00, IP21,IP54	-ED	189	MR9A
0100-3L-0261-7-xxxx	IP00	-ED	234.5	MR10
0100-3L-0262-7-xxxx	IP00, IP21,IP54	-ED	234.5	MR9B
0100-3L-0325-7-xxxx	IP00	-ED	293	MR10
0100-3L-0385-7-xxxx	IP00	-ED	355	MR10
0100-3L-0416-7-xxxx	IP00	-ED	400.5	MR10
0100-3L-0460-7-xxxx	IP00	-ED	438	MR12
0100-3L-0461-7-xxxx	IP00, IP21,IP54	-ED	438	MR11
0100-3L-0520-7-xxxx	IP00	-ED	490	MR12
0100-3L-0521-7-xxxx	IP00, IP21,IP54	-ED	490	MR11
0100-3L-0590-7-xxxx	IP00	-ED	555	MR12
0100-3L-0650-7-xxxx	IP00	-ED	620	MR12
0100-3L-0750-7-xxxx	IP00	-ED	700	MR12
0100-3L-0820-7-xxxx	IP00	-ED	735	MR12

2. DOCUMENTS AND DRAWINGS :

VACON100 installation manual for wall mounted drives, ref. DPD01711F, dated 20.Feb.2015.
VACON100 installation manual for IP00 drives, ref. DPD01665B, dated 15.Jun.2015.
VACON100 marine installation guide, ref. DPD01773A Rev. A, dated 11.Aug.2015.
VACON100 installation manual for enclosed drives, ref. DPD01666B, dated 25.Jun.2015.
VACON100 installation instruction for drive supply switch, ref. DPD01421 Rev. A, dated 13.Jan.2014.
VACON100 data sheet, ref. BC00446A.
VACON100 X installation manual, ref. DPD00534H Rev. H, dated 10.Jul.2015.
VACON100 X Mains switch manual, ref. DPD00978B.
VACON100 X Control keypad manual, ref. DPD00979A.
VACON100 X optional heater manual, ref. DPD01097A.
VACON100 X data sheet, ref. DPD01194B.
Drawings refs. Binder#1 & Binder#2 dated 11.Dec.2015.

3. TEST REPORTS :**VACON:**

- Test report No. TED10720 & TED10721, dated 03.Jul.2015
- Test report No. TED10724, dated 17.Jul.2015
- Test report No. TED10728, dated 08.Jul.2015
- Test report No. TED10757 & TED10758, dated 17.Jul.2015

VTT:

- Test report No. VTT-S-02593-15, dated 17.Jun.2015
- Test report No. VTT-S-00567-18, dated 06 Feb.2018
- Test report No. VTT-S-01711-18, dated 10 Apr.2018

SGS:

- Tests report No. 269776-1/2, dated 02.Jan.2013.

4. APPLICATION / LIMITATION :

- 4.1 - BUREAU VERITAS Rules and Regulations for the Classification of Steel Ships.
4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**
4.3 - BUREAU VERITAS Environmental Category, EC Code: **31.**
4.4 - The equipment fulfils the EMC requirements for installation in General Power Distribution Zones.
4.5 - The installation shall comply with the Manufacturer's recommendation described in the above-referenced documentation.
4.6 - The VACON 100 & 100X series use a derating factor as follows:

Models	Maximum temperature	Derating possible
VACON 100	40°C	40-50°C derate 1.5%/°C, 50-55°C derate 2.5%/°C

Note: Frequency converters with safety-related options have a maximum ambient temperature of 40°C.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The **VACON 100 & 100X series** are to be supplied by **Vacon Ltd** in compliance with the type and the requirements described in this certificate.

5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.

5.3 - BV product certificate is required.

5.4 - For information, **Vacon Ltd** has declared to Bureau Veritas the following production site(s):

Vacon Ltd
Runsorintie 7
65380 Vaasa
Finland

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

6.4 - \ or @conformity marking, as relevant

7. OTHERS :

7.1 - It is **Vacon 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 No. 43073/A2 BV issued on 18 Nov.2016 by the Society.

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