



Marine & Offshore
Division

Certificate number: 14584/C0 BV

File number: ACE 06/842/01

Product code: 2592I

This certificate is not valid when presented without the full attached schedule composed of 7 sections

www.veristar.com

TYPE APPROVAL CERTIFICATE

This certificate is issued to

Vacon Ltd

VAASA - FINLAND

for the type of product

FREQUENCY CONVERTERS

Frequency converter, types: NXS, NXP and NXL.

Requirements:

BV Rules for the Classification of Steel Ships.

IEC 61800-5-1 (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: 05 Sep 2021

For BUREAU VERITAS,

At BV HELSINKI, on 05 Sep 2016,

Tommy Andersson



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.

The electronic version is available at: <http://www.veristarm.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=ivsmotqise>

BV Mod. Ad.E 530 October 2014

This certificate consists of 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Frequency converter type NXS

NXS industrial drive
 208 - 240V, 3 phases
 0.37 - 75 kW
 380 - 500V, 3 phases
 0.75 - 400 kW
 525 - 690V, 3 phases
 2.2 - 560 kW
 IP 00, IP 21 or IP 54

Control without sensor
 Suitable for multi-motor applications.
 High-speed applications (up to 7200 Hz) possible
 Air cooled power unit
 Room for up to five I/O cards
 Detachable remote operation keypad

Frequency converter type NXP

NXP high performance drive
 208 - 240V, 3 phases
 0.30 - 75 kW
 380 - 500V, 3 phases
 0.75 - 1500 kW
 525 - 690V, 3 phases
 2.2 - 2000 kW
 IP 00, IP 21, IP 23 or IP 54

NXP liquid cooled drive

380 - 500V, 3 phases
 7.5 - 5150 kW
 525 - 690V, 3 phases
 5.5 - 5300 kW
 IP 00

"P" can be replaced by I, A, N, F or B depending on the software application used.

I = Inverter
 A = Active frontend
 N = non regenerative frontend
 F = fundamental frontend
 B = brake chopper unit

Control with or without sensor
 Suitable for multi-motor applications.
 High-speed applications (up to 7200 Hz) possible
 Air cooled / water cooled power unit (also R134A coolant)
 Room for up to five I/O cards
 Detachable remote operation keypad
 Full torque control at all speeds, including zero
 Parallel power units possible.

Frequency converter type NXL

NXL general purpose drive

208 - 240V

0.25 - 0.37 kW, 1 phase

0.55 - 1.5 kW, 1/3 phase

380 - 500V

0.55 kW - 37 kW, 3 phases

IP 20, IP 21 or IP 54

Drives can be accompanied with additional AC chokes (CHK), filters (SIN-, RFI, L, LCL, DUT) and heat exchangers (HXL, HXM, HXS and HXT).

Drives can be used in DP applications (Dynapos SAM, Dynapos AM/AT, Dynapos AM/AT R, Dynapos AM/AT RS).

Frequency converter type NXP

2. DOCUMENTS AND DRAWINGS:

In accordance with the information filed in the ACE 06/842/01.

For C0 version:

For CH60 version:

- CH61/CH60 comparison, dated 08.Feb.2016.
- Vacon NXP product brochure ref. BC000054F, dated 15.Sep.2015
- NXP service manual ref. DPD01796 Rev. 2, dated 29.Mar.2016.
- NX drives user manual ref. DPD01795C, Rev. C, dated 05.Feb.2016.
- LC NFE drawing dated 16.Sep.2015.
- LC NFE main circuit diagram ref. TED10364 Rev. B, dated 07.May.2015.
- Dimensions drawing ref. 70CMC10094 Rev. A, dated 18.Sep.2015.

3. TEST REPORTS:

In accordance with the tests reports filed in the ACE 06/842/01.

For C0 version:

For CH60 version:

- IEC 61800-5-1 tests report dated 19.Jan.2016.
- Tests report ref. E171278, dated 14.Jan.2016.
- Vibration test report ref. 15.3.414 Ver. 1.0.0, dated 25.Sep.2015.
- Insulation resistance test dated 11.Apr.2016.

4. APPLICATION / LIMITATION:

4.1 - According to BV Rules 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 - On board installation & Maintenance requirements:

In accordance with the manufacturer instructions.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The **NXx drives 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.

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 (I product only).

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 N° 14584/B0 BV issued on 22.Sep.2011. by the Society.

*** END OF CERTIFICATE ***