



MARINE DIVISION

Certificate number: 14584/B0 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

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

Vacon Oyj
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.

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: 22 Sep 2016

For BUREAU VERITAS,

At BV HELSINKI, on 22 Sep 2011,

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 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 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 1, 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).

2. DOCUMENTS AND DRAWINGS:

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

3. TEST REPORTS:

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

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 above products are to be manufactured, examined and tested by **Vacon Oyi, Vaasa - Finland** in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.

5.2 - Arrangements shall be made for a Society's Surveyor to attend the relevant tests and examinations at manufacturer's works or to perform the relevant audits when an alternative survey scheme (BV Mode I) has been agreed. Relevant Bureau Veritas certificate will be issued after satisfactory completion of the procedure.

6. MARKING OF PRODUCT:

- Trade name.
- Date of manufacture and serial number.
- Equipment type or model identification under which it was type-tested.

7. OTHERS:

7.1 - 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 **Vacon Oyi, Vaasa - Finland**, will accept full responsibility for informing shipbuilders, shipowners or their sub-contractors of the proper methods of use and general maintenance of the units and the conditions of this approval.

7.2 - This Certificate supersedes the Type Approval Certificate N° 14584/A1 BV issued on 13/09/2006 by the Society.

*** END OF CERTIFICATE ***