



CERTIFICATE NUMBER

DATE

09-LD451536-PDA

01 May 2009

ABS TECHNICAL OFFICE

London Engineering Department

CERTIFICATE OF Design Assessment

This is to Certify that a representative of this Bureau did, at the request of
VACON OYJ - VAASA

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate. It will remain valid as noted below or until the Rules or specifications used in the assessment are revised (whichever occurs first).

PRODUCT: Motor Controller, Variable Speed Drives

MODEL: VACON NX_ Series

ABS RULE: 2009 Steel Vessel Rules 1-1-4/7.7, 4-8-3/7.5 and 4-9-7/Table 9.

OTHER STANDARD: EN 50178, EN 60068-2-6, EN 60204-1, EN61800, IEC60092, IEC61000, IEC60068, IEC60947, IEC60529, IEC60533, (relevant sections); IACS UR E22;

AMERICAN BUREAU OF SHIPPING

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Product: Motor Controller, Variable Speed Drives

Model: VACON NX_ Series

Intended Service:

Motor Controller for use in propulsion, thrusters, pumps, cranes etc. for ships and offshore installations

Description:

Following drive models and their configurations are listed in the attached sheets.

NXL Compact Drives: MF2 to MF6, 208V to 500V, Continuous load current rating from 1.3Aac to 47Aac.

Enclosure IP20, IP21 and IP54.

NXS Standard Drives: FR4 to FR14, 208V to 690V, Continuous load current rating from 2.2Aac to 730Aac, Enclosure IP21 and IP54.

NXP High Performance Drives: FR4 to FR14, 208V to 690V, Continuous load current rating from I low 4.1Aac / I high 2.4Aac to I low 2365Aac / I high 1940Aac, Enclosure IP00, IP21 and IP54, Up to max of 8987A is possible by paralleling 4 modules (4x2365x0,95).

NXI common DC drives: FR4, FR6 to FR8 and FI9 to FI13, 465Vdc - 1100Vdc, Continuous load current rating from I low 4.1Aac / I high 2.4Aac to I low 2365Aac / I high 1940Aac, Up to max of 8987A is possible by paralleling 4 modules (4x2365x0,95). Enclosure IP00, with NXA, NXB & NXF software applications

NXN non-regenerative front-end, FR19, Continuous load current rating I low 650Aac / I high 507Aac, Enclosure IP00 (External AC Choke to be used in all IP00 Frequency drives and rectifiers)

Following drive models and their configuration are also possible as per the attached sheets.

NXL Drives: MF2 to MF6

NXS Drives: FR4 to FR14

NXP Drives: FR4 to FR14 NXI Drives: FR4, FR6 to FR8 and FI9 to FI13, with NXA, NXB & NXF software applications

NXN Drives: FR19.

Ratings:

IP00, IP20, IP21 & IP54, 208V to 690V AC.



Enclosures IP00, IP20, IP21 and IP54, voltage and current ratings as per the manufacturer's manuals

Enclosures IP00, IP20, IP21 and IP54, voltage ratings from 208 VAC to 690 VAC and 465 VDC to 1100 VDC, current ratings from 1.3 A to 2365 A and with Vacon Drisynch TM up to max 8987 A (4x2365x0,95) as per the manufacturer's manuals.

Service Restrictions:

Unit Certification is required for this product if the components are used for essential services in accordance with 4-8-3/5.11.1 of the SVR.

Comments:

1) Tests and approval are for the basic components. Each configuration and external connection is to be specifically approved for propulsion and DP applications.

2) Main propulsion control systems are assigned with System Category II in accordance with 4-9-6/Table 2 of the SVR. If the subject drives are used in main propulsion system, evidence of documentation as required by 4-9-6/Table 3 of the SVR is to be submitted for review when requested.

3) We note that frame 10 and above drives are delivered as IP00 modules and they do not comply with EMC requirement as per 4-9-7/Table 9 of the Rules for Building and Classing Steel Vessels. Planned EMC measures are required to be submitted for review prior to installation of these models on board.

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Notes / Drawings / Documentation:

Test report - fr9 emc 400v, emc test report - emc fr 8 690v, test report - emc fr8 500v, insitu test report, unit under test - fr9 vibration appendix, fr7 related, fr8 related, fr9 related, test report, emc test report, eu conformity declaration, heat test, fr9 500v heat test, damp heat test report, main circuit diagram, mechanical tests for the nx serie, vibration test report, test arrangement, green passport statement, manuals for nxp, nxs & nxl, operation principle and test procedures.

Term of Validity:

This Design Assessment Certificate number 09-LD451536-PDA, dated 01/May/2009 will expire on 30/Apr/2014 or at an earlier date should there be alterations to the product's design or changes to the referenced ABS Rules and other specifications, which affect the product. Product use on or after 1 January 2010, will be subject to compliance with the ABS Rules or specifications in effect when the vessel, MODU or facility is contracted. The product's acceptability on board ABS-classed vessels or facilities is defined in the service restrictions of this certificate.

STANDARDS**ABS Rules:**

2009 Steel Vessel Rules 1-1-4/7.7, 4-8-3/7.5 and 4-9-7/Table 9.

International:

EN 50178, EN 60068-2-6, EN 60204-1, EN61800, IEC60092, IEC61000, IEC60068, IEC60947, IEC60529, IEC60533, (relevant sections)

Others:

IACS UR E22

