Certificate Number: 14-LD451536-3-PDA
18/DEC/2014

Confirmation of Product Type Approval

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

Pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of . The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until 02/JUN/2019 subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Product Name: Motor Controller, Variable Speed Drives
Model Name(s): VACON NX_ Series

Presented to:
VACON OYJ
P.O. BOX 25
RUNSORINTIE 7
Finland

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 61Aac. 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 3.7Aac / 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 FI14, 465Vdc - 1100Vdc, Continuous load current rating from I low 4.1Aac / I high 2.4Aac to I low 2700Aac / I high 2300Aac, Up to max of 10260A is possible by paralleling 4 modules (4x2700x0,95). Enclosure IP00, with NXA, NXB & NXF software applications NXN non-regenerative front-end, FRI9, 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 FI14, with NXA, NXB & NXF software applications NXN Drives: FRI9.

Tier: 5

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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 2700 A and with paralleling up to max 10260 A (4x2700x0.95) as per the manufacturer's manuals.
Service Restrictions:	Unit Certification is required as detailed in 4-8-3/8.7 of the ABS Rules for Building and Classing Steel Vessels (2014).
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) When incorporated in a system of Category I, II or III in accordance with 4-9-3/7.1 and 4-9-3/Table 1 of the ABS Rules for Building and Classing Steel Vessels 2014 the documentation detailed in 4-9-3/Table 2 is to be submitted to ABS or to be available for review by ABS as applicable. 3) We note that FI9, 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.
Notes / Documentation:	This Product Design Assessment (PDA) is valid only for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.
Term of Validity:	This Product Design Assessment (PDA) Certificate 14-LD451536-3-PDA, dated 13/Aug/2014 remains valid until 02/Jun/2019 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.
ABS Rules:	The Rules applicable to this assessment are: - Steel Vessel Rules (2014) 1-1-4/7.7, 1-1-A 3; 4-8-3/5.7; 4-8-3/8.3; 4-8-3/8.5; 4-9-8/Table 1. - Steel Vessels Under 90 Meters (295 Feet) in Length (2014) 1-1-4/7.7, 1-1-A 3 and 4; 4-6-3/3.13 - Facilities on Offshore Installations (2014) 1-1-4/9.7, 1-1-A 2 and 3 - Offshore Support Vessels (2014) 1-1-4/7.7, 1-1-A 3 and 4; 4-8-3/5.7; 4-8-3/8.3; 4-8-3/8.5; 4-9-8/Table 1. - Mobile Offshore Drilling Units Rules (2014) 1-1-4/9.7, 1-1-A 2 and 3; ; 6-1-7/12.3 & 5; 6-1-7/9.15. - Steel Vessels for Service on Rivers and Intracoastal Waterways (2014) 1-1-4/7.7, 1-1-A 3 and 4; 4-5-3/3.13 -High Speed Craft (2014): 1-1-4/11.9, 1-1-A 2 and 3;4-6-3/3.13
National Standards:	
International Standards:	EN 50178, EN 60068-2-6, EN 60204-1, EN61800, IEC60092, IEC61000, IEC60068, IEC60947, IEC60529, IEC60533.
Government Authority:	
EUMED:	
Others:	IACS UR E22

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	14-LD451536-3-PDA	13/AUG/2014	02/JUN/2019

ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey

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procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.

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