Certificate Number:

Confirmation of Type Approval

This is to certify that, pursuant to the Rules of American Bureau of Shipping (ABS), on 17/OCT/2007 the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) and a valid Product Design Assessment (PDA) for the below listed product, entitling the product to type approval. The validity of the Manufacturing Assessment is dependent on satisfactory audits as required by the Rules. The Product Design Assessment 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.

For Date of ABS Rules used for evaluation; Please refer to the ABS Rules below.

This Confirmation of Product Type Approval is valid as of the date shown above for the below listed 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 evaluation.

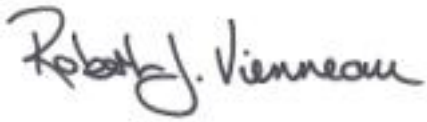
Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that the Client has full responsibility for continued compliance with the evaluation standard, whether the standard is an ABS Rule or a non-ABS Rule. As specified in the ABS Rules, Unit Certification may be required in addition to Product Type Approval. Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

ABB Oy, Drives
Model Name(s): ACS800LC

Presented to:
ABB Oy, Drives
P.O. Box 184
Hiomotie 13
Helsinki
FIN-00381
Finland

Intended Service:	Electrical drives for Ships and Offshore Units.
Description:	ACS800LC is based on the control algorithm of DTC resulting ultimate torque and speed performance. The drive can be configured in multi drive or single drive mode to control synchronous as well as induction motors. Depending on the configuration, 55KVA to 6000KVA of power at 400V to 690V of supply voltage can be achieved. ACS800LC consists of Supply Unit (DSU or ISU), LCL-Filter, and Inverter Unit (INU) with optional units Braking Unit (BRC), System Control Unit and Liquid Cooling Unit. These modules can be arranged according to the required power and motor configuration. A number of converter modules (rectifier or inverter) can be linked to a common DC bus, thus enabling multiple machine operation with parallel driving and braking. The sub module Diode Supply Unit is available in four different configurations; ACS800-304LC(D3) consisting of one six pulse bridge used with two types of 3-branch input chokes and ACS800-704LC(D4) consisting two six pulse bridges in connection with two types of 3-branch chokes. IGBT Supply Unit (ISU) is identical to INU module. LCL Filter unit is used only with ISU module between ISU and supply network to maintain THD level below 5%. Inverter Unit (INU) mainly consists of a self commutated voltage source inverter bridge of phase modules with IGBTs and associated components.
Ratings:	Nominal 3-phase supply voltage: range 400V, 500V and 690V. Power Rating: 55KVA - 6000KVA, IP Ratings; IP42/IP54 (fully closed), IP20 with open door
Service Restrictions:	Unit Certification is required for drive units of 100 kW and over, where required for

	essential services as per 4-8-3/5.11 and 4-8-5/5.17.9 of the Rules.
Comments:	Not Applicable
Notes / Documentation:	ACS800LC Marine Approval Documents - 00543623
Term of Validity:	This Design Assessment Certificate number 07-LD257374-PDA, dated 04/Jul/2007 will expire on 03/Jul/2012 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 2008, 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.
ABS Rules:	2007 Steel Vessel Rules 1-1-4/7.7, 4-8-3/7.5, 4-8-5/5 and 4-9-7/Table 9 and Table 10.
National Standards:	
International Standards:	IEC60092, IEC60146, IEC60664, IEC60947, IEC60529, IEC60533, IEC61800 (relevant sections)
Government Authority:	
EUMED:	
Others:	



Manager, 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 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.