



Confirmation of Product Type Approval 13/SEP/2011

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

This is to certify that, 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 30/AUG/2016. 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 06/APR/2016 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.

HYDE MARINE INC.

Model Name(s): GUARDIAN Type HG60 to HG6000

Presented to:

HYDE MARINE INC.
2000 MCCLARE WOODS DRIVE
PITTSBURGH
United States

Intended Service:	Marine Vessels-Treatment of Ship's Ballast Water
Description:	Hyde Marine Ballast Water Treatment System is based on Solids Separation and UV Irradiation. The Hyde Marine System utilizes existing Ballast Pumps and Piping.
Ratings:	Flow Rate(M ³ /hr): 60 to 6000 (See attachment for specific details) Filtration grade (µm): 55 Filter unit diameter (inch): 3, 4, 6 UV-C light source Size of Chamber (inch): 8, 16, & 20 Number of lamps: 6, 8, 12, Or 18 Lamp power (kW): 2, 3.5 or 5 Enclosure Power Panel : IP66 Control Panel - Type 1, 12, 4 Maximum water pressure (bar): 10 Maximum water temperature (°C): 80
Service Restrictions:	Unit Certification is not required for this product. 1. The Hyde GUARDIAN Ballast Water Treatment System Skid-Unit is not to be installed in Hazardous Areas or in the near vicinity of Hot Surfaces and Equipment Containing Flammable Liquids or Substances (See item 4 below) 2. Detailed Ship's Installation Arrangement Plans are to be submitted for approval. The plans are to clearly indicate and/or include information such as the following (but not be limited to): a. Location of the Hyde GUARDIAN ballast water treatment skid-unit b. Connection details into ship's ballast piping arrangements. c. Types and operating controls for system isolation valves. d. location of local fire extinguishing systems, if any.3. Please note that depending on the exact location of the installed Skid-Unit within a Category A Machinery Space, Local Firefighting Arrangements and/or Metallic Enclosure Covering the Plastic Filter Assembly (including associated Plastic Molded Pipes and Components) may be required at the discretion of the Bureau. 4. Inlet, Outlet and Drain Pipes connected to the Skid-Mounted Unit are to be made of Steel or

Equivalent Material. However, Fiber Reinforced Pipe (FRP) of approved Type and suitable design, which have passed at least the Fire Endurance Test, Level 3 (L3) could be considered for these purposes. 5. For all ABS Classed Vessels and MODUs, the Flag Administration's Mandatory Requirements for Plastic Pipes and Components are to be satisfied. 6. The installation of Hyde GUARDIAN Ballast Water Treatment System is to have the approval of the vessel's Flag Administration. If the manufacturer or purchaser requests an ABS Certification for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:

1) The booster pump is to have motor overload protection set to at least 100% of the motor rated current and not more than 125% of the motor rated current. 2) The disconnecting device may be in the same enclosure with the controller, in which case it is to be externally operable. If the disconnecting device is not within sight of both the motor and the controller, or if it is more than 15 m (50 ft) from either, it is to be arranged for locking in the open position as per 4-8-4/9.3.2 of the SV Rules. 3) The disconnect device is to be provided with an indication of whether it is open or closed as per 4-8-4/9.3.3 if the SV Rules. The scope of Type Approval is to comply with "MSC.1/Circ.1221 dated 11 December 2006 - Validity of Type Approval Certification for Marine Products"

**Notes / Documentation:
Term of Validity:**

This Product Design Assessment (PDA) Certificate 10-HS490473-2-PDA, dated 07/Apr/2011 remains valid until 06/Apr/2016 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:

2010 Steel Vessels Rules 1-1-4/7.7

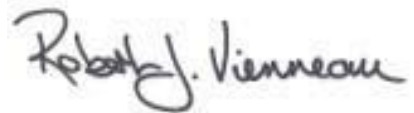
**National Standards:
International Standards:**

IMO Res. MEPC.174(58)- Guide Lines for approval of ballast water management systems (G8). ISO 1183, ISO 1133, DIN EN ISO 179, DIN EN ISO 527, DIN ISO 2039-1, DIN ESO 868, DIN 53736, DIN 52612, VDE 0303-21, DIN IEC 93, DIN IEC 167, DIN IEC 112, DIN 4102, DIN 53495, DIN 8078.

**Government Authority:
EUMED:
Others:**

MCA Type Approval, April 2009.

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	10-HS490473-2-PDA	07/APR/2011	06/APR/2016



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.