



## *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 29-JUN-2022. 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 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:** Shaft Seal System  
**Model Name(s):** DryMax® Shaft Seal & Rudder Seal System

**Presented to:**  
DURAMAX MARINE LLC  
17990 Great Lakes Parkway  
OH 44234  
United States

<b>Intended Service:</b>	Marine & Offshore Application
<b>Description:</b>	Water lubricated seal designed for sealing stern tube, rudder and fin stabilizer applications, consisting of DryMax bronze housing, inflatable air seal ring assembly, primary DryMax Seal ring assembly, spare DryMax seal ring assembly and shaft earthing assembly.
<b>Tier:</b>	3
<b>Ratings:</b>	Shaft Size Range: between 64mm (2.5") to 927mm (36.49") Max. Allowable Pressure: 22 MPa (32psi) More details as per attachment
<b>Service Restrictions:</b>	1. Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
<b>Comments:</b>	1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. 2. shaft bearings and associated piping does not cover by this PDA. The bearings and piping are subject to ABS approval on case by case. 3. Installation and works are to be in accordance with Manufacturer's procedures and to the satisfaction of the attending Surveyor at Shipyard or on-board.
<b>Notes / Documentation:</b>	Dwg. No. 0300 Rudder Seal, Rev.-, seal for 3.00" Shaft Dwg. No. 1000 Rudder Seal, Rev.-, Seal for 10.00" Shaft Dwg. No. 1800 Rudder Seal, Rev.-, Seal for

18.00" Shaft Dwg. No. 2400 Rudder Seal, Rev.-, Seal for 24.00" Shaft Dwg. No. 2300 Rudder Seal, Rev.-, Seal for 36.00" Shaft Dwg. No. 84413000013, Rev. A, DryMax Seal Assembly Model 300 Dwg. No. 84411000013, Rev. A, DryMax Sseal Assembly Model 1000 Dwg. No. 84413600013, Rev. A, DryMax Seal Assembly Model 3600 Dwg. No.-, Rev.-, DryMax Technical Manual Dwg. No.-, Rev.-, DryMax Seal Test Report 19 Jun 2017 Dwg. No.F36819BS, Rev,-,Laboratory Test DryMax Steal Ring and Air Seal Test Report 19 Jun 2017

**Term of Validity:**

This Product Design Assessment (PDA) Certificate 17-HS1637366-PDA, dated 30/Jun/2017 remains valid until 29/Jun/2022 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:**

Rules for Building and Classing Steel Vessels (2017): 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following: Steel Vessels Rules (2017): 4-3-2/5.13, 4-3-8/5.5 Steel Vessels Rules Under 90 M in Length (2017): 4-3-6/5.5 Offshore Support Vessels (2017): 4-3-2/5.13, 4-3-9/5.5

- National Standards:**
- International Standards:**
- Government Authority:**
- EUMED:**
- Others:**

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	17-HS1637366-PDA	17-JUL-2017	29-JUN-2022



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.