



## *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 18/FEB/2020. 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 15/JAN/2020 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: Bearing, Rudder**  
**Model Name(s): CIP Marine Composite**

**Presented to:**  
COLUMBIA INDUSTRIAL PRODUCTS  
29538 AIRPORT ROAD UNIT A  
United States

<b>Intended Service:</b>	Support of Rudder and Rudder Stock.
<b>Description:</b>	Rudder Bearings. Multi groove, full diameter, water lubricated bearings installed in stem casting or stern frame structure with freeze fit or interference fit.
<b>Tier:</b>	3
<b>Ratings:</b>	CIP Marine Cylindrical Bearings are supplied for Rudder Stock/Liner sizes 4" (102 mm) to 32" (813 mm). Maximum Nominal Bearing Pressure: 1740 psi (12 N/mm <sup>2</sup> ) (See Comment 4). The Maximum Length to Diameter of the Bearing Surface is 1.2.
<b>Service Restrictions:</b>	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>	The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. 1) The clearance of non-metallic bearings is to be specially determined considering the material's swelling and thermal expansion properties. See 3-2-14/15.1.2(ii) of the Rules. 2) The manufacturer's recommended wall thickness for new bearing designs is 0.04 inches x the rudder stock/liner diameter plus 0.08 inches. 3) For bearing dimensions, clearance, machining, operating temperature, machining temperature, calculations, wear, tolerances, and installation procedure (freeze method), see manufacturer marine engineering manual. 4) Allowable surface pressure for synthetic bearing material with hardness

between 60 and 70 Shore D is indicated in 3-2-14/Table 6 of the Rules. Higher values than given in 3-2-14/Table 6 of the Rules may be taken if they are verified by tests.

**Notes / Documentation:** Supporting Data: Doc. No. 50002, CIP Marine Material Spec Sheet, Revision: 00, Pages: 1

**Term of Validity:** This Product Design Assessment (PDA) Certificate 14-HS1303029-PDA, dated 16/Jan/2015 remains valid until 15/Jan/2020 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 Conditions of Classification, Part 1 - 2015 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following: 2015 Steel Vessels: 3-2-14/15.1; 2015 Steel Vessels Under 90 Meters (295 Feet) in Length: 3-2-11/15.1;

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

Manufacturer standard

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	14-HS1303029-PDA	16/JAN/2015	15/JAN/2020



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.