



Confirmation of Product Type Approval 04/OCT/2010

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 16/MAR/2015. 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 28/MAY/2014 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.

COLUMBIA INDUSTRIAL PRODUCTS Model Name(s): CIP Marine Composite

Presented to:

COLUMBIA INDUSTRIAL PRODUCTS
29538 AIRPORT ROAD UNIT A
EUGENE
United States

Intended Service:	Support of Rudder and Rudder Stock.
Description:	Rudder Bearings. Multi groove, full diameter, water lubricated bearings installed in stem casting or stern frame structure with freeze fit or interference fit.
Ratings:	CIP Marine Cylindrical Bearings are supplied for Rudder Stock/Liner sizes 4" (102 mm) to 32" (813 mm). Maximum 1740 psi (12 N/mm ²) Nominal Bearing Pressure. See Comment 4. The Maximum Length to Diameter of the Bearing Surface is 1.2.
Service Restrictions:	Unit Certification is not required for this product.
Comments:	1) The clearance of non-metallic bearings is to be specially determined considering the material's swelling and thermal expansion properties. See 3-2-14/17.1.2 and 3-2-11/17.1.2 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 2 and 3-2-11/Table 2 of the Rules. Higher values than given in table 2 may be taken if they are verified by tests.
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 Design Assessment Certificate number 04-HS443531B/1-PDA, dated 29/May/2009 will expire on 28/May/2014 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 2010, 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: 2009 Steel Vessels Rules 1-1-4/7.7, 3-2-14/17.1, 3-2-14/17.3, 3-2-14/Table 2, 3-2-14/17.1.2 & 3-2-11/17.1.2 2006 Steel Vessels Rules < 90M in Length 3-2-11/17.1, 3-2-11/17.3, 3-2-11/Table 2

National Standards:
International Standards:

Government Authority:

EUMED:

Others: Manufacturer standard

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	04-HS443531B/1-PDA	29/MAY/2009	28/MAY/2014



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.