CERTIFICATE NUMBER
17-HS1634919-PDA

DATE
06 Jun 2017

ABS TECHNICAL OFFICE
Houston ESD - Ship Equipment

CERTIFICATE OF DESIGN ASSESSMENT

This is to certify that a representative of this Bureau did, at the request of

FORTRESS MARINE ANCHORS

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: **Anchor, Fluke Type**

Model: **FX-7**

This Product Design Assessment (PDA) Certificate 17-HS1634919-PDA, dated 06/Jun/2017 remains valid until 05/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.

AMERICAN BUREAU OF SHIPPING

Ting Jiang
Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

FORTRESS MARINE ANCHORS
1386 WEST MC NAB ROAD
FORT LAUDERDALE FL
United States 33309
Telephone: 954-978-9988
Fax: 954-974-5378
Email: info@fortressanchors.com
Web: www.fortressanchors.com

Tier: 5 - Unit Certification Required

Product: **Anchor, Fluke Type**
Model: **FX-7**
Intended Service:
Marine & Offshore Application - Super High Holding Power (SHHP) for Temporary Anchoring, Permanent Mooring - for Vessels from 16 to 27 ft (5 to 8m) LOA.

Description:
Fluke Type, machined from a high tensile, corrosion resistant aluminum magnesium alloy and tough anodized finish

Rating:
Fortress Model FX-7
Anchor Weight: 4lb (1.8kg), Working Load: 700lb;
Shank Length: 24, Fluke Length: 14", Stock Length: 19";
32° Hard Sand Holding Power: 2,800 lb;
45° Soft Mud Holding Power: 840 lb;
32° Soft Mud Holding Power: 420 lb;
Supporting Hardware: Proof Coil Chain-3/16" (6mm), Nylon Rope Dia-3/8" (9mm), Shackle Size-1/4" (6mm).

Service Restriction:
Unit Certification is required for this product, for ABS classed vessels, if the equipment symbol (circle E) is requested, the anchors are to be reviewed specifically on a case-by-case basis as indicated in 2017 Guide for Building and Classing Yachts (The Yacht Guide) Part 3 Chapter 5 Section 1. The equipment symbol is required for all Commercial Yachting Service and Passenger Yachting Service as per 2017 ABS Yacht Guide.

Comments:
Hard Sand Hold Power Figures above represent loads actually achieved in controlled tests on production FORTRESS Anchors, under Horizontal Pull Conditions, without resulting in disabling structural deformation.
U.S. Navy Test Data : Anchor Test Report for Nine Small Movable - Fluke Anchors NAVSEA Report # 835-6269039 dated June 1989.
Anchor Size are recommendations are for boats of average windage and proportions, 30 knots of wind, average bottom conditions and moderate protection from open seas, For storm conditions, Fortress recommends using an anchor one or two sizes larger.

Notes/Drawing/Documentation:
Model: FX-7
Dwg No. 22-F7, Rev. B, Clip F-7, Pages: 1;
Dwg No. 24-F7, Rev. B, Stock FX Big, Pages: 1;
Dwg No. 25-F7, Rev. C, Fluke FX, Pages: 1;
Dwg No. 26-F7, Rev. A, Shank FX Big Stock, Pages: 1;
Dwg No. 27-F7, Rev. D, Crown FXC, Pages:1;
Dwg No. 94P-7, Rev. B, Palm, Pages: 1;

Terms of Validity:
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Tier: 5 - Unit Certification Required

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STANDARDS

ABS Rules:
2017 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4,
2017 Guide for Building and Classing Yachts: 4-1-1/3.3, 1-1-A3, 1-1-A4, 2-2-1, 3-5-1

National:
NA

International:
NA

Government:
NAVSEA Report # 835-6269039 dated June 1989

EUMED:
NA

OTHERS:
NA