Confirmation of Product Type Approval

Company Name: STRONGWELL

Address: CHATFIELD DIVISION1610 HIGHWAY 52 SOUTH CHATFIELD MN 559239799 United States

Product: FRP Guardrails

Model(s): Strongwell Safrail Fiberglass Handrails and Ladders.

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	23-2432322-PDA	31-OCT-2023	30-OCT-2028
Manufacturing Assessment (MA)	23-6066976	07-NOV-2023	06-NOV-2028
Product Quality Assurance (PQA)	NA	NA	NA

Tier
3 - Type Approved, unit certification not required

Intended Service
Marine & Offshore Applications - Fiberglass Handrails and Ladders.

Description
1). Polyester, Vinylester or Phenolic handrail system: Post or rail cross-section may be Square (2x2-inch hollow section with 0.16-inch wall thickness) or Round (1.9-inch diam. with 0.2-inch wall thickness).

2). Polyester or Vinylester ladder system: Side rail cross-section is Square (2x2-inch hollow section with 0.16-inch wall thickness) with Rung (1 1/4-inch x 0.92-inch fluted tube or Ø1-inch solid rod).

3). Phenolic ladder system: Side rail cross-section is Square (2x2-inch hollow section with 0.16-inch wall thickness) with Rung (1 1/4-inch x 7/8-inch tube with 3/16-inch wall thickness).

4). Phenolic ladder system: Side rail cross-section is Square (2x1.5-inch hollow section with 0.16-inch wall thickness) with Rung (1 1/4-inch x 7/8-inch tube with 3/16-inch wall thickness).

Ratings
1). Flame spread rating not to exceed 20 per ASTM Standard E-84;

2). Weathering and UV degradation testing in accordance with ASTM G-154;

3). Self-extinguishing in accordance with ASTM D-635.

4). Guardrail strength testing in accordance with ASTM E-985 and OSHA 1910.29(b)(3) & 1910.29(b)(4).

5). Ladder strength testing in accordance with OSHA 1910.23(d)(1).

Service Restrictions
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.

2). The scope of the Type Approval is to comply with MSC.1/Circ. 1221 dated 11 December 2006.

3). For handrail, maximum horizontal span length between vertical supports in accordance with ASTM E-985 as invoked by ABS Rules:

1.22 meters (48 inches) for round & square polyester and round phenolic.

1.37 meters (54 inches) for square phenolic.

For handrail, maximum horizontal span length between vertical supports in accordance with OSHA 1910.29(b)(3) & 1910.29(b)(4):

1.52 meters (60 inches) for round polyester and phenolic.

1.83 meters (72 inches) for square polyester and phenolic.

4). For ladder with 457 mm (18 inches) hollow rung width, recommended maximum load is 1200 lbs.

For ladder with 610 mm (24 inches) hollow rung width, recommended maximum load is 1000 lbs.

For ladder with 457 mm (18 inches) or 610 mm (24 inches) solid rung width, recommended maximum load is 1500 lbs.

Maximum ladder standoff bracket spacing is 1.83 meters (72 inches).

5). Installation limited to personnel walkways, catwalks, ladders, platforms or access areas on open decks and semi-enclosed areas and in tanks, cofferdams, void spaces, pipe tunnels/ducts, holds and storage spaces. Not to be used in areas used for escape, firefighting, emergency operation or rescue.

6). Installation in accommodations, service spaces and control stations, and in other areas that are normally manned, is prohibited.

7). Not to be used in areas where steel handrails are required by the International Convention on Load Lines.

8). Prior to installation, plans detailing the intended arrangements are to be submitted to ABS for review. Flag Administration acceptance of the arrangements is required.

9). FRP handrails and ladders must be replaced after a fire incident.

Comments
1). The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

2). Approval not performed on behalf of any flag Administration.

3). Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure that items are of the same standard as tested/approved prototype.

4). Product should be installed/used in accordance with manufacturer's instructions and limitations and ABS approved drawings.

Notes, Drawings and Documentation
1). Element Materials Technology Report Number: ESP011671P.1.Rev1, Load Capacity Testing of Handrail Systems (ASTM E985), 26 April 2013.

2). Element Materials Technology Report Number: ESP011671P.Rev1, Load Capacity Testing of

Handrail Systems (OSHA), 26 April 2013.

3). Intertek Report Number: 100093535SAT-001 Rev. 1, Report of Testing "Fire Retardant Vinylester Pultrusion" for compliance with the applicable requirements of the following criteria: ASTM E84-10 Test.

4). For Surface Burning Characteristics of Building Materials (UL 723, UBC 8-1, NFPA 255), Original Issue Date: April 26, 2010, Revised Date: May 12, 2010.

5). Intertek Report Number: 3152762SAT-001, ASTM E84-05 Standard Duradek or Duragrid Fiberglass Grating, Material ID: Fire Retardant Polyester Grating Test For Surface Burning Characteristics of Building Materials, 28 May 2008.

6). Stork Twin City Testing Corporation Job Number: 30160 09-01793R2, Testing of FRPE Laminate, 6 April 2009.

7). SwRI Report 01.14430.01.084a, Investigation of the Surface Burning Characteristics of a Nominal 1.5 inch thick Fiber Reinforced Plastic (FRP) Grating Panel Material ID: Duragrid Phenolic Grating I6000, 1.5 inch, A8667OC, 17 February 2009.

8). VTEC Laboratories, Inc. Test VTEC 100-3267-1, ASTM D635 Testing on Duragrid Phenolic Grating, 22 July 2009.

9). Strongwell Chatfield Division Test Reports CHA0064, CHA0065, CHA0066, and CHA0067: Safrail Ladder Test dated March 8, 2013.

Term of Validity
This Product Design Assessment (PDA) Certificate remains valid until 30/Oct/2028 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

ABS Rules
2023 Rules for Condition of Classification, Part 1, 1-1-4/7.7, 1-1-A3, and 1-1-A4, which covers the following:

2023 Marine Vessels Rules 3-4-1

2023 Rules for Condition of Classification - Offshore Units and Structures, Part 1, 1-1-4/9.7, 1-1-A2, and 1-1-A3, which covers the following:

2023 Mobile Offshore Units Rules, 5-1-1/3.3 & 3.5 and 5-3/Appendix 2 Fiber Reinforced Plastic (FRP) Guardrails

Note: ABS Rules are applicable for handrails only.

International Standards
NA

EU-MED Standards
NA

National Standards
ASTM E-84-05, -08a & -10.

ASTM E-985-00 (2006).

ASTM G-154-06.

ASTM D-635-06.

Government Standards
OSHA 1910.29 - Handrails

OSHA 1910.23 - Ladders.

Other Standards
NA

Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 14-Dec-2023 5:32

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 is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

Acceptance of product is limited to the “Intended Service” details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. 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.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

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.

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.