



CERTIFICATE NUMBER 21-2162018-PDA
EFFECTIVE DATE 24-Sep-2021
EXPIRATION DATE 23-Sep-2026
ABS TECHNICAL OFFICE Singapore Ship Engineering

CERTIFICATE OF Product Design Assessment

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

USHA MARTIN LIMITED (WIRE ROPES & SPECIALITY PRODUCTS DIVISION)

located at

TATISILWAI, RANCHI, JHARKHAND, INDIA, 835103

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 Wire Rope

Model Nominal Rope Dia. 1/4" to 5" (6mm to 127mm)

This Product Design Assessment (PDA) Certificate remains valid until 23/Sep/2026 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.

American Bureau of Shipping

Ramendra Kumar Pandey

Ramendra Kumar Pandey, Principal Engineer

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 ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

USHA MARTIN LIMITED (WIRE ROPES & SPECIALITY PRODUCTS DIVISION)

TATISILWAI

RANCHI JHARKHAND

India 835103

Telephone: +91 651 7180514

Fax: +91 651 7180409

Email: brag@ushamartin.co.in

Web: www.ushamartin.com

Tier: 3 - Type Approved, unit certification not required

Product: Wire Rope
Model: Nominal Rope Dia. 1/4" to 5" (6mm to 127mm)
Endorsements:

Intended Service:

Type I (General Purpose Wire Ropes), TYPE III (Marine Applications) and TYPE IV (Miscellaneous)

Description:

Stranded Steel Wire Rope

Rating:

- 1) Type-I, Class-1(6 by 7), Construction (6 by 7) or (6x7) -FC/WSC (Dia. 1/4" to 2.3/8", Grade IPS, Min. Breaking Force refers to Table 11 of ASTM A1023/A1023M.
- 2) Type-I, Class-2(6 by 19), Construction [(6 by 19-Warrington) or (6x19W); (6 by 19-Seale) or (6x19S); (6 by 19-Filler) or (6x25F or 6x21F); (6 by 19-Warrington Seale) or (6x26WS)] -FC/WSC/IWRC (Dia. 1/4" to 2.3/8", Grade IPS, EIP, EEIP, Min. Breaking Force refers to Table 12 & 13 of ASTM A1023/A1023M.
- 3) Type-I, Class-3(6 by 37 & 6 by 36), Construction (6 by 37-3 Operation) or (6x37) -FC/WSC/IWRC (Dia. 1/4" to 3", Grade IPS, EIP, Min. Breaking Force refers to Table IX to XI of Federal Specifications RR-W-410, Rev. J.
- 4) Type-I, Class-3(6 by 37 & 6 by 36), Construction (6 by 36-Filler Wire) or (6x29F) -FC/WSC/IWRC (Dia. 3/8" to 2.3/8", Grade IPS, EIP, EEIP, Min. Breaking Force refers to Table 12 & 13 of ASTM A1023/A1023M.
- 5) Type-I, Class-3(6 by 37 & 6 by 36), Construction (6 by 36-Warrington Seale) or (6x31WS, 6x36WS, 6x41WS, 6x46WS) -FC/WSC/IWRC (Dia. 3/8" to 3", Grade IPS, EIP, EEIP, Min. Breaking Force refers to Table 14 & 15 of ASTM A1023/A1023M.
- 6) Type-I, Class-3(6 by 37 & 6 by 36), Construction (6 by 36-Filler Wire-Seale) or (6x37SF, 6x43SF, 6x49SF) -FC/IWRC (Dia. 1/2" to 4", Grade IPS, EIP, EEIP, Min. Breaking Force refers to Table 14 & 15 of ASTM A1023/A1023M.
- 7) Type-I, Class-3(6 by 37 & 6 by 36), Construction (6 by 36-Seale-Warrington-Seale) or (6x43SW, 6x49SW) -FC/IWRC (Dia. 15/8" to 4", Grade IPS, EIP, EEIP, Min. Breaking Force refers to Table 14 & 15 of ASTM A1023/A1023M.
- 8) Type-I, Class-4(8 by 19), Construction (8 by 19-2 Operation), (8 by 19-Warrington), 8 by 19-Seale), 8 by 19-Filler Wire), (8x21F, 8x25F), (8x19S), (8 by 19-Warrington-Seale), (8x19), (8x19W) or (8x26WS) -FC/IWRC (Dia. 1/4" to 2.3/8", Grade IPS, EIP, EEIP, Min. Breaking Force refers to Table 18 of ASTM A1023/A1023M.
- 9) Type-I, Class-5(6 by 61), Construction (6 by 61-Filler Wire-Seale) or (6x55SF) -FC/WSC/IWRC (Dia. 2" to 5", Grade IPS, EIP, EEIP, Minimum Breaking Force refers to Table XIV, XV, XVI of Federal Specifications RR-W-410, Rev. J.
- 10) Type-III, Class-2(6 by 12), Construction (6 by 12-Running Ropes) or (6x12) -FC (Dia. 1/4" to 1.5/8", Grade IPS, Min. Breaking Force refers to Table 24 of ASTM A1023/A1023M.
- 11) Type-III, Class-3(6 by 24-Mooring Lines), Construction (6 by 24-2 Operation), (6 by 24-Seale), (6x24) or (6x24S) -FC (Dia. 1/4" to 1.5/8", Grade IPS, Min. Breaking Force refers to Table 25 of ASTM A1023/A1023M.
- 12) Type-IV, Class-2(18 by 7-Rotation Resistant), Construction (18 by 7-Rotation Resistant) or (18x7) -FC (Dia. 1/4" to 2", Grade IPS, EIP, EEIP Min. Breaking Force refers to Table 21 of ASTM A1023/A1023M.
- 13) Type-IV, Class-2(18 by 7-Rotation Resistant), Construction (19 by 7-Rotation Resistant) or (19x7) -WSC (Dia. 1/4" to 2", Grade IPS, EIP, EEIP Min. Breaking Force refers to Table 32 of ASTM A1023/A1023M.
- 14) Type-IV, Class-3(6 by 27-Flattened Strand), Construction (6 by 27-Style H) or (6x25FS) -FC/IWRC (Dia. 5/8" to 2.3/4", Grade IPS, EIP, EEIP Min. Breaking Force refers to Table 26 & 27 of ASTM A1023/A1023M.
- 15) Type-IV, Class-4(8 by 19-Rotation Resistant) Construction [(8 by 19-Seale) or (8x19S); (8 by 19-Filler Wire) or (8x25F, 8x21F); (8 by 19-Warrington-Seale) or (8x19WS)] -FC/IWRC (Dia. 1/4" to 2.3/8", Grade IPS, EIP, EEIP Min. Breaking Force for IPS & EIP refers to Table XXXVI, XXXVII of Federal Specifications RR-W-410, Rev. J and for EEIP refers to Table 14 of ASTM A1023/A1023M.

Service Restriction:

(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

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tolerances, must be clearly defined.

(2) If the type approved wire ropes are intended for use as towline wire or rope, and hawsers on ABS Classed Vessels, the breaking strength of the rope is to be in accordance with 3-5-1 of ABS Rules for Building & Classing Marine Vessels 2021/Steel Vessels for Service on Rivers and Intracoastal Waterways 2021/High Speed Crafts 2021 or 3-3-1 of ABS Rules for Building & Classing Steel Barges 2021/Bulk Carriers for Service on the Great Lakes 2021 (as applicable), which is not covered under this PDA.

(3) If the wire ropes are intended for use on ABS certified lifting appliances, they must also comply with the ABS Guide for Certification of Lifting Appliances, December 2020. ABS Form "Certificate for Examination and Test of Wire Rope Before Being Taken into Use" must NOT be endorsed by ABS unless the Surveyor confirms the requirements of ABS Guide for Certification of Lifting Appliances, December 2020 are complied with and also witnesses the breaking tests. If USHA MARTIN LIMITED as the manufacturer chooses to endorse this form, the type approval audit would include confirmation that all requirements of ABS Guide for Certification of Lifting Appliances, December 2020 and Federal Specifications RR-W-410 (Rev. J, 22 July 2020), are being followed.

(4) In those instances where flag Administration may have their own specific requirements e.g. USCG, specific flag Administration's approval may be required.

Comments:

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

Notes/Drawing/Documentation:

(1) Document "Title: Sample Design of Rope (Cross Sectional View), Specification: Fed. Specs RR-W-410" - For ropes as listed in the ratings.

(2) Document "Title: Test Reports & Inspection Certificates RR-W-410".

(3) Surveyor's Report Ref: 1816/DM/KK dated 7 August 2001.

(4) Test Result Report dated 18 July 2001.

(5) Test Report No. E A446740001, dated 23 Feb 2018.

(6) Test Report No. E A202490001, dated 14 Jul 2017.

(7) Test Report No. E A287980003, dated 18 Sep 2017.

(8) Test Report No. E A556760001, dated 13 Jun 2018.

(9) Test Report No. E A536180001, dated 13 Jun 2018.

(10) Test Report No. E A578520001, dated 08 Aug 2018.

(11) Test Report No. E A578640001, dated 08 Aug 2018.

(12) Test Report No. E A556770001, dated 13 Jun 2018.

(13) Test Report No. E A146080001, dated 03 May 2017.

Terms of Validity:

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STANDARDS

ABS Rules:

(1) ABS Rules For Building And Classing Marine Vessels Rules (2021): 1-1-4/7.7, 1-1-A3, 1-1-A4;

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(2) ABS Rules For Building And Classing Steel Vessels for Service on Rivers and Intracoastal Waterways (2021): 1-1-4/7.7, 1-1-A3, 1-1-A4;

(3) ABS Rules For Building And Classing Bulk Carriers for Service on the Great Lakes (2021): 1-1-4/7.7, 1-1-A3, 1-1-A4;

(4) ABS Rules For Building And Classing Steel Barges (2021): 1-1-4/7.7, 1-1-A3, 1-1-A4;

(5) ABS Rules For Building And Classing High Speed Crafts (2021): 1-1-4/11.9, 1-1-A2, 1-1-A3;

(6) ABS Rules For Building And Classing Mobile Offshore Units (2021): 1-1-4/9.7, 1-1-A2, 1-1-A3;

(7) ABS Rules For Building And Classing Facilities on Offshore Installations (2021): 1-1-4/9.7, 1-1-A2, 1-1-A3.

National:

Federal Specifications RR-W-410 (Rev. J, 22 July 2020)

International:

NA

Government:

NA

EUMED:

NA

OTHERS:

NA