



CERTIFICATE NUMBER
EFFECTIVE DATE
EXPIRY DATE
ABS TECHNICAL OFFICE

23-2377500-PDA
04-Apr-2023
03-Apr-2028
Busan Ship Engineering

CERTIFICATE OF Product Design Assessment

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

SEAH CHANGWON INTEGRATED SPECIAL STEEL CORPORATION

located at

**147 JEOKHYEON-RO, SEONGSAN-GU, , CHANGWON, Korea,
Republic of**

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: Pipe, Stainless Steel
Model: ASTM A213/A312 Grade TP316/316L
ASTM A790 Grade S32760,
Endorsements:
Tier: 5 - Unit Certification Required

This Product Design Assessment (PDA) Certificate remains valid until 03/Apr/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.

American Bureau Of Shipping

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

SEAH CHANGWON INTEGRATED SPECIAL STEEL CORPORATION

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Tier: 5 - Unit Certification Required

Product: Pipe, Stainless Steel
Model: ASTM A213/A312 Grade TP316/316L
ASTM A790 Grade S32760,

Endorsements:

Intended Service:

Marine & Offshore Applications - Process Piping only.

Description:

Cold/Hot Finished, Solution Heat Treatment, Seamless Austenitic Stainless Steel & Duplex Stainless Steel Pipes & Tubes.

Rating:

Tested Maximim Size:

1. Outside Diameter: 114.3 mm x Wall Thickness: 13.5 mm.
2. Outside Diameter: 114.3 mm x Wall Thickness: 3.05 mm.
3. Outside Diameter: 42.2 mm x Wall Thickness: 9.7 mm.
4. Outside Diameter: 219.1 mm x Wall Thickness: 22.23 mm.
5. Outside Diameter: 273.1 mm x Wall Thickness: 9.27 mm.

Service Restriction:

- Unit Certification is required for this product for use in Class I, and Class II piping, except for hydraulic and Class III piping, as per section 4-6-1/7.1.1 of ABS Marine Vessel Rules.
- In order to unit certify the material, the pipes/tubes are to be tested for all the applicable mechanical tests and witnessed to the satisfaction of an attending ABS Surveyor to meet the requirements of approved grades and standards/Rules
- If the manufacturer or purchaser requests an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:

- The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
- Our approval is based on that ABS Surveyor Test Reports (Report Nos.: BK3289755 dated 18 December 2017 & BK3404171 dated 13 December 2017).
- All Steel Pipe Fittings are to be suitable for the intended piping system in accordance with 4-6-1/Table 1 of the ABS Marine Vessels Rules
- The piping component is to bear permanent identification, such as the manufacturer's name or trademark, the standard of compliance, material identity, pressure rating, etc., as required by the standard of compliance or the manufacturer's specification.
- All tubes (pipes) are to be hydrostatically or NDE tested during manufacturing as per ABS Marine Vessels Rules 2-3-12/29.1. In addition, Class I and II pipes are to be hydrostatically tested as per ABS Marine Vessels Rules 4-6-2/7.3

Notes/Drawing/Documentation:

- Drawing No. 1150-2007-AQ-KOR-RvA, ISO 9001:2015 by DNV GL-BA, Revision: -
- Drawing No. BK3289755 dated 18 December 2017, Surveyor Test Report, Revision: -
- Drawing No. BK3404171 dated 13 December 2017, Surveyor Test Report, Revision: -
- Drawing No. QA-TDS-1802-001, Technical Data Sheet, Revision: 0
- Drawing No. 171213-3001 dated 13 December 2017, Inspection Certificate for TP316/316L (114.3 x 13.5), Revision: -
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- Chemical Composition, Tensile & Hardness Test and Flattening & Flaring Test.
- Hydrostatic Test Report (No.: SCSS-QP-HIR-1708-01 dated 11 August 2017).
- Corrosion Test Report (No.: SCSS-QP-COR-1708-01 dated 22 August 2017).

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Tier: 5 - Unit Certification Required

Drawing No. 171213-3024 dated 27 November 2017, Inspection Certificate for TP316/316L (114.3 x 3.05), Revision: -

- Chemical Composition, Tensile & Hardness Test and Flattening & Flaring Test.
- Hydrostatic Test Report (No.: SCSS-QP-HIR-1707-01 dated 7 July 2017).
- Corrosion Test Report (No.: SCSS-QP-COR-1708-02 dated 22 August 2017).

Drawing No. 171213-3002 dated 13 December 2017, Inspection Certificate for TP316/316L (42.2 x 9.7), Revision: -

- Chemical Composition, Tensile & Hardness Test and Flattening & Flaring Test.
- Corrosion Test Report (No.: SCSS-QP-COR-1708-03 dated 22 August 2017).
- UT Inspection Report (No.: SCSS-QP-NDR-1708-01 dated 11 August 2017).

Drawing No. 171213-3010 dated 13 December 2017, Inspection Certificate for S32760 (114.3 x 13.5), Revision: -

- Chemical Composition, Tensile & Hardness Test and Flattening & Flaring Test.
- Hydrostatic Test Report (No.: SCSS-QP-HIR-1709-01 dated 22 September 2017).
- Corrosion Test Report (No.: SCSS-QP-COR-1712-02 dated 27 November 2017).

Drawing No. 171213-3011 dated 13 December 2017, Inspection Certificate for S32760 (114.3 x 3.05), Revision: -

- Chemical Composition, Tensile & Hardness Test and Flattening & Flaring Test.
- Hydrostatic Test Report (No.: SCSS-QP-HIR-1711-02 dated 14 November 2017).
- Corrosion Test Report (No.: SCSS-QP-COR-1712-02 dated 27 November 2017).

Drawing No. 171213-3004 dated 13 December 2017, Inspection Certificate for S32760 (42.2 x 9.7), Revision: -

- Chemical Composition, Tensile & Hardness Test and Flattening & Flaring Test.
- Corrosion Test Report (No.: SCSS-QP-COR-1712-02 dated 27 November 2017).
- UT Inspection Report (No.: SCSS-QP-NDR-1709-01 dated 22 September 2017).

Drawing No. 171213-3005/171213-3006 dated 13 December 2017, Inspection Certificate for TP316/316L (219.1 x 22.23), Revision: -

- Chemical Composition, Tensile & Hardness Test, Flattening & Flaring Test and Impact Test.
- Hydrostatic Test Report (No.: SCSS-QP-HIR-1712-01 dated 6 December 2017).
- Corrosion Test Report (No.: SCSS-QP-COR-1712-01 dated 6 December 2017).
- UT Inspection Report (No.: SCSS-QP-NDR-1712-01 dated 6 December 2017).

Drawing No. 171213-3007/171213-3008/171213-3009 dated 13 December 2017, Inspection Certificate for TP316/316L (273.1 x 9.27), Revision: -

- Chemical Composition, Tensile & Hardness Test, Flattening & Flaring Test and Impact Test.
- Hydrostatic Test Report (No.: SCSS-QP-HIR-1711-01 dated 9 November 2017).
- Corrosion Test Report (No.: SCSS-QP-COR-1712-01 dated 6 December 2017).
- UT Inspection Report (No.: SCSS-QP-NDR-1711-01 dated 9 November 2017).

Terms of Validity:

This Product Design Assessment (PDA) Certificate remains valid until 03/Apr/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).

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STANDARDS

ABS Rules:

2023 ABS Marine Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, 2-3-12, 4-6-1, 4-6-2

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Tier: 5 - Unit Certification Required

2023 ABS Mobile Offshore Units 1-1-4/9.7, 1-1-A2, 1-1-A3, 2-3-12, 4-2-1, 4-2-2

National:

ASTM A213 (2022)

ASTM A312 (2022)

ASTM A790 (2022)

International:

NA

Government:

NA

EUMED:

NA

OTHERS:

NA