CERTIFICATE NUMBER	23-2469754-PDA
EFFECTIVE DATE	30-Nov-2023
EXPIRY DATE	29-Nov-2028
ABS TECHNICAL OFFICE	Houston ESD - Piping

CERTIFICATE OF

Product Design Assessment

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

HOSE MASTER, LLC

located at

1233 EAST 222ND STREET, , CLEVELAND, OH, United States, 44117

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:	**Expansion Joint, Bellows Type**
Model:	**EJ Series**
Endorsements:	
Tier:	**3 - Type Approved, unit certification not required**

This Product Design Assessment (PDA) Certificate remains valid until 29/Nov/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

John Vincent Ulep

John Vincent Bog-Acon Ulep, Senior 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)

Sensitivity: Internal & Restricted

HOSE MASTER, LLC
1233 EAST 222ND STREET
CLEVELAND OH
United States 44117
Telephone: 216 481 2020
Fax: 216-481-7557
Email: kotaproluka@hosemaster.com
Web: hosemaster.com

Tier: 3 - Type Approved, unit certification not required

Product: **Expansion Joint, Bellows Type**
Model: **EJ Series**
Endorsements:

Intended Service:
Marine & Offshore Applications

Description:
Austenitic stainless steel and high nickel alloy bellows type expansion joints assembled in Single or Universal configurations with weld end, fixed flanged or floating flanged fittings and permitted options for hardware, liners, covers and lifting devices.

Rating:
Size: 2" to 60"
Design Pressure: Up to 15 psi
Size: 2" to 48"
Design Pressure: Up to 50 psi
Size: 2" to 36"
Design Pressure: Up to 100 psi
Size: 2" to 24"
Design Pressure: Up to 150 psi
Size: 2 to 12"
Design Pressure: Up to 300 psi

Design Temperature: up to 1,200 ºF (649 °C)
Design Cycle Life: up to 10,000

Contact the manufacturer about pressure and temperature rating and axial/lateral/rotation movement rating for specific bellows design.

Service Restriction:
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.

Comments:
i) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
ii) After assembly on board, each piping system including the subject expansion bellows should be subjected to a leak test using air, halides, or other suitable medium to a pressure depending on the leak detection method applied.
iii) Bellows design for 15 psi and greater will be able to hold full vacuum.
iv) Expansion joints are to bear permanent identification, such as manufacturer’s name or trademark, standard of compliance, material identity, pressure rating, etc., as required by the standard of compliance or the manufacturer’s specification. Such markings may be cast or forged integral with, stamped on, or securely affixed by nameplate on the component, and are to serve as a permanent means of identification of the component throughout its service life in accordance with 4-6-1/7.1.4 & Table 2 of the ABS Steel Vessels Rules.

Notes/Drawing/Documentation:
Drawing No. EJ015ABS02-12, Expansion Joint EJ015ABS02-12, Revision: 0, Pages: 1
Drawing No. EJ015ABS60-12, Expansion Joint EJ015ABS60-12, Revision: 0, Pages: 1
Drawing No. EJ015ABS60-62, Expansion Joint EJ015ABS60-62, Revision: 0, Pages: 1
Drawing No. EJ050ABS02-12, Expansion Joint EJ050ABS02-12, Revision: 0, Pages: 1
Drawing No. EJ050ABS48-12, Expansion Joint EJ050ABS48-12, Revision: 0, Pages: 1
Drawing No. EJ100ABS02-12, Expansion Joint EJ100ABS02-12, Revision: 0, Pages: 1

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Tier: 3 - Type Approved, unit certification not required

Drawing No. EJ100ABS36-12, Expansion Joint EJ100ABS36-12, Revision: 0, Pages: 1
Drawing No. EJ150ABS02-12, Expansion Joint EJ150ABS02-12, Revision: 0, Pages: 1
Drawing No. EJ150ABS02-27, Expansion Joint EJ150ABS02-27, Revision: 0, Pages: 1
Drawing No. EJ150ABS24-12, Expansion Joint EJ150ABS24-12, Revision: 0, Pages: 1
Drawing No. EJ150ABS24-62, Expansion Joint EJ150ABS24-62, Revision: 0, Pages: 1
Drawing No. EJ300ABS02-12, Expansion Joint EJ300ABS02-12, Revision: 0, Pages: 1
Drawing No. EJ300ABS02-62, Expansion Joint EJ300ABS02-62, Revision: 0, Pages: 1
Drawing No. EJ300ABS12-12, Expansion Joint EJ300ABS12-12, Revision: 0, Pages: 1
Drawing No. EJ300ABS12-62, Expansion Joint EJ300ABS12-62, Revision: 0, Pages: 1

Terms of Validity:
This Product Design Assessment (PDA) Certificate remains valid until 29/Nov/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 Rules for Conditions of Classification, Part 1 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:
2023 Rules for Building and Classing Marine Vessels, 4-6-2/5.8.2

2023 Rules for Conditions of Classification, Part 1 – Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:
2023 Rules for Building and Classing Mobile Offshore Drilling Units Rules 4-2-1/11.9

National:
Standards of the Expansion Joint Manufacturers Association (10th Edition EJMA), 2019

International:
NA

Government:
NA

EUMED:
NA

OTHERS:
NA