



CERTIFICATE NUMBER	21-2200435-PDA
EFFECTIVE DATE	11-Feb-2022
EXPIRY DATE	10-Feb-2027
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

LOKRING TECHNOLOGY, LLC

located at

**38376 APOLLO PARKWAY, WILLOUGHBY, OH, United States,
44094**

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: Elastic Strain Preload (ESP) Fittings
Model: CN-200, CN-700, CN-3300
Endorsements:
Tier: 2 - PDA Issued

This Product Design Assessment (PDA) Certificate remains valid until 10/Feb/2027 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

Yongjin Lee

Yongjin Lee, 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)

LOKRING TECHNOLOGY
38376 APOLLO PARKWAY
WILLOUGHBY OH
United States 44094
Telephone: 440-942-0880
Fax: 440-942-1186
Email: msindelar@lokring.com
Web: www.lokring.com

Tier: 2 - PDA Issued

Product: Elastic Strain Preload (ESP) Fittings
Model: CN-200, CN-700, CN-3300
Endorsements:

Intended Service:

Marine & Offshore Application - For joining copper nickel Pipe and Tube

Description:

- 1) CN-200 for Copper Nickel, MIL-T-16420, 1/4" through 2" NPS.
- 2) CN-700 for Copper Nickel, MIL-T-16420, 1/4" through 2" NPS.
- 3) CN-3300 Copper Nickel Tube, MIL-T-16420, 1/4" O.D.

Rating:

For Fittings, Sizes, Pressure Rating, etc. see attached "pdf" for details.

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.

The CN-200 and CN-700 fittings are not to be used where Pressure Pulsation is expected in accordance with ABS MVR 4-6-2/Table 12, Note 1.

Comments:

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

Notes/Drawing/Documentation:

Drawing No. Email 12-8-16, Email dated Dec 8-16 agreement to split, Revision: -, Pages: 1

Prior info was on one type approval 03-HS386064-4-PDA. This contained Copper nickel, stainless steel and carbon steel fittings. It was agreed to make each material class a separate PDA.

Terms of Validity:

This Product Design Assessment (PDA) Certificate remains valid until 10/Feb/2027 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.

STANDARDS

ABS Rules:

The Rules for Conditions of Classification, Part 1 2022 Marine Vessel Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

2022 Rules for Building and Classing Marine Vessel Rules: 4-6-2/5.9, 4-6-4/13.7.1(b), 4-6-4/Table 4, 4-6-2/5.9

LOKRING TECHNOLOGY
38376 APOLLO PARKWAY
WILLOUGHBY OH
United States 44094
Telephone: 440-942-0880
Fax: 440-942-1186
Email: msindelar@lokring.com
Web: www.lokring.com

Tier: 2 - PDA Issued

National:
ASTM F 1387 (2019)

International:
IACS P2.11.5 (2021)

Government:
MIL-T-16420 (1965)

EUMED:
NA

OTHERS:
EEMUA 234 (2015)

For the CN-200 pipe product line:

LOKRING Fitting	NPS	Pipe/Tube OD (inches)	Wall Thickness(inches)	IACS Allowable Design Pressure, psi ²
CN-200-XXX-P04	¼"	0.540	0.065	2593
CN-200-XXX-P06	3/8"	0.675	0.065	2078
CN-200-XXX-P08	½"	0.840	0.065	1670
CN-200-XXX-P12	¾"	1.050	0.065	1338
CN-200-XXX-P16	1"	1.315	0.065	750
CN-200-XXX-P20	1-1/4"	1.660	0.072	938
CN-200-XXX-P24	1-1/2"	1.900	0.072	820
CN-200-XXX-P32	2"	2.375	0.083	625

Note 1: For other piping design codes and limitations, please consult LOKRING Fitting Application Guide

2: Based on a 4 to 1 burst pressure or max allowable pipe pressure, whichever is lower. Max allowable pressure from ASME B31.1 "Straight pipe under internal pressure".

For the CN-700 pipe product line:

LOKRING Fitting	NPS	Pipe/Tube OD (inches)	Wall Thickness(inches)	IACS Allowable Design Pressure, psi ²
CN-700-XXX-P04	¼"	0.540	0.065	3111
CN-700-XXX-P06	3/8"	0.675	0.072	2762
CN-700-XXX-P08	½"	0.840	0.072	2220
CN-700-XXX-P12	¾"	1.050	0.083	2050
CN-700-XXX-P16	1"	1.315	0.095	1873
CN-700-XXX-P20	1-1/4"	1.660	0.095	1486
CN-700-XXX-P24	1-1/2"	1.900	0.109	1490
CN-700-XXX-P32	2"	2.375	0.12	1312

2: Based on a 4 to 1 burst pressure or max allowable pipe pressure, whichever is lower. Max allowable pressure from ASME B31.1 "Straight pipe under internal pressure".

For the CN-3300 tube product line:

LOKRING Fitting	Outside Diameter (inches)	Pipe/Tube OD (inches)	Wall Thickness(inches)	IACS Allowable Design Pressure psi ²
CN-3300-XXX-T04	0.25	0.25	0.035	3300

2: Based on a 4 to 1 burst pressure or max allowable pipe pressure, whichever is lower. Max allowable pressure from ASME B31.1 "Straight pipe under internal pressure".