



Confirmation of Product Type Approval

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product. This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

Pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 15-DEC-2021. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

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.

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.

Product Name: Elastic Strain Preload (ESP) Fittings
Model Name(s): LTCS-333

Presented to:
LOKRING TECHNOLOGY, LLC
38376 APOLLO PARKWAY
OH 44094
United States

Intended Service:	Offshore applications PROCESS piping ONLY. May be used for B31.1 power if limited to process power only.
Description:	1) LTCS -333 Fittings
Tier:	3
Ratings:	For Fittings, Sizes, Pressure Rating, etc. see attached "pdf" for details. For specific service applications, please consult LOKRING Applications guide.
Service Restrictions:	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 LTCS fittings HAVE NOT been qualified to the IACS testing requirements and may not be used in any marine systems. Use is limited to process piping and process power only on the topsides of a unit. May be used in minimum temperatures -50 degrees F (-46 degrees celcius)
Comments:	The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
Notes / Documentation:	Drawing No. ABS PDA Request, ABS PDA Request, Revision: -, Pages: - Drawing No. Correspondence, PO# 24771, Revision: -, Pages: - Drawing No. Lokring ABS Cert Proposed Updates, Lokring ABS Cert Proposed Updates, Revision: -, Pages: - Drawing No. Test Plan 16-005, Test Plan 16-005, Revision: -, Pages: 1 Drawing

No. USCG Acceptance Letter (Web) 022409, USCG Acceptance Letter (Web) 022409, Revision: -, Pages: - TP 08-020 LTCS P24 Qual Flex Burst Test Calcs TP 09-009 LTCS P16 Qual Flex Burst Test Calcs TP 09-024 LTCS P08 Qual Flex Burst Test Calcs TP 09-025 LTCS P12 Qual Flex Burst Test Calcs TP 09-026 LTCS P32 Qual Flex Burst Test Calcs TP 10-009 LTCS P48 Qual Flex Burst Test Calcs TP 10-011 LTCS P64 Qual Flex Burst Test Calcs

Term of Validity:

This Product Design Assessment (PDA) Certificate 16-HS1584683-PDA, dated 16/Dec/2016 remains valid until 15/Dec/2021 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

ABS Rules:

2017 Steel Vessels Rules 1-1-4/7.7, 1-1/Appendix 3, 1-1/Appendix 4,

National Standards:

International Standards:

ASME B31 (2016)

Government Authority:

EUMED:

Others:

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	16-HS1584683-PDA	05-JAN-2017	15-DEC-2021



ABS Programs

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 was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. 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.