



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 17/MAR/2015. 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 27/OCT/2018 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: Expansion Joints
Model Name(s): Type AX, DX, LA, AN, UN.

Presented to:
EAGLEBURGMANN KE A/S - EXPANSION JOINT SOLUTIONS
ODINSVEJ 1
DK-6950 RINGKOBING
Denmark

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|-------------------------------|--|
| Intended Service: | Lubrication oil systems Cooling water systems Cargo oil systems Ballast tank systems Fluid cargo systems Engine fuel systems - Dual fuel systems – gas feeding systems |
| Description: | Metallic Expansion Joints |
| Ratings: | Design Pressure 1 to 25 bar g - according to the drawings Design Temperature -10°C to 250°C |
| Service Restrictions: | Unit Certification not required for this product, except for expansion joints intended to be used in a 'gas piping' system. Intended for installation where insignificant movements is expected. |
| Comments: | 1. The Prototype test is required for use in gas piping system as per ANNEX 11 RESOLUTION MSC.285(86) (adopted on 1 June 2009) INTERIM GUIDELINES ON SAFETY FOR NATURAL GAS-FUELLED ENGINE 7,6 item will be verified by the ABS Surveyor on a case by case basis. 2. Expansion joints are to be installed in accordance with 4-6-2/9.5 of the ABS Rules for Building and Classing Steel Vessels 3. Testing in accordance with mentioned standard and ABS Rules |
| Notes / Documentation: | The Assesment 05-LD489996-2-PDA has been extended to cover design UN1F.0080.06.021 . |
| Term of Validity: | This Product Design Assessment (PDA) Certificate 05-LD489996-3-PDA, dated 28/Oct/2013 remains valid until 27/Oct/2018 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:

The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. 2013 ABS Rules for Building and Classing Steel Vessels 1-1-4/7.7, 4-6-1/5, 4-6-2/5.8,2 & 4-6-2/9.5 2013 BS Rules for Building and Classing Offshore Support Vessels 4-6-2/5,8,2

National Standards:

Expansion Joints Manufacturers Association, EJMA 9th edition, or/and the latest edition.

International Standards:

ANNEX 11 RESOLUTION MSC.285(86) (adopted on 1 June 2009) INTERIM GUIDELINES ON SAFETY FOR NATURAL GAS-FUELLED ENGINE INSTALLATIONS IN SHIPS

Government Authority:

EUMED:

Others:

| Model Certificate | Model Certificate No | Issue Date | Expiry Date |
|-------------------|----------------------|-------------|-------------|
| PDA | 05-LD489996-3-PDA | 28/OCT/2013 | 27/OCT/2018 |



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.