



CERTIFICATE NUMBER
17-HG1612045-PDA

DATE
03 Mar 2017

ABS TECHNICAL OFFICE
Hamburg Engineering Department

CERTIFICATE OF DESIGN ASSESSMENT

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

REIFLEXA P. REISCHL GMBH

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 Joints**

Model: **1A, 1B, 1S**

This Product Design Assessment (PDA) Certificate 17-HG1612045-PDA, dated 03/Mar/2017 remains valid until 02/Mar/2022 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.

AMERICAN BUREAU OF SHIPPING

Dagmar Gramatzki
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 the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

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Tier: 2 - PDA Issued

Product: Expansion Joints

Model: 1A, 1B, 1S

Intended Service:

Rubber expansion joints with identification markings Yellow, GS, HO, Red, HP, Green, White for use in machinery spaces on-board of marine and mobile or fixed offshore installations in
- oil piping systems and in Class III circulating water systems (GS, HO, Yellow).
- Class III circulating water systems (HP, Red, White).
- Corrosive fluids (Green).

Description:

Expansion Joints made of composite rubber fitted with zinc plated yellow chromated carbon steel flanges with
- Yellow marking with ECO or CR cover and ECO or NBR, black inner liner.
- GS marking with CR-Chloroprene cover and HNBR or NBR - Nitrile black inner liner.
- HO marking with CR-Chloroprene cover and HNBR inner liner.
- Red and HP marking with EPDM cover and EPDM black inner liner.
- Green marking with CR-Chloroprene cover and CSM-Hypalon inner liner.
- White marking with CR-Chloroprene cover and NBR - Nitrile white inner liner.

Rating:

Nominal diameter DN: 25 to 1000 (for 1A), 25 to 200 (for 1B, 1S).
Nominal pressure PN: 10 / 16 bar (for 1A), 16 bar (for 1B, 1S).
Maximum nominal temperature: 70 °C (for White), 90 °C (for Yellow, Red, Green), 120 °C (for HO), 130 °C (for HP), 60 °C / 100 °C (for GS 16 bar / 10 bar).

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.
- Expansion joints proposed for use in oil piping systems (fuel, lubrication or hydraulic oil) are to be equipped with flame protection cover as per ABS Steel Vessel Rules 4-6-2/5.8.1(b).

Comments:

- The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
- Expansion joints are to be permanently marked with the manufacturer's name and month and year of manufacture.
- Expansion joints are to be installed in accordance with 4-6-2/9.5 of the ABS Rules for Building and Classing Steel Vessel.

Notes/Drawing/Documentation:

Document No. 00.1_pages 1_Qualitaeten engl., Technical Data Reiflexa Compensator Technic, Revision: -, Pages: 1.
Document No. 01.1_1 A en, Technical Data Reiflexa Rubber Compensator Type 1 A, Revision: -, Pages: 2.
Document No. 02.1_1 B engl, Technical Data Reiflexa Rubber Compensator Type 1 B, Revision: -, Pages: 1.
Document No. 02.3_1 S engl. complete, Technical Data Reiflexa Rubber Compensator Type 1 S, Revision: -, Pages: 2.
Document No. 01.3_1 A GS_neu_engl, Technical Data Reiflexa Rubber Compensator Type GS, Revision: -, Pages: 2.
Document No. 1A DN100 Flammtest, Fire Test Report of 26 Jan 2007 Type 1A PN 100, Revision: -, Pages: 3.
Document No. 1A DN50 Flammtest, Fire Test Report of 26 Jan 2007 Type 1A PN 50, Revision: -, Pages: 3.
Document No. 1A DN150 Flammtest, Fire Test Report of 26 Jan 2007 Type 1A PN 150, Revision: -, Pages: 3.
Document No. Reiflexa burst test 90 BAR_HG1818337, Burst Pressure Test Statement of Fact of 13 April 2010, Revision: -, Pages: 1.

Terms of Validity:

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Tier: 2 - PDA Issued

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STANDARDS

ABS Rules:

2017 Steel Vessel Rules: 1-1-4/7.7, 1-1-Appendix 3 and 4, 4-6-1/3 /5 /7, 4-6-2/5.8.1(b) /5.17.

National:

NA

International:

ISO 15540: 2016 and ISO 15541: 2016.

Government:

NA

EUMED:

NA

OTHERS:

NA