



Marine & Offshore
Division

Certificate number: 01346/K1 BV

File number: ACM 135/0503/2-3

Product code: 2102I

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

ELAFLEX-GUMMI EHLERS GmbH

Hamburg - GERMANY

for the type of product

NON-METALLIC EXPANSION JOINTS / BELLOWS

RUBBER EXPANSION JOINTS ERV Yellow Band and Red Band

Requirements:

BUREAU VERITAS Rules for the Classification of Steel Ships

BUREAU VERITAS Rules for the Classification of Offshore Units

BUREAU VERITAS Rules on Materials and Welding for the Classification of Marine Units

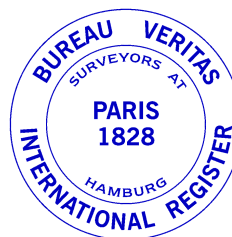
This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 18 Aug 2020

For BUREAU VERITAS,

At BV HAMBURG, on 17 Nov 2015,

Adama Diene



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine & Offshore Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 October 2014

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

Rubber Expansion joints type ERV Yellow Band and Red Band

1.1 Design:

Rubber Expansion Joints consist of a Liner, a Reinforcement, a Cover and Steel Flanges.

ERV Yellow Band: Suitable for Petroleum based products.

ERV Red Band: Not suitable for all kind of mineral oil products, cooling water with added oil containing corrosion preventatives and oily compressor air.

1.2 Identification and Technical data:

File Number	Type	Size	Nominal Pressure [bar]	Maximum Service Temperature [°C]
ACM 135/503/2	ERV Yellow Band	DN 25 up to DN 400	16	90
		DN 250 up to DN 600	10	
ACM 135/503/3	ERV Red Band	DN 25 up to DN 400	16	100
		DN 250 up to DN 600	10	

The Maximum Working Pressure is not to exceed one quarter of the Burst Pressure at the service temperature.

1.3 Materials and Components:

Flanges	Stainless Steel, Carbon Steel, zinc plated or hot galvanized
Liners	NBR (Yellow Band), EPDM (Red Band)
Reinforcement	PA textile cord, Butyl rubberized (Red Band)
Cover	CR (Yellow Band), EPDM (Red Band)

The nature of materials should be suitable for the intended service temperatures.

2. DOCUMENTS AND DRAWINGS :

According to the Manufacturer's Catalogue "Group 4", Edition 2009.

3. TEST REPORTS :

The type tests as per BUREAU VERITAS Rules were carried out and found in order:

- Hydraulic pressure impulse test according to DIN EN ISO 6803
- Bursting test
- Flame resistance test according to DIN EN ISO 15540.

4. APPLICATION / LIMITATION :

4.1 The Expansion joints may be used for the following services on board depending on type:

Inside engine room with fire protective cover FSH:

- Liquid fuel
- Lubricating oil
- Fresh and sea water system
- Cooling water system
- Ballast system
- Bilge system

Outside engine room:

- Cargo oil piping system
- Fresh and sea water system
- Ballast system
- Bilge system
- Sanitary discharge.

4.2 A fire protective cover type FSH is to be fitted when used for flammable fluids, sea water and bilge lines.

4.3 The Expansion joints are to be installed according to Manufacturer's instructions and BUREAU VERITAS Rules requirements.

4.4 For piping led overboard below the freeboard deck, the compensators are not to be fitted unless a suitable stop valve is fitted at the shell. Furthermore, efficient means are to be provided to avoid the flooding of the ship in case of rupture of the compensators.

4.5 The expansion joints must only be fitted in areas where they are always accessible.

4.6 In all cases, the associated pipes are to be suitably adjusted, aligned and anchored.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 The Expansion joints are to be supplied by **ELAFLEX-Gummi Ehlers GmbH** in compliance with the type and the requirements described in this certificate.

5.2 This type of product is within the category IBV of BUREAU VERITAS Rule Note NR320.

5.3 BUREAU VERITAS Product Certificate is required.

5.4 Arrangements shall be made for a Society's Surveyor to attend the tests and examinations in order to issue the BUREAU VERITAS certificate for the units to be fitted on board ships classed with BUREAU VERITAS.

5.5 **ELAFLEX-Gummi Ehlers GmbH** has declared to BUREAU VERITAS that the products detailed in this certificate are manufactured at the production site stated on the front page of this certificate.

5.6 Each Expansion joint with fixed flanges is to be hydraulic pressure tested to twice the maximum working pressure under witnessing of a Society's Surveyor.

6. MARKING OF PRODUCT :

Each expansion joint is to be marked clearly to avoid any wrong utilization with:

- Manufacturer's name or logo
- Type designation
- Date of manufacture
- Nominal Diameter
- Nominal Pressure
- Society's brand as relevant

7. OTHERS :

7.1 This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the units at any time and that **ELAFLEX-Gummi Ehlers GmbH** will accept full responsibility for informing shipbuilders, ship owner or their subcontractors of the proper methods of use and general maintenance of the units and the conditions of this approval.

7.2 This certificate supersedes the Type Approval Certificate N° 01346/K0 BV issued on 18/08/2015 by the Society.

*** END OF CERTIFICATE ***