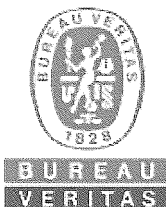


MARINE DIVISION

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Certificate number: 06823/C0 BV

File number : ACM 135/0503/001

Product code : 2102I

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

TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Classification Rules

This certificate is issued to

ELAFLEX-GUMMI EHLERS GmbH

Hamburg - GERMANY

for the type of product

NON-METALLIC EXPANSION JOINTS / BELLOWS

Rubber expansion joint Type ERV-Gelbstahl (ERV-GS)

Regulations and standards :

BUREAU VERITAS Rules for the Classification of Steel Ships and Offshore Units - NR 216 Materials Rules

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 of the Regulations and standards mentioned above.

This certificate is valid until : 28 Feb 2012

At Paris la Défense, on : 28 Feb 2007

For BUREAU VERITAS,
By order of the Secretary

Approval office

Local office : BV HAMBURG
Surveyor : U. Storm

L.COURREGELONGUE



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 Division. 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.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

ELAFLEX Rubber Expansion Joints, Yellow Steel ERV-Gelbsthal (ERV-GS)

1.1 Technical data

Size range	DN 25 to DN 700
Max. working pressure	10 bar / 100 °C max. 16 bar / 60 °C max. (DN 25 to DN 400)
Max. working temperature	+100 °C

1.2 Material specification

Inner tube	NBR (nitrile)
Reinforcement	Steel wire cord, CR rubberised
Cover	Chloroprene CR (neoprene)
Swivel flanges	Carbon steel ST 37-2, galvanised and yellow chromated

2. DOCUMENTS AND DRAWINGS

- Sheet 6-6386 and section 4 revision 3.2004

3. TEST REPORTS

3.1 Tests carried out: burst test, fire resistance test, impulse test and hydraulic test.

3.2 Fire test reports according to ISO 15440 issued by WTD 71 dated 02/11/2005.

3.3 Impulse test reports according to DIN EN ISO 6803 issued by TÜV-SÜD dated 30/01/2006.

4. APPLICATION / LIMITATION

4.1 May be used for the following services on board:

- Sea water *, fuel oil, lubricating oil and other flammable liquids (only fire type DN 25 to DN 150, 10 bar max),
- Fresh water, bilge, closed sanitary lines without connection to the ship's side, non-essential pipe systems.

* Where fitted in fire fighting lines, larger sizes may be accepted up to DN 400 at PN 16 outside machinery spaces and provided agreement of the flag authorities of the ship.

4.2 In all cases, the associated pipes are to be suitably aligned, supported and anchored. The joints are to be at any time accessible, well visible and protected against over extension and compression and against mechanical damage.

4.3 The joints are to be installed according to manufacturer's instructions and Bureau Veritas Rules requirements.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be manufactured, examined and tested by the manufacturer in accordance with the approved type described in this certificate and Bureau Veritas Rules and Regulations stated on the front page of this certificate. Arrangements shall be made for a Society's Surveyor to attend the tests and examinations at manufacturer's works or to perform the relevant audits when an alternative survey scheme, BV Mode I, has been arranged, in order to issue the Bureau Veritas certificate for the approved type to be fitted on board ships classed with Bureau Veritas.

5.2 The manufacturer 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.

5.3 Each rubber expansion joint with end fittings is to be hydraulically pressure tested to twice the maximum working pressure and provided with the manufacturer's pressure test report and conformity of production.

6. MARKING OF PRODUCT

Each product is to be clearly marked to avoid any wrong utilization with at least:

- Manufacturer name or logo
- Type description
- Maximum working pressure
- Society's brand as relevant

7. OTHERS

7.1 This approval is given on the understanding that the manufacturer will accept full responsibility for informing shipbuilders or their sub-contractors of the proper method of fitting and general maintenance of the approved products and of the conditions of this approval.

7.2 This certificate supersedes the Type Approval Certificate N° 06823/B0 BV issued on 07/12/2001 by the Society.

*** END OF CERTIFICATE ***