Marine & Offshore Division

Certificate number: 13913/C0 BV
File number: ACM 188/2512/02
Product code: 2101I

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

HACI AYVAZ END. MAMULLER SAN. VE TIC. A.S.

ISTANBUL - TURKEY

for the type of product

METALLIC EXPANSION JOINTS / BELLOWS

AYVAZ Axial Expansion Joints with fixed and floating flanges PN6, PN10, PN16

Requirements:
- BUREAU VERITAS Rules for the Classification of Steel Ships
- BUREAU VERITAS Rules for the Classification of Offshore 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: 12 May 2020

For BUREAU VERITAS,
At BV ISTANBUL, on 12 May 2015,
Gurcan Yilmaz

BUREAU VERITAS SURVEYORS AT PARIS 1828 ISTANBUL INTERNATIONAL REGISTER

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.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

AYVAZ Axial Expansion Joints with fixed and floating flanges PN6, PN10, PN16

1.1 Design Specifications

Nominal Size (mm)	DN 25 to DN 800	DN 25 to DN 800	DN 25 to DN 350
Nominal Pressure	PN6	PN10	PN16
Max. Working Pressure (bar)	6	10	16
Max. Working Temperature (°C)	+ 550	+ 550	+ 550
Tie rods	No	No	No
Axial Movements (mm)	+10/-20	+10/-20	+10/-20
Flanged type	Fixed/floating	Fixed/floating	Fixed/floating

1.2 Materials

Part Name	Material
Bellow	1.4401/ 1.4404/ 1.4541
Band	1.4401/ 1.4404/ 1.4541
Flange	1.0038

When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.

2. DOCUMENTS AND DRAWINGS

- Manufacturer's catalogue dated 1999 March Edition
- Drawings Expansion Joint with fixed flanges series PN 6-30 mm. N° 702.046.120.025 to 702.046.120.800
- Drawings Expansion Joint with floating flanges series PN 6-30 mm. N° 702.036.140.025 to 702.036.140.800
- Drawings Expansion Joint with fixed flanges series PN 10-30 mm. N° 702.046.130.025 to 702.046.130.800
- Drawings Expansion Joint with floating flanges series PN 10-30 mm. N° 702.036.140.025 to 702.036.140.800
- Drawings Expansion Joint with fixed flanges series PN 16-30 mm. N° 702.046.140.025 to 702.046.120.350
- Drawings Expansion Joint with floating flanges series PN 16-30 mm. N° 702.036.140.025 to 702.036.140.350
- Documents of type approval tests N° TTAL.4.007 rev. 0

No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.

3. TEST REPORTS

-Type tests according to Testing Programme performed in-house under supervision of a Society's Surveyor: Pressure impulse test, hydraulic pressure test, burst pressure test and cyclic expansion test (1000 cycles).
-Compensators test reports N°001, 002, 003,004, 005, 006, 007 and 008 performed in January 2005.

4. APPLICATION / LIMITATION

4.1 The expansion joints may be used for the following services on board :
- Steam pressure lines
- Exhaust gas lines (PN 6 fixed and floating type)
- Marine class II & III piping systems acc. to the requirements stated in Pt C, Ch1, Sec10 of the BUREAU VERITAS Rules

4.2 The use of floating flanges is only permitted for Class III water pipes and open-ended lines.
4.3 The use of stainless steel is restricted as per BUREAU VERITAS Rules.
4.4 Reduction factors are to be taken in consideration for maximum working pressure and tolerable movement caused by temperature influence according to manufacturer's recommendations.
4.5 The calculated maximum values of axial and/or lateral movements at 1000 full cycles are not to be exceeded.
4.6 The expansion joints are to be installed according to manufacturer's instructions and BUREAU VERITAS Rules.
4.7 The expansion joints must only be fitted in areas where they are always accessible.

12.05.2020
BUREAU VERITAS Surveyors at PARIS 1828 ISTANBUL INTERNATIONAL REGISTER
12.05.2015

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by **HACI AYVAZ END. MAMULLER SAN. VE TIC. A.S.** 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 Each expansion joint is to be hydraulic pressure tested to twice the maximum working pressure under witnessing of a Society's Surveyor when required by the Rules.

5.4 BV Product Certificate is required.

Place of production

HACI AYVAZ END. MAMULLER SAN. VE TIC. A.S.
ATATURK SAN. BOLGESI
MUSTAFA INAN CAD. NO:36
HADIMKOY
34860 ISTANBUL
TURKEY

6. MARKING OF PRODUCT

The product shall be marked with at least:
- Manufacturer's name or logo
- Type designation
- Date of manufacture
- Society's brand as relevant

7. OTHERS

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

This certificate supersedes the Type Approval Certificate No. 13913/B0 BV issued on 24/03/2010 by the Society.

***** END OF CERTIFICATE *****

12.05.2020

BUREAU VERITAS – Surveyor to Ships – PARIS 1828 – ISTANBUL – INTERNATIONAL REGISTER

12.05.2015