



Marine & Offshore

Certificate number: 16408/C0 BV

File number: ACM 188/2506/02

Product code: 21011

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

POLITEKNIK METAL KORUK IML. SAN. A.S.
ISTANBUL - TURKEY

for the type of product

METALLIC EXPANSION JOINTS / BELLOWS
Type Balance VIII and Balance IX

Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships

This certificate is issued to attest that Bureau Veritas Marine & Offshore 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: 04 Oct 2022

For Bureau Veritas Marine & Offshore,

At BV ISTANBUL, on 04 Oct 2017,

Gurcan Yilmaz



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 Marine & Offshore. 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 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 Marine & Offshore 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 electronic version is available at: <http://www.veristarp.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=20v9qcada4>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Metallic Bellows Expansion Joints - Type Balance VIII and Balance IX

1.1 Design Specifications

Type	Size	Maxi. Working Pressure (MPa)	Maximum Working Temperature (°C)	Movement *	End connections
Balance VIII	DN 80 to 1200	0.25	550	Axial-Lateral	Lap joint flange
Balance IX	DN 80 to 1200	0.25	550	Axial-Lateral	Lap joint flange

* Axial and lateral movement as per manufacturer's drawings

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature.

1.2 Material specification

Part	Material
Bellows	1.4541 (AISI 321), 1.4401 (AISI 316), 1.4404 (AISI 316L), 1.4301 (AISI 304)
Flanges	Carbon steel, 1.4541 (AISI 321), 1.4401 (AISI 316), 1.4404 (AISI 316L), 1.4301 (AISI 304)

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

2. DOCUMENTS AND DRAWINGS

- Drawings N° US1BU-03 rev. 1 dated 18/01/2007 : Balance VIII
- Drawings N° US3BU-03 rev. 2 dated 18/01/2007 : Balance IX
- WPQR N° PTK-PQR-07 dated 28/11/2014
- Welding Procedure Specification N° 141 dated 13/01/2015.

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

- Test report N° PR-82-04 dated 03/07/2017 witnessed by a BV Surveyor
- Dimension check report N° RP-82-05 Rev. 1 dated 22/12/2016 witnessed by a BV Surveyor.
- Fatigue test reports N° 2017/F1 dated 18/07/2017 & N° 2017/F2 dated 19/07/2017.
- Hydrostatic and Burst test report N° 2017/B1 dated 28/07/2017, N° 2017/B2 dated 28/07/2017, N° 2017/B3 dated 03/07/2017, N° 2017/B4 dated 03/07/2017 & N° 2017/B5 dated 01/08/2017 witnessed by a BV Surveyor.
- Vibration test report N° 2017/V1 dated 03/07/2017, N° 2017/V2 dated 03/07/2017, N° 2017/V3 dated 24/07/2017, N° 2017/V3 dated 24/07/2017, N° 2017/V5 dated 28/07/2017 witnessed by a BV Surveyor.
- EJMA 10th Edition 2010 calculation sheets dated 18/05/2017.
- Tensile test reports N° R171436 & R171437 dated 29/09/2017 witnessed by a BV Surveyor.

4. APPLICATION / LIMITATION

4.1 The expansion joints may be used for the following general use and exhaust gas lines:

- Fresh water, steam and condensate, compressed air, fuel oil and lubricating oil, cargo on board oil tanker, thermal oil, exhaust gases (engine, turbine, boiler, heat generator).

4.2 Reduction factors are to be taken in consideration for maximum working pressure and tolerable movement caused by temperature influence according to manufacturer's instructions.

4.3 The use of stainless steel is to be restricted as per the requirements of the Bureau Veritas Rules.

4.4 The use of lap joint flanges is only permitted for Class III water pipes and open-ended lines.

4.5 Materials are to be compatible with the cargoes intended to be carried.

4.6 The calculated maximum values of axial and/or lateral movements at 1000 full cycles are not to be exceeded.

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

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

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by **POLITEKNIK METAL KORUK IML. SAN. 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 with end fittings is to be hydraulically 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.

For information, **POLITEKNIK METAL KORUK IML. SAN. A.S.** has declared to Bureau Veritas the following production site:

POLITEKNIK METAL KORUK IML. SAN. A.S.
IST. END. ve TIC. SERB. BOLGESI
ORHANLI MEVKII
6. Sok. No:111/6 PARSEL
TUZLA
ISTANBUL
TURKEY

6. MARKING OF PRODUCT

Each product shall be marked with at least:

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

7. OTHERS

It is **POLITEKNIK METAL KORUK IML. SAN. A.S.**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

This certificate supersedes the Type Approval Certificate N° 16408/B0 BV issued by the Society.

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