



Marine & Offshore
Division

Certificate number: 10478/D0 BV

File number: ACM 188/0802/01

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

HKS - CZ, s.r.o.

Litomerice - CZECH REPUBLIC

for the type of product

METALLIC EXPANSION JOINTS / BELLOWS

Types AN / AM / AF (Axial) - RM (Lateral) - WN (Angular) / AP

Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships

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: 20 Apr 2022

For BUREAU VERITAS,

At BV PRAGUE, on 20 Apr 2017,

Martin Dlouhy



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 electronic version is available at: <http://www.veristarnb.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=uywd5gjnnq>

BV Mod. Ad.E 530 October 2014

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Metallic expansion joints - Types AN / AM / AF (Axial) - RM (Lateral) - WN (Angular) / AP

AF type is the same as the AM type but with guides. The modification was implemented because of the regulation of the medium flow in the expansion joints.

1.1 Technical characteristics depending on type

Design	Metallic bellows
Size	DN 50 to DN 1400
Max. working pressure	PN 16 for DN 50 to DN 400 PN 6 for DN 400 to DN 1400 PN 1 for DN 100 to DN 1400
Max. working temperature	550 °C

Axial, lateral and/or angular movements as per drawings

1.2 Material specification depending on type

Bellows	Grade 1.4541 DIN 17440
Flanges	St 37.2 DIN 17100 / S235 JR EN10025
Middle pipes	St 37.2 DIN 17100 / Grade 1.4541 DIN 17440

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

2. DOCUMENTS AND DRAWINGS

2.1 Manufacturer's catalogue

2.2 Drawings, specifications and calculation sheets:

- AP 0600/001/A248/B/B-450
- AN ... /16/A ... /RR
- AM ...B/B
- AF 0500/001/A160/B/B - 340
- WN ... /16/W ... /RR
- RM ... /16/L ... /RR
- 2102314-1 AN 400 dated 06/11/2002
- 2102314-2 AN 500 dated 06/11/2002
- 2102314-3 to -8 AM 600 to AM 1200 dated 06/11/2002
- Bellows calculation notes according to EJMA

2.3 Operating instructions 081541.1

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

- RM 200/16/L50/RR dated 30/05/2000
- WN 200/16/W12/VV dated 03/05/2000
- AN 200/16/A/VV dated 30/05/2000
- 00-0102-GNE (DVGW) dated 28/04/2000

4. APPLICATION / LIMITATION

4.1 The expansion joints may be used for the following services on board:

- Compressed air, exhaust gas

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 expansion joints are to be installed according to manufacturer's instructions and BUREAU VERITAS Rules.

4.4 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 **HKS - CZ, s.r.o** 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 BV product certificate is required.

5.4 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.

HKS - CZ, s.r.o has declared to Bureau Veritas the following production site:

HKS - CZ, s.r.o: Mlekojedaska 1994/7, 412 01 Litomerice, CZECH REPUBLIC

6. MARKING OF PRODUCT

Each expansion joint is to be clearly marked with:

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

7. OTHERS

It is **HKS - CZ, s.r.o**'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° 10478/C1 BV issued by the Society.

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