



Marine & Offshore

Certificate number: 10478/E0 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 / AP

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: 08 Feb 2029

For Bureau Veritas Marine & Offshore,

At BV PRAGUE, on 08 Feb 2024,

Pavel Jr. Stepanek

This certificate was created electronically and is valid without signature



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.veristarm.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=rfz6xwm7vo>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Metallic expansion joints - Types AN / AM / AF / AP

1.1 Technical characteristics depending on type

Size (mm)	DN 100 to DN 1400
Max. working pressure (bar)	0,5
Max. working temperature	550 °C

Axial, lateral and/or angular movements as per drawings

1.2 Material specification depending on type

Bellow	1.4541
Flange	S235JR
Center pipe	1.4541

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 12/2015
- Operating instructions Rev 2.2
- Test procedure N°4P_KVA_01 Rev.0 dated 19/11/2021

Drawings and calculation sheets AF :

- Drawings N°081517-72 to N°081517-76 dated 03/12/2015
- Drawings N°081517-24 to N°081517-59 dated 03/12/2015
- Calculation sheets EJMA N°081517-72 to N°081517-76 dated 25/10/2023
- Calculation sheets EJMA N°081517-24 to N°081517-59 dated 25/10/2023

Drawings and calculation sheets AM :

- Drawings N°081517-12 to N°081517-16 dated 03/12/2015
- Drawings N°081517-87 to N°081517-125 dated 03/12/2015
- Calculation sheets EJMA N°081517-12 to N°081517-16 dated 25/10/2023
- Calculation sheets EJMA N°081517-87 to N°081517-125 dated 25/10/2023

Drawings and calculation sheets AN :

- Drawings N°081517-01 to N°081517-05 dated 03/12/2015
- Drawings N°081517-01 to N°081517-05 dated 03/12/2015
- Calculation sheets EJMA N°081517-23 to N°081517-58 dated 25/10/2023
- Calculation sheets EJMA N°081517-23 to N°081517-58 dated 25/10/2023

Drawings and calculation sheets AP :

- Drawings N°081517-83 to N°081517-88 dated 03/12/2015
- Drawings N°081517-138 to N°081517-154 dated 03/12/2015
- Drawing N°081517-170 dated 03/12/2015
- Calculation sheets EJMA N°081517-83 to N°081517-88 dated 25/10/2023
- Calculation sheets EJMA N°081517-138 to N°081517-154 dated 25/10/2023
- Calculation sheet EJMA N°081517-170 dated 25/10/2023

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° 11654 dated 12/05/2021 for AN 125
- Test report N° 26937 dated 28/04/2020 for AN 800
- Test report N° 14141 dated 18/12/2023 for AM 100
- Test report N° 12821 dated 03/08/2022 for AM 550
- Test report N° 14144 dated 18/12/2023 for AM 700

- Test report N° 14142 dated 18/12/2023 for AF 100
- Test report N° 12964 dated 07/09/2022 for AF 500
- Test report N° 14145 dated 18/12/2023 for AF 700
- Test report N° 14143 dated 18/12/2023 for AP 200
- Test report N° 13830 dated 11/08/2023 for AP 1000

4. APPLICATION / LIMITATION

- 4.1 The expansion joints may be used for exhaust gas piping systems.
- 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 calculated maximum values of axial and lateral movements at design full cycles are not to be exceeded.
- 4.4 In all cases, the associated pipelines 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.
- 4.5 The expansion joints are to be installed according to manufacturer's instructions and BUREAU VERITAS Rules.
- 4.6 The expansion joints must only be fitted in areas where they are always accessible.
- 4.7 The expansion joint are not to be used in piping systems where high levels of vibration are expected to occur in service.
- 4.8 The use of stainless steel is to be restricted as per the BUREAU VERITAS Rules.

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 1.5 times the maximum working pressure under witnessing of a Society's Surveyor when required by the Rules.
- 5.5 For information, **HKS - CZ, s.r.o** has declared to Bureau Veritas the following production site:

HKS - CZ, s.r.o
Mlekojedská 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/DO BV issued by the Society.

*** END OF CERTIFICATE ***