



Marine & Offshore

Certificate number: 69474/A0 BV

File number: ACM 188/2544/1

Product code: 73111

*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 GmbH - industrieller Hersteller von Kompensatoren und Schläuchen**  
Rostock - GERMANY

*for the type of product*

**METALLIC EXPANSION JOINTS / BELLOWS FOR LIQUEFIED GAS PIPING  
SYSTEMS**

AM/AP-RR, AM/AP-VV, AM/AP-FF, AM/AP-DD

**Requirements:**

NR 467 BUREAU VERITAS Rules for the Classification of Steel Ships

NR 529 BUREAU VERITAS Rules for Gas Fuelled 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: 01 Feb 2027**

**For Bureau Veritas Marine & Offshore,**

At BV HAMBURG, on 01 Feb 2022,

Adama Diene



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.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION

#### Universal Metallic Expansion Joints

##### 1.1 Description:

Universal expansion joints type **AM/AP-RR**, **AM/AP-VV**, **AM/AP-FF**, **AM/AP-DD UBN** according to the HKS type designations for corrugated expansion joints, Reference HKS Catalogue "Expansion joints and hoses" page 28, 12/2015.

##### 1.2 Technical data:

<b>Nominal Diameter</b>	DN 25 to DN 400
<b>Pressure rating</b>	PN 1 to PN 16
<b>Temperature range</b>	-55 °C to +125 °C

##### 1.3 Material specification:

<b>Component</b>	<b>Material</b>
Bellow, flanges, pipes, fittings	1.4404 / 1.4541 / 1.4571

### 2. DOCUMENTS AND DRAWINGS

#### 2.1 Drawings:

<b>Designation</b>	<b>Drawing Number</b>	<b>Revision</b>
AM – DN 25	AM 0025/016/A006/DD-220 /-FF-220 /-RR-220 / -VV-220	-
AM – DN 32	AM 0032/016/A006/DD-208 /-FF-208 /-RR-208 / -VV-208	-
AM – DN 40	AM 0040/016/A009/DD-244 /-FF-244 /-RR-244 / -VV-244	-
AM – DN 50	AM 0050/016/A010/DD-298 /-FF-298 /-RR-298 / -VV-298	-
AM – DN 65	AM 0065/016/A012/DD-278 /-FF-278 /-RR-278 / -VV-278	-
AM – DN 80	AM 0080/016/A016/DD-309 /-FF-309 /-RR-309 / -VV-309	-
AM – DN 100	AM 0100/016/A019/DD-300 /-FF-300 /-RR-300 / -VV-300	-
AM – DN 125	AM 0125/016/A024/DD-392 /-FF-392 /-RR-392 / -VV-392	-
AM – DN 150	AM 0150/016/A032/DD-380 /-FF-380 /-RR-380 / -VV-380	-
AM – DN 200	AM 0200/016/A032/DD-442 /-FF-442 /-RR-442 / -VV-442	-
AM – DN 250	AM 0250/016/A042/DD-452 /-FF-452 /-RR-452 / -VV-452	-
AM – DN 300	AM 0300/016/A044/DD-508 /-FF-508 /-RR-508 / -VV-508	-
AM – DN 350	AM 0350/016/A050/DD-526 /-FF-526 /-RR-526 / -VV-526	-
AM – DN 400	AM 0400/016/A052/DD-538 /-FF-538 /-RR-538 / -VV-538	-

#### 2.2 Document:

HKS type designations for corrugated expansion joints, Reference HKS Catalogue "Expansion joints and hoses" page 28, 12/2015.

### 3. TEST REPORTS

The following type tests have been carried out at IMA Materialforschung und Anwendungstechnik GmbH in Dresden/Germany from 23/11/16 to 30/03/17. Test report no.: V412/16.2A

- Pressure test
- Overpressure test
- Cyclic fatigue test
- Cyclic test
- Visual and penetrant testing

### 4. APPLICATION / LIMITATION

4.1 The expansion joints may be used for LNG/LPG vent lines.

4.2 Additional prototype tests may be carried out prior to use the expansion joints for cargo piping of liquefied gas carriers and for liquefied or compressed gas fuel piping of gas fuelled ships.

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

4.4 The expansion joints are to be fitted in areas where they are always accessible.

#### **5. PRODUCTION SURVEY REQUIREMENTS**

5.1 The expansion joints are to be supplied by **HKS GmbH** in compliance with the types 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 BUREAU VERITAS Product Certificate is required.

5.4 For information, **HKS GmbH** has declared to BUREAU VERITAS the following production site:  
**HKS-CZ, s.r.o., Litomerice / CZECH REPUBLIC**

5.5 Each expansion joint with end fittings is to be hydraulically pressure tested according to BUREAU VERITAS Rules under witnessing of a Society's Surveyor.

#### **6. MARKING OF PRODUCT**

Each expansion joint shall be marked with:

- Manufacturer's name or logo
- Type designation
- Date of manufacture
- Nominal Diameter
- Nominal Pressure
- Temperature Rating
- BUREAU VERITAS' marks

#### **7. OTHERS**

7.1 It is **HKS GmbH**'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.

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