



Certificate no.:
TAP00002Y9

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Metallic Expansion Joints**

with type designation(s)
ASM Expansion Joint - 730-02624

issued to

Senior Flexonics GmbH
Kassel, Hessen, Germany

is found to comply with

DNV rules for classification – Ships Pt.4 Ch.6 Piping systems

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Temperature range: up to 270 °C

Max. working press.: 3.7 bar

Sizes: DN 65

Issued at **Hamburg** on **2025-01-23**

This Certificate is valid until **2030-01-22**.

for **DNV**

DNV local unit: **Essen**

Approval Engineer: **Hagen Markus**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

Metallic expansion joints of axial type made of Ω - shaped bellows, DN 65 BT 239/18 convolutions, with weld ends.
Bellows design according to EJMA, Edition 10th Edition.
Service pressure, PS: 3.7 bar

Materials

Bellows and pipe socket: Stainless Steel 1.4571 according to DIN EN 10088-2
Compliance document type: Material certificate issued by the manufacturer MTR (Material test report).
Reference: DNV-RU-SHIP Pt.4 Ch.6 Sec.2 [1.8] Required compliance documentation

Application/Limitation

The expansion joint of type ASM – 730-02624 is type approved for compensation of mounting and assembly tolerances between the fix points of recirculation air system.

Expansion bellows design

The approval is based on bellows design calculations acc. to according to EJMA 9.Edition 2008 / Addenda 2011, Stress check with safety factor of 1.5, column and in plane stability and resonance frequencies.

The lifetime of expansion bellows depends on the service conditions, such as working pressure, axial and lateral stroke and bending angle.

Accordingly, for each application the bellows design shall be based on the applicable service condition and lifetime. This is to be documented by an EJMA bellows calculation and expansion joint design drawing for each delivery.

Installation

General

The pipeline in which an expansion bellow shall be fitted, shall be adequately adjusted, aligned and clamped. When found necessary, protection against mechanical damage of the expansion bellows may be required.

Type tests carried out

Burst pressure test

Type Approval documentation

Marking of product

For traceability to this type approval, the final products are to be permanently marked on the flange at least as follows:

Scope of marking	Example
Nominal Pressure, Nominal Diameter	PN4.3, DN65
Date of production	DDD/YY
Manufacturer's name, short sign	SF
Type	ANSE

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNV-CP-0338, Sec.4.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

End of certificate