



Marine & Offshore
Division

Certificate number: 21955/B0 BV

File number: ACM 188/2522/1

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

CODINOR - COMPENSADORES Y DILATADORES DEL NORTE, S.L
ZAMUDIO (Vizcaya) - SPAIN

for the type of product

METALLIC EXPANSION JOINTS / BELLOWS

Axial, Lateral, & Universal Type

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: 08 May 2020

For BUREAU VERITAS,

At BV MADRID, on 08 May 2015,

Montserrat Espin



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 SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Expansion joints Axial Type, Lateral Type, Universal Type

1.1 Technical Data

Size Range	DN 80 up to DN 1600
Design Pressure	3 bar
Design Temperature	-55°C up to 500°C
End Connections	Welded flange or butt welded

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

1.2 Material Specification

Bellows	Stainless steel AISI 304 / 304L / 310S / 316 / 316L / 316Ti / 321
End Connections	Carbon steel & Stainless steel AISI 304 / 304L / 310S / 316 / 316L / 316Ti / 321

2. DOCUMENTS AND DRAWINGS

- Manufacturer Catalogue, last issue
- Installation and Handling Instructions for Metal Expansion Joints
- Drawings TA.S - DN 80 to DN 1600 dated 18/2/2010
- Drawings TA.U - DN 80 to DN 1600 dated 18/2/2010
- Drawings TA.S 01 - DN 80 to DN 1600 dated 18/2/2010
- Drawings TA.U 01 - DN 80 to DN 1600 dated 18/2/2010
- Drawings TA.S 02 - DN 80 to DN 1600 dated 18/2/2010
- Drawings TA.U 02 - DN 80 to DN 1600 dated 18/2/2010

No departure from the above documentation 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

- Tests carried out: hydraulic test, burst test, elastic deformation test, cyclic life by a theoretical calculation according to EJMA Code
- WPS CODINOR P2-1 PQR CODINOR P-1-1 P2-1-2, WPS CODINOR P3-2 PQR CODINOR P-3-2-1, WPS CODINOR P4-4 PQR CODINOR P-4-4-1

4. APPLICATION / LIMITATION

- 4.1 May be used for the following services on board: Bilge and ballast / Steam and condensate / Compressed air / Fresh water and sea water / Fuel oil and lubricating oil and hydraulic oil / Thermal oil / Exhaust gas lines / Inert Gas.
- 4.2 The use of stainless steel is to be restricted as per the requirements of the Bureau Veritas Rules.
- 4.3 The calculated maximum values of axial and/or lateral movements at 1000 full cycles are not to be exceeded.
- 4.4 Reduction factors are to be taken in consideration for maximum working pressure and tolerable movement caused by temperature influence according to manufacturer's instructions
- 4.5 In case of high level of vibrations in the piping systems where fitted to engines, pumps, compressors and other sources of high vibrations, care shall be taken in order to avoid that the natural frequency of compensator doesn't coincide with the system frequency.
- 4.6 The metallic expansion joints are to be installed according to manufacturer's instructions and the Society's Rules.

5. PRODUCTION SURVEY REQUIREMENTS

- 5.1 The expansion joints are to be supplied by **CODINOR - COMPENSADORES Y DILATADORES DEL NORTE, S.L** 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 Each expansion joint with end fittings is to be hydraulically pressure tested to twice the maximum working pressure and provided with the manufacturer's pressure test report and conformity of production.
- 5.4 BUREAU VERITAS Product Certificate is required.

Place of production

CODINOR - COMPENSADORES Y DILATADORES DEL NORTE, S.L
Pol. Ind. Torrelarragoiti, 5-C
48170 ZAMUDIO (Vizcaya)
SPAIN

6. MARKING OF PRODUCT

Each metallic expansion joint is to be marked clearly to avoid any wrong utilization with at least:

- Manufacturer's name or logo
- Type designation
- Maximum working pressure
- Society's brand as relevant

7. OTHERS

This approval is given with the understanding that the manufacturer will accept full responsibility for informing shipbuilders or their sub-contractors of the proper methods of fitting and general maintenance of the product and of the conditions of this approval.

This certificate supersedes the Type Approval Certificate No. 21955/A1 BV issued on 08/04/2010 by the Society.

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