Certificate No: LR22260439TA
Issue Date: 08/06/2022
Expiry Date: 07/06/2027

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	**NES INC**
Address	7-45, Inje-ro 611beon-gil, Saengnim-myeon, Gimhae-si, Gyeongsangnam-do, 50802, South Korea
Place of Production	NES INC 57, Myeongdongsandanan-gil, Hallim-myeon, Gimhae-si, Gyeongsangnam-do, 50850, South Korea
Type	Metal Expansion Joint
Description	Double Wall Gas Main Piping System with Expansion Bellows Materials Pipe /Flange/ Bellows : SUS316L O-ring : NBR
Trade Name	ME-GA-SF21-2033 GAS PIPE
Application	Marine Piping system : Gas fuel line
Specified Standard	Part 5, Chapter 2 & 12 of Lloyd's Register's Rules and Regulations for the Classification of Ships (July 2021) Rules and Regulations for the Classification of Ships using Gases or other low-flashpoint fuels (July 2021)

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Da-Young Kang

Senior Specialist to Lloyd's Register Asia
A member of the Lloyd's Register group

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EJMA standards 10th Edition

Ratings

A1960521281, 100A X 820L
Design Temperature (°C): -15~60
Design Pressure (bar) : 16
Fluid (Internal/External) : Gas/Air
Inner Bellows : 0.5t x 3 plies x 5 Corr. x 15 Pitch x 8 Height
Outer Bellows : 0.5t x 3 plies x 4 Corr. x 18 Pitch x 13 Height
A1960521902, 65A X 859.8L
Design Temperature (°C): -15~60
Design Pressure (bar) : 16
Fluid (Internal/External) : Gas/Air
Inner Bellows : 0.5t x 3 plies x 4 Corr. x 15 Pitch x 8 Height
Outer Bellows : 0.6t x 3 plies x 3 Corr. x 18 Pitch x 13 Height
Inner Bellows : 0.6t x 1 ply x 3 Corr. x 11 Pitch x 11 Height
A1960549440, 65A X 859.8L
Design Temperature (°C): -15~60
Design Pressure (bar) : 16
Fluid (Internal/External) : Gas/Air
Inner Bellows : 0.5t x 3 plies x 4 Corr. x 15 Pitch x 8 Height
Outer Bellows : 0.6t x 3 plies x 3 Corr. x 18 Pitch x 13 Height
Inner Bellows : 0.6t x 1 ply x 3 Corr. x 11 Pitch x 11 Height
A1960549320, 65A X 688.9L
Design Temperature (°C): -15~60
Design Pressure (bar) : 16
Fluid (Internal/External) : Gas/Air
Inner Bellows : 0.5t x 3 plies x 10 Corr. x 15 Pitch x 8 Height
Outer Bellows : 0.6t x 3 plies x 8 Corr. x 18 Pitch x 13 Height
Inner Bellows : 0.6t x 1 ply x 3 Corr. x 11 Pitch x 11 Height
A1960521532, 65A X 688.9L
Design Temperature (°C): -15~60
Design Pressure (bar) : 16
Fluid (Internal/External) : Gas/Air
Inner Bellows : 0.5t x 3 plies x 10 Corr. x 15 Pitch x 8 Height

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Outer Bellows : 0.6t x 3 plies x 8 Corr. x 18 Pitch x 13 Height
Inner Bellows : 0.6t x 1 ply x 3 Corr. x 11 Pitch x 11 Height

Other Conditions

1. The metallic expansion joints are to be made, installed and tested as required by the Rules and found to function under working conditions all to the attending surveyor's satisfaction.
2. It is noted that this metallic expansion joints intended fuel gas is to be categorized as Class II piping system.
3. The joints are to be made, installed and tested to appropriate pipe class requirements in accordance with Part 5, Chapter 9.4 of LR Rules and Regulations for the Classification of Ships in so far as applicable.
4. The joints are to be installed in accordance with the manufacture's instructions.
5. The joints are to be constructed, tested and installed on board to the satisfaction of the attending surveyors.
6. Welding and non-destructive testing are to be in accordance with Part 5, Chapter 17 of the Rules, to the attending surveyor's satisfaction.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register Asia of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document LR22260439TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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