



Type Approval Certificate Extension

This is to certify that Certificate No. 00/ 00050(E2) for the undernoted products is extended and renumbered as shown.

This certificate is issued to:

PRODUCER	Macoga SA
PLACE OF PRODUCTION	Leira, S/ N 15680 Ordenes La Coruna Spain
DESCRIPTION	Convolute Metallic Expansion Joints
TYPE	MWA and MFA
APPLICATION	Expansion joints for use in the following metallic pipe systems: Air Fuel (crude oil, diesel oil and benzene) Exhaust gas Inert gas Oil (thermal and cargo) Steam and condensate Fresh water Sea water
SPECIFIED STANDARDS	EJMA ASME VIII Div 1/ ANSI B31.3 Lloyd's Register's Rules and Regulations for the Classification of Ships, Part 5, Chapter 12 Lloyd's Register's Rules and Regulations for the Classification of Special Service Craft, Part 15, Chapter 1
Certificate No.	00/ 00050(E3)
Issue Date	5 January 2016
Expiry Date	2 May 2020
Sheet	1 of 2



JJBaghurst
Marine Technology & Engineering Services, Southampton
Lloyd's Register EMEA

Lloyd's Register EMEA
Southampton Boldrewood Innovation Campus, Burgess Road, Southampton, SO16 7QF

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RATINGS

Working Pressure / bar	Max Diameter / mm
1.0	7000
2.5	3600
5.0	2800
10.0	2000
16.0	1600
25.0	1400
40.0	1200
64.0	1000
100.0	400
160.0	300

OTHER CONDITIONS

- Expansion joint materials intended for use in Class I and Class II piping systems on LR Classed ships are to be manufactured and tested in accordance with the applicable requirements of Lloyd's Registers Rules for the Manufacture, Testing and Certification of Materials.
- Expansion pieces are to be protected against mechanical damage and over-extension or over-compression. The adjoining pipes are to be suitably aligned, supported, guided and anchored.
- Materials exposed to sea water are to be of low-carbon grade (<0.03%C)

"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 EMEA of any modification or changes to the equipment in order to obtain a valid certificate."

The attached Design Appraisal Document No. 00/00050(E3) and its supplementary Type Approval Terms and Conditions form part of this Certificate

All other details remain as the previous Certificate No. 00/00050(E2) to which this extension should be attached.

Certificate No. 00/ 00050(E3)
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