

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 LR Type Approval System.

This certificate is issued to:

PRODUCER	LongBao (Dezhou) Machinery Co., Ltd.
PLACE OF PRODUCTION	No. 19 Liaohe Street, Yinhe Economic & Technological Development Zone Ningjin Town 253400 Dezhou City Shandong Province People's Republic of China
DESCRIPTION	Rubber Bellows Expansion Joint
TYPE	STYLE 99 SF (Single-sphere with flanges) STYLE 99 TF (Twin-sphere with flanges) STYLE 99 TU (Twin-sphere with unions)
APPLICATION	Marine, Offshore piping systems as noted below: Non-essential sea water cooling system and fresh water cooling system; Sanitary drains; Non-essential service air piping system; Domestic hot water system; Brine system.
SPECIFIED STANDARD	LR Rules and Regulations for the Classification of Ships, July 2013
RATINGS	Single-sphere with flanges Body Construction: EPDM with nylon fabric reinforcement Working Temperature range (°C): -10~80 Nominal Size (mm): DN20-DN300 Max. Working Pressure (Bar): 16 Pressure de-rating factor at 80 °C: 0.4 Nominal Size (mm): DN350-DN600 Max. Working Pressure (Bar): 10 Pressure de-rating factor at 80 °C: 0.4
Certificate No.	14/80072
Issue Date	30 December 2014
Expiry Date	29 December 2019
Sheet	1 of 2



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Shanghai Technical Support Office
Lloyd's Register Classification Society (China) Co., Ltd.

Lloyd's Register Classification Society (China) Co., Ltd
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Twin-sphere with flanges
Body Construction: EPDM with nylon fabric reinforcement
Working Temperature range (°C): -10~80
Nominal Size (mm): DN25-DN300
Max. Working Pressure (Bar): 16
Pressure de-rating factor at 80 °C: 0.4
Nominal Size (mm): DN350-DN400
Max. Working Pressure (Bar): 10
Pressure de-rating factor at 80 °C: 0.4

Twin-sphere with unions
Body Construction: EPDM with nylon fabric reinforcement
Working Temperature range (°C): -10~80
Nominal Size (mm): DN15-DN80
Max. Working Pressure (Bar): 16
Pressure de-rating factor at 80 °C: 0.31

OTHER CONDITIONS

For application on a LR classed vessel, the following conditions to be complied with:-

1. The product selection and installation of rubber bellows expansion joints are to be in accordance with the manufacturer's instructions and to the attending Surveyor's satisfaction.
2. The Rubber expansion joints are to be installed in clearly visible and readily accessible locations.
3. The Rubber expansion joints are not to be used to compensate for misalignment between sections of pipes, and are not used on heavy vibration locations.
4. The end connections are to be manufactured in accordance with recognised National or International standards, are to be suitable for the pressure, temperature and service.

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

The Design Appraisal Document No. STS/TA/146204 Issue number 0 dated 30 December 2014 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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