Certificate No: LR2556788TA
Issue Date: 02/06/2025
Expiry Date: 01/06/2030

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	**China Shipbuilding Power Engineering Institute Co.,Ltd.**
Address	5-6F, North Building, No. 1333 Laiyang Road, Pudong New District, Shanghai City, 201206, China
Place of Production	Anqing Marine Electric Device Co.,Ltd. 3.9 Square Kilometers Industrial Park, Economic and Technical Development Zone, Anqing City, 246005, China
Type	Monitoring System
Description	CPM_B_20 The marine low-speed engine cylinder pressure monitoring system is an independently operated monitoring and analysis system for engine operation processes based on in-cylinder pressure signals. The system utilizes high-speed acquisition of in-cylinder pressure signals based on crankshaft angle and calculates thermodynamic parameters such as peak pressure, mean effective pressure, heat release rate, etc., for each cylinder and each cycle in real-time. It can evaluate the combustion status of the engine in real time and identify and warn of abnormal combustion phenomena.
Trade Name	Marine Low-speed Engine Cylinder Pressure Monitoring System
Application	Marine application for use in Environmental Category ENV3 as defined in LR Type Approval Test Specification No. 1, July 2024

Downloaded Copy

Ning Guan

Electrical & Control - Senior Specialist to Lloyd's Register Classification Society (China) Co., Ltd.

12th Floor, Chong Hing Finance Centre, No. 288
Nanjing West Road, Shanghai, 200003, China

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

Certificate No: LR2556788TA
Issue Date: 02/06/2025
Expiry Date: 01/06/2030

Type Approval Certificate

Ratings

Applicable Speed: Maximum 400rpm
Angular Resolution: 0.1/0.2/0.5/1.0°CA
Number of Channels: 8
Maximum Peak Pressure: ≥250bar
Pressure Measurement Accuracy: ±0.5%FS
Characteristic Value Calculation Frequency: Per cylinder per cycle
Communication Method: TCP/IP
Supply Voltage: 24VDC

Other Conditions

Type Approval does not eliminate the need (as required by LR Rules) the requirements for further review or for the product to be further inspected and/or surveyed to be installed in ships classed or intended to be classed with LR

If the specified standards are amended during the validity of this certificate, the product is to be reapproved prior to it being supplied to vessels to which the amended standards apply.

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 Classification Society (China) Co., Ltd. of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document TSO-24-020641-E-01 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Downloaded copy

12th Floor, Chong Hing Finance Centre, No. 288
Nanjing West Road, Shanghai, 200003, China

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.