TYPE APPROVAL CERTIFICATE

Certificate No:
TAM00000HJ

This is to certify:

That the Diesel Engine

with type designation(s)
6DE(M)-23(F)(L)

Issued to
Anqing CSSC Diesel Engine Co., Ltd.
110 Anqing City, China

is found to comply with
DNV GL Rules for classification, Ships - DNVGL-RU-SHIP-Pt4 Ch3 Sec1, Reciprocating Internal Combustion Engines

Application :

propulsion / auxiliary

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **27th April, 2022**.

Issued at **Hamburg** on **28th April, 2017**
DNV GL local station: **Wuhan** for **DNV GL**

Approval Engineer: **Frank Lutz**

Burkhard Lilienthal
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Job Id: **262.1-025795-1**
Certificate No: **TAM00000HJ**

Product description
four stroke, in-line engine, non-reversible, trunk-piston, with supercharging, with charge air cooling, direct injection, injection operation by cams, valve operation by cams, liquid fuel

Cylinder bore :	230
Piston stroke :	320
No. of cylinders :	6

Additional place of production
not applicable

Application/Limitation

Rated power [kW/cyl.]	213.33	213.33	252.67
Rated speed [rpm]	750	720	900
Mean effective pressure [bar]	25.7	26.7	25.3
Max. firing pressure [bar]	200	200	200
Definition	n/a	n/a	n/a

Type Approval documentation

Tests carried out
Documentation:

Test report titel	Test records of the diesel engine at shop trial
Place of test	Daihatsu Diesel Mfg. Co., Ltd. Moriyama Factory
Date of test	2015-05-14 until 2015-05-14

Test engine:

Model	6DE-23
Serial no.	DET623Z0186
No. of cylinders	6
Power [kW/cyl.]	213.3
Speed [rpm]	720

Marking of product
The product to be marked with manufacturer's name or trademark and type number identification.

Periodical assessment
Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.
The objective of the Periodical Assessment is to verify that the conditions for the Type Approval are not altered since the Type Approval certificate was issued.
In case where the Type Approved product is manufactured at other companies, the Periodical Assessment shall verify that the Type Approval applicant has a quality control system for consistent production at their licensees/subcontractors. Furthermore Periodical Assessment shall be carried out randomly at these companies.

Other Conditions
This certificate is based upon type approval certificate TAM000002A, issued on 2017-01-23 for licensor Daihatsu Diesel Mfg. Co., Ltd. Moriyama Factory.
Foundation arrangement to be submitted for each installation according to the Rules Pt.4 Ch.3 Sec.1 [1.4] – Documentation of arrangement.
Torsional vibration calculations to be submitted for each installation according to the Rules Pt.4 Ch.2 Sec.2 – Torsional Vibration.
Engine safety, control and monitoring systems, including sensors and actuators are not covered by this type approval certificate. Documentation for engine safety, control including speed governing and monitoring systems shall be submitted for approval according to the Rules Pt.4 Ch.9 Sec.1 Table 5 and/or as listed in relevant type approval certificates.

Electric cables and installation of this is not covered by this approval and must be verified to comply with the requirement of the Rules Pt.4 Ch.8 - Electrical Installation.

END OF CERTIFICATE