

TYPE APPROVAL CERTIFICATE

Certificate No:
TAM00000M0

This is to certify:

That the Diesel Engine

with type designation
6DE(M)-20(F)(L)

Issued to

Daihatsu Diesel Mfg. Co. Ltd Moriyama Division
Shiga Pref. Moriyama, Japan

is found to comply with

DNV GL Rules for classification, Ships - Pt4 Ch3 Sec1
Reciprocating Internal Combustion Engines

Application :

Propulsion, multi engine plant / auxiliary

Product approved by this certificate is accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **10th July, 2022**.

Issued at **Høvik** on **11th July, 2017**

DNV GL local station: **Kobe**

for **DNV GL**

Approval Engineer: **Tage Olav Alexander Strøm**

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Oddvar Deinboll
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.

Product description

Four stroke, in-line engine, non-reversible, trunk-piston, with supercharging, with charge air cooling, pulsating pressure charging system, direct injection, injection operation by cams, valve operation by cams, liquid fuel

Cylinder bore : 205
Piston stroke : 300
No. of cylinders : 6

"-": Generator engine, eg 6DE-20

"M": Propulsion engine, eg 6DEM-20

"F": Propulsion engine with power takeoff to other equipment, eg 6DEM-20F

"L": Anticlockwise rotation, seen from flywheel side, eg 6DEM-20L

Additional place of production

not applicable

Application/Limitation

Rated power [kW/cyl.]	181.7	133.3
Rated speed [rpm]	900	720
Mean effective pressure [bar]	24.5	22.4
Max. firing pressure [bar]	190	190

Type Approval documentation

Tests carried out

Documentation:

Test report title	Test Records of Diesel engine at shop trial
Place of test	Daihatsu Moriyama
Date of test	2016-06-16 until 2016-06-20

Test engine:

Model	6DE(M)-20
Serial no.	DET620Z0001
No. of cylinders	6
Power [kW/cyl.]	181.67
Speed [rpm]	900

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.

Job Id: **262.1-022836-1**
Certificate No: **TAM00000MO**

Other Conditions

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 Vibrations.

Signboards according to the Rules Pt.4 Ch.3 Sec.1 [2.3.6] - Warning Notice.

Flexible hoses with couplings to be type approved by DNV GL.

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 - Documentation requirements.

Electric cables and cabling are not covered by this approval and must be verified to comply to the rules Pt.4 Ch.8 - Electrical Installation.

END OF CERTIFICATE