

TYPE APPROVAL CERTIFICATE

Certificate No:
TAM00000D7

This is to certify:

That the Diesel Engine

with type designation(s)

KTA38-M2/1/0/ KTA38-D(M)/ KTA38-D(M)1

Issued to

Cummins Ltd.

29405 Charleston, SC, USA

is found to comply with

**DNVGL Rules for Classification: Ships/ High Speed and Light Craft, DNV GL Offshore Standard
DNVGL-OS-D101, Marine and machinery systems and equipment**

Application :

propulsion / auxiliary / emergency

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

This Certificate is valid until **26th January, 2022.**

Issued at **Hamburg** on **27th January, 2017**

DNV GL local station: **New York**

for **DNV GL**

Approval Engineer: **Ralph Michael**

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Frank Lutz
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: **262.1-023834-1**
Certificate No: **TAM00000D7**

Product description

four stroke, v-engine, non-reversible, trunk-piston, with supercharging, with charge air cooling, constant-pressure charging system, direct injection, injection operation by cams, valve operation by cams, liquid fuel

Cylinder bore : 159
Piston stroke : 159
No. of cylinders : 12

Additional place of production

Cummins Limited, DAVENTRY, United Kingdom

Application/Limitation

Rated power [kW/cyl.]	87	83.92	65.25	80.83	73.33	83.92	67.08
Rated speed [rpm]	1950	1900	1600	1800	1500	1800	1500
Mean effective pressure [bar]	16.96	16.79	15.5	17.07	18.58	17.72	17
Max. firing pressure [bar]	152	152	134	152	152.4	153	130
Definition	Prop.	Prop.	Prop.	Prp/Aux	Aux.	Aux.	Aux.

Type Approval documentation

Tests carried out

Documentation:

Test report titel QSK50-M/ KTTA50-G2 Tier II Navy Cycle Test 1500 h
Place of test Kothrud, Pune, India
Date of test 2007-04-17 until 2007-04-17

Test engine:

Model QSK50-M/ KTTA50-G2
Serial no. 33163378
No. of cylinders 16
Power [kW/cyl.] 88.25
Speed [rpm] 1800

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

Engine safety, control and monitoring systems, including sensors, cables 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 DNV GL Rule Pt.4 Ch.9 Sec.1

Capability of redundancy, e.g. connection for service of independant stand-by pump on engine with mechanically driven pump for a single propulsion application is not covered by this type approval certificate. Documentation for an individuell ship project shall be submitted for approval according to DNV GL Rule Pt.4 Ch.6 Sec.5 / Item 1-1.1, Pt.4 Ch.1 Sect.3/ Item 2-2.3

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In case of compliance with DNVGL-OS-D101, the following special equipment to be mounted:
Deep sump lube oil pan (0P6014) and slow speed lube oil pump 3634648.

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In case of KTA38-D(M), insulation to be applied by STX Corporation, Changwon, Korea.

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Add. Place of Production

The STX Corporation, Changwon, Korea install insulation and screening onto the diesel engine only.

END OF CERTIFICATE