TYPE APPROVAL CERTIFICATE

Certificate No:
TAM00000GR

This is to certify:

That the Diesel Engine

with type designation(s)
QSK60-M, QSK60-DM

Issued to
Cummins Inc.
IN CHARLESTON, United States

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, multi engine plant / 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 **31st December, 2018**.

Issued at **Hamburg** on **30th March, 2017**
DNV GL local station: **New York** for **DNV GL**

Approval Engineer: **Ralph Michael**

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: **262.1-002509-7**
Certificate No: **TAM00000GR**

Product description

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

Cylinder bore :	190
Piston stroke :	159
No. of cylinders :	16

Additional place of production

Cummins Limited, DAVENTRY, United Kingdom

Application/Limitation

Rated power [kW/cyl.]	125.81	125.81	93.25	125.06	118.75	118.75	86.43
Rated speed [rpm]	1900	1800	1600	1800	1800	1500	1200
Mean effective pressure [bar]	21	22.3	18.6	22.2	21.2	25.2	22.8
Max. firing pressure [bar]	173	156	147	165.6	166	177.5	157
Definition	-M	-M	-M	-DM	-DM	-DM	-DM

The engine types QSK60-DM are also approved for use as driver for generators for continous duty and emergency generators onboard mobile offshore units with main data as specified in above table.

Type Approval documentation

Tests carried out

Documentation:

Test report titel	QSK60 MCRS CM2150E Marine ... Test Report
Place of test	Cummins Industrial Center, Seymor IN.
Date of test	2010-04-20 until 2010-04-21

Test engine:

Model	QSK60-M with an MCRS Fuel System
Serial no.	D593009MX03-QSK60-M/D(M)
No. of cylinders	16
Power [kW/cyl.]	118.75
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

Exhaust gas turbochargers are not covered by this type approval certificate. Containment safety documentation shall be submitted for approval according to DNV GL Rule Pt.4 Ch.3 Sec.1/ Item 11.1.2.2

END OF CERTIFICATE