DNV·GL

Certificate No:
TAM0000052

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Diesel Engine

with type designation(s)
QSK19

Issued to
Cummins Inc.
COLUMBUS IN, United States

is found to comply with
DNV GL rules for classification – High speed and light craft

Application :

The approval is valid for propulsion, auxiliary and emergency duty.

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Rating **See page 2**

This Certificate is valid until **2020-06-30**.

Issued at **Høvik** on **2016-02-06**

for **DNV GL**

DNV GL local station: **New York**

Approval Engineer: **Tage Olav Alexander Strøm**

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.

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Product description

4-stroke diesel engine
Cylinder bore: 159 mm
Piston stroke: 159 mm
No. of cylinders: 6

Manufacturing plant:

Cummins Industrial Center (CIC) Seymour, Indiana, USA.

Application/Limitation

The approval is valid for propulsion, auxiliary and emergency duty and is based on the following main data:

Propulsion:

Mean eff. pressure (bar):	13.2	21.0	17.2	18.1
Max. cylinder pressure (bar):	110.3	156.9	152.6	156.7
Rated cont. output (kW):	373	597	567	597
Corresponding to (RPM):	1800	1800	2100	2100

Rated continuous output between the above stated is also acceptable.

Auxiliary/emergency:

Mean eff. pressure (bar):	18.2	22.2	19.8	21.0
Max. cylinder pressure (bar):	135.8	156	155.1	153.9
Rated cont. output (kW):	433	526	563	597
Corresponding to (RPM):	1500	1500	1800	1800

Rated continuous output between the above stated is also acceptable.

Marking of product

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

Periodical Assessment

For retention of the Type Approval, a DNV GL surveyor shall perform a survey every second year and before the expiry date of this certificate. This to verify that the conditions of the type approval are complied with and not altered since the Type Approval Certificate was issued.

In cases 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

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