TYPE APPROVAL CERTIFICATE

Certificate No:
TAM00000HW

This is to certify:

That the Diesel Engine

with type designation(s)
VTA28-M2, VTA28-D(M)

Issued to
Cummins India Ltd.
Pune, India

is found to comply with
DNVGL Rules for Classification: Ships/ High Speed and Light Craft

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 **8th May, 2022**.

Issued at **Hamburg** on **9th May, 2017**

DNV GL local station: **Mumbai** for **DNV GL**

Approval Engineer: **Ralph Michael**

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: **262.1-000925-5**
Certificate No: **TAM00000HW**

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

Cylinder bore [mm] : 140
Piston stroke [mm] : 152
No. of cylinders : 12

Additional place of production
not applicable

Application/Limitation

Rated power [kW/cyl.]	42	50.67	46.67	46.67	42.92	38.17
Rated speed [rpm]	1800	1800	1800	1500	1800	1500
Mean effective pressure [bar]	12.25	14.46	13.29	15.95	12.25	13.07
Max. firing pressure [bar]	128.93	123	123.07	121.69	128.93	128.93
Definition	-M2	-D(M)	-D(M)	-D(M)	-D(M)	-D(M)

Type Approval documentation

Tests carried out
Documentation:

Test report titel	Type Test Report VTA28-D(M)
Place of test	Pune/India
Date of test	2001-04-24 until 2001-04-28

Test engine:

Model	VTA28-D(M)
Serial no.	25 271 457
No. of cylinders	12
Power [kW/cyl.]	46.58
Speed [rpm]	1500

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

END OF CERTIFICATE