

TYPE APPROVAL CERTIFICATE

Certificate No:
TAM00000BJ

This is to certify:

That the Diesel Engine

with type designation(s)
TBD234

Issued to

Henan Diesel Engine Industry Co., Ltd.
Luoyang, China

is found to comply with

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

Application :

auxiliary

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

This Certificate is valid until **24th April, 2022**.

Issued at **Hamburg** on **25th April, 2017**

DNV GL local station: **Wuhan**

for **DNV GL**

Approval Engineer: **Jan Sell**

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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.

Product description

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

Cylinder bore : 128
Piston stroke : 140
No. of cylinders : 6, 8, 12

Additional place of production

not applicable

Application/Limitation

Rated power [kW/cyl.]	34.2	37
Rated speed [rpm]	1500	1800
Mean effective pressure [bar]	15.18	13.7
Max. firing pressure [bar]	143	143
Definition		

Type Approval documentation

Tests carried out

Documentation:

Test report titel	Type Test Report of TBD234 Diesel Engine
Place of test	Luoyang, Henan Diesel Industry Plant
Date of test	2011-03-22 until 2011-03-23

Test engine:

Model	TBD234V8
Serial no.	121408C02322
No. of cylinders	8
Power [kW/cyl.]	34.13
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

1. For installation, operation, and service of the engine, the relevant instructions of the engine manufacturer are to be observed.
2. Flexible hose assemblies shall be type approved by DNV GL; DNV GL Rules Pt.4 Ch.6 Sec.9 [4].
3. Connections of pipes carrying lube oil or fuel oil shall be properly screened to prevent oil spray in case of leakage; DNV GL Rules Pt.4 Ch.3 Sec.1 [2.6.2].
4. Signboards shall be fitted according to the DNV GL Rules Pt.4 Ch.3 Sec.1 [2.3.6].
5. Engine safety, control and monitoring systems, including sensors and actuators, are not covered by this certificate. Documentation for engine safety, control (including speed governing), and monitoring systems shall be submitted for approval according to DNV GL Rules Pt.4 Ch.9 Sec.1 Table 5 and/or as listed in relevant Type Approval certificates.

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6. Electric cables and cabling are not covered by this certificate and shall be verified to comply with DNV GL Rules Pt.4 Ch.8.
7. Fuel filters and lubricating oil filters shall allow cleaning without interrupting supply of filtered oil; DNV GL Rules Pt.4 Ch.6 Sec.5 [1.3.1]. The filters shall be so arranged that fluid residues can be collected by adequate means, e.g. an oil pan; DNV GL Rules Pt.4 Ch.3 Sec.1 [2.6.6].
8. The used turbocharger should either be type approved by DNV GL, or at least evidence for containment safety shall be approved; DNV GL Rules Pt.4 Ch.3 Sec.1 [11.1.2.2].
9. This renewal of Type Approval for TBD234 is based on previous certificate 28162-11 HH.

END OF CERTIFICATE