DNV·GL

Certificate No:
TAM00000CA

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Diesel Engine

with type designations(s)
4HAL2-TN1, 4/6HAL2-TN/WT, 6HAL2-HTN/WHT/N/DTN/WDT, 6HA2M-HTE/XXX

Issued to
Yanmar Co., Ltd.
Amagasaki, Japan

is found to comply with
DNV GL Rules for classification, Ships - DNVGL-RU-SHIP-Pt4Ch3Sec1, Reciprocating Internal Combustion Engines

Application:

mechanical propulsion, multi engine plant / 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 October, 2021**
Issued at **Høvik** on **25th October, 2016**

DNV GL local station: KOBE

for **DNV GL**

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.

Job Id: **262.1-022275-1**
Certificate No: **TAM00000CA**

Product description

four stroke, in-line 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: 130 mm
Piston stroke: 165 mm

Additional place of production

not applicable

Application / Limitation

Rated power [kW/cyl.]	33.75	30	44.17	50.83	42.83	49.67
Rated speed [rpm]	1800	1800	1800	1800	1950	1950
Mean effective pressure [bar]	10.27	9.13	13.44	15.47	12.04	13.96
Max. firing pressure [bar]	88.3	107.9	127.5	127.5	117.7	117.7
Definition	4HAL2-TN/ WT	6HAL2-TN/ WT	6HAL2-HTN/ WHT	6HAL2-DTN/ WDT	6HA2M-HTE/ WHT	6HA2M-DTE/ WDT

Type Approval documentation

07-088785, 07-092230, 07-117015, 07-135795, 08-082841, 11-012778, 11-044640, 262.1-022275-1

Tests carried out

Documentation:

Test report titel	Type Approval Test 6HAL2-DTN
Test report reference	07-097822, 2007-07-18
Place of test	TSUKAGUCHI Plant/ Amagasaki/ Japan
Date of test	2007-07-17 until 2007-07-18

Test engine:

Model	6HAL2-DTN
Serial no.	3755
No. of cylinders	6
Power [kW/cyl.]	50.8
Speed [rpm]	1800

Marking of product

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

Periodical assessment

For retention of the Type Approval, DNV GL shall perform a Periodical Assessment every second year and before the expiry date of this 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

Fundation 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 Vibration.

Signboards according to the Rules Pt.4 Ch.3 Sec.1 [2.3.6] – Warning Notice.

Flexible hoses 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 and/or as listed in relevant type approval certificates.

Electric cables and installation of this is not covered by this approval and must be verified to comply with the requirement of the Rules Pt.4 Ch.8 - Electrical Installation.

Additional engine ratings:
Additional approved engine ratings not listed in this type approval certificate are stated in the DOC.No.ETD-NB-16-021 Appendix 1, dated 2016-10-07.

END OF CERTIFICATE