



Certificate no.:
TAM00001DB

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Dual-Fuel Engine (Gas)

with type designation(s)
EY22ALDF(S)

issued to

Yanmar Power Technology Co., Ltd.
Amagasaki, Hyogo pref., Japan

is found to comply with

DNV rules for classification – Ships Pt.4 Ch.3 Sec.1 Reciprocating internal combustion engines

Application:

Auxiliary engine multi engine plant

The engine type is approved for use in both inherently gas safe and emergency shutdown protected machinery spaces.

Product approved by this certificate is accepted for installation on all vessels classed by DNV.

Rating see page 2

Issued at **Høvik** on **2024-10-31**

This Certificate is valid until **2029-10-30**.

for **DNV**

DNV local unit: **Japan CMC**

Approval Engineer: **Tage Olav Alexander Strøm**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2023-09

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Product description

Four stroke, in-line engine, non-reversible, trunk-piston, with supercharging, with charge air cooling, constant- pressure charging system, direct injection, injection operation by cams for main diesel injection, injection operation electronically for pilot injection and for gas admission, valve operation by cams, dual fuel (natural gas)

Cylinder bore [mm]	220
Piston stroke [mm]	320
No. of cylinders	6

6EY22ALDF(S)

A	: Rated engine speed, e.g. 900 rpm
L	: Auxiliary engine, e.g. 6EY22ALDF
DF	: Dual Fuel
S	: Prepared for SCR, e.g. 6EY22ALDFS

Place of production

Yanmar Power Technology Co., Ltd., Amagasaki, Japan

Application/Limitation

Rated power [kW]	1100
Rated speed [rpm]	900
Mean effective pressure [bar]	20.1
Max. firing pressure [bar]	140

Engine ratings lower than specified in the table is also covered by this type approval.

Type Approval documentation

262.1-041281-1 and Yanmar list of drawings G2-50663-1010 dated 2024/10/18.

Tests carried out

Documentation:

Test report title	Type approval test report	Integration test procedure & results
Document number	G2-50663-1000	G2-50663-0970
Place of test	Yanmar Amagasaki, Japan	Yanmar Amagasaki, Japan
Date of test	2024-07-08, 2024-07-09, 2024-07-17	2024-07-16

Test engine:

Model	6EY22ALDF
Serial no.	2996
No. of cylinders	6
Power [kW]	1100
Speed [rpm]	900

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

Integration testing shall be performed and to be witnessed by the Society at the first engine delivery.

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.



Job ID: **262.1-041281-1**
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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.

Flexible hoses to be Type Approved by DNV.

The explosion protection of the gas admission valves does not comply with the hazardous area zone definition of the IGF Code, paragraph 12.5.1 and -2. For installation of engines on ships subject to that Code, proof of suitability for the intended use, either by (a) explosion protection certification, or (b) any other suitable measures in addition to the existing explosion protection level of the valve, shall be documented in the safety concept and approved accordingly. Additional measures (b) are subject to final acceptance by the relevant flag state administration for ships subject to the IGF Code.

END OF CERTIFICATE