Certificate no.:
TAM00001CY

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Gas Engine

with type designation(s)
WL50SG

issued to
Wärtsilä Finland Oy
Vaasa, **Finland**

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.3 Sec.1 Reciprocating internal combustion engines

Application:

Constant speed electrical generator drive (multi engine electric propulsion, auxiliary power generation)

Issued at **Hamburg** on **2025-03-11**
This Certificate is valid until **2030-03-10**.
DNV local unit: **Finland CMC**

Approval Engineer: **Jan Sell**

for **DNV**

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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

4-stroke, trunk piston, in-line engine, non-reversible, with supercharging, with charge air cooling, valve operation by cams

Fuel system: Natural gas, gaseous fuel only, main gas port injection, electronically controlled main gas admission valves, pre-chamber spark ignition, electronically controlled pre-chamber gas admission valves, electronically controlled pre-chamber spark ignition system

Cylinder bore [mm]:	500
Piston stroke [mm]:	580
No. of cylinders:	6, 8, 9

Application/Limitation

Rated power [kW/cyl.]	950	975
Rated speed [rpm]	500	514
Mean effective pressure [bar]	20	20
Firing Pressure [bar]	178	178

This type approval covers the conversion package to convert existing, certified, W50DF engines into W50SG design. Complete newbuilt W50SG engines are not covered by this type approval.

Multistep on-loading for driving of an electrical generator from no-load to rated power requires 7 load steps as per engine maker product guide (DNV Ships Pt.4 Ch.2 Sec.5 [1]).

Type Approval documentation

Tests carried out

2024-06-10 to 14, Wärtsilä Ibérica S.A., Bermeo, Spain, Automation Type Approval Test and Integration Test of UNIC 6th Series/2nd gen. with W6L50SG, DNV reference 262.1-041728-1
2024-06-18 to 20, Wärtsilä Ibérica S.A., Bermeo, Spain, Initial Type Approval Test of W6L50SG, Ser.-no. 91608, 975 kW/cyl. at 514 rpm, DNV reference 262.1-040976-1

Marking of product

The product is to be marked with the manufacturer's name or trademark, the engine model designation, the engine serial no. and the power output rating (kW at rpm).

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. DNV shall be informed about each conversion project. The certification process for conversion of existing W50DF engines into W50SG design shall be individually agreed with the Society.
2. 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 Rules Ships Pt.4 Ch.9 Sec.1 Table 5 and/or as listed in relevant Type Approval certificates.
3. The ship's electrical system shall be designed and tested for multistep on-loading as specified by Wärtsilä (7 load steps from no-load to rated power); refer to DNV Ships Pt.4 Ch.2 Sec.5 [1.6].
4. The thermal insulation of the on-engine exhaust gas system shall be verified for compliance with the requirements by spot check measurements (max. 220 °C surface temperature); DNV Ships Pt.4 Ch.3 Sec.1 [2.6.1].
5. The engine shall be fitted with crankcase gas detection system as per Wärtsilä Safety Concept document DMTA00074301.

END OF CERTIFICATE