DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
TAM000014T

This is to certify:

That the Diesel Engine

with type designation
G70ME-C10

Issued to
MAN DIESEL & TURBO,
BRANCH OF MAN DIESEL & TURBO SE, GERMANY

is found to comply with
DNV GL Rules for classification, Ships - DNVGL-RU-SHIP-Pt4 Ch3 Sec1,
Reciprocating Internal Combustion Engines

Application :

Mechanical propulsion

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

This Certificate is valid until **24th November, 2024**.

Issued at **Høvik** on **25st November, 2019**

DNV GL local station: **Copenhagen** 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: **262.1-015344-9**
Certificate No: **TAM000014T**

Product description

Two stroke, in-line engine, reversible, crosshead, with supercharging, with charge air cooling, constant-pressure charging system, direct injection, injection operation electronically controlled, valve operation electronically controlled, liquid fuel

Cylinder bore [mm]	700
Piston stroke [mm]	3256
No. of cylinders	5, 6

Application/Limitation

Rated power [kW/cyl.]	2698
Rated speed [rpm]	76
Mean effective pressure [bar]	19
Max. firing pressure [bar]	190
Definition	C10

Type Approval documentation

Tests carried out

Documentation:

Test report titel	MAN B&W 6G70ME-C10.5 Type Approval Test of Engine No. KAA006953
Place of test	Hyundai Heavy Industries, Ulsan, Korea
Date of test	2019-10-14 until 2019-10-16

Test engine:

Model	G70ME-C10.5
Serial no.	KAA006953
No. of cylinders	6
Power [kW/cyl.]	2698
Speed [rpm]	76.2

Marking of product

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

Periodical assessment

Meetings on regularly basis and at least every second year with the Type Approval applicant (hereof: the Engine Designer) shall be arranged with the objective to verify that the conditions for the Type Approval are not altered since the Type Approval Certificate was issued, and to keep DNV GL updated with regard to:

- The latest development status and design as covered by the Type Approval certificate.
- Damages and failures of products certified by DNV GL leading to break down or other malfunctions in service. The causes and reasons for the failure and results from investigations are to be made available to DNV GL upon request. Failure to inform DNV GL may lead to suspension of this Type Approval certificate.

In cases where the Type Approved design is manufactured at other companies, DNV GL shall verify that the Type Approval applicant has a quality control system for consistent production at their licensees/subcontractors.

Other Conditions

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 these are not covered by this approval and must be verified to comply with the requirement of the Rules Pt.4 Ch.8 - Electrical Installation.
END OF CERTIFICATE