

TYPE APPROVAL CERTIFICATE

Certificate No:
TAM00000YS**This is to certify:****That the Diesel Engine**with type designation
G90ME-C

Issued to

**MAN DIESEL & TURBO, BRANCH OF MAN DIESEL & TURBO
SE, GERMANY
Copenhagen SV, Denmark**

is found to comply with

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

Propulsion

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **16th August, 2023**.Issued at **Høvik** on **17th August, 2018**DNV GL local station: **Copenhagen**for **DNV GL**Approval Engineer: **Geir Olav Moen**

**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.

Product description

Two stroke, in-line engine, 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]	900
Piston stroke [mm]	3260

Application/Limitation

Rated power [kW/cyl.]	5312
Rated speed [rpm]	82
Mean effective pressure [bar]	18.7
Max. firing pressure [bar]	190
Definition	Mk 10.5

Type Approval documentation

Tests carried out

Documentation:

Test report title	TAT, MAN B&W G90
Place of test	Doosan Engine, Changwon, Korea
Date of test	2018-05-14 until 2018-05-16

Test engine:

Model	G90ME-C10.5
Serial no.	6602
No. of cylinders	6
Power [kW/cyl.]	5312
Speed [rpm]	82

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.



Job Id: **262.1-027835-1**
Certificate No: **TAM00000YS**

END OF CERTIFICATE