

TYPE APPROVAL CERTIFICATE

Certificate No:
TAM00000Y4

This is to certify:

That the Diesel Engine

with type designation(s)
4000-Mx5

Issued to

MTU Friedrichshafen GmbH
88045 Friedrichshafen, Germany

is found to comply with

DNV GL Rules for classification, Ships - Pt.4, Ch.3, Sec.1, Reciprocating Internal Combustion Engines

Application :

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 **10th July, 2023**.

Issued at **Hamburg** on **11th July, 2018**

DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Ralph Michael**

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Burkhard Lilienthal
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: **262.1-026815-1**
Certificate No: **TAM00000Y4**

Product description

four stroke, v-engine, non-reversible, trunk-piston, with supercharging, with charge air cooling, constant-pressure charging system, direct injection, injection operation electronically controlled, valve operation by cams, liquid fuel

Cylinder bore [mm]	170
Piston stroke [mm]	210
No. of cylinders	20, 16, 12

Additional place of production

not applicable

Application/Limitation

Rated power [kW/cyl.]	161	130	125
Rated speed [rpm]	1800	1500	1600
Mean effective pressure [bar]	22.5	21.8	19.6
Max. firing pressure [bar]	220	220	220
Definition	M35 S M65L	M35 F	M65 R

Type Approval documentation

Tests carried out

Documentation:

Test report title	Type Test Report 16V 4000 M65L
Place of test	MTU Friedrichshafen, Plant 2, Stand 126
Date of test	2018-02-19 until 2018-02-21

Test engine:

Model	16V 4000 M65L
Serial no.	595 100 009
No. of cylinders	16
Power [kW/cyl.]	161
Speed [rpm]	1800

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

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 GL Rule Pt.4 Ch.9 Sec.1 Table 5 and/or as listed in relevant Type Approval certificates.

END OF CERTIFICATE