DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
TAM00000T5

This is to certify:

That the Diesel Engine

with type designation(s)
4000 Mx0/Mx1

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 / emergency

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **18th February, 2023**.

Issued at **Hamburg** on **19th February, 2018**
DNV GL local station: **Augsburg** for **DNV GL**

Approval Engineer: **Ralph Michael**

Burkhard Lilienthal
Head of Section

□his Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
□he validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.
□

Job Id: **262.1-009060-4**
Certificate No: **TAM00000T5**

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] : 165
Piston stroke [mm] : 190
No. of cylinders : 16, 12, 8

Additional place of production

not applicable

Application/Limitation

Rated power [kW/cyl.]	170	155	* 140
Rated speed [rpm]	2100	2100	2100
Mean effective pressure [bar]	23.91	21.8	19.7
Definition	1DS	-	-

*limit value for 16 Cylinder

Type Approval documentation

Tests carried out

Documentation:	
Test report titel	Test Report of Type Test of the MTU/DDC Diesel Engine Series 16 V 4000
Place of test	Friedrichshafen
Date of test	1997-11-24 until 1997-11-28
Test engine:	
Model	16V4000
Serial no.	527 000 117
No. of cylinders	16
Power [kW/cyl.]	155
Speed [rpm]	2100

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.
Exhaust gas turbochargers are not covered by this type approval certificate.
This renewal of Type Approval is based on previous certificates M-12677, 97518-98HH.

END OF CERTIFICATE