

TYPE APPROVAL CERTIFICATE

Certificate No:
TAM00000ZY**This is to certify:****That the Diesel Engine**with type designation(s)
396

Issued to

MTU Friedrichshafen GmbH
88045 Friedrichshafen, Germany

is found to comply with

DNVGL Rules for Classification: Ships/ High Speed and Light Craft**Application :**

propulsion / auxiliary

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

This Certificate is valid until **5th August, 2024**.Issued at **Hamburg** on **6th August, 2019**DNV GL local station: **Augsburg**for **DNV GL**Approval Engineer: **Sven Neddenien**

Olaf Drews
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: **262.1-006163-5**
Certificate No: **TAM00000ZY**

Product description

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

Cylinder bore [mm]	165
Piston stroke [mm]	185
No. of cylinders	16, 12, 8, 6

Additional place of production

not applicable

Application/Limitation

Rated power [kW/cyl.]	146	135	104.4	140**
Rated speed [rpm]	2040	1975	1500	2040
Mean effective pressure [bar]	21.71	20.7	21.1	21.71
Max. firing pressure [bar]	145	135	145	145
Definition	1DS*	1DS*	5A	1DS*

* non-continuously power rate per cylinder with 1DS operational load profiles
for special application as define by the MTU

** limit value for 16 Cylinder

Type Approval documentation

This renewal of Type Approval is based on previous certificates M-12054, 45237-02HH.

Tests carried out

Documentation:

Test report titel	Type Approval Test Report V396
Place of test	Friedrichshafen
Date of test	1990-08-06 until 1990-08-10, 198805-02/03

Test engine:

Model	16 V 396	
Serial no.	5590677	
No. of cylinders	16	16
Power [kW/cyl.]	104.4	135
Speed [rpm]	1500	1975

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.



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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.

END OF CERTIFICATE