DNV·GL

Certificate No:
**TAM000007H**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**That the Diesel Engine**

with type designations(s)
**4000-P03**

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, DNV GL Offshore Standard, DNVGL-OS-D101, Marine and machinery systems and equipment**

## Application:

**electrical 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 **14th April, 2021**
Issued at **Hamburg** on **15th April, 2016**

DNV GL local station: Augsburg

for **DNV GL**

Approval Engineer: Ralph Michael

**Frank Lutz**
**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

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: 170 mm
Piston stroke: 210 mm

## Additional place of production

MTU America Inc., Novi, United States

## Application / Limitation

| | | |
|---|---|---|
| Rated power [kW/cyl.] | 140 | 130 |
| Rated speed [rpm] | 1800 | 1500 |
| Mean effective pressure [bar] | 19.58 | 21.82 |
| Max. firing pressure [bar] | 190 | 190 |
| Definition | cont. | cont. |

## Type Approval documentation

08-134937, 09-015185, 11-018324, 262.1-021282-3

## Tests carried out

Documentation:

| | |
|---|---|
| Test report titel | Type Test of the MTU Diesel engine 20V 4000 P83 |
| Test report reference | 09-015185, 2009-01-21 |
| Place of test | Friedrichshafen, Werk 1, Test Stand 131 |
| Date of test | 2008-05-05 until 2008-05-09 |

Test engine:

| | |
|---|---|
| Model | 20V4000P83 |
| Serial no. | 528 100 389 |
| No. of cylinders | 20 |
| Power [kW/cyl.] | 140 |
| Speed [rpm] | 1800 |

## Marking of product

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

## Periodical assessment

For retention of the Type Approval, DNV GL shall perform a Periodical Assessment every second year and before the expiry date of this 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

1. 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 DNV GL Rule Pt.4 Ch.9 Sec.1/ Item 1

END OF CERTIFICATE