DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
TAM000016W

This is to certify:

That the Diesel Engine

with type designation
S12A2

Issued to
Mitsubishi Turbocharger and Engine Europe B.V.
Almere, Netherlands

is found to comply with
DNV GL Rules for classification, Ships - DNVGL-RU-SHIP-Pt4 Ch3 Sec1, Reciprocating Internal Combustion Engines

Application :

Mechanical & electrical propulsion, auxiliary and emergency

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

This Certificate is valid until **31st December, 2023**.
Issued at **Høvik** on **16th February, 2021**
DNV GL local station: **Rotterdam** for **DNV GL**

Approval Engineer: **Tage Olav Alexander Strøm**

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.

Job Id: **262.1-001009-13**
Certificate No: **TAM000016W**

Product description

Four stroke, v-engine, non-reversible, trunk-piston, with supercharging, with charge air cooling, direct injection, injection operation by cams, valve operation by cams, liquid fuel

Cylinder bore [mm]	150
Piston stroke [mm]	160
No. of cylinders	12

Place of production

MHI MEA, Mulhouse, France
Mitsubishi Heavy Industries Engine & Turbocharger, Ltd., Sagamihara-City, Japan
Mitsubishi Turbocharger and Engines Europe BV, Almere, The Netherlands

Responsibility

The Holder of Certificate takes responsibility that both design and production are in compliance with the Rules, Standards and/or Regulations listed on page 1 of this Type Approval Certificate.

Application/Limitation

The approval is valid for propulsion, auxiliary and emergency duty and is based on the following main data:

Engine model: S12A2-M(P)TK, S12A2-Z3MPTAW, S12A2-MPTAW, S12A2-T2MPTK:

		Propulsion	
Rated power [kW]	701*	776**	858***
Rated speed [rpm]	1940	2000	2100
Mean effective pressure [bar]	12.77	13.71	14.44
Max. firing pressure [bar]	109.8	112.7	117.6

		Auxiliary/emergency	
Rated power [kW]	552	709	828
Rated speed [rpm]	1200	1500	1800
Mean effective pressure [bar]	16.25	16.7	16.25
Max. firing pressure [bar]	107.8	112.7	117.6

Ratings for engine model MPTA which is lower than the above given rating for the MPTK version is also covered by this approval.

Engine model S12A2-C2MPTK(FW)

	Propulsion
Rated power [kW]	701*
Rated speed [rpm]	1940
Mean effective pressure [bar]	12.77
Max. firing pressure [bar]	117.6

Engine model S12A2-T2MPTAW2

		Propulsion
Rated power [kW]	727	818
Rated speed [rpm]	1800	1800
Mean effective pressure [bar]	14.29	16.08
Max. firing pressure [bar]	114	124

Rating definitions according to makers instructions :
* Heavy duty, ** Medium duty, *** Light duty

Tests carried out

Test reports dated 96-01-10.
Thermografic Inspection Report 001 dated 2011-10-19 and report 022/2015 dated 2015-02-17.

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
Flexible hoses with couplings to be type approved by DNV GL.

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 - Documentation requirements.

Electric cables and cabling are not covered by this approval and must be verified to comply to the rules Pt.4 Ch.8 - Electrical Installation.

Engines for emergency duty shall have “Breather kit for emergency gen.set application” according to document 2575-MEE dated 2009-07-09.

END OF CERTIFICATE