DNV·GL

Certificate No:
TAM00000NZ

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Torsional Vibration Dampers

with type designation(s)
DAMPER, V, PTFE

Issued to
Fuji Jidosha Kogyo Co., Ltd.
Sagamihara Kanagawa Pref., Japan

is found to comply with
DNV GL rules for classification – Ships
DNV GL rules for classification – High speed and light craft

Application :

Products approved by this certificate is accepted for use in MITSUBISHI S12A2 type engine.

Issued at **Høvik** on **2017-09-21**
This Certificate is valid until **2022-09-20**.
DNV GL local station: **Yokohama**

for **DNV GL**

Approval Engineer: **Terje Ingvar Arvidsen**

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.

Product description

Viscous torsional vibration damper.

Application/Limitation

The approval is valid for dampers to be used in propulsion and auxiliary MITSUBISHI S12A2 type engines and is based on the following main data:

Damper data:

DNV GL shall be provided with the following data:
- Damper type and ASK no.
- Engine manufacturer and type
- Diameter and width [mm]
- Ring inertia [kgm^2]
- Housing inertia [kgm^2]
- Damper (ring) area [m^2]
- Type of bearing
- Welded or bolted design
- Sample plug for visc. testing or not
- CB-diagram ("jelly" stiffness and damping coefficient as a function of vibr. frequency)[1)]
- Permissible damping power [kW] or [kW/m^2] as a fuction of engine speed[2)]

Fuji Jidosha is to keep DNV GL updated on any changes in the above data.

Unless otherwise stated, the viscosity tolerance ranges are:
New : max. –5 % to +5 % of nominal value

Verification of damping:

For engines using standard dampers the damping properties are to be verified once per engine series by measuring front end displacement amplitudes (using encoder technique) in a relevant speed range. This should preferably be made during an engine workshop testing, but may also be made onboard. Measurements made prior to this type approval may also be accepted.

Tests carried out

The approval is based on the following test report:
Comparison of the torsional vibration at S12A2 damper, 2018-01-16, Mitsubishi Heavy Industries

Marking of product

The dampers are to be marked with the manufacturer's name or trademark and serial number.

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform an assessment after 2 years and after 3.5 years to verify that the conditions of the type approval are complied with. A renewal assessment will be performed at renewal of the certificate.

In cases 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.

END OF CERTIFICATE

Job Id: **262.1-026244-1**
Certificate No: **TAM00000NZ**