

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Monitoring System**

with type designation(s)

MD-SX, MD-SX II, MD-SX3, MD-1M, MD-3M, MD-9M, MD-14M

Issued to

**Daihatsu Diesel Mfg. Co., Ltd. Moriyama Division
Moriyama, Shiga Pref, Japan**

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Location classes:****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**

Type	Temperature	Humidity	Vibration	EMC	Enclosure
MD-SX, MD-SX II, MD-SX3	A	B	B	A	B
MD-1M	A	B	A	A	B
MD-3M, MD-9M, MD-14M	A	B	B	A	B

Issued at **Busan** on **2018-10-25**This Certificate is valid until **2023-10-24**.for **DNV GL**DNV GL local station: **Kobe**Approval Engineer: **Eun Jin Lee**

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Andreas Kristoffersen
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

MD Series Oil Mist Detector consists of following types:

- MD-SX, MD-SXII, MD-SX3 :
 - MD-SX Sensor Unit
 - MD-SX Sensor Unit(Horizontal Wiring Type)
 - MD-SX Controller
 - MD-SXII Controller
 - MD-SX3 Controller
 - Analog output unit (optional)
 - CAN converter (optional)
- MD-1M
- MD-3M
- MD-9M
- MD-14M

Used for monitoring of oil mist level in engine crankcase.

Application/Limitation

Adaptation to the new engine is to be approved in each case, and installation shall be in accordance with Daihatsu Diesel's installation instructions.

MD-SX, MD-SXII, MD-SX3

The sensor is approved for use in crankcase with maximum temperatures during normal working conditions limited to 70 ° C.

The manufacturer of the engine should accept use of the sensor for each engine type.

MD-1M

The electric part is not to be mounted in areas where flameproof or intrinsically safe equipment is required.

MD-3M, MD-9M and MD-14M

The electric part is not to be mounted in areas where flameproof or intrinsically safe equipment is required.

The cycle time between suction from each point is not to exceed 22 seconds.

Type Approval documentation

Tests carried out

Environmental test according to Standard for Certification 2.4

For MD-SX: Functional and failure modes tests as specified in test report

Functional test required by IACS UR M67 Rev.2 Feb. 2015

Marking of product

MD-SX, MD-SXII, MD-SX3, MD-1M, MD-3M, MD-9M and MD-14M DAIHATSU

Periodical assessment

The scope of the retention/renewal survey is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the survey are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)

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Certificate No: **TAA000021K**

- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

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.

END OF CERTIFICATE