

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**That the Engine Subsystem**

with type designation(s)

**MAN Diesel's concept of Exhaust Gas Recirculation System**

Issued to

**MAN Diesel & Turbo, branch of MAN Diesel & Turbo SE,  
Germany  
København SV, Denmark**

is found to comply with

**DNV GL rules for classification – Ships Pt.4 Ch.3 Sec.1 Reciprocating internal combustion engines**

## Application :

**The approval covers the concept of EGR system in combination with two stroke MAN Diesel engines.**

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

This Certificate is valid until **2016-11-22**.

Issued at **Høvik** on **2016-11-22**

DNV GL local station: **Høvik Machinery**

Approval Engineer: **Amir Dzaferi**

for **DNV GL**

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**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

Exhaust Gas Recirculation (EGR) system consist of a pre spray, EGR unit\*, EGR blower and EGR outlet pipe. Through EGR system, part of the exhaust gas is recirculated to the scavenge air receiver.

EGR system can be used in two matching methods:

- Bypass configuration (configured with only one turbocharger and used for engines of bore 70 cm or less.)
- TC cut out configuration (configured with two or more turbochargers and used for engines of bore 80 cm or greater)

\*EGR unit consist of a cooler spray, EGR cooler and water mist catcher (WMC).

## Application/Limitation

The approval is only covering the concept of EGR system in combination with two stroke MAN Diesel engines. The EGR solutions are designed for low sulphur destilate fuels of 0.1% S or less.

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## 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, 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.

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.

## Other conditions

- 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 and/or as listed in relevant type approval certificates.



Job Id:  
Certificate No: **TAM00000BV**

- Electric cables and installation of this is not covered by this approval and must be verified to comply with the requirement of the Rules Pt.4 Ch.8 - Electrical Installation.
- Pipe dimensions and standard to be according to DNV GL Rules Pt.4 Ch.6 Sec.9
- The materials used in the SCR system exposed to exhaust shall be made of materials with a melting point above 925°C.
- Plastic piping may be used subject to the requirements of Pt.4 Ch.6 Sec.2.
- The EGR blower is not included in this Type Approval. The EGR blower installed on each engine shall be approved.

END OF CERTIFICATE