



Certificate no.:
TAM00001FH

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Turbocharger

with type designation(s)

MET42MBII, MET48MBII, MET53MBII, MET60MBII

issued to

HD-Hyundai Marine Engine Co., Ltd. (Daegu factory)

Daegu, Korea, Republic of

is found to comply with

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

Application:

The turbochargers are approved for use on diesel engines with application data as given in the certificate.

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

Issued at **Høvik** on **2026-02-11**

This Certificate is valid until **2031-02-10**.

for **DNV**

DNV local unit: **Ulsan, CMC Korea**

Approval Engineer: **Tage Olav Alexander Strøm**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

Exhaust driven turbochargers served by cylinder groups with combined power in the range of 5600 – 18 400 kW ¹⁾

Application/Limitation

Type	MET42MBII	MET48MBII
Impeller tip dia.[mm]	462	524
Max. rated speed (RPM)	23310	20550
Engine power range [kW] ¹⁾	5600-9300	7200-11900
Max. temperature (°C)	580	
Max. Pressure Ratio	5.0	

Type	MET53MBII	MET60MBII
Impeller tip dia.[mm]	586	652
Max. rated speed (RPM)	18380	16520
Engine power range [kW] ¹⁾	9000-14900	11200-18400
Max. temperature (°C)	580	
Max. Pressure Ratio	5.0	

1) Engine power range is the reference values subject to pressure ratio of 4.0

ALARM LEVELS:

Overspeed, maximum alarm level: 105% of maximum rated speed

High exhaust temperature at turbine entry, maximum alarm level: 550 °C.

Low lubrication oil pressure at turbocharger inlet, minimum alarm level: 0.6 bar (gauge pressure)

Maximum lubrication oil outlet temperature (alarm level): 90 °C

Application constraints:

Maximum allowed inclinations for MET-MB turbochargers:

Static: ± 15°

Dynamic (momentary): ± 22.5°

Engine and rotor vibrations to be within specifications for MET-MB turbochargers.

Type Approval documentation

As specified in approval letter with our reference:

M-SA-ME/TOAS/262.1-044782-J-7 / order: A1792368

Tests carried out

Type Approval test of MET42MBII performed 14 December 2021, ref FB3F49WMCE55K1

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 surveyor shall perform an assessment after 2 years and after 3.5 years after the issue date of the Type Approval Certificate to verify that the conditions of the type approval are complied with. A renewal assessment will be performed at renewal of the certificate.

Manufactured by:

HD-Hyundai Marine Engine Co., Ltd.

END OF CERTIFICATE