



Certificate no.:
TAM00001F4

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Turbocharger

with type designation(s)
GTA50, GTA55

issued to

Garrett Motion Mexico S.A. de C.V.
Mexicali, Baja California, Mexico

is found to comply with

DNV rules for classification – Ships

Application:

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

Issued at **Hamburg** on **2025-10-09**

This Certificate is valid until **2030-10-08**.

for **DNV**

DNV local unit: **Long Beach**

Approval Engineer: **Andreas Wolf**

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.

Application/Limitation

Max. operation speed and exhaust gas temperatures acc. application at diesel engines:

Type	Compressor wheel diameter (mm)	Max. speed (rpm)	Max. temperature (C°)	Max. allowable compressor ratio	Engine output (kW)	Used in Engine Type
GTA50W	122	91,579	710	3.7	448	6136AFM85
GTA50W	122	91,579	710	3.7	597	6136SFM85
GTA55W	122	91,579	710	3.7	599	6180XFM85

Alarm Levels

Alarm level for overspeed 91,579 rpm ($n_{\max}$)
Alarm level for exhaust gas temperature before turbine 710 °C ($T_{\max}$)
Minimum lubrication oil inlet pressure and alarm level 0.70 bar
Maximum lubrication oil outlet temperature and alarm level 120 °C

Application constraints

Maximum allowable vibration level (both self- and externally generated):

Vibration Endurances Profiles					
Application	A1	F1	F2	D1 (0-pk)	A2
CV Diesel L4, Z	0G	N/A	25Hz	291 μ m	23G
CV Diesel L4, X & Y	0G	N/A	25Hz	291 μ m	20G
CV Diesel L6, V6, all axes	0G	N/A	25Hz	291 μ m	20G
CV Diesel V8, all axes	0G	N/A	25Hz	291 μ m	20G

Vibration Endurances Profiles						
Application	F3	A3	F4	A4	F5	Test Duration
CV Diesel L4, Z	140Hz	15G	420Hz	N/A	N/A	100hr
CV Diesel L4, X & Y	140Hz	14G	420Hz	N/A	N/A	100hr
CV Diesel L6, V6, all axes	140Hz	14G	400Hz	N/A	N/A	100hr
CV Diesel V8, all axes	140Hz	14G	440Hz	N/A	N/A	100hr

Type Approval documentation

Tests carried out

Document	Test Report Number
GTA50W Post On-Engine Durability Test Results	PTA-25-00211
GTA55W Post On-Engine Durability Test Results	PTA-24-01786

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 cases where the type approved product is manufactured at other companies, periodical assessments shall be carried out randomly at these companies. All companies shall be assessed at least once in the period of validity of the TA certificate.

This will be according to Class Guideline DNV-CG-0338, Section 4.

Other conditions

Turbochargers are categorized in three categories depending on power served by each turbocharger: Category A = ≤ 1000 kW, Category B = > 1000 kW and ≤ 2500 kW, Category C = > 2500 kW.

Turbochargers shall be delivered with a product certificate issued by the manufacturer (category B) or by the class society (category C). For turbochargers of category A a certificate is not mandatory.

Welding on rotating parts such as turbine wheel/shaft assembly, may only be carried out by companies which have a welding workshop approval by DNV.

END OF CERTIFICATE