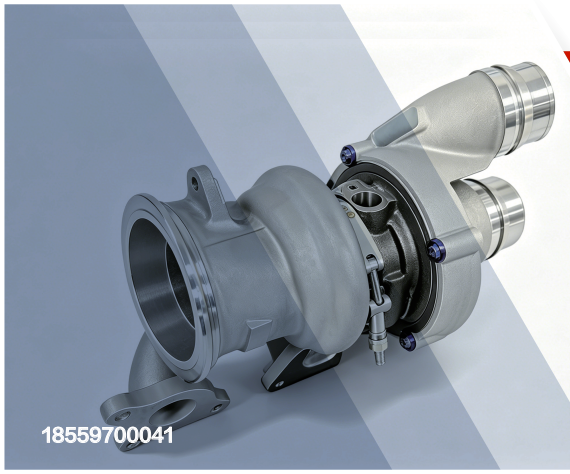
BMW / TOYOTA - B58B30 Engine

Performance Turbocharger

Technical Information



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TURBOCHARGER USAGE PRECAUTIONS AND RECOMMENDATIONS

01 / Introduction

Thank you for selecting SPEEDTURBO Turbochargers. We manufacture and sell turbochargers specifically for the aftermarket. By using our products, you can achieve performance capabilities that differ from stock turbocharers.

Therefore, our products may not comply with the laws and regulations of every region or country of use. Please ensure you check the local laws and regulations in your area before use on public roads.

02 / Recommendations for Proper Use and Performance

To maximize the performance of SPEEDTURBO Turbochargers and ensure safe, long-term use, we strongly recommend the following measures:

Item	Recommended Action	Objective
Legal Compliance Check	Always confirm and ensure compliance with the emission regulations, noise regulations, and vehicle inspection requirements of your country/region before use	To avoid legal risks (penalties, vehicle usage suspension, etc.)
ECU Tuning (Real-vehicle to vehicle)	After installation, always perform real-time ECU (Engine Control Unit) tuning/re-setting	To optimize the air-fuel ratio and prevent engine damage (blow-up)
Peripheral Parts Enhancement	Consider upgrading surrounding cooling and fuel systems, such as a large-capacity intercooler and reinforced fuel pumps/ injectors,to handle the increased heat and output	To ensure stable high output and improved durability
Oil Management	Use and regularly change high-performance, fully synthetic engine oil suitable for turbo applications , and maintain proper oil management	To protect the turbo bearing under high-temperature and high-load conditions

03 / Regarding Installation (Critical Warning)

Specialized knowledge and technical skill are required for the removal and installation of turbochargers.More than half of all initial turbocharger failures are caused by improper installation procedures.In some cases, this can lead to not only turbocharger damage but also engine failure, vehicle fire,or significant danger to human life. Please exercise extreme caution.

04 / Specific Recommendations for Installation

To avoid the risks mentioned in the warning, please ensure the following procedures are strictly observed:

- **Use Professional Installers :**

  Turbocharger replacement must be entrusted to an automotive repair shop or tuning shop with specialized knowledge. Avoid performing the work yourself (DIY).

- **Simultaneous Replacement of Peripheral Parts :**

  All gaskets, O-rings, and packing for the oil and water lines involved in the turbo removal/installation must be replaced with new parts.

- **Initial Lubrication (Priming) :**

  Before starting the engine after turbo replacement, ensure oil has been supplied to the turbocharger bearings (priming) to prevent initial dry-start.

- **Initial Inspection :**

  Upon completion of the installation, check for oil leaks, water leaks, exhaust leaks, and abnormal noises. After several minutes of idling, re-check all connection points.

05 / Key Technical Description (Regarding Smoke at Idle / Low Load Conditions)

Under operating conditions where the turbocharger has not yet developed boost pressure (e.g., engine idle or low-load regions where boost pressure is lower than lubricating oil pressure), lubricating oil may migrate toward the compressor side through the sealing system. This occurs because the oil pressure in the bearing housing exceeds the gas pressure on the boost side, which can result in abnormal smoke emissions.

To prevent such issues :

- Ensure that oil pressure is always maintained above boost pressure.
- The oil return line must be unobstructed, free of blockages and fluid accumulation.
- The PCV system must function properly with stable crankcase pressure.
- The ECU control strategy must be properly calibrated for low-pressure operating regions.

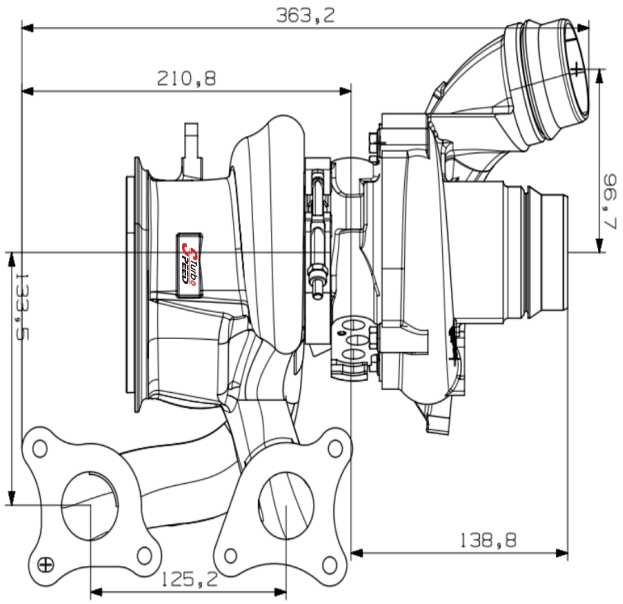
PRODUCT INFORMATION

SPEEDTURBO offers two performance turbocharger specifications tailored for the BMW/TOYOTA B58B30 engine.

01 / Turbo Specification Comparison

Model	Feature	Equivalent Model
STREET	High-level balance of spooling (launch torque) and maximum horse power	G30-770 equivalent
PRO-MAX	In development	

MODEL	C-IN	C-EX	C A/R	T-IN	T-EX	T A/R	HP
STREET	58mm	76mm	0.6	60mm	55mm	0.87	600
PRO-MAX							
STOCK	50mm	63mm	0.6	55mm	49mm	0.87	340



02 / Installation Compatibility and Precautions

This turbocharger achieves complete drop-in compatibility (bolt-on).

- Use of Stock Parts :

Stock components such as the wastegate actuator, compressor bypass valve, oil pipe, air duct, boost pipe, and front catalytic converter can be used without modification.

- Note :

Always follow the proper procedure for checking/adjusting the wastegate actuator when installing the turbo! Installation must be performed by a qualified technician. Always pre-fill and prime the turbocharger with oil, replace engine oil and filter, follow proper break-in procedures. Installation hardware or gaskets (use same install kit as the factory turbo), wastegate actuator are not included.

Especially for the PRO-MAX specification, the use of stock components is not recommended as they will significantly restrict the maximum output.

03 / Technical Features of Each

3.1 Component Compressor Features

- High Pressure Ratio :

Achieved through a 9-full blade design. The blade structure features excellent strength, ensuring greater durability at high rotational speeds and under high boost pressures.

- Material :

2618-T6 heat treated

3.2 Turbine Features

- Low Inertia :

Achieved by employing a 9-blade design.

- Turbine wheel Material :

2618-T6 heat treated

- Heat Resistance :

Capable of handling temperatures up to 1,050 °C by using vacuum-melted.

- Turbine Housing Material :

HK30 (25Cr.20Ni.0.3Nb) precision casting material.

3.3 Intake Features

- Intake :

Despite an increased impeller diameter, this product remains fully compatible with the original vehicle intake system design. No custom or modified intake pipes are required; the stock intake pipe can be used directly for plug-and-play installation.

- Compatibility :

Designed to match the stock air intake duct.

3.4 Turbocharger Bearing Features

Ceramic dual ball bearing design effectively reduces heat transfer to the engine oil. M50 bearing cages enhance the durability of the entire rotating assembly.