IVECO
SPIRITO IN MOVIMENTO

ZOOM

FOCUS ON TECHNOLOGY



Product Bulletin

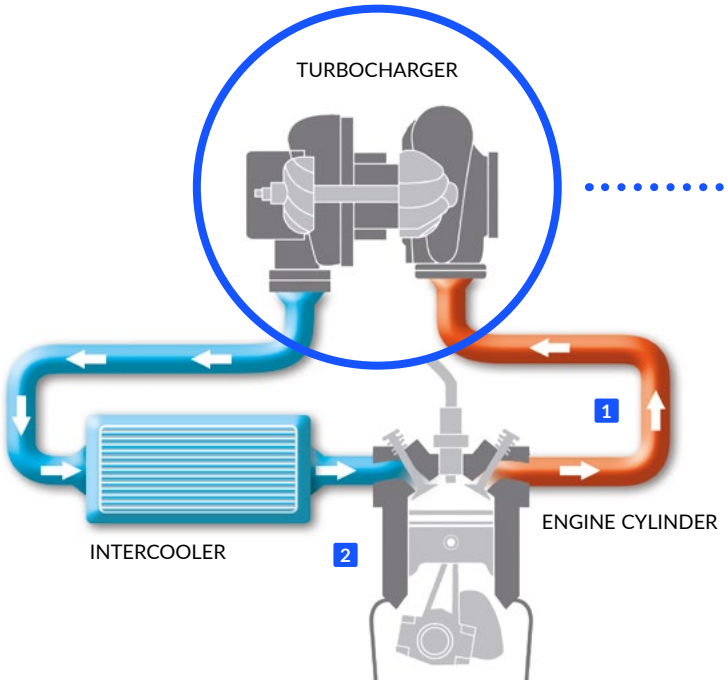
Turbocharger

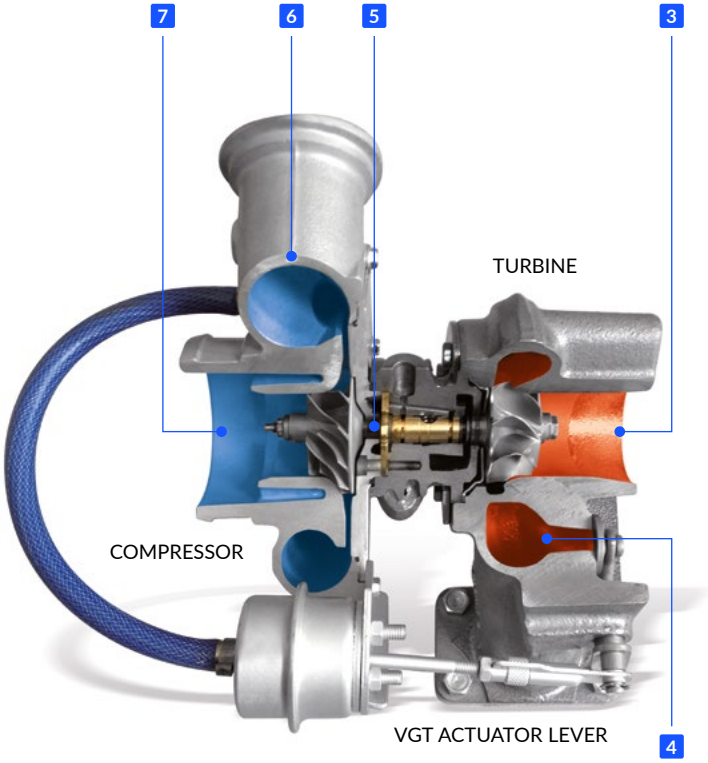
Genuine Parts
HIGH PERFORMANCE

General features

By using the energy from the exhaust gas to compress the fresh air for combusting the fuel, the Turbocharger **increases the power of your engine** with the same amount of fuel.
To ensure the optimum performance of your engine, it is important to maintain the original conditions of the Turbocharger system.

How a turbocharger works





Compressed air from the turbine

Exhaust gases from the engine

1. **Exhaust gas activates the turbine**
2. **Compressed air increases the level of oxygen and the pressure in the combustion chamber**
3. **Exhaust gas outlet**
4. **Exhaust gas turbine**
5. **Air compressor**
6. **Compressed air to engine**
7. **Fresh air inlet**

Fixed Geometry

A Fixed Geometry Turbocharger uses a turbine housing with a fixed nozzle area. Exhaust gases always flow through the same cross-section before reaching the turbine wheel, regardless of engine speed or load. Boost pressure is therefore mainly a function of engine speed exhaust gas mass flow.

Key Characteristics

- **Simple and robust** mechanical design
- **No moving parts** in the turbine side
- Proven and **highly reliable technology**

Typical Applications

- Medium-duty and heavy-duty engines with steady operating conditions
- Cost-sensitive applications
- Engines where emissions requirements are less demanding





Variable Geometry Turbocharger & WasteGate

A Variable Geometry Turbocharger uses movable vanes in the turbine housing to continuously change the effective nozzle area according to engine operating conditions. By adjusting vane position, the turbocharger can increase exhaust gas velocity at low engine speed and reduce back pressure at high engine speed.

Key Characteristics

- **Actively controlled vane system** (pneumatic or electric actuator)
- **Optimized boost** across a wide engine speed range
- **Enables precise air-flow** management

Typical Applications

- Light-duty and medium-duty diesel engines
- Urban and mixed-mission vehicles
- Engines complying with Euro 6 / Stage V emissions

E-Variable Geometry Turbocharger & E-WasteGate

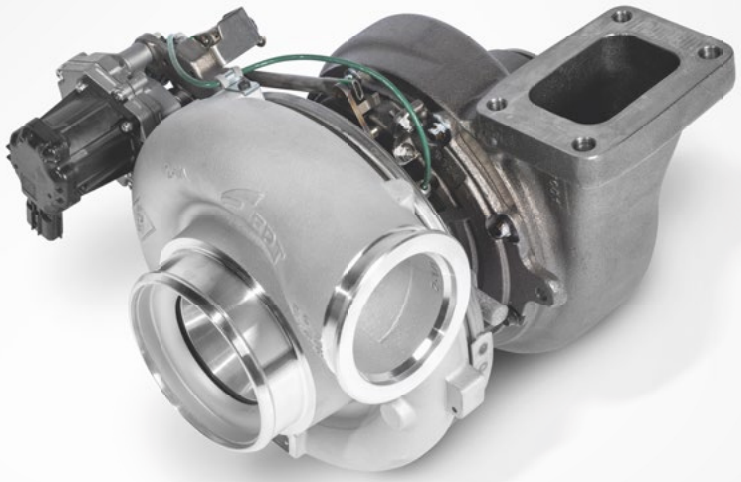
An Electric Variable Geometry Turbocharger is an evolution of the VGT, where vane position is controlled by an electric actuator instead of pneumatic actuation.
The electric system allows faster, more precise, and independent control of the turbocharger, even during rapid transients.
E-VGT still relies on exhaust energy for boosting; the “electric” aspect refers to actuation, not turbo shaft drive.

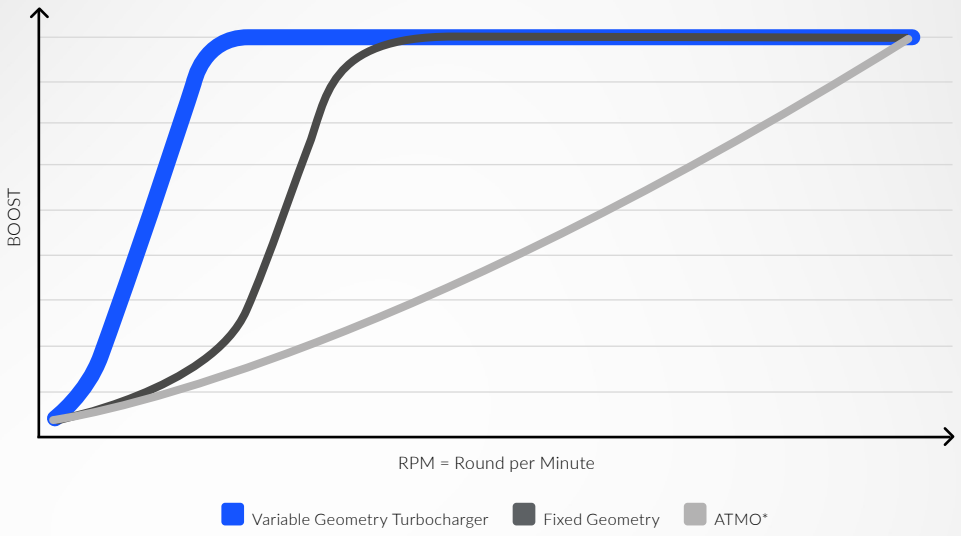
Key Characteristics

- **High-precision electric actuator**
- **Faster response** than pneumatic VGT
- **Full integration** with modern ECU strategies

Typical Applications

- High-performance diesel engines
- Vehicles with stringent emissions and drivability targets
- Advanced heavy-duty and premium applications



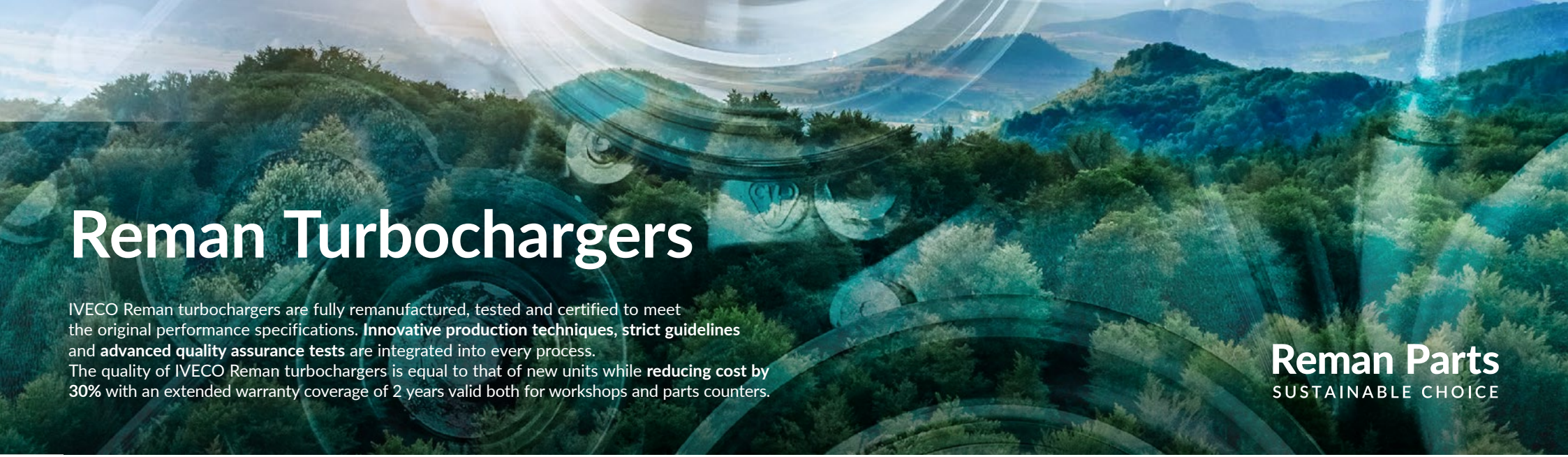


*ATMO is the engine without turbocharger > it provides a linear power increase: increasing the RPM, the engine power increases equivalently

Comparison of different types of turbochargers

Evolution: variable geometry turbocharger (VGT)

The VGT increases engine performance also at lower speed compared to the fixed geometry turbocharger.



Reman Turbochargers

IVECO Reman turbochargers are fully remanufactured, tested and certified to meet the original performance specifications. **Innovative production techniques, strict guidelines** and **advanced quality assurance tests** are integrated into every process.
The quality of IVECO Reman turbochargers is equal to that of new units while **reducing cost by 30%** with an extended warranty coverage of 2 years valid both for workshops and parts counters.

Reman Parts
SUSTAINABLE CHOICE

PRODUCT LIFECYCLE IVECO REMAN

1. Product begins lifecycle
2. Performs
3. Maintained
4. Matures
5. Replaced
6. Core returned to IVECO
7. Cleaned
8. Salvaged
9. Remanufactured
10. Tested
11. Re-enters supply chain

Remanufacturing Process

Since the end of 2025, the turbocharger remanufacturing process has been internalized at the Garchizy plant and is now managed by IVECO technicians, replacing the previous external supplier. This enables **improved process quality** and each genuine Reman turbocharger passes rigorous testing directly on engines.
Hot tests simulate real operating conditions, certifying that the performance of the remanufactured turbocharger is exactly the same as a new original unit.

The remanufacturing process begins once the core unit is returned to IVECO. It follows five certified stages:



VISUAL IDENTIFICATION AND CLASSIFICATION

The initial stage involves **identifying and classifying the core** of the turbocharger. Each unit undergoes a thorough **visual inspection** to detect damage, defects, or signs of wear. Based on the inspection results, the turbocharger core is categorized into specific classes that guide the entire remanufacturing process.
This stage is crucial to ensure that **subsequent phases** are carried out efficiently and safely, guaranteeing the quality of the final remanufactured turbocharger.



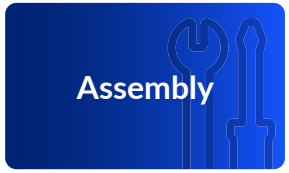
COMPLETE DISASSEMBLY

In this stage, the **turbocharger is fully disassembled** to allow a detailed analysis of each individual component. Every part is carefully examined to identify wear, anomalies, or damage. Complete disassembly enables **the separation of reusable components** from those that require replacement, **ensuring precision and reliability** in the following stages.



CLEANING AND COMPONENT PREPARATION

The cleaning process has been enhanced **with the introduction of a second washing phase**, ensuring a more thorough and **precise cleaning** of all turbocharger components. Additionally, **the use of improved sandblasting techniques** preserves the **original material strength**, preventing structural weakening.
Seals and worn-out parts are replaced with new.



ASSEMBLY

The new components are added to the turbocharger by expert technicians.



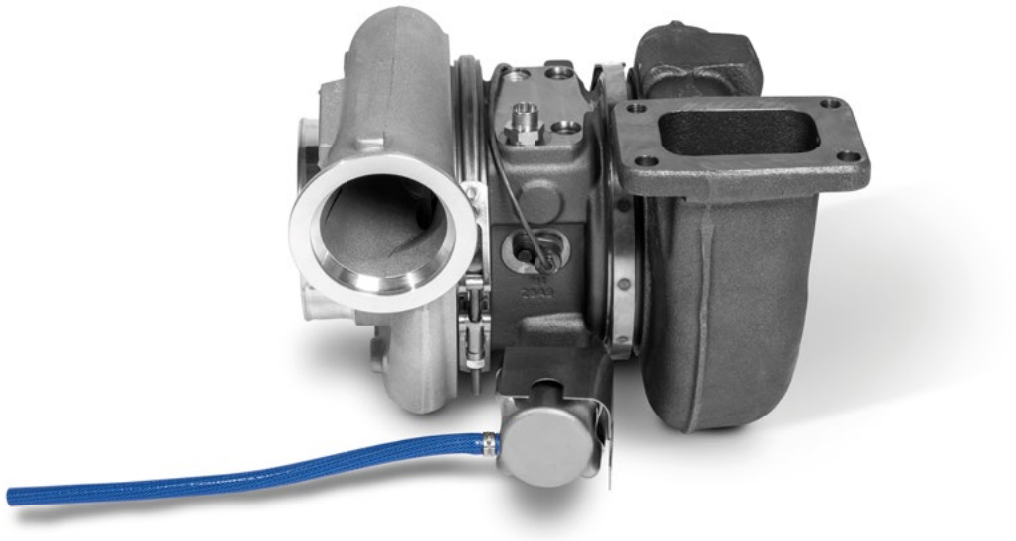
FINAL INSPECTION AND QUALITY CHECKS

The number of control points on critical components, such as wastegate actuators, has increased to ensure flawless performance. At the same time, **an expanded reverse-engineering program** ensures that remanufactured turbochargers meet **the exact tolerances of the original parts**. Final product is 100% tested on a dedicated flow bench test machine.
This guarantees that every remanufactured unit performs reliably and is equivalent to a new turbocharger.

Engine type coverage

A Reman turbocharger solution for almost every engine type:

» **Reman turbocharger offers a complete range of products covering all the engine types, from F1 to Cursor 13.**



Why choose IVECO Reman Turbocharger?

Same **performance as a genuine turbocharger at a reduced price**.

Different from competition, Reman turbochargers are tested and validated following the **IVECO engineering requirements**.

Reman process ensures that all the parts are properly reworked and replaced thus extending the **product lifespan**.

Remanufacturing is a **sustainable alternative** saving an average of 80% of the energy that would have been used to manufacture a new part and reducing global CO_2 emissions by around 28 million tons per year.





Why chose IVECO?

The full IVECO engine offer ensures that every customer can be provided with the solution that best fits their needs. The offer covers all the customers' needs with the proper solution and in the right time with **ready-to-use replacement parts**.

Fixed Geometry

- Low cost and compact design
- High durability and resistance to harsh operating conditions
- Limited control complexity

Variable Geometry Turbocharger & WasteGate

- Improved low speed torque and faster transient response
- Reduced turbo lag
- Better fuel efficiency
- Supports advanced emissions strategies (EGR control, faster catalyst light off)

E-VGT & EWG

- Excellent boost control accuracy
- Reduced emissions and fuel consumption
- Enhanced transient response and drivability
- Better coordination with EGR, aftertreatment, and thermal management systems

Product offer

Heavy

		Genuine	Reman
GF	CURSOR 13	•	•
	CURSOR 8	•	•
	SERIE 8000	•	•
VGT	CURSOR 8	•	•
	CURSOR 10	•	•
	CURSOR 13	•	•
	CURSOR XC13	•	-
E-VGT	CURSOR 9	•	•
	CURSOR 11	•	•
	CURSOR 13	•	•
WG	CURSOR 8	•	•
	CURSOR 9	•	•
	CURSOR 13	•	•
E-WG	CURSOR XC13	•	-

Light

		Genuine	Reman
GF	SERIE 8000	•	•
VGT	F1A	•	•
	F1C	•	•
E-VGT	F1A	•	•
	F1C	•	•
WG	F1A	•	•
	F1C	•	•

Medium

		Genuine	Reman
GF	NEF6	•	•
	SERIE 8000	•	•
WG	NEF4	•	•
	NEF6	•	•

Available • / Not available -




IVECO
EUROCARGO



Maintenance tips

The turbocharger is designed to last for the service life of the engine; however, monitoring of the whole system is recommended during **periodic check**s that should be made during **every engine service**.
As the engine ages, the combination of the variable turbine and the associated electronic control will adjust its characteristic to ensure the original performance and emission levels are maintained over a longer period.
However, if the Turbocharger system is not well maintained this adjustment cannot take place and fuel consumption will increase. Ensuring the Turbocharger system is performing correctly will save you money. To ensure proper turbocharger and vehicle maintenance, **follow the service intervals and mileage requirements** specified in the **maintenance schedules** provided in the Owner's Manual or on ETIM.

Here is some **additional common advice** to take care of your turbocharger and vehicle:

	ADVICE	BENEFIT
	Ensure good condition of the fuel injection system	Reduce the risk of turbo damage from high exhaust gas temperatures caused by poor condition of fuel injection system
	Replace with correct engine oil and Genuine Oil Filter at manufactures recommendation	Increase the life of the turbo by reducing the risk of too high temperature caused by a blockage in oil supply
	Check all connecting hoses for condition, ensuring no splits	Ensuring the correct air compression will help to maintain Turbo performance
	Check actuator operation and replace with Genuine Parts if needed	Ensure the correct functionality of Wastagate to avoid risk of overspeed and Turbo failure
	Check the intercooler and all the associated parts and replace with Genuine Parts when necessary	As intercooler works n association with Turbochargers this will prevent consequential or combination damage
	Replace blow-by filter according to maintenance schedule	Prevent any oil contamination from substandard blow-by filter that may lead to premature damage of the Turbocharger

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