

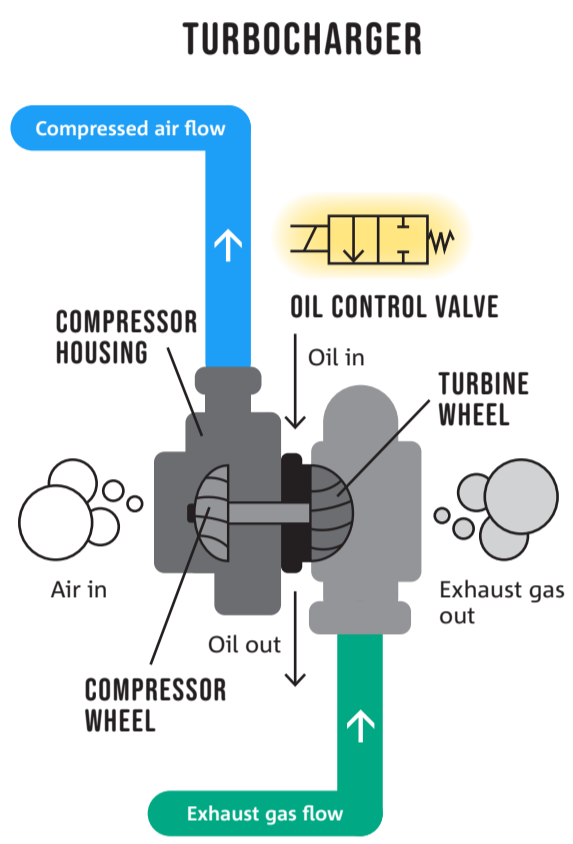
INFOGRAPHIC

Interaction and benefits

Oil control valve and turbocharger

How does a turbocharger work?

- 01 Hot exhaust gases from the engine enter the turbine wheel, which begins to rotate:
 - Conversion of thermal energy to kinetic energy
 - Exhaust gases are passed on into the catalytic converter
- 02 The compressor wheel connected via the common shaft begins to rotate:
 - Fresh air from outside is drawn in and compressed in the compressor housing
 - The oxygen content of the air increases
- 03 Compressed air is passed on into the intercooler:
 - Hot air is cooled down
- 04 Additional atmospheric oxygen enters the engine:
 - Engine can burn the fuel better



Added value and benefit of a turbocharger



- Engine power increase**
 - Improved efficiency
- Use of smaller engines with fewer cylinders**
 - Power comparable to that of a larger engine without a turbocharger
- Fuel consumption drops because:**
 - Smaller engines with lower consumption are used
 - The weight of the engines is reduced

The use of vehicle exhaust gases delivers tangible benefits.

Why does the turbocharger need the oil control valve?

The turbocharger has components, such as the main shaft, which have to be supplied with oil in operating phases. If the latter fails to take place, it may lead to **damage** and, in a worst-case scenario, cause a turbocharger **failure**.



Turbocharger operation

WITHOUT OIL CONTROL VALVE*	WITH OIL CONTROL VALVE
<p>The turbocharger is constantly being supplied with oil:</p> <ul style="list-style-type: none"> → Excessive oil supply if no gas is being admitted → Increased CO₂ output because oil is burned at the fresh-air end of the engine <p>Potential malfunctions in oil flow remain undetected:</p> <ul style="list-style-type: none"> → Turbocharger damage 	<p>Oil is only supplied in operating phases of the turbocharger:</p> <ul style="list-style-type: none"> → Oil supply is controlled and interrupted if no oil is required → CO₂ output is avoided <p>Detection of faulty or inadequate oil supply and feedback to the on-board diagnostic system of the vehicle:</p> <ul style="list-style-type: none"> → Repair can be performed in good time

Did you know?

„Turbo“ comes from „turbine“, which is an integral part of the turbocharger.

* In engines where turbocharger operation is interrupted