

SHELL HELIX 0W OILS: ULTIMATE TURBO CHARGER PROTECTION



Defeating turbocharger damage - futureproofing engines with effective lubrication

The need for reduced emissions means modern engines are often

SMALLER • LIGHTER TURBOCHARGED

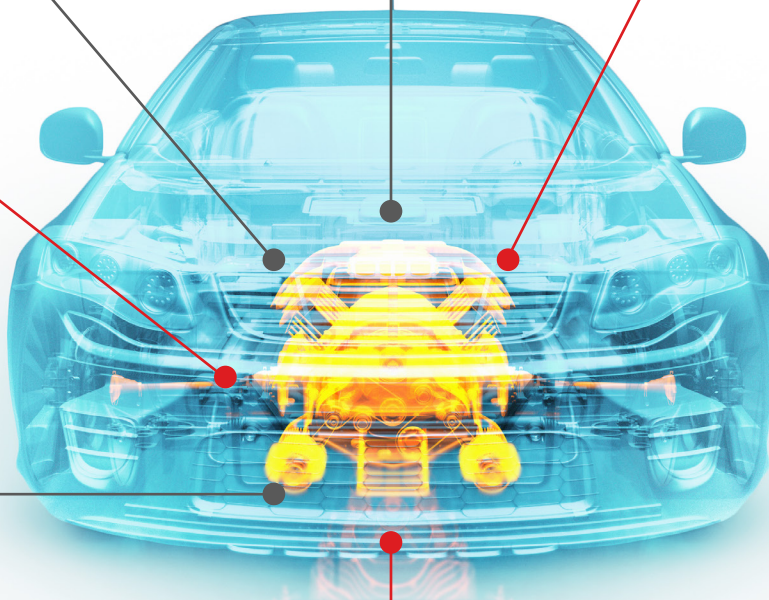
3/4

vehicles sold in Europe are turbocharged¹

**62.5
MILLION**

vehicles expected to be produced annually around the world with a turbocharger by 2022²

In 2015 turbocharger was the **number one cause** of vehicle failure⁴



Turbo engines operate under high pressure and extreme temperatures, making them prone to problems if not given special care



Shell Helix 0W oils protect engine parts up to **1,000°C**³, providing the best possible safeguard



Lubricants are a vital part of the engine. Due to its clean base oil, **Shell Helix 0W** helps to reduce the formation of harmful deposits even in extreme temperatures.

POTENTIAL DANGERS FOR THE ENGINE: LSPI (LOW SPEED PRE-IGNITION)



LSPI is an abnormal combustion event caused by the higher in-cylinder pressures common in modern engines



This can happen while operating under low-speed, high torque conditions



The event can cause severe engine damage

Shell Helix 0W helps to prevent engines from LSPI⁵

Visit **Shell.com/helix** to see how Shell can protect your turbo engine

¹ VDI News. ² IHS Markit. ³ Shell internal data. ⁴ VDI News. ⁵ The base oil is combined with Shell's unique additive package: detergents and dispersants to help clean the engine, anti-additives to help wear protection, and antioxidants to help combat oxidation, which can damage the oil and cause engine deposits

