



Koenigsegg

Jesko – A New Heart

GENEVA – March 5, 2019

Koenigsegg's first effort at engine development was so successful it saw the company awarded a Guinness World Record. The Koenigsegg CC8S replaced the McLaren F1 as the car with the most powerful production engine in the world.

The next Koenigsegg engine achieved a similar feat when the CCR took the world production car top speed record, again from the McLaren F1. In 2014, we announced the Koenigsegg One:1 with a twin-turbo V8 producing 1,360 hp, enough to make the One:1 the first production car in history with a 1:1 power-to-weight ratio. With 1 megawatt of power, the One:1 was the world's first Megacar.

That record-breaking tradition continues.....

Jesko - the all-new megacar from Koenigsegg - is powered by a newly designed, 1280hp (1600hp on E85), twin-turbocharged V8 engine that benefits from significant changes to the Agera engine it replaces.

At the core of the newly designed engine is the world's lightest V8 crankshaft. Weighing just 12.5 kilos, Koenigsegg's new flat-plane 180-degree crankshaft allows Jesko to produce more power, with greater efficiency, while achieving a higher 8500rpm rev limit.

The crankshaft is milled by small manufacturing house located in southern Sweden. It is made to Koenigsegg's in-house design from a single solid steel billet.

The flat-plane design allows even firing across engine banks and an even more visceral engine sound. Koenigsegg has countered the tendency that flat-plane engines have towards greater vibration by designing new super-light connecting rods and pistons.

The connecting rods were designed by Koenigsegg's engine architect, Dr. Thomas Johansson. The connecting rods are made from premium Swedish steel. At just 540g - including bolts - they're as light as previous generations made from titanium, but even stronger.

The piston's curved face shapes the combustion chamber in such a way that it reduces peak pressure while maintaining high average pressure. The ceramic coating on the face of the piston prevents hot spots and detonation when the engine runs at maximum power. The piston weighs just 290 grams. Minimal weight is important because Koenigsegg engines have a very long stroke and at 8500rpm, efficiency of movement becomes critical.

The engine head has been redesigned with a 'tumble' valve on the intake side to increase turbulence as air is pumped into the engine. Turbulent air provides a faster burn rate, which leads to more efficient and effective combustion. The head is cast by Formula 1 suppliers Grainger and Worrall using new F1-grade technology to produce a head that is both stronger and lighter.

The air injection system comprises a small electric compressor driving air from a 20-litre carbon fibre tank connected directly to the two large turbochargers.

Traditional turbochargers are often burdened with turbo lag - the gap where exhaust driven gases are insufficient to transfer boost via the compressor wheel to the intake side. Bigger turbos mean even more lag, which is why many companies opt for twin-turbo systems with a small, fast-spooling turbo providing quick response before a larger turbo engages to provide maximum boost.

The Koenigsegg air injection system uses a timed, 20-bar burst of air strategically aimed within the patent-pending turbo housing in order to pre-spool the two large turbos. This process eliminates turbo lag and surge. This unique solution provides instant response with massive boost prior to the exhaust gases taking over to power the turbos.

The air injection system is also used to accelerate the process by which Jesko's catalytic converters get to operating temperature on start-up. This is an important emissions reduction measure and fits with the Koenigsegg efficiency philosophy - using systems or parts to perform more than one function.

The fuel injection system has been re-designed and now includes an extra fuel injector, making Jesko the first production car in the world with three injectors per cylinder. Koenigsegg's V8 has always had two injectors per cylinder fitted to the traditional fuel rail. A third injector has been added in the intake plenum, which injects fuel directly above the intake trumpets for each cylinder. The added aeration means a much cooler cylinder, much cleaner combustion, and less strain on the engine at the top of the power range.

The cylinders in Jesko's new twin-turbo V8 are fitted with the world's first individual in-cylinder pressure sensor system for serial production. This allows the Koenigsegg-designed and manufactured Engine Management System to monitor and operate each cylinder at maximum efficiency and closer to the edge for the ultimate in flexibility and control.

This mix of wholesale changes and incremental technology improvements results in an increase in the engine's rev limit - to 8500rpm - and an increase in power to 1600hp on E85 fuel. When run on regular gasoline, the engine produces 1280hp. Torque is increased to 1500 Nm.

Jesko features not only the most powerful Koenigsegg internal combustion engine ever made, but also - we believe - the most powerful internal combustion engine of any homologated production car in history.

Press contact

Steven Wade
steven@koenigsegg.se
Ph: +46 (0)735 023 150