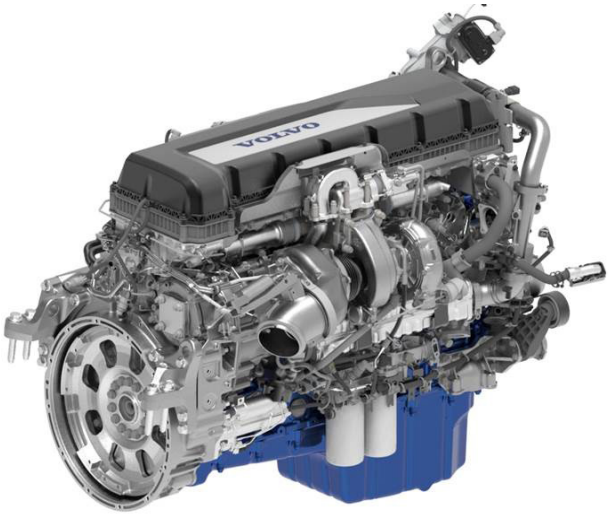
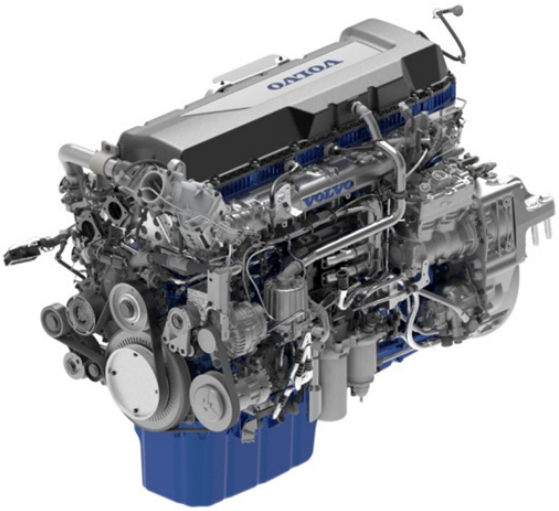
FACT SHEET

Engine D13K460, TURBO-TC





The D13K460, TURBO-TC is a 460 hp, 12.8-litre, in-line, six-cylinder diesel engine equipped with overhead camshafts, four valves per cylinder and common rail fuel injection. The turbocompound unit converts exhaust gases to torque via a mechanic coupling, giving an extra boost in the lower rev ranges. The engine meets the Euro 6 exhaust emissions requirements.

The D13K460, TURBO-TC is designed for heavy long haul and all other operations. It is based on a robust and dependable design with an overhead camshaft, four valves per cylinder and precisely controlled electronic fuel injection.

The timing mechanism is located at the rear of the engine, which results in less vibration and permits the fitting of a rear-mounted power take-off.

The D13K460, TURBO-TC is a low-emission engine in terms of both exhaust gases and noise. In order to meet legislative requirements, Volvo Trucks has developed an aftertreatment system that, in the silencer, combines a Diesel Oxidation Catalyst (DOC), a Diesel Particulate Filter (DPF), a Selective Catalytic Reduction unit (SCR) and an Ammonia Slip Catalyst (ASC). This engine is also equipped with cooled Exhaust Gas Recirculation (EGR) to further reduce emissions.

Volvo´s engines together with the emission aftertreatment system are highly efficient and are exceeding the legal requirements referred to as Euro 6 Step D version.

The D13K, TURBO-TC can be equipped with VEB+ (Volvo Engine Brake) and EPG (Exhaust Pressure Governor). These systems provide extremely high braking effect, further improving safety and reducing wear on the wheel brakes.

FEATURES AND BENEFITS

- Maximum torque within a broad rev range.
- Fuel-efficient.
- Low-emission variant, Euro 6.
- Extremely high engine braking effect with VEB+ and EPG (option).
- Rear-mounted power take-off with high power output (option).

Efficient combustion for excellent driveability

The D13K, TURBO-TC is equipped with common rail fuel injection that provides high injection pressure. The combustion chamber with wave pistons and inlet manifold are designed for optimum combustion. The gas-fill ratio is extremely high, which contributes to the high efficiency.

The design creates a fuel-efficient engine with high power and immense torque. This gives the D13K, TURBO-TC excellent driveability.

The torque curve of the D13K, TURBO-TC engine is improved compared to Euro 5, providing higher torque at even lower revs.

Fulfilling the Euro 6 standard

The additional components in the aftertreatment system serve two main purposes: to improve gas flow and make sure that the exhaust gases reach the aftertreatment system at optimum temperature, thus ensuring that the emission level is not exceeded.

The cooled Exhaust Gas Recirculation (EGR) recirculates a small portion of the exhaust back to the charge air in order to reduce the amount of $NO_{x.}$

The Diesel Oxidation Catalyst (DOC) produces the nitrogen dioxide (NO_2) necessary for the Diesel Particulate Filter (DPF) to efficiently combust the particulates. In cold conditions, it also provides the heat needed for regeneration.

The Diesel Particulate Filter (DPF) collects particulate matter (PM) until it is automatically burned off during regeneration.

In the mixing zone in the Selective Catalytic Reduction unit (SCR), the exhaust gases are sprayed with AdBlue®. When they reach the catalyst, the nitrogen oxides (NO_x) are efficiently transformed into harmless nitrogen gas and water.

Low noise emission at idling

The D13K, TURBO-TC meets the relevant noise emission requirements. The crankshaft and camshaft feature hydraulic vibration dampers that minimise noise and vibrations. Pre-injection of fuel is used to further dampen noise at idling.

Crankcase ventilation

The D13K, TURBO-TC offers a choice of two types of closed crankcase ventilation. CCV-C is recommended down to -25 degrees Celsius. CCV-OX is only recommended for arctic markets.

Both system promotes an extremely clean and environmentally compatible engine.

Timing and power take-off at the rear

The engine timing mechanism is located at the rear and drives the servo pump, oil pump, fuel feed pump and air compressor. It is a compact, quiet and thoroughly sealed design that saves weight. With the timing mechanism at the rear, the engine's cooling is also improved since the flow of incoming cooling air is not obstructed.

The D13K, TURBO-TC can be equipped with a power take-off designed for propshaft operation or direct-mounted hydraulic pumps (also clutchable). PTO mounting on the engine's flywheel results in a dependable design and permits high torque levels, up to 1,000 Nm in continuous operation.

Turbocompound

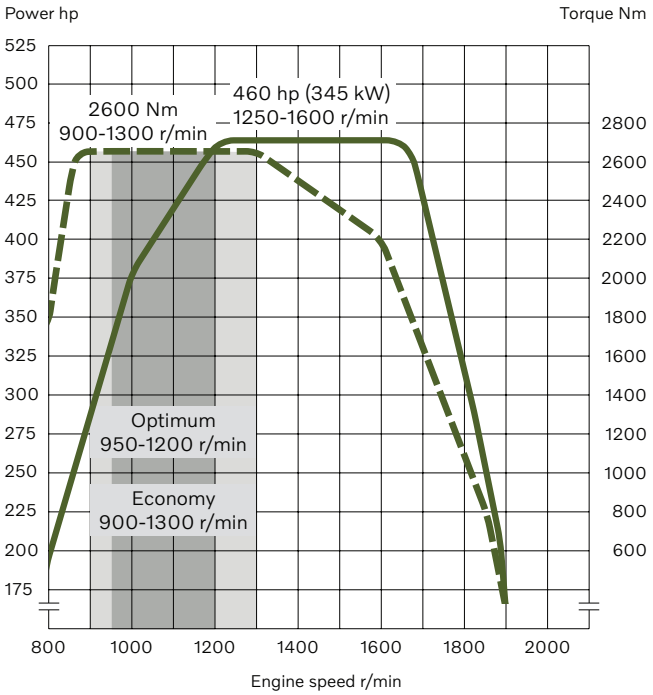
The D13K, TURBO-TC is equipped with a turbocompound unit that is mechanically coupled to the crankshaft. This combined with a higher rear axle ratio gives a superior fuel economy and a more comfortable ride due to lower revs of the engine.

FACT SHEET

Engine D13K460, TURBO-TC

SPECIFICATION

Type designation	D13K460, TURBO-TC
Max power output at 1250–1600 r/min	460 hp (345 kW)
Max revs	1900 r/min
Max torque at 900–1300 r/min	2600 Nm
No. of cylinders	6
Bore	131 mm
Stroke	158 mm
Displacement	12.8 dm^3
Compression ratio	17.0:1
Exhaust brake effect (EPG) at 2300 r/min	200 kW
Engine braking effect (VEB+) at 2300 r/min	380 kW
Economy revs range	900–1300 r/min
Optimum rev range	950–1200 r/min
Oil-change volume incl. oil filter	approx. 33 l
Oil filters	2 full-flow
Cooling system, total volume	approx. 38 l
Dry weight (base engine)	approx. 1199 kg
Exhaust aftertreatment system, weight	approx. 130 kg



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