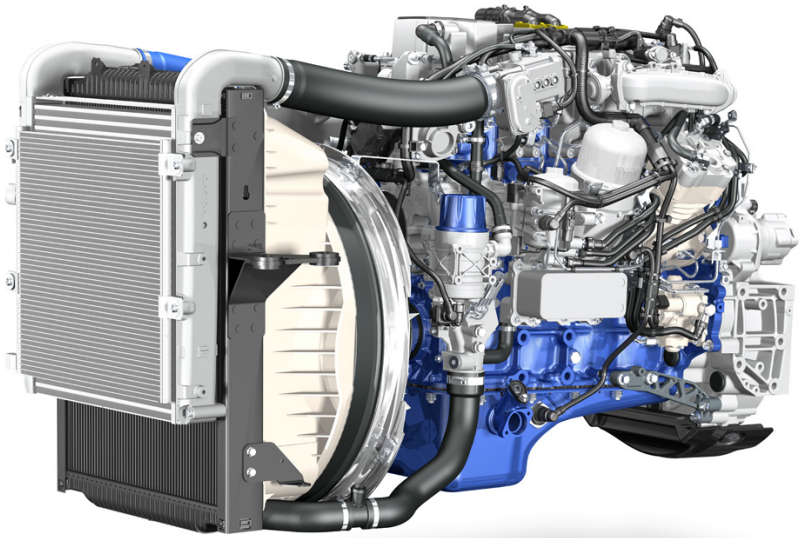
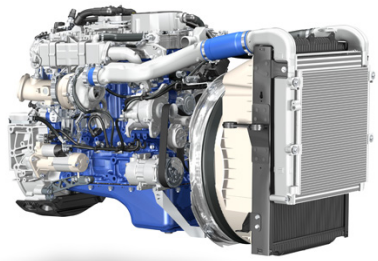
Volvo Trucks. Driving Progress

FACT SHEET

Engine D5K210, EU6SCR





The D5K210, EU6SCR is an in-line four-cylinder diesel engine with a displacement of 5.1 litres, equipped with a turbocharger and intercooler. The engine produces 210 hp and 800 Nm of torque. The engine meets the EU exhaust emissions requirements according to the Euro 6 standards.

The engine has a single cylinder head and a overhead camshaft which operates four valves per cylinder via rocker arms. The engine's functions are controlled electronically. Fuel injection takes place using common rail technology. In combination with SCR emission control, the engine emissions meets the Euro 6 emission standards. Through optimized calibration of the electronic engine control system, particulate emissions have been cut by 50 % and NOx by 80 % compared with the corresponding Euro 5 levels. As a result, this engine is environmentally optimised and particularly suitable for vulnerable city environments and metropolitan green zones that impose tough particulate and smoke emission standards.

FEATURES AND BENEFITS

- Excellent driveability thanks to a wide torque range and swift response to the accelerator.
- Efficient combustion and exhaust filtration with SCR and DPF technology contribute to low fuel consumption, long service intervals and very low emissions.

Excellent driveability

The engine has a particularly wide torque range, which means that it is possible to stay within the economy rev band easily and with minimal gear changing. The engine has a VGT (Variable Geometry Turbine) turbocharger. It provides excellent torque from low revs, which results in quick response to the accelerator and enhanced driveability at low speeds.

One contributing factor to the excellent driveability is fuel injection using common rail technology. The fuel is injected under high pressure (2000 bar). Injection pressure and injection timing are controlled electronically, which results in precisely metered and exceptionally finely atomised fuel being sprayed into the combustion chamber. The control function is adjusted instantaneously to suit current operating conditions and the possibility of also injecting fuel after the main charge adds considerable flexibility.

Efficient combustion

Low emission ratings and low fuel consumption with the help of electronic engine control – EMS – make for precise fuel injection and efficient combustion.

The piston crowns feature a recess that forces the gases out towards the edges of the combustion chamber, thus contributing to efficient combustion. The shape of the inlet ducts in the cylinder head leads to slower rotation speed and lower pressure drop. This contributes to lower exhaust emissions and a higher efficiency rating.

Low noise level

The timing of the fuel injection is variable. This has a positive effect on the engine's noise level and emissions. Before the main injection charge, small amounts of fuel are injected, thus significantly reducing ignition delay and lowering the noise created during the main combustion sequence.

Exhaust emission control with SCR technology for Euro 6 fulfilment

Volvo has chosen to supplement optimum combustion technology with SCR (Selective Catalytic Reduction) technology for after-treatment of the exhaust gases. In this process, an additive (AdBlue) is injected into the exhaust gases before they pass through an SCR catalytic converter. In the catalytic converter, the AdBlue reacts with the nitrogen oxides in a process that significantly reduces emissions. This takes place through conversion of the nitrogen oxides into nitrogen gas and water vapour. The pre-catalyst increases the SCR catalyst efficiency at low exhaust temperatures. It also improves the life-time durability of the SCR catalyst in the muffler. The SCR technology is robust and dependable, resulting in low service costs and long service intervals. The electronically controlled and water-cooled EGR valve improves gas-flow, ensuring that the exhaust gases reach an optimal temperature before entering the after-treatment system – EATS.

The after-treatment process starts in the diesel oxidation catalyst (DOC) where NO^2 is generated. This is necessary in order to create an optimal particle combustion in the DPF filter. The procedure provides the heat needed for regeneration in cold conditions as well. The heat for active DPF regeneration is created by oxidizing diesel fuel from a 5th injector.

The second step of the process is the diesel particle filter where the particles are stored until the autoregeration function is activated (and the particles are burned off). Then, the emissions reach the mixing zone/Selective Catalyst Reduction (SCR), where they are sprayed with AdBlue. This process turns the nitrogen oxides into harmless nitrogen gas and water. As the exhaust gases reach the final step in the process, Ammonia Slip Catalyst (ASC), remaining ammonia (if any) is removed.

Long service life

The cylinder block and cylinder head are made of cast-iron which gives a strong but light frame. The cylinder liners are of the dry type. Open crankcase ventilation, returning oil spill to the engine, is standard. A closed version (min -25° C) is optional.

The oil-change interval varies with the way the truck is used, can be up to 40,000 km.

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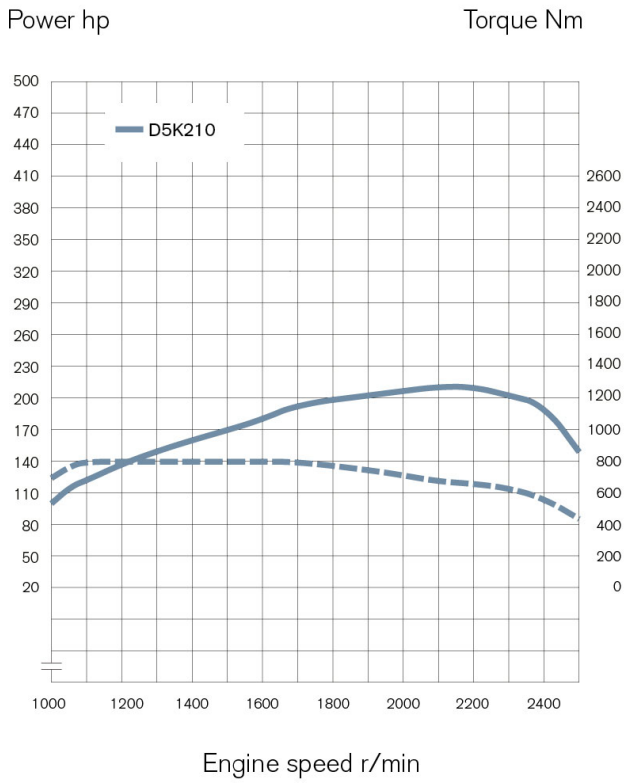
Engine D5K210, EU6SCR

SPECIFICATION

Type designation	D5K210, EU6SCR
Max power at 2200 r/min	210 hp (154 kW)
Max revs	2800 r/min
Max torque at 1100 – 1700 r/min	800 Nm
Bore	110 mm
Stroke	135 mm
Displacement	5.1 dm3
Compression ratio	17,5:1
Economy rev range	1100 – 1800 r/min
Exhaust brake output (EBR-EPG)	80 kW at 2800 rpm
Oil-change volume incl. oil filter	15 litres
Cooling system, total volume	13 litres
Oil filter	Green Oil filter, 1 l
Dry weight (base engine)	564 kg

Rear engine PTO (+ 28 kg)

600 Nm at 900-1200 rpm	
Position at 12 'o clock	
Ratio 1.1: DIN5462, SAE1410, DIN100	



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