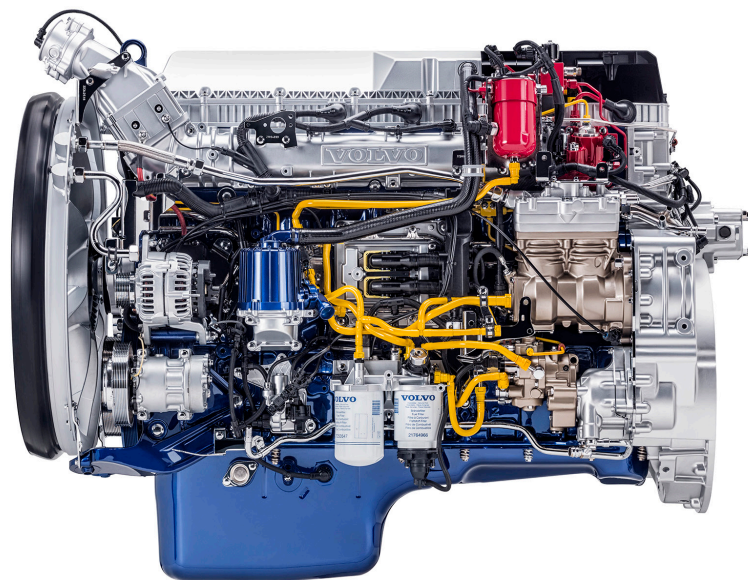


FACT SHEET

Engine G13C420, EU6SCR



The G13C gas engine has two common rail systems – separate system for gas and diesel. The fuel injectors have also separate needles for gas and diesel.

The G13C420 is a 420 hp, 12.8-litre, in-line, six-cylinder gas engine equipped with an overhead camshaft, four valves per cylinder and common rail fuel injection. The engine meets the Euro 6 exhaust emissions requirements.

The G13C is a gas engine based on diesel technology. The principle is that the compression heat from the diesel combustion ignites the gas. A small amount of diesel is injected into the cylinder prior to the gas, to initiate the ignition. The injector uses concentric needles to enable diesel and gas to be delivered through the same injector.

Gas engines with diesel principle can achieve higher horsepower and torque by using direct injection and relying on heated compression for ignition. Thus, the characteristic of the gas engine is very similar to a diesel engine.

The G13C420 is designed for heavy long-haul and distribution operations. The gas engine offer an alternative with low climate impact, that also meets high demands on performance, fuel efficiency and operating range. Depending on choice of fuel, the CO₂ emissions are 20–100 per cent lower compared with a diesel engine.

By utilising LNG (Liquefied Natural Gas) in the diesel process, it enables longer and heavier transports – a unique quality for a gas truck.

FEATURES AND BENEFITS

- 20–100 per cent lower CO₂ emissions compared with diesel.
- Low-emission variant, Euro 6.
- Fuel efficient.
- Maximum torque within a broad rev range.
- Extremely high engine braking effect with VEB+.



Display with three horizontal fuel gauges. Separate displays for LNG, Diesel and AdBlue.

FACT SHEET

Engine G13C420, EU6SCR

The G13C420 is a low-emission engine in terms of both exhaust gases and noise. The Volvo G13C Euro 6 gas engines have the same after treatment system as the Volvo D13K Euro 6 diesel engines.

Volvo's engines together with the emission after treatment system are highly efficient and are exceeding the legal requirements referred to as Euro 6 Step C version.

High engine brake effect

The G13C has VEB+ (Volvo Engine Brake) and can be equipped with retarder. These systems provide extremely high braking effect, further improving safety and reducing wear on the wheel brakes.

The G13C is a high compression gas engine. It has the same compression as Volvo's corresponding diesel engine. This condition allows high engine braking effect with VEB+.

Common rail fuel injection

The G13C is equipped with common rail fuel injection that provides high injection pressure. The engine has a separate system for diesel and gas. Diesel is injected just prior to gas to ignite the gas injection. Gas is injected at high pressure at end of compression stroke. This solution gives a robust combustion – no premixed air/fuel so no risk of knocking.

The engine GCM (Gas Conditioning Module) regulates the pressure delivered to the gas rail and injectors according to the engine operating point. Any vented gas from the GCM, on engine shut down or during operation, is returned to the LNG tank via the RTT (Return To Tank) valve.

Efficient combustion for excellent driveability

The combustion chamber 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 within a broad rev range. This gives the G13C excellent driveability.

Crankcase ventilation

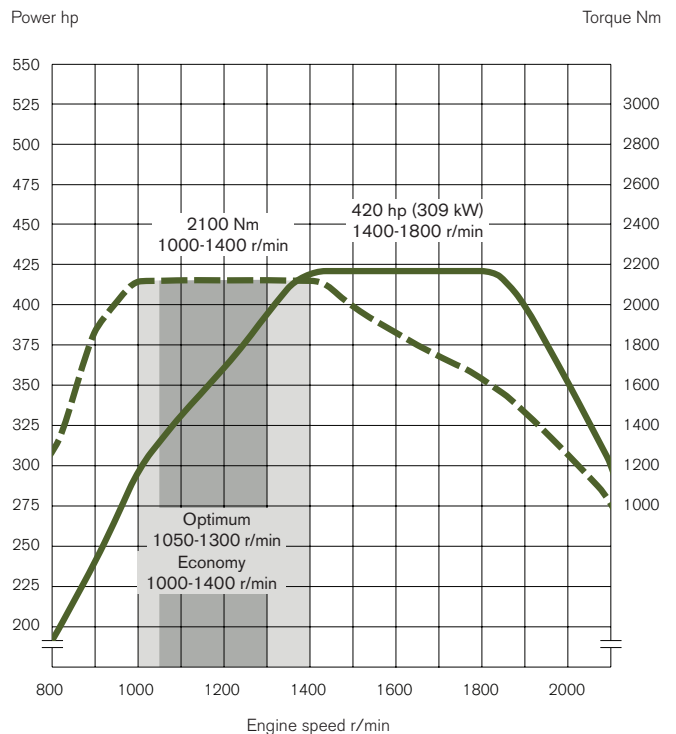
The G13C offers a choice of two types of closed crankcase ventilation. CCV-C is recommended down to -25 degrees Celsius. CCV-OX is only recommended for arctic markets.

Both systems promote 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 power steering 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 engine PTO drives a specific hydraulic pump, which is used for fuel distribution of LNG. Therefore the engine PTO has a limitation of 350 Nm for use in other applications.



SPECIFICATION

Type designation.....	G13C420, EU6SCR
Max power output at 1400–1800 r/min.....	420 hp (309 kW)
Max revs	2100 r/min
Max torque at 1000–1400 r/min	2100 Nm
No. of cylinders.....	6
Bore.....	131 mm
Stroke.....	158 mm
Displacement	12.8 dm ³
Compression ratio.....	18.0:1
Exhaust brake effect (EPG) at 2300 r/min.....	200 kW
Engine braking effect (VEB+) at 2300 r/min.....	375 kW
Economy revs range	1000–1400 r/min
Optimum rev range	1050–1300 r/min
Oil-change volume incl. oil filter	approx. 33 l
Oil filters	2 full-flow, 1 bypass
Cooling system, total volume.....	approx. 38 l
Dry weight (base engine)	approx. 1116 kg
Exhaust after treatment system, weight	approx. 130 kg

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