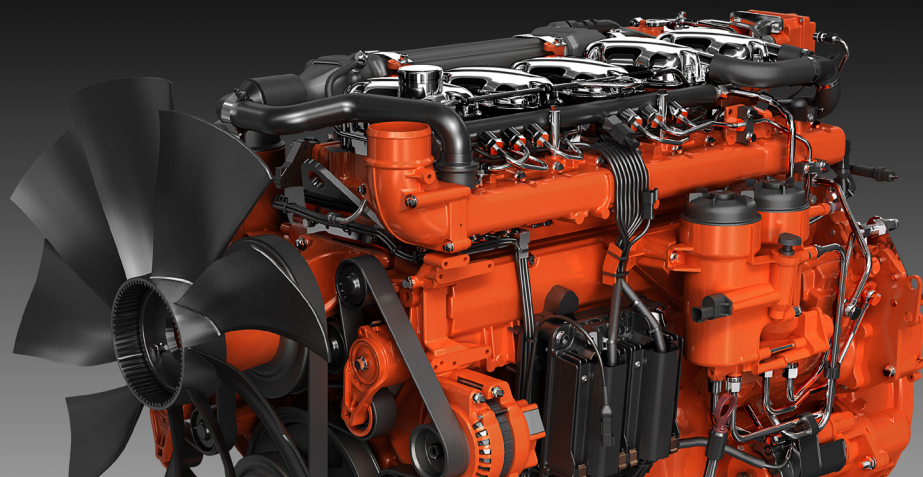


DC09 089A. 237 kW (322 hp)

EU Stage IV, US Tier 4f



The industrial engines from Scania are based on a robust design with a strength optimised cylinder block containing wet cylinder liners that can easily be exchanged. Individual cylinder heads with 4 valves per cylinder promotes repairability and fuel economy.

The engine is equipped with a Scania developed Engine Management System, EMS, in order to ensure the control of all aspects related to engine performance. The injection system is Scania's XPI (Extra High Pressure Injection), a common rail system that in combination with SCR (Selective Catalytic Reduction) and EGR (Exhaust Gas Recirculation) gives low exhaust emissions with good fuel economy and a high torque. The engine can be fitted with many accessories such as air cleaners, silencers, PTOs and flywheels in order to suit a variety of installations.

| | Rating | Engine speed (rpm) | | |
|--|--------|--------------------|------|------|
| | | 1200 | 1500 | 1800 |
| Gross power (kW) | ICFN | 165 | 237 | 237 |
| Gross power (hp, metric) | ICFN | 225 | 279 | 322 |
| Gross torque (Nm) | ICFN | 1315 | 1307 | 1257 |
| Spec fuel consumption. Full load (g/kWh) | | 199 | 201 | 206 |
| Spec fuel consumption. 3/4 load (g/kWh) | | 203 | 209 | 216 |
| Spec fuel consumption. 1/2 load (g/kWh) | | 211 | 220 | 243 |
| Reductant consumption. Full load (g/kWh) | | 8 | 6 | 10 |

ICFN – Continuous service: Rated output available 1/1 h.
Unlimited h/year service time at a load factor of 100%.

Note!

The fuel consumption values are valid when the engine uses fully warm after treatment system and in warm conditions. Fuel efficiency will be reduced during warm up and with colder ambient temperature, especially in combination with un-efficient thermal insulation of after treatment system.

Standard equipment

- Scania Engine Management System, EMS
- Extra high pressure fuel injection system, XPI
- Turbocharger (VGT)
- Fuel filter and extra pre-filter with water separator
- Fuel heater
- Oil filter, full flow
- Centrifugal oil cleaner
- Oil cooler, integrated in block
- Oil filler, in valve cover
- Deep front oil sump
- Oil dipstick, in block
- Magnetic drain plug for oil draining
- Starter, 1-pole 6.0 kW
- Alternator, 1-pole 100A
- Flywheel, for use with friction clutch
- Silumin flywheel housing, SAE 1 flange
- Front-mounted engine brackets
- SCR system
- EGR system
- Open crankcase ventilation
- Operator's manual

Optional equipment

- Cooling package
- Puller and pusher fans
- Fan ring with sealing
- Hydraulic pump
- Air compressor
- AC compressor
- Side-mounted PTO
- Front-mounted PTO
- Exhaust connections
- Electrical base system
- Control and instrument panels
- Accelerator position sensor
- Engine heater
- Flywheels: SAE11.5, SAE14, DANA15/16, DANA17 flexplate, ZF WG260
- Stiff rubber engine suspension
- Air cleaner
- Closed crankcase ventilation
- Studs in flywheel housing
- External thermostat for extra oil cooler
- Low coolant level reaction
- Variable idle speed setting
- Low oil sump
- Oil level sensor

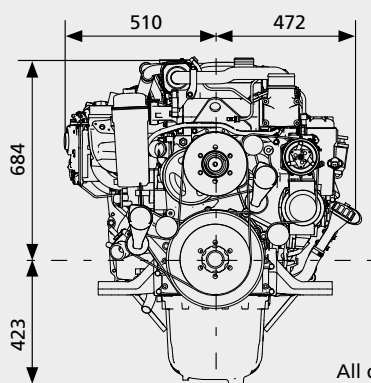
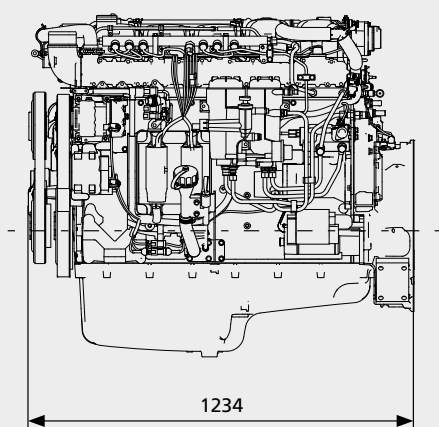
This specification may be revised without notice.

DC09 089A. 237 kW (322 hp)

EU Stage IV, US Tier 4f

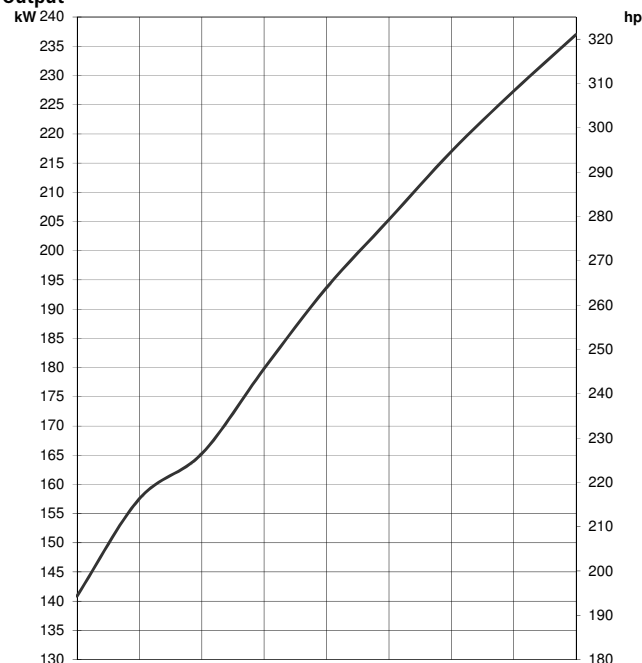
Engine description

| | |
|--------------------------|---|
| No of cylinders | 5 in-line |
| Working principle | 4-stroke |
| Firing order | 1 - 2 - 4 - 5 - 3 |
| Displacement | 9.3 litres |
| Bore x stroke | 130 x 140 mm |
| Compression ratio | 16:1 |
| Weight | 975 kg (excl oil and coolant) |
| Piston speed at 1500 rpm | 7.0 m/s |
| Piston speed at 1800 rpm | 8.4 m/s |
| Camshaft | High position alloy steel |
| Pistons | Aluminium pistons |
| Connection rods | I-section press forgings of alloy steel |
| Crankshaft | Alloy steel with hardened and polished bearing surfaces |
| Oil capacity | 32-38 dm ³ |
| Electrical system | 1-pole 24V |

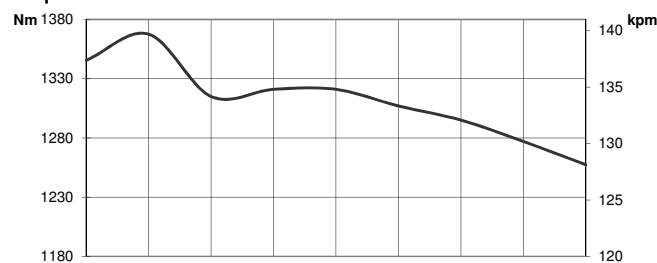


All dimensions in mm

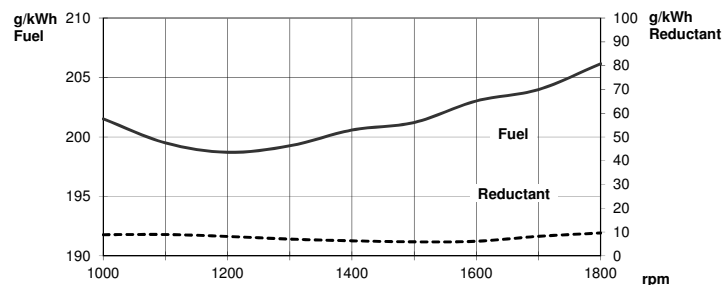
Output



Torque



Spec fuel and reductant consumption



Test conditions Air temperature +25°C. Barometric pressure 100 kPa (750 mmHg). Humidity 30%. Diesel fuel acc. to ECE R 24 Annex 6. Density of fuel 0.840 kg/dm³. Viscosity of fuel 3.0 cSt at 40°C. Energy value 42700 kJ/kg. Power test code ISO 3046. Power and fuel values +/-3%.



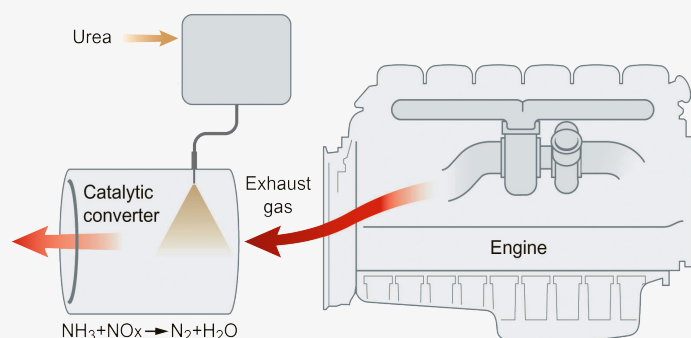
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SCR system

EU Stage IV, US Tier 4f



The principle for Scania SCR system

SCR (Selective Catalytic Reduction) technology is used on Scania's engines for EU Stage IV and US Tier 4f to reduce the NO_x content in the exhaust gases. A chemical process is started by injecting reductant, an urea and water mixture, into the exhaust gas stream. During injection the water evaporates and the urea breaks down to form ammonia. The ammonia then reacts with the nitrogen gases in the catalytic converter and forms harmless products such as nitrogen gas and water. Through the use of SCR the exhaust gases are purged of poisonous levels of NO_x in the best possible way. Scania is making use of a system that is carefully developed and tested in our own laboratory.

The reductant tank is available in different sizes and is heated by the engine's cooling system in order to avoid freezing of the urea solution; urea freezes at -11°C . The tank and a pump module are delivered as a unit which is fitted to brackets for an easy installation. The Scania system contains all mechanical and electrical parts needed except from the exhaust piping which is to be adapted according to the customers installation.

Mechanical system

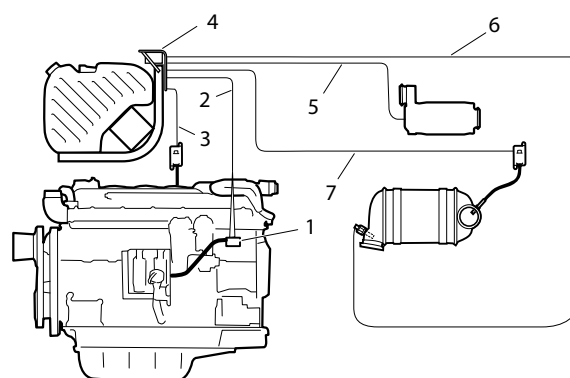


| | Standard | Optional |
|---|----------------|------------------------|
| 1 Evaporator module | ✓ | - |
| 2 Reductant pressure line | 2.5 m | 4 m, 5 m, 6.5 m |
| 3 Coolant hose for tank and pump heating | - | - |
| 4 Coolant valve | ✓ | - |
| 5 Reductant fluid return line | 2.5 m | 4 m, 5 m, 6.5 m |
| 6 Reductant tank | 38 l | 45 l, 60 l, 63 l, 70 l |
| 7 Coolant hose, return from tank and pump heating | - | - |
| 8 NO_x sensor with control unit | ✓ | - |
| 9 Oxidation catalytic converter ¹⁾ | Engine-mounted | Separately |
| 10 Temperature sensor | ✓ | - |
| 11 SCR catalyst | ✓ | - |
| 12 NO_x sensor with control unit | ✓ | - |

1) Not DC13 085A or DC16.

This specification may be revised without notice.

Electric system



| | Standard | Optional |
|---|----------|-----------------|
| 1 Customer interface, SCR system | ✓ | - |
| 2 between engine and SCR control unit | 3 m | 4.5 m, 6 m |
| 3 NO_x sensor electrical cable | 3 m | 4.5 m, 6 m |
| 4 Electrical interface, SCR system | ✓ | - |
| 5 Reductant doser electrical cable | 3 m | 4.5 m, 6 m |
| 6 Temperature sensor electrical cable | 3 m | 4.5 m, 6 m, 9 m |
| 7 NO_x sensor electrical cable | 3 m | 4.5 m, 6 m, 9 m |



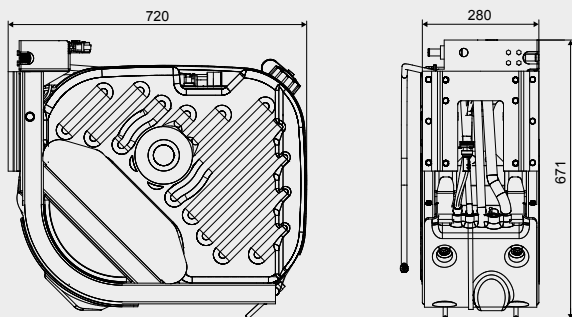
SCR system

EU Stage IV, US Tier 4f

Reductant tank - 38 litres

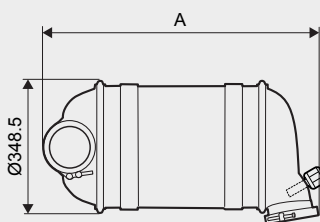
Total volume: 50 litres

Filling volume: 38 litres



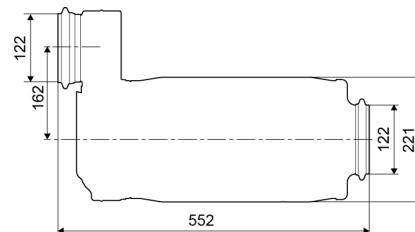
Other available sizes: 45 litres (total volume 62 litres)
60 litres (total volume 75 litres)
63 litres (total volume 80 litres)
70 litres (total volume 88 litres)

SCR catalyst

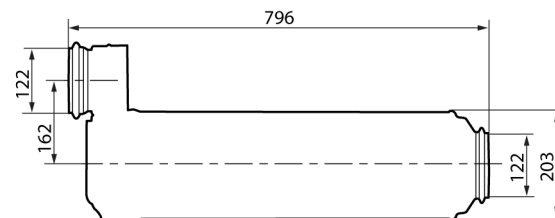


| Engine | Dimensions A (mm) |
|------------------------|-------------------|
| DC09 (202 kW - 257 kW) | 786 |
| DC09 (276 kW - 294 kW) | 900 |
| DC13 (257 kW - 331 kW) | 900 |
| DC13 (368 kW - 405 kW) | 970 |
| DC16 | 970 |

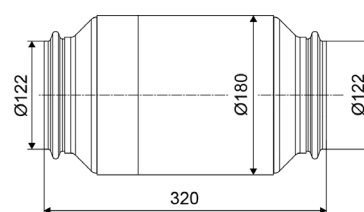
Evaporator module (DC9 and DC13)



Evaporator module (DC16)



Oxidation catalytic converter (not DC13 085A or DC16)



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