DC13 084A. 294 kW (400 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.

<table>
<thead>
<tr>
<th></th>
<th>Engine speed (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating</td>
<td>Rating 1200 1500 1800 2100</td>
</tr>
<tr>
<td>Gross power (kW)</td>
<td>ICFN 271 294 294 294</td>
</tr>
<tr>
<td>Gross power (hp, metric)</td>
<td>ICFN 369 400 400 400</td>
</tr>
<tr>
<td>Gross torque (Nm)</td>
<td>ICFN 2157 1872 1560 1337</td>
</tr>
<tr>
<td>Spec fuel consumption. Full load (g/kWh)</td>
<td>194 195 200 213</td>
</tr>
<tr>
<td>Spec fuel consumption. 3/4 load (g/kWh)</td>
<td>197 197 202 215</td>
</tr>
<tr>
<td>Spec fuel consumption. 1/2 load (g/kWh)</td>
<td>200 205 216 230</td>
</tr>
<tr>
<td>Reductant consumption. Full load (g/kWh)</td>
<td>16 9 9 13</td>
</tr>
</tbody>
</table>

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 filter, 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”, 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.
DC13 084A. 294 kW (400 hp)
EU Stage IV, US Tier 4f

Engine description

- No of cylinders: 6 in-line
- Working principle: 4-stroke
- Firing order: 1 - 5 - 3 - 6 - 2 - 4
- Displacement: 12.7 litres
- Bore x stroke: 130 x 160 mm
- Compression ratio: 17.3:1
- Weight: 1075 kg (excl oil and coolant)
- Piston speed at 1500 rpm: 8.0 m/s
- Piston speed at 1800 rpm: 9.6 m/s
- Camshaft: High position alloy steel
- Pistons: Steel pistons
- Connection rods: I-section press forgings of alloy steel
- Crankshaft: Alloy steel with hardened and polished bearing surfaces
- Oil capacity: 34-45 dm³
- Electrical system: 1-pole 24V

Output

- kW
- hp

Torque

- Nm
- kpm

Spec fuel and reductant consumption

- g/kWh

Test conditions:
- Air temperature +25°C
- Barometric pressure 108 kPa (760 mmHg)
- Humidity 30%
- Diesel fuel acc. to ECE R 24 Annex B
- 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%.
SCR system
EU Stage IV, US Tier 4f

SCR (Selective Catalytic Reduction) technology is used on Scania’s engines for EU Stage IV and US Tier 4f to reduce the NOx 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 NOx 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.

<table>
<thead>
<tr>
<th>Standard/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Evaporator module</td>
</tr>
<tr>
<td>2 Reductant pressure line</td>
</tr>
<tr>
<td>3 Coolant hose for tank and pump heating</td>
</tr>
<tr>
<td>4 Coolant valve</td>
</tr>
<tr>
<td>5 Reductant fluid return line</td>
</tr>
<tr>
<td>6 Reductant tank</td>
</tr>
<tr>
<td>7 Coolant hose, return from tank and pump heating</td>
</tr>
<tr>
<td>8 NOx sensor with control unit</td>
</tr>
<tr>
<td>9 Oxidation catalytic converter&lt;sup&gt;1)&lt;/sup&gt;</td>
</tr>
<tr>
<td>10 Temperature sensor</td>
</tr>
<tr>
<td>11 SCR catalyst</td>
</tr>
<tr>
<td>12 NOx sensor with control unit</td>
</tr>
</tbody>
</table>

<sup>1</sup> Not DC13 085A or DC16.

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**SCR system**

EU Stage IV, US Tier 4f

- **Reductant tank** - 38 litres
  - Total volume: 50 litres
  - Filling volume: 38 litres

- **Evaporator module (DC9 and DC13)**

- **Evaporator module (DC16)**

- **SCR catalyst**

- **Oxidation catalytic converter (not DC13 085A or DC16)**

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### Engine Dimensions A (mm)

<table>
<thead>
<tr>
<th>Engine</th>
<th>Dimensions A (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC09 (202 kW - 257 kW)</td>
<td>786</td>
</tr>
<tr>
<td>DC09 (276 kW - 294 kW)</td>
<td>900</td>
</tr>
<tr>
<td>DC13 (257 kW - 331 kW)</td>
<td>900</td>
</tr>
<tr>
<td>DC13 (368 kW - 405 kW)</td>
<td>970</td>
</tr>
<tr>
<td>DC16</td>
<td>970</td>
</tr>
</tbody>
</table>

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